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Microsoft Access 365

IN PRACTICE



Annette Easton | Randy Nordell

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Microsoft Access 365

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IN PRACTICE

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MICROSOFT ACCESS 365 COMPLETE: IN PRACTICE

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dedication

George, thank you for being my best friend and true love! Your support and encouragement mean more than you know. I am forever grateful to you for this wonderful adventure we are on. Timothy, Megan, Amanda, Tu, Millie, Calvin and Brennan, you all light up our lives and bring us so much joy. Cheers to a lifetime of love and laughs! And many thanks to the entire team at McGraw-Hill for their continued support.

—Annette Easton

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—Randy Nordell

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What We're About

We wrote *Microsoft Office 365: In Practice* to meet the diverse needs of both students and instructors. Our approach focuses on presenting Office topics in a logical and structured manner, teaching concepts in a way that reinforces learning with practice projects that are transferrable, relevant, and engaging. Our pedagogy and content are based on the following beliefs.

Students Need to Learn and Practice Transferable Skills

Students must be able to transfer the concepts and skills learned in the text to a variety of projects, not simply follow steps in a textbook. Our material goes beyond the instruction of many texts. In our content, students practice the concepts in a variety of current and relevant projects *and* are able to transfer skills and concepts learned to different projects in the real world. To further increase the transferability of skills learned, this text is integrated with SIMnet so students also practice skills and complete projects in an online environment.

Your Curriculum Drives the Content

The curriculum in the classroom should drive the content of the text, not the other way around. This book is designed to allow instructors and students to cover all the material they need to in order to meet the curriculum requirements of their courses no matter how the courses are structured. *Microsoft Office 365: In Practice* teaches the marketable skills that are key to student success. McGraw Hill Custom Publishing site, **Create,** can further tailor the content material to meet the unique educational needs of any school.

Integrated with Technology

Our text provides a fresh and new approach to an Office applications course. Topics integrate seamlessly with SIMnet with 1:1 content to help students practice and master concepts and skills using SIMnet's interactive learning philosophy. Projects in SIMnet allow students to practice their skills and receive immediate feedback. This integration with SIMnet meets the diverse needs of students and accommodates individual learning styles. Additional textbook resources found in SIMnet (Resources and Library sections) integrate with the learning management systems that are widely used in many online and onsite courses.

Reference Text

In addition to providing students with an abundance of real-life examples and practice projects, we designed this text to be used as a Microsoft Office 365 reference source. The core material,

uncluttered with exercises, focuses on real-world use and application. Our text provides clear step-by-step instructions on how readers can apply the various features available in Microsoft Office in a variety of contexts. At the same time, users have access to a variety of both online (SIMnet) and textbook practice projects to reinforce skills and concepts. Both SIMnet and this text are updated with the most current Office 365 features. For the most current updates, please refer first to SIMnet.

instructor walkthrough

Textbook Learning Approach

Microsoft Access 365: In Practice uses the ***T.I.P.*** *approach:*

- **T**opic
- **I**nstruction
- **P**ractice

Topic

- Each Office application section begins with foundational skills and builds to more complex topics as the text progresses.
- Topics are logically sequenced and grouped by topics.
- Student Learning Outcomes (SLOs) are thoroughly integrated with and mapped to chapter content, projects, end-of-chapter review, and test banks.
- Reports are available within SIMnet for displaying how students have met these Student Learning Outcomes.

Instruction (How To)

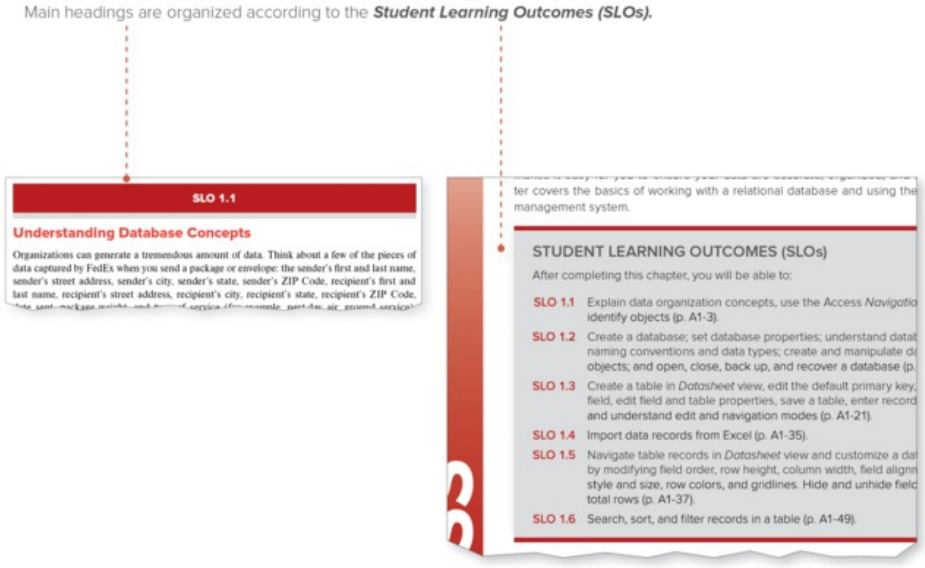
- *How To* guided instructions about chapter topics provide transferable and adaptable instructions.
- Because *How To* instructions are not locked into single projects, this textbook functions as a reference text, not just a point-and-click textbook.
- Chapter content is aligned 1:1 with SIMnet.

Practice (Pause & Practice, End-of-Chapter Projects, and SIMnet Projects)

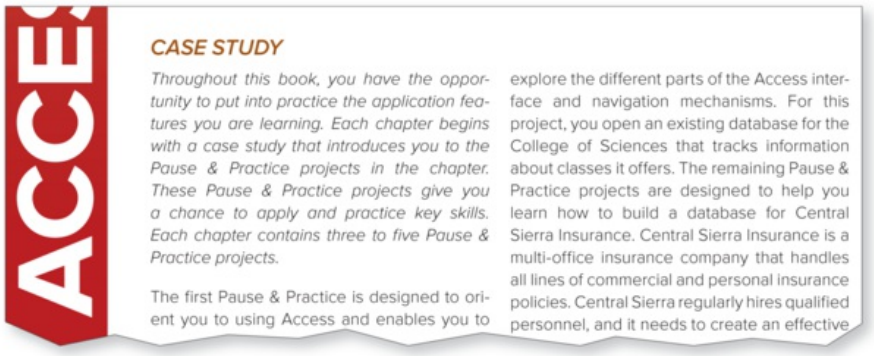
- Within each chapter, integrated Pause & Practice projects (three to five per chapter) reinforce learning and provide hands-on guided practice.
- Pause & Practice and end-of-chapter projects are complete content-rich projects, not small examples lacking context.
- In addition to Pause & Practice projects, each chapter has 10 comprehensive and practical practice projects: Guided Projects (three per chapter), Independent Projects (three per chapter), Advanced Project (one per chapter), and Challenge Projects (three per chapter). Additional projects can also be found in the Library or Resources section of SIMnet.
- Autograded projects are available in SIMnet. Each chapter includes one Guided Project, one Independent Project, one Advanced Project in SIMnet as an autograded project.

Chapter Features

All chapters follow a consistent theme and instructional methodology. Below is an example of chapter structure.

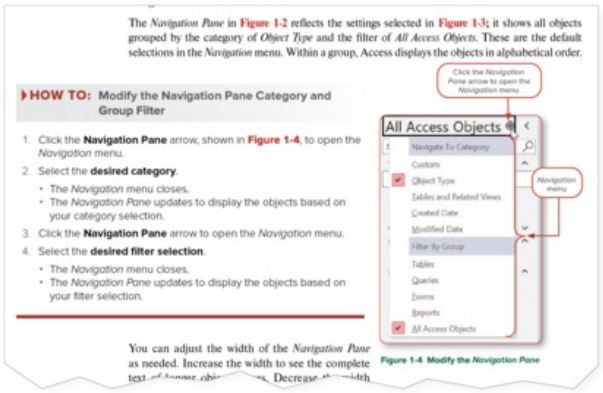


Each chapter begins with a list of Student Learning Outcomes (SLOs). Then, the chapter content, examples, and practice projects are organized according to the SLOs.



The *Case Study* for each chapter is a scenario that establishes the theme for the entire chapter. Chapter content, *How To* instructions, examples, figures, and *Pause & Practice* projects, and SIMnet skills throughout the chapter closely related to this case study content. The three to five *Pause & Practice* projects in each chapter build upon each other and address key case study themes.

How To instructions enhance transferability of skills with concise steps and screenshots.


The *Navigation Pane* in Figure 1-2 reflects the settings selected in Figure 1-3; it shows all objects grouped by the category of *Object Type* and the filter of *All Access Objects*. These are the default selections in the *Navigation* menu. Within a group, Access displays the objects in alphabetical order.

HOW TO: Modify the Navigation Pane Category and Group Filter

1. Click the **Navigation Pane** arrow, shown in Figure 1-4, to open the *Navigation* menu.
2. Select the **desired category**.
   - The *Navigation* menu closes.
   - The *Navigation Pane* updates to display the objects based on your category selection.
3. Click the **Navigation Pane** arrow to open the *Navigation* menu.
4. Select the **desired filter selection**.
   - The *Navigation* menu closes.
   - The *Navigation Pane* updates to display the objects based on your filter selection.

Click the Navigation Pane arrow to open the Navigation menu

All Access Objects

Navigation menu

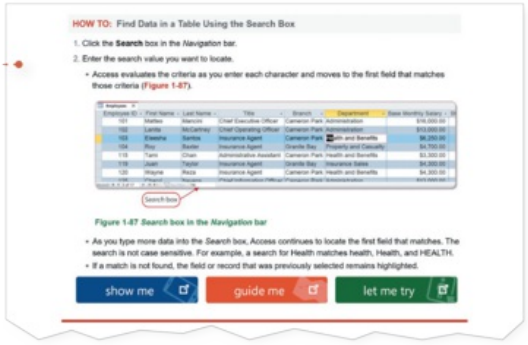
Navigate To Category
Custom
Object Type
Tables and Related Views
Created Date
Modified Date
Filter By Group
Tables
Queries
Forms
Reports
All Access Objects

You can adjust the width of the *Navigation Pane* as needed. Increase the width to see the complete text of longer object names. Decrease the width

Figure 1-4 Modify the Navigation Pane

***How To* instructions are easy-to-follow concise steps. Screen shots and other figures fully illustrate *How To* topics.**

Interactive learning activities are built into the SIMbook and can be assigned and auto graded.


HOW TO: Find Data in a Table Using the Search Box

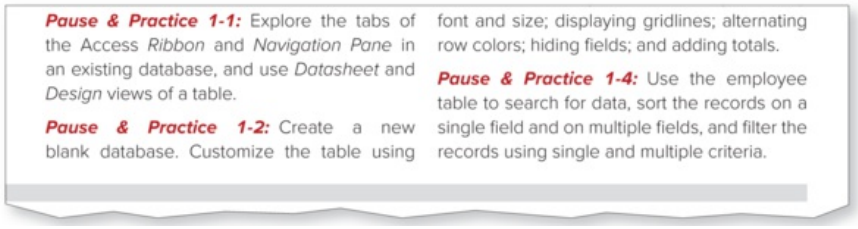
1. Click the **Search** box in the Navigation bar.
2. Enter the search value you want to locate.
   - Access evaluates the criteria as you enter each character and moves to the first field that matches those criteria (Figure 1-87).

Search box

Figure 1-87 *Search* box in the *Navigation* bar

- As you type more data into the *Search* box, Access continues to locate the first field that matches. The search is not case sensitive. For example, a search for Health matches health, Health, and HEALTH.
- If a match is not found, the field or record that was previously selected remains highlighted.

show me | guide me | let me try


Pause & Practice 1-1: Explore the tabs of the Access *Ribbon* and *Navigation Pane* in an existing database, and use *Datasheet* and *Design* views of a table.

Pause & Practice 1-2: Create a new blank database. Customize the table using font and size; displaying gridlines; alternating row colors; hiding fields; and adding totals.

Pause & Practice 1-4: Use the employee table to search for data, sort the records on a single field and on multiple fields, and filter the records using single and multiple criteria.

***Pause & Practice* projects, which each cover two to three of the student learning outcomes in the chapter, provide students with the opportunity to review and practice skills and concepts. Every chapter contains three to five *Pause & Practice* projects.**


MORE INFO

Depending on configuration changes made to the Access program installed on your computer, you may see a seventh tab titled ***Add-Ins***.

- More Info provides readers with additional information about chapter content.

- Another Way notations teach alternative methods of accomplishing the same task or feature, such as keyboard shortcuts.


ANOTHER WAY

F11 opens and closes the *Navigation Pane*.

Marginal notations present additional information and alternative methods.



End-of-Chapter Projects

Ten learning projects at the end of each chapter provide additional reinforcement and practice for students. Many of these projects are available in SIMnet for completion and automatic grading.

- ***Guided Projects (three per chapter):*** These projects provide guided step-by-step instructions to apply Office features, skills, and concepts from the chapter. Screen shots guide students through the more challenging tasks. End-of-project screen shots provide a visual of the completed project.
- ***Independent Projects (three per chapter):*** These projects provide students further opportunities to practice and apply skills, instructing students what to do, but not how to do it. These projects allow students to apply previously learned content in a different context.
- ***Advanced Project (one per chapter):*** These projects provide students with another opportunity to apply their knowledge and skills in an advanced context with limited instructional assistance.
- ***Copilot Challenge Projects (one per chapter):*** These projects are open-ended and encourage creativity and critical thinking by integrating Office concepts and features into relevant and engaging projects.
- ***Challenge Projects (two per chapter):*** These projects are open-ended and encourage students to use *Copilot* or another generative AI product for ideation, content generation or summarization, or review to enhance creativity and productivity.

Appendix

- ***Office 365 Shortcuts:*** *Appendix A* covers the shortcuts available in Microsoft Office and within each of the specific Office applications. Information is in table format for easy access and reference.

Additional Resources in SIMnet

Students and instructors can find the following resources in the *Library* or *Resources* sections in SIMnet.



Cover Photo: Maskot/Getty Images

Student Resources

- ***Data Files:*** Files contain start files for all *Pause & Practice, Capstone,* and end-of-chapter projects.
- ***SIMnet Resources:*** Resources provide getting started and informational handouts for instructors and students.
- ***Check for Understanding:*** A combination of multiple choice, fill-in, matching, and short answer questions are available at the end of each SIMbook chapter in SIMnet to assist students in their review of the skills and concepts covered in the chapter.

Capstone Projects

- ***Application Capstone Projects:*** Projects provide students with the opportunity to learn, practice, and transfer skills using multiple Office applications.
- ***Integrated Capstone Projects:*** Projects provide students with a comprehensive and integrated review of all of the topics covered in each application (Word, Excel, Access, and PowerPoint). Available in individual application texts.

Appendix

- ***Office 365 Shortcuts:*** *Appendix A* covers the shortcuts available in Microsoft Office and within each of the specific Office applications. Information is in table format for easy access and reference.
- ***Business Document Formats:*** *Appendix B* is a guide to regularly used business document formatting and includes numerous examples and detailed instructions.

Instructor Resources

- ***Instructor's Manual:*** An Instructor's Manual provides teaching tips and lecture notes aligned with the PowerPoint presentations for each chapter. The manual also includes the solutions for online Check for Understanding questions.
- ***Test Bank:*** The extensive test bank integrates with learning management systems (LMSs) such as Canvas, Blackboard, D2L, and Moodle.
- ***PowerPoint Presentations:*** PowerPoint presentations for each chapter can be used in onsite course formats for lectures or can be uploaded to LMSs.
- ***Start and Solution Files:*** Student start files and solutions files are available for all *Pause & Practice, Capstone,* and end-of-chapter projects.
- ***Mac Instructions:*** Mac instructions are available for all projects in SIMnet, as well as all *Pause & Practice, Capstone,* and other end-of-chapter projects not included in SIMnet.
- ***Other SIMnet Resources:*** A variety of other instructor and student resources are available in SIMnet and a share *OneDrive* folder for instructors.
- ***Office In Practice website*** (**http://officeinpractice.com/**)**:** This website accompanies the *Office In Practice* series of texts and provides many instructor and student SIMnet videos and other resources.

acknowledgments

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Joan Tuck
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Robert Seidman
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Joyce King
Bay College
Brenda Miller
John Tyler Community College
Carmen Gaskins
Kentucky Community and Technical College System
Diane Bigger
Ensign College
Deb McManimon
Home Riverland Community College
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Lindsey Wilson College
Barbara Garrell
Delaware County Community College
Bettye Parham
Daytona State College
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College of the Desert
Yves Durand
Keiser University
Jan Kehm
Spartanburg Community College
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Alverno College
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Lincoln Land Community College
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Virginia Highlands Community College
David Kimball
Elms College
Sandra Thomas
Troy University
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Miami Dade College
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Ivy Tech Community College of Indiana
Michelle Vlaich-Lee
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Kean University
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Kent State University
Deandrea Thibodeaux-Woody
Houston Community College
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Florida Gulf Coast University
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Chadron State College
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Norman Brenner
The George Washington University
Robin Hayes
Mississippi Gulf Coast Community College
John Alcorcha
MTI College
Shihong Huang
Florida Atlantic University

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—Randy, Kathleen, Annette, Amie, and Pat

INTRO CHAPTER
WINDOWS & OFFICE

Windows, Office, and File Management

CHAPTER OVERVIEW

Microsoft 365 introduces many new and enhanced features in the Microsoft 365 Office apps, Office 2024, and Windows. The Office apps include many new features added to the Office apps since the release of Office 2021. The integration of Microsoft 365 products improves file portability and accessibility when you use OneDrive, Microsoft's free online cloud storage. Microsoft 365 Office apps, Office 2024, Office Online, Office mobile apps, and Windows enable you to work on desktop or laptop computers, tablet computers, and smartphones in a consistent working environment.

STUDENT LEARNING OUTCOMES (SLOs)

After completing this chapter, you will be able to:

SLO Intro. 1 Explore select features of Windows (p. Intro-2).

SLO Intro. 2 Use basic features of the Microsoft 365 Office apps and navigate the Office working environment (p. Intro-13).

SLO Intro. 3 Create, save, close, and open Office files (p. Intro-21).

SLO Intro. 4 Customize the view and display size in Office applications and work with multiple Office files (p. Intro-30).

SLO Intro. 5 Print, share, and customize Office files (p. Intro-34).

SLO Intro. 6 Use the *Ribbon,* tabs, groups, dialog boxes, task panes, galleries, and the *Quick Access* toolbar (p. Intro-38).

SLO Intro. 7 Use context menus, mini toolbar, keyboard shortcuts, and function keys in Office applications (p. Intro-42).

SLO Intro. 8 Organize and customize Windows folders and Office files (p. Intro-47).

CASE STUDY

Throughout this book, you have the opportunity to practice the application features presented in the text. Each chapter begins with a case study that introduces you to the Pause & Practice projects in the chapter. These Pause & Practice projects give you a chance to apply and practice key skills in a realistic and practical context. Each chapter contains three to five Pause & Practice projects.

American River Cycling Club (ARCC) is a community cycling club that promotes fitness. ARCC members include recreational cyclists who enjoy exercise and camaraderie as well as competitive cyclists who compete in road, mountain, and cyclocross races throughout the cycling season. In the Pause & Practice projects, you incorporate many of the topics covered in the chapter to create, save, customize, manage, and share Office files.



Pause & Practice Intro-1: Customize the Windows *Start* menu and *Taskbar,* create and save a PowerPoint presentation, create a folder, open and rename an Excel workbook, and use Windows features.



Pause & Practice Intro-2: Modify an existing document, add document properties, customize the *Quick Access* toolbar, export the document as a PDF file, and share the document.



Pause & Practice Intro-3: Copy and rename files, create a folder, move files, create a zipped folder, and rename a zipped folder.

SLO INTRO. 1

Using Windows

Windows is an ***operating system*** that controls computer functions and the working environment. Windows uses the familiar ***Windows desktop***, ***Taskbar***, and ***Start menu***. The Windows operating system enables you to customize the working environment and to install applications (apps), such as Microsoft Office. Visit the ***Microsoft Store*** to download additional apps similar to how you would add an app to your smartphone. Your ***Microsoft account*** stores your Microsoft settings, enabling you to download apps from the Microsoft Store and to connect to Microsoft Office, *OneDrive,* and *Office Online.*

Windows 11 & 10

Windows 11 and ***Windows 10*** (the previous version) are computer operating systems that control interaction with computer hardware and software applications (apps) also referred to as programs. *Windows* utilizes a *Start* menu where you select and open an app. Alternatively, open apps using the ***Taskbar***, the horizontal bar that displays at the bottom of the Windows desktop. When you log in to Windows using your Microsoft account, Microsoft synchronizes your Windows, Office, and *OneDrive* cloud storage.

Windows Note: This chapter focuses on Windows 11. Where differences exist between Windows 11 and Windows 10, notes are provided.

COPILOT/GENERATIVE AI BEST PRACTICES

Windows and 11 and Windows 10 have significant differences. Use *Copilot* or other generative AI product to learn about the differences between the two versions of Windows. Also, use follow-up prompts to compare and contrast these two different versions of Windows and ask about the advantages and disadvantages of each.

Microsoft 365 and Your Microsoft Account

Microsoft 365 includes the suite of Office apps, including *Word, Excel, Access, PowerPoint,* and *Outlook.* Windows, and other Microsoft apps, such as *Office Online, OneDrive, OneNote, Forms,*

and *To Do,* are included in Microsoft 365 products. Your ***Microsoft account*** provides access to Windows and Office and other Microsoft apps. As a student, you can create a free education Microsoft account, or create a free personal Microsoft account at **https://signup.live.com** (**Figure Intro-1**).

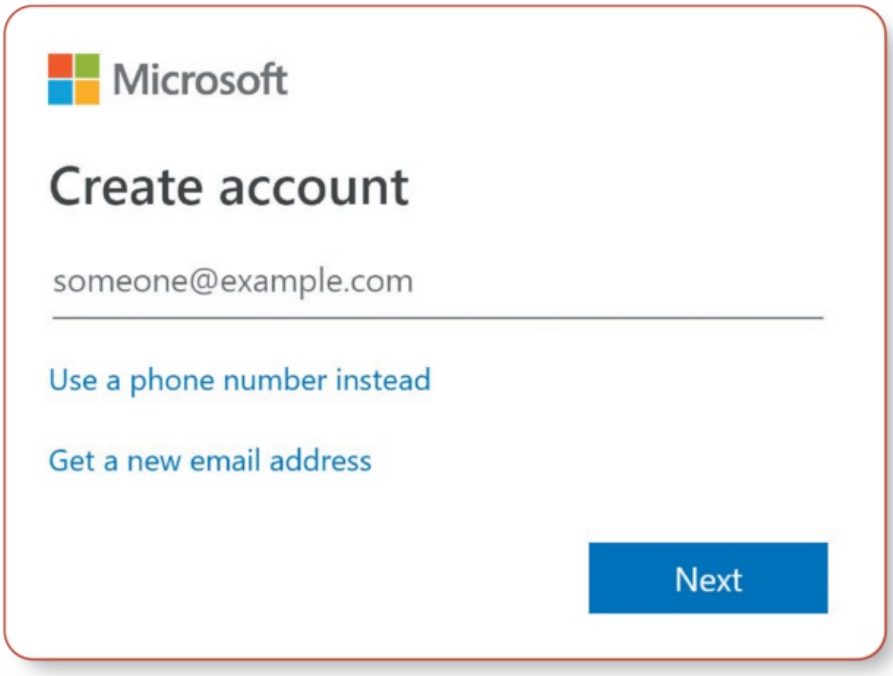


FIGURE INTRO-1 Create a Microsoft account

Your Windows and Office files and account settings are linked to your Microsoft account and are portable. In other words, your Office and Windows settings and files travel with you and are accessible from different computers. You are not restricted to using a single computer.

When you sign in to Windows using your Microsoft account (user name and password), Microsoft uses this information to transfer your Windows and Office settings to the computer you are using. The different types of Microsoft accounts include Education, Business, and Personal.

MORE INFO

Use your educational Microsoft account for projects in this text.

Windows Desktop and Taskbar

The Windows desktop is the working area of Windows. When you log in to Windows, the desktop

displays (Figure Intro-2). The *Taskbar* displays horizontally at the bottom of the desktop. Click an icon on the *Taskbar* to open apps and folders (see Figure Intro-2). Pinning is used to add shortcuts to commonly used apps to the *Taskbar* or the *Start* menu. You can pin *Settings, File Explorer,* and other frequently used apps to the *Taskbar* (see "*Customize the Taskbar*" later in this section).

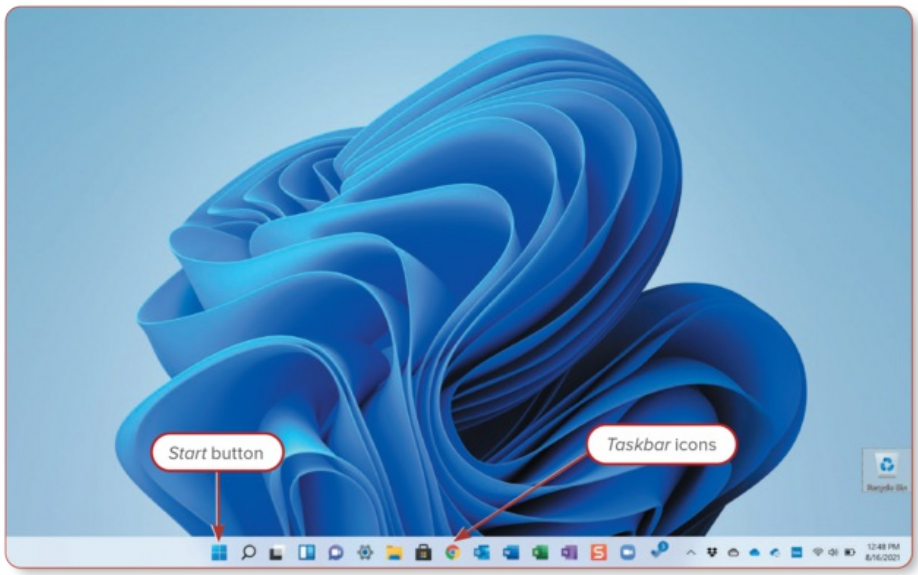


FIGURE INTRO-2 Windows 11 desktop and *Taskbar*

Windows 10 Note: The *Taskbar* in Windows 10 is slightly different from Windows 11.

Start Menu

The ***Start menu*** in Windows displays apps and Windows resources (Figure Intro-3). Click the **Start** button on the *Taskbar* to display the *Start* menu. The *Start* menu displays ***Pinned*** apps on the top half and ***Recommended*** apps and files on the bottom half. Click an app or file to open it. Click the **All** button to display an alphabetic listing of apps. Click the **More** button to display additional *Recommended* files and apps.

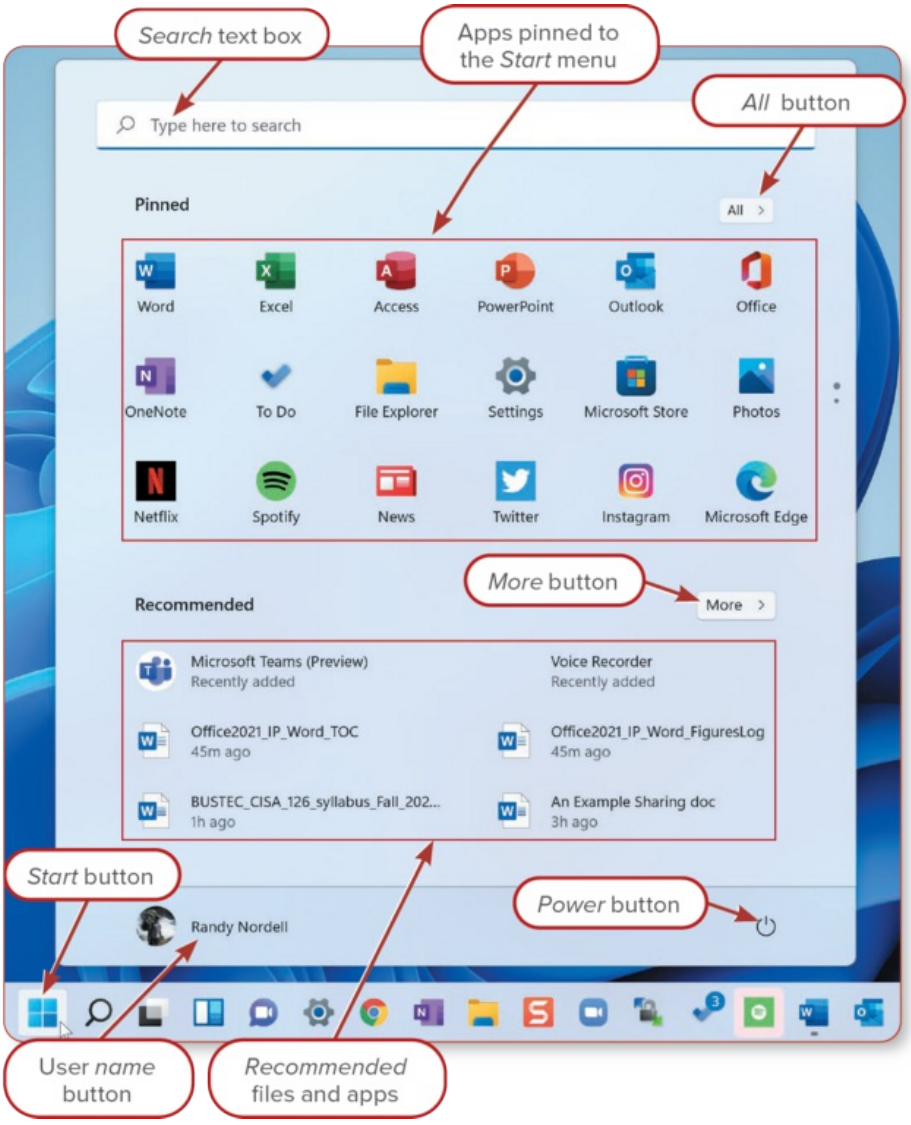


FIGURE INTRO-3 Windows *Start* menu

Search for apps or files by clicking the **Search** text box at the top of the *Start* menu and typing keywords. Click the **user name** button in the bottom left corner to display *Change account settings, Lock,* and *Sign out* options. Click the **Power** button in the bottom left corner to display *Sleep, Shut down,* and *Restart* options.

Windows 10 Note: The *Start* button and *Start* menu in Windows 10 are slightly different from Windows 10.

ANOTHER WAY

Press the **Windows** (**Win**) button, which is available on most newer Windows laptops, to open the *Start* menu.

Add Apps

Windows uses the term ***apps*** generically to refer to applications and programs. Apps include Microsoft Excel, *Settings,* Google Chrome, Spotify, and *File Explorer.* Many apps are preinstalled on a Windows computer, and additional apps can be installed. Install an app, such as Office 2024 or Adobe Acrobat, by downloading it from a website. These apps are referred to as ***desktops apps*** or ***traditional apps***.

The ***Microsoft Store*** app is preinstalled on Windows computers. Install apps such as Netflix, Yelp, and Spotify from the Microsoft Store. These apps are referred to as ***modern apps*** and look and function similar to apps installed on your smartphone. Many apps in the Microsoft Store are free, and others are available for purchase.

Windows 10 Note: The Microsoft Store in Windows 10 is slightly different from Windows 11.

COPILOT/GENERATIVE AI BEST PRACTICES

The Microsoft Store has many productivity and entertainment apps you can add to your computer. Ask *Copilot* or other generative AI product for a review of the top five productivity apps. Also ask for a review of the top five entertainment apps.

HOW TO: Add an App from the Microsoft Store

1. Click the **Start** button to open the *Start* menu.
2. Click the **Microsoft Store** app (**Figure Intro-4**) to open the Microsoft Store app.

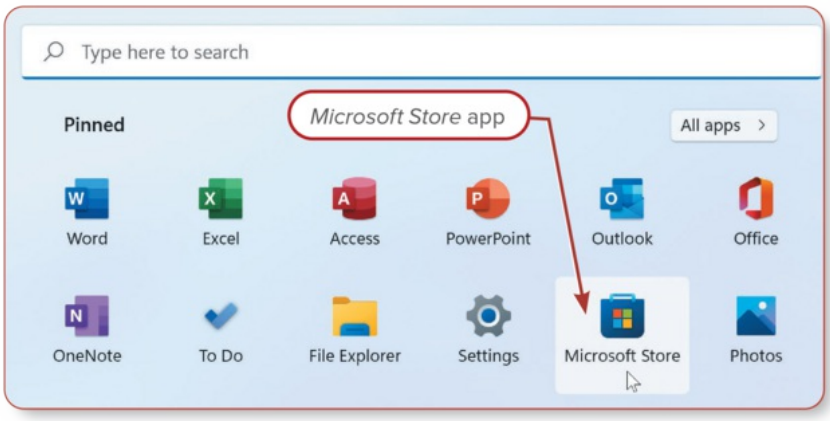


FIGURE INTRO-4 ***Microsoft Store*** **app on the** ***Start*** **menu**

- If the *Microsoft Store* app is not available on the *Start* menu, locate the *Microsoft Store* button in the alphabetic listing of all apps.

3. Click the **Apps** button on the left.
4. Search for apps by typing keywords in the *Search* text box at the top and pressing **Enter** (**Figure Intro-5**).

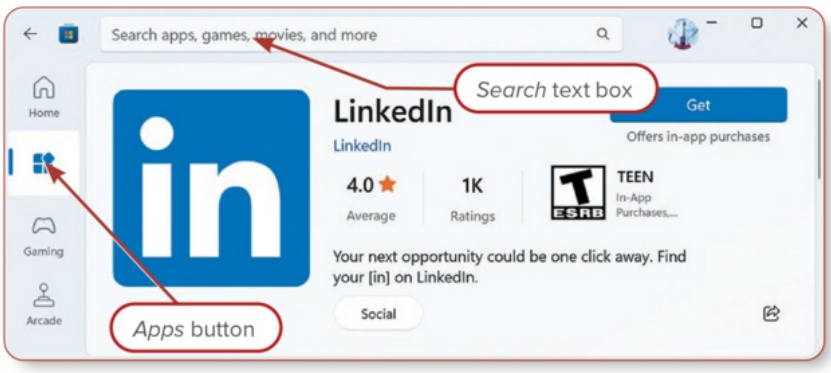


FIGURE INTRO-5 **Install an app from the Microsoft Store**

- The Microsoft Store includes different categories of apps.
- When you select an app, information about the app displays.

5. Click the **Get** (or **Install**) button to install the app.
   - Store a payment method in your Microsoft account to purchase apps from the Microsoft Store.
6. Click **Open** to open the installed app.

Customize the Start Menu

When you start using Windows or after you have installed apps, you can customize which apps display in the *Pinned* area on the *Start* menu. When you ***pin*** an app to the *Start* menu, the corresponding app remains in the *All apps* list on the *Start* menu. Pin the apps you most regularly use, unpin the apps you don't want displayed on the *Start* menu, and rearrange apps to your preference.

Windows 10 Note: Customizing the *Start* menu in Windows 10 will be slightly different from Windows 11.

HOW TO: Customize the Start Menu

1. Click the **Start** button to open the *Start* menu.
2. Move a pinned app on the *Start* menu by clicking and dragging the app to a new location. The other apps shuffle to accommodate the placement of the moved app.
   - Alternatively, right-click a pinned app and select **Move to front** on the context menu.
3. Remove an app from the *Pinned* area of the *Start* menu by right-clicking the app and selecting **Unpin from Start** from the context menu (**Figure Intro-6**).

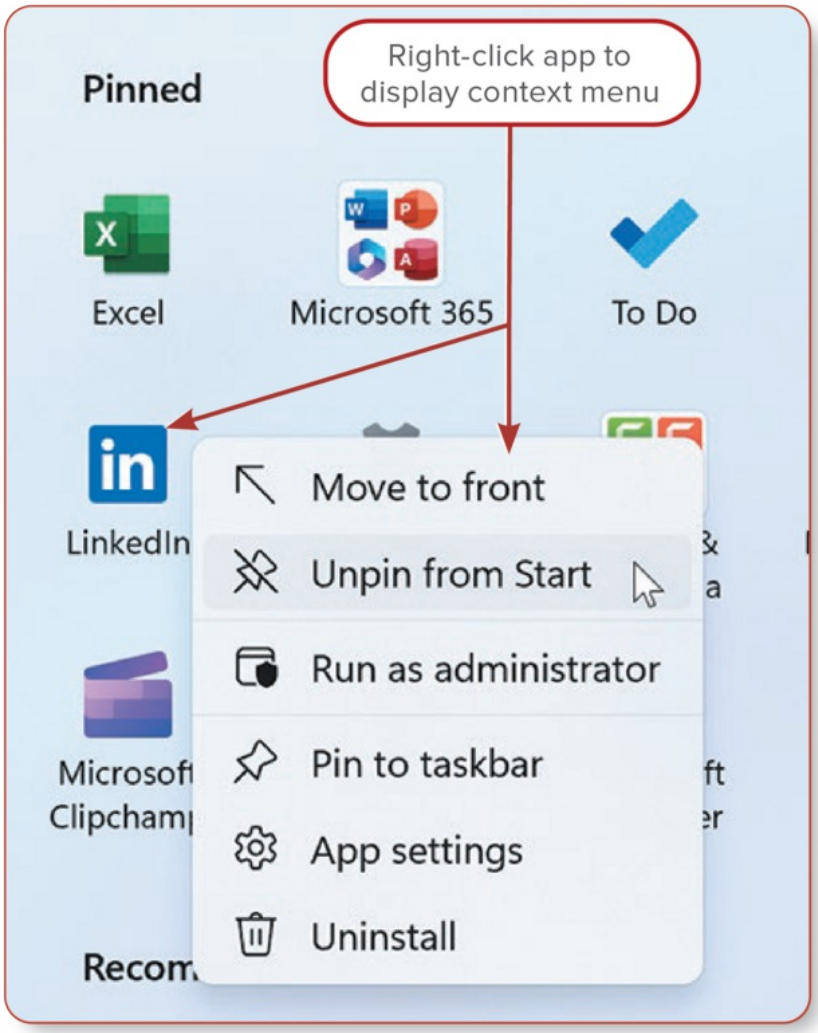


FIGURE INTRO-6 **Unpin an app from the *Start* menu**

- The app is removed from the *Pinned* area of the *Start* menu, but the app is not removed from your computer.

4. Pin an app to the *Start* menu by right-clicking the app in the **All apps** list in the *Start* menu and selecting **Pin to Start** (**Figure Intro-7**).

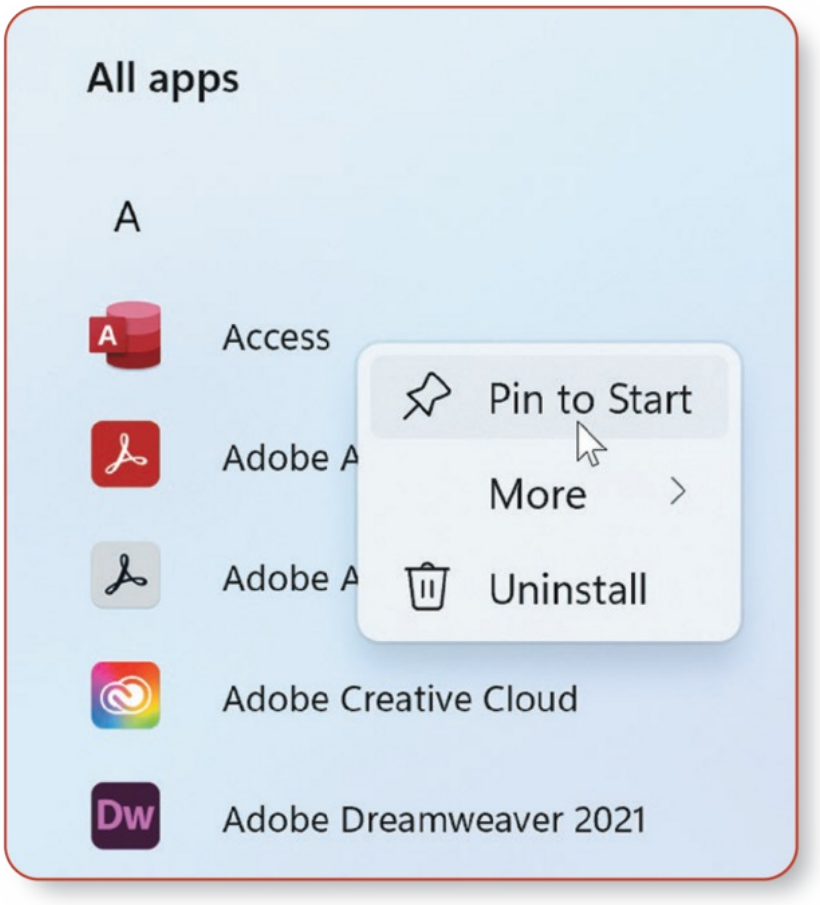


FIGURE INTRO-7 **Pin an app to the *Start* menu**

- Drag the newly added app to the desired location in the *Pinned* area on the *Start* menu.

5. Uninstall an app by right-clicking the app you want to uninstall and selecting **Uninstall**.
   - Unlike the unpin option, this option uninstalls the program from your computer, not just your *Start* menu.
   - The *Uninstall* option is not available for some pre-installed Microsoft Windows apps.
6. Remove an item from the *Recommended* list by right-clicking the app or file and selecting *Remove from list.*
   - This option does not uninstall the app or delete the file, but rather removes it from the *Recommended* list.
7. Customize *Start* menu settings by clicking the **Start** button, selecting the **Settings** app (**Figure Intro-8**) to open the *Settings* window, selecting **Personalization** on

the left, and clicking the **Start** option in the list of *Personalization* options (**Figure Intro-9**).

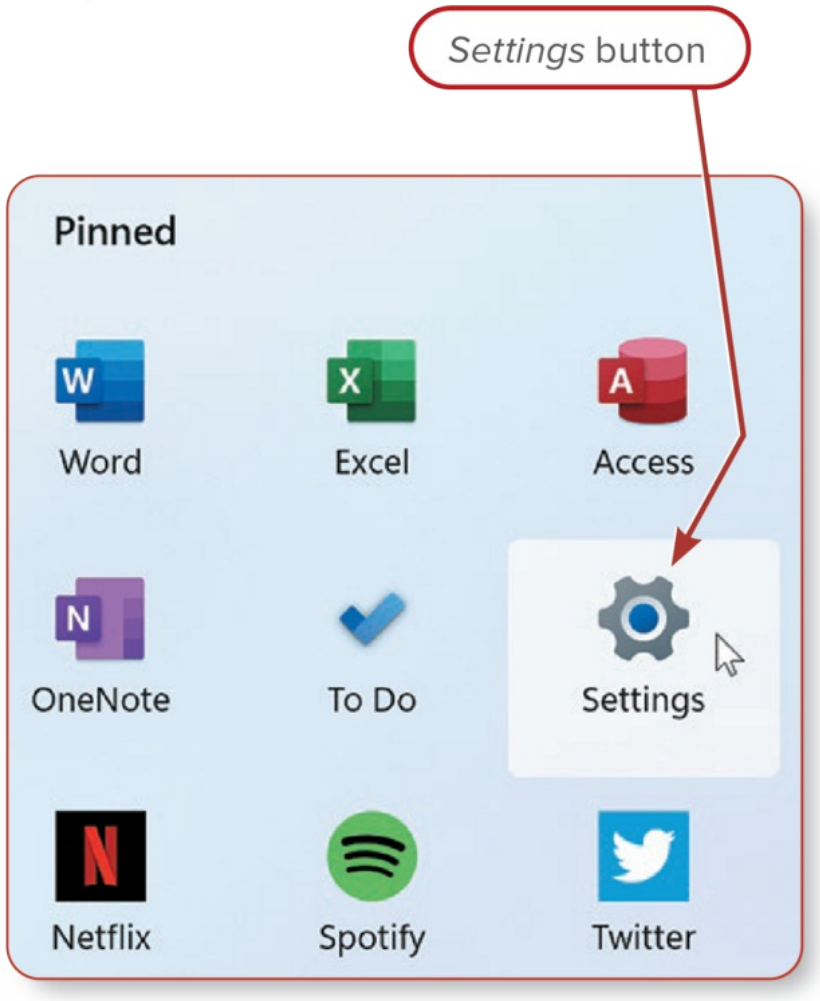


FIGURE INTRO-8 ***Settings*** **button on the** ***Start*** **menu**

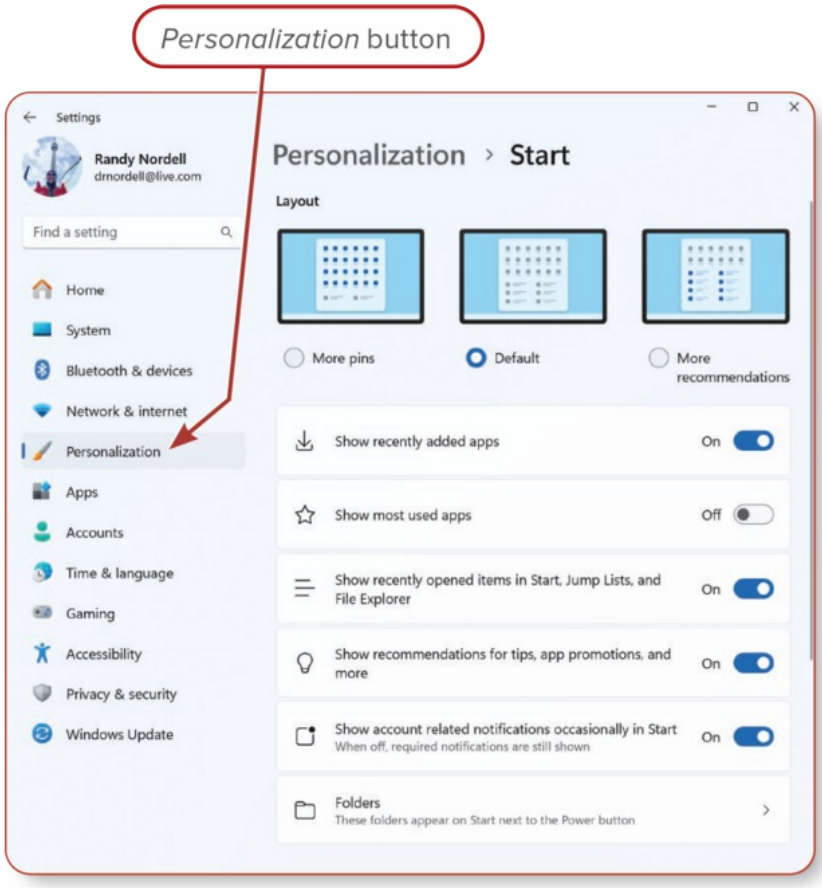


FIGURE INTRO-9 ***Start*** **menu** ***Personalization*** **options**

- Change *Start* menu *Personalization* options as desired.
- Click the **X** in the upper-right corner to close the *Settings* window.

Customize the Taskbar

The *Taskbar* is the horizontal bar located at the bottom of the Windows desktop. You can quickly open an app by clicking an icon on the *Taskbar* rather than opening it from the *Start* menu. Customize the *Taskbar* by pinning, unpinning, and rearranging apps. The right side of the *Taskbar* is the *System Tray,* which displays smaller icons of system applications that automatically run in the background of the Windows operating system, such as battery, Wi-Fi, and sound.

Windows 10 Note: Customizing the *Taskbar* in Windows 10 will be slightly different from Windows 11.

HOW TO: Customize the Taskbar

1. Pin an app to the *Taskbar* by clicking the **Start** button, right-clicking an app in the *Pinned* area, and selecting **Pin to taskbar** (Figure Intro-10).

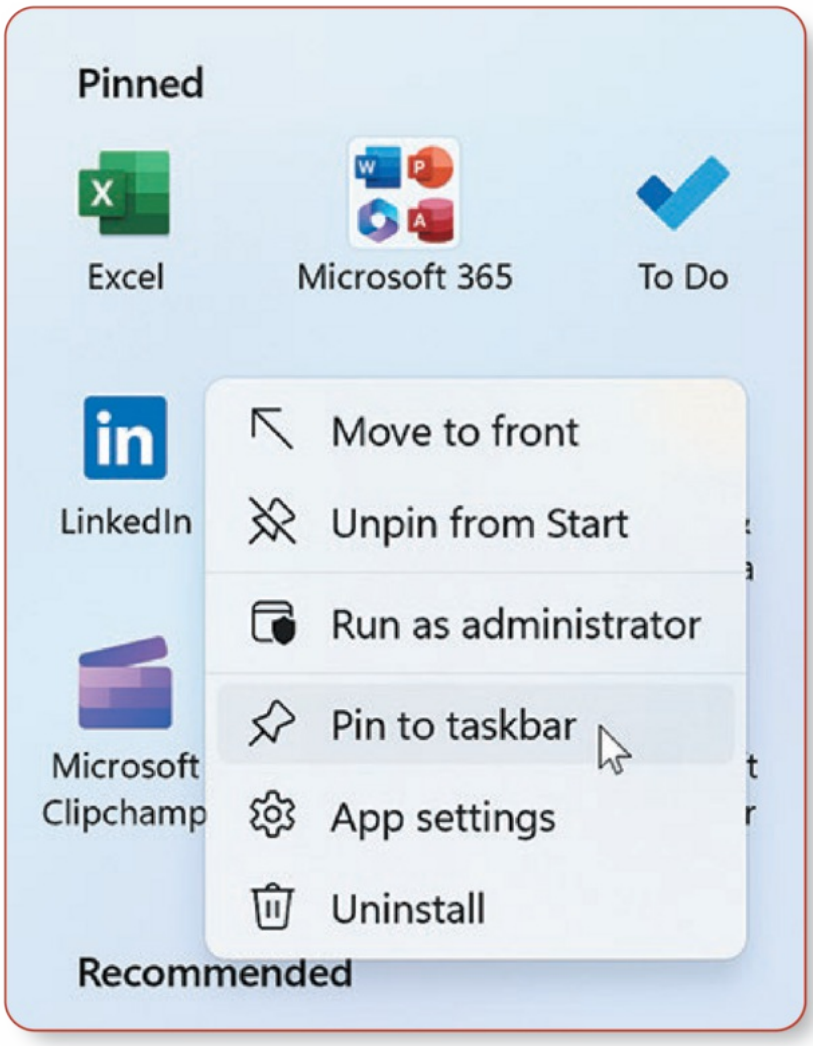


FIGURE INTRO-10 Pin an app to the *Taskbar*

- Alternatively, click the **All** button to display an alphabetic listing of apps, right-click an app, select **More**, and click **Pin to taskbar**.

2. Unpin an app from the *Taskbar* by right-clicking an app icon on the *Taskbar* and selecting **Unpin from taskbar** (Figure Intro-11).

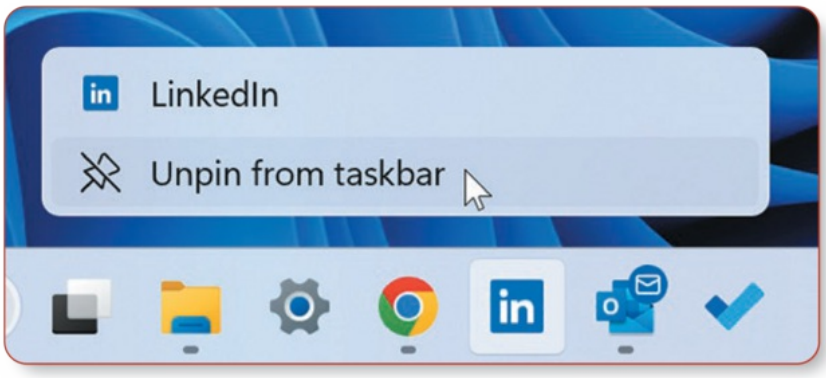


FIGURE INTRO-11 **Unpin an app from the *Taskbar***

- Alternatively, unpin apps from the *Taskbar* by right-clicking an app in the *Start* menu and selecting **Unpin from taskbar**.

1. Rearrange apps on the *Taskbar* by clicking and dragging the app to the desired location on the *Taskbar* and releasing.

MORE INFO

If using a touch screen, press and hold an app on the *Start* menu or *Taskbar* to display the app options.

File Explorer

File Explorer in Windows is a window that opens on your desktop and is used to browse folders and files stored on your computer (**Figure Intro-12**). You can open a file or folder, move or copy items from one folder to another, create folders, and delete files or folders. Click **File Explorer** on the *Taskbar* or *Start* menu to open a *File Explorer* window. Alternatively, right-click the **Start** button and select **File Explorer**.

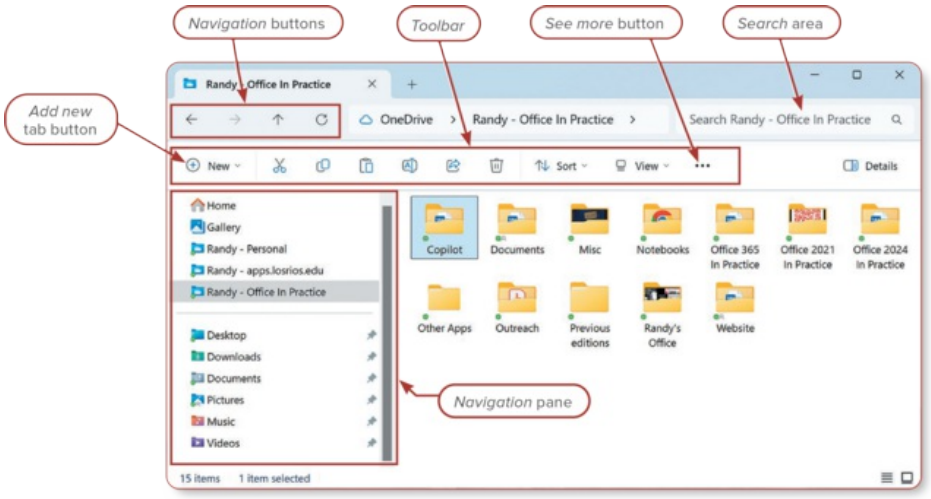


FIGURE INTRO-12 ***File Explorer*** **window**

Windows 10 Note: The *File Explorer* in Windows 10 is slightly different from that in Windows 11. The *File Explorer* displays different areas:

- ***Toolbar:*** The toolbar is located near the top of *File Explorer* and includes commonly used commands, such as *Cut, Copy, Paste, Rename,* and *Delete.* The *New, Sort,* and *View* drop-down lists provide additional options. Click the **See more** button (ellipsis) at the end of the toolbar to display additional options. Alternatively, right-click an item in the *File Explorer* to display a context menu that contains many of the commands on the toolbar.
- ***Navigation buttons:*** The navigation buttons (*Back, Forward, Recent locations, Up,* and *Refresh*) are located above the toolbar on the left. Use these buttons to navigate a *File Explorer* window.
- ***Navigation pane***: The *Navigation* pane displays folders on the left. The *Home* area at the top displays main folders. The ***Quick access*** area below the *Home* area displays shortcuts to favorite folders. You can pin or unpin folders in the *Quick access* area of the *Navigation* pane.
- ***Folder pane:*** When you select a folder in the *Navigation* pane, the contents of the folder display in the *Folder* pane to the right of the *Navigation* pane. Double-click a folder or file in the *Folder* pane to open it.
- ***Search:*** The *Search* text box is located near the top-right side of the *File Explorer* window. Type keywords in the *Search* text box to find files or folders.

MORE INFO

Right-click a folder or file in the *File Explorer* window to display a contextual list of command options.

OneDrive

OneDrive is a cloud storage area where you store files in a private and secure online location. You can access *OneDrive* from any computer (**Figure Intro-13**). *OneDrive* looks and functions similar to other Windows folders. You can save and open *OneDrive* files from a *File Explorer* folder. *OneDrive* synchronizes your files, so when you change a file stored in *OneDrive,* the file automatically updates on the *OneDrive* cloud.

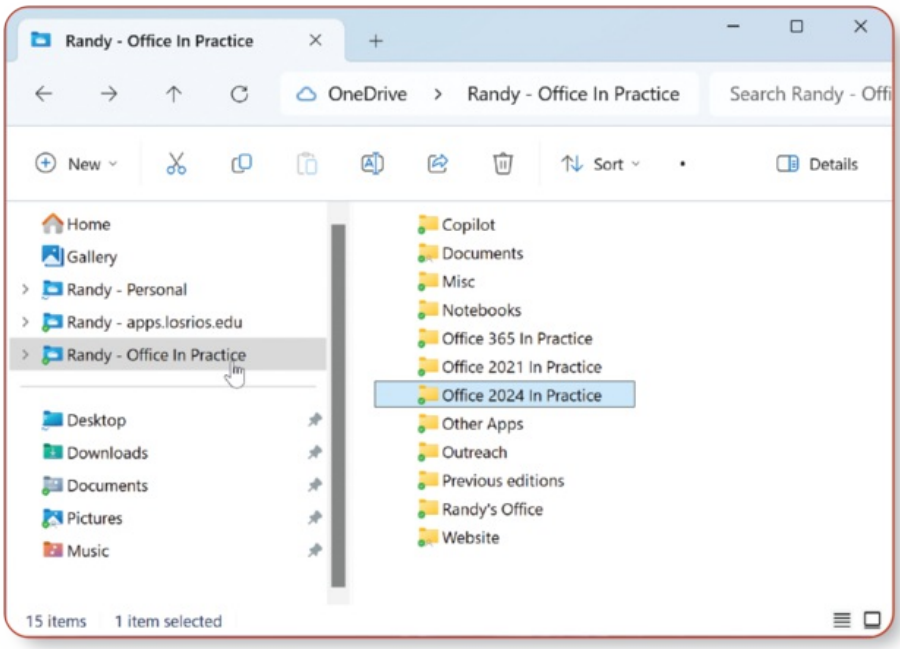


FIGURE INTRO-13 ***OneDrive*** **folder in a** ***File Explorer*** **window**

When you store files in *OneDrive,* you have the option of storing the files on *OneDrive* only (in the cloud) or syncing the files to your computer, so they are saved on both your computer and on the cloud. You can customize which *OneDrive* folders and files are cloud only (not stored on your computer) and which folders and files are synced to your computer (see **Figure Intro-13**).

COPILOT/GENERATIVE AI BEST PRACTICES

OneDrive is a powerful cloud storage resource that is a part of your Microsoft 365 account. Use *Copilot* or other generative AI product to learn about *OneDrive.* Use follow-up prompts to compare *OneDrive* with other cloud storage products and learn about the advantages of using *OneDrive* for cloud storage and file accessibility.

HOW TO: Customize OneDrive Settings

1. Open a *File Explorer* window using one of the following methods:
   - Click the **Start** button and select the **File Explorer** button.
   - Click the **File Explorer** button on the *Taskbar* (if available).
   - Right-click the **Start** button and select **File Explorer**.
2. Right-click the **OneDrive** folder in the *Navigation* pane of the *File Explorer* window, select **Show more options**, and select **Settings** to open the *OneDrive Settings* window.
   - Alternatively, right-click the **OneDrive** icon (if available) in the *System Tray* (right side of the *Taskbar*) and select **Settings**.
3. Click the **Account** tab and click the **Choose folders** button to open the *Sync your OneDrive files to this PC* dialog box (**Figure Intro-14**).

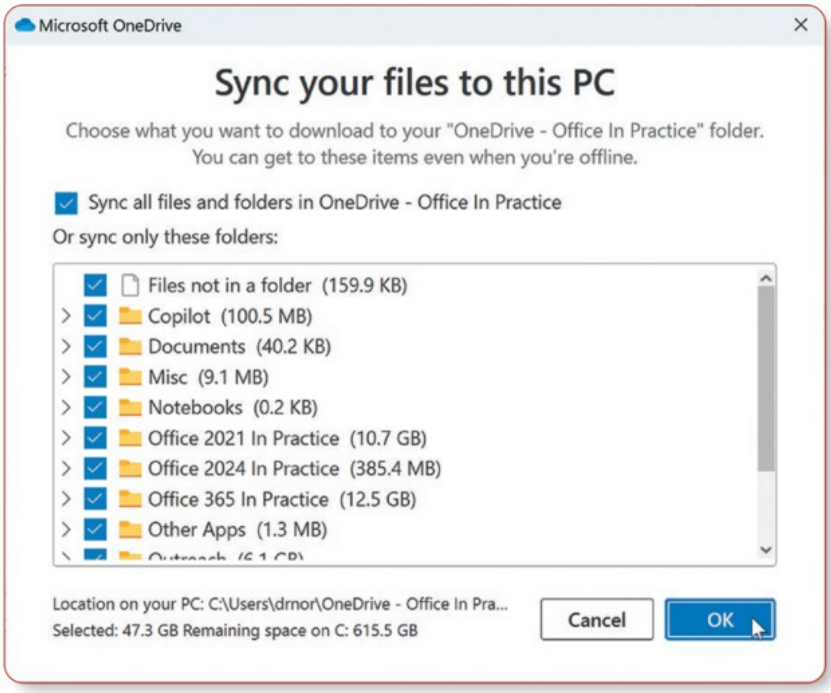


FIGURE INTRO-14 Customize *OneDrive* folders to sync to your computer

- Check the **Sync all files and folders in OneDrive** box to sync all files and folders to your computer.
- You can also select only those folders to sync in the *Or sync only these folders* area by selecting or deselecting the check boxes. Use this option to save storage space on your computer.

4. Click **OK** to close the *Sync your OneDrive files to this PC* dialog box and the close the *OneDrive Settings* window.

OneDrive Online

In addition to the *OneDrive* folder on your computer, you can also access your *OneDrive* files online using an internet browser such as Microsoft Edge, Google Chrome, or Mozilla Firefox. When you access *OneDrive* online using a web browser, you can upload files, create folders, move and copy files and folders, and create Office files using ***Office Online*** (*Office Online* is discussed in ***SLO Intro.2: Using the Microsoft 365 Office Apps***).

MORE INFO

OneDrive online may display differently and include different features depending on the type of Microsoft account you have: education, business, or personal.

HOW TO: Use OneDrive Online

1. Open an internet browser window and navigate to the *OneDrive* website (**www.onedrive.live.com**), which takes you to the *OneDrive* sign-in page.
   - Use any internet browser to access *OneDrive* (Microsoft Edge, Google Chrome, Mozilla Firefox).
2. Click the **Sign in** button in the browser window.
3. Type your Microsoft account email address and click **Next** (**Figure Intro-15**).

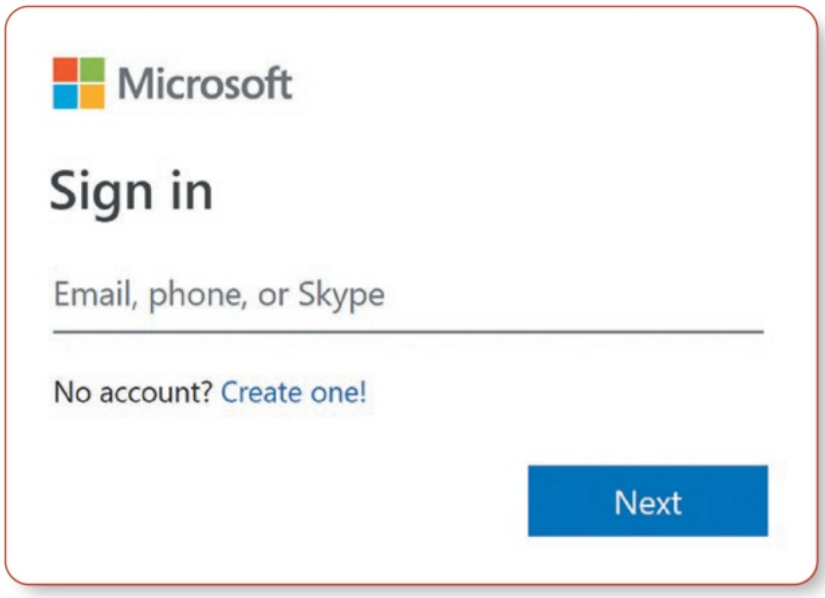


FIGURE INTRO-15 **Log in to *OneDrive* online**

- The login procedure and windows may vary depending on the type of Microsoft account.

4. Type your Microsoft account password and click **Sign in**. The *OneDrive* page displays.
   - If you are on your own computer, check the **Keep me signed in** box to stay signed in to *OneDrive*.
5. Click **My Files** to display your folders and files in the folder area.
   - Select a folder or file to display the toolbar above the folder area (**Figure Intro-16**). Multiple folders and files can be selected.

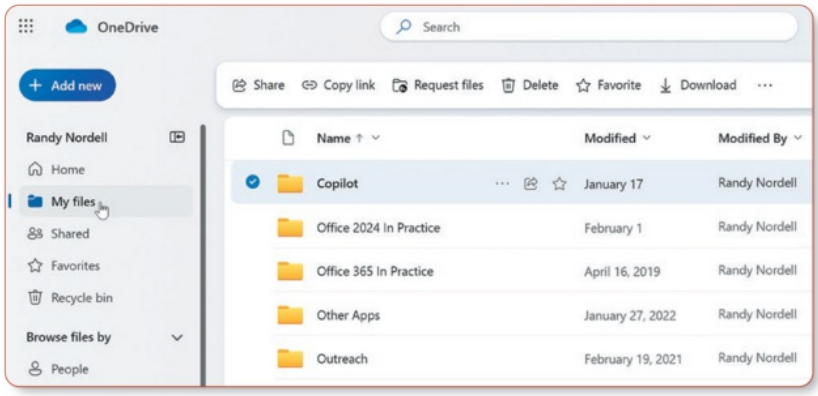


FIGURE INTRO-16 ***OneDrive* online environment**

- Click a button on the toolbar to perform an action on the selected items.

Alternatively, right-click an item and select an action from the context menu.

- Click the **Add new** button in the upper-right corner to create a new folder, upload files and folders, or create a new Office file.

Search

In addition to using the search tools in *File Explorer,* you can also use the Windows ***Search*** feature (**Figure Intro-17**). While the search feature in *File Explorer* searches only for content on your computer, the Windows search feature searches for content on your computer, on the internet, and in the Microsoft Store.



FIGURE INTRO-17 ***Search* area on the *Taskbar***

Windows 10 Note: *Search* in Windows 10 will be slightly different from Windows 11.

HOW TO: Using Search

1. Click the **Search** text box on the *Taskbar* (**Figure Intro-17**) to open the *Search* window.
2. Type keywords for your search in the *Search* text box.
   - Content from your computer and the internet displays in the *Search* window (**Figure Intro-18**).



FIGURE INTRO-18 Search results displayed in the *Search* window

Figure Intro-18 shows the search results for "Madrid," which includes several photos, an overview verbatim from Wikipedia, and links to related topics and social media accounts.

- The search results are grouped into categories such as *Best match* and *Search work and web* on left. These categories vary depending on the search results.
- Other results from the internet display on the right

3. Click one of the category buttons at the top to filter the search results
4. Click a result in the *Search* window to view more information or open a file.

Task View and Virtual Desktops

Task View displays all open apps and windows as tiles on your desktop, and you can choose which item to display or close. This feature is very helpful when you have multiple items open and need to select or close one. Additionally, ***Virtual Desktops*** provide you the ability to have different desktops with different apps, files, and windows open on each.

Windows 10 Note: *Task View* and virtual desktops in Windows 10 will be slightly different from

Windows 11.

HOW TO: Use Task View

1. Click the **Task View** button on the *Taskbar* (**Figure Intro-19**) or press **Win+Tab** to display *Task View.*

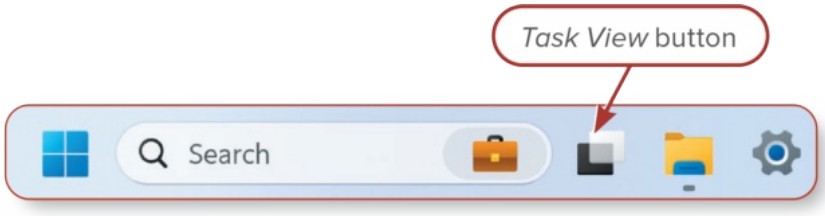


FIGURE INTRO-19 ***Task View*** **button on the** ***Taskbar***

- All open apps and windows display on the desktop (**Figure Intro-20**).

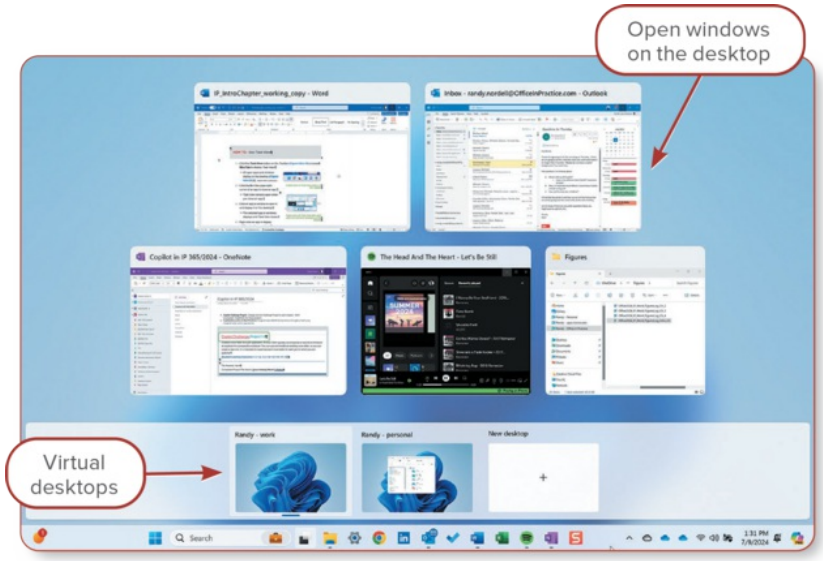


FIGURE INTRO-20 ***Task View*** **with open apps and windows displayed on the desktop**

2. Click the **X** in the upper-right corner of an app to close an app.
   - *Task View* remains open when you close an app.
3. Click an app or window to open it and display it on the desktop.
   - The selected app or windows displays and *Task View* closes.
4. Right-click an app to display additional options, such as *Snap left, Snap right,* and *Move to.*

- *Snap Assist* will be covered in ***SLO Intro.5—Working with Files*** later in this chapter.

ANOTHER WAY

Alt+Tab displays all open apps, files, and windows on a desktop and allows you to scroll through each and select one by holding down the **Alt** key and pressing **Tab**.

Additionally, ***Virtual Desktops*** provide the ability to have different desktops with different apps, files, and windows open on each. For example, you may have one desktop with work-related apps and windows open and another desktop with personal apps and windows open. The *Task View* button allows you to add virtual desktops, rename them, move apps from one desktop to another, and select a virtual desktop to display.

COPILOT/GENERATIVE AI BEST PRACTICES

Virtual desktops on a Windows computer is an underused feature. Use *Copilot* or other generative AI product to learn about virtual desktops and how they can be used on a computer to enhance productivity.

HOW TO: Use Virtual Desktops

1. Click the **Task View** button on the *Taskbar* (see **Figure Intro-19**) or press **Win+Tab** to display *Task View*.
   - The virtual desktop(s) display at the bottom of *Task View* and above the *Taskbar* (**Figure Intro-21**).

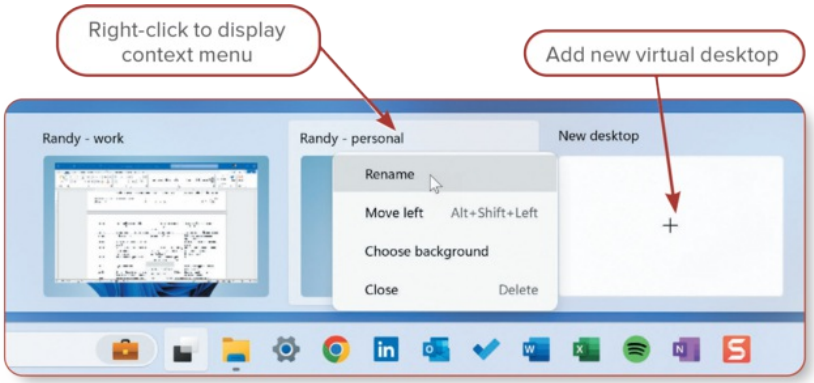


FIGURE INTRO-21 Two virtual desktops displayed in *Task View*



2. Click the **New desktop** button to add a virtual desktop.
3. Rename a virtual desktop by right-clicking the desktop, selecting **Rename**, typing a new name, and pressing **Enter**.
4. Place your pointer on a virtual desktop (don't click it) to display the open apps and windows on that desktop in *Task View*.
   - Right-click an app in *Task View,* select **Move to**, and select a desktop to move an app from one desktop to another.
5. Reorder virtual desktops in *Task View* by right-clicking a desktop and selecting **Move left** or **Move right**.
   - Alternatively, press **Alt+Shift+Left** or **Alt+Shift+Right** to reorder virtual desktops.
6. Click the **X** in the upper right of a virtual desktop to close it.
   - When closing a virtual desktop, all open apps and windows on that desktop are moved to an existing virtual desktop.
7. Click a virtual desktop to display that desktop and all the open apps and windows. *Task View* closes when a virtual desktop is selected.

ANOTHER WAY

Press **Win+Ctrl+Left** or **Win+Ctrl+Right** to switch between virtual desktops without using *Task View.*

Settings

In Windows, ***Settings*** is where you change global Windows settings, customize the Windows environment, add devices, and manage your Microsoft accounts. Click the **Settings** button on the *Taskbar* or *Start* menu (**Figure Intro-22**) to open the *Settings* window (**Figure Intro-23**). The following categories are typically available in the *Settings* window. *Settings* categories and options may vary depending on the version of Windows you are using and updates to Windows.

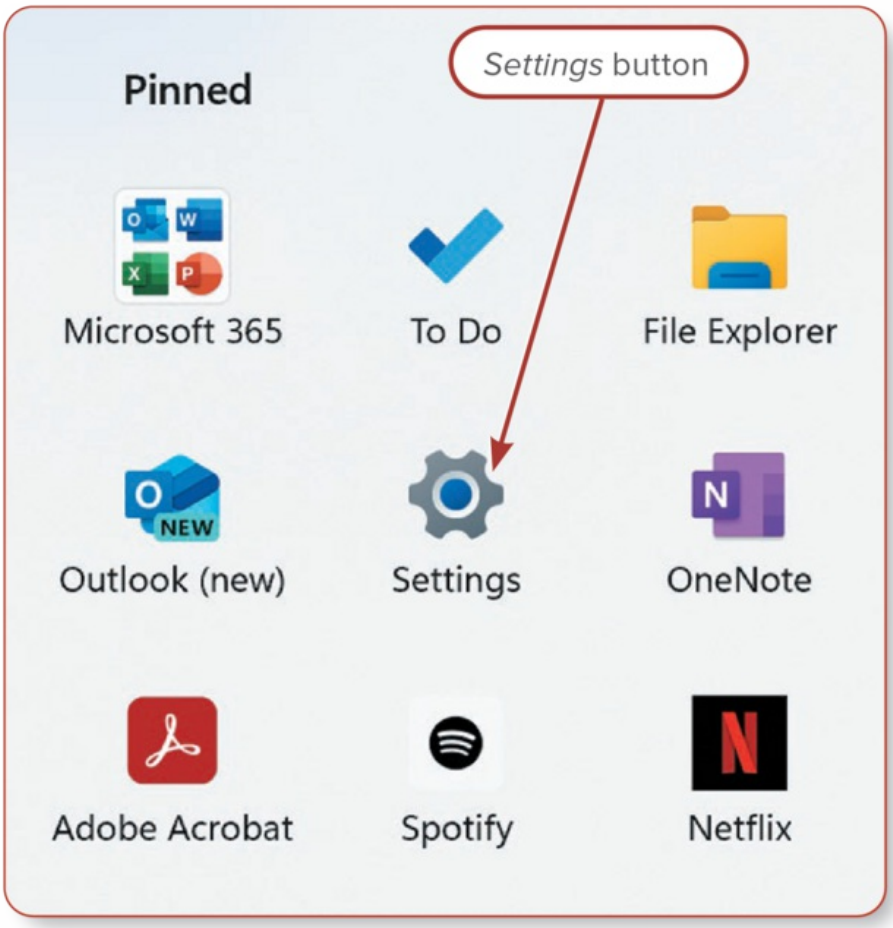


FIGURE INTRO-22 ***Settings*** **button on the** ***Start*** **menu**

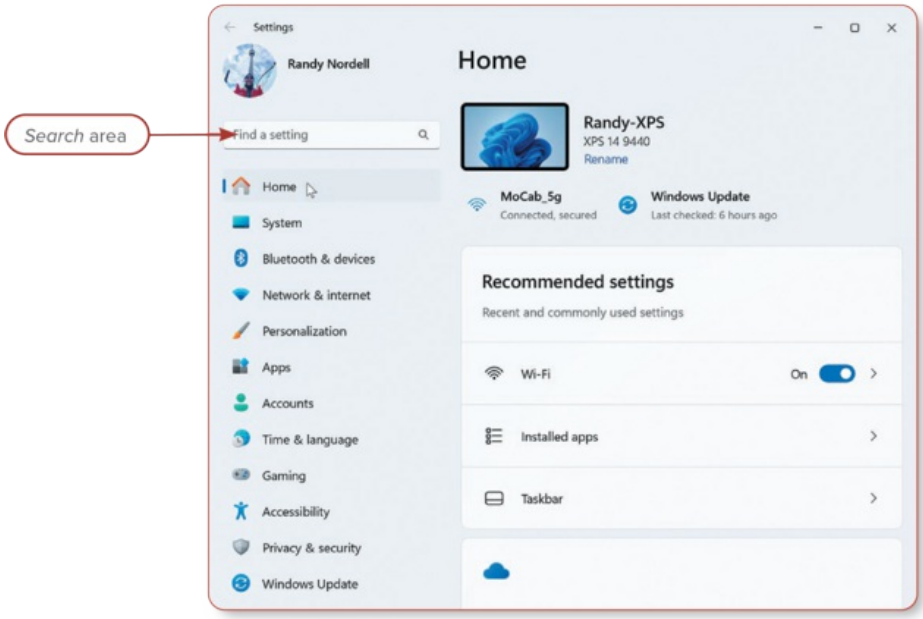


FIGURE INTRO-23 ***Settings*** **window**

Windows 10 Note: The *Settings* menu in Windows 10 is slightly different from Windows 11.

- ***Home:*** System info, recommended settings, cloud storage, and other commonly used settings
- ***System:*** Display, sound, notifications, and power
- ***Bluetooth & Devices:*** Bluetooth, devices, printers, and phone
- ***Network & internet:*** Wi-Fi, VPN, mobile hotspot, and airplane mode
- ***Personalization:*** Background, colors, theme, lock screen, *Start,* and *Taskbar*
- ***Apps:*** Apps and features, default apps, and optional features
- ***Accounts:*** Your account info, email and accounts, and sign-in options
- ***Time & language:*** Date and time, language and region, typing, and speech
- ***Gaming:*** Xbox game bar, captures, and Game Mode
- ***Accessibility:*** Text size, visual effects, mouse pointer and touch, text cursor, magnifier, color filters, contrast themes, and narrator
- ***Privacy & security:*** Windows security, find my device, and Windows permissions
- ***Windows Update:*** Windows updates, update history, advanced options, and Windows Insider Program

MORE INFO

If you can't find an item in *Settings,* use the *Search* dialog box (*Find a setting*) to type keywords. If the *Settings* button is not available on the *Taskbar,* locate it in the list of apps on the *Start* menu.

SLO INTRO. 2

Using the Microsoft 365 Office Apps

Microsoft 365 Office apps include popular software applications such as Word, Excel, Access, and PowerPoint. These applications give you the ability to work with documents, spreadsheets, presentations, and databases for personal and business projects. Microsoft offers a variety of productivity apps for different technology devices.

Microsoft 365 Office Apps and Office 2024

Microsoft 365 Office apps are a suite of personal and business software applications (**Figure Intro-24**). ***Microsoft 365 Office apps*** and ***Office 2024*** are similar software products. The difference is how you purchase the software. Microsoft 365 is a subscription fee that you pay monthly or yearly, similar to how you purchase Netflix or Spotify. If you subscribe to Microsoft 365, you receive the Office apps and get updated features in the apps when they are released. Office 2024 is the traditional model of purchasing the software, and you own that software for as long as you want to use it.



FIGURE INTRO-24 Office apps on the *Start* menu

The common applications typically included in Microsoft 365 and Office 2024 are described in the following list:

- ***Microsoft Word***: Word processing software used to create, format, and edit documents such as reports, letters, brochures, and resumes.
- ***Microsoft Excel***: Spreadsheet software used to perform calculations on numerical data such as financial statements, budgets, and expense reports.
- ***Microsoft Access***: Database software used to store, organize, compile, and report information such as product information, sales data, client information, and employee records.
- ***Microsoft PowerPoint***: Presentation software used to graphically present information in slides such as a presentation on a new product or sales trends.
- ***Microsoft Outlook***: Email and personal management software used to create and send email and to create and store calendar items, contacts, and tasks.
- ***Microsoft OneNote***: Note-taking software used to take and organize notes, which can be shared with other Office applications.
- ***Microsoft Publisher***: Desktop publishing software used to create professional-looking documents containing text, pictures, and graphics such as catalogs, brochures, and flyers.

MORE INFO

Microsoft 365 includes regular updates that include new and enhanced features in the Office apps, while Office 2024 does not include these regular updates. So, differences in features may exist between Office 2024 and Microsoft 365 Office apps.

Microsoft 365 Products, Versions, and Update Channels

Microsoft 365 is a subscription to the Office applications and can be purchased for home or business. As a student, you can get Microsoft 365 for education free (**https://www.microsoft.com/en-us/education/products/office**). The Office applications that come with a Microsoft 365 subscription can vary depending on the Microsoft 365 product subscription you have. With a Microsoft 365 subscription, you can install the Office applications (both PC and Mac) on multiple computers and mobile devices.

An advantage of a Microsoft 365 subscription is regular updates that enhance the functionality of the apps. The Microsoft 365 version and build are determined by the ***update channel***, which is the frequency of updates. If you have a Microsoft 365 for education or business subscription, the college or business determines the update channel. If you have Microsoft 365 Home or Personal, you are on the *Current Channel.* The following are the most common update channels:

- ***Current Channel:*** Receives new features updates monthly, typically on the first Tuesday of the month. This is the most common update channel.

- ***Semi-Annual Channel:*** Receives updates two times a year in January and July.
- ***Semi-Annual Channel Enterprise (Preview):*** Receives new feature updates earlier than the Semi-Annual Channel. These semi-annual updates are rolled out in March and September.

HOW TO: View Your Microsoft 365 Product Information

1. Click the **Start** button and select an Office application to open the *Start* page of the Office app.
2. Click **Account** on the left.
   - The *Product Information* area displays the Microsoft Office product installed on your computer (**Figure Intro-25**).

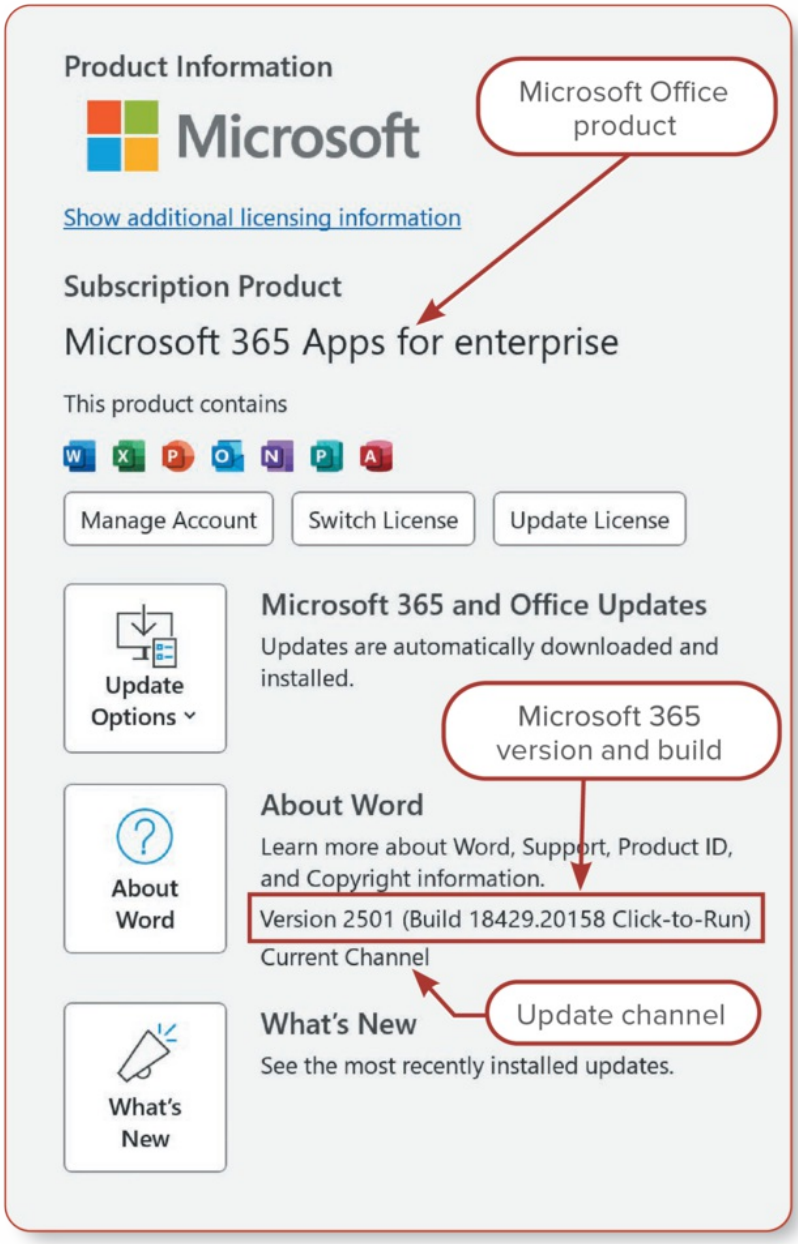


FIGURE INTRO-25 ***Product Information*** **displayed in the** ***Account*** **area on the** ***Backstage*** **view**

- The *About [Application]* area displays the version, build, and update channel.
- The *Version* number indicates the year and month of the most recent update. For example, "Version 2501" means year 2025 and the first month (January).

3. Click the **Update Options** button to select an update option: *Update Now, Disable Updates, View Updates,* or *About Updates.*
   - Click the **Update Now** button to manually check for Office updates.

4. Click the **Microsoft 365 Insider** button to join the *Microsoft 365 Insider* program and get early update releases to the Office apps. The *Microsoft 365 Insider* option is not available on all versions of Microsoft 365.
5. Click the **What's New** button to view the new features included in the most recent Office updates for your update channel.
   - The *What's New* pane displays on the right side of the Office application window.
   - Click the **X** in the upper-right corner to close the *What's New* pane.

Desktop Office Apps, Office Online, and Office Mobile Apps

Microsoft 365 Office apps are the desktop version of the Office applications. These are full-function applications installed on your computer (PC or Mac). Both the Microsoft 365 Office apps and Office 2024 are considered **Office desktop apps**. Install the Office apps from your Microsoft 365 account (**www.microsoft365.com**) (**Figure Intro-26**).

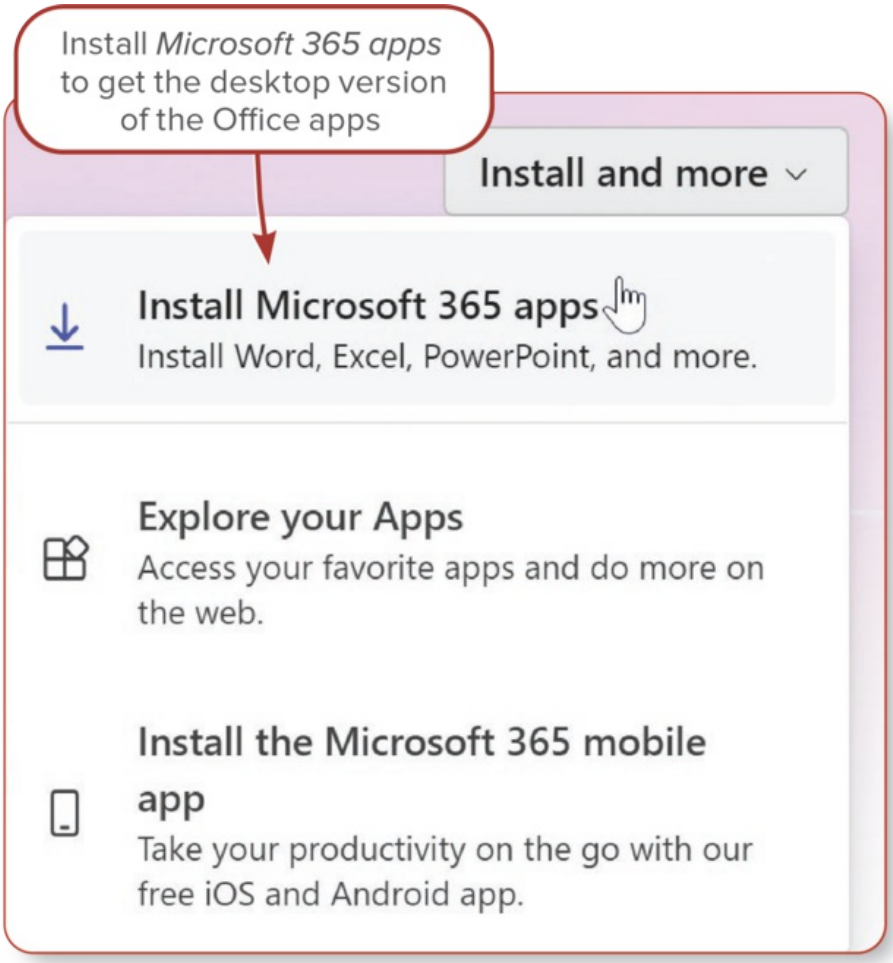


FIGURE INTRO-26 Install *Microsoft 365 Office apps*

The ***Office Online*** apps are free online, internet browser-based apps that work in conjunction with your Microsoft 365 account and *OneDrive* (**www.microsoft365.com**) (**Figure Intro-27**).

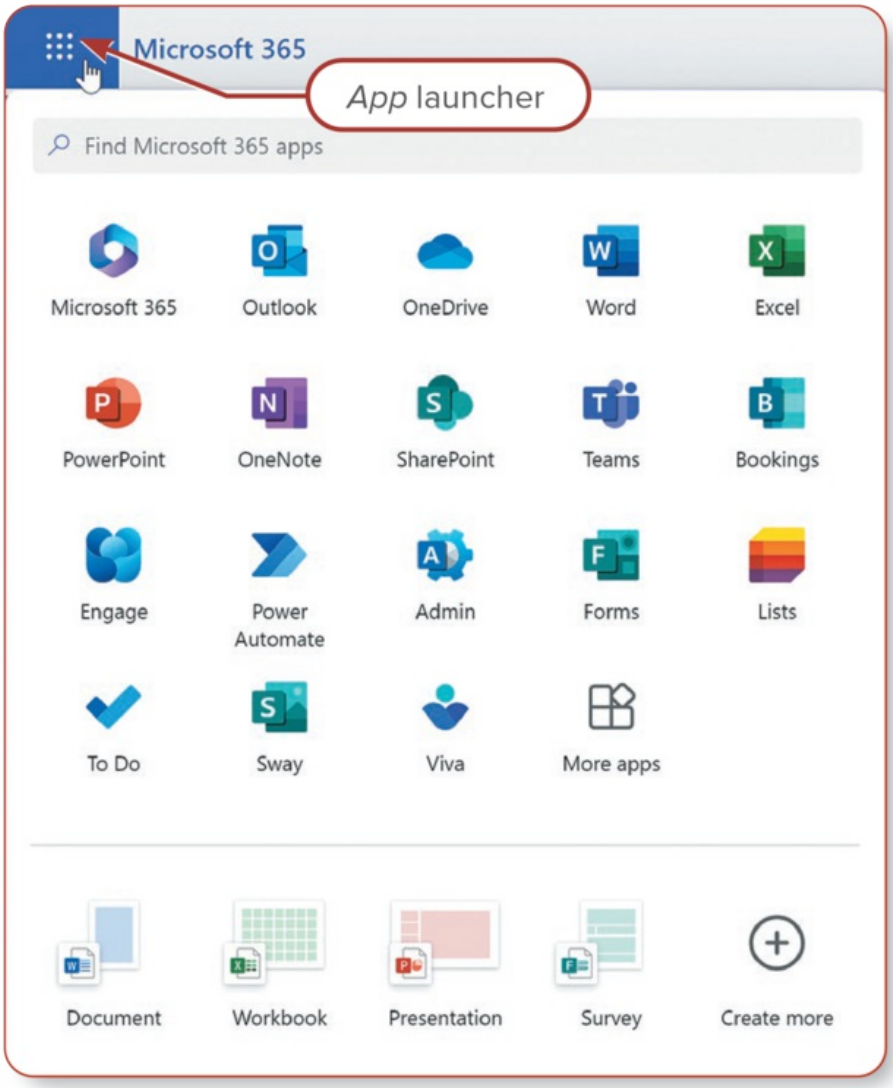


FIGURE INTRO-27 *Office Online* apps

MORE INFO

Microsoft Access is not available in *Office Online*, as an Office mobile app, or in the Mac version of Office.

Office Online is a scaled-down version of Office and not as robust in terms of features, but you can use it to create, edit, print, share, and collaborate on files. Click the **App** launcher in the upper-left corner of *OneDrive* to display the *Office Online* applications. If you need more advanced features, you can open *Office Online* files in the desktop version of Office.

Due to the increased popularity and capabilities of tablets and mobile devices, Office software is also available for both tablets and smartphones. ***Office mobile apps*** are the Office apps that can be installed on tablets or other mobile devices. Office mobile apps do not have the full range of advanced features available in Office desktop applications, but Office mobile apps provide users the ability to create, edit, save, and share Office files using many of the most common features in the Office suite of programs.

MORE INFO

Office mobile apps can be downloaded to your devices from the app store on your device.

HOW TO: Create an Office Online File

1. Open an internet browser Window and log in to your *Microsoft* account (**www.office.com**).
2. Select an Office application on the left.
3. Click the **Blank [file type]** button to create a new *Office Online* file (**Figure Intro-28**).

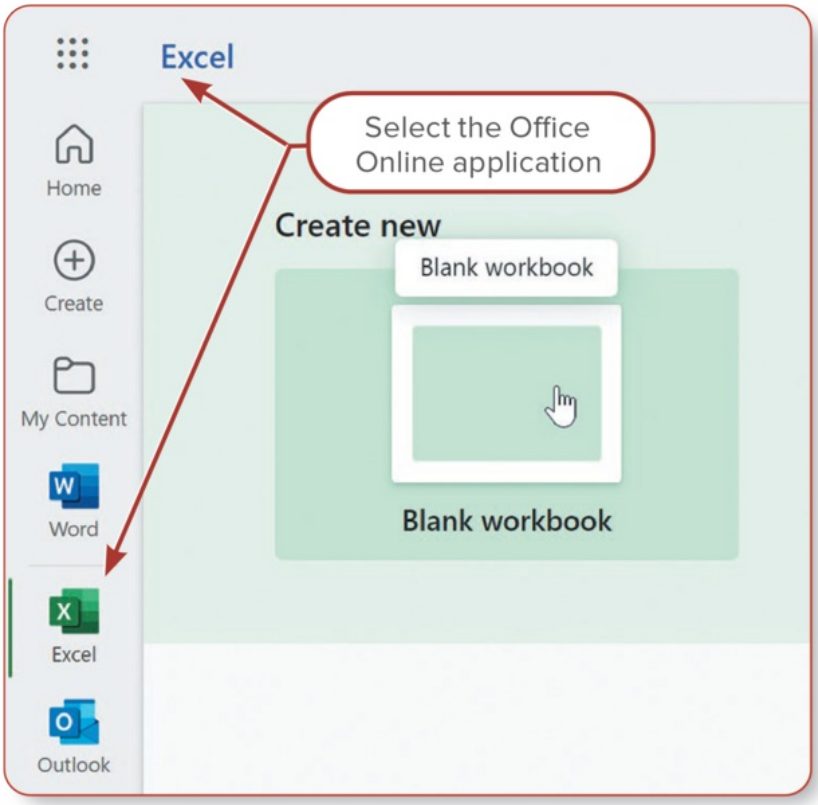


FIGURE INTRO-28 **Create an *Office Online* file from your online *Microsoft* account**

- A new file opens in the *Office Online* program.
- The new file is saved in your *OneDrive* folder.
- Alternatively, click the **Create** button and select the type of Office file to create.

4. Rename the file by clicking the file name in the *Title* bar at the top of the file, typing a new file name, and pressing **Enter** (**Figure Intro-29**).

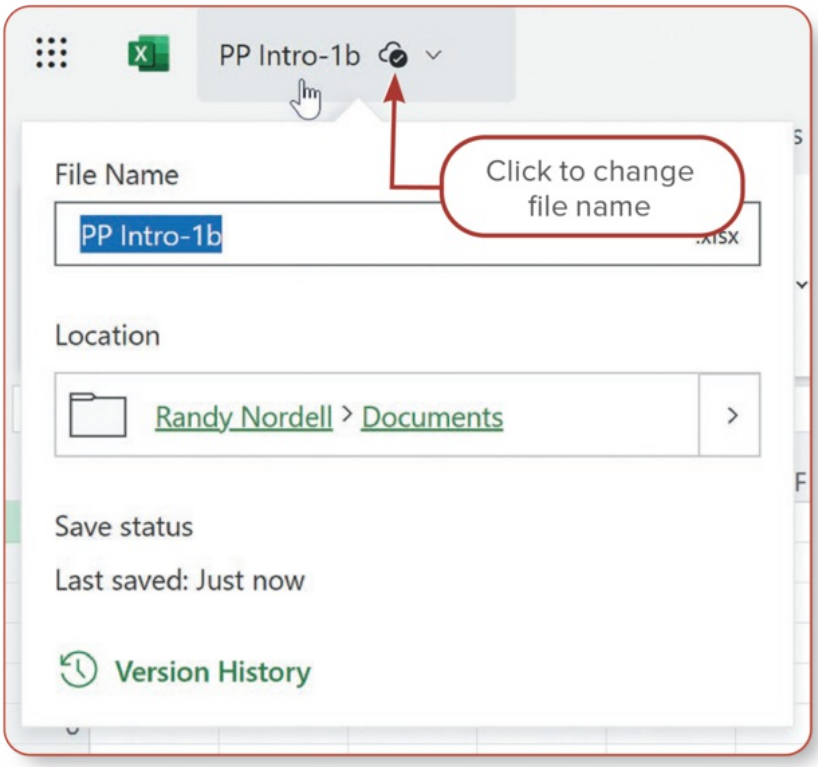


FIGURE INTRO-29 **Rename an *Office Online* file**

- You can also click the **File** tab to open the *Backstage* view, select **Save As**, and choose **Save As** or **Rename**.
- Click the **Editing** button and select **Open in Desktop** to open the file in the Office desktop application. This step may vary depending on the *Office Online* app you are using.

5. Close the browser tab or window to close the file.
   - *Office Online* automatically saves the file as you make changes.

COPILOT/GENERATIVE AI BEST PRACTICES

The Office apps are included as both desktop and online browser-based apps with your Microsoft 365 account. Use *Copilot* or other generative AI product to learn the differences between the desktop and online Office apps. Use follow-up prompts to learn about advantages and disadvantages of each.

Open an Office Desktop Application

When using Windows, you open an Office desktop application by clicking the application on the *Start* menu or the application icon on the *Taskbar*. If your *Start* menu and *Taskbar* do not display the Office applications, click the **Start** button and select **Word**, **Excel**, **Access**, or **PowerPoint** from the alphabetic list of apps to launch the application (**Figure Intro-30**).

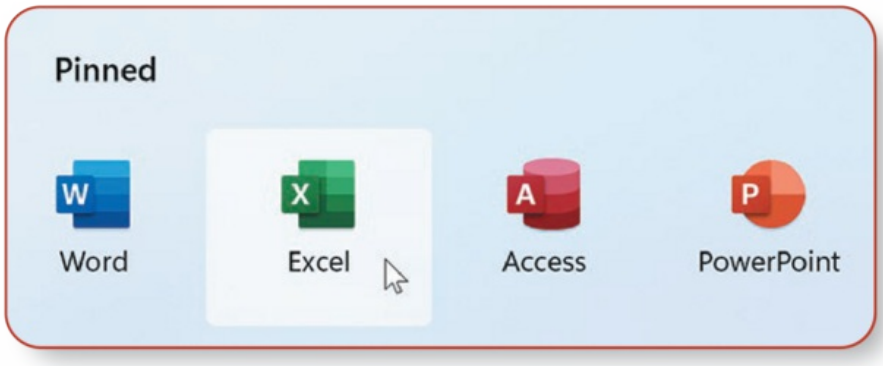


FIGURE INTRO-30 Open an Office desktop app from the *Start* menu

You can also use *Search* to quickly locate an Office desktop app (**Figure Intro-31**).

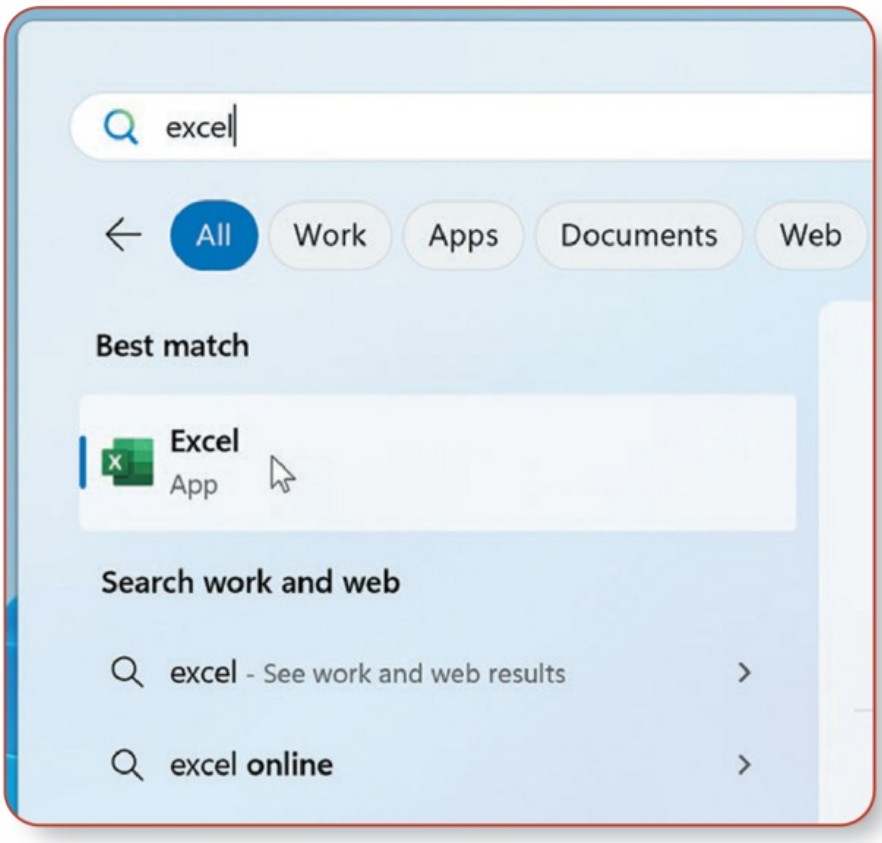


FIGURE INTRO-31 **Use *Search* to find and open an app**

MORE INFO

Add commonly used apps to your Windows *Start* menu and/or *Taskbar* to save time. See the "Customize the *Start* Menu" and "Customize the *Taskbar*" sections in ***SLO Intro.1: Using Windows***.

Office Start Page

Most of the Office applications (except Outlook and OneNote) display a ***Start page*** when you launch the application (**Figure Intro-32**). From this *Start* page, you can create a new blank file (for example, a Word document, an Excel workbook, an Access database, or a PowerPoint presentation), create a file from an online template, search for an online template, open a recently used file, or open another file. These options vary depending on the Office application.

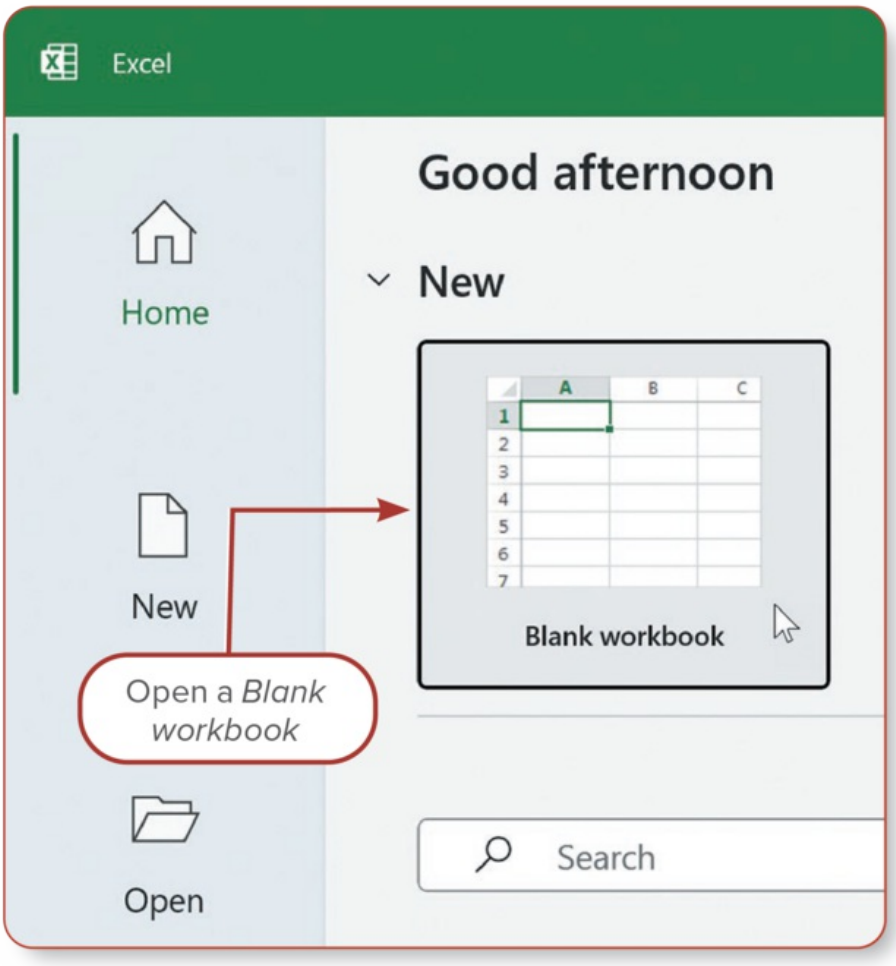


FIGURE INTRO-32 **Excel *Start* page**

MORE INFO

In Access, you have to open an existing database or create a new one to enter the program.

Backstage View

Office incorporates the ***Backstage view*** into all Office applications (including *Office Online* apps). Click the **File** tab on the *Ribbon* to open the *Backstage* view (**Figure Intro-33**). *Backstage* options vary depending on the Office application. The following list describes common tasks you can perform from the *Backstage* view:

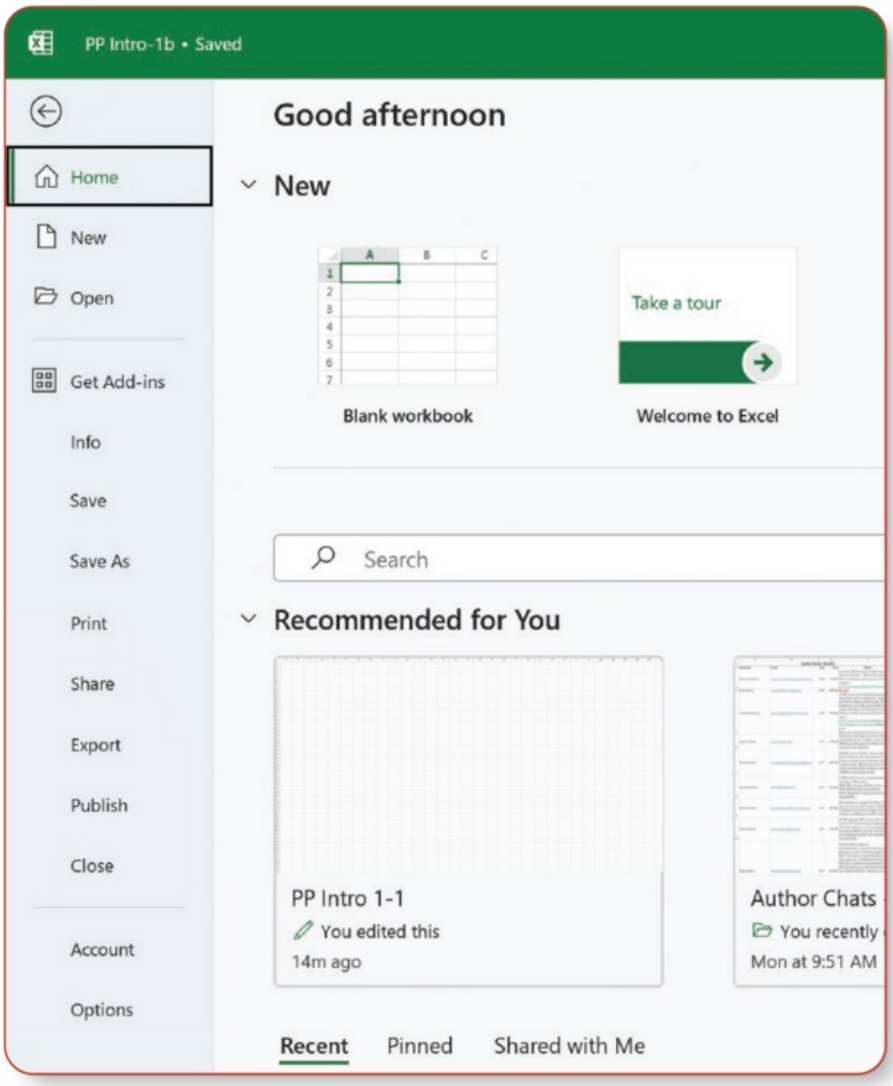


FIGURE INTRO-33 ***Backstage*** **view in Excel**

- ***Home:*** Displays options for creating new files and opening recent, pinned, and shared files.
- ***New:*** Creates a new blank file or a new file from a template or theme.
- ***Open:*** Opens an existing file from a designated location or a recently opened file.
- ***Get Add-ins:*** Opens the *Office Add-ins* dialog box where you can search for and select Office app add-ins.
- ***Info:*** Displays document properties and other protection, inspection, and version options.
- ***Save:*** Saves a file. If the file has not been named, the *Save As* dialog box opens when you select this option.
- ***Save As:*** Opens the *Save As* dialog box. This option will be *Save a Copy* if the file is saved on *OneDrive.*
- ***Print:*** Prints a file, displays a preview of the file, or displays print options.
- ***Share:*** Invites people to share a file or email a file.

- ***Export:*** Creates a PDF file from a file or saves it as a different file type.
- ***Publish:*** Use *Power BI* to publish a workbook to a visual report or dashboard (Excel only).
- ***Close:*** Closes an open file.
- ***Account:*** Displays your Microsoft account information.
- ***Options:*** Opens the *[Application] Options* dialog box (for example, *Excel Options*).

MORE INFO

Options on the *Backstage* view vary depending on the Office application you are using.

Microsoft Search

Microsoft Search (formerly *Tell Me*) is a help feature in all Office applications (**Figure Intro-34**). This feature displays actions and help topics related to your search. Action options displayed in the search results take you directly to a command or dialog box. For example, if you type *PivotTable* in the *Microsoft Search* box in Excel, the results include the option to open the *Create PivotTable* dialog box, as well as other options such as *Recommended PivotTables* and *PivotChart.*

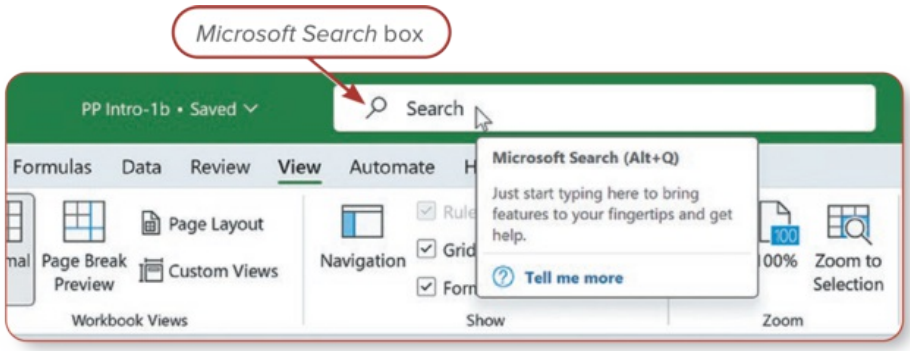


FIGURE INTRO-34 ***Microsoft Search*** **box**

HOW TO: Use Microsoft Search

1. Place the insertion point in the **Microsoft Search** box at the top of the *Title* bar to the right of the file name (see **Figure Intro-34**).
2. Type keywords for the command or feature for which you are searching.
3. Select an option from the search results list (**Figure Intro-35**).

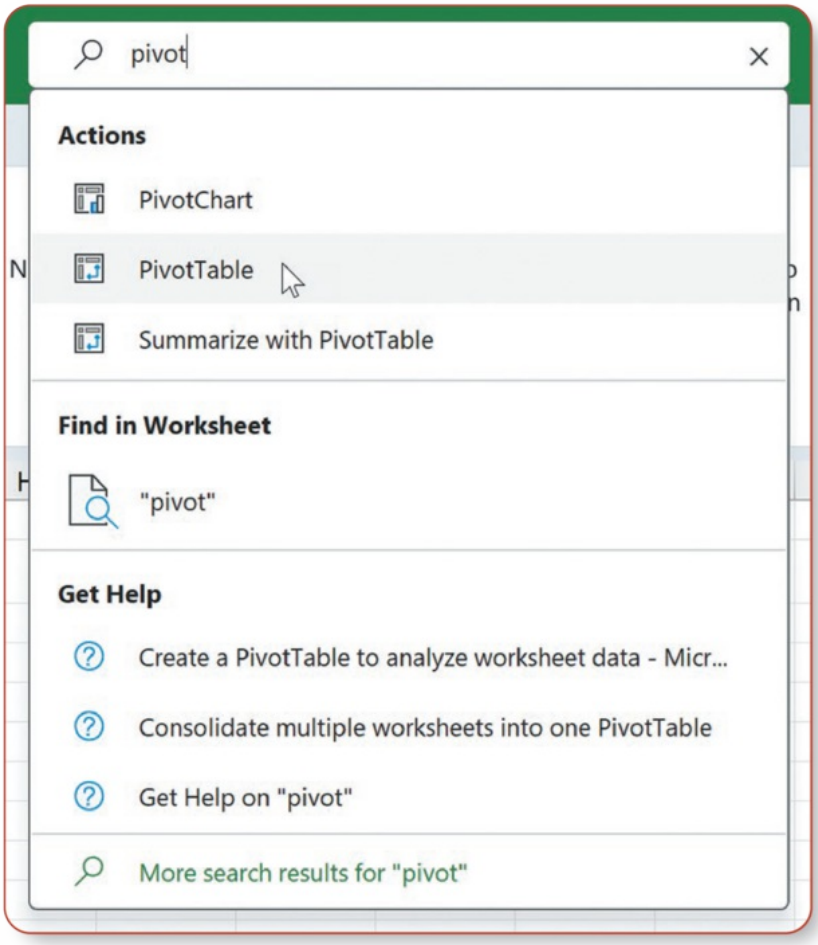


FIGURE INTRO-35 ***Microsoft Search*** **results**

- When you select an *Action* option in the search results, it may apply a command, open a dialog box, or display a gallery of command choices.
- *Get Help on, Definition,* and *Find in Document* are other options that display in the *Microsoft Search* results.

ANOTHER WAY

Alt+Q places the insertion point in the *Microsoft Search* dialog box.

MORE INFO

The *Help* feature is also available in Office apps. Press **F1** to open the *Help* pane on the right.

Mouse and Pointers

If you are using an Office app on a desktop or laptop computer, use your mouse (or touchpad) to navigate within files, click tabs and buttons, select text and objects, move text and objects, and resize objects. **Table Intro-1** lists mouse and pointer terminology.

Table Intro-1: Mouse and Pointer Terminology

Term	Description
Pointer	Move your mouse to move the pointer on your screen. A variety of pointers are used in different contexts in Office applications. The following pointers are available in most of the Office applications (the appearance of these pointers varies depending on the application and the context used): • ***Selection pointer:*** Select text or an object. • ***Move pointer:*** Move text or an object. • ***Copy pointer:*** Copy text or an object. • ***Resize pointer:*** Resize objects or table columns or rows. • ***Crosshair:*** Draw a shape.
Insertion point	The vertical flashing line indicating where you type text in a file or text box. Click the left mouse button to position the insertion point.
Click	Click the left mouse button. Used to select an object or button or to place the insertion point in the selected location.
Double-click	Click the left mouse button twice. Used to select text.
Right-click	Click the right mouse button. Used to display the context menu and the mini toolbar, which display additional formatting and action options.
Scroll	Use the scroll wheel on the mouse to scroll up and down through your file. You can also use the horizontal or vertical scroll bars at the bottom and right of an Office file window to move in a file.

Touch Mode and Touch-Screen Gestures

The user interface in Windows and Office has improved touch features to facilitate the use of Windows and the Office applications on a tablet computer or smartphone. On tablets and smartphones, you can use a touch screen rather than using a mouse. The process of selecting text and objects and navigating a file is different from a computer without a touch screen.

Touch mode optimizes the Office working environment when using a computer with a touch screen to provide more space between buttons and commands. Click the **Touch/Mouse Mode**

button on the *Quick Access* toolbar (displays above or below the *Ribbon* or may be turned off) and select **Touch** from the drop-down list to enable *Touch* mode (Figure Intro-36). To turn off *Touch* mode, select **Mouse** from the *Touch/Mouse Mode* drop-down list.

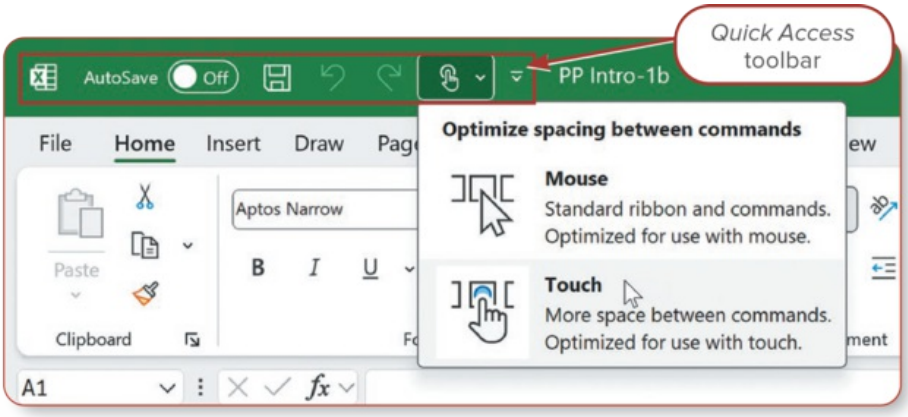


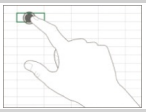
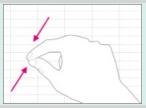
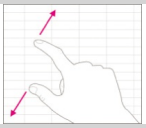
FIGURE INTRO-36 Turn on *Touch* mode

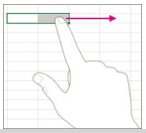
MORE INFO

The *Touch/Mouse Mode* button displays on the *Quick Access* toolbar when using a touch-screen computer.

Table Intro-2 lists common gestures used when working on a tablet or smartphone (these gestures vary depending on the application used and the context).

Table Intro-2: Touch-Screen Gestures

Gesture	Used to	How to
Tap	Select text or an object or position the insertion point. Double tap to edit text in an object or cell.	
Pinch	Zoom in or resize an object.	
Stretch	Zoom out or resize an object.	
Slide	Move an object or selected text.	
Swipe	Select text or multiple objects.	

MORE INFO

Windows allows you to customize touch settings. Open **Settings** and search for “touch settings” to view available customization options.

SLO INTRO. 3

Creating, Saving, Closing, and Opening Office Files

Creating, saving, opening, and closing files is primarily done from the *Start* page or *Backstage* view of the active Office application. Both the *Start* page and the *Backstage* view provide many options and a central location to perform these tasks. You can also use shortcut commands to create, save, and open files.

Create a New File

When you create a new file in an Office application, you can create a new blank file or a new file based on a template (in PowerPoint, you can also create a presentation based on a theme). On the *Start* page, click **Blank *[file type]*** to create a new blank file in the application you are using (in Word, you begin with a blank document; in Excel, a blank workbook; in Access, a blank desktop database; and in PowerPoint, a blank presentation).

HOW TO: Create a New File from the Start Page

1. Open an Office application. The *Start* page displays when the application opens (**Figure Intro-37**).

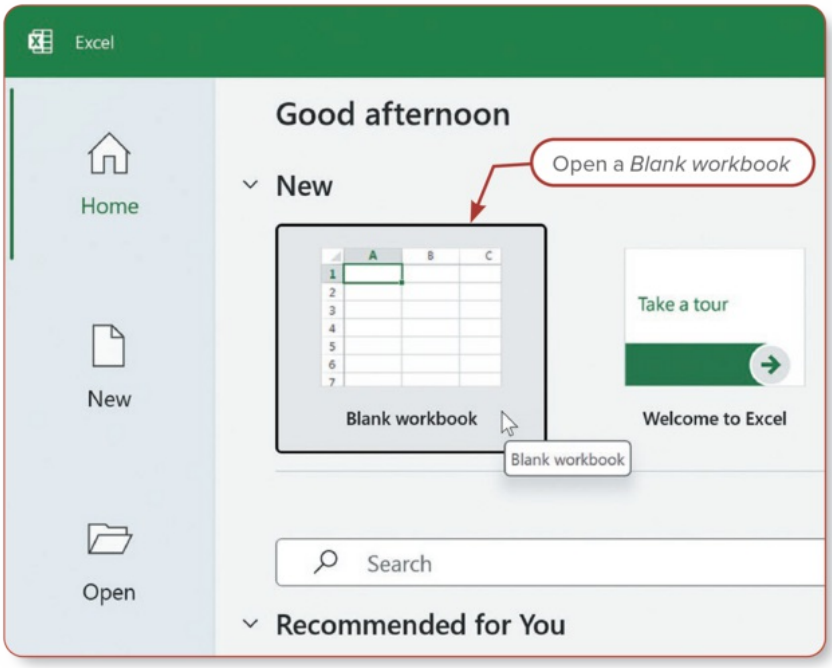


FIGURE INTRO-37 ***Start*** **page in Excel**

2. Click **Blank** ***[file type]*** to open a new file.
   - The new file displays a generic file name (for example, *Document1, Book1,* or *Presentation1*). You can rename and save this file later.
   - When creating a new Access database, you are prompted to name the new file when you create it.
   - A variety of templates (and themes in PowerPoint only) display on the *Start* page, and you can search for additional online templates and themes using the *Search* text box at the top of the *Start* page.

MORE INFO

Esc closes the *Start* page and opens a blank file in the Office application (except in Access).

If you have been using an application already and want to create a new file, you create it from the *Backstage* view. From the *Backstage* view, the new file options are available in the *New* area.

HOW TO: Create a New File from the Backstage View

1. Click the **File** tab to display the *Home* area on the *Backstage* view (**Figure Intro-38**).

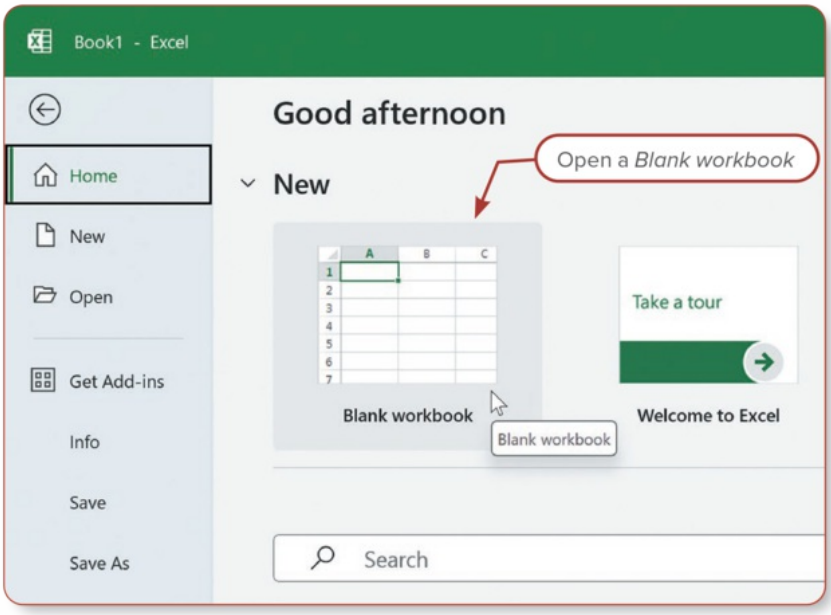


FIGURE INTRO-38 ***Backstage* view in Excel**

2. Click **Blank *[file type]*** to open a new blank file or select a template or theme to use.
   - Alternatively, click **New** on the left to display the *New* area and then click **Blank *[file type]***.
   - The new file displays a generic file name (*Document1, Book1,* or *Presentation1*). You can name and save this file later.
   - When creating a new Access database, you are prompted to name the new file when you create it.

ANOTHER WAY

Ctrl+N opens a new file from within an Office application. In Access, **Ctrl+N** opens the *New* area in the *Backstage* view.

Save a File

When you save a file, name the file and select the location where you want to save the file. You can save a file on your computer, an online storage location such as *OneDrive,* or portable device

such as a USB drive. In Access, you name a file as you create it, but in Word, Excel, and PowerPoint, you name a file after you have created it.

HOW TO: Save a File

1. Click the **File** tab to display the *Backstage* view.
2. Select **Save** or **Save As** on the left to display the *Save As* area (**Figure Intro-39**).

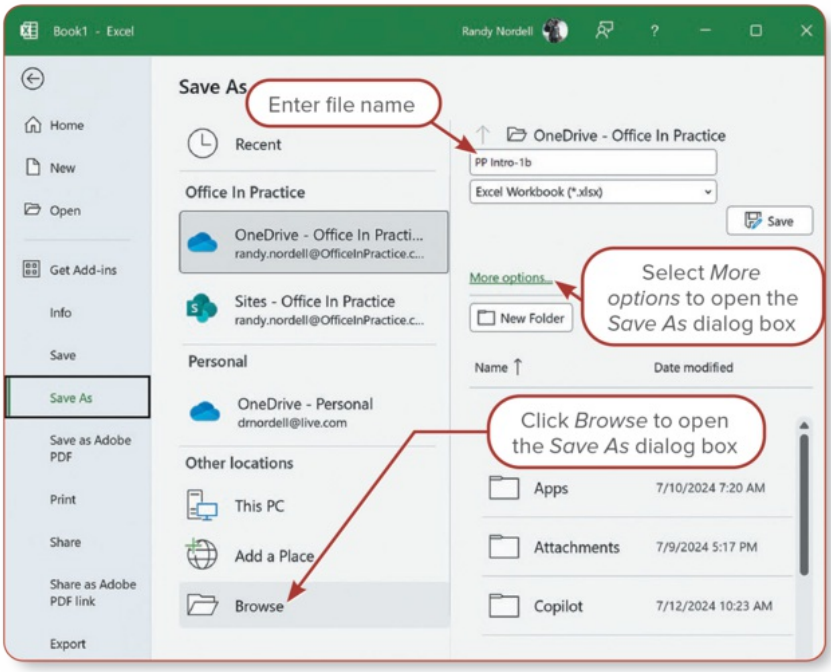


FIGURE INTRO-39 ***Save As* area on the *Backstage* view in Excel**

- If the file has not already been saved, clicking *Save* or *Save As* displays the *Save As* area on the *Backstage* view.

3. Click the **Browse** button to open the *Save As* dialog box (**Figure Intro-40**).
   - Alternatively, type the file name in the *Enter file name here* text box and click **Save**. To change the save location, click the **More options** link to open the *Save As* dialog box or select a save location at the left (*OneDrive* or *This PC*) and select a folder from the list of folders (see **Figure Intro-39**).

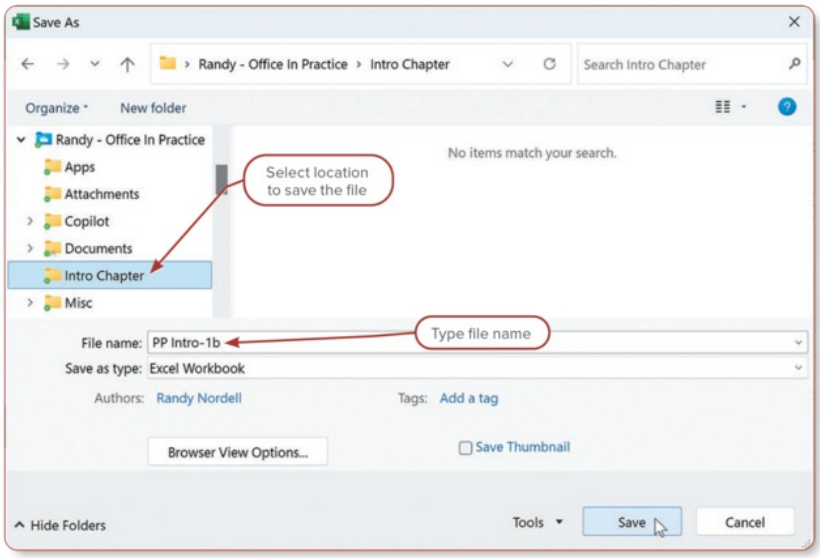


FIGURE INTRO-40 ***Save As* dialog box**

4. Select a location to save the file in the *Folder* list on the left.
5. Type a name for the file in the *File name* area.
   - By default, Office selects the file type, but you can change the file type from the *Save as type* drop-down list.
6. Click **Save** to close the dialog box and save the file.

When saving a new document, pressing **Ctrl+S** or clicking the **Save** button on the *Title* bar opens the *Save this file* dialog box (**Figure Intro-41**). Click **More options** to display the *Save as* area on the *Backstage* view and click **Browse** to open the *Save As* dialog box (see **Figure Intro-40**).

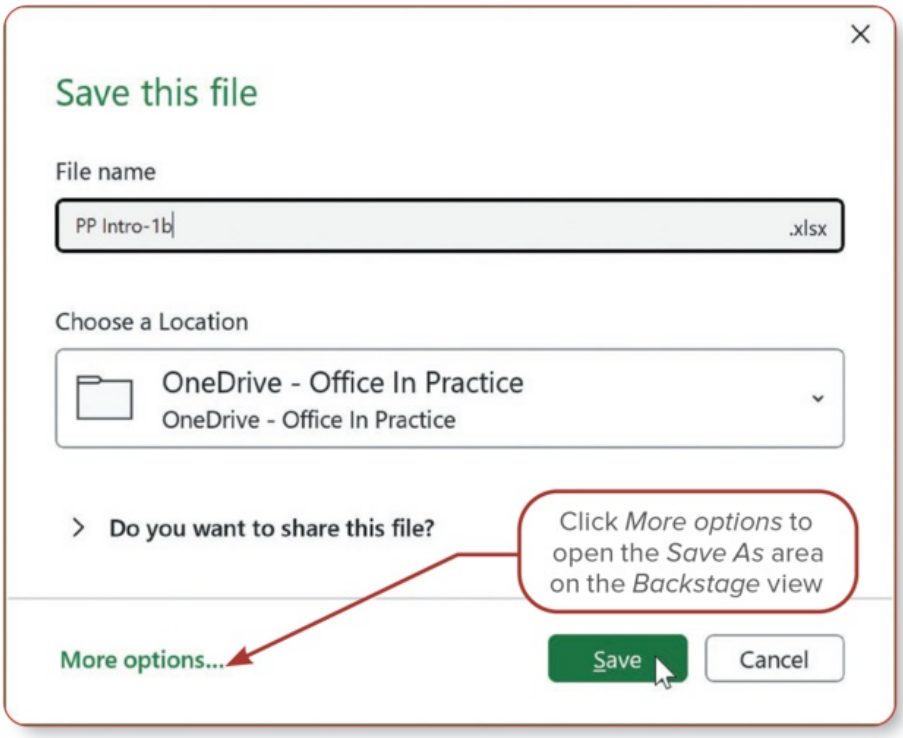


FIGURE INTRO-41 ***Save this file*** **dialog box**

ANOTHER WAY

F12 opens the *Save As* dialog box. If a file has already been named, **Ctrl+S** and the **Save** button on the *Title* bar saves the file without opening the *Backstage* view.

MORE INFO

When you save a file in *OneDrive,* you have access to that file from any computer with internet access. Also, you can share and collaborate on files stored in *OneDrive. OneDrive* is one of the folders in the *Save As* dialog box.

AutoSave

AutoSave is a feature that automatically saves a file that is stored on *OneDrive,* Microsoft's cloud storage area. The *AutoSave* feature turns on by default when you save a file to *OneDrive,* and changes made to the file are automatically saved as you work on a file.

Microsoft 365/Office 2024 Note: The *AutoSave* feature may not be available in all versions of Office 2024.

This feature displays in the upper-left corner of the file (**Figure Intro-42**). Click the **AutoSave** button to turn it on or off. When *AutoSave* is on, the save options on the *Backstage* view change from *Save* and *Save As* to ***Save a Copy***.

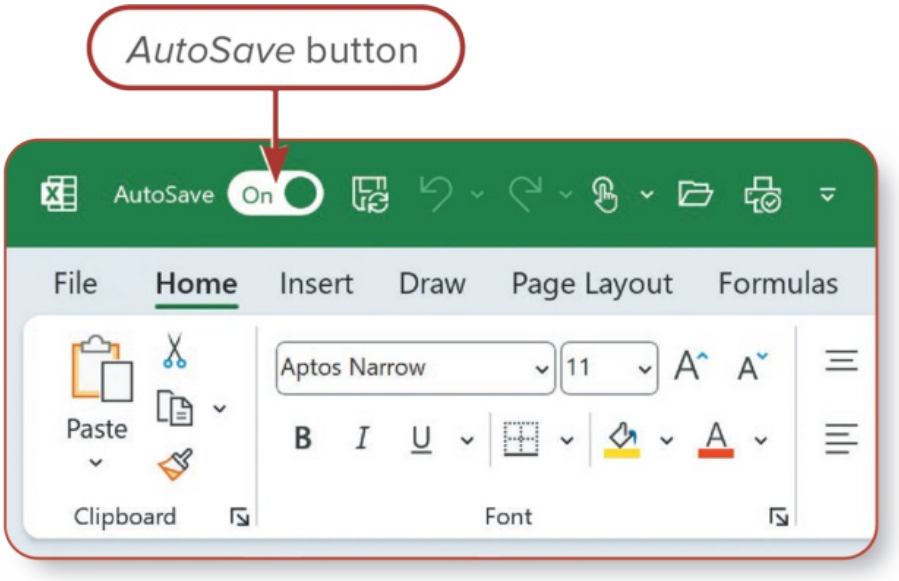


FIGURE INTRO-42 ***AutoSave* feature**

Create a New Folder When Saving a File

When saving files, it is a good practice to create folders to organize your files. Organizing your files in folders saves time when you are searching for a specific file (see **SLO Intro.8: Organizing and Customizing Folders and Files** for more information on this topic). When you save an Office file, you can also create a folder in which to store that file.

HOW TO: Create a New Folder When Saving a File

1. Click the **File** tab to display the *Backstage* view.
2. Select **Save As** on the left to display the *Save As* area.
3. Click **Browse** to open the *Save As* dialog box.
4. Select a location to save the file from the *Folder* list on the left.
5. Click the **New Folder** button to create a new folder (**Figure Intro-43**).

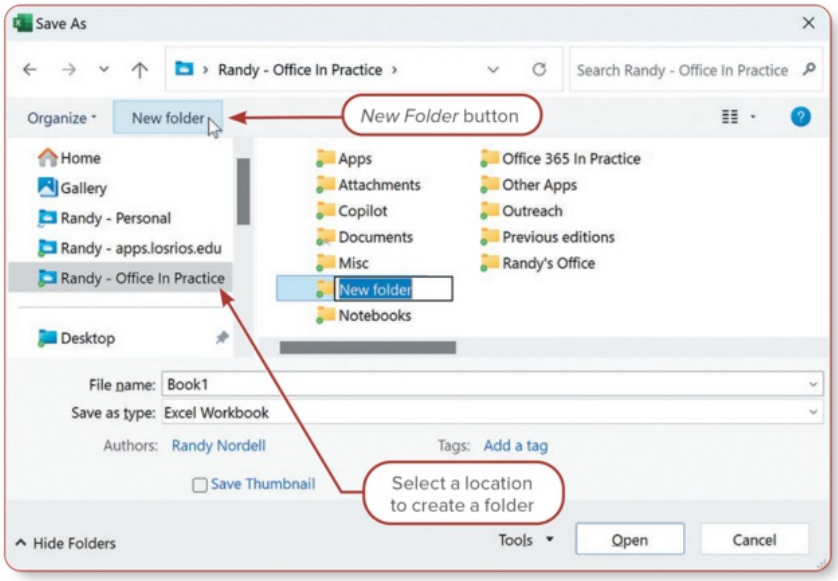


FIGURE INTRO-43 **Create a new folder**

6. Type a name for the new folder and press **Enter**.

ANOTHER WAY

F12 opens the *Save As* dialog box (except in Access). On a laptop, you might have to press **Fn+F12**. See more about the *Fn* (Function) key in ***SLO Intro.7: Using Context Menus, the Mini Toolbar, and Keyboard Shortcuts***.

Save As a Different File Name

After you have saved a file, you can save it again with a different file name. If you do this, you preserve the original file, and you can continue to revise the second file for a different purpose.

HOW TO: Save As a Different File Name

1. Click the **File** tab to display the *Backstage* view.
2. Select **Save As** on the left to display the *Save As* area.
3. Click the **Browse** button to open the *Save As* dialog box (see **Figure Intro-43**).
4. Select a location to save the file from the *Folder* list on the left.

5. Type a new name for the file in the *File name* area.
6. Click **Save** to close the dialog box and save the file.

MORE INFO

If the file is saved on *OneDrive* and *AutoSave* is turned on, ***Save a Copy*** is the save option on the *Backstage* view rather than *Save* and *Save As*.

COPILOT/GENERATIVE AI BEST PRACTICES

Using a consistent file naming convention is an important part of file management, which enhances productivity. Use *Copilot* or other generative AI product to research best practices for a consistent and simple file naming convention.

Office File Types

By default, Office saves a file in the most current file format for that application. You also have the option of saving files in older versions of the Office application. For example, you can save a Word document as an older version to share with or send to someone who uses an older version of Word. Each file has an extension at the end of the file name that determines the file type. The ***file name extension*** is automatically added to a file when you save it. **Table Intro-3** lists common file types used in the different Office applications.

Table Intro-3: Office File Types

File Type	Extension	File Type	Extension
Word Document	*.docx*	Access Database	*.accdb*
Word Template	*.dotx*	Access Template	*.accdt*
Word 97-2003 Document	*.doc*	Access Database (2000-2003 format)	*.mdb*
Rich Text Format	*.rtf*	PowerPoint Presentation	*.pptx*
Excel Workbook	*.xlsx*	PowerPoint Template	*.potx*
Excel Template	*.xltx*	PowerPoint 97-2003 Presentation	*.ppt*
Excel 97-2003 Workbook	*.xls*	Portable Document Format (PDF)	*.pdf*
Comma Separated Values (CSV)	*.csv*		

Close a File

You can close a file using the following different methods:

- Click the **File** tab and select **Close** on the left.
- Press **Ctrl+W**.
- Click the **X** in the upper-right corner of the file window. This method closes the file and the program if only one file is open in the application.

When you close a file, you are prompted to save the file if changes were made after the file was last saved (Figure Intro-44). Click **Save** to save and close the file or click **Don't Save** to close the file without saving. Click **Cancel** to return to the file.

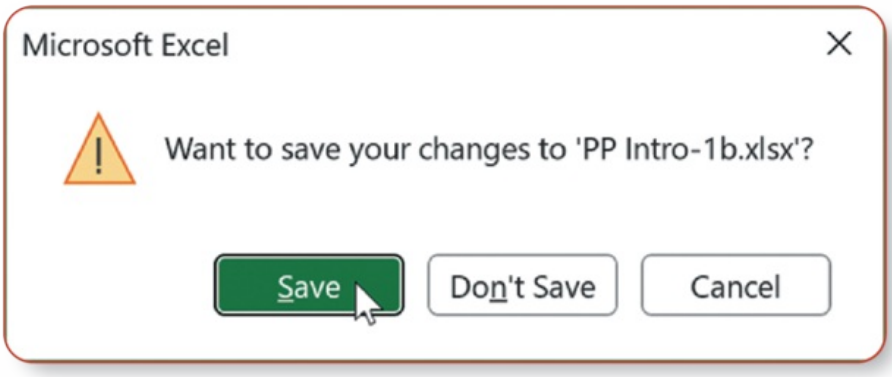


FIGURE INTRO-44 Prompt to save a file before closing

If the file has not been given a file name, you are prompted to name the file and save it. Type a name for the file, select a location to save the file, and click **Save** (Figure Intro-45).

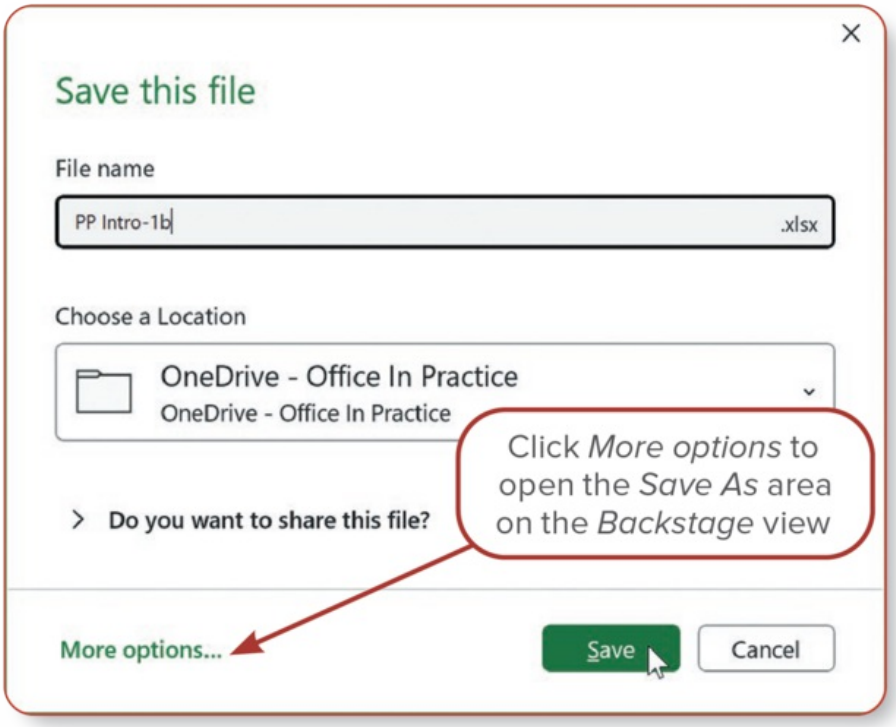


FIGURE INTRO-45 **Prompt to save an unnamed file before closing**

Open an Existing File

You can open an existing file from the *Start* page when you open an Office application or while you are working on another Office file.

HOW TO: Open a File from the Start Page

1. Open an Office application to display the *Start* page.
2. Select a file to open in the *Recent* area on the left (**Figure Intro-46**).

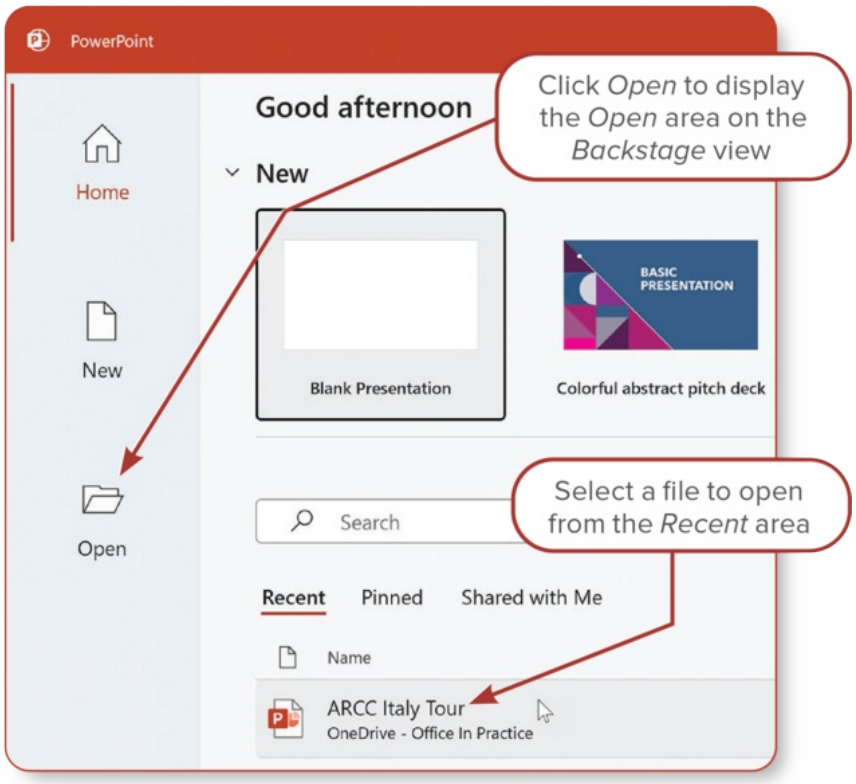


FIGURE INTRO-46 **Open a *Recent* file from the *Start* page**

- If you select a file in the *Recent* area that has been renamed, moved, or is on a storage device not connected to the computer, you receive an error message.

3. Alternatively, click **Open** to display the *Open* area of the *Backstage* view (see **Figure Intro-46**).
4. Click the **Browse** button to open the *Open* dialog box (**Figure Intro-47**).

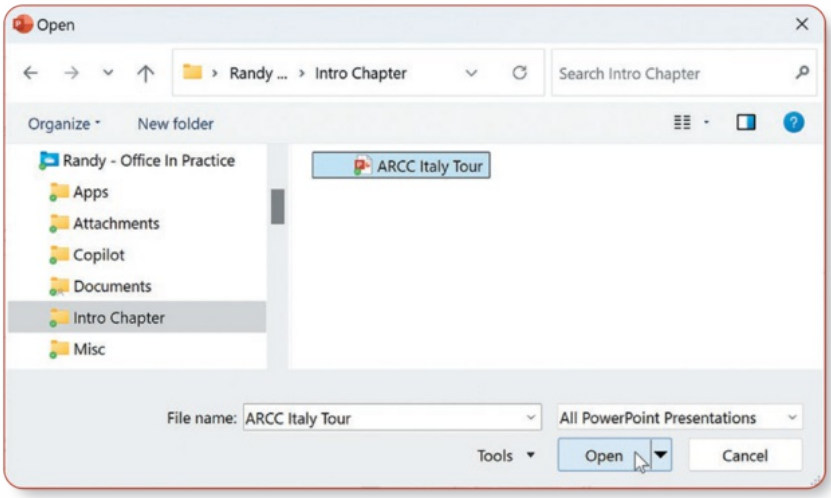


FIGURE INTRO-47 ***Open* dialog box**

5. Select a location from the *Folder* list on the left.
6. Select the file to open and click the **Open** button.
   - If the file opens in *Protected View,* click the **Enable Editing** button to enable you to edit the file.

When working on a file in an Office application, you might want to open another file. You can open an existing file from within an Office application using the *Open* area on the *Backstage* view.

MORE INFO

When opening a file from an online location, Office may open the file in *Protected* view. If the file opens in *Protected View,* click the **Enable Editing** button to edit the file.

HOW TO: Open a File from the Backstage View

1. Click the **File** tab from within an open Office application to display the *Home* area on the *Backstage* view.
   - If you recently worked on the file, select the file to open from the list of *Recent* files on the *Home* area on the *Backstage* view.
2. Click **Open** on the left to display the *Open* area on the *Backstage* view (**Figure Intro-48**).

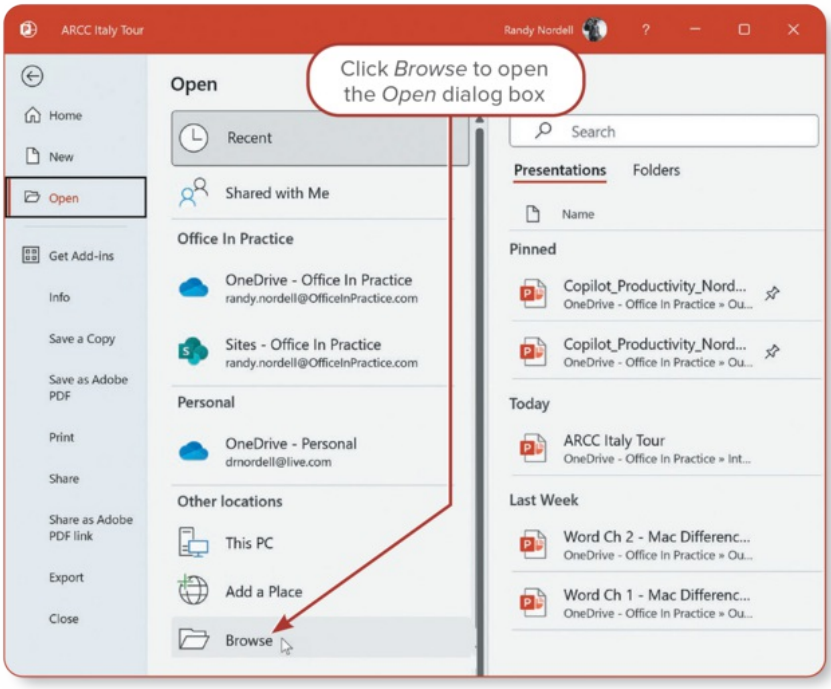


FIGURE INTRO-48 ***Open* area on the *Backstage* view**

3. Click the **Browse** button to open the *Open* dialog box (see **Figure Intro-47**).
4. Select a location from the *Folder* list on the left.
5. Select the file to open and click the **Open** button.
   - If the file opens in *Protected View,* click the **Enable Editing** button to enable you to edit the file.

ANOTHER WAY

Press **Ctrl+F12** to open the *Open* dialog box when you are in the working area of an Office application (except in Access). On laptops, you might have to press **Fn+Ctrl+F12**.

You can also open a file from a *File Explorer* folder. When you double-click a file in a *File Explorer* folder, the file opens in the appropriate Office application. Windows recognizes the file name extension and launches the correct Office application.

PAUSE & PRACTICE: INTRO-1

For this project, you log in to Windows using your Microsoft account, customize the Windows *Start* menu and *Taskbar,* create and save a PowerPoint presentation, create a folder, open and rename an Excel workbook, and use Windows features.

File Needed: ***ARCCBudget-Intro.xlsx*** *(Student data files are available in the* Library *of your SIMnet account.)*
Completed Project File Names: ***[your initials] PP Intro-1a.pptx*** and ***[your initials] PP Intro-1b.xlsx***

1. Log in to Windows using your Microsoft account if you are not already logged in.
   a. If you don't have a Microsoft account, you can create a free account at **https://signup.live.com**.
2. Pin the Office apps to the *Start* menu. If the Office apps are already on the *Start* menu, skip steps 2a–e. You can pin other apps of your choice to the *Start* menu.
   a. Click the **Start** button on the *Taskbar* to open the *Start* menu.
   b. Click **All apps**, locate *Access* in the alphabetic list of apps, right-click the **Access** app, and select **Pin to Start** (**Figure Intro-49**). The app displays in the Pinned area of the *Start* menu.

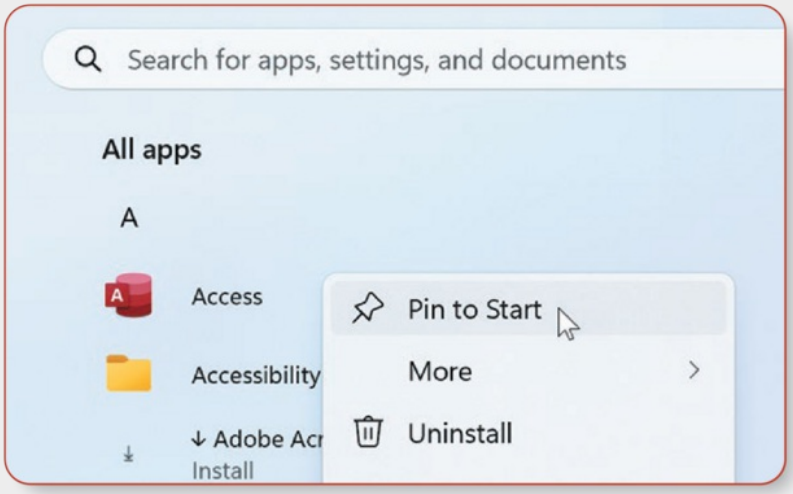


FIGURE INTRO-49 Pin *Access* to the *Start* menu

   c. Repeat step 2b to pin **Excel**, **PowerPoint**, and **Word** apps to the *Start* menu.
   d. Display the *Start* menu and drag these Office app tiles so they are close to each other.
   e. Click the **Start** button (or press the **Esc** key) to close the *Start* menu.
3. Use *Search* and the *Start* menu to pin Office apps to the *Taskbar.*
   a. Click the **Search** button (to the right of the *Start* button) on the *Taskbar* and type Access. *Search* displays content matching your search.
   b. Right-click the **Access** option near the top of the *Search* pane and select **Pin to taskbar** (**Figure Intro-50**). The app pins to the *Taskbar.*

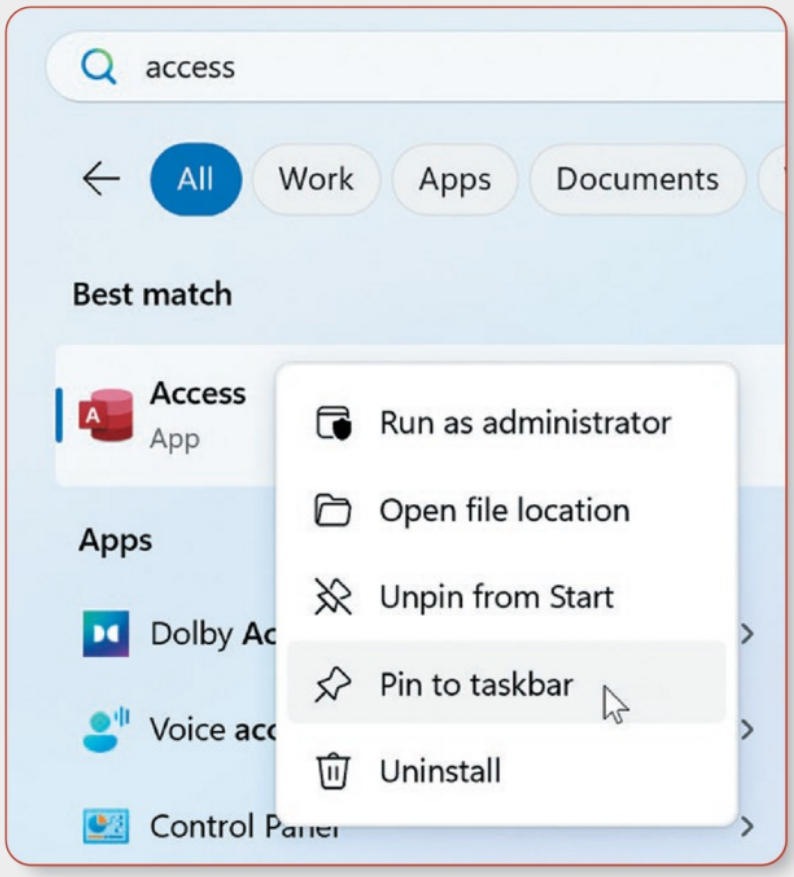


FIGURE INTRO-50 **Use *Search* to find an Office app and pin it to the *Taskbar***

c. Click the **Start** button to open the *Start* menu.

d. Right-click the **Excel** tile on the *Start* menu and select **Pin to taskbar**. The app pins to the *Taskbar*.

e. Use either of the methods described above to pin the **PowerPoint** and **Word** apps to the *Taskbar*.

f. Drag the Office apps on the *Taskbar* to rearrange them to your preference.

4. Create a PowerPoint presentation and save the presentation in a new folder.

a. Click the **PowerPoint** app tile on your *Start* menu to open the application.

b. Click **Blank Presentation** on the PowerPoint *Start* page to create a new blank presentation.

c. Click the **Click to add title** placeholder and type American River Cycling Club to replace the placeholder text.

d. Click the **File** tab to open the *Backstage* view and click **Save As** on the left to display the *Save As* area.

e. Click **Browse** to open the *Save As* dialog box (**Figure Intro-51**).

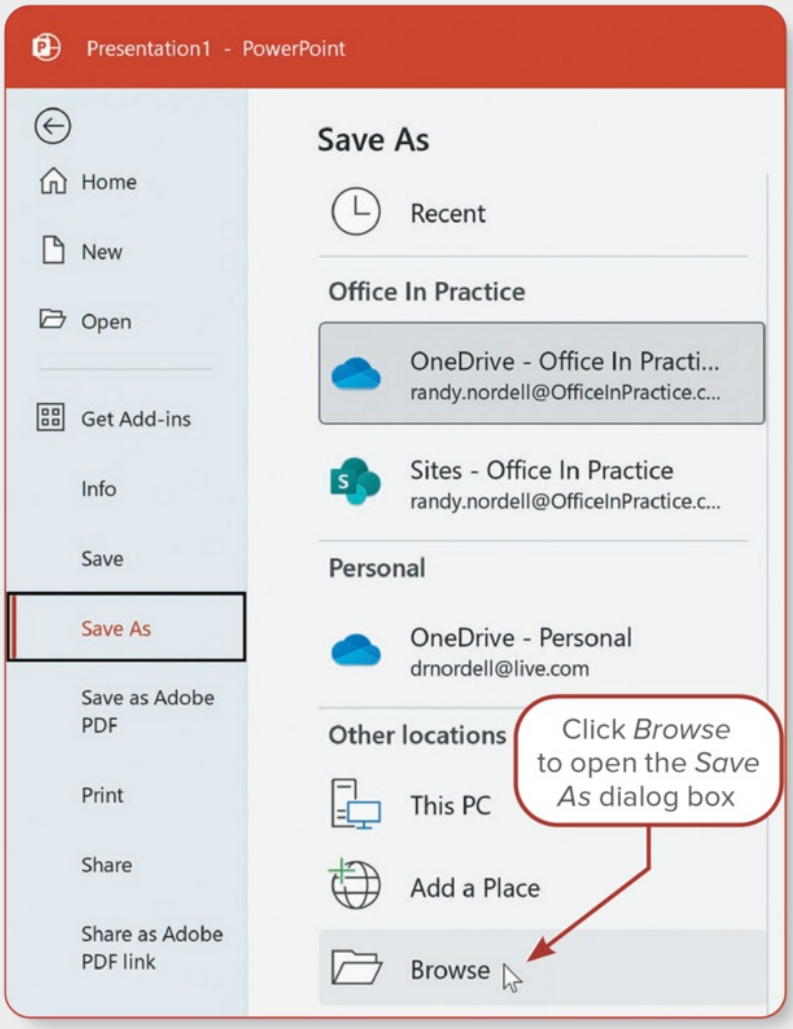


FIGURE INTRO-51 ***Save As*** **area on the** ***Backstage*** **view in PowerPoint**

f. Select a location to save the file from the *Folder* list on the left. If the *OneDrive* folder is an option, select **OneDrive**. If it is not, select another location to save the file.

g. Click the **New Folder** button to create a new folder.

h. Type American River Cycling Club as the name of the new folder and press **Enter** (**Figure Intro-52**).

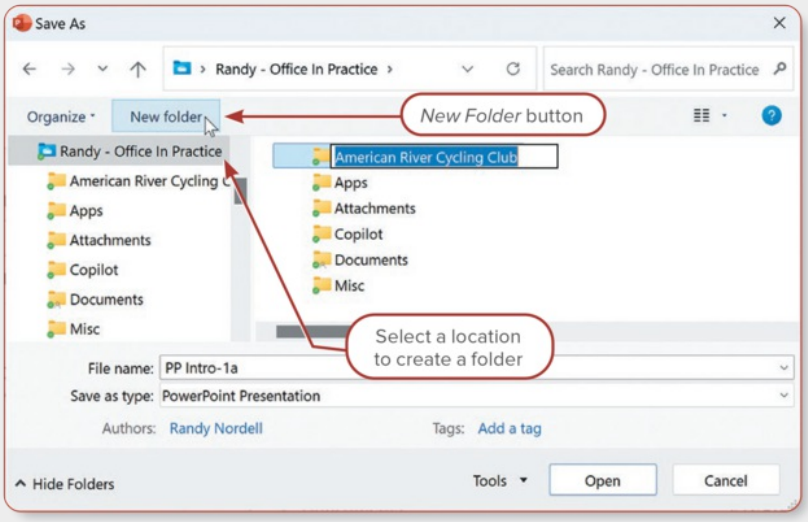


FIGURE INTRO-52 Create a new folder from the *Save As* dialog box

i. Double-click the ***American River Cycling Club*** folder to open it.

j. Type [your initials] PP Intro-1a in the *File name* area.

k. Click **Save** to close the dialog box and save the presentation. Leave the file and PowerPoint open. If you saved your file to *OneDrive*, you may receive a notification about automatic saving.

5. Open an Excel file and save as a different file name.

   a. Click the **Excel** app button on the *Taskbar* to open the *Start* page in Excel.

   b. Click **Open** to display the *Open* area of the *Backstage* view.

   c. Click **Browse** to open the *Open* dialog box (**Figure Intro-53**).

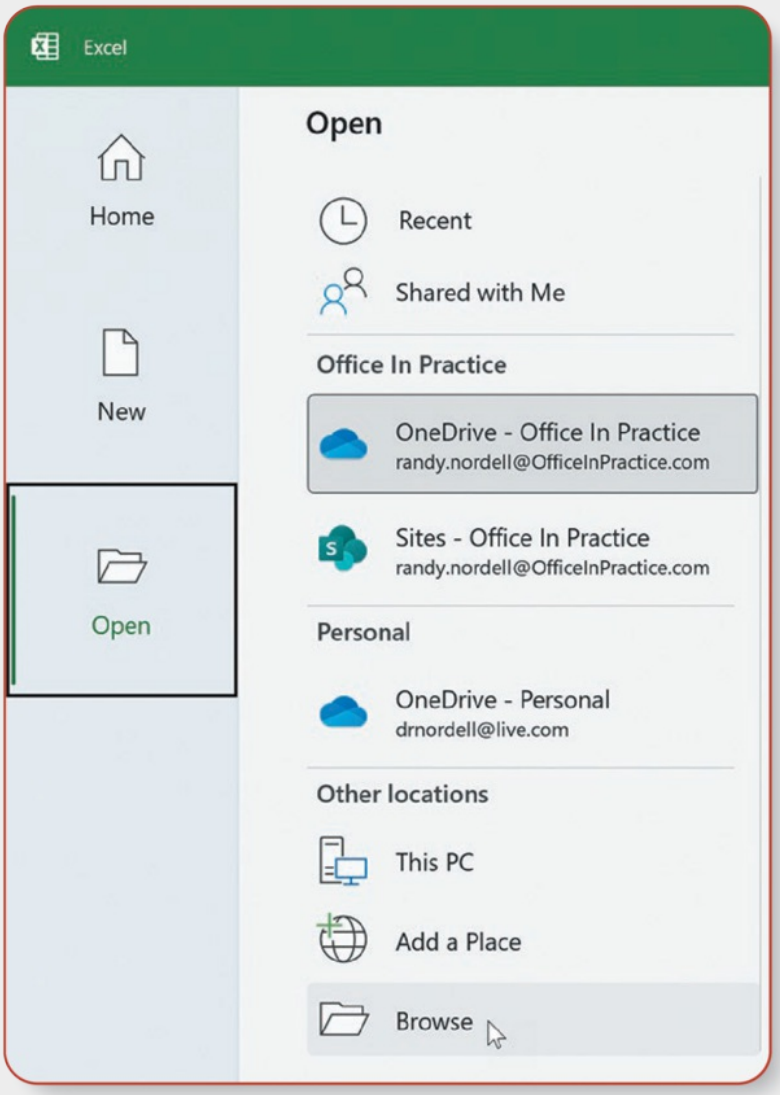


FIGURE INTRO-53 ***Open*** **area on the** ***Backstage*** **view**

d. Browse to your student data files and select the ***ARCCBudget-Intro*** file.

e. Click **Open** to open the workbook. If the file opens in *Protected View,* click the **Enable Editing** button.

f. Click the **File** tab to open the *Backstage* view.

g. Click **Save As** on the left to display the *Save As* area and click **Browse** to open the *Save As* dialog box. If this file is stored on *OneDrive,* click **Save a Copy** rather than *Save As.*

h. Locate the ***American River Cycling Club*** folder (created in step 4h) in the *Folder* list on the left and double-click the folder to open it.

i. Type [your initials] PP Intro-1b in the *File name* area.

j. Click **Save** to close the dialog box and save the workbook. Leave the file and Excel open.

6. Use the *Microsoft Search* feature in Excel to find a command.

a. Click the **Microsoft Search** box on the *Title* bar to the right of the file name at the top of the Excel window and type pivot (**Figure Intro-54**).

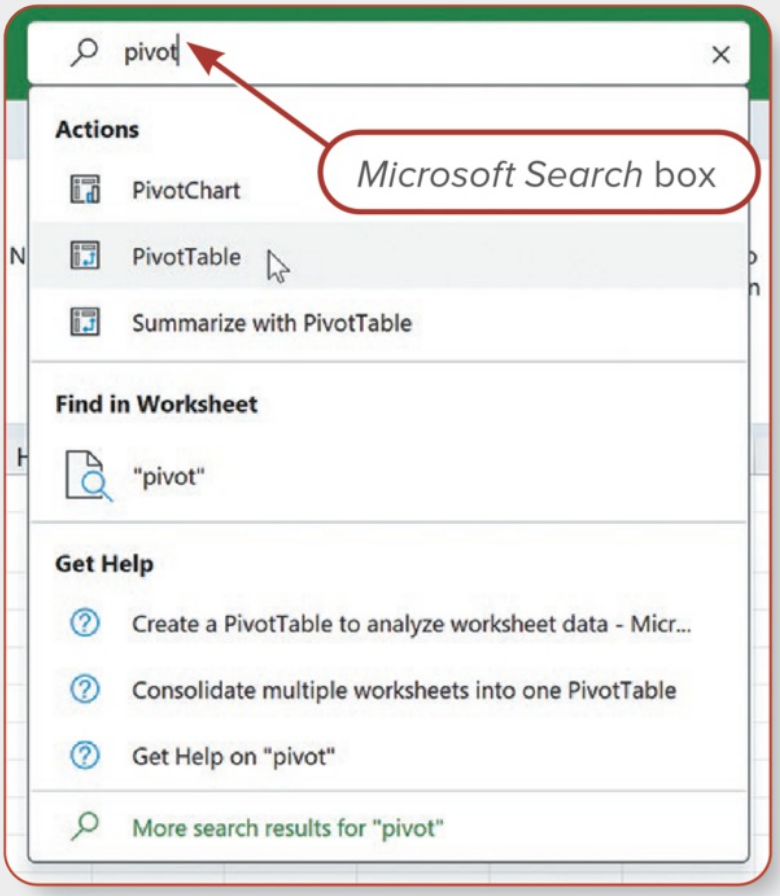


FIGURE INTRO-54 Use *Microsoft Search* to find a command

b. Click **PivotTable** to open the *Create PivotTable* dialog box.

c. Click the **X** in the upper-right corner of the *Create PivotTable* dialog box to close it.

7. Open the *Microsoft Store* app and the *Settings* window.

a. Click the **Search** text box on the *Taskbar* and type Microsoft Store.

b. Click **Microsoft Store** in the *Search* window to open the *Microsoft Store* app.

c. Browse the available apps or search for apps by typing keywords in the *Search* box at the top.

d. Click the **Minimize** button in the upper-right corner of the *Microsoft Store* window to minimize this app (**Figure Intro-55**). The app is still open, but it is minimized on the *Taskbar.*

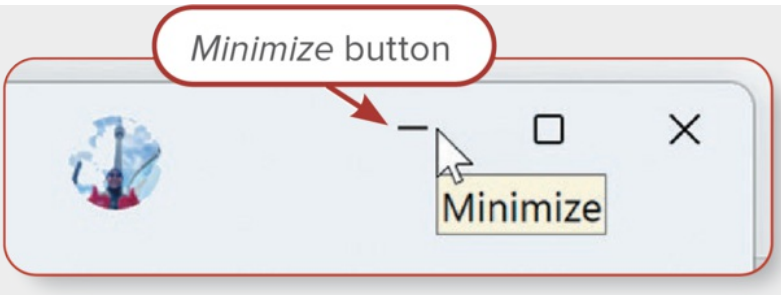


FIGURE INTRO-55 ***Minimize*** **button on an app window**

e. Click the **Settings** button on the *Start* menu (**Figure Intro-56**) or the *Taskbar* to display the *Settings* window.

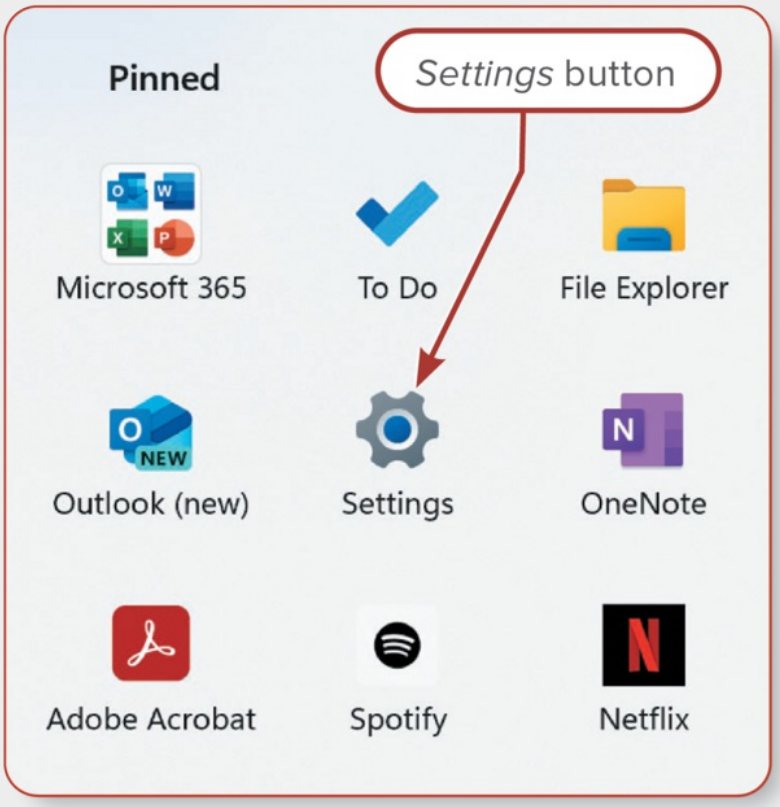


FIGURE INTRO-56 ***Settings*** **button on the** ***Start*** **menu**

f. Click the **Find a setting** search box, type Printer, and view the search results.

g. Click the **Minimize** button to minimize the *Settings* windows to the *Taskbar.*

8. Use the *Task View* feature to open and close apps and windows.

a. Click the **Task View** button on the *Taskbar* (**Figure Intro-57**). All open apps and windows display tiled on the Windows desktop.

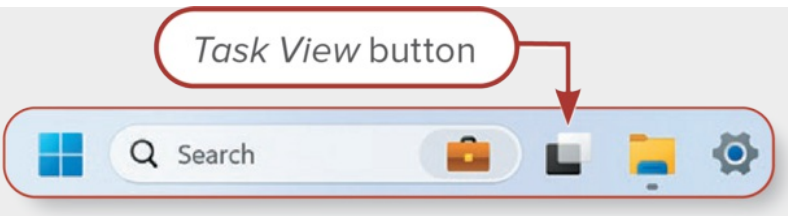


FIGURE INTRO-57 ***Task View*** **button on the** ***Taskbar***

b. Click the **Microsoft Store** app to open it. *Task View* closes and the *Store* app displays on your Windows desktop.

c. Click the **Task View** button again.

d. Click the **X** in the upper-right corner to close each open app and window. You may be prompted to save changes to a file.

e. Click the **Task View** button again or press **Esc** to return to the desktop.

SLO INTRO. 4

Working with Files

When you work with Office files, a variety of display views are available. You can change how a file displays, adjust the display size, work with multiple files, and arrange windows to view multiple files. Office makes it easy and intuitive to move from one file to another or to display multiple document windows at the same time.

File Views

Each of the different Office applications provides you with a variety of ways to view your document. In Word, Excel, and PowerPoint, the different views are available on the ***View tab*** (Figure Intro-58). You can also change views using the buttons on the right side of the ***Status bar*** at the bottom of the file window (Figure Intro-59). In Access, the different views for each object are available in the *Views* group on the *Home* tab.

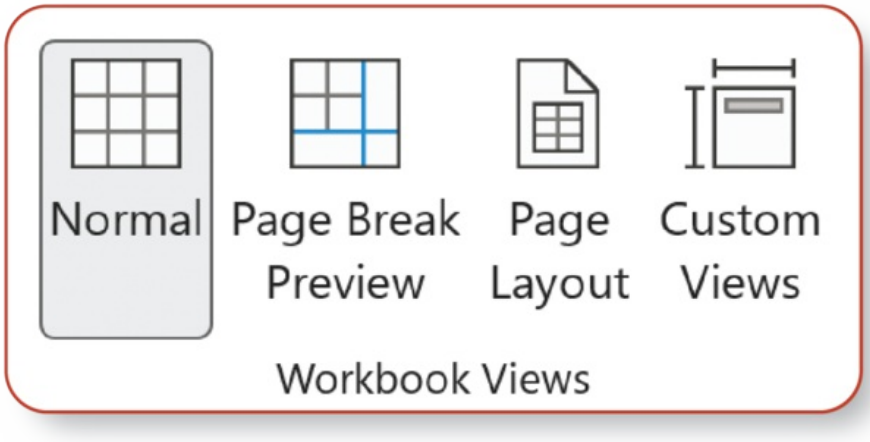


FIGURE INTRO-58 ***Workbook Views*** **group on the** ***View*** **tab in Excel**



FIGURE INTRO-59 **PowerPoint views on the** ***Status*** **bar**

Table Intro-4 lists the views that are available in each of the different Office applications.

Table Intro-4: File Views

Office Applications	Views	Office Applications	Views
Word	*Read Mode* *Print Layout* *web Layout* *Outline* *Draft*	**Access** *(Access views vary depending on active object)*	*Layout View* *Design View* *Datasheet View* *Form View* *SQL View* *Report View* *Print Preview*
Excel	*Normal* *Page Break Preview* *Page Layout* *Custom Views*	**PowerPoint**	*Normal* *Outline View* *Slide Sorter* *Notes Page* *Reading View*

Change Display Size

Use the ***Zoom*** feature to increase or decrease the display size of your file. Using *Zoom* to change the display size does not change the actual size of text or objects in your file; it only changes the size of your display. For example, if you change the *Zoom* level to 120%, you increase the display of your file to 120% of its normal size (100%), but changing the display size does not affect the actual size of text and objects in your file. Decrease the *Zoom* level to 80% to display more of your file on the screen.

You can increase or decrease the *Zoom* level several different ways. Your *Zoom* options vary depending on the Office application.

- ***Zoom level*** *on the Status* bar (Figure Intro-60): Click the + or − button to increase or decrease *Zoom* level in 10% increments or use the *Zoom* slider to adjust the *Zoom* level.

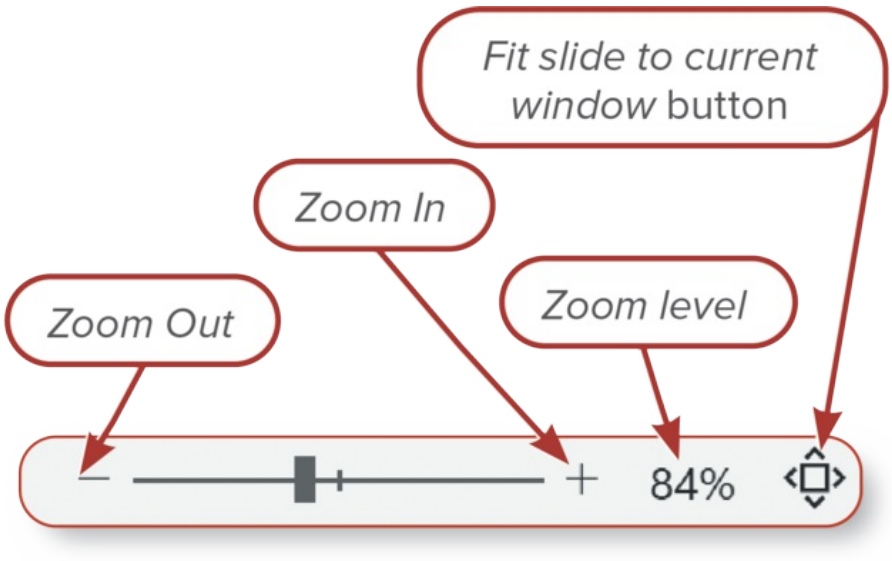


FIGURE INTRO-60 ***Zoom*** **area on the** ***Status*** **bar in PowerPoint**

- ***Zoom group*** *on the View tab* (Figure Intro-61): The *Zoom* group includes a variety of *Zoom* options. The options vary depending on the Office application.

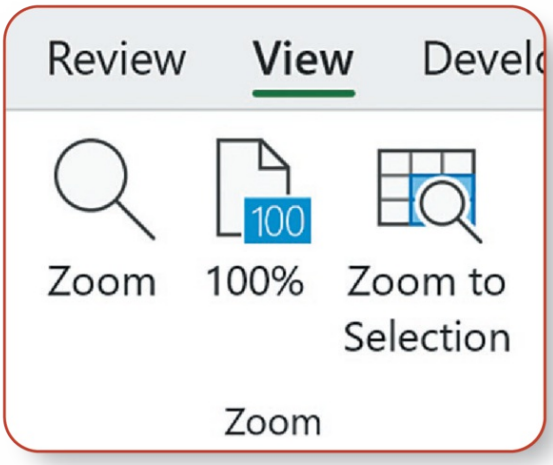


FIGURE INTRO-61 ***Zoom*** **group in Excel**

- ***Zoom dialog box*** (Figure Intro-62): Click the **Zoom** button in the *Zoom* group on the *View* tab or click the **Zoom level** on the *Status* bar to open the *Zoom* dialog box.

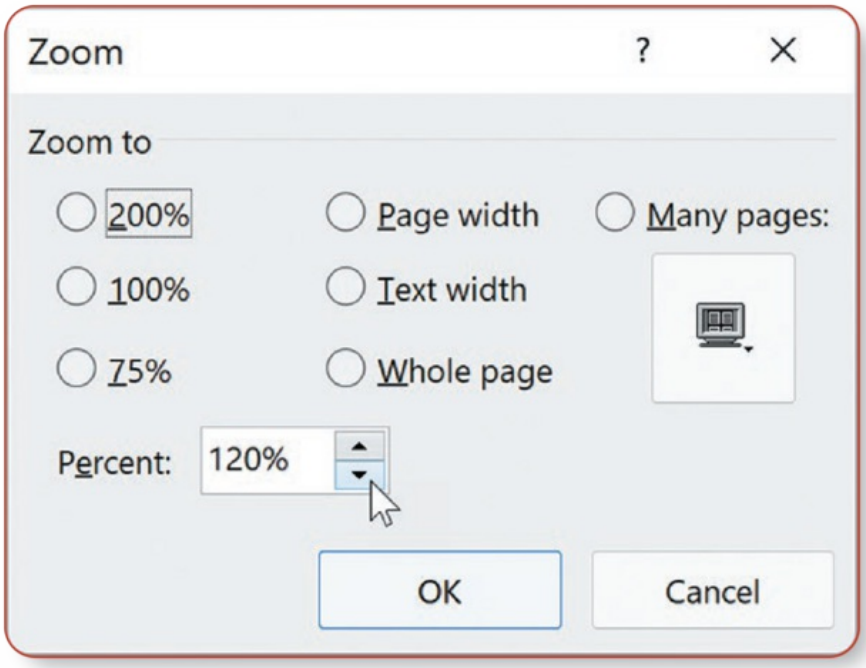


FIGURE INTRO-62 ***Zoom*** **dialog box in Word**

MORE INFO

The *Zoom* feature is only available in Access in *Print Preview* view when you are working with reports.

Manage Multiple Open Files and Windows

When you are working on multiple files in an Office application, each file is opened in a new window. ***Minimize*** an open window to place the file on the Windows *Taskbar* (the bar at the bottom of the Windows desktop), ***restore down*** an open window so it does not fill the entire computer screen, or ***maximize*** a window so it fills the entire computer screen. The *Minimize, Restore Down/Maximize,* and *Close* buttons are in the upper-right corner of a file window (**Figure Intro-63**).



FIGURE INTRO-63 Window options buttons

- ***Minimize*:** Click the **Minimize** button (see Figure Intro-63) to hide the active window. When a document is minimized, it is not closed. It is reduced to an icon on the *Taskbar* and the window does not display. Place your pointer on the application icon on the Windows *Taskbar* to display thumbnails of open files. Click an open file thumbnail to display the file (Figure Intro-64).

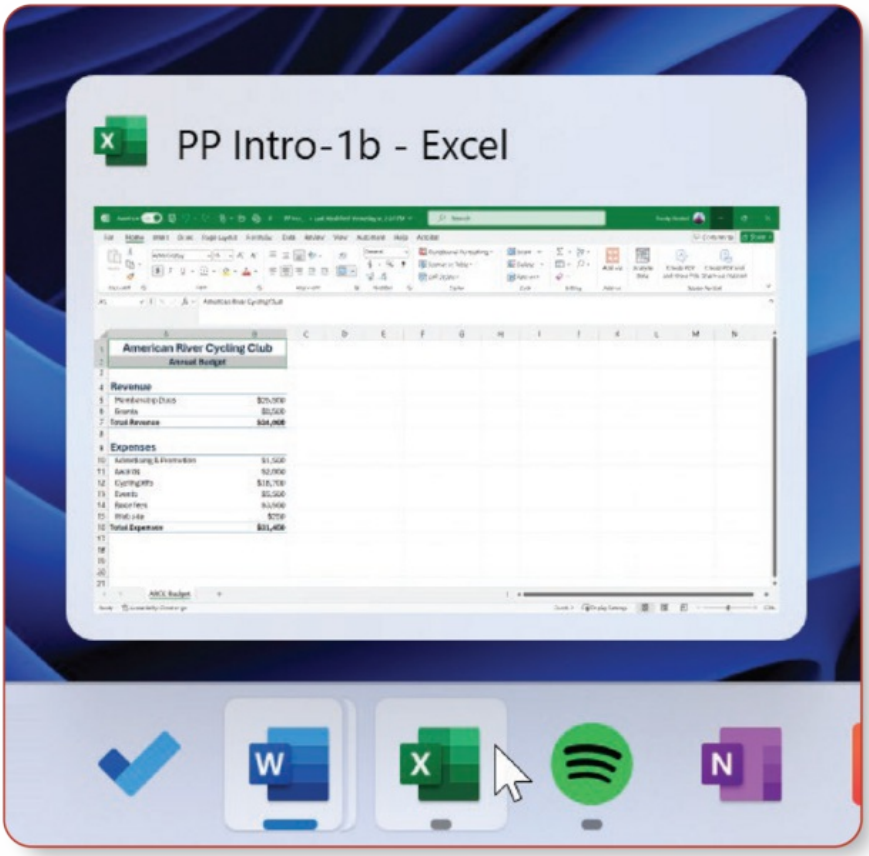


FIGURE INTRO-64 Display minimized file on the *Taskbar*

- ***Restore Down/Maximize:*** Click the **Restore Down/Maximize** button (see Figure Intro-63) to decrease the size of an open window or to maximize the window to fill the entire screen. This button toggles between *Restore Down* and *Maximize*. When a window is restored down, change the size of a window by clicking and dragging a border of the window. You can also move the window by clicking and dragging the *Title* bar at the top of the window.
- ***Close:*** Click the **Close** button (see Figure Intro-63) to close the window. If only one file is open, the Office application also closes when you click the *Close* button on the file.

MORE INFO

The *Restore Down/Maximize* feature in Windows 11 also includes *Snap Assist* options, which will be discussed in the next section in this chapter.

You can switch between open files or arrange open files to display more than one window at the same time. The following are several methods to do this:

- ***Switch Windows button:*** Click the **Switch Windows** button [*View* tab, *Window* group] (not available in Access) to display a drop-down list of open files. Click a file from the drop-down list to display the file.
- ***Windows Taskbar:*** Place your pointer on an Office application icon on the Windows *Taskbar* to display the open files in that application. Click a file thumbnail to display it (see Figure Intro-64).

ANOTHER WAY

Click the Windows **Task View** button on the *Taskbar* to tile all open windows and apps on the desktop.

- ***Arrange All button:*** Click the **Arrange All** button [*View* tab, *Window* group] to display all windows in an application. You can resize or move the open file windows.

Snap Assist

The ***Snap Assist*** feature in Windows provides the ability to position an open window to the left or right side of your computer screen and fill a half or a quarter of the screen. When you snap an open window to the left or right side or one of the quadrants of the screen, the other open

windows tile on the opposite side where you can select another window to fill another section of the computer screen (Figure Intro-65).

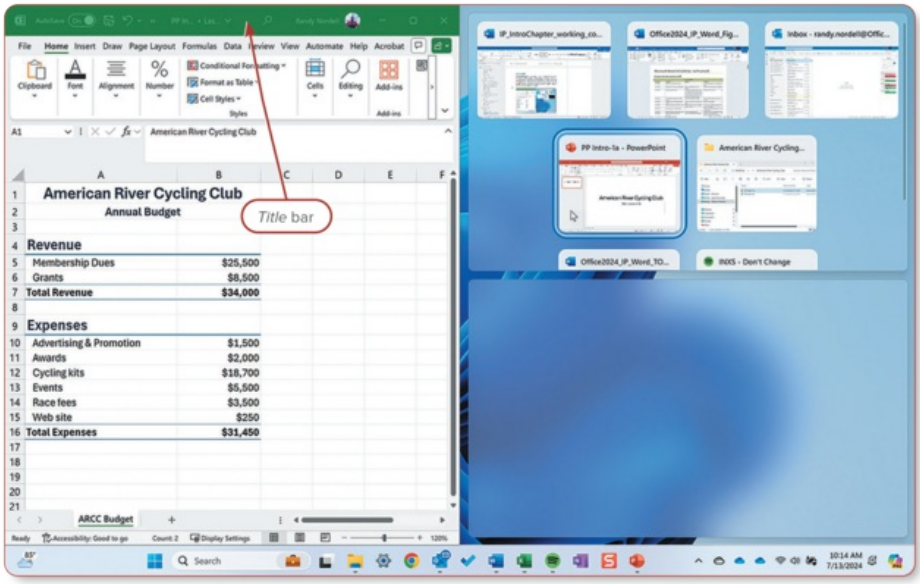


FIGURE INTRO-65 **Windows *Snap Assist* feature**

HOW TO: Use Snap Assist

1. Place your pointer on the **Restore Down/Maximize** button near the upper-right corner of an open app or window to display the *Snap Assist* options (Figure Intro-66).

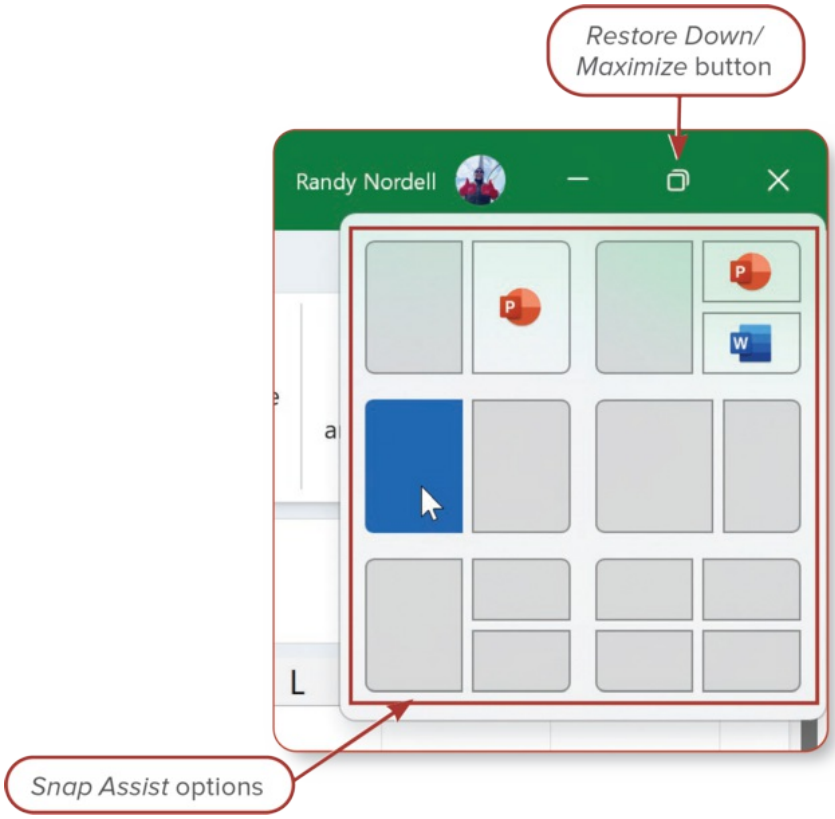


FIGURE INTRO-66 ***Snap Assist*** **options**

2. Select one of the *Snap Assist* options.
   - The window snaps to the section of the screen you selected and the other open windows display in the next open section (see **Figure Intro-65**).
   - Alternatively, click the **Title bar** of an open window, drag it to the left or right edge or one of the four corners of the computer screen, and release the pointer.
3. Select another window to fill the next section and repeat the process until all sections are filled with an app or window.

Windows 10 Note: The *Snap Assist* options on the *Restore Down/Maximize* button are not available in Windows 10, but *Snap Assist* does work with Windows 10 by dragging a window or app to a section of the screen.

SLO INTRO. 5

Printing, Sharing, and Customizing Files

Use *Backstage* view in any of the Office applications, to print a file and to customize how a file is printed. You can also export an Office file as a PDF file in most of the Office applications. In addition, you can add and customize document properties for an Office file and share a file in a variety of formats.

Print a File

Print an Office file if you need a hard copy. The *Print* area on the *Backstage* view displays a preview of the open file and many print options. For example, you can choose which page or pages to print and change the margins of the file in the *Print* area. Print settings vary depending on the Office application you are using and what you are printing.

HOW TO: Print a File

1. Open the file you want to print from a Windows folder or within an Office program.
2. Click the **File** tab to open the *Backstage* view.
3. Click **Print** on the left to display the *Print* area (**Figure Intro-67**).

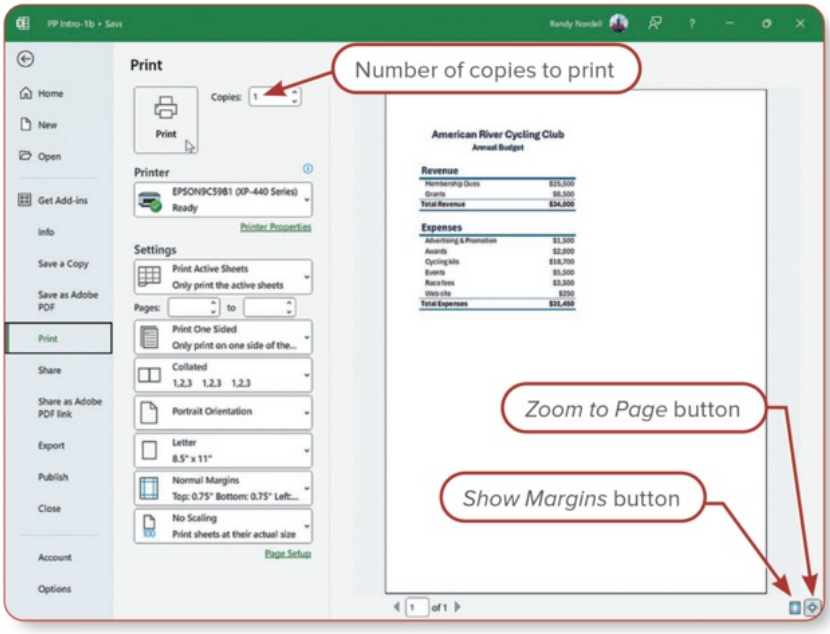


FIGURE INTRO-67 ***Print*** **area on the** ***Backstage*** **view in Excel**

- A preview of the file displays on the right. Click the **Show Margins** button to adjust margins or click the **Zoom to Page** button to change the view in the *Preview* area. The *Show Margins* button is only available in Excel.

4. Change the number of copies to print in the *Copies* area.
5. Click the **Printer** drop-down list to choose from available printers.
6. Customize what is printed and how it is printed in the *Settings* area.
   - The *Settings* options vary depending on the Office application and what you print.
   - In the *Pages* area (*Slides* area in PowerPoint), select a page or range of pages (slides) to print.
   - By default, all pages (slides) are printed when you print a file.
7. Click the **Print** button to print the file.

ANOTHER WAY

Press **Ctrl+P** to open the *Print* area on the *Backstage* view.

Export as a PDF File

Portable document format, or ***PDF***, is a specific file format that is often used to share files that are not to be changed, or to post files on a website. When you create a PDF file from an Office application file, you are actually exporting a static image of the original file, similar to taking a picture of the file.

The advantage of working with a PDF file is that the format of the file is retained no matter who opens the file. PDF files open in a browser window or Adobe Reader, which is a free software application that is installed on most computers.

HOW TO: Export a File as a PDF File

1. Open the file you want to export as a PDF file.
2. Click the **File** tab and click **Export** to display the *Export* area on the Backstage view (**Figure Intro-68**).

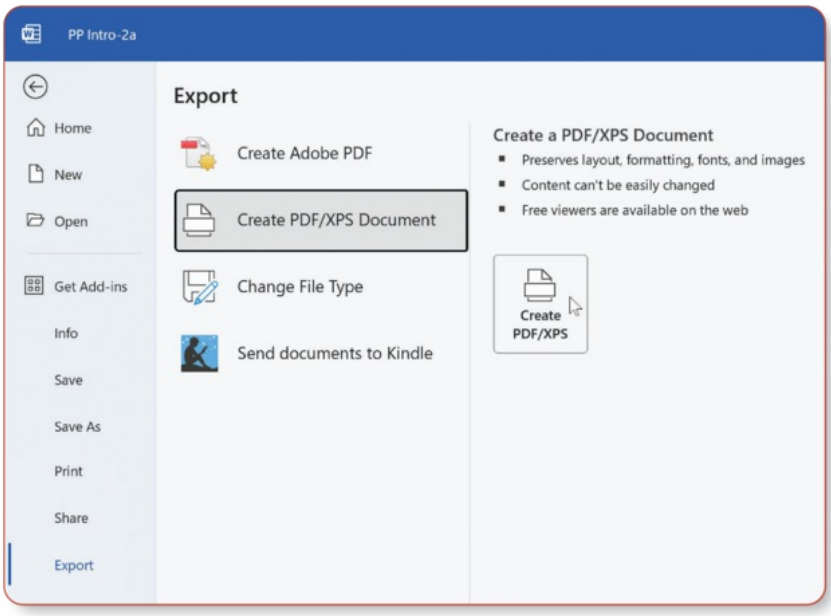


FIGURE INTRO-68 ***Export*** **a Word file as a PDF file**

3. Select **Create PDF/XPS Document** and click the **Create PDF/XPS** button. The *Publish as PDF or XPS* dialog box opens.
   - XPS (XML Paper Specification) format is an alternative to a PDF file. XPS is a Microsoft format and is not widely used.
4. Select a location to save the file.
5. Type a name for the file in the *File name* area.
6. Click **Publish** to close the dialog box and save the PDF file.

MORE INFO

Microsoft Word can open PDF files, and you can edit and save the file as a Word document. If Adobe Acrobat is installed on your computer, *Save as Adobe PDF* displays as an option on the *Backstage* view.

Document Properties

Document properties are hidden codes in a file that store identifying information about that file. Each piece of document property information is called a ***field***. You can view and modify document properties in the *Info* area of the *Backstage* view.

Some document properties fields are automatically generated when you create a file, such as *Size, Total Editing Time, Created,* and *Last Modified.* Other document properties fields, such as *Title, Comments, Subject, Company,* and *Author,* can be modified. You can use document property fields in different ways such as inserting the *Company* field in a document footer.

HOW TO: View and Modify Document Properties

1. Click the **File** tab to display the *Backstage* view.
2. Click **Info** on the left. The document properties display on the right (**Figure Intro-69**).

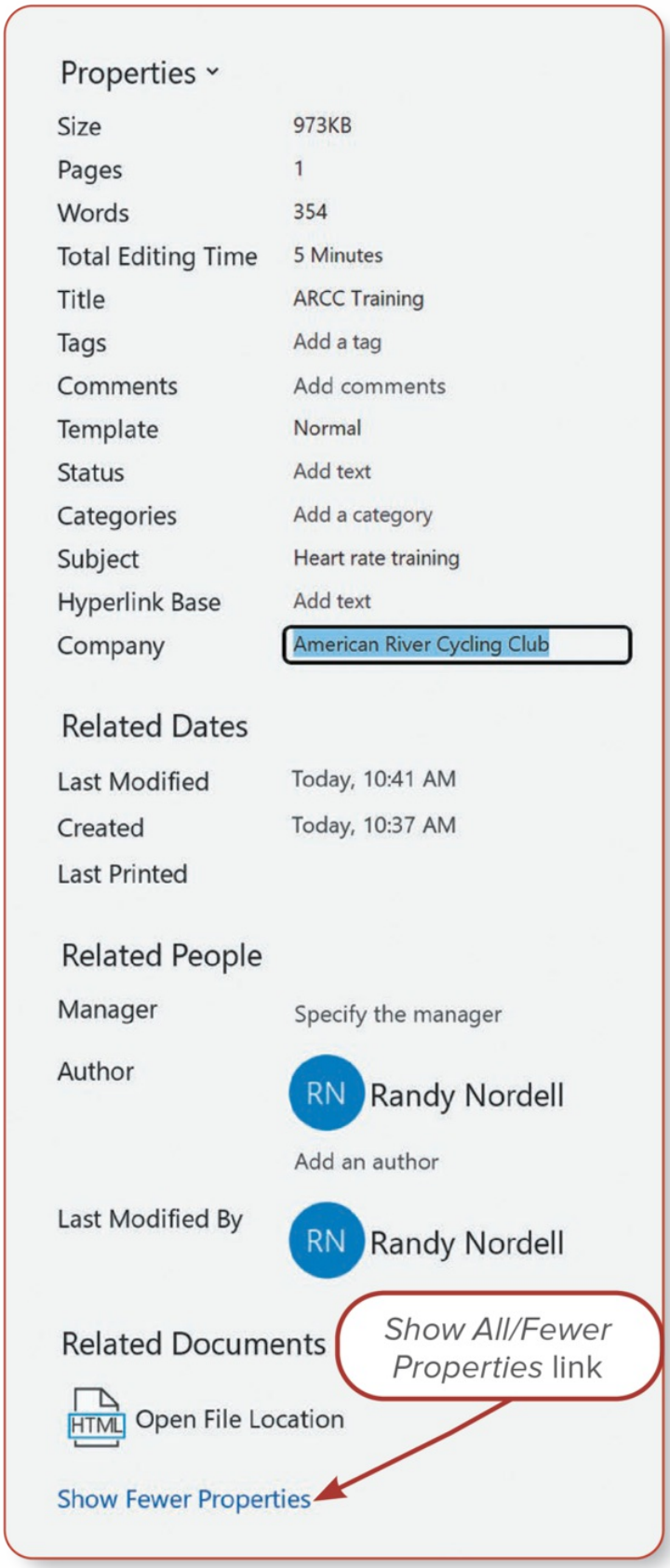

Properties
Size 973KB
Pages 1
Words 354
Total Editing Time 5 Minutes
Title ARCC Training
Tags Add a tag
Comments Add comments
Template Normal
Status Add text
Categories Add a category
Subject Heart rate training
Hyperlink Base Add text
Company American River Cycling Club
Related Dates
Last Modified Today, 10:41 AM
Created Today, 10:37 AM
Last Printed
Related People
Manager Specify the manager
Author RN Randy Nordell
Add an author
Last Modified By RN Randy Nordell
Related Documents
Show All/Fewer Properties link
HTML Open File Location
Show Fewer Properties

FIGURE INTRO-69 Document properties

3. Click the text box area of a field that can be edited and type your custom document property information.
4. Click the **Show All Properties** link at the bottom of the *Properties* list to display additional document properties.
   - Click **Show Fewer Properties** to collapse the list and display fewer properties.
   - This link toggles between *Show All Properties* and *Show Fewer Properties*.
5. Click the **Back** arrow to return to the file.

Share a File

Windows and Office have been enhanced to help you share files and collaborate with others. Because collaboration is so important and commonly used, the ***Share*** button displays in the upper-right corner of the application window, except on Access. When sharing a file with others, you can send a sharing email or get a sharing link to paste into an email message or post in an online location.

To share a file, it must first be saved in *OneDrive.* If you try to share a file that is not saved in *OneDrive,* Word prompts you to save your document to *OneDrive* before sharing it. The sharing options display in a ***Share*** window, which displays a variety of sharing options. (**Figure Intro-70**).

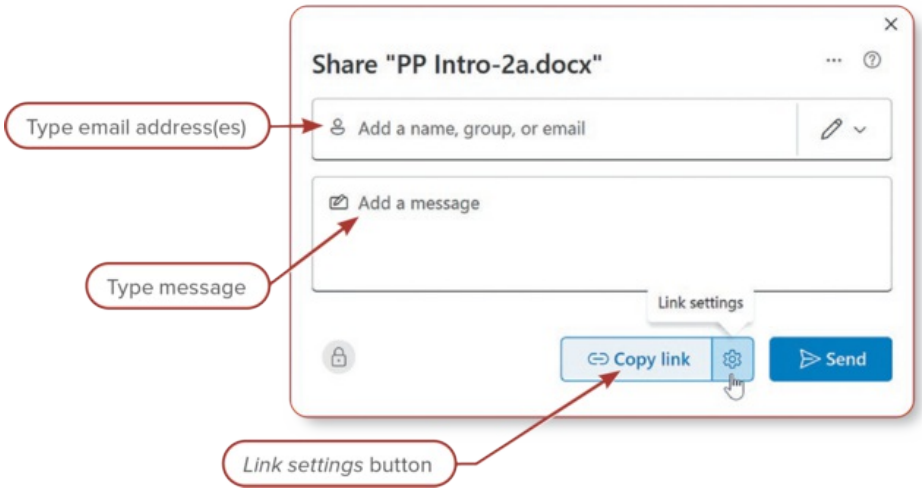


FIGURE INTRO-70 *Share* window

HOW TO: Share a File

1. Open the file to share.
   - If the file is not saved in *OneDrive,* save the file to *OneDrive*.
2. Click the **Share** button (**Figure Intro-71**) in the upper-right corner of the Office app window and select **Share** to open the *Share* window (see **Figure Intro-70**).
   - The *Share* button icon may display differently in Office 2024.
   - *Share* is also available in the *Backstage* view.

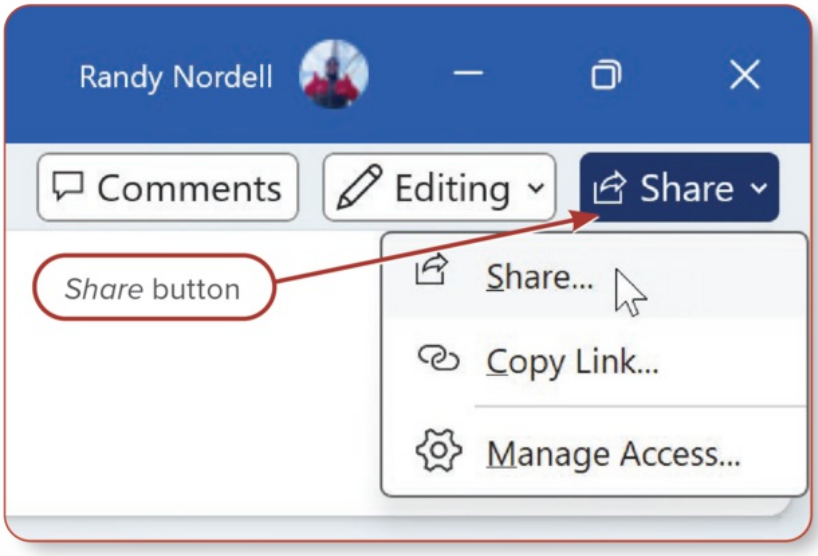


FIGURE INTRO-71 ***Share*** **button**

3. Click the **Link settings** button (see **Figure Intro-70**) to open the *Link settings* window (**Figure Intro-72**).
   - Select who can use the sharing link. The *Link settings* window may have different options depending on the type of Microsoft account you are using.
   - Check the **Can edit** drop-down list to select the level of access recipients have to the shared file: **Can edit**, **Can review**, **Can review**, or **Can't download**.
   - Set an expiration date or password for the sharing link if desired (optional).

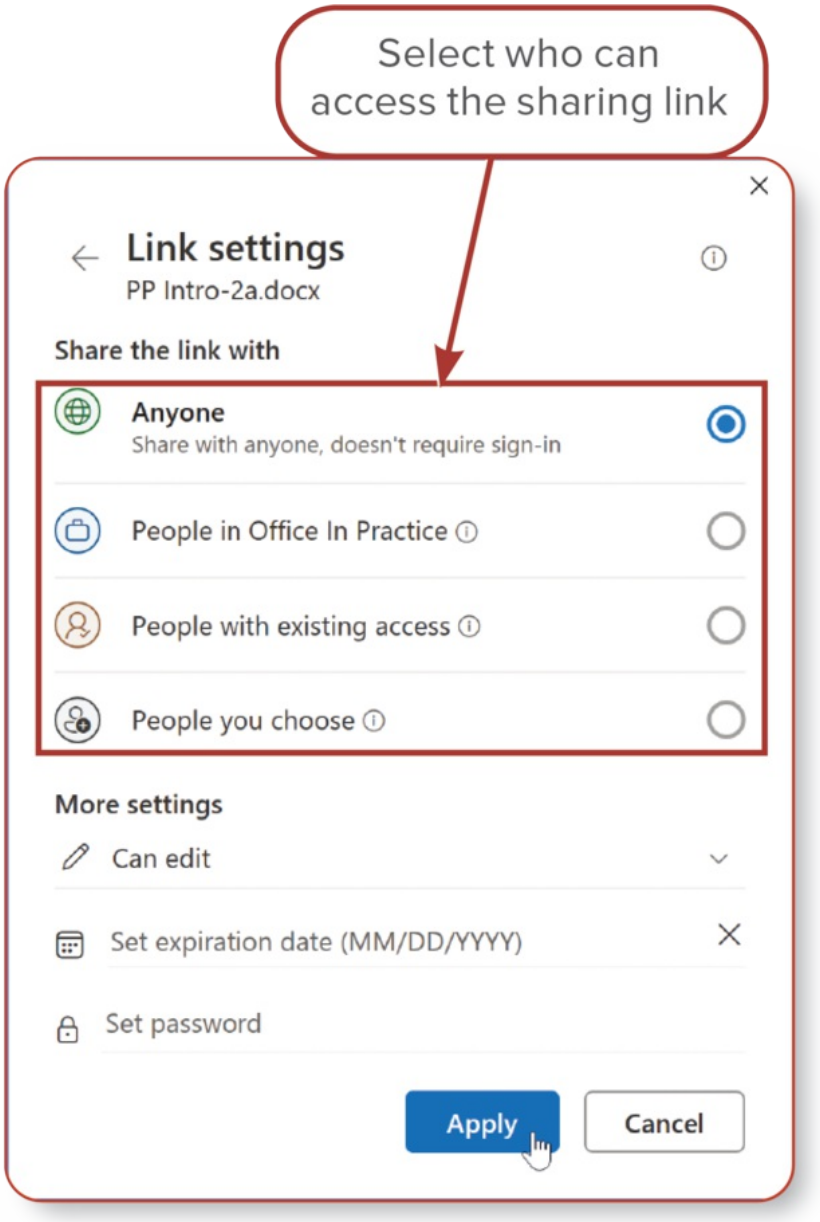


FIGURE INTRO-72 ***Link settings*** **window**

4. Click **Apply** to set the sharing link options and to return to the *Share* window (see **Figure Intro-70**).
5. Click the **Copy link** button to copy the sharing link (**Figure Intro-73**).
   - **Paste** the copied sharing link in an email, Word document, or other online location.

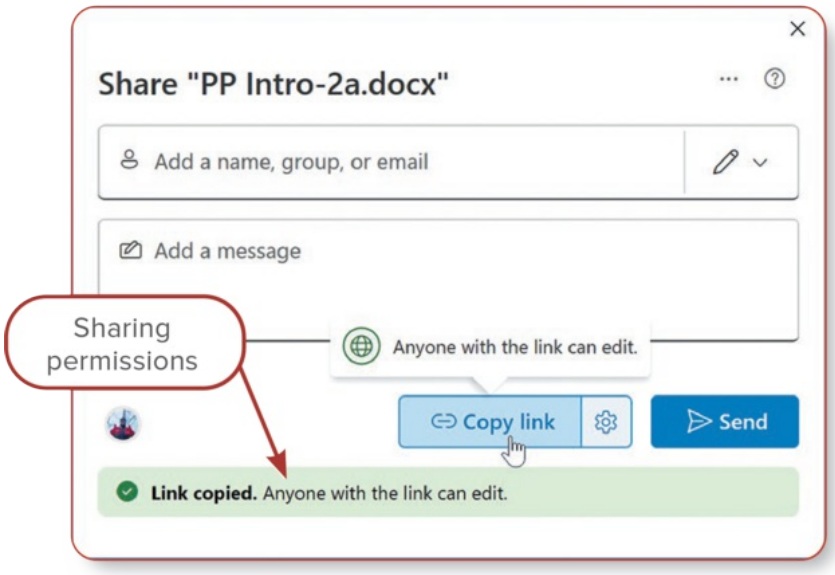


FIGURE INTRO-73 Copy a sharing link

6. Alternatively, type the email address of the person with whom you are sharing the file in the *Add a name, group, or email* area in the *Share* dialog box (see **Figure Intro-70**).
   - If typing multiple email addresses, separate each with a semicolon.
   - Type a message to recipient(s) in the *Add a Message* area (optional).
   - Click the **Send** button. A sharing email is sent to people you included. Close the confirmation window.

ANOTHER WAY

Share a file through email by clicking the **More options** button (ellipsis) in the *Share* window and selecting either **Send link in Outlook** or **Send a copy**. The email share options require the use of Microsoft Outlook (email and personal management Office application) to share the selected file through email.

Program Options

Use program options to apply global changes to the Office program. For example, you can change the default save location to the *OneDrive* folder, or you can turn off the opening of a *Start* page.

Click the **File** tab and select **Options** on the left to open the ***[Program] Options*** dialog box (*Word Options, Excel Options,* etc.) (**Figure Intro-74**). Click one of the categories on the left to display the category options on the right. The categories and options vary depending on the Office application.

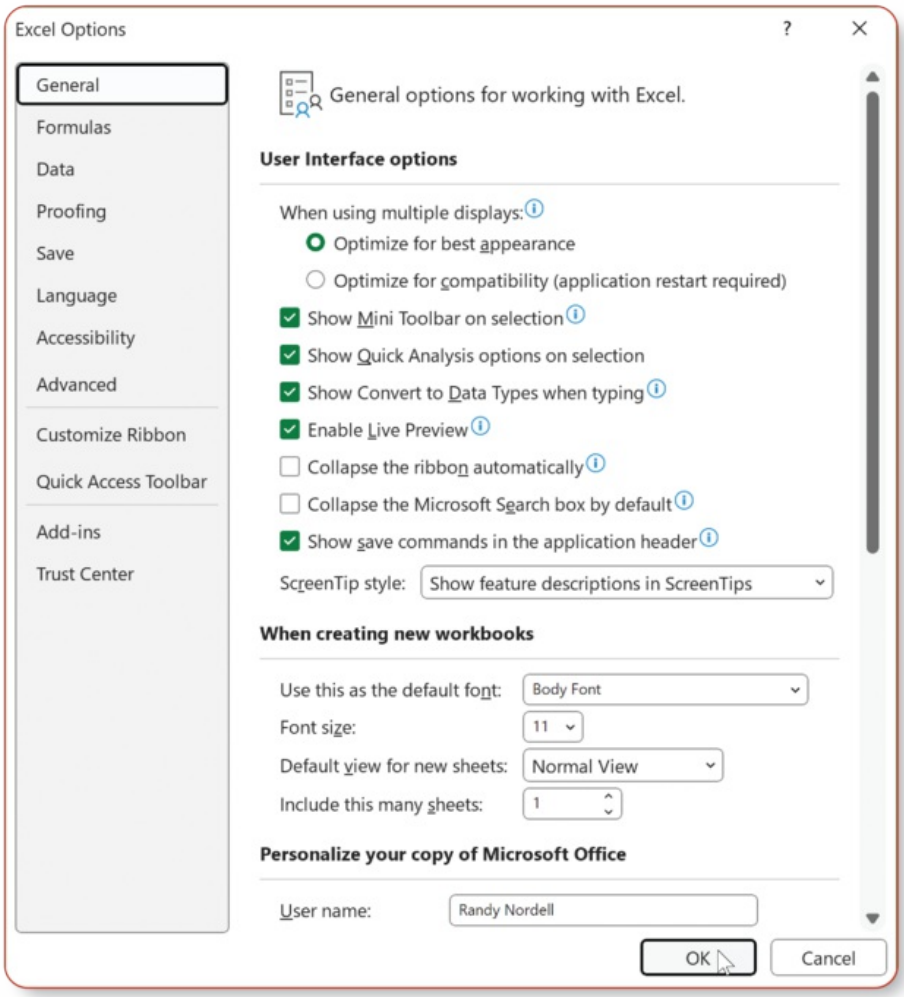


FIGURE INTRO-74 ***Excel*** **Options dialog box**

SLO INTRO. 6

Using the Ribbon, Tabs, and Quick Access Toolbar

Use the *Ribbon,* tabs, groups, buttons, drop-down lists, dialog boxes, task panes, galleries, and the *Quick Access* toolbar to modify your Office files. This section describes different tools used to customize your files.

The Ribbon, Tabs, and Groups

The ***Ribbon***, which appears at the top of an Office file window, displays the many features available. The *Ribbon* is a collection of ***tabs***. Each tab includes ***groups*** of commands. The tabs and groups available vary for each Office application. Click a tab to display the groups and commands available on that tab.

Some tabs always display on the *Ribbon* (for example, the *File* tab and *Home* tabs). Other tabs are contextual, which means that they only appear on the *Ribbon* when you select a specific object. **Figure Intro-75** displays the contextual *Table Design* tab that displays in Word when you open a table.

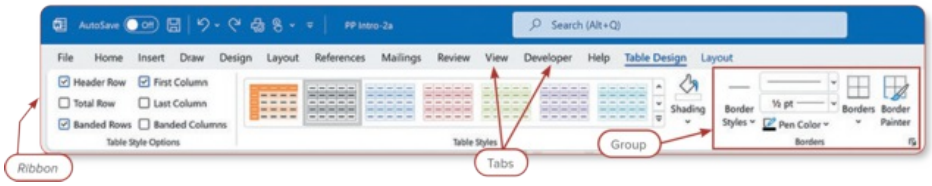


FIGURE INTRO-75 Contextual *Table Design* tab displayed

MORE INFO

The *Ribbon* may appear slightly different depending on the version of Office you are using.

Ribbon Display Options

The *Ribbon* displays by default in Office applications. You can collapse the *Ribbon* to display only

the tabs. Click the ***Collapse the Ribbon*** button in the bottom-right corner of the *Ribbon* (Figure Intro-76) to collapse the *Ribbon.* To expand the *Ribbon,* click any tab on the collapsed *Ribbon* and then click the ***Pin the Ribbon*** button in the bottom-right corner of the *Ribbon.*

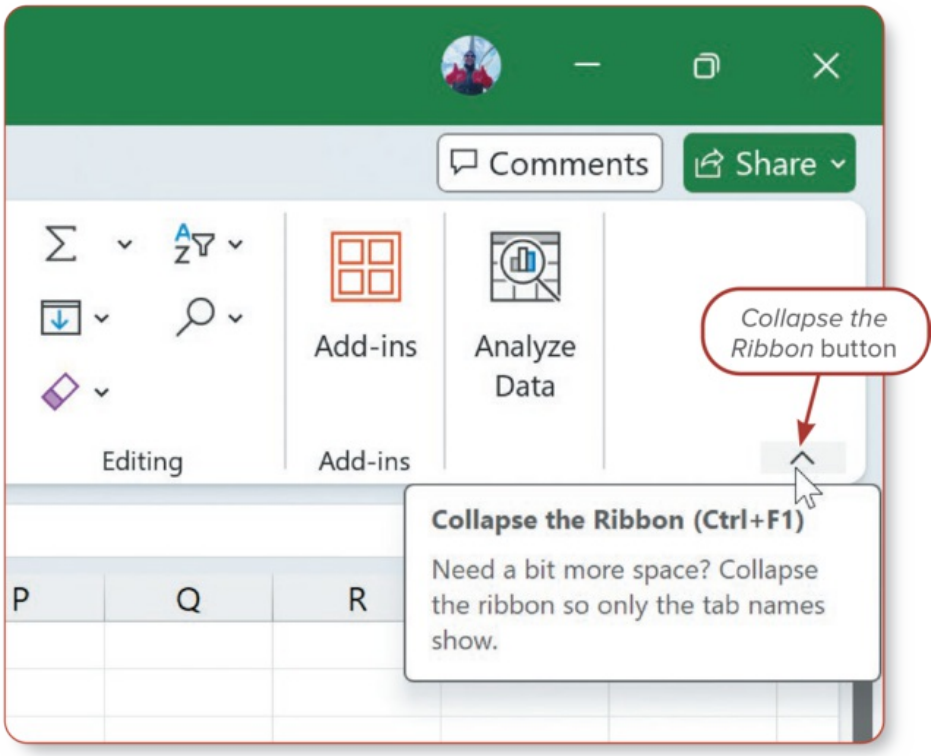


FIGURE INTRO-76 ***Collapse the Ribbon*** **button**

MORE INFO

Ctrl+F1 collapses or expands the *Ribbon.* Also, double-click a tab name on the *Ribbon* to collapse or expand it.

Microsoft 365/Office 2024 Note: The *Ribbon* display options may be different in Office 2024.

Buttons, Drop-Down Lists, and Galleries

Groups on each of the tabs contain a variety of ***buttons***, ***drop-down lists***, and ***galleries***. The following list describes each of these features and how they are used:

- ***Button*:** Applies a feature to selected text or an object. Click a button to apply the feature (Figure Intro-77). Several buttons are toggle buttons meaning that you click one time to apply

a command or feature and click a second time to turn off the command or feature.

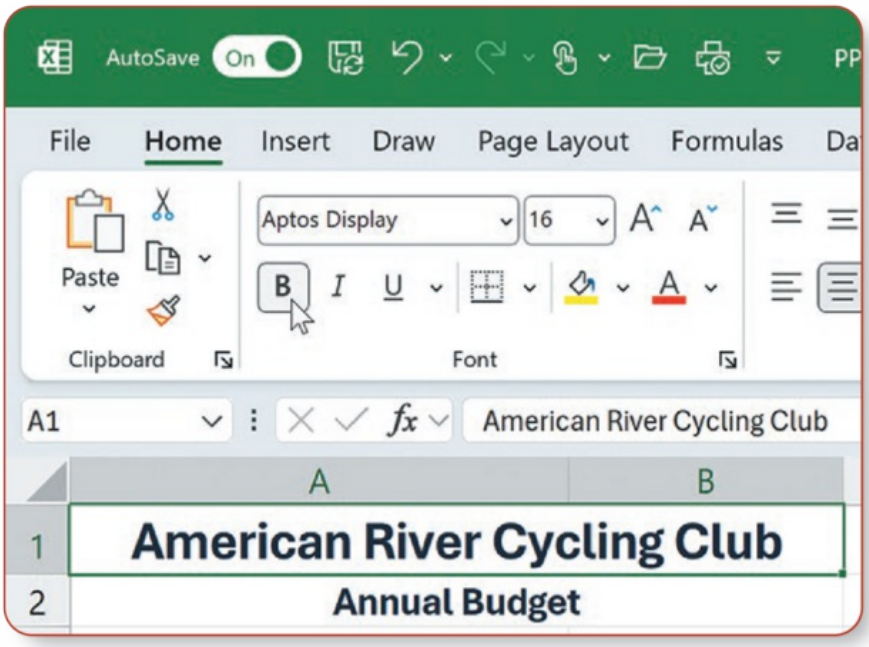


FIGURE INTRO-77 ***Bold*** **button in the** ***Font*** **group on the** ***Home*** **tab**

- ***Drop-down list*****:** Displays the various options available for a command. Some buttons are drop-down lists only, so when you click these buttons a drop-down list of options appears (Figure Intro-78). Other buttons are ***split buttons***, which have both a button you click to apply a feature and an arrow you click to display a drop-down list of options (Figure Intro-79).

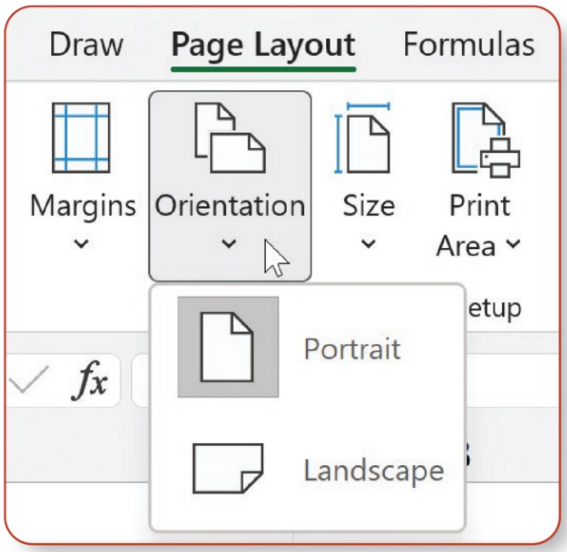


FIGURE INTRO-78 ***Orientation*** **drop-down list**

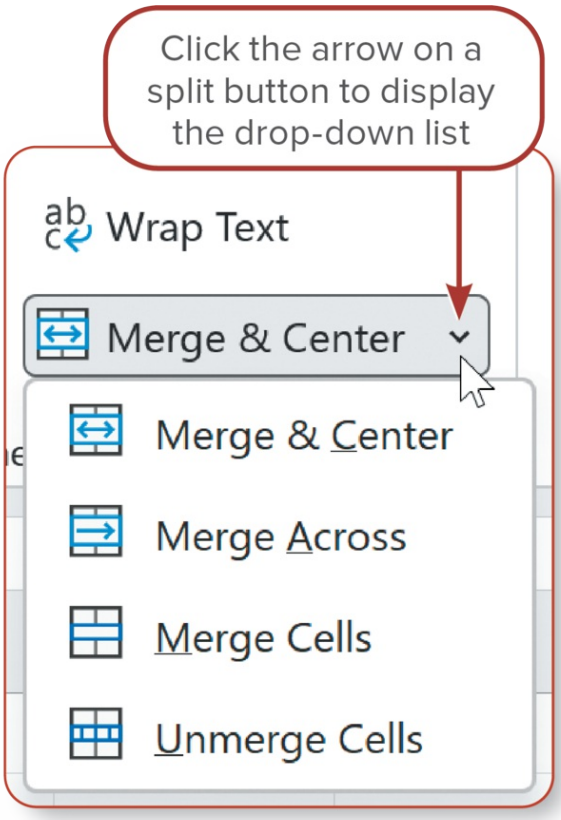


FIGURE INTRO-79 ***Merge & Center*** **split button—button and drop-down list**

- ***Gallery*****:** Displays a collection of option buttons. Click an option in a gallery to apply the feature. **Figure Intro-80** is the *Styles* gallery. Click the **[Gallery name]** expand or drop-down button (for example, **Styles** expand button) to display the entire gallery of options or click the **Up** or **Down** arrow to display a different row of options.

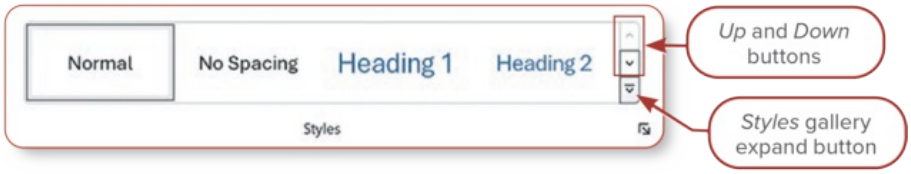


FIGURE INTRO-80 ***Styles*** **gallery in Word**

Dialog Boxes, Task Panes, and Launchers

Office application features are also available in a ***dialog box*** or ***task pane***. A ***launcher***, which is a small square that displays in the bottom right of some groups, opens a dialog box or displays a

task pane when clicked (see **Figure Intro-82**).

- ***Dialog box*:** A new window that opens to display additional features. Move a dialog box by clicking and dragging the *Title* bar. The *Title* bar appears at the top of the dialog box and displays the title. **Figure Intro-81** shows the *Format Cells* dialog box that opens after you click the *Alignment* launcher in Excel.

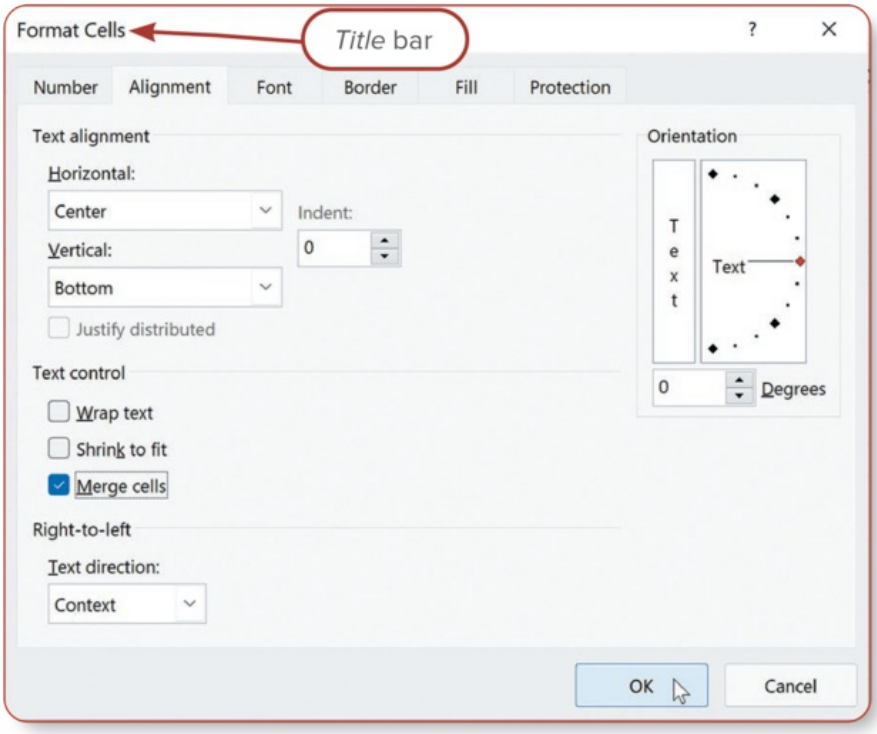


FIGURE INTRO-81 ***Format Cells* dialog box**

- ***Task pane*:** Opens on the left or right of an Office application window. **Figure Intro-82** shows the *Clipboard* pane, which is available in all Office applications. Task panes are named according to their purpose (for example, *Clipboard* pane, *Editor* pane, or *Navigation* pane). You can resize a task pane by clicking and dragging its left or right border. Click the **X** in the upper-right corner to close a task pane.

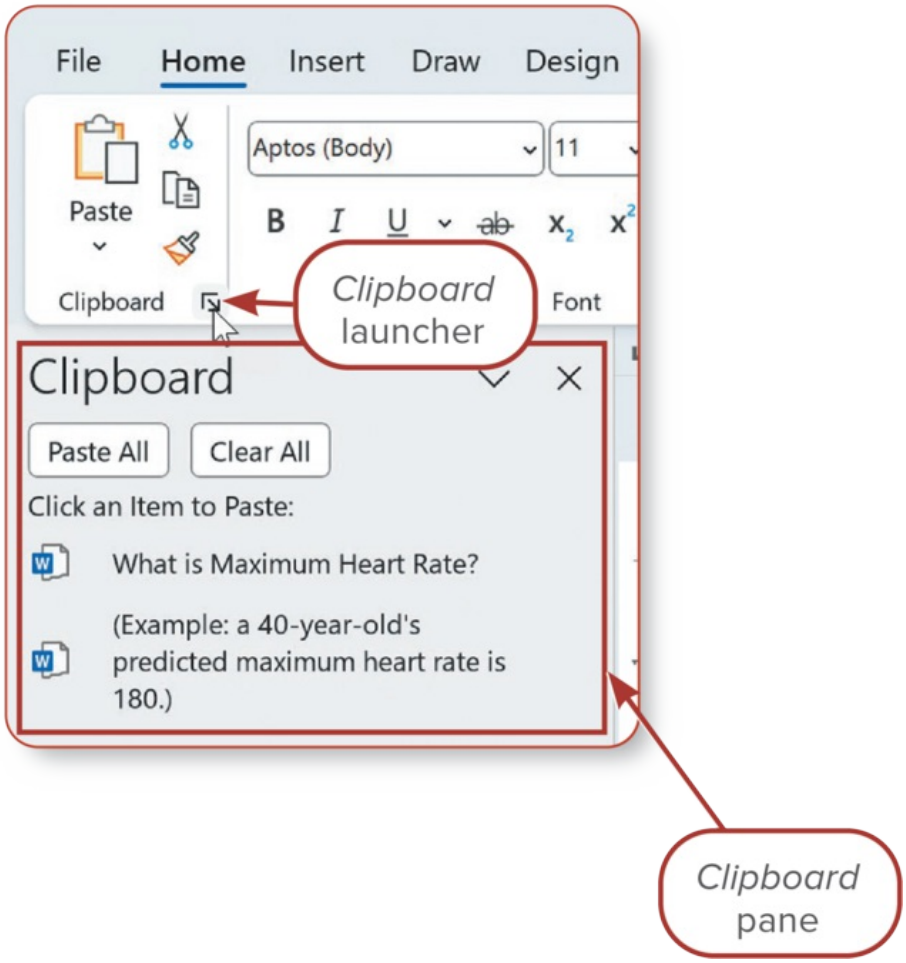


FIGURE INTRO-82 ***Clipboard*** **pane**

ScreenTips

ScreenTips display descriptive information about a button, drop-down list, launcher, or gallery selection. When you place your pointer on an item on the *Ribbon,* a *ScreenTip* displays information about the selection (**Figure Intro-83**). The *ScreenTip* appears temporarily and displays the command name, keyboard shortcut (if available), and a description of the command.

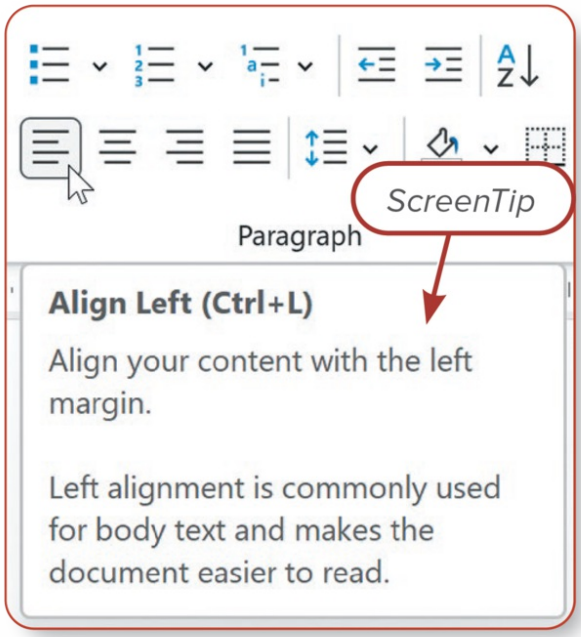


FIGURE INTRO-83 ***Align Left ScreenTip***

Radio Buttons, Check Boxes, and Text Boxes

Dialog boxes and task panes contain a variety of options you can apply using ***radio buttons***, ***check boxes***, ***text boxes***, drop-down lists, and other buttons (**Figure Intro-84**).

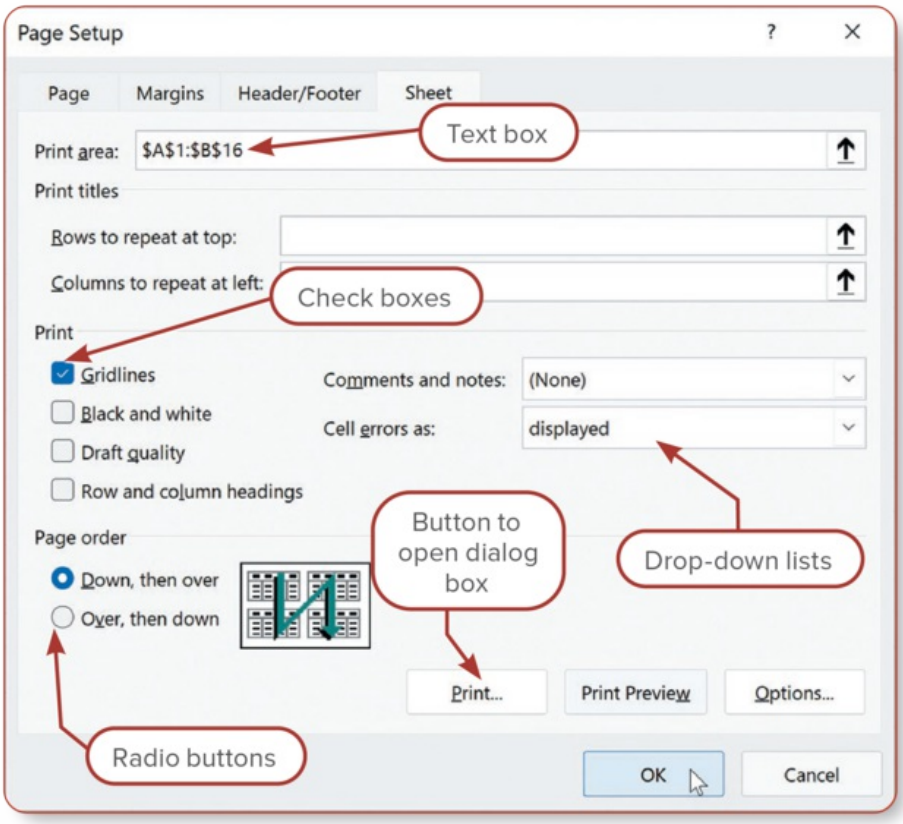


FIGURE INTRO-84 ***Page Setup*** **dialog box in Excel**

- ***Radio button*:** A round button you click to select one option from a group of options. A selected radio button displays a colored dot inside the round button. Radio buttons are mutually exclusive.
- ***Check box*:** A square button you click to select one or more options. A check appears in a selected check box.
- ***Text box*:** An area where you type text.

A task pane or dialog box may also include drop-down lists or other buttons that open additional dialog boxes. **Figure Intro-84** shows the *Page Setup* dialog box in Excel, which includes a variety of radio buttons, check boxes, text boxes, drop-down lists, and command buttons that open additional dialog boxes (for example, the *Print* and *Options* buttons).

Quick Access Toolbar

The ***Quick Access toolbar*** contains buttons to apply commonly used commands such as *New, Open,* and *Quick Print.* The *Quick Access* toolbar can display above or below the *Ribbon,* or it can be hidden. **Figure Intro-85** shows the *Quick Access* toolbar displayed below the *Ribbon* in Excel.

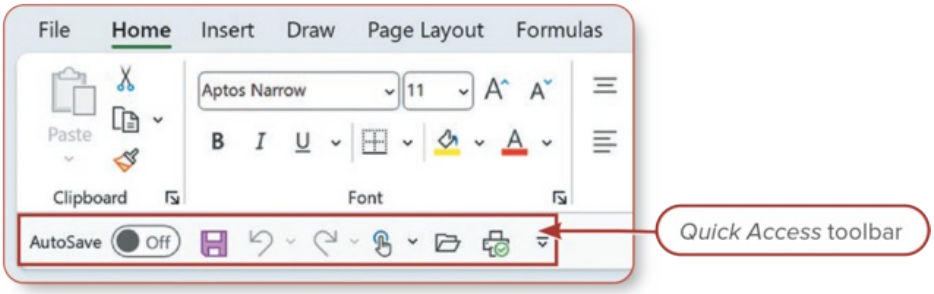


FIGURE INTRO-85 ***Quick Access* toolbar displayed below the *Ribbon* in Excel**

Customize the Quick Access Toolbar

You can customize the *Quick Access* toolbar to include commands you regularly use, such as *Quick Print, New, Open,* and *Editor* (or *Spelling & Grammar*). The following steps show how to customize the *Quick Access* toolbar in Word. The customization process is similar for the *Quick Access* toolbar in the other Office applications.

HOW TO: Customize the Quick Access Toolbar

1. Click the **Customize Quick Access Toolbar** drop-down list on the right edge of the *Quick Access* toolbar (**Figure Intro-86**).
   - If the *Quick Access* toolbar does not display, click the **Ribbon Display Options** button (bottom-right corner or *Ribbon*) or right-click the *Ribbon* and select **Show Quick Access Toolbar**.
   - Click the **Customize Quick Access Toolbar** drop-down list and select **Show Above the Ribbon** or **Show Below to Ribbon** to customize placement of the *Ribbon*.

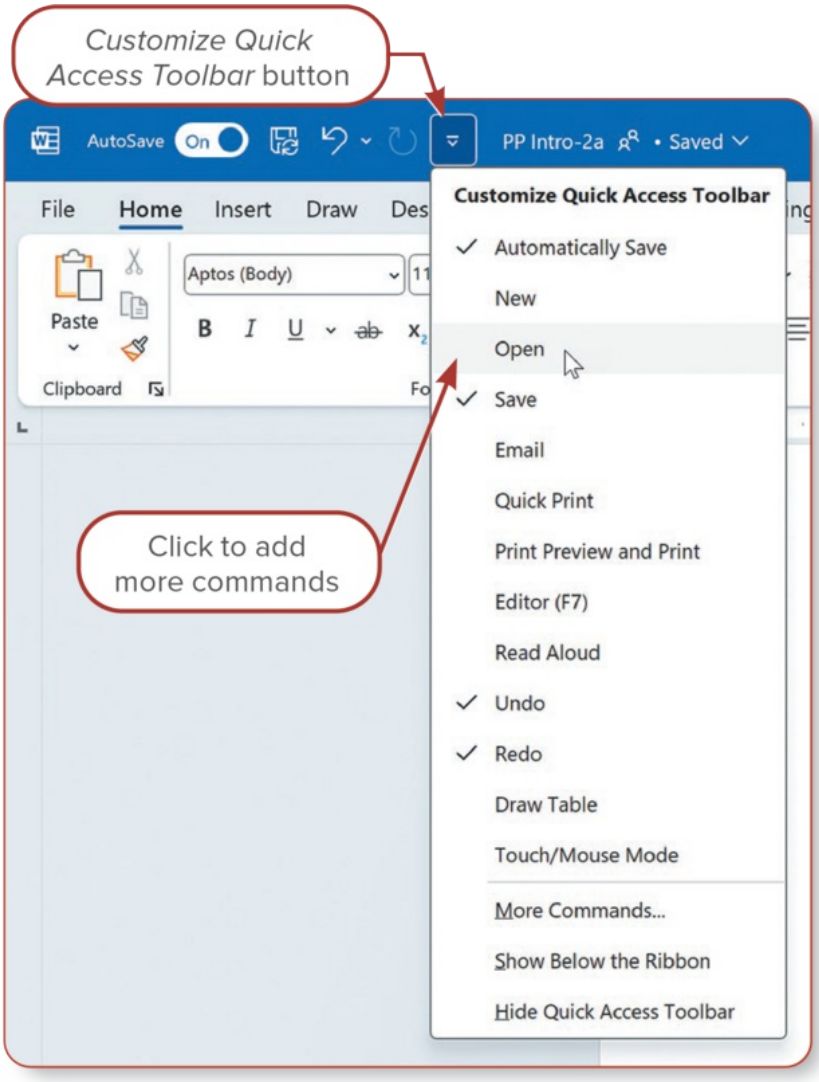


FIGURE INTRO-86 **Add a command to the *Quick Access* toolbar (displayed above the *Ribbon*)**

2. Select a command to add to the *Quick Access* toolbar. The command displays on the *Quick Access* toolbar.
   - Alternatively, right-click any button on the *Ribbon* and select **Add to Quick Access Toolbar**.
   - To remove an item from the *Quick Access* toolbar, click the **Customize Quick Access Toolbar** drop-down list and select a checked item to remove it.
3. Add a command that is not listed on the *Customize Quick Access Toolbar* by clicking the **Customize Quick Access Toolbar** drop-down list and selecting **More Commands**. The *[Office app] Options* dialog box opens (**Figure Intro-87**).

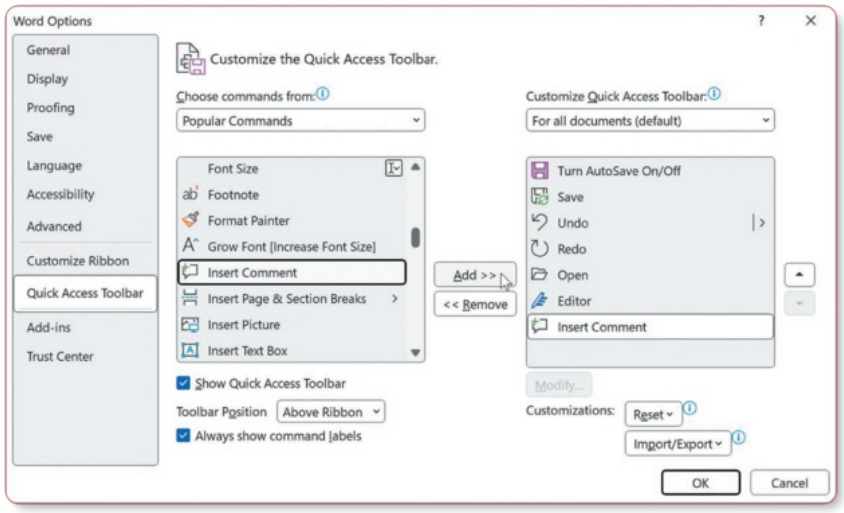


FIGURE INTRO-87 **Customize the *Quick Access* toolbar in the *Word Options* dialog box**

4. Click the **Customize Quick Access Toolbar** drop-down list on the right and select **For all documents** or the current document.
   - Select *For all documents,* to apply the change to the *Quick Access* toolbar for all documents you open in Word.
   - Select the current document to apply the change to the *Quick Access* toolbar in that document only.
5. Select the command to add from the alphabetic list of commands on the left and click the **Add** button.
   - If you can't find a command, click the **Choose commands from** drop-down list and select **All Commands**.
   - The list on the right contains the commands that display on the *Quick Access* toolbar.
6. Rearrange commands on the *Quick Access* toolbar by selecting a command in the list on the right and clicking the **Move Up** or **Move Down** button.
7. Click **OK** to close the *Word Options* dialog box.

ANOTHER WAY

To remove an item from the *Quick Access* toolbar, right-click an item and select **Remove from Quick Access Toolbar**.

SLO INTRO. 7

Using Context Menus, the Mini Toolbar, and Keyboard Shortcuts

Most of the commands used for formatting and editing your files display in groups on the tabs. But many of these features are also available using context menus, the mini toolbar, and keyboard shortcuts. Use these tools to quickly apply formatting or other options to text or objects.

Context Menu

A ***context menu*** displays when you right-click text, a cell, or an object such as a picture, drawing object, chart, or *SmartArt* (**Figure Intro-88**).

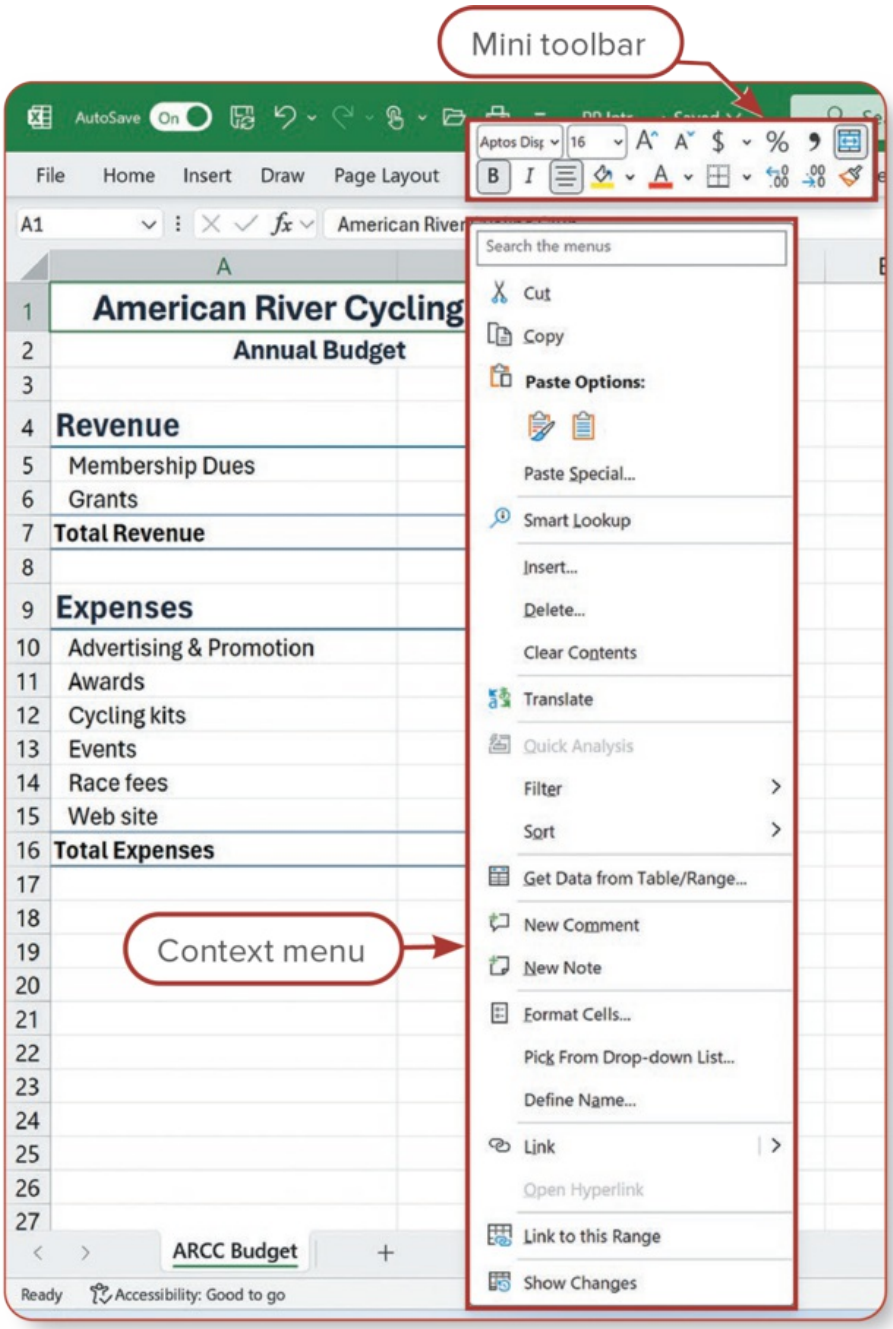


FIGURE INTRO-88 Context menu and mini toolbar displayed

The context menu is a vertical list of options, and the options are contextual, which means they vary depending on what you right-click. Context menus include options that perform an action (*Cut* or *Copy*), open a dialog box or task pane (*Format Cells* or *Insert*), or display a drop-down list of selections (*Filter* or *Sort*).

Mini Toolbar

The ***mini toolbar*** is another context menu that displays when you right-click or select text, a cell, or an object in your file (see **Figure Intro-88**). The mini toolbar is a horizontal rectangular menu that lists a variety of formatting options. These options vary depending on what you select or right-click. The mini toolbar contains a variety of buttons and drop-down lists. The mini toolbar typically displays above the context menu, and it automatically displays when you select text or an object, such as when you select a row of a table in Word or PowerPoint.

Keyboard Shortcuts

You can also use a ***keyboard shortcut*** to quickly apply formatting or perform commands. A keyboard shortcut is a combination of keyboard keys that you press at the same time. These can include the **Ctrl**, **Shift**, **Alt**, letter, number, and function keys (for example, **F1** or **F7**). **Table Intro-5** lists common Office keyboard shortcuts.

Table Intro-5: Common Office Keyboard Shortcuts

Keyboard Shortcut	Action or Displays	Keyboard Shortcut	Action or Displays
Ctrl+S	Save	**Ctrl+Z**	Undo
F12	*Save As* dialog box	**Ctrl+Y**	Redo or Repeat
Ctrl+O	*Open* area on the *Backstage* view	**Ctrl+1**	Single space
Shift+F12	*Open* dialog box	**Ctrl+2**	Double space
Ctrl+N	New blank file	**Ctrl+L**	Align left
Ctrl+P	*Print* area on the *Backstage* view	**Ctrl+E**	Align center
Ctrl+C	Copy	**Ctrl+R**	Align right
Ctrl+X	Cut	**F1**	*Help* pane
Ctrl+V	Paste	**F7**	*Spelling* pane
Ctrl+B	Bold	**Ctrl+A**	Select All
Ctrl+I	Italic	**Ctrl+Home**	Move to the beginning
Ctrl+U	Underline	**Ctrl+End**	Move to the end

MORE INFO

See *Appendix A: Microsoft Office Shortcuts* (online resource) for additional Office keyboard shortcuts.

Function Keys on a Laptop

When using a laptop computer, ***function keys*** perform specific Windows actions on your laptop, such as increase or decrease speaker volume, open Windows *Settings,* or adjust the screen brightness. So, when using a numbered function key in an Office application, such as **F12** as a shortcut to open the *Save As* dialog box, you may need to press the ***Function key*** (**Fn** or **fn**) on your keyboard in conjunction with a numbered function key to activate the Office command (**Figure Intro-89**). The *Function key* is typically located near the bottom left of your laptop keyboard next to the *Ctrl* key.



FIGURE INTRO-89 ***Function*** **key**

PAUSE & PRACTICE: INTRO-2

For this project, you work with a document for the American River Cycling Club (ARCC). You modify the existing document, add document properties, customize the *Quick Access* toolbar, export the document as a PDF file, and share the document.

File Needed: ***ARCCTraining-Intro.docx*** *(Student data files are available in the* Library *of your SIMnet account.)*
Completed Project File Names: ***[your initials] PP Intro-2a.docx*** and ***[your initials] PP Intro-2b.pdf***

1. Open Word and open the ***ARCCTraining-Intro*** file from your student data files. If the file opens in *Protected View,* click the **Enable Editing** button.
2. Save this document as [your initials] PP Intro-2a in the *American River Cycling Club* folder in your *OneDrive* folder. In *Pause & Practice Intro-1,* you created the *American River Cycling Club* folder in *OneDrive* or other storage area. Save this file in the same location. If you are not able to save this file in *OneDrive,* you will not be able to complete step 7 in this project.
3. Use a button, drop-down list, and dialog box to modify the document.
    a. Select the first heading, "**What is Maximum Heart Rate?**"

b. Click the **Bold** button [*Home* tab, *Font* group].

c. Click the **Underline** drop-down arrow and select **Double underline** (**Figure Intro-90**).

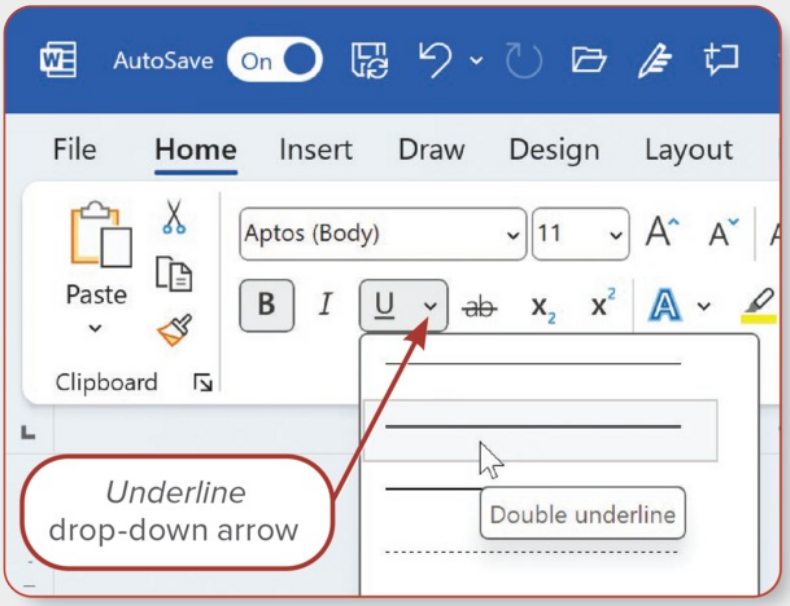


FIGURE INTRO-90 **Apply *Double underline* to selected text**

d. Click the **launcher** in the *Font* group [*Home* tab] or press **Ctrl+D** to open the *Font* dialog box (**Figure Intro-91**).

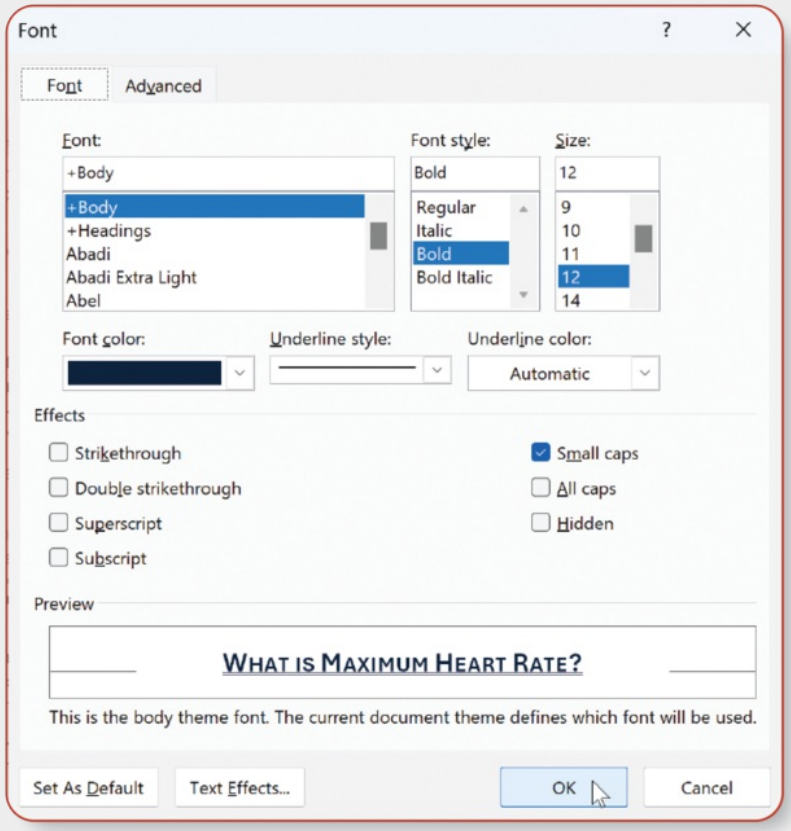


FIGURE INTRO-91 ***Font*** **dialog box**

e. Select **12** from the *Size* area list or type 12 in the text box.

f. Click the **Small caps** check box in the *Effects* area to select it.

g. Click **OK** to close the dialog box and apply the formatting changes.

h. Select the next heading, "**What is Target Heart Rate?**"

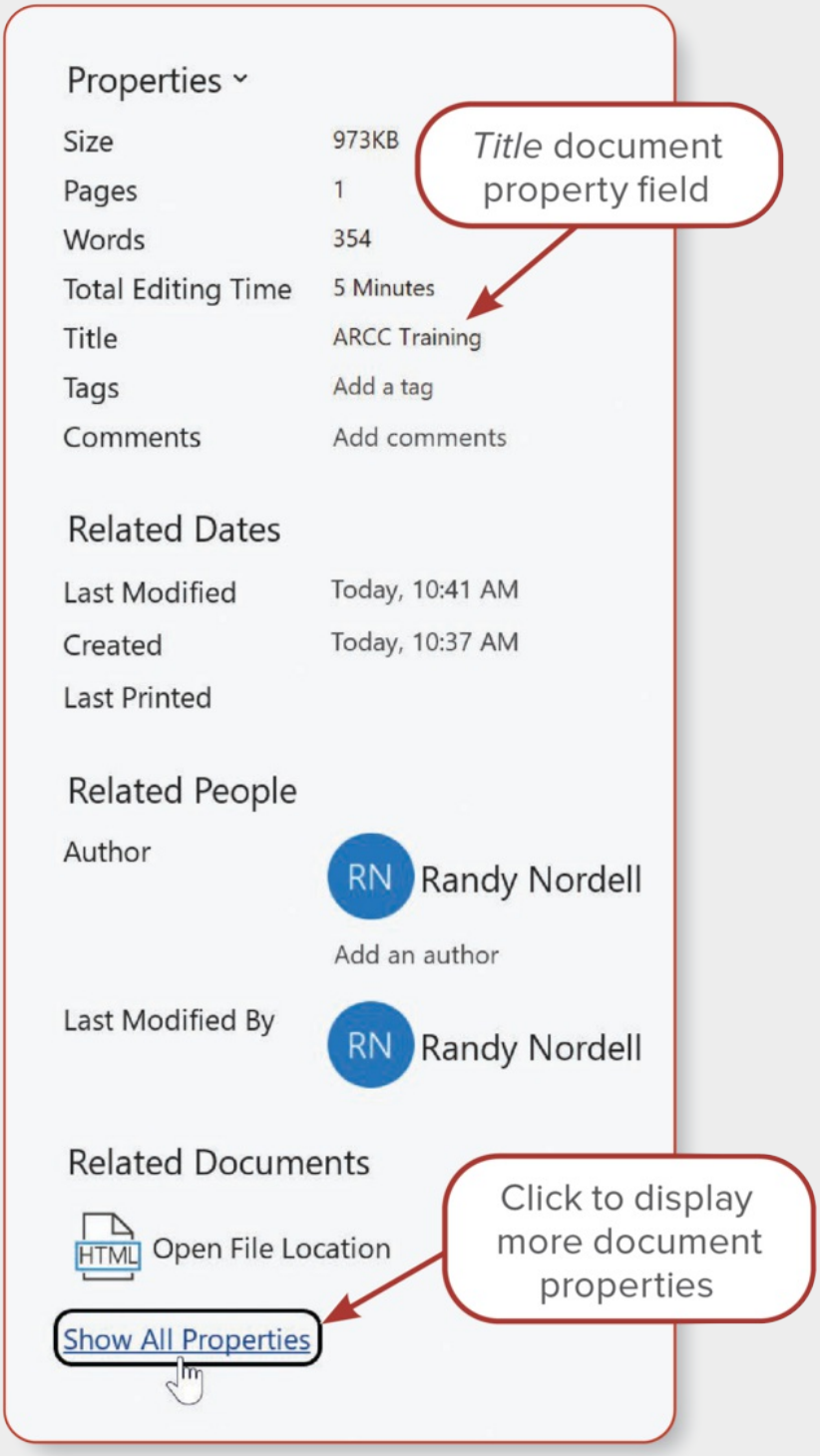
i. Repeat steps **3b–g** to apply formatting to selected text.

4. Add document properties.

a. Click the **File** tab to display the *Backstage* view.

b. Select **Info** on the left. The document properties display on the right.

c. Click the **Add a title** text box and type ARCC Training (**Figure Intro-92**).



INTRO-92 **Document properties displayed on the *Backstage* view**

d. Click the **Show All Properties** link near the bottom of the list of properties to display additional document properties.

e. Click the **Specify the subject** text box and type Heart rate training.

f. Click the **Specify the company** text box and type American River Cycling Club.

g. Click the **Back** arrow in the upper left to close the *Backstage* view and return to the document.

5. Customize the *Quick Access* toolbar.

   a. Click the **Customize Quick Access Toolbar** drop-down arrow and select **Open** if it is not already selected (**Figure Intro-93**). If the *Quick Access* toolbar does not display, click the **Ribbon Display Options** button or right-click the *Ribbon* and select **Show Quick Access Toolbar**.

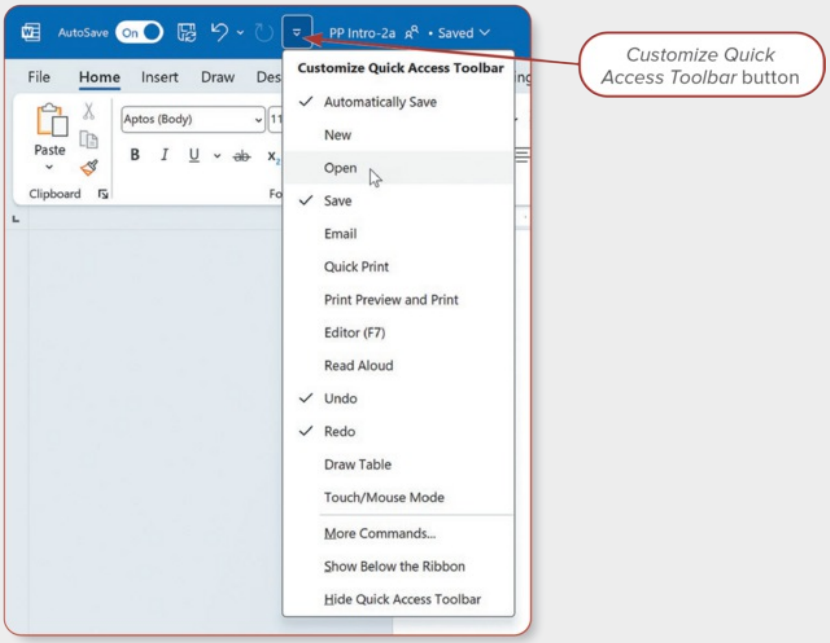


FIGURE INTRO-93 ***Customize Quick Access Toolbar*** **drop-down list**

   b. Click the **Customize Quick Access Toolbar** drop-down arrow again and select **Editor** (this option may also be named **Spelling & Grammar**).

   c. Click the **Customize Quick Access Toolbar** drop-down arrow again and select **More Commands**. The *Word Options* dialog box opens (**Figure Intro-94**).

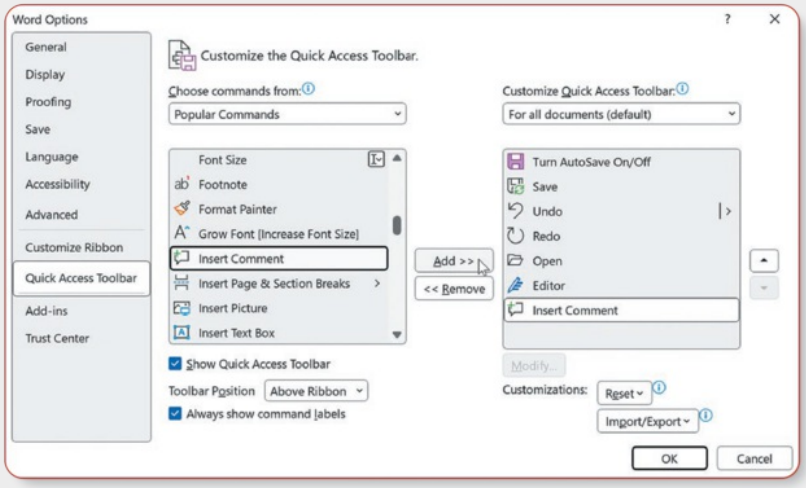


FIGURE INTRO-94 Customize the *Quick Access* toolbar in the *Word Options* dialog box

d. Select **Insert Comment** in the list of commands on the left.

e. Click the **Add** button to add it to your *Quick Access* toolbar list on the right.

f. Click **OK** to close the *Word Options* dialog box.

g. Click the **Customize Quick Access Toolbar** drop-down arrow and select **Show above the ribbon** (if it doesn't already display above the *Ribbon*).

h. Click the **Save** button on the *Quick Access* toolbar or press **Ctrl+S** to save the document.

6. Export the file as a PDF file.

a. Click the **File** tab to go to the *Backstage* view.

b. Select **Export** on the left.

c. Select **Create PDF/XPS Document** and click the **Create PDF/XPS** button. The *Publish as PDF or XPS* dialog box opens (**Figure Intro-95**).

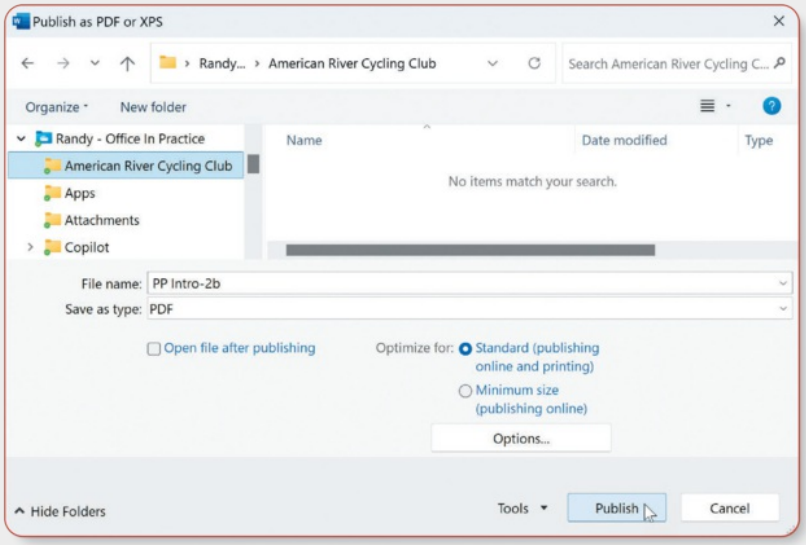


FIGURE INTRO-95 *Publish as PDF or XPS* dialog box

d. Select the ***American River Cycling Club*** folder in your *OneDrive* folder as the location to save the file.

e. Type [your initials] PP Intro-2b in the *File name* area.

f. Deselect the **Open file after publishing** check box if it is checked.

g. Select the **Standard (publishing online and printing)** radio button in the *Optimize for* area.

h. Click **Publish** to close the dialog box and create a PDF version of your file.

7. Create a sharing link to share this file with your instructor.

a. If you don't have the ability to save to *OneDrive*, skip step 7.

b. Click the **Share** button in the upper-right corner of the Word window and select **Share**. The *Share* window opens (**Figure Intro-96**).

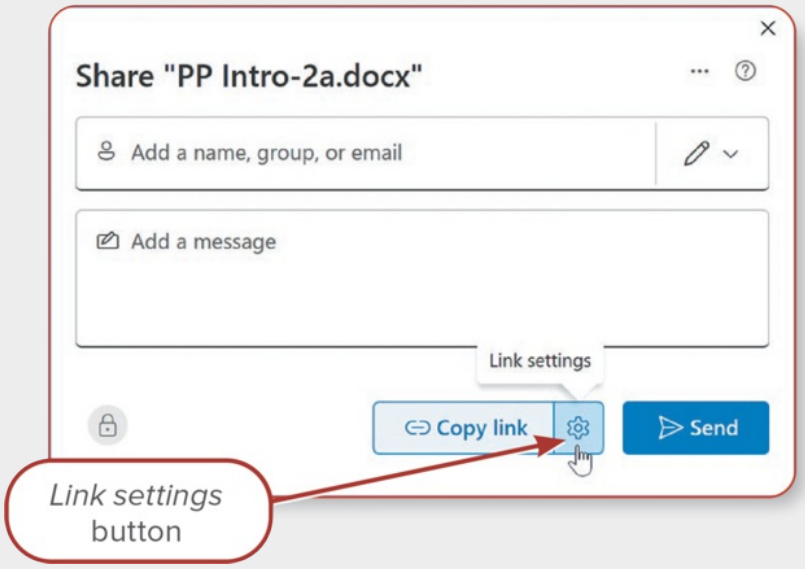


FIGURE INTRO-96 ***Share*** **window**

c. Click the **Link settings** button to open the *Link settings* window.

d. Click the **Anyone** button and select **Can edit** (if necessary) (**Figure Intro-97**).

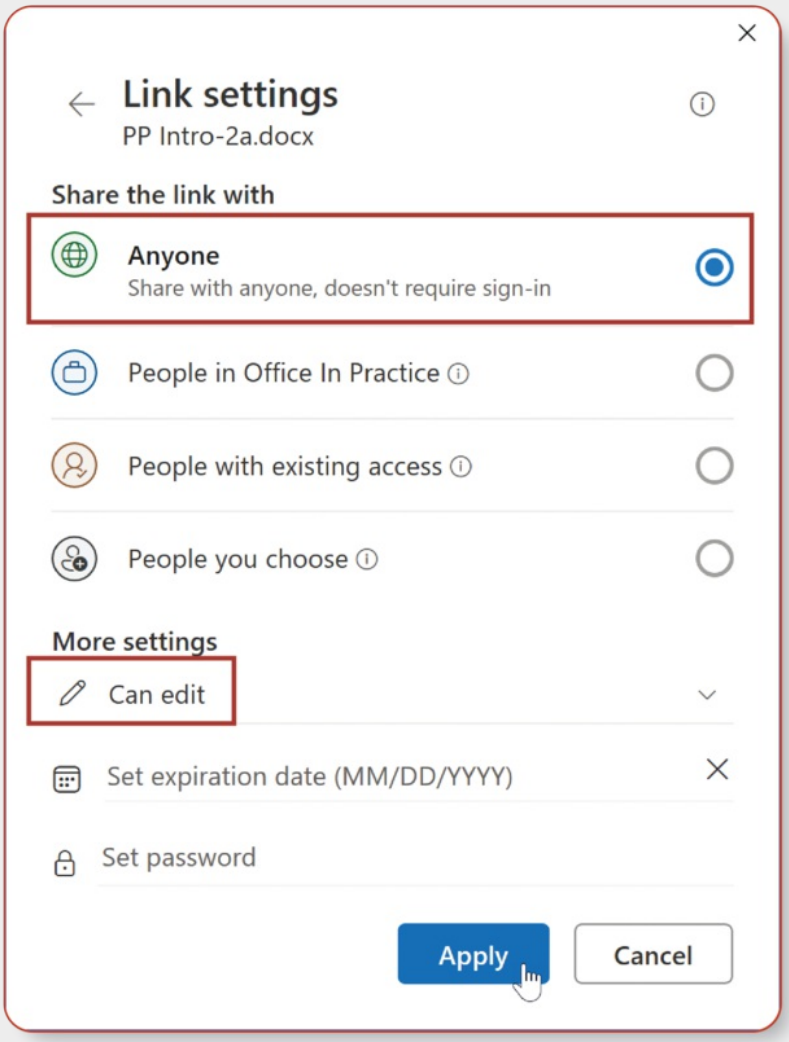


FIGURE INTRO-97 ***Link settings*** **window**

e. Click **Apply** to return to the *Share* window.

f. Click **Copy link** to copy the sharing link and click the **X** in the upper-right corner to close the *Sharing* window (**Figure Intro-98**).

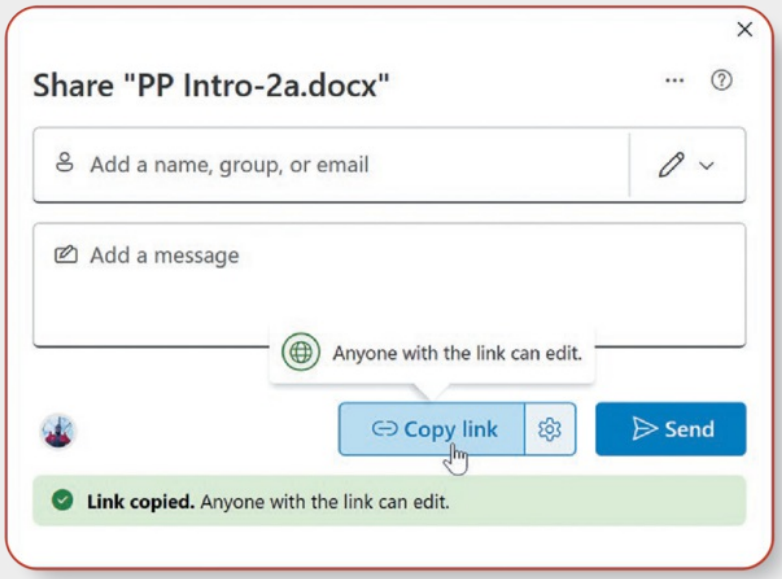


FIGURE INTRO-98 Copy a sharing link

g. Use your email account to create a new email to your instructor. Include an appropriate subject line and a brief message in the body.

h. Press **Ctrl+V** to paste the sharing link to your document in the body of the email and send the email message.

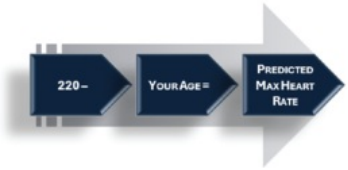
8. Save and close the document (**Figure Intro-99**).

American River Cycling Club

www.arcc.org Cycling...a way of life info@arcc.org

What is Maximum Heart Rate?

The maximum heart rate is the highest your pulse rate can get. To calculate your **predicted maximum heart rate**, use this formula:



(Example: a 40-year-old's predicted maximum heart rate is 180.)

Your actual maximum heart rate can be determined by a graded exercise test. Please note that some medicines and medical conditions might affect your maximum heart rate. If you are taking medicines or have a medical condition (such as heart disease, high blood pressure, or diabetes), always ask your doctor if your maximum heart rate/target heart rate will be affected.

What is Target Heart Rate?



You gain the most benefits and decrease the risk of injury when you exercise in your target heart rate zone. Usually this is when your exercise heart rate (pulse) is 60 percent to 85 percent of your maximum heart rate. Do not exercise above 85 percent of your maximum heart rate. This increases both cardiovascular and orthopedic risk and does not add any extra benefit.

When beginning an exercise program, you might need to gradually build up to a level that is within your target heart rate zone, especially if you have not exercised regularly before. If the exercise feels too hard, slow down. You will reduce your risk of injury and enjoy the exercise more if you don't try to over-do it.

To find out if you are exercising in your target zone (between 60 percent and 85 percent of your maximum heart rate), use your heart rate monitor to track your heart rate. If your pulse is below your target zone (see the chart below), increase your rate of exercise. If your pulse is above your target zone, decrease your rate of exercise.

Max and Target Heart Rates

Age	Predicted Max Heart Rate	Target Heart Rate (60-85% of Max)
20	✓ 200	120-170
25	✓ 195	117-166
30	✓ 190	114-162
35	✓ 185	111-157
40	✓ 180	108-153
45	✓ 175	105-149
50	✓ 170	102-145
55	✓ 165	99-140
60	✓ 160	96-136
65	✓ 155	93-132
70	✓ 150	90-128

FIGURE INTRO-99 **PP Intro-2a completed**

Photo Source: Kiselev Andrey Valerevich/Shutterstock

SLO INTRO. 8

Organizing and Customizing Folders and Files

The more you use your computer to create and edit files, the more important it is to create an organized system to locate and manage files. Use ***folders*** to store related files to make it easier to find, edit, and share your files. For example, you can create a folder for the college you attend. Inside the college folder, create a folder for each of your courses. Inside each of the course folders, create a folder for student data files, solution files, and group projects. Folders can store any type of files; you are not limited to Office files.

Customize File Explorer

As you begin working with files and folders in the *File Explorer,* customize how files and folders are sorted and change the view of icons to meet your preferences. The *Sort* and *View* menus provide many options to customize the layout and display of content in the *File Explorer.* The *See more* drop-down list displays additional customization options.

Windows 10 Note: The *File Explorer* in Windows 10 is slightly different from that in Windows 11.

HOW TO: Customize File Explorer

1. Click **File Explorer** on the *Taskbar* or click the **Start** button and select **File Explorer** to open a *File Explorer* window. Use *Search,* if necessary, to locate the *File Explorer.*
   - Your folders and computer locations display on the left in the *Navigation* pane.
2. Click the **Sort** button and select an option from the drop-down list (**Figure Intro-100**).

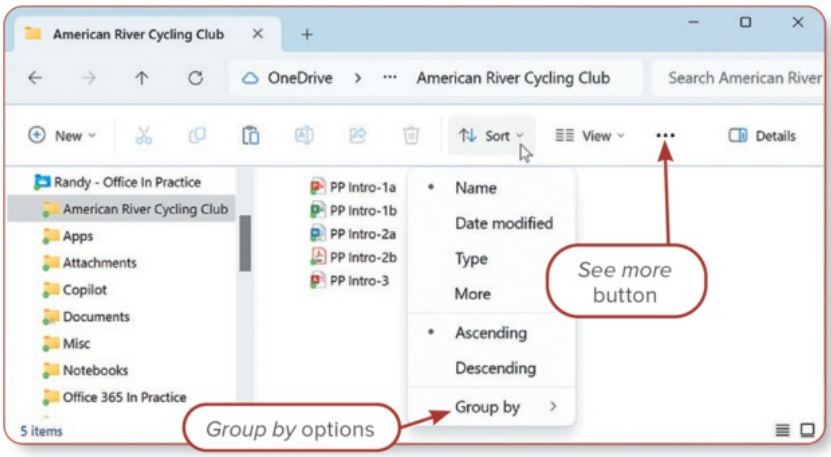


FIGURE INTRO-100 **Sort and group options**

- The default sort is by *Name* in *Ascending* order.
- Click **Group by** to display items grouped by *Name, Date Modified, Type, Size, Date Created, Authors, Categories, Tags,* or *Title*.

3. Click the **View** button and select how files and folder display from the drop-down list (**Figure Intro-101**).

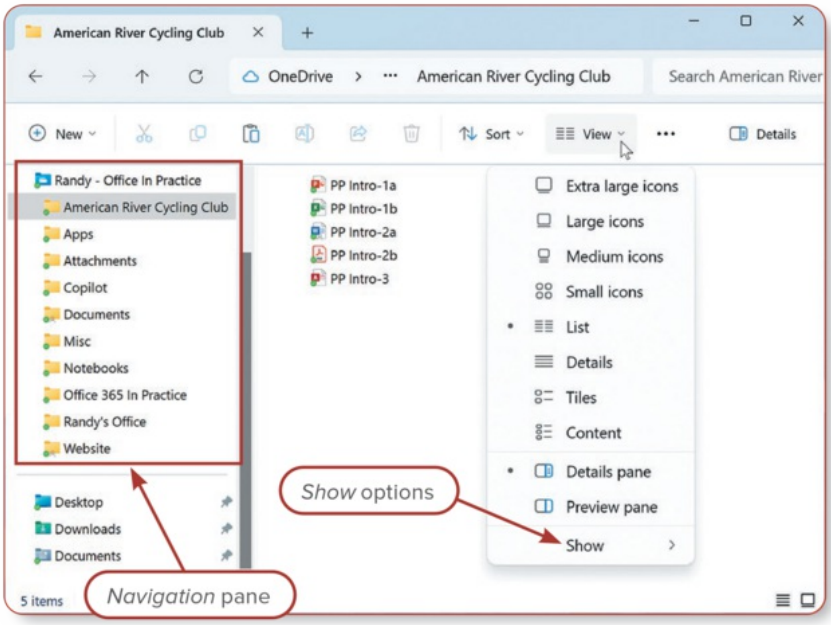


FIGURE INTRO-101 **View and layout options**

- A variety of different icons and sizes are available.
- Click **Show** to display a list of other options to customize the *File Explorer* display such as display or turn off the *Navigation* pane or display the icons in

Compact view. Also, you can display *Item check boxes, File name extensions,* and *Hidden items.*

4. Click the **See more** button (ellipsis) and select additional actions from the drop-down list (**Figure Intro-102**).

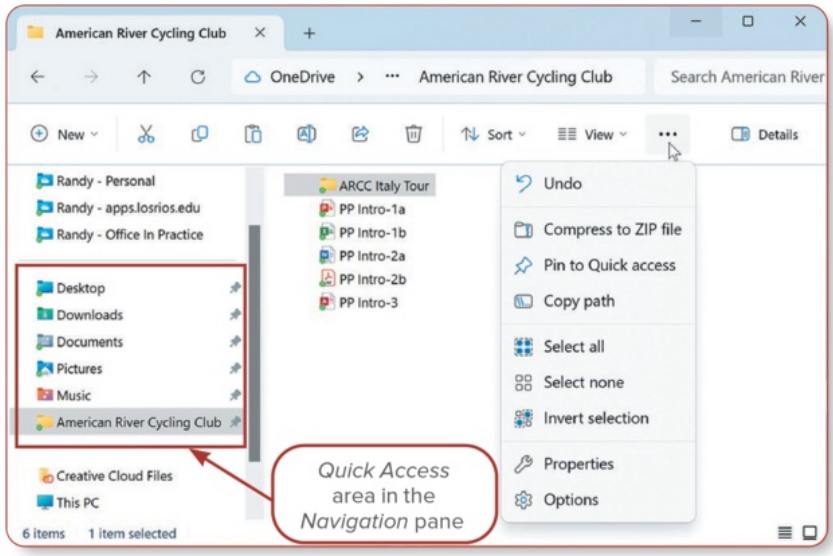


FIGURE INTRO-102 ***See more*** **drop-down list**

- The *See more* drop-down list is contextual and option vary depending on the item(s) selected.
- Select **Undo** to reverse a previous action. **Ctrl+Z** is also *Undo. Redo* also displays if *Undo* has been used.
- Select **Pin to Quick access** to pin a regularly used folder to the *Quick access* area at the top of the *Navigation* pane.
- The *See more* drop-down list provides options to *Compress to ZIP file, Extract all, Copy path,* and selection options.
- *Properties* and *Options* open dialog boxes with additional file, folder, and *File Explorer* customization options.

ANOTHER WAY

Right-click an item in the *File Explorer* to display and select actions from a context menu. Many of the actions available on the *File Explorer* toolbar and drop-down lists are available in the context menu.

Create a Folder

In ***SLO Intro.3: Creating, Saving, Closing, and Opening Office Files***, you learned how to create a new folder when saving an Office file in the *Save As* dialog box. You can also use *File Explorer* to create Windows folders.

COPILOT/GENERATIVE AI BEST PRACTICES

Organizing your files into folder helps to keep you organized and efficient and increases your productivity. Use *Copilot* or other generative AI product to research best practices for file management. Use follow-up prompts to learn about folder naming conventions and best practices for managing multiple versions of a file.

HOW TO: Create a Windows Folder

1. Click **File Explorer** on the *Taskbar* or click the **Start** button and select **File Explorer** to open a *File Explorer* window. Use *Search,* if necessary, to locate the *File Explorer*.
   - Your folders and computer locations display on the left in the *Navigation* pane.
2. Select the location in the *Navigation* pane where you want to create a new folder.
3. Click the **New** button on the toolbar and select **Folder** from the drop-down list. A new folder is created (**Figure Intro-103**).

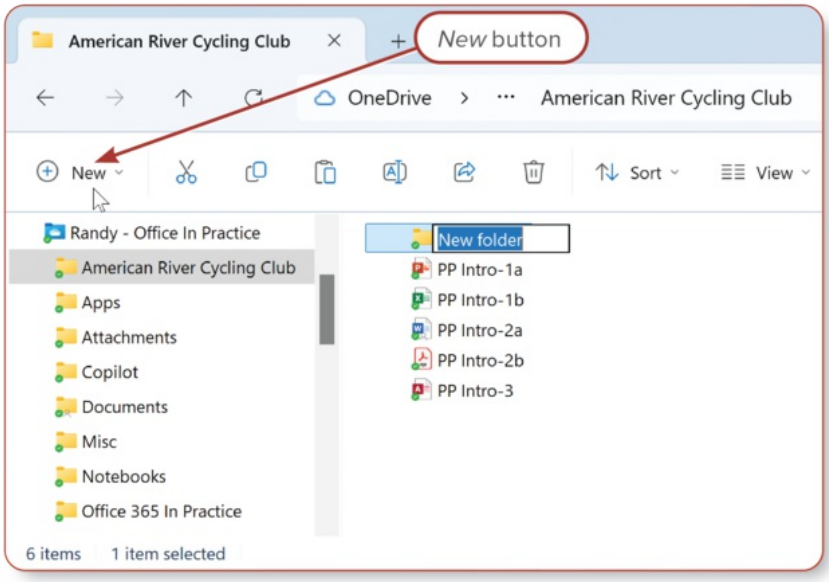


FIGURE INTRO-103 Create a new Windows folder

4. Type the name of the new folder and press **Enter**.

ANOTHER WAY

Ctrl+Shift+N creates a new folder in a Windows folder.

Move and Copy Files and Folders

Moving a file or folder cuts the file or folder from one location and pastes it in another location. Copying a file or folder creates a copy, and you can paste it in another location so the file or folder is in two or more locations. If you move or copy a folder, the files in the folder are moved or copied with the folder. Move or copy files and folders using the **Cut** or **Copy** and **Paste** buttons on the *File Explorer,* keyboard shortcuts (**Ctrl+X**, **Ctrl+C**, **Ctrl+V**), or the drag-and-drop method.

You can move or copy multiple folders or files at the same time. Use the **Ctrl** key to select or deselect multiple non-adjacent files or folders. Use the **Shift** key to select a range of files or folders. Click the first file or folder in a range, press the **Shift** key, and select the last file or folder in the range to select all the items in the range.

HOW TO: Move or Copy a File or Folder

1. Click **File Explorer** on the *Taskbar* or click the **Start** button and select **File Explorer** to open a *File Explorer* window.
2. Select a file(s) or folder(s) to move or copy.
   - Press the **Ctrl** key or the **Shift** key to select multiple files or folders.
3. Click the **Cut** or **Copy to** button (**Figure Intro-104**).

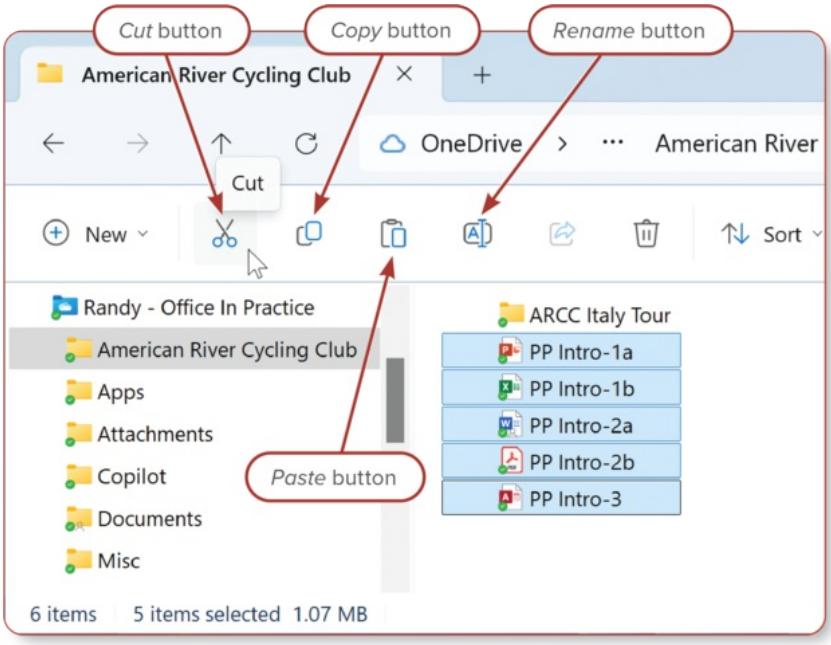


FIGURE INTRO-104 **Move or copy selected files**

4. Go to the location where you want to move or copy the file(s) or folder(s) and click the **Paste** button.
   - To use keyboard shortcuts, press **Ctrl+X** to cut the file or folder or **Ctrl+C** to copy the file or folder from its original location, go to the desired new location, and press **Ctrl+V** to paste it.
   - To use the drag-and-drop method to move a file or folder, select the file or folder and drag and drop to the new location.
   - To use the drag-and-drop method to copy a file or folder, press the **Ctrl** key, select the file or folder, and drag and drop to the new location.

ANOTHER WAY

Right-click a file or folder to display the context menu and select **Cut**, **Copy**, or **Paste**.

Rename Files and Folders

You can rename a file or folder in a *File Explorer* window. When you rename a file or folder, only the file or folder name changes. The contents of the file or folder do not change.

HOW TO: Rename a File or Folder

1. Click **File Explorer** on the *Taskbar* or click the **Start** button and select **File Explorer** to open a *File Explorer* window.
2. Select the file or folder you want to rename.
3. Click the **Rename** button (see **Figure Intro-104**).
   - Alternatively, right-click a file or folder and select **Rename** from the context menu.
4. Type the new name of the file or folder and press **Enter**.

ANOTHER WAY

Select a file or folder to rename, press **F2**, type the new name, and press **Enter**.

Delete Files and Folders

You can easily delete files and folders. When you delete a file or folder, it is moved from its current location to the ***Recycle Bin*** on your computer. The *Recycle Bin* stores deleted items. If a file or folder is in the *Recycle Bin,* you can restore it to its original location or move it to a different location. When you delete a folder, the contents of the folder are also deleted. You also have the option to permanently delete a file or folder. If an item is permanently deleted, you do not have the restore option.

HOW TO: Delete Files and Folders

1. Open a *File Explorer* window and select the file or folder you want to delete.
   - Select multiple files and folders to delete at the same time.
2. Click the **Delete** button (**Figure Intro-105**).

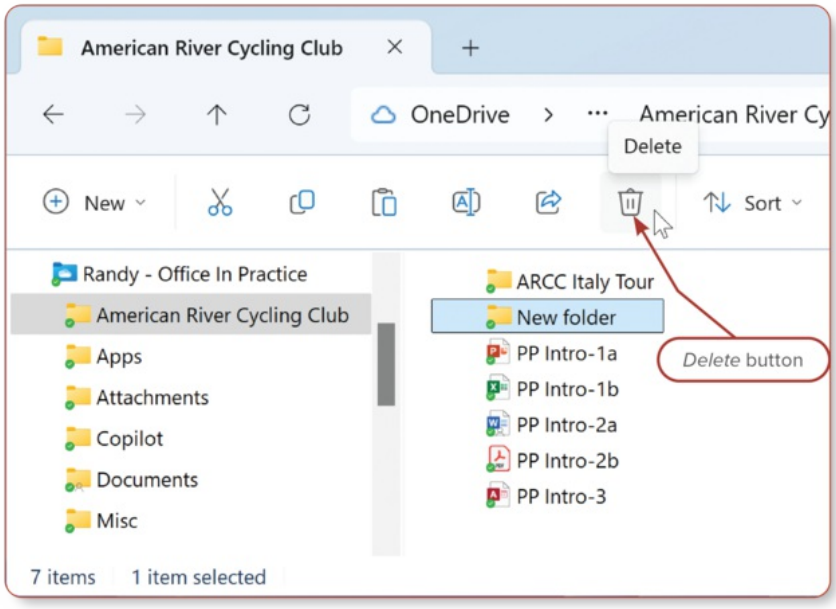


FIGURE INTRO-105 **Delete selected folder**

- The default action when you click the *Delete* button is to move the deleted item to the *Recycle Bin*.

3. Delete a file permanently by pressing the **Shift** key and clicking the **Delete** button. A confirmation dialog box opens. Click **Yes** to confirm the deletion.
   - This option permanently deletes the item(s) from your computer.

ANOTHER WAY

Press **Ctrl+D** or the **Delete** key on your keyboard to delete selected item(s).

Press **Shift+Delete** to permanently delete selected item(s).

Create a Zipped (Compressed) Folder

If you want to share multiple files or a folder of files with classmates, coworkers, friends, or family, ***zip*** the files into a ***zipped folder*** (also called a ***compressed folder***). For example, you can't attach an entire folder to an email message, but you can attach a zipped folder to an email message. Compressing files and folders decreases their size. You can zip a group of selected files, a folder, or a combination of files and folders and then share the zipped folder with others through email or in a cloud storage location such as *OneDrive*.

HOW TO: Create a Zipped (Compressed) Folder

1. Open a *File Explorer* window.
2. Select the file(s) and/or folder(s) you want to zip (compress).
3. Click the **See more** button (ellipsis) on the toolbar and select **Compress to ZIP file** from the drop-down list (**Figure Intro-106**). A zipped folder is created.

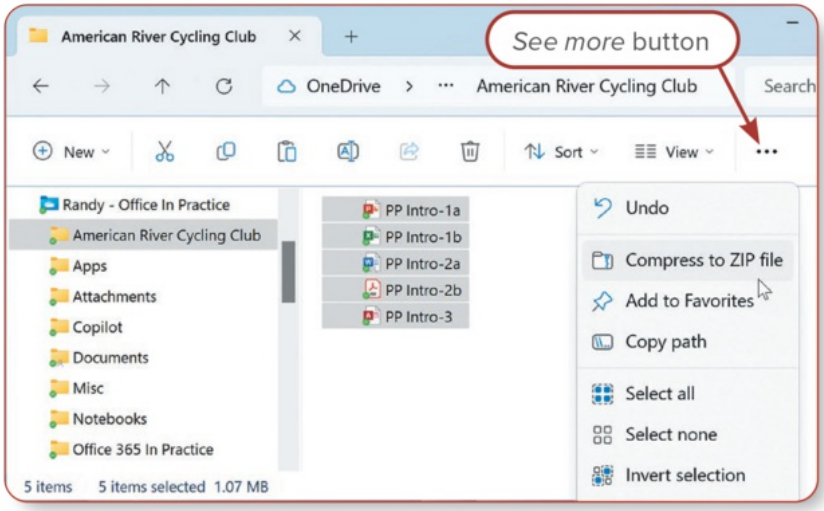


FIGURE INTRO-106 Create a zipped folder

- The default name of the zipped folder is the name of the first item you selected to zip.

4. Type a name for the zipped folder and press **Enter**. Alternatively, press **Enter** to accept the default name.
   - The icon for a zipped folder looks similar to the icon for a folder except it has a zipper on the folder.

ANOTHER WAY

Right-click a selected file(s) and/or folder(s) and select **Compress to ZIP file**.

Extract a Zipped (Compressed) Folder

If you receive a zipped folder via email or download a zipped folder, save the zipped folder to your

computer and then ***extract*** its contents. Extracting a zipped folder creates a regular Windows folder from the zipped folder.

HOW TO: Extract a Zipped (Compressed) Folder

1. Select the zipped folder to extract.
2. Click the **See more** button (ellipsis) and select **Extract all** (**Figure Intro-107**). The *Extract Compressed (Zipped) Folders* dialog box opens (**Figure Intro-108**).

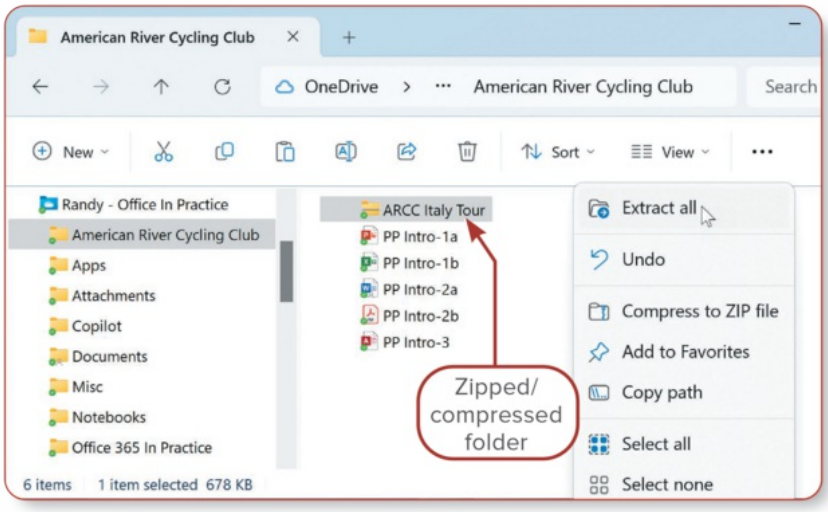


FIGURE INTRO-107 **Extract files from a zipped folder**

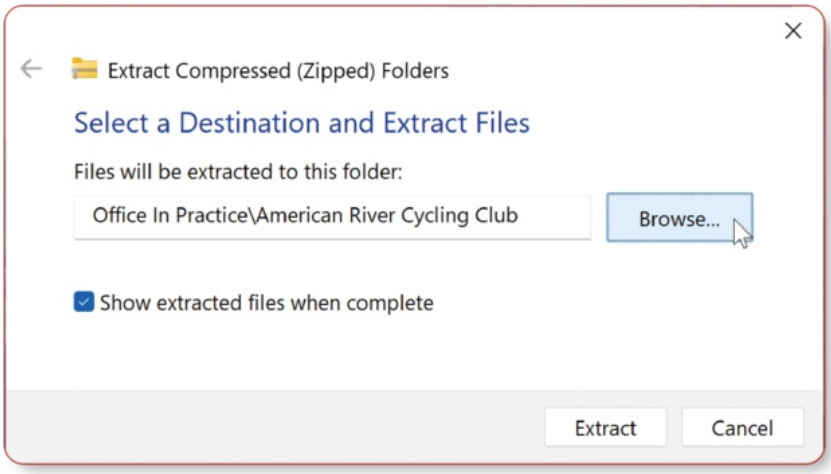


FIGURE INTRO-108 ***Extract Compressed (Zipped) Folders*** **dialog box**

3. Click the **Browse** button to select a location to save the extracted folder.
   - In the *Select a destination* dialog box, select a location and click the **Select Folder** button.

4. Click **Extract** to extract the folder.
   - Both the extracted folder and the zipped folder display if they are saved in the same location.
   - If you check the **Show extracted files when complete** check box, the extracted folder will open after extracting.

ANOTHER WAY

Right-click a zipped folder and select **Extract All** from the context menu.

PAUSE & PRACTICE: INTRO-3

For this project, you customize the *File Explorer,* copy and rename files in your *OneDrive* folder on your computer, create a folder, move files, create a zipped folder, and rename a zipped folder.

Files Needed: ***[your initials] PP Intro-1a.pptx***, ***[your initials] PP Intro-1b.xlsx***, ***[your initials] PP Intro-2a.docx***, ***[your initials] PP Intro-2b.docx***, and ***ARCC_Membership-Intro.accdb*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Names: ***[your initials] PP Intro-1a.pptx***, ***[your initials] PP Intro-1b.xlsx***, ***[your initials] PP Intro-2a.docx***, ***[your initials] PP Intro-2b.docx***, ***[your initials] PP Intro-3.accdb***, and ***ARCC Italy Tour-zip*** (zipped folder)

1. Customize how files and folders are sorted and displayed in the *File Explorer.*
   a. Click **File Explorer** on the *Taskbar* or click the **Start** button and select **File Explorer** to open a *File Explorer* window. If *File Explorer* is not available on the *Taskbar* or *Start* menu, use *Search* to find and open a *File Explorer* window.
   b. Click the **Sort** button and select **Name**.
   c. Click the **Sort** button again and select **Ascending**.
   d. Click the **View** button and select **List**.
   e. Click the **View** button again, select **Show**, and select **Compact view**.
2. Copy and rename a file.
   a. Browse the *File Explorer* window to locate your student data files.
   b. Select the ***ARCC_Membership-Intro*** file and click the **Copy** button or press **Ctrl+C** (**Figure Intro-109**).

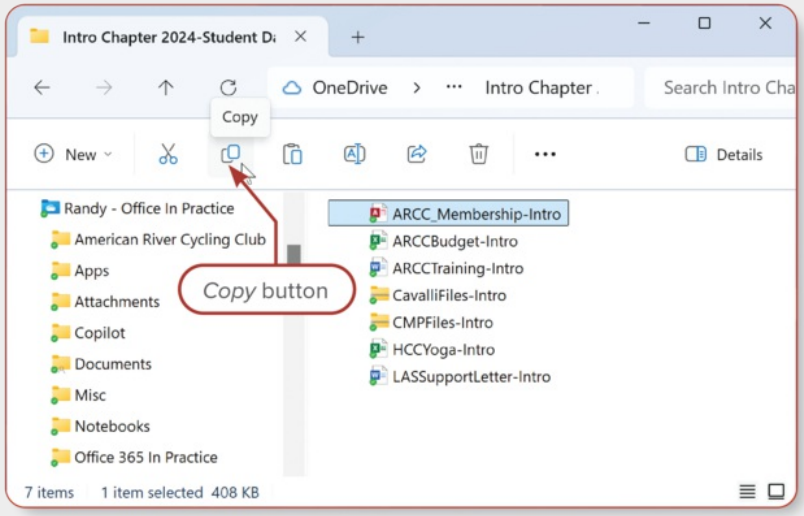


FIGURE INTRO-109 Select and copy a file in the *File Explorer*

c. Browse to locate the *American River Cycling Club* folder you created in *Pause & Practice: Intro-1.*

d. Double-click the ***American River Cycling Club*** folder to open the folder and click the **Paste** button or press **Ctrl+V** to copy the ***ARCC_Membership-Intro*** file to the *American River Cycling Club* folder.

e. Click the ***ARCC_Membership-Intro*** file in the *American River Cycling Club* folder to select it.

f. Click the **Rename** button, type [your initials] PP Intro-3 as the new file name, and press **Enter** (**Figure Intro-110**).

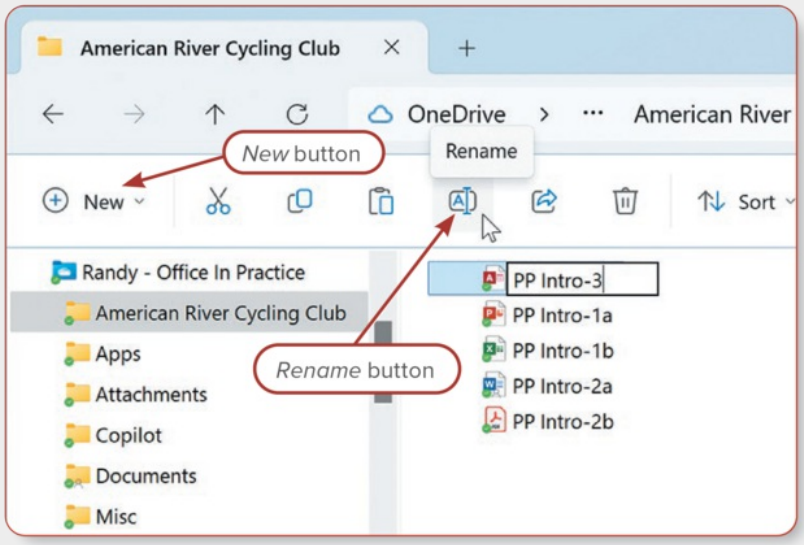


FIGURE INTRO-110 *Rename* a file

3. Create a new folder and move files.

   a. Confirm the *American River Cycling Club* folder is still open (if not, open it), click the **New** button, and select **Folder** to create a new folder.

b. Type ARCC Italy Tour as the name of the new folder and press **Enter**.

c. Select the ***[your initials] PP Intro-1a*** file, press the **Shift** key, select the last file in the list (***[your initials] PP Intro-3***), and release the **Shift** key. All five files should be selected (**Figure Intro-111**). Alternatively, press the **Ctrl** key, select (click) each of the five files, and release the **Ctrl** key.

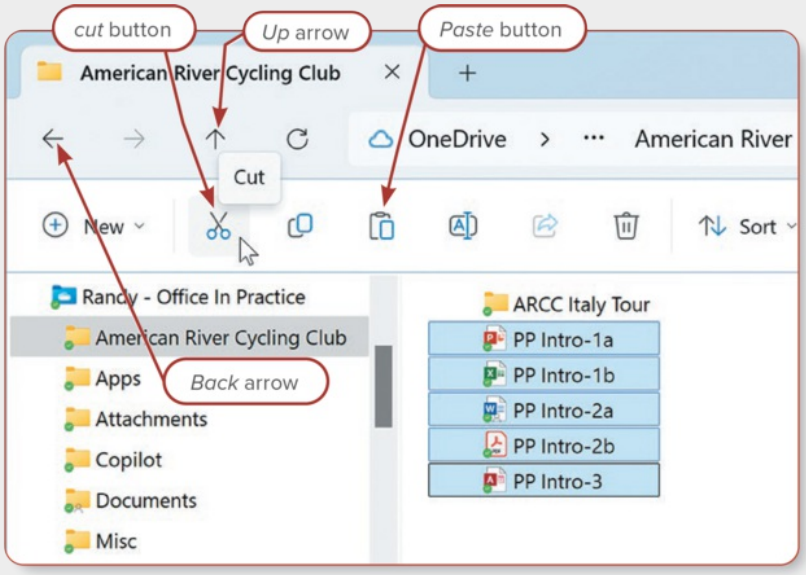


FIGURE INTRO-111 Move selected files to a different folder

d. Click the **Cut** button or press **Ctrl+X** to cut the selected items.

e. Double-click the ***ARCC Italy Tour*** folder to open the folder and click the **Paste** button or press **Ctrl+V** to paste the five files into the *ARCC Italy Tour* folder.

f. Click the **Up** or **Back** arrow above the *Navigation* pane to return to the *American River Cycling Club* folder (see **Figure Intro-111**).

4. Create a zipped folder.

a. Select the ***ARCC Italy Tour*** folder.

b. Click the **See more** button and select **Compress to ZIP file**. A zipped (compressed) folder is created.

c. Place the insertion point at the end of the zipped folder name (ARCC Italy Tour), type –zip, and press **Enter** (**Figure Intro-112**).

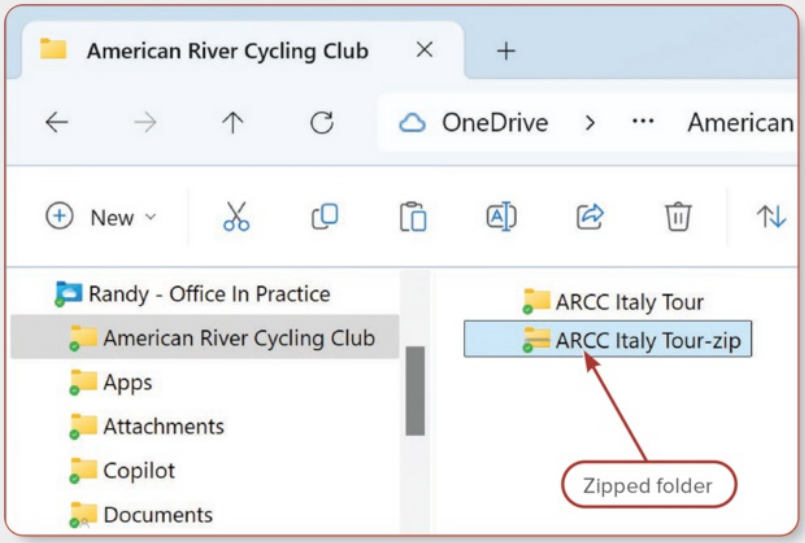


FIGURE INTRO-112 Create a zipped folder

5. Refer to your instructor's guidelines for how to turn in this project.

Chapter Summary

Intro.1 Explore select features of Windows. (p. Intro-2)

- ***Windows 11*** and the new ***Windows 10*** are computer ***operating systems*** that control interaction with computer hardware and software applications
- ***Microsoft 365*** includes Office apps and other Windows apps.
- A ***Microsoft account*** is a free account you create. When you create a Microsoft account, you receive an email address, a ***OneDrive*** account, and access to ***Office Online***.
- The ***Windows desktop*** is the working area of Windows, and the ***Taskbar*** displays at the bottom of the desktop. You can rearrange icons and pin applications to the *Taskbar.*
- Use the ***Start menu*** in Windows to select a task. You can pin applications to the *Start* menu and customize the arrangement of apps.
- ***Apps*** are the applications or programs installed on your computer. App buttons are arranged in tiles on the Windows *Start* menu.
- The ***Microsoft Store*** is a Windows app used to search for and install apps on your computer.
- Install both ***desktop apps***, also called ***Premium Office Apps***, and ***modern apps*** in Windows.
- The left side of the *Start* menu displays ***Pinned*** apps, an alphabetic listing of all apps, and other buttons, such as ***Settings*** and ***Power***.
- Customize the *Start* menu and *Taskbar* to add, remove, ***pin***, or arrange apps.
- ***File Explorer*** is a window that displays files and folders on your computer.
- *OneDrive* is the cloud storage area where you can store files in a private and secure online location.
- The ***OneDrive folder*** in Windows is one of your file storage location options.
- Access *OneDrive* folders and files using an internet browser window.
- ***Search*** is a search tool in Windows used to locate information on your computer and the internet.
- ***Task View*** displays all open apps and windows as tiles on your desktop. Select an app

or window to display or close.

- ***Virtual Desktops*** provide the ability to have different desktops with different apps, files, and windows open on each.
- Use the ***Settings*** window to customize the Windows environment.

Intro.2 Use basic features of the Microsoft 365 Office apps and navigate the Office working environment. (p. Intro-13)

- ***Microsoft 365*** and ***Office 2024*** are application software that includes ***Word***, ***Excel***, ***Access***, ***PowerPoint***, ***Outlook***, ***OneNote***, and ***Publisher***.
- ***Microsoft 365*** and ***Office 2024*** include the Office applications, but they differ in how you purchase them. Microsoft 365 Office apps include features that may not be available in Office 2024.
- The ***update channel*** determines how often Microsoft 365 is updated.
- ***Microsoft 365 Office apps*** are the full-function Microsoft 365 applications you install on your laptop or desktop computer.
- ***Office mobile apps*** are a scaled-down version of Office applications installed on a tablet or mobile device.
- ***Office Online*** is free online software that works in conjunction with your online Microsoft 365 account.
- A ***Start page*** displays when you open an Office app. You can open an existing file or create a new file.
- The ***Backstage view*** in each of the Office applications performs many common tasks such as saving, opening an existing file, creating a new file, printing, and sharing.
- ***Microsoft Search*** (formerly *Tell Me*) is the Office help feature that displays Office commands related to specific topics.
- Use the mouse (or touchpad) on your computer to navigate the pointer on your computer screen. Use the pointer or click buttons to select text or objects.
- When using Microsoft 365 Office apps or Office 2024 on a touch-screen computer, use the touch screen to perform actions. You can choose between ***Touch mode*** and ***Mouse mode*** in Office applications.

Intro.3 Create, save, close, and open Office files. (p. Intro-21)

- Create a new Office file from the *Start* page or *Backstage* view of the Office application.

- Assign a file name when you save a file for the first time.
- ***AutoSave*** is a new feature that automatically saves a file stored in *OneDrive.*
- Create folders to organize saved files. Use ***Save As*** or ***Save a Copy*** to save a file with a different file name.
- Office applications use a variety of different file types, and each has a different ***file name extension***.
- Close an Office file when finished working on it. If the file has not been saved or changes have been made to the file, you are prompted to save the file before closing.
- Open an existing file from the *Start* page or from the *Open* area on *Backstage* view in each of the Office applications.

Intro.4 Customize the view and display size in Office applications and work with multiple Office files. (p. Intro-30)

- Each Office application has a variety of display views.
- Select an application view from the options on the ***View tab*** or the view buttons on the ***Status bar***.
- The ***Zoom*** feature changes the display size of a file.
- ***Minimize***, ***restore down***, or ***maximize*** an open Office application window.
- Work with multiple Office files at the same time and switch between open files.
- ***Snap Assist*** enables you to arrange an open window on one side of your computer screen and select another window to fill the other side of the screen. The ***Restore Down/Maximize*** button on an open app displays ***Snap Assist*** options.

Intro.5 Print, share, and customize Office files. (p. Intro-34)

- Print a file in a variety of formats. The *Print* area on the *Backstage* view lists print options and displays a preview of your file.
- Export a file as a ***PDF (portable document format)*** file and save the PDF file to post to a website or share with others.
- ***Document properties*** store information about a file. Each piece of information stored is called a ***field***.
- Share Office files in a variety of ways and enable others to view or edit shared files. To share a file with others, save the file in *OneDrive.*
- Program options are available on the *Backstage* view. Use program options to apply

global changes to an Office application.

Intro.6 Use the *Ribbon,* tabs, groups, dialog boxes, task panes, galleries, and the *Quick Access* toolbar (p. Intro-38).

- The ***Ribbon*** appears at the top of an Office window. It contains ***tabs*** and ***groups*** with commands to format and edit files.
- The ***Ribbon Display Options*** provides different ways to display the *Ribbon* in Office applications.
- A variety of ***buttons***, ***drop-down lists***, and ***galleries*** display within groups on each tab.
- ***Dialog boxes*** and ***task panes*** contain additional features not always displayed on the *Ribbon.*
- Click the ***launcher*** in the bottom-right corner of selected groups to open a dialog box or a task pane. Task panes typically display on the left or right side of the Word window.
- A ***ScreenTip*** displays information about commands on the *Ribbon.*
- Dialog boxes contain ***radio buttons***, ***check boxes***, ***drop-down lists***, and ***text boxes***.
- The ***Quick Access toolbar*** contains buttons that enable you to perform commands and displays in all Office applications.
- Add or remove commands on the *Quick Access* toolbar.

Intro.7 Use context menus, mini toolbar, keyboard shortcuts, and function keys in Office applications (p. Intro-42).

- A ***context menu*** displays when you right-click text or an object. A context menu contains different features depending on what you right-click.
- A ***mini toolbar*** is another context menu that displays formatting options.
- Use ***keyboard shortcuts*** to apply features or initiate commands.
- Numbered ***function keys*** perform commands in Office applications. On laptops, you may have to press the ***Function key*** (**Fn** or **fn**) to activate the numbered function keys.

Intro.8 Organize and customize Windows folders and Office files (p. Intro-47).

- ***Folders*** store and organize files.
- Create, move, or copy files and folders. Files stored in a folder are moved or copied with that folder.

- ***Rename*** a file to change the file name.
- A deleted file or folder moves to the ***Recycle Bin*** on your computer by default. Alternatively, you can permanently delete files and folders.
- ***Zip*** files and/or folders into a ***zipped (compressed) folder*** to email or to share multiple files as a single file.
- ***Extract*** a zipped folder to create a regular Windows folder and to access its contents.

Check for Understanding

The SIMbook for this text (within your SIMnet account) provides the following resources for concept review:

- Multiple-choice questions
- Matching exercises
- Short answer questions

USING MICROSOFT WINDOWS AND OFFICE 365

Guided Project Intro-1

For this project, you organize and edit files for Emma Cavalli at Placer Hills Real Estate. You extract a zipped folder, rename files, manage multiple documents, apply formatting, and export as a PDF file.

[**Student Learning Outcomes Intro.1**, **Intro.2**, **Intro.3**, **Intro.4**, **Intro.5**, **Intro.6**, **Intro.7**, **Intro.8**]

Files Needed: ***CavalliFiles-Intro*** (zipped folder) *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Names: ***PHRE*** folder containing the following files: ***BuyerEscrowChecklist-Intro***, ***CavalliProspectingLetter-Intro***, ***[your initials] Intro-1a.accdb***, ***[your initials] Intro-1b.xlsx***, ***[your initials] Intro-1c.docx***, ***[your initials] Intro-1d.docx***, and ***[your initials] Intro-1e.pdf***

Skills Covered in This Project

- Copy and paste a zipped folder.
- Create a new folder in your *OneDrive* folder.
- Extract a zipped folder.
- Change *Sort* and *View* options in the *File Explorer*.
- Move a file.
- Rename a file.
- Open a Word document.
- Use *Task View* to switch between two open Word documents.
- Turn off *AutoSave*.
- Save a Word document with a different file name.
- Change display size.
- Use a mini toolbar, keyboard shortcut, context menu, and dialog box to apply

formatting to selected text.

- Export a document as a PDF file.

---

1. Copy a zipped folder and create a new *OneDrive* folder.
   a. Click the Windows **Start** button and click **File Explorer** to open the *File Explorer* window. If *File Explorer* is not available on the *Start* menu, use *Search* to find and open the *File Explorer* window.
   b. Browse in the *File Explorer* window to locate your student data files.
   c. Select the ***CavalliFiles-Intro*** zipped folder from your student data files and click the **Copy** button or press **Ctrl+C** to copy the folder.
   d. Select your ***OneDrive*** folder on the left of the *File Explorer* window, click the **New** button, and select **Folder** to create a new folder. If you don't have *OneDrive* available, create the new folder in a location where you store your files.
   e. Type PHRE and press **Enter**.
   f. Press **Enter** again to open the *PHRE* folder or double-click the folder to open it.
   g. Click the **Paste** button or press **Ctrl+V** to paste the copied ***CavalliFiles-Intro*** zipped folder in the *PHRE* folder.
2. Extract a zipped folder.
   a. Select the ***CavalliFiles-Intro*** zipped folder.
   b. Click the **See more** button (ellipsis) and click the **Extract all** button (**Figure Intro-113**). The *Extract Compressed (Zipped) Folders* dialog box opens.

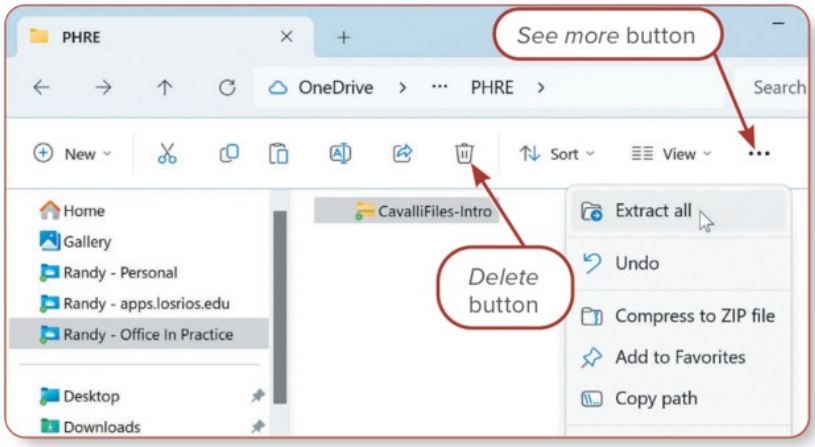


FIGURE INTRO-113 **Extract a zipped folder**

   c. Uncheck the **Show extracted files when complete** box if it is checked.
   d. Click the **Extract** button. The zipped folder is extracted, and the *PHRE* folder now contains two *CavalliFiles-Intro* folders. One folder is zipped and the other is

a regular folder.

e. Select the zipped ***CavalliFiles-Intro*** folder and click the **Delete** button to delete the zipped folder. The extracted *CavalliFiles-Intro* folder remains in the *PHRE* folder.

3. Customize sort and view options and move and rename files.

   a. Double-click the **CavalliFiles-Intro** folder to open it.

   b. Click the **Sort** button and select **Name**. Click the **Sort** button again and select **Ascending**.

   c. Click the **View** button and select **Medium icons**. Click the **View** button again and select **List**.

   d. Click the first file, press and hold the **Shift** key, and click the last file to select all four files.

   e. Click the **Cut** button or press **Ctrl+X** to cut the files from the current location (**Figure Intro-114**).

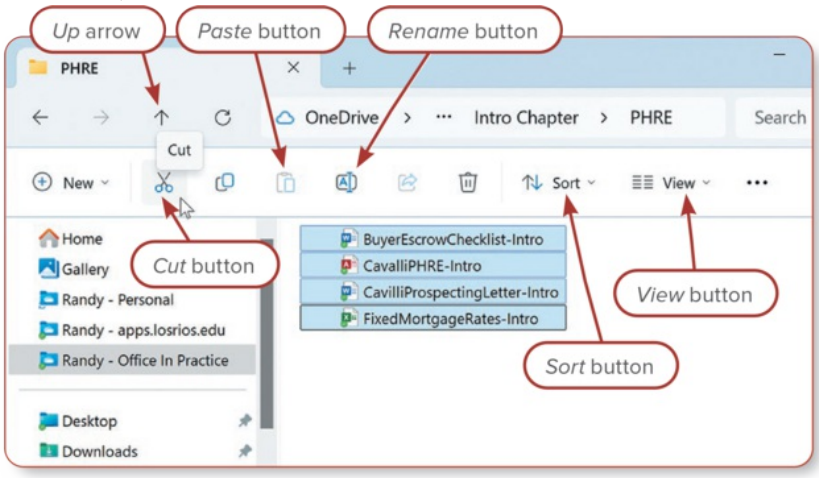


FIGURE INTRO-114 ***Cut*** **files to move from a folder**

   f. Click the **Up** arrow to move up to the *PHRE* folder.

   g. Click the **Paste** button or press **Ctrl+V** to paste and move the files.

   h. Right-click the ***Cavallifiles-Intro*** folder and select **Delete** from the context menu.

   i. Select the ***CavalliPHRE-Intro*** file and click the **Rename** button. Alternatively, press the **F2** function key or **Fn+F2** if you're using a laptop.

   j. Type [your initials] Intro-1a and press **Enter**.

   k. Right-click the ***FixedMortgageRates-Intro*** file and select **Rename** from the context menu.

   l. Type [your initials] Intro-1b and press **Enter**.

4. Open two Word documents and rename a Word document.

a. Click the ***BuyerEscrowChecklist-Intro*** file, press the **Ctrl** key, and click the ***CavalliProspectingLetter-Intro*** file to select both files.
b. Press the **Enter** key to open both files in Word. If the files open in *Protected View,* click the **Enable Editing** button.
c. Click the **Task View** button on your *Taskbar* (**Figure Intro-115**). All open windows display as tiles on your desktop.



FIGURE INTRO-115 ***Task View*** **button on the** ***Taskbar***

d. Select the ***BuyerEscrowChecklist-Intro*** document.
e. Click the **AutoSave** button on the *Title* bar to turn *AutoSave* off (if *AutoSave* is on).
f. Click the **File** tab to open the *Backstage* view and select **Save As** on the left.
g. Click the **Browse** button to open the *Save As* dialog box and open the **PHRE** folder if it is not already selected.
h. Type [your initials] Intro-1c in the *File name* text box and click **Save**. The file is saved in the *PHRE* folder.
i. Click the **X** in the upper-right corner of the Word window to close the document. The *CavalliProspectingLetter-Intro* document remains open.

5. Change display size and edit and rename a Word document.
a. Press the **Task View** button on your *Taskbar* and select the ***CavalliProspectingLetter-Intro*** document if it is not already displayed.
b. Click the **Zoom In** or **Zoom Out** button in the bottom right of the document window to change the display size to **120%** (**Figure Intro-116**).



FIGURE INTRO-116 **Use** ***Zoom*** **to change the display size to 120%**

c. Select "**Placer Hills Real Estate**" in the first body paragraph of the letter. The mini toolbar displays (**Figure Intro-117**).



FIGURE INTRO-117 **Use the mini toolbar to apply formatting**

d. Click the **Bold** button on the mini toolbar to apply bold formatting to the selected text.
e. Select "**Whitney Hills resident**" in the first sentence in the second body paragraph and press **Ctrl+I** to apply italic formatting to the selected text.
f. Select the text that reads "**Emma Cavalli**," below "Best regards,".
g. Right-click the selected text and select **Font** from the context menu to open the *Font* dialog box.
h. Check the **Small Caps** box in the *Effects* area and click **OK** to close the *Font* dialog box.
i. Select "**Emma Cavalli**" (if necessary) and click the **Bold** button [*Home* tab, *Font* group].
j. Click the **File** tab and select **Save As** on the left. If the file is saved in *OneDrive* and *AutoSave* is turned on, select **Save a Copy**.
k. Type [your initials] Intro-1d in the *File name* text box and click **Save** (**Figure Intro-118**).

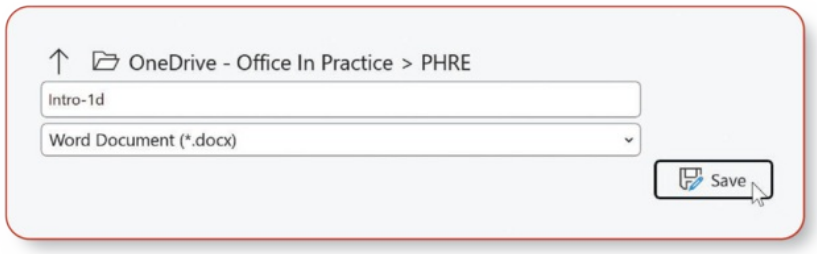


FIGURE INTRO-118 ***Save* area on the *Backstage* view**

6. Export a Word document as a PDF file.
   a. Confirm the ***[your initials] Intro-1d*** file is still open, click the **File** tab to open the *Backstage* view.
   b. Select **Export** on the left, select **Create PDF/XPS Document** in the *Export* area, and click the **Create PDF/XPS** button (**Figure Intro-119**). The *Publish as PDF or XPS* dialog box opens.

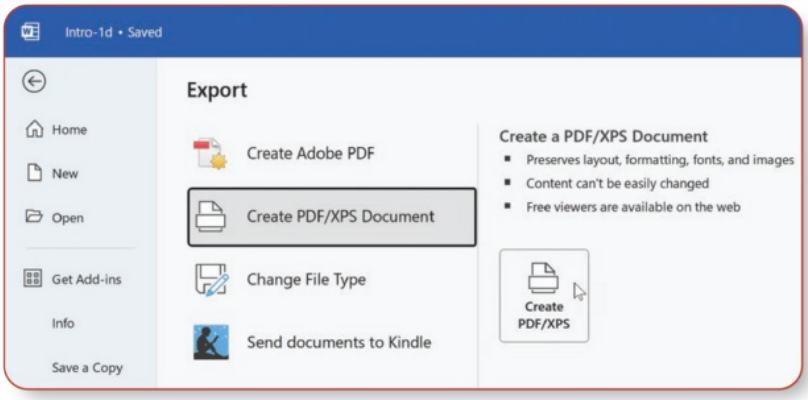


FIGURE INTRO-119 **Export as a PDF file**

c. Deselect the **Open file after publishing** check box if it is checked.
d. Select the **Standard (publishing online and printing)** radio button in the *Optimize for* area.
e. Type [your initials] Intro-1e in the *File name* text box.
f. Select the **PHRE** folder as the location to save the file and click **Publish**.
g. Click the **Save** button on the *Quick Access* toolbar or press **Ctrl+S** to save the document.
h. Click the **X** in the upper-right corner of the Word window to close the document and Word.

7. Your *PHRE* folder should contain the files shown in **Figure Intro-120**.

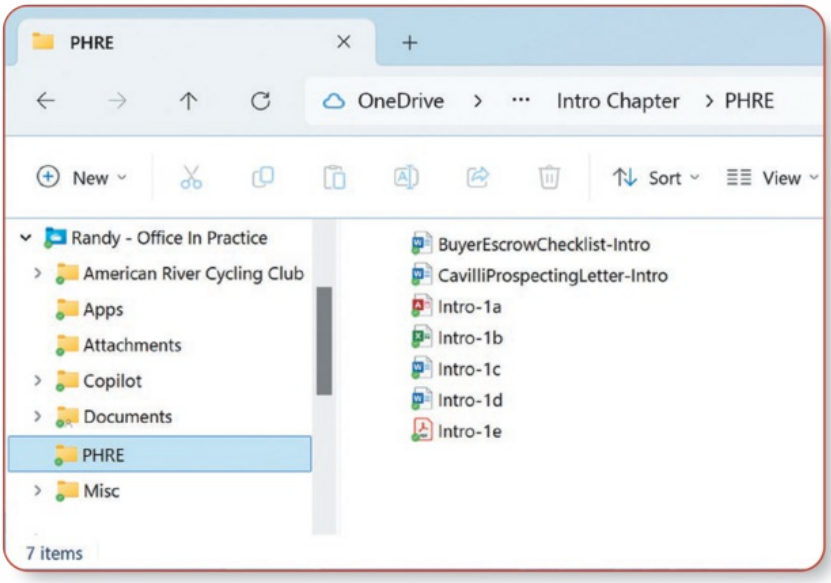


FIGURE INTRO-120 **Intro-1 completed**

Guided Project Intro-2

For this project, you modify an Excel file for Hamilton Civic Center (HCC). You create a folder, rename a file, add document properties, use *Microsoft Search* to locate a topic, share the file, and export a file as a PDF file.

[**Student Learning Outcomes Intro.1**, **Intro.2**, **Intro.3**, **Intro.5**, **Intro.6**, **Intro.7**, **Intro.8**]

File Needed: ***HCCYoga-Intro.xlsx*** *(Student data files are available in the* Library *of your SIMnet account.)* Completed Project File Names: ***[your initials] Intro-2a.xlsx*** and ***[your initials] Intro-2b.pdf***

Skills Covered in This Project

- Open Excel and an Excel workbook.
- Create a new folder.
- Save an Excel workbook with a different file name.
- Add document properties to a file.
- Use *Microsoft Search* to search for a topic.
- Open a Word document.
- Share a file.
- Export a file as a PDF file.

1. Open Excel and open an Excel workbook.
   a. Click the Windows **Start** button and click **Excel** to open this application. If *Excel* is not available on the *Start* menu, click the **Search** button on the *Taskbar,* type Excel in *Search,* and then click **Excel** in the search results to open it.
   b. Click **Open** from the Excel *Start* page to display the *Open* area of the *Backstage* view.
   c. Click the **Browse** button to open the *Open* dialog box.
   d. Browse to the location where your student data files are stored, select the ***HCCYoga-Intro*** file, and click **Open** to open the Excel workbook. If the file opens in *Protected View,* click the **Enable Editing** button.
2. Save a file as a different file name in your *OneDrive* folder.

a. Click the **File** tab to open the *Backstage* view and select **Save As** (or **Save a Copy**) on the left.
b. Click the **Browse** button to open the *Save As* dialog box.
c. Select the **OneDrive** folder on the left and click the **New folder** button to create a new folder (**Figure Intro-121**).
If *OneDrive* is not a storage option, select another location to create the new folder.

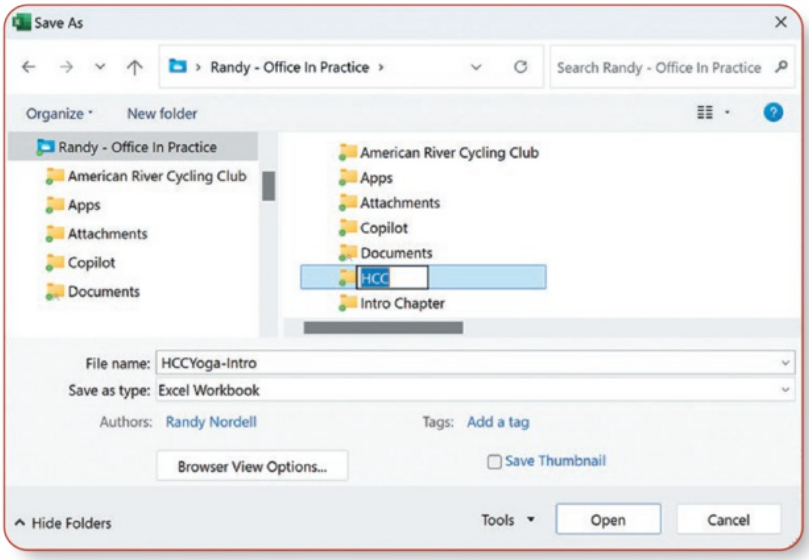


FIGURE INTRO-121 **Create a new folder from the *Save As* dialog box**

d. Type HCC and press **Enter**.
e. Double-click the **HCC** folder to open it.
f. Type [your initials] Intro-2a in the *File name* area and click **Save** to close the dialog box and save the file.

3. Add document properties to the Excel workbook.
a. Click the **File** button to open the *Backstage* view and select **Info** on the left. The document properties display on the right.
b. Place your insertion point in the *Title* text box ("Add a title") and type Yoga Classes as the worksheet title.
c. Click the **Show All Properties** link at the bottom of the list of properties to display more properties (**Figure Intro-122**).

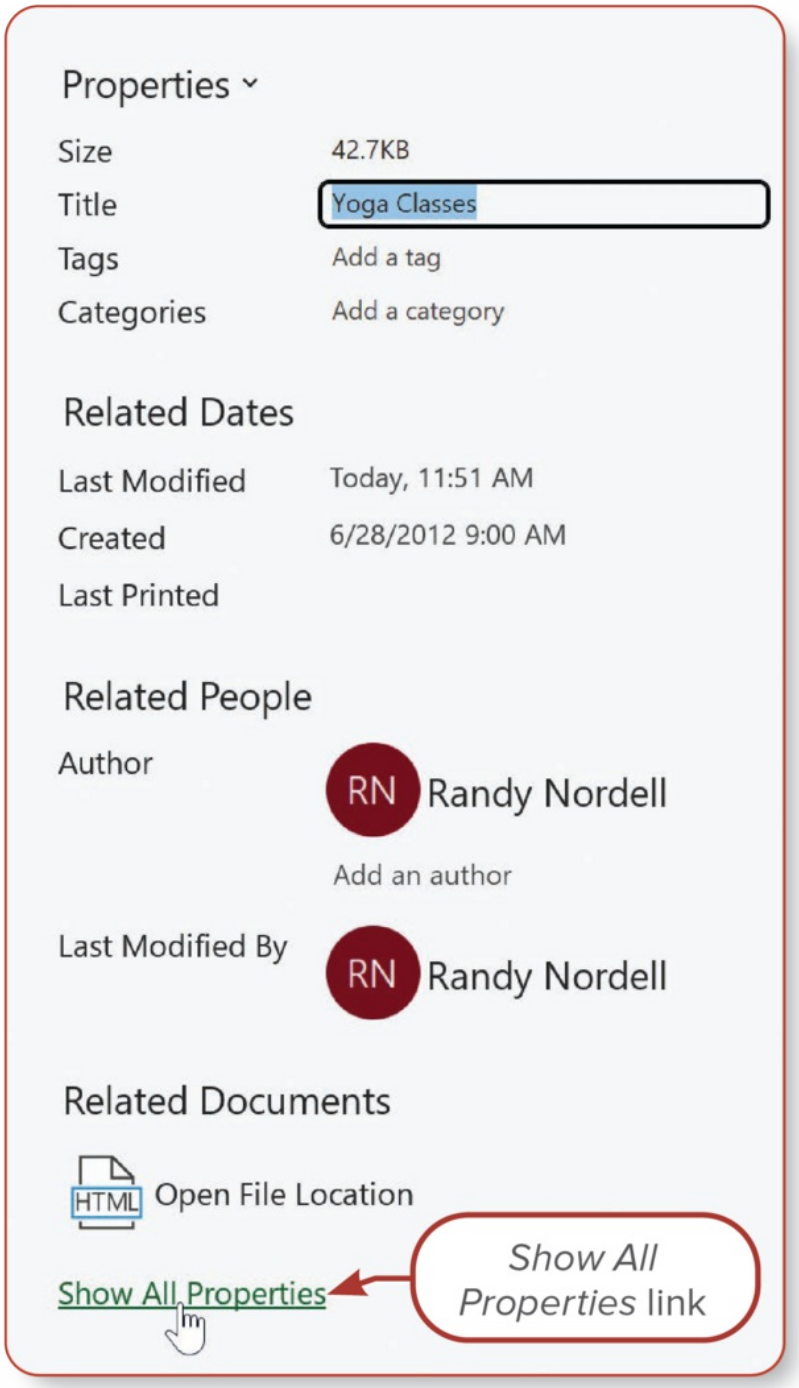


FIGURE INTRO-122 **Add document properties**

d. Place your insertion point in the *Company* text box and type Hamilton Civic Center as the company name.

e. Click the **Back** arrow in the upper left of the *Backstage* window to return to the Excel workbook.

4. Use *Microsoft Search* to search for a topic.
   a. Click the **Microsoft Search** box at the top of the *Title* bar and type cell format (**Figure Intro-123**).

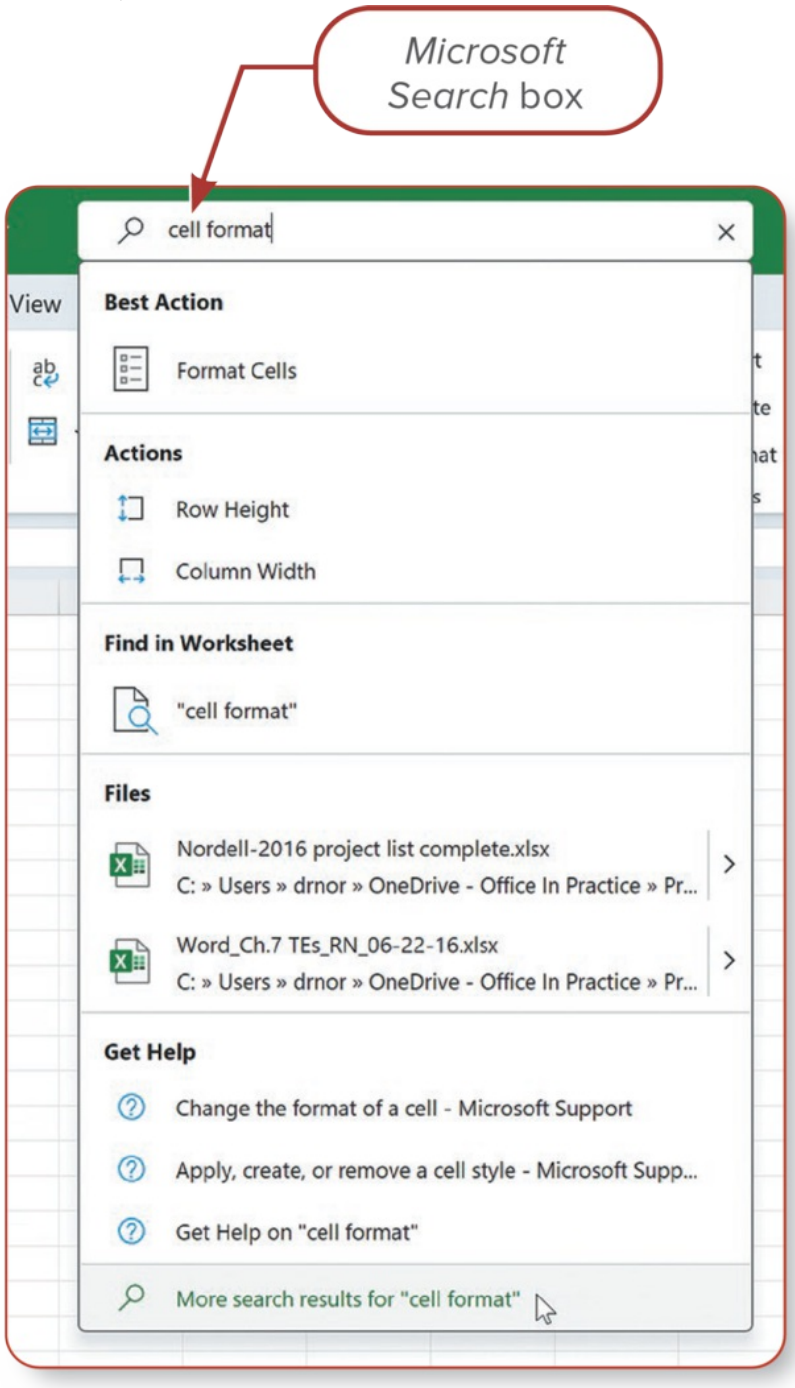


FIGURE INTRO-123 Use *Microsoft Search* to search for a topic

   b. Select **"More search results ..."** in the *Get Help on* area. The *Search* pane

opens on the right.

c. Review the result links in the *Search* pane. A variety of links and videos display. Click the **Back** arrow to return to the search list if you clicked one of the links to display additional information.

d. Click the **X** in the upper-right corner to close the *Search* pane.

5. Share an Excel workbook with your instructor. If your file is not saved on *OneDrive,* skip step 5.

a. Click the **Share** button in the upper-right corner of the Excel window and select **Share** to open the *Share* window (**Figure Intro-124**).

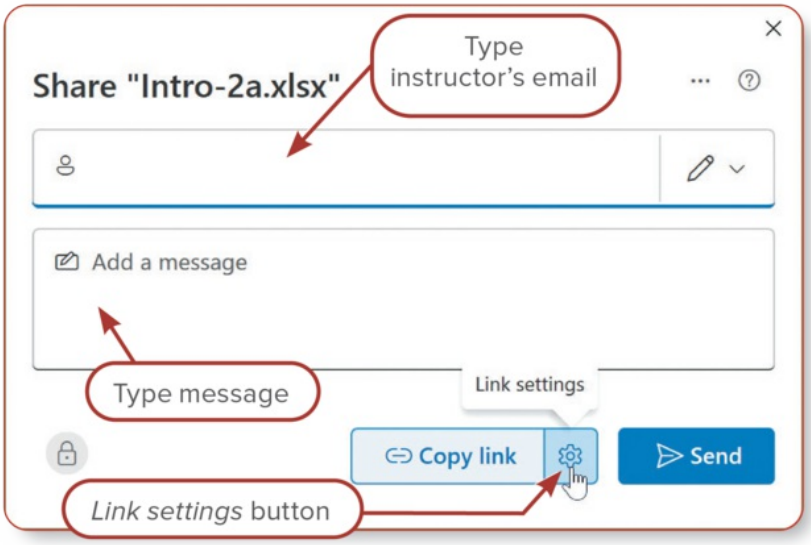


FIGURE INTRO-124 ***Share*** **window**

b. Click the **Link settings** button to open the *Link settings* window (**Figure Intro-125**).

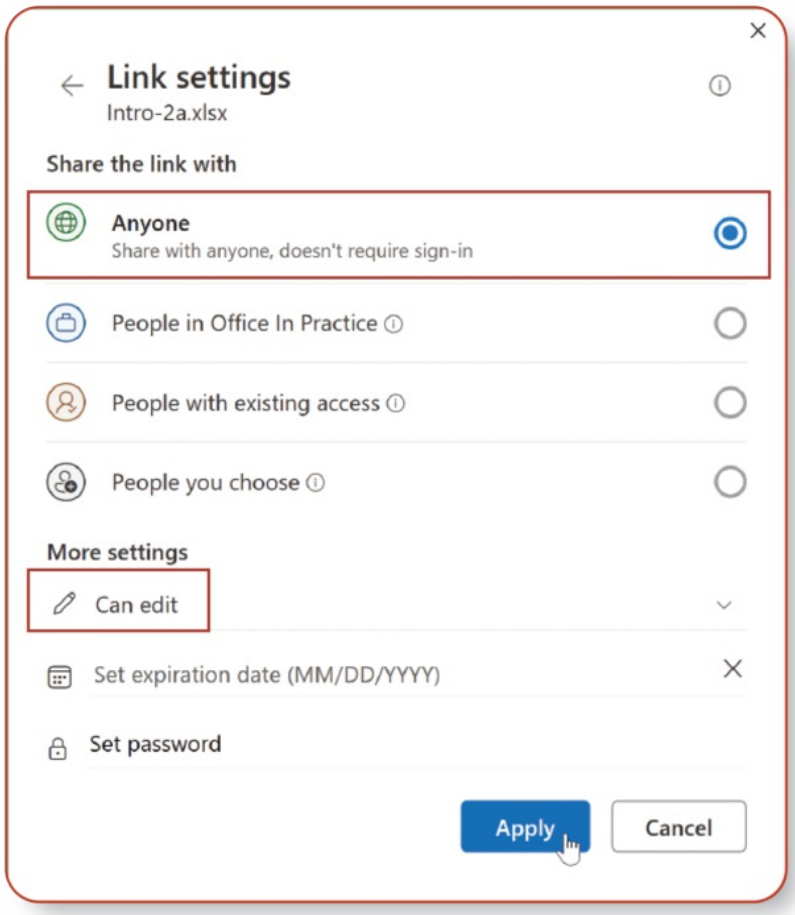


FIGURE INTRO-125 ***Link settings* window**

c. Click the **Anyone** button and select **Can edit** (if necessary).
d. Click **Apply** to close the *Link settings* window and return to the *Share* window.
e. Type your instructor's email address in the *Add a name, group, or email* area (see **Figure Intro-124**).
f. Type a brief message to your instructor in the *Add a message* area and click the **Send** button.
g. Click the **X** in the upper-right corner of the confirmation window to close it.

6. Export an Excel file as a PDF file.
   a. Click the **File** tab to open the *Backstage* view.
   b. Select **Export** on the left, select **Create PDF/XPS Document** in the *Export* area, and click the **Create PDF/XPS** button (**Figure Intro-126**). The *Publish as PDF or XPS* dialog box opens.

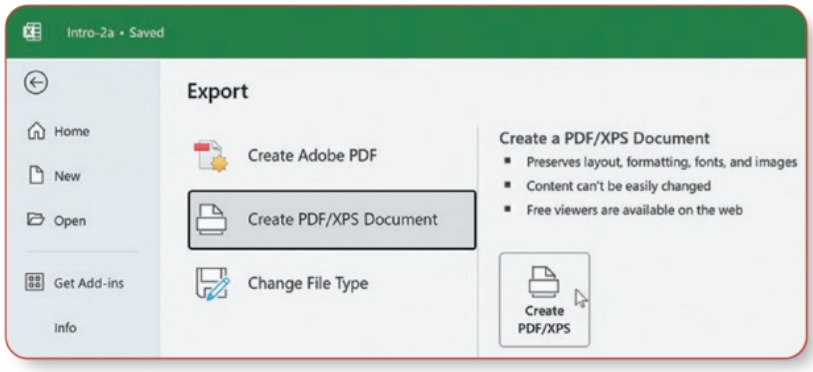


FIGURE INTRO-126 Export as a PDF file

c. Deselect the **Open file after publishing** check box if it is checked.
d. Select the **Standard (publishing online and printing)** radio button in the *Optimize for* area.
e. Type [your initials] Intro-2b in the *File name* text box, verify the **HCC** folder is the location to save the file, and click **Publish**.

7. Save and close the Excel file.
   a. Press **Ctrl+S** or click the **Save** button on the *Quick Access* toolbar to save the worksheet.
   b. Click the **X** in the upper-right corner of the Excel window to close the file and Excel.

Independent Project Intro-3

For this project, you organize and edit files for Courtyard Medical Plaza (CMP). You extract a zipped folder, delete a folder, move files, rename files, export a file as a PDF file, and share a file.

[**Student Learning Outcomes Intro.1**, **Intro.2**, **Intro.3**, **Intro.5**, **Intro.8**]

File Needed: ***CMPFiles-Intro*** (zipped folder) *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Names: ***[your initials] Intro-3a.pptx***, ***[your initials] Intro-3a-pdf.pdf***, ***[your initials] Intro-3b.accdb***, ***[your initials] Intro-3c.xlsx***, and ***[your initials] Intro-3d.docx***

Skills Covered in This Project

- Copy and paste a zipped folder.
- Create a new folder in your *OneDrive* folder.
- Extract a zipped folder.
- Delete a folder.
- Customize *Sort* and *View* options.
- Pin a folder to *Quick access.*
- Move a file.
- Rename a file.
- Open a PowerPoint presentation.
- Export a file as a PDF file.
- Open a Word document.
- Share a file.

---

1. Copy a zipped folder and create a new *OneDrive* folder.
   a. Open a *File Explorer* window, browse to locate the ***CMPFiles-Intro*** zipped folder in your student data files, and **Copy** the zipped folder.
   b. Go to your *OneDrive* folder and create a new folder named Courtyard Medical Plaza within the *OneDrive* folder. If *OneDrive* is not a storage option, select another location to create the new folder.
2. Paste a copied folder, extract the zipped folder, and move files.
   a. Open the *Courtyard Medical Plaza* folder and **Paste** the zipped folder.
   b. Extract the zipped folder and then delete the zipped folder.
   c. Open the ***CMPFiles-Intro*** folder and move (cut and paste) all the files to the *Courtyard Medical Plaza* folder.
   d. Return to the *Courtyard Medical Plaza* folder to confirm the four files were moved.
   e. Delete the ***CMPFiles-Intro*** folder.
3. Customize sort and view options and pin a folder to *Quick access.*
   a. Select a **Sort** option of your choice in the *File Explorer* window.
   b. Select a **View** option of your choice in the *File Explorer* window.
   c. Select the ***Courtyard Medical Plaza*** folder in the *File Explorer* window and **Pin to Quick access** (**See more** drop-down list) for easy access to this folder.
4. Rename files in the *Courtyard Medical Plaza* folder.
   a. Rename the ***CMPStayingActive-Intro*** PowerPoint file as [your initials] Intro-3a.
   b. Rename the ***CourtyardMedicalPlaza-Intro*** Access file as [your initials] Intro-3b.

c. Rename the ***EstimatedCalories-Intro*** Excel file as [your initials] Intro-3c.

d. Rename the ***StayingActive-Intro*** Word file as [your initials] Intro-3d.

5. Export a PowerPoint file as a PDF file.

   a. Open the ***[your initials] Intro-3a*** file from the *Courtyard Medical Plaza* folder. The file opens in PowerPoint. If the file opens in *Protected View,* click the **Enable Editing** button.

   b. Export this file as a PDF file. Don't have the PDF file open after publishing and optimize for **Standard** format.

   c. Publish the file as [your initials] Intro-3a-pdf and save in the *Courtyard Medical Plaza* folder.

   d. Close the PowerPoint file and exit PowerPoint.

6. Share a file with your instructor. If your files are not saved in *OneDrive,* skip step 6.

   a. Return to your *Courtyard Medical Plaza* folder and open the ***Intro-3d*** file. The file opens in Word. If the file opens in *Protected View,* click the **Enable Editing** button.

   b. Open the *Share* window and the open the *Link settings* window.

   c. Set the link settings permissions so **Anyone** with the sharing link **Can edit** and then **Apply** the settings and return to the *Share* window.

   d. Type your instructor's email address, type a brief message to your instructor, **Send** the sharing link, and close the sharing confirmation window.

   e. Save and close the document and exit Word.

7. Close the *File Explorer* window (**Figure Intro-127**).

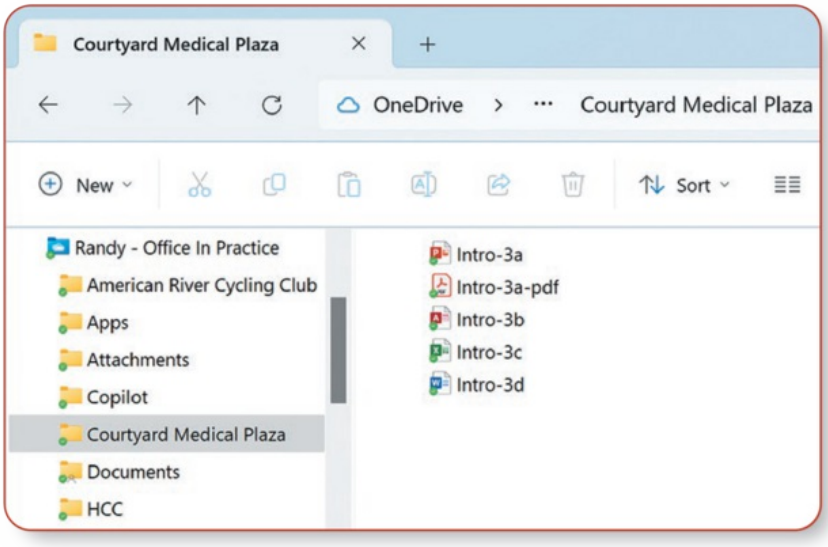


FIGURE INTRO-127 **Intro-3 completed**

Independent Project Intro-4

For this project, you modify a Word file for Life's Animal Shelter (LAS). You create a folder, rename a document, add document properties, modify a document, create a sharing link, export a document as a PDF file, and create a zipped folder.

[**Student Learning Outcomes Intro.1**, **Intro.2**, **Intro.3**, **Intro.5**, **Intro.6**, **Intro.7**, **Intro.8**]

File Needed: ***LASSupportLetter-Intro.docx*** *(Student data files are available in the* Library *of your SIMnet account.)* Completed Project File Names: ***[your initials] Intro-4a.docx***, ***[your initials] Intro-4b.pdf***, and ***LAS files*** (zipped folder)

Skills Covered in This Project

- Open a Word document.
- Create a new folder.
- Save a file with a different file name.
- Apply formatting to selected text.
- Add document properties to the file.
- Create a sharing link.
- Export a file as a PDF file.
- Create a zipped folder.

1. Open a Word document, create a new folder, and save the document with a different file name.
   a. Open Word.
   b. Open the ***LASSupportLetter-Intro*** Word document from your student data files. If the file opens in *Protected View,* click the **Enable Editing** button.
   c. Open the **Save As** dialog box and create a new folder named LAS in your *OneDrive* folder. If *OneDrive* is not a storage option, select another location to create the new folder.
   d. Save this document in the *LAS* folder and type [your initials] Intro-4a as the file name.
2. Apply formatting changes to the document using a dialog box, keyboard shortcut, and mini toolbar.

a. Select "**To:**" (including the colon) in the memo heading and use the launcher to open the *Font* dialog box.
b. Apply **Bold** and **All caps** to the selected text.
c. Repeat the formatting on the other three memo guide words "**From:**", "**Date:**", and "**Subject:**".
d. Select "**Life's Animal Shelter**" in the first sentence of the first body paragraph and press **Ctrl+B** to apply bold formatting.
e. Select the first sentence in the second body paragraph ("**Would you again consider …** ") and use the mini toolbar to apply **italic** formatting.

3. Add the following document properties to the document:
   Title: Support Letter
   Company: Life's Animal Shelter
4. Get a link to share this document with your instructor and email your instructor the sharing link. If your file is not saved on *OneDrive,* skip step 4.
   a. Open the *Share* window and the open the *Link settings* window.
   b. Set the link settings permissions so **Anyone** with the sharing link **Can edit** and then **Apply** the settings and return to the *Share* window.
   c. **Copy link** to create a sharing link.
   d. Use your email account to create a new email to your instructor. Include an appropriate subject line and a brief message in the body.
   e. Paste the sharing link in the body of the email and send the email message.
   f. Click the **Task View** button on the Windows *Taskbar* and select the ***Intro-4a*** document to display this document.
   g. **Save** the file before continuing.
5. Export this document as a PDF file.
   a. Export this file as a PDF file. Don't have the PDF file open after publishing and optimize for **Standard** format.
   b. Publish the file as [your initials] Intro-4b and save in the *LAS* folder.
   c. Save and close the document and exit Word.
6. Create a zipped folder.
   a. Use *File Explorer* to open the ***LAS*** folder.
   b. Select the two files and create a zipped folder.
   c. Name the zipped folder LAS files.
7. Close the open *File Explorer* window ( **Figure Intro-128**).

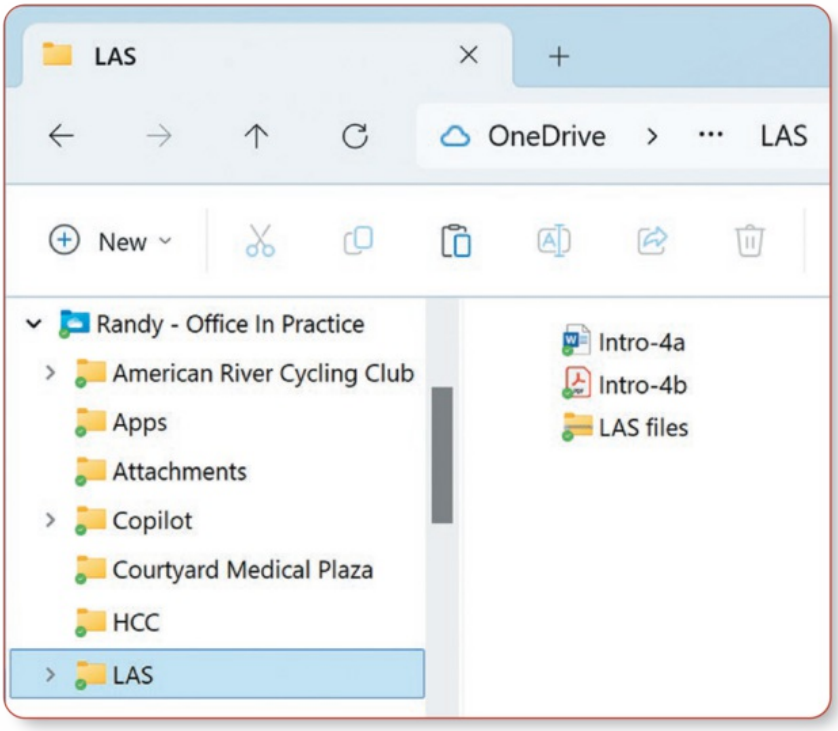


FIGURE INTRO-128 Intro-4 completed

Copilot Challenge Project Intro-5

For this project, you create folders to organize your files for this class and share a file with your instructor. You'll use *Copilot* to learn best practices for file management.

[**Student Learning Outcomes Intro.1**, **Intro.5**, **Intro.8**]

Files Needed: Student data files for this course

Completed Project Folder Name: ***[Course Name]* course files**

Use *Copilot* or other generative AI products to research best practices for file management. Use specific prompts to ask about the important aspects of file management for college students. Also, ask about the benefits of using *OneDrive* for file management rather than saving files locally on your computer.

Using *File Explorer,* create *OneDrive* folders to contain all the student data files for this class. Organize your files and folders according to the following guidelines:

- Create a *OneDrive* folder for this class named with the course name, for example

CISA 315 course files.

- Create a *Student data files* folder inside the class folder.
- Copy and paste the student data files in the *Student data files* folder.
- Extract student data files and delete the zipped folder.
- Create a *Solution files* folder inside the class folder.
- Inside the *Solution files* folder, create a folder for each chapter.
- Using best practices you learned from *Copilot,* create additional folders, such as the following:
  - Class files such as the syllabus and other course materials
  - Resources such as notes and other course handouts
  - Group project files to store files used for group work
  - Miscellaneous files that don't fit into the above categories
- Share the course folder with your instructor and give them permission to view the contents of the folder.

Challenge Project Intro-6

For this project, you save a file as a different file name, customize the *Quick Access* toolbar, share a file with your instructor, export a file as a PDF file, and create a zipped folder.

[**Student Learning Outcomes Intro.1**, **Intro.2**, **Intro.3**, **Intro.5**, **Intro.6**, **Intro.8**]

File Needed: Use an existing Office file

Completed Project File Names: ***[your initials] Intro-6a*** and ***[your initials] Intro-6b***

Open an existing Word, Excel, or PowerPoint file. Save this file in a *OneDrive* folder and name it [your initials] Intro-6a. If you don't have any of these files, use one from your Pause & Practice projects or select a file from your student data files.

With your file open, perform the following actions:

- Create a new folder on *OneDrive* and save the file to this folder using a different file name.
- Customize the *Quick Access* toolbar to add command buttons. Add commands such as *New, Open, Quick Print,* and *Editor* (or *Spelling & Grammar*) that you use

regularly in the Office application.

- Share your file with your instructor. Enable your instructor to edit the file.
- Export the document as a PDF file. Save the file as [your initials] Intro-6b and save it in the same *OneDrive* folder as your open file.
- Zip the files in the folder.

Source of screenshots Microsoft Office 365 (2024): Intro, Word, Excel, Access, PowerPoint.

Microsoft® Office

IN PRACTICE

access

Chapter 1: Creating a Database and Tables A1-2

Chapter 2: Using Design View, Data Validation, and Relationships A2-87

Chapter 3: Creating and Using Queries A3-161

Chapter 4: Creating and Using Forms and Reports A4-231

Chapter 5: Templates, Advanced Relationships, and Macros A5-323

Chapter 6: Creating Advanced Queries and Reports A6-417

Chapter 7: Creating Advanced Forms A7-513

Chapter 8: Integrating Applications A8-619

Chapter 9: Designing and Managing Databases, and Using SQL A9-711

Chapter 10: Customizing Access and Using OneDrive and Office Online A10-796



Photo Source: Maskot/Getty Images

CHAPTER 1
Creating a Database and Tables

CHAPTER OVERVIEW

Microsoft Access (Access) is the leading PC-based database management system (DBMS) software in both the personal and business market. Access helps you organize and manage personal, business, and educational data in a structure known as a database. This software makes it easy for you to ensure your data are accurate, organized, and usable. This chapter covers the basics of working with a relational database and using the Access database management system.

STUDENT LEARNING OUTCOMES (SLOs)

After completing this chapter, you will be able to:

- **SLO 1.1** Explain data organization concepts, use the Access *Navigation Pane*, and identify objects (p. A1-3).
- **SLO 1.2** Create a database; set database properties; understand database object naming conventions and data types; create and manipulate database objects; and open, close, back up, and recover a database (p. A1-12).
- **SLO 1.3** Create a table in *Datasheet* view, edit the default primary key, add a new field, edit field and table properties, save a table, enter records into a table, and understand edit and navigation modes (p. A1-21).
- **SLO 1.4** Import data records from Excel (p. A1-35).
- **SLO 1.5** Navigate table records in *Datasheet* view and customize a datasheet by modifying field order, row height, column width, field alignment, font style and size, row colors, and gridlines. Hide and unhide fields and add total rows (p. A1-37).
- **SLO 1.6** Search, sort, and filter records in a table (p. A1-49).

CASE STUDY

Throughout this book, you have the opportunity to put into practice the application features you are learning. Each chapter begins with a case study that introduces you to the Pause & Practice projects in the chapter. These Pause & Practice projects give you a chance to apply and practice key skills. Each chapter contains three to five Pause & Practice projects.

The first Pause & Practice is designed to orient you to using Access and enables you to explore the different parts of the Access interface and navigation mechanisms. For this project, you open an existing database for the College of Sciences that tracks information about classes it offers. The

remaining Pause & Practice projects are designed to help you learn how to build a database for Central Sierra Insurance. Central Sierra Insurance is a multi-office insurance company that handles all lines of commercial and personal insurance policies. Central Sierra regularly hires qualified personnel, and it needs to create an effective way to organize and manage information about its employees. Lanita McCartney has asked you to create a simple database containing information about its employees. This database is created as a blank database with one table. As you progress through the Pause & Practice projects, you incorporate many of the features you are learning in this chapter to construct and enhance this database.

- ***Pause & Practice 1-1*:** Explore the tabs of the Access *Ribbon* and *Navigation Pane* in an existing database, and use *Datasheet* and *Design* views of a table.
- ***Pause & Practice 1-2*:** Create a new blank database. Customize the table using *Datasheet View* to edit the primary key, add new fields, save the table, reopen the table, edit field properties, and add employee records.
- ***Pause & Practice 1-3*:** Import data into the table created in ***Pause & Practice 1-2***. Modify the table and refine the datasheet layout by modifying the field order, row height, column width, and field alignment; selecting a display font and size; displaying gridlines; alternating row colors; hiding fields; and adding totals.
- ***Pause & Practice 1-4*:** Use the employee table to search for data, sort the records on a single field and on multiple fields, and filter the records using single and multiple criteria.

SLO 1.1

Understanding Database Concepts

Organizations can generate a tremendous amount of data. Think about a few of the pieces of data captured by FedEx when you send a package or envelope: the sender's first and last name, sender's street address, sender's city, sender's state, sender's ZIP Code, recipient's first and last name, recipient's street address, recipient's city, recipient's state, recipient's ZIP Code, date sent, package weight, and type of service (for example, next-day air, ground service). Every day, FedEx delivers millions of packages and documents. This translates into millions of sender names, addresses, recipient names, addresses, and so forth, captured each day. To stay in business, FedEx must have an efficient and effective way to capture, process, and store these data to ensure that it delivers your package on time and to the right location.

Databases are used by many organizations to manage data. A ***database*** is an organized collection of integrated and related tables. A ***database management system (DBMS)*** is software that enables you to create a database; manage the data in the database by adding, deleting, and updating records; sort and retrieve data; and create queries and reports relating to that data. In this book, you learn about Microsoft Access, the leading PC-based DBMS software application.

Using a database management system, people can build applications to enable organizations to track orders and deliveries, manage retail sales and inventory, maintain employee payroll records, update patient health data, and track student progress. Throughout this chapter, you learn more about these database concepts by using the Access DBMS to create a simple database.

Organize Data

Like the majority of the DBMSs available today, Access is a relational database, which means that the data are organized into a collection of related tables. Each table stores data about one type, or grouping, of information represented in the system. For example, a database application used by a retail store contains a table with details about its customers, a table with details about the products it sells, and a table with details about the orders its customers have made for the various products. The different tables are related, or connected, to one another through common fields.

The first step in creating a database is to determine the best way to organize the required data. To do so, you need to understand the ***hierarchy of data*** used in relational databases. In Access, the hierarchy is organized from the smallest to the largest grouping of data. A ***field*** is a collection of characters that describes one aspect of a business object or activity—a single unit of data. A ***record***

is a collection of related data fields. A ***table*** is a collection of related records. Visually, you see the table containing rows and columns. Each row is the equivalent of a record. A row contains many different columns or fields. A database is a collection of related tables, the largest grouping. An example of how this hierarchy works for a database that a university might use is shown in **Table 1-1**.

Table 1-1: Hierarchy of Data

Unit	Description	Examples
Field	A single unit of data	Date Enrolled, Student First Name, Student Last Name, Student ID
Record	A collection of related fields	All of the fields for one student stored together.
Table	A collection of related records	A record for each of the students at the university stored together.
Database	A collection of integrated and related tables	The collection of the student, faculty, and course tables for the entire university.

How do you know how many tables you need or which fields belong in which tables? Often the database design plan is already completed for you, and you simply need to build the design. At this point, the simplest answer to the question about how many tables you need is this: Create a separate table for each major subject or grouping of information you will store in the database. Later, in **SLO 2.6: Understanding and Designing Relational Databases**, you will learn a more formal set of steps to create a well-designed database.

The Access Interface

The interface is how you interact with Access to create, modify, delete, and use different objects, or parts, of your database application. An open database should look similar to **Figure 1-1**. The *Ribbon* displays across the top of the window. Below the *Ribbon*, the window is divided into the *Navigation Pane* and the work area. The ***Navigation Pane*** lists each object in your database application. The work area uses a tabbed interface to display all objects that have been opened. In **Figure 1-1**, both the *Classes* table and the *InstructorInfo* form are open. The *Classes* table is active. The active tab is colored white with a red bar across the top of the tab. Click a different tab to bring it to the top and make it the active object. The *Status* bar displays at the bottom and contains information about the current database or database object if one is open.

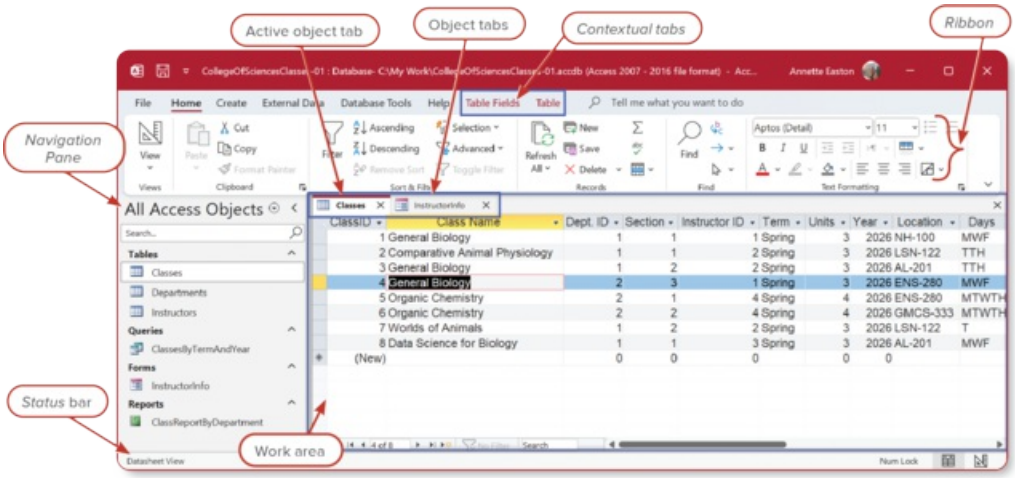


FIGURE 1-1 The Access Interface

The *Ribbon* in Access contains six primary tabs: *File*, *Home*, *Create*, *External Data*, *Database Tools* and *Help*. Access also has several ***contextual tabs*** that become available to you when you are working on different tasks. The *Ribbon* provides the common Office functions, like copy, paste, and file management, but many of the *Ribbon* tabs are unique to Access. The *Ribbon* also contains the ***Tell Me*** help feature. You enter text in the *Tell Me* search box and Access displays command options that take you directly to the actions you want to perform.

MORE INFO

Depending on configuration changes made to the Access program installed on your computer, you may see a seventh tab titled ***Add-Ins***.

Examine Access Objects

An Access database application typically contains many different components, such as tables and reports. In Access, these components are called ***objects***. The major objects in Access are ***tables***, ***forms***, ***reports***, and ***queries***. At a minimum, your database must contain at least one table. These objects are described in Table 1-2.

Table 1-2: Major Access Objects

Object	Purpose	Additional Information	Navigation Pane Icon
Table	Stores data	Once a table is created, you can begin entering	

	records	data. Create a separate table for each type or grouping of information. When you view data in a table, it appears in a tabular format, very much like a spreadsheet.	
Form	Used to create an interface to view, add, update, and delete data in a table	Although you can do these tasks directly in a table, a form usually provides an easier way to interact with the data. Forms also enable you to view only one record at a time and to view fields from multiple tables at the same time.	
Query	Used to find data in your database	Queries enable you to specify criteria to locate specific records. Queries can also be used to perform actions such as updating or deleting records.	
Report	Used to view and print the data in your database	Reports enable you to create a formatted, and more professional, way to view and print the contents of your database.	

MORE INFO

Forms, queries, and reports provide different ways to interact with the data in your tables. As a result, they are related to the tables on which they are based.

Access contains two additional objects, ***Macros*** and *Modules*. These objects enable you to add functionality to the forms and reports in your database. For example, you can add a button to a form and tell Access what actions to perform when an event happens to that button. Examples of events are clicking a button or moving the pointer over a button. You can attach specific actions to each event. For example, attach an action to open a form when the button is clicked.

Use the Navigation Pane

Recall that each object in your database application displays in the *Navigation Pane*. The object is identified by its name and an icon indicating the object type.

The top bar of the *Navigation Pane* contains the ***Shutter Bar Open/Close Button***, which opens and closes the pane. If the pane is closed, as shown on the left side of **Figure 1-2**, you will only see the phrase “Navigation Pane.”

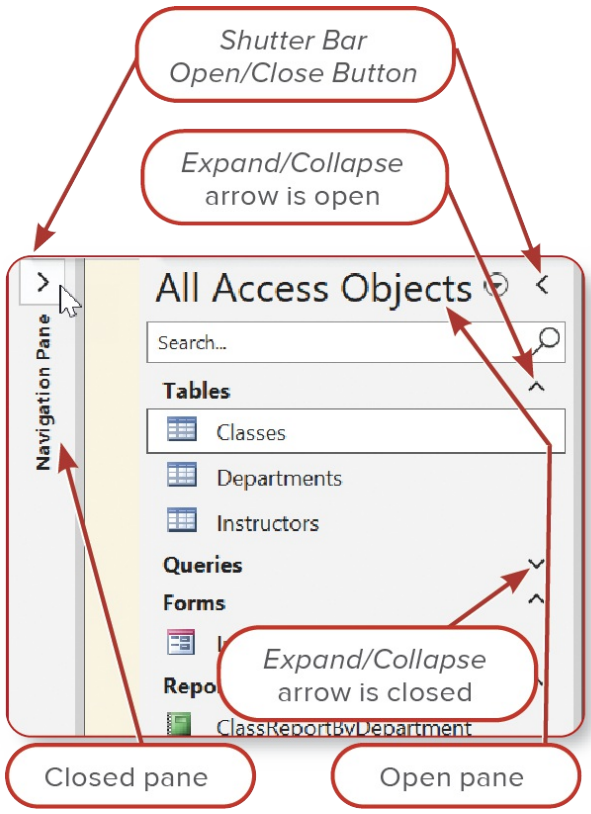


FIGURE 1-2 ***Shutter Bar* of the *Navigation Pane***

- Open the *Navigation Pane* by clicking the **Shutter Bar Open/Close Button**.
- The objects inside your database display, as shown on the right side of **Figure 1-2**.

ANOTHER WAY

F11 opens and closes the *Navigation Pane*.

The *Navigation Pane* displays objects in *groups*, which you can expand and collapse. This is useful if you have many objects in your database and wish to narrow down those that are visible. Click the **expand/collapse** arrow to the right of the group name to change the current display. When a group is collapsed, like the *Queries* group in **Figure 1-2**, only the name of the group displays. The objects contained within that group do not display.

You can customize what displays in the *Navigation Pane* and the way objects are organized by using the ***Navigation menu*** (**Figure 1-3**).

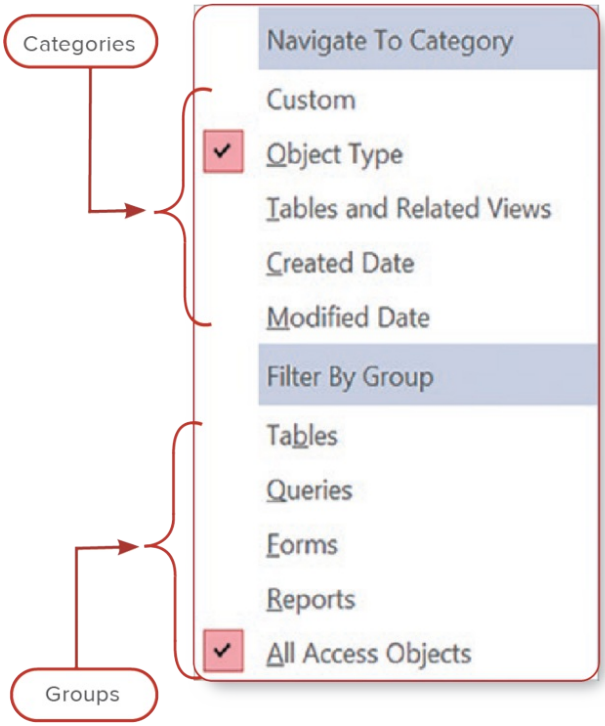


FIGURE 1-3 ***Navigation*** **menu**

The top half of the *Navigation* menu enables you to select a *category*, the highest organizational level in the *Navigation Pane*. The standard categories are:

- *Custom:* Groups objects based on custom categories that you create.
- *Object Type:* Groups objects on the basis of their type.
- *Tables and Related Views:* Groups different objects according to the tables on which they are based.
- *Created Date:* Groups objects on the basis of the week associated with the date they were created.
- *Modified Date:* Groups objects on the basis of the week associated with the date they were last modified.

The bottom half of the *Navigation* menu enables you to filter by a specific group within that category. Filtering enables you to limit the objects that display in the *Navigation Pane*. The choices in *Filter by Group* will change based on the selected category. The *Title* bar of the *Navigation Pane* shows the current filter selection.

The *Navigation Pane* in **Figure 1-2** reflects the settings selected in **Figure 1-3;** it shows all objects grouped by the category of *Object Type* and the filter of *All Access Objects*. These are the default selections in the *Navigation* menu. Within a group, Access displays the objects in alphabetical order.

HOW TO: Modify the Navigation Pane Category and Group Filter

1. Click the **Navigation Pane** arrow, shown in **Figure 1-4**, to open the *Navigation* menu.

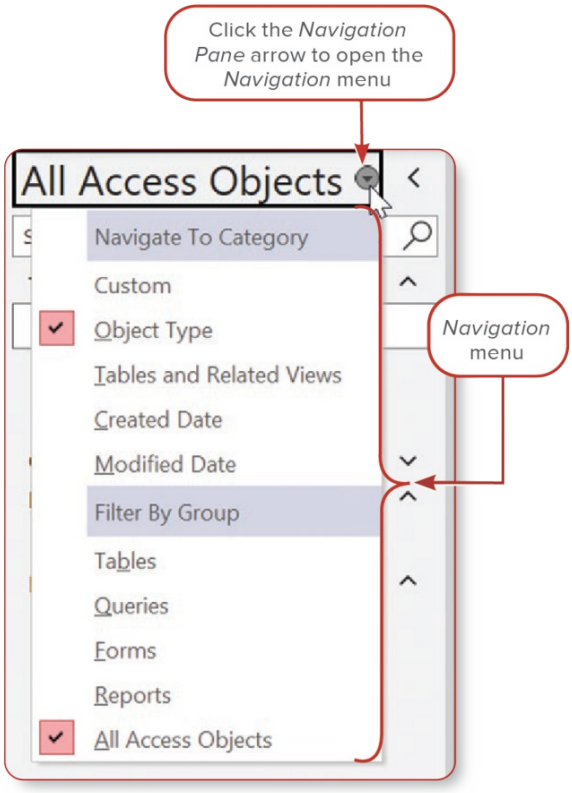


FIGURE 1-4 Modify the *Navigation Pane*

2. Select the **desired category**.
   - The *Navigation* menu closes.
   - The *Navigation Pane* updates to display the objects based on your category selection.
3. Click the **Navigation Pane** arrow to open the *Navigation* menu.
4. Select the **desired filter selection**.
   - The *Navigation* menu closes.
   - The *Navigation Pane* updates to display the objects based on your filter selection.

You can adjust the width of the *Navigation Pane* as needed. Increase the width to see the complete text of longer object names. Decrease the width when you wish to have more space in the Access

work area to display and edit objects.

HOW TO: Modify the Navigation Pane Width

1. Place your pointer on the right border of the *Navigation Pane*. The resize pointer appears as a white two-pointed arrow (Figure 1-5).

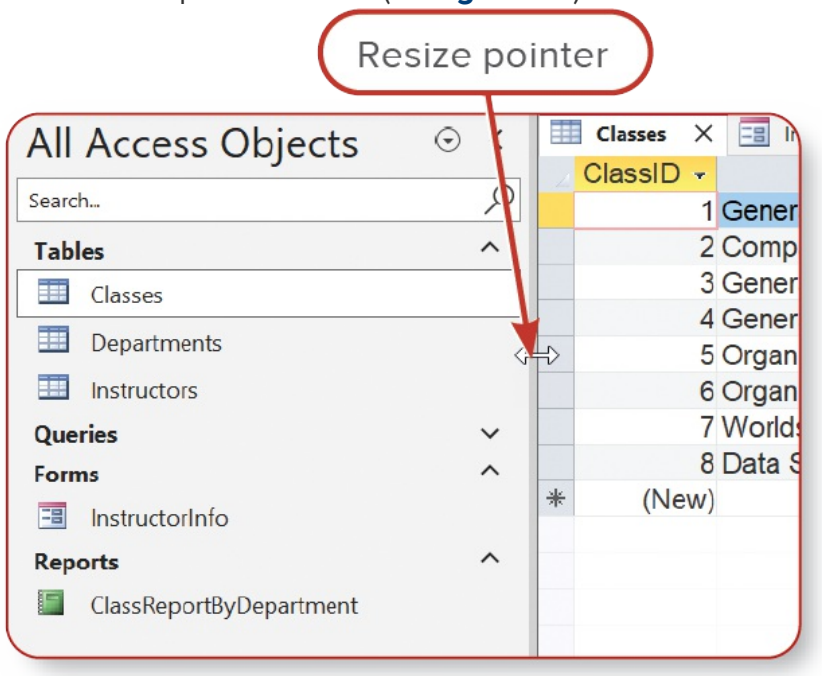


FIGURE 1-5 Resize the *Navigation Pane*

2. Click, hold, and drag the resize pointer to increase or decrease the width of the *Navigation Pane*.
3. Release the resize pointer. The pane changes to the new width.

Use Datasheet and Design View of a Table

Because the *table* is the primary object of a database, it is useful to dig a little bit deeper into this object as you learn about the Access interface.

You can open tables directly from the *Navigation Pane*. Access provides two ways to open and view a table: *Datasheet* view and *Design* view.

- To open a table in ***Datasheet view***, double-click the table name in the *Navigation Pane*. Use *Datasheet* view to enter, modify, delete, or view the data records. You can also use *Datasheet* view to define or modify the structure of a table.

- To open a table in ***Design view***, right-click the table name in the *Navigation Pane* and select **Design View** from the context menu. *Design* view enables you to build or modify the basic structure or functionality of an object. You see all the details, or properties, about the fields in your table in *Design* view.

To switch between views of an open table, click the **View** button [*Home* tab, *Views* group] as shown in **Figure 1-6** and select the desired view. The view option that is currently selected displays with a black border around the icon.

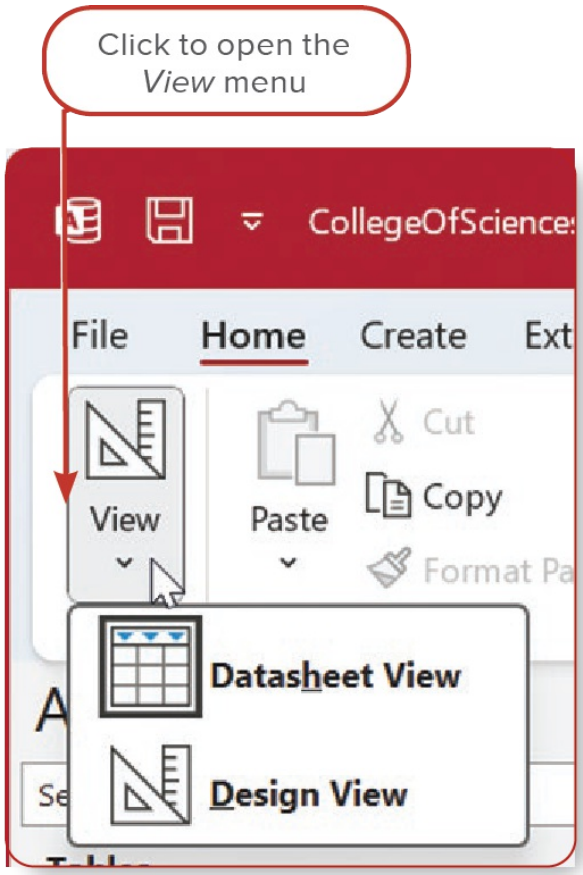


FIGURE 1-6 ***View*** **menu of a table**

Figure 1-7 illustrates *Datasheet* view of a table. The name of the table displays in the tab at the top of the datasheet. Each row represents a record in the table and each column represents a field. The gray cell on the left of each row is the *record selector*. The record selector turns yellow when field(s) are selected on a particular row, indicating the active row. A rose-colored border surrounds the ***active cell***. The active cell is the field where you enter or edit data. The last row in a table is the ***append row***, identified with an asterisk in the record selector of that row. A new record is added to a table by entering the data in fields of the append row. The horizontal and vertical scroll sliders automatically display if the Access window is not wide enough or tall enough to

display all of the rows and columns. Move the sliders to adjust what displays in the window. You may also see columns that display a series of # symbols. This occurs if the width of a column with numeric data is not large enough to display the entire contents.

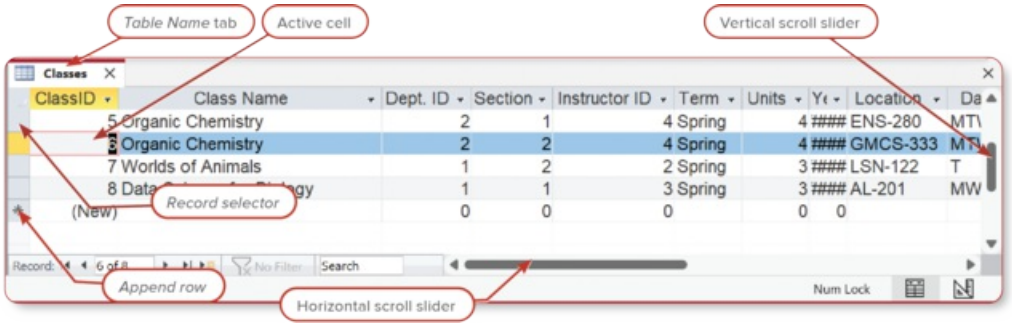


FIGURE 1-7 ***Datasheet*** **view of a table**

PAUSE & PRACTICE: ACCESS 1-1

For this project, you explore a database that tracks information about classes that are offered in the College of Sciences. This database contains three tables, one query, one form, and one report. You open the database, explore the Access *Ribbon*, explore the *Navigation Pane*, and work with *Datasheet* and *Design* views of a table.

File Needed: ***CollegeOfSciencesClasses-01.accdb*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Name: None

1. Open the database used by the College of Sciences.
   a. Double-click the ***CollegeOfSciencesClasses-01*** file in your student data files folder. If a dialog box displays indicating that the active content in the file is blocked, click the **OK** button. If a *Security Risk* message displays, click the **X** on the right to close it. This launches Access and opens the sample database application (**Figure 1-8**). The *Navigation Pane* opens and the *Home* tab is selected.

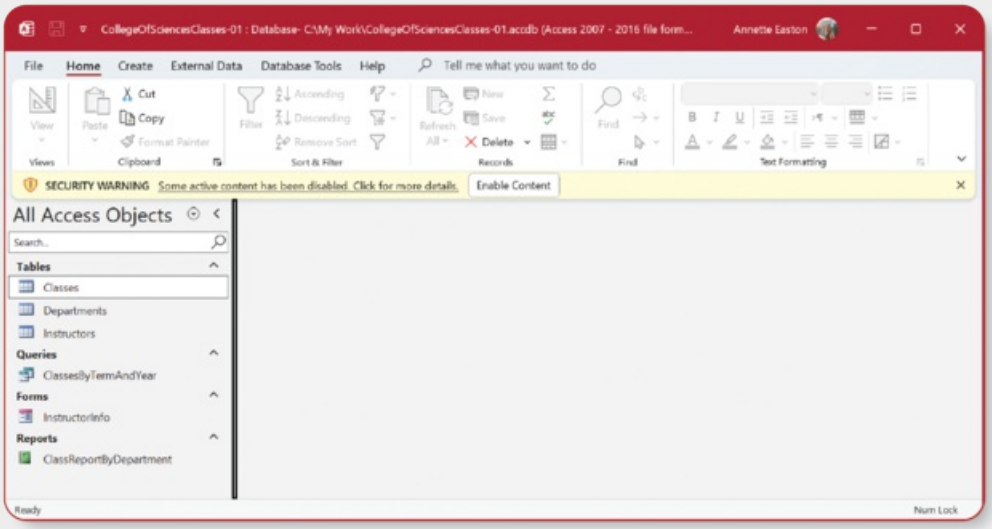


FIGURE 1-8 ***CollegeOfSciencesClasses-01*** **database**

b. Click the **Enable Content** button in the *Security Warning* message bar if prompted.

MORE INFO

Because malware, such as viruses and worms, may be transmitted in files, Microsoft warns you when you open a database file. Your IT administrator may have blocked the content of the file. If you trust the source of the file, enable the content so that you can use the database.

2. Explore the Access *Ribbon*.
   a. Double-click the **InstructorInfo** form to open it. With an object open, more icons are active on the ribbon.
   b. Click the **File** tab to open the *Backstage* view (**Figure 1-9**). The *Backstage* view in Access provides file management capabilities to open, close, and save a database; create a new database; and print or publish a database.

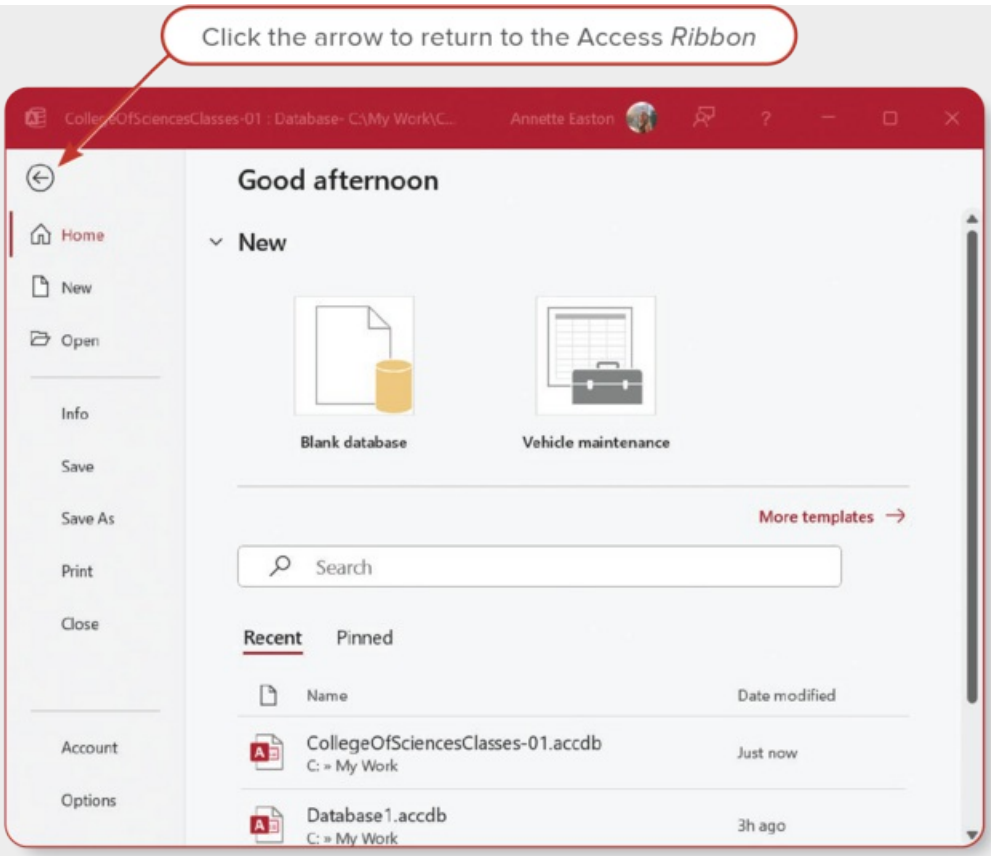


FIGURE 1-9 ***Backstage view***

c. Click the **Back** arrow to return to the Access *Ribbon*.

d. Click the **Home** tab. The *Home* tab (**Figure 1-10**) offers common Office functions, the ability to change the way you view an object, and searching and sorting functions.

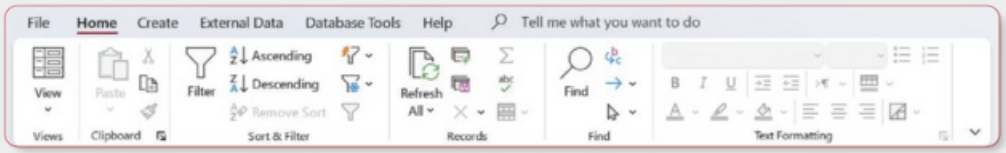


FIGURE 1-10 ***Home* tab**

e. Click the **Create** tab. The *Create* tab (**Figure 1-11**) contains tools to create all the objects you use in your database. The icons are grouped on the basis of the type of object you need to build.

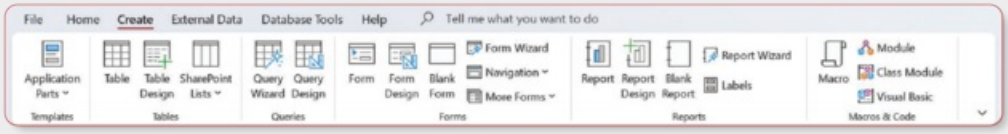


FIGURE 1-11 ***Create* tab**

f. Click the **External Data** tab. The *External Data* tab (**Figure 1-12**) provides functionality to link to other applications and data files. The icons are grouped based on the type of connectivity you need.

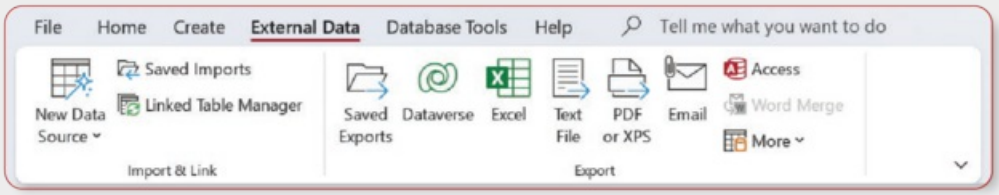


FIGURE 1-12 ***External Data*** **tab**

g. Click the **Database Tools** tab. The *Database Tools* tab (**Figure 1-13**) provides information about your database and additional functions to help you manage the database.

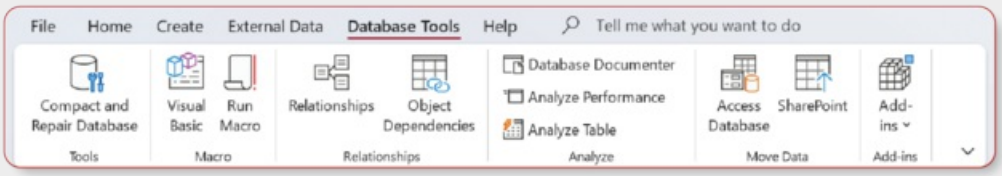


FIGURE 1-13 ***Database Tools*** **tab**

MORE INFO

The *Help* tab provides common functions across the Office 365/2024 applications, including *Help*, *Contact Support*, *Feedback*, *Show Training* and *What's New*.

3. Explore the *Navigation Pane*.

a. Click the **Navigation Pane** arrow to the right of *All Access Objects*. The *Navigation* menu displays on top of the *Navigation Pane* (**Figure 1-14**). This *Navigation Pane* displays objects by the *Object Type* category, and the filter is to show *All Access Objects*.

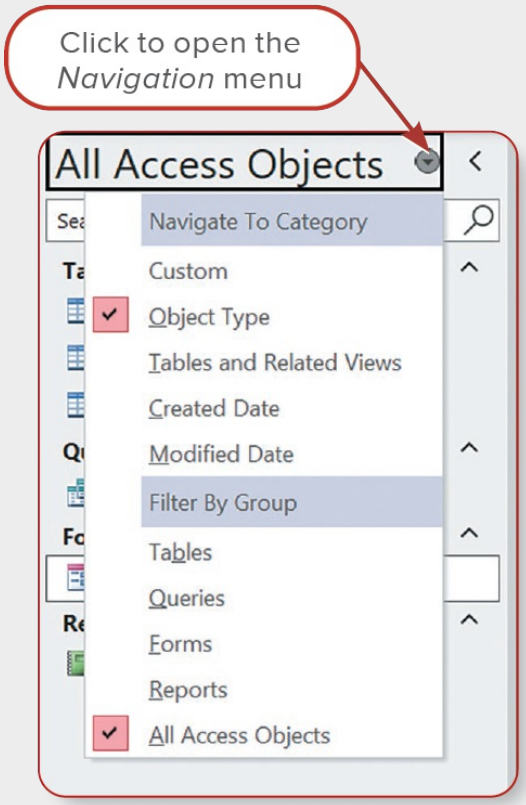


FIGURE 1-14 **Explore the *Navigation Pane***

b. Click anywhere outside the *Navigation* menu to close the menu.

c. Click the **expand/collapse** arrow on the right edge of the *Tables* group (**Figure 1-15**). The *Tables* group collapses, leaving no table objects visible. The arrow changes to an expand arrow.

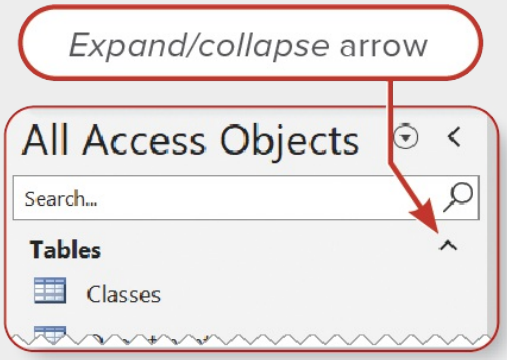


FIGURE 1-15 **The *Tables* group**

d. Click the **expand/collapse** arrow in the *Tables* group to reopen the *Tables* group and display the three tables.

e. Click the **Navigation Pane** arrow to the right of *All Access Objects*.

f. Select the **Tables and Related Views** category.

g. Click the **Navigation Pane** arrow again.

h. Select **All Tables** in the *Filter By Group* area. The *Navigation Pane* updates and should look similar to **Figure 1-16**. This view shows each of the tables and all of the other objects that are associated with each table. For example, the report object named *ClassReportByDepartment* is associated with each of the three tables. However, the form object *InstructorInfo* is only associated with the *Instructors* table.

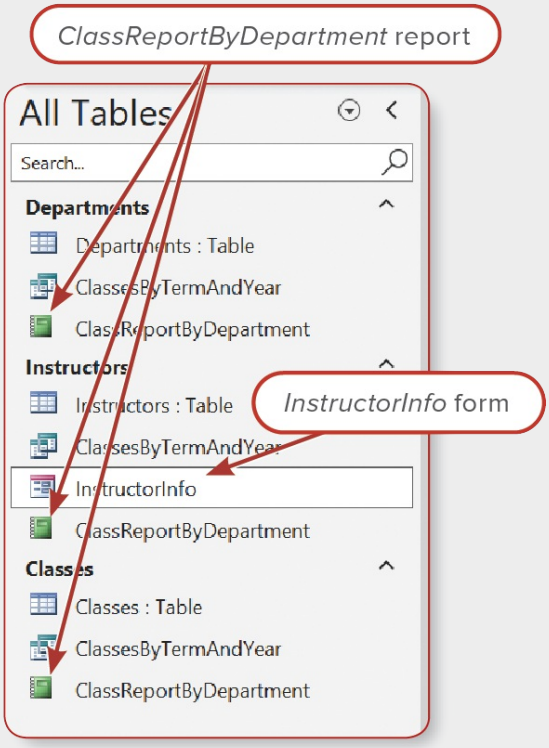


FIGURE 1-16 ***Tables and Related Views*** **category**

i. Click the **Navigation Pane** arrow.

j. Select the **Departments** group in the *Filter by Group*. The *Navigation Pane* now shows only the *Departments* table with the query and report objects that are associated with that table.

k. Click the **Navigation Pane** arrow.

l. Click the **Object Type** category. The *Navigation Pane* should have returned to show all of your objects by the *Object Type* category.

m. Close the *InstructorInfo* form by clicking the **X** in the *InstructorInfo* tab.

4. Explore *Datasheet* and *Design* views of a table.

a. Double-click the **Classes** table to open the table in *Datasheet View*, as shown in **Figure 1-17**.

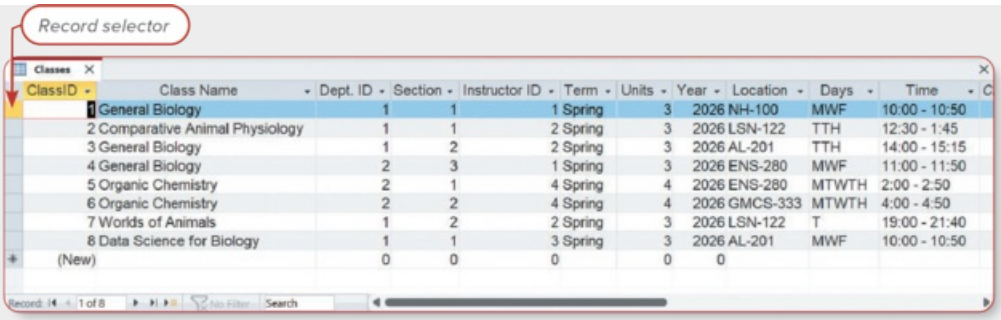


FIGURE 1-17 ***Datasheet View* of *Classes* table**

MORE INFO

Depending on the resolution of your monitor and the size of the Access window, you may see more or less of the table.

b. Press the **right arrow** key 10 times to navigate across the fields of the first record. You should stop at the *Time* field.

c. Press the **right arrow** key once more to navigate to the *Click to Add* column. *Datasheet View* enables you to add new fields into your table at the same time that you are looking at the data values.

d. Press the **right arrow** key once more to navigate to the *ClassID* of the second row.

e. Press the **down arrow** key six times to navigate down to *ClassID 8*, the last of the data records. If you were to navigate into the append row, identified by the asterisk in the record selector, you would be able to add a new class into the table by entering the data values.

f. Click the **record selector** of the first row. The entire row should be selected.

g. Click the **View** button drop-down list [*Home* tab, *Views* group] to show the two possible table views (**Figure 1-18**) and then click **Design View**. Your screen should look similar to **Figure 1-19**. *Design* view shows you the details, or properties, of the different fields in your table.

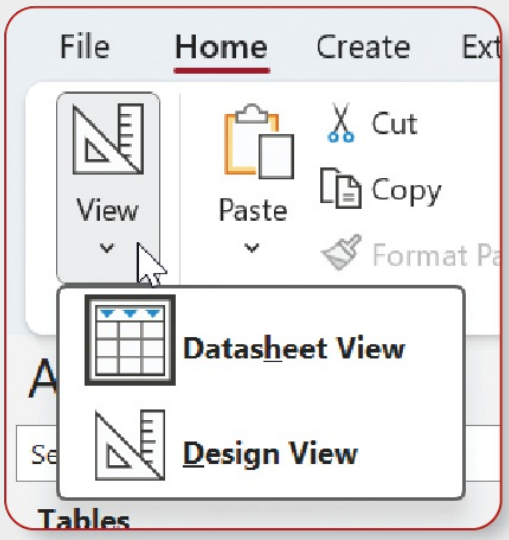


FIGURE 1-18 Two table views

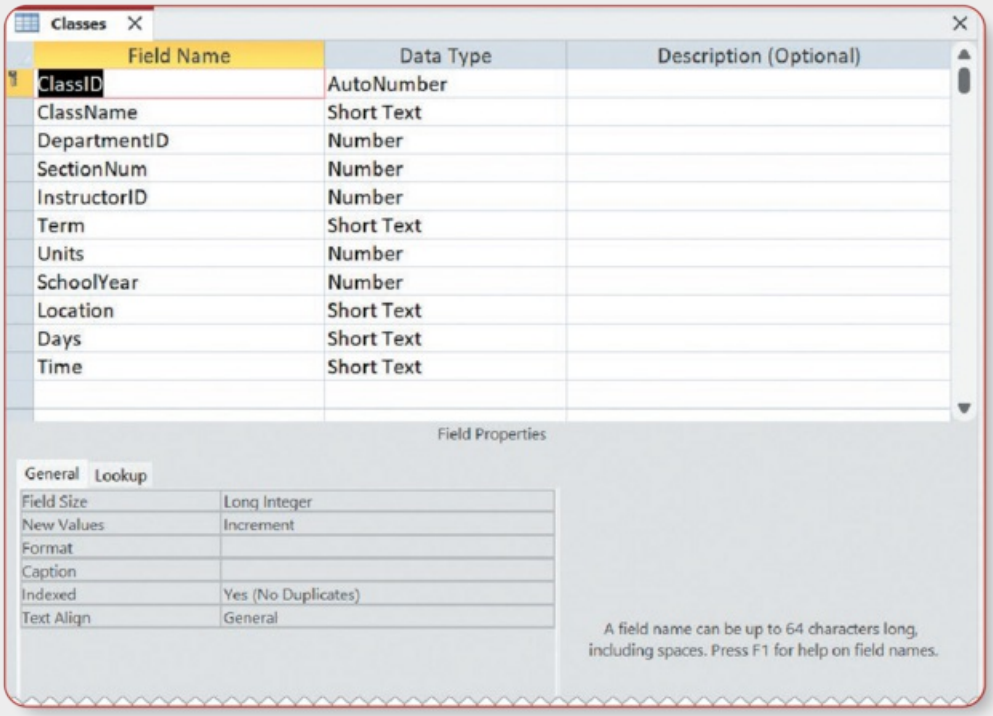


FIGURE 1-19 ***Design*** **view of** ***Classes*** **table**

h. Use the scroll bar, if necessary, to navigate down to see all the fields in the *Classes* table. Look for the last field, *Time*. You could add additional fields into the table by typing the name into the blank *Field Name* cell below *Time*.

i. Close the *Classes* table by clicking the **X** in the *Classes* tab.

j. Close the *CollegeOfSciencesClasses-01* database by clicking the **Close** button [*File* tab]. The database closed but Access remains open.

SLO 1.2

Creating and Managing a Database

In Access, the database application file stores all of the separate objects that you create and use. The database file must be created before you can create and use any other objects. By default, the database file is saved with an extension of ***.accdb***. You can create a new database file by using a prebuilt template as a starting point or a blank database if you wish to start from scratch.

Templates

A ***template*** is a predesigned database that contains various pre-built objects. A template provides you with a complete, ready-to-use database application. After creating a database based on a template, use the new database directly or customize the database to better meet your needs. Templates are a great starting point if your needs are addressed in the template.

You can choose from several templates that are installed with Access. In addition, other templates are available at **Office.com**.

HOW TO: Create a New Database Using a Template

1. Click the **File** tab to open the *Backstage* view if an Access database is already open.
   - If Access is closed, open Access. The *Start* page displays showing the *Recent* list on the bottom and thumbnails of sample templates on the top.
2. Click the **New** button. The list of sample templates displays (**Figure 1-20**). The templates may display in a different order based on the most recently selected template.

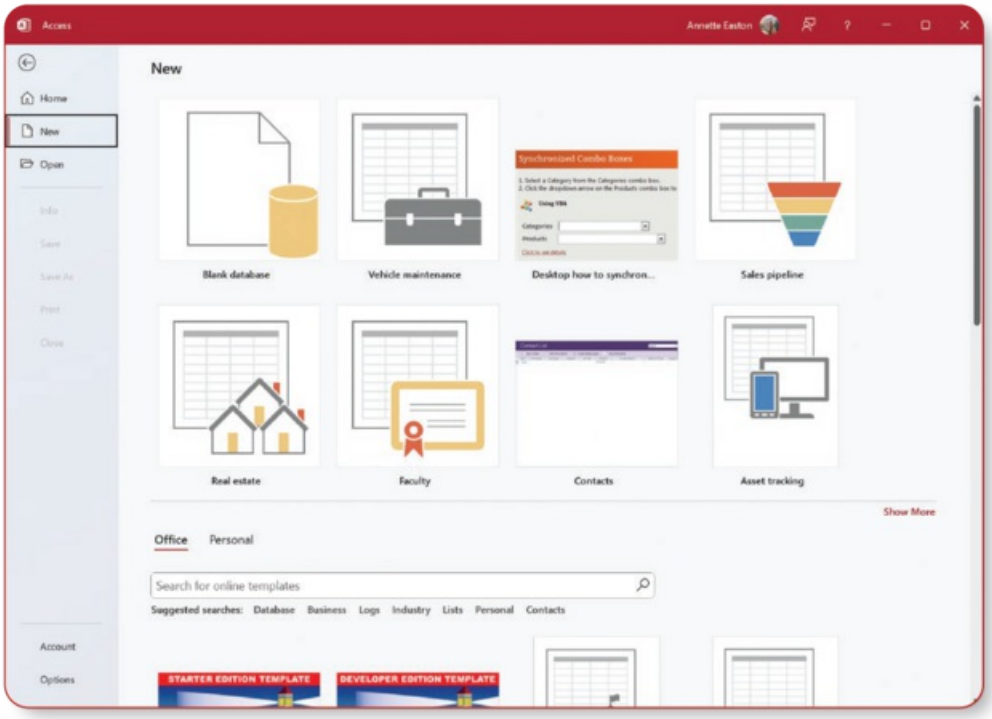


FIGURE 1-20 **Create a new database from a template**

3. Select the template you wish to use.
4. Type the file name for your database in the *File Name* box.
5. Click the **Browse for a location to put your database** button (**Figure 1-21**) to select the location on your computer or USB drive to save the database and click **OK**.

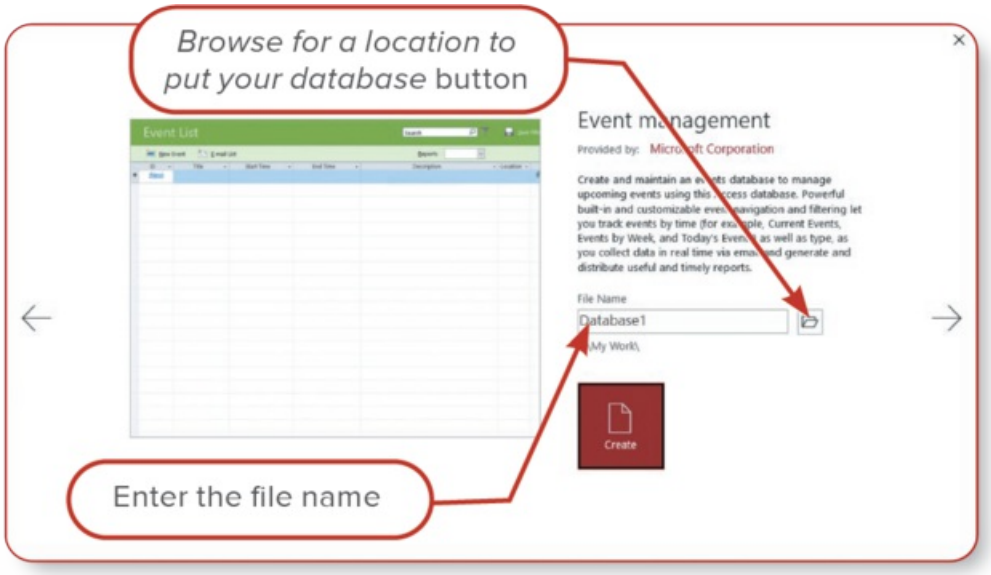


FIGURE 1-21 **Select the file location and enter the file name**

6. Click the **Create** button.
   - The new database opens.
   - A *Welcome* form may display based on the template selected. Click the **Get Started** button on the *Welcome* form.
7. Click the **Enable Content** button in the *Security Warning* message bar if prompted.

Database Properties

Every database contains details, or properties, about the database. The properties include information about the date the database was created and its author. View common file properties in the ***Database Properties*** dialog box available via the *View and edit database properties* link on the *Backstage* view. You can edit the properties on the *Summary* tab. However, you cannot edit properties on many of the other tabs. For example, the *Size* or *Modified Properties* on the *General* tab are automatically updated by the system.

HOW TO: View and Edit Database Properties

1. Click the **File** tab to open the *Backstage* view and then click the **Info** button.
2. Click the **View and edit database properties** link (**Figure 1-22**) to open the *Database Properties* dialog box.

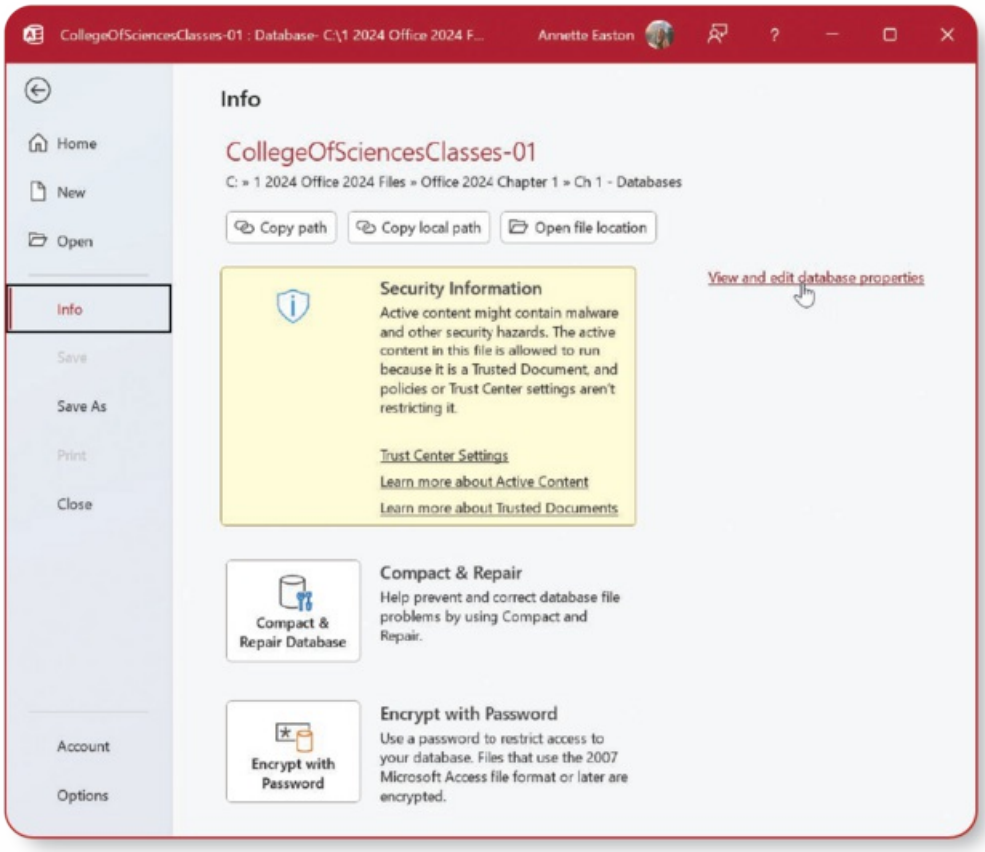


FIGURE 1-22 **Open the database properties**

3. Click the **Summary** tab (**Figure 1-23**).

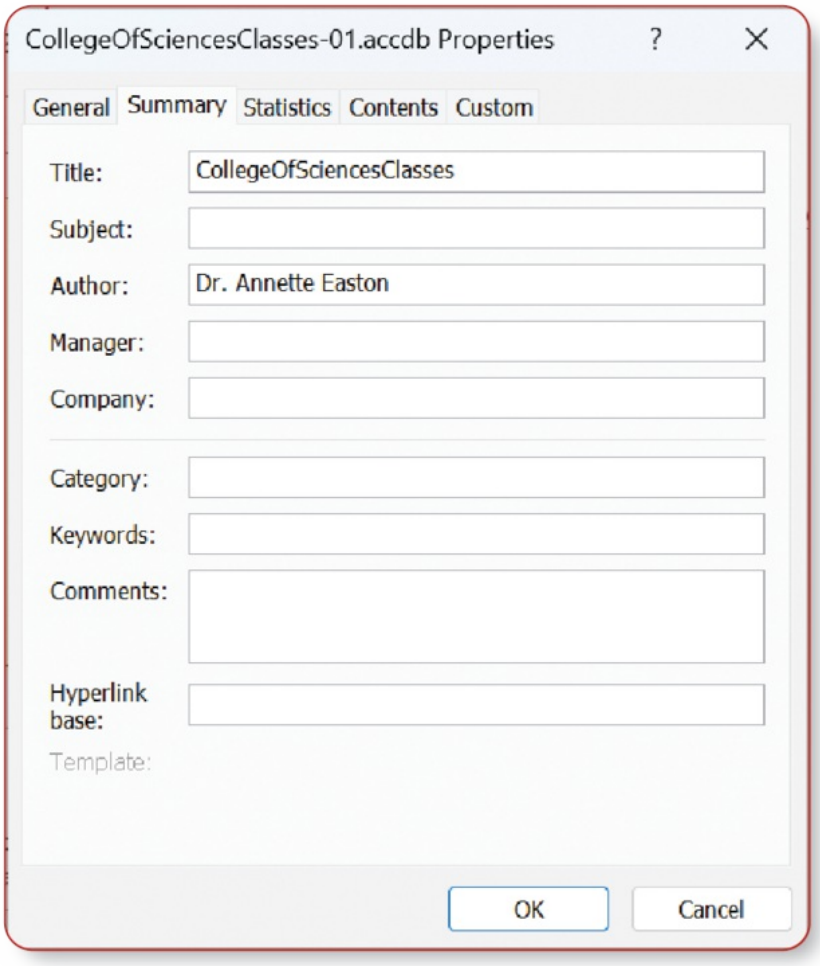


FIGURE 1-23 ***Database Properties*** **dialog box**

4. View the properties that have been entered.

MORE INFO

Some properties may already be completed, depending on the settings selected when Office was installed on the computer.

5. Edit any desired properties. Be sure to complete any properties required by your instructor.
6. Click **OK** to save and close.

Create a Blank Database

Many times a template does not exist to meet your needs, or it requires significant modifications to meet your requirements. In these cases, you can create a blank database. With the ***Blank database*** option, you create all the tables and other objects that you need. When a blank database is created, Access automatically creates one new table and opens that table in *Datasheet View*.

HOW TO: Create a New Blank Database

1. Click the **File** tab if an Access database is already open.
   - If Access is closed, open Access. The *Start* page displays where you can open a new blank database.
2. Select **Blank database** (Figure 1-24).

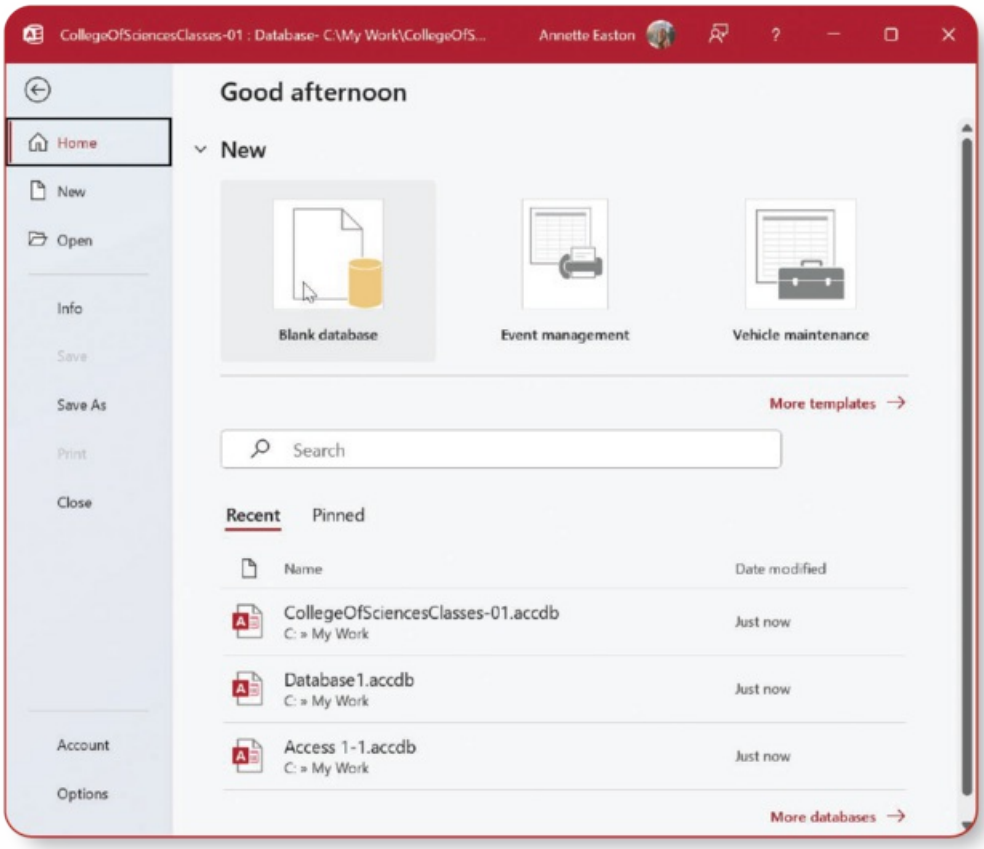


FIGURE 1-24 Create a new blank database

ANOTHER WAY

Click the **New** button [*File* tab] or press **Ctrl+N** to open the *Backstage* view with the *New* button selected.

3. Type the file name in the *File Name* box.
4. Click the **Browse for a location to put your database** button to select the location on your computer or USB drive to save the database and click **OK**.
5. Click the **Create** button. The database is created. A new table is automatically created and opens in *Datasheet View*.

MORE INFO

Access automatically suggests a generic file name for your database, such as *Database1.accdb*. Be sure to change that name to a name that is more meaningful and related to the purpose of your database.

Access Naming Rules

You need to name each of the objects you create and use in Access. When you first create an object, Access assigns a generic name, such as *Table1* or *Form1*. The first time you save an object, the *Save As* dialog box prompts you to enter a different name. Database designers strongly recommend that you use a meaningful name that describes the contents of the object. For example, in the *CollegeOfSciencesClasses-01* database, the tables are named *Classes*, *Departments*, and *Instructors*. This makes it easy to understand the object's purpose. Each object typically contains several fields. Form and report objects may also have other components such as buttons or labels. These components are called controls (see
SLO 4.2: Creating and Customizing a Form in Layout View and
SLO 4.5: Creating and Customizing a Report in Layout View).

Your instructor or employer may have specific guidelines to follow when naming objects, fields, and controls. In addition to those guidelines, pay attention to the following Access naming rules:

- Names can have a maximum of 64 characters.
- The characters can be letters, numbers, and spaces. You can also use special characters except a period (.), exclamation point (**!**), square brackets (**[ ]**), and an accent grave (`).

- The name can't begin with a space.

Although spaces are allowed within a name, most database designers avoid using them due to possible naming conflicts with other applications. Instead, when creating a compound word name, it is a good idea to start each word with a capital letter (for example, *PhoneNumber* or *DepartmentName*). Sometimes database designers will also include a prefix in the object name such as *tblAccounts* or *frmSales*. The most common prefixes are *tbl*, used for a table; *frm*, used for a form; *rpt*, used for a report; and *qry*, used for a query. Additionally, avoid using a reserved word as an object name because unexpected results may occur. A ***reserved word*** is a word or symbol that has a specific meaning in Access. Common examples of reserved words are *Date*, *Form*, *Report*, *$*, and *Time*.

Data Types

Each field in your database must be assigned a specific ***data type***. The data type determines which properties can be manipulated and how that field can be used. Before you start to create and manipulate tables, it is important to learn about the types that are explained in Table 1-3.

Table 1-3: Access Data Types

Data Type	Description
Short Text	Used to store alphanumeric data (text, or combinations of text and numbers). Also used to store numbers that are not used in calculations, such as phone numbers. The maximum length is 255 characters.
Long Text	Used to store text longer than 255 characters or text containing rich-text formatting. The maximum length that displays is limited to the first 64,000 characters.
Number	Used to store numbers that are used in mathematical calculations. The number can be positive or negative. Seven field size choices are available for the number data type which determine the range of possible values and amount of storage space required.
Large Number	Used to store integer numbers ranging from –9,223,372,036,854,775,808 to 9,223,372,036,854,775,807. Compatible with the *BigInt* data type in SQL databases. *Note: An Access database that uses the Large Number data type cannot be opened by a version of Access lower than Access 2016 version number 16.0.7812*.
Date/Time	Used to store dates and times.
Date/Time Extended	Used to store dates and times. Supports a larger date range, higher precision for times, and compatibility with the SQL Server datetime2 data type.
Currency	Used to store numbers representing currency values. This type does not allow rounding off during calculations. Accurate to 15 digits on the left

	side of the decimal point and four digits on the right side.
AutoNumber	Used to instruct Access to insert a unique number each time a new record is added. Choose sequential (increments by 1) or random numbers. The field value cannot be updated after the record is created. If a record is deleted, the *AutoNumber* value is not reused. Only one *AutoNumber* field, with a Field Size of *Long Integer*, is allowed in each table.
Yes/No	Used to store fields with two possible values, such as *Yes/No*, *True/False*, or *On/Off*. Displays as a check box. A *Yes/No* data type field contains –1 if it is checked, and 0 if it is unchecked.
OLE Object	Used to display OLE objects (spreadsheets, documents, pictures, sounds) that were created in other programs.
Hyperlink	Used to store a hyperlink to another file or web page.
Attachment	Used to attach pictures, images, and Office files.
Calculated	Used to store the results of a calculation. Typically, the equation references fields in the same table.
Lookup Wizard	Technically, this is not a data type. It is used to convert your field into a combo box that enables you to choose a value from another table or from a list of values.

COPILOT/GENERATIVE AI BEST PRACTICES

Use *Copilot* to suggest data types for fields in a database table. For example, ask *Copilot* "Suggest the data types to use for a table with the following fields:" followed by the list of fields.

Create and Save Database Objects

Databases typically contain many different objects. Each object is initially created using the *Create* tab. Once the object is created, you use one of the different views to define the object or to change the object.

HOW TO: Create a New Object

1. Click the **Create** tab on the *Ribbon*.
2. Click the **object** button of the object you wish to create.
   - You may be prompted to save an open object before Access creates the new object.

- The button choice determines the view that displays when the object opens. For example, selecting the **Table** button opens a table in *Datasheet View*, whereas selecting the **Table Design** button opens a table in *Design View*.
- Wizard buttons, such as *Query Wizard*, launch a wizard that guides you through the steps to creating that object.

To keep a permanent copy of an object, you need to save it. When an object is created, Access automatically assigns it a name. The first time you save an object, you are prompted to change the default name in the *Save As* dialog box.

HOW TO: Save an Object

1. Click the **Save** button [*File* tab]. The *Save As* dialog box opens if this is the first time you save the object.
2. Type the name you wish to use in the *Save As* '*Object Name*' box. Instead of displaying the phrase "Object Name," Access displays the type of object you are saving. For example, **Figure 1-25** is a *Save As* dialog box for a form.

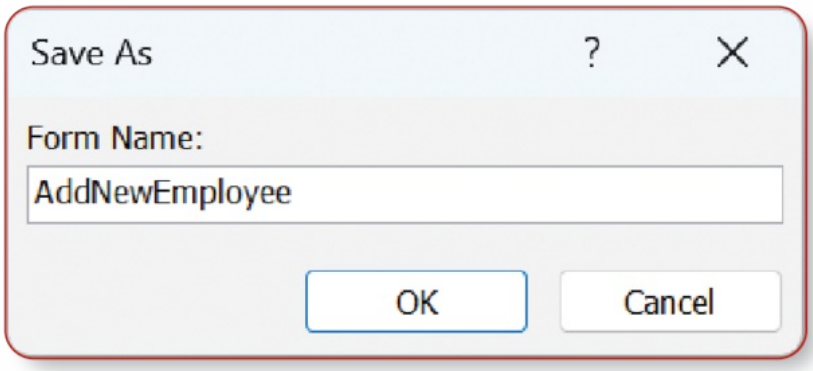


FIGURE 1-25 ***Save As*** **dialog box**

3. Click **OK**.

Once an object has been saved, you must save it again to store any changes that have been made. In addition to clicking the **Save** button [*File* tab], you can also re-save the object by clicking the **Save** button on the *Quick Access* toolbar or by pressing **Ctrl+S**.

Sometimes you need to make a copy of an object. This may be done to have a backup of the original object or because another object has the same initial characteristics.

HOW TO: Save a Copy of an Object

1. Open the desired object if not already open.
2. Click the **Save As** button [*File* tab].
3. Click the **Save Object As** button in the *File Types* area and the **Save Object As** button in the *Database File Types* area (**Figure 1-26**). Click the **Save As** button to open the *Save As* dialog box (**Figure 1-27**).

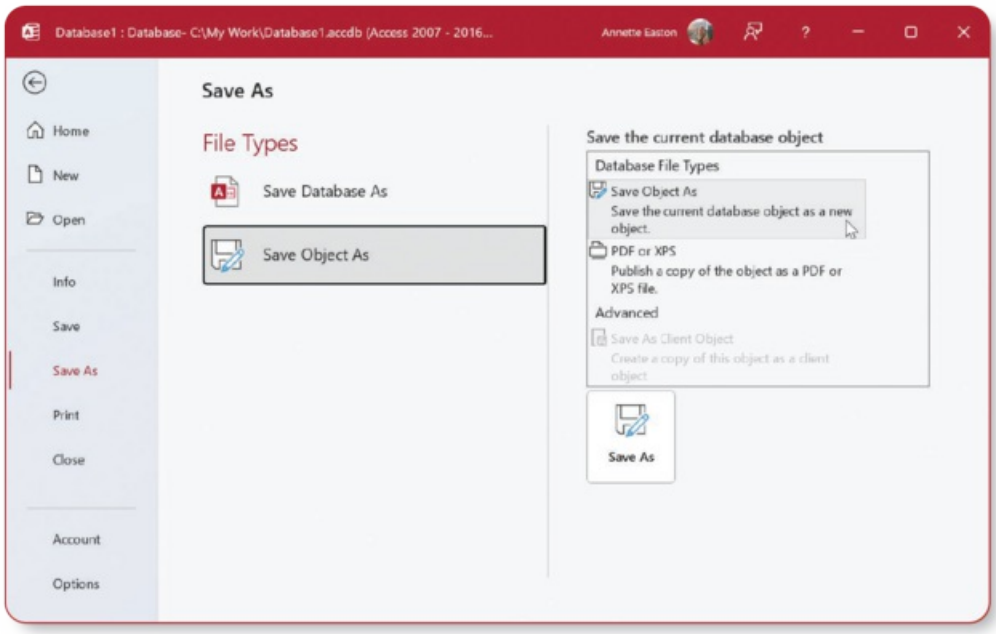


FIGURE 1-26 ***Save Object As*** **button**

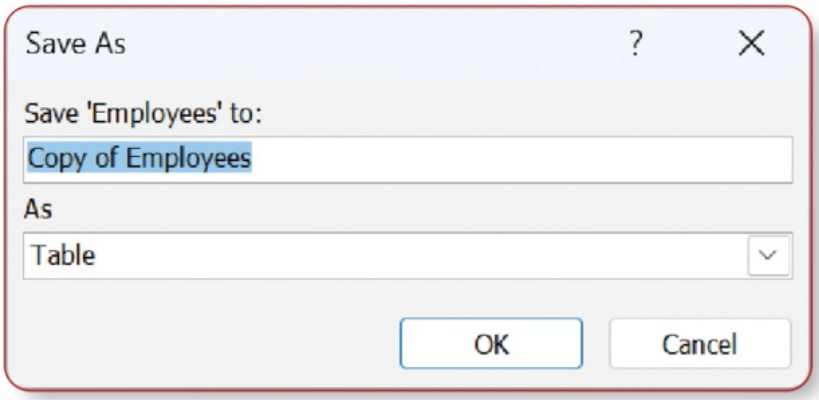


FIGURE 1-27 ***Save As*** **dialog box**

- Access suggests the default object name of “Copy of” and the original object name.

- Access selects the same object type as the original object.

4. Type the name you wish to use in the *Save 'Object name' to* box.
5. Select the type of object you wish to create.
   - Make a duplicate of the object by selecting the same object type.
   - Create a different type of object, based on the original object's settings, by selecting another object type.
6. Click **OK**.

ANOTHER WAY

Press the **F12** function key to open the *Save As* dialog box.

Use *Copy* and *Paste* to save a copy. Right-click the object in the *Navigation Pane* and select **Copy**. Then right-click in a blank area of the *Navigation Pane* and select **Paste** to open the *Paste 'Object name' As* dialog box.

Open Database Objects

You can open objects directly from the *Navigation Pane*. The selection you make when opening an object determines the view that displays. Each object type has a default view in which it opens when you double-click the object name in the *Navigation Pane*. This default view displays the contents of the object.

- *Datasheet* view is the default view for tables and queries.
- *Form* view is the default view for forms.
- *Report* view is the default view for reports.

HOW TO: Open a Database Object

1. Click the **Shutter Bar Open/Close Button** or press **F11** if the *Navigation Pane* is closed.
2. Right-click the object name and select the desired view from the context menu ( **Figure 1-28**). The object opens in the work area.

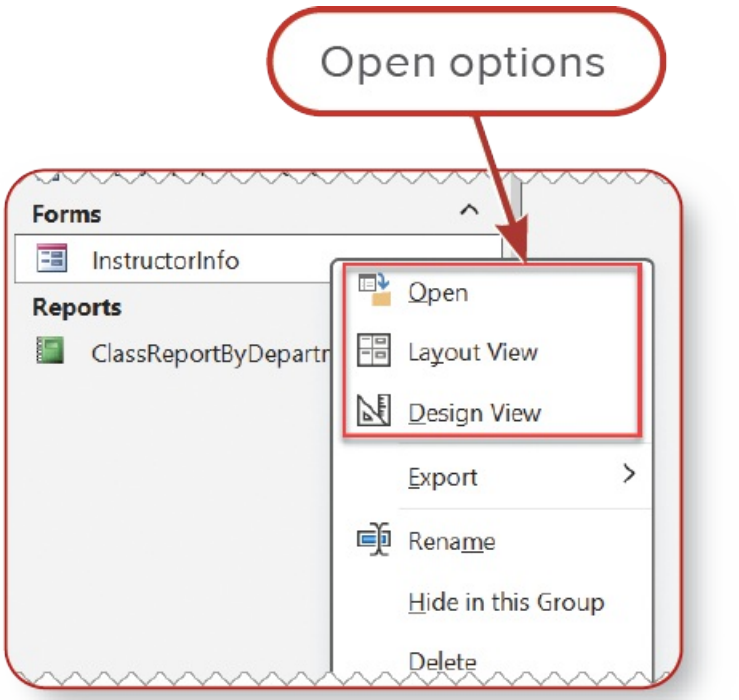


FIGURE 1-28 Select an open option on the context menu

- Select **Open** to open the object using its default view.
- Select **Layout View**, if available, to modify the design visually. However, not all design changes can be made in *Layout* view.
- Select **Design View** to modify the structure of the object.

ANOTHER WAY

Select the object in *the Navigation Pane* and press **Enter** to open the object using its default view.

Rename Database Objects

You may want to change the name of an object in the database. An object must be closed before it can be renamed.

HOW TO: Rename a Database Object

1. Right-click the **object** and select **Rename** from the context menu.
2. Type a new name and press **Enter**.

Delete Database Objects

Occasionally, you have objects that you no longer need or want in the database. Be cautious when you delete objects because it is not possible to undo the action. An object must be closed before it can be deleted.

Delete an object by selecting it in the *Navigation Pane* and clicking the **Delete** button [*Home* tab, *Records* group]. Click **Yes** in the dialog box to confirm the deletion.

ANOTHER WAY

Right-click the object name in the *Navigation Pane* and select **Delete** from the context menu. Click **Yes** in the dialog box to confirm the deletion.

Close and Open a Database

When you are finished working on a database, you should close the database file. You won't actually save the database file before closing it. Instead, you are prompted to save each of the separate database objects as you work on them. Access also automatically saves many changes to your database file, such as records you add into a table.

HOW TO: Close a Database

1. Click the **Close** button [*File* tab] to close a database.
   - The current database closes. Access remains open. You remain positioned on the *Ribbon* tab displayed prior to closing the database (**Figure 1-29**). Notice that the *Navigation Pane* does not display because a database is not open.

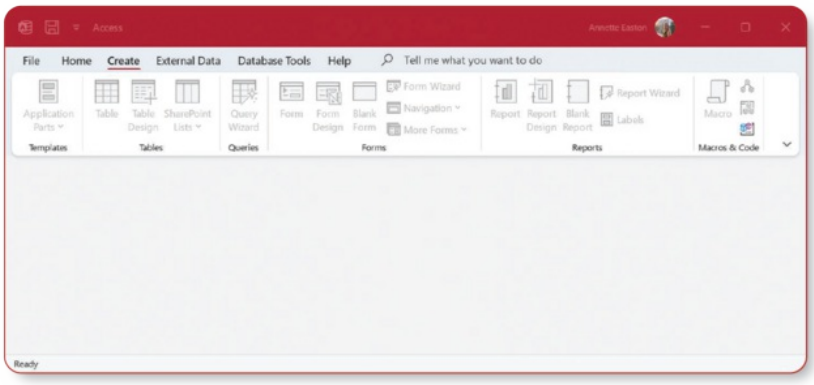


FIGURE 1-29 Access interface when a database is closed

MORE INFO

If you are closing a database and have any unsaved objects still open, Access may prompt you about saving changes to those objects.

MORE INFO

To close a database and the Access application, click the **X** in the upper right corner of the application window.

HOW TO: Open a Database

1. Click the **Open** button [*File* tab] to open an existing database.
2. Click the **Browse** button. The *Open* dialog box displays.
3. Select the database file and click the **Open** button.
   - You can also double-click the file name to open the database.

ANOTHER WAY

If the database name displays on the *Recent* list in the *Backstage* view, click the file name to open the database.

Back Up and Recover a Database

A backup copy of a database is necessary to completely restore your database. If you have several users of your database, you must be certain that all users have closed the database before you perform a backup procedure. Your organization's database administrator, in conjunction with the information systems manager, should determine a regular schedule for backups.

HOW TO: Back Up a Database

1. Click the **File** tab to open the *Backstage* view.
2. Click the **Save As** button. Your screen should look similar to **Figure 1-30**, with *Access Database* selected in the *Save Database As* area.

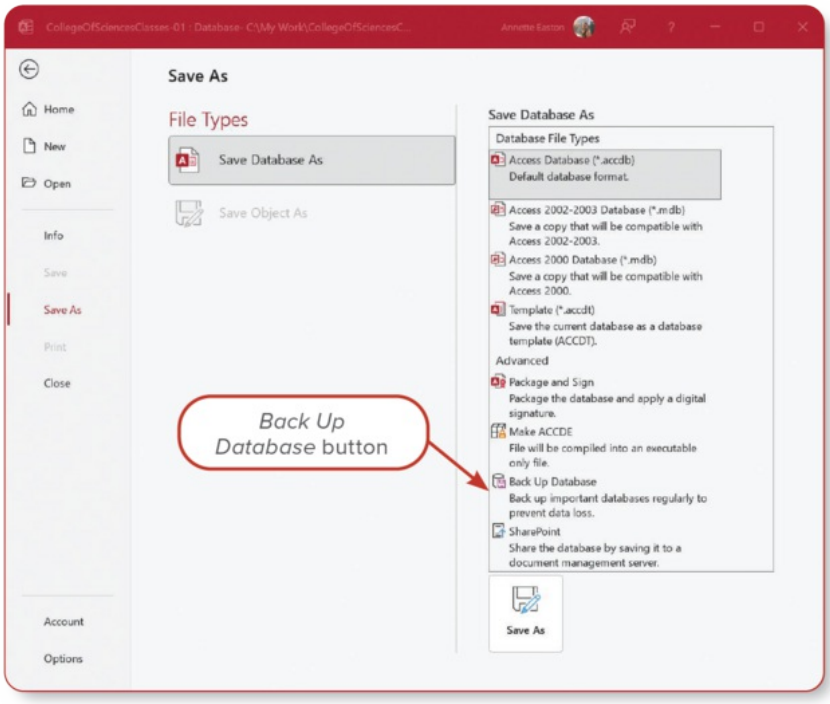


FIGURE 1-30 Back up a database

3. Click **Back Up Database** in the *Advanced* grouping of the *Save Database As* section.
4. Click the **Save As** button.
   - Select the desired location in which to store the backup database file.

- Access suggests a filename, such as *CollegeOfSciencesClasses-01_2026-02-14*, which adds today's date to the end of the file name. This is a good practice, because you can quickly determine when a backup copy was created.
- As desired, click the **File name** box and change the default name.
- Click the **Save** button.

A1-20

The *Back Up Database* option creates a copy of your database, but the current database file remains open and you continue to work in that file.

ANOTHER WAY

Use the *Access Database* file type instead of *Back Up Database* and select the **Save As** button to create a copy of the database. In this case, the open database switches to the new copy you created.

If the original database file becomes damaged, use the backup file to recover the database. Copy the backup file to replace the original and then start working with this replacement file.

If the entire database is not damaged, you can choose to recover only the damaged database objects from the backup file. Open the original database file. Before starting the steps to recover the objects, you should delete the damaged object from the current database or rename the original object to reflect that it is an old or bad copy. For example, rename the *Classes* table to *Classes_Old* or *Classes_Damaged*.

HOW TO: Recover Database Objects from a Backup

A1-21

1. Click the **New Data Source** button [*External Data* tab, *Import & Link* group], select **From Database**, and then click **Access** (Figure 1-31).

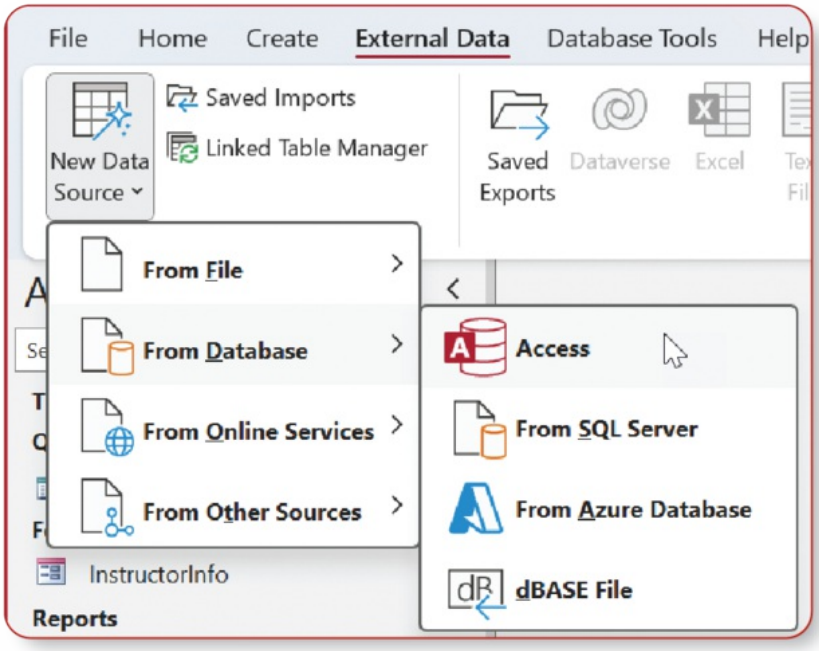


FIGURE 1-31 Select an Access database as the data source

- The *Get External Data – Access Database* dialog box launches (**Figure 1-32**).

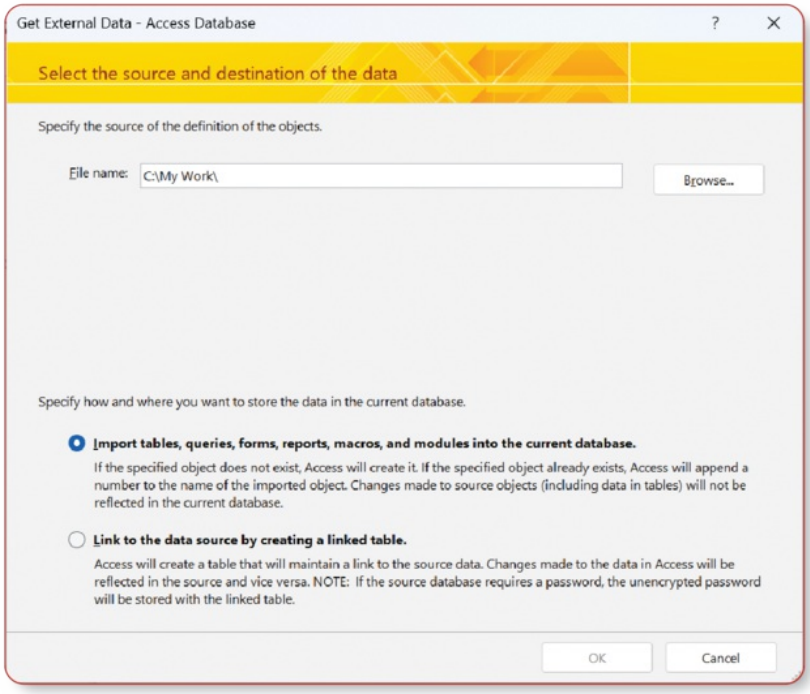


FIGURE 1-32 *Get External Data – Access Database* dialog box

2. Click the **Browse** button to launch the *File Open* dialog box.
3. Locate and select the file that contains the backup copy of the database.
4. Click the **Open** button. The *File Open* dialog box closes.
5. Select the **Import tables**, **queries**, **forms**, **reports**, **macros**, **and modules into the current database** radio button.
6. Click **OK** to open the *Import Objects* dialog box (**Figure 1-33**).

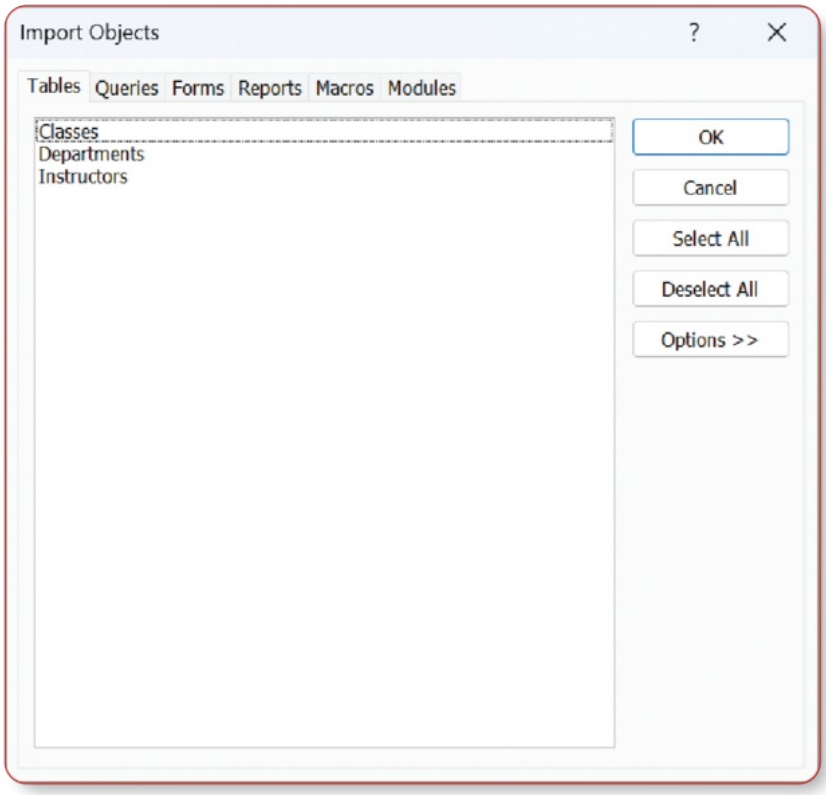


FIGURE 1-33 ***Import Objects*** **dialog box**

7. Click the tab corresponding to the type of object you wish to import.
8. Select the objects you wish to import.
   - You can select multiple objects on a tab.
   - Click the **Select All** button to select all of the objects on the tab.
9. Repeat steps 7 and 8 to select objects from a different tab.
10. Click **OK**. The *Save Import Steps* screen displays.
11. Click the **Close** button.
12. Open the object to verify that the object was successfully recovered.

SLO 1.3

Creating and Using a Table in Datasheet View

Recall that when you create a new blank database, Access automatically creates one table for you. You can add tables using several different methods. In this section, you learn how to use *Datasheet* view to quickly create a table and enter data records. When using a database application, as you will learn later, *Datasheet* view is primarily used to enter, modify, delete, or view the data records.

No matter what method you use to create a table, you need to define the fields that are included within the table. You also need to describe the specific details, or ***field properties***, of each of the fields. The basic field properties include the field name, data type, and size.

COPILOT/GENERATIVE AI BEST PRACTICES

Ask *Copilot* to suggest the fields for a database table. You can also ask it to provide sample data records, as appropriate. Depending on the format of the *Copilot* response, you may be able to copy and paste the results into Access to create a new table. Remember that you must verify that each field is defined appropriately.

Create a New Table in Datasheet View

Databases typically contain multiple tables. You can add a new table to your database from the *Create* tab. Tables created using the *Table* button automatically open in *Datasheet* view.

HOW TO: Create a New Table in Datasheet View

1. Click the **Create** tab on the *Ribbon*.
2. Click the **Table** button in the *Tables* group (**Figure 1-34**). A new table opens in *Datasheet* view.

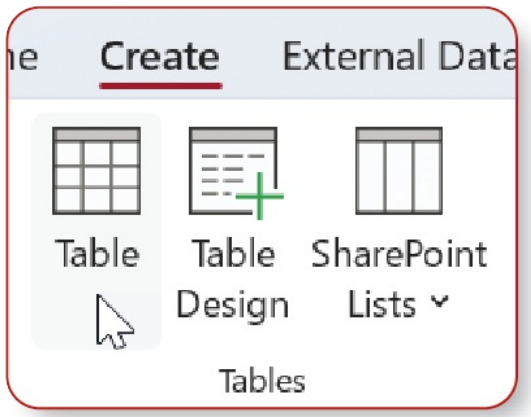


FIGURE 1-34 ***Table*** **button**

The *Ribbon* updates (**Figure 1-35**) because the *Table Fields* and *Table* contextual tabs are now available, with the **Table Fields** tab selected.

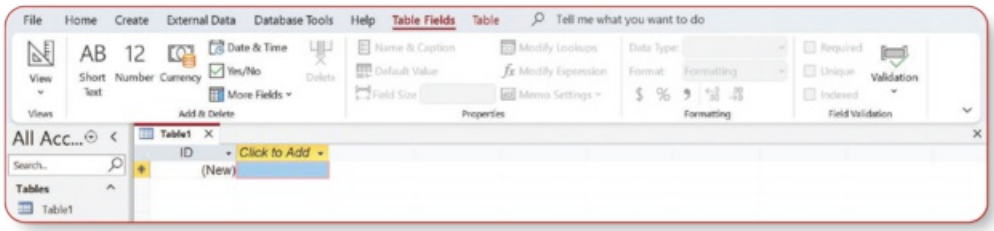


FIGURE 1-35 ***Table Fields*** **and** ***Table*** **contextual tabs**

Edit the Default Primary Key

A ***primary key*** is a field that contains a unique value for each record. This is the way that one record can be distinguished from another. For example, the *InstructorID* field was designated as the primary key in the *Instructors* table in the *CollegeOfSciencesClasses-01* database, because each instructor has a unique ID number. When you enter values into a record, Access requires that you enter a value in any field designated as a primary key.

When a new table is created in *Datasheet* view, Access automatically includes one field, named *ID*, and designates it as the primary key. This field is assigned the *AutoNumber* data type to ensure that each record has a unique value. The data value for this field is automatically completed by Access after you add data into the other fields and the record is added into the table.

MORE INFO

While not absolutely required, it is strongly recommended that each table has a field designated as the primary key.

In *Datasheet* view, you can change the following field properties of the *ID primary key* field: *Name*, *Caption*, *Description*, and *Data Type*.

HOW TO: Edit the Default Primary Key

1. Double-click the cell containing the **ID** *field name* (column header) in your table to select it (**Figure 1-36**).

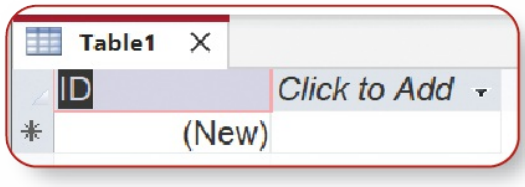


FIGURE 1-36 ***Field name*** **column header**

2. Type the new name for your field and press the **down arrow** key. This action updates the change to the field name and keeps you in the same column.
3. Change the default *Data Type* of *AutoNumber* as desired.
   - Click the **Data Type** [*Table Fields* tab, *Formatting* group] drop-down arrow to display the list of data types (**Figure 1-37**).

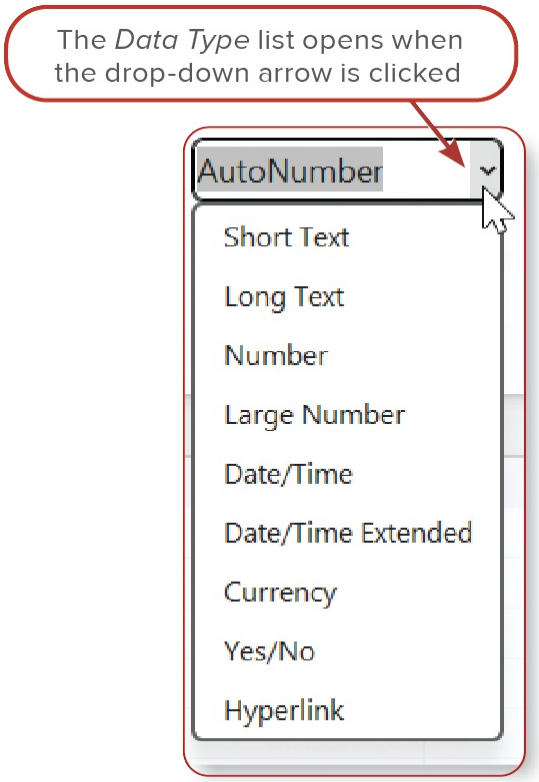


FIGURE 1-37 Field data types

- Select the desired **Data Type** property.

Add New Fields

You must create a field for each of the different pieces of information you want to keep in your table. For example, *ClassID*, *ClassName*, and *DepartmentID* are three of the fields in the *Classes* table in the *CollegeOfSciencesClasses-01* database. In *Datasheet* view, add new fields to a table by either entering the field names or entering the data values directly. After you have added a field, you can customize the name, caption, description, type, default value, and size properties. You can also set a few field validation properties. On numeric fields, you can set formatting properties.

COPILOT/GENERATIVE AI BEST PRACTICES

Ask *Copilot* to explain some common pitfalls to avoid when designing tables using *Datasheet* view.

Add New Fields by Entering Field Names

You can add new fields into a table by entering the field name and selecting the data type.

HOW TO: Add New Fields by Entering Field Names

1. Click the **Click to Add** column header. The drop-down list of data types displays (**Figure 1-38**).

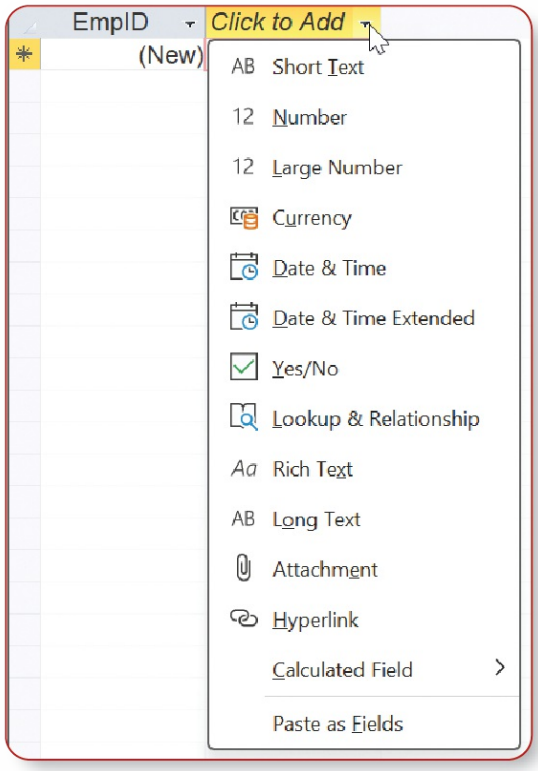


FIGURE 1-38 ***Click to Add*** **data types**

- Technically, the *Rich Text* option is not a data type. Rather it assigns additional formatting selections to the ***Long Text*** **data type**.

2. Select the appropriate data type.
   - The new field is added and assigned a default field name, such as *Field1*, as shown in **Figure 1-39**.



FIGURE 1-39 ***Field name*** **column header**

3. Type the desired field name in the column header.
   - Recall that each field name is limited to 64 characters.
   - Each field in a table must have a unique name.
4. Press the **Enter** key. You move to the next column with the list of data types displayed.
5. Repeat steps 2 through 4 to add additional fields into your table.

You can also add fields by selecting the data type first and then entering the field name. The more commonly used data types have buttons in the *Add & Delete* group on the *Table Fields* tab (**Figure 1-40**). When adding fields using a data type button, the new field is inserted to the right of the currently selected field.

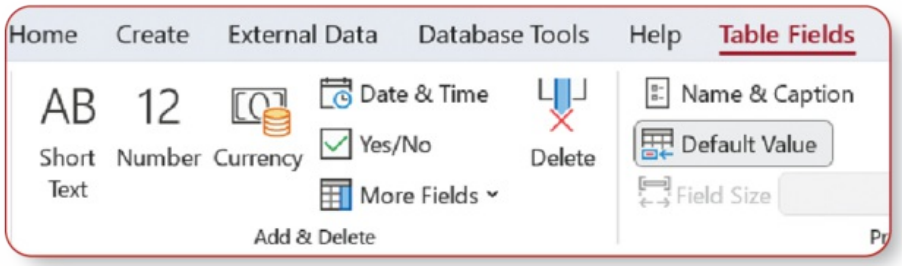


FIGURE 1-40 Data type buttons

HOW TO: Add New Fields Using a Data Type Button

1. Click the appropriate data type button in the *Add & Delete* group on the *Table Fields* tab.
   - The new field is added and assigned a default field name, such as *Field1*.
2. Type the field name in the column header.
3. Press the **Enter** key.

Use the ***More Fields*** [*Table Fields* tab, *Add & Delete* group] drop-down list, shown in **Figure 1-41**, to select additional choices of the basic data type options when adding a new field.

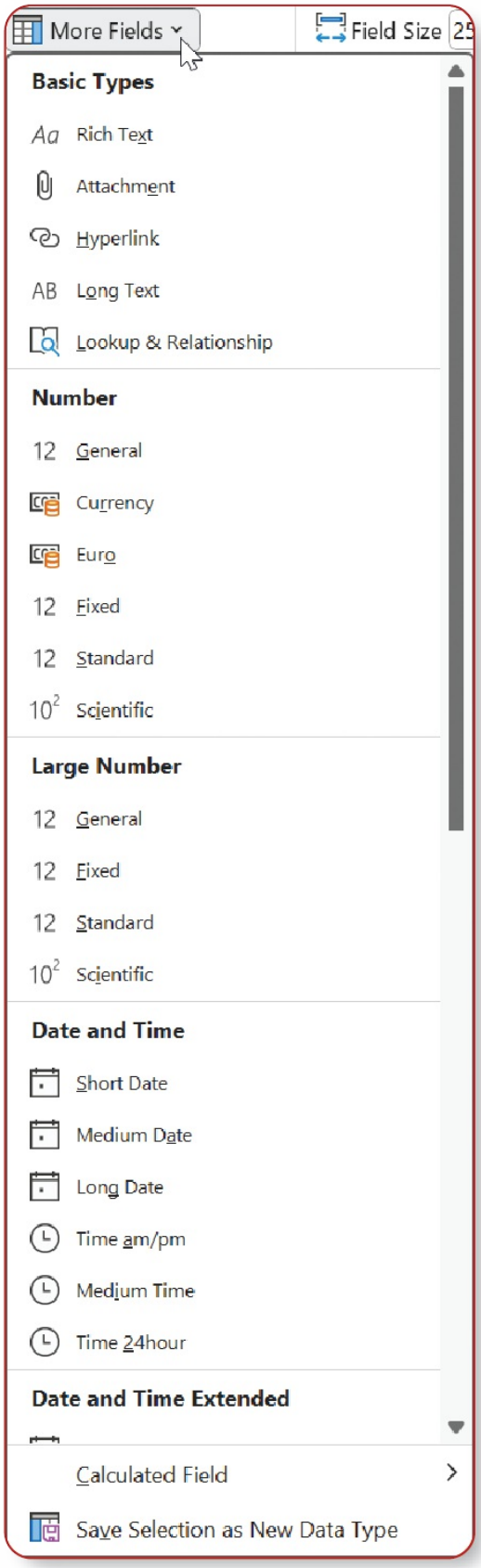

More Fields
Field Size
25
Basic Types
Rich Text
Attachment
Hyperlink
Long Text
Lookup & Relationship
Number
General
Currency
Euro
Fixed
Standard
Scientific
Large Number
General
Fixed
Standard
Scientific
Date and Time
Short Date
Medium Date
Long Date
Time am/pm
Medium Time
Time 24hour
Date and Time Extended
Calculated Field
Save Selection as New Data Type

FIGURE 1-41 ***More Fields*** **drop-down list**

Technically, not all of these choices are data types. Rather, they assign additional formatting selections to a data type when the field is added. For example, within the *Date and Time* group, you select an option that specifies how to store and format the date or time. *Short Date* formats a date to display as 12/15/2025; *Medium Date* displays as 15-Dec-25.

The *Quick Start* group provides a set of fields that you can add by making just one choice. For example, selecting the *Phone* quick start data type adds four fields into your table: *Business Phone*, *Home Phone*, *Mobile Phone*, and *Fax Number*.

Most fields added using the *More Fields* button are inserted to the right of the currently selected field. However, fields added from the *Quick Start* group are inserted to the left of the currently selected field.

HOW TO: Add New Fields Using the More Fields Button

1. Click the **More Fields** button [*Table Fields* tab, *Add & Delete* group] to display the drop-down list.
2. Select the appropriate data type. Use the scroll bar, if necessary, to see all the data type choices.
3. Type the field name in the column header.
4. Press the **Enter** key.

Add New Fields by Entering Data

You can add new fields into a table by entering the data values in the append row. Recall that the append row is always the last row in the table and is identified with the asterisk icon in the record selector of that row.

Add a new field by clicking the first *Click to Add* cell on the append row.

A field on the append row with *(New)* displayed, as shown in Figure 1-42, indicates an *AutoNumber* data type. The data value for this field is automatically completed by Access. You can add a new field by entering data in the cell to the right of *(New)*.

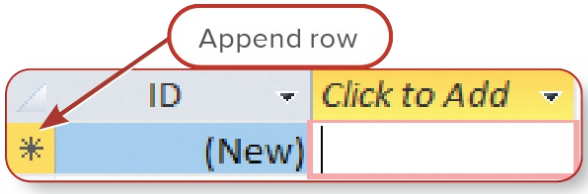


FIGURE 1-42 Append row with an *AutoNumber* field

If the *ID* field (the default, primary key) does not display *(New)* in the append row, the data type has been changed from an *AutoNumber* type (Figure 1-43). To add another field, first enter a value into the *ID* field and then add a new field by entering data in the *Click to Add* cell.



FIGURE 1-43 Append row without an *AutoNumber* field

HOW TO: Add New Fields by Entering Data

1. Click the **cell** in the first *Click to Add* column. The insertion point displays, indicating where you type text.
2. Type the data value into the cell.
3. Click the **Click to Add** column header (Figure 1-44) to add the field.

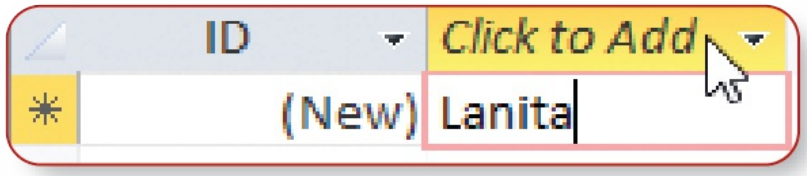


FIGURE 1-44 Add new field by entering data

   - Access assigns a default field name, such as *Field1*, and selects that column.
   - *Click to Add* becomes the next column.
   - Access automatically assigns a data type for the field based on the contents that you enter. As desired, you can change the data type.
4. Repeat steps 1 through 3 to add all the additional fields into your table.

ANOTHER WAY

Press the **Tab** key or the **Enter** key to add the field and move to the next column.

Remember that you need to verify that Access assigned the correct data type to each field. You should also change the default field name to be a descriptive field name. You can either edit these field properties after entering each field or after all the fields have been added.

When using the *Click to Add* option, the new field always adds to the right of the last field in your table. Occasionally, you may wish to add a field between existing fields.

HOW TO: Add New Fields between Existing Fields

1. Put your pointer on the field name of the column to the right of where you wish to insert a new field. The selection pointer appears as a black down arrow (**Figure 1-45**).

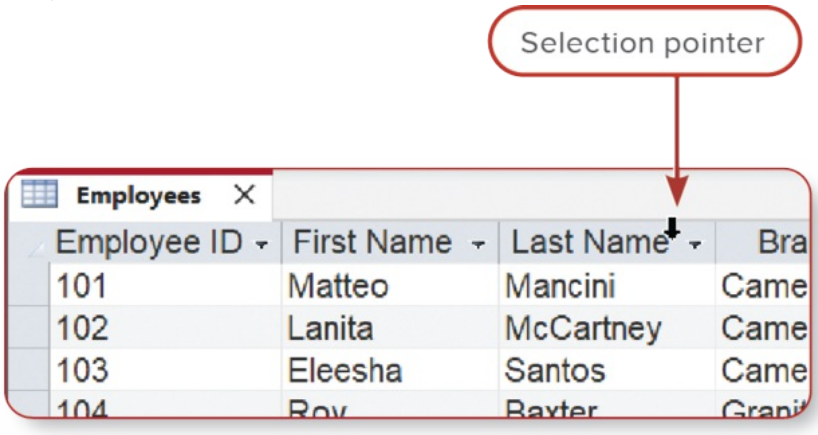


FIGURE 1-45 Selection pointer

2. Click to select that column. The column is highlighted in blue.
3. Right-click to open the context menu.
4. Select **Insert Field** (**Figure 1-46**). The new field is inserted to the left of the selected field, as shown in **Figure 1-47**. It is assigned a default field name, such as *Field1*.

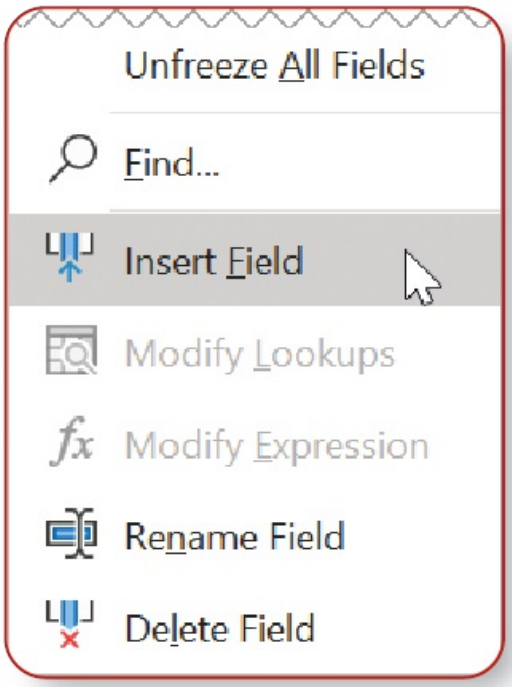


FIGURE 1-46 Select *Insert Field* on the context menu



FIGURE 1-47 New field added with default field name

5. Double-click the field name to change the name.

Delete Fields

You may need to delete a field from a table that was either created in error or is no longer needed in a table.

HOW TO: Delete a Field

1. Place your pointer over the field name of the field you wish to delete. The

selection pointer appears as a black down arrow.

2. Click to select that column.
3. Click the **Delete** button [*Table Fields* tab, *Add & Delete* group] to delete the field. Access displays a message box asking you to confirm the deletion.
4. Click **Yes** to delete the field.

ANOTHER WAY

Right-click to open the context menu and select **Delete Field**.

MORE INFO

The *Undo* button cannot be used to undo deletions of table fields.

Edit Properties in Datasheet View

In *Datasheet* view, you can change a limited number of the field properties. Recall that the properties of each field describe the field's details or characteristics. The majority of the field properties are changed in *Design* view. The properties that you can set in *Datasheet* view include:

- *Name:* Each field in a table must be given a unique name.
- *Caption:* The caption is an alternative to the field name that displays in the datasheet.
- Captions often include spaces and multiple words.
- *Description:* The description describes the purpose or meaning of a field if the field name by itself does not clearly convey the purpose or intended content. It displays in the lower-left corner of the datasheet in the *Status* bar.
- *Data Type:* Select a data type that matches the characteristics of the stored data.
- *Field Size:* Enter the smallest, sufficient field size to ensure best performance. In *Datasheet* view, you can only modify this property for a field with a *Short Text* data type.

You can either edit the field properties as you add each field or after you add all the fields into the table.

HOW TO: Edit Field Properties in Datasheet View

1. Select the cell containing the field name (column header) you wish to change.
2. Click the **Name & Caption** button [*Table Fields* tab, *Properties* group].
   - The *Enter Field Properties* dialog box opens (**Figure 1-48**).

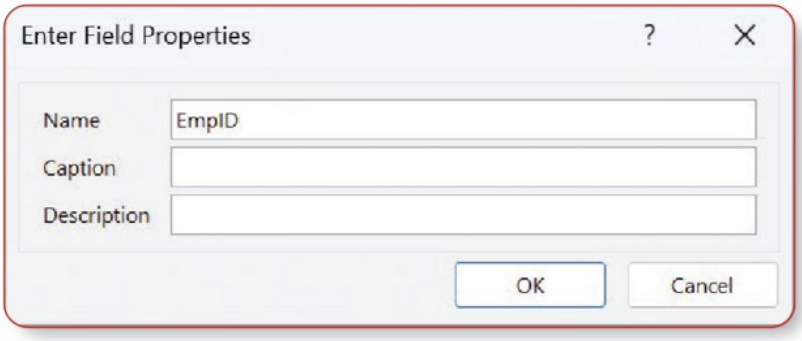


FIGURE 1-48 ***Enter Field Properties*** **dialog box**

3. Type a new value in the *Name* property as desired.
4. Type a value in the *Caption* property as desired.
5. Type a value in the *Description* property as desired.
6. Click **OK** to close the dialog box.
7. Click the **Data Type** option drop-down arrow [*Table Fields* tab, *Formatting* group].
8. Select the desired **Data Type** property.
9. Type a new value in the *Field Size* property [*Table Fields* tab, *Properties* group] (**Figure 1-49**).

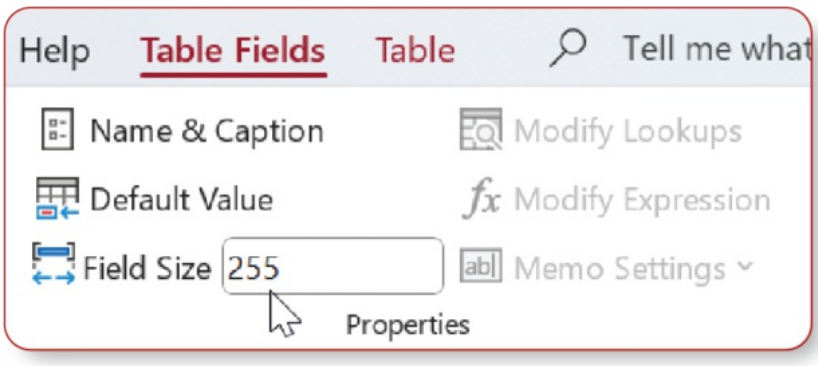


FIGURE 1-49 ***Field Size*** **property**

Add a Table Description

In addition to the field and database properties you have learned about, database objects also have their own properties. One of the table properties you can set is *Description*. Use this property to provide a more informative summary of the table contents.

HOW TO: Add a Table Description

1. Right-click the table name in the *Navigation Pane* and select **Table Properties** from the context menu. The *Table Properties* dialog box opens (**Figure 1-50**). Instead of displaying the word "Table" in the title of the dialog box, Access displays the table name.

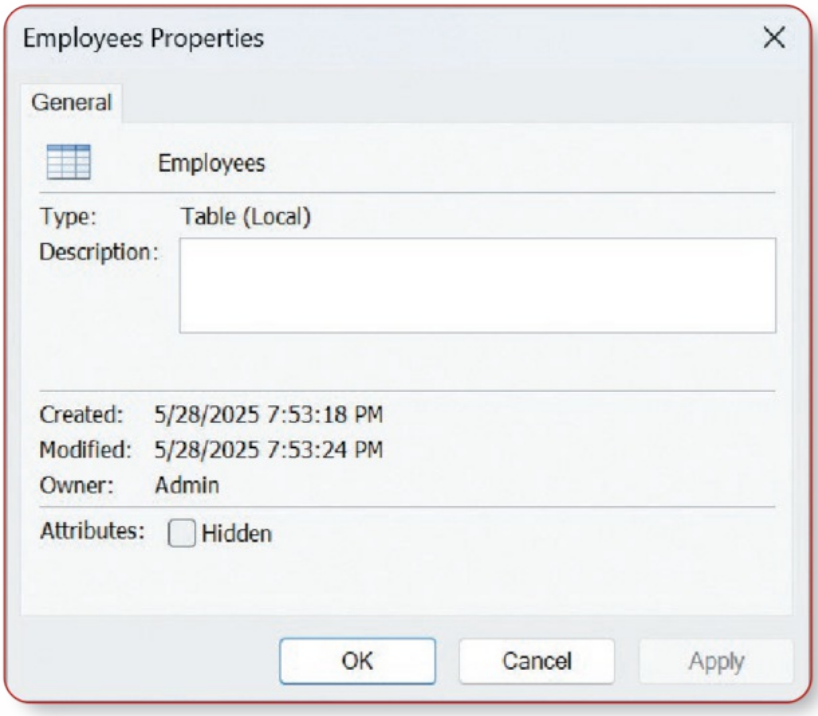


FIGURE 1-50 ***Table Properties*** **dialog box**

2. Type a description in the *Description* property.
3. Click **OK**.

MORE INFO

The table properties can be displayed in the *Navigation Pane*, although it generally is not necessary to do this. To display the table properties, right-click the *Title* bar of the *Navigation Pane*, select **View By**, and then click **Details**.

Save a Table

When you create a new table, Access automatically assigns a generic name to the table, such as *Table1*. The first time you save a table, you are prompted to change the default name in the *Save As* dialog box.

If you close *Table1* (the default table that comes with a new database) without saving it, Access deletes the table. If you have entered data into the table, Access prompts you to save the table.

HOW TO: Save a New Table

1. Click the **Save** button [*File* tab]. If this is the first time you are saving the table, the *Save As* dialog box displays.
2. Type the name you wish to use in the *Table Name* box.
3. Click **OK**.

ANOTHER WAY

Open the *Save As* dialog box by clicking the **Save** button on the *Quick Access* toolbar or by pressing **Ctrl+S**.

If you later make changes to a table, many of those changes will automatically be saved by Access. However, it is a good idea for you to re-save the table to ensure those changes are stored. Click the **Save** button [*File* tab], click the **Save** button on the *Quick Access* toolbar, press **Ctrl+S**, or right-click the tab with the table name, and select **Save** from the context menu to save the changes. Because the table has been saved once, the *Save As* dialog box does not open again.

Close a Table

When you finish using a table, you should close the table. Routinely closing unneeded objects prevents you from making accidental changes to those objects.

To close a table, click the **X** (*Close* button) in the table tab. You can also press **Ctrl+W** or **Ctrl+F4** to close a table, or right-click the tab with the table name and select **Close** from the context menu.

Open a Table

You can open an existing table in either *Datasheet* view or *Design* view. Once a table is open, you can easily switch views as desired.

HOW TO: Open a Table in Datasheet View

1. Click the **Shutter Bar Open/Close Button** or press **F11** if the *Navigation Pane* is closed.
2. Double-click the table name. The table opens in *Datasheet* view.

ANOTHER WAY

Select the table in the *Navigation Pane* and press **Enter**.

Right-click the table in the *Navigation Pane* and select **Open** from the context menu.

HOW TO: Open a Table in Design View

1. Click the **Shutter Bar Open/Close Button** if the *Navigation Pane* is closed or press **F11**.
2. Select the table in the *Navigation Pane* and press **Ctrl+Enter**.

ANOTHER WAY

Right-click the table in the *Navigation Pane* and select **Design View** from the context menu.

Rename a Table

You may want to change the name of a table in the database, and it is easy to do this. However, you need to be aware of potential problems that may occur. Tables are the basis for many of the

other database objects you create. For example, a report is created to provide a way to view and print the data in a table. The report depends on the table as its source of the data and is directly linked to the table. As a result, it is important to verify that objects that depend on a table still work correctly after a table is renamed.

HOW TO: Rename a Table

1. Close the table if it is open.
2. Right-click the table name in the *Navigation Pane* and select **Rename** from the context menu.
3. Type a new name and press **Enter**.

Add, Edit, and Delete Records

Datasheet view provides an easy way to add data values into your table, edit records already in the table, or delete records from a table.

Add the data by entering all the values for one record. Entering many records into a database can be time consuming and prone to making data entry errors. Access provides several shortcut keys, shown in **Table 1-4**, that can speed up your data entry.

Table 1-4: Data Entry Shortcuts

Keystrokes	Data Entry Action
Ctrl+; (semicolon)	Insert the current date.
Ctrl+: (colon)	Insert the current time.
Ctrl+' (apostrophe)	Insert the value from the same field in the previous record.
Ctrl+Alt+Spacebar	Insert the default value for a field. You learn to set the ***Defau lt Value* property** in ***SLO 2.2 Setting Field Properties***. This shortcut is most useful if you start typing and realize you should have kept the default value.

After you finish entering the values for one record and navigate to the next record, Access automatically saves the record in the table.

MORE INFO

Your table must be saved at least once to initiate the automatic saving of data records.

If you realize you made an error in entering a value, you can make a correction several ways.

- If you have navigated out of a field, click the field and change the value.
- If you are still typing in the field, click the **Undo** button to undo the typing.

ANOTHER WAY

Press **Esc** or **Ctrl+Z** to undo a change to the current field.

- If you have moved to the next field and have not yet entered any data, clicking the **Undo** button, or pressing **Esc** or **Ctrl+Z**, will undo all changes to an unsaved record.
- If you have moved to the next field and have entered data, press **Esc** twice to undo all the changes to an unsaved record.

It is important to note that once you navigate out of the current record, until you have made some other entry or command choice, the *Undo* button will still undo the last change. This could include deleting the last record if it was just added.

One benefit of a database is that it automatically verifies the contents of what you enter, based on the different properties you have assigned. For example, you are required to enter a value into the primary key field. Additionally, each primary key field must have a unique value. If you enter a primary key value that is already used, Access displays an error message. Similarly, if you enter a value that violates the data type property, Access displays an error message.

HOW TO: Add Records in a Table

1. Click the first empty cell in the append row. The insertion point displays.

ANOTHER WAY

Click **New** [*Home* tab, *Records* group] to move automatically to the first empty cell in the append row.

2. Type the data value.
   - The append row asterisk changes to a pencil icon (**Figure 1-51**), indicating that you are editing a record that has not yet been saved.

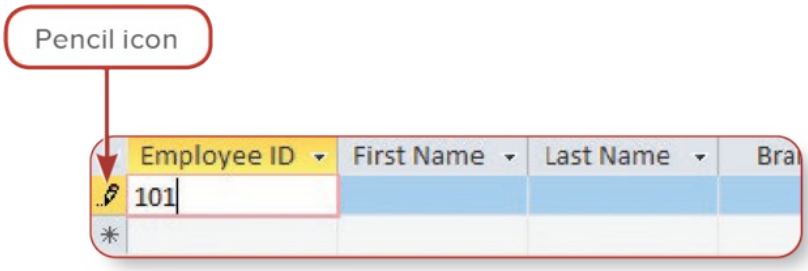


FIGURE 1-51 Pencil icon indicates editing an unsaved record

- A new append row is added.

3. Press the **Tab** key to move to the next field.

ANOTHER WAY

Press **Enter** to move to the next field.

Press **Shift+Tab** to move to the preceding field.

4. Continue entering all remaining data values for the record, pressing **Tab** or **Enter** after each value.
   - After you press the **Tab** or **Enter** key of the last field, you advance to the first field of the next record.
   - If you enter a duplicate value for the primary key (**Figure 1-52**), Access displays an error message (**Figure 1-53**) when you navigate out of the record.

Employee ID	First Name	Last Name
101	Matteo	Mancini
101	Lanita	McCartney

FIGURE 1-52 Duplicate primary key values

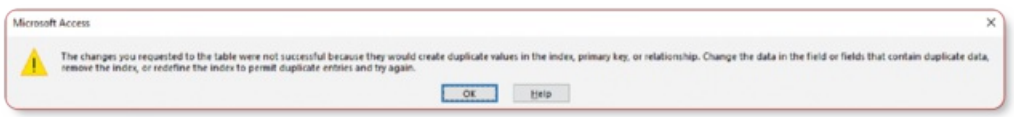


FIGURE 1-53 Duplicate values error message

- If you enter a value that does not match the data type, Access displays an error message when you navigate out of that field (**Figure 1-54**).

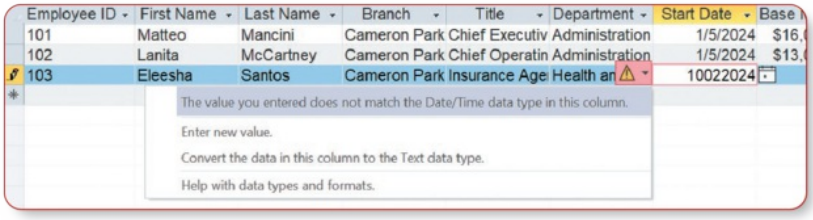


FIGURE 1-54 Data type error message

Often you need to edit an existing record in a table. Edit a record by changing each field that needs to be modified.

HOW TO: Edit a Field in a Record

1. Place your pointer over the field you wish to change and click to select that field.
   - The insertion point displays where you clicked.
   - Press the **right arrow** key or **left arrow** key to move the insertion point if needed.
2. Edit the data as needed.
3. Press **Enter** when completed.
   - Access automatically saves the changes when you navigate out of the field operation.

ANOTHER WAY

Double-click to select the entire field value. If the field value contains more than one word, like “Insurance Agent”, only the word where the insertion point is located is selected. When you type to edit the data, your entry replaces the existing word.

Tab into a field to select the entire field value, including all words in a multi-word entry.

Sometimes you need to delete a record from a table in your database.

HOW TO: Delete a Record from a Table

1. Click the **record selector** cell of the record you wish to delete (Figure 1-55).



FIGURE 1-55 Select the record before deleting

2. Click the **Delete** button [*Home* tab, *Records* group].
   - Access displays a message box warning you about the record deletion and informing you that it is not possible to undo a delete operation.
   - Click the **Yes** button if you want to confirm the delete operation.

ANOTHER WAY

Press **Ctrl+-** (plus and minus signs) to delete the selected record, or right-click the selected record in the table and select **Delete Record** from the context menu.

Edit and Navigation Modes

As you have worked in *Datasheet* view, you have unknowingly used two different modes: *Edit* mode and *Navigation* mode. Access automatically switches between these modes based on the actions that you take. The only visual indication of the different modes is that the insertion point displays in *Edit* mode.

Press the **F2** key to switch between *Edit* mode and *Navigation* mode. On a laptop computer, you might have to press the **Fn** (Function) key and the **F2** key (**Fn+F2**).

When you type in *Edit* mode, you add new characters to the right of the insertion point in a field. In *Navigation* mode, the insertion point is hidden and an entire field is selected. If you type in *Navigation* mode, your entry replaces the existing value.

The arrow keys also operate differently depending on the mode. Table 1-5 describes the arrow

key functions in the different modes.

Table 1-5: Navigation and Edit Mode Key Functions

Key	Navigation Mode Action	Edit Mode Action
Up arrow	Selects the current field in the previous record	Switches to *Navigation* mode and selects the current field in the previous record
Down arrow	Selects the current field in the next record	Switches to *Navigation* mode and selects the current field in the next record
Left arrow	Selects the previous field in the current record	Moves the insertion point left one character. If the insertion point is to the left of the first character, switches to *Navigation* mode and selects the previous field in the current record
Right arrow	Selects the next field in the current record	Moves the insertion point right one character. If the insertion point is to the right of the last character, switches to *Navigation* mode and selects the next field in the current record

PAUSE & PRACTICE: ACCESS 1-2

Businesses regularly use databases to organize and manage data in a useful and meaningful manner. For this project, you create a database to manage data about the employees of Central Sierra Insurance.

File Needed: None

Completed Project File Name: ***[your initials] PP A1-2.accdb***

1. Create a new blank database.
    a. Open Access or click the **File** tab if an Access database is already open.
    b. Select **Blank database**.
    c. Name the database [your initials] PP A1-2 in the *File name* box.
    d. Browse to the location on your computer or storage device to save the database and click **OK**.
    e. Click **Create**. The database opens with a new table showing in *Datasheet* view (**Figure 1-56**).

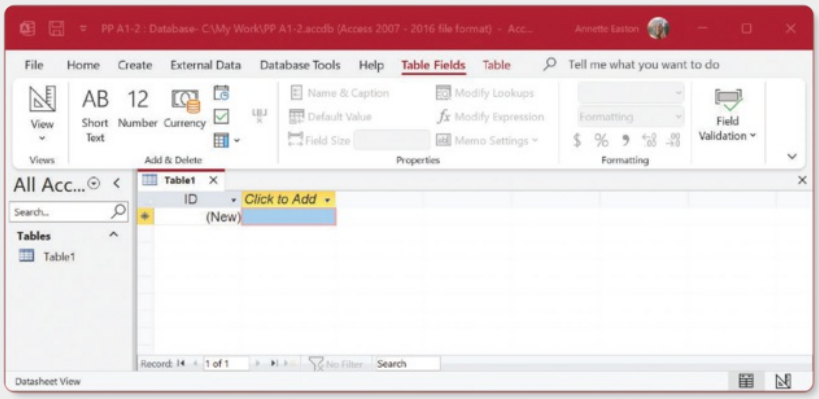


FIGURE 1-56 ***Datasheet* view of *Table1* after a new database is created**

2. Modify the default primary key.
   a. Double-click the **ID** field name (column header) in your table and type EmpID. Press the **down arrow** key to update the name and to stay in the same column.
   b. Click the **Name & Caption** button [*Table Fields* tab, *Properties* group]. The *Enter Field Properties* dialog box opens.
   c. Type Employee ID in the *Caption* property.
   d. Type Unique Employee Identification Number in the *Description* property. The completed dialog box should match **Figure 1-57**.

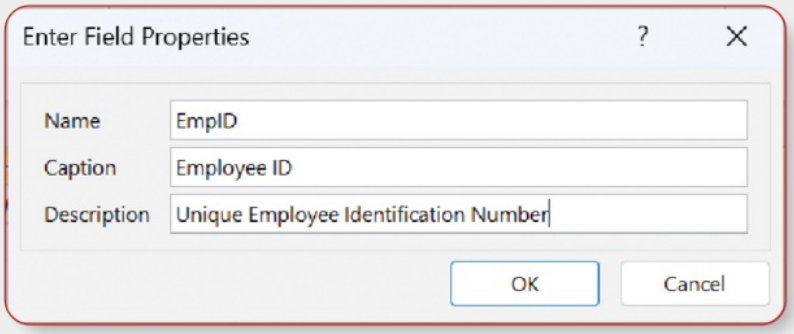


FIGURE 1-57 ***Enter Field Properties* dialog box**

   e. Click **OK**. The dialog box closes and *(New)* is selected in the append row. If *(New)* is not selected, click the **(New)** cell of the append row.
   f. Select **Short Text** in the *Data Type* option selection box [*Table Fields* tab, *Formatting* group] (**Figure 1-58**).

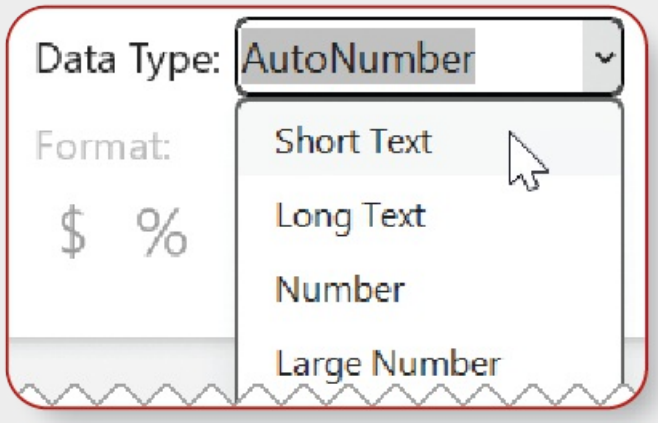


FIGURE 1-58 ***Data Type* selection box**

g. Type 5 in the *Field Size* property [*Table Fields* tab, *Properties* group] and press the **Enter** key.

3. Add new fields into the table.
   a. Click the **Click to Add** column header.
   b. Select **Short Text** in the drop-down list of data types.
   c. Type FirstName to replace *Field1*.
   d. Press the **Enter** key to move to the next column.
   e. Continue entering the additional fields by selecting the data type and typing the field name for each field listed in **Table 1-6**. After you complete the *BaseMonthlySalary* field, don't select anything in the *Click to Add* column that displays.

Table 1-6

Data Type	Field Name
Short Text	LastName
Short Text	Branch
Short Text	Title
Short Text	Department
Date & Time	StartDate
Currency	BaseMonthlySalary

4. Save and close the table.
   a. Click the **Save** button or press **Ctrl+S** to save all of the modifications you have made to the table.
   b. Type Employees as the new table name.
   c. Click **OK**.
   d. Close the *Employees* table by clicking the **X** in the table tab (**Figure 1-59**).



FIGURE 1-59 Close the *Employees* table

5. Reopen the table in *Datasheet* view to edit the field properties.
   a. Double-click the **Employees** table to open it in *Datasheet* view.
   b. Click the **FirstName** field name.
   c. Click the **Name & Caption** button [*Table Fields* tab, *Properties* group].
   d. Type First Name in the *Caption* property and press **Tab**.
   e. Type Employee's First Name in the *Description* property.
   f. Click **OK**.
   g. Type 25 in the *Field Size* property [*Table Fields* tab, *Properties* group] and press **Enter**.
   h. Continue changing the remaining field properties in the table using the information in **Table 1-7**. Repeat steps 5b through 5g for each field.

Table 1-7

Field Name	Caption	Description	Size
LastName	Last Name	Employee's Last Name	25
Branch		Branch Assigned To	30
Title		Current Job Title	40
Department		Department Assigned To	40
StartDate	Start Date	Date Employment Started	N/A
BaseMonthlySalary	Base Monthly Salary	Current Base Monthly Salary	N/A

   i. Click the **Save** button to save the changes to the table.

6. Add the employee records into the *Employees* table.
   a. Click the first empty cell in the append row. Recall that the append row is always the last row in the table. It is identified with the asterisk icon in the record selector of that row.
   b. Type 101 in the *EmpID* field. Remember that if you entered a caption for a field, the caption displays as the column header in *Datasheet* view. The data entry instructions reference the actual field name. If a description was entered, it displays on the left side of the *Status* bar.
   c. Press the **Tab** key to move to the next field.
   d. Type Matteo in the *FirstName* field. Press the **Tab** key to move to the next field.

e. Type Mancini in the *LastName* field. Press the **Tab** key to move to the next field.

f. Type Cameron Park in the *Branch* field. Press the **Tab** key to move to the next field.

> **MORE INFO**
>
> Because you have not increased the width of any fields, you may not be able to see the entire contents of all fields. Date and currency values that are too wide display with a series of pound sign symbols (######).

g. Type Chief Executive Officer in the *Title* field. Press the **Tab** key to move to the next field.

h. Type Administration in the *Department* field. Press the **Tab** key to move to the next field.

i. Type 1/5/2024 in the *StartDate* field. Press the **Tab** key to move to the next field.

j. Type 16000 in the *BaseMonthlySalary* field. Press the **Tab** key to move to the start of the next record.

k. Continue entering the remaining records into the *Employees* table using the data values in **Table 1-8**. The values that you enter are not "wrapped" in the table cells when you enter them.

Table 1-8

Emp ID	FirstName	LastName	Branch	Title	Department	Start Date
102	Lanita	McCartney	Cameron Park	Chief Operating Officer	Administration	1/5/20
103	Eleesha	Santos	Cameron Park	Insurance Agent	Health and Benefits	2/10/2
104	Roy	Baxter	Granite Bay	Insurance Agent	Property and Casualty	2/11/2
115	Tami	Chan	Cameron Park	Administrative Assistant	Health and Benefits	5/8/20

7. Close the table by clicking the **X** in *Employees* tab. Because the data records are automatically saved when you enter them into the table, it is not necessary to save the table before closing.

8. Double-click the **Employees** table to reopen it in *Datasheet* view. Your completed table should look similar to **Figure 1-60** and display all five records.



Employees

Employee ID	First Name	Last Name	Branch	Title	Department	Start Date	Base Month	Click to Add
101	Matteo	Mancini	Cameron Park	Chief Executiv	Administration	1/5/2024	$16,000.00	
102	Lanita	McCartney	Cameron Park	Chief Operatin	Administration	1/5/2024	$13,000.00	
103	Eleesha	Santos	Cameron Park	Insurance Age	Health and Ber	2/10/2024	$6,250.00	
104	Roy	Baxter	Granite Bay	Insurance Age	Property and C	2/11/2024	$4,700.00	
115	Tami	Chan	Cameron Park	Administrative	Health and Ber	5/8/2024	$3,300.00	
							$0.00	

Record: 1 of 5 No Filter Search

FIGURE 1-60 PP A1-2 completed

9. Close the table by clicking the **X** in the *Employees* tab.
10. Close the database by clicking the **Close** button [*File* tab].

SLO 1.4

Importing Data Records from Excel

You have already learned how to add data records into a table using *Datasheet* view. Occasionally, companies may have their data stored in another file. In cases like these, you can import the data records into Access instead of having to enter all the data values.

In this section, you learn how to import data from an Excel file into a table that you have already created. You append (add) the new data to any existing data records already in the table. Prior to importing the file, you need to ensure that the Excel file is formatted correctly.

- The first row of the Excel file must contain the names of all of the fields in the Access table.
- The data fields don't need to be in the same order.
- All of the fields in the table do not need to be in the Excel file as long as the *Required* property allows the field to be empty. With the exception of a primary key field, the default setting for other fields is to not require a value to be filled in. In **SLO 2.2: Setting Field Properties**, you will learn how to change the *Required* property.
- If the fields are not of the same data type (for example, the Access field data type is *Number* but the Excel file field contains *Text*), Access still imports the file but the contents of that field are left empty. In this case, the *Required* property must allow the field to be empty.

A1-36

Close the Access table before starting the import. If the table is not closed, you are prompted to close it during the import process.

A1-37

HOW TO: Import Data from Excel

1. Click the **New Data Source** button [*External Data* tab, *Import & Link* group], select **From File** and then click **Excel** (**Figure 1-61**).

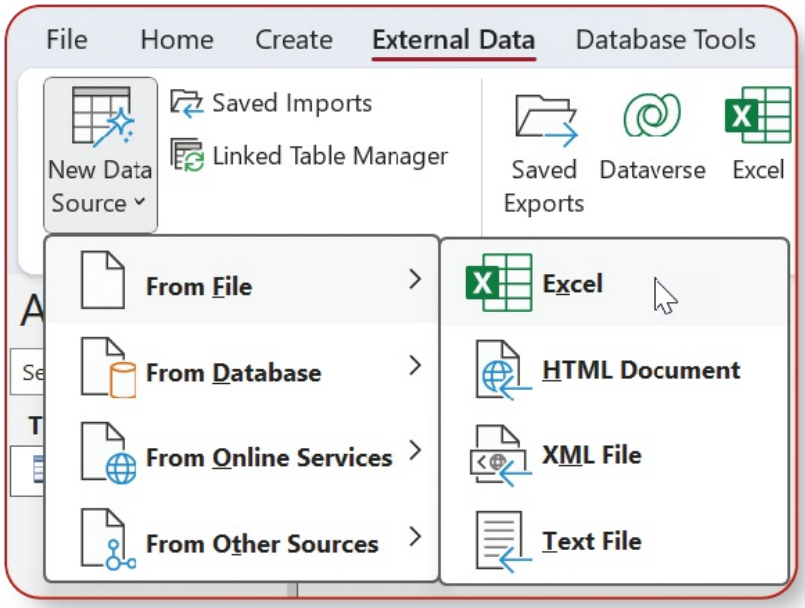


FIGURE 1-61 ***Excel* button**

- The *Get External Data – Excel Spreadsheet* dialog box launches (**Figure 1-62**).

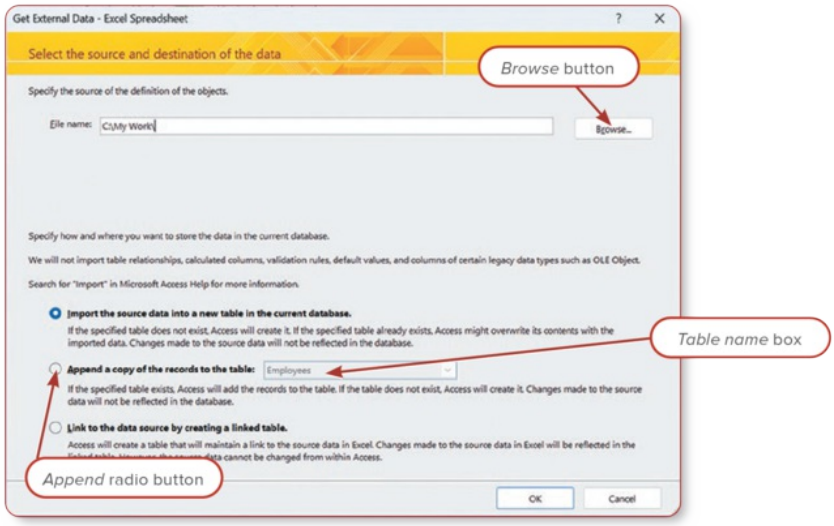
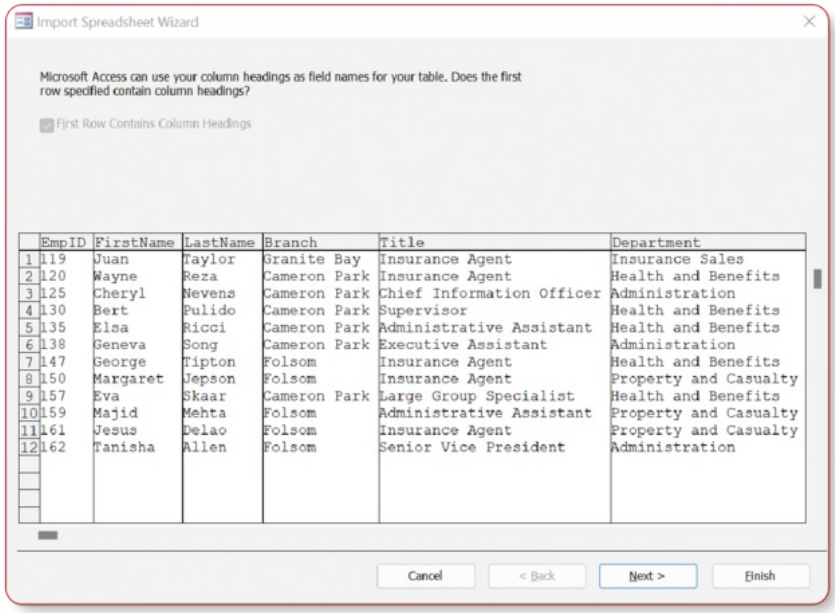


FIGURE 1-62 ***Get External Data – Excel Spreadsheet* dialog box**

2. Click the **Browse** button to launch the *File Open* dialog box.
3. Locate and select the Excel file that contains the records you want to import.
4. Click the **Open** button. The *File Open* dialog box closes.
5. Select the **Append a copy of the records to the table** radio button.

6. Click the **drop-down arrow** in the *table name* box and select the desired table.
7. Click **OK** to launch the *Import Spreadsheet Wizard* (**Figure 1-63**). The data records should display in the *Wizard* window.



	EmpID	FirstName	LastName	Branch	Title	Department
1	119	Juan	Taylor	Granite Bay	Insurance Agent	Insurance Sales
2	120	Wayne	Reza	Cameron Park	Insurance Agent	Health and Benefits
3	125	Cheryl	Nevens	Cameron Park	Chief Information Officer	Administration
4	130	Bert	Pulido	Cameron Park	Supervisor	Health and Benefits
5	135	Elsa	Ricci	Cameron Park	Administrative Assistant	Health and Benefits
6	138	Geneva	Song	Cameron Park	Executive Assistant	Administration
7	147	George	Tipton	Folsom	Insurance Agent	Health and Benefits
8	150	Margaret	Jepson	Folsom	Insurance Agent	Property and Casualty
9	157	Eva	Skaar	Cameron Park	Large Group Specialist	Health and Benefits
10	159	Majid	Mehta	Folsom	Administrative Assistant	Property and Casualty
11	161	Jesus	Delao	Folsom	Insurance Agent	Property and Casualty
12	162	Tanisha	Allen	Folsom	Senior Vice President	Administration

FIGURE 1-63 ***Import Spreadsheet Wizard***

8. Click the **Next** button to advance to the next page of the *Wizard*.
   - Access confirms the name of the table to append the records.
9. Click **Finish**.
   - The *Wizard* displays the *Save Import Steps* screen.
   - If you are frequently going to repeat an import process, you can save the steps to perform the action more quickly.
10. Click the **Close** button.
11. Open the table to verify that the records were successfully added into the table.

SLO 1.5

Exploring Datasheet View

As you have seen, you can use *Datasheet* view to add new fields into a table. However, the primary use of *Datasheet* view is to add, modify, delete, or view the data records. The *Navigation* buttons are used to move among the fields and records in *Datasheet* view. *Datasheet* view also provides many options to adjust the display of your data within a table. You can also choose to hide fields and to display totals in *Datasheet* view. This section reviews how to navigate among records, how to adjust *Datasheet* view display settings, how to hide fields, and how to add total rows.

Navigation Buttons

Access provides many different ways to navigate among the data records stored in your tables. For example, you can navigate using the keyboard arrow keys and the scroll bar. This works fine on tables that do not have too many records. However, in many cases, you may want to get to a specific record more quickly.

The ***Navigation bar*** provides additional methods to move among table records. It is located in the bottom-left corner of a table viewed in *Datasheet* view. The *Navigation* bar contains navigation buttons, a filter status message, and a *Search* box (**Figure 1-64**). Searching and filtering will be explained in **SLO 1.6: Using Search, Sort, and Filter Tools to Find Records in a Table**.

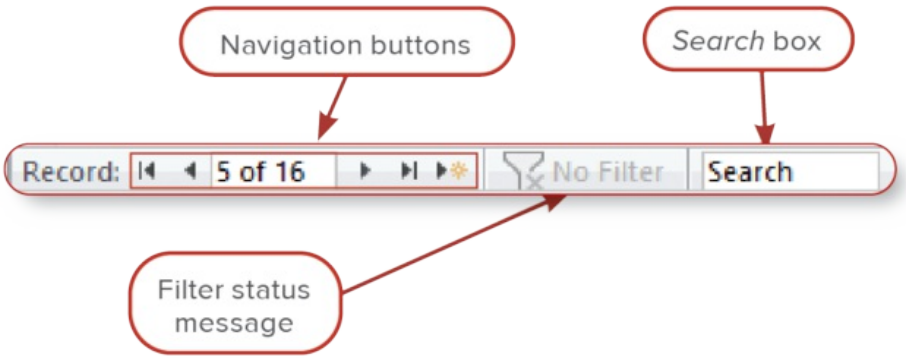


FIGURE 1-64 ***Navigation*** **bar**

The *Navigation* buttons are located on the left side of the *Navigation* bar. The functionality of each button is explained in **Table 1-9**.

Table 1-9: Navigation Buttons in Access

Button	Description
	Move to the first record of the table.
	Move to the previous record of the table.
	The number of the current record, along with the total number of records. Type the number of the record where you wish to move.
	Move to the next record in the table.
	Move to the last record of the table.
	Create a new record.

ANOTHER WAY

The *Navigation* buttons can also be found under *Go To* [*Home* tab, *Find* group].

Refine the Datasheet Layout

You can adjust the default display settings in *Datasheet* view several ways. The settings change both the view of the table on the screen and the printed contents of a table.

Sometimes you may be given specific design guidelines based on company standards. Other times you need to use your judgment to evaluate the best way to have the data display. For example, the default column width or row height of a field may not be large enough to display the entire contents. You may wish to adjust the alignment, change the display font and size, or adjust the row colors and display gridlines. You can also hide and unhide table fields and add totals to the table.

If you make a change to the datasheet layout that you do not like, the *Undo* button cannot be used to reverse those changes. However, several options are available for making a correction:

- You can repeat the steps you followed to make the changes and select the previous settings.
- You can close the table without saving your changes. Keep in mind that if you close the table without saving changes, you lose all of the changes made since the last save.

Modify the Field Order

You may need to modify the order in which the fields display in a datasheet. You can move a single column, or move a group of adjacent columns.

HOW TO: Modify the Field Order

1. Place your pointer over the field name of the column you wish to move.

- The selection pointer appears (Figure 1-65).

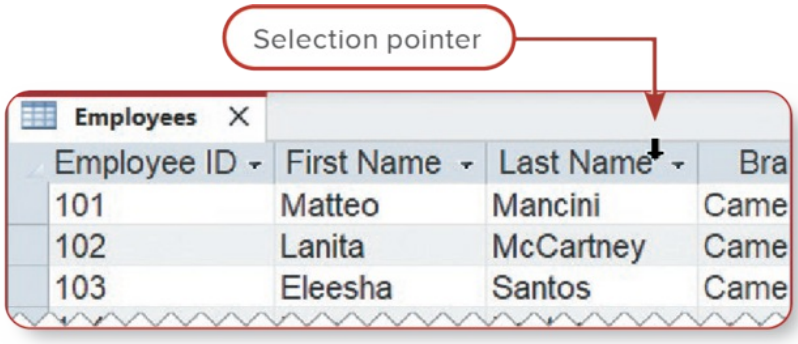


FIGURE 1-65 Selection pointer

2. Click to select the column.
   - The selected column is highlighted in blue.
   - The pointer changes to the normal pointer.

MORE INFO

Move a group of adjacent columns by selecting all of the desired columns. To select multiple columns, click to select the first column, and before you release the selected column, drag the selection pointer to the adjacent columns.

3. Click, hold, and drag the pointer to move the column to the new location.
   - A black vertical line (Figure 1-66) moves with you to indicate the location where the column will be moved.

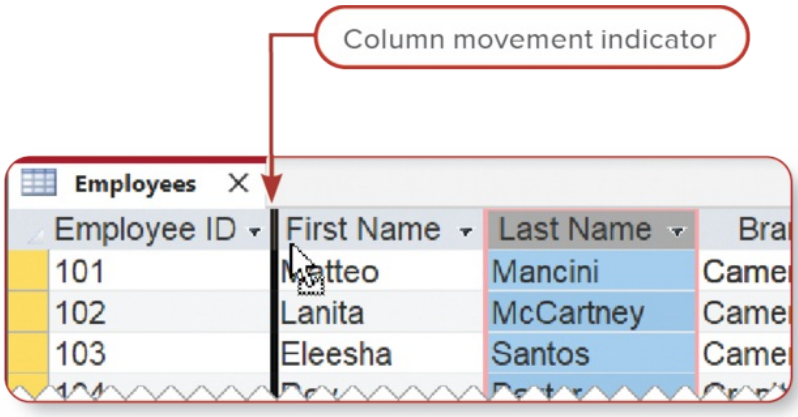


FIGURE 1-66 Column movement indicator

4. Release the pointer.
   - The column moves to the new location (Figure 1-67).

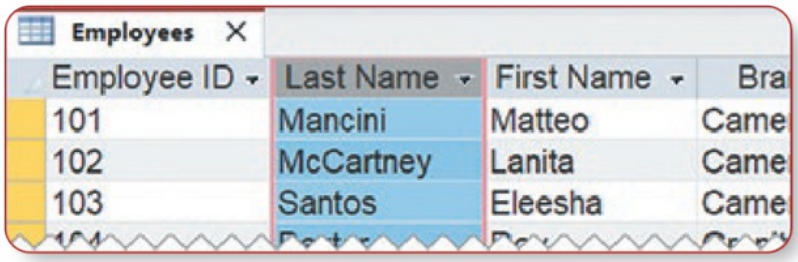


FIGURE 1-67 Moved column

ANOTHER WAY

Click a cell in the column you wish to move and press **F2** to switch to *Navigation* mode. Press **Ctrl+Spacebar** to select the current column.

Press **Shift+Right Arrow** to increase the selection to include the adjacent column to the right.

Press **Shift+Left Arrow** to increase the selection to the adjacent column to the left.

Select a Display Font Face and Font Size

Access provides many of the standard text formatting options available in other Microsoft Office programs. These formatting options are found in the *Text Formatting* group on the *Home* tab as displayed in Figure 1-68.

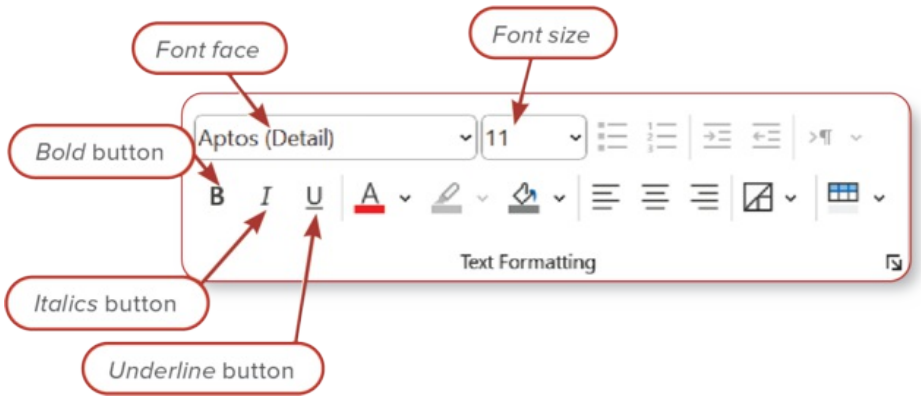


FIGURE 1-68 ***Text Formatting*** **group on the** ***Home*** **tab**

The ***font face*** specifies the shape of the text. The ***font size*** specifies the size of text, measured in points (pt.). A point is equal to 1/72 of an inch. ***Font style*** options include **bolding**, *italicizing*, and underlining.

MORE INFO

The default font face and size in Microsoft Access are Aptos and 11 pt. As desired, change the default font face and size.

The type of change you wish to apply determines the specific menu options you select.

- Change the font face by clicking the **Font** drop-down list in the *Text Formatting* group [*Home* tab] and selecting the desired font.
- Change the size of the font by clicking the **Font Size** drop-down list in the *Text Formatting* group [*Home* tab] and selecting the size. You can also click the **Font Size** text box and type the desired size.
- Change the style of the font by clicking the desired style button in the *Text Formatting* group [*Home* tab].

Changes to a font face, size, or style are applied to the entire datasheet. If you want only specific content to have a different format, select the **Rich Text** option available on the **More Fields** button [*Table Fields* tab, *Add & Delete* group] when adding the field in *Datasheet* view. Rich text is a special text format applied to a *Long Text* data type that enables you to store formatted text.

Modify the Row Height

Adjust the ***row height*** to change the amount of space that displays between rows. When you

change the row height in Access, all of the rows change to the new height.

HOW TO: Modify the Row Height

1. Place your pointer on the border of a record selector of a row in your table.
   - Because your changes affect all the rows, it does not matter which row you select.
   - The resize arrow appears (Figure 1-69).

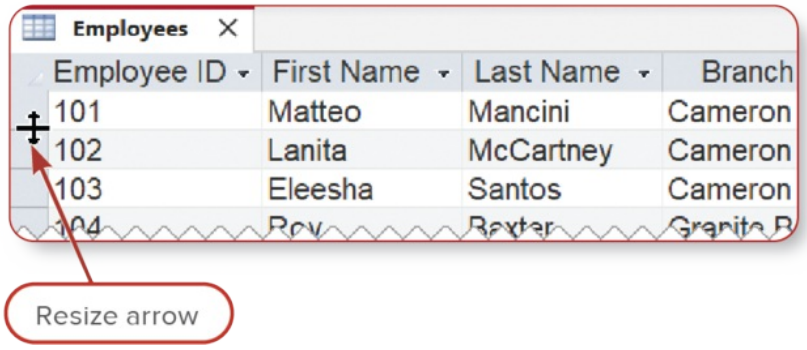


FIGURE 1-69 Resize arrow

2. Click, hold, and drag the resize arrow to increase or decrease the height of the rows.
   - A black horizontal line moves to indicate the new height (Figure 1-70).

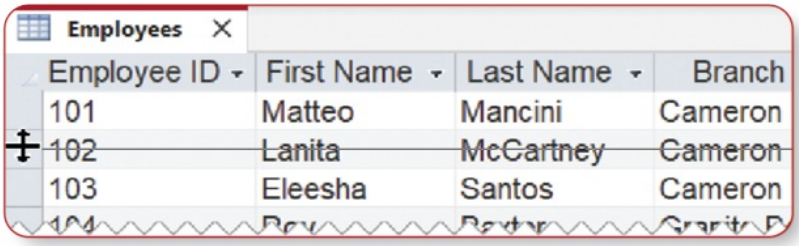


FIGURE 1-70 Row height indicator

3. Release the resize arrow.
   - The rows change to the new height.
   - In columns that are not wide enough to display the entire contents, increasing the row height triggers Access to automatically wrap the contents within the cell (Figure 1-71).

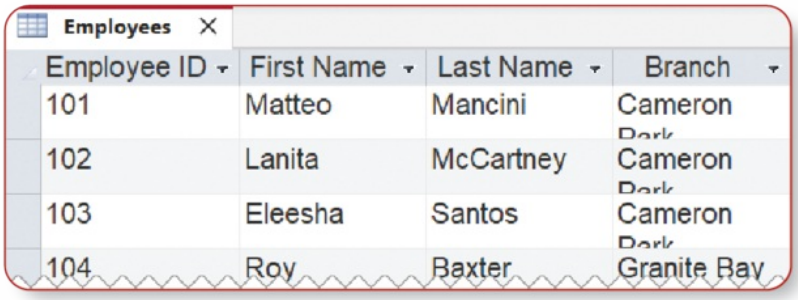


FIGURE 1-71 **Changed row height**

HOW TO: Modify the Row Height Using the Context Menu

1. Click the **record selector** of a row in your table.
   - The selected row is highlighted in blue.
   - Because your changes affect all the rows, it does not matter which row you select.
2. Place your pointer over the record selector and right-click to open the context menu (**Figure 1-72**).

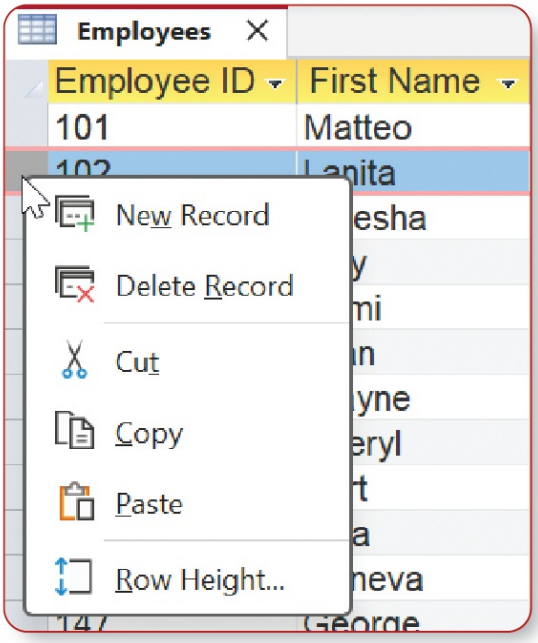


FIGURE 1-72 ***Row*** **Context menu**

3. Select **Row Height** to open the *Row Height* dialog box.
4. Type the desired height in the *Row Height* box.
5. Click **OK** to close the dialog box.

Modify the Column Width

Adjust the ***column width*** to change the amount of text that displays. You can set each field to a desired width. You can also select a set of adjacent columns and set the same width to all of them in one operation.

HOW TO: Modify the Column Width of Selected Fields

1. Place your pointer on the right border of the field name of the column you wish to change. The resize arrow appears (**Figure 1-73**).

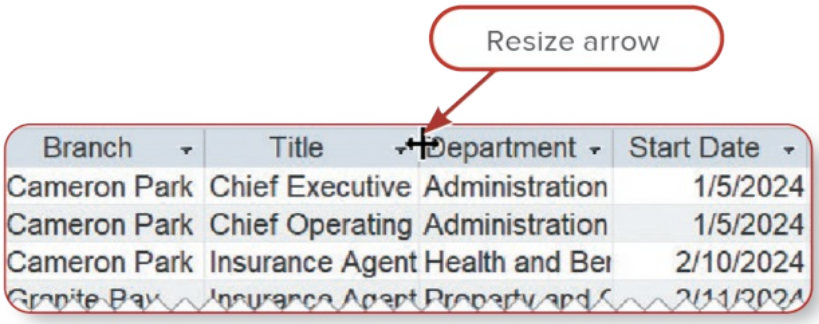


FIGURE 1-73 Resize arrow

- If you wish to change the width of adjacent columns, you must first select all of the columns. Click and hold to select the first column, then drag the selection pointer to the adjacent columns (**Figure 1-74**). Release the pointer.

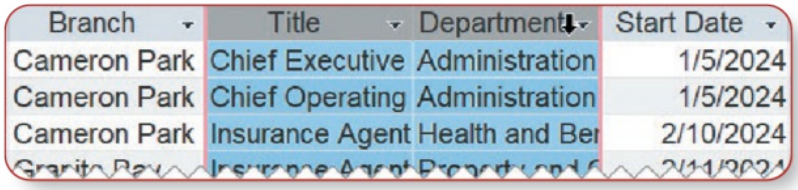


FIGURE 1-74 Select adjacent columns

- Place your pointer over the border of the right-most field.

ANOTHER WAY

To select multiple columns, click to select the first column, press and hold the **Shift** key, and then click to select the last column.

2. Click, hold, and drag the resize arrow to increase or decrease the width of the field(s).
   - A black vertical line moves with you to indicate the new width.
3. Release the resize arrow.
   - The field column(s) changes to the new width.

Access can also automatically adjust the width of the column(s) to fit the widest entry. To have Access ***AutoFit*** the column(s) width to the widest entry, double-click instead of click and drag when the resize arrow appears. You can also use *AutoFit* to change all the datasheet columns by selecting the entire datasheet.

HOW TO: Modify the Column Width of All Fields Using AutoFit

1. Click the **Select All** button (**Figure 1-75**), in the upper-left corner of the datasheet, to select the entire datasheet. All of the rows and columns are highlighted in blue.

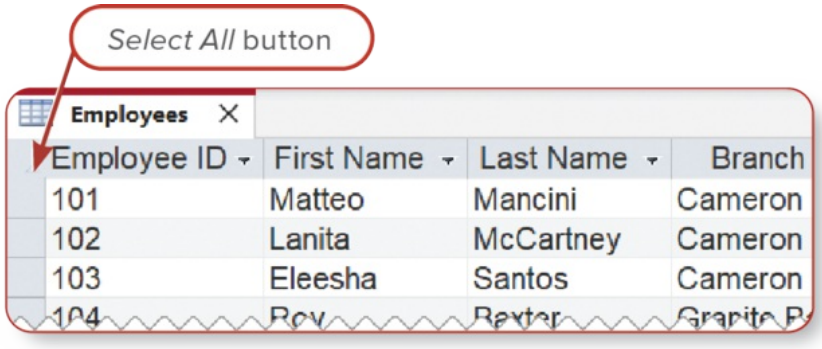


FIGURE 1-75 ***Select All*** **button**

2. Place your pointer on the right border of any of the field names.
3. Double-click the **resize arrow** (**Figure 1-76**).



FIGURE 1-76 Adjust the column width of all fields

- All the fields automatically adjust to their widest entry or to the width of the field caption if that is larger than the contents.

MORE INFO

If the width of the table window is not large enough to increase all the columns, or if all columns are not displayed in the table window, some columns may remain narrower.

ANOTHER WAY

Modify the column width by right-clicking the field name to open the context menu and selecting **Field Width** to open the *Column Width* dialog box. Enter the desired width and click **OK** or click **Best Fit** to automatically adjust the size to the widest entry.

Modify the Field Alignment

The data type determines the default ***field alignment***, or position relative to the edges, of each field.

- Left-aligned data types include *Short Text, Long Text*, and *Hyperlink*.
- Right-aligned data types include *Number*, *Large Number*, *Date/Time*, *Date/Time Extended*, *Currency*, and *Calculated*.
- Center-aligned data types include *Yes/No* and *Attachment*. You are not able to change the alignment of fields with these *Yes/No* and *Attachment* data types.

Change the default alignment by selecting the field and then clicking the desired alignment button in the *Text Formatting* group [*Home* tab] (**Figure 1-77**). Alignment changes to a field are applied across all the database records, not just one cell. **Figure 1-77** also illustrates several other buttons useful in formatting a datasheet.

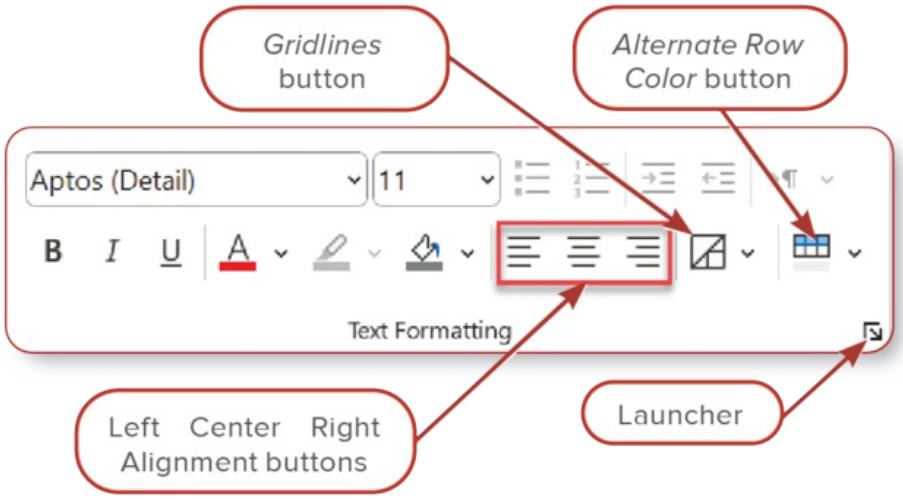


FIGURE 1-77 ***Text Formatting*** **group buttons**

Display Gridlines

Gridlines help visually frame the rows and columns in a datasheet with a border. The default settings in Access display both vertical and horizontal gridlines in a gray color.

The gridline display options include:

- Both vertical and horizontal gridlines
- Only horizontal gridlines
- Only vertical gridlines
- No gridlines

To change the gridline settings, click the **Gridlines** button in the *Text Formatting* group [*Home* tab] to display the gallery of gridline options (**Figure 1-78**) and then click the desired setting.

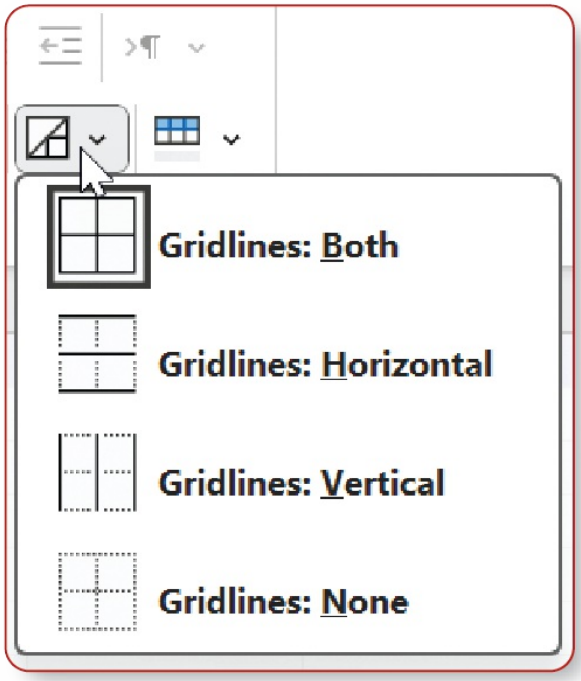


FIGURE 1-78 Gridlines display options

MORE INFO

You can also change the default gridline settings in Microsoft Access.

Display Alternate Row Colors

Alternate row colors help you easily scan the records and fields in your datasheet. You can change the alternating colors that display or remove the colors altogether.

To change the alternate row color settings, click the **Alternate Row Color** button in the *Text Formatting* group [*Home* tab] (see **Figure 1-77**) to display the gallery of color options. Select the desired color.

Use the Datasheet Formatting Dialog Box

If you are going to apply several changes to the datasheet layout, you may wish to use the *Datasheet Formatting* dialog box.

HOW TO: Make Multiple Formatting Changes with the Datasheet Formatting Dialog Box

1. Click the **Text Formatting launcher** [*Home* tab, *Text Formatting* group] to open the *Datasheet Formatting* dialog box (**Figure 1-79**).

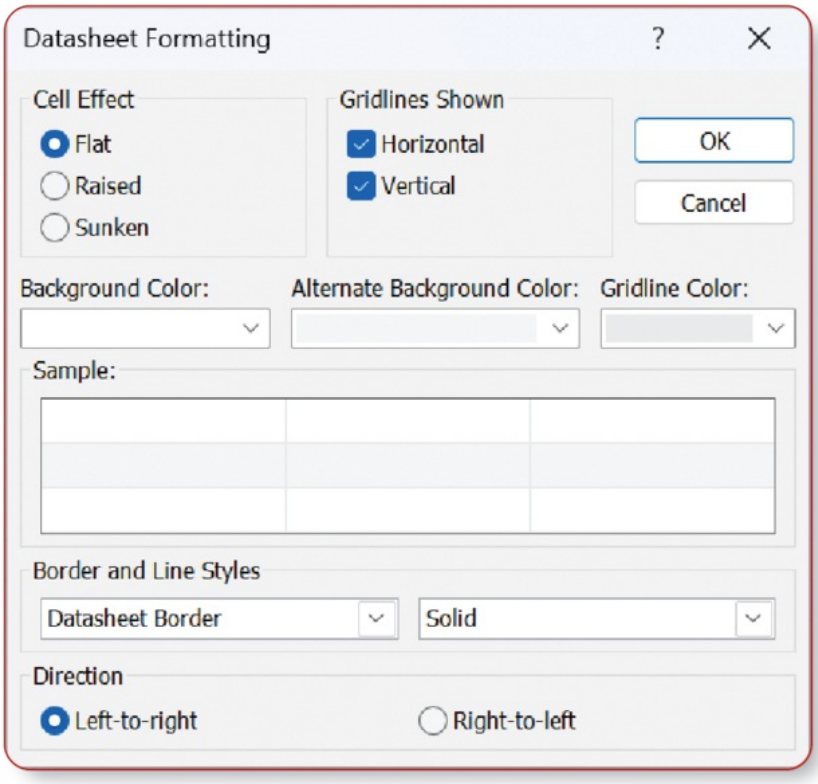


FIGURE 1-79 ***Datasheet Formatting*** **dialog box**

2. Select the desired settings of the different options.
3. Click **OK** when finished.

The *Datasheet Formatting* dialog box enables you to change several other formatting options that are not available through the *Home* tab. These options include the *Cell Effect*, *Background Color*, and *Gridline Color*.

Hide and Unhide Table Fields

If a table has many fields, it may not be possible to see all of them at the same time. You can hide data to optimize your screen space. Access does not provide any visual indications that table columns have been hidden.

HOW TO: Hide a Table Field

1. Select the column to be hidden.
2. Click the **More** button [*Home* tab, *Records* group] and then click **Hide Fields**.

> **ANOTHER WAY**
>
> Right-click the field column heading and click **Hide Fields** from the context menu.

To hide multiple adjacent columns, select all the columns before clicking **Hide Fields** from either the *More* button or context menu. Remember that you click the first column heading, press and hold the **Shift** key, and then click the last column.

To redisplay hidden fields, you need to unhide the columns.

HOW TO: Unhide Table Fields

1. Click the **More** button [*Home* tab, *Records* group] and then click **Unhide Fields** to open the *Unhide Columns* dialog box (**Figure 1-80**). Checked fields display in the table, and unchecked fields are hidden.

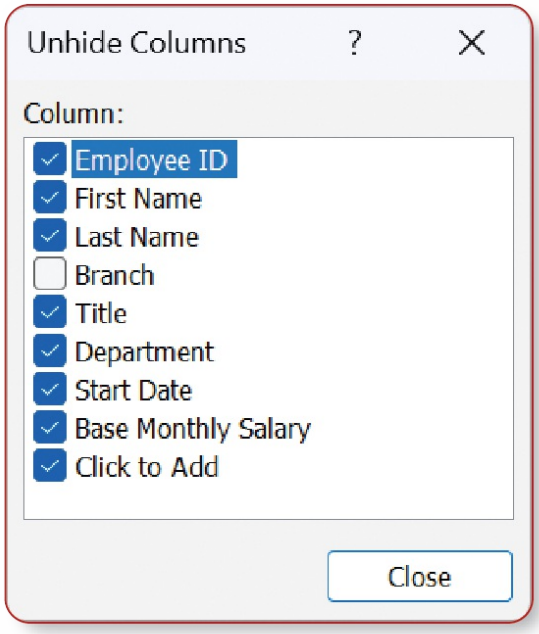


FIGURE 1-80 *Unhide Columns* dialog box

ANOTHER WAY

Right-click any field column heading and click **Unhide Fields** from the context menu.

2. Click all of the field check boxes that you wish to unhide.
3. Click **Close.**

Add Total Rows

At times you may wish to have Access calculate totals based on the data in a table. For example, you may wish to know the total salary amount for all Central Sierra Insurance employees. In chapter 3, you will learn how to use queries to summarize data, but you can also summarize data in a table with a Total row. After you add a *Total* row to the *Datasheet* view of the table, you then select the fields to calculate, as well as the type of calculation.

HOW TO: Add a Total Row

1. Click the **Totals** button [*Home* tab, *Records* group].
   - A *Total* row is added below the append row.
   - The *Totals* button on the *Ribbon* is gray to indicate that a *Total* row has been added.
2. Click the *Total* row cell of the field you wish to summarize, click the **drop-down arrow** in that cell, and select the desired function (**Figure 1-81**).

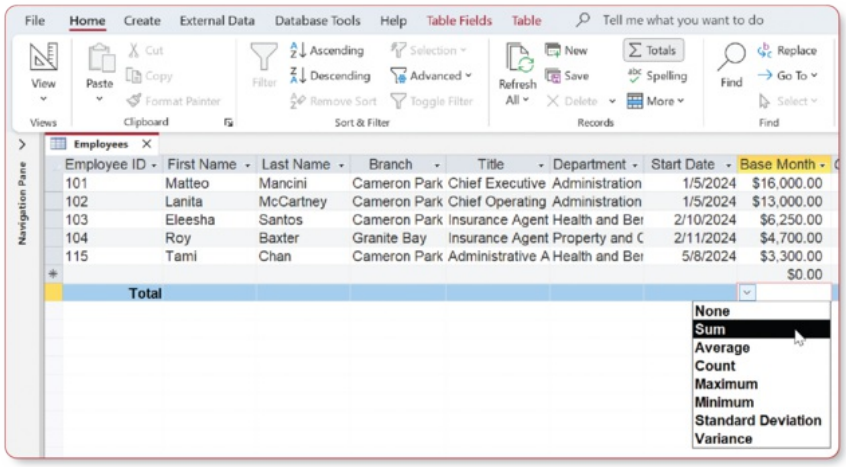


FIGURE 1-81 ***Total*** **row in a table**

- The available functions vary depending on the data type of the field.
- The table updates and the calculated value displays in the *Total* row cell.
- You can add totals to multiple fields in the table.
- As records are added or deleted, the totals automatically recalculate.

To remove a *Total* row from a table, click the **Totals** button [*Home* tab, *Records* group].

Save Changes

If you make changes to the design settings of the datasheet layout, you must save the table for those changes to be permanent. Select one of the previously discussed options for saving the design changes to your table.

PAUSE & PRACTICE: ACCESS 1-3

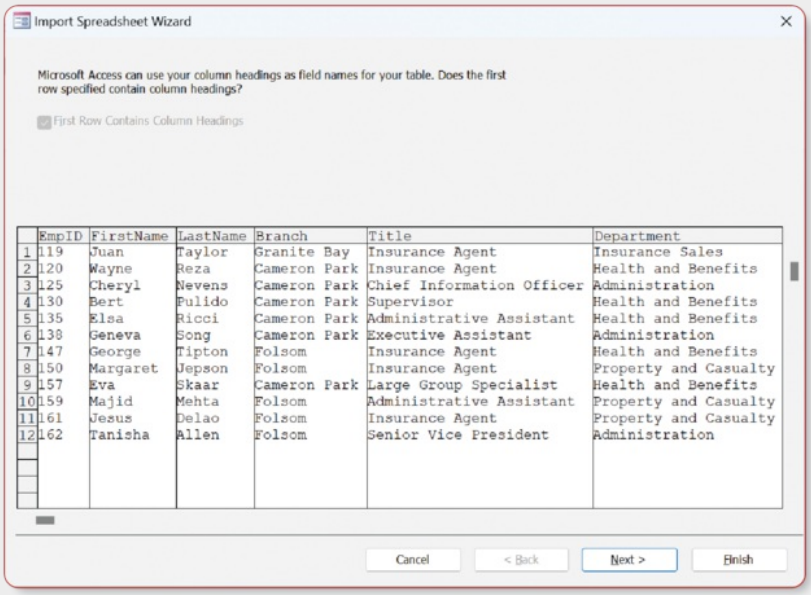
For this project, you import additional data into the *Employee* table. You also modify the field order, font size, row height, column width, and field alignment of your *Employee* table. Finally, you enhance the *Datasheet* view by modifying the gridline settings, alternating row colors, hiding a field, and adding totals.

Files Needed: ***[your initials] PP A1-2.accdb*** and ***CentralSierraDataFile-01.xlsx*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Name: ***[your initials] PP A1-3.accdb***

1. Open the ***[your initials] PP A1-2*** database file that you created in ***Pause & Practice 1-2***.

2. Save a new copy of your database.
    a. Select the **Save As** button [*File* tab]. The *Access Database* button should be selected in the *Save Database As* area.
    b. Click the **Save As** button.
    c. Select the desired location in which to store the copy of your database.
    d. Name the database [your initials] PP A1-3 in the *File name* box.
    e. Click the **Save** button.
    f. Click the **Enable Content** button in the *Security Warning* message bar if prompted.
3. Import data into the *Employees* table.
    a. Click the **New Data Source** button [*External Data* tab, *Import & Link* group], select **From File**, and then click **Excel** to launch the *Get External Data – Excel Spreadsheet* dialog box.
    b. Click the **Browse** button to launch the *File Open* dialog box.
    c. Locate and select the ***CentralSierraDataFile-01*** Excel file.
    d. Click the **Open** button. The *File Open* dialog box closes.
    e. Select the **Append a copy of the records to the table** radio button.
    f. Click the **drop-down arrow** in the *table name* box and select the **Employees** table if needed.
    g. Click **OK** to launch the *Import Spreadsheet Wizard*. If a *Microsoft Access Security Notice* box displays, click **Open**. The data records should display in the *Wizard* window as shown in **Figure 1-82**.

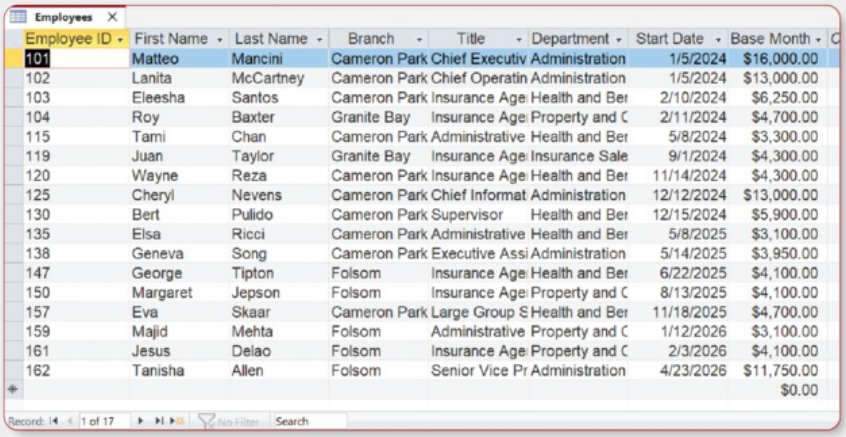


	EmpID	FirstName	LastName	Branch	Title	Department
1	119	Juan	Taylor	Granite Bay	Insurance Agent	Insurance Sales
2	120	Wayne	Reza	Cameron Park	Insurance Agent	Health and Benefits
3	125	Cheryl	Nevens	Cameron Park	Chief Information Officer	Administration
4	130	Bert	Pulido	Cameron Park	Supervisor	Health and Benefits
5	135	Elsa	Ricci	Cameron Park	Administrative Assistant	Health and Benefits
6	138	Geneva	Song	Cameron Park	Executive Assistant	Administration
7	147	George	Tipton	Folsom	Insurance Agent	Health and Benefits
8	150	Margaret	Jepson	Folsom	Insurance Agent	Property and Casualty
9	157	Eva	Skaar	Cameron Park	Large Group Specialist	Health and Benefits
10	159	Majid	Mehta	Folsom	Administrative Assistant	Property and Casualty
11	161	Jesus	Delao	Folsom	Insurance Agent	Property and Casualty
12	162	Tanisha	Allen	Folsom	Senior Vice President	Administration

FIGURE 1-82 ***Import Spreadsheet Wizard***

    h. Click the **Next** button to advance to the next page of the *Import Spreadsheet Wizard*.
    i. Verify that the *Import to Table* box contains the *Employees* table and click **Finish**.
    j. Click the **Close** button. It is not necessary to save these import steps.
4. Open the **Employees** table in *Datasheet* view to verify that the 12 records imported correctly. The table

should contain a total of 17 records and appear like that shown in **Figure 1-83**. Depending on the height and width of your Access window, you may see fewer rows and columns. Additionally, the horizontal and vertical scroll sliders may display if the window is not large enough to display all of the data.



Employees

Employee ID	First Name	Last Name	Branch	Title	Department	Start Date	Base Month
101	Matteo	Mancini	Cameron Park	Chief Executiv	Administration	1/5/2024	$16,000.00
102	Lanita	McCartney	Cameron Park	Chief Operatin	Administration	1/5/2024	$13,000.00
103	Eleesha	Santos	Cameron Park	Insurance Age	Health and Ber	2/10/2024	$6,250.00
104	Roy	Baxter	Granite Bay	Insurance Age	Property and C	2/11/2024	$4,700.00
115	Tami	Chan	Cameron Park	Administrative	Health and Ber	5/8/2024	$3,300.00
119	Juan	Taylor	Granite Bay	Insurance Age	Insurance Sale	9/1/2024	$4,300.00
120	Wayne	Reza	Cameron Park	Insurance Age	Health and Ber	11/14/2024	$4,300.00
125	Cheryl	Nevens	Cameron Park	Chief Informat	Administration	12/12/2024	$13,000.00
130	Bert	Pulido	Cameron Park	Supervisor	Health and Ber	12/15/2024	$5,900.00
135	Elsa	Ricci	Cameron Park	Administrative	Health and Ber	5/8/2025	$3,100.00
138	Geneva	Song	Cameron Park	Executive Assi	Administration	5/14/2025	$3,950.00
147	George	Tipton	Folsom	Insurance Age	Health and Ber	6/22/2025	$4,100.00
150	Margaret	Jepson	Folsom	Insurance Age	Property and C	8/13/2025	$4,100.00
157	Eva	Skaar	Cameron Park	Large Group S	Health and Ber	11/18/2025	$4,700.00
159	Majid	Mehta	Folsom	Administrative	Property and C	1/12/2026	$3,100.00
161	Jesus	Delao	Folsom	Insurance Age	Property and C	2/3/2026	$4,100.00
162	Tanisha	Allen	Folsom	Senior Vice Pr	Administration	4/23/2026	$11,750.00
							$0.00

Record: 1 of 17 | No Filter | Search

FIGURE 1-83 ***Datasheet* view of the *Employees* table**

5. Use the *Navigation* buttons to move among records.
   a. Click the **Next record** button to navigate to the second record.
   b. Click the **Next record** button three more times to navigate to the fifth record.
   c. Click the **Last record** button to navigate to the last record.
   d. Click the **Current Record** box. It changes from displaying 17 of 17 to simply displaying 17.
   e. Delete the 17, type 7, and press **Enter**. The seventh record should now be selected.
   f. Click the **First record** button to navigate to the first record.
6. Change the field order.
   a. Place your pointer over the **Title** field name.
   b. Click to select that column.
   c. Click, hold, and drag the pointer to the left of the *Branch* column.
   d. Release the pointer to move the column.
   e. Move the **Start Date** column to the right of the *Base Monthly Salary* column.
7. Change the font face and size.
   a. Click the **Font** drop-down list [*Home* tab, *Text Formatting* group] and select **Arial**.
   b. Click the **Font Size** drop-down list [*Home* tab, *Text Formatting* group] and select **12**.
8. Change the row height using the context menu.
   a. Click the **record selector** of a row in your table.
   b. Place the pointer over the record selector and right-click to open the context menu.
   c. Select **Row Height** to open the *Row Height* dialog box.
   d. Type 17 in the *Row Height* box.
   e. Click **OK**.

9. Change the width of the table columns.
    a. Click the **Select All** button in the upper-left corner of the datasheet.
    b. Place your pointer on the right border of any of the field names.
    c. Double-click the **resize arrow** to *AutoFit* the columns. The column widths automatically adjust. If the width of your Access window was not large, it is possible that not all columns will fully display.
    d. Click any cell to release the *Select All* setting.
    e. Place your pointer over the *Base Monthly Salary* column, right-click the field name to open the context menu, and select **Field Width** to open the *Column Width* dialog box.
    f. Type 10 in the *Column Width* dialog box and click **OK**. The table should now look similar to **Figure 1-84**. The *Base Monthly Salary* column displays a series of # symbols in cells where the width is not wide enough to display the field content. Depending on the width of your Access window, the number of rows that display the # symbols may vary.

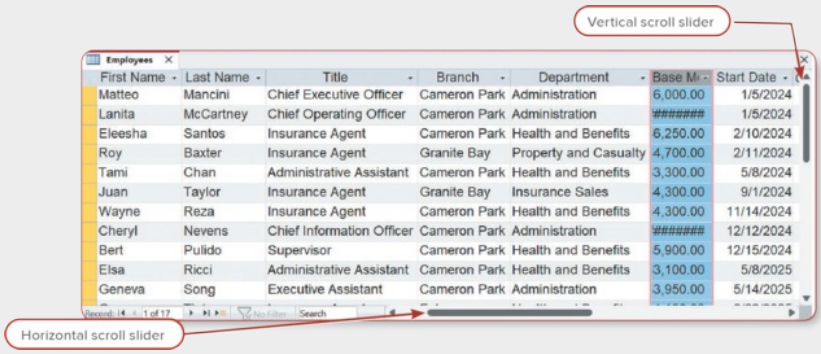


FIGURE 1-84 Adjusted column widths of the *Employees* table

10. Increase the width of any columns that display a series of # symbols.
    a. Move the horizontal scroll slider at the bottom of the datasheet to the right, if necessary, so that the *Base Monthly Salary* column moves to the middle of the window. This enables you to increase the width of this column more easily.
    b. Place your pointer over the *Base Monthly Salary* column, right-click the field name to open the context menu and select **Field Width** to open the *Column Width* dialog box.
    c. Type 23 in the *Column Width* dialog box and click **OK**. The column should now be wide enough to display the contents instead of the # symbols.
    d. Repeat these steps for all columns that are too narrow.
11. Change the field alignment.
    a. Move the horizontal scroll slider all the way to the left of the datasheet window if needed.
    b. Select the **Employee ID** column.
    c. Click the **Center** button [*Home* tab, *Text Formatting* group].
12. Hide a field.
    a. Select the **Branch** column.
    b. Click the **More** button [*Home* tab, *Records* group] and then click **Hide Fields**.

13. Add a total row.
    a. Click the **Totals** button [*Home* tab, *Records* group].
    b. Click the *Total* row cell of the *BaseMonthlySalary* field, click the **drop-down arrow** in that cell and select the **Sum** function.
14. Change the gridlines and alternate row colors using the *Datasheet Formatting* dialog box.
    a. Click the **Text Formatting launcher** in the bottom-right corner of the *Text Formatting* group [*Home* tab] to open the *Datasheet Formatting* dialog box.
    b. Click the **Alternate Background Color** drop-down list in the *Datasheet Formatting* dialog box (**Figure 1-85**) and select **Dark Blue 2** (fourth column, third row in the *Standard Colors* category).

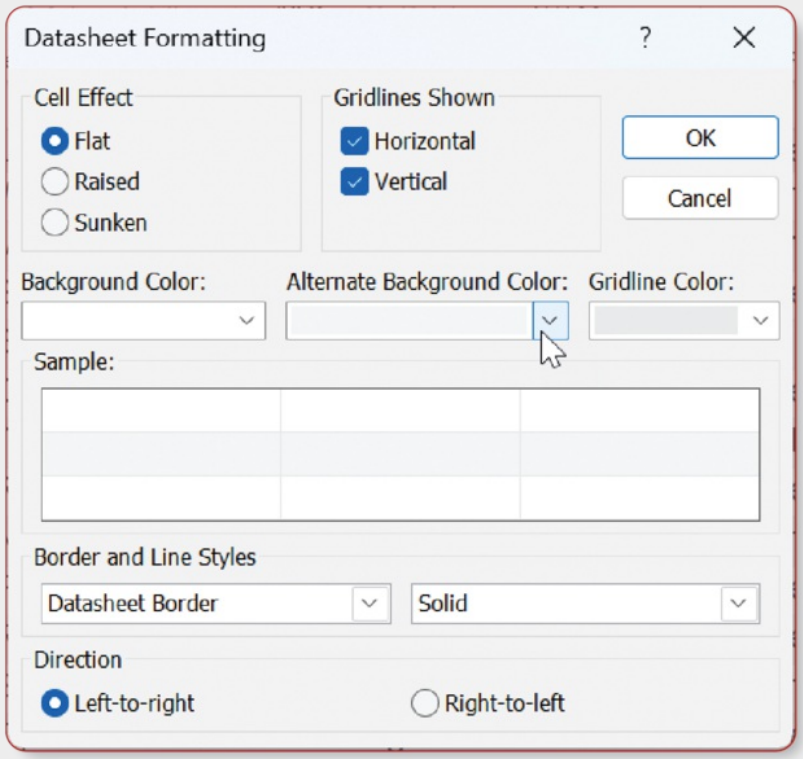


FIGURE 1-85 ***Datasheet Formatting*** **dialog box**

    c. Uncheck the **Horizontal** check box in the *Gridlines Shown* area.
    d. Click the **Gridline Color** drop-down list and select **Dark Blue 4** (fourth column, fifth row in the *Standard Colors* category).
    e. Click **OK** to close the dialog box.
    f. Click the *Employee ID* cell for **Employee 102** as shown in **Figure 1-86**. Depending on your window width, you may need to scroll to see all of the columns. The slightly darker blue color shown in the second row indicates that this is the current record.

Employees

Employee ID	First Name	Last Name	Title	Department	Base Monthly Salary	Start Date
101	Matteo	Mancini	Chief Executive Officer	Administration	$16,000.00	1/5/2024
102	Lanita	McCartney	Chief Operating Officer	Administration	$13,000.00	1/5/2024
103	Eleesha	Santos	Insurance Agent	Health and Benefits	$6,250.00	2/10/2024
104	Roy	Baxter	Insurance Agent	Property and Casualty	$4,700.00	2/11/2024
115	Tami	Chan	Administrative Assistant	Health and Benefits	$3,300.00	5/8/2024
119	Juan	Taylor	Insurance Agent	Insurance Sales	$4,300.00	9/1/2024
120	Wayne	Reza	Insurance Agent	Health and Benefits	$4,300.00	11/14/2024
125	Cheryl	Nevens	Chief Information Officer	Administration	$13,000.00	12/12/2024
130	Bert	Pulido	Supervisor	Health and Benefits	$5,900.00	12/15/2024
135	Elsa	Ricci	Administrative Assistant	Health and Benefits	$3,100.00	5/8/2025
138	Geneva	Song	Executive Assistant	Administration	$3,950.00	5/14/2025
147	George	Tipton	Insurance Agent	Health and Benefits	$4,100.00	6/22/2025
150	Margaret	Jepson	Insurance Agent	Property and Casualty	$4,100.00	8/13/2025
157	Eva	Skaar	Large Group Specialist	Health and Benefits	$4,700.00	11/18/2025
159	Majid	Mehta	Administrative Assistant	Property and Casualty	$3,100.00	1/12/2026
161	Jesus	Delao	Insurance Agent	Property and Casualty	$4,100.00	2/3/2026
162	Tanisha	Allen	Senior Vice President	Administration	$11,750.00	4/23/2026
					$0.00	
Total					$109,650.00	

Record: 2 of 17 No Filter Search

FIGURE 1-86 PP A1-3 completed

15. Press **Ctrl+S** to save the table.
16. Click the **X** in the *Employees* tab to close the table.
17. Close the database by clicking the **Close** button [*File* tab].

SLO 1.6

Using Search, Sort, and Filter Tools to Find Records in a Table

When the number of records in a database table increases, it is important to be able to quickly and easily organize and locate specific records. Access provides a number of ways to find data, change the order of how records display, and limit the records that display in the datasheet.

Search Data in a Table

The search functions enable you to find data by looking for specific values. The ***Search*** box on the *Navigation* bar is a quick and easy way to locate the first record containing a specific value. The ***Find*** button in the *Find* group [*Home* tab] provides a more powerful way to search for records.

HOW TO: Find Data in a Table Using the Search Box

1. Click the **Search** box in the *Navigation* bar.
2. Enter the search value you want to locate.
   - Access evaluates the criteria as you enter each character and moves to the first field that matches those criteria (**Figure 1-87**).



FIGURE 1-87 ***Search*** **box in the** ***Navigation*** **bar**

   - As you type more data into the *Search* box, Access continues to locate the first field that matches. The search is not case sensitive. For example, a search for Health matches health, Health, and HEALTH.
   - If a match is not found, the field or record that was previously selected remains highlighted.

HOW TO: Find Data in a Table Using the Find Button

1. Click the **Find** button [*Home* tab, *Find* group] (Figure 1-88) to open the *Find and Replace* dialog box (Figure 1-89).

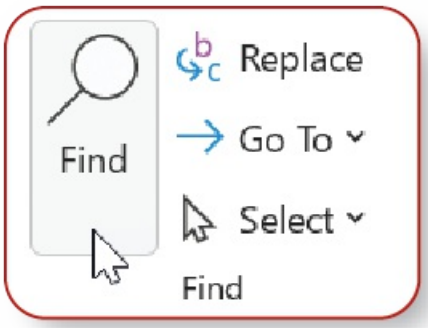


FIGURE 1-88 ***Find*** **button**

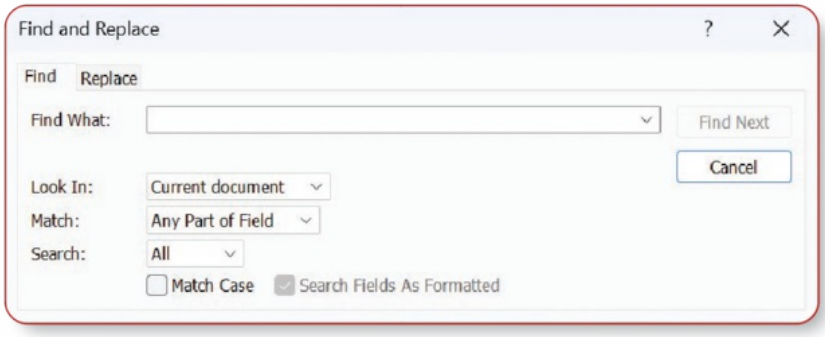


FIGURE 1-89 ***Find and Replace*** **dialog box**

- If you want to search only in a specific field, select that field before you click the *Find* button.

ANOTHER WAY

Select a column and then right-click to open the context menu. Click **Find** to open the *Find and Replace* dialog box.
Press **Ctrl+F** to open the *Find and Replace* dialog box.

MORE INFO

The initial settings of your dialog box may be different. If you previously searched for a value and did not clear that value, the previous search criteria displays in the *Find What* box.

2. Enter the search value you want to search in the *Find What* box.
3. Click the **Look In** drop-down list to select either **Current field** or **Current document**. If *Current field* is selected, the search only looks for a match in the current field.
4. Click the **Match** drop-down list to select the appropriate option.
   - **Any Part of Field:** The search value must be somewhere in the field. Use this option to find a value that contains the search value anywhere in the field.
   - **Whole Field:** The search value must match the entire contents of a field. Use this option to find an exact match.
   - **Start of Field:** The search value is at the beginning of the field. Use this option to find a value that starts with a certain character or number.
5. Click the **Search** drop-down list to select **All**, **Up**, or **Down**. Selecting *Up* or *Down* searches in that direction from the current record only.
6. Check the **Match Case** check box to perform a case-sensitive search and limit the results to the case of the search value.
7. Click the **Find Next** button to execute the search. Access searches the table to find the first record that meets the criteria.
   - If that is the desired record, click the **Cancel** button to close the *Find and Replace* dialog box or click the **Find Next** button to continue searching.
   - If the search value does not exist in the table, Access displays an information message box, indicating the record was not found.

ANOTHER WAY

If the *Find and Replace* dialog box is closed, press **Shift+F4** to find the next record that meets the criteria.

8. Click **Cancel** to close the *Find and Replace* dialog box.

As desired, you can change data using the *Replace* tab on the *Find and Replace* dialog box. Press **Ctrl+H** to open the *Find and Replace* dialog box with the *Replace* tab selected. Enter the search value in the *Find What* box. Enter the replacement value in the *Replace With* box. Click **Find Next** to find the first occurrence of the data. Click the **Replace** button to replace just that occurrence and advance to the next occurrence. Or you can click the **Replace All** button to find and replace all occurrences.

Sort Data in a Table with Datasheet View

The ***Sort*** functions enable you to organize your data. By default, when you open a table in *Datasheet* view, Access displays the data records in ascending order by the primary key. *Datasheet* view provides you with tools to perform a simple sort to change the display order. You can sort the datasheet by one field, or a set of adjacent fields, in ascending or descending order.

- ***Ascending order*** is *lowest to highest* for a numeric field or *A to Z* for a text field.
- ***Descending order*** means *highest to lowest* for a numeric field or *Z to A* for a text field.

Sort Data on a Single Field

The simplest sort is to sort the datasheet on one field. You can either use the *Ascending* or *Descending* buttons in the *Sort & Filter* group [*Home* tab] or open the drop-down list for the desired column.

HOW TO: Sort Data in a Table on a Single Field Using the Sort & Filter Group

1. Click the **field name** to select the column you wish to sort.

   ANOTHER WAY

   Instead of selecting the column, just click any cell in the desired column.

2. Click either the **Ascending** or **Descending** button [*Home* tab, *Sort & Filter* group] (**Figure 1-90**).

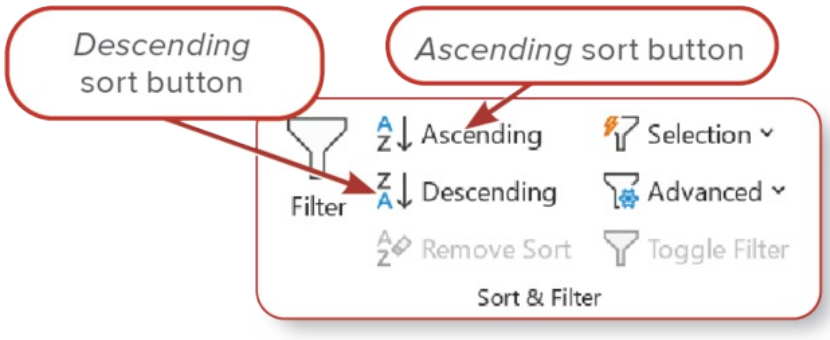


FIGURE 1-90 ***Sort & Filter*** **group on the** ***Home*** **tab**

- The datasheet updates to show the results of the sort. **Figure 1-91** shows the employee records sorted in descending order by the *Branch* field.



FIGURE 1-91 Employee records sorted on the *Branch* field

- The *field name* cell changes to display either an up or down sort indicator arrow to the right of the drop-down arrow to visually indicate that the datasheet has been sorted on this field. If you want the table records to remain in this sorted order, you must save the table.

HOW TO: Sort Data in a Table on a Single Field Using the Drop-Down List

1. Click the **drop-down arrow** to the right of the field name you wish to sort.
   - The column turns blue, indicating it has been selected.
   - The drop-down list opens (**Figure 1-92**).
2. Select either **Sort A to Z** or **Sort Z to A** on the drop-down list.

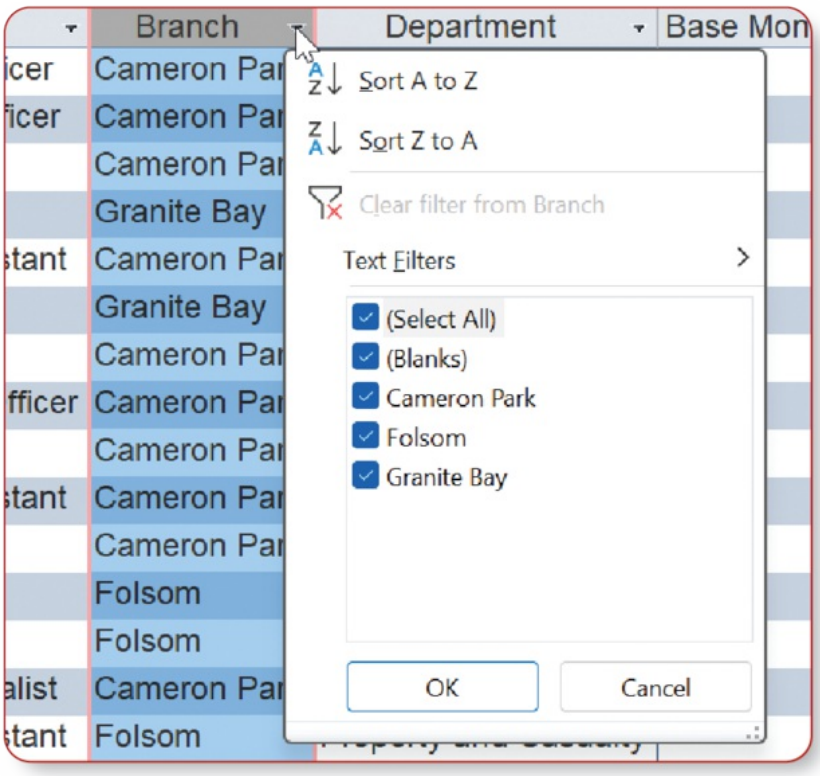


FIGURE 1-92 ***Sort*** **drop-down list**

- The datasheet updates to show the results of the sort.
- If you are sorting a numeric field, the drop-down list options are *Sort Smallest to Largest* and *Sort Largest to Smallest*.

ANOTHER WAY

Right-click to open the context menu, then select the desired sort order.

Sort Data on Multiple Fields

Sometimes sorting your datasheet on multiple fields makes it easier to organize the data records. In *Datasheet* view, you can sort on multiple adjacent fields using the same sort order.

- The left-most selected field is sorted first.
- If identical items appear in the first field, the second field is sorted.

- This process continues for all additional selected fields.

MORE INFO

If the fields that you wish to sort together are not adjacent, you first need to move them together. Refer back to the "**Modify the Field Order**" section in ***SLO 1.5: Exploring Datasheet View*** if necessary.

HOW TO: Sort Data in a Table on Multiple Adjacent Fields

1. Click and hold the pointer over the *Field name* of the first column you want to sort. With the selection pointer still displayed, drag the pointer to the adjacent columns.

   ## ANOTHER WAY

   Press **Ctrl+Spacebar** to select the first column you want to sort.

   Press **Shift+Right Arrow** to increase the selection to include the adjacent column to the right or press **Shift+Left Arrow** to increase the selection to the adjacent column to the left.

2. Release the pointer.
3. Click either the **Ascending** or **Descending** button [*Home* tab, *Sort & Filter* group].
   - The datasheet updates to show the results of the sort. **Figure 1-93** shows the employee records sorted in descending order by the *Branch* [Granite Bay, Folsom, and Cameron Park] and the *Department* [Property and Casualty, Insurance Sales, Health and Benefits, and Administration] fields.

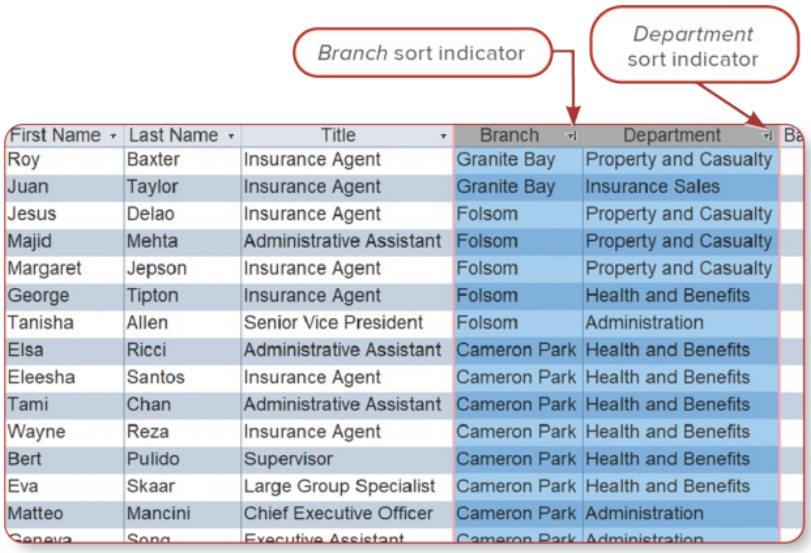


FIGURE 1-93 Employee records sorted on *Branch* and *Department* fields

- In the example shown in **Figure 1-93**, column entries "tie" for the *Branch*, so the *Department* field determines which record appears at the top of each *Branch*.

Remove Sorting Criteria

To return the records in your datasheet to their original order, remove the *Sort* criteria.

Click the **Remove Sort** button [*Home* tab, *Sort & Filter* group] to remove all *Sort* criteria.

MORE INFO

If you open a table with a previously saved sort, clicking **Remove Sort** removes the sort.

COPILOT/GENERATIVE AI BEST PRACTICES

Use *Copilot* to learn more tips about searching for data in an Access table or for help in sorting an Access table on multiple fields.

Filter Data in a Table with Datasheet View

The ***Filter*** functions are helpful in limiting the number of records that display in your datasheet. Several different filter options are available.

Create a Filter by Selection

Filter by Selection enables you to display only the records that match the value in the fields you have selected.

HOW TO: Filter Data Using Filter by Selection

1. Click the cell that contains the value you wish to filter.
   - You can select only part of the cell contents as desired.
2. Click the **Selection** button in the *Sort & Filter* group on the *Home* tab (**Figure 1-94**).

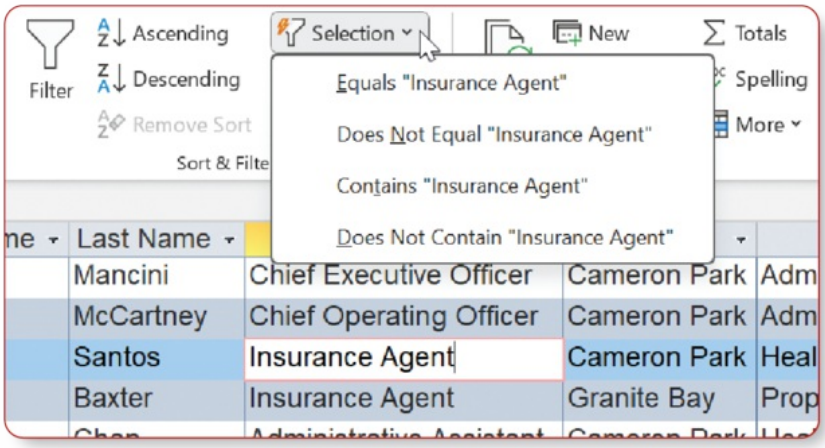


FIGURE 1-94 ***Selection*** **button in the** ***Sort & Filter*** **group**

   - The drop-down list shows the available filter options.
   - The available filter options depend on the data type of the field and what criterion is selected. If you only select part of a field, the beginning of the field, or the end of the field, the options differ.
3. Select the desired filter option.
   - The datasheet updates to show the results of the filter.
   - The filter status message changes from *No Filter* to *Filtered*, indicating the datasheet is filtered.
   - The *Field name* cell displays a *Filter* symbol to the right of the drop-down arrow, indicating this field has been filtered (**Figure 1-95**).

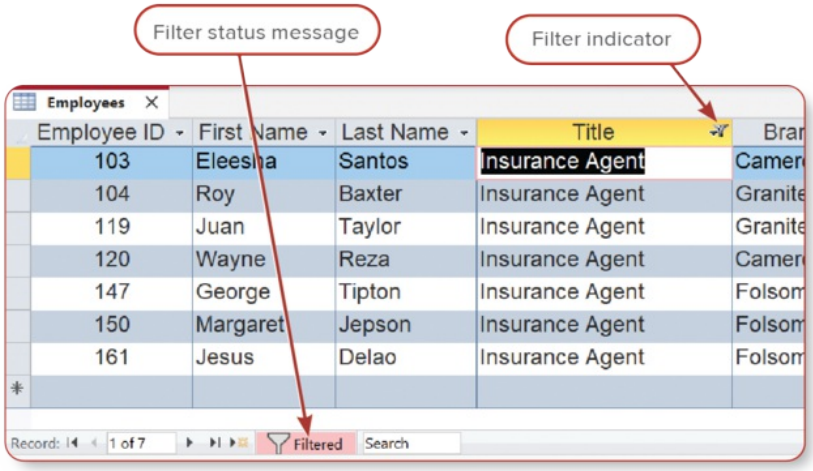


FIGURE 1-95 Filtered datasheet

- Once a filter has been applied, switch between viewing the complete dataset and the filtered results by clicking the *Toggle Filter* button [*Home* tab, *Sort & Filter* group], shown in the top image in **Figure 1-96**. When toggled off, the filter status message, shown in the bottom image of **Figure 1-96**, changes to *Unfiltered* to indicate that a filter exists but is toggled off.

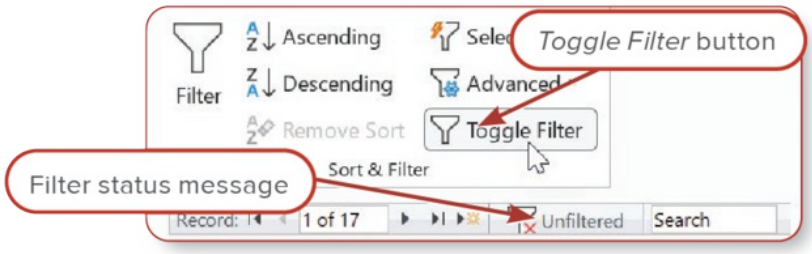


FIGURE 1-96 *Toggle Filter* button and updated filter status message

ANOTHER WAY

After selecting the desired cell, right-click to open the context menu and then click the desired filter option.

Create a Text Filter, Number Filter, or Date Filter

A Text, *Number*, or *Date Filter* filters the records in your database by displaying the records that match the search criteria that you enter, instead of matching criteria you have selected from a cell. Although similar to using a *Filter by Selection*, these filters provide additional options.

HOW TO: Filter Data Using a Text, Number, or Date Filter

1. Click the **drop-down arrow** to the right of the field name you wish to filter.
2. Select **Text Filters** on the drop-down list (**Figure 1-97**).

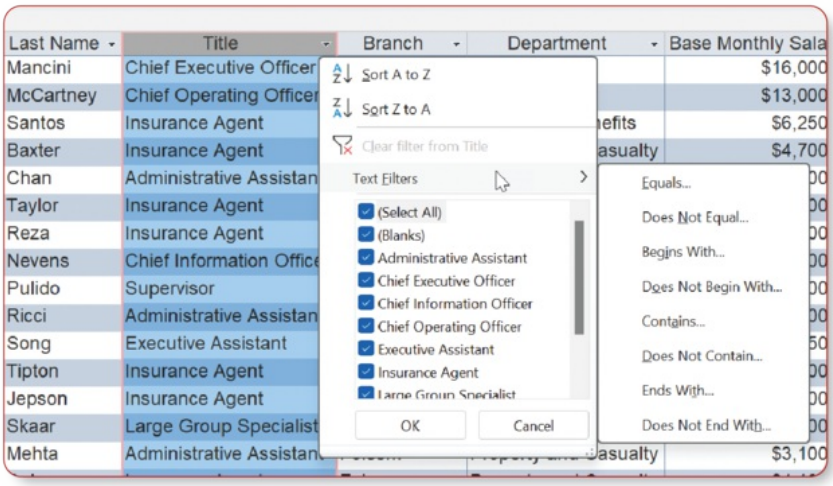


FIGURE 1-97 ***Filter*** **drop-down list**

- The button name is **context sensitive** and determined by the type of field [Text, Number or Date] you are filtering.
- The drop-down list displays the available filter options.
- The filter options are also context sensitive and change based on the type of field.

3. Select the desired filter option on the drop-down list to open the *Custom Filter* dialog box (**Figure 1-98**). The content of this dialog box depends on the filter option selected.

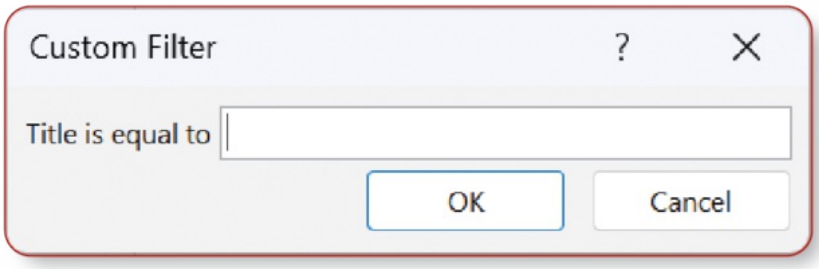


FIGURE 1-98 *Custom Filter* dialog box



4. Type the word or value you wish to filter.
5. Click **OK**.
   - The datasheet updates to show the results of the filter.
   - The filter status message changes, indicating the datasheet is filtered.
   - The *Field name* cell displays a *Filter* symbol to the right of the drop-down arrow that indicates this field has been filtered.

Create Compound Filter Criteria

The previous examples used filters with one search value or criterion. You can create a more complex filter using compound criteria. ***Compound criteria*** combine more than one search value using the *AND* and *OR* logical operators.

- ***AND logical operator*:** The filtered records must contain all of the criteria values.
- ***OR logical operator*:** The filtered records must contain at least one of the criteria values.

Generally, searches using *OR* criteria return more results than searches using *AND* criteria. This is because the *AND* operator requires all the criteria to match while the *OR* operator requires only one of the criteria to match.

You can specify compound criteria on one field, or use compound criteria across several fields in your datasheet.

HOW TO: Filter Data Using "OR" Compound Criteria on One Field

1. Click the **drop-down arrow** to the right of the field name you wish to filter.
   - The drop-down list opens.
   - Initially, all the check boxes are selected.
2. Click the **(Select All)** check box to clear all the check boxes.
3. Click all of the check boxes on the drop-down list that contain the desired criteria ( **Figure 1-99**).

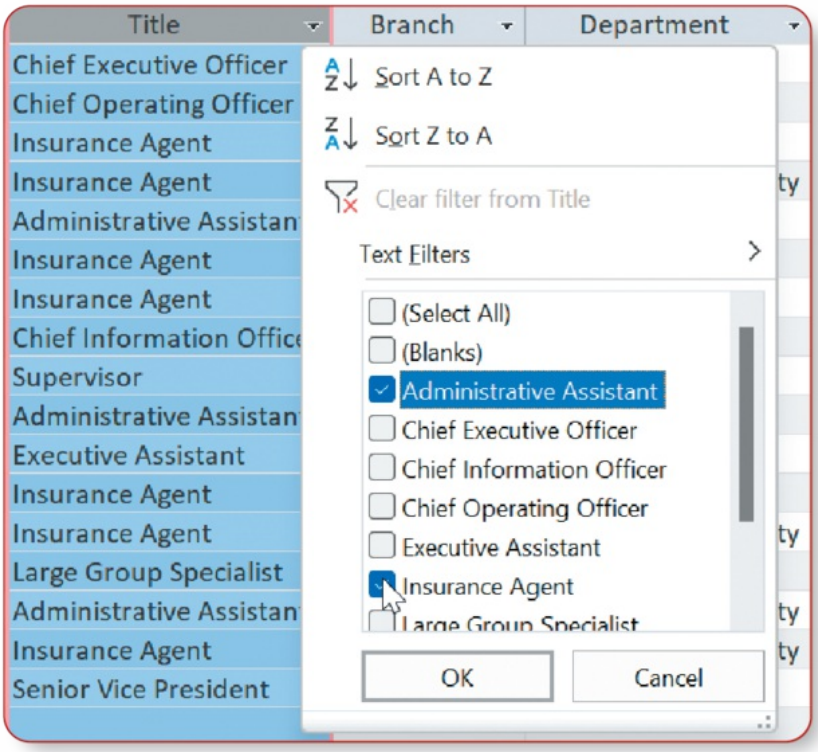


FIGURE 1-99 ***Filter*** **drop-down list showing** ***OR*** **criteria**

MORE INFO

Selecting multiple criteria in the same field is an *OR* condition. The returned records contain the first value or the second value or the third value, and so on.

4. Click **OK**.
   - The datasheet updates to show the results of the filter.

HOW TO: Filter Data Using "AND" Compound Criteria on Multiple Fields

1. Click the **drop-down arrow** to the right of the first field name you wish to filter.
   - The drop-down list opens.

- Initially, all the check boxes are selected.

2. Click the **(Select All)** check box to clear all the check boxes.
3. Click all of the check boxes on the drop-down list that contain the desired criteria.
4. Click **OK**.
   - The datasheet updates to show the results of the filter.
5. Click the **drop-down arrow** to the right of the second field name you wish to filter.
6. Click the **(Select All)** check box to remove that criterion.
7. Click all of the check boxes on the drop-down list that contain the desired criteria (**Figure 1-100**).

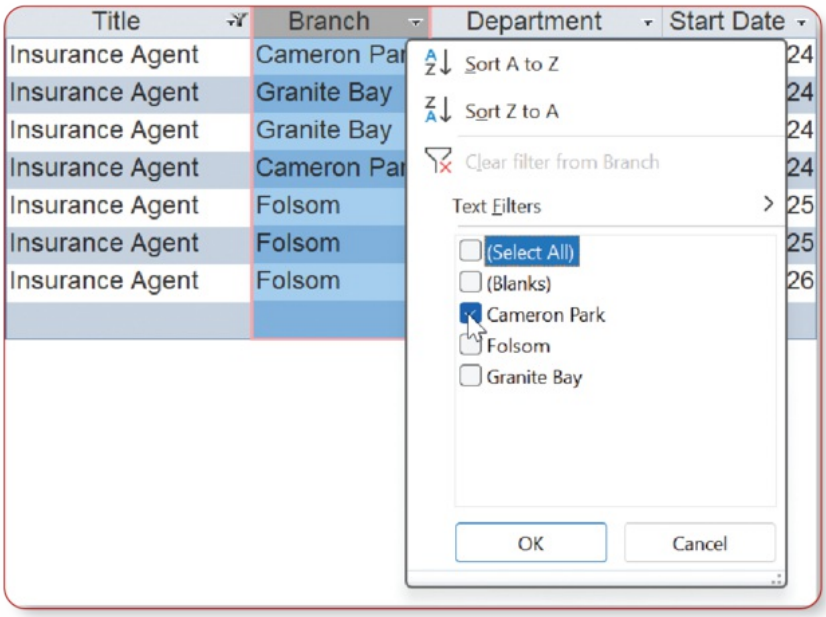


FIGURE 1-100 **Using filters on multiple fields to create *AND* criteria**

8. Click **OK**.
   - The datasheet updates to show the results of the additional filter.
   - Only the records that meet both of the criteria display.
9. Add a filter to additional columns by repeating the earlier steps.

MORE INFO

Adding a filter to a second field is an *AND* condition. The returned records match the filter from both fields.

Remove Filter Criteria

To return the records in your datasheet to their original unfiltered state, you must remove the *Filter* criteria. You can remove a filter from just one field or you can remove all of the filters.

HOW TO: Remove Filter Criteria from a Single Field

1. Click the **drop-down arrow** to the right of the first field name where you wish to remove a filter.
   - The drop-down list opens.
2. Select **Clear filter from Field name** to remove the filter.
   - The phrase "Field name" will not display, but instead the actual field name that has been filtered displays.
   - The datasheet updates to show the results of this filter being removed.

ANOTHER WAY

Click a cell of the desired field. Right-click to open the context menu and then click the **Clear filter from** option.

HOW TO: Remove Filter Criteria from All Fields

1. Click the **Advanced** button [*Home* tab, *Sort & Filter* group] to open the drop-down list.
2. Select **Clear All Filters**.

PAUSE & PRACTICE: ACCESS 1-4

For this project, you first unhide fields and remove totals. You then search for data in the *Employees* table using the *Search* box and the *Find* button. Next, you sort the table using single and multiple fields. You also filter the records using single and multiple criteria.

File Needed: ***[your initials] PP A1-3.accdb***

Completed Project File Name: ***[your initials] PP A1-4.accdb***

1. Open the ***[your initials] PP A1-3*** database file you created in ***Pause & Practice 1-3***.
2. Save a new copy of your database.
   a. Select the **Save As** button [*File* tab]. The *Access Database* button should be selected in the *Save Database As* area.
   b. Click the **Save As** button.
   c. Select the desired location in which to store the copy of your database.
   d. Name the database [your initials] PP A1-4 in the *File name* box.
   e. Click the **Save** button.
   f. Click the **Enable Content** button in the *Security Warning* message bar if prompted.
3. Open the **Employees** table in *Datasheet* view. The changes you made to the datasheet layout in ***Pause & Practice 1-3*** should be reflected (**Figure 1-101**).

Employees

Employee ID	First Name	Last Name	Title	Department	Base Monthly Salary	Start Date
101	Matteo	Mancini	Chief Executive Officer	Administration	$16,000.00	1/5/2024
102	Lanita	McCartney	Chief Operating Officer	Administration	$13,000.00	1/5/2024
103	Eleesha	Santos	Insurance Agent	Health and Benefits	$6,250.00	2/10/2024
104	Roy	Baxter	Insurance Agent	Property and Casualty	$4,700.00	2/11/2024
115	Tami	Chan	Administrative Assistant	Health and Benefits	$3,300.00	5/8/2024
119	Juan	Taylor	Insurance Agent	Insurance Sales	$4,300.00	9/1/2024
120	Wayne	Reza	Insurance Agent	Health and Benefits	$4,300.00	11/14/2024
125	Cheryl	Nevens	Chief Information Officer	Administration	$13,000.00	12/12/2024
130	Bert	Pulido	Supervisor	Health and Benefits	$5,900.00	12/15/2024
135	Elsa	Ricci	Administrative Assistant	Health and Benefits	$3,100.00	5/8/2025
138	Geneva	Song	Executive Assistant	Administration	$3,950.00	5/14/2025
147	George	Tipton	Insurance Agent	Health and Benefits	$4,100.00	6/22/2025
150	Margaret	Jepson	Insurance Agent	Property and Casualty	$4,100.00	8/13/2025
157	Eva	Skaar	Large Group Specialist	Health and Benefits	$4,700.00	11/18/2025
159	Majid	Mehta	Administrative Assistant	Property and Casualty	$3,100.00	1/12/2026
161	Jesus	Delao	Insurance Agent	Property and Casualty	$4,100.00	2/3/2026
162	Tanisha	Allen	Senior Vice President	Administration	$11,750.00	4/23/2026
					$0.00	
Total					$109,650.00	

Record: 1 of 17 | No Filter | Search

FIGURE 1-101 PP A1-4 Starting *Datasheet* view

4. Unhide a field.
   a. Click the **More** button [*Home* tab, *Records* group] and then click **Unhide Fields** to open the *Unhide Columns* dialog box.
   b. Click the **Branch** field check box.
   c. Click **Close**.
5. Click the **Totals** button [*Home* tab, *Records* group] to remove the totals.
6. Click the **Save** button to save the changes to the table.
7. Use the *Search* box to find records.
   a. Type Health in the *Search* box in the *Navigation* bar. The *Department* field for **Employee 103** should be selected.
   b. Clear the *Search* box.

c. Type Folsom in the *Search* box. The *Branch* field for **Employee 147** should be selected.

d. Clear the *Search* box.

e. Click the *Employee ID* cell for **Employee 101** to deselect the *Branch* field for **Employee 147**.

8. Use the *Find* button to find records.

a. Click the **Find** button [*Home* tab, *Find* group] to open the *Find and Replace* dialog box.

b. Type Insurance in the *Find What* box.

c. Click the **Look In** drop-down arrow and select **Current document** if it is not already displayed. This option searches for a match in all fields in the table.

d. Click the **Match** drop-down arrow and select **Any Part of Field** if it is not already displayed. This option finds a match if the search value is somewhere in a field.

e. Click the **Search** drop-down arrow and select **All** If it is not already displayed. Selecting this option searches through all the records.

f. Uncheck the **Match Case** check box if it is checked.

g. Click the **Find Next** button to execute the search. The search starts from the currently selected field. Access searches the table to find the first record that meets the criteria. The *Title* field for **Employee 103** should be selected. If you had not deselected the *Branch* field in step 7e, the *Title* field for Employee 150 would have been selected.

h. Click the **Find Next** button again to find the next occurrence of *Insurance*. The *Title* field for **Employee 104** should be selected.

i. Continue clicking the **Find Next** button until the *Department* field for **Employee 119** is selected.

j. Click the **Cancel** button to close the *Find and Replace* dialog box.

9. Sort the datasheet on a single field using the drop-down list.

a. Click the **drop-down arrow** to the right of the *Start Date* field.

b. Select **Sort Newest to Oldest** on the drop-down list. Employee 162, the most recently hired employee, should be in the first row of the datasheet.

c. Click the **Remove Sort** button [*Home* tab, *Sort & Filter* group] to remove the sort criteria.

d. Click any cell to deselect the *Start Date* column.

10. Sort the datasheet on multiple fields using the *Sort & Filter* group.

a. Click and hold the pointer over the *Branch* field name, the first column you wish to sort. With the selection pointer still displayed, drag the pointer to the *Department* field name.

b. Release the pointer.

c. Click the **Descending** button [*Home* tab, *Sort & Filter* group]. Employee 104, the employee from Granite Bay in the Property and Casualty department, should be in the first row of the datasheet.

d. Click the **Remove Sort** button [*Home* tab, *Sort & Filter* group] to remove the sort criteria.

e. Click any cell to deselect the columns.

11. Filter the datasheet using *Filter by Selection*.

a. Click after the "t" in the phrase "**Insurance Agent**" in the *Title* cell for **Employee 103**.

b. Click the **Selection** button [*Home* tab, *Sort & Filter* group].

c. Select **Equals "Insurance Agent"** from the drop-down list. The datasheet should display only the seven employees who are insurance agents.
d. Click the **drop-down arrow** to the right of the *Title* field name.
e. Select **Clear filter from Title** to remove the filter. The datasheet updates to show all the records.

12. Filter the datasheet using a *Text Filter*.
    a. Click the **drop-down arrow** to the right of the *Title* field name.
    b. Select **Text Filters** on the drop-down list and select **Contains** from the drop-down list.
    c. Type Assistant in the *Title contains* box.
    d. Click **OK**. The datasheet should display only the four employees who have "Assistant" as part of their title.
    e. Click the **Toggle Filter** button [*Home* tab, *Sort & Filter* group] to switch back to viewing all the records.
    f. Click the **Toggle Filter** button again to switch back to the filtered records.
    g. Click the **drop-down arrow** to the right of the *Title* field name.
    h. Select the **Clear filter from Title** button to remove the filter. The datasheet updates to show all the records.
13. Filter the datasheet using compound criteria on multiple fields.
    a. Click the **drop-down arrow** to the right of the *Title* field name.
    b. Click the **(Select All)** check box to remove that criterion.
    c. Select the **Insurance Agent** check box on the drop-down list.
    d. Click **OK**. The datasheet should display only the seven employees who are insurance agents.
    e. Click the **drop-down arrow** to the right of the *Branch* field name.
    f. Click the **(Select All)** check box to remove that criterion.
    g. Click the **Cameron Park** check box on the drop-down list.
    h. Click **OK**. The datasheet should display only the two employees who are insurance agents at the Cameron Park branch.
    i. Click the **Advanced** button [*Home* tab, *Sort & Filter* group].
    j. Select the **Clear All Filters** button. The datasheet updates to show all the records.
14. Click the **X** in the *Employees* tab to close the table.
15. Select the **No** button when asked to save changes to the design of the *Employees* table.
16. Close the database by clicking the **Close** button [*File* tab].

Chapter Summary

1.1 Explain data organization concepts, use the Access *Navigation Pane*, and identify objects (p. A1-3). A1-60-61

- A ***database management system (DBMS)*** is software that enables you to create a database; manage the data in the database by adding, deleting, and updating records; sort and retrieve data; and create queries and reports relating to that data.
- The ***hierarchy of data*** helps organize the data into ***fields***, ***records***, ***tables***, and a ***database***.
- The major Access ***objects*** are ***tables***, ***forms***, ***reports***, and ***queries***.
- A database must contain at least one table.
- The ***Navigation Pane*** displays all of the objects in a database. You can open objects directly from the *Navigation Pane*.
- Choose different groups and categories in the ***Navigation menu*** to customize what displays in the *Navigation Pane*.
- Use the ***Shutter Bar Open/Close Button***, to open and close the *Navigation Pane*.
- In addition to the standard *Ribbon* tabs, Access also has ***contextual tabs*** that become available when working on different tasks.
- Use ***Datasheet* view** to enter, modify, delete, or view data records. You can also use *Datasheet* view to define or modify the structure of a table.
- ***Design view*** enables you to build or modify the basic structure or functionality of an object.
- The ***active cell***, identified with a rose-colored border, is the field where you enter or edit data.
- Enter the data values for a new record in the ***append row***, the last row in a table, identified with an asterisk in the record selector.

1.2 Create a database; set database properties; understand database object naming conventions and data types; create and manipulate database objects; and open, close, back up, and recover a database. (p. A1-12)

- An Access database file is saved with an extension of ***.accdb***.

- Create a new database from a ***template***, a ready-to-use database application that comes complete with objects already created.
- ***Database properties*** are details about the database including title, author, company, subject, date created, and date last modified.
- Create a ***Blank database*** when you want to build your database application from scratch.
- Assign a meaningful name to each database object. The name must adhere to the Access naming rules.
- Each field in a database must be assigned a specific ***data type*** that determines what properties can be manipulated and how that field can be used.
- In *Backstage* view, close, open, and create a backup copy of your database. Use the backup copy to recover a damaged database.

1.3 Create a table in *Datasheet* view, edit the default primary key, add a new field, edit field and table properties, save a table, enter records into a table, and understand edit and navigation modes. (p. A1-21)

- Create and edit a new table using *Datasheet* view.
- Each table should have a ***primary key***, a field that contains a unique value for each record.
- Add new fields in *Datasheet* view by entering data values or field names.
- The ***field properties*** describe the details or characteristics about each field in a table. The basic field properties include the field name, data type, and size.
- Each table must be saved with a unique name. You can also add a description to the table properties.
- When entering records into a datasheet, Access verifies that the content of each field matches the data type. After a record is entered, it is automatically saved into the table.
- In *Edit* mode, new characters are added to the right of the insertion point when you type. In *Navigation* mode, an entire field is selected and your typed entry replaces the existing value.

1.4 Import data records from Excel. (p. A1-35)

- You can import data records from an Excel file into an Access table with the *Append* option.

- The first row of the Excel file must contain the field names from the Access table. The format of the fields should match, otherwise not all the data values may be imported.

1.5 Navigate table records in *Datasheet* view and customize a datasheet by modifying field order, row height, column width, field alignment, font style and size, row colors, and gridlines. Hide and unhide fields and add total rows. (p. A1-37)

- Use the ***Navigation bar*** to move among records in a table.
- Move the columns in a datasheet to change their order.
- Change the ***font face***, ***size***, and ***style*** in your datasheet. The changes are reflected in the entire datasheet.
- You can increase or decrease the ***row height*** in Access, but all of the rows change to the new height.
- Adjust each field to a unique ***column width***. Numeric or date fields display a series of # symbols (#####) if the column is not wide enough to display the entire contents. Use ***AutoFit*** to have Access automatically adjust the column width to the widest entry.
- ***Field alignment*** dictates how content is aligned horizontally within a cell with respect to the edges. Align cells *left*, *center*, or *right*.
- ***Gridlines*** visually frame the rows and columns in a datasheet with a border.
- ***Alternate row colors*** help you easily scan the records and fields in your datasheet.
- Use the *Datasheet Formatting* dialog box if you are going to make several changes to the datasheet layout.
- Fields can be hidden in *Datasheet* view.
- Add a ***Total*** row to summarize data in a table.

1.6 Search, sort, and filter records in a table. (p. A1-49)

- The ***Search*** box and the ***Find*** button enable you to find data with a specific value quickly.
- The ***Sort*** functions enable you to organize your data.
- An ***ascending order*** sort is from lowest to highest; a ***descending order*** sort is from highest to lowest.
- In *Datasheet* view, if you sort on multiple fields, they all must be sorted in the

same sort order.

- The ***Filter*** functions display only the set of records that meet specified criteria. The available filter options vary based on the data type of the field and what criterion is selected.
- ***Compound criteria*** combine more than one search value using the *AND* and *OR* logical operators. The ***AND logical operator*** requires that a record must contain all of the criteria values. The ***OR* logical operator** requires that a record must contain at least one of the criteria values.

Check for Understanding

The SIMbook for this text (within your SIMnet account) provides the following resources for concept review:

- Multiple-choice questions
- Matching exercises
- Short answer questions

USING MICROSOFT ACCESS 365

Guided Project 1-1

For this project, you create and use a new database based on the *Event management* template. As the vice president of events for the Green Club at your university, you are trying to find an efficient way to keep track of the events your club has planned this semester. After creating the database, use the *Navigation Pane* to explore the objects that exist in this database, edit field properties of the table, enter records, and modify the datasheet layout.

[Student Learning Outcome 1.1, Student Learning Outcome 1.2, Student Learning Outcome 1.3, Student Learning Outcome 1.5]

File Needed: ***Events.accdt (from online templates) or EventManagement-01.accdb*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Name: ***[your initials] Access 1-1.accdb***

Skills Covered in This Project

- Create a database from a template.
- Use the *Navigation Pane*.
- Edit properties in *Datasheet* view.
- Save a table.
- Enter records.
- Change the datasheet layout.
- Explore Access objects.

1. Create a new database based on a template.
   a. Open Access or click the **New** button [*File* tab] if an Access database is already open.
   b. Select the **Event management** template (Figure 1-102). Don't worry if your icons don't match Figure 1-102 exactly or if the templates display in a different order. *Note: If you experience a problem downloading the template, close the dialog box and skip to step 2.*

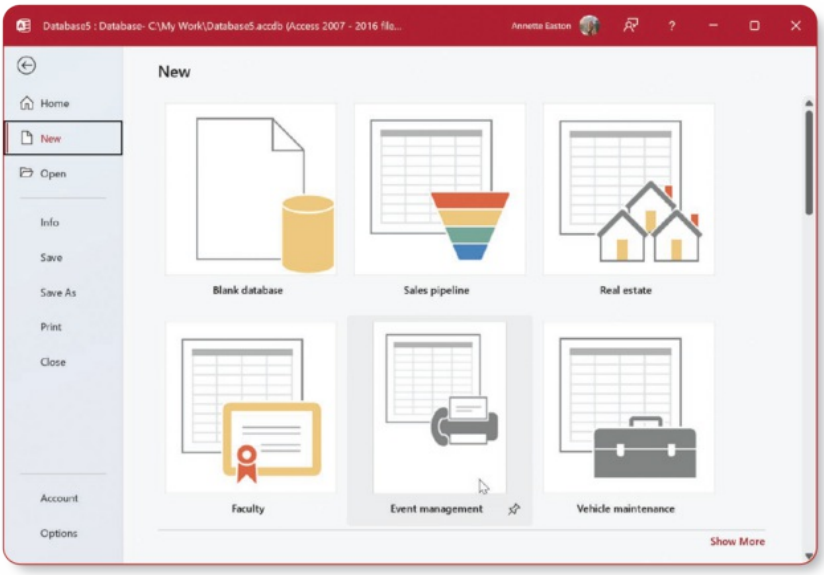


FIGURE 1-102 ***Event management*** **template available online**

c. Enter [your initials] Access 1-1 in the *File Name* box.

d. Click the **Browse for a location to put your database** button to change the location in which to save your database and click **OK**.

e. Click the **Create** button. The database opens.

f. Click the **Enable Content** button in the *Security Warning* message bar (**Figure 1-103**).

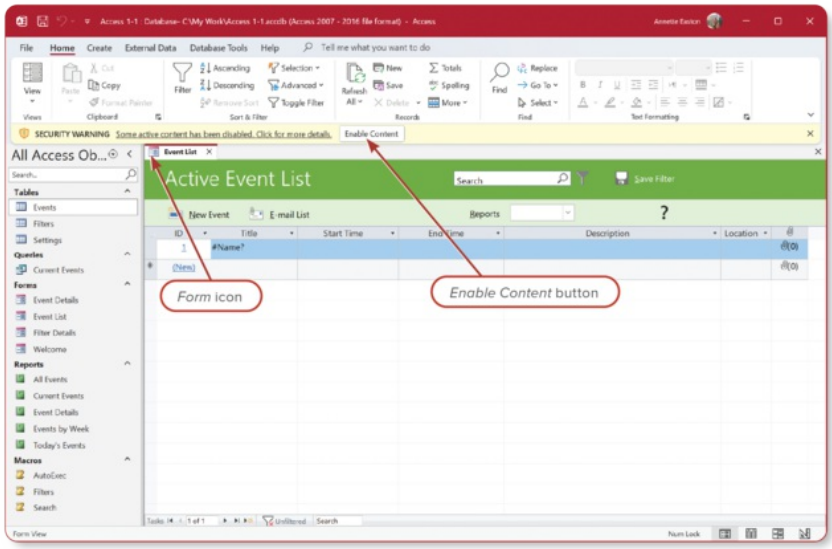


FIGURE 1-103 ***Event Database*** **beginning navigation**

g. Skip to step 3.

2. Open the ***EventManagement-01*** database from your student data files. If a

Security Risk message displays, click the **X** to close it. If the *Welcome* form displays, click the **X** to close it.

a. Select the **Save As** button [*File tab*]. The **Access Database** button should be selected in the *Save Database As* area.
b. Click the **Save As** button.
c. Select **Yes** in the message box to have Access close the open objects.
d. Click **OK** if Access displays a message box warning about the Trust Center.
e. Enter [your initials] Access 1-1 in the *File Name* box.
f. Select the location in which to save your database.
g. Click the **Save** button. The database opens. If the *Welcome* form displays, click the **X** to close it.
h. Click the **Enable Content** button in the *Security Warning* message bar (**Figure 1-103**).

3. Complete step 3 if the *Welcome* form displays (**Figure 1-104**). This form displays based on the selections made on your computer.

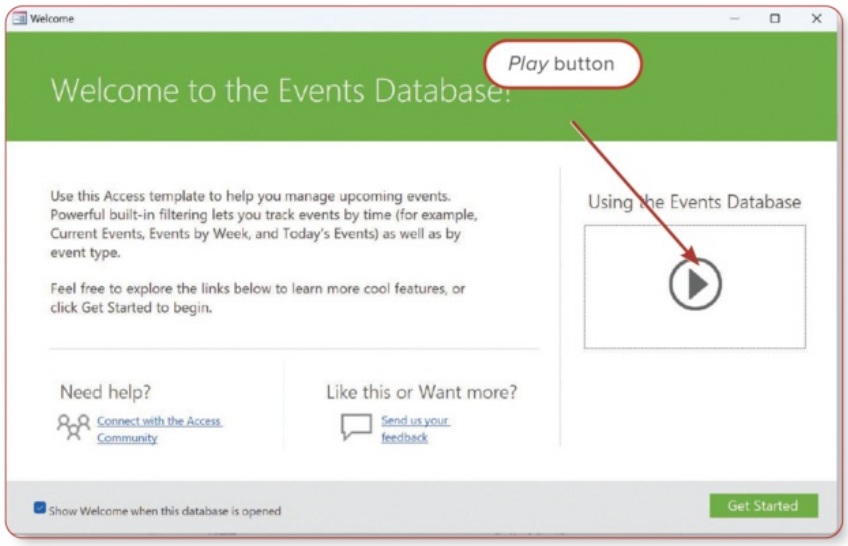


FIGURE 1-104 ***Welcome* form**

a. Click the **Play** button to view a video about using the *Events Database*. When finished, close the browser window and return to the Access database.
b. Uncheck the **Show Welcome when this database is opened** check box.
c. Click the **Get Started** button.
The events database system is now ready to explore. This database contains many database objects that you have not yet used, like forms and reports. Often, the objects in a template will contain more advanced database features. In the events database, when the database opens, an *Event List* form opens

automatically. You know it is a form because the *Form* icon displays on the object tab, along with the name of the form. This form was designed to display data using a datasheet layout. You can also use this form to enter data into the database. You can now explore some of the database objects in this template to see if they meet your needs.

4. Use the *Navigation Pane* to view the database objects.
   a. Click the **Navigation Pane** arrow next to the *All Access Objects* category to open the *Navigation* menu, shown on the right side of **Figure 1-105**. Note that the *Navigation Pane* is set to display all objects grouped by object type.

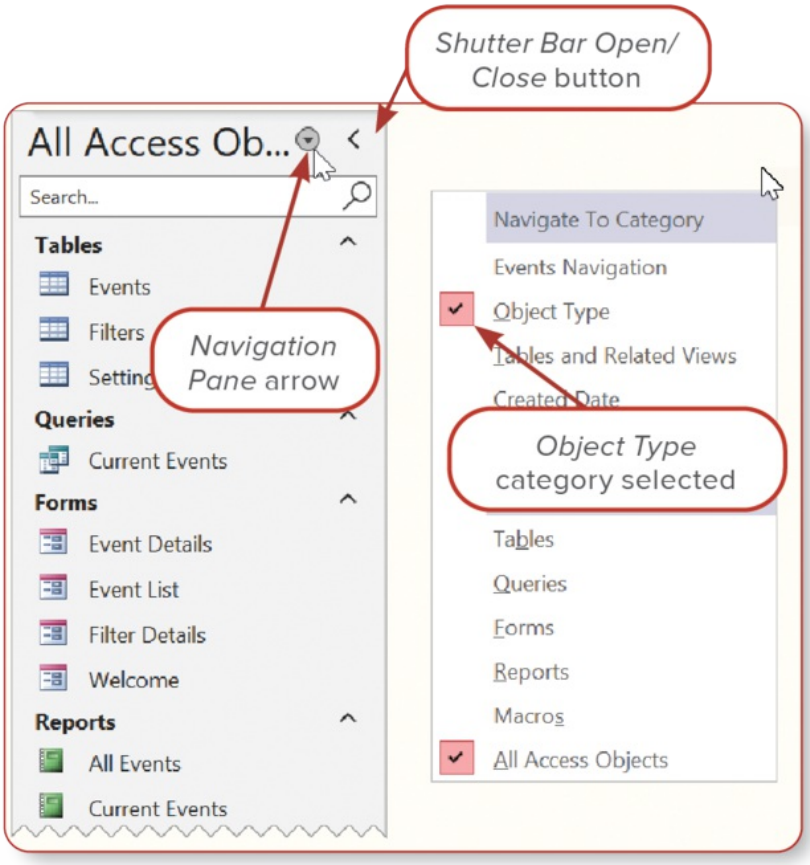


FIGURE 1-105 **View the *Navigation Pane* display**

   b. Click the arrow to close the *Navigation* menu without making any selections.
   c. Notice that the *Events* template comes with 16 pre-built objects:
      3 tables
      1 query
      4 forms
      5 reports
      3 macros
      The *Event List* form is linked to the *Events* table. When no records are in the

table, nothing displays in the form.

d. Close the **Event List** form by clicking the **X** in the tab.

5. View the *Events* table in *Datasheet* view and edit field properties.

a. Double-click the **Events** table to open it in *Datasheet* view. No records have been entered into the database table (**Figure 1-106**).

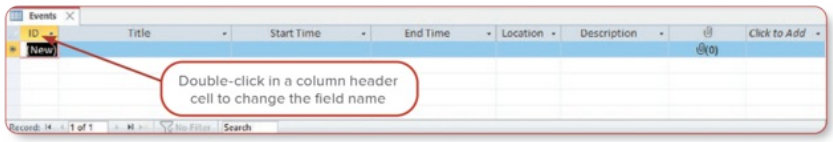


FIGURE 1-106 ***Datasheet* view of the *Events* table**

b. Double-click the cell containing the **ID** field name (column header).

c. Type Event ID for the field name and press the **down arrow** key.

d. Click the **Title** field name.

e. Click the **Table Fields** tab. Remember that this contextual tab only displays when you are editing a table.

f. Click the **Name & Caption** button [*Table Fields* tab, *Properties* group].

g. Type Event Title in the *Caption* property and click **OK**.

h. Type 100 in the *Field Size* property [*Table Fields* tab, *Properties* group] and press **Enter**.

i. Click the **Start Time** field name. In the *Formatting* group [*Table Fields* tab], notice that the *Data Type* property is set to *Date/Time* and the *Format* property is set to *General Date*.

j. Click the **Save** button to save the changes to the table design. With the changes to the field properties saved, the table is ready for you to begin to enter data records.

6. Enter a data record into the *Events* table to test the table structure.

a. Click the **Event Title** cell in the append row.

b. Type Member Welcome and Kickoff Meeting. The pencil icon displays, indicating that this record has not yet been saved.

c. Press the **Tab** key to move to the *Start Time* field and type 7:00 PM.

d. Press the **Tab** key to move to the *End Time* field. The message box in **Figure 1-107** opens. If a message box opens after leaving a field, it indicates that the data entered does not match what was expected for that field.

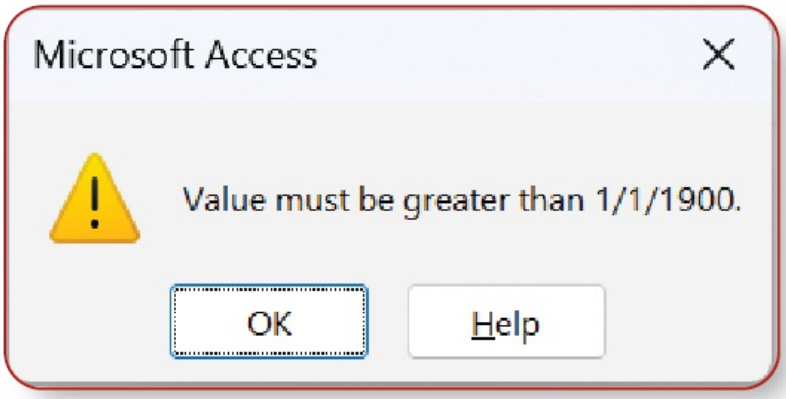


FIGURE 1-107 **Error message box**

e. Click **OK** to return to the *Start Time* field. It appears that this template has a discrepancy in the *Start Time* field. You need to fix this discrepancy before the Green Club can use the database. Because we need to explore this field further, delete the text you entered and leave that field blank for now.

f. Press the **Tab** key to move to the *End Time* field. Because you did not enter a value for the *Start Time*, leave the *End Time* field blank for now.

g. Press the **Tab** key to move to the *Location* field and type Recreation Center Room 202.

h. Press the **Tab** key to move to the *Description* field and type Member Meeting.

i. Press the **Tab** key to move to the *Attachment* field.

j. Press the **Tab** key because you do not have an attachment to enter. The pencil icon no longer displays because the record has been saved.

7. Change the layout of the *Events* table.

a. Click to select the **Location** column.

b. Click, hold, and drag the pointer to move the *Location* column to the left of the *Start Time*.

c. Change the *Font* to **Times New Roman** [*Home* tab, *Text Formatting* group].

d. Change the *Font Size* to **10** [*Home* tab, *Text Formatting* group].

e. Click the **Select All** button in the upper-left corner of the datasheet.

f. Place your pointer on the right border of any of the *Field* names (**Figure 1-108**).

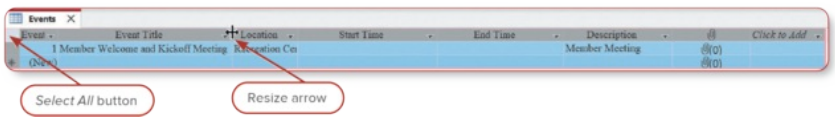


FIGURE 1-108 **Adjust column widths in the table**

g. Double-click the **resize arrow**. The width of all the fields should adjust to the needed width to display the cell contents. If the width of the Access window is not large enough, some of the fields will be smaller.

h. Click the **Save** button to save the changes to the table design.

i. Close the *Events* table by clicking the **X** in the tab.

8. Explore the *Event List* and *Event Details* forms.

a. Double-click the **Event List** form in the *Forms* group of the *Navigation Pane*. The *Event List* form opens (**Figure 1-109**). The *Member Welcome* record you entered into the *Events* table displays. Recall that a form object provides a more user-friendly interface to view, add, update, and delete data in a table. It can also include additional features beyond those available in a table. For example, the *Event List* form, part of the template, has been customized to include a menu with direct links to additional forms and reports in the database.

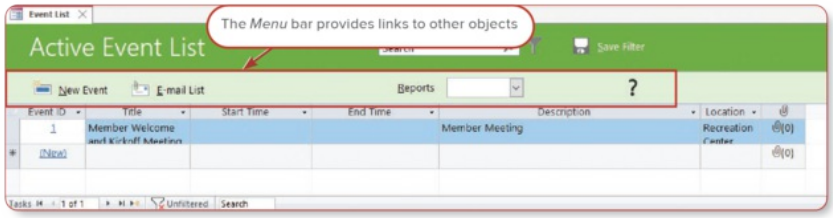


FIGURE 1-109 ***Event List* form**

b. Click the **New Event** button in the *Menu* bar of the *Event List* form to open the *Event Details* form (**Figure 1-110**). This form provides an easy interface to enter a new record into the database. Do not enter any additional data records because the properties of the time fields are not quite right at this point.

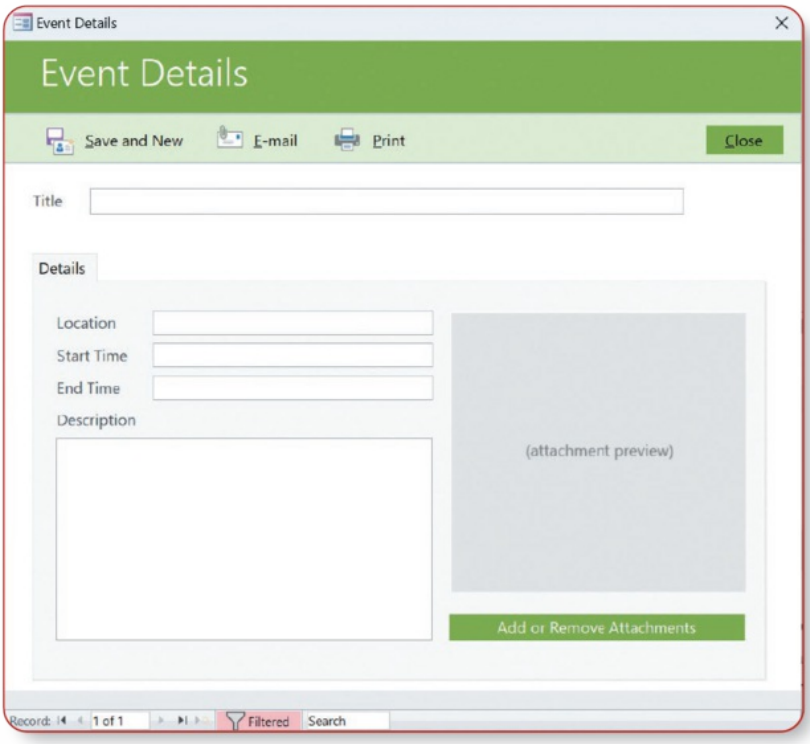


FIGURE 1-110 ***Event Details*** **form**

c. Click the **Close** button to close the *Event Details* form.

9. Explore the other database objects.
   a. Look at the objects displayed in the *Navigation Pane*. You should still see the same objects shown earlier in **Figure 1-105**.
   b. Look at the *Tables* group. You see the *Events* table, the *Filters* table, and the *Settings* table. You also want your database to store information about the members of the Green Club. As a result, you realize that this database template is not right for you yet. You recognize that you will need to learn more about how to modify existing databases to create additional tables or how to build your own database from scratch.
10. Close the *Event List* form by clicking the **X** in tab.
11. Close the database by clicking the **X** in the right corner of the application window.

Guided Project 1-2 - SIMnet Project

American River Cycling Club is a local cycling club. For this project, you create a database, containing one table, to store information about club members. After creating the database, add fields into the table, edit field properties, enter records,

modify the datasheet layout, hide table fields, import data and sort and filter the data in the table.

[Student Learning Outcome 1.2, Student Learning Outcome 1.3, Student Learning Outcome 1.4, Student Learning Outcome 1.5, Student Learning Outcome 1.6]

File Needed: ***MembersDataFile-01.xlsx*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Name: ***[your initials] Access 1-2.accdb***

Skills Covered in This Project

- Create a blank database.
- Edit the default primary key.
- Add a new field into a table.
- Edit properties in *Datasheet* view.
- Save a table.
- Enter records.
- Change the datasheet layout.
- Hide table fields.
- Import records.
- Sort data in a table.
- Filter data in a table.

1. Create a new blank database.
   a. Open Access or click the **File** tab if an Access database is already open.
   b. Select **Blank database**.
   c. Enter [your initials] Access 1-2 in the *File Name* box.
   d. Click the **Browse** button to change the location in which to save your database and click **OK**.
   e. Click the **Create** button. The database is created. A new table is created and opens in Datasheet view. If a table does not display, click the **Table** button [*Create* tab, *Tables* group] to create a new table.
2. Edit the default primary key and add new fields into the table.
   a. Double-click the cell containing the **ID** field name (column header).
   b. Type MemberID to replace *ID* in the *Field name* cell and press the **Enter** key. The *Click to Add* column to the right is selected so you can add the next field into the

table.

c. Select the **Short Text** data type for this new field.
d. Type FirstName in the *Field1* column header and press the **Enter** key.
e. Select the **Short Text** data type.
f. Type LastName in the *Field1* column header and press the **Enter** key.
g. Add the remaining fields into the table using the information in **Table 1-10**. Remember that you select the data type first and then enter the field name.

Table 1-10

Data Type	Field Name
Short Text	Address
Short Text	City
Short Text	State
Short Text	ZIPCode
Hyperlink	EmailAddress
Short Text	CellPhoneNumber

h. Press **Ctrl+S** to save all of the modifications you have made to the table.
i. Type Members as the new table name.
j. Click **OK**.

3. Edit the field properties of the *Members* table.
   a. Click the **MemberID** field name.
   b. Click the **Name & Caption** button [*Table Fields* tab, *Properties* group].
   c. Type Member ID in the *Caption* property. Because the field names in this table provide a clear description of the content, it is not necessary to enter anything into the *Description* property.
   d. Click **OK**.
   e. Select the **FirstName** field name.
   f. Click the **Name & Caption** button [*Table Fields* tab, *Properties* group].
   g. Type First Name in the *Caption* property.
   h. Click **OK**.
   i. Type 20 in the **Field Size** property [*Table Fields* tab, *Properties* group] and press **Enter**.
   j. Change the remaining field properties in the table using the information in **Table 1-11**.

Table 1-11

Field Name	Caption	Size
LastName	Last Name	25
Address		45
City		25
State		2
ZIPCode	ZIP	5
EmailAddress	Email	N/A
CellPhoneNumber	Cell Phone	12

k. Click the **Save** button to save the changes to the table. With the changes to the field properties saved, the table is ready for you to begin to enter data records. Remember that even though you have changed the caption that displays as the column header in *Datasheet* view, the field names have not changed.

4. Enter the member records into the *Members* table.

a. Click the **FirstName** cell in the append row.

b. Type Geneva. The pencil icon displays, indicating that this record has not yet been saved.

c. Press the **Tab** key to move to the next field.

d. Type Lingle in the *LastName* field. Press the **Tab** key to move to the next field.

e. Type 1850 Stoneridge Court in the *Address* field. Press the **Tab** key.

f. Type Cameron Park in the *City* field. Press the **Tab** key.

g. Type CA in the *State* field. Press the **Tab** key.

h. Type 95682 in the *ZIPCode* field. Press the **Tab** key.

i. Type glingle@gmail.com in the *EmailAddress* field. Press the **Tab** key.

j. Type 780-886-6625 in the *CellPhoneNumber* field. Press the **Tab** key. The pencil icon no longer displays. You move to the *MemberID* field in the append row.

k. Tab to the next field. Enter the information from **Table 1-12** into the *Members* table. Remember that after you tab out of the *CellPhoneNumber* field you move to the *MemberID* field. Because *MemberID* is an *AutoNumber* field, do not enter a value and simply tab to the next field. Also, because the value for *State* is CA in each of these records, you can press **Ctrl+'** in the *State* field instead of typing CA to have Access automatically enter the same value from the previous record's *State* field.

Table 1-12

FirstName	LastName	Address	City	State	ZIPCode
Megan	Walters	7105 High Street	Folsom	CA	95630
Ryan	Thomas	2227 Alexandra Drive	Auburn	CA	95602
Roy	Baxter	705 First Street	Rocklin	CA	95677

5. Change the layout of the *Members* table.
   a. Click to select the **ZIP** column.
   b. Right-click to open the context menu.
   c. Select **Field Width**.
   d. Type 7 in the **Column Width** cell.
   e. Click **OK** to close the dialog box.
   f. Click the **Center Alignment** button [*Home* tab, *Text Formatting* group].
   g. Click to select the **State** column.
   h. Place your pointer on the right border of the **State** field name.
   i. Double-click the **resize arrow** to adjust the *Column Width* using *AutoFit*.
   j. Click the **Center Alignment** button.
   k. Click the **Alternate Row Color** drop-down list [*Home* tab, *Text Formatting* group] and select **Dark Blue 2** (fourth column, third row in the *Standard Colors* category).
   l. Press **Ctrl+S** to save the changes to the layout.
   m. Close the *Members* table by clicking the **X** in the tab.
6. Import data from Excel into the *Members* table.
   a. Click the **New Data Source** button [*External Data* tab, *Import & Link* group], select **From File** and then click **Excel** to launch the *Get External Data – Excel Spreadsheet* dialog box.
   b. Click the **Browse** button to launch the *File Open* dialog box.
   c. Locate and select the ***MembersDataFile-01*** Excel file.
   d. Click the **Open** button. The *File Open* dialog box closes.
   e. Select the **Append a copy of the records to the table** radio button.
   f. Click the **drop-down arrow** in the *table name* box and select the **Members** table if needed.

g. Click **OK** to launch the *Import Spreadsheet Wizard*. The data records should display in the *Import Spreadsheet Wizard* window.

h. Click the **Next** button to advance to the next page of the *Import Spreadsheet Wizard*.

i. Verify that the *Import to Table* box contains the *Members* table.

j. Click **Finish**.

k. Click the **Close** button without saving the import steps.

7. Open the *Members* table in *Datasheet* view. Your table should contain the 14 records shown in **Figure 1-111**.



Members

Member ID	First Name	Last Name	Address	City	State	ZIP	Email	Cell Phone
1	Geneva	Lingle	1850 Stoneridg	Cameron Park	CA	95682	glingle@gmail.	780-886-6625
2	Megan	Walters	7105 High Stre	Folsom	CA	95630	mwalters@mc	916-451-8325
3	Ryan	Thomas	2227 Alexandr	Auburn	CA	95602	rthomas@qme	916-753-5586
4	Roy	Baxter	705 First Stree	Rocklin	CA	95677	roy@centralsie	780-886-2471
5	Margaret	Jepson	28861 Newcas	Fair Oaks	CA	95628	margaret@sac	780-862-9851
6	Javier	Mendoza	8364 Marshall	Roseville	CA	95661	mendoza20@	916-450-3329
7	Melanie	Figueroa	4511 Johnson	Cameron Park	CA	95682	mfigueroa@pt	916-450-3336
8	Sue	Schooler	4183 Braxton \	Rocklin	CA	95677	sschooler@gm	780-824-3525
9	Kelsey	Kroll	306 7th Street	Roseville	CA	95661	kkroll@hotmail	780-886-2457
10	Rick	Hermenn	9035 Masi Dri	Fair Oaks	CA	95628	rickh@gmail.c	916-450-6719
11	Karen	Graves	6003 Ashland I	Lincoln	CA	95648	kgraves@phre	916-450-3892
12	Robyn	Constantini	9581 Magnolia	Roseville	CA	95661	robyn@gmail.c	780-886-2471
13	John	Burgess	85741 Auberry	Roseville	CA	95661	jburgess@hotr	780-886-5862
14	Randy	Clemmins	7336 Lester R	Auburn	CA	95602	rclemmins@pt	916-450-3330
	(New)							

Record: 1 of 14 | No Filter | Search

FIGURE 1-111 ***Members* table after import**

8. Hide the *State* field.

a. Select the **State** column.

b. Click the **More** button [*Home* tab, *Records* group] and then click **Hide Fields**.

c. Press **Ctrl+S** to save the changes to the table.

9. Sort the *Members* table.

a. Click the **drop-down arrow** to the right of the **City** field name.

b. Select **Sort A to Z** on the drop-down list. The records display in ascending order by the *City* field.

c. Click the **Remove Sort** button [*Home* tab, *Sort & Filter* group] to remove the sort criteria.

d. Click to select the **ZIP** column.

e. Click, hold, and drag the pointer to move the **ZIP** column to the left of the *Last Name* column.

f. Click anywhere to deselect the *ZIP* column.

g. Click and hold the pointer over the **ZIP** column. With the selection pointer still displayed, drag the pointer to the *Last Name* column. Release the pointer.

h. Click the **Ascending** button [*Home* tab, *Sort & Filter* group]. The records display

in ascending order by the *ZIP* column. In cases of the same *ZIP* Code, the records are sorted in ascending order by the last name. Your table should look similar to **Figure 1-112**.

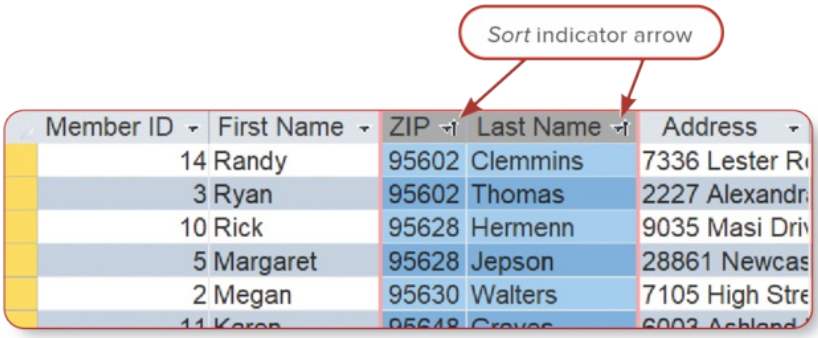


FIGURE 1-112 **Records sorted on *ZIP* and *Last Name***

i. Click the **Remove Sort** button [*Home* tab, *Sort & Filter* group] to remove the sort criteria.

j. Click anywhere to deselect the columns.

k. Move the **ZIP** column to the right of the *City* column.

10. Filter the *Members* table using *Filter by Selection*.

a. Select **916** in the *Cell Phone* cell for *Member ID 2*.

b. Click the **Selection** button [*Home* tab, *Sort & Filter* group].

c. Select **Begins with "916"** from the drop-down list (**Figure 1-113**). The datasheet should display only the seven members who have a cell phone area code of 916.

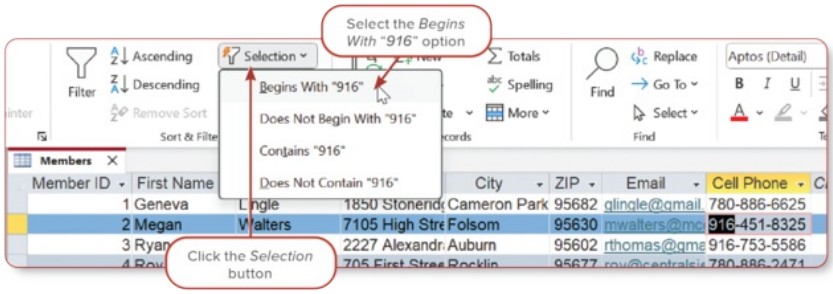


FIGURE 1-113 ***Filter by Selection***

d. Click the **drop-down arrow** to the right of the *Cell Phone* field name.

e. Select **Clear filter from Cell Phone** to remove the filter.

11. Filter the datasheet using a *Text Filter*.

a. Click the **drop-down arrow** to the right of the *Email* field name.

b. Select **Text Filters** on the drop-down list and select **Contains** from the second

drop-down list (**Figure 1-114**). Notice in **Figure 1-114** that the second drop-down list displays to the left. The exact position varies based on the width of your screen and location of the Access window.

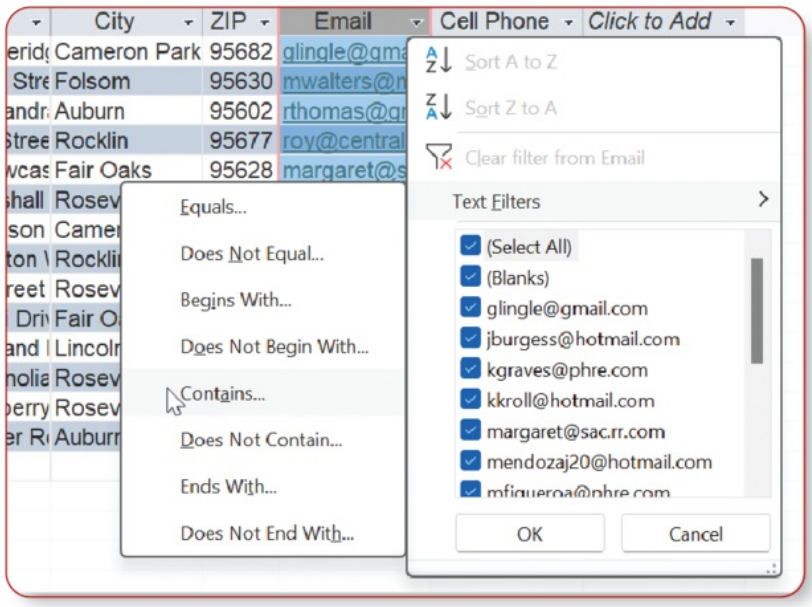


FIGURE 1-114 ***Text Filter***

c. Type gmail in the *Email contains* box.

d. Click **OK**. The datasheet should display only the five members who have *gmail* as part of their email addresses.

e. Click the **Toggle Filter** button [*Home* tab, *Sort & Filter* group] to switch back to viewing all the records.

f. Click the **Toggle Filter** button again to switch back to the filtered records.

g. Click the **drop-down arrow** to the right of the *Email* field name.

h. Select **Clear filter from Email** to remove the filter.

12. Close the *Members* table by clicking the **X** in the tab. Select the **No** button in the dialog box. Do not save any of the sorting or filtering changes made to the table.

13. Review the completed *Members* table.

a. Double-click the **Members** table to view the table. The table should look similar to **Figure 1-115**. Note that the sorting and filtering changes were not saved.

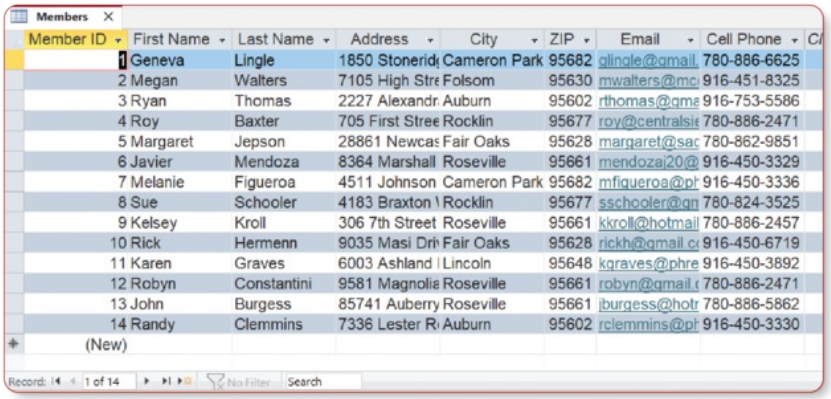


FIGURE 1-115 Completed *Members* table

b. Close the table by clicking the **X** in the tab.

14. Add database properties using the *Database Properties* dialog box.
    a. Click the **File** tab to open the *Backstage* view.
    b. Click the **Info** button.
    c. Click the **View and edit database properties** link to open the *Database Properties* dialog box.
    d. Type American River Members in the *Title* area.
    e. Type Taylor Mathos in the *Author* area.
    f. Type ARCC in the *Company* area.
    g. Click **OK** to save the changes.
15. Close the database by clicking the **X** in the right corner of the application window.

Guided Project 1-3

San Diego Sailing is a local sailing club with a fleet of sailboats that members can rent. For this project, you create a database, containing one table, to store information about rental sailboats. After creating the database, you add fields to the table, edit field properties, enter records, import data, modify the datasheet layout, add a total row, and filter the data in the table.

[Student Learning Outcome 1.2, Student Learning Outcome 1.3, Student Learning Outcome 1.4, Student Learning Outcome 1.5, Student Learning Outcome 1.6]

File Needed: ***SailboatDataFile-01.xlsx*** *(Student data files are available in the* Library

of your SIMnet account.)

Completed Project File Name: ***[your initials] Access 1-3.accdb***

Skills Covered in This Project

- Create a blank database.
- Edit the default primary key.
- Add a new field into a table.
- Edit properties in *Datasheet* view.
- Save a table.
- Enter records.
- Change the datasheet layout.
- Add a total row.
- Import records.
- Filter data in a table.

1. Create a new blank database.
   a. Open Access or click the **File** tab if an Access database is already open.
   b. Select **Blank database**.
   c. Enter [your initials] Access 1-3 in the *File Name* box.
   d. Click the **Browse** button to change the location in which to save your database and click **OK**.
   e. Click the **Create** button. The database is created. A new table is created and opens in *Datasheet* view.
2. Edit the default primary key and add new fields into the table.
   a. Double-click the cell containing the **ID** field name (column header).
   b. Type BoatID in the *Field name*.
   c. Press the **down arrow** key to update the field name and stay in the same column.
   d. Select the **Short Text** data type [*Table Fields* tab, *Formatting* group] from the drop-down list. Because the boats already have an ID number assigned to them, do not use the *AutoNumber* data type in Access.
   e. Click the **Click to Add** column header.
   f. Select the **Short Text** data type.
   g. Type BoatType in the *Field name* column header and press the **Enter** key.
   h. Select the **Short Text** data type.
   i. Type Length in the *Field name* column header and press the **Enter** key.

j. Enter the remaining fields into the table using the information in **Table 1-13**. Remember that you select the data type first and then enter the field name. After you enter the last field name, *ModelYear*, press the **down arrow** key to move to the first column of the append row.

Table 1-13

Data Type	Field Name
Number	Seats
Number	Sleeps
Currency	FourHourRentalRate
Currency	FullDayRentalRate
Yes/No	GalleyWithStove
Short Text	ModelYear

k. Press **Ctrl+S** to save all of the modifications you have made to the table.

l. Type SailboatFleet as the new table name.

m. Click **OK**.

3. Edit the field properties of the *SailboatFleet* table.

a. Click the **BoatID** field name.

b. Select the **Name & Caption** button [*Table Fields* tab, *Properties* group].

c. Type Boat ID in the *Caption* property. Because all of the field names in this table provide a clear description of their content, it is not necessary to enter any additional information in the *Description* property of any of the fields.

d. Click **OK**.

e. Type 4 in the *Field Size* property [*Table Fields* tab, *Properties* group].

f. Select the **BoatType** field name.

g. Click the **Name & Caption** button [*Table Fields* tab, *Properties* group].

h. Type Boat Type in the *Caption* property.

i. Click **OK**.

j. Type 25 in the *Field Size* property [*Table Fields* tab, *Properties* group].

k. Change the remaining field properties using the information in **Table 1-14**.

Table 1-14

Field Name	Caption	Size
Length		8

Seats		N/A
Sleeps		N/A
FourHourRentalRate	4 Hr Rate	N/A
FullDayRentalRate	Full Day Rate	N/A
GalleyWithStove	Galley w/ Stove	N/A
ModelYear	Model Year	4

l. Click the **Save** button to save the changes to the table. With the changes to the field properties saved, the table is ready for you to begin to enter data records.

4. Enter the data records into the *SailboatFleet* table.

a. Click the **BoatID** field cell in the append row.

b. Type 1150. The pencil icon displays, indicating that this record has not yet been saved.

c. Press the **Tab** key to move to the next field.

d. Type Capri 22 Mk II in the *BoatType* field. Press the **Tab** key to move to the next field.

e. Type 24′8″ in the *Length* field. Press the **Tab** key to move to the next field.

f. Type 6 in the *Seats* field. Press the **Tab** key to move to the next field.

g. Type 4 in the *Sleeps* field. Press the **Tab** key to move to the next field.

h. Type 75 in the *FourHourRentalRate* field. Press the **Tab** key to move to the next field.

i. Type 121 in the *FullDayRentalRate* field. Press the **Tab** key to move to the next field.

j. Leave the check box blank in the *GalleyWithStove* field. Press the **Tab** key to move to the next field.

k. Type 2014 in the *ModelYear* field. Press the **Tab** key to move to the next record. The pencil icon no longer displays.

l. Continue entering the remaining records into the table using the information in **Table 1-15**. Click the **GalleyWithStove** field check box to indicate a “Y” value. You can also press the **Spacebar** to indicate a “Y” value. Also, because the value for *Sleeps* is 6 in each of these records, after you enter it the first time, you can press **Ctrl+’** in the *Sleeps* field instead of typing 6 to have Access automatically enter the same value from the previous record’s *Sleeps* field.

Table 1-15

BoatID	BoatType	Length	Seats	Sleeps	FourHourRer

1003	Catalina 270	28′4″	8	6	145
1146	Hunter 33	33′6″	10	6	285
1015	Catalina 270	28′4″	8	6	145
1185	Hunter 36	35′6″	10	6	335

m. Press **Ctrl+S** to save the table.

n. Close the *SailboatFleet* table by clicking the **X** in the tab.

5. Import data from Excel into the *SailboatFleet* table.

   a. Click the **New Data Source** button [*External Data* tab, *Import & Link* group], select **From File** and then click **Excel** to launch the *Get External Data – Excel Spreadsheet* dialog box.

   b. Click the **Browse** button to launch the *File Open* dialog box.

   c. Locate and select the ***SailboatDataFile-01*** Excel file.

   d. Click the **Open** button. The *File Open* dialog box closes.

   e. Select the **Append a copy of the records to the table** radio button.

   f. Click the **drop-down arrow** in the *Table Name* box and select the **SailboatFleet** table if needed.

   g. Click **OK** to launch the *Import Spreadsheet Wizard*. The data records should display in the *Wizard* window.

   h. Click the **Next** button to advance to the next page of the *Import Spreadsheet Wizard*.

   i. Verify that the *Import to Table* box contains the *SailboatFleet* table.

   j. Click **Finish**.

   k. Click the **Close** button.

6. Open the *SailboatFleet* table in *Datasheet* view. Your table should have the 20 records as shown in **Figure 1-116**.

SailboatFleet

Boat ID	Boat Type	Length	Seats	Sleeps	4 Hr Rate	Full Day Rat	Galley w/ St	Model Year
1003	Catalina 270	28'4"	8	6	$145.00	$205.00	☑	2011
1015	Catalina 270	28'4"	8	6	$145.00	$205.00	☑	2012
1146	Hunter 33	33'6"	10	6	$285.00	$355.00	☑	2013
1150	Capri 22 Mk II	24'8"	6	4	$75.00	$121.00	☐	2014
1152	Capri 22 Mk II	24'8"	6	4	$75.00	$121.00	☐	2014
1164	Capri 22 Mk II	24'8"	6	4	$75.00	$121.00	☐	2017
1168	Hunter 33	33'6"	10	6	$285.00	$355.00	☑	2017
1175	Beneteau 40	39'10"	12	6	$475.00	$555.00	☑	2018
1180	Beneteau 373	36'11"	10	6	$355.00	$455.00	☑	2019
1185	Hunter 36	35'6"	10	6	$335.00	$395.00	☑	2019
1190	Beneteau 373	36'11"	10	6	$355.00	$455.00	☑	2019
1200	Beneteau 373	36'11"	10	6	$355.00	$455.00	☑	2020
1205	Beneteau 40	39'10"	12	6	$475.00	$555.00	☑	2021
1225	Hunter 36	35'6"	10	6	$335.00	$395.00	☑	2021
1254	Hunter 36	35'6"	10	6	$335.00	$395.00	☑	2022
1310	Beneteau 373	36'11"	10	6	$355.00	$455.00	☑	2023
1342	Hunter 33	33'6"	10	6	$285.00	$355.00	☑	2024
1401	Capri 22 Mk II	24'8"	6	4	$75.00	$121.00	☐	2025
1410	Beneteau 40	39'10"	12	6	$475.00	$555.00	☑	2025
1419	Hunter 33	33'6"	10	6	$285.00	$355.00	☑	2025
			0	0	$0.00	$0.00	☐	

Record: 1 of 20 No Filter Search

FIGURE 1-116 ***SailboatFleet* table records after import**

7. Change the layout of the *SailboatFleet* table.
   a. Change the *Font* to **Times New Roman** [*Home* tab, *Text Formatting* group].
   b. Change the *Font Size* to **12** [*Home* tab, *Text Formatting* group].
   c. Click to select the **Length** column.
   d. Press **Shift+Right Arrow** twice to select the *Seats* and *Sleeps* columns.
   e. Place your pointer on the right border of the *Sleeps* field.
   f. Double-click to adjust the *Column Width* using *AutoFit*.
   g. Select the **BoatType** field.
   h. Place your pointer on the right border of the *BoatType* field. The pointer changes to the resize arrow.
   i. Click, hold, and drag the pointer to the right to increase the width of the *BoatType* field so that you can see the entire data value in the *BoatType* column.
   j. Select the **BoatID** field.
   k. Click the **Center Alignment** button [*Home* tab, *Text Formatting* group].
   l. Select the **Length** field.
   m. Click the **Center Alignment** button.
   n. Click anywhere to deselect the column.
   o. Click the **Text Formatting launcher** in the bottom-right corner of the *Text Formatting* group [*Home* tab] to open the *Datasheet Formatting* dialog box (**Figure 1-117**).

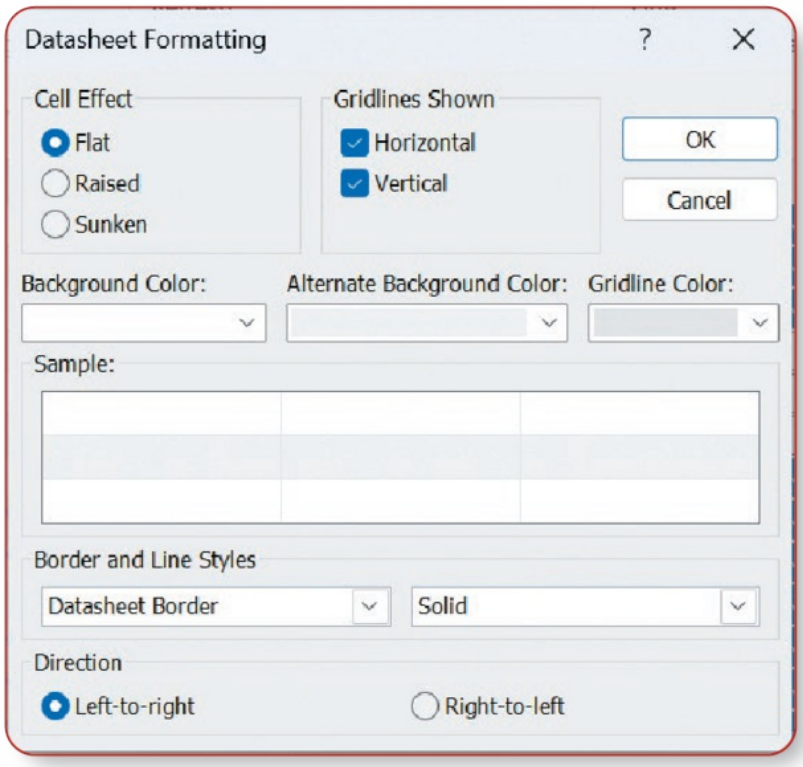


FIGURE 1-117 ***Datasheet Formatting*** **dialog box**

p. Click the **Alternate Background Color** drop-down list in the *Datasheet Formatting* dialog box and select **Green 2** (seventh column, third row in the *Standard Colors* category).

q. Click the **Gridline Color** drop-down list and select **Green 5** (seventh column, sixth row in the *Standard Colors* category).

r. Click **OK** to close the dialog box.

8. Add a total row.

a. Click the **Totals** button [*Home* tab, *Records* group].

b. Click the *Total* row cell of the *FourHourRentalRate* field, click the **drop-down arrow** in that cell and select the **Average** function.

c. Click the *Total* row cell of the *FullDayRentalRate* field, click the **drop-down arrow** in that cell and select the **Average** function.

d. Press **Ctrl+S** to save the changes to the layout. The updated layout should look similar to **Figure 1-118**.

Boat ID	Boat Type	Length	Seats	Sleeps	4 Hr Rate	Full Day Ra	Galley w/ St	Model Year
1003	Catalina 270	28'4"	8	6	$145.00	$205.00	☑	2011
1015	Catalina 270	28'4"	8	6	$145.00	$205.00	☑	2012
1146	Hunter 33	33'6"	10	6	$285.00	$355.00	☑	2013
1150	Capri 22 Mk II	24'8"	6	4	$75.00	$121.00	☐	2014
1152	Capri 22 Mk II	24'8"	6	4	$75.00	$121.00	☐	2014
1164	Capri 22 Mk II	24'8"	6	4	$75.00	$121.00	☐	2017
1168	Hunter 33	33'6"	10	6	$285.00	$355.00	☑	2017
1175	Beneteau 40	39'10"	12	6	$475.00	$555.00	☑	2018
1180	Beneteau 373	36'11"	10	6	$355.00	$455.00	☑	2019
1185	Hunter 36	35'6"	10	6	$335.00	$395.00	☑	2019
1190	Beneteau 373	36'11"	10	6	$355.00	$455.00	☑	2019
1200	Beneteau 373	36'11"	10	6	$355.00	$455.00	☑	2020
1205	Beneteau 40	39'10"	12	6	$475.00	$555.00	☑	2021
1225	Hunter 36	35'6"	10	6	$335.00	$395.00	☑	2021
1254	Hunter 36	35'6"	10	6	$335.00	$395.00	☑	2022
1310	Beneteau 373	36'11"	10	6	$355.00	$455.00	☑	2023
1342	Hunter 33	33'6"	10	6	$285.00	$355.00	☑	2024
1401	Capri 22 Mk II	24'8"	6	4	$75.00	$121.00	☐	2025
1410	Beneteau 40	39'10"	12	6	$475.00	$555.00	☑	2025
1419	Hunter 33	33'6"	10	6	$285.00	$355.00	☑	2025
			0	0	$0.00	$0.00	☐	
Total					$279.00	$349.20		

FIGURE 1-118 **Formatted datasheet layout**

9. Filter the *SailboatFleet* table using compound criteria and sort the filtered results.
   a. Click the **drop-down arrow** to the right of the *Seats* field name.
   b. Select **Number Filters** on the drop-down list and select **Greater Than** from the second drop-down list (**Figure 1-119**).

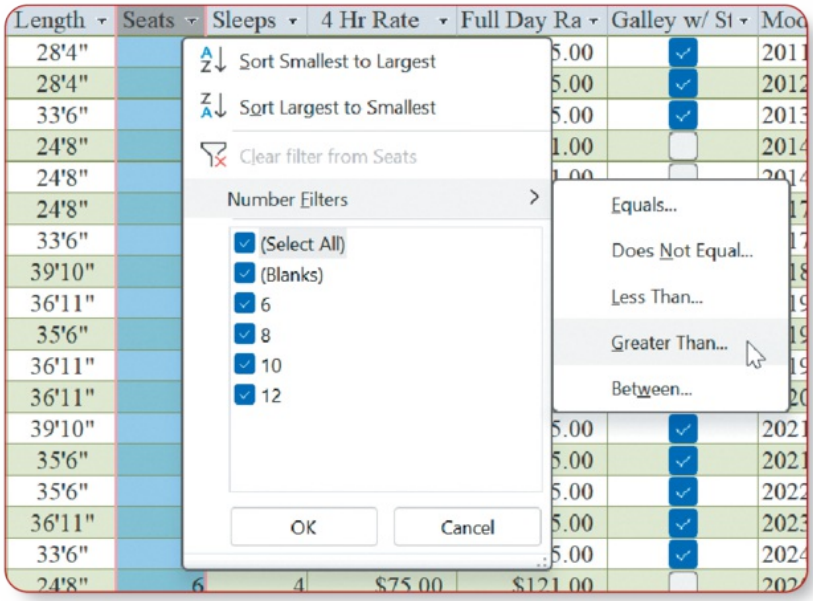


FIGURE 1-119 ***Number Filters***

   c. Type 8 in the *Seats is greater than or equal to* box.
   d. Click **OK**. The datasheet should display only the 16 boats that can seat at least eight people.
   e. Click the **drop-down arrow** to the right of the *4 Hr Rate* field name.

f. Select the **Number Filters** on the drop-down list and select **Less Than** from the second drop-down list.

g. Type 325 in the *4 Hr Rate is less than or equal to* box.

h. Click **OK**. The datasheet should display only the six boats that can seat at least eight people and have a four-hour rate of less than or equal to $325.

i. Click to select the **Length** column.

j. Click the **Ascending** button [*Home* tab, *Sort & Filter* group] to sort the filtered results by the *Length* field. In **Figure 1-120**, notice the filter symbols next to the field names of the *Seats* and

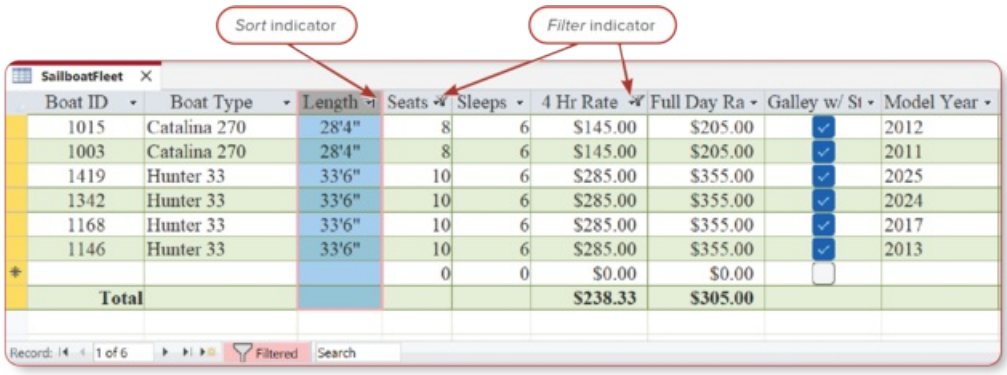


FIGURE 1-120 **Filtered and sorted records**

4 Hr Rate fields and the *Sort symbol* next to the *Length* field name. Also notice that filter status message changes to *Filtered* and the averages updated on the *Total* row to reflect the values for this selected group of records.

k. Click the **Toggle Filter** button [*Home* tab, *Sort & Filter* group] to switch back to the unfiltered records. Notice that the records remain sorted.

l. Click the **Remove Sort** button [*Home* tab, *Sort & Filter* group] to remove the sort criteria.

m. Click the **Advanced** button [*Home* tab, *Sort & Filter* group] and select the **Clear All Filters** button. The datasheet should update to show all the records.

10. Close the *SailboatFleet* table by clicking the **X** in the tab.

11. Click the **No** button in the dialog box. You do not need to save any of the changes as a result of sorting or filtering the table.

12. Close the database by clicking the **X** in the right corner of the application window.

Independent Project 1-4 - SIMnet Project

Courtyard Medical Plaza (CMP) is a full-service medical office complex. For this

project, you create a database, containing one table, to store information about the physicians who work at CMP. After creating the database, you add fields into the table, edit field properties, enter records, import data, modify the datasheet layout, and sort and filter the data in the table.

[**Student Learning Outcome 1.2**, **Student Learning Outcome 1.3**, **Student Learning Outcome 1.4**, **Student Learning Outcome 1.5**, **Student Learning Outcome 1.6**]

File Needed: ***PhysiciansDataFile-01.xlsx*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Name: ***[your initials] Access 1-4.accdb***

Skills Covered in This Project

- Create a blank database.
- Edit the default primary key.
- Add a new field into a table.
- Edit properties in *Datasheet* view.
- Save a table.
- Enter records.
- Import records.
- Change the datasheet layout.
- Sort data in a table.
- Filter data in a table.

1. Create a new blank database.
   a. Name the database [your initials] Access 1-4.
   b. Change the location where you save the database if needed.
2. Edit the default primary key and add new fields into the table.
   a. Open **Table1**, if not already open, and change the **ID** field name to DoctorID. Keep this field as an *AutoNumber* data type.
   b. Enter the remaining fields into the table using the information in **Table 1-16**. After you enter the last field name, *MoveInDate*, press the **down arrow** key to move to the first column of the append row.

Table 1-16

Data Type	Field Name
Short Text	LastName

Short Text	FirstName
Short Text	OfficeNumber
Short Text	PrimarySpecialty
Date & Time	MoveInDate

c. Save the table as Physicians.

3. Edit the field properties of the *Physicians* table using the information in **Table 1-17**.

Table 1-17

Field Name	Caption	Size
DoctorID	Doctor ID	N/A
LastName	Last Name	25
FirstName	First Name	20
OfficeNumber	Office	3
PrimarySpecialty	Specialty	30
MoveInDate	Tenant Since	N/A

4. Save the table after updating the properties.
5. Enter the data records shown in **Table 1-18** into the *Physicians* table. Remember that the *Doctor ID* value is automatically entered by Access.

Table 1-18

Last Name	First Name	Office	Specialty	Tenant Since
Agarwal	Ashish	101	Pediatrics	1/15/2022
Scher	Elizabeth	115	Cardiovascular Disease	2/16/2024
Sharma	Rajni	101	Pediatrics	9/18/2024
Foster	Margaret	200	Cardiovascular Disease	5/20/2015

6. Save and close the *Physicians* table.
7. Import the remaining data records from Excel into the *Physicians* table.
   a. Launch the *Get External Data – Excel Spreadsheet* dialog box.
   b. Locate and select the ***PhysiciansDataFile-01*** Excel file.
   c. Append the records to the *Physicians* table.

d. Launch the *Import Spreadsheet Wizard*.
e. Finish the *Import Spreadsheet Wizard*. Close the *Wizard* after the records have imported.

8. Open the *Physicians* table in *Datasheet* view. Your table should contain 16 records.
9. Change the layout of the *Physicians* table.
   a. Change the *Font Size* to **12**.
   b. Use *AutoFit* to increase the column width of the *Specialty* field.
   c. Use *AutoFit* to increase the column width of the *Tenant Since* field.
   d. **Center-align** the *Doctor ID, Office*, and *Tenant Since* fields.
   e. Change the *Alternate Row Color* to **Light Blue 2** (fifth column, third row in the *Standard Colors* category).
   f. Save the changes to the layout.
10. Sort the *Physicians* table in ascending order by the *Specialty* field.
11. Remove the sort criteria.
12. Filter the *Physicians* table to find the doctors who moved in on or after 1/1/2021 and who have a specialty in Pediatrics. The table should look similar to **Figure 1-121**.

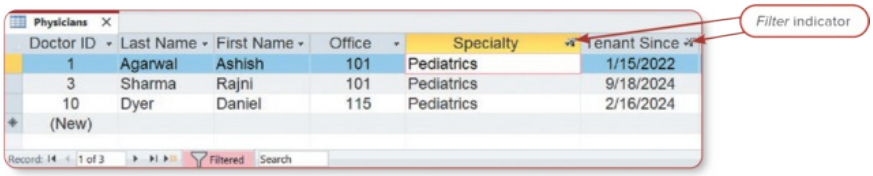


FIGURE 1-121 **Records filtered on *Specialty* and *Tenant Since***

13. Clear all the filters. The datasheet updates to show all the records.
14. Close the *Physicians* table.
15. Do not save any of the changes as a result of sorting or filtering the table.
16. Add the following database properties.
   a. *Title:* Courtyard Medical Plaza Physicians
   b. *Author:* Caroline Rios
   c. *Company:* CMP
   d. Click **OK** to save the changes.
17. Close the database.

Independent Project 1-5 - SIMnet Project

Life's Animal Shelter (LAS) is an animal adoption agency that strives to keep its expenses down and donations up and is mainly run by volunteers. LAS does not turn any animal away, and its goal is to find homes for all animals within six months of their arrival. Julie Freed, one of the volunteers, has begun building a database for LAS. For this project, you work with her database, which currently has one table that contains information about the pets currently at LAS. Add one field into the table, edit field properties, enter data into records, modify the datasheet layout, and sort and filter the data in the table.

[Student Learning Outcome 1.1, Student Learning Outcome 1.2, Student Learning Outcome 1.3, Student Learning Outcome 1.5, Student Learning Outcome 1.6]

File Needed: ***LifesAnimalShelter-01.accdb*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Name: ***[your initials] Access 1-5.accdb***

Skills Covered in This Project

- Open an existing database.
- Use the *Navigation Pane*.
- Edit field properties in *Datasheet* view.
- Add a new field into a table.
- Save a table.
- Enter records.
- Change the datasheet layout.
- Sort data in a table.
- Filter data in a table.

1. Open the ***LifesAnimalShelter-01*** database from your student data files. If a *Security Risk* message displays, click the **X** to close it.
2. Save a new copy of your database.
   a. Select the **Save As** button [*File tab*]. The **Access Database** button should be selected in the *Save Database As* area.
   b. Click the **Save As** button.
   c. Select the desired location in which to store the copy of your database.
   d. Type [your initials] Access 1-5 in the *File name* box.
   e. Click the **Save** button.

3. Enable content in the security warning. **Note:** If a Security Risk message displays when opening your database, please do the following: Navigate to where you saved your file. Right-click the file and select **Properties**. Check the **Unblock** check box on the *General* tab. Click **Apply** and click **OK**.
4. Open the *Navigation Pane*.
5. Open the *Pets* table in *Datasheet* view.
6. Edit the field properties of the *Pets* table using the information in **Table 1-19**. For several of the fields you see a *Some data may be lost* warning message display when you change the field size. The sizes provided are large enough based on the data entered, so no data will be lost. Click the **Yes** button to make the change.

Table 1-19

Field Name	Caption	Size
ID	Pet ID	N/A
PetName	Pet Name	15
Type		10
Breed		40
Age		8
Gender		1
Details	Why I'd make a great companion	N/A

7. Save the table after updating the properties.
8. Add a new field, to the left of the *Details* field. Remember that the field name is still *Details* even though the caption is changed to *Why I'd make a great companion*.
   a. Select the **Details** column.
   b. Right-click to open the context menu.
   c. Select **Insert Field**.
9. Edit the field properties using the following information:
   a. *Field Name:* Color
   b. *Data Type:* **Short Text**
   c. *Size:* 25
10. Save the table after updating the properties of this new field.
11. Enter the data values shown in **Table 1-20** into the *Color* field.

Table 1-20

Pet ID	Pet Name	Color

1	Rita	Brown
2	Peanut Butter	Tan/White
3	Martin	Brown Tabby/White
4	Thumper	White
5	Charlie	Tan
6	Allie	Brown
7	Sasha	Tan/White
8	Tate	Black/White
9	Elsa	White/Brown
10	Hubert	White/Brown
11	Bessie	Black/White
12	Connie	Tortoise Shell
13	Topaz	Brown Tabby
14	Lady	Black Brindle/White
15	Ashley	White/Brown
16	Lilith	Tan

12. Change the layout of the *Pets* table.
    a. Use *AutoFit* to decrease the column width of the *Pet ID, Type, Age*, and *Gender* fields.
    b. **Center-align** the *Pet ID* and *Gender* fields.
    c. Change the *Alternate Row Color* to **Light Gray 2** (first column, third row in the *Standard Colors* category).
    d. Set the *Column Width* of the *Details* field to 75.
    e. Set the *Row Height* of the table to 100.
    f. Save the changes to the layout.
13. Filter the *Pets* table to find the **Dogs** and **Cats** with **Brown** as part of their coloring. The resulting table should look similar to **Figure 1-122**. Your records may display in a different order.

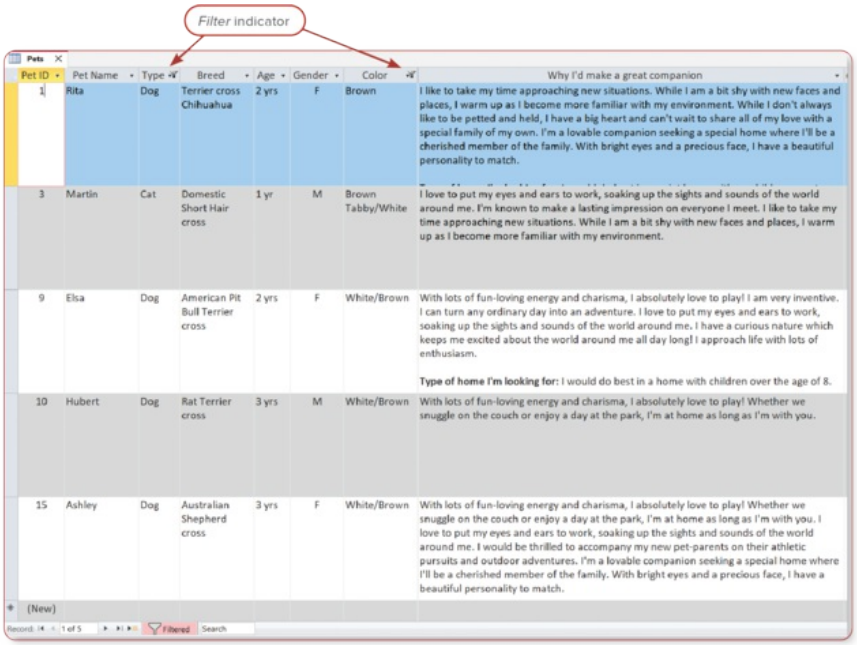


FIGURE 1-122 **Records filtered on *Type* and *Color***

14. Sort the filtered results in ascending order by the *Gender* field.
15. Remove the sort criteria. Clear all the filters. The datasheet will update to show all the records.
16. Close the *Pets* table.
17. Do not save any of the changes as a result of sorting or filtering the table.
18. Add the following database properties.
    a. *Title:* LAS
    b. *Author:* [Enter your name]
    c. *Comments:* Pets table updated on [enter today's date]
    d. Click **OK** to save the changes.
19. Close the database.

Independent Project 1-6

Boyd Air is a national airline company. For this project, you will create a database, containing one table, to store information about the airplanes in Boyd Air's fleet. After creating the database, add fields into the table, edit field properties, import data, modify the datasheet layout, and find data using the *Search* box.

[Student Learning Outcome 1.2, Student Learning Outcome 1.3, Student Learning Outcome 1.4, Student Learning Outcome 1.5, Student Learning Outcome 1.6]

File Needed: ***AirplaneDataFile-01.xlsx*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Name: ***[your initials] Access 1-6.accdb***

Skills Covered in This Project

- Create a blank database.
- Edit the default primary key.
- Add new fields into a table.
- Edit properties in *Datasheet* view.
- Save a table.
- Import records.
- Change the datasheet layout.
- Sort data in a table.
- Find data using the *Search* box.

1. Create a new blank database.
   a. Name the database [your initials] Access 1-6.
   b. Change the location to save your database if needed.
2. Add new fields into the table.
   a. Do not make any changes to the *ID* field.
   b. Enter the remaining fields into the table using the information in **Table 1-21**. After you enter the last field name, *InServiceDate*, press the **down arrow** key to remain in that column.

Table 1-21

Data Type	Field Name
Short Text	PlaneModel
Short Text	Manufacturer
Short Text	Length
Number	FirstClassSeats
Number	EconomySeats
Date & Time	InServiceDate

c. Save the table as Fleet.

3. Edit the field properties of the *Fleet* table using the information in **Table 1-22**.

Table 1-22

Field Name	Caption	Size
ID	Aircraft ID	N/A
PlaneModel	Model	25
Manufacturer		20
Length		8
FirstClassSeats	First Class	N/A
EconomySeats	Economy	N/A
InServiceDate	In-Service	N/A

4. Save and close the table after updating the properties.
5. Import data from Excel into the *Fleet* table.
   a. Launch the *Get External Data – Excel Spreadsheet* dialog box.
   b. Locate and select the ***AirplaneDataFile-01*** Excel file.
   c. Append the records to the *Fleet* table.
   d. Launch the *Import Spreadsheet Wizard*.
   e. Finish the *Import Spreadsheet Wizard*. Close the *Wizard* after the records have imported.
6. Open the *Fleet* table in *Datasheet* view. Your table should contain 17 records.
7. Change the layout of the *Fleet* table.
   a. Change the *Font Size* to **12**.
   b. Select the entire datasheet and use *AutoFit* to adjust all the fields to their correct size.
   c. **Center-align** the *Aircraft ID, First Class*, and *Economy* fields.
   d. Remove the gridlines.
   e. Save the changes to the layout.
8. Sort the *Fleet* table in descending (newest to oldest) order according to the *In-Service* field. The table should look similar to **Figure 1-123**.

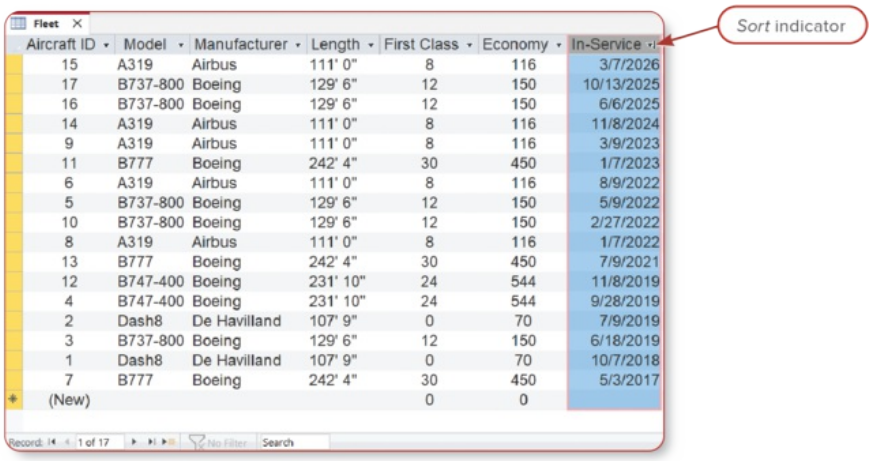


FIGURE 1-123 **Records sorted on *In-Service* field**

9. Remove the sort criteria.
10. Use the *Search box* to find Dash8.
11. Delete the value from the *Search* box.
12. Close the *Fleet* table.
13. Do not save any of the changes as a result of sorting the table.
14. Add the following database properties.
    a. *Title:* Boyd Air Fleet Data
    b. *Author:* Marcus Sampson
    c. *Company:* Boyd Air
    d. Click **OK** to save the changes.
15. Close the database.

Advanced Project 1-7

Placer Hills Real Estate (PHRE) is a real estate company with regional offices throughout central California. Kelsey Kroll, one of the managers, began building a database. The database has one table that contains information about the real estate properties currently listed for sale. You add one field into the table, edit field properties, enter data into records, modify the datasheet layout, and sort and filter the data in the table.

Student Learning Outcome 1.1, Student Learning Outcome 1.2, Student Learning Outcome 1.3, Student Learning Outcome 1.5,

Student Learning Outcome 1.6]

File Needed: ***PlacerHills-01.accdb*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Name: ***[your initials] Access 1-7.accdb***

Skills Covered in This Project

- Open a database.
- Use the *Navigation Pane*.
- Edit the default primary key.
- Add a new field into a table.
- Edit properties in *Datasheet* view.
- Save a table.
- Enter records.
- Change the datasheet layout.
- Sort data in a table.
- Filter data in a table.

1. Open the ***PlacerHills-01*** database from your student data files and save a new copy of your database as [your initials] Access 1-7. If a *Security Risk* message displays, click the **X** to close it. Enable content in the security warning.
2. Open the *Navigation Pane*.
3. Open the *Listings* table in *Datasheet* view.
4. Edit the field properties of the *Listings* table using the information in **Table 1-23**. Only fields needing to be changed are included in the table. For several of the fields, you see a *Some data may be lost* warning message when you change the field size. Because the new field sizes are sufficient for the existing data, click the **Yes** button to continue.

Table 1-23

Field Name	Caption	Size
DateListed	Date Listed	N/A
ListPrice	List Price	N/A
Address		35
City		20
Garage		18
YearBuilt	Built	N/A

ListingAgent	Agent	25

5. Save the table after updating the properties.
6. Add a new field, to the left of the *Agent* field.
7. Edit the field properties using the following information:
   a. *Field Name:* Construction
   b. *Data Type:* Short Text
   c. *Size:* 5
8. Save the table after updating the properties.
9. Change the layout of the *Listings* table.
   a. Change the *Font Size* to **12**.
   b. **Center-align** the *SqFt*, *Beds*, *Baths*, *Built*, and *Construction* fields.
   c. Change the *Gridline Color* to **Green 5** (seventh column, sixth row in the *Standard Colors* category).
   d. Set the *Row Height* of the table to 16.
   e. Select the entire datasheet and use *Autofit* to adjust all the fields to their correct size.
   f. Save the changes to the layout.
10. Enter the data values shown in **Table 1-24** into the new *Construction* field.

Table 1-24

ListingID	Construction
10022	Frame
10023	Stone
10024	Brick
10027	Stone
10030	Stone
10031	Brick
10040	Frame
10042	Brick
10043	Stone
10044	Brick
10045	Brick
10046	Brick
10048	Frame

10052	Brick
10053	Frame
10054	Stone

11. Save the table.
12. Save a copy of the *Listings* table and name it Listings-SortAndFilter.
13. Filter the *Listings-SortAndFilter* table to find the listings of homes that are at least 2000 square feet, have 3 or 4 bathrooms, and are brick construction.
14. Sort the filtered results in descending order by the *List Price* field. The datasheet should display three properties in the following order: *ListingID 10024*, *10031,* and *10045*.
15. Remove the sort criteria and the filter criteria.
16. Move the **Construction** column to the right of the *Date Listed* column. Move the **City** column to the right of the *Construction* column. The first five columns in the *Listings-SortAndFilter* table are now *ListingID*, *Date Listed*, *Construction*, *City*, and *List Price*. The revised order allows you to sort on multiple columns.
17. Sort the *Listings-SortAndFilter* table in ascending order by the *Construction*, *City*, and *List Price* fields. Your datasheet should look similar to **Figure 1-124**.

Listings-SortAndFilter

ListingID	Date Listed	Construction	City	List Price	Address	SqFt	Beds	Baths	Garage	Built	Agent
10045	3/4/2026	Brick	Auburn	$385,000.00	12355 Krista Lane	2234	3	3	2 Car Attached	1984	Kallyn Duarte
10042	2/25/2026	Brick	Auburn	$440,500.00	131 Aeolia Drive	1905	3	2	2 Car Detached	1940	Kallyn Duarte
10052	3/30/2026	Brick	Lincoln	$329,500.00	1096 Kinnerly Lane	1948	3	3	3 Car Attached	1995	Millie Bui
10046	3/28/2026	Brick	Lincoln	$334,900.00	1735 Andover Lane	1552	2	2	2 Car Detached	1987	John Burgess
10031	2/10/2026	Brick	Roseville	$419,900.00	2024 Brixham	2385	3	3	2 Car Attached	1999	Kallyn Duarte
10024	1/31/2026	Brick	Roseville	$749,900.00	1917 Oak Crest Drive	3397	4	4	3 Car Attached	2006	Calvin Walters
10044	2/26/2026	Brick	Weimer	$317,000.00	446 Manzanita Way	1885	3	2	2 Car Attached	1994	Calvin Walters
10040	2/25/2026	Frame	Auburn	$412,000.00	3935 Cedar Mist Lane	1056	3	2	2 Car Detached	1993	Millie Bui
10022	1/28/2026	Frame	Lincoln	$374,900.00	525 Riverdale	2755	3	2	2 Car Detached	2001	Millie Bui
10053	4/5/2026	Frame	Weimer	$189,000.00	21075 Butte View Place	914	2	1	No Garage	1988	Kelly Weatherby
10048	3/28/2026	Frame	Weimer	$389,000.00	900 Coyote Mountain Drive	1958	3	3	2 Car Attached	1963	Kelly Weatherby
10043	2/26/2026	Stone	Auburn	$397,000.00	1575 Oak Ridge Way	2266	4	3	3 Car Detached	2000	Calvin Walters
10054	4/12/2026	Stone	Lincoln	$328,500.00	272 Lariat Loop	1571	2	1	2 Car Attached	2002	Kallyn Duarte
10023	1/28/2026	Stone	Lincoln	$379,000.00	615 Silver Hill Court	1600	3	2	2 Car Attached	2000	Kelly Weatherby
10027	2/7/2026	Stone	Roseville	$335,000.00	2128 Wedgewood	1184	3	2	1 Car Detached	1998	Kelly Weatherby
10030	2/10/2026	Stone	Roseville	$429,000.00	1720 Grey Owl Circle	2182	3	2	3 Car Attached	2002	Millie Bui
0				$0.00		0	0	0		0	

FIGURE 1-124 **Records sorted on *Construction, City*, and *List Price***

18. Save and close the *Listings-SortAndFilter* table.
19. Edit the following database properties and save the changes:
    a. *Title:* PHRE
    b. *Author:* Kelsey Kroll
    c. *Comments:* Listings table updated
    d. Save the changes.
20. Close the database.

Copilot Challenge Project 1-8

Use *Copilot* or other generative AI to help you create a database to store data about professional athletes. Add the necessary fields into the table. Be sure to edit the field properties as needed. Enter several rows of data into the table. Ensure that the datasheet layout is easy to read.

[Student Learning Outcome 1.2, Student Learning Outcome 1.3, Student Learning Outcome 1.5, Student Learning Outcome 1.6]

File Needed: None

Completed Project File Name: ***[your initials] Access 1-8.accdb***

Create a new database and save it as [your initials] Access 1-8. Modify your database according to the following guidelines:

- Keep the default *Table1* open.
- Open *Copilot* and ask it to suggest a table structure that contains at least five fields to store information about professional athletes in a particular sport (e.g. baseball, football, soccer, etc.) In the same prompt, ask *Copilot* to create seven rows of data for that table, but limit the players to three specific teams of your choosing. Execute the prompt.
- Use *Copilot's* response to add the fields into the table if the response displays as a table that includes the Excel icon (**Figure 1-125**). If the response doesn't look like **Figure 1-125**, try rephrasing it.



FIGURE 1-125 ***Copilot* results in table format**

- Select the column headers and all the rows of data.
- *Copy* (**Ctrl+C**) the selected *Copilot* information.
- Click to select your open Access applications. Ensure you are in *Datasheet* view of *Table1*.
- **Paste** [*Home* tab, *Clipboard* group] the information to have Access enter the field names and data into the table. Click **Yes** in the Access message box to confirm that you want to paste the records.
  - Note 1: If you get a message box indicating that one of the fields is a reserved

word, click **OK** to acknowledge the message. Most likely *Copilot* suggested a field with a name like *Date* or *Year*. Change that name to make it unique (DateHired or RookieYear).

- Note 2: If you copied and pasted the data from *Copilot*, you probably have two ID fields, the default ID field that Access assigned when the table was created, and a PlayerID field suggested by *Copilot*. You don't need both ID fields, but in *Datasheet* view you cannot delete the default field because Access defined it as the primary key. You learn how to change the primary key in *Design* view in Chapter 2.

- If you are unable to copy and paste the records, enter *Copilot's* suggested fields into *Datasheet* view of the table and then enter the rows of data that *Copilot* suggested.
- Save the table. Enter an appropriate name in the *Save As* box.
- Click the **Table Fields** tab if necessary.
- Click through each field in the table and verify that Access assigned the correct data type. Make any changes that are needed. Additionally, change the default field size for any *Short Text* fields to better meet the actual size needed for each field.
- Add one additional field into the table. Select an appropriate data type and enter a field name to accurately describe the contents.
- Enter a data value into each of the records to provide a value for the additional field you added.
- Enter one new record into the table for a player of your choice.
- Change the layout of the table fields as desired to create a professional-looking layout.
- Save the changes to the table.
- Sort the records by one of the fields.
- Close the table. Don't save changes based on the sort.
- Close the database.

Challenge Project 1-9

Create a database for a small bakery. The database should contain one table to store information about the different items sold by the bakery. Be sure to include a table field to store the item category. Examples of the content for the item categories might include cupcakes, cakes, pies, cookies, and candy. Create the table by adding fields and modifying properties. Enter data into the table. Ensure that the datasheet layout is easy to read.

[Student Learning Outcome 1.2, Student Learning Outcome 1.3, Student Learning Outcome 1.5, Student Learning Outcome 1.6]

File Needed: None

Completed Project File Name: ***[your initials] Access 1-9.accdb***

Create a new database and save it as [your initials] Access 1-9. Modify your database according to the following guidelines:

- Add the following fields into the table: ItemID, ItemName, CostToMake, MarkUpPercentage, and ItemCategory.
- The *ItemID* should use an *AutoNumber* data type and be the primary key. Select appropriate data types for the other fields.
- Save the table.
- Edit the field properties to match the needs of the database.
- Enter several records into the table. If desired, ask *Copilot* to create the data records for you and then enter them into the table.
- Save and close the table.
- Close the database.

Challenge Project 1-10

Create a database for a travel agency. The database should contain one table to store information about upcoming cruises. Create the table by adding fields and modifying properties. Enter data into the table. Ensure the datasheet is easy to read.

[Student Learning Outcomes 1.2, Student Learning Outcomes 1.3, Student Learning Outcomes 1.5, Student Learning Outcomes 1.6]

File Needed: None

Completed Project File Name: ***[your initials] Access 1-10.accdb***

Create a new database and save it as [your initials] Access 1-10. Modify your database according to the following guidelines:

- Add the following fields to the table: TripID, TripName, NumberOfDays, DepatureCity, DestinationCity, DepartureDate, and CostPerPerson.
- The *TripID* should use an *AutoNumber* data type and be the primary key. Select appropriate data type for the other fields.
- Save the table as Trips.

- Edit the field properties, like *Field Size*, to match the needs of the database.
- Enter several records into the table for trips of various lengths. Search the web if you need help finding examples of data to enter.
- Change the layout as desired to create a professional-looking layout.
- Save any changes.
- Create a filter using compound criteria to locate all cruises that leave from a select city and have the same trip length.
- Close the table. Do not save your filter changes.
- Close the database.

Source of screenshots Microsoft Office 365 (2024): Word, Excel, Access, PowerPoint.

CHAPTER 2
Using Design View, Data Validation, and Relationships

CHAPTER OVERVIEW

In chapter 1, you learned to use *Datasheet* view to create and view tables. Many database designers prefer to create tables in *Design* view because it is easier to change the various field and table properties. Additionally, several database properties can only be changed using *Design* view. This chapter covers the basics of creating a table in *Design* view, using data validation rules to ensure your data is valid, and creating relationships among different tables in a database.

STUDENT LEARNING OUTCOMES (SLOs)

After completing this chapter, you will be able to:

- **SLO 2.1** Create a table in *Design* view; add new fields; define a primary key; delete fields; save, close, rename, and open a table; and switch between *Datasheet* and *Design* views (p. A2-88).
- **SLO 2.2** Set field properties including *Field Size, Format, Caption, Default Value, Required*, and *New Values* (p. A2-93).
- **SLO 2.3** Explain data integrity and data validation concepts and options (p. A2-99).
- **SLO 2.4** Create field and record validation rules, test rules, create validation text, create lookup fields, and define an input mask (p. A2-100).
- **SLO 2.5** Change field properties after records are added into a table (p. A2-114).
- **SLO 2.6** Explain relational database principles, understand the steps that must be taken to design a database, create relationships between tables, implement referential integrity, and delete and edit relationships (p. A2-120).
- **SLO 2.7** Preview and print the contents of a table (p. A2-129).
- **SLO 2.8** Manage a database using the *Compact & Repair Database* utility (p. A2-131).

CASE STUDY

Mary's Equipment Rentals is a privately owned equipment rental company. For the Pause & Practice projects in this chapter, you develop a database that contains information about the company's products. As you progress through the chapter, you incorporate many of the skills you are learning to construct and enhance this database.

Pause & Practice 2-1: Create a new blank database. Customize the table using *Design* view to store equipment information. Add new fields, define the primary

key, edit field properties, and save the table.

Pause & Practice 2-2: Refine your equipment table design by adding a field validation rule and a table validation rule, adding validation text, testing the validation rules, creating a lookup field, and defining an input mask.

Pause & Practice 2-3: Add a second table to store the service history of the equipment. Define a relationship between the equipment and service history tables. Print the contents of the equipment table. Use the *Compact & Repair Database* utility to manage the database.

SLO 2.1

Creating a Table in Design View

A2-88

Design view is used to create a table from scratch. When creating the table you define the fields that are included in the table and set their properties. You can also make changes to the fields in an existing table using *Design* view. This section teaches you to create a table in *Design* view, add new fields, define a primary key, delete fields, and save a table.

Create a New Table in Design View

To add a new table into a database use the *Create* tab. Tables created using the ***Table Design*** button automatically open in *Design* view.

A2-89

HOW TO: Create a New Table in Design View

1. Click the **Create** tab on the *Ribbon*.
2. Click the **Table Design** button in the *Tables* group (**Figure 2-1**).

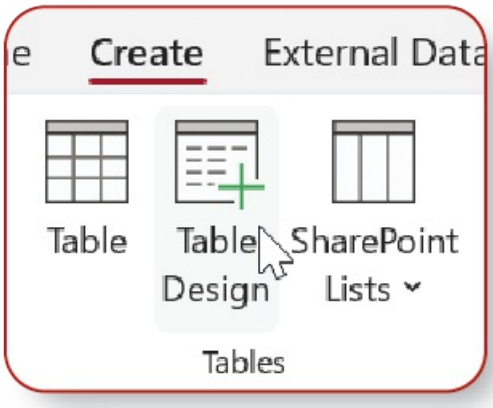


FIGURE 2-1 ***Table Design*** **button on the** ***Create*** **tab**

- A new table opens in *Design* view (**Figure 2-2**).

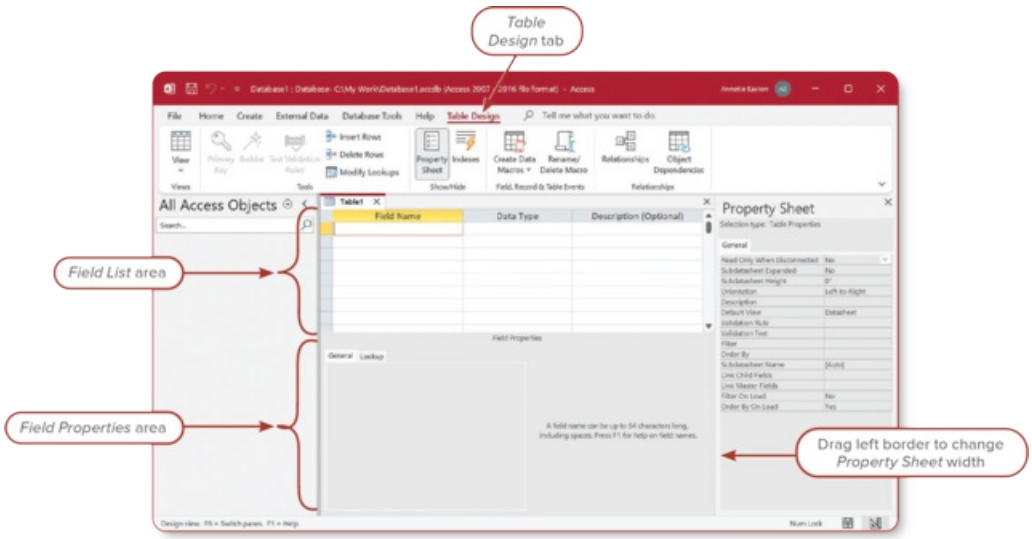


FIGURE 2-2 New table in *Design* view

- The table is assigned a generic name such as *Table1*.
- The *Table Design* tab, a contextual tab, is now available and selected.
- The new table does not contain any fields.
- The *Design* view window is divided into two areas. The top half displays the *Field Name*, *Data Type*, and *Description* for all fields in the table. The lower half displays the detailed field properties of the selected field. Because the table does not yet contain any fields, this section is blank.
- Depending on the settings the last time Access was used, the *Property Sheet* for the table may display to the right of the table.
- This sheet contains properties that apply to the entire table, not just a specific field.
- As needed, adjust the width of the *Property Sheet* by dragging the left border of the *Property Sheet* to increase or decrease the width.
- Since you don't need to modify table properties now, click the **Property Sheet** button [*Table Design* tab, *Show/Hide* group] or press **F4** to close the *Property Sheet* if it is open.

The *Table Design* tab contains buttons to perform a variety of tasks. The more commonly used buttons (*Primary Key*, *Insert Rows* and *Delete Rows*) are located in the *Tools* group (Figure 2-3) and explained in the following sections.

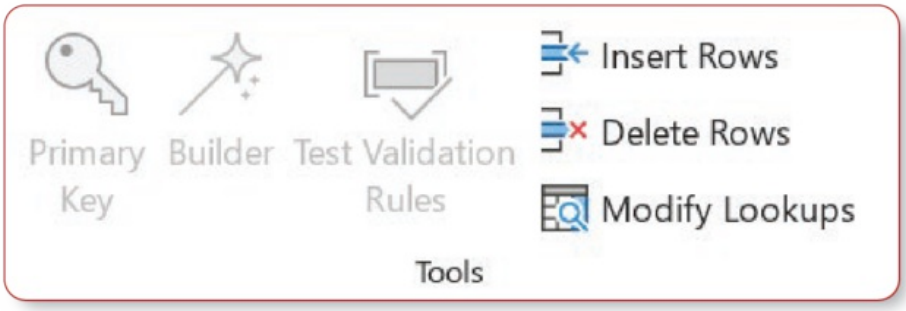


FIGURE 2-3 ***Table Design*** **tab,** ***Tools*** **group**

Add New Fields

Add new fields into a table by entering a field name in the first blank row in the field list. When you add a new field, you must enter values for the ***Field Name*** and ***Data Type*** properties. Enter values for other available properties as desired.

A2-90

HOW TO: Add a New Field

1. Click the **Field Name** property box in the first blank row in the field list.
2. Type the desired name in the property box (**Figure 2-4**).

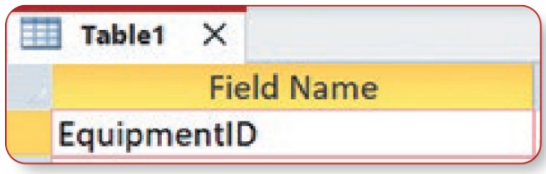


FIGURE 2-4 ***Field Name*** **property box**

   - Each field must have a unique name.
   - As needed, review the *Access Naming Rules* section in ***SLO 1.2: Creating and Managing a Database*** to ensure that you create a valid field name.
   - Use the naming conventions required by your instructor or employer.
3. Press **Enter** to add the field.
   - You move to the *Data Type* property with the ***Short Text Data Type*** selected.
   - The *Field Properties* of this field now display in the lower half of the *Design* view window.

ANOTHER WAY

Press **Tab** to add the field and move to the *Data Type* column.

4. Click the **drop-down arrow** in the *Data Type* property box (**Figure 2-5**).

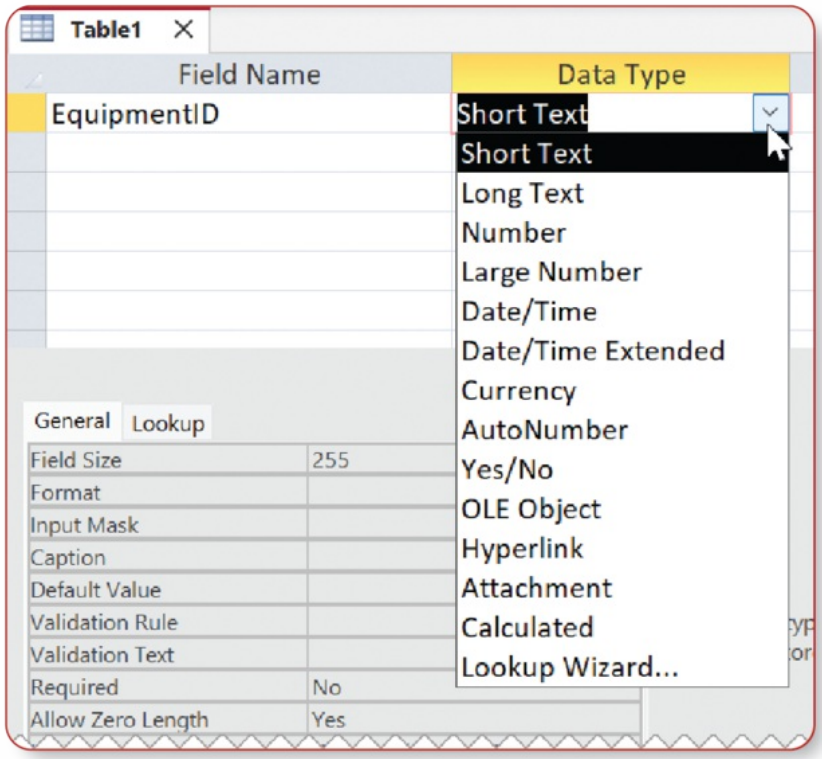


FIGURE 2-5 ***Data Type*** **options in** ***Design*** **view**

- The list of data types displays.

5. Select the appropriate **Data Type**.
6. Press **Enter** to move to the *Description* property box. Recall from **chapter 1** that the contents of the *Description* property displays in the lower left of the *Status* bar when the table is viewed in *Datasheet* view.
7. Type a value in the **Description** property box as desired (**Figure 2-6**).

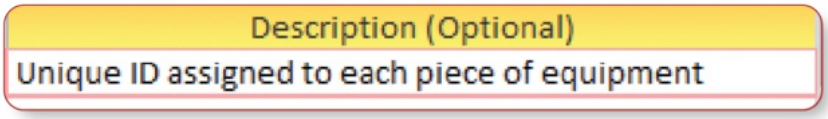


FIGURE 2-6 **Enter the field's description in the** ***Description*** **property**

8. Press **Enter** to move to the *Field Name* property box of the next row.

9. Repeat steps 2–8 to add additional fields into your table.

Sometimes, you may need to add a new field between existing fields in a table. To add this new field, you must first insert a new row. After the row has been inserted, follow the steps above to add the new field.

HOW TO: Insert a Blank Row to Add a New Field between Existing Fields

1. Click the **row selector** of the row where the new field should be added. In *Design* view, the gray box to the left of a field name is called the ***row selector***.
2. Click the **Insert Rows** button [*Table Design* tab, *Tools* group] (see **Figure 2-3**).
   - A new blank row is entered above the selected row (**Figure 2-7**).

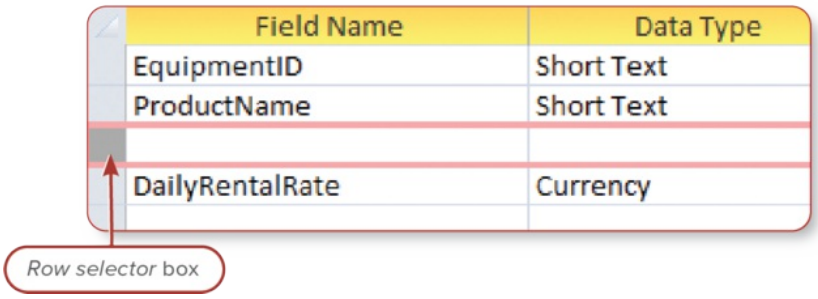


FIGURE 2-7 New row inserted into table

   - Follow the steps in *How To: Add a New Field* to enter the details about the new field.

ANOTHER WAY

Right-click the **row selector** to open the context menu and then select **Insert Rows**.

Define a Primary Key

Recall that a **primary key** is a field that contains a unique value for each record. When a table is created in *Design* view, a primary key field is not automatically assigned. You must determine which of the fields in your table uniquely identifies each record. If needed, add an additional field with an ***AutoNumber Data Type*** to serve as the primary key.

HOW TO: Define a Primary Key

1. Click the **row selector** of the desired field.
2. Click the **Primary Key** button [*Table Design* tab, *Tools* group] (see **Figure 2-3**).
   - The *Primary Key* symbol appears in the row selector box (**Figure 2-8**).

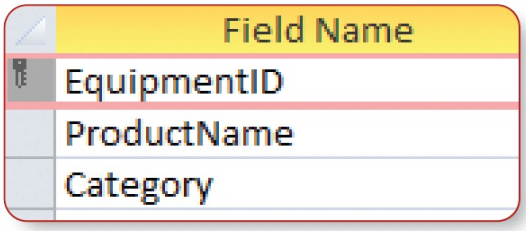


FIGURE 2-8 ***Primary Key*** **symbol**

   - The *Primary Key* button works as a toggle. Pressing it again will remove the symbol from the row selector.

ANOTHER WAY

Right-click the **row selector** of the desired field to open the context menu and then select **Primary Key**.

Delete Fields in a Table

A2-91

The steps to delete a field in a table are straightforward. However, before you delete a field, it is important to realize that this may impact other parts of your database. If you have queries, forms, and reports that contain this field, you must also modify those objects to remove this field.

HOW TO: Delete a Field in a Table

1. Click the **row selector** of the field to delete.
2. Click the **Delete Rows** button [*Table Design* tab, *Tools* group] (see **Figure 2-3**). If the table contains data, Access displays an information message (**Figure 2-9**) asking you to confirm the deletion of the field and data in the table.

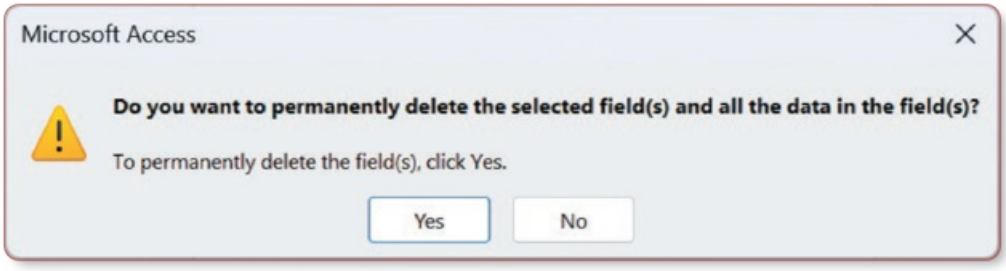


FIGURE 2-9 Delete field confirmation message

ANOTHER WAY

Right-click the **row selector** of the desired field to open the context menu and then select **Delete Rows**.

Save, Close, Rename, and Open a Table

The save, close, and open operations on a table work the same whether you are in *Datasheet* or *Design* view.

- Save a new table by clicking the **File** tab and then clicking the **Save** button. The *Save As* dialog box opens if this is the first time you save the table. Type a new name for the table to replace the generic name assigned by Access.

ANOTHER WAY

Recall from chapter 1 that you can also use **Ctrl+S**, the **Save** icon on the *Quick Access* toolbar, or the **F12** function key to open the *Save As* dialog box.

- Close a table by clicking the **X** in the table tab. If you close a new table without saving it, Access deletes the table.
- Rename a table by right-clicking the table name in the *Navigation Pane* and selecting **Rename** from the context menu. Remember that a table must be closed before you can rename it.
- Open a table in *Design* view by selecting the table name in the *Navigation Pane* and pressing **Ctrl+Enter**. You can also right-click the table name in the *Navigation Pane* and select **Design View** from the context menu.

Property Update Options Smart Tag

After the table has been named and saved for the first time, the *Property Update Options* smart tag becomes available. The *Property Update Options* smart tag lets you apply a property change to other controls linked to the same field. In Figure 2-10, the smart tag displays after you tab out of the *Description* property box, and you have entered or modified text in the *Description* property. Hover over the smart tag and click the arrow to display the list of options (Figure 2-10).

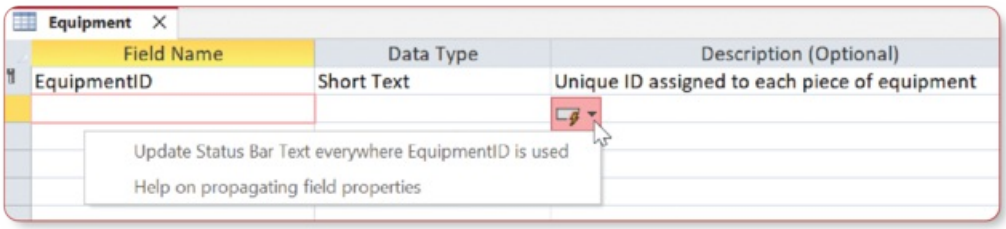


FIGURE 2-10 ***Property Update Options*** **button**

As desired, select the **Update Status Bar Text** option. This choice is most appropriate if you have created many different objects in your database and later change the *Description* property of a field. Selecting this option updates the description in all objects containing controls linked to this field. For example, you may have a text box control on a form object that is linked to the table field. When a field property can be passed to a control, it is called an ***inheritable property***. Not all field properties are able to be inherited. As a result, the *Property Update Options* smart tag only displays when the value of an inheritable property, such as the description, has been changed.

Switch between Datasheet and Design Views

Recall that *Datasheet* view is used to enter records into a table. When creating, and later using, a table, you may find that you need to switch between looking at the data records and looking at the properties of the different fields. When a table is open in *Design* view, Access provides three ways to easily switch between different table views.

- Click the **View** button [*Table Design* tab, *Views* group] and then select the desired view option (Figure 2-11).

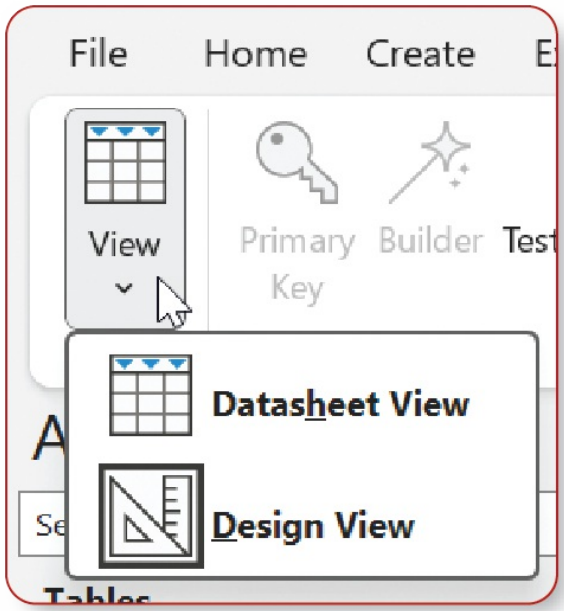


FIGURE 2-11 ***View*** **button**

- Click the icon on the *View* button [*Table Design* tab, *Views* group] to directly switch to the alternate view (Figure 2-12). The icon that displays in the *View* button is the opposite of the current view. For example, since Figure 2-12 shows the datasheet icon, this means that the current view of the table is *Design* view.

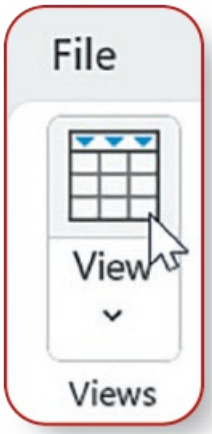


FIGURE 2-12 ***View*** **button icon**

- Click the desired view icon from the right side of the *Status* bar (Figure 2-13), located at the bottom of the Access window. The icon that has a gray background is the current view of the table.

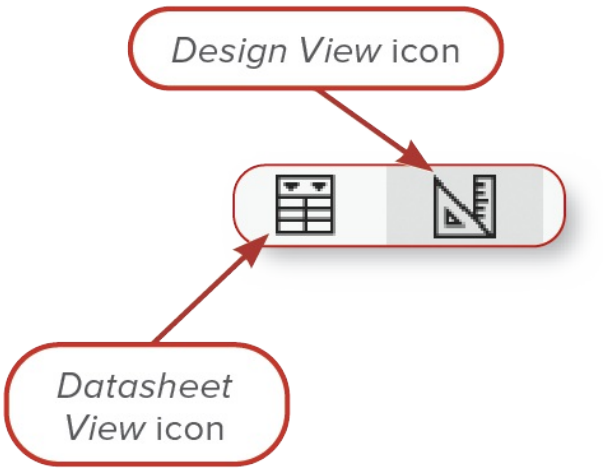


FIGURE 2-13 Table *View* icons in the *Status* bar

ANOTHER WAY

In *Datasheet* view, the *View* button is located on the *Table Fields* tab, *Views* group. The *View* button is also available on the *Home* tab, *Views* group in both *Design* and *Datasheet* views.

SLO 2.2

Setting Field Properties

A2-93

Field properties describe the specific details of each field. When you add a field into the table, you enter values for the field name, data type, and description properties. You can set many additional field properties depending on the needs of your database. The available properties vary based on the data type of the field. Field properties are grouped into *General* and *Lookup* properties, and are displayed on their respective tabs in the *Field Properties* area in the lower half of the *Design* view window. This section introduces the more common *General* tab field properties of ***Field Size***, ***Format***, ***Caption***, ***Default Value*** and ***Required***. Additionally, the ***New Values*** **property** of an *AutoNumber* field is described.

Depending on the specific property, either type in the new value or select the choice from the drop-down list. Remember to press **Enter** or **Tab** after setting the property to ensure that Access recognizes the new value. In order for the changes you make on any of the properties to be permanent, you must save the table. You can either save the table after each change or after all of your changes have been made.

Be sure to click the **row selector** of the correct field in the table before setting any of the properties discussed in this section.

Set the Field Size

The *Field Size* property determines the maximum number of characters allowed in a *Short Text* field or the range of possible values in a *Number* or *AutoNumber* field.

- A *Short Text* field can have a size from 0 to 255.
- A *Number* field can have seven possible field sizes that are explained in **Table 2-1**.

Table 2-1: Number Data Type Field Sizes

Unit	Description
Byte	Stores numbers from 0 to 255. Does not use decimal places.
Integer	Stores numbers from −32,768 to 32,767. Does not use decimal places.
Long Integer	Stores numbers from −2,147,483,648 to 2,147,483,647. Does not use decimal places. This is the default field size for a number data type.

Single	Stores numbers from −3.4 × 1038 to 3.4 × 1038 with a precision of 7 significant digits.
Double	Stores numbers from −1.797 × 1038 to 1.797 × 1038 with a precision of 15 significant digits.
Replication ID	Stores a globally unique identifier (GUID) randomly generated by Access.
Decimal	Stores numbers from −1028 to 1028 with a precision of 28 significant digits.

- An *AutoNumber* field can use either the *Long Integer* or *Replication ID* field size.

The other data types do not have a *Field Size* property since their size is controlled by the database. The *Field Size* property, if available, is the first property on the *General* tab.

HOW TO: Set the Field Size Property

1. Click the **Field Size** property box for a *Short Text* field, and type the desired field size (**Figure 2-14**).

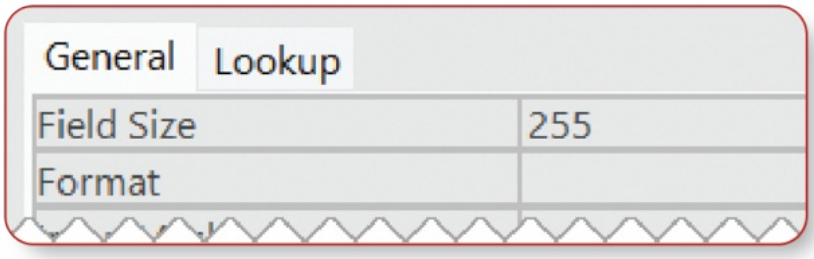


FIGURE 2-14 ***Field Size*** **property**

- The default size of a *Short Text* field is 255.

MORE INFO

Use the smallest field size that allows for the required processing or storage.

2. Click the **drop-down arrow** in the *Field Size* property for a *Number* or *AutoNumber* field, and select the desired number field size (**Figure 2-15**).

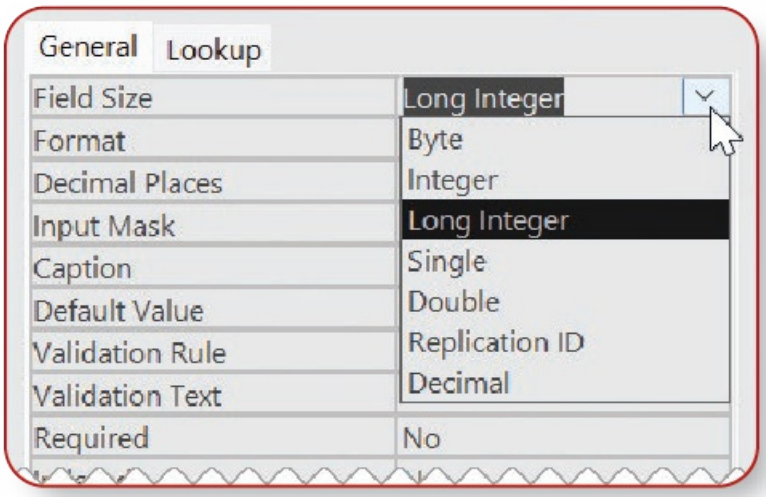


FIGURE 2-15 Field sizes for a *Number* data type

- The default selection for a *Number* field is *Long Integer*.
- The drop-down list of an *AutoNumber* field only contains *Long Integer* and *Replication ID*.

The Format Property

The *Format* property controls the way a field displays in a table; it doesn't change what is actually stored. The choices available vary by the data type selected. Data types like *Number*, *Currency*, *Date/Time*, and *Yes/No* have predefined formats from which you can select. For *Short Text* and *Long Text* data types, you can create a custom format.

To enter a value in the *Format* property box, either select the predefined format or enter the desired formatting characters to create a custom format.

Number and Currency Field Formats

Click the **drop-down arrow** in the *Format* property box of a *Number* or *Currency* field to display the list of predefined formats (**Figure 2-16**). If you don't select a format, Access uses the *General Number* format for a number field, although it won't display in the *Format* property box. A *Currency* field defaults to the *Currency* format.

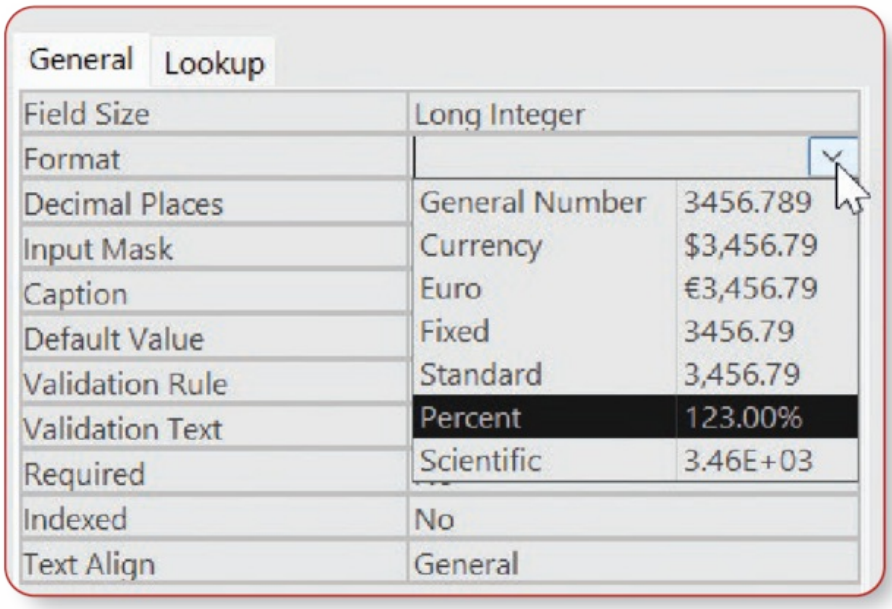


FIGURE 2-16 **Predefined formats for *Number* and *Currency* data types**

Date/Time Field Formats

Click the **drop-down arrow** in the *Format* property box of a *Date/Time* or *Date/Time Extended* field to display the list of predefined formats (Figure 2-17). You can choose formats that display only the date, only the time, or both. If you don't select a format, Access uses the *General Date* format, although it won't display in the *Format* property box.

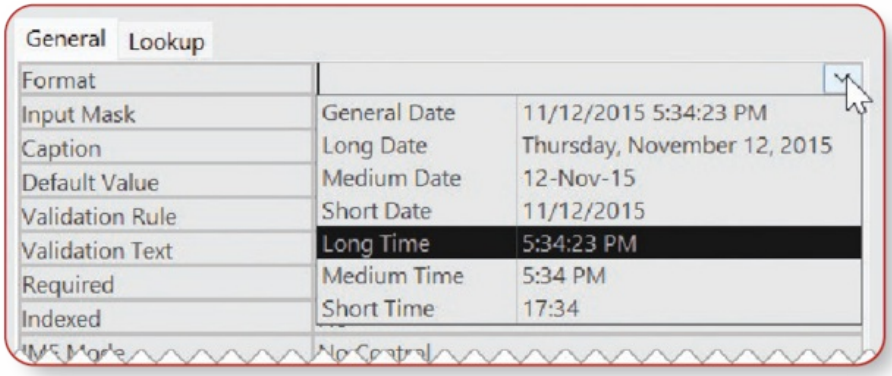


FIGURE 2-17 **Predefined field formats for the *Date/Time* data type**

MORE INFO

Since the *Date/Time Extended* field captures more precision for time, it contains a *Decimal Places* property on the *General* tab. This shows more decimal places when the *Long Time* format option is selected.

Yes/No Field Formats

A2-95

Click the **drop-down arrow** in the *Format* property of a *Yes/No* field to display the list of predefined formats shown in Figure 2-18. If you don't select a format, Access uses the *Yes/No* format.

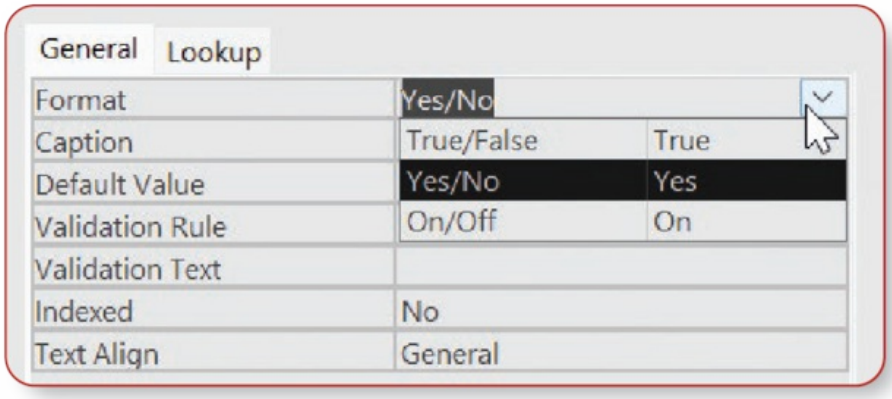


FIGURE 2-18 Predefined field formats for the *Yes/No* data type

Short Text and Long Text Field Formats

Short Text and *Long Text* fields do not have any predefined formats. You can use formatting symbols to create a custom format and change the way the data display. More than one symbol may be used if multiple formatting effects are needed. Four common formatting symbols are described in Table 2-2.

Table 2-2: Short Text and Long Text Field Formatting Symbols

Character	Description
<	The less than symbol (<) displays characters in lowercase. For example, if **FL** or **Fl** is entered into a field with a format of <, the entry displays as **fl**. This must be the first of the formatting symbols if multiple symbols are used.
>	The greater than symbol (>) displays characters in uppercase. For example, if **fl** or **Fl** is entered into a field with a format of >, the entry displays as **FL**.

	This must be the first of the formatting symbols if multiple symbols are used.
@	Enter one at symbol (@) for each character in the size of the field. If the field content contains fewer characters than the field size, the content displays with leading spaces. For example, if **ABC** is entered into a field of size 5 with a format of @@@@@, this entry displays as **space**, **space**, **ABC**.
[color]	Applies a color to this field only. The color must be enclosed in brackets. The possible colors are black, blue, cyan, green, magenta, red, yellow, or white. This formatting symbol only works when applied in conjunction with one of the other formatting symbols. For example, a format of **>[blue]** displays that field's contents in uppercase with a blue color. Be careful to not choose a color that is the same as the *Background Color* or *Alternate Background Color* of the datasheet rows because the text will not be visible.

Recall that *Short Text* and *Long Text* data types default to display left-justified. In **chapter 1**, you learned to change the alignment of a field in *Datasheet* view. The at symbol (**@**) does not change the alignment, but when leading spaces are included for field contents that are less than the field size, the displayed contents do not appear to be left-justified.

The Caption Property

The *Caption* property contains the text that displays in the column header to identify a field in *Datasheet* views of tables, forms, queries, and reports. Captions often include spaces and multiple words as compared to the field name. Access displays the field name as the caption if you do not enter a caption value.

To enter a value for the *Caption* property, click the **Caption** property box and type the desired value.

Set the Default Value

You can use the *Default Value* property to automatically insert a specified value into a new record in a table. For example, Access can enter today's date into an *OrderDate* field. Or, if most of a company's customers live in California, a default value of **CA** can be entered for a *State* field. Using a default value doesn't prevent the user from changing that value if needed (for example, when a customer is from Nevada (NV) instead of California (CA).) The default value is only inserted into the field at the time a new record is created. It does not automatically update later if field values are modified.

To enter a value in the *Default Value* property, click the **Default Value** property box and type the desired value.

MORE INFO

Use the Access functions of *Date()* and *Now()* to retrieve today's date from the computer. Enter *Date()* in the *Default Value* property to get the current date. Enter *Now()* to get the current date and time. The *Format* property determines how the content actually displays.

The Required Property

You can specify whether a user must enter a value into a field or whether the user can skip the field and leave it blank. If a field must have a value, you should set the *Required* property to *Yes*. The default value for the *Required* property is *No*. If you designated a field as the primary key, Access automatically changed the *Required* property value to *Yes*.

To set the *Required* property, click the **Required** property box and select **Yes**.

When building tables, you may wish to set the required property last. This enables you to more easily test different features in the table without being forced to enter a value for every field. This is especially helpful when you are adding different types of validation rules into the table. This skill is covered in the next section.

The New Values Property

As you learned in **chapter 1**, an *AutoNumber Data Type* is often used as a primary key field since it guarantees a unique value. The value of an *AutoNumber* field is set automatically when you create a new record. When creating this type of field, you can choose whether the values are set to be sequential (increment by 1) or random. This is controlled in the *New Values* property box (**Figure 2-19**), located on the *General* tab. The default value for the *New Values* property is *Increment*, which produces sequential numbers that increase by 1.

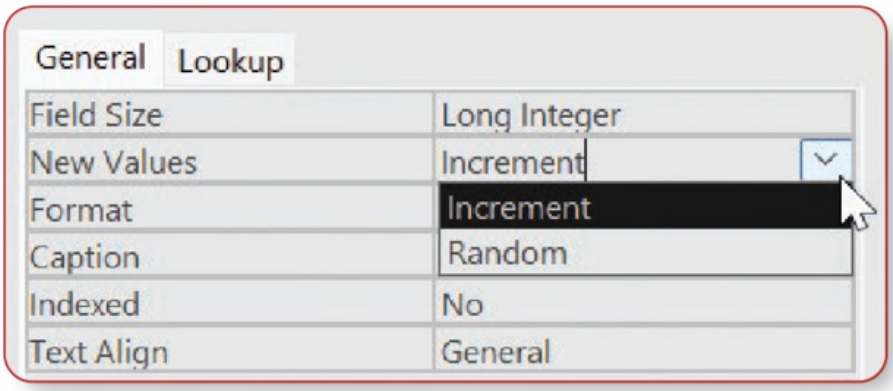


FIGURE 2-19 ***New Values*** **property options**

To set the *New Values* property to random numbers, click the **New Values** property box and select **Random**.

It is important to note that when a new record is created, the first value assigned is to the *AutoNumber* field. If you ultimately do not save that record, or the record is later deleted, the *AutoNumber* value is still considered used. A subsequent record will be assigned the next available value in sequence or an unused random number. Additionally, once you have set an *AutoNumber* field to use random values and have saved that table, you cannot change back to use incremental values.

PAUSE & PRACTICE: ACCESS 2-1

For this Pause & Practice, you create a new database for Ryan Thomas, operations director for Mary's Equipment Rentals. You use *Design* view to create a table to store information about the rental equipment. In addition, you modify the field properties to enhance the functionality of this table.

File Needed: ***EquipmentDataFile-02.xlsx*** *(Student data files are available in the* Library *of your SIMnet account)*

Completed Project File Name: ***[your initials] PP A2-1.accdb***

1. Create a new blank database.
   a. Open Access or click the **New** button [*File* tab] if an Access database is already open.
   b. Click **Blank database**.
   c. Type [your initials] PP A2-1 in the *File Name* box.
   d. Click the **Browse** button to change the location in which to save the database and click **OK**.
   e. Click the **Create** button. The database opens with a new table showing in *Datasheet* view.
2. Switch to *Design* view and save the table.
   a. Click the **View** button [*Table Fields* tab, *Views* group] and select the **Design View** option. You are prompted to save the table.
   b. Type Equipment as the new table name.
   c. Click **OK**. The table displays in *Design* view with the default primary key selected.
3. Modify the default primary key.
   a. Click the **ID** *Field Name* property box in your table and type EquipmentID. Press **Tab** to move to the *Data Type* property.
   b. Click the **drop-down arrow** in the *Data Type* property box.
   c. Select the **Short Text** data type. Press **Tab** to move to the *Description* property.
   d. Type Unique ID assigned to each piece of equipment in the *Description* property box. Press **Tab** to move to the next row (**Figure 2-20**). The *Property Update Options* smart tag displays because you have modified the description. Since you have not yet created any other objects based on this table, it is not necessary to click the smart tag.

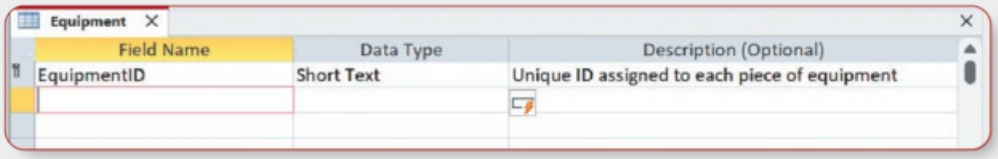


FIGURE 2-20 **Add fields into the *Equipment* table**

MORE INFO

The default *AutoNumber* data type was not appropriate for the *EquipmentID* field because Mary's Equipment Rentals already has assigned ID numbers to their equipment. Choose a *Short Text* data type for fields not used in arithmetic operations, even if the field contains numbers.

4. Add new fields into the table.
   a. Type ProductName in the *Field Name* property box of the second row. Press **Tab** to move to the *Data Type* property.
   b. Select the **Short Text** *Data Type*. Press **Tab** to move to the *Description* property.
   c. Do not enter a description; instead, press **Tab** to move to the next row.
   d. Continue adding the remaining fields into the *Equipment* table using the information in **Table 2-3**.

Table 2-3

Field Name	Data Type	Description
Category	**Short Text**	Type of equipment
DailyRentalRate	**Currency**	
WeeklyRentalRate	**Currency**	Must be greater than the DailyRentalRate
MonthlyRentalRate	**Currency**	Must be greater than the WeeklyRentalRate
DatePurchased	**Date/Time**	Date we purchased the equipment; not necessarily the date the equipment was made
Comments	**Long Text**	Additional information about the equipment

5. Save all of the modifications to the *Equipment* table.

6. Set the field properties in the *Equipment* table.
    a. Click the **row selector** of the *EquipmentID* field.
    b. Type 5 in the *Field Size* property box in the *Field Properties* area.
    c. Click the **Required** property box and select **Yes** if necessary.
    d. Click the **row selector** of the *ProductName* field.
    e. Continue changing the remaining field properties in the *Equipment* table using the information in **Table 2-4**.

Table 2-4

Field Name	Field Size	Format
ProductName	45	>[Blue]
Category	30	
DatePurchased		Medium Date

The *Required* property will be set for several of the other fields in ***Pause & Practice 2-2*** after you have added data validation features into the table design.

7. Save the table. Your completed table design should be similar to **Figure 2-21**.

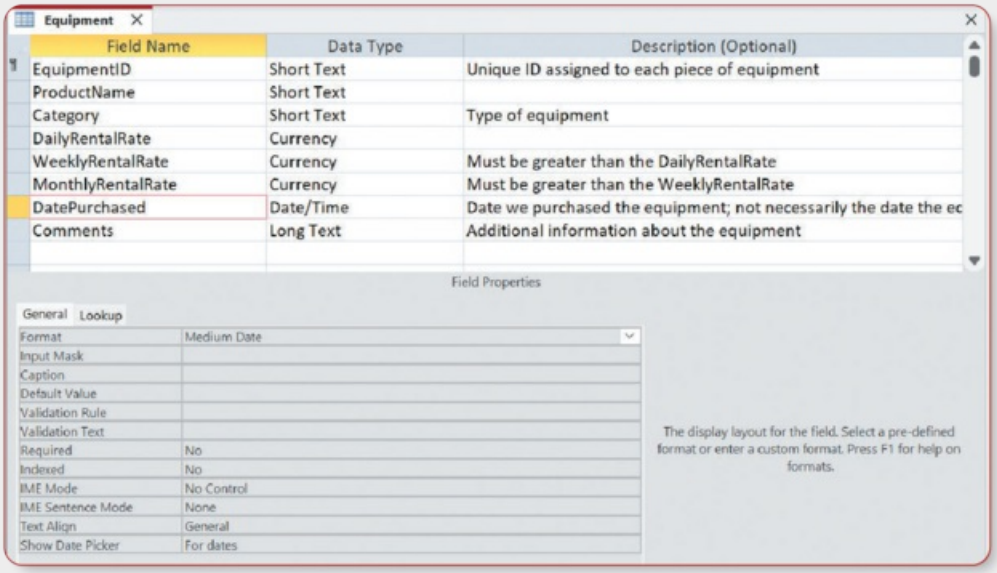


FIGURE 2-21 ***Design* view of the completed *Equipment* table**

8. Close the table.
9. Import data records from Excel into the *Equipment* table.
    a. Launch the *Get External Data – Excel Spreadsheet* dialog box. If necessary, review ***SLO 1.4: Importing Data Records from Excel*** for help with this task.
    b. Locate and select the ***EquipmentDataFile-02*** Excel file.
    c. Append the records to the *Equipment* table.

d. Launch the *Import Spreadsheet Wizard*. Note that the file only contains values for the *EquipmentID*, *ProductName*, and *Comments* fields. You will adjust the properties of the other fields in ***Pause & Practice 2-2*** before adding the additional data values.

e. Finish the *Import Spreadsheet Wizard*. Close the *Wizard* after the records have imported.

10. Open the *Equipment* table in *Datasheet* view. The table should contain 10 records. Access automatically displays a value of $0.00 in currency data type fields that do not have any data. The *ProductName* values display in uppercase blue text as a result of entering >[Blue] in the *Format* property in step 6e.

11. Modify the row height of the table. Recall from **chapter 1** that you can change the row height through the context menu.

a. Select any row in the table.

b. Right-click to open the context menu and select **Row Height**.

c. Enter 58 in the *Row Height* box and click **OK**.

12. Modify the field width of the *ProductName* and *Comments* columns. Recall from **chapter 1** that you can change the column width through the context menu.

a. Select the *ProductName* column.

b. Right-click to open the context menu and select **Field Width**.

c. Enter 34 in the *Column Width* box and click **OK**.

d. Repeat steps a–c to change the *Comments* field to a column width of 32.

13. Improve the formatting display of the *Comments* field. You can force a line break in a text field to have text appear on a second line. Press the **Ctrl+Enter** keys at the point where you want the line break to occur.

a. For EquipmentID 09925, position and click the pointer before the B in “Bucket” and then press **Ctrl+Enter**. “Bucket” now starts on a second line.

b. For EquipmentID 10015, position and click the pointer before the W in “Weight” and then press **Ctrl+Enter**.

c. For EquipmentID 10103, position and click the pointer before the 6 in “67″L,” and then press **Ctrl+Enter**. The completed table will be similar to **Figure 2-22**.

Equipment

EquipmentID	ProductName	Category	DailyRentalR	WeeklyRent	MonthlyRen	DatePurcha	Comments
09925	MINI TRACTOR LOADER - YANMAR SA424YBS		$0.00	$0.00	$0.00		Lift Capacity: 1199 lbs Bucket Width: 53"
10015	GENERATOR PORTABLE MAKITA 1000W		$0.00	$0.00	$0.00		Size: 19-1/2"L x 11-3/4"W x 17-1/2"H Weight: 55 lbs
10047	SKIP LOADER 4X4		$0.00	$0.00	$0.00		Subject to Environmental Fee
10103	GENERATOR TOWABLE POWERPRO 25KW		$0.00	$0.00	$0.00		Overall L x W x H: 67"L x 28"W x 3"H
10129	LEVEL SITE LASER		$0.00	$0.00	$0.00		

FIGURE 2-22 PP A2-1 completed

14. Save and close the table.

15. Close the database.

SLO 2.3

Understanding Data Integrity and Data Validation

The usefulness of your database depends on the quality of the data being stored. It is critical that all data entered into a table is verified to make sure that it is accurate.

The process of verifying the accuracy, or integrity, of the data is known as ***data validation***. Data validation uses the data integrity rules that have been defined in the field and table properties. ***Data integrity rules*** ensure that the data in a database is accurate and consistent. The more common data integrity rules are described in Table 2-5.

A2-100

Table 2-5: Data Integrity Rules

Rule Focus	Description
Data format	Ensures that a value entered into a field matches the data type established for that field; meets any size constraints; and meets any required formatting, such as beginning with a number or letter, or matching a month/day/year format.
Range	Ensures that a value entered into a field falls within the range of acceptable values that have been established.
Consistency	Ensures that a value entered into a field is consistent with a value in another field.
Completeness	Ensures that a field contains a value if it is required.

Data integrity rules are included as part of the ***metadata***, the descriptions about what the different data fields represent and their formats. In Access, metadata is entered into the different field properties. An example of the metadata for the *Assets* table in *Asset tracking*, a database template available in the Access online templates, is shown in Figure 2-23.

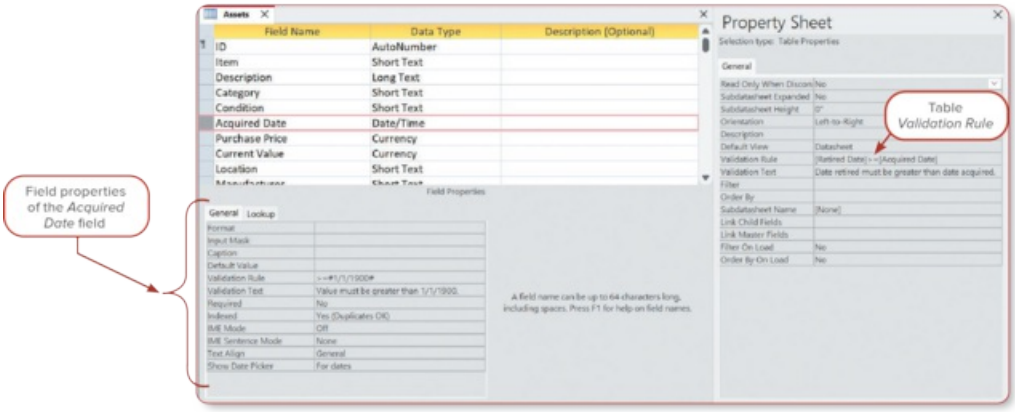


FIGURE 2-23 Metadata of the *Order Details* table in *Northwind Traders*

One of the key advantages to a database is that the DBMS automatically uses the metadata for the data integrity rule*s* to perform data validation. Based on the metadata shown for the *Acquired Date* field, the database performs data validation using the following data integrity rules:

- The field must have *Date/Time* data (the *Data Type* property).
- The date must be greater than or equal to 1/1/1900 (the *Validation Rule* property).
- The user may leave this field blank (the *Required* property).

The table also contains a consistency data integrity rule, defined in the table's *Property Sheet*. The value in the *Retired Date* must be larger than the value in the *Acquired Date* (the *Validation Rule* property).

SLO 2.4

Integrating Data Validation in Tables

A2-101

You learned how to set the *Data Type* and *Required* properties in ***SLO 2.2: Setting Field Properties***. The *Data Type* property is used to implement data format integrity rules and the *Required* property is used to implement **completeness** data integrity rules. The material that follows describes additional properties used to implement **data format**, **consistency**, and range data integrity rules. In Access, these can be created using field and record validation rules. This section explains how to create validation rules in *Design* view, although they can also be entered in *Datasheet* view. Additionally, you learn how to use lookup fields to ensure range integrity and how to use an input mask to help users enter data in the correct format. Remember to save your table after you make changes to any of these properties.

COPILOT/GENERATIVE AI BEST PRACTICES

This section discusses creating and using field and record validation rules. Use *Copilot* to explain some best practices for data validation in Access applications.

Field Validation Rules

Field validation rules are used to create range and data format integrity rules that limit entries to a certain range of values or to make sure entries match a specified format. You enter the specific rule into the ***Validation Rule*** property of a field. Access checks field validation rules when a user navigates out of the field. If the data violates the rule, Access requires the user to fix the problem before he or she can leave the field.

Validation rules cannot be used on fields with data types of *Attachment*, *AutoNumber*, *OLE Object* and the *ReplicationID Field Size* choice of a *Number* field.

MORE INFO

If you want your rule to compare two or more fields, you must use a record validation rule.

In Access, the rules are called ***expressions***. They are written like a formula using the common operators shown in Table 2-6.

Table 2-6: Operators Used in Access Expressions

Arithmetic	Comparison	Logical
–	<	And
+	<=	Or
*	>	Not
/	>=	Xor
^	=	
	<>	
	Between	
	In	
	Like	

A2-102

The content of your expression depends on the data type of the field, along with the specific restriction you are trying to implement. Validation rules ignore the case of the text when making an evaluation. Examples of entries for validation rules, along with an explanation of their effects, are shown in Table 2-7.

Table 2-7: Using and Understanding Field Validation Rules

Validation Rule Example	Explanation of Effect
<5	Value entered must be less than 5.
<>0	Value entered must not equal 0.
>=#1/1/2026#	Value entered must be greater than or equal to 1/1/2026. *Tip*: *Dates must be surrounded by the # sign*.
“M” OR “F”	Value entered must be the letter M or the letter F. *Tip*: *Text values must be surrounded by double quotation marks*.
>=#1/1/2026# AND <#1/1/2027#	Value entered must be a date from 2026.
“A” OR >“M”	Value entered must be the letter A or a letter that comes after M in the alphabet.
IN (“CA”, “NV”, “AZ”)	Value entered must be either CA, NV, or AZ.
Is Not Null	The field must be filled in. While this can be enforced with the required

	property, using this validation rule enables you to include a custom validation message like “The Equipment ID field cannot be empty.” *Tip*: **Null** *means no value in the field.*

The *Yes/No* data type defaults to display data using a check box. A check indicates *Yes* while an unchecked box indicates *No*. Internally, Access stores *Yes* as a –1 and *No* as 0. Expressions written to check the contents of a *Yes/No* data type should compare the contents to either a −1 or a 0.

Use the *Like* comparison operator to find a value that is similar to (or like) another value. When using *Like*, you typically incorporate one of the ***wildcard characters*** available in Access. Examples of three of the wildcard characters and their effects are shown in **Table 2-8**.

Table 2-8: Using Wildcard Characters in Validation Rules

Wildcard Character	Matches	Example	Explanation of Example
?	Any single character (numbers are also considered characters)	Like “C????”	Values entered must be 5 characters long and begin with the letter C. *Tip: Even if the field size is larger than 5, this rule requires that exactly 5 characters are entered.*
*	Any number of characters	Like “MA*”	Values entered must begin with MA, but can be any length up to the maximum field size.
#	Any single numeric digit	Like “##”	Values entered must contain two numeric digits.

When using wildcards, the criteria of your expression must be enclosed in quotation marks. You can combine multiple wildcards to achieve the desired criteria.

HOW TO: Create a Field Validation Rule

1. Click the **row selector** of the desired field.
2. Click the **Validation Rule** property box (**Figure 2-24**). Don’t click the *Build* button that displays at the right of the property box.

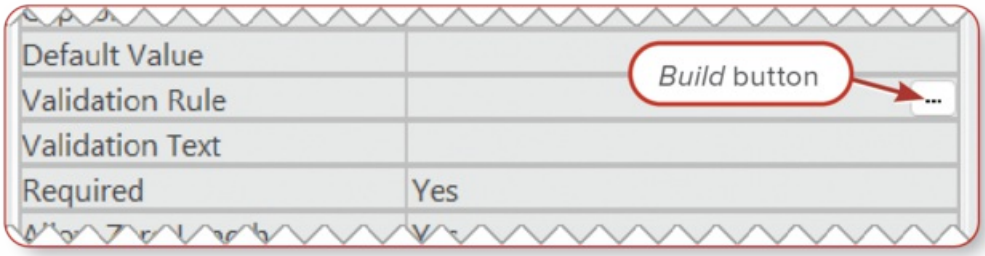


FIGURE 2-24 *Validation Rule* property box



3. Type the text of the desired rule.

You can also use the *Expression Builder* to enter your validation rules. The ***Expression Builder*** is a dialog box that provides access to built-in functions, constants, and operators. It also provides a larger window in which to type your expression. This can be useful when you have a long expression.

HOW TO: Create a Field Validation Rule Using the Expression Builder

1. Click the **row selector** of the desired field.
2. Click the **Validation Rule** property box (see **Figure 2-24**) and click the **Build** button. The *Expression Builder* dialog box opens.

ANOTHER WAY

Open the *Expression Builder* dialog box by pressing **Ctrl+F2** or clicking the **Builder** button [*Table Design* tab, *Tools* group].

3. Type the text of the desired rule in the *Expression* box (**Figure 2-25**).

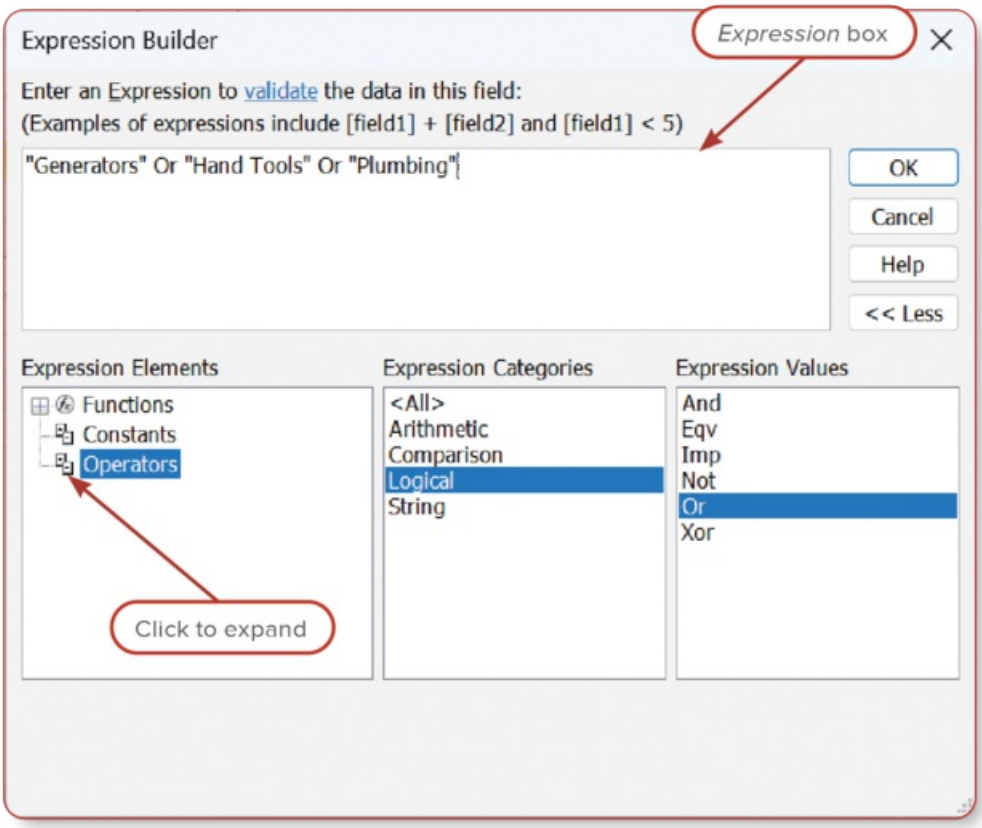


FIGURE 2-25 ***Expression Builder*** **dialog box**

- You can click to expand the items in the ***Expression Elements*** area to display the available choices.
- Instead of typing, double-click choices in the ***Expression Categories*** and ***Expression Values*** areas to add them to the *Expression* box.

4. Click **OK** to close the *Expression Builder*.

Record Validation Rules

Record validation rules are used to create consistency data integrity rules that compare fields in the same table. You can also use them to create range and data format integrity rules that limit entries to a certain range of values or to a specified format. You enter the specific rule into the *Validation Rule* property of the table, located on the table's *Property Sheet*. The rule is checked when a user attempts to navigate out of the record. If the data the user has entered in the record violates the rule, Access requires the user to fix the problem before he or she can leave the record.

Expressions written for a record validation rule can use the same operators and wildcard characters used in field level validation rules. However, they typically are written to compare

fields. Examples of entries for record validation rules, along with an explanation of the effects, are shown in Table 2-9.

Table 2-9: Using and Understanding Record Validation Rules

Record Validation Rule Example	Explanation of Effect
([Field1] is Null) XOR ([Field2] is Null)	You must enter a value into either *Field1* or *Field2*, but not into both fields. *Tip: The* XOR *logical operator prevents both fields from having a value; both fields would be allowed to have a value if* OR *were used instead.*
[Field1] <> [Field2]	You may not enter the same value into both *Field1* and *Field2*.
([Field1] > [Field2]) AND ([Field2] > 10)	*Field1* must be greater than *Field2* and *Field2* must have a value greater than 10. *Tip: When using the* AND *operator, all parts of the condition must be true.*

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Substitute the actual field names in your table for the placeholders of *Field1*, *Field2*, etc. Be sure to include your field name inside square brackets, as shown in the examples.

HOW TO: Create a Record Validation Rule

1. Click the **Property Sheet** button [*Table Design* tab, *Show/Hide* group] (Figure 2-26).

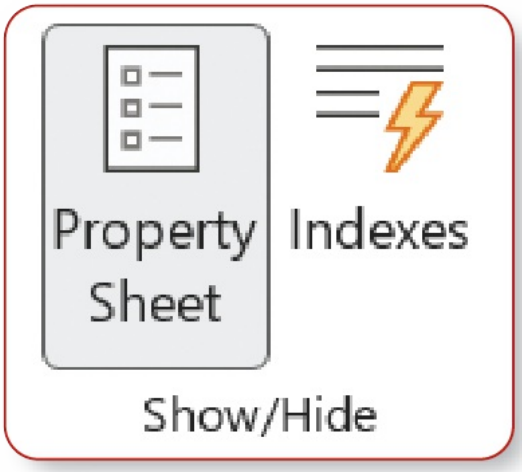


FIGURE 2-26 ***Property Sheet*** **button**

- The *Property Sheet* for the table opens to the right of the *Description* column (**Figure 2-27**).

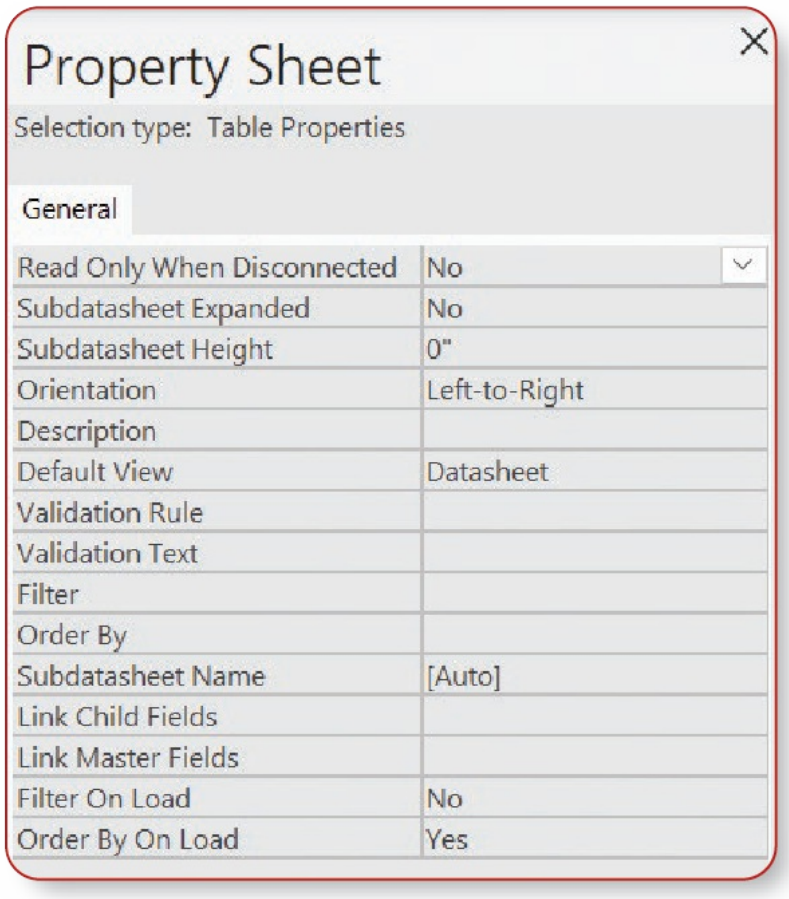


FIGURE 2-27 ***Property Sheet*** **of a table**

- This sheet contains properties that apply to the entire table, not just a specific field.
- The *Property Sheet* button works as a toggle. If the sheet is open and you click the button, the sheet closes.

ANOTHER WAY

Press **F4** to open or close the *Property Sheet*.

2. Click the **Validation Rule** property box.
3. Type the text of the desired rule directly in the property box or click the **Build** button to open the *Expression Builder* dialog box.
   - The example validation rule shown in **Figure 2-28** uses the *Date()* function, which captures the current date from the computer. This example rule requires that the value in the *DatePurchased* field is greater than or equal to the current date.

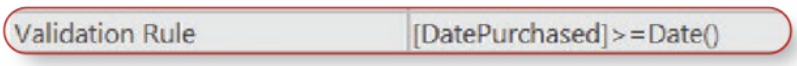


FIGURE 2-28 Example record validation rule

MORE INFO

Adjust the width of the *Property Sheet* by dragging the resize pointer on the left border of the *Property Sheet*. You can also drag the divider bar inside the *Property Sheet* window to change the width of the two columns.

Test Validation Rules

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When using validation rules, it is important that you test the rules. Two different considerations are available for testing. These tests ensure that the logic is valid, and the rule works as you intended. If several fields have validation rules, it is easiest to test each rule as you write it. This helps you focus on a specific rule instead of trying to test all of them at the same time.

- Test to ensure the rule is written correctly.
  To test a validation rule you must create ***test data***, a set of data created to test an applicatio
  The test data should include a sample of every valid condition as well as samples of as many invalid conditions as possible. **Table 2-10** illustrates several examples for creating test data.

Table 2-10: Test Data Examples for Validation Rules

Validation Rule	Examples of Test Data	Result of Test
"M" OR "F"	M F	Valid (test of M condition); should be accepted.

	X	Valid (test of F condition); should be accepted. Invalid; error message should display.
>=#1/1/2026# AND <#1/1/2027#	12/15/2025 7/7/2026 2/13/2027	Invalid (below the range); error message should display. Valid; should be accepted. Invalid (above the range); error message should display.
([Field1] is Null) XOR ([Field2] is Null)	Field1 null and Field2 null Field1 = 5 and Field2 = 7 Field1 null and Field2 = 7 Field1 = 5 and Field2 null	Invalid (both can't be null); error message should display. Invalid (both can't have a value); error message should display. Valid (only Field 2 has a value); should be accepted. Valid (only Field1 has a value); should be accepted.

- Test to ensure that any data already in the table is verified against the new rules.

Test existing data by clicking the **Test Validation Rules** button [*Table Design* tab, *Tools* group] (**Figure 2-29**).

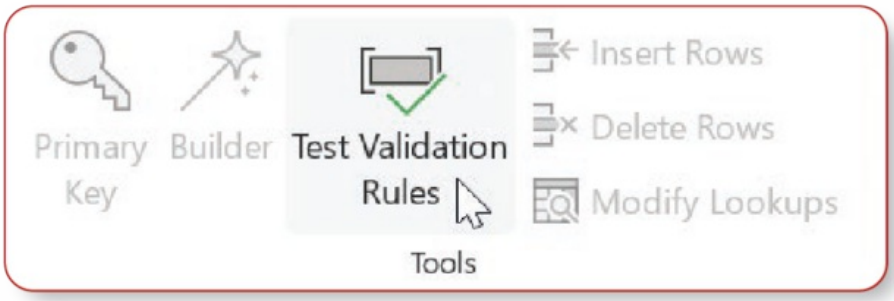


FIGURE 2-29 ***Test Validation Rules*** **button**

Access displays a message box explaining the testing process and alerting you to the fact that this operation could take a long time depending on the number of records of data in your table.

If you click **Yes** to proceed, Access displays an error message (**Figure 2-30**) if any data is found to violate validation rules. Select whether to continue testing other rule violations.

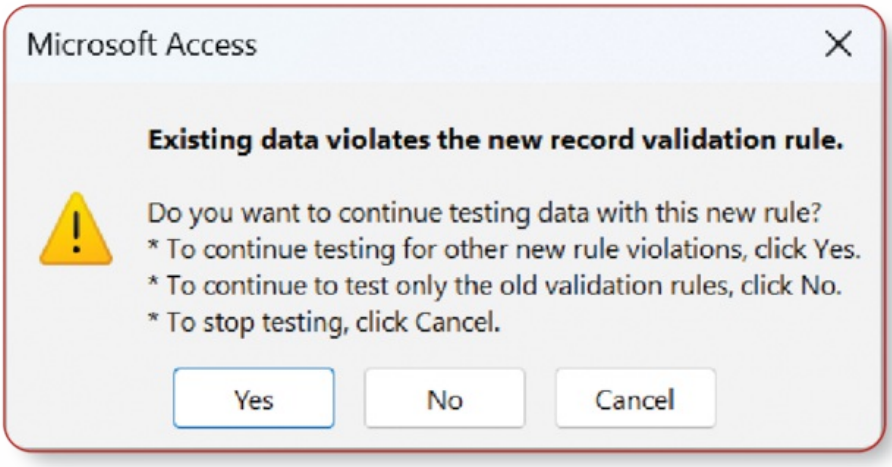


FIGURE 2-30 Validation rule violation error message

If you continue testing, Access displays an error message (Figure 2-31) indicating which rule is violated.



FIGURE 2-31 Message box for data validation errors

You must return to *Datasheet* view, locate any records that have invalid data, and then make the necessary corrections.

Create Validation Text

When data is entered that violates a validation rule, Access automatically displays a message box alerting the user to the problem. In Figure 2-32, a user entered A1212 into the *EquipmentID* field and pressed *Tab*. The message box opened and displayed the default message text which includes the condition entered into the validation rule. Unfortunately, the message, as shown in Figure 2-32, is often not very clear to a typical user of your database.

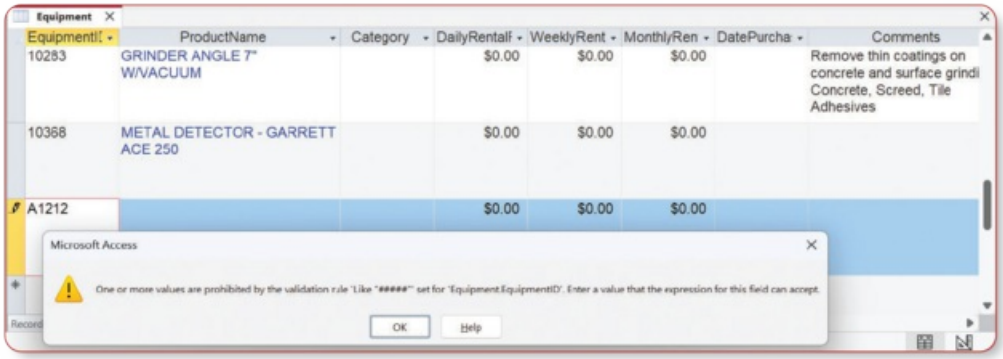


FIGURE 2-32 Default message when entering data that violates a validation rule

You can use the ***Validation Text*** property to enter a custom message that displays instead of the default message. Be clear and concise in your message. Include the reason the entry is invalid and suggest how to correct the problem. For example, "The EquipmentID must contain 5 numbers" is a better error message than "Invalid entry in EquipmentID field" or "Please enter a valid EquipmentID."

For a field validation rule, place the custom message in the *Validation Text* property of that field. For a record validation rule, place the custom message in the *Validation Text* property of the table.

HOW TO: Create Validation Text

1. Click the **row selector** of the desired field or open the *Property Sheet* for the table by clicking the **Property Sheet** button [*Table Design* tab, *Show/Hide* group].
2. Click the **Validation Text** property box.
   - Use the *Validation Text* property in the *Field Properties* section for a field level message.
   - Use the *Validation Text* property in the *Property Sheet* for a record level message.
3. Type the text of the desired message. An example message is shown in the *Validation Text* property box in **Figure 2-33**.

Validation Rule	Like "#####"
Validation Text	The EquipmentID must contain 5 numbers.

FIGURE 2-33 Example validation text

Since the *Validation Text* property box is not very wide, you can also enter the message in the

Zoom window. The *Zoom* window (Figure 2-34) enables you to see the entire message that you are entering, which might not be visible in the smaller property box.

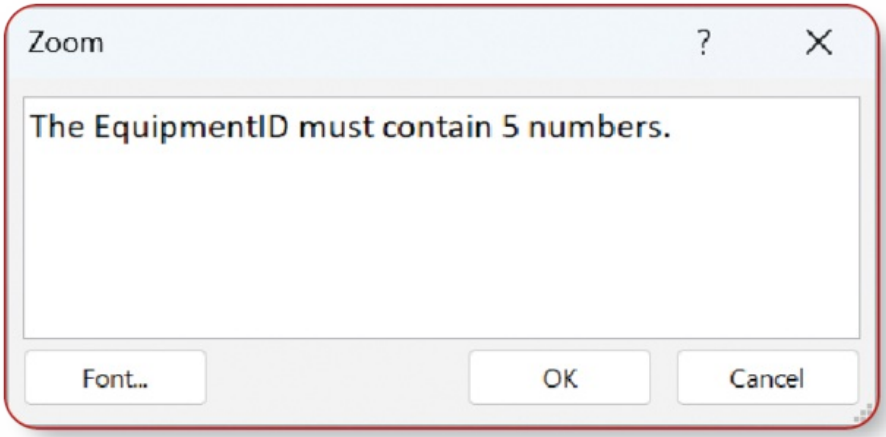


FIGURE 2-34 Create a custom validation text message in the *Zoom* window

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Open the *Zoom* window by right-clicking the **Validation Text** property box and selecting the **Zoom** button or by pressing **Shift+F2**.

As desired, click the **Font** button to change the default font used in the *Zoom* window. However, this does not affect the font that displays in the message box.

Create a Lookup Field

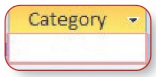
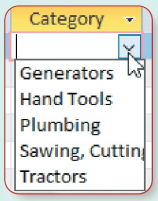
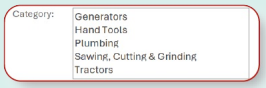
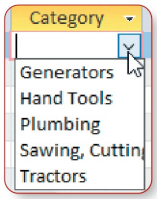
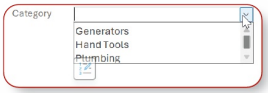
Lookup fields display a list of data values from which the user can choose. Lookup fields are another way to implement range integrity rules and are an alternative to validation rules since they also limit what can be entered into a field. They are very helpful when the actual choices are lengthy or prone to typing mistakes. Lookup fields can be used on any field that is defined as a data type of *Number*, *Short Text*, or *Yes/No*, but are most commonly used on *Number* and *Short Text* fields.

The list of values in a lookup field can either be directly entered into the properties of the field or automatically filled in from values in another table or query. In this section, you learn to create a lookup field by entering the list of values.

One of the choices you make when creating a lookup field is to determine the way that the list displays. This choice is made in the field's **Display Control** property on the *Lookup* tab. *Text* and *Number* fields have three options for the *Display Control* property. The appearance and behavior of the control depends on whether you are viewing the data in *Datasheet* view of a table or whether you are viewing it in a form. Since you select the type of control when creating the lookup

field, it is important to understand the differences now. The *Display Control* property of a field is initially set based on the field's data type. *Text Box* is the default choice for the *Display Control* property of *Short Text* and *Number* fields. The three options available to a lookup field are explained in **Table 2-11**, which includes samples of how the control displays in a table or form. To create a lookup field, you would change the *Display Control* property from *Text Box* to one of the other two options.

Table 2-11: Understanding Display Control Options

Display Control Choice	Explanation	Table Sample	Form Sample
Text Box	Displays the contents of a field and also enables the user to type a value into that field. This is the default choice.		
List Box	*Table* view: Displays as a drop-down list. The list appears when the arrow is clicked. *Form* view: Displays as a box showing all possible choices.		
Combo Box	Displays as a drop-down list in both table view and form view. The list appears when the arrow is clicked.		

Notice that a *List Box* and *Combo Box* display the same way in *Datasheet* view of a table but are different when displayed on a form. Because the *List Box* control takes up more space on a form, and users don't always find it intuitive to understand and don't know to make a selection, you may want to opt to use the *Combo Box* display control choice.

Once the *Display Control* property is set to either *List Box* or *Combo Box*, additional properties become available on the *Lookup* tab. Several of the more commonly used properties are described in **Table 2-12**.

Table 2-12: Common Lookup Field Properties

Property	Explanation	Setting Contents
Row Source Type	Designates whether the values for the different list choices come from a table, query, or list.	*Table/Query*: Values will come from a table or query that you specify.

		Value List: Values will come from a list of choices you enter. *Field List*: Values will come from a list of field names from a table.
Row Source	Contains the name of the table or query, or the actual list of values.	If the *Row Source Type* is ***Table/Query*** or ***Field List***, enter the name of the table or query. If the *Row Source Type* is ***Value List***, enter the choices.
List Rows	Contains the number of rows to display in the list. The default number is 16. A scroll bar automatically appears when you enter more choices than rows. Available only if the *Display Control* is a *Combo Box*.	Enter the number of rows to display.
List Width	Contains the width of the *Combo Box* or *List Box*.	Enter the width of the list
Limit to List	Designates whether a user can enter a value into the field that is not on the list. The default choice is *No*. Available only if the *Display Control* is a *Combo Box*.	*Yes*: Restricts the user to picking an entry from the list. *No*: Enables users to pick from the list or enter a new value.
Allow Value List Edits	Designates whether the list of items can be edited. The default choice is Yes.	*Yes*: Enables the user to add to, change and delete the values in the list. *No*: Restricts the user from editing the list.

In **Table 2-11**, the form sample *Combo Box* image illustrates changes made in both the *List Rows* and *Allow Value List Edits* properties. The *List Rows* property has been changed to three. Because the list has five items, the scroll bar appears. The *Allow Value List Edits* property has been changed to *Yes*. The **Edit List Items** button appears below the list when the user tabs into that field. When you hover over the button, it turns gray (**Figure 2-35**). Click the button to open the *Edit List Items* dialog box (**Figure 2-36**).

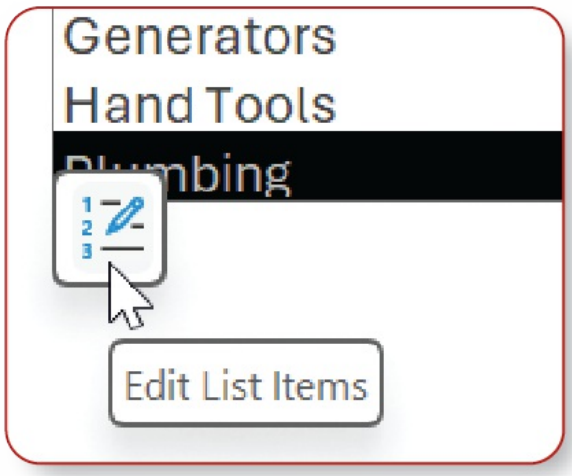


FIGURE 2-35 ***Edit List Items*** **button**

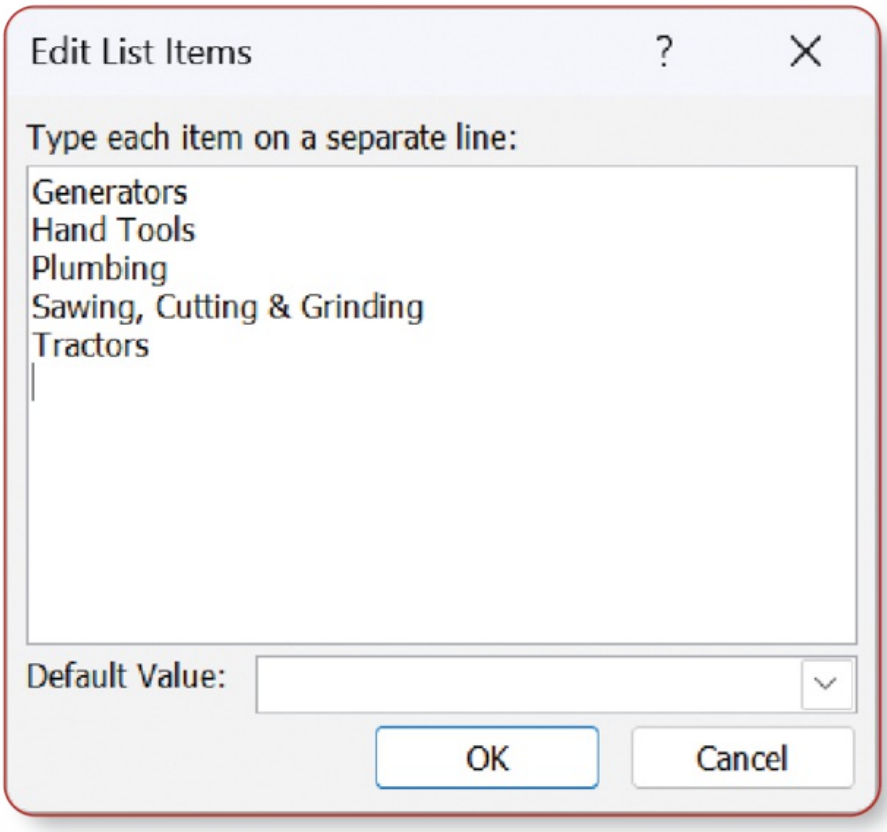


FIGURE 2-36 ***Edit List Items*** **dialog box**

ANOTHER WAY

Press **Ctrl+E** to open the *Edit List Items* dialog box, or right-click the **lookup field** to open the context menu and then select the **Edit List Items** button.

The *Edit List Items* dialog box enables the user to add new items onto the list, change existing items, or delete items from the list. Be cautious about giving this type of control to your users.

Since the *Combo Box* is the more common display control, we will concentrate on creating and using this type of lookup field. You can create a lookup field by setting values directly into the field properties. Alternatively, you can use the *Lookup Wizard* which walks you through the process and modifies the properties for you.

HOW TO: Create a Combo Box Lookup Field by Typing a List of Values

1. Click the **row selector** of the desired field.
2. Select the **Lookup** tab in the *Field Properties* area in the lower half of the *Design view* window (**Figure 2-37**). The available properties update.

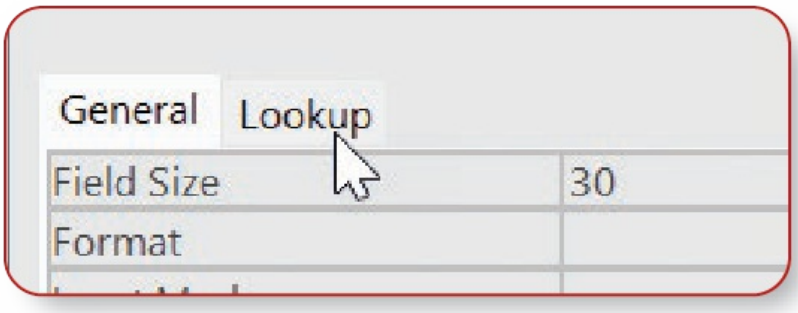


FIGURE 2-37 Select the *Lookup* tab

3. Click the **Display Control** property box, click the **drop-down arrow** and select **Combo Box**.
   - After you select the *Combo Box* display control, additional properties will become available on the *Lookup* tab, as shown in **Figure 2-38**.

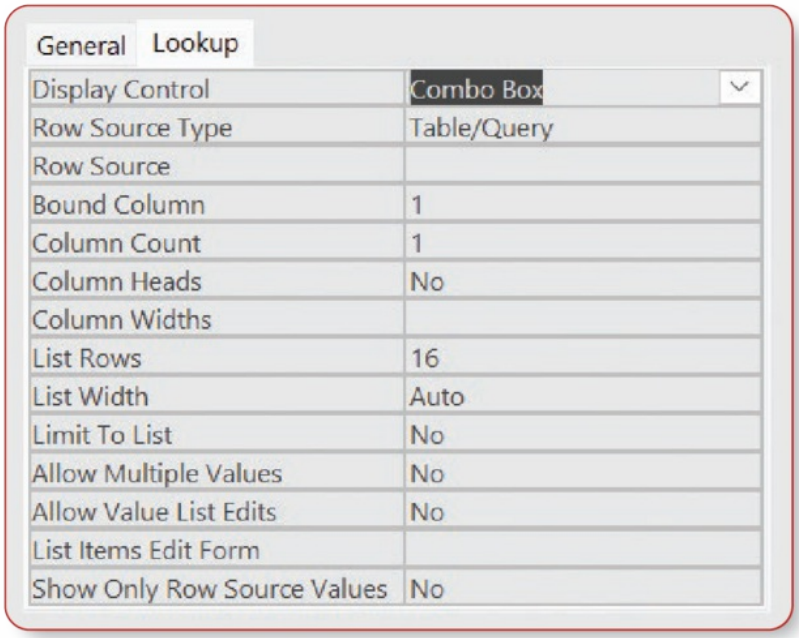


FIGURE 2-38 Additional properties on the *Lookup* tab

4. Click the **Row Source Type** property box, click the **drop-down arrow** and select **Value List**.
   - This choice indicates that you will enter the list of possible choices.
5. Type the list of choices into the **Row Source** property box.
   - Separate each choice with a semicolon (;).
   - If a choice contains a comma (,) as punctuation (e.g. Sawing, Cutting & Grinding), that entire choice must be surrounded by quotation marks (“”).
   - If the *Property Update Options* smart tag displays when you leave the property, hover over the smart tag, click the arrow to display the list of options, and choose to update the properties in the other database objects, as necessary.
6. Edit the **List Rows** property, as desired, to set the number of rows that display.
7. Edit the **List Width** property, as desired, to set the width of the list.
8. Edit the **Limit To List** property as desired.
   - Select **Yes** if you want to restrict the user to picking a choice only from the list.
9. Edit the **Allow Value List Edits** property as desired.
   - Select **No** if you don’t want to enable the user to change the values in the list while entering or viewing data.

ANOTHER WAY

Type the list of choices in the *Zoom* window. Right-click the **Row Source** property box and then select the **Zoom** button, or you can also press **Shift+F2**.

HOW TO: Create a Combo Box Lookup Field Using the Lookup Wizard

1. Click the **Data Type** property box of the desired field and click the **drop-down arrow** to display the list of data types.
2. Select **Lookup Wizard** (Figure 2-39). Note that this action does not actually change the current *Data Type* for this field. The *Lookup Wizard* dialog box opens.

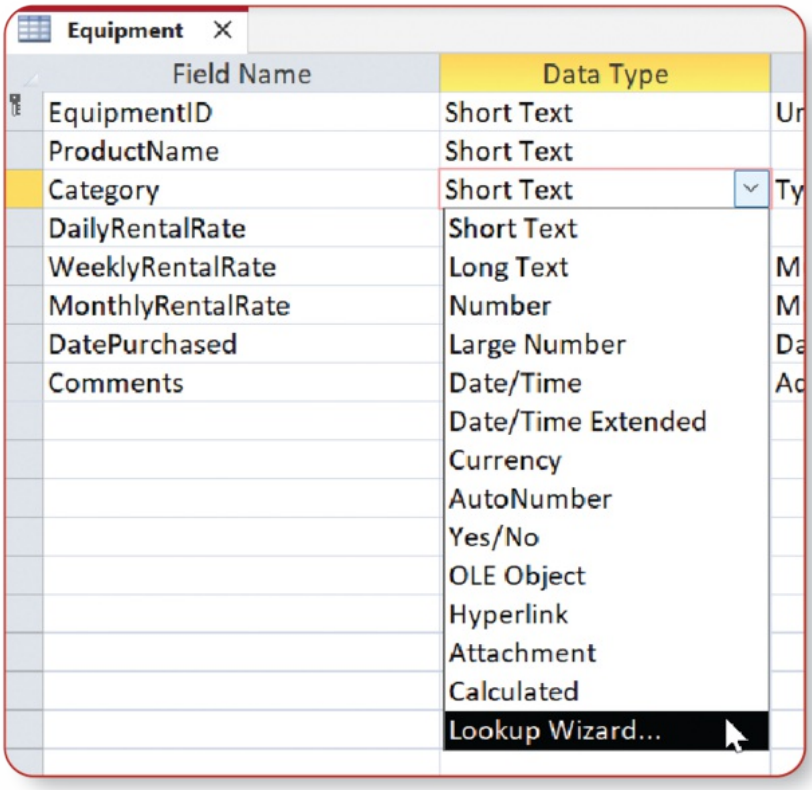


FIGURE 2-39 ***Lookup Wizard*** **option in the** ***Data Type*** **property list**

3. Select the radio button for **I will type in the values that I want**. (Figure 2-40).

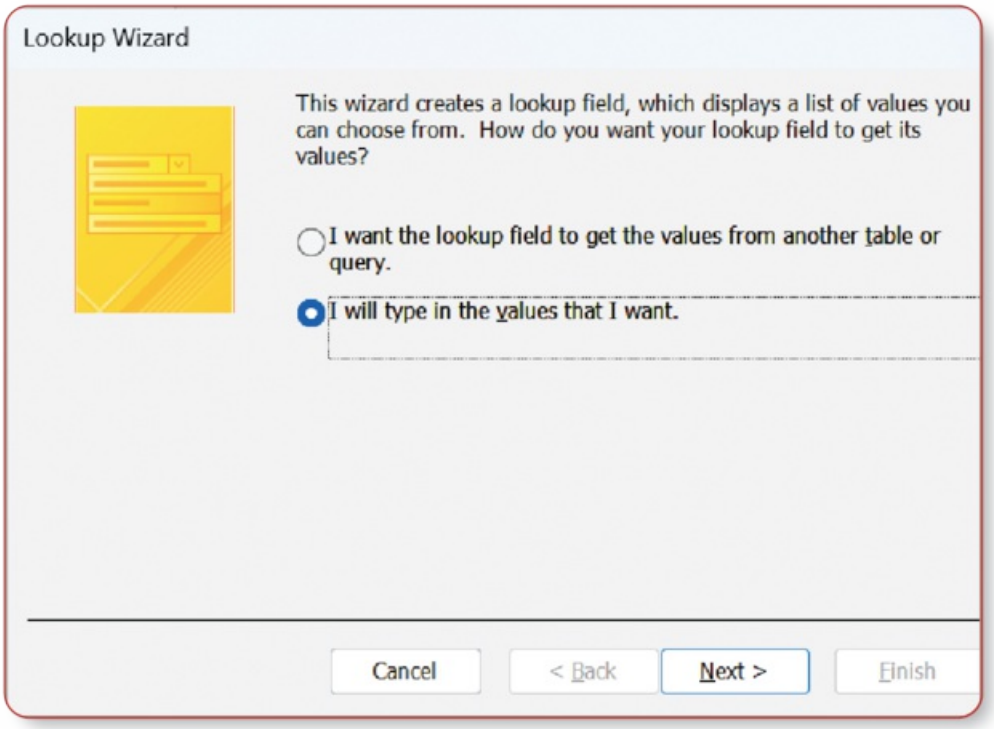


FIGURE 2-40 **First step of the *Lookup Wizard***

4. Click the **Next** button.
   - The next step of the *Lookup Wizard* displays.
   - Initially no items display in the list.
5. Click the **first cell** in the *Col1* column.
6. Type the first value in the list.
7. Press the **down arrow** key to move to the next row.
8. Continue typing all values in the list (**Figure 2-41**).

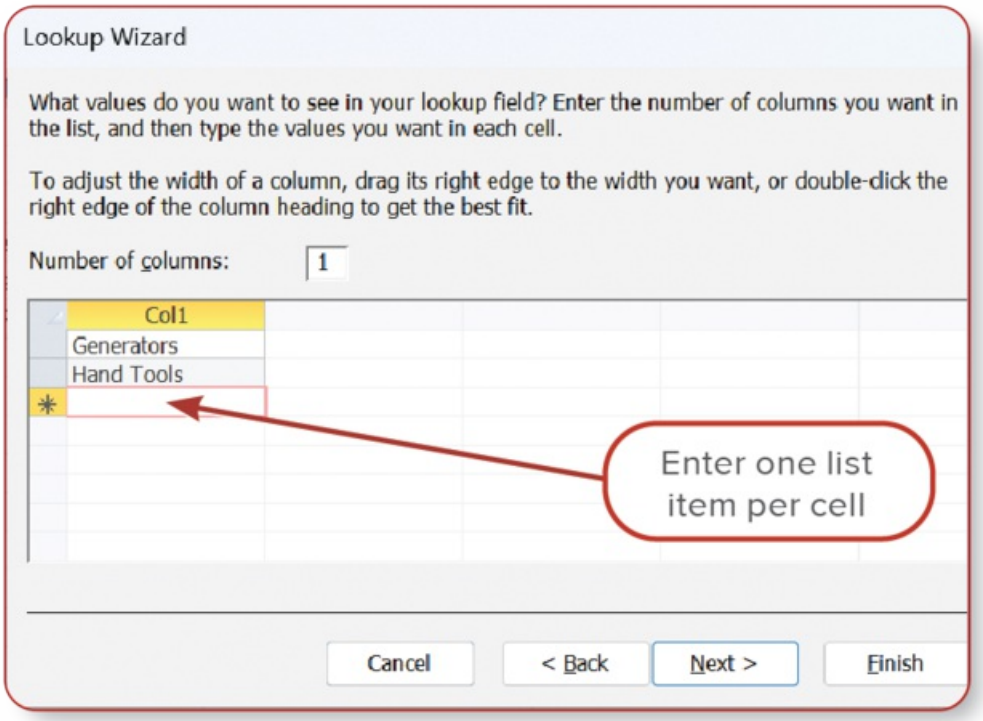


FIGURE 2-41 **Enter choices in the second step of the *Lookup Wizard***

9. Adjust the width of the column as desired.
10. Click the **Next** button when done entering all items on the list.
    - The final step of the *Lookup Wizard* displays (**Figure 2-42**).

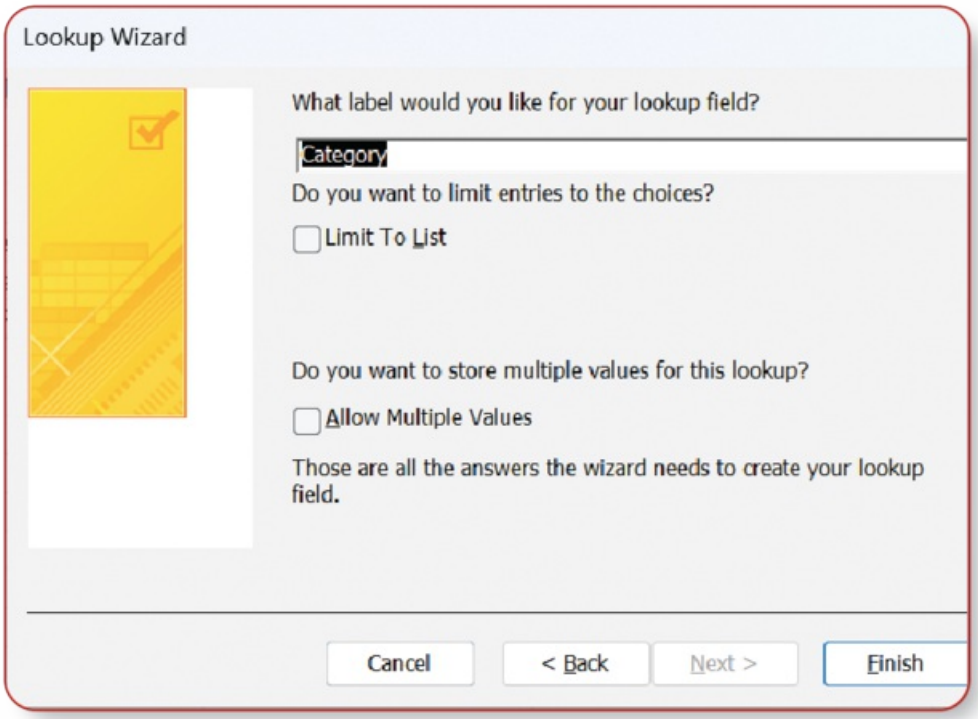


FIGURE 2-42 Last step of the *Lookup Wizard*

- The label defaults to the original field name you entered.

11. Change the field name as desired.
12. Click the **Limit To List** check box as desired. Checking this box sets the *Limit to List* property to **Yes**.
13. Click the **Finish** button when done. As desired, you can edit the *List Rows* and *Allow Value List Edits* properties on the *Lookup* tab.

Define an Input Mask

An ***input mask*** forces a user to enter data using a specific format. For example, you can require a user to enter a phone number with an area code in the (123) 123-4567 format. Input masks help enforce *data format* data integrity rules.

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An input mask can only be used on fields with data types of *Short Text*, *Number* (excluding the *ReplicationID* field size), *Large Number*, *Currency*, *Date/Time* or *Date/Time Extended*. You can type the mask directly into the *Input Mask* property box, or you can select the *Build* button to launch the ***Input Mask Wizard***. However, the *Input Mask Wizard* only works on *Short Text* or *Date*

fields.

Before you learn how to create an input mask, it is important to learn fundamental rules about the parts of a mask and the characters a mask can contain. An input mask uses a variety of characters that control how and what kind of data is acceptable. Common special characters are explained in Table 2-13.

Table 2-13: Input Mask Special Characters

Character	Explanation of Effect
0	User must enter a number (0 to 9).
9	User can enter a number (0 to 9), but it is not required.
#	User can enter a number (0 to 9), space, or plus or minus sign, but it is not required. If not filled in, Access enters a blank space.
L	User must enter a letter (A to Z, uppercase or lowercase).
?	User can enter a letter (A to Z, uppercase or lowercase), but it is not required.
A	User must enter a letter or a number.
a	User can enter a letter or a number, but it is not required.
&	User must enter any character or a space.
C	User can enter any character or a space, but it is not required.
!	In a text field, when fewer characters are entered than specified in the mask, the blank spaces are placed on the left side of the field instead of the default right side of the field. This is not the same as right-justifying the field.
""	Characters entered inside the quotation marks display as written.
\	Characters following the backslash display as written.

An input mask contains three parts, each separated by a semicolon.

- The first part is mandatory and shows the desired formatting. Examples of the mandatory portion of an input mask are as follows.

Mask Example	Explanation of Effect
(000) 000-0000	You must enter an area code along with the phone number (**0** indicates a required number). The phone number will be entered starting with the area code.
(999) AAA-AAAA	The phone number does not require an area code (**9** indicates optional). The number portion can be numbers or digits. This mask would allow an entry of 555-STAR for the phone number.
!9999	You can enter up to four numbers (**9** indicates optional). The exclamation point (**!**) indicates that if fewer than four numbers are

	entered, the data displays right-justified with the blank spaces to the left. For example, if 12 is entered, it would display as “12” instead of “12”. Since 12 only contains two numbers, the two empty spaces display before the 12.
″WN ″9999	The data must start with WN, a blank space, and be followed with up to 4 numbers. Since the exclamation point (**!**) is not used, the numbers will be left-justified since the blank spaces will be to the right.

When you enter the mask characters, Access may add additional special characters to ensure the mask displays as desired. For example, if you enter (000) 000-0000 as the mask, Access converts it to \(000″) ″000\-0000. Access inserted the backslash (\) in front of the open parenthesis (**(**), to indicate that this character displays as written. Access also inserted quotation marks (**""**) around the close parenthesis (**)**) and space. Finally another backslash (\) was inserted in front of the dash (**-**) to indicate that this character displays as written.

- The second part of the input mask is optional and indicates whether the mask characters, such as parenthesis, dashes, etc., are stored with the data. Not storing the characters saves space; this can be significant in large databases. If you do store the characters, make sure the field size is large enough to store the data value and the characters. The two possible symbols are **0** and **1**. A **0** tells Access to store the characters; a **1** or blank tells Access not to store the characters.
- The third part of the mask is also optional and specifies what symbol displays in the mask as the user enters the data. The default symbol is the underscore (_). You can select a different symbol as desired. If this part of the mask is left blank, Access behaves as if the underscore (_) was selected.

Based on the mask characters entered, Access may add additional special characters to ensure the mask displays as desired. Three examples of input masks follow. Recall that a semicolon (;) separates the different parts of the mask. The parts of each mask are identified, along with displaying a sample of how the mask would appear (Figure 2-43 through Figure 2-45).

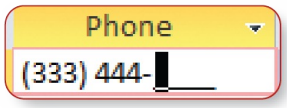


FIGURE 2-43
Example 1 *Input Mask* display



FIGURE 2-44
Example 2 *Input Mask* display



FIGURE 2-45
Example 3 *Input Mask* display

Example 1 *Datasheet* view sample:

User entered: (000) 000-0000;0

Access adjusted: \(000") "000\-0000;0;

Part 1	Part 2	Part 3
\(000") "000\-0000	0	Empty
The backslash (\) in front of the open parenthesis (**(**), the quotation marks (**""**) around the close parenthesis (**)**) and space, and the backslash (\) in front of the dash (**–**), indicates that these characters display as written.	The mask characters are stored along with the data. This format requires a field size of 14 to store the phone number digits and the mask characters, including the blank space between the area code and the number.	The default underscore (_) displays as the placeholder character.

Example 2 *Datasheet* view sample:

User entered: (999) AAA-AAAA;;*

Access adjusted: \(999") "AAA\-AAAA;;*

Part 1	Part 2	Part 3
\(999") "AAA\-AAAA	Empty	*
The backslash (\) in front of the open parenthesis (**(**), the quotation marks (**""**) around the close parenthesis (**)**) and space, and the backslash (\) in front of the (**–**), indicates that these characters display as written.	The mask characters are not stored along with the data. This format requires a field size of ten to store the phone number.	An asterisk (*) displays as the placeholder character.

Example 3 *Datasheet* view sample:

User entered: WN 9999;1

Access adjusted: "WN "9999;1;_

Part 1	Part 2	Part 3

"WN "9999	1	_
The database designer wanted WN and a space to appear at the beginning, along with up to four additional numbers.	The mask characters are not stored with the data. This format requires a field size of four to store the flight number.	The underscore (_) displays as the placeholder character.

HOW TO: Create an Input Mask

1. Click the **row selector** of the desired field.
2. Click the **Input Mask** property box.
3. Click the **Build** button to launch the *Input Mask Wizard* dialog box (Figure 2-46).

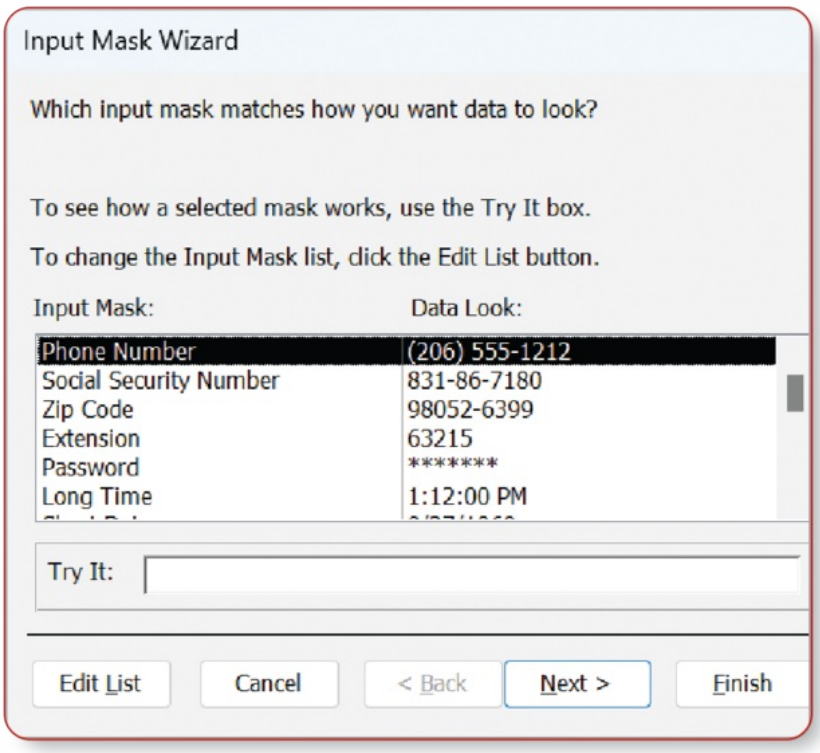


FIGURE 2-46 *Input Mask Wizard*, step 1

ANOTHER WAY

Type the rule directly into the property box.

4. Select the pre-formatted mask you wish to use or an option that you can modify.
5. Click the **Next** button to move to the next step of the *Input Mask Wizard* (**Figure 2-47**).

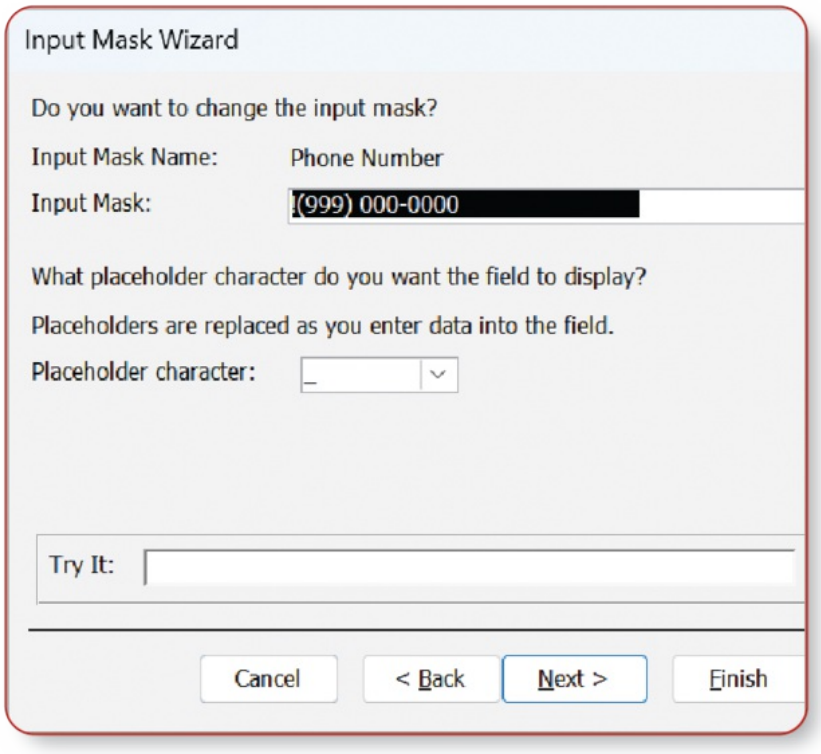


FIGURE 2-47 ***Input Mask Wizard*, step 2**

6. Edit the **Input Mask** as desired.
7. Edit the **Placeholder character** as desired.
8. Click the **Next** button to move to the next step of the *Input Mask Wizard* (**Figure 2-48**).

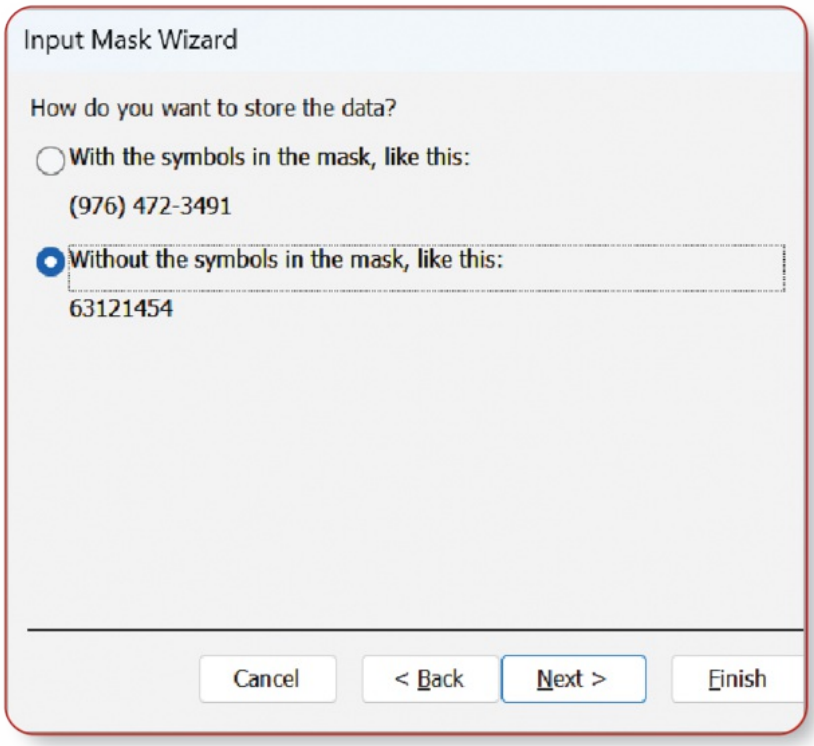


FIGURE 2-48 ***Input Mask Wizard*, step 3**

9. Select the appropriate radio button based on whether you are storing the symbols with the data. Be sure that the field width is large enough to also store the symbol since it takes space as well.
10. Click the **Finish** button.
11. Make any needed adjustments to the input mask directly in the property box.

MORE INFO

The input mask displays only when a user clicks into that field. Based on the characters used, sometimes, a mask may not display until the user begins to enter data.

SLO 2.5

Changing Field Properties after Records are Added into a Table

A2-114

In chapter 1, you learned to use *Datasheet* view to add records into a table. Ideally, you will have decided on the final structure of all your tables before you begin to enter data, but there may be times you need to make a change to the field properties on a table that already contains data.

Making the change is straightforward. Open the table in *Design* view and follow the steps previously described for the specific property. However, you cannot change the *Data Type* property of a field to the *AutoNumber* type if any data has been added into the table. Additionally, once you have set an *AutoNumber* field to use random values you can't change back to use incremental values. If a change is permitted, you must use caution when making changes to the table design after records are added.

You just learned that the field properties are used to specify the data integrity rules. Keep in mind that changes to several of the properties may result in unintended consequences. When you save the changes, Access displays a message box warning you about the potential problems. Examples of different problem situations and the resulting warnings include the following.

- If you reduce the *Field Size*, Access warns you that data may be lost (Figure 2-49). If you click *Yes* to continue, Access truncates the contents of any data values that are larger than the new field size. Be certain that the field is large enough that you don't lose any data since you can't undo this change.

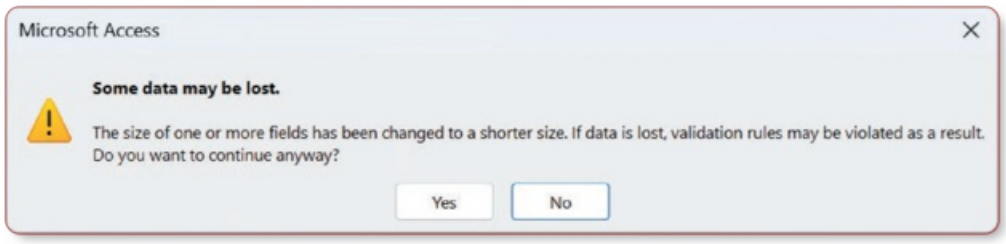


FIGURE 2-49 ***Field Size*** **change warning message**

- If you change the *Required* property to *Yes*, Access warns you that data integrity rules have changed (Figure 2-50). If you click *Yes* to test the data with the new rules, Access validates the existing data. This could take a long time depending on the number of records in the table.

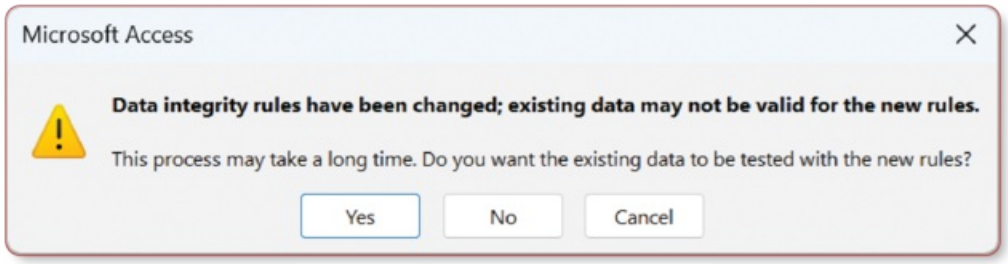


FIGURE 2-50 Data integrity rule change warning message

- If any records violate the new rule, another message box displays, similar to Figure 2-51.

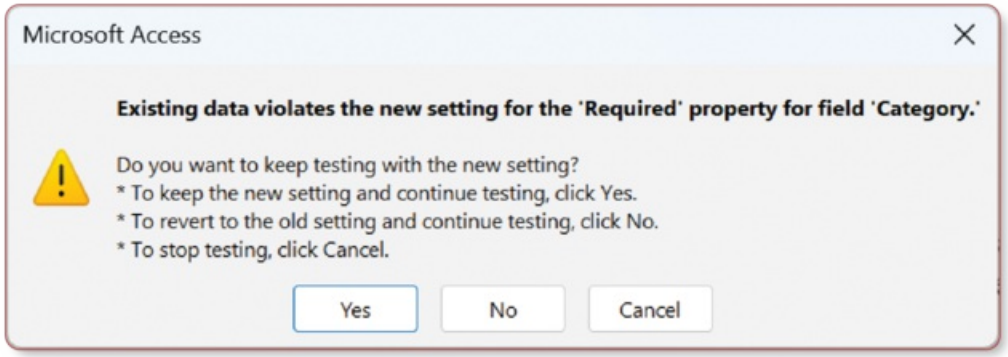


FIGURE 2-51 Validation error warning message

You must decide whether to keep the new rule. This message only appears once to let you know that data violates the rule, not once for each record that violates the rule. If you proceed with the change, you must open the table and individually correct each violation of this new rule.

- If you change any of the validation rules, you should test the changes as described earlier in this chapter by clicking the *Test Validation Rules* button [*Table Design* tab, *Tools* group]. Again, you must individually correct each violation of a new rule.

PAUSE & PRACTICE: ACCESS 2-2

For this Pause & Practice, you add features to enhance the data integrity in the *Equipment* table. You add field and record level validation rules and validation text, use the *Lookup Wizard* to create a combo box, and add an input mask. You also test the validation rules. Finally, you add data into the *Equipment* table.

File Needed: ***[your initials] PP A2-1.accdb*** *(Student data files are available in the* Library *of your SIMnet account)*

Completed Project File Name: ***[your initials] PP A2-2.accdb***

1. Open the ***[your initials] PP A2-1*** database file created in ***Pause & Practice 2-1***.

2. Save a new copy of your database as [your initials] PP A2-2.
3. Enable content in the security warning.
4. Open the *Equipment* table in *Design* view.
5. Add a field validation rule and validation text.
    a. Click the **row selector** of the *EquipmentID* field.
    b. Click the **Validation Rule** property box.
    c. Type Like "#####" in the *Validation Rule* property box.
    d. Click the **Validation Text** property box.
    e. Type The Equipment ID must contain 5 numbers. in the *Validation Text* property box. The completed properties should match those shown in **Figure 2-52**.

General | Lookup

Field Size	5
Format	
Input Mask	
Caption	
Default Value	
Validation Rule	Like "#####"
Validation Text	The Equipment ID must contain 5 numbers.
Required	Yes
Allow Zero Length	Yes
Indexed	Yes (No Duplicates)
Unicode Compression	No
IME Mode	No Control
IME Sentence Mode	None
Text Align	General

FIGURE 2-52 Completed properties of the *EquipmentID* field

6. Test the field validation rule.
    a. Switch to *Datasheet* view to test the rule. If prompted, save the changes to your table. You may also be prompted with a box that states that the data integrity rules have changed and asked whether you want to test the existing data. Click **No**.
    b. Click the **EquipmentID** cell in the append row.
    c. Type A1212 in the *EquipmentID* field. This value is incorrect because it contains letters. Press **Tab** or **Enter** to move to the next field. A message box should display the validation text message you entered in step 5 (**Figure 2-53**).

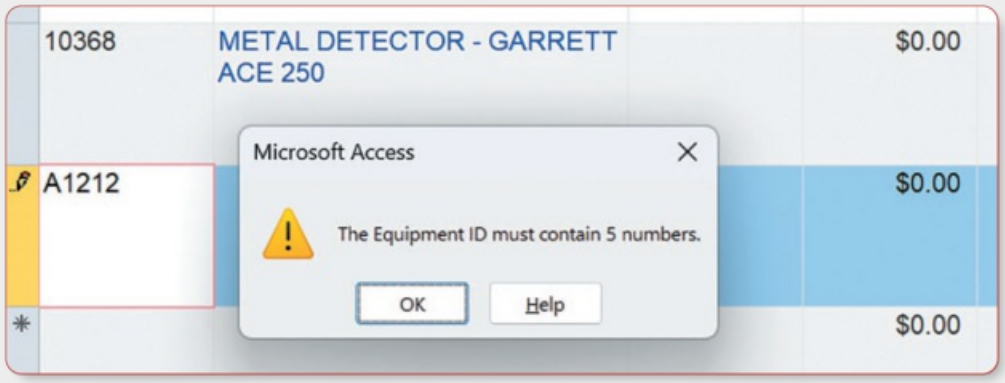


FIGURE 2-53 **Error message displays validation text from a field validation rule**

d. Click **OK** to acknowledge the error.

e. Delete the contents and type 123 in the *EquipmentID* field. Press **Tab** to move to the next field. This value is incorrect because it contains only three numbers. The message box should display the validation text message.

f. Click **OK** to acknowledge the error.

g. Type 12345 in the *EquipmentID* field. Press **Tab** to move to the next field. This value is correct, and you should be moved to the *ProductName* field.

h. Click the **record selector** for *EquipmentID 12345*. Remember that in *Datasheet* view, the record selector is the gray cell on the left of each row. Because you are editing this record, the record selector is currently yellow and contains the pencil icon.

i. Click the **Delete** button [*Home* tab, *Records* group] to delete this test record. A message box displays. Click **Yes** to confirm the deletion.

j. Switch back to *Design* view of the table.

7. Add a record validation rule.

a. Display the *Property Sheet* for the *Equipment* table if necessary by clicking the **Property Sheet** button [*Table Design* tab, *Show/Hide* group].

b. Click the **Validation Rule** property box.

c. Click the **Build** button to open the *Expression Builder* dialog box.

d. Enter [WeeklyRentalRate]>[DailyRentalRate] And [MonthlyRentalRate]>[WeeklyRentalRate] in the *Expression Builder*. Instead of typing the field names, you can double-click them in the *Expression Categories* area and add them to the *Expression* box.

e. Click **OK** to close the *Expression Builder*.

f. Right-click the **Validation Text** property box and select the **Zoom** button.

g. Type The Weekly Rate must be greater than the Daily Rate and the Monthly Rate must be greater than the Weekly Rate. in the *Zoom* window. Click **OK**.

h. Close the *Property Sheet* window.

8. Test the record validation rule.

a. Switch to *Datasheet* view to test the rule. If prompted, save the changes to your table. You may also be prompted that the data integrity rules have changed and asked whether you want to test the existing data. Click **No**.

b. For *EquipmentID 09925*, select the **$0.00** in the *DailyRentalRate* field and then type 160 to replace that value. Select the **$0.00** in the *WeeklyRentalRate* field and type 160 and select the **$0.00** in the *MonthlyRentalRate* field and type 160.

c. Press the **down arrow** key to leave the current record. This causes the record level rule to execute. The message box should display the validation text message (**Figure 2-54**) because the *WeeklyRentalRate* is not greater than the *DailyRentalRate* and the *MonthlyRentalRate* is not greater than the *WeeklyRentalRate*. This test is checking if the *And Compound Condition* is working correctly.

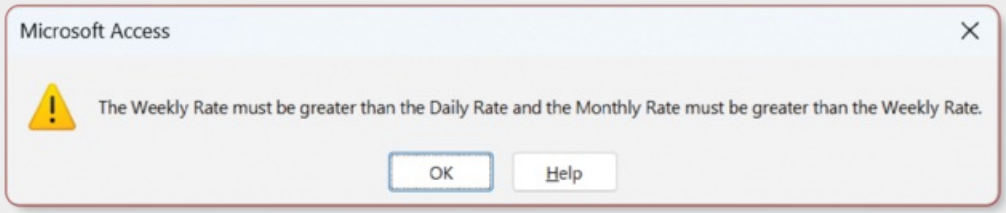


FIGURE 2-54 Error message displays validation text from a record validation rule violation

d. Click **OK** to acknowledge the error.

e. Delete the contents in the *MonthlyRentalRate* field and type 640.

f. Press the **down arrow** key to exit the current record. The message box should display the validation text message because the *WeeklyRentalRate* is not greater than the *DailyRentalRate*, the first half of the compound condition.

g. Click **OK** to acknowledge the error.

h. Delete the contents in the *WeeklyRentalRate* field and type 640.

i. Press the **down arrow** key to exit the current record. The message box should display the validation text message because the *MonthlyRentalRate* is not greater than the *WeeklyRentalRate*, the second half of the compound condition.

j. Click **OK** to acknowledge the error.

k. Delete the contents in the *MonthlyRentalRate* field, and type 1920.

l. Press the **down arrow** key to leave the current record. The record changes should be successfully saved.

m. Switch back to *Design* view of the table.

9. Modify the *Category* field to use a *Combo Box*.

a. Click the **Data Type** property box of the *Category* field, click the **drop-down arrow**, and select **Lookup Wizard**. If a *Microsoft Access Security Notice* box displays, click **Open**. The *Lookup Wizard* dialog box opens.

b. Select the **I will type in the values that I want** radio button.

c. Click the **Next** button.

d. Leave 1 in the *Number of columns* box and click the **first cell** in the *Col1* column.

e. Type Generators.

f. Press the **down arrow** key to move to the next row.

g. Enter the values from **Table 2-14**.

Table 2-14

Col1 Values for Combo Box
Hand Tools
Plumbing
Sawing, Cutting & Grinding
Tractors

h. Double-click the right edge of the *Col1* heading to adjust the width of the *Combo Box* list.

i. Click the **Next** button when done entering all the items.

j. Click the **Limit To List** check box.

k. Click the **Finish** button.

l. Save your changes to the table.

10. Add an input mask to the *DatePurchased* field.

a. Click the **row selector** of the *DatePurchased* field.

b. Click the **Input Mask** property box.

c. Click the **Build** button or press **Ctrl+F2**. If a *Microsoft Access Security Notice* box displays, click **Open**. The *Input Mask Wizard* dialog box opens.

d. Select the **Medium Date Input Mask** (**Figure 2-55**).

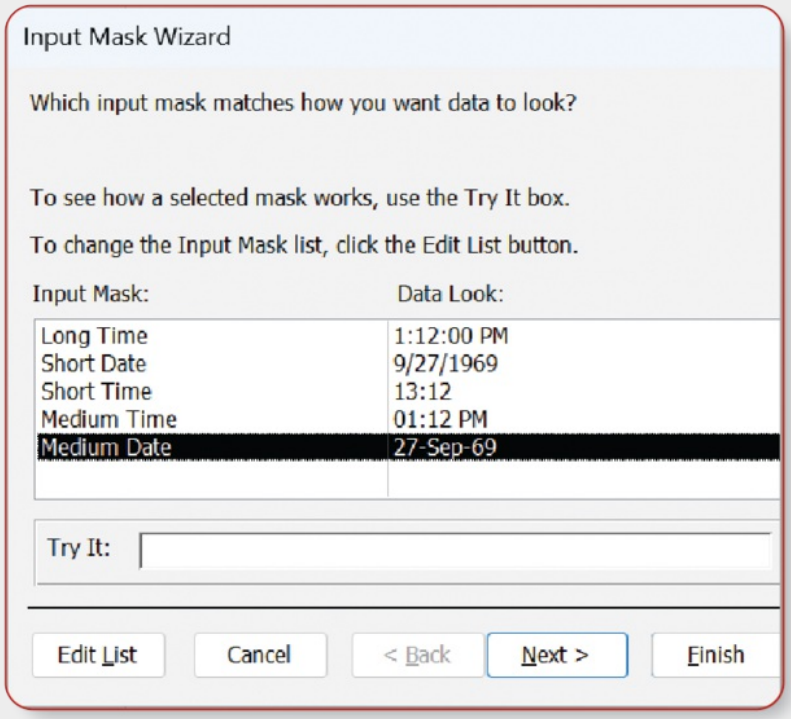


FIGURE 2-55 ***Medium Date Input Mask*** **option**

e. Click the **Next** button. The next screen of the *Input Mask Wizard* displays the characters used in the mask along with the *Placeholder* character (**Figure 2-56**). Recall from **Table 2-2** that the > symbol causes text to display in uppercase while the < symbol causes text to display in lowercase. The effect of those symbols in the middle part of this input mask is to display a three-character month. The first character is uppercase and the last two are lowercase, such as Sep or Oct.

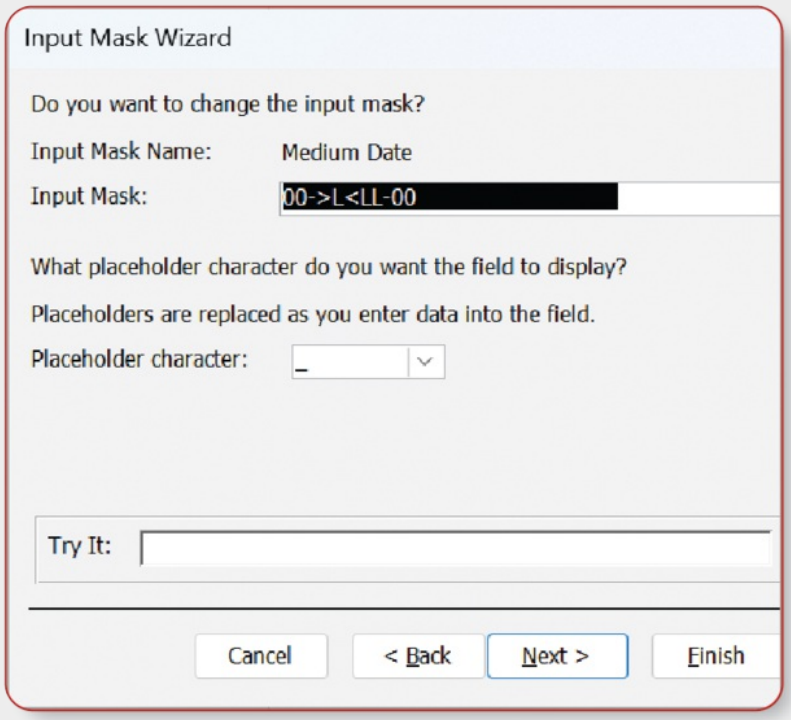


FIGURE 2-56 ***Medium Date Input Mask*** **characters**

f. Click the **Next** button to accept the input mask without making any changes and to accept the suggested *Placeholder character*.

g. Click the **Finish** button.

11. Set the **Required** property to **Yes** for the *DatePurchased* field. Continue setting the **Required** property to **Yes** for the following fields: *ProductName*, *Category*, *DailyRentalRate*, *WeeklyRentalRate*, and *MonthlyRentalRate*.
12. Verify that the **List Width** property (located on the *Lookup* tab) of the *Category* field is set to 1.9″. If necessary, change the value to 1.9″.
13. Save the changes to the *Equipment* table. If prompted to test existing data against the new rules, click **No**.
14. Switch to *Datasheet* view and enter the data from **Table 2-15** into the *Equipment* table. Remember that the *EquipmentID* value has already been entered. The values for the *ProductName* column, located between the *EquipmentID* and *Category* fields, have also been entered. Those data values are not repeated in the table below. Additionally, you already entered the rental rate values for the first record when you were testing the validation rules.

Table 2-15

Equipment ID	Category	Daily Rental Rate	Weekly Rental Rate	Monthly Rental Rate	Date Purchased
09925	Tractors	160	640	1920	10-Oct-24

10015	Generators	30	120	360	16-Dec-24
10047	Tractors	225	900	2700	09-Feb-25
10103	Generators	120	360	1080	20-Jul-25
10129	Hand Tools	60	240	720	02-Aug-25
10235	Hand Tools	10	30	60	01-Oct-25
10236	Plumbing	35	140	420	01-Oct-25
10237	Plumbing	200	800	2400	01-Oct-25
10283	Sawing, Cutting & Grinding	120	480	1440	15-Nov-25
10368	Hand Tools	15	45	135	11-Dec-25

When entering the *Category* values, you can either select the item from combo box or type it in. If you start typing, the matching choice automatically displays in the field based on the letters you type. Press **Tab** to accept the choice and move to the next field.

Because you created an input mask for the *DatePurchased* field, those data values have been provided using the mask format to ease data entry.

15. Save the table. The *Datasheet* view should look similar to **Figure 2-57**. Notice the *DatePurchased* field displays with the *Medium Date* input mask. **Figure 2-57** also shows the combo box drop-down list for the last record.



FIGURE 2-57 PP A2-2 completed

16. Close the table.
17. Close the database.

SLO 2.6

Understanding and Designing Relational Databases

A2-120

As you learned earlier, a database is a collection of integrated and related tables. So far we have concentrated on learning the steps to build and use a table in Access. Because most databases have more than one table, the next step is to learn how to create a collection of integrated and related tables.

Relational Principles

Recall that Access is a relational database management system. The data in a ***relational database*** is organized into a collection of related tables. Each table stores data about one part of the system.

Consider, for example, the Mary's Equipment Rentals database. In addition to the *Equipment* table you have been building, Mary's Equipment Rentals needs separate tables to store details about employees, customers, customer orders, information about which equipment has been rented in each order, and the service history for the equipment.

The different tables are related, or connected, to each other through common fields. You can create these relationships and view them in the ***Relationships window***. **Figure 2-58** illustrates how the different tables in Mary's Equipment Rentals are connected. The lines connecting the different tables show which fields are connected to each other.

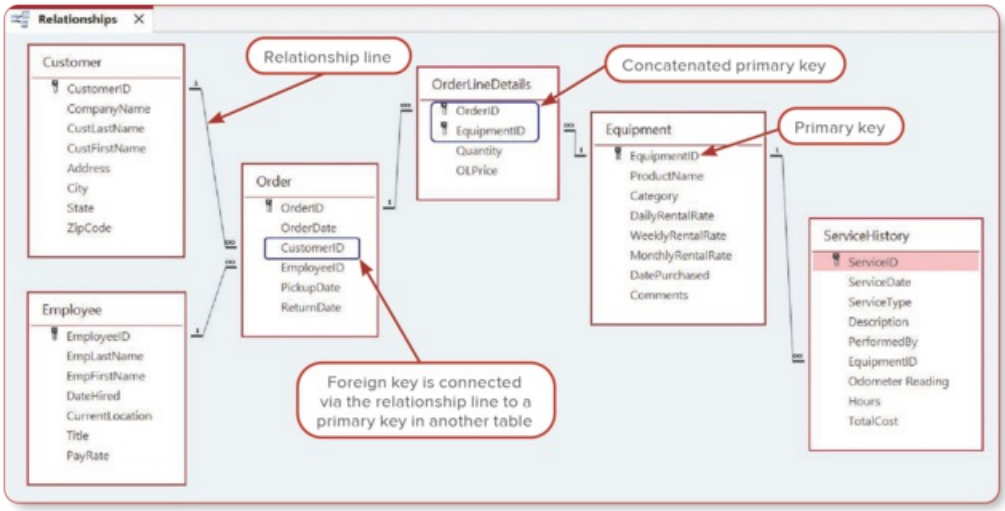


FIGURE 2-58 ***Relationships*** **window for Mary's Equipment Rentals database**

To be considered relational, a database must meet certain specifications. Many of the specifications are familiar to you because of the work you have already done in building tables. We use Mary's Equipment Rentals to illustrate these specifications.

- The data in the database must be stored in tables.
- The rows of the table must represent records. In the *Equipment* table, for example, each record contains the data about one particular piece of equipment.
- The columns of the table must represent fields. A field contains one specific piece of data about a record. In the *Equipment* table, *EquipmentID* and *ProductName* are the first two fields (see **Figure 2-58**).
- Each row must have a unique identifier or primary key. The primary key enables the DBMS to locate a specific record in the database. The primary key can either be one field in the table or a combination of several fields. If a primary key is made up of more than one field, as in the *OrderLineDetails* table in **Figure 2-58**, it is called a ***concatenated key*** or ***composite key***.
- Each table must have a relationship with at least one other table. In order to have a relationship, the two tables must have a field in common with each other. This common field is created by adding the primary key field from one table into the related table. In the related table, this added field is known as a ***foreign key***. After the foreign key is added into a table, you create a relationship between the two tables by linking the foreign key to the primary key. The foreign key enables you to establish the relationship with another table.

The Steps to Design a Relational Database

For a database to be of value to an organization, it must be well designed. It is important to spend time early in the database development process analyzing the needs of the business so you can

create a database that meets the needs of the business. The following seven steps will help you create a well-designed database:

1. **Determine the purpose of the database and the scope of the functions that will be performed**.
   For example, the purpose of the Mary's Equipment Rentals database is to manage inventory and customer orders. The functions that must be performed include all tasks needed to record customers and their orders, from the initial taking of an order all the way to checking a rental return back in to the location.
   While the Mary's Equipment Rentals database does contain basic information about the employees, it does not track other human resources information like sick leave or vacation time. Those functions are outside of the scope of this database.
2. **Determine the major objects that are needed in the database to support its purpose and functions**.
   These objects could represent people, places, or things. Each object is built as a table. Having the data stored in separate tables helps to minimize the amount of duplicated or redundant data. This improves the overall data integrity in your database.
   In the Mary's Equipment Rentals database, examples of people objects are customers or employees. Thing objects are equipment and orders. While Mary's Equipment Rentals doesn't have any place objects, an example could be a warehouse or rental location should the company choose to store those in the system.
3. **Determine the specific details you need to capture about each object**. These details are the fields included in each table.
4. **Determine which field in each table is the primary key**. Remember that the primary key is a field that is unique across the different records. If none of the fields that you have identified in step 3 is unique, you may need to add an additional unique field that can serve as the primary key. This field could use an *AutoNumber Data Type* since it guarantees a unique value. Sometimes, you might need to combine more than one field together to create a concatenated primary key.
5. **Determine the data type and size of each field**. Each field must be defined as containing only a specific type of data such as numbers, text, or dates. Additionally, you should decide how big each field could be.
   For example, you might allow 40 characters for a street address field while a ZIP code field should be limited to nine numbers.
6. **Determine any additional restrictions on what kinds of data can be stored in the fields**. You may wish to further limit the data that can be entered to increase data integrity.
   For example, you may determine that certain fields must be filled in while others are optional, or other fields may be limited to a select list of choices.
7. **Determine how the different tables are related to each other**. This step requires that you look at your different tables and see how they are related to each other. In this way, you can create a foreign key in different tables.
   One relationship in **Figure 2-58** is between the *Customer* and *Order* tables. In this case, the *CustomerID* was placed into the *Order* table as the foreign key so that the company would know which customer was associated with a particular order. You learn how to perform this step in the next section.

Three Types of Relationships

Three different types of relationships may exist between tables in a database: one-to-one, one-to-many, and many-to-many. When designing your database, it is critical that you understand how your tables are related to each other and that you select the correct relationship type. One type of relationship is not better than another; a relationship is simply a reflection of the reality of how the tables are associated. The one-to-many type relationship is the most common.

MORE INFO

When describing relationships, the following shorthand notation is often used:

1:1 (one-to-one)

1:M (one-to-many)

M:N (many-to-many)

Additionally, when describing table relationships, you, sometimes, will refer to a table based on the side of the relationship to which it belongs. For example, in a 1:M relationship, one table may be called the "1" table, while the other table may be called the "M" table. In a many-to-many relationship (M:N), the letter N is commonly used in the shorthand notation to differentiate the second side of the relationship.

One-to-One Relationship

In a ***one-to-one relationship***, one row of data in *Table A* may be associated with only one row of data in *Table B*. For example, a business may have a table containing information about employees. Since the employees frequently travel internationally, they also have another table to store information about employee passports. Each employee has only one passport and a passport belongs to only one employee.

Figure 2-59 shows the visual representation of a one-to-one relationship in Access.

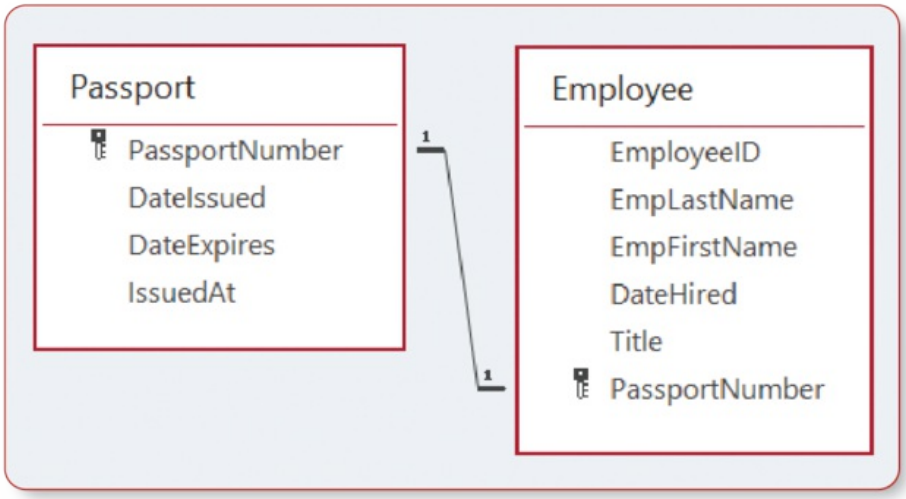


FIGURE 2-59 One-to-one relationship

One-to-Many Relationship

In a ***one-to-many relationship***, one row of data in *Table A* may be associated with many rows of data in *Table B*. In Mary's Equipment Rentals, a one-to-many relationship exists between the *Customer* and *Order* tables. A customer can have many orders, but a particular order is associated with only one customer.

In Access, the "many" side of a relationship is indicated with the infinity symbol. **Figure 2-60** shows the visual representation of a 1:M relationship.

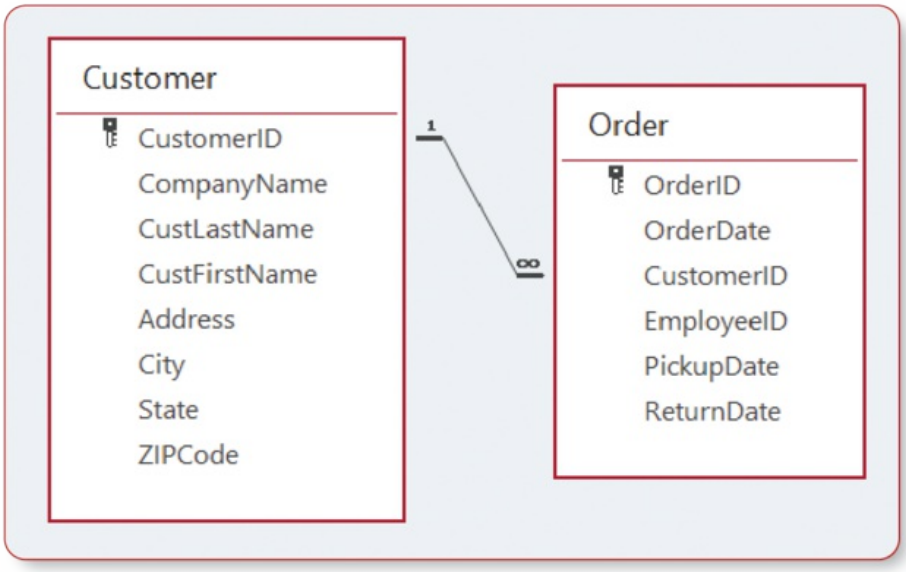


FIGURE 2-60 One-to-many relationship

Many-to-Many Relationship

In a ***many-to-many relationship***, many rows of data in *Table A* may be associated with many rows of data in *Table B*. In Mary's Equipment Rentals, a many-to-many relationship exists between the *Order* and *Equipment* tables. An order can be for many different pieces of equipment, and a particular piece of equipment can be on many different orders (obviously not at exactly the same time).

A relational database does not directly support M:N relationships. They require the creation of a third table, *Table C*. This third table is a ***junction*** or ***intersection table*** that matches up the records across the two tables. With the creation of the junction table, the M:N relationship converts into two 1:M relationships. This results in a 1:M relationship between *Table A* and *Table C*, and another 1:M relationship between *Table B* and *Table C*.

Figure 2-61 shows the visual representation of a M:N relationship. The *OrderLineDetails* table is the junction table in this example. A junction table contains the primary key fields from each of the "1" tables. In this case, *OrderLineDetails* contains the primary key field of *OrderID* from the *Order* table and the primary key field of *EquipmentID* from the *Equipment* table. The combination of *OrderID* and *EquipmentID* creates a concatenated primary key in the junction table.

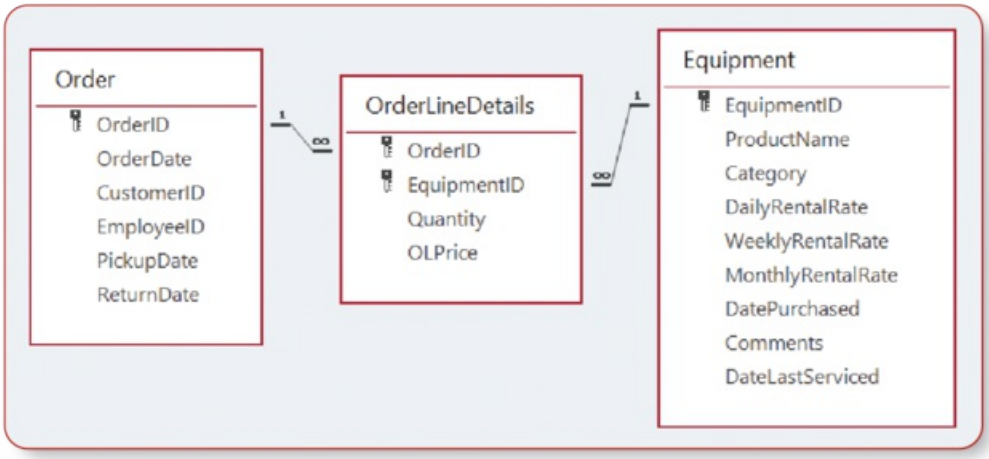


FIGURE 2-61 A many-to-many relationship is converted into two one-to-many relationships

Understand a Foreign Key

Recall that a foreign key is the field in common between two tables. When designing your tables, it is important to know how to create a foreign key. In the seventh step of designing a database, you determine how the tables are related to each other and determine what the foreign key is. By the time you get to step 7, you already have each of the tables in your database defined.

For example, in *Independent Project 1-5*, you built a database containing a pet table for Life's Animal Shelter. The shelter also needs a table to store information about owners who adopt the pets. Working through step 6 of designing a database would result in the *Owners* and *Pets* tables shown in **Figure 2-62**. At this point a common field does not exist.

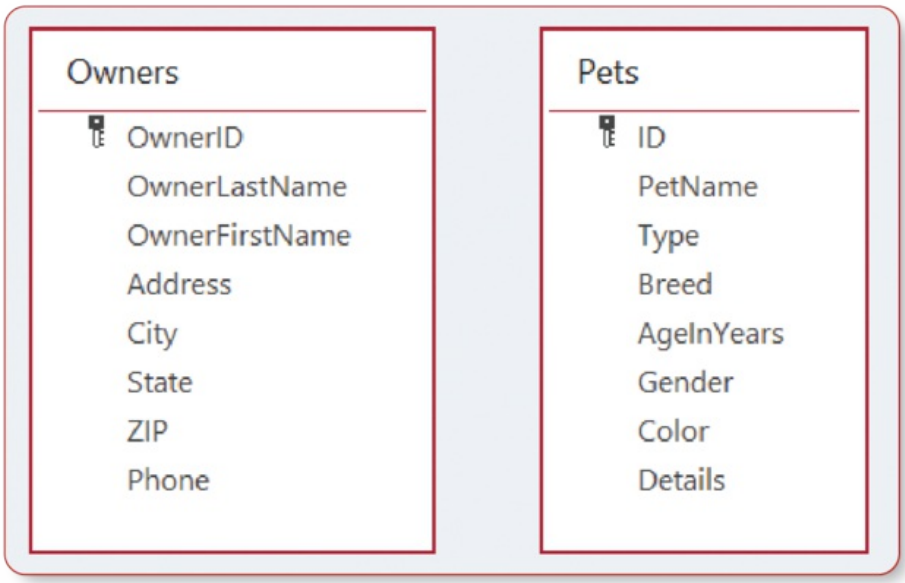


FIGURE 2-62 ***Owners* and *Pets* tables without a field in common**

Step 7 requires you to identify what type of relationship exists between the *Owners* and *Pets* tables. An owner could adopt many pets but a pet belongs to only one owner. This is a 1:M relationship.

- For a 1:M relationship, you create the foreign key by taking the primary key field from the *1* table and adding it as an extra field into the *M* table. This added field is known as the foreign key.
  In the Life's Animal Shelter example, you take the *OwnerID* from the *Owners* table and add it in as a foreign key into the *Pets* table (**Figure 2-63**). Although not required, many database designers prefer to start the foreign key field name with the letters *FK*.

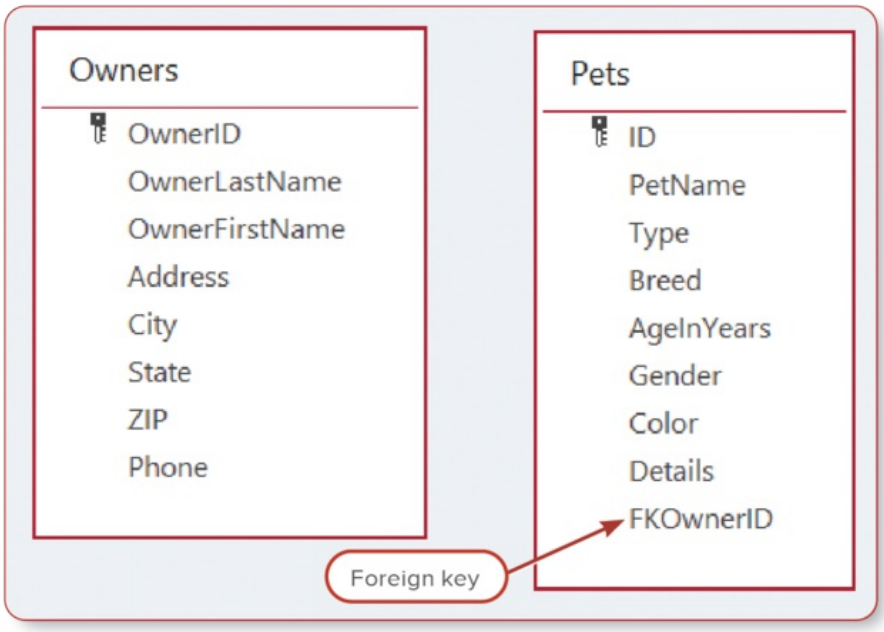


FIGURE 2-63 Add the foreign key into the "M" table in a relationship

- For a 1:1 relationship, you create the foreign key by taking the primary key from either table and adding it into the other table. You must set the ***Indexed*** property of the foreign key field to *Yes (No Duplicates)* for Access to recognize a 1:1 relationship.
- If you determine that you have an M:N relationship, you first need to create the junction table and convert the M:N relationship into two 1:M relationships. The junction table contains the primary key fields from each of the *1* tables, along with any other fields that describe that junction.

Remember that the foreign key field is always the primary key of another table. Sometimes, it is the primary key in both. (An example of this is shown and explained later in **Figure 2-67**.)

The actual addition of the foreign key into the related table is done in *Design* view of the table. When adding the foreign key field, set the field properties to be the same *Data Type* and *Field Size* as the primary key in the *1* table. If the primary key or foreign key field is an *AutoNumber Data Type*, then the other field should be made a *Long Integer Data Type*. The foreign key field name can be anything. Often it will either be the exact same name as the primary key or the name of primary key preceded by *FK*.

Adding the foreign key into the table does not establish the relationship. This is done as a separate step, described in the next section. The addition of the foreign key enables you to relate the tables.

Create Relationships between Tables

You can add relationships after you have added the foreign keys into the tables. Relationships should be set before any data is added into the tables that contain the foreign keys. While the process of creating the relationship is very straightforward, you need to make several decisions about how Access enforces the relationship.

COPILOT/GENERATIVE AI BEST PRACTICES

Understanding relationships is a critical piece to being able to design and use databases. Ask *Copilot* for help with creating relationships between tables in Access. You can also ask it to provide examples of related tables.

Define a Relationship Using the Relationships Window

A2-125

You can create a relationship directly in the *Relationships* window.

HOW TO: Define a Relationship Using the Relationships Window

1. Click the **Relationships** button [*Database Tools* tab, *Relationships* group].
   - The *Relationships* window opens.
   - If this is the first time you are establishing relationships for your database, the *Add Tables* task pane displays to the right of the *Relationships* window. (**Figure 2-64**).

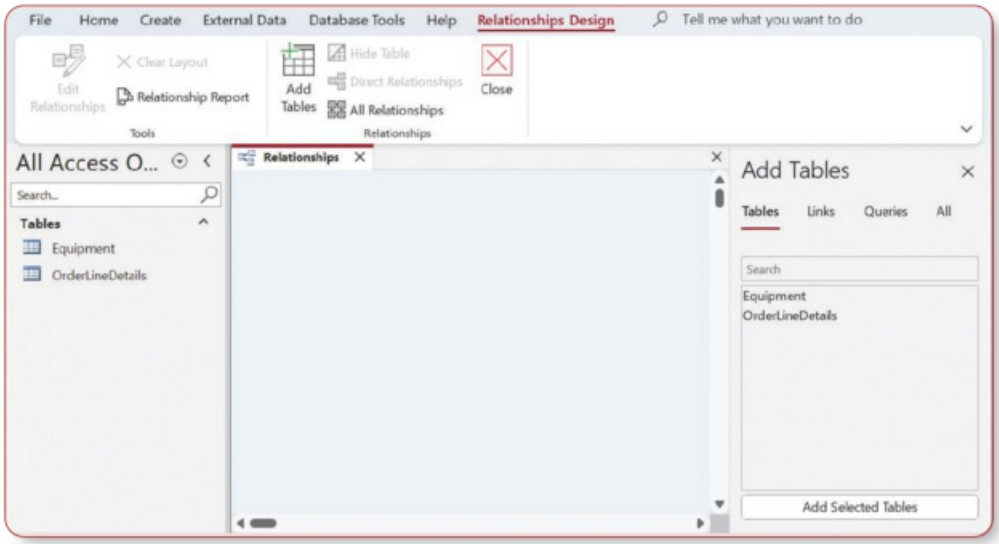


FIGURE 2-64 ***Relationships* window with open *Add Tables* task pane**

- Click the **Add Tables** button [*Relationships Design* tab, *Relationships* group] if the *Add Tables* task pane does not display or if you need to re-open the pane.

2. Select the **first table** to add.
3. Click the **Add Selected Tables** button.
   - The table appears in the *Relationships* window.
   - Sometimes, the size of the table object is not large enough to display the entire field name of all of the table fields. This is the case for the *Equipment* table shown in **Figure 2-65**.

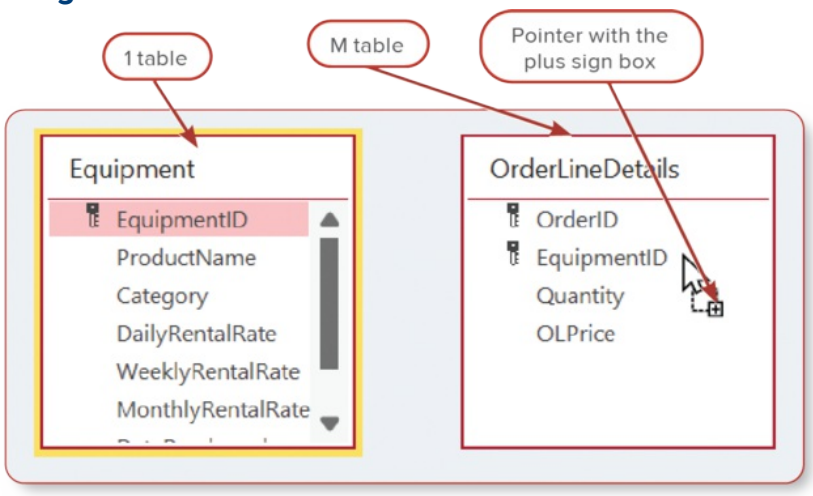


FIGURE 2-65 Drag the primary key to the foreign key to create a relationship

   - If you want, adjust the size of the table objects to see more fields. Point to a border of the table until the pointer changes to the resize pointer. Drag the pointer to increase or decrease the table. You can also adjust the table size by right-clicking inside the table and selecting **Size to Fit** in the context menu.
   - Click and drag a table to move it to a different location in the *Relationships* window.

ANOTHER WAY

Double-click a table in the *Add Tables* task pane to add it to the *Relationships* window.

4. Continue adding the remaining tables.

ANOTHER WAY

After selecting the first table, press and hold the **Shift** key and select any additional tables. Once all tables are selected, click the **Add Selected Tables** button.

5. Click the **X** in the right corner of the *Add Tables* task pane to close it.
6. Click, hold, and drag the **primary key** field from the *1* table on top of the **foreign key** field in the related table (see **Figure 2-65**).
   - The pointer displays a small plus sign box when it is dragged onto the related table.
   - The related table is either a *1* table or a *M* table, depending on the type of relationship.
7. Release the pointer when you are positioned on top of the **foreign key** field in the related table. The *Edit Relationships* dialog box opens (**Figure 2-66**).

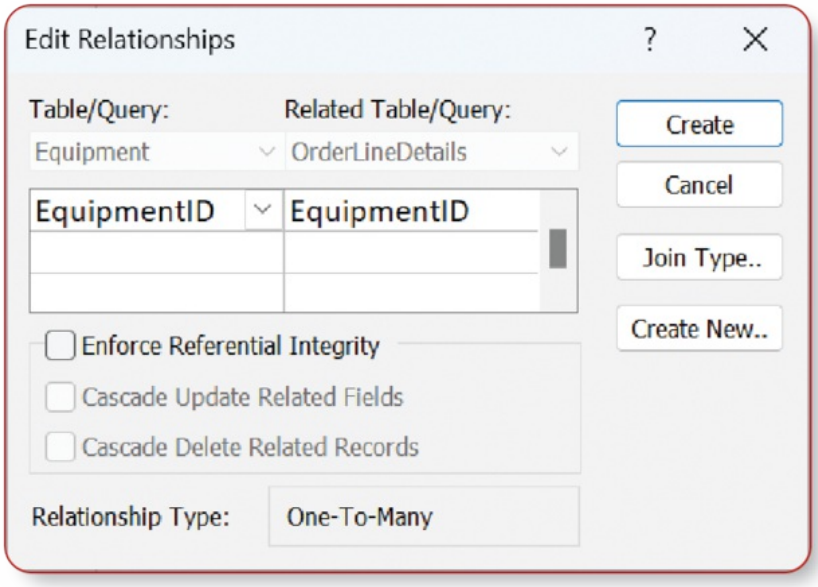


FIGURE 2-66 ***Edit Relationships*** **dialog box**

8. Verify that the field names displayed are correct. If necessary, click a field name and then click the **drop-down arrow** to make any corrections.
9. Check the **Enforce Referential Integrity** box.
   - The check boxes for *Cascade Update Related Fields* and *Cascade Delete Related Records* become available.
   - As desired, check those boxes.

10. Click **Create**.
    - The *Relationships* window updates with the relationship line added (**Figure 2-67**). The *1* and infinity symbols display indicating that referential integrity is enforced and that a one-to-many relationship exists between the two tables.

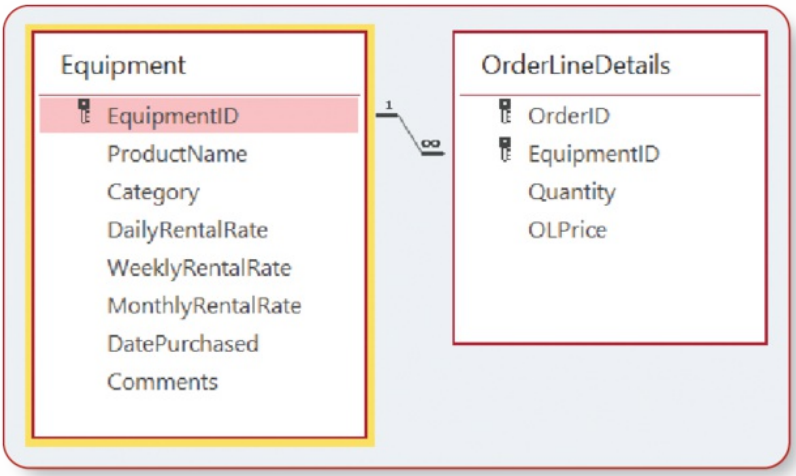


FIGURE 2-67 Completed relationships window

    - As you can see in **Figure 2-67**, the *EquipmentID* field is the primary key of the *Equipment* table and is part of a concatenated primary key in the *OrderLineDetails* table. It also is a foreign key in the *OrderLineDetails* table since it links back to the primary key in the *Equipment* table. Note that **Figure 2-67** also shows the *Equipment* table resized to display all the fields.
11. Save the changes made to the relationships.
12. Click **Close** [*Relationships Design* tab, *Relationships* group] if you are finished with all changes to the relationships.

ANOTHER WAY

You can also create a relationship using the *Lookup Wizard*. Select the **foreign key** field, select the **Lookup wizard** data type and select the option **I want the lookup field to get the values from another table or query**.

Once a relationship has been created, when you view the *1* table in *Datasheet* view you can see the

related records. A plus sign appears to the left of the first column, indicating that this table is related to another table.

- View related records by clicking the **plus sign**. The plus sign changes to a minus sign. **Figure 2-68** shows the related records for *EquipmentID 10015*.



FIGURE 2-68 Click the plus sign to show related records in *Datasheet* view

- You can enter additional records into the related table directly from this view.
- Click the **minus sign** to hide the related records.

Enforce Referential Integrity

A2-127

When creating a relationship, you must decide if you want to enforce referential integrity. ***Referential integrity*** ensures that records in associated tables have consistent data. For example, if you enter a row of data in the *OrderLineDetails* table, a value you enter in the *EquipmentID* field should match an *EquipmentID* value that already exists in the *Equipment* table. This ensures consistency and integrity of the database.

If you create a relationship and do not enforce referential integrity, you can have records in the associated table that do not match a record in the *1* table.

For example, if a doctor's office does not require a patient to declare a primary physician, the *PhysicianID* field on a *Patient* table may be left blank. While this is possible, in the majority of cases you will want to enforce referential integrity.

MORE INFO

Occasionally, Access system tables (MSysNavPaneGroupCategories, MSysNavPaneGroups, MSysNavPaneGroupToObjects, etc.) display in the *Relationships* window. You can hide the tables to reduce clutter. Right-click inside a system table and then select **Hide Table** from the context menu.

Enforce referential integrity by selecting the **Enforce Referential Integrity** check box in the *Edit Relationships* dialog box.

In addition to requiring that the foreign key value of a record in the associated table matches a primary key value in the *1* table, when referential integrity has been enforced Access prohibits two other actions.

- First, Access does not allow you to delete a record from the *1* table if that record has related records in an associated table. For example, at a school you may have a table with student information and another table containing information about student parking tickets. If referential integrity is enforced, Access does not allow you to delete a student record from the *Student* table if that student has any rows of data in the *ParkingTicket* table. This ensures that all parking tickets remain linked to the student who got the ticket. This restriction means that a student can't exit the school system without first paying all their parking tickets.
- Second, Access does not allow you to change the value of the primary key field in the *1* table if that record has related records in an associated table. Assuming that *StudentID* is the primary key in the *Student* table, the student is not allowed to change the value of their *StudentID* if they have any parking ticket records in the *ParkingTicket* table.

You may determine that valid reasons exist to override these constraints. If referential integrity has been enforced, the ***Cascade Update Related Fields*** and ***Cascade Delete Related Records*** options become available.

Cascade Updates

Sometimes, it is desirable to allow the primary key value of the *1* table to be changed. For example, if a *StudentID* value has been stolen, the student must be assigned a new ID. In cases like this, you want to be able to change the value of the primary key and have Access find all related records and change the value in the foreign key to match the new primary key value.

To allow the primary key value to be changed and have Access cascade updates in the related table select the **Cascade Update Related Fields** check box in the *Edit Relationships* dialog box. You can do this only if you have selected the *Enforce Referential Integrity* option in the *Edit Relationships* dialog box.

Cascade Deletes

Situations may occur when you want to delete a record from the *1* table and have Access automatically delete all the related records in the associated table. For example, if a record is deleted from the *Order* table because an order is canceled, all of the records in the *OrderLineDetails* table (the specific products this customer had ordered) should be deleted as well. In cases like this, you want to be able to make this deletion and have Access delete all the related records.

To allow a record in the *1* table to be deleted and have Access delete all associated records in the related table, select the **Cascade Delete Related Records** check box in the *Edit Relationships* dialog box. You can do this only if you have selected the *Enforce Referential Integrity* option.

Save a Relationship

If you have made any changes to the relationships, you need to save those changes.

Click the **Save** button on the *Quick Access* toolbar to save any changes made to the relationships.

Delete a Relationship Between Tables

If a relationship has been created in error, or you need to make changes to the fields involved in the relationship, or you no longer need to have a particular relationship, you can delete it. You must close all of the tables involved in the relationship, as well as any objects that are based on those tables before you can delete a relationship.

HOW TO: Delete a Relationship Between Tables

1. Click the **Relationships** button [*Database Tools* tab, *Relationships* group].
   - The *Relationships* window appears.
2. Select the **relationship line** you wish to delete (**Figure 2-69**).

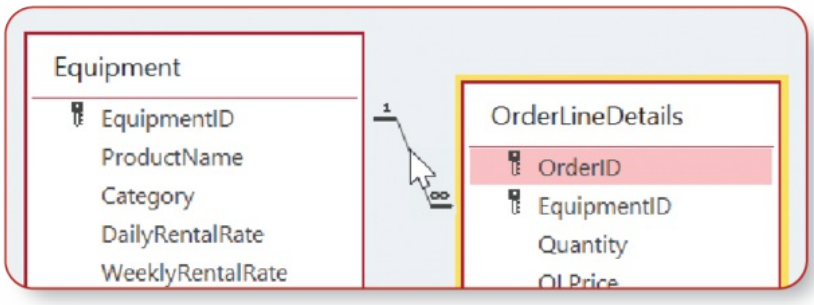


FIGURE 2-69 Select the relationship line

   - The middle part of the line thickens once it has been selected.

3. Right-click the **relationship line** to open the context menu.
4. Click **Delete** (Figure 2-70).

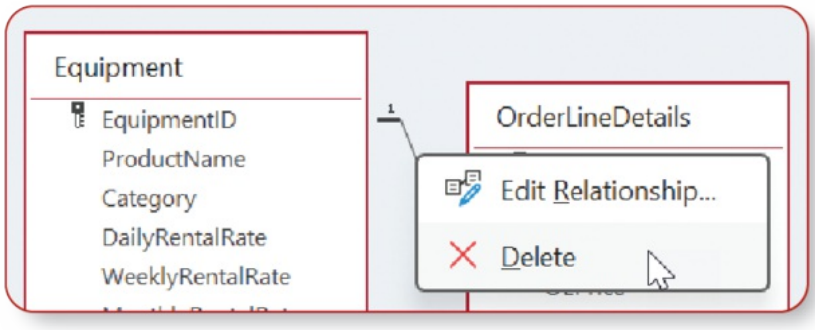


FIGURE 2-70 ***Delete*** **option in the context menu**

- A confirmation message appears asking you to confirm the deletion. Click **Yes** to confirm the deletion.

5. Click the **Save** button to save your changes.
6. Click **Close** [*Relationships Design* tab, *Relationships* group] if you are finished with all deletions to the relationships.

Edit a Relationship Between Tables

Occasionally, you need to make changes to an existing relationship between tables.

HOW TO: Edit a Relationship Between Tables

1. Click the **Relationships** button [*Database Tools* tab, *Relationships* group].
   - The *Relationships* window appears.
2. Select the **relationship line** you wish to edit.
3. Click **Edit Relationships** [*Relationships Design* tab, *Tools* group] (Figure 2-71). The *Edit Relationships* dialog box opens (Figure 2-72).

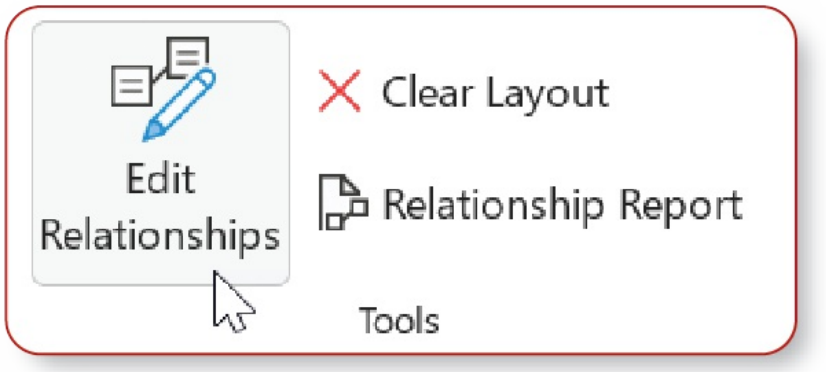


FIGURE 2-71 ***Edit Relationships*** **button**

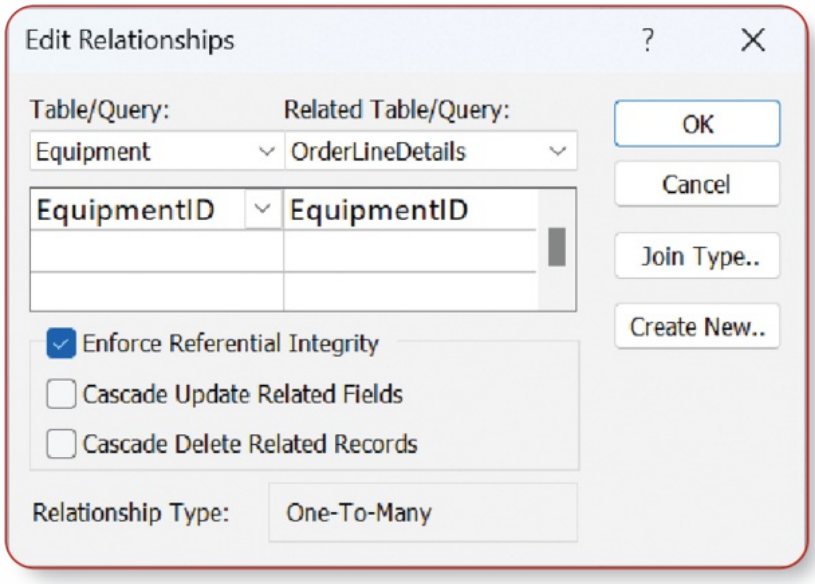


FIGURE 2-72 ***Edit Relationships*** **dialog box**

ANOTHER WAY

Right-click the **relationship line** to open the context menu and then select **Edit Relationship**.

4. Change the referential integrity options or selected fields.
5. Click **OK**.
6. Save the changes made to the relationships.

7. Click **Close** [*Relationships Design* tab, *Relationships* group] if you are finished with all changes to the relationships.

SLO 2.7

Printing the Contents of a Table

Occasionally, you may wish to print a simple list of all records in a table. You can do this with the *Print* button on the *Backstage* view. Three options are available after selecting the *Print* button:

- ***Quick Print***: Sends the contents of the current object immediately to the printer.
- ***Print***: Enables you to select different print options before sending the contents to the printer.
- ***Print Preview***: Enables you to preview the way the table records will print before actually sending them to the printer.

Preview the Data Records

Previewing the way that your table records will print is a good idea. This enables you to check that the formatting is appropriate and to change any settings before printing.

HOW TO: Preview the Data Records before Printing

1. Select the **table** you want to print from the *Navigation Pane*. The table can be closed, or it can be open in *Datasheet* view when you print records.
2. Click the **Print** button [*File* tab] to display the printing options.
3. Click the **Print Preview** button.
   - The *Print Preview* tab opens and shows a preview of how the table will print ( **Figure 2-73**).

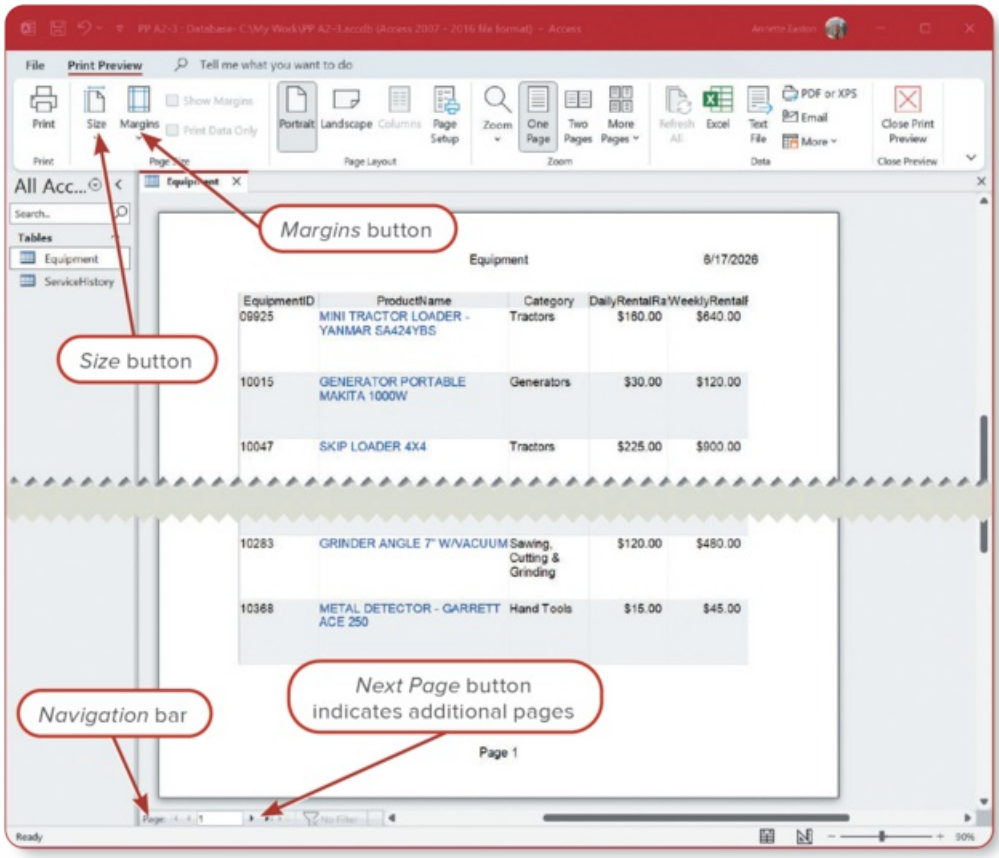


FIGURE 2-73 ***Print Preview*** **of table records**

- The default print settings include the table name and current date at the top of the report and page number at the bottom of the report. Access calls these three items *Headings*.

4. Review the *Navigation* bar to determine if additional pages will print. In **Figure 2-73**, the darkened *Next Page* button indicates additional pages.
5. Adjust the page orientation by clicking the **Portrait** or **Landscape** buttons [*Print Preview* tab, *Page Layout* group].
6. Click the **Page Setup** button [*Print Preview* tab, *Page Layout* group] or press **S** to open the *Page Setup* dialog box (**Figure 2-74**).

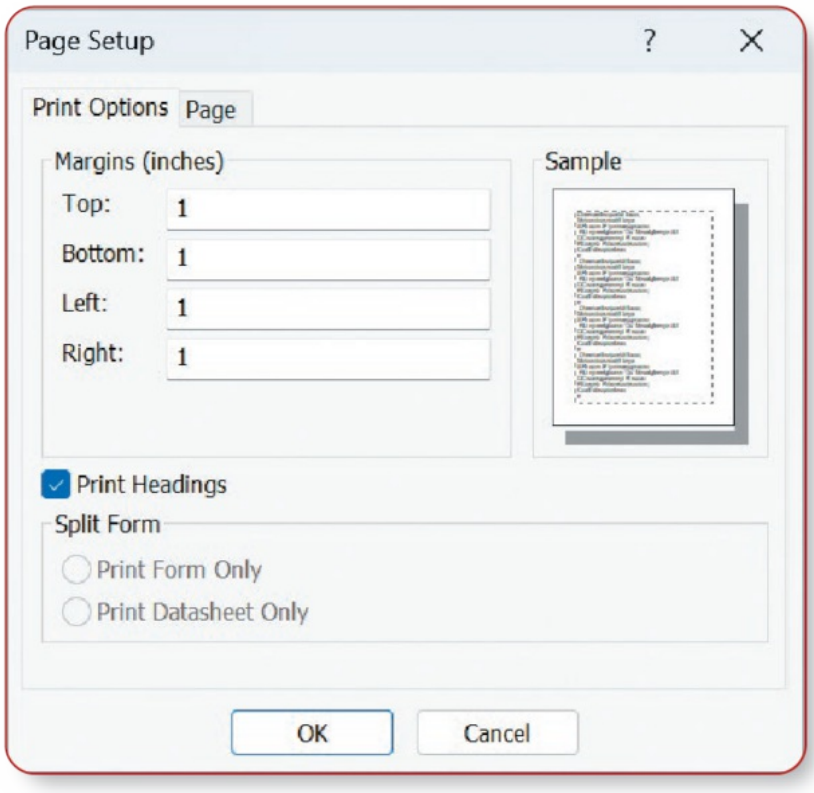


FIGURE 2-74 ***Page Setup*** **dialog box**

7. Adjust the margins on the *Print Options* tab.
8. Remove the *Headings* from the printout by deselecting the **Print Headings** check box on the *Print Options* tab.

ANOTHER WAY

Set the paper size, and margins by clicking the **Size** or **Margins** buttons [*Print Preview* tab, *Page Size* group].

9. Adjust the paper size on *Page* tab. You can also adjust the page orientation on the *Page* tab.
10. Click **OK** to close the *Page Setup* dialog box.
11. Click the **Print** button [*Print Preview* tab, *Print* group] when ready to print.
    - The *Print* dialog box displays.
    - In the *Print* dialog box, you can change the number of copies, page range, and printer as desired.

12. Click **OK** to print the table.
13. Click the **Close Print Preview** button [*Print Preview* tab, *Close Preview* group].

ANOTHER WAY

Press **P** or **Ctrl+P** to open the *Print* dialog box from *Print Preview* view.

Print the Data Records without Previewing

If you previously previewed how the table will print, you can quickly print the table records without previewing the pages.

HOW TO: Print Table Records

1. Select the **table** you want to print from the *Navigation Pane*. The table can be closed, or it can be open in *Datasheet* view when you print records.
2. Click the **Print** button [*File* tab] to display the printing options.
3. Click the **Print** button. The *Print* dialog box displays.
4. Change the number of copies, page range, and printer as desired.
5. Click **OK**.

ANOTHER WAY

Click the **Quick Print** button to print the table without opening the *Print* dialog box.

Queries and *Reports* provide advanced options to create more attractive and formatted printouts of table data. You can also use them to print only a subset of the table data. These objects are covered in **chapter 3** and **chapter 4**.

SLO 2.8

Using the Compact & Repair Database Utility

Over time, as you use your database, the database file becomes larger. Much of this is due to additional records being added into the tables. However, part of the increased size is due to certain ways that Access operates. In order to accomplish certain functions, Access creates temporary objects. These objects are not always automatically deleted when the function has been performed. Additionally, when you delete database objects, that space is not always released.

As the database file grows, it takes longer to perform tasks such as adding and deleting records, querying tables, and printing reports. With really large databases this can result in a significant decrease in processing speed.

Another concern is that a database file may become corrupted. In Access, this is most likely to occur if the database is shared over a network and numerous users make frequent edits to *Long Text* fields. A corrupted database doesn't typically result in lost data; rather, certain forms or pieces of the code may be lost or become unusable.

You can use the ***Compact & Repair Database*** utility to reduce the chances of corruption and to reclaim unused space from temporary and deleted objects. Before running this process, be sure to create a backup copy of your database. Additionally, if this is a multi-user database, no one can be using the database at the time the compact and repair is performed.

COPILOT/GENERATIVE AI BEST PRACTICES

Copilot can be used to provide additional details about complex processes in a database. Ask *Copilot* to explain how the Compact & Repair database utility works.

HOW TO: Compact and Repair a Database

1. Click the **Info** button [*File* tab] to display the *Info* options.
2. Click the **Compact & Repair Database** button (**Figure 2-75**).

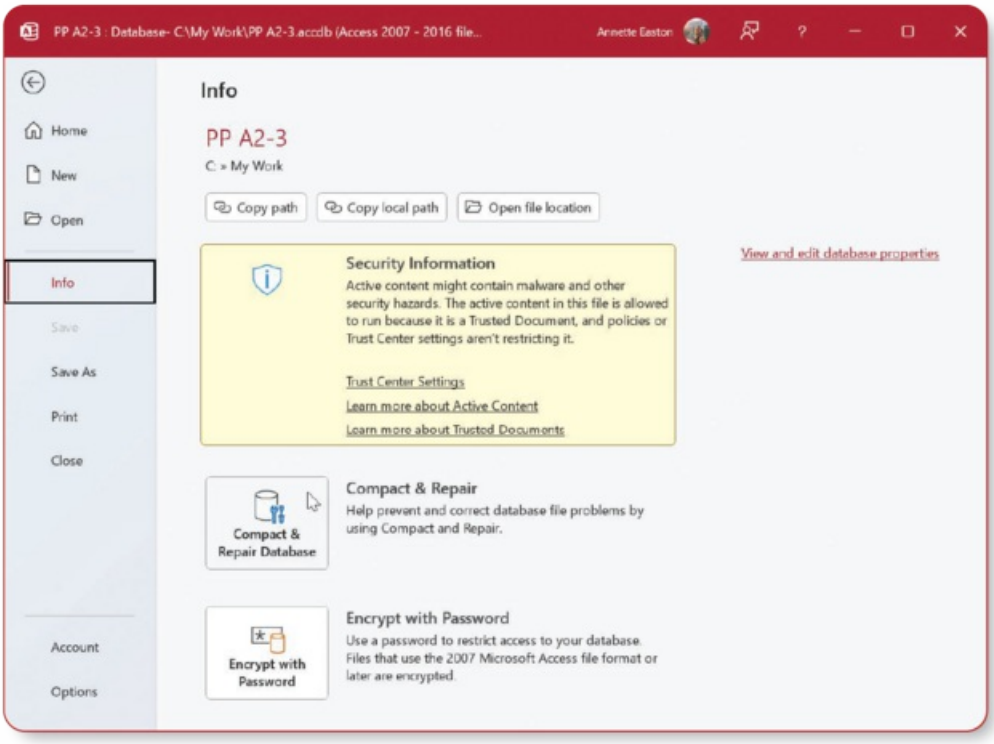


FIGURE 2-75 ***Compact & Repair Database*** **button**

- If Access is not able to repair everything in a corrupted database, it creates a table named *MSysCompactErrors*. This table opens automatically and contains information about the objects that could not be repaired.

ANOTHER WAY

Click the **Compact and Repair Database** button [*Database Tools* tab, *Tools* group] to compact and repair the database.

PAUSE & PRACTICE: ACCESS 2-3

In this Pause & Practice, you add a second table to store the service history of the equipment. Next, you define a relationship between the *Equipment* and *Service History* tables. You also print the contents of the *Equipment* table and manage the database creating a backup copy and using the *Compact & Repair Database* utility.

Files Needed: ***[your initials] PP A2-2.accdb*** and ***ServiceHistoryDataFile-02.xlsx*** *(Student data files are available in the* Library *of your SIMnet account)*

Completed Project File Names: ***[your initials] PP A2-3.accdb*** and ***[your initials] PP A2-3_YYYY-MM-DD.accdb***

1. Open the ***[your initials] PP A2-2*** database file created in ***Pause & Practice 2-2***.
2. Save a new copy of your database as [your initials] PP A2-3.
3. Enable content in the security warning.
4. Click the **Table Design** button [*Create* tab, *Tables* group] to open a new table in *Design* view.
5. Add new fields into the table.
   a. Type ServiceID in the *Field Name* property box of the first row. Press **Tab** to move to the *Data Type* property.
   b. Select the **Short Text** *Data Type*. Press **Tab** to move to the *Description* property.
   c. Type Unique ID number for the service request.
   d. Click the **Primary Key** button [*Table Design* tab, *Tools* group].
   e. Press **Tab** to move to the next row.
   f. Continue adding the remaining fields into the new table using the information in **Table 2-16**.

Table 2-16

Field Name	Data Type	Description
ServiceDate	**Date/Time**	Date service was completed
ServiceType	**Short Text**	Indicates whether service was maintenance, repair, or inspection
Description	**Short Text**	General description of the nature of the service performed
PerformedBy	**Short Text**	Employee ID number of the repair person
FKEquipmentID	**Short Text**	Must match an EquipmentID value in the Equipment table – (this is the foreign key)
OdometerReading	**Number**	Odometer reading at time of repair (for vehicles only)
Hours	**Number**	Total number of hours the equipment has been in use
TotalCost	**Currency**	Cost of the service (parts and labor)

6. Save the table as ServiceHistory.
7. Set the field properties in the *ServiceHistory* table.
   a. Click the **row selector** of the *ServiceID* field.

b. Type 6 in the *Field Size* property box in the *Field Properties* area.

c. Set the *Required* property to **Yes** if necessary.

d. Click the **row selector** of the *ServiceDate* field.

e. Continue changing the remaining field properties in the *ServiceHistory* table using the information in **Table 2-17**.

Table 2-17

Field Name	Field Size	Format	Required
ServiceDate		General Date	Yes
ServiceType	15		Yes
Description	255		Yes
PerformedBy	3		Yes
FKEquipmentID	5		Yes
TotalCost		Currency	Yes

f. Save the table.

8. Modify the *ServiceType* field to use a *Combo Box*.

a. Click the **Data Type** property box of the *ServiceType* field, click the **drop-down arrow**, and select **Lookup Wizard**. The *Lookup Wizard* dialog box opens.

b. Select the radio button for **I will type in the values that I want**.

c. Click the **Next** button.

d. Click the **first cell** in the *Col1* column.

e. Type Maintenance.

f. Press the **down arrow** key to move to the next row.

g. Type Repair. Press the **down arrow** key to move to the next row.

h. Type Inspection.

i. Click the **Next** button.

j. Click the **Limit To List** check box.

k. Click the **Finish** button.

9. Save and close the table.

10. Create a relationship between the *Equipment* and *ServiceHistory* tables.

a. Click the **Relationships** button [*Database Tools* tab, *Relationships* group]. If this is the first time you have established relationships for your database, the *Add Tables* task pane displays.

b. Click the **Add Tables** button [*Relationships Design* tab, *Relationships* group] if the *Add Tables* task pane does not display.

c. Select the **Equipment** table and click the **Add Selected Tables** button. The table displays in the *Relationships* window.

d. Double-click the **ServiceHistory** table. The table displays in the *Relationships* window. You can choose

which method you prefer to add tables.

e. Click the **X** in the right corner of the *Add Tables* task pane to close it.

MORE INFO

In some cases, the Access system tables (MSysNavPaneGroupCategories, MSysNavPaneGroups, MSysNavPaneGroupToObjects, etc.) may appear in the *Relationships* window. You can hide these tables as they clutter the window. Right-click inside a system table and then select **Hide Table** from the context menu. Repeat to hide all system tables.

f. Adjust the size of the table objects to see all of the fields.

g. Move the table objects if necessary so they are located where you want them in the *Relationships* window.

h. Drag the **EquipmentID** from the *Equipment* table on top of the **FKEquipmentID** in the *ServiceHistory* table. The pointer displays a small plus sign box when it is dragged onto the related table (**Figure 2-76**).

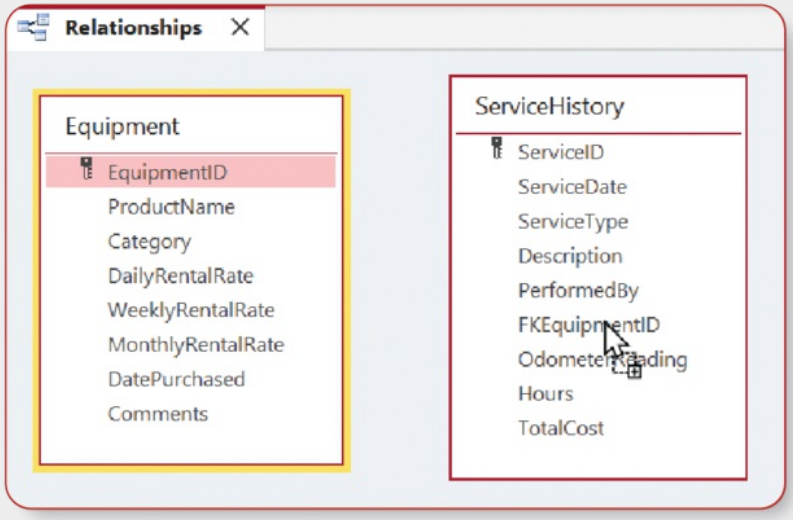


FIGURE 2-76 Create the relationship between the *Equipment* and *ServiceHistory* tables

i. Release the pointer when you are positioned on top of the *FKEquipmentID* field. The *Edit Relationships* dialog box opens.

j. Verify that the field names displayed are correct. If necessary, click a fieldname and then click the **drop-down arrow** to make any corrections.

k. Click the **Enforce Referential Integrity** check box.

l. Click the **Cascade Update Related Fields** check box.

m. Click the **Cascade Delete Related Records** check box. The completed *Edit Relationships* dialog box should be similar to **Figure 2-77**.

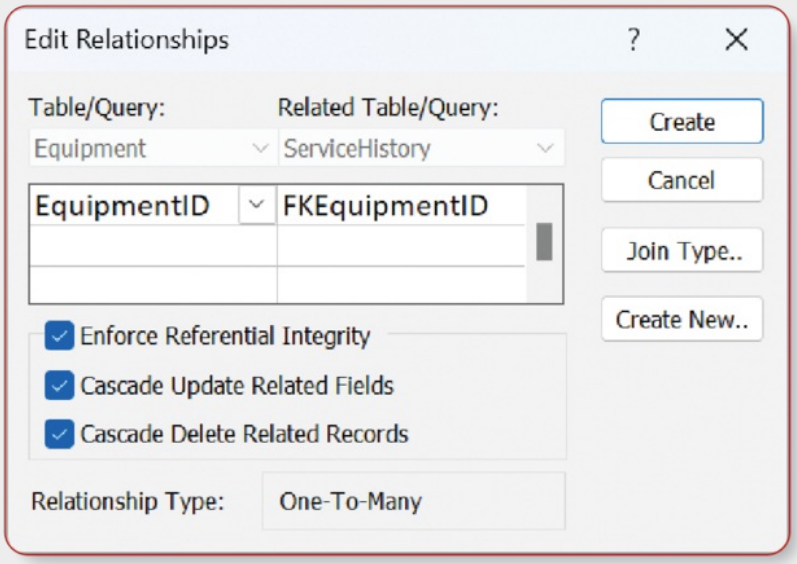


FIGURE 2-77 Select referential integrity options in the *Edit Relationships* dialog box

n. Click **Create**. The *Relationships* window updates with the relationship line added (**Figure 2-78**). The 1 and infinity symbols display indicating that referential integrity is enforced and that there is a one-to-many relationship between the two tables.

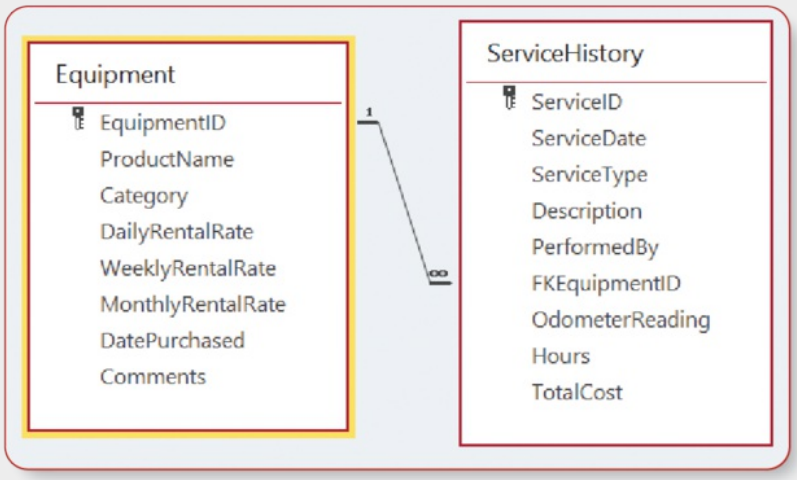


FIGURE 2-78 Completed relationship between the tables

o. Save the changes made to the relationships.

p. Click **Close** [*Relationships Design* tab, *Relationships* group].

11. Import data into the *ServiceHistory* table.
    a. Launch the *Get External Data – Excel Spreadsheet* dialog box.
    b. Locate and select the ***ServiceHistoryDataFile-02*** Excel file.
    c. Append the records to the *ServiceHistory* table.
    d. Launch the *Import Spreadsheet Wizard*.
    e. Finish the *Import Spreadsheet Wizard*. Close the *Wizard* after the records have imported.
12. Open the *Equipment* table in *Datasheet* view.
    a. Click the **plus sign** for *EquipmentID 09925* to display the related records. You should see four entries in the *ServiceHistory* table for this piece of equipment (**Figure 2-79**).



FIGURE 2-79 Display related records for *EquipmentID* 09925

    b. Click the **minus sign** to hide the related records.
    c. Close the table.
13. Prepare to print the *Equipment* table.
    a. Verify that the *Equipment* table is selected in the *Navigation Pane* and then click the **Print** button [*File* tab] to display the printing options.
    b. Click the **Print Preview** button to open the *Print Preview* tab and view a preview of how the table will print.
    c. Click the **Landscape** button [*Print Preview* tab, *Page Layout* group] to change the page orientation.
    d. Click the **Margins** button [*Print Preview* tab, *Page Size* group] and select the **Normal** button as shown in **Figure 2-80**. The report preview should appear as shown in **Figure 2-81**. Depending on the default font or printer settings, the *Comments* field may appear on a separate page and you may see a different number of records on the page.

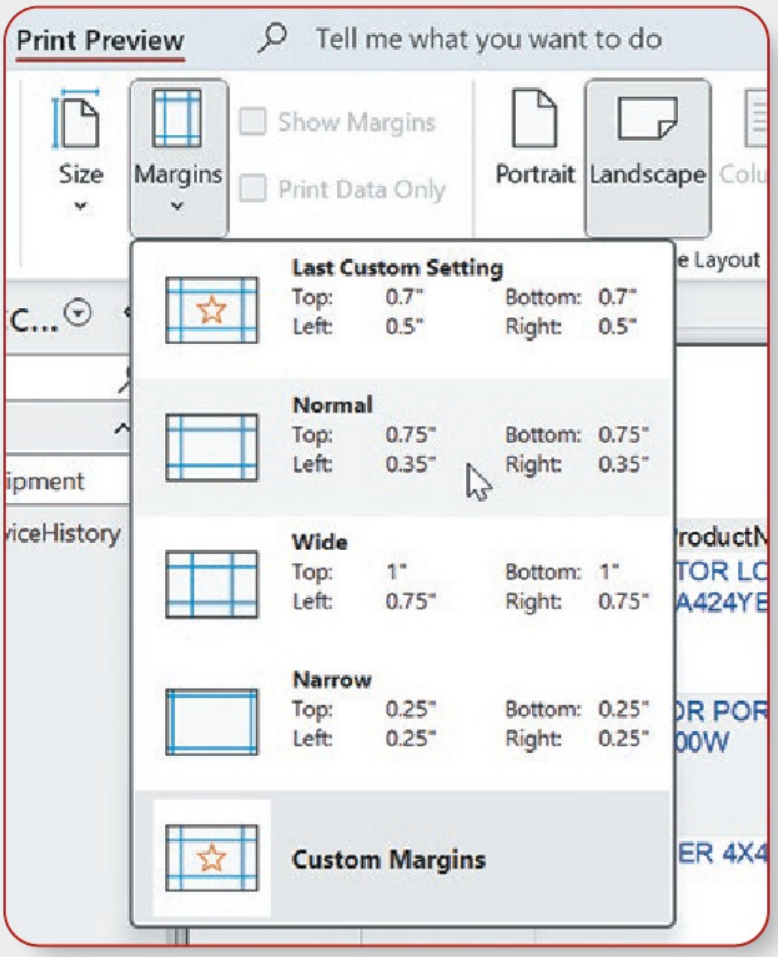


FIGURE 2-80 ***Margins*** **options in** ***Print Preview***



Equipment 10/9/2025

EquipmentID	ProductName	Category	DailyRentalRa	WeeklyRentalR	MonthlyRental	DatePurchase
09925	MINI TRACTOR LOADER - YANMAR SA424YBS	Tractors	$160.00	$640.00	$1,920.00	10-Oct-24
10015	GENERATOR PORTABLE MAKITA 1000W	Generators	$30.00	$120.00	$360.00	16-Dec-24
10047	SKIP LOADER 4X4	Tractors	$225.00	$900.00	$2,700.00	09-Feb-25
10103	GENERATOR TOWABLE POWERPRO 25KW	Generators	$120.00	$360.00	$1,080.00	20-Jul-25
10129	LEVEL SITE LASER	Hand Tools	$60.00	$240.00	$720.00	02-Aug-25
10235	WHEELBARROW	Hand Tools	$10.00	$30.00	$60.00	01-Oct-25
10236	SNAKE DRAIN 1/2" ELECTRIC	Plumbing	$35.00	$140.00	$420.00	01-Oct-25

Page 1

FIGURE 2-81 ***Print Preview* of *Equipment* table records**

14. Click the **Close Print Preview** button [*Print Preview* tab, *Close Preview* group].
15. Backup the database and use *Compact & Repair Database* to reclaim unused space.
    a. Click the **Save As** button [*File* tab].
    b. Ensure that *Save Database As* is selected in *File Types*.
    c. Select **Back Up Database** in the *Advanced* grouping of the *Save Database As* area.
    d. Click the **Save As** button.
    e. Accept the default name in the *File name* box and click the **Save** button.
    f. Click the **Info** button [*File* tab] to display the *Info* options.
    g. Click the **Compact & Repair Database** button.
16. Close the database.

Chapter Summary

A2-136

A2-137

2.1 Create a table in *Design* view; add new fields; define a primary key; delete fields; save, close, rename, and open a table; and switch between *Datasheet* and *Design* views (p. A2-88).

- ***Design view*** provides the most flexibility when you are creating tables and setting field properties.
- The ***Table Design*** button opens *Design* view to create tables.
- Add new fields in *Design* view by entering the field name and selecting the data type.
- Use the *Property Update Options* smart tag to have Access update the value of an ***inheritable property*** in all of the controls that are based on that field.
- Each table should have a ***primary key***, a field that contains a unique value for each record.
- Add a new field between existing fields by inserting a row, and delete a field by deleting a row.
- Save any changes to the table design for them to be permanent.

2.2 Set field properties including *Field Size*, *Format*, *Caption*, *Default Value*, *Required*, and *New Values* (p. A2-93).

- The field properties in *Design* view are grouped into *General* and *Lookup* properties.
- The ***Field Size*** property sets the maximum number of characters allowed or the maximum value of a number.
- Use the ***Format*** property to control the appearance of the data in a table.
- Choose from predefined formats for *Number*, *Currency*, *Date/Time*, and *Yes/No* data types.
- Create custom formats for *Short Text* and *Long Text* data types.
- Customize the ***Caption*** property to change the contents that appears as a column header.

- The contents of the ***Default Value*** property are automatically entered into a field when a new record is added to a table.
- Require a user to enter a value for a field by setting the ***Required*** property.
- Use the ***New Values*** property to select sequential and random values of an *AutoNumber* field.

2.3 Explain data integrity and data validation concepts and options (p. A2-99).

- ***Data validation*** is the process of verifying the accuracy, or integrity, of the data.
- Create ***data integrity rules*** to ensure that the data is accurate and consistent.
- ***Data format***, ***range***, ***consistency*** and ***completeness*** are the most common types of data integrity rules.
- ***Metadata*** are the descriptions about what the different data fields represent and their formats.

2.4 Create field and record validation rules, test rules, create validation text, create lookup fields, and define an input mask (p. A2-100).

- ***Field validation rules*** create *range* and *data format* integrity rules by limiting what can be entered into a field.
- *Consistency* integrity rules compare fields in the same table. These ***record validation rules*** are entered into the validation rule property for the table.
- Enter field or record validation rules into the ***Validation Rule*** property.
- Enter the rule using an ***expression***, a formula using the common operators. You can also include the ***wildcard characters*** in an expression to provide more flexibility in matching data.
- The ***Expression Builder*** provides easy access to tools to help you create an expression.
- It is a good idea to create several cases of ***test data*** and use it to test the validation rules to ensure the rule works as desired.
- Enter custom error messages into the ***Validation Text*** property. This message displays when data is entered that violates a validation rule.
- ***Lookup fields*** display a list of predefined choices from which the user can select.
- Apply an ***input mask*** to a field to require the user to enter the data in a predefined format. Use the ***Input Mask Wizard*** to step you through the process of creating an input mask.

2.5 Change field properties after records are added into a table (p. A2-114).

- If you change field properties after data has been added into the tables, Access warns you that the change could result in lost data or inconsistent data.
- Pay attention to the warning messages because it may be impossible to undo the changes and recover any lost data.

2.6 Explain relational database principles, understand the steps that must be taken to design a database, create relationships between tables, implement referential integrity, and delete and edit relationships (p. A2-120).

- A ***relational database*** contains data that is organized into a collection of related tables. To be considered relational, a database must meet a set of specifications.
- It is important to follow the steps to designing a relational database to ensure that your set of tables and relationships are correct.
- A primary key in a table that is made up of more than one field is called a ***concatenated key*** or ***composite key***.
- Relationships are the connections among different tables. Relationships can be classified as ***one-to-one***, ***one-to-many***, and ***many-to-many***.
- A ***foreign key*** is a field in common across tables and is the mechanism that enables tables to be related.
- A *many-to-many* relationship requires a third table, called a ***junction table*** or ***intersection table***, that matches up the records across the two other tables.
- Once the foreign key has been added into a table, the relationships can be established through the ***Relationships*** window.
- ***Referential integrity*** ensures that records in related tables are consistent.
- Depending on the needs of the business, you can decide whether to use the ***Cascade Update Related Fields*** and ***Cascade Delete Related Records*** options.

2.7 Preview and print the contents of a table (p. A2-129).

- Use the *Backstage* view to print the contents of a table.
- ***Print Preview*** enables you to see how the records appear before printing. Use the *Print Preview* tab to change paper size, margins, and page orientation.
- Choose ***Quick Print*** to send the contents of the current object immediately to the printer.

- The **Print** option enables you to select different print options before sending the contents to the printer.

2.8 Manage a database using the *Compact & Repair Database* utility (p. A2-131).

- Over time, the size of your database increases due to added data as well as temporary and deleted objects.
- In larger databases, functions such as adding and deleting records, querying tables, and running reports take longer.
- The ***Compact & Repair Database*** utility reclaims unused space and repairs databases that have become corrupted.

Check for Understanding

The SIMbook for this text (within your SIMnet account) provides the following resources for concept review:

- Multiple-choice questions
- Matching exercises
- Short answer questions

Using Microsoft Access 365

Guided Project 2-1 - SIMnet Project

Central Sierra Insurance wants to expand the database you created in ***Pause & Practice 1-4***. To ensure consistency, the starting file is provided for you. For this project, you use *Design* view to create a second table, edit field properties, and integrate data integrity rules. You also create a relationship between the two tables and enforce referential integrity constraints. Finally, you view how the table records will print using *Print Preview.*

[**Student Learning Outcome 2.1**, **Student Learning Outcome 2.2**, **Student Learning Outcome 2.3**, **Student Learning Outcome 2.4**, **Student Learning Outcome 2.5**, **Student Learning Outcome 2.6**, **Student Learning Outcome 2.7**]

File Needed: ***CentralSierra-02.accdb*** *(Student data files are available in the* Library *of your SIMnet account)*

Completed Project File Name: ***[your initials] Access 2-1.accdb***

Skills Covered in This Project

- Create a table using *Design* view.
- Add fields into a table.
- Edit field properties in *Design view.*
- Define an input mask.
- Use the *Lookup Wizard* to create a drop-down list.
- Save a table.
- Enter records.
- Verify the existence of a foreign key.
- Create a 1:M relationship between tables.
- Enforce referential integrity.

- View a table in *Datasheet* view and expand related records.
- Preview table results for printing.

IMPORTANT: If you are a Canadian user, be sure to verify that your browser and Microsoft Office use the same country settings. See here for a Help topic on how to change your settings.

1. Open the ***CentralSierra-02*** database file. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close it.
2. Save a new copy of your database as [your initials] Access 2-1.
3. Enable content in the security warning.
4. Click the **Table Design** button [*Create* tab, *Tables* group] to open a new table in *Design* view.
5. Add new fields into the table and set field properties.
   a. Type Branch in the *Field Name* property box of the first row. Press **Tab** to move to the *Data Type* property.
   b. Select the **Short Text** *Data Type*. Press **Tab** to move to the *Description* property.
   c. Type Unique branch name.
   d. Click the **Primary Key** button [*Table Design* tab, *Tools* group].
   e. Press **Tab** to move to the next row.
   f. Add the remaining fields into the table using the information in **Table 2-18**.

Table 2-18

Field Name	Data Type	Description
Address	**Short text**	Street address of the branch
City	**Short text**	Branch city
State	**Short text**	Branch state
ZIP	**Short text**	Branch ZIP Code
Phone	**Short text**	Branch main phone number
DateOpened	**Date/Time**	Date the branch first opened

   g. Save the table as Branches. It is a good idea to periodically save a table when you are creating it so you don't lose your work.
   h. Click the **row selector** to select the *Branch* field.
   i. Type 30 in the *Field Size* property box in the *Field Properties* area.
   j. Set the *Required* property to **Yes** if necessary.
   k. Click the **row selector** to select the *Address* field.
   l. Change the remaining field properties in the *Branches* table using the

information in **Table 2-19**.

Table 2-19

Field Name	Field Size	Format	Default Value	Required
Address	40			**Yes**
City	20			**Yes**
State	2		CA	**Yes**
ZIP	9			**Yes**
Phone	10			**Yes**
DateOpened		**Medium Date**		**Yes**

m. Save the table.

6. Create an input mask for the *ZIP* field.
   a. Click to select the **ZIP** field.
   b. Click the property box for the *Input Mask* property.
   c. Click the **Build** button to launch the *Input Mask Wizard*. If a *Microsoft Access Security Notice* box displays, click **Open**.
   d. Select the **Zip Code** *Input Mask*.
   e. Click the **Next** button.
   f. Click the **Next** button without making any changes to the *Input Mask* or *Placeholder character*.
   g. Select the **Without the symbols in the mask, like this** radio button if necessary.
   h. Click the **Finish** button.
   i. Save the table.
7. Create an input mask for the *Phone* field.
   a. Click to select the **Phone** field.
   b. Click the property box for the *Input Mask* property.
   c. Click the **Build** button to launch the *Input Mask Wizard*.
   d. Select the **Phone Number** *Input Mask*.
   e. Click the **Next** button.
   f. Click the **Next** button without making any changes to the *Input Mask* or *Placeholder character*.
   g. Select the **Without the symbols in the mask, like this** radio button if necessary.
   h. Click the **Finish** button.

i. Save the table.

8. Enter records into the *Branches* table.
   a. Change to *Datasheet* view of the table.
   b. Enter the records in **Table 2-20** into the *Branches* table. The *DateOpened* values will display in the *Medium Date* format, DD-Mon-YY, after you enter them.

Table 2-20

Branch	Address	City	State	ZIP	Phone	Date Open
Cameron Park	3360 Coach Lane	Cameron Park	CA	95682-8454	530-672-3232	1/5/2
Folsom	72 Natoma Street, #B1	Folsom	CA	95630-2640	916-458-5555	6/1/2
Granite Bay	6132 Del Oro Road	Granite Bay	CA	95746-9007	916-791-8787	2/11/2

   c. Save and close the table.

9. Modify the *Department* field in the *Employees* table to use a *Combo Box*.
   a. Open the *Employees* table in *Design* view.
   b. Click the **Data Type** property box of the *Department* field, click the **arrow**, and select **Lookup Wizard**. The *Lookup Wizard* dialog box opens. If a *Microsoft Access Security Notice* box displays, click **Open**.
   c. Select the **I will type in the values that I want** radio button.
   d. Click the **Next** button.
   e. Click the **first cell** in the *Col1* column.
   f. Type Administration.
   g. Press the **down arrow** key to move to the next row.
   h. Type Health and Benefits. Press the **down arrow** key to move to the next row.
   i. Type Insurance Sales. Press the **down arrow** key to move to the next row.
   j. Type Property and Casualty.
   k. Click the **Next** button.
   l. Click the **Limit To List** check box.

m. Click the **Finish** button.

n. Save the table. If prompted to test the existing data against the new rules, click **Yes**.

10. Verify the existence of a foreign key and create a one-to-many relationship between the *Branches* and *Employees* tables. The *Branch* field is the field in common across the two tables. It is the primary key in the *Branches* table.

    a. Open both tables in *Design* view and verify that the *Branch* field has the same *Data Type* and *Field Size* in both tables.

    b. Edit the *Description* property of the *Branch* field in the *Employees* table to read Branch Assigned To – Must match a branch in the Branches table.

    c. Save and close any tables that you may have opened.

    d. Click the **Relationships** button [*Database Too/stab*, *Relationships* group].

    e. Select the **Branches** table in the *Add Tables* task pane and click the **Add Selected Tables** button.

    f. Select the **Employees** table and click the **Add Selected Tables** button.

    g. Click the **X** in the right corner of the *Add Tables* task pane to close it.

    h. Adjust the size of the table objects to see all of the fields if needed.

    i. Drag the **Branch** field from the *Branches* table on top of the **Branch** field in the *Employees* table. Release the pointer. The *Edit Relationships* dialog box opens.

    j. Verify that the field names displayed are correct. If necessary, click a field name and then click the **drop-down arrow** to make any corrections.

    k. Click the **Enforce Referential Integrity** check box.

    l. Click the **Cascade Update Related Fields** check box.

    m. Leave the *Cascade Delete Related Records* check box not selected. The company does not want to delete employees just because they may close a branch. This enables them to reassign employees.

    n. Click **Create**. The *Relationships* window updates with the relationship line added. The *1* and infinity symbols display indicating that referential integrity is enforced and that there is a one-to-many relationship between the two tables.

    o. Save the changes made to the relationships.

    p. Click **Close** [*Relationships Design* tab, *Relationships* group].

11. Open the *Employees* table in *Datasheet* view and enter the record in **Table 2-21** into the table to test the new drop-down list.

Table 2-21

EmpID	FirstName	LastName	Branch	Title	Depart

200	Timothy	Hansen	Cameron Park	Insurance Agent	Health and Benefits

12. Save and close the table.
13. Open the *Branches* table in *Datasheet* view.
    a. Adjust the width of the fields so that the entire field contents and field name shows for each field.
    b. Click the **plus sign** to the left of the *Branch* field for the *Cameron Park* branch. You should see the 11 employees assigned to Cameron Park.
    c. Click the **minus sign** to close the related records.
14. Preview the data records in the *Branches* table before printing.
    a. Click the **Print** button [*File* tab] to display the printing options.
    b. Click the **Print Preview** button. The *Print Preview* tab opens and shows a preview of how the table will print.
    c. Click the **Landscape** button [*Print Preview* tab, *Page Layout* group] to change the page orientation. The report preview should appear similar to that in **Figure 2-82**.

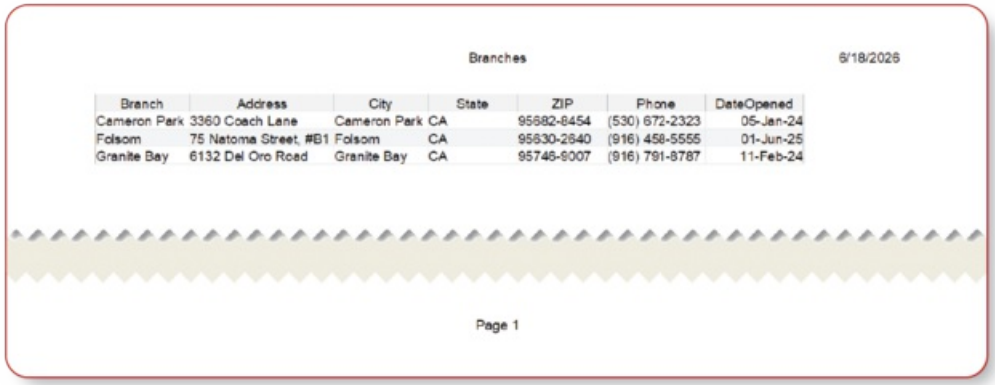


FIGURE 2-82 ***Print Preview* of *Branches* table records**

    d. Click the **Close Print Preview** button.
15. Save and close the *Branches* table.
16. Close the database.

Guided Project 2-2

San Diego Sailing wants to expand the database created in ***Guided Project 1-3***. To ensure consistency, the starting file is provided for you. For this project, you use *Design* view to create a second table, edit field properties, and integrate data integrity rules. You also create a relationship between the two tables, enforce referential integrity constraints, and preview records for printing. Finally, you create a backup, and compact and repair the database.

[Student Learning Outcome 2.1, Student Learning Outcome 2.2, Student Learning Outcome 2.3, Student Learning Outcome 2.4, Student Learning Outcome 2.5, Student Learning Outcome 2.6, Student Learning Outcome 2.7, Student Learning Outcome 2.8]

File Needed: ***SanDiegoSailing-02.accdb*** *(Student data files are available in the* Library *of your SIMnet account)*

Completed Project File Names: ***[your initials] Access 2-2.accdb*** and ***[your initials] Access 2-2_YYYY-MM-DD.accdb***

Skills Covered in this Project

- Create a table using *Design* view.
- Add fields into a table.
- Edit field properties in *Design* view.
- Create a validation rule and validation text.
- Save a table.
- Create a 1:M relationship between tables.
- Enforce referential integrity.
- Preview a table for printing.
- Compact and repair a database.

1. Open the ***SanDiegoSailing-02*** database file. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close it.
2. Save a new copy of your database as [your initials] Access 2-2.
3. Enable content in the security warning.
4. Click the **Table Design** button [*Create* tab, *Tables* group] to open a new table in *Design* view.
5. Add new fields into the table and set field properties.
   a. Type RentalID in the *Field Name* property box of the first row. Press **Tab** to move to the *Data Type* property.

b. Select the **Short Text** *Data Type*. Press **Tab** to move to the *Description* property.
c. Type Unique ID assigned to each rental.
d. Click the **Primary Key** button [*Table Design* tab, *Tools* group].
e. Press **Tab** to move to the next row.
f. Add the remaining fields into the table using the information in **Table 2-22**.

Table 2-22

Field Name	Data Type	Description
FKBoatID	**Short Text**	Must match a BoatID in the SailboatFleet table
RentalDate	**Date/Time**	Date of rental
FourHourRental?	**Yes/No**	Yes is a 4-hour rental; No is a daily rental
MemberID	**Short Text**	ID number of member renting the boat

g. Save the table as SDRentals.
h. Click the **row selector** of the *RentalID* field.
i. Type 5 in the *Field Size* property box in the *Field Properties* area.
j. Type Rental ID in the *Caption* property box.
k. Change the remaining field properties in the *SDRentals* table using the information in **Table 2-23**.

Table 2-23

Field Name	Field Size	Format	Caption
FKBoatID	4		Boat ID
RentalDate		**Short Date**	Rental Date
FourHourRental?		**Yes/No**	Four Hour Rental?
MemberID	4		Member Number

6. Save the table.
7. Create a field validation rule and validation text for the *RentalDate* field.
   a. Click to select the **RentalDate** field.
   b. Click the **Validation Rule** property box.

c. Type >=#1/1/2026#.
d. Click the **Validation Text** property box.
e. Type The Rental Date must be greater than or equal to 1/1/2026.
f. Save the table and switch to *Datasheet* view.
g. Type 1 in the *RentalID* field. **Tab** to the *RentalDate* field and type 8/9/2025.
h. Press **Tab**. The message box should display the contents of your *Validation Text* property. Click **OK**. Type 8/9/2026 in the *RentalDate* field.
i. Press **Tab**. You should successfully move to the *FourHourRental?* field.
j. Click the **record selector** box to select this data record and click **Delete** [*Home* tab, *Records* group] since you no longer need this sample data. Remember that in *Datasheet* view, the record selector is the gray cell on the left of each row.
k. Click **Yes** to confirm deletion of this record.
l. Close the *SDRentals* table.

8. Create a one-to-many relationship between the *SailboatFleet* table and the *SDRentals* table.
a. Click the **Relationships** button [*Database Tools* tab, *Relationships* group].
b. Select the **SailboatFleet** table in the *Add Tables* task pane.
c. Press and hold the **Shift** key and select the **SDRentals** table. Click the **Add Selected Tables** button.
d. Click the **X** in the right corner of the *Add Tables* task pane to close it.
e. Adjust the size and location of the table objects to see all of the fields if needed.
f. Drag the **BoatID** field from the *SailboatFleet* table on top of the **FKBoatID** field in the *SDRentals* table as shown in **Figure 2-83**. The *Edit Relationships* dialog box opens.

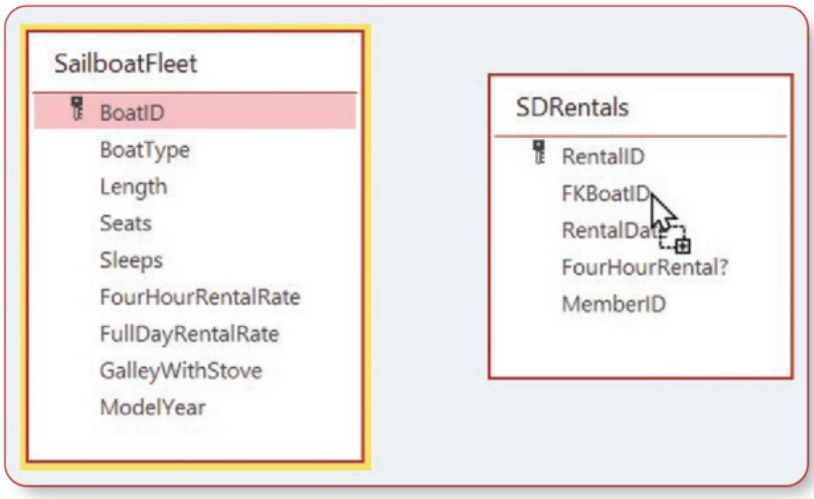


FIGURE 2-83 **Drag the *BoatID* to the *FKBoatID* to create a relationship**

g. Verify that the field names displayed are correct. If necessary, click a field name and then click the **drop-down arrow** to make any corrections.

h. Click the **Enforce Referential Integrity** check box.

i. Click the **Cascade Update Related Fields** check box.

j. Leave the *Cascade Delete Related Records* check box not selected. The club does not want to delete rental records just because it may take a boat out of service. This enables the club to keep a record of the rental.

k. Click **Create**. The *Relationships* window updates with the relationship line added. The *1* and infinity symbols display indicating that referential integrity is enforced and that there is a one-to-many relationship between the two tables.

l. Save the changes made to the relationships.

m. Click **Close** [*Relationships Design* tab, *Relationships* group].

9. Enter records into the *SDRentals* table.

a. Open the *SDRentals* table in *Datasheet* view.

b. Enter the records in **Table 2-24** into the *SDRentals* table.

Table 2-24

Rental ID	Boat ID	Rental Date	Four Hour Rental?	Member Number
08032	1152	5/17/2026	Yes	1122
08033	1146	5/17/2026		1386
08040	1003	6/6/2026	Yes	1122
08045	1003	6/12/2026		1386
08046	1152	6/12/2026	Yes	1427
08050	1152	6/18/2026	Yes	1122

c. Save the table.

10. Edit field properties in the *SDRentals* table.

a. Click the **Design View** icon (**Figure 2-84**) in the *Status* bar to switch to *Design* view.

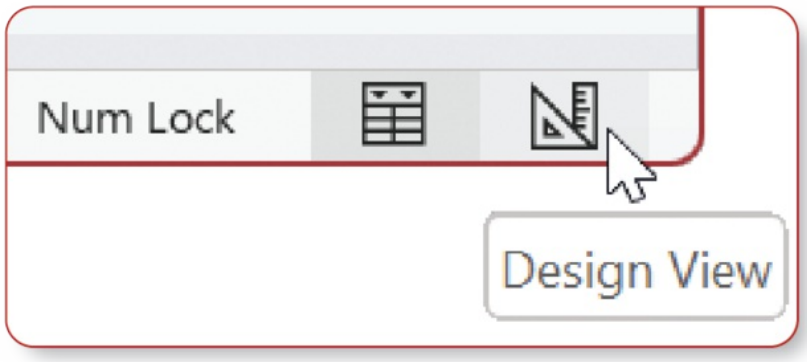


FIGURE 2-84 ***Design View*** **icon in the** ***Status*** **bar**

b. Change the *Required* property for all fields except *FourHourRental?* to **Yes**.
c. Save the changes to your table. Access displays a message box warning you that data integrity rules have changed. Click **Yes** to test your data against the new rules.
d. Close the *SDRentals* table.

11. View the related data in the *SailboatFleet* table.
    a. Open the *SailboatFleet* table in *Datasheet* view.
    b. Click the **plus sign** to the left of the *BoatID* field *for BoatID 1003*. You should see two rentals for this boat.
    c. Close the *SailboatFleet* table.
12. Preview the data records in the *SailboatFleet* table for printing.
    a. Select the **SailboatFleet** table in the *Navigation Pane*.
    b. Click the **Print** button [*File* tab] to display the printing options.
    c. Click the **Print Preview** button. The *Print Preview* tab opens and shows a preview of how the table will print.
    d. Click the **Landscape** button [*Print Preview* tab, *Page Layout* group] to change the page orientation.
    e. Click the **Close Print Preview** button.
13. Backup the database and use *Compact & Repair Database* to reclaim unused space.
    a. Click the **Save As** button [*File* tab].
    b. Ensure that *Save Database As* is selected in the *File Types*.
    c. Select **Back Up Database** in the *Advanced* grouping of the *Save Database As* area.
    d. Click the **Save As** button.
    e. Accept the default name in the *File name* box and click the **Save** button.

f. Click the **Info** button [*File* tab] to display the *Info* options.
g. Click the **Compact & Repair Database** button.

14. Close the database.

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A2-145
A2-146
A2-147

Guided Project 2-3

American River Cycling Club wants to expand the database created in ***Guided Project 1-2***. To ensure consistency, the starting file is provided for you. The *Members* table has been modified to unhide the *State* field. For this project, you use *Design* view to create a second table, edit field properties, and integrate data integrity rules. You also create a relationship between the two tables and enforce referential integrity constraints. Finally, you import data and view the related table records.

[**Student Learning Outcome 2.1**, **Student Learning Outcome 2.2**, **Student Learning Outcome 2.3**, **Student Learning Outcome 2.4**, **Student Learning Outcome 2.5**, **Student Learning Outcome 2.6**]

Files Needed: ***AmericanRiver-02.accdb*** and ***RaceResultsDataFile-02.xlsx*** *(Student data files are available in the* Library *of your SIMnet account)*

Completed Project File Name: ***[your initials] Access 2-3.accdb***

Skills Covered in this Project

- Create a table using *Design* view.
- Add fields into a table.
- Edit field properties in *Design* view.
- Use the *Lookup Wizard* to create a drop-down list.
- Save a table.
- Create a 1:M relationship between tables.
- Enforce referential integrity.
- View a table in *Datasheet* view and expand related records.

1. Open the ***AmericanRiver-02*** database file. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close it.

2. Save a new copy of your database as [your initials] Access 2-3.
3. Enable content in the security warning.
4. Click the **Table Design** button [*Create* tab, *Tables* group] to open a new table in *Design* view.
5. Add new fields into the table and set field properties.
   a. Type RaceID in the *Field Name* property box of the first row. Press **Tab** to move to the *Data Type* property.
   b. Select the **Short Text** *Data Type*. Press **Tab** to move to the *Description* property.
   c. Type Unique Race ID number.
   d. Press **Tab** to move to the next row.
   e. Type FKMemberID in the *Field Name* property box. Press **Tab** to move to the *Data Type* property.
   f. Select the **Number** *Data Type*. Press **Tab** to move to the *Description* property.
   g. Type Must match a MemberID in the Members table.
   h. Click the **row selector** to select the *RaceID* field. Press and hold the **Shift** key. Click the **row selector** to select the *FKMemberID* field.
   i. Click the **Primary Key** button [*Table Design* tab, *Tools* group]. The *Primary Key* symbol should appear on both the *RaceID* and *FKMemberID* fields, indicating a concatenated primary key, as shown in **Figure 2-85**.



Field Name	Data Type	Description (Optional)
RaceID	Short Text	Unique race ID number
FKMemberID	Number	Must match a MemberID in the Members table

FIGURE 2-85 ***RaceID* and *FKMemberID* make a concatenated primary key**

   j. Click the **Field Name** property box of the cell below *FKMemberID*.
   k. Add the remaining fields into the table using the information in **Table 2-25**.

Table 2-25

Field Name	Data Type	Description
Place	**Number**	Place finished in the race
Time	**Date/Time**	Total time
Division	**Short Text**	Division in which the member participated
AgeGroup	**Short Text**	Age group in which the member participated

l. Save the table as RaceResults.
m. Click the **row selector** of the *RaceID* field.
n. Type 3 in the *Field Size* property box in the *Field Properties* area.
o. Change the remaining field properties in the *RaceResults* table using the information in **Table 2-26**.

Table 2-26

Field Name	Field Size	Format	Caption
FKMemberID			Member ID
Place	Integer		
Time		Short Time	
Division	1		
AgeGroup	13		

6. Save the table.
7. Modify the *Division* field to use a *Combo Box*.
   a. Click the **Data Type** property box of the *Division* field, click the **drop-down arrow**, and select **Lookup Wizard**. If a *Microsoft Access Security Notice* box displays, click **Open**.
   b. Select the **I will type in the values that I want** radio button.
   c. Click the **Next** button.
   d. Click the **first cell** in the *Col1* column and type M.
   e. Press the **down arrow** key to move to the next row.
   f. Type F.
   g. Click **Next**.
   h. Click the **Limit To List** check box.
   i. Click **Finish**.
   j. Save and close the table.
8. Create a one-to-many relationship between the *Members* table and the *RaceResults* table.
   a. Click the **Relationships** button [*Database Tools* tab, *Relationships* group].
   b. Select the **Members** table in the *Add Tables* task pane.
   c. Press and hold the **Shift** key and select the **RaceResults** table. Click the **Add Selected Tables** button.
   d. Click the **X** in the right corner of the *Add Tables* task pane to close it.

e. Adjust the size of the table objects to see all of the fields if needed.

f. Drag the **MemberID** field from the *Members* table on top of the **FKMemberID** field in the *RaceResults* table as shown in **Figure 2-86**. The *Edit Relationships* dialog box opens.

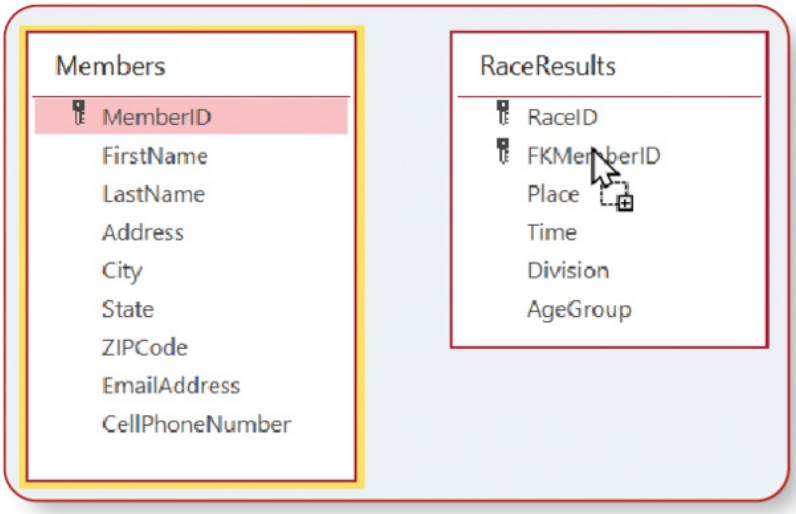


FIGURE 2-86 **Drag the *MemberID* to the *FKMemberID* to create a relationship**

g. Verify that the field names displayed are correct. If necessary, click a field name and then click the **drop-down arrow** to make any corrections.

h. Click the **Enforce Referential Integrity** check box.

i. Click the **Cascade Update Related Fields** check box.

j. Leave the *Cascade Delete Related Records* check box not selected. The club does not want to delete race records just because a member may leave the club. This enables the club to keep a record of the race.

k. Click **Create**. The *Relationships* window updates with the relationship line added. The *1* and infinity symbols display indicating that referential integrity is enforced.

l. Save the changes made to the relationships.

m. Click **Close** [*Relationships Design* tab, *Relationships* group].

9. Import data from Excel into the *RaceResults* table.

a. Launch the *Get External Data – Excel Spreadsheet* dialog box.

b. Locate and select the ***RaceResultsDataFile-02*** Excel file.

c. Append the records to the **RaceResults** table.

d. Launch the *Import Spreadsheet Wizard*. If a *Microsoft Access Security Notice* box displays, click **Open**.

e. Finish the *Import Spreadsheet Wizard*. Close the *Wizard* after the records have imported.

10. Open the *RaceResults* table in *Datasheet* view. Your table should contain the 25 records shown in **Figure 2-87**.

RaceResults

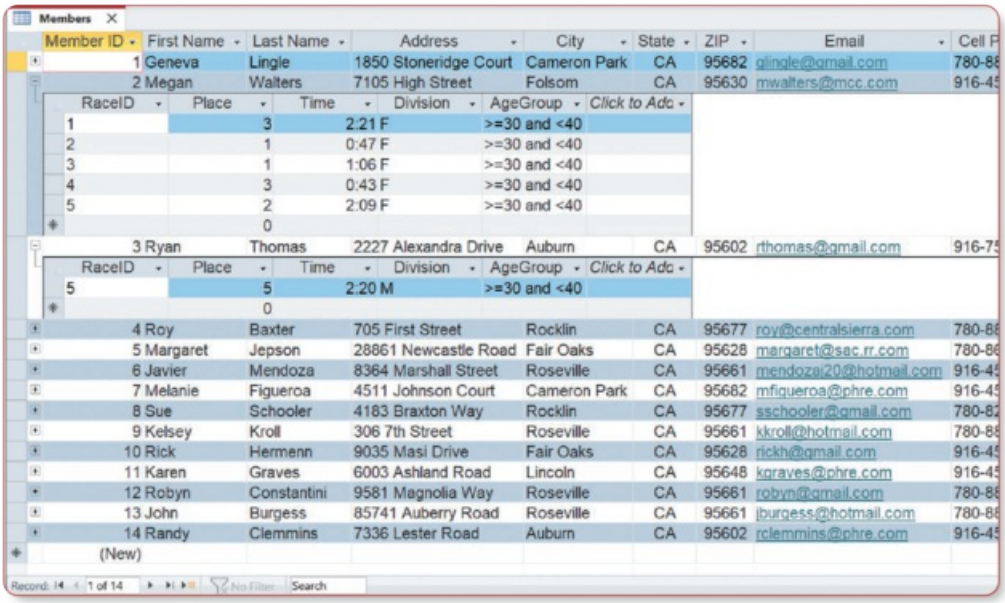
RaceID	Member ID	Place	Time	Division	AgeGroup
1	1	2	2:17	F	>=20 and <30
1	2	3	2:21	F	>=30 and <40
1	4	3	2:16	M	>=30 and <40
1	5	1	2:10	M	>=30 and <40
1	8	4	2:22	F	>=30 and <40
1	11	5	2:23	F	>=30 and <40
2	2	1	0:47	F	>=30 and <40
2	8	2	0:51	F	>=30 and <40
2	11	3	0:52	F	>=30 and <40
3	1	3	1:07	F	>=20 and <30
3	2	1	1:06	F	>=30 and <40
3	5	2	1:07	M	>=30 and <40
3	6	4	1:08	M	>=30 and <40
3	7	6	1:10	F	>=20 and <30
3	8	7	1:11	F	>=30 and <40
3	10	5	1:09	M	>=20 and <30
4	2	3	0:43	F	>=30 and <40
4	7	2	0:42	F	>=20 and <30
4	10	1	0:40	M	>=20 and <30
5	1	1	2:10	F	>=20 and <30
5	2	2	2:09	F	>=30 and <40
5	3	5	2:20	M	>=30 and <40
5	8	3	2:11	F	>=30 and <40
5	9	4	2:16	F	<20
5	12	3	2:14	F	<20
	0	0			

Record: 1 of 25 No Filter Search

FIGURE 2-87 ***RaceResults*** **table records after import**

11. Edit field properties in the *RaceResults* table.
    a. Click the **Design View** icon in the *Status* bar to switch to *Design* view.
    b. Change the *Required* property for all fields to **Yes**.
    c. Save the changes to your table. Access displays a message box warning you that data integrity rules have changed. Click **Yes** to test your data against the new rules.
    d. Close the *RaceResults* table.
12. View the related data records in the *Members* table.
    a. Open the *Members* table in *Datasheet* view.
    b. Click the **plus sign** to the left of the *MemberID* field for *Megan Walters, MemberID* 2. You should see the five races in which Megan has participated.
    c. Click the **plus sign** to the left of the *MemberID* field for the *Ryan Thomas*, *MemberID* 3. You should see the one race in which Ryan has participated. Your

screen should look similar to **Figure 2-88**.



Members

Member ID	First Name	Last Name	Address	City	State	ZIP	Email	Cell P
1	Geneva	Lingle	1850 Stoneridge Court	Cameron Park	CA	95682	glingle@gmail.com	780-8
2	Megan	Walters	7105 High Street	Folsom	CA	95630	mwalters@mcc.com	916-4

RaceID	Place	Time	Division	AgeGroup	Click to Add
1	3	2:21	F	>=30 and <40	
2	1	0:47	F	>=30 and <40	
3	1	1:06	F	>=30 and <40	
4	3	0:43	F	>=30 and <40	
5	2	2:09	F	>=30 and <40	
	0				

Member ID	First Name	Last Name	Address	City	State	ZIP	Email	Cell P
3	Ryan	Thomas	2227 Alexandra Drive	Auburn	CA	95602	rthomas@gmail.com	916-7

RaceID	Place	Time	Division	AgeGroup	Click to Add
5	5	2:20	M	>=30 and <40	
	0				

Member ID	First Name	Last Name	Address	City	State	ZIP	Email	Cell P
4	Roy	Baxter	705 First Street	Rocklin	CA	95677	roy@centralsierra.com	780-8
5	Margaret	Jepson	28861 Newcastle Road	Fair Oaks	CA	95628	margaret@sac.rr.com	780-8
6	Javier	Mendoza	8364 Marshall Street	Roseville	CA	95661	mendoza20@hotmail.com	916-4
7	Melanie	Figueroa	4511 Johnson Court	Cameron Park	CA	95682	mfigueroa@phre.com	916-4
8	Sue	Schooler	4183 Braxton Way	Rocklin	CA	95677	sschooler@gmail.com	780-8
9	Kelsey	Kroll	306 7th Street	Roseville	CA	95661	kkroll@hotmail.com	780-8
10	Rick	Hermenn	9035 Masi Drive	Fair Oaks	CA	95628	rickh@gmail.com	916-4
11	Karen	Graves	6003 Ashland Road	Lincoln	CA	95648	kgraves@phre.com	916-4
12	Robyn	Constantini	9581 Magnolia Way	Roseville	CA	95661	robyn@gmail.com	780-8
13	John	Burgess	85741 Auberry Road	Roseville	CA	95661	jburgess@hotmail.com	780-8
14	Randy	Clemmins	7336 Lester Road	Auburn	CA	95602	rclemmins@phre.com	916-4
(New)								

Record: 14 | 1 of 14 | No Filter | Search

FIGURE 2-88 ***Members* table with related *RaceResults* table records**

d. Close the *Members* table.

13. Close the database.

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A2-150

Independent Project 2-4

Courtyard Medical Plaza wants to expand the database created in *Independent Project 1-4*. To ensure consistency, the starting file is provided for you. For this project, you use *Design* view to create a second table, edit field properties, integrate data integrity rules, and enter data. You also create a relationship between the two tables, enforce referential integrity constraints, and import data. Finally, you preview how the records will print.

[Student Learning Outcomes 2.1, Student Learning Outcomes 2.2, Student Learning Outcomes 2.3, Student Learning Outcomes 2.4, Student Learning Outcomes 2.5, Student Learning Outcomes 2.6, Student Learning Outcomes 2.7]

Files Needed: ***CourtyardMedicalPlaza-02.accdb*** and ***RentInvoicesDataFile-02.xlsx***

(Student data files are available in the Library *of your SIMnet account)*

Completed Project File Name: ***[your initials] Access 2-4.accdb***

Skills Covered in this Project

- Create a table using *Design* view.
- Add fields into a table.
- Edit field properties in *Design* view.
- Create and test a record validation rule.
- Save a table.
- Enter records.
- Create a 1:M relationship between tables.
- Enforce referential integrity.
- View a table in *Datasheet* view and expand related records.
- Preview table results for printing.

1. Open the ***CourtyardMedicalPlaza-02*** database file. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close it.
2. Save a new copy of your database as [your initials] Access 2-4.
3. Enable content in the security warning.
4. Create a new table using *Table Design*.
   a. Add the fields in **Table 2-27** into the table and set the field properties.

Table 2-27

Field Name	Data Type	Description
InvoiceID	**Number**	Unique invoice number
InvoiceDate	**Date/Time**	Date invoice created
DueDate	**Date/Time**	Date bill is due
AmountDue	**Currency**	Total rent amount due
FKDoctorID	**Number**	Must match a DoctorID in the Physicians table
Description	**Short Text**	Brief summary of charges

   b. Set *InvoiceID* as the primary key.
   c. Save the table as RentInvoices.
   d. Change the field properties in the *RentInvoices* table using the information in **Table 2-28**.

Table 2-28

Field Name	Field Size	Format	Caption
InvoiceID	**Integer**		
InvoiceDate		**Medium Date**	Invoice Date
DueDate		**Medium Date**	Due Date
AmountDue			Amount Due
FKDoctorID			Doctor ID
Description	40		

5. Save the table.
6. Create and test a record validation rule in the *RentInvoices* table.
   a. Open the *Property Sheet* for the *RentInvoices* table.
   b. Type [DueDate]>=([InvoiceDate]+10) in the *Validation Rule* property for the table.
   c. Type The Due Date must be at least 10 days after the Invoice Date. as *Validation Text*.
   d. Close the *Property Sheet* window.
   e. Switch to *Datasheet* view to test the rule. If prompted, save the changes to your table.
   f. Type 1 in the *InvoiceID* field. Press **Tab** to move to the *InvoiceDate* field.
   g. Type 1/1/2026. Press **Tab** to move to the *DueDate* field.
   h. Type 1/5/2026.
   i. Press the **down arrow** key to leave the current record. The message box should display the validation text message (**Figure 2-89**) since the *DueDate* is not at least 10 days after the *InvoiceDate*.

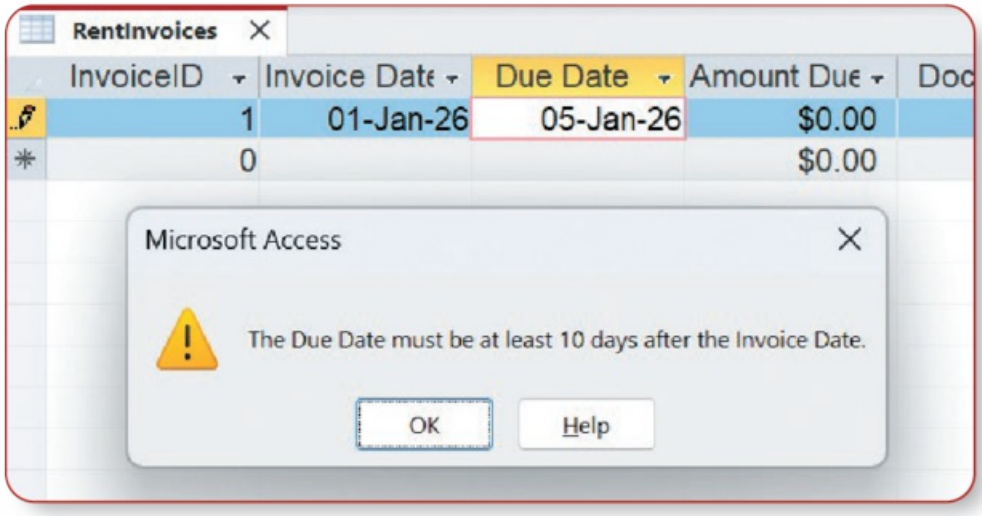


FIGURE 2-89 Error message displays validation text from a record validation rule violation

j. Click **OK** to acknowledge the error.
k. Delete the contents in the *DueDate* field and type 1/11/2026.
l. Verify that the record adds successfully.
m. Delete this record since you no longer need this sample data.
n. Close the *RentInvoices* table.

7. Create a one-to-many relationship between the *Physicians* table and the *RentInvoices* table.
   a. Open the *Relationships* window and add the two tables.
   b. Adjust the size and location of the table objects to see all of the fields if needed.
   c. Drag the **DoctorID** field from the *Physicians* table on top of the **FKDoctorID** field in the *RentInvoices* table as shown in **Figure 2-90**.

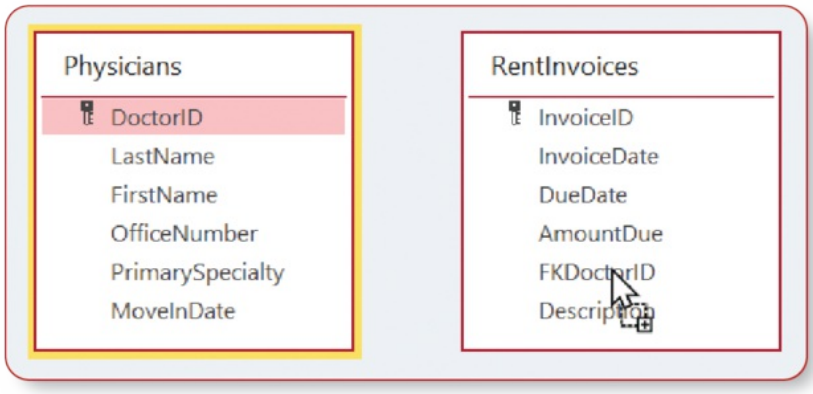


FIGURE 2-90 Drag the *DoctorID* to the *FKDoctorID* to create a relationship

   d. Make the correct choices to *Enforce Referential Integrity* and *Cascade Update Related Fields*.
   e. Leave the *Cascade Delete Related Records* check box not selected. Courtyard Medical Plaza does not want to delete invoice records just because a doctor may move out of the office complex. This enables Courtyard Medical Plaza to keep all rental records.
   f. Create the relationship.
   g. Save the changes and close the *Relationships* window.

8. Import data from Excel into the *RentInvoices* table.
   a. Launch the *Get External Data – Excel Spreadsheet* dialog box.
   b. Locate and select the ***RentInvoicesDataFile-02.xlsx*** Excel file.
   c. Append the records to the *RentInvoices* table.

d. Launch the *Import Spreadsheet Wizard*.

e. Finish the *Import Spreadsheet Wizard*. Close the *Wizard* after the records have imported.

9. Open the *RentInvoices* table in *Datasheet* view. Your table should contain 27 records.

   a. Use *AutoFit* to adjust the field width of all the columns.

   b. Save the changes to your table.

10. Edit field properties in the *RentInvoices* table.

    a. Use *Design* view to change the *Required* property for all fields to **Yes**.

    b. Save the changes to your table. Access displays a message box warning you that data integrity rules have changed. Test your data against the new rules.

    c. Close the *RentInvoices* table.

11. Open the *Physicians* table in *Datasheet* view.

    a. Click the **plus sign** to the left of the *DoctorID* field for *Ashish Agarwal*, *DoctorID 1*. You should see the three invoices sent to Dr. Agarwal.

    b. Click the **plus sign** to the left of the *DoctorID* field for *Rajni Sharma, DoctorID 3*. Notice that Dr. Sharma does not have any invoices. Based on the way Courtyard Medical processes billing, they only send the bill to the one doctor listed on the lease. Your screen should be similar to **Figure 2-91**.

Physicians

Doctor ID	Last Name	First Name	Office	Specialty	Tenant Since
1	Agarwal	Ashish	101	Pediatrics	1/15/2022

InvoiceID	Invoice Date	Due Date	Amount Due	Description	Click to
1	16-Mar-26	01-Apr-26	$1,400.00	April 2026 Rent (Agarwal & Sharma)	
10	15-Apr-26	01-May-26	$1,400.00	May 2026 Rent (Agarwal & Sharma)	
19	14-May-26	01-Jun-26	$1,400.00	June 2026 Rent (Agarwal & Sharma)	
0			$0.00		

Doctor ID	Last Name	First Name	Office	Specialty	Tenant Since
2	Scher	Elizabeth	115	Cardiovascular Disease	2/16/2024
3	Sharma	Rajni	101	Pediatrics	9/18/2024

InvoiceID	Invoice Date	Due Date	Amount Due	Description	Click to
0			$0.00		

Doctor ID	Last Name	First Name	Office	Specialty	Tenant Since
4	Foster	Margaret	200	Cardiovascular Disease	5/20/2015
5	Flores	Ricardo	151	Internal Medicine	12/18/2024

FIGURE 2-91 ***Physicians* table with related *RentInvoices* table records**

   c. Close the *Physicians* table.

12. Preview the data records in the *RentInvoices* table for printing.

    a. Select the **RentInvoices** table in the *Navigation Pane*.

    b. Use *Print Preview* to show a preview of how the table will print.

    c. Change to a **Landscape** orientation.

    d. Close the *Print Preview*.

13. Close the database.

Independent Project 2-5 - SIMnet Project

Life's Animal Shelter wants to expand the database created in the *Independent Project 1-5*. To ensure consistency, the starting file is provided for you. In this project, you use *Design* view to create a second table, edit field properties, integrate data integrity rules, and enter data. You also create a relationship between the two tables and enforce referential integrity constraints. Finally, you add data using the relationship between tables.

[Student Learning Outcome 2.1, Student Learning Outcome 2.2, Student Learning Outcome 2.3, Student Learning Outcome 2.4, Student Learning Outcome 2.6]

File Needed: ***LifesAnimalShelter-02.accdb*** *(Student data files are available in the* Library *of your SIMnet account)*

Completed Project File Name: ***[your initials] Access 2-5.accdb***

Skills Covered in this Project

- Create a table using *Design* view.
- Add fields into a table.
- Edit field properties in *Design* view.
- Create an input mask.
- Create a validation rule and validation text.
- Save a table.
- Enter records.
- Create a foreign key.
- Create a 1:M relationship between tables.
- Enforce referential integrity.
- View a table in *Datasheet* view and expand related records.

1. Open the ***LifesAnimalShelter-02*** database file. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close it.
2. Save a new copy of your database as [your initials] Access 2-5.

3. Enable content in the security warning.
4. Create a new table using *Table Design*.
   a. Add the fields in **Table 2-29** into the table and set field properties.

Table 2-29

Field Name	Data Type	Description	Field Size
OwnerID	Short Text	Unique owner ID	4
OwnerLastName	Short Text	Last name	20
OwnerFirstName	Short Text	First name	20
Address	Short Text	Street address	40
City	Short Text		20
State	Short Text		2
ZIP	Short Text	ZIP Code	5
Phone	Short Text	Contact phone number	10

   b. Set *OwnerID* as the primary key.
   c. Select the **State** field and type TX in the *Default Value*.
   d. Save the table as Owners.
5. Create an input mask for the *Phone* field.
   a. Select the **Phone** field.
   b. Use the **Phone Number** *Input Mask*. If a *Microsoft Access Security Notice* box displays, click **Open**.
   c. Don't make any changes to the mask or placeholder character and select the **Without the symbols in the mask**, **like this** radio button.
   d. Finish the *Input Mask Wizard*.
   e. Save the table.
6. Create and test a field validation rule.
   a. Select the **OwnerID** field.

b. Type Like "####" in the *Validation Rule*.
c. Type You must enter a 4-digit Owner ID as *Validation Text*.
d. Save the table and switch to *Datasheet* view.
e. Test the rule by typing 11 in the first row of the *OwnerID* column.
f. Move to the *OwnerLastName* field. The message box should display the validation text message (**Figure 2-92**) since the *OwnerID* is not four digits long.

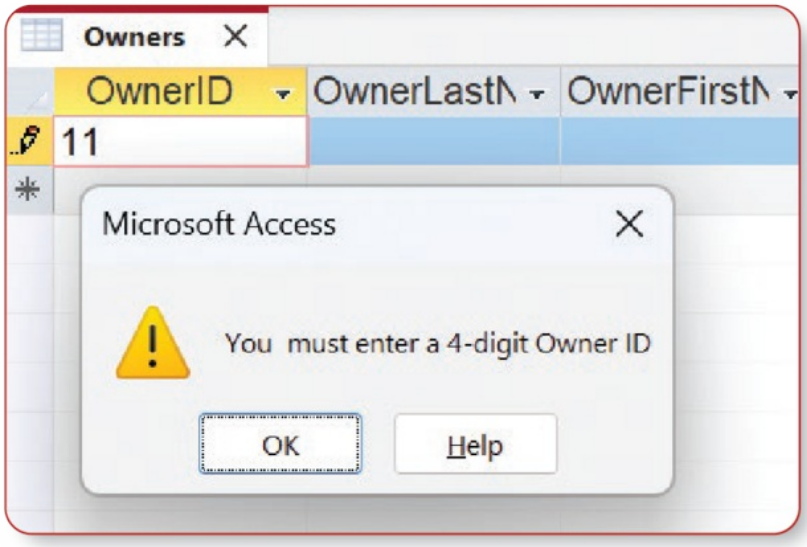


FIGURE 2-92 **Field validation rule error message**

g. Click **OK** to acknowledge the error.
h. Delete the contents and type 1111 into the *OwnerID* field.
i. Verify that you successfully move to the *OwnerLastName* field since 1111 meets the validation rule criteria.
j. Delete this test data record.

7. Enter the records in **Table 2-30** into the *Owners* table. Life's Animal Shelter doesn't have any data about the owners stored electronically so you are unable to import any data. Since the *State* field has a default value of TX, you can simply accept that value and tab to the next field.

Table 2-30

Owner ID	OwnerLast Name	OwnerFirst Name	Address	City	State
0100	Washington	Tyrone	11 Lakewood	Abilene	TX

			Drive			
0101	Vollmer	Greg	2601 Nonesuch Road	Abilene	TX	79606
0102	Rivera	Angela	2548 Laney Road	Denton	TX	76208
0103	Moyer	Silvia	6867 Anglebluff Circle	Dallas	TX	75248
0104	Wills	Mason	2421 Klondike Drive	Dallas	TX	75228

8. Save and close the table.
9. Determine the foreign key field. Currently, a field is not common across the *Owners* and *Pets* tables. A one-to-many relationship exists between the two tables since an owner could adopt many pets, but each pet is only adopted by one owner. The foreign key comes by taking the primary key field from the *1* table and adding it in as an additional field in the *M* table.
   a. Open the *Pets* table in *Design* view.
   b. Add the foreign key field below the *Details* field using the information in **Table 2-31**.

Table 2-31

Field Name	Data Type	Description	Field Size
FKOwnerID	Short Text	Must match an OwnerID in the Owners table	4

   c. Save and close the *Pets* table.
10. Create a one-to-many relationship between the *Owners* and *Pets* tables.
    a. Open the *Relationships* window and add the two tables.
    b. Enlarge the table objects, if needed, to see all of the fields.
    c. Drag the **OwnerID** field from the *Owners* table on top of the **FKOwnerID** field in the *Pets* table. Release the pointer. The *Edit Relationships* dialog box displays.
    d. Select the choices to **Enforce Referential Integrity** and **Cascade Update Related Fields**.

e. Leave the *Cascade Delete Related Records* check box not selected. The shelter does not want to delete pet records when it deletes information about an owner.
f. Create the relationship.
g. Save the changes and close the *Relationships* window.

11. Enter the following data into the specified records in the *Pets* table to reflect which pets have been adopted:
    a. Open the *Pets* table in *Datasheet* view.
    b. Type 0100 in the *FKOwnerID* field for *PetID 1*.
    c. Type 0103 in the *FKOwnerID* field for *PetID 3*.
    d. Type 0100 in the *FKOwnerID* field for *PetID 12*.
    e. Type 0104 in the *FKOwnerID* field for *PetID 14*.
    f. Close the *Pets* table.
12. View the related data records in the *Owners* table.
    a. Open the *Owners* table in *Datasheet* view.
    b. Click the **plus sign** to the left of the *OwnerID* field for *Tyrone Washington, OwnerID 0100*. You should see the two pets adopted by Tyrone.
    c. Close the *Owners* table.
13. Close the database.

Independent Project 2-6

The New York Department of Motor Vehicles tracks information about drivers, including accidents in which they have been involved. The starting database file is provided for you. For this project, you use *Design* view to edit a table and integrate data integrity rules. You also create a relationship between the two tables and enforce referential integrity constraints. Finally, you view how the table records will print using *Print Preview*.

[**Student Learning Outcome 2.1**, **Student Learning Outcome 2.2**, **Student Learning Outcome 2.3**, **Student Learning Outcome 2.4**, **Student Learning Outcome 2.5**, **Student Learning Outcome 2.6**, **Student Learning Outcome 2.7**]

File Needed: ***NewYorkDMV-02.accdb*** *(Student data files are available in the* Library *of your SIMnet account)*

Completed Project File Name: ***[your initials] Access 2-6.accdb***

Skills Covered in this Project

- Edit a table using *Design* view.
- Edit field properties in *Design* view.
- Create a lookup field.
- Save a table.
- Enforce referential integrity.
- View a table in *Datasheet* view and expand related records.
- Preview table results for printing.

1. Open the ***NewYorkDMV-02*** database file. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close it.
2. Save a new copy of your database as [your initials] Access 2-6.
3. Enable the contents in the security warning.
4. Edit field properties of the *Tickets* table in *Design* view.
   a. Select a **Short Date Format** for the *TicketDate* field.
   b. Create a *Lookup Field* for the *PrimaryFactor* field with the following choices and limit the choices to those on the list: **Alcohol**, **Expired Registration**, **Failed to Yield R.O.W.**, **Improper Cell Phone Use**, **Improper Electronic Device Use/Texting**, **Improper Turn**, **Passing/Lane Violation**, **Traffic Control Disregarded**, **Unsafe Speed**.
   c. Change the **List Width** property (located on the *Lookup* tab) of the *PrimaryFactor* field to 2.8".
   d. Change all fields to be *Required*.
   e. Save the changes to the table. If prompted to test existing data against the new rules, click **Yes**.
   f. Close the table.
5. Edit field properties of the *Drivers* table in *Design* view.
   a. Open the *Drivers* table in *Design* view.
   b. Change all fields to be *Required*.
   c. Create a *Lookup Field* on the *Gender* field with the choices of M and F. Select **Yes** in the *Limit To List* property.
   d. Assign a *Default Value* of NY to the *State* field.
   e. Save the changes to the table. If prompted to test existing data against the new rules, click **Yes**.
   f. Close the table.
6. Review table relationships.

a. Open the *Relationships* window. Notice the relationship line does not have any symbols on the end points. This indicates that referential integrity has not been enforced (**Figure 2-93**).

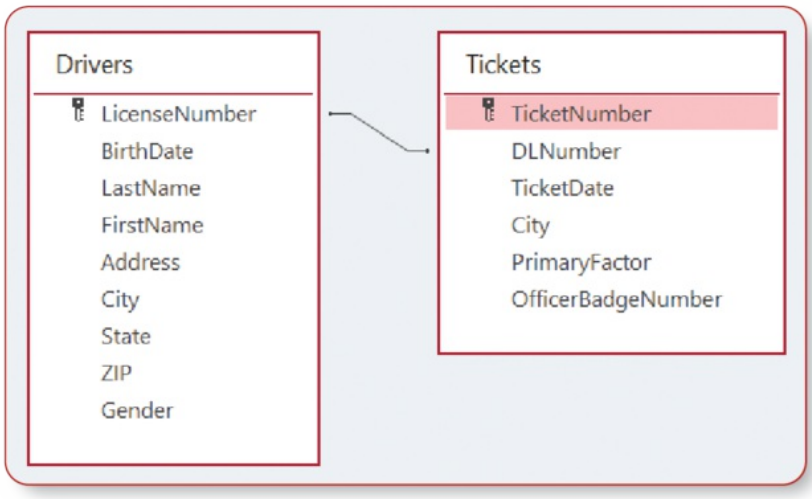


FIGURE 2-93 **Referential integrity is not enforced**

b. Close the *Relationships* window.

c. Open the *Tickets* table in *Datasheet* view to see the impact of not enforcing referential integrity.

d. Enter the test data record in **Table 2-32** into the *Tickets* table. Be sure to press **Enter** or **Tab** after you have entered the officer badge number so that the record is added into the table.

Table 2-32

Ticket Number	DL Number	Ticket Date	City	Primary Factor	Officer Badge Number
1234567890	99999999	5/1/2026	New York	Unsafe Speed	12345678

e. Open up the *Drivers* table in *Datasheet* view. Keep the *Tickets* table open. Notice that no data record exists for a driver with the *LicenseNumber* of *99999999*. When referential integrity is not enforced, Access permits you to enter data records that don't need to have a corresponding record in the related table.

f. Click to expand the **plus sign** for *LicenseNumber 10001422 (Ricardo Juarez)*. You should see the two tickets Ricardo received. Notice that the relationship

exists even if referential integrity is not enforced.

g. Close the *Drivers* table.

h. Delete the test data record from the *Tickets* table.

i. Save and close the *Tickets* table.

7. Edit referential integrity constraints.

a. Open the *Relationships* window.

b. Select the **relationship line** and click **Edit Relationships**.

c. Select the choices to **Enforce Referential Integrity** and **Cascade Update Related Fields**.

d. Leave the *Cascade Delete Related Records* check box not selected. You do not want to delete ticket records if you delete information about a driver.

e. Click **OK** to save the changes to the relationship.

f. Save the changes and close the *Relationships* window.

8. Test the referential integrity constraints.

a. Open the *Tickets* table in *Datasheet* view.

b. Enter the test data record in **Table 2-33** into the *Tickets* table.

Table 2-33

Ticket Number	DL Number	Ticket Date	City	Primary Factor	Officer Badge Number
1234567890	99999999	5/1/2026	New York	Unsafe Speed	12345678

c. Click **OK** when Access displays a message box (**Figure 2-94**) indicating that you cannot add this ticket record because it requires a related record in the *Drivers* table.

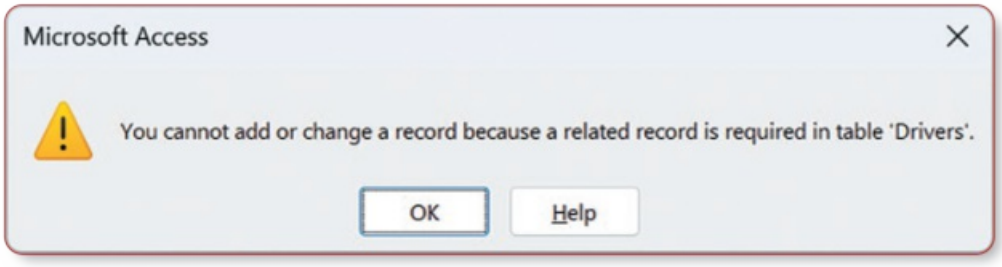


FIGURE 2-94 **Error message when referential integrity is violated**

d. Press **Esc** to delete the record contents.

9. Enter the valid records in **Table 2-34** into the *Tickets* table.

Table 2-34

Ticket Number	DL Number	Ticket Date	City	Primary Factor	Officer Badge Number
4235895082	12394163	3/7/2026	Utica	Unsafe Speed	A0004572
4235895110	39992387	3/9/2026	Utica	Improper Turn	A0004572

10. Save and close the table.
11. Preview the data records in the *Drivers* table for printing.
    a. Select the **Drivers** table in the *Navigation Pane*.
    b. Use *Print Preview* to show a preview of how the table will print.
    c. Change the page to a **Landscape** orientation. A darkened *Next Page* button in the *Navigation* bar indicates additional pages.
    d. Use the **Navigation** buttons to move to the second page if necessary.
    e. Close the *Print Preview*.
12. Close the database.

Advanced Project 2-7 - SIMnet Project

Placer Hills Real Estate expanded the database created in the *Advanced Project 1-7*. To ensure consistency, the starting file is provided for you. For this project, you use *Design* view to edit properties in a table and integrate data integrity rules. You edit data records, create a relationship between the two tables, and enforce referential integrity constraints. Finally, you view how the table records will print using *Print Preview*.

[**Student Learning Outcome 2.1**, **Student Learning Outcome 2.2**, **Student Learning Outcome 2.3**, **Student Learning Outcome 2.4**, **Student Learning Outcome 2.6**, **Student Learning Outcome 2.7**]

File Needed: ***PlacerHills-02.accdb*** *(Student data files are available in the* Library *of your SIMnet account)*

Completed Project File Name: ***[your initials] Access 2-7.accdb***

Skills Covered in this Project

- Edit a table using *Design* view.
- Edit field properties in *Design* view.
- Create an input mask.
- Save a table.
- Create a foreign key.
- Create a 1:M relationship between tables.
- Enforce referential integrity.
- View a table in *Datasheet* view and expand related records.
- Preview table results for printing.

1. Open the ***PlacerHills-02*** database file and save a new copy of your database as [your initials] Access 2-7. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close it.
2. Enable the contents in the security warning.
3. Open the *Agents* table in *Datasheet* view (**Figure 2-95**).

Agents

EmployeeN	LastName	FirstName	DateHired	Phone
103	Bui	Millie	Thursday, August 20, 2020	5306487689
127	Weatherby	Kelly	Monday, February 22, 2021	9169873756
133	Burgess	John	Monday, October 3, 2022	5302784699
151	Chung	Rick	Monday, January 22, 2024	9168236940
160	Walters	Calvin	Wednesday, May 1, 2024	9165551679
160	Duarte	Kallyn	Thursday, May 30, 2024	9167441614
169	Montoya	Gerardo	Thursday, July 11, 2024	9165345991

FIGURE 2-95 ***Datasheet* view of the *Agents* table**

   a. Look at the *DateHired* and *Phone* fields. The manager of the real estate office wants those to be formatted differently.
   b. Notice that both Calvin Walters and Kallyn Duarte have the same value in the *EmployeeNum* field. If the employee number is supposed to be unique, the primary key in this table must not be set correctly.
   c. Change Kallyn Duarte's *EmployeeNum* to be 168, the correct value.
4. Change to *Design* view to make needed corrections to the *Agents* table.
   a. Notice that the table does not have a primary key. Although Access recommends that you assign a primary key in a table, Access lets you create a table without one.

b. Set the *EmployeeNum* as the primary key.
c. Change the *DateHired* field to use a *Short Date* format.
d. Create an input mask for the *Phone* field. Save the table, if prompted. Select the **Phone Number** *Input Mask*. Don't make any changes to the mask or placeholder character and select **Without the symbols in the mask**, **like this**.
e. Change all fields to be *Required*.
f. Save the table. If prompted to test existing data against the new rules, click **No**.
g. Switch to *Datasheet* view to ensure that the formatting shows as desired.
h. Adjust the field width of the *DateHired* field to 14.
i. Adjust the field width of the *Phone* field to 16.
j. Save and close the *Agents* table.

5. Open the *Listings* table in *Datasheet* view to help determine the type of relationship and the foreign key field. A one-to-many relationship exists between the *Agents* and *Listings* tables since an agent can list many different properties, but a property is listed by only one agent. The foreign key comes by taking the primary key field from the *1* table and adding it in as an additional field in the *M* table. In this case, the *EmployeeNum* should also be added into the *Listings* table. Notice that the *Listings* table has a field that stores the agent's name. However, it doesn't have the foreign key. To minimize redundant data, you will change the *Agent* field so that it will now store the agent's employee number instead of the agent's name. This requires changing the data values as well as field properties.
6. Edit the data values in the *Agent* field in the *Listings* table.
   a. Sort the *Agent* field from *A to Z*. Because the employee name values begin with the first name, the sort isn't alphabetical by last name. However, the sort makes it easier to change the data values since all the property listings by the same agent are grouped together.
   b. Change each of the six records for *Calvin Walters* to have the value of 160 for the *Agent* field.
   c. Change *Gerardo Montoya's* record to have 169 in the *Agent* field.
   d. Continue changing the remaining records using the information in **Table 2-35**.

Table 2-35

Number of Records to Change	Agent Name	New Value for Agent Field
3	John Burgess	133
5	Kallyn Duarte	168

9	Kelly Weatherby	127
4	Millie Bui	103
4	Rick Chung	151

e. Remove the sort from the *Agent* field.

f. Save the table.

7. Switch to *Design* view in the *Listings* table to edit the properties of the foreign key.

a. Select the **ListingAgent** field.

b. Change the field name of *ListingAgent* to ListingAgentNumber. In this database, Placer Hills prefers that the foreign key have a unique name instead of choosing to use *FKEmployeeNum* as the name of the field.

c. Change the *Description* to read Must match an EmployeeNum in the Agents table.

d. Change the field size to 3.

e. Save and close the table. Access warns you that the field size has been changed and that you may lose data. Your values meet this new size. Click **Yes**.

8. Create a one-to-many relationship between the *Agents* table and the *Listings* table.

a. Relate the **EmployeeNum** field from the *Agents* table to the **ListingAgentNumber** field in the *Listings* table as shown in **Figure 2-96**.

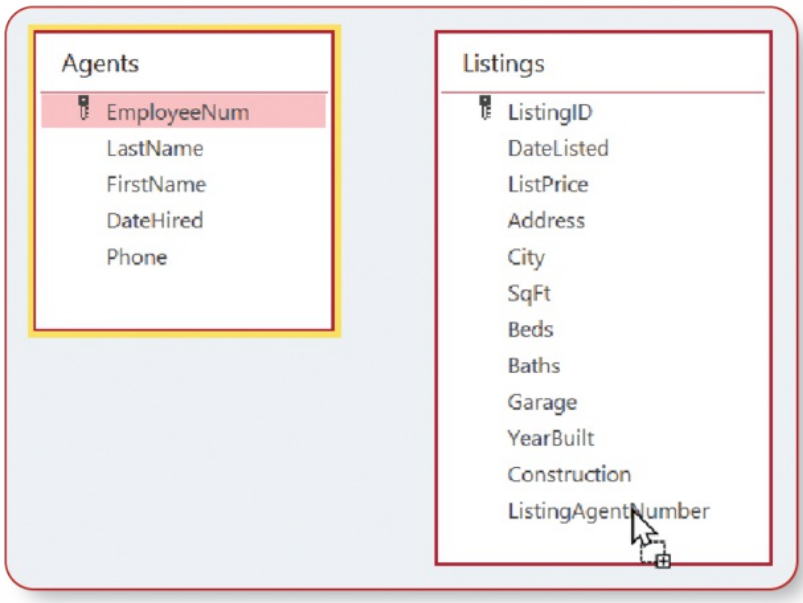


FIGURE 2-96 **Drag the *EmployeeNum* to the *ListingAgentNumber* to create a relationship**

b. Select the correct choices to **Enforce Referential Integrity** and **Cascade Update**

Related Fields. Leave the *Cascade Delete Related Records* check box not selected. You do not want to delete property listing records just because an agent may leave the company. This enables you to keep a record of the listings.

c. Create the relationship.

d. Save the changes and close the *Relationships* window.

9. Open the *Agents* table in *Datasheet* view.
   a. Expand the records for Millie Bui. You should see four properties listed.
   b. Close the *Agents* table.
10. Use *Print Preview* to preview the data records in the *Listings* table for printing. Choose a *Landscape* orientation.
11. Close the *Print Preview* when done.
12. Close the database.

Copilot Challenge Project 2-8

Use *Copilot* or other generative AI to help you modify the database you created in ***Challenge Project 1-8***. Use *Design* view to edit field properties. Change any data that violates these properties. Create a second table and create the relationship between the two tables. Enter data into the second table.

[**Student Learning Outcome 2.1**, **Student Learning Outcome 2.2**, **Student Learning Outcome 2.3**, **Student Learning Outcome 2.4**, **Student Learning Outcome 2.5**, **Student Learning Outcome 2.6**]

File Needed: ***[your initials] Access 1-8.accdb***

Completed Project File Name: ***[your initials] Access 2-8.accdb***

Open the database ***[your initials] Access 1-8*** and save a copy of it as [your initials] Access 2-8.

Modify your database according to the following instructions:

- Open the existing database table in *Design* view. Recall that your table stores information about players in a particular sport.
- If you ended up with two ID fields in Project 1-8, delete the default *ID* field that Access assigned when the table was created. Then set the other *ID* field (e.g. *PlayerID*) as the primary key.
- Save the changes to the table.

- Open *Copilot* and ask it to create a validation rule for one of the fields in your table. Refine the prompt as needed. Modify the suggested rule as needed and enter it into the *Validation Rule* property.
- Ask *Copilot* for help in learning how to create a well-written validation text message for that field.
- Use that information to create a message and enter it into the *Validation Text* property of that field.
- Test the validation rule.
- For any fields where it is appropriate, edit the *Default Value* and *Required* properties.
- Test existing records against changes to the properties.
- Correct any data values that do not meet the new data integrity rules.
- Save and close the table.
- Write a *Copilot* prompt that includes the names of the fields in your current table and ask it to suggest a table structure for a second, related table, where the player table is the “many” side of a one-to-many relationship. Instead of entering the field names, you can paste a screenshot of your current table into the prompt. Review the answer to ensure it is valid. Rephrase the prompt if needed.
- Create a new second table using *Design* view. You will enter the data records later.
  - Add the fields suggested by *Copilot*, making any modifications you choose. Designate one of the fields as the primary key.
  - Select appropriate data types and field sizes for the fields.
  - Save the table. Enter an appropriate name when prompted.
  - Close the table.
- Determine how the two tables are related. Ask *Copilot* for help if needed.
- Use *Design* view to make any modifications needed to the player table to accurately represent the foreign key. Be sure that the data type and size match the way that field was defined in the second table. Also, include the FK abbreviation at the beginning of the field name (e.g. *FKTeamID*).
- Edit the data records in the player table to add values into the foreign key field.
- Save and close the table.
- Create the one-to-many relationship between the tables. Enforce referential integrity and cascade upates. Save the changes to the relationship.
- Enter three rows of data into the second table. Be sure to enter records for which there are players with matching foreign key values in the player table.
- Save all changes to the table. Keep the table open in *Datasheet* view.

- Expand the plus sign for several records to see the associated players.
- Close the table and the database.

Challenge Project 2-9

Blue Lake Sporting Goods is a nationally recognized sporting goods company. It has a growing internship program at its corporate office to offer experience to college students. You have been asked to create a database to store information about the internship program. Create two tables, create a relationship between the tables, and add data into the database.

[Student Learning Outcome 2.1, Student Learning Outcome 2.2, Student Learning Outcome 2.3, Student Learning Outcome 2.4, Student Learning Outcome 2.6]

File Needed: None

Completed Project File Name: ***[your initials] Access 2-9.accdb***

Open a new database and save it as [your initials] Access 2-9.

Modify your database according to the following instructions:

- Create a table using *Design* view to store information about the interns.
- Add a field named InternID. Use a *Short Text* data type and designate it as the primary key.
- Add the following fields: LastName, FirstName, Phone, University, Major, and InternshipStartDate.
- Select appropriate data types and field sizes for the fields.
- Use the *Lookup Wizard* to create a drop-down list for *University* and add at least three choices to the list.
- Save the table as Intern.
- Enter several records into the table.
- Create a second table using *Design* view to store information about the different departments in which an intern can work.
- Add a field named DepartmentName. Use a *Short Text* data type and designate it as the primary key.
- Add the following fields: DeptMgrLastName, DeptMgrFirstName, OfficeNumber, and Division.
- Select appropriate data types and field sizes for the fields.

- Use the *Lookup Wizard* to create a drop-down list for *Division* and add the choices of Golf, Water Sports, and Children.
- Save the table as Department.
- Enter several rows of data. Use the following values for the *DepartmentName*: Sales-Golf, Accounting-Golf, HR-Golf, Sales-Water Sports, Accounting-Water Sports, HR-Water Sports, Sales-Children, Accounting-Children, HR-Children.
- An intern can only be assigned to one department, but a department may have several interns. Add the correct foreign key into the *Intern* table. Don't make that field required yet.
- Create the one-to-many relationship. Enforce referential integrity and cascade updates and deletes. Save the changes to the relationship.
- Edit the data records in the *Intern* table to add values into the foreign key field. Edit the *Intern* table to make the foreign key field required.
- Save all changes to the table.
- Open the *Department* table in *Datasheet* view. Expand the plus sign for several departments to see the associated interns assigned to this department.
- Close the table and the database.

Challenge Project 2-10

Modify the database you created in ***Challenge Project 1-10*** for a travel agency. Your database contains a table about upcoming cruises. Use *Design* view to create a new table to store information about the different ships on which passengers can cruise. Create a relationship between the tables, and add data into the new table.

[Student Learning Outcome 2.1, Student Learning Outcome 2.2, Student Learning Outcome 2.3, Student Learning Outcome 2.4, Student Learning Outcome 2.6]

File Needed: ***[your initials] Access 1-10.accdb***

Completed Project File Name: ***[your initials] Access 2-10.accdb***

Open the database ***[your initials] Access 1-10*** and save a copy of it as [your initials] Access 2-10.

Modify your database according to the following instructions:

- Create a table using *Design* view to store information about the ships.
- Add a field named ShipID. Use a *Short Text* data type and designate it as the primary key.
- Add the following fields: ShipName, CruiseLineName, DateLaunched,

NumberOfPassengers, and CountryOfRegistry.

- Select appropriate data types and field sizes for the fields.
- Use the *Lookup Wizard* to create a drop-down list for the *CruiseLineName* and add at least three choices to the list.
- Save the table as Ships.
- Enter several records into the table for various ships. Search the web if you need help finding examples of data to enter.
- Edit the *Trips* table you created in ***Challenge Project 1-10***. Add the foreign key field of ShipID. It must have the same data type and field size you assigned in the *Ships* table.
- Create a one-to-many relationship between the two tables, since a ship can be used for many different cruises, but a specific cruise is only on one ship. Enforce referential integrity and cascade updates and deletes. Save the changes to the relationship.
- Edit the data records in the *Trips* table to add values into the *ShipID* field.
- Save all changes to the table.
- Open the *Ships* table in *Datasheet* view. Expand the plus sign for several ships to see the associated trips the ships are taking.
- Close any open tables and the database.

Source of screenshots Microsoft Office 365 (2024): Word, Excel, Access, PowerPoint.

CHAPTER 3
Creating and Using Queries

CHAPTER OVERVIEW

Queries provide a powerful way to find and analyze data in databases. In chapter 1 you learned to use the *Search*, *Sort*, and *Filter* tools to find data. These are good tools, but over time, as the number of records stored in your databases increases, those tools become less helpful. Learning to create and use queries helps you to quickly and easily access your data and manage your databases. This chapter covers the basics of creating a query, adding criteria to a query, using different query options, integrating calculated fields, creating summary queries, and creating crosstab queries.

STUDENT LEARNING OUTCOMES (SLOs)

After completing this chapter, you will be able to:

- **SLO 3.1** Understand queries and use the *Simple Query Wizard* to create and run a query (p. A3-162).
- **SLO 3.2** Create a query in *Design* view, add fields, and save and run a query (p. A3-164).
- **SLO 3.3** Add criterion into a query, use comparison operators, use functions as criterion, and create criteria with wildcards (p. A3-170).
- **SLO 3.4** Integrate filtering, sorting, and limiting fields and records that display (p. A3-177).
- **SLO 3.5** Use the *AND* and *OR* operators to include multiple criteria in a query (p. A3-183).
- **SLO 3.6** Create and use a parameter query (p. A3-188).
- **SLO 3.7** Build a query that uses a calculated field (p. A3-194).
- **SLO 3.8** Create and use a summary query using aggregate functions (p. A3-199).
- **SLO 3.9** Understand and build a crosstab query (p. A3-203).

CASE STUDY

For the Pause & Practice projects in this chapter, you develop queries for Placer Hills Real Estate. As you progress through the Pause & Practice projects, you use the features you learn in this chapter to find and analyze data in a database with queries.

- ***Pause & Practice 3-1:*** Create, run, and add criterion to a query in *Design* view. Edit and save a copy of a query.
- ***Pause & Practice 3-2:*** Create queries using sorting and multiple criteria.
  Create queries using a parameter and calculated fields.

Pause & Practice 3-3:

Pause & Practice 3-4: Create a summary query that uses aggregate functions and a crosstab query.

SLO 3.1

Understanding Queries and Using the Simple Query Wizard

A3-162

A ***query*** finds data in your database by enabling you to ask a question. For example, in a music database you can create a simple query that shows all the albums that you own. Queries may include a criterion to search for only specific records. For example, in a university database, create a query to "show only the students who are taking a course in the biology department." You can also create a query that includes multiple criteria to further narrow your search. For example, a query in the Central Sierra Insurance database might use three criteria to find all of the employees who work as insurance agents in the Cameron Park branch who were hired after January 1, 2026.

You can create a query in *Design* view or with the ***Query Wizard***. The *Query Wizard* tool enables you to choose from four different types of query wizards. In this section, you use the ***Simple Query Wizard*** option.

When you build a query, you must tell Access where to find the data. The data source for a query can be a table or another query. The *Simple Query Wizard* enables you to select the specific table(s) and queries as well as the specific fields to include in the query. After you create a query, run it to see the results. If you need to change the query once it has been created, you can edit it using *Design* view.

A3-163

HOW TO: Create a Query Using the Simple Query Wizard

1. Click the **Create** tab on the *Ribbon*.
2. Click the **Query Wizard** button in the *Queries* group (**Figure 3-1**) to launch the *Query Wizard*.

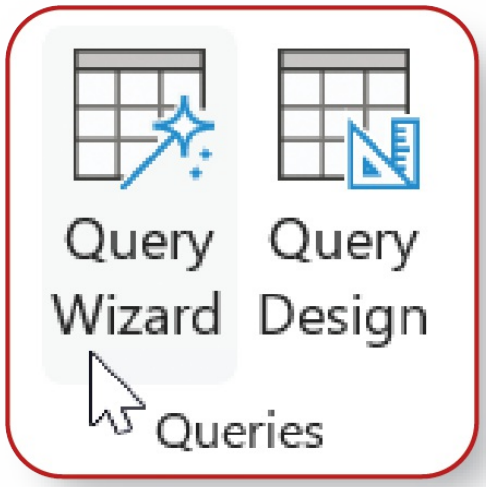


FIGURE 3-1 ***Query Wizard*** **button**

3. Select **Simple Query Wizard** in the *New Query* dialog box (**Figure 3-2**) and click **OK**.

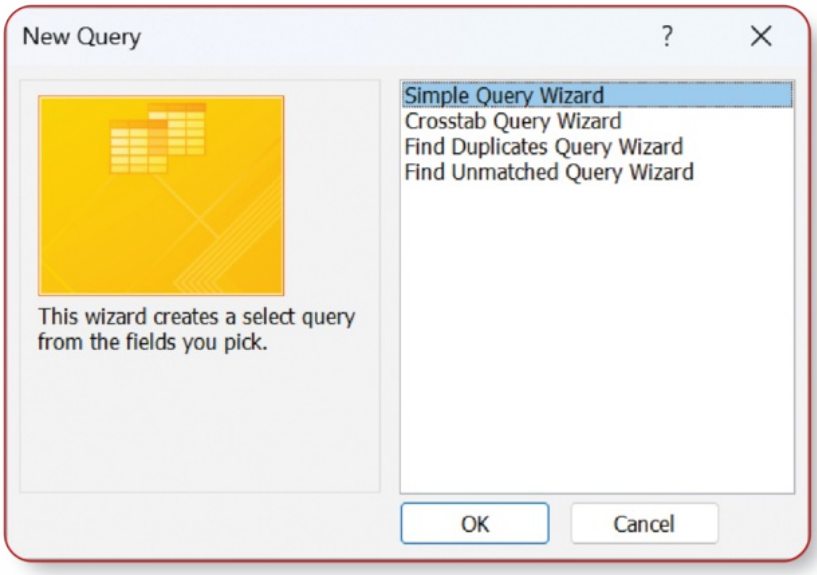


FIGURE 3-2 **Select the query type in the** ***New Query*** **dialog box**

- The *Simple Query Wizard* launches (**Figure 3-3**).

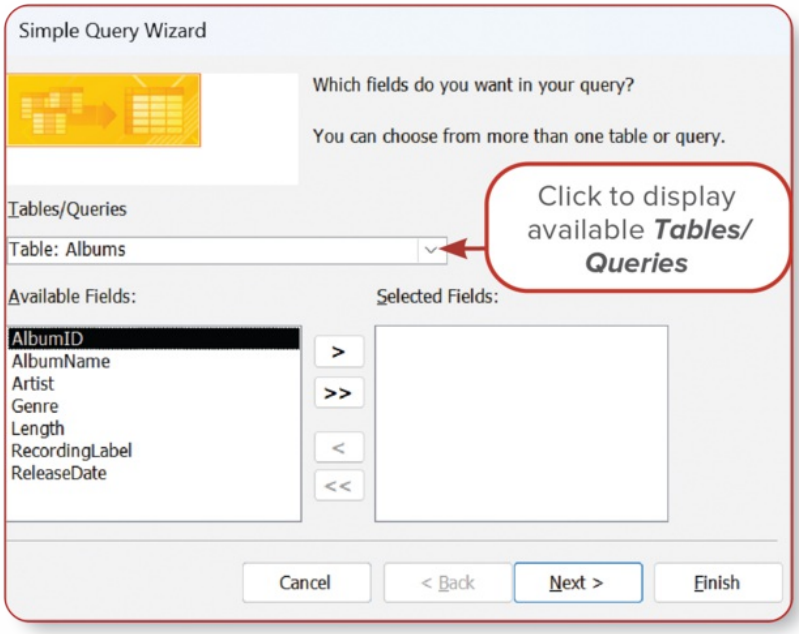


FIGURE 3-3 ***Simple Query Wizard***

- The values displayed in the *Tables/Queries* box and the *Available Fields* window vary depending on the contents of your database

4. Click the **Tables/Queries** drop-down arrow and select the *Table* or *Query* name.
5. Select a field to include in the query from those displayed in the *Available Fields* window.
6. Click the **Move Single Field** button.
   - The field moves into the *Selected Fields* window (**Figure 3-4**).

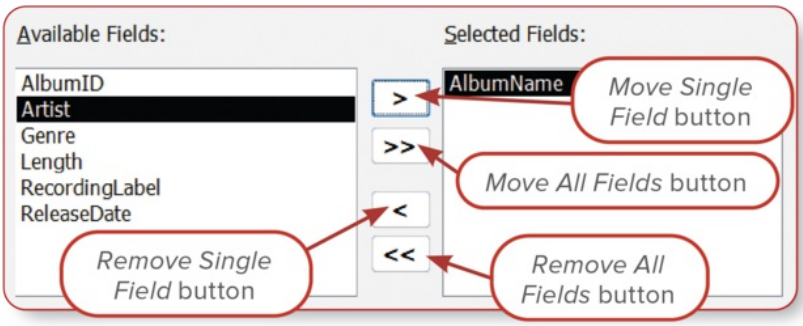


FIGURE 3-4 Use the *Move Fields* buttons to select the fields to display in a query

- The *Remove Single Field* and *Remove All Fields* buttons become active.

ANOTHER WAY

Double-click a field in the *Available Fields* window to move it into the *Selected Fields* window.
Double-click a field in the *Selected Fields* window to move it back into the *Available Fields* window.

7. Continue moving all required fields, changing the selected *Table* or *Query* if needed.

ANOTHER WAY

Click the **Move All Fields** button (see **Figure 3-4**) to select all of the fields in the query.

8. Click the **Next** button when you have finished adding fields. The last page of the *Simple Query Wizard* displays (**Figure 3-5**).

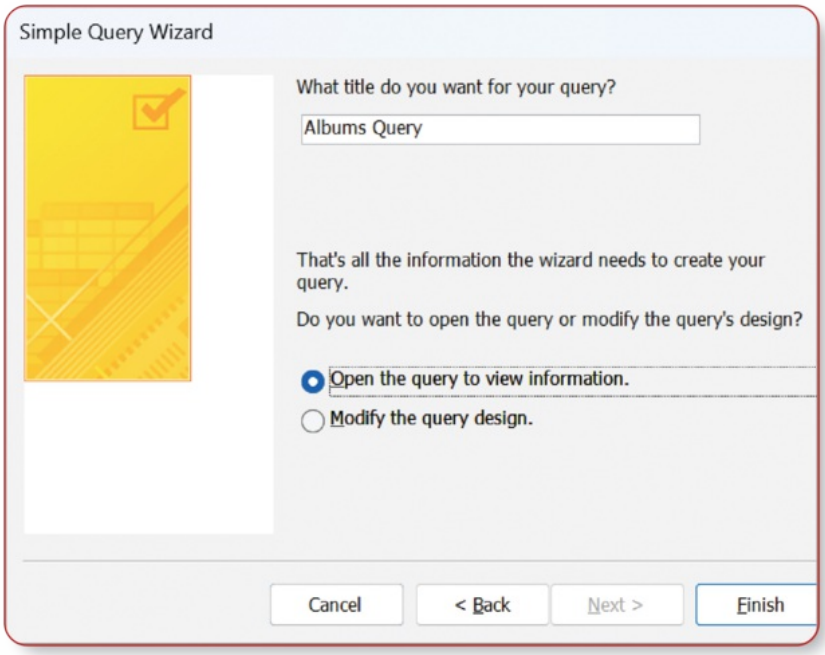


FIGURE 3-5 ***Simple Query Wizard,*** **last page**

- The *Title* box displays a default *Query Title*. The title will also be used as the *Query Name*. The default name combines the *Table Name* with the word

Query.

- Because you may have several queries that use the same table as the data source, be sure to create a name that describes the function of the query.
- If you have selected fields from related tables, the *Simple Query Wizard* may display another page to make a choice between a *Detail* or *Summary* query. Select the desired radio button and click **Next**. If shown, this page displays prior to the last page in **Figure 3-5** where you name the query.

9. Change the title as desired.

MORE INFO

If you want to further edit the query, instead of running the query, select the **Modify the query design** radio button prior to clicking the *Finish* button. The query is saved and opens in *Design* view.

10. Click **Finish** to run the query. Access automatically saves and executes the query.
    - The results display in *Datasheet* view (**Figure 3-6**).



FIGURE 3-6 Query results display in *Datasheet* view

- As with *Datasheet* view of a table, if the *Caption* property of a field contains a value, the caption displays as the column header instead of the field name.
- The *Query Name* displays in the *Queries* group on the *Navigation Pane*.

11. Close the query when done.

SLO 3.2

Creating, Running, and Editing a Query in Design View

A3-164

While the *Simple Query Wizard* is useful when you want to see information quickly in your database, it doesn't enable you to take advantage of all the options available when creating a query. As a result, the most common way to create queries is with *Query Design*. In ***Query Design*** not only can you specify the table(s) or queries to include, along with the fields from those objects, but you can also specify options to further restrict which records display as well as how the results display. *Query Design* in Access uses **query by example** (**QBE**), a visual approach to building queries. Internally, the query is converted to **Structured Query Language** (**SQL**), the underlying language in a relational database system. SQL is introduced in a later chapter. When you create and edit a query with *Query Design*, the *Query Design* contextual tab is available on the *Ribbon*.

Create a Query Based on a Single Table

Create a new query from the *Create* tab. Queries you create using the *Query Design* button automatically open in *Design* view.

A3-165

HOW TO: Create a New Query in Design View Using a Single Table

1. Click the **Create** tab on the *Ribbon*.
2. Click the **Query Design** button in the *Queries* group (**Figure 3-7**).



FIGURE 3-7 ***Query***

***Design* button**

- A new query opens in *Design* view (**Figure 3-8**).

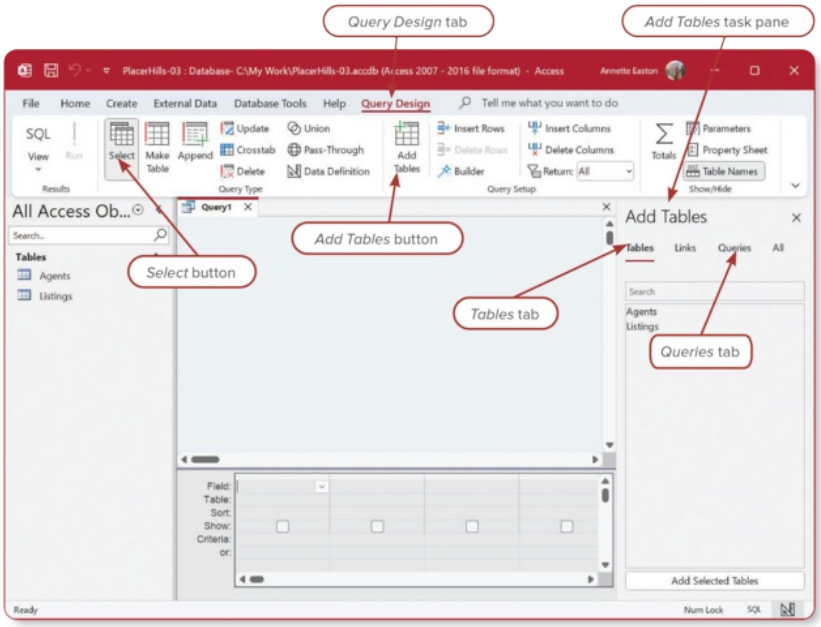


FIGURE 3-8 Create a new query in *Design* view

- The *Query Design* tab is now available and selected.
- The *Query Design* window opens.
- The *Add Tables* task pane displays to the right of the *Query Design* window with the *Tables* tab selected.

3. Select the table to use in the query.
   - If your new query is based on an existing query instead of a table, first click the **Queries** tab in the *Add Tables* task pane and then select the query.
   - If you accidentally close the *Add Tables* task pane and need to reopen it, click the **Add Tables** button [*Query Design* tab, *Query Setup* group].
4. Click **Add Selected Tables** to add the table into the *Query Design* window.

ANOTHER WAY

Double-click a table name in the *Add Tables* task pane to add it into the *Query Design* window.

5. Click the **X** in the right corner of the *Add Tables* task pane to close it.

- Although you can leave the *Add Tables* task pane open, closing it allows more room to design and view the query.
- The *Query Design* window (**Figure 3-9**) is divided into two sections. The top half shows the table you added into the query. The bottom half shows the query design grid. The ***query design grid*** contains the fields which have been included in the query, along with details about criteria and how the query results display. You learn to add fields in the next section, "Add Fields into a Query."

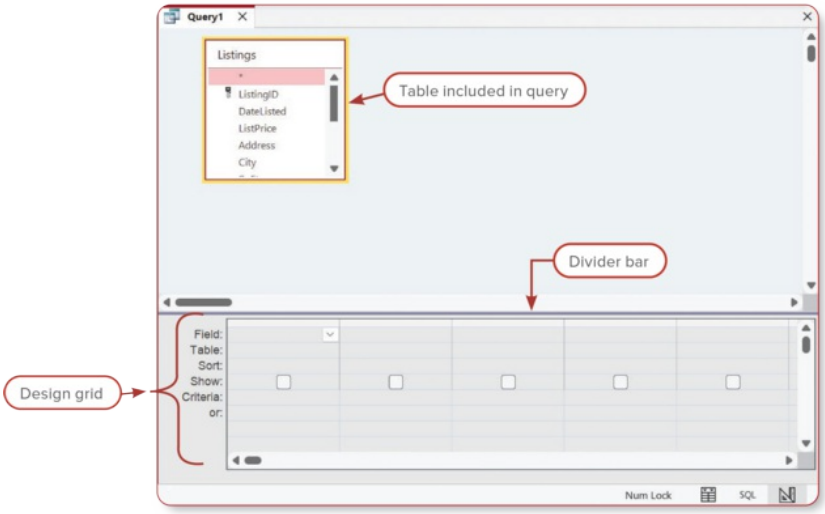


FIGURE 3-9 ***Query Design*** **window**

- Increase the size of the table object in the window to display all of the fields as desired. You can right-click inside the table to open the context menu and select **Size to Fit**.
- The ***divider bar*** separates the two sections. You can adjust the size of either section by moving the divider bar up or down.

ANOTHER WAY

Point to a border of the table until the pointer changes to the resize pointer. Drag the pointer to increase or decrease the table size.

Notice that the *Select* button is highlighted in the *Query Type* group [*Query Design* tab] shown in **Figure 3-8**. This indicates that the query is a select query. You can use a ***select query*** to locate, or select, data in the database. They are the most common type of query. In future chapters, you

will learn about other query types that are action-based.

Add Fields into a Query

After you create a query, you need to add the fields into the query design grid. You can add as many fields as needed into the query. The query results display the fields in the order you place them into the query design grid.

Access provides three different ways to add fields into a query.

- Click, hold, and drag a **field name** from a *Table* displayed in the top part of the *Query Design* window to the first empty cell in the *Field* row of the query design grid. The *Field* and *Table* row cells in the query design grid update to display the contents (**Figure 3-10**).

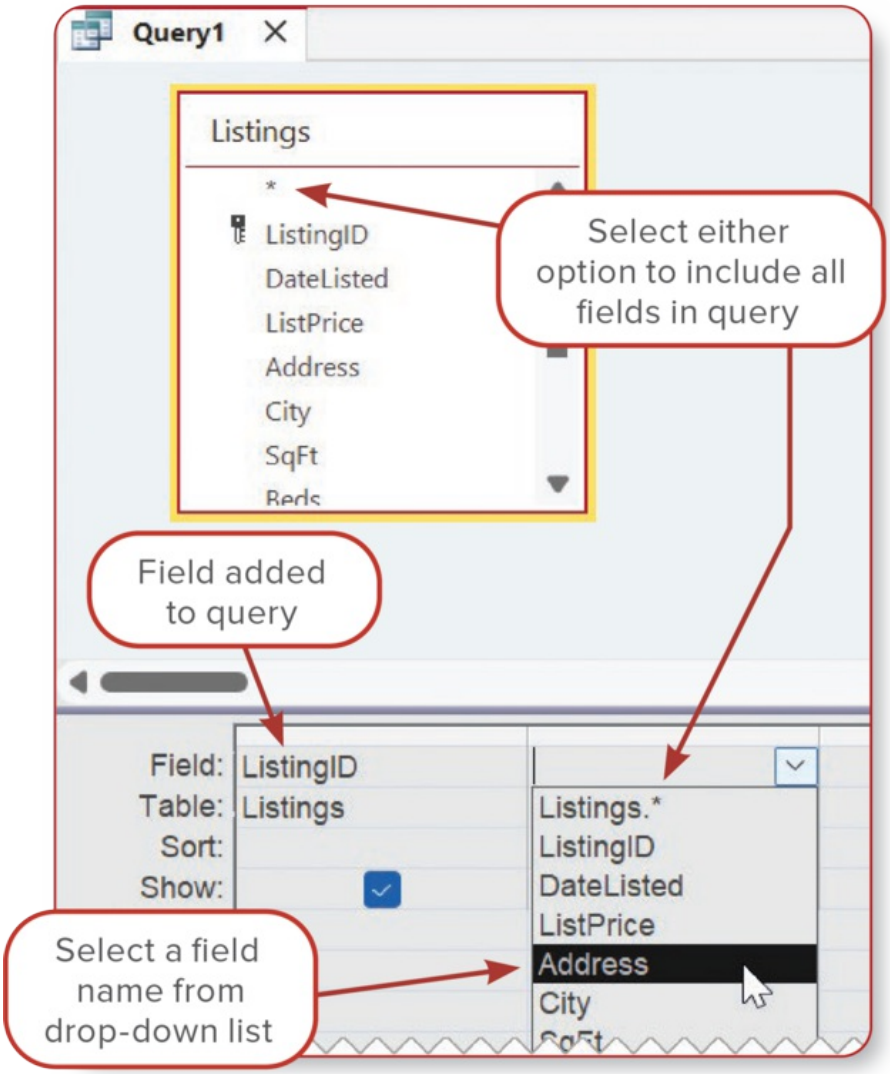


FIGURE 3-10 Add fields into a query



- Double-click a **field name** from a *Table* in the top part of the *Query Design* window. The field is added to the first empty cell in the *Field* row of the query design grid.
- Click the **first empty cell** in the *Field* row of the query design grid. Click the **drop-down arrow** to display the list of field names. Select the desired field name (see **Figure 3-10**).

To include all of the fields from a table in the query either double-click the asterisk (*) symbol from the *Table* in the top part of the *Query Design* window or select the **TableName.*** choice from the drop-down list of fields displayed in the query design grid. Both options add TableName.* to the first empty cell in the *Field* row of the query design grid. Remember that the text "TableName" does not actually display; instead, the name of your table displays.

MORE INFO

If you want to apply criteria to individual fields, you must add each field separately instead of using the asterisk (*) symbol.

If a field name is not very long, you can decrease the width of the column to view more columns in the query design grid. Increase the width of a column to view the entire contents of a longer field name. Position the pointer at the border of a column, in the small cell above the field name. The pointer turns into the resize arrow. Click and drag the **resize arrow** to resize the column. Changing the column width in *Design* view does not affect the column width in *Datasheet* view.

Run a Query

To see the results of a query, you need to execute, or run, the query. Running a newly written query ensures that you have created your query correctly; it is an important part of the database design and testing process.

- Click the **Run** button [*Query Design* tab, *Results* group] to execute, or run, a query (**Figure 3-11**).

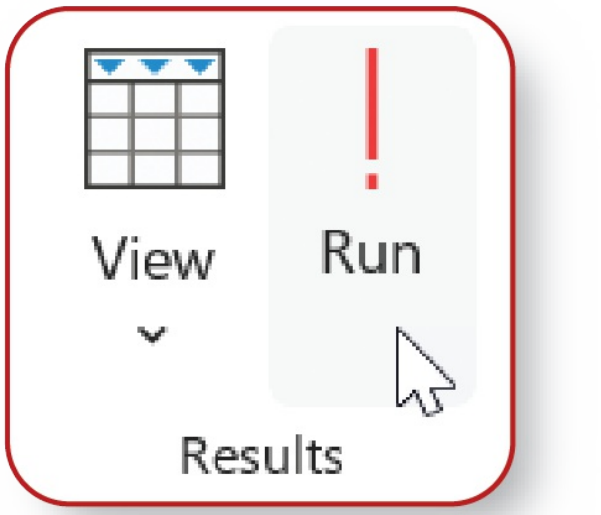


FIGURE 3-11 *Run* button

The results of the query display in *Datasheet* view (Figure 3-12). If the query results in more records than can display in the window, scroll bars automatically display.

Query1

ListingID	Address	City	List Price	SqFt	Beds	Baths	Garage
10022	525 Riverdale	Lincoln	$374,900.00	2755	3	2	2 Car Detached
10023	615 Silver Hill Court	Lincoln	$379,000.00	1600	3	2	2 Car Attached
10024	1917 Oak Crest Drive	Roseville	$1,189,900.00	3397	4	4	3 Car Attached
10025	3420 Milburn Street	Rocklin	$439,000.00	1900	4	3	3 Car Attached
10027	2128 Wedgewood	Roseville	$335,000.00	1184	3	2	1 Car Detached
10029	3998 Rawhide Road	Rocklin	$1,645,900.00	6685	7	6	4 Car Attached
10030	1720 Grey Owl Circle	Roseville	$429,000.00	2182	3	2	3 Car Attached
10031	2024 Brixham	Roseville	$419,900.00	2385	3	3	2 Car Attached
10032	4018 Legend Drive	Rocklin	$865,000.00	3821	4	4	3 Car Attached
10033	4336 Newland Heights Drive	Rocklin	$347,500.00	1840	2	2	2 Car Attached
10034	3535 Camino Cielo	Lincoln	$999,000.00	5159	5	5	4 Car Attached
10040	3935 Cedar Mist Lane	Auburn	$412,000.00	1056	3	2	2 Car Detached
10042	131 Aeolia Drive	Auburn	$440,500.00	1905	3	2	2 Car Detached
10043	1575 Oak Ridge Way	Auburn	$397,000.00	2266	4	3	3 Car Detached
10044	446 Manzanita Way	Weimer	$317,000.00	1885	3	2	2 Car Attached

Record: 1 of 57 No Filter Search

FIGURE 3-12 Query results display in *Datasheet* view

Datasheet view of a query operates like *Datasheet* view of a table. This means you can change, add, and delete records in this view. Making changes to the data shown in *Datasheet* view of a query changes the actual table data.

MORE INFO

Be careful about using the *Datasheet* view results of a query to add data. You will encounter error messages when you attempt to add data in *Datasheet* view if you have not included all the fields in a query but you have set data integrity properties to require all fields.

You can refine the datasheet layout using the skills you learned in **chapter 1**. In *Datasheet* view of a query, you can change the font type, font size, font color, column width, alternate row colors, and add gridlines. To further customize the appearance of the query results, you can use a form or report to display the query results. These objects are introduced in the next chapter.

Sometimes, no records show when you run a query. This may be because no records in the table match your query criteria. However, if you expect results to display but none are shown when you run the query, you need to explore the potential causes. Check that the criterion value entered into the query matches the way the values are entered into the table. Additionally, verify that the query design is correct. You may have accidentally included the wrong field in the query and as a result no values match the criteria entered. Finally, the data may have been entered wrong when they were added to the table.

Switch Between Datasheet and Design Views

When creating, and later using, a query, you may find that you need to switch between looking at the query results and looking at the query design. When a query is open, Access provides three ways to easily switch between different query views.

- Click the **View** button [*Home* tab, *Views* group] and then select the desired view option. Selecting *Datasheet View* executes the query, just like pressing the *Run* button. In addition to *Datasheet* and *Design* views, you will see an *SQL View* button. SQL is introduced in a later chapter.
- Click the **icon** on the *View* button [*Home* tab, *Views* group] to directly switch to the alternate view. The icon that displays in the *View* button is the opposite of the current view. For example, if the datasheet icon shows, this means that the current view of the query is *Design* view.
- Click the desired view **icon** from the right side of the *Status* bar, located at the bottom of the Access window. The icon that has a gray background is the current view of the table.

Save and Close a Query

When you create a query, Access automatically assigns a generic name to the query, such as *Query1*. The first time you save the query, the *Save As* dialog box displays and you are prompted to change the default name.

Because you may have several queries based off the same table, change the generic name to a name that describes the function of the query.

- Save a new query by clicking the **Save** button [*File* tab]. Type a new name for the query in the *Query Name* box (Figure 3-13) and click **OK**.

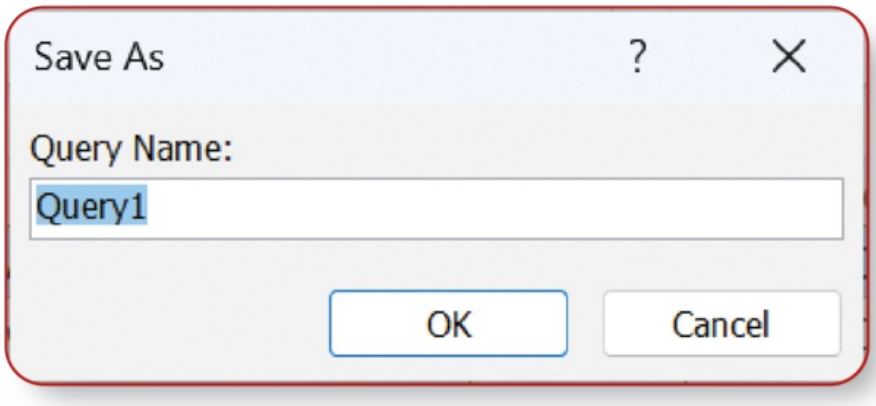


FIGURE 3-13 ***Save As*** **dialog box for a query**

ANOTHER WAY

To open the *Save As* dialog box, use **Ctrl+S**, the **Save** button on the *Quick Access* toolbar, or the **F12** function key.

Once a query has been saved, it displays in the *Queries* group of the *Navigation Pane* (Figure 3-14).

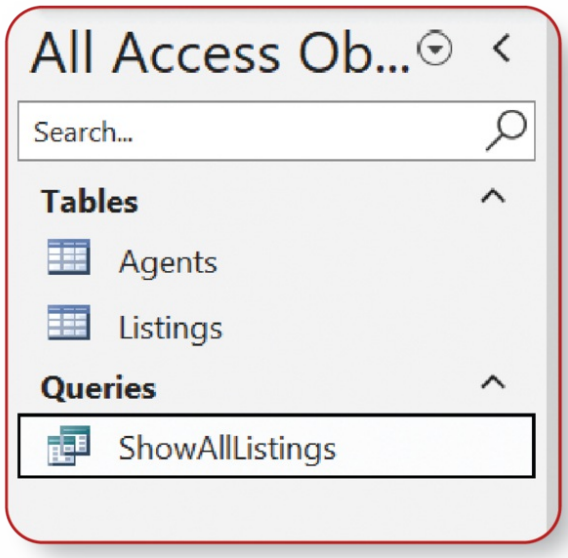


FIGURE 3-14 **Saved queries display in the** ***Navigation Pane***

- Close a query by clicking the **X** (*Close* button) in the query tab. If you close a new query without saving it, Access deletes the query. You can close the query from either *Design* view or *Datasheet* view.

ANOTHER WAY

Press **Ctrl+W** or **Ctrl+F4** to close a query, or right-click the tab with the query name and select **Close** from the context menu.

Open a Saved Query

Open a saved query in *Design* view by right-clicking the query name in the *Navigation Pane* and selecting **Design View** from the context menu (**Figure 3-15**). If you double-click a query name in the *Navigation Pane*, the query executes and the results show in *Datasheet* view.

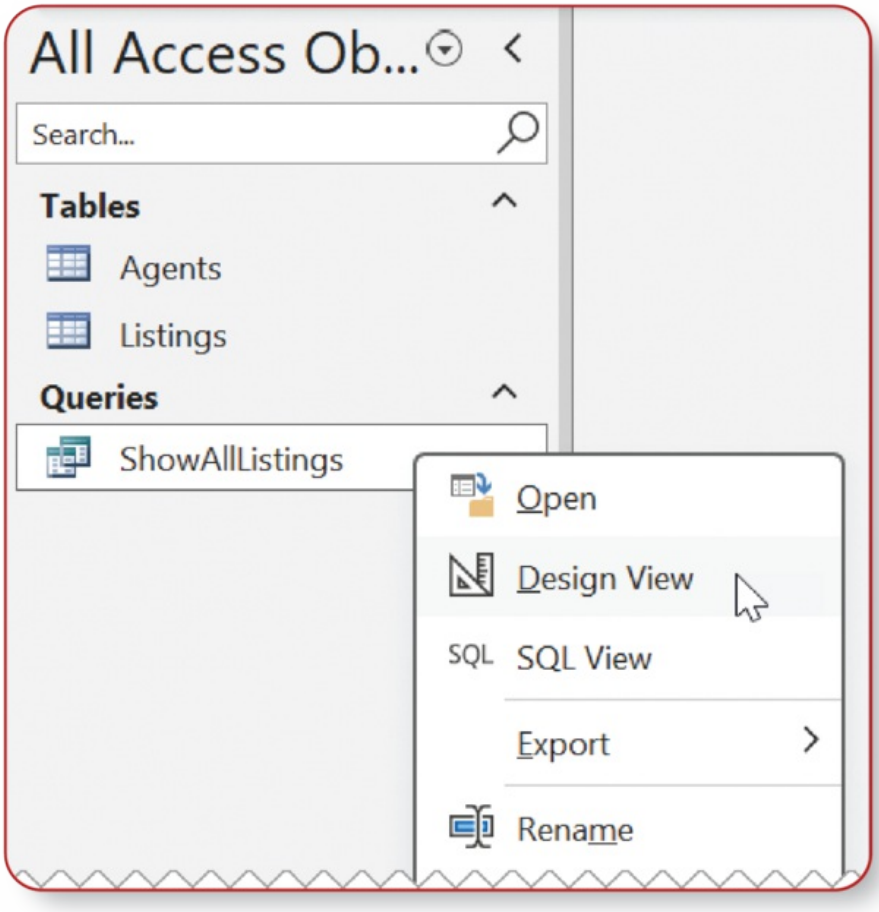


FIGURE 3-15 **Use the context menu to open a query in *Design View***

ANOTHER WAY

Right-click the query name in the *Navigation Pane* and select **Open** from the context menu to open the query in *Datasheet* view.

Rename a Query

You may want to change the name of a query in the database, and it is easy to do this. The query should be closed before you rename it.

HOW TO: Rename a Query

1. Right-click the **query name** in the *Navigation Pane* and select **Rename** from the context menu.
2. Type a new name and press **Enter**.

Create a Query Based on Multiple Tables

The vast majority of databases contain multiple, related tables. As a result, many of the questions that you want to ask about the data require that you get data from more than one table. When building a query, you can add more than one table into the *Query Design* window. Be sure to include only tables that are related to each other, or you may end up with more records than anticipated, and records may be displayed in a way that doesn't make sense.

HOW TO: Create a New Query in Design View Using Multiple Tables

1. Click the **Create** tab on the *Ribbon*.
2. Click the **Query Design** button in the *Queries* group to open the *Query Design* window and *Add Tables* task pane.
3. Select the **first table** you want to use in the query.
4. Press and hold the **Shift** key and then select the **second table** you want to use in the query. Continue selecting all required tables.
5. Click **Add Selected Tables** to add the selected tables into the **Query Design** window.

- The *Query Design* window updates to show the tables (**Figure 3-16**).

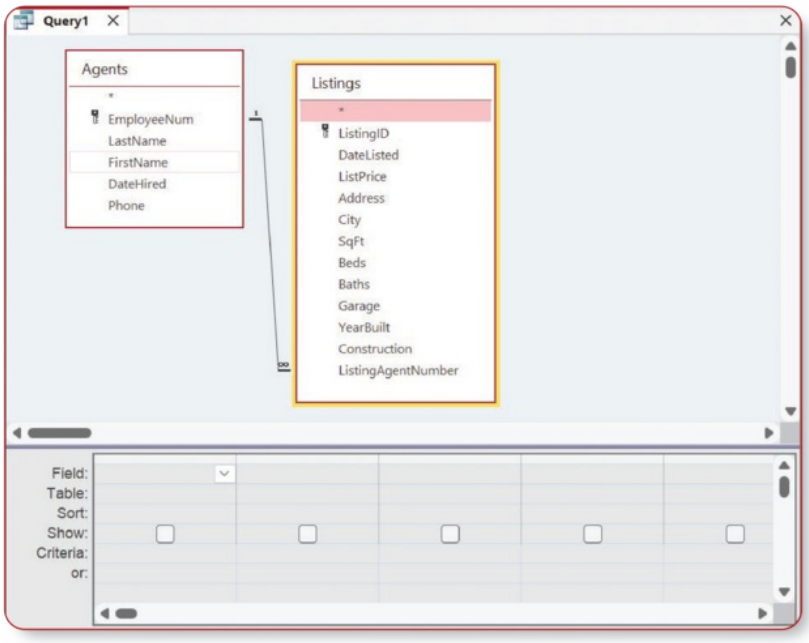


FIGURE 3-16 ***Query Design*** **window displays all the tables used in a query**

- Increase the size of the table objects as desired. You can right-click inside the table to open the context menu and select **Size to Fit**.
- A relationship line displays showing the relationship.

ANOTHER WAY

Press and hold the **Ctrl** key instead of the **Shift** key before you select any additional table names. You can also add tables individually. Either double-click the table name or select a table and click **Add Selected Tables**. Repeat for each table you desire to add.

6. Click the **X** in the right corner of the *Add Tables* task pane to close it.
   - You can now add fields and run and save the query following the steps you have learned.

Edit Fields in Query Design

When building a query, you may need to insert a field between two fields that already are placed in the query design grid. Alternatively, you may need to delete a field from the query design grid if you determine it is no longer needed. The *Query Setup* group [*Query Design* tab] contains the *Insert Columns* or *Delete Columns* buttons to add or delete a field (Figure 3-17).

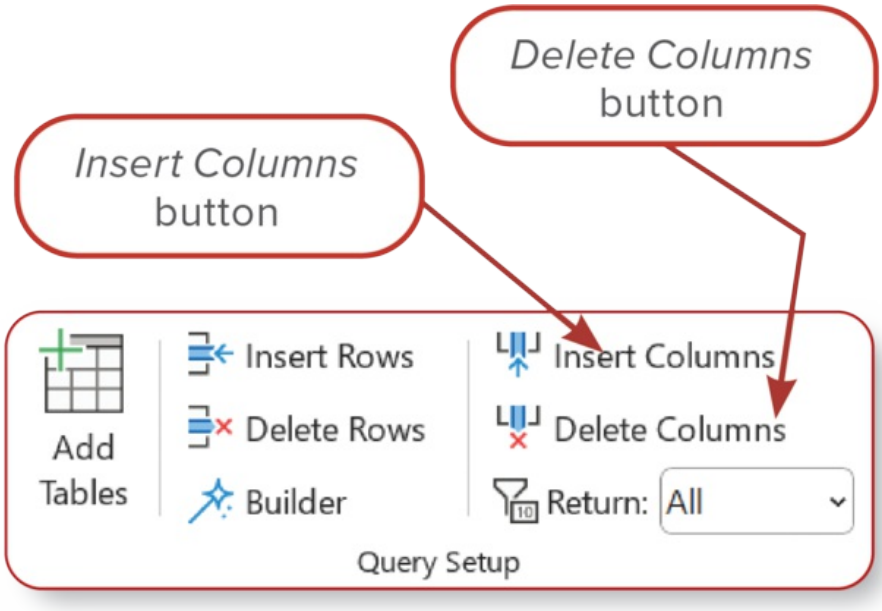


FIGURE 3-17 ***Insert Columns* and *Delete Columns* buttons**

HOW TO: Insert New Fields Between Existing Fields in a Query

1. Locate the query design grid. Place your pointer in the small cell above the field name to the right of where you wish to insert a new field (Figure 3-18) and click the **Selection** pointer to select that column. The column is highlighted in black.

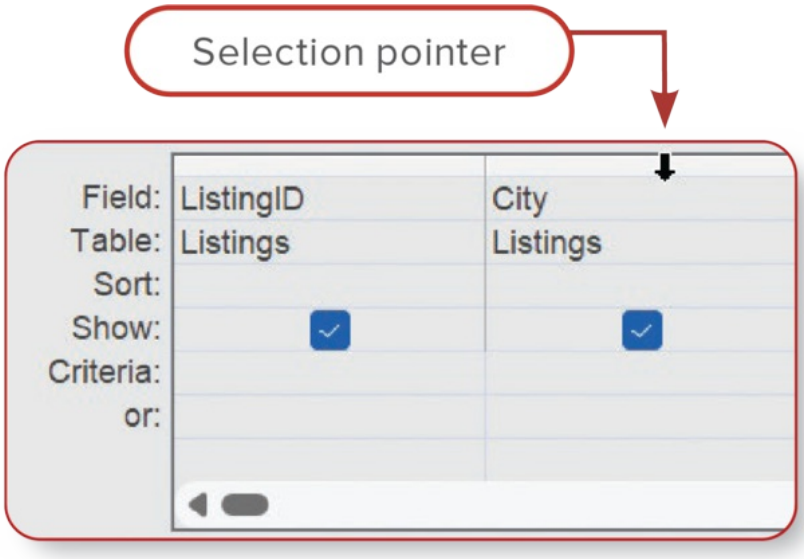


FIGURE 3-18 Select a column in the query design grid

2. Click the **Insert Columns** button [*Query Design* tab, *Query Setup* group]. The new column displays and becomes the selected column (**Figure 3-19**).



FIGURE 3-19 A new column inserted between existing fields

3. Add a field into that column by clicking the **Field** row cell of the new column, clicking the **drop-down arrow**, and selecting the desired field name.

HOW TO: Delete Fields from a Query

1. Select the **column** in the query design grid of the field that you wish to delete.
2. Click the **Delete Columns** button [*Query Design* tab, *Query Setup* group] to delete the selected field.

SLO 3.3

Adding a Criterion to a Query

You can add a criterion into a query to search for records that meet a specific value. The type of criterion you enter, along with the way you enter the criterion, depends on the data type of the field. Use ***expressions*** to write the criterion. In **chapter 2**, you learned to create expressions when you created a validation rule. The expressions that you write for criterion work the same way. Enter the criterion expression directly in the criteria cell or in the ***Expression Builder***.

When you enter the specific criterion value, be sure to format the value correctly based on the data type of the field.

- Criterion for *Number*, *Large Number*, *Currency* and *AutoNumber* data types include the actual number value not surrounded by any special symbols.
- Criterion for *Short Text* and *Long Text* data types are enclosed within quotation marks. Access ignores the case of the text in the criterion when making an evaluation. If you forget to enter the quotation marks when you type the criterion, Access will automatically enter them for you.
- Criterion for *Date/Time* data types are enclosed within pound (**#**) symbols.
- Criterion for *Yes/No* data types use either *Yes* or *No*. Use *Yes* to find records where the check box is selected and use *No* to find records where the check box is not selected.

Single Criterion

In the simplest criterion expression, you only enter the criteria value. Access evaluates this criterion as an "equal to" comparison. In other words, it will find all data that is "equal to" the criterion.

HOW TO: Add a Criterion into the Query

1. Click the **Criteria** row cell of the desired field.
2. Type the criterion expression you want to enter.
   - The criterion shown in **Figure 3-20** creates a query that finds all property listings in the *City* of "Roseville".

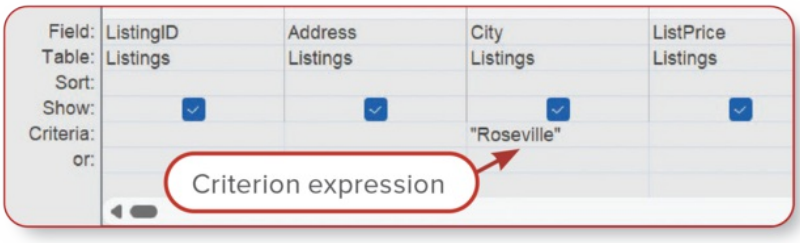


FIGURE 3-20 Enter a criterion into a query

- As desired, you can include the equals sign in the expression. In this example, you could enter either ="Roseville" or "Roseville" because they both evaluate the same way.
- If your criterion expression is longer than the column width, increase the width of the column. Position the pointer at the border of a column, in the small cell above the field name. The pointer turns into the resize arrow. Click and drag the **resize arrow** to resize the column.
- You can also enter the criteria into the *Expression Builder*. Open the *Expression Builder* dialog box by right-clicking the **Criteria** row cell and selecting **Build** from the context menu (**Figure 3-21**) or by pressing **Ctrl+F2**.

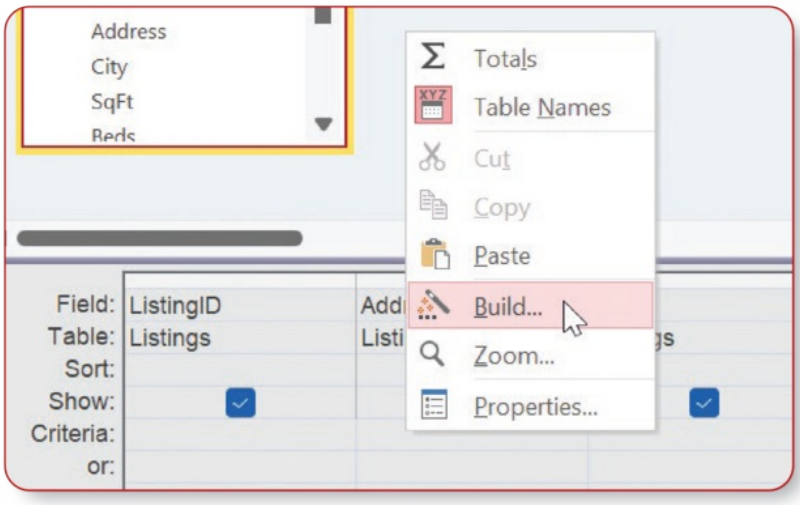


FIGURE 3-21 Select the *Build* button to open the *Expression Builder*

When entering an expression, the ***IntelliSense*** tool may suggest a list of possible values. **Figure 3-22** shows an example of an *IntelliSense* list. A description of the selected item also displays. The list automatically appears if the text you enter into an expression matches the text in

a function or object name. The list updates as you type additional text. Select an item from the list, press **Esc** to hide the list, or simply continue typing your value.

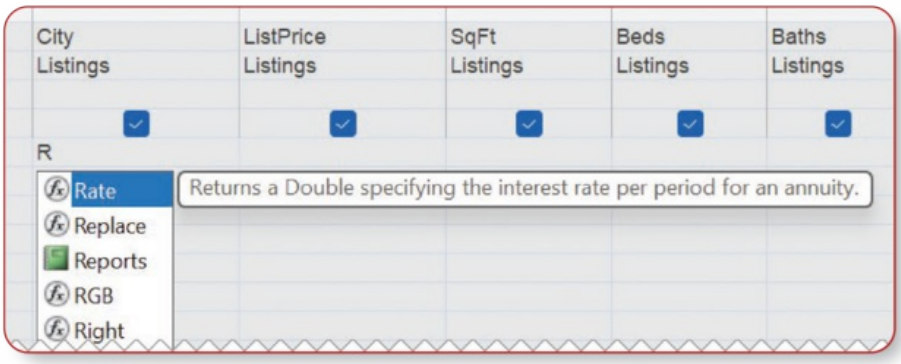


FIGURE 3-22 The *IntelliSense* tool suggests possible functions based on the value you have entered

After adding a criterion to a query, remember to test the query to make sure you wrote the criterion expression correctly. Test the query by running it and then comparing the results to your expected results.

If no records in the database match the query criterion, the datasheet still displays but no records appear. If this occurs and you expect that records in the table should display as a result of the query, verify that the query criterion was entered correctly or that data values were entered correctly when the record was added into the table.

Comparison and Special Operators

When you want to search for values beyond an "equal to" comparison, you need to include a comparison operator in the expression. A ***comparison operator*** is used to compare two values in an expression.

A3-172

The operators are summarized in Table 3-1.

Table 3-1: Comparison Operators

Comparison Operator	Explanation	Example
<	Less than	<5
<=	Less than or equal to	<=100
>	Greater than	>#1/1/2014#
>=	Greater than or equal to	>="B24"
=	Equal to	="CA"
<>	Not equal to	<>0

Instead of using a simple criterion value with a comparison operator, you may need to build queries that use special operators in the criterion. A ***special operator*** contains one or more reserved words and performs a specific evaluation. **Table 3-2** summarizes the special operators in Access.

Table 3-2: Special Operators

Special Operator	Explanation	Example
Between	Between, and including, these two values	Between 10 and 20
In	Contained in this list of values	In(1, 5, 10)
Like	Similar to this value	Like "C??"
Is Null	The field does not have a value	Is Nulll
Is Not Null	The field has a value	Is Not Null

Chapter 2 contained several examples using *Is Null* and *Is Not Null* in validation rules. These special operators can also be used in query criterion to locate records that do, or do not, have a value entered in a specific field. For example, enter *Is Not Null* in the ***Criteria*** row cell of the *Garage* field to find the records that do not contain a value in that field.

Usually the comparison or special operator appears at the beginning of the expression, although that depends on the exact structure of the expression.

Use Functions as Criterion

To answer more complicated questions, you may need to build queries that include functions in the criterion. **Functions** are pre-built procedures that perform a specific task. Two common situations where you could include a function as the criterion are described.

The first situation involves a text field where you want to find records in which a specific field contains at least a certain number of characters. The ***Len()*** function returns the number of characters in a field. To use this function, include the field name inside of the parentheses. For example, enter *Len([LastName])>5* in the *Criteria* row cell of the *LastName* field to find the records with last names longer than five characters.

The second situation involves *Date/Time* fields where you want to compare different date values. While there are many different date-based functions, one of the most common is ***Date()***, which returns the current date from your computer. When using the *Date()* function, do not entertain anything inside of the parentheses. Two criterion examples using the *Date()* function in a *ShippingDate* field are explained below.

- *<=Date():* Finds records that have a *ShippingDate* value that is on or before today's date.
- *Between Date() and Date()+7:* Finds records that have a *ShippingDate* value that is one of the

next 7 days. In this example, the criterion includes an arithmetic formula as part of the comparison.

Use Wildcards in Criteria

The ***Like*** special operator finds records containing data that is similar to, or like, the criterion value. When using *like*, you typically incorporate one of the ***wildcard characters*** available in Access. When you use a wildcard, the criterion of your expression must be enclosed in quotation marks, even when you use *Number*, *Large Number*, *Currency*, and *AutoNumber* data types.

Examples of wildcard characters and their effects in a query criterion are illustrated in the following material.

The ? Wildcard Character

Use the **?** wildcard character to match any single character in a specific position. Remember that numbers are also considered characters. Review the following example:

Field (Type and Size)	Example Criterion	Explanation of Example
PhoneNumber (Text, Size 10) [The input mask symbols are not stored with the data.]	Like "9??????????"	Finds records where the phone number contains 10 characters and starts with a 9.

If you use the criterion above to search the sample data shown in **Figure 3-23**, only the highlighted record values are returned by the query. The second record, phone number 987-3116, does start with a 9, but it is not 10 characters long.

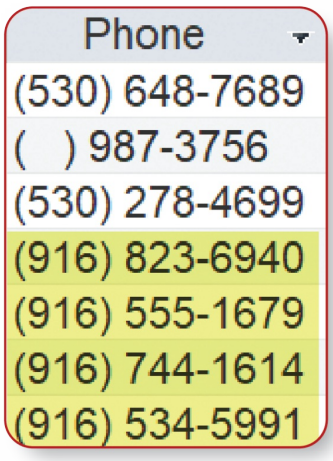


FIGURE 3-23 Sample phone data

If you wrote the criterion as *Like "9???????"*, which would require a value of exactly 8 characters, no records would be returned because none of the phone numbers in **Figure 3-23** contains only 8 characters.

The * Wildcard Character

Use the * wildcard character to match any number of characters, as shown in the following example:

Field (Type and Size)	Example Criterion	Explanation of Example
SongTitle (Text, Size 70) [The input mask symbols are not stored with the data.]	Like "love *"	Finds records where the song title starts with the word love. Note the blank space after the letter "e" and before the asterisk.

Due to the blank space between the word "love" and the asterisk, this query finds only the complete word of "love" and not songs where the title contains the letters of the word "love" within a word, such as "beloved" or "lover". This criterion would find "Love for All Seasons". However, it will not find songs with the title of "Leave Love Alone" or "Make You Feel My Love" because in these titles "love" is not the first word.

If you change the criterion to *Like "* love"*, the only songs found would be those that end with the word "love". For example, it would find "Make You Feel My Love".

If you change the criterion to *Like "* love *"*, the only songs found would be those that contain the word "love" somewhere in the middle ("love" cannot be the first or last word). This query would find "Leave Love Alone".

If you are interested in finding songs that contain the letters of the word "love", you can remove the spaces. For example, the query *Like "*Love*"*, would find song titles that contain the letters of the word "love" anywhere in the title. This would find "Love for All Seasons", "Leave Love Alone", "Make You Feel My Love", and it would also find "She Will Be Loved" and "Lovers in a Dangerous Time".

MORE INFO

You must pay attention to the proper placement of the * wildcard, along with any characters and spaces, to ensure that the query returns the correct results.

Review another example below used on a currency field:

Field (Type and Size)	Example Criterion	Explanation of Example
Sales Price (Currency, Size N/A)	Like "*.99"	Finds records where the sales price ends with .99.

This criterion finds records where the price is .99, 2.99, or 345.99. It will not find records where the price is 1.09 or 3.995.

You can combine multiple wildcards together. For example, using the criterion of *Like "*1?"* combines the * and **?** wildcards. Using this criterion on the *PhoneNumber* field in **Figure 3-23** would return the phone numbers of ( ) 987-3116 and (972) 744-1614. This criterion returns records with a phone number of any length, as long as a "1" is the second to the last digit.

The # Wildcard Character

Use the **#** wildcard character to match any single numeric digit. Review the following example:

Field (Type and Size)	Example Criterion	Explanation of Example
SqFt (Number, Size Long Integer)	Like "2###"	Finds records where the square footage starts with a 2 and contains 4 digits.

This criterion finds houses that are in the 2,000 to 2,999 square foot range. It does not find a house with 255 square feet or with 20,000 square feet because those don't meet the 4-digit specification. Remember that the comma (,) in 2,000, as an example, only displays as part of the formatting and is not stored as a character in the actual table.

A second example of **#** wildcard character is shown below:

Field (Type and Size)	Example Criterion	Explanation of Example
Sales Price (Currency, Size N/A)	Like "###.99"	Finds records where the sales price contains three digits to the left of the decimal point and ends with .99.

This criterion finds records where the price is 100.99 or 345.99. It will not find records where the price is .99, 2.99 or 1043.99.

The [ ] Wildcard Characters

Use the left and right square bracket character to match from a set of characters. Review the following example:

Field (Type and Size)	Example Criterion	Explanation of Example
SqFt (Number, Size Long Integer)	Like "[12]*"	Finds records where the square footage starts with a 1 or 2. Since this example includes the * at the end of the criterion, the value can be any length.

This criterion finds houses where the square footage begins with a 1 or 2. It will find a house with 155, 1,000, 2,999, or 20,000 square feet. It does not find a house with 954 square feet or with a 4,400 square feet because those don't start with a 1 or 2. Remember that the comma (,) in 1,000, as an example, only displays as part of the formatting and is not stored as a character in the actual table.

The ! Wildcard Character

Use the **!** wildcard character to match anything not included in the square brackets. Review the following example:

Field (Type and Size)	Example Criterion	Explanation of Example
SqFt (Number, Size Long Integer)	Like "[!12]*"	Finds records where the square footage starts with anything other than a 1 or 2. Since this example includes the * at the end of the criterion, the value can be any length.

This criterion finds houses where the square footage begins with anything except 1 or 2. It will find a house with 954, 4,400, or 31,000 square feet. It does not find a house with 1,000 square feet or with 2,400 square feet because those start with a 1 or 2. Remember that the comma (,) only displays as part of the formatting and is not stored as a character in the actual table.

The - Wildcard Character

Use the **-** (hyphen) wildcard character to match a range of characters included in the square brackets. Review the following example:

Field (Type and Size)	Example Criterion	Explanation of Example

EmpNum (ShortText, Size 3)	Like "1[1-5]*"	Finds records where the employee number starts with a 1, the second number is a 1 through 5, followed by any other number. Since the field size is 3, the results will be in 3-digit numbers

This criterion finds employees with numbers of 113, 127, and 152, since the first two numbers are 11 through 15. It will not find employees with number 235 or 811, since they do not start with a 1.

PAUSE & PRACTICE: ACCESS 3-1

For this Pause & Practice, you use *Design* view to create three queries for Placer Hills Real Estate.

File Needed: ***PlacerHills-03.accdb*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Name: ***[your initials] PP A3-1.accdb***

1. Open the ***PlacerHills-03*** database file. If a security risk message displays, click the **X** to close the message.
2. Save a new copy of your database as [your initials] PP A3-1.
3. Enable content in the database.
4. Create a new query in *Design* view.
    a. Click the **Query Design** button [*Create* tab, *Queries* group] to open the *Query Design* window and the *Add Tables* task pane.
    b. Select the **Agents** table, in the *Add Tables* task pane, if needed.
    c. Press and hold the **Shift** key, select the **Listings** table, and click the **Add Selected Tables** button.
    d. Click the **X** in the right corner of the *Add Tables* task pane to close it.
    e. Right-click inside each table in the *Query Design* window to open the context menu and select **Size to Fit** to increase the size and display all of the fields.
    f. Double-click the **ListingID** field from the *Listings* table in the *Query Design* window. The field is added to the first empty column in the query design grid.
    g. Double-click the **Address** field to add it into the query design grid.
    h. Continue adding the following fields into the query design grid: **City**, **ListPrice**, **SqFt**, **Beds**, **Baths**, **Garage**, **FirstName**, **LastName** and **Phone**. Note that the last three fields come from the *Agents* table. The completed query should look similar to **Figure 3-24**.

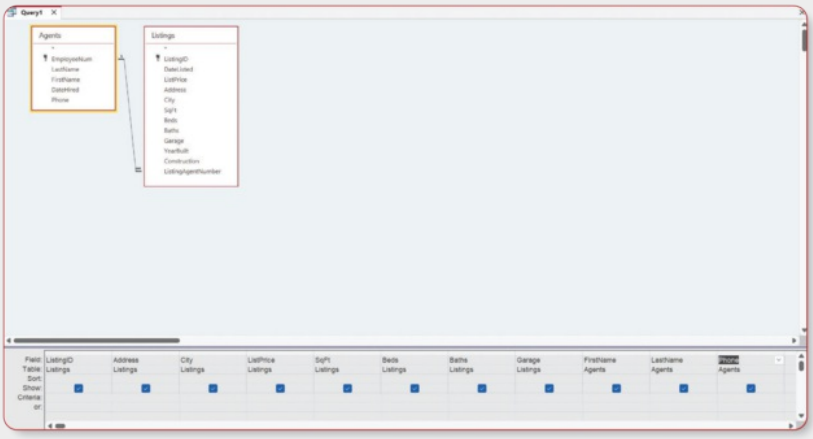


FIGURE 3-24 Completed query design

5. Click the **Run** button [*Query Design* tab, *Results* group] to run the query. The query should open in *Datasheet* view and display 57 records.
6. Click the **View** button [*Home* tab, *Views* group] and select the **Design View** option to switch back to *Design* view.
7. Save the query.
   a. Click the **Save** button [*File* tab].
   b. Type ShowAllListings in the *Query Name* box.
   c. Click **OK**. The query name displays in the *Navigation Pane* in the *Queries* group.
8. Add a criterion to the query to find all listings in Roseville.
   a. Type Roseville in the **Criteria** row cell of the *City* field. When you enter criterion into a *Short Text* or *Long Text* field, you can either enter quotation marks around the criterion, or if you omit the quotation marks, Access automatically enters them for you.
   b. Tab out of that field. Notice that Access automatically puts quotation marks around the text criteria (**Figure 3-25**).

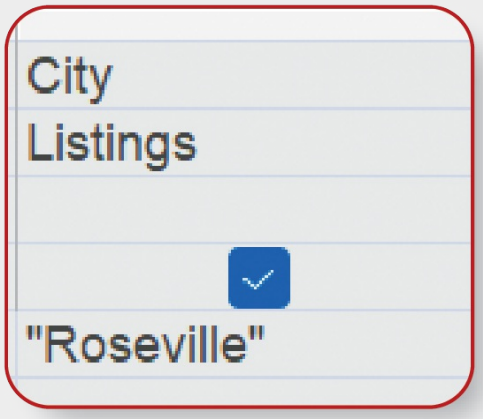


FIGURE 3-25 Query criterion

9. Click the **Run** button [*Query Design* tab, *Results* group] to run the query. The query should open in *Datasheet* view and display the 11 listings located in Roseville (**Figure 3-26**).



ListingID	Address	City	List Price	SqFt	Beds	Baths	Garage	LastName	Phone
10024	1917 Oak Crest Drive	Roseville	$1,189,900.00	3397	4	4	3 Car Attached	Walters	(916) 555-1679
10027	2128 Wedgewood	Roseville	$335,000.00	1184	3	2	1 Car Detached	Weatherby	(916) 987-3756
10030	1720 Grey Owl Circle	Roseville	$429,000.00	2182	3	2	3 Car Attached	Bui	(530) 648-7689
10031	2024 Brixham	Roseville	$419,900.00	2385	3	3	2 Car Attached	Duarte	(916) 744-1614
10049	1773 Melanzane Drive	Roseville	$643,900.00	4390	4	5	3 Car Attached	Weatherby	(916) 987-3756
10055	954 Court Street	Roseville	$1,519,000.00	2580	3	3	2 Car Attached	Weatherby	(916) 987-3756
10060	1110 Kimberly Court	Roseville	$2,475,000.00	3765	4	4	3 Car Detached	Weatherby	(916) 987-3756
10080	1089 Marseille Lane	Roseville	$315,900.00	1645	2	2	2 Car Attached	Bui	(530) 648-7689
10081	1520 Arrowwood Lane	Roseville	$311,750.00	2370	4	3	3 Car Attached	Walters	(916) 555-1679
10110	227 Balsam Creek	Roseville	$659,000.00	1976	4	2	1 Car Detached	Burgess	(530) 278-4699
10117	1924 Wildwood Way	Roseville	$289,900.00	1676	3	3	2 Car Attached	Chung	(916) 823-6940

FIGURE 3-26 Query results for listings in Roseville

10. Save a copy of this query.
    a. Click the **Save As** button [*File* tab].
    b. Select the **Save Object As** button in the *File Types* area and then click the **Save As** button. Access suggests the new query name of *Copy of ShowAllListings*.
    c. Type ListingsInRoseville in the *Save 'ShowAllListings' to* box.
    d. Click **OK**. The two queries now display in the *Navigation Pane* in the *Queries* group.
    e. Close the query.
11. Right-click the **ShowAllListings** query name in the *Navigation Pane* and select **Design View** from the context menu to open the query.
12. Type Like "*Attached" in the *Criteria* row cell of the *Garage* field. This criterion will find all listings that have an attached garage, no matter how many cars.
13. Run the query. Your results should display 37 listings that have an attached garage.
14. Save a copy of the query using the name ListingsWithAttachedGarage.
15. Close the query.
16. Close the database.

SLO 3.4

Controlling the Display of Query Results

Access provides a variety of options to help control the way query results display. For example, you may wish to apply additional filtering to the query results or have the results display in a sorted order. Or you may need to include a field in a query to apply a criterion, but you don't want that field to display in the results. At other times, a query may show duplicate records, and you want to show only records that contain unique values. You may also want to format the fields that display in the query results. This section describes ways to control the display of query results.

Filter Data in a Query

As you have learned, adding criteria to a query retrieves only the records that meet that criteria. If you have criteria that changes frequently, you may want to apply a filter to the query results instead of changing the query criteria. While a filter is not as powerful as adding criteria to a query, it can quickly limit the results that display. Recall in **SLO 1.6: Using Search, Sort, and Filter Tools to Find Records in a Table**, you learned to use the filter functions to temporarily limit the records that displayed in *Datasheet* view of a table. Use those same skills to display a temporary subset of the query results.

To filter a query, first open the query in *Datasheet* view. Then select the type of filter to use. Remember that after a filter is applied, the filter status message displays *Filtered* in the *Navigation* bar.

Create a Filter by Selection

Use *Filter by Selection* to display only the records that match the value in the fields you have selected.

To *Filter by Selection*, click the cell in the query results that contains the value you wish to filter. Next, click the **Selection** button in *the Sort & Filter* group on the *Home* tab and select the desired filter option from the drop-down list. Recall that the available options depend on the data type of the field and what criterion is selected.

Create a Text Filter, Number Filter, or Date Filter

Use a *Text*, *Number*, or *Date Filter* to display the records in your query that match the search criteria that you enter. These filters provide more options than *Filter by Selection*.

HOW TO: Filter Data Using a Text, Number, or Date Filter

1. Click the **drop-down arrow** to the right of the field name you wish to filter.
2. Select **Text Filters** on the drop-down list (Figure 3-27).

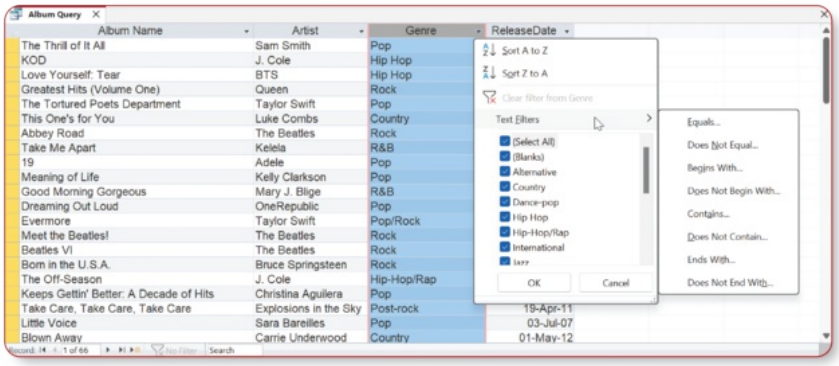


FIGURE 3-27 ***Filter*** **drop-down list**

- The filter name in the drop-down list is determined by the type of field [Text, Number or Date] you are filtering.
- The available filter options display and change based on the type of field.

3. Select the desired filter option on the drop-down list to open the *Custom Filter* dialog box.
4. Type the word or value you wish to filter.
5. Click **OK**.

Create Compound Filter Criteria

Use *Compound criteria* to combine more than one search value. This filter starts the same as a *Text*, *Number* or *Date Filter*, but instead of selecting one of those options (see Figure 3-27), you select choices from the check boxes displayed in the drop-down list.

To apply *"OR" Compound criteria*, click the **drop-down arrow** to the right of the field name you wish to filter. Click the **(Select All)** check box to clear all of the check boxes and then click all of the check boxes containing the desired criteria. Click **OK** to complete the filter.

To apply *"AND" Compound criteria*, click the **drop-down arrow** to the right of the first field name

you wish to filter. Click the **(Select All)** check box to clear all of the check boxes and then click all of the check boxes containing the desired criteria. Click **OK** to complete the filter. Then repeat these steps on the additional fields you wish to filter.

MORE INFO

To remove filter criteria from a query, click the **Advanced** button [*Home* tab, *Sort & Filter* group] to open the drop-down list and then select the **Clear All Filters** option.

Unique Values Property

A well-designed database is structured to minimize redundant data. As a result, most queries display unique records in the results. However, sometimes, the structure of a particular query causes duplicated records to display.

For example, a music database may have two tables: one that stores information about each album owned and another that stores information about the songs that are on each album. The *Query* window showing those tables is displayed in **Figure 3-28**. As you know, it is possible for a song to appear on multiple albums. For example, "Crazy Little Thing Called Love" appears on two of Queen's albums, *The Game* and *Greatest Hits*.

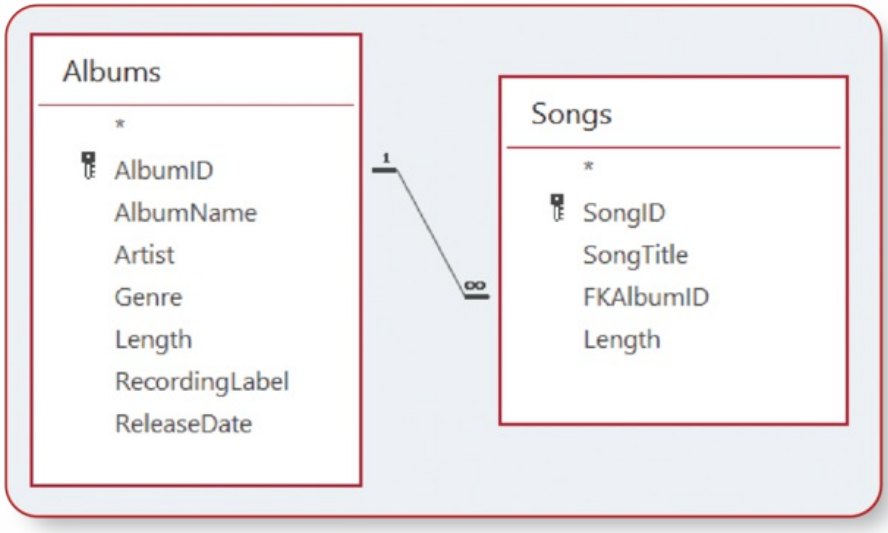


FIGURE 3-28 ***Query* window shows the relationship between the *Albums* and *Songs* tables**

If you write a query to find the names of all the songs in the database, you would see that song name appear once for each album that includes this song. In the query results, this would appear as duplicated data. You can use the ***Unique Values* property** to direct Access to only display

records that don't include duplicated values. Don't confuse the *Unique Values* property with the ***Unique Records*** property. *Unique Records* checks all the fields in a table (not just those included in the query).

HOW TO: Display Unique Values in Query Results

1. Open the query in *Design* view.
2. Click anywhere in the top half of the *Query Design* window to deselect any fields that are selected.
3. Click the **Property Sheet** button [*Query Design* tab, *Show/Hide* group] (**Figure 3-29**).

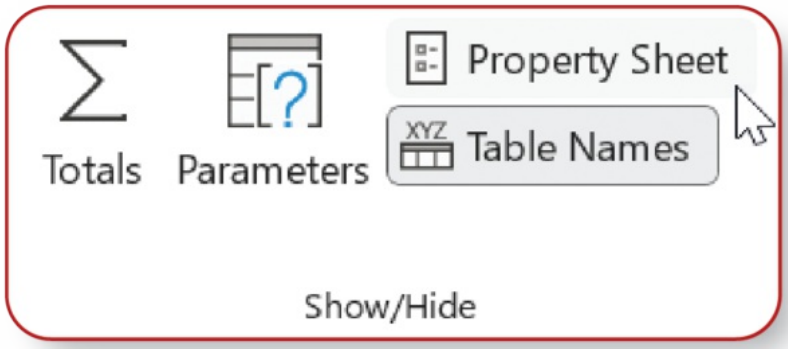


FIGURE 3-29 ***Show/Hide*** **group buttons**

- The *Property Sheet* for the query opens (**Figure 3-30**).

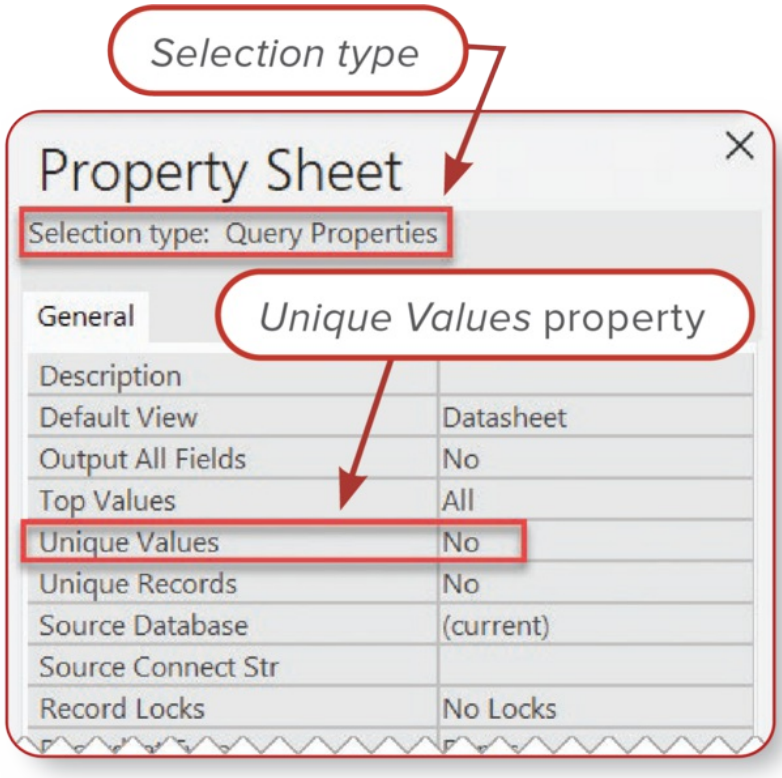


FIGURE 3-30 ***Property Sheet* of a query**

- In the *Show/Hide* group, the *Table Names* button is highlighted when the query design grid displays the *Table* row below the *Field* row. The *Table Names* button works as a toggle. Clicking it when it is highlighted removes the *Table* row from the query design grid.
- Verify that the *Selection type* in the *Property Sheet* displays *Query Properties*. If the *Selection type* displays *Field Properties*, you still had a field selected before opening the *Property Sheet* and you must repeat step 2.

4. Click the **Unique Values** property box and select **Yes**.
5. Close the *Property Sheet*.

ANOTHER WAY

Press the **F4** key, or the **Alt+Enter** keys, to open or close the *Property Sheet*.

The usefulness of the *Unique Values* property depends on the query structure. For example, if you run the query shown in **Figure 3-31** you see one record for every song in the database. Setting the *Unique Values* property to *Yes* does not reduce the number of records displayed, because

including the field of *AlbumName* creates unique records in the results (assuming the same *SongTitle* is not included on an album twice).



FIGURE 3-31 ***Unique Values*** **property has no impact when fields create unique records**

The query shown in **Figure 3-32** does not include the *AlbumName* field. Setting the *Unique Values* property to *Yes* on this query results in fewer records being displayed. With this query, "Crazy Little Thing Called Love" only appears one time in the query results.



FIGURE 3-32 **Not including the** ***AlbumName*** **field results in unique values**

Show Option for Query Fields

Most of the time, you want all of the fields placed into the query design grid to display in the query results. The check boxes on the **Show** row control whether a field is displayed. In a new query, all of the *Show* row check boxes are selected. Occasionally, you don't want a field to display because it would show unnecessary or duplicated values. The query shown in **Figure 3-33** displays all the songs that are on albums by "The Beatles".



FIGURE 3-33 ***Show*** **row check box for fields**

This query produces a datasheet like that shown in Figure 3-34. The *Artist* field is needed in the query because you included a criterion on that field to limit the records displayed to songs by "The Beatles". But displaying the *Artist* is not really necessary here, as you know that all of these songs are by "The Beatles".

Song Title	Artist
Come Together	The Beatles
Something	The Beatles
Maxwell's Silver Hammer	The Beatles
Oh! Darling	The Beatles
Octopus's Garden	The Beatles
I Want You (She's So Heavy)	The Beatles
Here Comes the Sun	The Beatles
Because	The Beatles
You Never Give Me Your Money	The Beatles
Sun King	The Beatles

FIGURE 3-34 **Query results**

- To hide a query field in the query results, deselect the **Show** row check box in the query design grid of your query (Figure 3-35).



FIGURE 3-35 Deselect the *Show* row check box

In order to determine if a query is working correctly, first run the query with all fields displayed so you can verify the accuracy of the query. Only after you are confident with the query design should you deselect the *Show* row check box of the appropriate fields.

Apply Sorting

Access can display the results of a query in sorted order. You can sort on one or more fields.

- To sort the results of a query, click the **Sort** row cell of the desired field.
- Click the **drop-down arrow** and select **Ascending** or **Descending** (Figure 3-36).

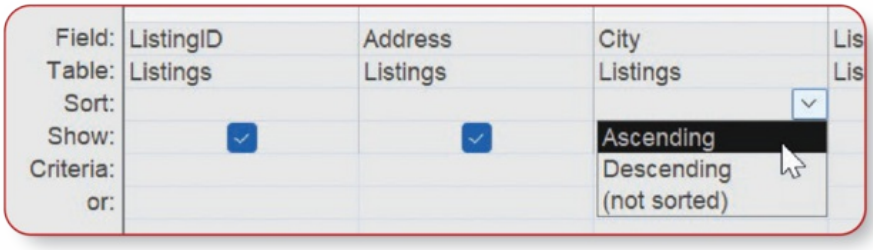


FIGURE 3-36 *Sort* option of a query

MORE INFO

To remove sorting from a field, click the **Sort** row cell, click the **drop-down arrow**, and select **(not sorted)**.

Access sorts data based on the order of the columns. If you are sorting on multiple fields, you need to decide the sorting order of the fields. For example, in a table containing a list of all properties for sale, a client may want the query results sorted by the *City*, *Construction*, and *SqFt* fields. Many possible combinations of sorted results are available in this instance. The two sort examples shown here use an *Ascending* sort order on each field.

Figure 3-37 shows results sorted first by *City*, next by *Construction*, and last by *SqFt*. The highlighted cells emphasize the impact of the sorting. Because *City* is the first sort field and alphabetically Auburn is the first city in the database, this results in all properties in Auburn appearing first. Within the "Auburn" properties, homes made of brick appear first. Finally, within the "Auburn" and "Brick" properties, the property with the smallest square footage appears at the top of the list.

ListingID	Address	City	Construction	SqFt
10042	131 Aeolia Drive	Auburn	Brick	1905
10045	12355 Krista Lane	Auburn	Brick	2234
10177	9030 Upper Valley Road	Auburn	Brick	2635
10040	3935 Cedar Mist Lane	Auburn	Frame	1056
10069	1255 Copperdale	Auburn	Frame	1456
10144	863 Holly Hill Drive	Auburn	Frame	2876
10043	1575 Oak Ridge Way	Auburn	Stone	2266
10150	423 Welterwood	Lincoln	Brick	1482
10046	1735 Andover Lane	Lincoln	Brick	1552
10052	1096 Kinnerly Lane	Lincoln	Brick	1948
10074	1827 Delouch Drive	Lincoln	Brick	2575
10072	406 E Street	Lincoln	Frame	1100
10062	2811 Cardinal Drive	Lincoln	Frame	2061

FIGURE 3-37 Records sorted by the *City*, *Construction*, and *SqFt* fields

Figure 3-38 is sorted differently. In this example, the query is sorted first by *Construction*, next by *City*, and last by *SqFt*. In these results all properties with brick construction appear first. Within the "Brick" properties, those in Auburn appear first. Finally, within the "Brick" and "Auburn" properties, the smallest square footage appears at the top of the list.

ListingID	Address	Construction	City	SqFt
10042	131 Aeolia Drive	Brick	Auburn	1905
10045	12355 Krista Lane	Brick	Auburn	2234
10177	9030 Upper Valley Road	Brick	Auburn	2635
10150	423 Welterwood	Brick	Lincoln	1482
10046	1735 Andover Lane	Brick	Lincoln	1552
10052	1096 Kinnerly Lane	Brick	Lincoln	1948
10074	1827 Delouch Drive	Brick	Lincoln	2575
10073	736 Oakdale	Brick	Newcastle	766
10166	1852 Wedgewood	Brick	Newcastle	2234
10031	2024 Brixham	Brick	Roseville	2385
10024	1917 Oak Crest Drive	Brick	Roseville	3397
10044	446 Manzanita Way	Brick	Weimer	1885
10040	3935 Cedar Mist Lane	Frame	Auburn	1056
10069	1255 Copperdale	Frame	Auburn	1456
10144	863 Holly Hill Drive	Frame	Auburn	2876
10072	406 E Street	Frame	Lincoln	1100
10062	2811 Cardinal Drive	Frame	Lincoln	2061

FIGURE 3-38 **Records sorted by the *Construction*, *City*, and *SqFt* fields**

HOW TO: Sort a Query Using Multiple Fields

1. Add the fields into the query design grid from left to right based on the desired sort order.
2. Rearrange the column order by moving a column if the fields are already placed in the query design grid.
   - Select the column to be moved. The column turns black.
   - Position the pointer in the small cell above the field name. Click and hold the pointer. A black vertical line appears to the left of the selected column.
   - Drag the pointer to the new location. The line moves with you to indicate the location where the column will be moved (**Figure 3-39**).

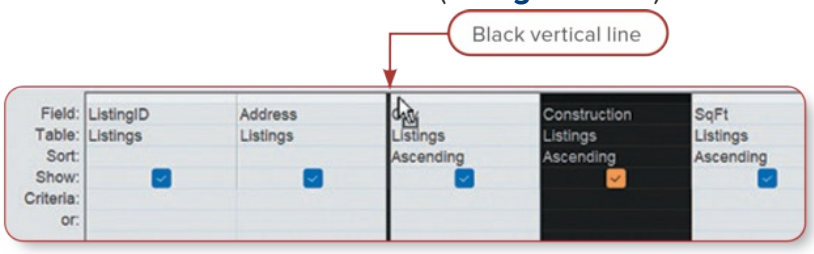


FIGURE 3-39 **The black vertical line indicates the new**

location of the column



- Release the pointer to complete the move.

3. Click the **Sort** row cell, click the **drop-down arrow**, and select **Ascending** or **Descending** for each of the sort fields.

MORE INFO

When writing queries, you may need to combine sorting and show options. For example, you may wish to have the first sort field display in a different position in the query results. In this case, you would include the field twice. The first would be included to the left of the query to designate the *Sort* selection and to deselect the *Show* box. The same field would be added a second time in the desired position to show the value.

Format Query Fields

As you have seen, the results of a query display in *Datasheet* view using the same formatting that has been applied to the table fields. To make your query results more readable, you can change the default formatting of the query results. In the "Refine the Datasheet Layout" section in **SLO 1.5: Exploring Datasheet View**, you learned many ways to adjust the display settings of a table in *Datasheet* view. When viewing the query results in *Datasheet* view, use those same skills to change the default format of your query results. For example, you could apply gridlines, change the font or font size, or adjust the row colors. Recall that the options are found in the *Text Formatting* group on the *Home* tab. Remember that these modifications apply to all the records in the query results.

Additionally, a few field properties can be set to change the way a field displays in a query from how it displays while viewing the table records. For example, change the *Format* property of a date field to display differently in a query or change the *Caption* property to display a different field caption.

HOW TO: Set Properties of a Query Field

1. Select **Design** view of the query.
2. Click the **Field** row cell of the desired field.
3. Click the **Property Sheet** button [*Query Design* tab, *Show/Hide* group].
   - The *Property Sheet* for the query field opens (**Figure 3-40**).

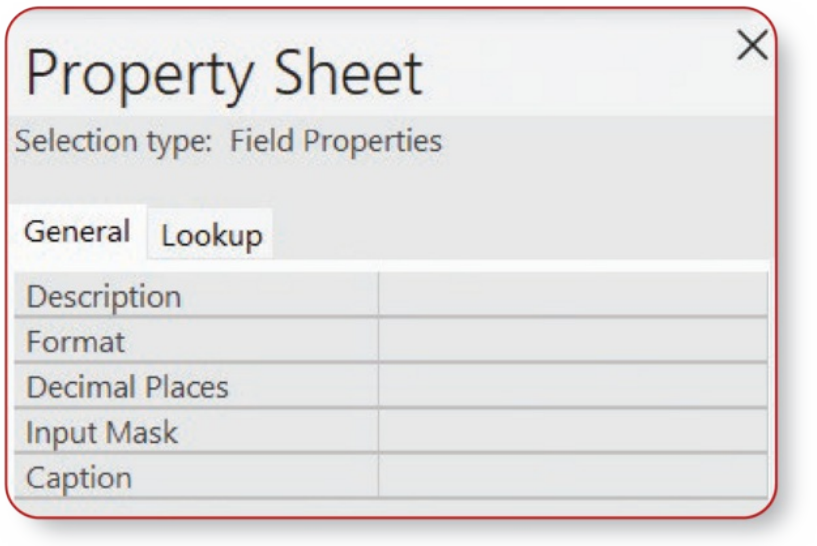


FIGURE 3-40 ***Property Sheet*** **of a query field**

- The available properties vary by the data type of the field.

4. Click the desired property box and either select the new setting or type the new value.

SLO 3.5

Defining Multiple Criteria in a Query

The query examples in **SLO 3.3: Adding a Criterion to a Query** created queries that used at most one condition or criterion. Many times, the questions that you want to ask about the data are more complex and require the use of compound criteria. ***Compound criteria*** combine more than one criterion using the *AND* or *OR* logical operators and enable you to ask questions using multiple conditions.

The AND Operator

The ***AND* logical operator** requires that a record meet all of the individual conditions specified in order to be included in the results. Use an *AND* condition in one field or across multiple fields.

HOW TO: Use AND Compound Criteria in Multiple Fields

1. Click the **Criteria** row cell of the first field.
2. Type the text of the desired criterion expression.
3. Click the **Criteria** row cell of the second field.
4. Type the text of the second desired criterion expression.
5. Continue entering the criterion in the remaining fields.
   - The query shown in **Figure 3-41** finds the properties in Auburn that have a list price of less than $350,000 and have more than 2,000 square feet.

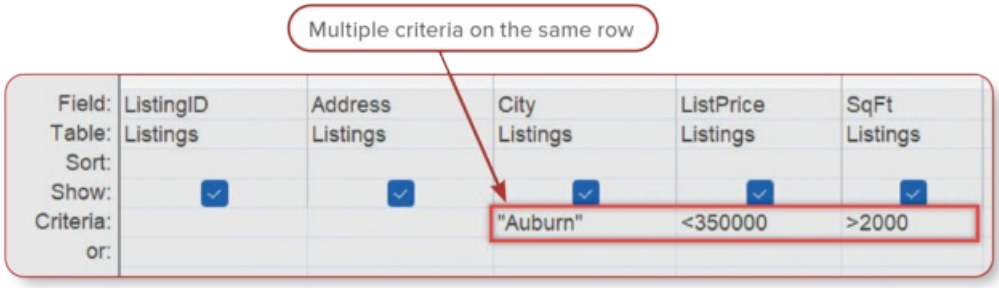


FIGURE 3-41 Query criteria entered on the same row creates an *AND* condition

- Values entered in cells on the same *Criteria* row of the query design grid create an *AND* condition.

Occasionally, you need to use the *AND* operator in a single field. In these cases, the *AND* operator is typically combined with another comparison or special operator such as *Between*, > or <. Remember that all criterion included together on a row are treated as *AND* conditions.

HOW TO: Use AND Compound Criteria in a Single Field

1. Click the **Criteria** row cell of the field.
2. Type the text of the desired condition, including the word "AND" between each part of the condition.
   - The query shown in **Figure 3-42** finds listings with a square footage that is greater than or equal to 2,000 square feet and less than or equal to 3,000 square feet.

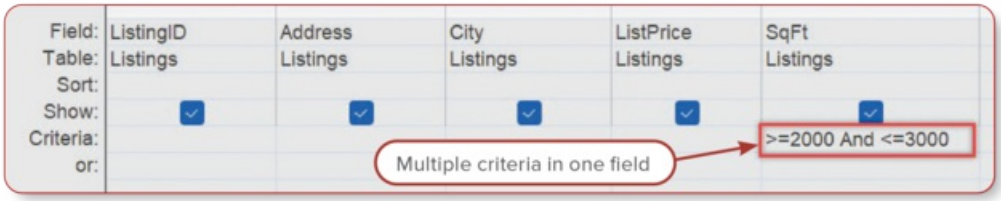


FIGURE 3-42 Use the word "AND" between compound critieria in the same field

   - This condition could also be written using the *Between* operator. The condition in **Figure 3-43** uses *Between* and returns the same results as the condition shown in **Figure 3-42** which uses the **>=** and **<=** operators.

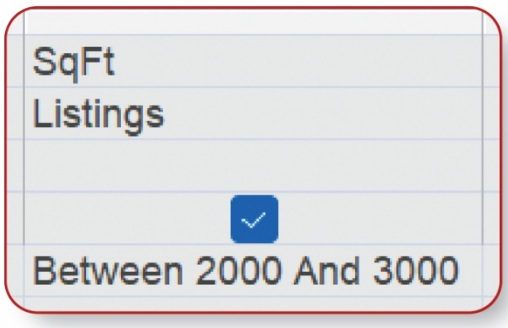


FIGURE 3-43 *Between* operator

MORE INFO

The case used to write “AND” has no impact on the query. “AND” or “And” or “and” all evaluate the same.

The OR Operator

The ***OR*** logical operator requires a record to meet at least one of the individual conditions specified in order to be included in the results. With the *OR* operator you can specify multiple criterion in one field, or you can use compound criteria across several fields.

HOW TO: Use OR Compound Criteria in Multiple Fields

1. Click the **Criteria** row cell of the first field.
2. Type the text of the desired criterion expression.
3. Click the **or** row cell of the second field.
4. Type the text of the second desired criterion expression.
5. Continue entering criterion on the remaining fields, each time entering the value on the row below the last row you entered a value.
   - The query shown in **Figure 3-44** finds the properties that are in Auburn or have a list price of less than $300,000 or have more than 2,000 square feet.



FIGURE 3-44 Query criteria entered on different rows create an *OR* condition

Entering multiple criteria in the same field is an *OR* condition. The returned records match the first value *or* the second value *or* the third value, and so on.

HOW TO: Use OR Compound Criteria in a Single Field

1. Click the **Criteria** row cell of the first field.
2. Type the text of the desired criterion expression.
3. Click the **or** row cell of the same field.
4. Type the text of the second desired criterion expression.
5. Continue entering the additional criterion in the field, each time entering the value on the next row.
   - The query shown in **Figure 3-45** finds the properties that are in Auburn or Roseville.



FIGURE 3-45 Place compound critieria in separate rows of the same field to create an *OR* condition

   - If you save, close, and then reopen this query, Access will have changed the criteria to read “Auburn” Or “Roseville” in the one cell on the *Criteria* row instead of in two cells as shown in **Figure 3-45**. If the query only has this type of criteria, you can type the *OR* criteria directly in one cell or on separate rows.

Combine the AND and OR Operators

You can create a query that combines both the *AND* and *OR* operators. These types of conditions can be logically complex. Keep in mind that all criterion included on a row are treated as *AND* conditions, while criterion entered on separate rows are treated as *OR* conditions.

Compare the queries in **Figure 3-46** and **Figure 3-47**. The query in **Figure 3-46** returns all properties in Auburn that have a list price less than $350,000 and have more than 2,000 square feet or any property in Roseville, no matter the list price or square footage. The *ListPrice* and *SqFt* criteria are only applied to the city of Auburn, because they are only included on the row with the *City* criterion for Auburn.



FIGURE 3-46 The *ListPrice* and *SqFt* criteria only apply to the city of Auburn

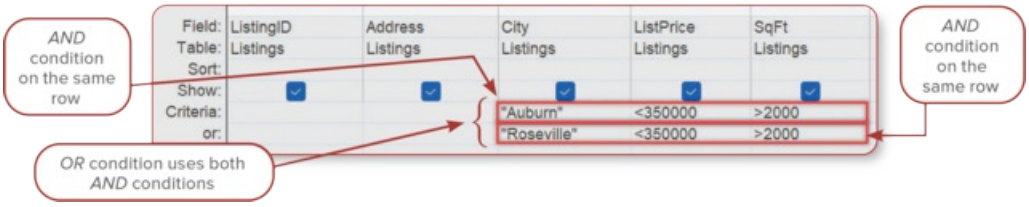


FIGURE 3-47 The *ListPrice* and *SqFt* criteria apply to both cities

The query in Figure 3-47 returns all properties in Auburn that have a list price less than $350,000 and have more than 2,000 square feet, or all properties in Roseville, that have a list price less than $350,000 and have more than 2,000 square feet. If you want to have the *ListPrice* and *SqFt* criteria apply to both cities, you need to repeat the criteria on both rows.

Finally, consider the query in Figure 3-48. This query returns all properties in Auburn that have a list price less than $350,000, or all properties in Roseville no matter their list prices or square footages, or all properties in Lincoln with square footage between 2,000 and 3,000 square feet.

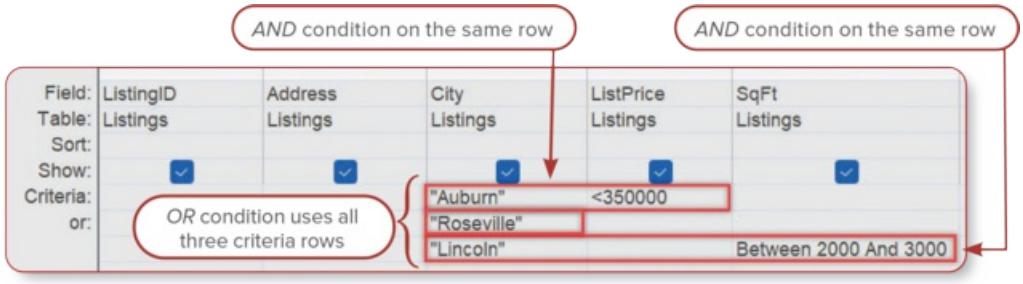


FIGURE 3-48 The *ListPrice* criteria apply to Auburn and the *SqFt* criteria apply to Lincoln

As these examples illustrate, compound conditions can become very complex. Spend the time to understand what you need the query to do before you attempt to build the query in Access. Now that you have learned about compound criteria, you can write more complex criteria. For example, in a music database you can now write a query to find songs where the word “I” is at the beginning, end, or in the middle of the title. Using the compound criteria of *Like "I *" Or Like "* I *" Or Like "* I "* would find songs that begin, contain, or end with the word “I”.

COPILOT/GENERATIVE AI BEST PRACTICES

Compound criteria help you write complex queries. Ask *Copilot* to show you an example of an Access query using compound criteria. To get the most helpful responses, your prompt should ask for the example to use Access Query Design view. To further narrow the response, provide details about the specific tables in your database.

PAUSE & PRACTICE: ACCESS 3-2

For this Pause & Practice, you use *Design* view to create two additional queries for Placer Hills Real Estate.

File Needed: ***[your initials] PP A3-1.accdb***

Completed Project File Name: ***[your initials] PP A3-2.accdb***

1. Open the ***[your initials] PP A3-1*** database completed in ***Pause & Practice 3-1***.
2. Save a new copy of your database as [your initials] PP A3-2.
3. Enable content in the database.
4. Create a new query in *Design* view. The office manager wants to find all the listings by agent Millie Bui, sorted in ascending order by city and list price.
    a. Click the **Query Design** button [*Create* tab, *Queries* group] to open the *Query Design* window and the *Add Tables* task pane.
    b. Double-click the **Agents** table, in the *Add Tables* task pane, to add it to the *Query Design* window.
    c. Double-click the **Listings** table to add it to the *Query Design* window.
    d. Click the **X** in the right corner of the *Add Tables* task pane to close it.
    e. Right-click inside each table to open the context menu and select **Size to Fit** to increase the size and display all of the fields.
    f. Double-click the **FirstName** field from the *Agents* table in the *Query Design* window. The field is added to the first empty column in the query design grid.
    g. Double-click the **LastName** field to add it into the query design grid.
    h. Continue adding the following fields into the query design grid: **ListingID**, **SqFt**, **Address**, **City** and **ListPrice**.
5. Click the **Save** button and save the query as ListingsByMillieBui.
6. Add criteria to the query.
    a. Type Millie in the *Criteria* row cell of the *FirstName* field.
    b. Type Bui in the *Criteria* row cell of the *LastName* field. The *IntelliSense* feature in Access may suggest the value of “BuildCriteria” while you are typing. Press the **Esc** key to hide the list and then tab out of the

field.

c. Click the **Run** button [*Query Design* tab, *Results* group] to execute the query. The query should open in *Datasheet* view and display 10 records.

d. Click the **View** button [*Home* tab, *Views* group] and select the **Design View** option to switch back to *Design* view of the query.

7. Edit the query to add sorting, modify show options, and format query fields.

a. Click the **Sort** row cell for the *City* field, click the **drop-down arrow**, and select **Ascending**.

b. Click the **Sort** row cell for the *ListPrice* field, click the **drop-down arrow**, and select **Ascending**.

c. Deselect the **Show** row check box for the *FirstName* field.

d. Deselect the **Show** row check box for the *LastName* field. Because you tested the query in step 6, you know that it only shows Millie's listings, and it is not necessary to display that information.

e. Click the **Property Sheet** button [*Query Design* tab, *Show/Hide* group] to open the *Property Sheet*.

f. Click the **Field** row cell of the *ListPrice* field.

g. Click the **drop-down arrow** in the *Decimal Places* property box and select **0**.

h. Close the *Property Sheet* window.

i. Save the changes made to the query. The query should look similar to **Figure 3-49**.

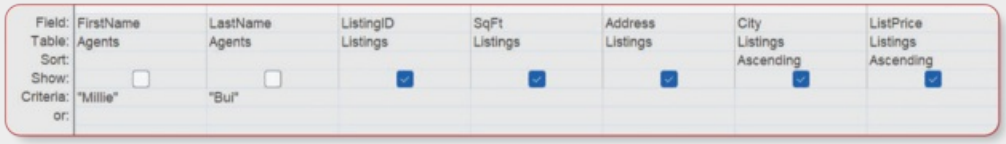


FIGURE 3-49 ***Design* view of the query criteria**

j. Click the **Run** button [*Query Design* tab, *Results* group] to execute the query. The query should open in *Datasheet* view and look similar to **Figure 3-50**.

ListingID	SqFt	Address	City	List Price
10177	2635	9030 Upper Valley Road	Auburn	$363,000
10040	1056	3935 Cedar Mist Lane	Auburn	$412,000
10052	1948	1096 Kinnerly Lane	Lincoln	$329,500
10022	2755	525 Riverdale	Lincoln	$374,900
10180	2498	1287 Green Ravine Drive	Lincoln	$382,700
10077	3086	2286 Kingfisher Lane	Lincoln	$649,900
10095	2104	3115 Capistrano Way	Rocklin	$319,900
10033	1840	4336 Newland Heights Drive	Rocklin	$347,500
10080	1645	1089 Marseille Lane	Roseville	$315,900
10030	2182	1720 Grey Owl Circle	Roseville	$429,000

Record: 1 of 10 No Filter Search

FIGURE 3-50 ***Datasheet* view of the *ListingsByMillieBui* query results**

k. Close the query.

8. Create a new query in *Design* view to help an agent locate the potential properties that meet the requirements of her client.

a. Click the **Query Design** button [*Create* tab, *Queries* group] to open the *Query Design* window and the *Add Tables* task pane.

b. Double-click the **Listings** table to add it to the *Query Design* window.

c. Click the **X** in the right corner of the *Add Tables* task pane to close it.

d. Right-click inside the *Listings* table to open the context menu and select **Size to Fit**.

e. Double-click the **ListingID** field to add it into the query design grid.

f. Continue adding the following fields into the query design grid: **Address**, **City**, **ListPrice**, **SqFt**, **Beds**, **Baths**, and **Garage**.

9. Save the query as ListingsForBrandonBuchanan.

10. Add criteria to the query. A client, Brandon Buchanan, is looking for homes in Rocklin or Roseville. The properties must have at least three bedrooms and at least two bathrooms and at least 1,800 square feet. Properties must have a garage, but it doesn't matter if it is attached or detached. In general, the list prices shouldn't exceed $550,000. However, if the house is in Rocklin, Brandon is willing to spend up to $600,000.

a. Type Rocklin in the *Criteria* row cell of the *City* field.

b. Type <=600000 in the *Criteria* row cell of the *ListPrice* field.

c. Type >=1800 in the *Criteria* row cell of the *SqFt* field, >=3 in the *Criteria* row cell of the *Beds* field, >=2 in the *Criteria* row cell of the *Baths* field, and Like "??Car*" in the *Criteria* row cell of the *Garage* field. Note that because the criterion for the *Garage* field requires two characters before "Car" it will exclude Carport from the results.

d. Type Roseville in the *or* row cell of the *City* field.

e. Type <=550000 in the *or* row cell of the *ListPrice* field.

f. Type >=1800 in the *or* row cell of the *SqFt* field, >=3 in the *or* row cell of the *Beds* field, >=2 in the *or* row cell of the *Baths* field, and Like "??Car*" in the *or* row cell of the *Garage* field. The completed criteria in the query design grid should match **Figure 3-51**.

Field:	ListingID	Address	City	ListPrice	SqFt	Beds	Baths	Garage
Table:	Listings	Listings	Listings	Listings	Listings	Listings	Listings	Listings
Sort:			Ascending	Descending				
Show:	☑	☑	☑	☑	☑	☑	☑	☑
Criteria:			"Rocklin"	<=600000	>=1800	>=3	>=2	Like "??Car*"
or:			"Roseville"	<=550000	>=1800	>=3	>=2	Like "??Car*"

FIGURE 3-51 Completed query criteria in the query design grid

11. Add sorting to the query.

a. Select **Ascending** in the **Sort** row cell for the *City* field.

b. Select **Descending** in the **Sort** row cell of the *ListPrice* field.

12. Save the changes to the query and click the **Run** button [*Query Design* tab, *Results* group] to execute the query. The query should open in *Datasheet* view and display the 9 records shown in **Figure 3-52**.

ListingsForBrandonBuchanan

ListingID	Address	City	List Price	SqFt	Beds	Baths	Garage
10145	5309 Clipper Road	Rocklin	$556,800.00	3187	4	3	3 Car Attached
10176	813 Spotted Pony Lane	Rocklin	$553,800.00	3467	4	4	3 Car Attached
10165	304 Copper Creek	Rocklin	$525,000.00	2100	4	2	2 Car Attached
10047	858 Spotted Pony Lane	Rocklin	$503,500.00	3328	4	4	3 Car Tandem
10025	3420 Milburn Street	Rocklin	$439,000.00	1900	4	3	3 Car Attached
10079	2660 Plumbago Court	Rocklin	$316,000.00	2034	4	3	2 Car Attached
10030	1720 Grey Owl Circle	Roseville	$429,000.00	2182	3	2	3 Car Attached
10031	2024 Brixham	Roseville	$419,900.00	2385	3	3	2 Car Attached
10081	1520 Arrowwood Lane	Roseville	$311,750.00	2370	4	3	3 Car Attached
0			$0.00	0	0	0	

Record: 1 of 9 No Filter Search

FIGURE 3-52 ***Datasheet*** **view of the** ***ListingsForBrandonBuchanan*** **query results**

13. Close the query.
14. Close the database.

SLO 3.6

Creating and Using a Simple Parameter Query

The query examples covered so far in this chapter use criteria that has been entered into, or hardcoded into, the query. In **SLO 3.3: Adding a Criterion to a Query**, you saw a query that displayed all the property listings in Roseville—those that have a *City* listed as "Roseville". The criteria property box for that query had the value of "Roseville". What if you wanted to locate all the properties in Lincoln or all the properties in Auburn? You could apply different filters to display the results. Or you could create a separate query for each situation and enter the specific criteria value into each query. But these options are not very efficient.

It is more efficient to create a parameter query. A ***parameter query*** asks you to enter the specific criteria value when you run the query. This enables you to write one query but use it for many different values of the criteria. **Figure 3-53** is an example of the *Enter Parameter Value* dialog box for the *City* field. When you see this box, enter the specific value, such as "Roseville" or "Lincoln", click **OK**, and the desired results are shown.

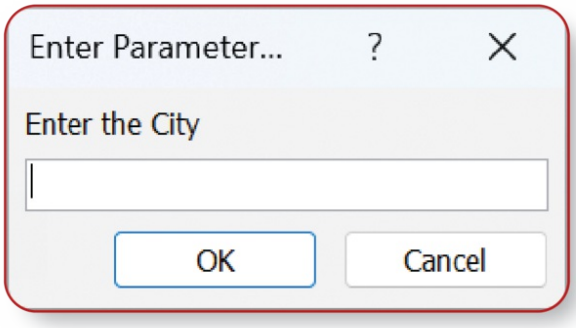


FIGURE 3-53 ***Enter Parameter Value*** **dialog box**

If you enter a value that is not located in the database, the query returns an empty datasheet.

To create a parameter query, you follow the same steps you learned to create a query with criteria. However, instead of entering a specific value for the criteria, you need to format the criteria expression so that Access prompts you for a ***parameter value***.

Create a Parameter

Parameters must follow a few simple rules.

- Your parameter is the specific phrase that you want to display in the dialog box, for example "Enter the City". Be sure to enter a phrase that gives clear instructions about the kind of information to enter into the dialog box, along with any formatting instructions.
- Enter your parameter into the *Criteria* row cell for the desired field.
- Enclose the parameter within square brackets. In the *Use Wildcards in a Criteria* section in **SLO 3.3 Adding a Criterion to a Query** you learned to use square brackets as a wildcard in query criterion. Recall that the square brackets had to be enclosed within quotation marks. When used to create a parameter, do not enclose the brackets within quotation marks.
- You can include a comparison operator, like **<** or **>=**, before the parameter.

HOW TO: Create a Parameter

1. Select **Design** view of the query, and click the **Criteria** row cell of the desired field.
2. Type the parameter. An example parameter value is shown in **Figure 3-54**. You can use the *Expression Builder* to enter the parameter. This may be helpful when the parameter contains a longer phrase that is harder to enter into the *Criteria* row cell.



FIGURE 3-54 **Sample parameter in the *Criteria* cell**

3. Click **Run** [*Query Design* tab, *Results* group] to execute the query. The *Enter Parameter Value* dialog box displays. Either press **Cancel** or enter a value and click **OK**.

MORE INFO

The actual phrase entered inside the square brackets has no impact on how the parameter and the query function. *[Enter the City]*, *[ ]* and *[City?]* all collect the same information, but the first option is more user-friendly when it appears in the dialog box.

You can include more than one parameter in the same field if you need to enter multiple values. For example, a client at Placer Hills Real Estate is looking for properties between 1,800 and 2,500 square feet. You already learned how to use the *Between* operator to write a compound criteria expression. To create a more flexible query, you can incorporate multiple parameters with the *Between* operator.

HOW TO: Use Multiple Parameters in a Field

1. Select **Design** view of the query and click the **Criteria** row cell of the desired field.
2. Right-click and select **Zoom**, or press **Shift+F2**, to open the *Zoom* box.
3. Type the criteria expression including the parameters. An example expression using two parameters is shown in **Figure 3-55**.

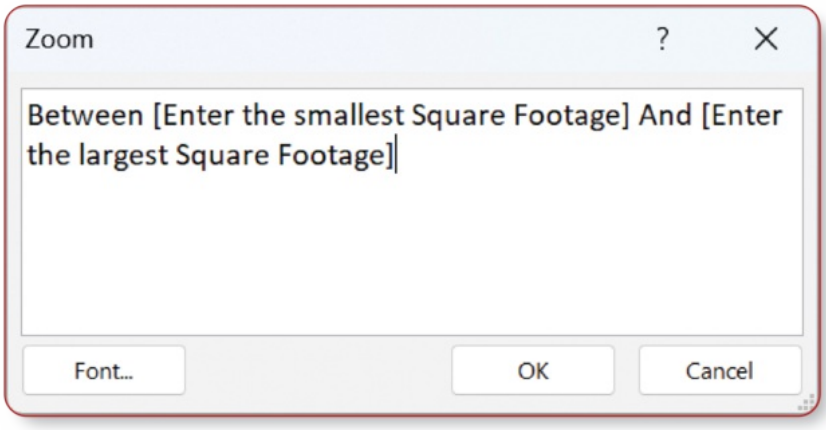


FIGURE 3-55 Example expression that contains two parameters in a field

ANOTHER WAY

The *Zoom* box is an alternative to the *Expression Builder*. It provides a larger area in which to enter an expression, but it does not show any of the *Expression Elements* displayed in the lower portion of the *Expression Builder*.

4. Click **OK**.
5. Click **Run** [*Query Design* tab, *Results* group] to execute the query. The first *Enter*

Parameter Value dialog box displays (Figure 3-56).

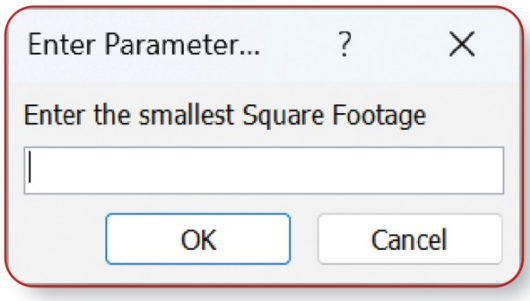


FIGURE 3-56 First *Enter Parameter Value* dialog box

6. Enter the value and click **OK**. The second *Enter Parameter Value* dialog box displays (Figure 3-57).

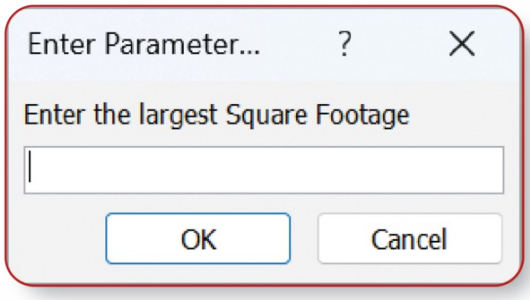


FIGURE 3-57 Second *Enter Parameter Value* dialog box

7. Enter the value and click **OK**. After all the *Enter Parameter Value* dialog boxes have displayed, the query runs.

You can use parameters in more than one field in a query. For example, a realtor may want to locate the properties listed for sale in a specific city that have a list price less than a maximum dollar value. The realtor wants the query to prompt the user to specify the city and the maximum list price each time it runs. Figure 3-58 shows the query design grid for that query. When the query executes, the *Enter Parameter Value* dialog boxes display in the order that the fields are listed in the query. In this example, the *City* parameter displays before the *ListPrice* parameter. This example also includes the **<=** comparison operator with the *ListPrice* parameter.

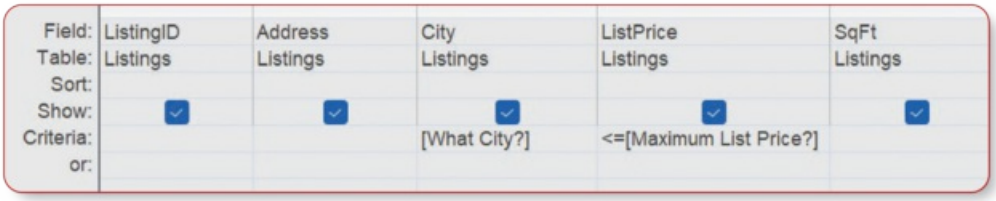


FIGURE 3-58 Query design grid with multiple parameters

The Parameter Data Type

The *Enter Parameter Value* dialog box accepts any type of input entered by the user. However, the data type of the field determines what is valid in terms of performing the actual comparison. Consider what happens when a letter is entered into the *Enter Parameter Value* dialog box of a field with a number data type. When Access executes the query, if the value entered into the dialog box doesn't match the data type of the field, by default Access displays the following message: "*The expression is typed incorrectly, or it is too complex to be evaluated. For example, a numeric expression may contain too many complicated elements. Try simplifying the expression by assigning parts of the expression to variables*."

The default error message, while absolutely correct in terms of content, may be confusing for a user. Also, it is problematic that even if you create multiple *Enter Parameter Value* dialog boxes, the message only shows once when the query is executed. The user doesn't know if he or she made only one mistake or several.

To make dialog boxes easier to understand, Access enables you to specify the data type that a parameter can accept. If you have specified a data type, and the user enters a value that doesn't match the data type, a more helpful error message displays (**Figure 3-59**).



FIGURE 3-59 Error message when the data type has been specified

If you specify the data type, Access also checks the data type when you click **OK** on the *Enter Parameter Value* dialog box. If the data type is not correct, after displaying the message box, Access returns you back to the *Enter Parameter Value* dialog box to re-enter an acceptable value.

HOW TO: Specify the Parameter Data Type

1. Click the **Parameters** button [*Query Design* tab, *Show/Hide* group] (**Figure 3-60**).

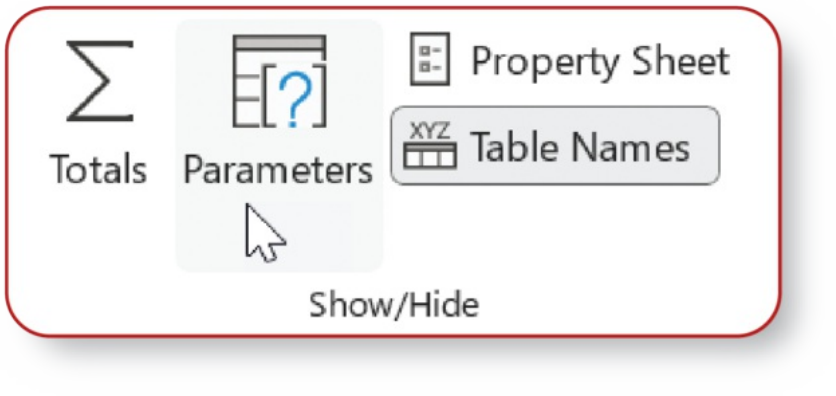


FIGURE 3-60 ***Parameters*** **button**

   - The *Query Parameters* dialog box opens.
   - Recall that the *Table Names* button is highlighted when the query design grid displays the *Table* row.
2. Click the first cell in the *Parameter* column.
3. Type the name of your parameter.
   - Make sure that you enter the text, including punctuation, exactly as it appears in the *Criteria* property box.
   - The square brackets around the text are optional.

MORE INFO

If the parameter name entered in the *Parameter* column in the *Query Parameters* dialog box does not match the parameter text in the *Criteria* row cell, Access still displays the *Enter Parameter Value* dialog box, but the query does not use the value entered because the parameters do not match.

4. Click the **Data Type** cell, click the **drop-down arrow**, and select the correct data type (**Figure 3-61**).

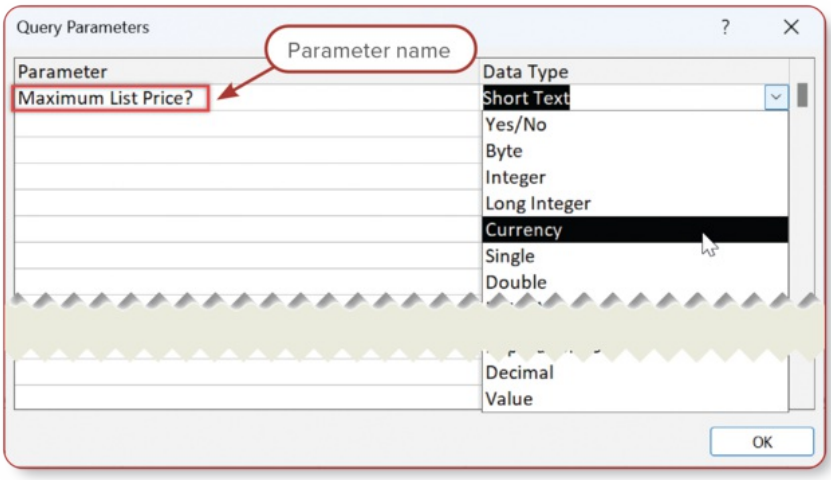


FIGURE 3-61 **Assign a data type to a parameter**

5. Enter additional parameters in the dialog box if needed.
6. Click **OK** when you are finished.

MORE INFO

You do not need to define a data type for all parameters. However, when the query executes, Access displays the *Enter Parameter Value* dialog box for each parameter listed in the *Query Parameters* dialog box first.

Use Wildcards in a Parameter Query

You can use the *Like* special operator and wildcards in a parameter when writing the query criteria. Remember, the *Like* special operator helps you find records containing data that is similar to, or *like*, the criterion value. The most common wildcard characters are the *, the **?** and the **#**. Recall that the * symbol represents any number of characters, the **?** represents any single character, and the **#** represents any single number.

Access provides three common ways to structure a criteria expression with a parameter that uses wildcards. You can include a wildcard character at the end, a wildcard character at the beginning, or a wildcard character at the beginning and the end. The following examples, using our music database scenario, illustrate each of these methods. These examples also introduce the ***&* *concatenation operator*** which combines, or concatenates, two text values into one.

- *Like [Enter Prompt Text Inside the Brackets] &* **" *"**

This parameter includes the * wildcard character at the end. It finds records where the data in the field begins with the value entered into the parameter. To limit the results to finding a complete word, the criteria include a space before the asterisk. This treats the parameter value entered as a separate word, not just letters.

Example: *Like [Enter the first word of the song] & " *"*

Explanation: If the user enters “love” into the *Enter Parameter Value* dialog box, this query finds songs where the title starts with the first four letters “love”. It still finds all the songs that begin with the word “love” but will now also find “Lovesong”.

Compare the difference in the next example that removes the space before the asterisk.

Example: *Like [Enter the first word of the song] & "*"*

Explanation: If the user enters “love” into the *Enter Parameter Value* dialog box, this query finds songs where the title starts with the word “love”. For example, this query finds “Love for All Seasons” and “Love This Pain”. However, it does not find the songs with the title of “Leave Love Alone”, “Make You Feel My Love”, or “Lovesong”.

- *Like "* " & [Enter Prompt Text Inside the Brackets]*

This parameter includes the * wildcard character at the beginning. It finds records where the data in the field ends with the value entered into the parameter. To limit the results to finding a complete word, the criteria includes a space after the asterisk.

Example: *Like "* " & [Enter the last word of the song]*

Explanation: If the user enters “love” into the *Enter Parameter Value* dialog box, this query finds songs where the title ends in the word “love”. For example, the query finds “Make You Feel My Love”. It does not find “Love for All Seasons”, “Leave Love Alone”, or “50 Ways to Leave Your Lover”.

- *Like "* " & [Enter Prompt Text Inside the Brackets] & " *"*

This parameter includes the * wildcard character at the beginning and at the end. It finds records where the data in the field contains the value entered into the parameter in the middle of the field. In this example a space displays after the first asterisk and a space displays before the second asterisk, which limits the results to finding the complete word.

Example: *Like "* " & [Enter the song word] & " *"*

Explanation: If the user enters “love” into the *Enter Parameter Value* dialog box, this query

finds songs with titles that contain the word “love” in the middle. For example, the query finds “Leave Love Alone”. It would not find “Love for All Seasons”, “Make You Feel My Love”, or “50 Ways to Leave Your Lover”. The phrase inside the parameter was changed just to clarify the prompt. Recall that the phrase content has no impact on the query results.

The next example removes the spaces before and after the asterisks.

Example: *Like "*" & [Enter the song word] & "*"*

Explanation: If the user enters “love” into the *Enter Parameter Value* dialog box, this query finds songs with titles that contain the letters “love”. This creates a very flexible query, because the user can enter only part of the parameter value. In this case, all the songs listed in the other examples would be located.

It is important to remember that the entry the user types in the *Enter Parameter Value* dialog box affects how the query functions. For example, with the criterion of *Like "*" & [Enter the song word] & "*"*, if you type “love ” (with a space after the “e”), Access returns a different set of records than if the user types “love” or “love ” (with two spaces).

This last example illustrates a powerful option for a database user. In addition to being able to enter all, or only part of the parameter value to see the selected records, the user could leave the *Enter Parameter Value* dialog box blank to display all records.

For this reason, the parameter text for this option is often changed so the user knows this flexibility. For example, in the parameter above, the parameter text could read *[Enter the song word, or Leave blank to select all songs].*

If you don’t need the complete flexibility to enter part of the parameter value or to leave it blank, you could simplify the parameter by including the asterisk portion only at the beginning or at the end. Both of the following examples return all records if the *Enter Parameter Value* dialog box is left blank.

- *Like "*" & [Enter the song word, or Leave blank to select all songs]*
- *Like [Enter the song word, or Leave blank to select all songs] & "*"*

However, as you learned above, these two examples return different records depending on the parameter value entered.

You will most likely use the *Zoom* box (**Figure 3-62**) or *Expression Builder* to enter a parameter query that contains wildcards due to the length of the expression.

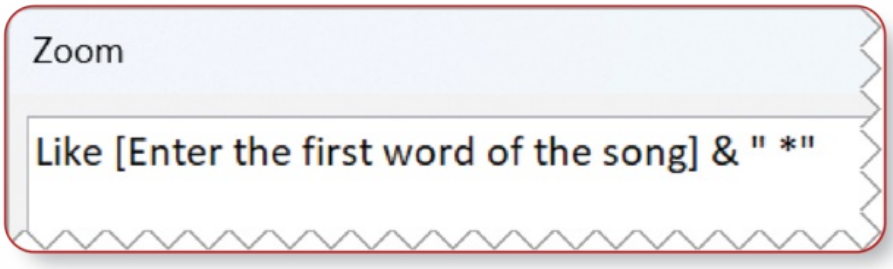


FIGURE 3-62 The *Zoom* box provides a large area to enter a parameter

SLO 3.7

Adding Calculated Fields to a Query

A3-194

A ***calculated field*** is a field that gets its value from a calculation instead of a value that is entered into the field. The calculation, or formula, can reference other fields in the database. For example, if a database that stores sales transactions contains the fields of *UnitPrice* and *Quantity*, the *TotalCost* of an item purchased is calculated by multiplying the *UnitPrice* by the *Quantity*.

Unlike a regular table field, a calculated field is not stored in the database. Why not simply store the *TotalCost* field in the database instead of having the database calculate it? To help avoid redundant data and ensure integrity in your database, most database designers recommend that you don't store fields in your database if the field can be calculated using data from other fields.

When writing a formula for a calculated field, use the traditional mathematical operators shown in Table 3-3. Remember that Access evaluates formulas using the standard order of operations. When more than one operator appears in an equation, Access evaluates the equation from left to right, performing calculations based on their precedence level.

Table 3-3: Order of Operations Characters and Precedence Level

Character	Operator	Order of Operation
( )	Parentheses	First
^	Exponent	Second
*	Multiplication	Third
/	Division	Third
–	Subtraction	Fourth
+	Addition	Fourth

Enter a Formula in a Calculated Field

A formula for a query field has two parts that are separated by a colon (**:**). Access automatically adjusts the formula to have one space between the colon and the expression. The first part is the name you assign to the calculated field. The second part is the formula, or what Access refers to as an expression. A generic example of a formula is written as *FieldName: Expression*. The

expression can reference other fields and can include other ***constants***, hardcoded values entered into a formula. The expressions must obey the following rules:

- Any fields included in the expression must be enclosed within square brackets.
- Any fields that are needed in the expression must be in tables included in the query.

For example, when you apply these rules to the *Total Cost* example described earlier, the formula for a calculated field that determines the *TotalCost* of an item is written as *TotalCost: [UnitPrice]* [Quantity]*.

HOW TO: Add a Calculated Field to a Query

1. Right-click the **first empty cell** in the *Field* row of the query design grid and select either **Zoom** to open the *Zoom* box or **Build** to open the *Expression Builder*.
2. Enter the formula following the rules described above.
   - **Figure 3-63** is an example of a formula that calculates the potential commission on the sale of a home.

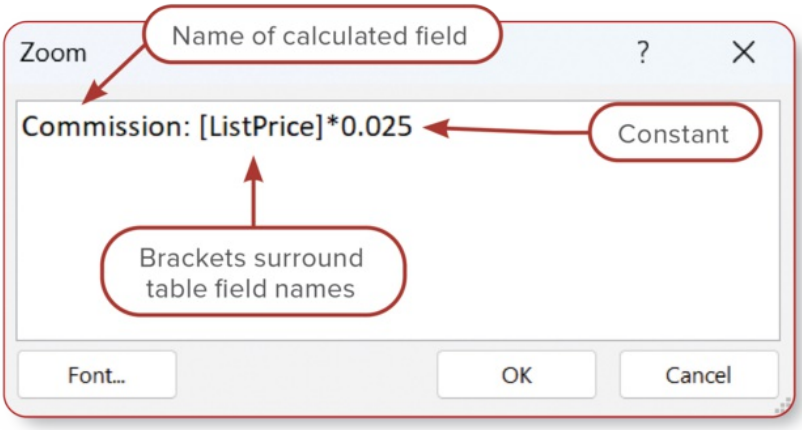


FIGURE 3-63 Enter the formula for a calculated field

   - Notice the formula contains the name assigned to the field, a colon, and the expression.
3. Click **OK** in the *Zoom* box or *Expression Builder* when you are finished entering the formula.

In the *Format Query Fields* section in **SLO 3.4: Controlling the Display of Query Results** you learned to adjust the properties of a query field. You can apply these skills to change how the calculated field displays.

HOW TO: Format a Calculated Field in a Query

1. Click to select the **calculated field** in the query design grid.
2. Press **F4** to open the *Property Sheet* for that field.
3. Click the **Format** property box, click the **drop-down arrow**, and select the desired format option (**Figure 3-64**).

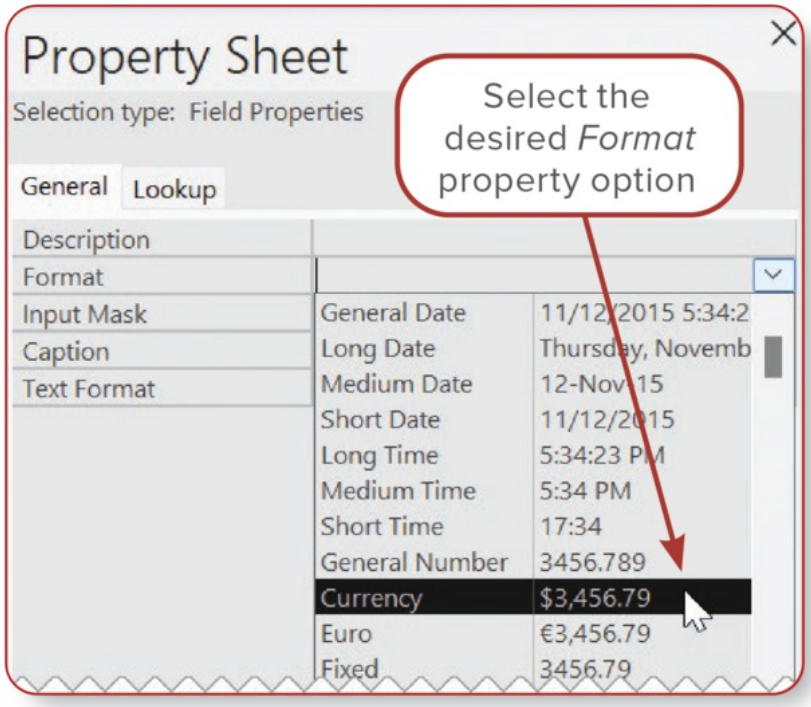


FIGURE 3-64 **Format options**

4. Click the **Decimal Places** property box and select the desired number of decimal places.
   - This property does not display for date and time formats.
   - If the *Decimal Places* property box does not display in the *Property Sheet* after selecting a numeric format option, you may need to first run the query and then return to *Design* view to enter a value.
5. Press **F4** to close the *Property Sheet*.

Remember to run your query to verify that your calculated field works as planned.

Troubleshoot Calculated Fields

You may encounter three common problems with a calculated field.

- An *Enter Parameter Value* dialog box displays when you run the query.
  If you are not expecting an *Enter Parameter Value* dialog box to display, pay attention to the contents of the parameter phrase. In **Figure 3-65**, the dialog box is asking the user to enter a value for "List Price".

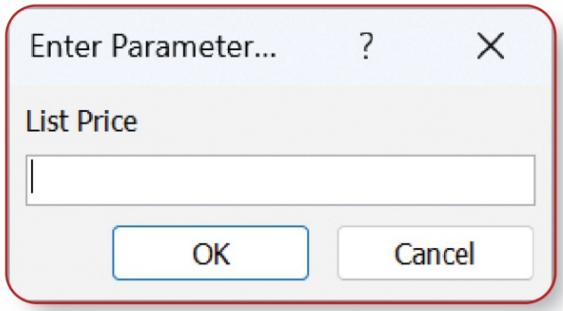


FIGURE 3-65 ***Enter Parameter Value*** **dialog box for the** ***List Price*** **field**

In *Design* view, review the formula that you have entered into the calculated field. Notice in **Figure 3-66** that the field name enclosed in the square brackets is *List Price*. Recall that the field in the database was actually named *ListPrice* (no space between *List* and *Price*).

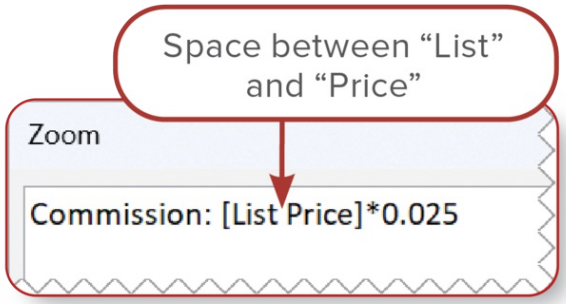


FIGURE 3-66 **Review the field name entered into the parameter**

If this occurs, edit the expression so that it includes valid field names.

- A field is missing a name.
  Each field must have a name. If you forget to include a field name when you enter the formula, Access assigns the field a generic field name such as *Expr1* by default. This default field name displays in both the query design grid (**Figure 3-67**) and the *Datasheet* view of the results (**Figure 3-68**). If this happens, edit the expression and change the field to an appropriate name.

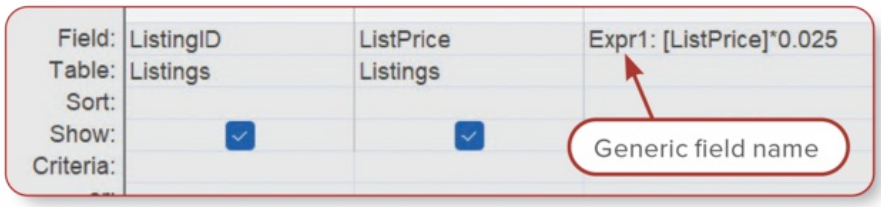


FIGURE 3-67 A generic field name like *Expr1* is assigned by Access if you do not name the field

ListingID	List Price	Expr1
10022	$374,900.00	$9,372.50
10023	$379,000.00	$9,475.00
10024	$1,189,900.00	$29,747.50
10025	$439,000.00	$10,975.00

FIGURE 3-68 The *Expr1* field name in *Datasheet* view

- The formula does not provide the correct answer.
  In cases like this, you need to review the structure of the formula. Make sure that you have used the correct fields and have written the formula correctly according to the order of operations.

Functions in a Calculated Field

Access provides a variety of ***functions***, predefined formulas to perform a specific task. Recall in **SLO 3.3: Adding a Criterion to a Query**, you used the *Date()* function as part of the query criteria. Functions can also be used in a formula. Access groups the functions by the type of task they perform. **Table 3-4** highlights a few of the functions available in Access.

Table 3-4: Examples of Access Functions

Function	Category	Explanation
Max	SQL Aggregate	Finds the largest value
Round	Math	Rounds the value
UCase	Text	Converts the value to uppercase
Left	Text	Finds a specific number of characters from the left of the field

Iif	Program Flow	Performs a comparison and does one of two alternatives
Year	Date/Time	Returns the year portion of a date field

A function is typically included as part of a formula. This means that when you use a function, you need to follow the general rules about how to write a formula.

Several of the functions listed in this table are described in various chapters of the book but not all of the Access functions are introduced. If you are writing a complex formula, be sure to utilize the *Access Help System* to see if a function might make your task easier. In this section, to help you learn how to use a function in a calculated field, the *Left* function is introduced.

The *Left* function uses the format of *Left(string, length)*. Functions typically have different parameters, or arguments, that you must include with the function. The *Left* function has two parameters: *string* and *length*. The function analyzes the content of the string parameter and extracts a certain number of characters, as indicated in the length parameter, from the left of the string parameter. For example, *Left("California",2)* returns the value of "*Ca*", while *Left("California",5)* returns the value of "*Calif*".

Both the string and length parameters are required, and each can be either a field or a constant. You must enclose fields in square brackets, while text constants are enclosed in quotation marks. In the example, *Left([State],2)* the *State* field is used as the string parameter.

The example in **Figure 3-69** shows a formula that finds the first character of the *FirstName* field and combines it with a period, a space, and the *LastName*. This formula displays a name as "M. Bui" or "J. Burgess".



FIGURE 3-69 Example of a formula that uses the *Left* function

The formula uses the *Left* function with the *&* concatenation operator. Recall that ***concatenation*** combines different parts of an equation together. You used the *&* operator with the *Like* special operator to combine different parts of an expression together in **SLO 3.6: Creating and Using a Simple Parameter Query**. Often concatenation is used to combine different fields together. For example, use it to combine a first and last name, or to combine the city, state, and ZIP Code into one field.

HOW TO: Use the Left Function in a Calculated Field

1. Add the fields from the database tables into the query grid.
2. Click the **first empty cell** in the *Field* row of the query design grid.
3. Right-click and select either **Zoom** to open the *Zoom* box or **Build** to open the *Expression Builder*.
4. Enter the formula, including the appropriate function.
   - The example in **Figure 3-69** uses the *Left* function.
5. Click **OK** in the *Zoom* box or *Expression Builder* when finished entering the formula.

Remember to run your query to verify that your calculated field works. The most challenging part of working with a calculated field is not the actual process of entering the formula into a field. Rather it is the process of determining what the formula must do, structuring the formula correctly, verifying the results, and fine tuning the display formatting.

COPILOT/GENERATIVE AI BEST PRACTICES

Calculated fields allow you to extend the functionality of your database by creating new columns. Ask *Copilot* for help with writing a formula for a calculated field. You can also ask for an explanation of how to use a specific function or to provide examples of different formulas.

PAUSE & PRACTICE: ACCESS 3-3

For this Pause & Practice, you use *Design* view to create a query for Placer Hills Real Estate that uses calculated fields. Then you save a copy of that query and modify it to include a parameter.

File Needed: ***[your initials] PP A3-2.accdb***

Completed Project File Name: ***[your initials] PP A3-3.accdb***

1. Open the ***[your initials] PP A3-2*** database completed in ***Pause & Practice 3-2***.
2. Save a new copy of your database as [your initials] PP A3-3.
3. Enable content in the database.
4. Create a new query in *Design* view. The office manager wants to calculate the potential commission on the listed properties. The query should display the agent's name, listing ID, list price, and potential commission for each property. The agent's name should be formatted as the first initial, a period, a space, and the last name

(for example, *G. Montoya*). To help understand the logic behind queries, you build this query in stages.

a. Click the **Query Design** button [*Create* tab, *Queries* group] to open the *Query Design* window and the *Add Tables* task pane.

b. Double-click the **Agents** table to add it to the *Query Design* window.

c. Double-click the **Listings** table to add it to the *Query Design* window.

d. Click the **X** in the right corner of the *Add Tables* task pane to close it.

e. Right-click inside each table to open the context menu and select **Size to Fit** to increase the size and display all of the fields.

f. Right-click the **first empty cell** in the *Field* row of the query design grid and select **Build** to open the *Zoom* box.

g. Type Agent's Name: Left([FirstName], 1) & ". " & [LastName] in the *Zoom* box.

h. Click **OK**.

i. Click and hold the **ListingID** field in the *Listings* table and drag it into the *Field* cell of the second column in the query design grid.

j. Drag the **ListPrice** field into the *Field* cell of the third column in the query design grid. Your completed query design grid should look similar to **Figure 3-70**.



FIGURE 3-70 Query design grid

5. Click the **Save** button and save the query as PotentialCommissionByProperty.

6. Click the **Run** button [*Query Design* tab, *Results* group] to execute the query. The query should open in *Datasheet* view and display all 57 records (**Figure 3-71**).

PotentialCommissionByProperty

Agent's Nam	ListingID	List Price
M. Bui	10022	$374,900.00
M. Bui	10030	$429,000.00
M. Bui	10033	$347,500.00
M. Bui	10040	$412,000.00
M. Bui	10052	$329,500.00
M. Bui	10077	$649,900.00
M. Bui	10080	$315,900.00
M. Bui	10095	$319,900.00
M. Bui	10177	$363,000.00
M. Bui	10180	$382,700.00
K. Weatherby	10023	$379,000.00
K. Weatherby	10027	$335,000.00
R. Chung	10073	$414,750.00
R. Chung	10075	$310,000.00

Record: 1 of 57 No Filter Search

FIGURE 3-71 Query results

7. Adjust the width of the ***Agent's Name*** field.
   a. Right-click the **Agent's Name** cell to open the context menu and select **Field Width**.
   b. Click the **Best Fit** button.
8. Edit the query to add a field to calculate the potential commission and format that field.
   a. Click the **View** button [*Home* tab, *Views* group] and select the **Design View** option to switch back to *Design* view of the query.
   b. Right-click the **Field** cell of the fourth column and select **Zoom**.
   c. Type Potential Commission: [ListPrice]*.025 in the *Zoom* box.
   d. Click **OK**.
   e. Click to select the **Potential Commission** field if needed. Verify that the **Show** check box is selected.
   f. Press **F4** to open the *Property Sheet*. If the *Show* check box was not selected, the *Property Sheet*

displays the query properties instead of the field properties.

g. Click the **Format** property box, click the **drop-down arrow**, and select **Currency**.

h. Press **F4** to close the *Property Sheet*.

9. Save and test the query.

a. Click the **Save** button to save the changes to the query.

b. Click the **Run** button [*Query Design* tab, *Results* group] to execute the query. The query should open in *Datasheet* view. All 57 records display. Each record now also shows the new *Potential Commission* field (**Figure 3-72**).

Agent's Name	ListingID	List Price	Potential Cor
M. Bui	10022	$374,900.00	$9,372.50
M. Bui	10030	$429,000.00	$10,725.00
M. Bui	10033	$347,500.00	$8,687.50
M. Bui	10040	$412,000.00	$10,300.00
M. Bui	10052	$329,500.00	$8,237.50

FIGURE 3-72 Updated query results

10. Add a parameter to find properties by agent. Because the *Agents* table stores the data as first and last name, you need to add those fields to the query.

a. Click the **Design View** icon in the *Status* bar to switch back to *Design* view.

b. Double-click the **FirstName** field to add it into the query design grid.

c. Double-click the **LastName** field to add it into the query design grid.

d. Type [Enter the Agent's First Name] in the *Criteria* row cell for the *FirstName* field.

e. Type [Enter the Agent's Last Name] in the *Criteria* row cell for the *LastName* field.

f. Deselect the **Show** row check box for the *FirstName* field.

g. Deselect the **Show** row check box for the *LastName* field.

11. Save a copy of the query.

a. Click the **Save As** button [*File* tab].

b. Select the **Save Object As** button and then click the **Save As** button.

c. Replace the suggested name with AgentParameterPotentialCommissionByProperty and click **OK**.

12. Click the **Run** button [*Query Design* tab, *Results* group].

a. Enter Gerardo in the *Enter the Agent's First Name* box of the *Enter Parameter Value* dialog box.

b. Click **OK**.

c. Enter Montoya in the *Enter the Agent's Last Name* box of the *Enter Parameter Value* dialog box.

d. Click **OK**. The query should open in *Datasheet* view and display the five records shown in **Figure 3-73**.

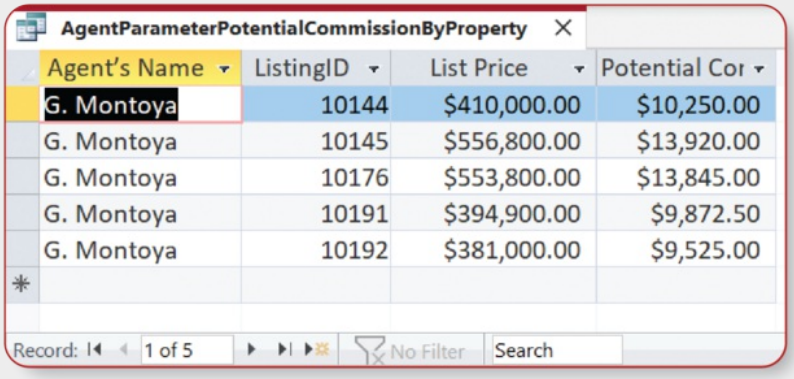


FIGURE 3-73 **Parameter query results**

13. Close the query.
14. Close the database.

SLO 3.8

Creating and Using a Summary Query

As you now know, queries help locate data in a database by asking a question. Up to this point, the queries you have worked with have all been structured to find sets of records. But, sometimes, the question that you want answered involves getting summarized results. For example, you may want to know the total number of pop/rock albums that you own, or the average listing price of properties for sale, or the total number of dogs available for adoption. A ***summary query*** analyzes a set of records and displays summarized results. Recall that you learned how to add a *Total* row to a table in **SLO 1.5: Exploring Datasheet View**. By including the totals in a summary query and not directly in the table, you can add criteria to narrow the summarized results.

Aggregate Functions

A summary query works by using an aggregate function. ***Aggregate functions*** perform calculations on a group of records. The most common aggregate functions are explained in **Table 3-5**. When used in a summary query, the function calculates an answer based only on the records that match the query's criteria.

Table 3-5: Common Aggregate Functions

Function	Explanation	Supported Data Types
Avg	Finds the average value of the field	*AutoNumber*, *Currency*, *Date/Time*, *Date/Time Extended*, *Large Number*, *Number*
Count	Counts the number of records that have a value in the field	All data types
Max	Finds the maximum value of the field	*AutoNumber*, *Currency*, *Date/Time*, *Date/Time Extended*, *Large Number*, *Number*, *Text*
Min	Finds the minimum value of the field	*AutoNumber*, *Currency*, *Date/Time*, *Date/Time*

		Extended, *Large Number*, *Number*, *Text*
Sum	Finds the total value of the field	*AutoNumber*, *Currency*, *Date/Time*, *Date/Time Extended*, *Large Number*, *Number*

MORE INFO

If the *Max* or *Min* function is used on a field with a ***Short Text*** data type, "A" is the smallest value and "Z" is the largest value.

Build a Summary Query

The basic building blocks of a summary query are the same as they are for the select queries you have already built. A summary query uses a ***Total* row** that is added into the query design grid of the query.

When you add a *Total* row to a query, each field in the query has the value in the *Total* row initially set to *Group By* (**Figure 3-74**). In most cases you will change the *Group By* value to an appropriate aggregate function for at least one of the fields. If you don't change at least one of the fields, the query results show one record for each row of data. Generally, this is not your desired result in creating a summary query.

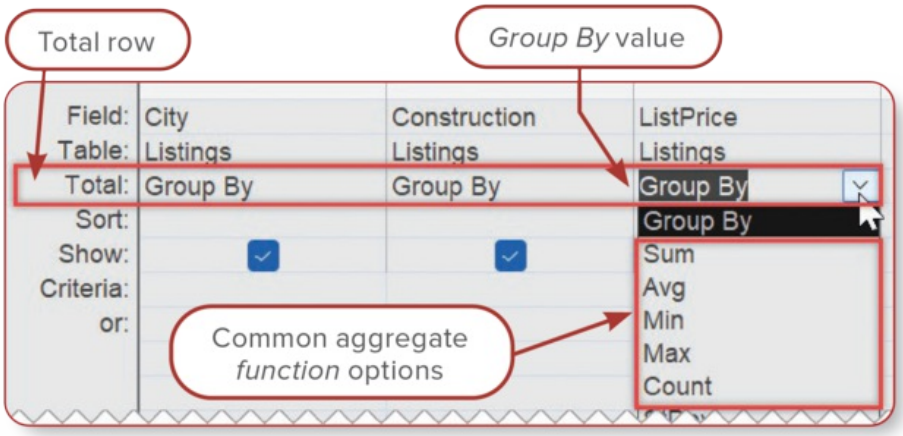


FIGURE 3-74 The *Total* row contains *Group By* or an aggregate function

Figure 3-75 shows the result of the query in **Figure 3-74**, with the *Total* row for all three

fields set to *Group By*. The only difference between this query and one that doesn't include the *Total* row is that the results in this query are grouped by *City* and *Construction*.



City	Construction	List Price
Auburn	Brick	$363,000.00
Auburn	Brick	$385,000.00
Auburn	Brick	$440,500.00
Auburn	Frame	$387,000.00
Auburn	Frame	$410,000.00
Auburn	Frame	$412,000.00
Auburn	Stone	$397,000.00
Lincoln	Brick	$294,900.00
Lincoln	Brick	$329,500.00
Lincoln	Brick	$334,900.00
Lincoln	Brick	$399,900.00
Lincoln	Frame	$312,000.00
Rocklin	Frame	$310,000.00
Rocklin	Frame	$316,000.00

Record: 1 of 57 No Filter Search

FIGURE 3-75 Query results when all fields use *Group By* in the *Total* row

If you change the query to use the *Avg* function in the *ListPrice* field, the query displays the results shown in **Figure 3-76**. Notice that the *Field Name* also changes to indicate the nature of the aggregate function. In this case, it changes to *AvgOfListPrice*. To change the default name that displays, open the *Property Sheet* for that field and enter the desired name in the field's *Caption* property.

City	Construction	AvgOfListPrice
Auburn	Brick	$396,166.67
Auburn	Frame	$403,000.00
Auburn	Stone	$397,000.00
Lincoln	Brick	$339,800.00
Lincoln	Frame	$633,714.29
Lincoln	Stone	$353,750.00
Newcastle	Brick	$571,875.00
Newcastle	Frame	$350,350.00
Newcastle	Stone	$508,499.00
Rocklin	Frame	$506,461.46
Rocklin	Stone	$752,275.00
Roseville	Brick	$804,900.00
Roseville	Frame	$925,908.33
Roseville	Stone	$474,333.33
Weimer	Brick	$317,000.00
Weimer	Frame	$289,000.00
Weimer	Stone	$377,750.00

Record: 1 of 17 No Filter Search

FIGURE 3-76 Query results with the *Avg* aggregate function

This revised query answers the question "What is the average list price of homes, grouped by city and within each city by construction type?" Or, in other words, "By city and construction type, show the average price of the homes that are listed." Scanning through the results, you see that the highest average list price ($925,908.33) is for frame homes in Roseville. The results also show that in Weimer, frame homes had the lowest average list price of $289,000.

To be most effective, a summary query should include only the fields that you want to group by and the fields that you want to aggregate. For example, if you wish to find the average list price for each city, you must remove the *Construction* field from the query.

HOW TO: Create a Summary Query

1. Click the **Query Design** button [*Create* tab, *Queries* group].
2. Select the first table to use in the query from the *Add Tables* task pane.
3. Press and hold the **Shift** key and continue selecting all required tables.
4. Click the **Add Selected Tables** button to add the tables into the *Query Design* window.
5. Click the **X** in the right corner of the *Add Tables* task pane to close it.
6. Add the desired fields into the query design grid.
7. Click the **Totals** button [*Query Design* tab, *Show/Hide* group] (**Figure 3-77**).

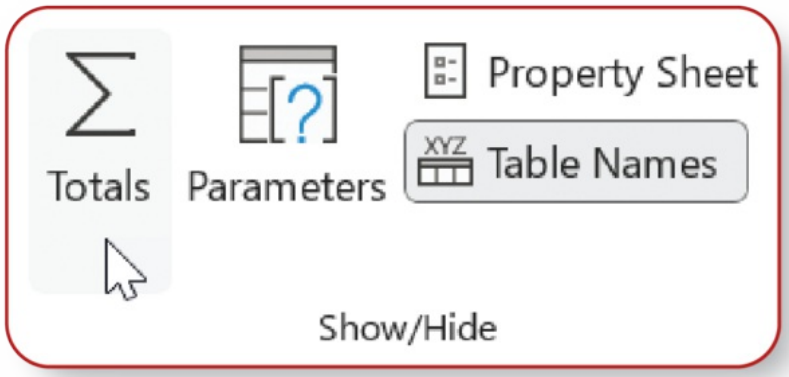


FIGURE 3-77 ***Totals*** **button**

- The *Total* row is added into the query design grid below the *Table* row.
- The *Total* row value for each field in the query design grid is set to *Group By*.

MORE INFO

You cannot use the *Group By* choice in fields that have *Long Text*, *OLE Object*, and *Hyperlink* data types.

Once you have created the summary query, you need to select the appropriate aggregate functions.

HOW TO: Use an Aggregate Function in a Summary Query

1. Click the **Total** row cell of the desired field.
2. Click the **drop-down arrow** and select the desired aggregate function (**Figure 3-78**).

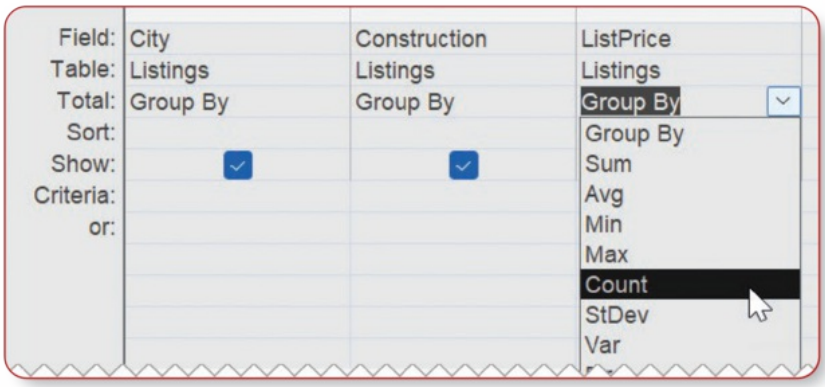


FIGURE 3-78 **Select the aggregate function from the drop-down list**

- After selecting *Count*, the query in **Figure 3-78** answers the question "How many homes are listed for sale in each city, grouped by construction type?"

3. Repeat steps 1 and 2 for any additional fields that will be aggregated.

Occasionally, you may want to create a summary query where you want to see multiple calculations on the same field. For example, you may want to find the best and worst place finish that each member had in a race. Or for our real estate database, you might want to see the average, maximum, and minimum list price for all properties.

HOW TO: Use Multiple Aggregate Functions on a Field

1. Click the **Total** row cell of the desired field.
2. Click the **drop-down arrow** and select the desired aggregate function.
3. Add the field into another column in the query design grid.
4. Click the **drop-down arrow** and select the desired aggregate function.
5. Open the *Property Sheet* and edit any of the field properties as desired.
6. Continue adding the same field and selecting the aggregate function for as many calculations as you want to include.
   - **Figure 3-79** shows an example of a query that aggregates the average, maximum, and minimum on the *ListPrice* field.

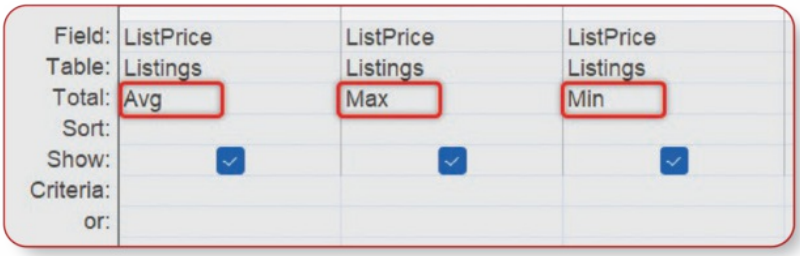


FIGURE 3-79 Include a field multiple times to use more than one aggregate function on the same field

- A sample of the query results is shown in **Figure 3-80**. Notice that the third column reflects a value entered into the *Caption* property of that field.

AvgOfListPrice	MaxOfListPrice	Minimum List Price
$476,024.33	$3,011,500.00	$109,900.00

FIGURE 3-80 Query results with multiple aggregate functions

A summary query can also include criteria to limit the results. For example, you may want to find the lowest priced three-bedroom home in a specific city, or the average price of homes listed between two dates. When you use a summary query, the way that you include criteria changes a little. You need to select the *Where* option from the drop-down list of aggregate functions, in addition to adding the specific criteria.

HOW TO: Use Criteria in a Summary Query

1. Click the **Total** row cell of the field that will have the criteria.
2. Click the **drop-down arrow** and select **Where**.
   - The *Show* row check box is deselected.
   - To include the criteria field in the query results, you must add that field into another column in the query design grid, leave *Group By* as the selection in the *Total* row, and click the **Show** row check box of that field.
3. Click the **Criteria** row cell of the field and enter the criteria.
   - **Figure 3-81** shows an example of the query design grid that calculates and displays the average *ListPrice* for properties listed after *3/1/2026*.

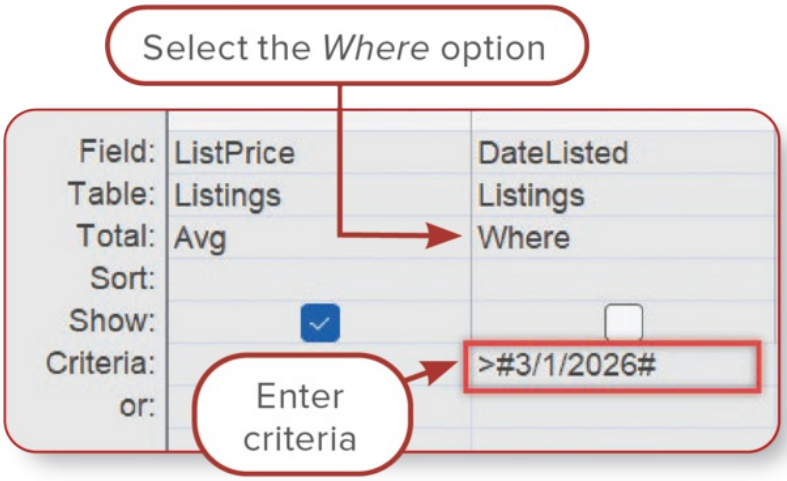


FIGURE 3-81 Select the *Where* option in the *Total* row when using criteria in a summary query

- The query results do not include the *DateListed* field because the *Show* row check box is deselected and the field was not added into another column in the query design grid.

In order to get the results you desire, you need to spend time planning the structure of a summary query before you build it. You must decide what fields to include in the query, what aggregate functions to use and any additional criteria needed to limit the results.

SLO 3.9

Understanding and Building a Crosstab Query

A ***crosstab query*** summarizes data on two dimensions. The results of a crosstab query display in a row/column format. This format makes the data easier to read and understand, compared to the results of a select query or a summary query. Consider the following example.

In the Placer Hills database, a manager wants to find out how many homes are listed for sale in each city, grouped by construction type. **Figure 3-78** shows a summary query to display this answer. Recall that a summary query includes a *Total* row in the query design that is used to group and aggregate the data to improve the readability from a basic select query. The results of that query are shown in **Figure 3-82**. However, it still takes time to scan through the results to figure out the answer to the manager's question.

City	Construction	CountOfListPrice
Auburn	Brick	3
Auburn	Frame	3
Auburn	Stone	1
Lincoln	Brick	4
Lincoln	Frame	7
Lincoln	Stone	2
Newcastle	Brick	2
Newcastle	Frame	4
Newcastle	Stone	1
Rocklin	Frame	13
Rocklin	Stone	2
Roseville	Brick	2
Roseville	Frame	6
Roseville	Stone	3
Weimer	Brick	1
Weimer	Frame	2
Weimer	Stone	1

Record: 1 of 17 No Filter Search

FIGURE 3-82 Summary query results with the *Count* aggregate function

Figure 3-83 shows the same data displayed in a crosstab query. The row/column grid makes it much easier to see how many homes in each city are for sale, grouped by construction type.

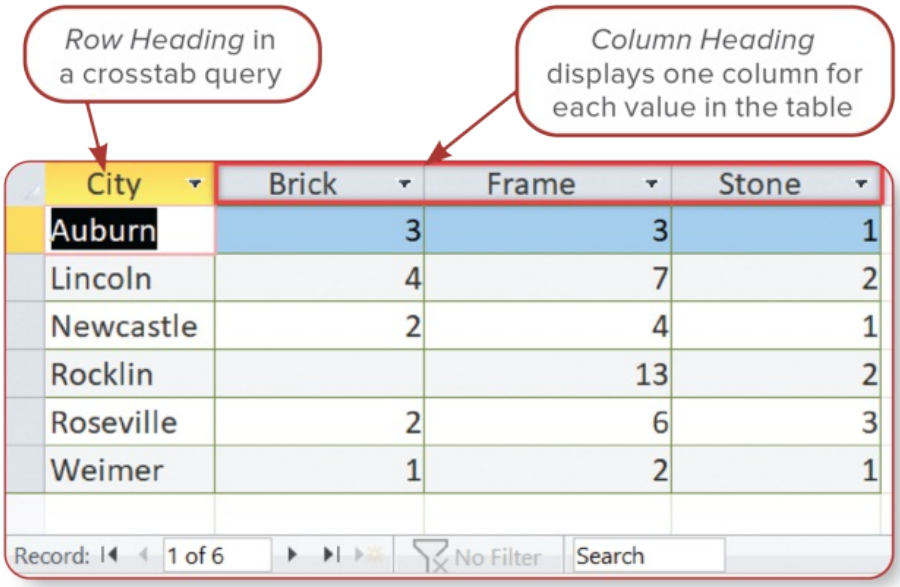


FIGURE 3-83 Crosstab query showing listings by city in each construction type

When creating and using crosstab queries, keep the following points in mind:

- Crosstab queries are not appropriate in all databases. You must have data that can be summarized across two dimensions.
- Unlike the resulting datasheet from a regular select query, you cannot edit the results from a crosstab query.
- A crosstab query can get its data from a table or another query.
- If you need to use fields from more than one table, you must first create a select query that combines the fields from the different tables.
- Select up to three fields as row headings. The ***row headings*** are the field(s) that appear in the left-most column(s) of the grid. For example, **Figure 3-83** shows one row heading field, the *City*.
- You must select one column heading field. The ***column heading*** is the field that contains the different values that display in the heading row of the results. The *Construction* field is the column heading in **Figure 3-83**. The different values of the *Construction* field display as the actual column headings.
- When creating the query, you select the field to calculate and the aggregate function, such as *Sum* or *Count*, to use on that field. In **Figure 3-83**, the *ListPrice* is the field to calculate, and *Count* is the aggregate function. When using the *Count* function, you may select any field that contains "Yes" in the *Required* property.

You can create a crosstab query using *Query Design;* however, it is much easier to create the query

using the ***Crosstab Query Wizard***.

HOW TO: Create a Query Using the Crosstab Query Wizard

1. Click the **Query Wizard** button [*Create* tab, *Queries* group] to launch the *Query Wizard*.
2. Select **Crosstab Query Wizard** in the *New Query* dialog box and click **OK**. The *Crosstab Query Wizard* launches (**Figure 3-84**).

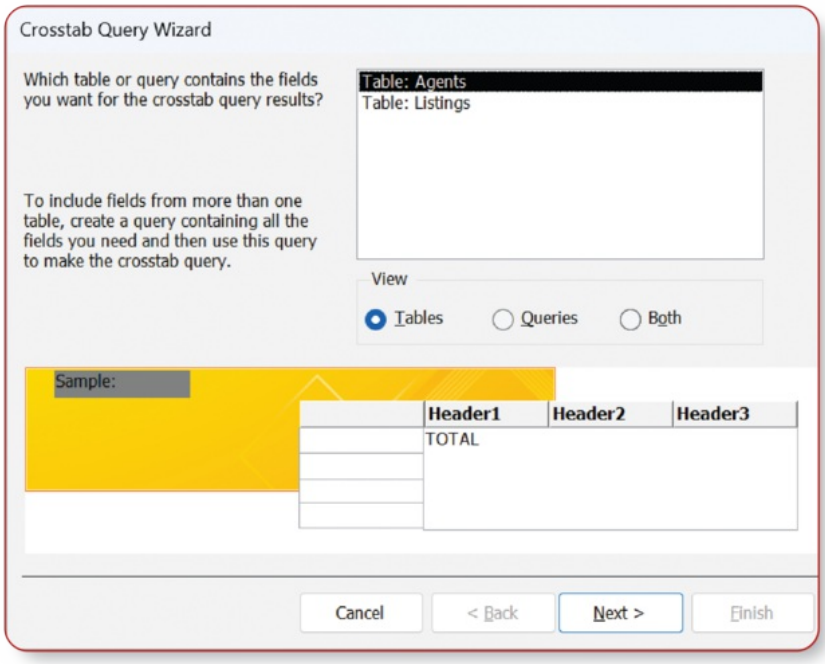


FIGURE 3-84 ***Crosstab Query Wizard*, step 1**

3. Select the table that contains the data you want to summarize. If necessary, click the **Queries** radio button to see the list of available queries and then select the desired query.
4. Click **Next** to move to the next page of the wizard.
5. Select the field to include in the row headings from the *Available Fields* window and click the **Move Single Field** button to move the field into the *Selected Fields* window (**Figure 3-85**).

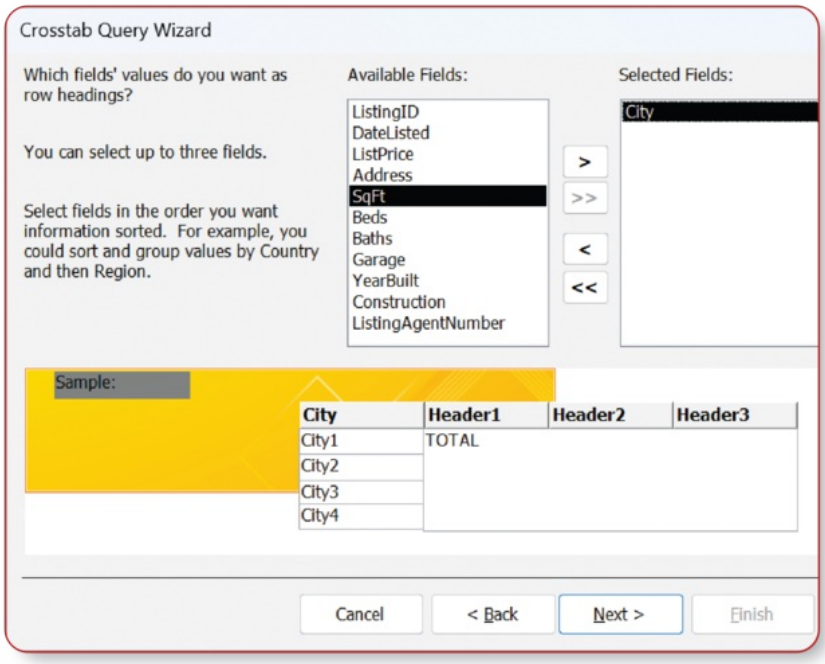


FIGURE 3-85 ***Crosstab Query Wizard*, step 2**

- As you add fields, the sample section updates in the wizard.
- As desired, move up to two additional fields into the row headings.

6. Click **Next** when you have finished adding fields. The next page of the wizard displays.
7. Select the field to use as the column headings. When you select the field, the sample updates (**Figure 3-86**). Click **Next** to move to the next page of the wizard.

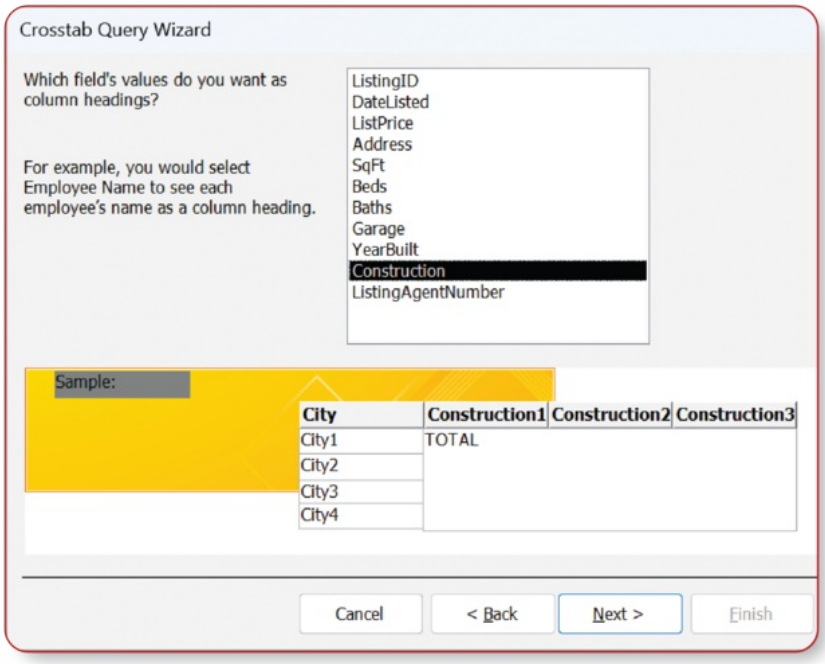


FIGURE 3-86 ***Crosstab Query Wizard*, step 3**

- If you selected a *Date/Time* or *Date/Time Extended* data type field as the column heading, the *Crosstab Query Wizard* prompts you to select an interval to use in grouping the data (**Figure 3-87**). Select the interval and click **Next**.

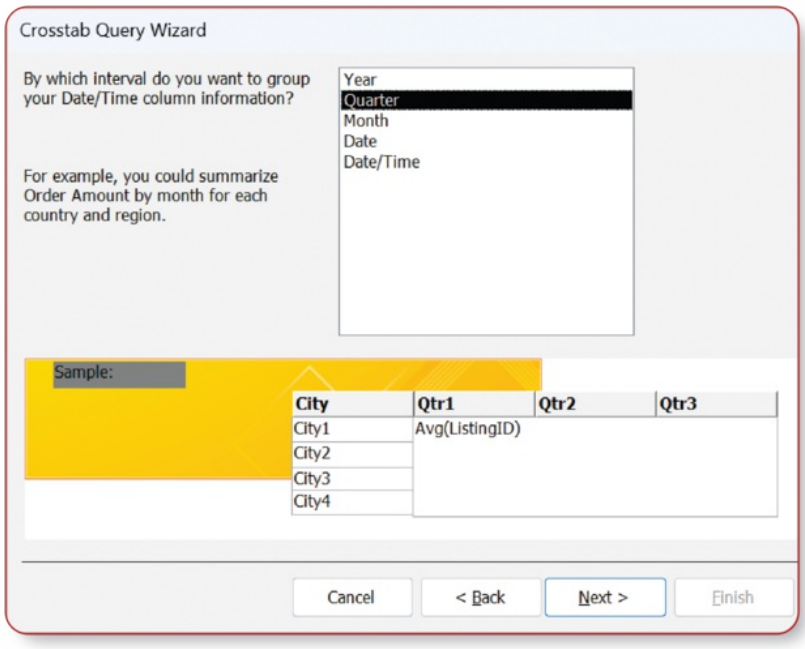


FIGURE 3-87 ***Crosstab Query Wizard*, select a grouping interval**

8. Select the field to be used in the calculation and select the aggregate function (**Figure 3-88**).

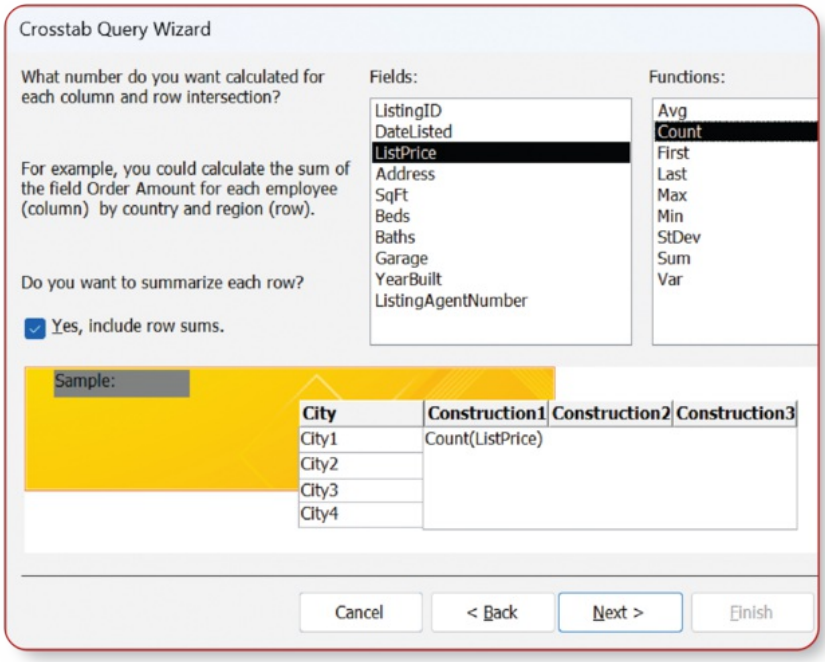


FIGURE 3-88 ***Crosstab Query Wizard*, step 4**

9. Deselect the **Yes, include row sums** check box as desired.
   - If row sums are included, the first column of summary data will be a total column.
10. Click **Next** to move to the last page of the wizard.
11. Enter the name of the query and click **Finish**.
    - The query executes and displays the results (**Figure 3-89**).

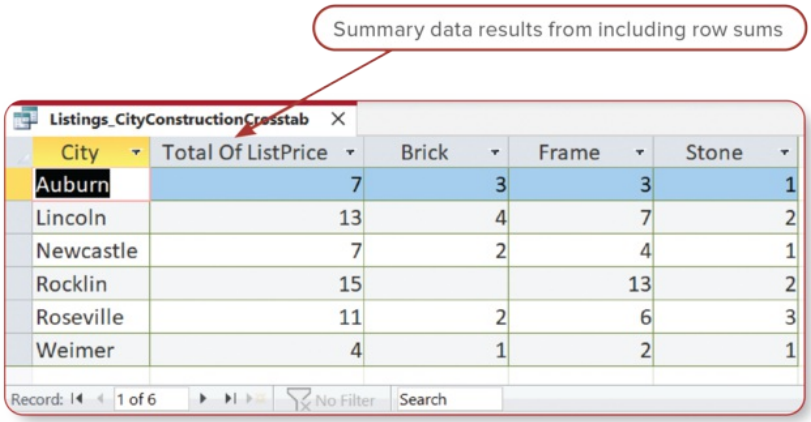


FIGURE 3-89 Crosstab query results showing listings by city with each construction type, including row sums

- This example includes the total column in the results that sums each row.

12. Close the query when done.

A3-205

A3-206

After you create a crosstab query with the *Crosstab Query Wizard*, edit it in *Design* view and make changes to any of the selections made during the wizard. You can also add criteria or sorting options to the query.

HOW TO: Edit a Crosstab Query

1. Select the query name in the *Navigation Pane*.
2. Right-click and select **Design View** from the context menu.
   - The query opens in *Design* view (**Figure 3-90**).

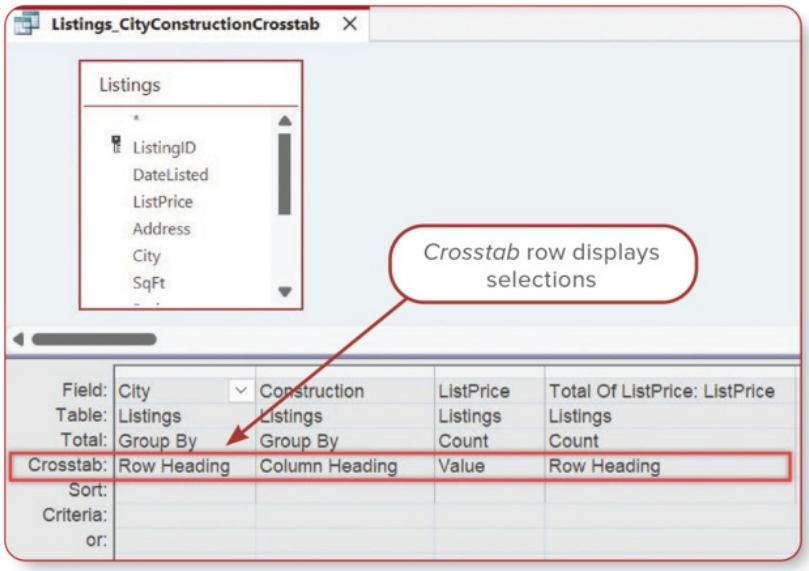


FIGURE 3-90 Edit a crosstab query in *Design* view

- Note the *Crosstab* row in the query design grid.

3. Edit the query as needed.

4. Save and close the query.

COPILOT/GENERATIVE AI BEST PRACTICES

Use *Copilot* to learn more tips about how you use a crosstab query in Access and to learn about the limitations of using a crosstab query. Use follow-up prompts to see examples of a crosstab query.

PAUSE & PRACTICE: ACCESS 3-4

For this Pause & Practice, you create a summary query and a crosstab query for Placer Hills Real Estate.

File Needed: ***[your initials] PP A3-3.accdb***

Completed Project File Name: ***[your initials] PP A3-4.accdb***

1. Open the ***[your initials] PP A3-3*** database file completed in ***Pause & Practice 3-3***.
2. Save a new copy of your database as [your initials] PP A3-4.
3. Enable content in the database.
4. Create a new summary query in *Design* view. Placer Hills Real Estate wants to know the total number of properties each agent has listed and the average list price of those properties. It wants to display the agent's first and last name, as well as the two summary fields. To help you understand the logic behind queries, you build this query in stages.
    a. Click the **Query Design** button [*Create* tab, *Queries* group] to open the *Query Design* window and the *Add Tables* task pane.
    b. Select the **Agents** table, press and hold the **Shift** key, select the **Listings** table, and click the **Add Selected Tables** button.
    c. Click the **X** in the right corner of the *Add Tables* task pane to close it.
    d. Right-click inside each table to open the context menu and select **Size to Fit** to increase the size of each table object.
    e. Click the **drop-down arrow** in the first *Field* row cell of the query design grid and select **Agents.FirstName**.
    f. Click the **second cell** in the *Field* row, click the **drop-down arrow**, and select **Agents.LastName**.
    g. Click the **third cell** in the *Field* row, click the **drop-down arrow**, and select **Listings.ListPrice**.
    h. Click the **fourth cell** in the *Field* row, click the **drop-down arrow**, and select **Listings.ListPrice**. (Yes, you add this field twice!)
    i. Click the **Totals** button [*Query Design* tab, *Show/Hide* group] to add the *Total* row to the query.

5. Add the aggregate functions into the query.
    a. Click the **Total** row cell of the first *ListPrice* field.
    b. Click the **drop-down arrow** and select **Count**.
    c. Click the **Total** row cell of the second *ListPrice* field.
    d. Click the **drop-down arrow** and select **Avg**. The completed query design grid should look similar to **Figure 3-91**.

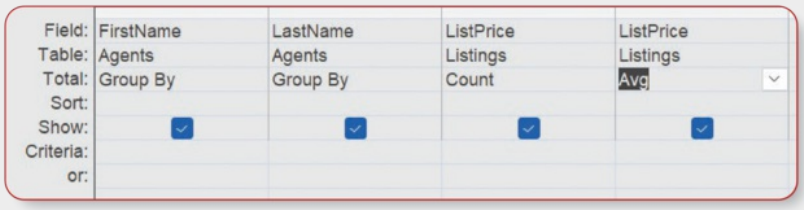


FIGURE 3-91 Aggregate functions added to query

6. Click the **Save** button and save the query as ListingCountAndAvgListPriceByAgent.
7. Click the **Run** button [*Query Design* tab, *Results* group] to execute the query. The query should open in *Datasheet* view and display 7 records.
8. Adjust the column width of the *CountOfListPrice* and *AvgOfListPrice* fields to display the entire column name.
    a. Select the **CountOfListPrice** column, right-click to open the context menu, and select **Field Width**.
    b. Click **Best Fit**.
    c. Select the **AvgOfListPrice** column, right-click to open the context menu, and select **Field Width**.
    d. Click **Best Fit**. The *Datasheet* view should be similar to **Figure 3-92**.

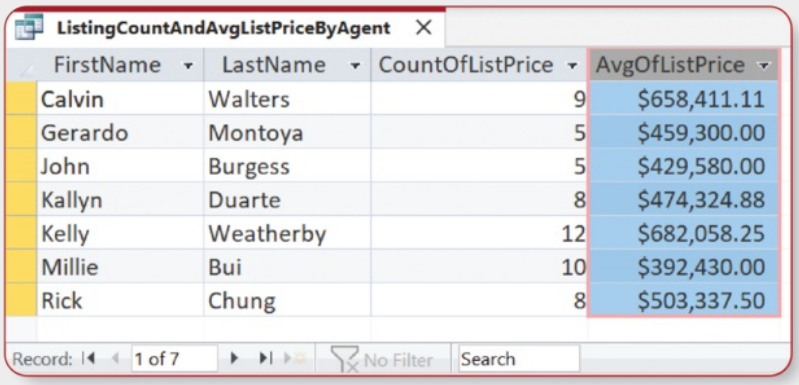


FIGURE 3-92 Query results for summary query

9. Save the changes to the query.
10. Close the query.
11. Create a crosstab query to count the number of listings in each city, grouped by construction type.
    a. Click the **Query Wizard** button [*Create* tab, *Queries* group] to launch the *Query Wizard*.
    b. Select **Crosstab Query Wizard** in the *New Query* dialog box and click **OK**. If a *Microsoft Access Security*

Notice box displays, click **Open**.

c. Select the **Listings** table, on the first page of the wizard, because that contains the data you want to summarize, and click **Next**.

d. Select the **City** field in the *Available Fields* window, on the second page of the wizard, and click the **Move Single Field** button. *City* displays in the *Selected Fields* window to be used as the row headings.

e. Click **Next**.

f. Select the **Construction** field, on the third page of the wizard, to use as the column headings, and click **Next**.

g. Select the **ListingID** field and the **Count** aggregate function, if needed, on the fourth page of the wizard. Leave the *Yes, include row sums* check box selected and click **Next**.

h. Enter ListingsCityConstructionCrosstab as the query name on the last page of the wizard. Click **Finish** to execute the query. The results should match those shown in **Figure 3-93**.

ListingsCityConstructionCrosstab

City	Total Of List	Brick	Frame	Stone
Auburn	7	3	3	1
Lincoln	13	4	7	2
Newcastle	7	2	4	1
Rocklin	15		13	2
Roseville	11	2	6	3
Weimer	4	1	2	1

Record: 1 of 6 No Filter Search

FIGURE 3-93 Crosstab query results showing listings by city with each construction type, including row sums

i. Save and close the query.

12. Close the database.

Chapter Summary

3.1 Understand queries and use the *Simple Query Wizard* to create and run a query (p. A3-162).

- Use ***queries*** to find data in your database.
- Build queries from tables, other queries, or both.
- The ***Query Wizard*** tool enables you to choose from four different types of query wizards.
- Use the ***Simple Query Wizard*** option to quickly build a query by specifying the tables or queries to use and then selecting the desired fields from those objects.
- Edit a query created with the *Simple Query Wizard* in *Design* view.

3.2 Create a query in *Design* view, add fields, and save and run a query (p. A3-164).

- The ***Query Design*** button opens *Design* view to build queries.
- *Design* view provides the most flexibility when creating queries.
- Create a ***select query*** to locate, or select, data in the database.
- Add tables or queries into the *Query Design* window by selecting them from the *Add Tables* task pane.
- Add fields into the ***query design grid*** if you want them to appear in the query.
- Run a query to execute the query and have the query locate records in the database.
- Query results display in *Datasheet* view.
- Save each query with a unique name.

3.3 Add criterion into a query, use comparison and special operators, use functions as criterion, and create criteria with wildcards (p. A3-170).

- Add criterion into a query to search for specific records.
- Enter a criterion ***expression*** into the *Criteria* row of the query design grid. Type the expression directly into a *Criteria* row cell, or enter it using the ***Expression Builder***.
- The ***IntelliSense*** tool may suggest a list of possible values when entering an expression.
- Expressions can include the standard ***comparison operators***.
- Combine the ***Like*** special operator with the ***?***, *******, ***#***, ***[]***, ***!***, and ***-*** ***wildcard characters*** for

greater flexibility in the criterion value.

- Use the ***Is Null*** and ***Is Not Null*** special operators to find records where a field either does not contain a value or that does contain a value.
- ***Functions*** are pre-built procedures that perform a specific task. Functions can be used as part of the criterion expression.
- A common function used with *Date/Time* fields is ***Date()***, which returns the current date from your computer.

3.4 Integrate filtering, sorting, and limiting fields and records that display (p. A3-177).

- Use filter functions in a query to temporarily limit the records that display in the results.
- Set the ***Unique Values*** property to have Access evaluate the fields in the query and avoid including duplicated values.
- The ***Unique Records*** property checks all the fields in a table, not just those included in the query.
- Deselecting the *Show* row check box prevents a field from displaying in the query results.
- Sort query results in ascending or descending order in one or more fields.
- Sort on multiple fields by placing the fields into the query design grid in order of sort priority.
- Change format characteristics of the query datasheet to modify how the data displays.
- Modify properties of query fields in the *Properties* sheet.

3.5 Use the *AND* and *OR* operators to include multiple criteria in a query (p. A3-183).

- ***Compound criteria*** combine more than one criterion using the ***AND*** and ***OR*** operators; this enables you to create a more complex query.
- Criteria written in different fields but on the same criteria row are evaluated as an *AND* comparison.
- Criteria written on different criteria rows are evaluated as an *OR* comparison.
- Combine *AND* and *OR* operators in one query.

3.6 Create and use a parameter query (p. A3-188).

- A ***parameter query*** asks the user to enter a specific criteria value at the time the query is run.
- When a parameter query is included, the *Enter Parameter Value* dialog box displays

before the query executes.

- The ***parameter*** is the text phrase you enter into the *Criteria* row cell of the field. You must enclose the parameter in square brackets.
- A query can include multiple parameters, on one or more fields.
- If you specify the data type of the parameter, Access displays a more user-friendly message if a user makes an error when entering the parameter value.
- Combine the *Like* special operator with wildcard characters for increased flexibility in a parameter.
- Include the ***& concatenation operator*** to combine, or concatenate, two values into one.

3.7 Build a query that uses a calculated field (p. A3-194).

- ***Calculated fields*** get their value from a calculation instead of being stored in a table.
- Use a calculated field instead of a table field if the database can calculate the field's value using data stored in other fields.
- Add a calculated field into the query design grid of a query.
- The formula expression for a calculated field is in the format *FieldName:Expression*.
- The expression can reference other fields and can include other ***constants***, hardcoded values entered into a formula
- Formulas use the standard mathematical operators and order of operations.
- Access provides a variety of ***functions***, which are predefined formulas that perform a specific task.
- Include a function as part of an expression in a calculated field.

3.8 Create and use a summary query using aggregate functions (p. A3-199).

- A ***summary query*** analyzes a set of records and then displays summarized results.
- Add a *Total* row into a query to turn it into a summary query.
- Summary queries use ***aggregate functions***, functions that perform calculations on a group of records.
- Common aggregate functions include *Avg*, *Count*, *Max*, *Min*, and *Sum*.
- Summary queries can summarize several different fields or perform different calculations on the same field.

3.9 Understand and build a crosstab query (p. A3-203).

- A ***crosstab query*** summarizes data on two dimensions.
- While you can create a crosstab query directly in *Query Design*, it is easiest to first create the query using the ***Crosstab Query Wizard*** and edit the query in *Design* view if needed.
- The ***row headings*** are the field(s) that appear in the left-most column(s) of the grid.
- The ***column heading*** is the field that contains the different values that display in the heading row of the results.

Check for Understanding

The SIMbook for this text (within your SIMnet account) provides the following resources for concept review:

- Multiple-choice questions
- Matching exercises
- Short answer questions

USING MICROSOFT ACCESS 365

Guided Project 3-1

You have built a database to store information about a friend's music collection. You want to write three queries to help answer questions about the songs in the database. To ensure consistency, the starting file is provided for you. Use *the Simple Query Wizard* to create a query, use *Design* view to edit the query, and add criteria. After saving and testing the query, save a copy of the query to add a parameter. Finally, create a third query that includes summary query capabilities.

[**Student Learning Outcome 3.1**, **Student Learning Outcome 3.2**, **Student Learning Outcome 3.3**, **Student Learning Outcome 3.4**, **Student Learning Outcome 3.5**, **Student Learning Outcome 3.6**, **Student Learning Outcome 3.8**]

File Needed: ***MusicDatabase-03.accdb*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Name: ***[your initials] Access 3-1.accdb***

Skills Covered in This Project

- Create a query using the *Simple Query Wizard*.
- Edit a query in *Design* view.
- Add compound criteria to a query.
- Execute a query.
- Save a query.
- Add a parameter to a query.
- Sort query results.
- Edit a query to add an aggregate function.

1. Open the ***MusicDatabase-03.accdb*** database file. If a security risk message displays, click the **X** to close the message.
2. Save a new copy of your database as [your initials] Access 3-1.

3. Enable content in the database.
4. Open the *Albums* table in *Datasheet* view to view the contents. You should see 66 different records.
5. Click the **plus sign** to the left of *AlbumID 1*, to see the 10 songs that are on Sam Smith's *The Thrill of It All* album.
6. Close the table.
7. Create a new query using the *Simple Query Wizard*.
   a. Click the **Query Wizard** button [*Create* tab, *Queries* group] to launch the *Query Wizard*.
   b. Select **Simple Query Wizard** in the *New Query* dialog box and click **OK** to launch the *Simple Query Wizard* (**Figure 3-94**).

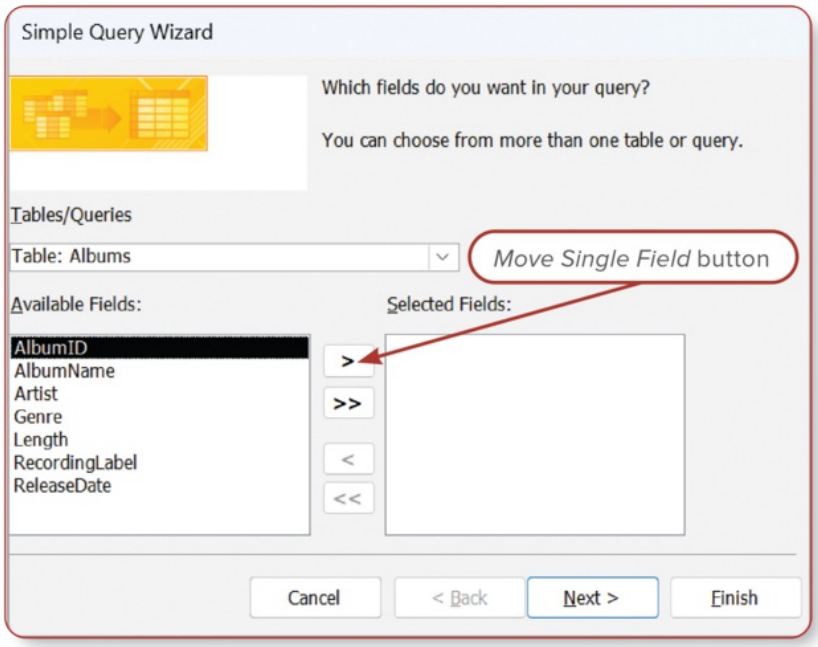


FIGURE 3-94 ***Simple Query Wizard***

   c. Select **AlbumName** in the *Available Fields* window.
   d. Click the **Move Single Field** button to move the field into the *Selected Fields* window.
   e. Select **Artist** in the *Available Fields* window.
   f. Click the **Move Single Field** button.
   g. Continue moving over the **Genre** and **ReleaseDate** fields.
   h. Click the **Tables/Queries** drop-down arrow and select the **Songs** table.
   i. Select **SongTitle** in the *Available Fields* window.
   j. Click the **Move Single Field** button. The completed *Selected Fields* window

should match **Figure 3-95**.

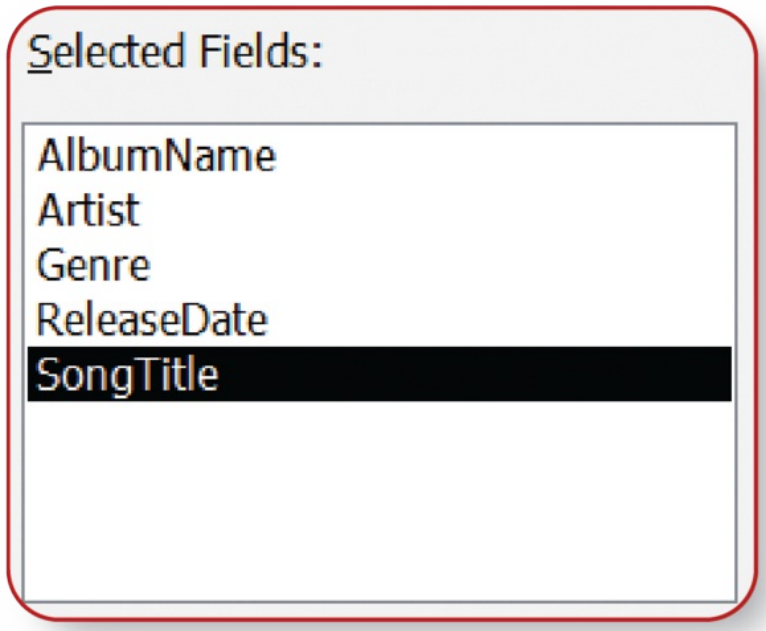


FIGURE 3-95 Completed *Selected Fields* window

k. Click the **Next** button. The second page of the *Simple Query Wizard* displays. Because of the relationship between the two tables, Access asks you whether you want a detail or summary query.

l. Leave the radio button selected for **Detail** and click the **Next** button.

m. Change the title in the *Title* box to SongsOnAlbums.

n. Click **Finish** to save and run the query. The query results should match those shown in **Figure 3-96**, displaying 841 total records.

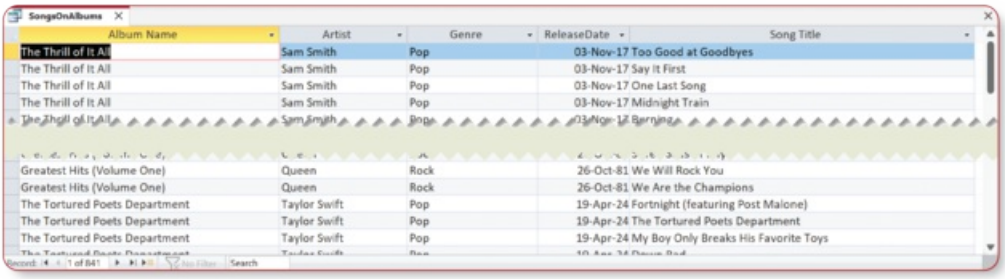


FIGURE 3-96 Query results of *SongsOnAlbums* query

8. Edit the query in *Design* view to add criteria to find songs on pop albums released in 2015, 2016, or 2017.

a. Click the **View** button [*Home* tab, *Views* group] and select the **Design View**

option to switch to *Design* view of the query.

b. Type Pop in the *Criteria* row cell of the *Genre* field.
c. Tab out of that field. Notice that Access automatically places quotation marks around the text criteria.
d. Click the **Run** button [*Query Design* tab, *Results* group] to run the query. The query should open in *Datasheet* view and display the 247 songs that were on pop albums.
e. Switch back to *Design* view and type >=#1/1/2015# And <#1/1/2018# in the *Criteria* row cell of the *ReleaseDate* field.
f. Click the **Run** button [*Query Design* tab, *Results* group]. The query should display 76 songs from Sam Smith's *The Thrill of It All*, Kelly Clarkson's *Meaning of Life*, One Direction's *Made in the A.M.*, Taylor Swift's *Reputation*, Lorde's *Melodrama* and Rihanna's *Anti* albums.

9. Save a copy of the query.
   a. Click the **Save As** button [*File* tab].
   b. Select the **Save Object As** button and then click the **Save As** button.
   c. Replace the suggested object name in the *Save 'SongsOnAlbums' to* box with SongsOnPopAlbums2015Thru2017.
   d. Click **OK**.
   e. Close the query.
10. Edit the *SongsOnAlbums* query in *Design* view to add a parameter for the *Artist* field.
    a. Locate the *Queries* group of the *Navigation Pane*, and select the **SongsOnAlbums** query. Right-click to open the context menu and select the **Design View** option to open the query in *Design* view.
    b. Type [Show songs by which Artist?] in the *Criteria* row cell of the *Artist* field.
    c. Click the **Run** button [*Query Design* tab, *Results* group] to run the query. The *Enter Parameter Value* dialog box displays.
    d. Type Taylor Swift and click **OK** (**Figure 3-97**). The query should open in *Datasheet* view and display the 74 songs on albums released by Taylor Swift.

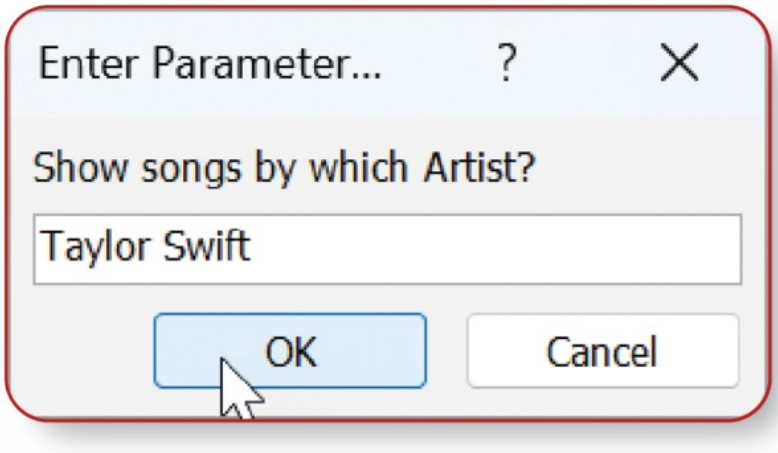
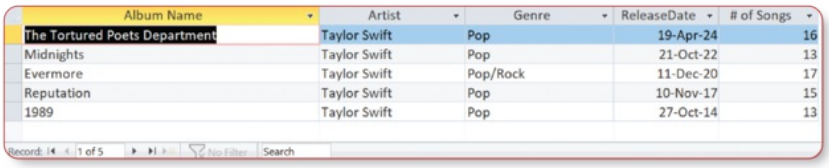


FIGURE 3-97 ***Enter Parameter Value*** **dialog box**

11. Edit the query to add sorting.
    a. Click the **Design View** icon in the *Status* bar to switch back to *Design* view of the query.
    b. Click the **Sort** row cell of the *ReleaseDate* field, click the **drop-down arrow**, and select **Descending**.
    c. Click the **Run** button [*Query Design* tab, *Results* group] to run the query. The *Enter Parameter Value* dialog box displays.
    d. Type Taylor Swift and click **OK**.
    e. Verify that the results display in descending order on the *ReleaseDate* field.
12. Save a copy of the query.
    a. Click the **Save As** button [*File* tab].
    b. Select the **Save Object As** button and then click the **Save As** button.
    c. Replace the suggested object name in the *Save 'SongsOnAlbums' to* box with SongCountArtistParameter and click **OK**.
13. Edit the query to add a *Total* row.
    a. Click the **Design View** icon in the *Status* bar to switch back to *Design* view.
    b. Click the **Totals** button [*Query Design* tab, *Show/Hide* group].
    c. Click the **Total** row cell for the *SongTitle* field.
    d. Click the **drop-down arrow** and select **Count**.
    e. Click the **Property Sheet** button [*Query Design* tab, *Show/Hide* group].
    f. Enter # of Songs in the *Caption* property.
    g. Close the *Property Sheet*.
14. Click the **Save** button to save the query.

15. Test the query.
    a. Click the **Run** button [*Query Design* tab, *Results* group] to run the query. The *Enter Parameter Value* dialog box displays.
    b. Type Taylor Swift and click **OK**. The query should open in *Datasheet* view and display data, including the *# of Songs*, on the five albums by Taylor Swift.
    c. Extend the width of the *ReleaseDate* and *# of Songs* columns as needed so that your datasheet is similar to **Figure 3-98**.



Album Name	Artist	Genre	ReleaseDate	# of Songs
The Tortured Poets Department	Taylor Swift	Pop	19-Apr-24	16
Midnights	Taylor Swift	Pop	21-Oct-22	13
Evermore	Taylor Swift	Pop/Rock	11-Dec-20	17
Reputation	Taylor Swift	Pop	10-Nov-17	15
1989	Taylor Swift	Pop	27-Oct-14	13

Record: 1 of 5 | No Filter | Search

FIGURE 3-98 Query results with *Count* aggregate function

    d. Save the changes to the query.
16. Close the query.
17. Close the database.

A3-213

A3-214

A3-215

A3-216

Guided Project 3-2 - SIMnet Project

San Diego Sailing wants to create three queries. To ensure consistency, the starting file is provided for you. Use *Design* view to create, edit, add aggregate functions, and add criteria to a query to find the total dollar value of the rentals for each boat in its fleet. After saving and testing the query, create a second query that uses aggregate functions and a parameter. Finally, create a query to find which boat types have been rented.

[Student Learning Outcome 3.2, Student Learning Outcome 3.3, Student Learning Outcome 3.4, Student Learning Outcome 3.5, Student Learning Outcome 3.6, Student Learning Outcome 3.8]

File Needed: ***SanDiegoSailing-03.accdb*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Name: ***[your initials] Access 3-2.accdb***

Skills Covered in This Project

- Create a query using *Design* view.
- Add fields to a query.
- Add criteria to a query.
- Execute a query.
- Save and test a query.
- Save a copy of a query.
- Add a parameter.
- Use aggregate functions.
- Use the *Unique Values* property.

---

1. Open the ***SanDiegoSailing-03.accdb*** database file. If a security risk message displays, click the **X** to close the message.
2. Save a new copy of your database as [your initials] Access 3-2.
3. Enable content in the database.
4. Create a new summary query in *Design* view. San Diego Sailing wants to find out the total dollar value of the full day rentals, by boat, from the boats that have been rented. If a boat has been rented, a record displays in the *SDRentals* table.
   a. Click the **Query Design** button [*Create* tab, *Queries* group] to open the *Query Design* window and the *Add Tables* task pane.
   b. Double-click the **SailboatFleet** table to add it to the *Query Design* window.
   c. Double-click the **SDRentals** table to add it to the *Query Design* window.
   d. Click the **X** in the right corner of the *Add Tables* task pane to close it.
   e. Right-click inside each table to open the context menu and select **Size to Fit** to increase the size of each table object.
   f. Click the **drop-down arrow** in the first *Field* row cell of the query design grid and select **SDRentals.FKBoatID**.
   g. Click the **second cell** in the *Field* row, click the **drop-down arrow**, and select **SailboatFleet.BoatType**.
   h. Click the **third cell** in the *Field* row, click the **drop-down arrow**, and select **SailboatFleet.FullDayRentalRate**.
   i. Click the **fourth cell** in the *Field* row, click the **drop-down arrow**, and select **SDRentals.FourHourRental?**.
   j. Click the **Totals** button [*Query Design* tab, *Show/Hide* group].
   k. Click the **Run** button [*Query Design* tab, *Results* group] to execute the query. The query should open in *Datasheet* view and display 13 records (**Figure 3-99**). This query only shows boats that have been rented. At most a *Boat ID* appears in two rows; one row if the *Four Hour Rental?* box is checked

and another row if the *Four Hour Rental?* box is not checked.

Boat ID	Boat Type	Full Day Rate	Four Hour Re
1003	Catalina 270	$205.00	☑
1003	Catalina 270	$205.00	☐
1015	Catalina 270	$205.00	☑
1015	Catalina 270	$205.00	☐
1146	Hunter 33	$355.00	☐
1152	Capri 22 Mk II	$121.00	☑
1152	Capri 22 Mk II	$121.00	☐
1185	Hunter 36	$395.00	☐
1225	Hunter 36	$395.00	☑
1225	Hunter 36	$395.00	☐
1310	Beneteau 373	$455.00	☐
1401	Capri 22 Mk II	$121.00	☑
1419	Hunter 33	$355.00	☑

Record: 1 of 13 | No Filter | Search

FIGURE 3-99 **Sailboat query results**

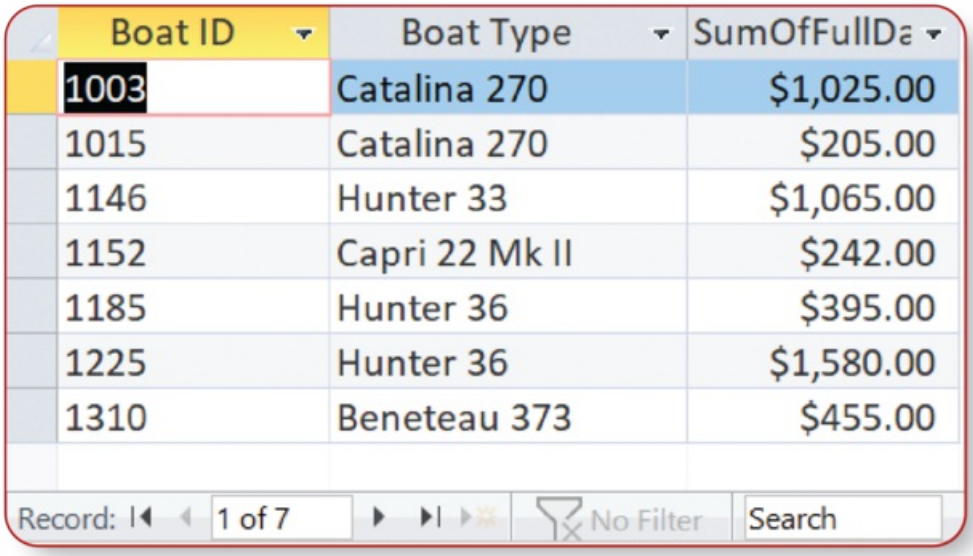
5. Edit the query to add aggregate functions. Because you are looking only for rentals that were for a full day, use the "No" value on the *FourHourRental?* field.
   a. Click the **View** button [*Home* tab, *Views* group] and select the **Design View** option to switch back to *Design* view of the query.
   b. Click the **Total** row cell for the *FullDayRentalRate* field.
   c. Click the **drop-down arrow** and select **Sum**.
   d. Click the **Total** row cell for the *FourHourRental?* field.
   e. Click the **drop-down arrow** and select **Where**. This causes the *Show* row check box for the *FourHourRental?* field to be deselected.
   f. Click the **Criteria** row cell for the *FourHourRental?* field and enter No. The *IntelliSense* feature in Access may suggest the value of "Now" while you are typing. Press the **Esc** key to hide the list and then tab out of the field. The query window should look similar to **Figure 3-100**.



Field:	FKBoatID	BoatType	FullDayRentalRate	FourHourRental?
Table:	SDRentals	SailboatFleet	SailboatFleet	SDRentals
Total:	Group By	Group By	Sum	Where
Sort:				
Show:	☑	☑	☑	☐
Criteria:				No
or:				

FIGURE 3-100 **Query design grid for the summary query with criteria**

g. Click the **Run** button. The query should open in *Datasheet* view and display seven records (**Figure 3-101**). The *Boat ID* now displays only once because the criteria limits the results only to the full day rentals.



Boat ID	Boat Type	SumOfFullDa
1003	Catalina 270	$1,025.00
1015	Catalina 270	$205.00
1146	Hunter 33	$1,065.00
1152	Capri 22 Mk II	$242.00
1185	Hunter 36	$395.00
1225	Hunter 36	$1,580.00
1310	Beneteau 373	$455.00

Record: 1 of 7 No Filter Search

FIGURE 3-101 **Results from completed *FullDayRentalsByBoatSummary* query**

6. Click the **Save** button and save the query as FullDayRentalsByBoatSummary.
7. Verify that that query works correctly.
   a. Open the *SDRentals* table in *Datasheet* view.
   b. Click the **drop-down arrow** in the *Boat ID* field name cell and select the **Sort A to Z** option.
   c. Click the **drop-down arrow** in the *Four Hour Rental?* field name cell and select the **Sort Cleared to Selected** option. You can see that *Boat ID 1003* has five full day rentals. From **Figure 3-99** you know that the full day rate for that boat is $205.00 and 5 × $205 = $1,025.00. This matches the results of your query.
   d. Click the **Remove Sort** button [*Home* tab, *Sort & Filter* group].
   e. Close the *SDRentals* table. If prompted, do not save the changes to the table.

8. Save a copy of the query.
   a. Click the **Save As** button [*File* tab].
   b. Select the **Save Object As** button and then click the **Save As** button.
   c. Replace the suggested name with Parameter-FullDayRentalsByBoatSummary and click **OK**. This second query will enable San Diego Sailing to enter the date range for the summary query and will count the number of rentals.
9. Edit the query to add additional fields and an aggregate function and parameters.
   a. Click the **Design View** icon in the *Status* bar.
   b. Drag the **FullDayRentalRate** field from the *SailboatFleet* table to the fifth column in the query design grid. (Yes, this field is in the query twice!)
   c. Click the **Total** row cell for this field, click the **drop-down arrow**, and select **Count**.
   d. Drag the **RentalDate** field from the *SDRentals* table to the sixth column in the query design grid.
   e. Click the **Total** row cell for this field, click the **drop-down arrow**, and select **Where**. This causes the *Show* row check box for the *RentalDate* field to be deselected.
   f. Click the **Criteria** row cell of the *RentalDate* field.
   g. Right-click and select **Zoom**.
   h. Type Between [Enter the Start Date] And [Enter the End Date] in the *Zoom* box to add the two parameters.
   i. Click **OK**. The query window should look similar to **Figure 3-102**.

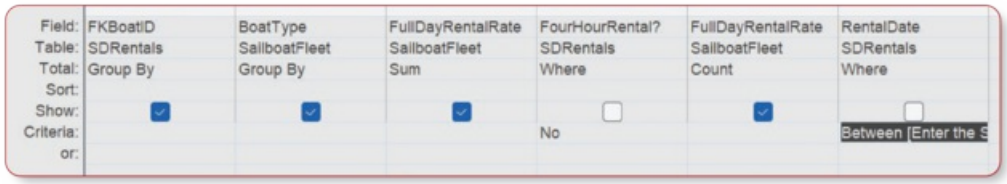


FIGURE 3-102 Query window with aggregate functions and a parameter

   j. Click the **Save** button and save the changes to the query.
10. Test the query.
   a. Click the **Run** button.
   b. Enter 7/1/2026 in the *Enter the Start Date* box of the *Enter Parameter Value* dialog box.
   c. Click **OK**.
   d. Enter 7/31/2026 in the *Enter the End Date* box of the *Enter Parameter Value* dialog box.

e. Click **OK**. The query should open in *Datasheet* view and display the records shown in **Figure 3-103**.

Boat ID	Boat Type	SumOfFullDa	CountOfFullI
1146	Hunter 33	$355.00	1
1152	Capri 22 Mk II	$121.00	1
1225	Hunter 36	$1,185.00	3
1310	Beneteau 373	$455.00	1

Record: 1 of 4 | No Filter | Search

FIGURE 3-103 **Query results with *Sum* and *Count* aggregate functions and parameter**

f. Click the **Save** button to save the changes made to the query.

g. Close the query.

11. Review the *Parameter-FullDayRentalsByBoatSummary* query.

a. Reopen the query in *Design* view. Notice that Access has reordered the position of the fields. The two fields (*FullDayRentalRate* and *RentalDate*) that use the *Where* option on the *Total* row have been moved to the right side of the query design grid. This does not affect the way the query runs.

b. Close the query.

12. Create a new query in *Design* view. San Diego Sailing wants to find out what boat types have been rented so it can decide whether to adjust pricing or marketing of its boat types. If a boat has been rented, a record of that rental exists in the *SDRentals* table.

a. Click the **Query Design** button [*Create* tab, *Queries* group] to open the *Query Design* window and the *Add Tables* task pane.

b. Click the **Tables** tab in the *Add Tables* task pane. Double-click the **SDRentals** table and double-click the **SailboatFleet** table to add them to the query.

c. Click the **X** in the right corner of the *Add Tables* task pane to close it.

d. Right-click inside each table to open the context menu and select **Size to Fit** to increase the size of each table.

e. Click the **drop-down arrow** in the first *Field* row cell in the query design grid and select **SDRentals.FKBoatID**.

f. Click the **Sort** row, click the **drop-down arrow**, and select **Ascending**.

g. Click the **second cell** in the *Field* row, click the **drop-down arrow**, and select **SailboatFleet.BoatType**.

h. Click the **Run** button [*Query Design* tab, *Results* group] to execute the query. The query should open in *Datasheet* view and display 28 records (

Figure 3-104). Notice that in a number of instances the same *Boat ID* displays multiple times, once for each time that boat was rented.

Boat ID	Boat Type
1003	Catalina 270
1003	Catalina 270
1003	Catalina 270
1003	Catalina 270
1003	Catalina 270
1003	Catalina 270
1003	Catalina 270
1003	Catalina 270
1015	Catalina 270
1015	Catalina 270
1146	Hunter 33
1146	Hunter 33
1146	Hunter 33
1152	Capri 22 Mk II
1152	Capri 22 Mk II
1152	Capri 22 Mk II
1152	Capri 22 Mk II
1152	Capri 22 Mk II
1152	Capri 22 Mk II
1185	Hunter 36
1225	Hunter 36
1225	Hunter 36
1225	Hunter 36
1225	Hunter 36
1225	Hunter 36
1310	Beneteau 373
1401	Capri 22 Mk II
1419	Hunter 33

Record: 1 of 28 No Filte

FIGURE 3-104 ***BoatID*** **query results**

13. Edit the query to display *Unique Values*.
    a. Click the **Design View** icon in the *Status* bar to switch back to *Design* view of the query.
    b. Click the **Property Sheet** button [*Query Design* tab, *Show/Hide* group] to open

the *Property Sheet*.

c. Click anywhere in the *Query Window* so that the *Selection type* in the *Property Sheet* updates to display *Query Properties*.

d. Click the **Unique Values** property box and select **Yes**. The query window should look similar to **Figure 3-105**.

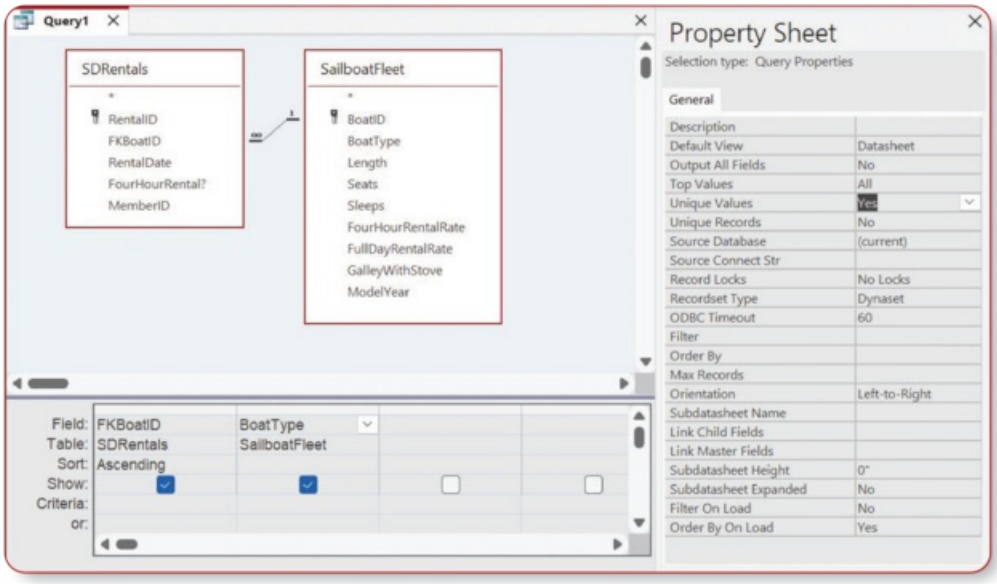


FIGURE 3-105 **Set the *Unique Values* property in the *Property Sheet* of the query**

e. Close the *Property Sheet*.

f. Click the **Run** button. The query should open in *Datasheet* view and display 9 records (**Figure 3-106**). Each *Boat ID* now displays only once, but the *Boat Types* are still repeated.

Boat ID	Boat Type
1003	Catalina 270
1015	Catalina 270
1146	Hunter 33
1152	Capri 22 Mk II
1185	Hunter 36
1225	Hunter 36
1310	Beneteau 373
1401	Capri 22 Mk II
1419	Hunter 33

Record: 1 of 9 No Filte

FIGURE 3-106 **Query results with repeated *BoatType* values**

14. Edit the query so the *Boat Type* displays only once. The *Boat Type* is displaying more than once because the *FKBoatID* field is different for each boat.
    a. Click the **View** button [*Home* tab, *Views* group] and select the **Design View** option to switch back to *Design* view.
    b. Click the **Sort** row of the **FKBoatID** field, click the **drop-down arrow**, and select **(not sorted)**.
    c. Deselect the **Show** row check box for the **FKBoatID** field.
    d. Click the **Run** button. The query should display the five boat types that have been rented at least once (**Figure 3-107**.)

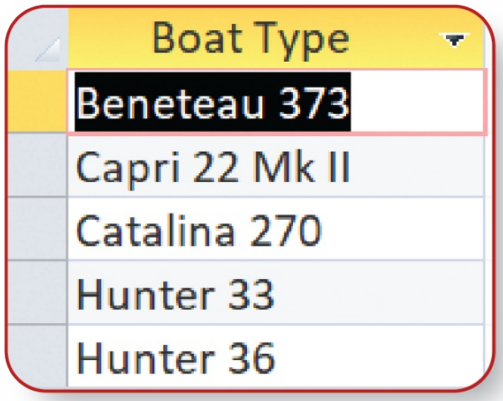


FIGURE 3-107 **Unique records for *BoatType***

    e. Click the **Save** button and save the query as BoatTypesRented.
    f. Close the query.
15. Close the database.

A3-217

A3-218

A3-219

Guided Project 3-3

The American River Cycling Club wants to run three queries on its database. The first query finds which members have participated in races and where they placed in each race. The second query is based on the first one, which you enhance to include a parameter so the club can search only for a particular place finish. Finally, the third query displays division and age group information about the members. To ensure

consistency, the starting file is provided for you. Use *Design* view and the *Simple Query Wizard* to create and edit the queries, add criteria, calculated fields, and a parameter. Save and test the queries to ensure they work correctly.

[Student Learning Outcome 3.1, Student Learning Outcome 3.2, Student Learning Outcome 3.6, Student Learning Outcome 3.7, Student Learning Outcome 3.8]

File Needed: ***AmericanRiver-03.accdb*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Name: ***[your initials] Access 3-3.accdb***

Skills Covered in This Project

- Create a query using the *Simple Query Wizard*.
- Create a query using *Design* view.
- Add fields to a query.
- Execute a query.
- Save and test a query.
- Add calculated fields to a query.
- Add a parameter to a query.
- Use *Group By* in a summary query.

1. Open the ***AmericanRiver-03.accdb*** database file. If a security risk message displays, click the **X** to close the message.
2. Save a new copy of your database as [your initials] Access 3-3.
3. Enable content in the database.
4. Create a new query in *Design* view to find which members have participated in races and what place they got in each race.
   a. Click the **Query Design** button [*Create* tab, *Queries* group] to open the *Query Design* window and the *Add Tables* task pane.
   b. Select the **Members** table.
   c. Press and hold the **Shift** key, select the **RaceResults** table, and click the **Add Selected Tables** button.
   d. Click the **X** in the right corner of the *Add Tables* task pane to close it.
   e. Right-click inside each table to open the context menu and select **Size to Fit** to increase the size of each table.
   f. Click the **first cell** in the *Field* row of the query design grid.
   g. Press **Shift+F2** to open the *Zoom* box.
   h. Type MemberName: Left([FirstName],1) & ". " & [LastName] into the window.

i. Click **OK**.

j. Double-click the **RaceID** field from the *Race Results* table to add it into the query design grid.

k. Double-click the **Place** field from the *Race Results* table to add it into the query design grid. Your completed query design grid should look similar to **Figure 3-108**.

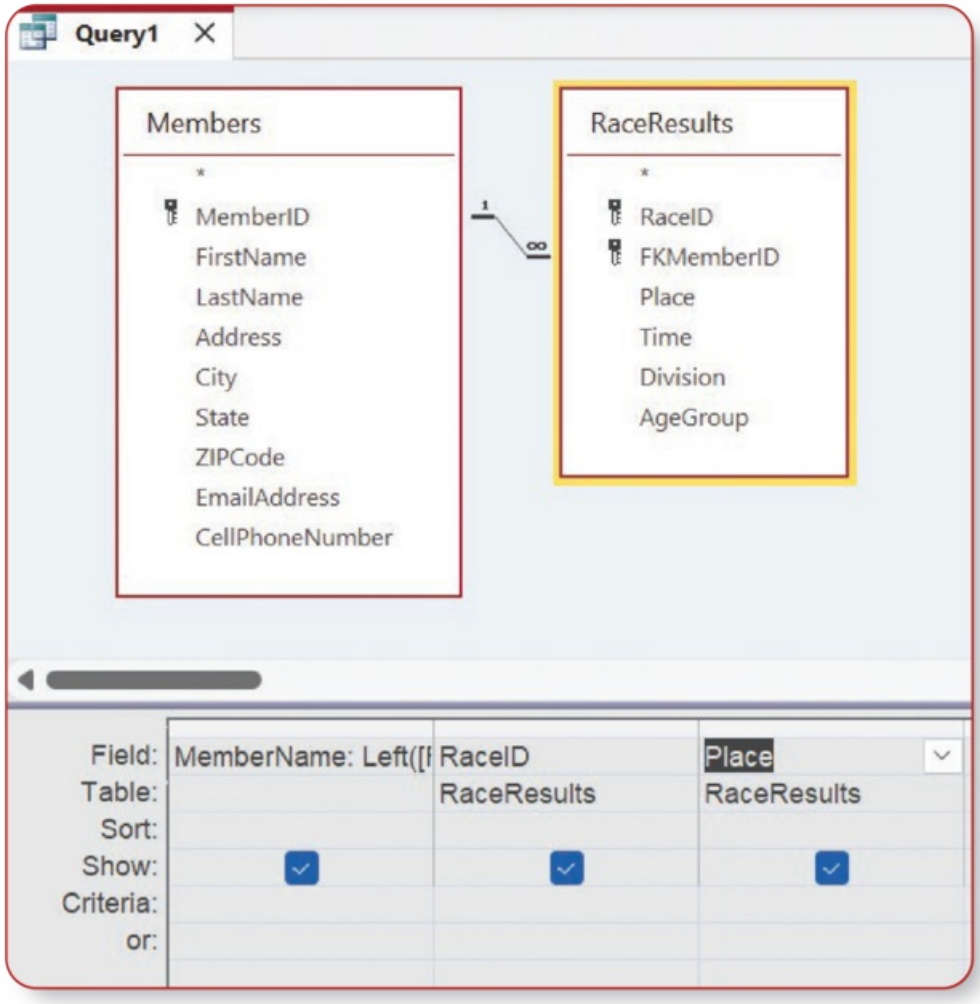


FIGURE 3-108 Query design grid

5. Click the **Save** button and save the query as MemberRaceResults.

6. Click the **Datasheet View** icon in the *Status* bar to run the query. The query should open in *Datasheet* view and display 37 records. A sample of the results is shown in **Figure 3-109**.

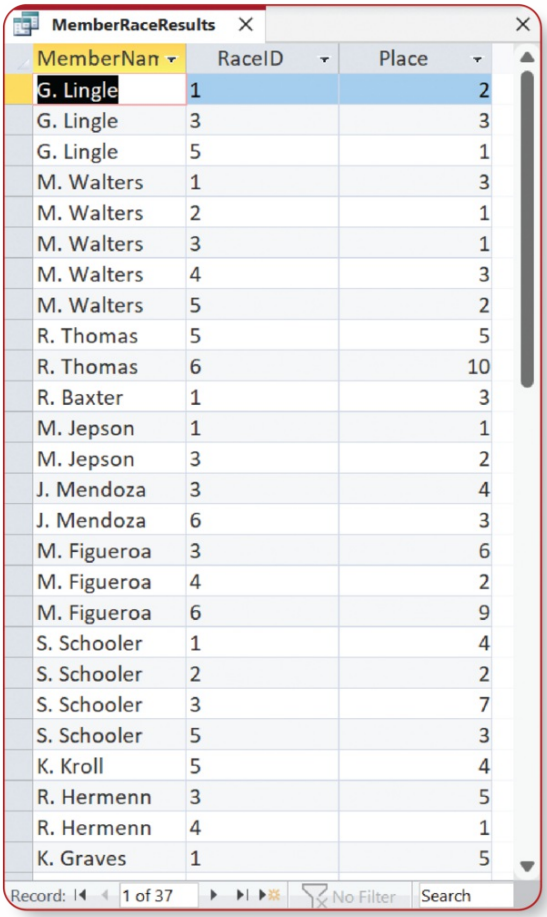
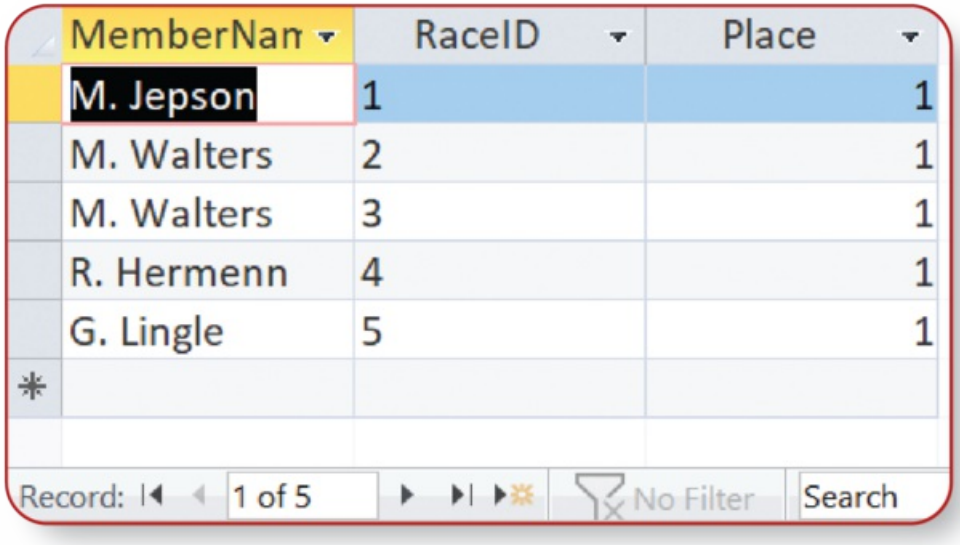


FIGURE 3-109 **Query results**

7. Save a copy of the query.
   a. Click the **Save As** button [*File* tab].
   b. Select the **Save Object As** button and then click the **Save As** button.
   c. Replace the suggested name with Parameter-MemberRaceResultsPlace.
8. Edit the *Parameter-MemberRaceResultsPlace* query to add a parameter.
   a. Click the **Design View** icon in the *Status* bar to switch back to *Design* view of the query.
   b. Click in the **Criteria** row of the *Place* field and type [Show members who finished in what place? (Enter a number)]. You can use the *Zoom* box or *Expression Builder* to enter the parameter.
   c. Click the **Save** button to save the query.
   d. Click the **Run** button to test the query. The *Enter Parameter Value* dialog box displays.
   e. Enter 1 and click the **OK** button. The query results should display the five

records shown in **Figure 3-110**.



MemberNan	RaceID	Place
M. Jepson	1	1
M. Walters	2	1
M. Walters	3	1
R. Hermenn	4	1
G. Lingle	5	1

Record: 1 of 5 No Filter Search

FIGURE 3-110 Query results

f. Switch back to *Design* view and then run the query again.

g. Click the **OK** button in the *Enter Parameter Value* dialog box without entering a value. The query results should display with no records showing because no records match the place value "null," or no value.

9. Close the query.

10. Create a new query using the *Simple Query Wizard*. The club wants to display division and age group information about the members, based on the races in which they competed.

a. Click the **Query Wizard** button [*Create* tab, *Queries* group] to launch the *Query Wizard*.

b. Select **Simple Query Wizard** in the *New Query* dialog box and click **OK** to launch the *Simple Query Wizard*.

c. Click the **Tables/Queries** drop-down arrow and select the **Members** table.

d. Select **MemberID** in the *Available Fields* window.

e. Click the **Move Single Field** button to move the field into the *Selected Fields* window.

f. Select **FirstName** in the *Available Fields* window and click the **Move Single Field** button.

g. Double-click **LastName** in the *Available Fields* window to move the field into the *Selected Fields* window.

h. Click the **Tables/Queries** drop-down arrow and select the **RaceResults** table.

i. Double-click the **Division** field and double-click the **AgeGroup** field to move them into the *Selected Fields* window. The completed *Query Wizard* window should match **Figure 3-111**.

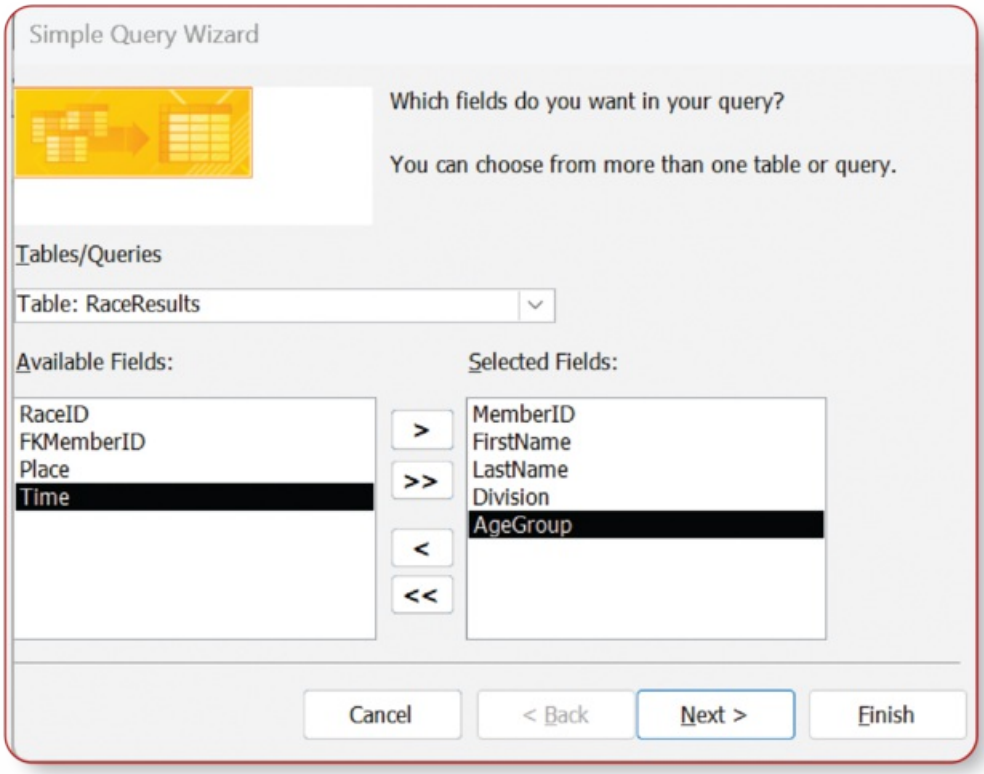


FIGURE 3-111 **Completed *Simple Query Wizard***

j. Click the **Next** button. The second page of the *Simple Query Wizard* displays. Because of the relationship between the two tables, Access asks you whether you want a detail or summary query.

k. Leave the radio button selected for **Detail** and click the **Next** button.

l. Change the title in the *Title* box to MemberDivisionAndAgeGroup.

m. Click **Finish** to save and run the query. The query results display 37 total records, one for each of the records in the *RaceResults* table.

11. Edit the query in *Design* view to add a *Total* row. This enables you to group the records to remove the duplicate records.

a. Click the **Design View** icon in the *Status* bar to switch back to *Design* view of the query.

b. Click the **Totals** button [*Query Design* tab, *Show/Hide* group]. *Group By* displays in the *Total* row for each field.

c. Click the **Save** button to save the query.

12. Click the **Run** button. The query should open in *Datasheet* view and display 17

records (Figure 3-112). Notice that two records still display for Marco Guzman indicating that he has run races in two age groups. He must have had a birthday that caused him to change age groups.

MembersDivisionAndAgeGroup

Member ID	First Name	Last Name	Division	AgeGroup
1	Geneva	Lingle	F	>=20 and <30
2	Megan	Walters	F	>=30 and <40
3	Ryan	Thomas	M	>=30 and <40
4	Roy	Baxter	M	>=30 and <40
5	Margaret	Jepson	M	>=30 and <40
6	Javier	Mendoza	M	>=30 and <40
7	Melanie	Figueroa	F	>=20 and <30
8	Sue	Schooler	F	>=30 and <40
9	Kelsey	Kroll	F	<20
10	Rick	Hermenn	M	>=20 and <30
11	Karen	Graves	F	>=30 and <40
12	Robyn	Constantini	F	<20
14	Randy	Clemmins	M	>=30 and <40
15	Amber	Harrison	F	>=20 and <30
17	Marco	Guzman	M	>=20 and <30
17	Marco	Guzman	M	>=30 and <40
18	Dean	Teague	M	>=30 and <40

Record: 1 of 17 No Filter Search

FIGURE 3-112 Query results of *MemberDivisionAndAgeGroup* query

13. Close the query.
14. Close the database.

Independent Project 3-4

You create a parameter query for the music database you have worked with in previous projects. To ensure consistency, the starting file is provided for you. Use *Design* view to create the query. Edit the query to add criteria. After saving and testing the query, edit the query to add a parameter.

Student Learning Outcome 3.2, Student Learning Outcome 3.3, Student Learning Outcome 3.4, Student Learning Outcome 3.5,

Student Learning Outcome 3.6]

File Needed: ***MusicDatabase-03.accdb*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Name: ***[your initials] Access 3-4.accdb***

Skills Covered in This Project

- Create a query in *Design* view.
- Edit a query in *Design* view.
- Add compound criteria to a query.
- Execute a query.
- Save a query.
- Sort query results.
- Add a parameter to a query.

1. Open the ***MusicDatabase-03.accdb*** database file. Overwrite the file when prompted if you downloaded this file in **Guided Project 3-1**. If a security risk message displays, click the **X** to close the message.
2. Save a new copy of your database as [your initials] Access 3-4.
3. Enable content in the database.
4. Open the *Songs* table in *Datasheet* view to verify that the table contains 841 songs.
5. Close the table.
6. Create a new query in *Design* view. The query finds songs with lengths that are within a certain range.
   a. Add both tables into the *Query Design* window.
   b. Increase the size of the table objects to display all of the fields.
   c. Add the following fields into the query in the order listed: **AlbumName**, **Artist**, **SongTitle**, and **Length** (from the *Songs* table).
7. Save the query as 3to4MinuteSongs-Artist-or-Album-Choice.
8. Enter the following criteria in the *Length* field: Between #0:03:00# and #0:04:00#. Due to the way Access stores times, Access changes this criteria to read: *Between #12:03:00 AM# And #12:04:00 AM#*.
9. Save the changes and run the query. The datasheet should display 439 songs.
10. Change to *Design* view to edit the query and add a parameter. The parameter should enable the user to enter either the *Album Name* or the *Artist Name* to find songs.
    a. Type [Enter the Album Name] as the criteria for the *AlbumName* field.
    b. Click the *Or* row, and type [Enter the Artist Name] as the criteria for the *Artist*

field.

c. Copy the criteria in the *Length* field and paste it into the *Or* row cell of the *Length* field. You need the *Length* criteria to be in both the *Criteria* row and the *Or* row.

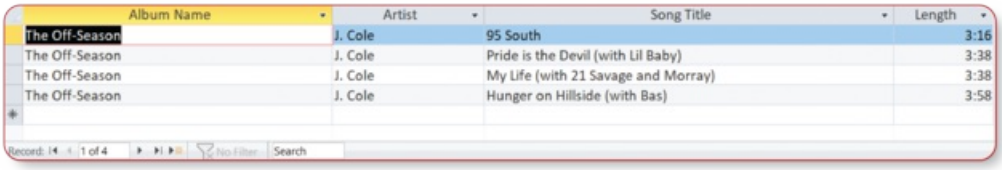
11. Sort the results to display in ascending order by song length.
12. Save the changes to the query. The completed query design grid should be similar to **Figure 3-113**.



Field:	AlbumName	Artist	SongTitle	Length
Table:	Albums	Albums	Songs	Songs
Sort:				Ascending
Show:	☑	☑	☑	☑
Criteria:	[Enter the Album Name]			Between #12:03:00 AM# And #12:04:00 AM#
or:		[Enter the Artist Name]		Between #12:03:00 AM# And #12:04:00 AM#

FIGURE 3-113 **Query design grid of query showing multiple parameters and compound criteria**

13. Run the query to verify that it works.
    a. Type The Off-Season in the *Enter the Album Name Enter Parameter Value* dialog box, and click **OK**.
    b. Don't enter anything in the *Enter the Artist Name Enter Parameter Value* dialog box, and click **OK**. The datasheet should show the four (out of 12) songs from this album that meet the criteria (**Figure 3-114**). You can verify the song count on this album by looking in the *Songs* table for *AlbumID 17*.



Album Name	Artist	Song Title	Length
The Off-Season	J. Cole	95 South	3:16
The Off-Season	J. Cole	Pride is the Devil (with Lil Baby)	3:38
The Off-Season	J. Cole	My Life (with 21 Savage and Morray)	3:38
The Off-Season	J. Cole	Hunger on Hillside (with Bas)	3:58

Record: 1 of 4 | No Filter | Search

FIGURE 3-114 **Query results for *The Off-Season* songs between three and four minutes long**

14. Switch back to *Design* view and then run the query again.
    a. Don't enter anything in the *Enter the Album Name Enter Parameter Value* dialog box, and click **OK**.
    b. Type J. Cole in the *Enter the Artist Name Enter Parameter Value* dialog box, and click **OK**. The datasheet should show the 11 (out of 24) songs from this artist that meet the criteria (**Figure 3-115**). You can verify the song count for this artist by looking in the *Albums* table for *J. Cole* and expanding the **plus sign**.



3to4MinuteSongs-Artist-or-Album-Choice

Album Name	Artist	Song Title	Length
KOD	J. Cole	1985 (Intro to The Fall Off)	3:10
KOD	J. Cole	KOD	3:11
The Off-Season	J. Cole	95 South	3:16
KOD	J. Cole	One an Addict (Interlude)	3:17
KOD	J. Cole	Kevin's Heart	3:20
KOD	J. Cole	ATM	3:36
The Off-Season	J. Cole	Pride is the Devil (with Lil Baby)	3:38
The Off-Season	J. Cole	My Life (with 21 Savage and Morray)	3:38
KOD	J. Cole	Photograph	3:38
KOD	J. Cole	The Cut Off (featuring Kill Edward)	3:57
The Off-Season	J. Cole	Hunger on Hillside (with Bas)	3:58

Record: 1 of 11 | No Filter | Search

FIGURE 3-115 **Query results for *J. Cole* songs between three and four minutes long**

15. Close the query.
16. Close the database.

Independent Project 3-5 - SIMnet Project

The New York Department of Motor Vehicles wants to create four queries. The first query provides summary data on the number of tickets by city and violation. The second query summarizes the total tickets by violation. The third query provides summary data for the total fines assessed against each driver who has had a ticket. Use *Design* view to create the summary queries. Edit these queries to add fields, aggregate functions, and sorting. Save and run the queries. Finally, create a crosstab query to count the number of tickets by primary factor in each city. To ensure consistency, the starting file is provided for you.

[Student Learning Outcome 3.2, Student Learning Outcome 3.4, Student Learning Outcome 3.8, Student Learning Outcome 3.9]

File Needed: ***NewYorkDMV-03.accdb*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Name: ***[your initials] Access 3-5.accdb***

Skills Covered in This Project

- Create a summary query in *Design* view.
- Edit a query in *Design* view.
- Add fields to a query.
- Execute a query.

- Save a query.
- Sort query results.
- Add aggregate functions.
- Create a crosstab query.

---

1. Open the ***NewYorkDMV-03.accdb*** database file. If a security risk message displays, click the **X** to close the message.
2. Save a new copy of your database as [your initials] Access 3-5.
3. Enable content in the database.
4. Create a new summary query in *Design* view. The query counts the number of tickets issued by city and violation.
   a. Add the *Tickets* table into the *Query Design* window.
   b. Increase the size of the table object to display all of the fields.
   c. Add the following fields into the query: **City**, **PrimaryFactor**, and **TicketNumber**.
   d. Add the **Total** row to the query.
   e. **Group By** the *City* and *PrimaryFactor* fields and **Count** the *TicketNumber* field.
   f. Enter # of Tickets in the *Caption* property of the *TicketNumber* field.
5. Save the query as TicketCountByCityAndFactor.
6. Run the query. The datasheet should display 25 records.
7. Adjust the field column widths using **AutoFit** or **Best Fit**. The datasheet should be similar to **Figure 3-116**.

City	PrimaryFactor	# of Tickets
Albany	Alcohol	1
Albany	Improper Turn	2
Albany	Passing/Lane Violation	1
Albany	Unsafe Speed	3
Buffalo	Alcohol	1
Buffalo	Improper Cell Phone Use	1
Buffalo	Improper Electronic Device Use/Texting	1
Buffalo	Unsafe Speed	1
New York	Alcohol	1
New York	Passing/Lane Violation	1
New York	Unsafe Speed	3
Syracuse	Alcohol	1
Syracuse	Expired Registration	1
Syracuse	Improper Cell Phone Use	1
Syracuse	Improper Electronic Device Use/Texting	1
Syracuse	Improper Turn	1
Syracuse	Traffic Control Disregarded	1
Utica	Failed to Yield R.O.W.	1
Utica	Improper Cell Phone Use	2
Utica	Improper Electronic Device Use/Texting	3
Utica	Improper Turn	2
Utica	Passing/Lane Violation	1
Utica	Unsafe Speed	4
Yonkers	Alcohol	5
Yonkers	Traffic Control Disregarded	1

Record: 1 of 25 No Filter Search

FIGURE 3-116 **Summary query results counting tickets by city and factor**

8. Save the changes to the query.
9. Save a copy of the query as TicketCountByFactor.
10. Edit the *TicketCountByFactor* query in *Design* view. The query should show the total tickets issued for each violation factor, sorted in descending order by count.
    a. Delete the *City* field.
    b. Sort the *TicketNumber* field in descending order.
11. Save and run the query. The datasheet should match **Figure 3-117**.

PrimaryFactor	# of Tickets
Unsafe Speed	11
Alcohol	9
Improper Turn	5
Improper Electronic Device Use/Texting	5
Improper Cell Phone Use	4
Passing/Lane Violation	3
Traffic Control Disregarded	2
Failed to Yield R.O.W.	1
Expired Registration	1

Record: 1 of 9 No Filter Search

FIGURE 3-117 **Summary query results counting tickets by factor**

12. Close the query.
13. Create a new summary query in *Design* view. The query provides summary data on the total fines assessed against each driver.
    a. Add both tables into the *Query Design* window.
    b. Increase the size of the table objects to display all of the fields.
    c. Add the following fields into the query: **LicenseNumber**, **FirstName**, **LastName**, **Fine**, and **TicketNumber**.
    d. Add the **Total** row to the query.
    e. **Group By** the *LicenseNumber*, *FirstName*, and *LastName* fields, **Sum** the *Fine* field, and **Count** the *TicketNumber* field.
    f. Sort the *Fine* field in descending order.
14. Save the query as TicketsByDriver.
15. Run the query. The datasheet should display 24 drivers who have received tickets, sorted in descending order by the total dollar amount of their fines (**Figure 3-118**).

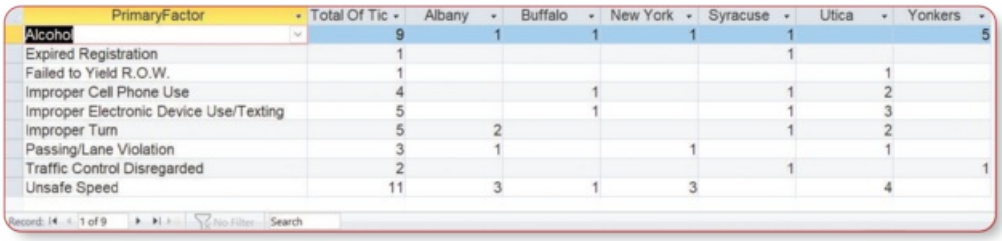
LicenseNumb	FirstName	LastName	SumOfFine	CountOfTicke
15500786	Brian	Shin	$1,130.00	4
10004387	Miranda	Jones	$840.00	2
15503625	Corey	Norman	$840.00	2
12348279	Sharon	Altier	$700.00	3
12348692	Michael	Finch	$630.00	3
12389049	Bonnie	Hirshman	$550.00	2
12344537	Austin	Davis	$510.00	2
39989780	Kevin	Nguyen	$390.00	4
10001422	Ricardo	Juarez	$310.00	3
18957217	Jessica	Healy	$300.00	2
12394163	Jake	Harvey	$200.00	1
39992366	Mark	Watson	$180.00	1
12346123	Claudia	Schooler	$150.00	1
15500914	Michelle	Taylor	$150.00	1
18955806	Nancy	Smith	$150.00	1
39998182	Susanna	Orga	$130.00	1
10003086	Wayne	Moreno	$120.00	1
12345838	Eric	Wilson	$100.00	1
12345678	Emily	Garcia	$90.00	1
12388795	Caroline	Doiron	$90.00	1
39998181	Ellie	Nassiri	$90.00	1
10004372	Caterina	Malek	$90.00	1
10001786	Rosie	Hendrick	$90.00	1
39992387	Kiana	Caton	$90.00	1

Record: 1 of 24 No Filter Search

FIGURE 3-118 **Summary query results of tickets by driver**

16. Close the query.
17. Create a crosstab query to count the number of tickets by city and primary factor.
    a. Launch the *Query Wizard*, select **Crosstab Query Wizard** and click **OK**. Refer back to **SLO 3.9: Understanding and Building a Crosstab Query** if you need additional guidance.
    b. Select the **Tickets** table, on the first page of the wizard, because that contains the data you want to summarize.
    c. Move the **PrimaryFactor** field to the *Selected Fields* window, on the second page of the wizard, to use as the row headings.
    d. Select the **City** field, on the third page of the wizard, to use as the column headings.
    e. Select the **TicketNumber** field and the **Count** aggregate *function*, on the fourth page of the wizard. Leave the *Yes, include row sums* check box selected.

f. Enter TicketsFactorCityCrosstab as the query name on the last page of the wizard. Click **Finish** to execute the query. The results should match those shown in **Figure 3-119**. Compare the results and layout of this query to the first query you created in this project, *TicketCountByCityAndFactor*.



PrimaryFactor	Total Of Tic	Albany	Buffalo	New York	Syracuse	Utica	Yonkers
Alcoho	9	1	1	1	1		5
Expired Registration	1				1		
Failed to Yield R.O.W.	1					1	
Improper Cell Phone Use	4		1		1	2	
Improper Electronic Device Use/Texting	5		1		1	3	
Improper Turn	5	2			1	2	
Passing/Lane Violation	3	1		1		1	
Traffic Control Disregarded	2				1		1
Unsafe Speed	11	3	1	3		4	

Record: 1 of 9 | No Filter | Search

FIGURE 3-119 **Crosstab query results showing tickets by primary factor in each city, including row sums**

g. Save and close the query.

18. Close the database.

A3-224

A3-225

Independent Project 3-6 - SIMnet Project

Courtyard Medical Plaza wants to create a query to provide details about its tenants and their rental payment history. The starting database file is provided for you. Use *Design* view to create the query. Edit the query to add calculated fields. After saving and testing the query, edit the query to add a parameter.

[Student Learning Outcome 3.2, Student Learning Outcome 3.3, Student Learning Outcome 3.4, Student Learning Outcome 3.5, Student Learning Outcome 3.6, Student Learning Outcome 3.7]

File Needed: ***CourtyardMedicalPlaza-03.accdb*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Name: ***[your initials] Access 3-6.accdb***

Skills Covered in This Project

- Create a query in *Design* view.
- Edit a query in *Design* view.
- Add compound criteria to a query.
- Execute a query.
- Save a query.

- Add calculated fields to a query.
- Sort query results.
- Format query fields.
- Add a parameter to a query.

---

1. Open the ***CourtyardMedicalPlaza-03.accdb*** database file. If a security risk message displays, click the **X** to close the message.
2. Save a new copy of your database as [your initials] Access 3-6.
3. Enable content in the database.
4. Create a new query in *Design* view. The query should display the rental invoice history.
   a. Add both tables into the *Query Design* window.
   b. Increase the size of the table objects to display all of the fields.
   c. Add the following fields into the query: **LastName**, **InvoiceID**, **DueDate**, **DateReceived**, **AmountDue**, and **Discount**.
   d. Run the query to make sure it works. The datasheet should display 54 records. Note that payments for the September invoices have not yet been received.
5. Save the query as InvoiceHistory.
6. Change to *Design* view to edit the query to add calculated fields.
   a. Insert a column to the left of *InvoiceID*.
   b. Add a calculated field in the inserted column to concatenate the *FirstName* and *LastName* fields using the following formula: Doctor: [FirstName] & " " & [LastName].
   c. Don't show the *LastName* field. In a later step you will use that for query criteria.
   d. Insert a column to the left of *Discount*.
   e. Add a calculated field in the inserted column to determine the number of days early the rent was paid using the following formula: DaysPaidEarly: [DueDate]-[DateReceived].
   f. Enter a calculated field to the right of the *Discount* field to determine the net amount of rent due with the following formula: NetRent: [AmountDue]-[Discount].
7. Save your changes and run the query. The datasheet should look similar to **Figure 3-120** and display a total of 54 records.

Doctor	InvoiceID	Due Date	DateReceive	Amount Due	DaysPaidEar	Discount	NetRent
Ashish Agarwal	1	01-Apr-26	3/31/2026	$1,400.00	1		
Ashish Agarwal	10	01-May-26	4/29/2026	$1,400.00	2	$28.00	$1,372.00
Ashish Agarwal	19	01-Jun-26	5/31/2026	$1,400.00	1		
Ashish Agarwal	28	01-Jul-26	7/1/2026	$1,400.00	0		
Ashish Agarwal	37	01-Aug-26	8/1/2026	$1,400.00	0		
Ashish Agarwal	46	01-Sep-26	8/31/2026	$1,400.00	1		
Elizabeth Scher	2	01-Apr-26	4/1/2026	$1,250.00	0		
Elizabeth Scher	14	01-May-26	5/1/2026	$1,250.00	0		
Juan Camacho	32	01-Jul-26	6/29/2026	$1,250.00	2	$25.00	$1,225.00
Juan Camacho	41	01-Aug-26	7/28/2026	$1,250.00	4	$25.00	$1,225.00
Juan Camacho	50	01-Sep-26	9/1/2026	$1,250.00	0		
James Hennes	6	01-Apr-26	4/1/2026	$1,750.00	0		

Record: 1 of 54 No Filter Search

FIGURE 3-120 **Query results showing concatenated and calculated fields**

8. Format query fields.
   a. Adjust the width of the *Doctor* and *DaysPaidEarly* columns using **Best Fit**.
   b. Select a **Short Date** *Format* for the *DueDate* field. Remember to switch to *Design View* and click to select this field before making the change in the *Property Sheet*.
   c. Save your changes.
9. Edit the query to add parameters to search either by last name or by a date range.
   a. Type [Enter the last name or leave blank to select all doctors] as the criteria for the *LastName* field.
   b. Click the *Or* row, and type Between [Enter the Starting Date] And [Enter the Ending Date] as the criteria for the *DueDate* field.
10. Sort the results in ascending order by *LastName* and *DueDate*.
11. Save the query.
12. Run the query.
   a. Type Singh in the *Enter the last name . . . Enter Parameter Value* dialog box and click **OK**.
   b. Don't enter anything in the *Enter the Starting Date Enter Parameter Value* dialog box; click **OK**.
   c. Don't enter anything in the *Enter the Ending Date Enter Parameter Value* dialog box; click **OK**. The datasheet should show the six invoices for Dr. Singh (**Figure 3-121**). Dr. Singh paid her rent early one month this year.

Doctor	InvoiceID	Due Date	DateReceive	Amount Due	DaysPaidEarly	Discount	NetRent
Robyn Singh	8	4/1/2026	4/1/2026	$1,800.00	0		
Robyn Singh	17	5/1/2026	5/1/2026	$1,800.00	0		
Robyn Singh	26	6/1/2026	6/1/2026	$1,800.00	0		
Robyn Singh	35	7/1/2026	6/27/2026	$1,800.00	4	$36.00	$1,764.00
Robyn Singh	44	8/1/2026	8/1/2026	$1,800.00	0		
Robyn Singh	53	9/1/2026		$1,800.00			

Record: 1 of 6 No Filter Search

FIGURE 3-121 **Query results when name parameter is completed**

13. Switch back to *Design* view and then run the query again.
    a. Don't enter anything in the *Enter the last name Enter Parameter Value* dialog box; click **OK**.
    b. Type 7/1/2026 in the *Enter the Starting Date Enter Parameter Value* dialog box and click **OK**.
    c. Type 8/1/2026 in the *Enter the Ending Date Enter Parameter Value* dialog box and click **OK**. The datasheet should show the 18 invoices with a due date between 7/1/2026 and 8/1/2026 (**Figure 3-122**).

Doctor	InvoiceID	Due Date	DateReceive	Amount Due	DaysPaidEarly	Discount	NetRent
Ashish Agarwal	28	7/1/2026	7/1/2026	$1,400.00	0		
Ashish Agarwal	37	8/1/2026	8/1/2026	$1,400.00	0		
Juan Camacho	32	7/1/2026	6/29/2026	$1,250.00	2	$25.00	$1,225.00
Juan Camacho	41	8/1/2026	7/28/2026	$1,250.00	4	$25.00	$1,225.00
Ricardo Flores	31	7/1/2026	7/1/2026	$1,500.00	0		
Ricardo Flores	40	8/1/2026	8/1/2026	$1,500.00	0		
Margaret Foster	30	7/1/2026	7/1/2026	$1,500.00	0		
Margaret Foster	39	8/1/2026	7/30/2026	$1,500.00	2	$30.00	$1,470.00
James Hennessy	33	7/1/2026	7/1/2026	$1,750.00	0		
James Hennessy	42	8/1/2026	8/1/2026	$1,750.00	0		
Steven Norman	36	7/1/2026	7/1/2026	$1,750.00	0		
Steven Norman	45	8/1/2026	7/30/2026	$1,750.00	2	$35.00	$1,715.00
Rick Plice	34	7/1/2026	7/1/2026	$1,550.00	0		
Rick Plice	43	8/1/2026	8/1/2026	$1,550.00	0		
Elizabeth Scher	29	7/1/2026	7/1/2026	$1,250.00	0		
Elizabeth Scher	38	8/1/2026	8/1/2026	$1,250.00	0		
Robyn Singh	35	7/1/2026	6/27/2026	$1,800.00	4	$36.00	$1,764.00
Robyn Singh	44	8/1/2026	8/1/2026	$1,800.00	0		

Record: 1 of 18 No Filter Search

FIGURE 3-122 **Query results when date parameters are completed**

14. Close the query.
15. Reopen the query in *Design* view. Notice that Access has moved the *LastName* field to the right side of the query design grid and also entered a copy of the *DueDate* field with the *Show* row check box deselected. This is due to the way Access processes the query (**Figure 3-123**).

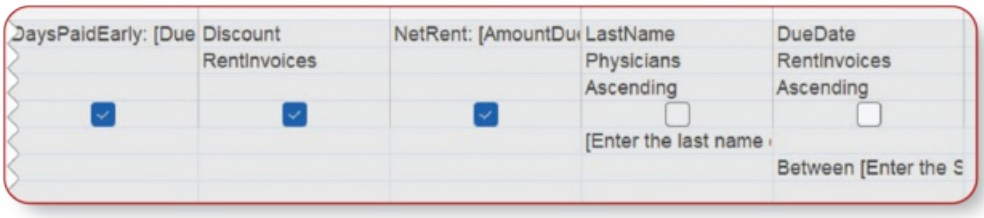


FIGURE 3-123 **Updated query design grid**

16. Close the query.
17. Close the database.

A3-226

A3-227

A3-228

Advanced Project 3-7 - SIMnet Project

Central Sierra Insurance needs help with their database. One of the administrative assistants has created two queries to provide information about the employees. Unfortunately, the queries are not working correctly. For this project, determine why the queries don't work and make the necessary corrections. The starting file is provided for you. Use *Design* view to edit the queries. Use calculated fields, compound criteria, and parameters, and save the queries and test that they work correctly.

[**Student Learning Outcome 3.2**, **Student Learning Outcome 3.3**, **Student Learning Outcome 3.4**, **Student Learning Outcome 3.5**, **Student Learning Outcome 3.6**, **Student Learning Outcome 3.7**, **Student Learning Outcome 3.8**]

File Needed: **CentralSierra-03.accdb** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Name: ***[your initials] Access 3-7.accdb***

Skills Covered in This Project

- Edit a query in *Design* view.
- Add compound criteria to a query.
- Execute a query.
- Save a query.

- Add calculated fields to a query.
- Add a parameter to a query.

---

1. Open the ***CentralSierra-03.accdb*** database file and save a new copy of your database as [your initials] Access 3-7. If a security risk message displays, click the **X** to close the message.
2. Enable the contents in the security warning.
3. Run the *NewSalaryCostSummary* query. The results display in *Datasheet* view (**Figure 3-124**). The query is supposed to summarize results by department and, within the department by title, the total salary cost and the total cost of potentially giving a 4% raise to all employees. Several errors need to be repaired.

First Name	Last Name	Title	Department	SumOfBas	Expr1
Albert	Quiroga	Large Group Specialist	Health and Benefits	$4,700.00	4888
Bert	Pulido	Supervisor	Health and Benefits	$5,900.00	6136
Charlene	Althouse	Large Group Specialist	Property and Casualty	$4,900.00	5096
Cheryl	Nevens	Chief Information Officer	Administration	$13,000.00	13520
Chris	Robles	Insurance Agent	Health and Benefits	$4,200.00	4368
Eleesha	Santos	Insurance Agent	Health and Benefits	$6,250.00	6500
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Todd	DeRenzis	Administrative Assistant	Insurance Sales	$3,100.00	3224
Wayne	Reza	Insurance Agent	Health and Benefits	$4,300.00	4472

Record: 1 of 30 No Filter Search

FIGURE 3-124 ***NewSalaryCostSummary*** **query results**

4. Edit the query in *Design* view to delete the *FirstName* and *LastName* columns that cause the summary query to display too many records.
5. Save and run the query to test the results. The datasheet should now show only 15 records.
6. Edit the query in *Design* view to repair the calculated field name and formatting.
   a. Change the default *Expr1* name to Total New Salary. Do not change the existing formula.
   b. Change the *Format* property to **Currency**.
   c. Change the *Caption* property of the *BaseMonthlySalary* field to Total Base Salary.
   d. Close the *Property Sheet*.
   e. Save and run the query to test the results. The datasheet should show the improved calculated field (**Figure 3-125**).

Title	Department	Total Base	Total New
Administrative Assistant	Administration	$3,350.00	$3,484.00
Administrative Assistant	Health and Benefits	$6,400.00	$6,656.00
Administrative Assistant	Insurance Sales	$6,200.00	$6,448.00
Administrative Assistant	Property and Casualty	$3,100.00	$3,224.00
Chief Executive Officer	Administration	$16,000.00	$16,640.00
Chief Information Officer	Administration	$13,000.00	$13,520.00

FIGURE 3-125 Query results with improvements to calculated field and removal of name fields

7. Edit the query in *Design* view to fix the grouping order. The results are supposed to display the records grouped by the department, and then within each department by the job titles.
   a. Move the *Department* field to the left of the *Title* field.
   b. Save and run the query to test the results. The datasheet should show the records with the correct grouping (**Figure 3-126**).

Department	Title	Total Base	Total New
Administration	Administrative Assistant	$3,350.00	$3,484.00
Administration	Chief Executive Officer	$16,000.00	$16,640.00
Administration	Chief Information Officer	$13,000.00	$13,520.00
Administration	Chief Operating Officer	$13,000.00	$13,520.00
Administration	Executive Assistant	$3,950.00	$4,108.00
Administration	Senior Vice President	$11,750.00	$12,220.00
Health and Benefits	Administrative Assistant	$6,400.00	$6,656.00
Health and Benefits	Insurance Agent	$31,550.00	$32,812.00

FIGURE 3-126 Query results with improved grouping

8. Edit the query in *Design* view to enhance the functionality and improve the appearance. In addition to calculating the sum of both the *Base Salary* and the *Potential New Salary* fields, management would like to see the average of both of those fields, as well as the total number of employees in each area.
   a. Insert a new column to the left of the *BaseMonthlySalary* column. Assign the **EmpID** field to this column and use the **Count** aggregate function. Change the *Caption* to # of Employees.
   b. Add the **BaseMonthlySalary** field into the first empty cell in the *Field* row. *BaseMonthlySalary* will be in the query design grid twice. Set this field to use the **Avg** aggregate function. Change the *Caption* to Avg Base Salary.
   c. Type the following formula into the first empty cell in the *Field* row: Avg New Salary: Avg([BaseMonthlySalary]*1.04).

d. Set the *Total* row cell for this field to **Expression** and apply a **Currency** format.

e. Save and run the query to test the results. Adjust the column widths as necessary to improve the appearance. The datasheet should now be similar to that shown in **Figure 3-127**.

NewSalaryCostSummary

Department	Title	# of Employees	Total Base Salary	Total New Salary	Avg Base Salary	Avg New Salary
Administration	Administrative Assistant	1	$3,350.00	$3,484.00	$3,350.00	$3,484.00
Administration	Chief Executive Officer	1	$16,000.00	$16,640.00	$16,000.00	$16,640.00
Administration	Chief Information Officer	1	$13,000.00	$13,520.00	$13,000.00	$13,520.00
Administration	Chief Operating Officer	1	$13,000.00	$13,520.00	$13,000.00	$13,520.00
Administration	Executive Assistant	1	$3,950.00	$4,108.00	$3,950.00	$4,108.00
Administration	Senior Vice President	1	$11,750.00	$12,220.00	$11,750.00	$12,220.00
Health and Benefits	Administrative Assistant	2	$6,400.00	$6,656.00	$3,200.00	$3,328.00
Health and Benefits	Insurance Agent	7	$31,550.00	$32,812.00	$4,507.14	$4,687.43
Health and Benefits	Large Group Specialist	3	$14,200.00	$14,768.00	$4,733.33	$4,922.67
Health and Benefits	Supervisor	1	$5,900.00	$6,136.00	$5,900.00	$6,136.00
Insurance Sales	Administrative Assistant	2	$6,200.00	$6,448.00	$3,100.00	$3,224.00
Insurance Sales	Insurance Agent	1	$4,300.00	$4,472.00	$4,300.00	$4,472.00
Property and Casualty	Administrative Assistant	1	$3,100.00	$3,224.00	$3,100.00	$3,224.00
Property and Casualty	Insurance Agent	6	$25,600.00	$26,624.00	$4,266.67	$4,437.33
Property and Casualty	Large Group Specialist	1	$4,900.00	$5,096.00	$4,900.00	$5,096.00

FIGURE 3-127 **Completed *NewSalaryCostSummary* query results**

9. Save any changes and close the query.

10. Run the *InsuranceAgentsBranchParameter* query. Enter Folsom in the *Enter Parameter Value* dialog box. The results display in datasheet view (**Figure 3-128**). The query is supposed to list the insurance agents in a particular branch or show all the insurance agents if the branch prompt is left blank. You have identified several errors that need to be fixed, including that all the insurance agents displayed even though you entered a branch.

Employee	Title	Department
eeshaSantos	Insurance Agent	Health and Benefits
RoyBaxter	Insurance Agent	Property and Casualty
JuanTaylor	Insurance Agent	Insurance Sales
WayneReza	Insurance Agent	Health and Benefits
LazaroNeto	Insurance Agent	Health and Benefits
TheresaNguy	Insurance Agent	Property and Casualty
GeorgeTiptor	Insurance Agent	Health and Benefits
MargaretJeps	Insurance Agent	Property and Casualty
ShoukatAli	Insurance Agent	Health and Benefits
ChrisRobles	Insurance Agent	Health and Benefits
JesusDelao	Insurance Agent	Property and Casualty
LarryAdamse	Insurance Agent	Property and Casualty
MayelaRome	Insurance Agent	Property and Casualty
TimothyHans	Insurance Agent	Health and Benefits

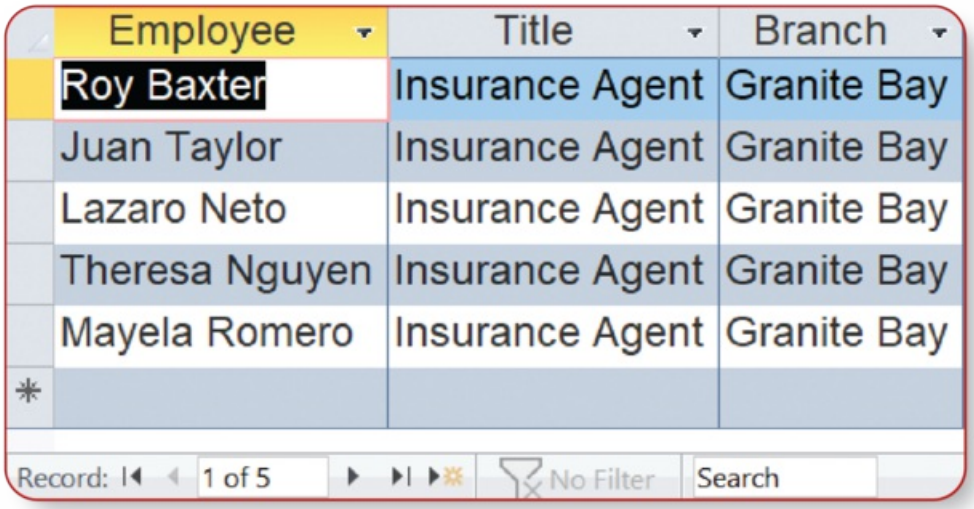
Record: 1 of 14 No Filter Search

FIGURE 3-128 ***InsuranceAgentsBranchParameter*** **query results are not correct**

11. Edit the query to fix the parameter problem.
    a. Open the query in *Design* view. Notice that the branch parameter is actually on the *Department* field and not the *Branch* field.
    b. Change that column to contain the *Branch* field.
    c. Run the query again and enter Folsom. The results now display the branch, but you still have employees from all the branches.
    d. Switch to *Design* view to review the criteria. The *Branch* parameter is on the "or" row. It needs to be on the same row as "Insurance Agent".
    e. Move the parameter to the criteria row to fix that problem.
    f. Review the *Branch* parameter. It isn't designed correctly, because it won't allow the field to be left blank and show all the insurance agents.
    g. Edit the parameter to use the *Like* special operator and the * (asterisk) wildcard character, and change the parameter phrase to display as "Enter the branch or leave blank to select all branches".
    h. Save and run the query. Type Folsom. Only the four agents at the Folsom branch should display.

i. Change back to *Design* view and then run the query again and leave the dialog box empty. All 14 agents should display.

12. Edit the query to fix the *Employee* field. You need to insert a space between the first and last names.
    a. Edit the formula in the *Employee* field to include a space between the *FirstName* and the *LastName* fields.
    b. Run the query. Enter Granite Bay. The results should show only the five insurance agents at the Granite Bay branch.
    c. Use **AutoFit** to adjust the width of all the columns. The datasheet should now be similar to that shown in **Figure 3-129**.



Employee	Title	Branch
Roy Baxter	Insurance Agent	Granite Bay
Juan Taylor	Insurance Agent	Granite Bay
Lazaro Neto	Insurance Agent	Granite Bay
Theresa Nguyen	Insurance Agent	Granite Bay
Mayela Romero	Insurance Agent	Granite Bay

Record: 1 of 5 No Filter Search

FIGURE 3-129 Completed *InsuranceAgents BranchParameter* query

13. Save and close the query.
14. Close the database.

Copilot Challenge Project 3-8

Use *Copilot* or other generative AI to help you modify a fast-food menu item database. The database stores basic company information along with nutrition information about the various menu items. Use the *Simple Query Wizard* and *Design* view to create and execute three queries.

Student Learning Outcome 3.1, Student Learning Outcome 3.2, Student Learning Outcome 3.3, Student Learning Outcome 3.4,

Student Learning Outcome 3.5, Student Learning Outcome 3.6]

File Needed: ***FastFoodNutrition-03.accdb*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Name: ***[your initials] Access 3-8.accdb***

Open the database ***FastFoodNutrition-03*** and save a copy of it as [your initials] Access 3-8. If a security risk message displays, click the **X** to close the message. Modify your database according to the following instructions:

- Enable content in the database.
- Open the *Company* table and the *MenuItems* table to get a sense of the data in the database.
- View the relationship between the tables. Keep the *Relationships* window open.
- Open *Copilot* and ask it to suggest several queries to analyze the menu items in the database. To get the most useful response, your prompt should also include:
  - A screenshot of the relationship between the tables. Click the **Open** button (+ sign) in *Copilot* and then select **Screenshot** to include this information. If the *Copilot* options have changed, ask *Copilot* how to upload a screenshot with your prompt.
  - Verbiage to provide the answer using Access Query Design view.
- Close the *Relationships* window and both tables.
- Create and execute a query based on one of *Copilot's* suggestions. Adapt the suggest as needed.
  - Build the query with the *Simple Query Wizard*.
  - Add at least three of the fields into the query.
  - Edit the query in *Design* view and add a criterion to at least one of the fields.
  - Apply sorting to one of the fields.
  - Save and run the query. Make any needed changes to the query design if it does not execute as desired.
- Ask *Copilot* to suggest a query that uses a compound condition.
- Adapt those suggestions to create and execute a second query in *Design* view.
  - Add the necessary fields into a query.
  - Add the compound criteria to the query.
  - Save and run the query. Make any needed changes to the query design if it does not execute as desired.
  - Adjust the width of the columns in the query so that they are sized appropriately.
  - Save any changes that you made.

- Create and execute a third query in *Design* view that shows a list of the top three low-fat menu items a company offers. Include a parameter in the query to allow the user to enter the company name (*RegisteredName* field). Ask *Copilot* for examples or help as needed.
  - Add the necessary fields into a query.
  - Add criteria to the query.
  - Save and run the query.
  - Verify that the query works correctly. Make any needed adjustments.
  - Adjust the width of the columns in the query so that they are sized appropriately.
  - Save the changes you made.
- Close any open objects and the database.

Challenge Project 3-9

Modify the database you created in ***Challenge Project 2-9*** for Blue Lake Sporting Goods. Your database contains a table with information about the different departments at Blue Lake Sporting Goods and a related table with information about Interns who are working at Blue Lake. Add additional data and create one query.

[Student Learning Outcome 3.2, Student Learning Outcome 3.3, Student Learning Outcome 3.6, Student Learning Outcome 3.7]

File Needed: ***[your initials] Access 2-9.accdb***

Completed Project File Name: ***[your initials] Access 3-9.accdb***

Open the database ***[your initials] Access 2-9*** and save a copy of it as [your initials] Access 3-9. Modify your database according to the following instructions:

- Add additional data into the *Department* table so that you have at least 10 different departments if necessary.
- Add additional data into the *Intern* table so the table contains at least 30 interns. When entering the value for the *DepartmentName* foreign key, don't assign all of the interns to the same department.
- Create a query with *Design* view.
- Add both tables into the query.
- Add the *DepartmentName* and *Division* fields (from the *Department* table).
- Sort the query in ascending order by the *Division* field.
- Add a calculated field to concatenate the intern's *FirstName* and *LastName* fields.

- Save and run the query.
- Edit the query to add a parameter. The parameter should enable the user to enter the division he or she wishes to query. Write this parameter using wildcards so that if the user leaves the *Enter Parameter Value* dialog box empty, the query returns all the records. You may want to review the "Use Wildcards in a Parameter Query" section in **SLO 3.6: Creating and Using a Simple Parameter Query** for help with this task.
- Save and run the query.
- Verify that the query works correctly when the user enters a specific division and that it returns all the records if the dialog box is left blank.
- Adjust the width of the columns in the query so that they are sized appropriately.
- Save any changes that you made.
- Close any open objects and the database.

Challenge Project 3-10

Modify the database you created in ***Challenge Project 2-10*** for a travel agency. Your database contains a table with information about the different ships and a related table with information about upcoming cruises. Add additional data and create two queries.

[**Student Learning Outcomes 3.2**, **Student Learning Outcomes 3.3**, **Student Learning Outcomes 3.4**, **Student Learning Outcomes 3.7**, **Student Learning Outcomes 3.8**]

File Needed: ***[your initials] Access 2-10.accdb***

Completed Project File Name: ***[your initials] Access 3-10.accdb***

Open the database ***[your initials] Access 2-10*** and save a copy of it as [your initials] Access 3-10. Modify your database according to the following instructions:

- Add at least 10 rows of additional data into the *Trips* table. When entering the value for the *ShipID* foreign key, don't assign all of the trips to the same ship.
- Create a query with *Design* view.
- Add both tables into the query.
- Add the *ShipName*, *CruiseLineName*, and *NumberOfPassengers* fields (from the *Ships* table) and the *TripName* and *CostPerPerson* fields (from the *Trips* table).
- Add a field to calculate the potential revenue for each trip. The *Potential Revenue* is the *Cost Per Person* times the *Number of Passengers*.
- Sort the results in ascending order by the potential revenue.

- Save and run the query.
- Adjust the width of the columns in the query so that they are sized appropriately.
- Save any changes that you made.
- Create a *Summary* query in *Design* view to count how many trips each Cruise Line has scheduled.
- Add both tables into the query.
- Add the *TripID* field and the *CruiseLineName* field into the query.
- Add the *Total* row.
- Count by the *TripID* field.
- Save and run the query.
- Adjust the width of the columns in the query so that they are sized appropriately.
- Save any changes that you made.
- Close any open objects and the database.

Source of screenshots Microsoft Office 365 (2024): Word, Excel, Access, PowerPoint.

CHAPTER 4
Creating and Using Forms and Reports

CHAPTER OVERVIEW

Forms and reports enhance the usability of your Access database. Forms provide a user-friendly interface to view, add, update, and delete data in a database. Reports offer a professional way to view and print data, making it easier for your user to understand information in your database. This chapter introduces the Access tools that enable you to create and customize forms and reports.

STUDENT LEARNING OUTCOMES (SLOs)

After completing this chapter, you will be able to:

- **SLO 4.1** Create a simple form using quick create options, and save, modify, and delete a form (p. A4-232).
- **SLO 4.2** Create a blank form, understand controls and control layouts, customize a form in *Layout* view, adjust control positions, sort records on a form, add a title, date, or logo to a form, add and modify a label, and create a form from a template (p. A4-242).
- **SLO 4.3** Restrict a form to data entry, limit user edits and deletions on a form, add command buttons, and test a form (p. A4-255).
- **SLO 4.4** Create a simple report with the *Report Wizard*, and save, modify, and delete a report (p. A4-262).
- **SLO 4.5** Create a blank report, understand controls and control layouts, customize a report in *Layout* view, adjust control positions, add a title, logo, date, and page numbers to a report, and add and modify a label (p. A4-271).
- **SLO 4.6** Enhance a report by adding grouping, sorting, and totals in *Layout* view (p. A4-281).
- **SLO 4.7** Integrate conditional formatting into a report (p. A4-285).
- **SLO 4.8** Preview, modify print settings, print a report, and format and print a report with multiple columns (p. A4-288).

CASE STUDY

For the Pause & Practice projects in this chapter, you develop forms and reports for the Placer Hills Real Estate and Central Sierra Insurance databases. As you progress through the Pause & Practice projects in this chapter, you incorporate many of the features you learn in this chapter to build forms to display data and to add new records into a database. You also build reports that use different options

to display data in a database.

Pause & Practice 4-1:	Create and view forms using the *Form Wizard*, the *Form* button, and *Split Form*.
Pause & Practice 4-2:	Create a form using the *Blank Form* button. Modify the form to restrict it to data entry, add buttons, and test the form.
Pause & Practice 4-3:	Create and view a report using the *Report Wizard*. Create a report using the *Blank Report* button. Modify the report to improve its layout.
Pause & Practice 4-4:	Create and preview a report with grouping and conditional formatting.

SLO 4.1

Creating and Working with a Simple Form

A ***form*** is an object you use to create an interface to easily view, add, update, and delete data in a database. Most forms in a database are directly connected to a table or query, the source of the data. Access calls these ***bound forms*** because they link to the data source. ***Unbound forms***, forms that don't have a connection to a data source, can be used to help operate the database. For example, a database may have an unbound form that contains no data but has buttons that perform different actions in the database like printing reports or opening forms. In this chapter, you learn how to create forms that are bound to a table.

Forms provide flexible access to data in a database. You can create a form with fields from one or more tables or queries. The form may also contain only a subset of the fields from the table or query. You also can choose to display only one record at a time or multiple records. This flexibility helps you create forms that look attractive and are more user-friendly than *Datasheet* view of a table. Ideally, a well-designed form makes it easier for users to work with the database and prevents mistakes in adding, updating, or deleting data.

Access offers three view choices for most forms. Use ***Form view*** to enter and view data. ***Design view*** enables you to change the form. ***Layout view*** enables you to alter the design of a form and see the effects of the changes in real time. However, not all design changes can be made in *Layout* view. Forms created with a ***Datasheet* layout** also have a ***Datasheet view*** option.

Access provides several different ways to create a form. These options are available in the *Forms* group [*Create* tab] (**Figure 4-1**). Some of the options are quick, while others take a little more effort but provide greater flexibility and enable you to create more specialized types of forms. In this section, you are introduced to three quick ways to build a form: the *Form Wizard*, the *Form* button, and the *Split Form* options.

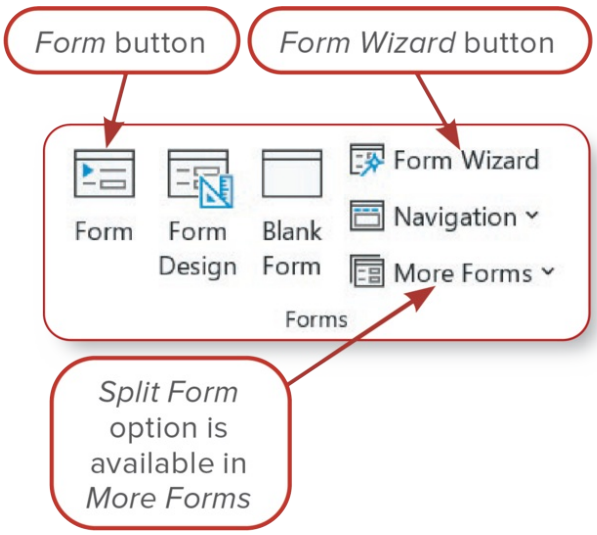


FIGURE 4-1 Form creation options

The Form Wizard

The ***Form Wizard*** steps you through the process of quickly creating a form. When you build a bound form, you must tell Access where to find the data. Use the *Form Wizard* to select the specific table(s) and queries along with the specific fields to include in the form. You can also select the layout for the form. After you create the form, you use *Form* view to enter and view data in your database. If you need to change the form once it has been created, edit it using *Layout* view or *Design* view.

When you use the *Form Wizard* to create a form based on one table or query, you can select from four different layout options. Note that **Figure 4-2**–**Figure 4-5** show *Form* view for each of the sample forms.

A4-233

- *Columnar*: The form displays the fields in one column (**Figure 4-2**). The field names display to the left of the field, and the name of the form displays in a header section at the top of the form. A columnar layout shows only one record at a time. You use the *Navigation* buttons to move from one record to another.

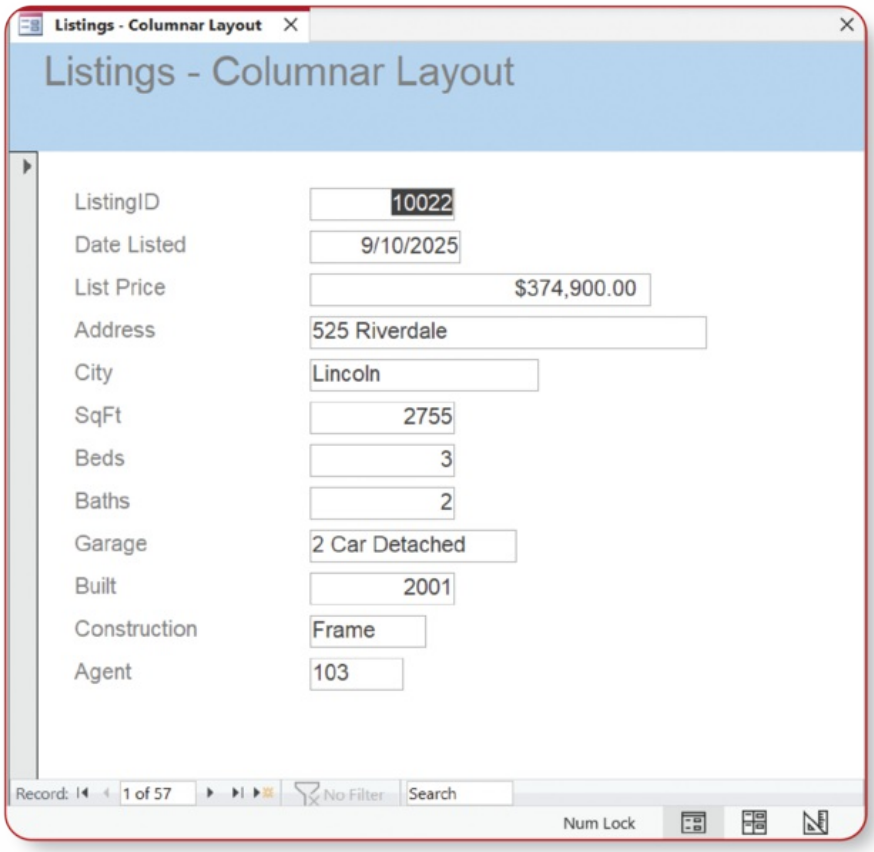


FIGURE 4-2 Columnar form layout

- *Tabular*: The form displays the fields in a table (row and column) format (Figure 4-3). The header section at the top of the form displays the name of the form and the field names as column heads.



FIGURE 4-3 Tabular form layout

- *Datasheet*: The form displays in the Access *Datasheet* view layout (Figure 4-4). The field names are the column heads.

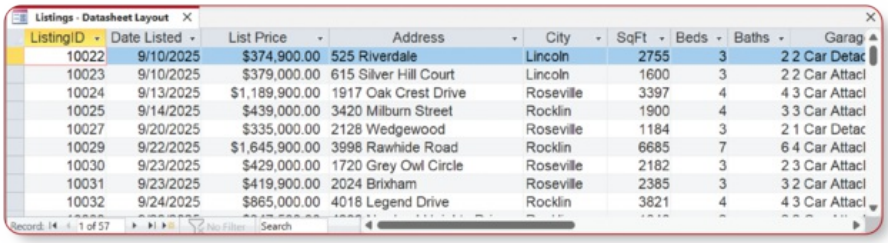


FIGURE 4-4 Datasheet form layout

- *Justified*: The form displays the fields in a horizontal, justified layout (Figure 4-5). The field names are above each field. The form name displays in a header section. Only one record displays at a time.

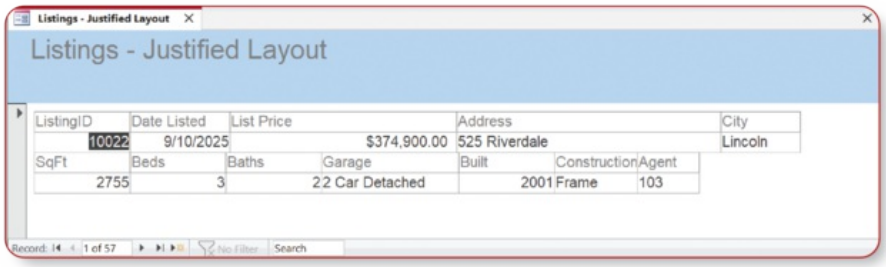


FIGURE 4-5 Justified form layout

HOW TO: Create a Form Using the Form Wizard

1. Click the **Create** tab on the *Ribbon*.
2. Click the **Form Wizard** button [*Forms* group] to launch the *Form Wizard*.
   - The values displayed in the *Tables/Queries* box and the *Available Fields* window are based on the contents of your database.
3. Click the **Tables/Queries** drop-down arrow and select the **Table** or **Query** name.
4. Select a field to include in the form from the *Available Fields* window.
   - Add fields in the order you want them to display in the form.
5. Click the **Move Single Field** button.
   - The field moves into the *Selected Fields* window (**Figure 4-6**).

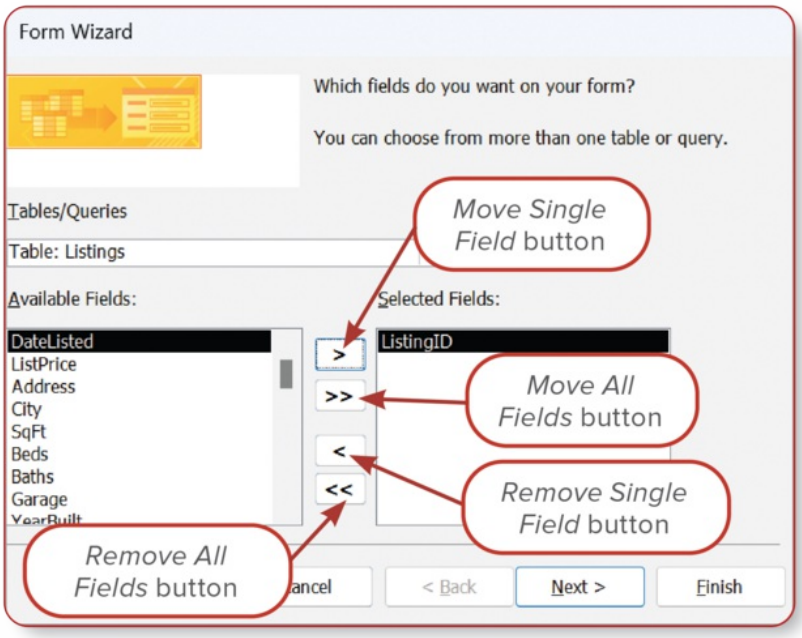


FIGURE 4-6 ***Form Wizard*–step 1**

- The *Remove Single Field* and *Remove All Fields* buttons become active.

6. Continue moving all required fields, changing the selected *Table* or *Query* if needed.

ANOTHER WAY

Use the *Move All Fields* button (see **Figure 4-6**) to quickly include all of the fields in the form.

7. Click the **Next** button when you are finished adding all fields. The second page of the *Form Wizard* displays (**Figure 4-7**).

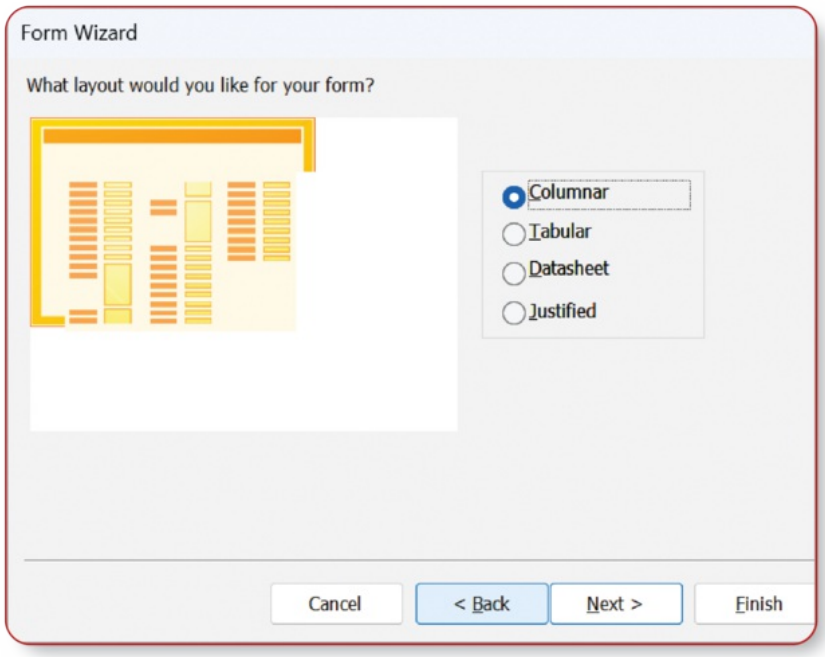


FIGURE 4-7 Select the form layout

8. Select the radio button of the form layout that you want.
9. Click the **Next** button. The last page of the *Form Wizard* displays (**Figure 4-8**).

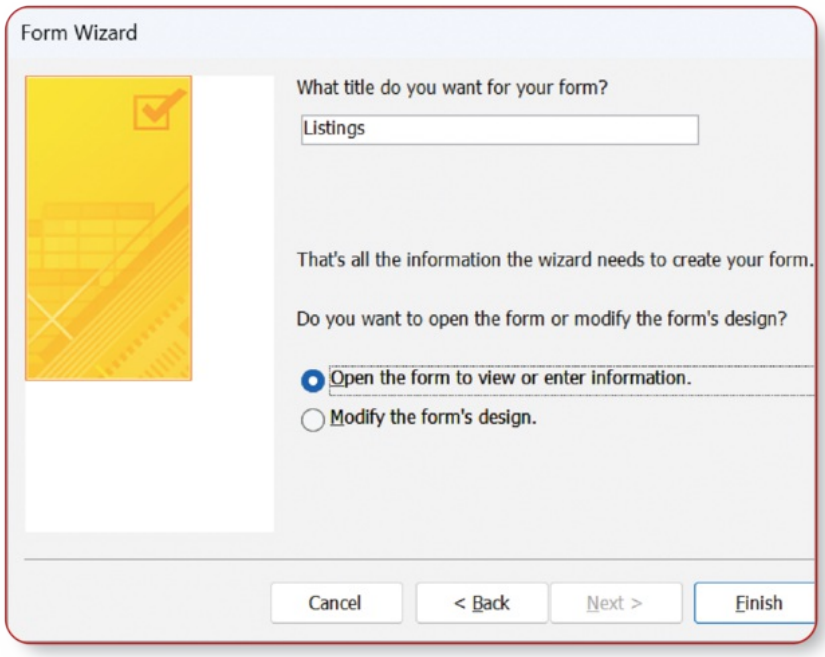


FIGURE 4-8 Enter the form title in the last step of the *Form Wizard*

10. Change the form *Title* as desired. The suggested title is the name of the table or

query used to create the form. The title will also be used as the *Form Name*.

11. Click **Finish** to open the form to view the data.

- Access automatically saves the form.
- The form shows in *Form* view (**Figure 4-9**).

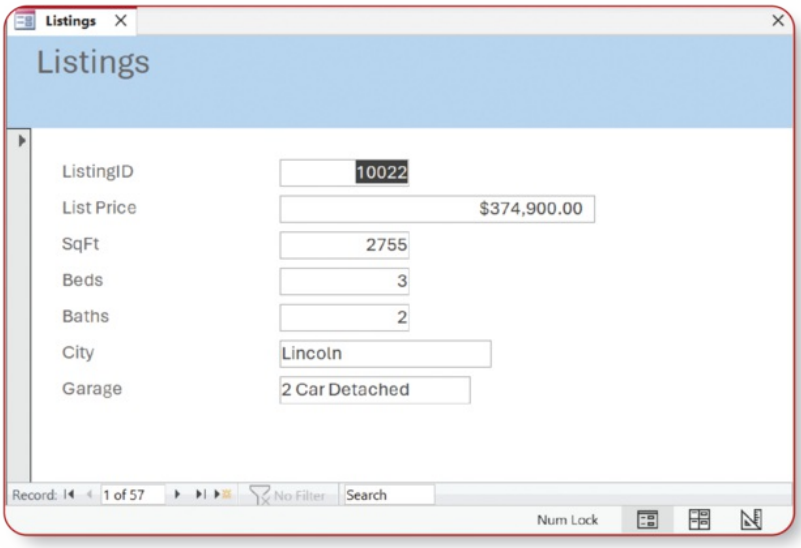


FIGURE 4-9 ***Form*** **view of the completed form**

- Most of the fields appear in text boxes.
- Fields that have a lookup appear in combo boxes.
- Fields that are a *Yes/No* data type appear as check boxes.
- The size of a field depends on the data type and the field size.
- The first record in the table displays.
- The form name displays in the *Forms* group in the *Navigation Pane*.

MORE INFO

If you know you need to make modifications to the form, you can select the **Modify the form's design** radio button (see **Figure 4-8**) in the last step of the wizard. In this case, the form will open in *Design* view instead of *Form* view.

12. Close the form.

The Form Button

The ***Form*** button is the quickest way to create a form. However, it does not give you any options during the initial creation process. After you have created the form, you can edit the form in *Layout* view or *Design* view.

HOW TO: Create a New Form Using the Form Button

1. Click to select the **Table** or **Query** on which to base the form in the *Navigation Pane*.
2. Click the **Form** button [*Create* tab, *Forms* group]. Access creates the form and assigns the form object the same name as the table or query object. The form opens in *Layout* view (**Figure 4-10**).

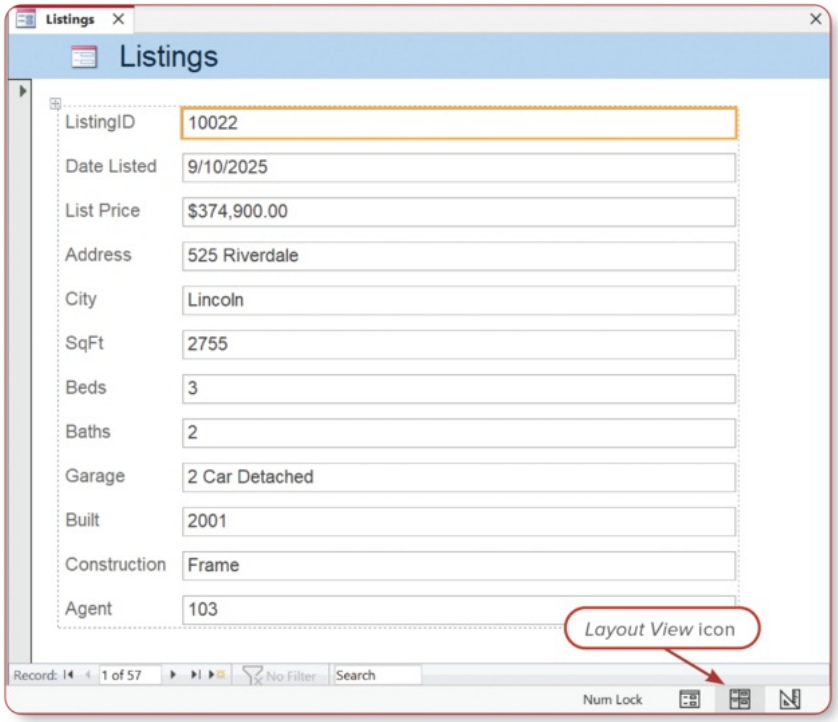


FIGURE 4-10 ***Layout*** **view of a form created with the** ***Form*** **button**

- Use *Layout* view to make changes to the design of the form, and at the same time, see how the form looks with data displaying.
- Depending on the settings the last time Access was used, the *Property Sheet* and the *Field List* pane may open to the right of the form. The *Field List* shows the fields available in the form.
- The orange selector border around a text box is an indicator that you are in *Layout* view. The *Layout View* icon is also selected in the *Status* bar.

- The fields are placed on the form based on the order they are listed in the table or query.
- Most of the fields appear in text boxes.

A4-236

- Fields that have a lookup appear in combo boxes.
- Fields that are a *Yes/No* data type appear as check boxes.
- All fields are assigned the same width. The height of the text boxes may be taller for fields that have a large size. The dashed border surrounding all of the fields indicates that they are grouped together to maintain uniform structure.
- The first record in the table displays.

When a new form is created, the initial layout of the fields depends on the number of fields in the table and the size of the Access window when the form is created. A layout like the one shown in **Figure 4-11** results if you have a smaller Access window.

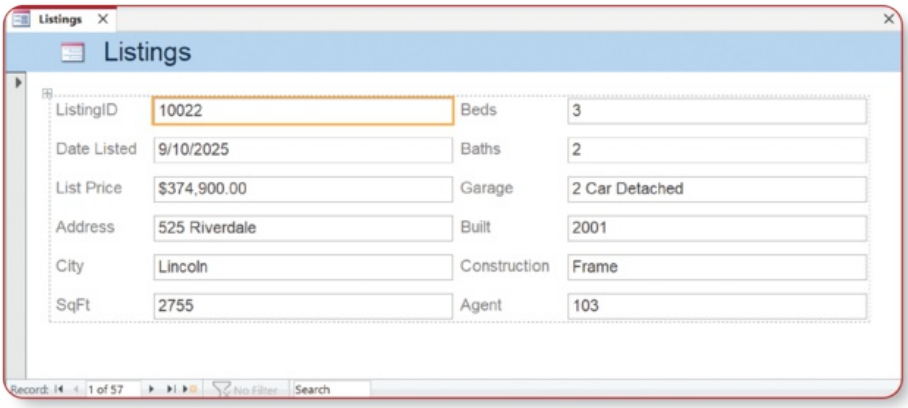


FIGURE 4-11 A smaller Access window results in a different field layout

The Split Form

A ***split form*** enables you to view data in two different ways at the same time. The top section of the form displays one record in a columnar mode while the bottom section displays a *Datasheet* view. The two sections are synchronized so when you navigate to a record, the selected record displays in the top section and is also highlighted in the lower section. This type of form enables you to see many records at once in the *Datasheet* view while giving you access to edit a single record. After you create a split form, use *Layout* view or *Design* view to edit it.

HOW TO: Create a Split Form Using a Single Table

1. Click to select the table on which to base the form in the *Navigation Pane*.
2. Click the **More Forms** button [*Create* tab, *Forms* group] and select **Split Form** (**Figure 4-12**).

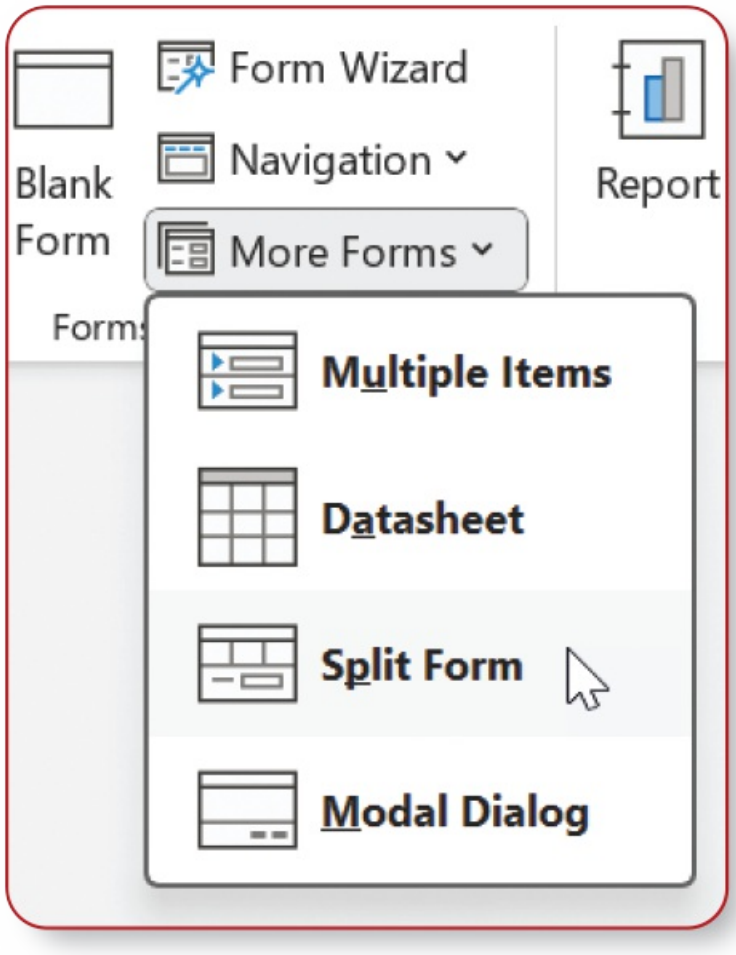


FIGURE 4-12 ***More Forms*** **button options**

- The form opens in *Layout* view (**Figure 4-13**).

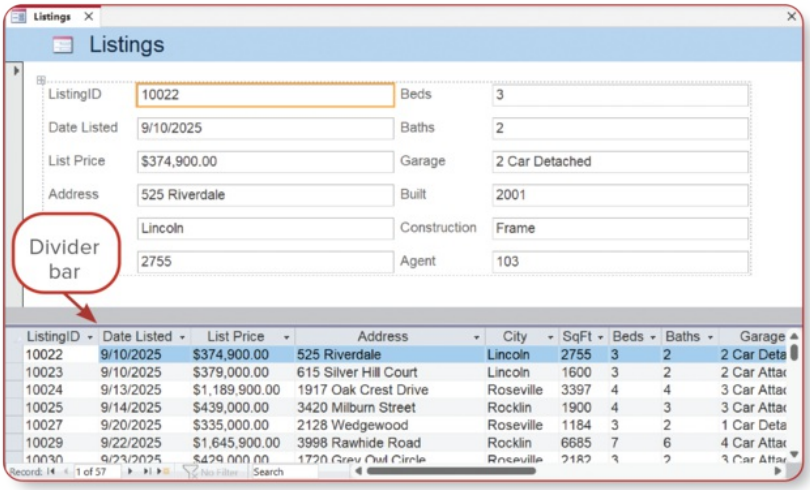


FIGURE 4-13 Split form in *Layout* view

- Drag the divider bar up or down to change the available space in the single record portion of the form.
- The fields are placed on the form based on the order they are listed in the table or query. A4-237
- In the top section, most of the fields appear in text boxes. Fields that have a lookup appear in combo boxes. Fields that are a *Yes/No* data type appear as check boxes.
- All fields are assigned the same width. The height of the text boxes may be taller for fields that have a large size. The dashed border surrounding all of the fields indicates that they are grouped together to maintain uniform structure.
- The first record in the table displays in the top section.

View or Modify a Form

As you know, Access provides three different view options for most forms. Depending on how you created the form, it may initially display in any of the view options. When you double-click a form name in the *Navigation Pane*, it opens in *Form* view. Recall that you use *Form* view to enter and view data. After you create a form using one of the three quick methods just described, you may want to make modifications to the form. You can modify a form using either *Design* view or *Layout* view.

Design view shows you the completed structure of the form (**Figure 4-14**) so you can modify any aspect of a form. *Design* view has a distinctive look, but you can also tell you are in *Design* view from the *Status* bar at the bottom of the Access window. You can modify the header, detail,

and footer sections of the form. *Design* view is good for adding labels and images into a form, editing text boxes, resizing the form sections, and changing form properties. In *Design* view, the different editing choices are organized into three contextual tabs: *Form Design*, *Arrange*, and *Format*.

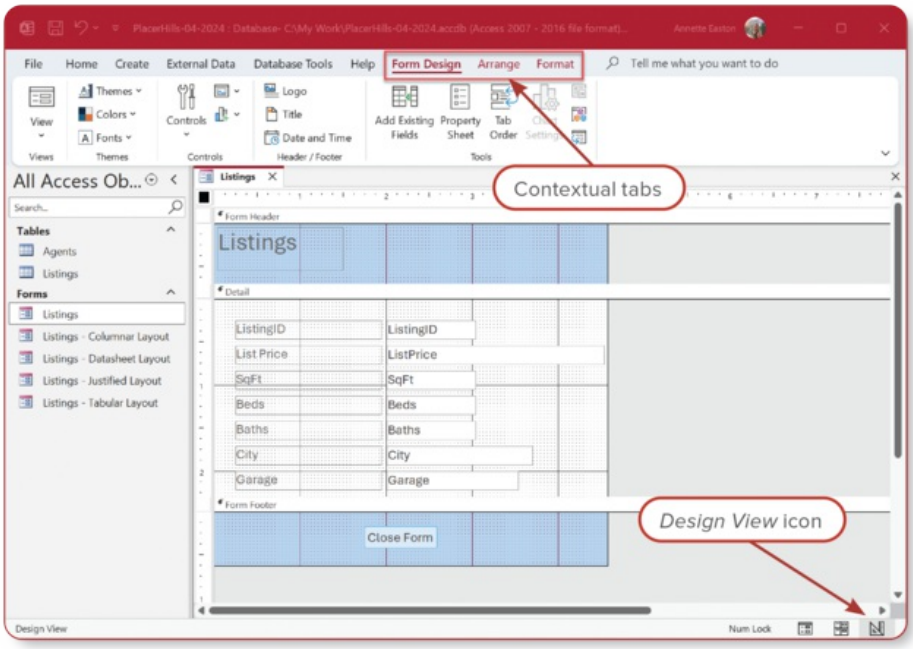


FIGURE 4-14 ***Design*** **view of a form**

Layout view enables you to make changes to the design of a form while seeing how the form looks with data displaying. The *Layout* view of the form in **Figure 4-14** is shown in **Figure 4-15**. *Layout* view looks very similar to *Form* view, but you can tell what view you are in from the *Status* bar at the bottom of the Access window. While you can use the navigation buttons to move among different records, other parts of the form are not functional in *Layout* view. For example, the *Close Form* button does not work in *Layout* view.

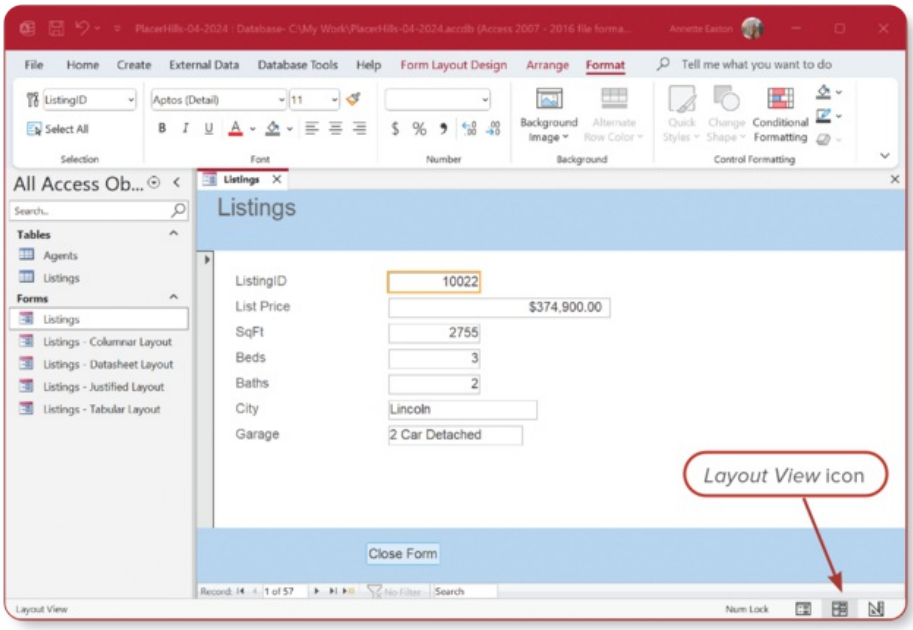


FIGURE 4-15 ***Layout*** **view of a form**

Because you are able to see how the data displays while modifying the design, *Layout* view is good for resizing the fields or labels, changing the font face, size, or style, changing colors or text alignment, or applying different formats. *Layout* view also provides editing choices on the three contextual tabs: *Form Layout Design*, *Arrange*, and *Format*. However, the editing options located on those tabs are more limited than in *Design* view.

HOW TO: Switch Form Views to View or Modify a Form

1. Click the **View** button drop-down arrow [*Home* tab, *Views* group] (**Figure 4-16**).

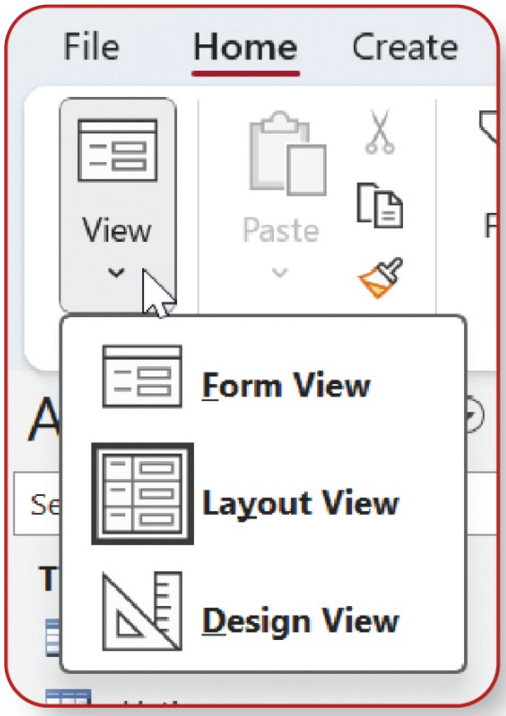


FIGURE 4-16 *View* options for a form

2. Select **Form View**, **Layout View**, or **Design View**.
3. View the results or make any desired modifications.

ANOTHER WAY

The *View* button is also available on the *Form Layout Design* and *Form Design* tabs. You can also click a view icon from the lower-right corner of the *Status* bar.

Save a Form

When a form is created, Access automatically assigns it a name. When you create a form using the *Form Wizard*, Access automatically saves the form during the creation process. If you created a form with the *Form* or *Split Form* buttons, or if you have made any modifications to the design of the form created with the wizard, you need to save those changes.

Save changes to a form by pressing **Ctrl+S** or the **Save** icon on the *Quick Access* toolbar. The first

time you save a form, you are prompted to change the default name in the *Save As* dialog box.

ANOTHER WAY

Click the **Save** button [*File* tab] or press the **F12** function key to open the *Save As* dialog box.

After a form has been created and saved, you may need to make a copy of that form. This may be done to have a backup of the original form or because another form will have the same initial characteristics.

HOW TO: Save a Copy of a Form

1. Click **Save As** [*File* tab] to display the *Save As* area.
2. Click **Save Object As** in the *File Types* options. *Save Object As* should be selected in the *Database File Types* options.
3. Click the **Save As** button to open the *Save As* dialog box (**Figure 4-17**).

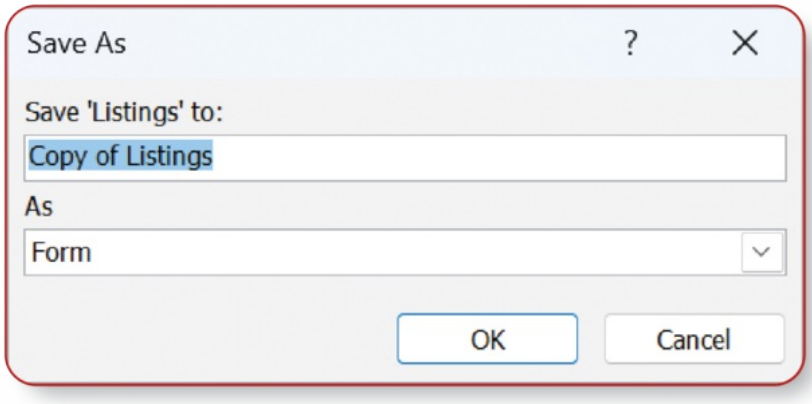


FIGURE 4-17 ***Save As*** **dialog box**

- The name of the current form displays in the *Save 'object name' to* box.
- In **Figure 4-17**, "Listings" is the name of the current form.
- The suggested name always begins with "Copy of."

4. Type the name you wish to use in the *Save 'object name' to* box.
5. Click **OK**.

ANOTHER WAY

Press **F12** to open the *Save As* dialog box.

Once a form has been saved, it displays in the *Forms* group of the *Navigation Pane*. As you add more objects into your database, the number of objects displayed in the *Navigation Pane* increases (**Figure 4-18**). This is one of the reasons why it is important to use object names that effectively and immediately convey the meaning or purpose of the object. For example, in **Figure 4-18**, you don't know whether the *Listings* form and *Listings* report contain all the fields and information from the *Listings* table or whether differences exist, as you can see from the query names.

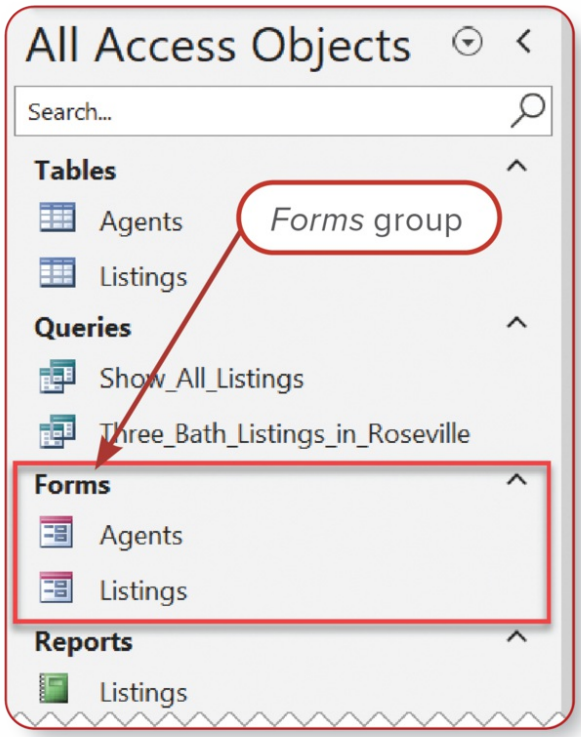


FIGURE 4-18 ***Forms* group on the *Navigation Pane***

Open a Saved Form

If you double-click a form name in the *Navigation Pane*, the form opens in *Form* view. If the form

was created using a *Datasheet* layout, it opens in *Datasheet* view.

Open a saved form in *Layout* view or *Design* view by right-clicking the form name in the *Navigation Pane* and selecting **Layout View** or **Design View** from the context menu (**Figure 4-19**). Selecting **Open** from the context menu opens the form in *Form* view.

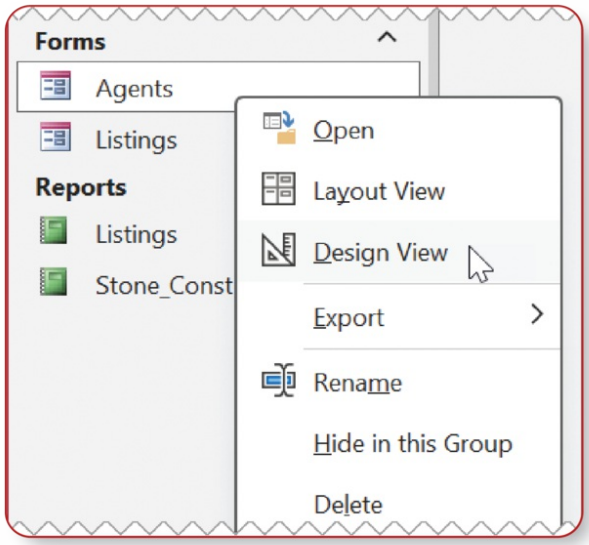


FIGURE 4-19 Context menu of a form

Delete a Form

Occasionally, you have forms that you no longer need or want in the database.

Delete a form by selecting the form name in the *Navigation Pane* and clicking the **Delete** button [*Home* tab, *Records* group].

ANOTHER WAY

Right-click the form name in the *Navigation Pane* and select **Delete** from the context menu.

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PAUSE & PRACTICE: ACCESS 4-1

For this Pause & Practice, you create three versions of a form using three quick creation methods. You create a form using the *Form Wizard*, the *Form* button, and the *Split Form* button.

File Needed: **PlacerHills-04.accdb** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Name: ***[your initials] PP A4-1.accdb***

1. Open the ***PlacerHills-04*** database from your student data files. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close it.
2. Save a new copy of the database as [your initials] PP A4-1.
3. Enable content in the database.
4. Create a form using the *Form Wizard*.
   a. Click the **Create** tab on the *Ribbon*.
   b. Click the **Form Wizard** button in the *Forms* group to launch the *Form Wizard*. If a *Microsoft Access Security Notice* box displays, click **Open**.
   c. Click the **Tables/Queries** drop-down arrow and select the **Listings** table.
   d. Click the **Move All Fields** button to move all of the fields from the *Available Fields* window to the *Selected Fields* window (**Figure 4-20**).

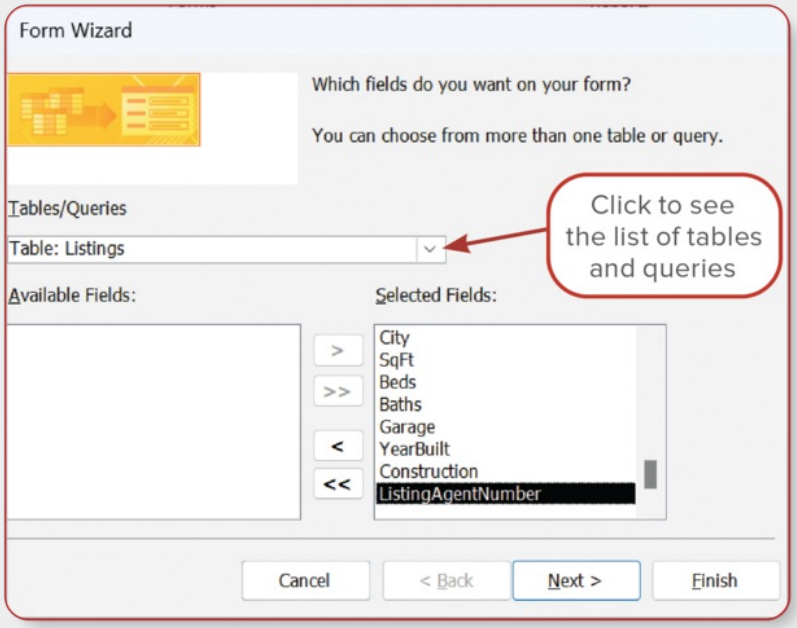


FIGURE 4-20 Move desired fields into the *Selected Fields* window

   e. Click the **Next** button to move to the second page of the *Form Wizard*.
   f. Select the **Columnar** radio button if necessary.
   g. Click the **Next** button to move to the last page of the *Form Wizard*.
   h. Type Listings – Form Wizard in the *Title* box.
   i. Click the **Finish** button. The form opens in *Form* view (**Figure 4-21**).

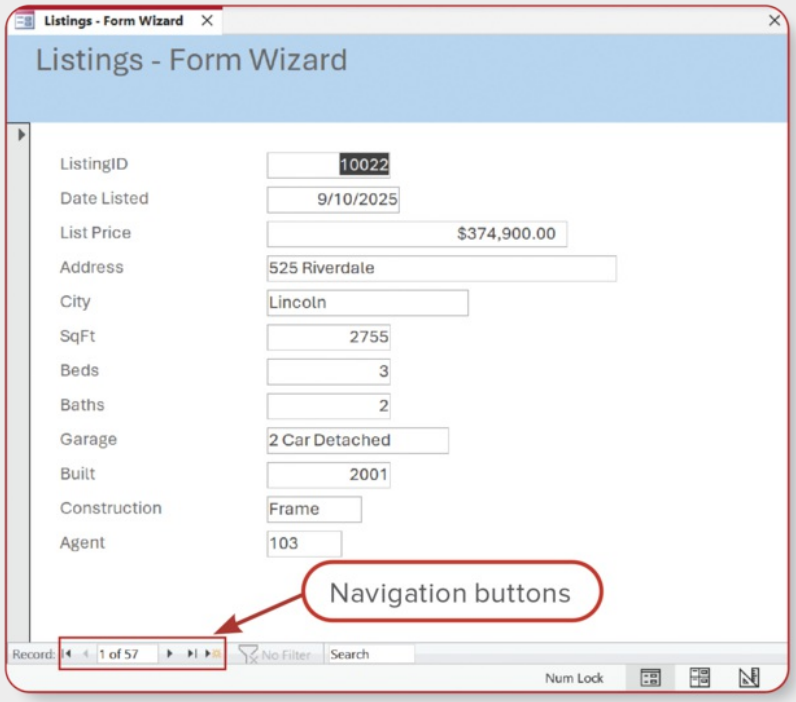


FIGURE 4-21 ***Listings*** **form created using the** ***Form Wizard***

j. Use the navigation buttons to move among records.

k. Close the form.

5. Create a form using the *Form* button.

   a. Click to select the **Listings** table in the *Navigation Pane*.

   b. Click the **Form** button [*Create* tab, *Forms* group] to create the form. The form opens in *Layout* view.

   c. Click the **X** to close the *Field List* pane if it is open.

   d. Click to select the ***Header*** section (**Figure 4-22**). An orange border surrounds the selected label. The layout of your fields may be different depending on the size of the Access window when you created the form.

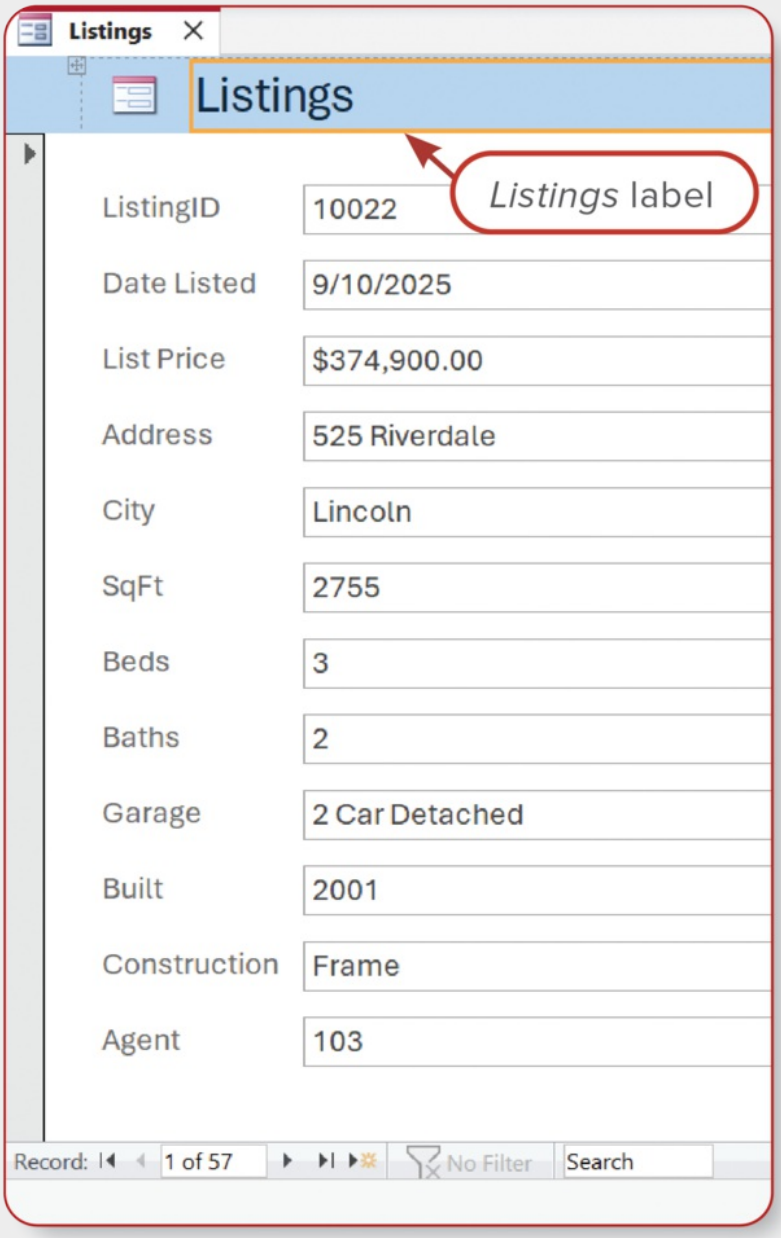


FIGURE 4-22 ***Listings*** **form created using the** ***Form*** **button**

e. Click inside the label to open the **edit mode**. The background of the label turns white, indicating you can edit the label text.

f. Edit the label to read Listings – Form Button.

g. Save the form. Enter Listings – Form Button as the *Form Name* and click **OK**.

h. Switch to *Form* view by clicking the **View** button drop-down arrow [*Form Layout Design* tab, *Views* group] and selecting **Form View**.

i. Use the navigation buttons to move among records.

j. Close the form.

6. Create a form using the *Split Form* button.

   a. Click to select the **Listings** table in the *Navigation Pane*.

   b. Click the **More Forms** button [*Create* tab, *Forms* group] and select **Split Form** to create the form shown in **Figure 4-23**.

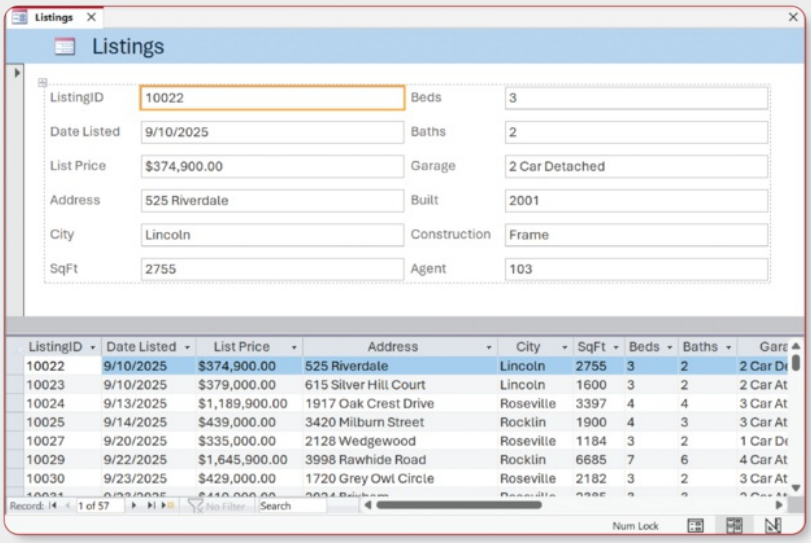


FIGURE 4-23 ***Listings* form created using *Split Form***

   c. Click to select the **Listings** label in the *Header* section.

   d. Click inside the label to open the edit mode.

   e. Edit the label to read Listings – Split Form.

   f. Save the form. Enter Listings – Split Form as the *Form Name* and click **OK**.

   g. Switch to *Form* view by clicking the **View** button drop-down arrow [*Form Layout Design* tab, *Views* group] and selecting **Form View**.

   h. Use the navigation buttons to move among records. Notice that, as you change records, the selected record displays in the top section and is also highlighted in the *Datasheet* view in the lower section.

   i. Close the form.

7. Close the database.

SLO 4.2

Creating and Customizing a Form in Layout View

A4-242

As you have learned, *Layout* view provides an easy way to modify a form while seeing how the form looks with data displaying. The functions of the form do not work in *Layout* view. However, you can use the navigation buttons to move among different records. In this section, you first learn how to create a blank form. After that, you explore the layout of a form and learn how to make modifications using *Layout* view. Finally, you learn to create a form from a template.

Create a Form Using the Blank Form Button

Sometimes, it is easier to start with a completely blank form and add the fields, labels, or buttons that you need directly onto the form.

HOW TO: Create a Blank Form

1. Click the **Blank Form** button [*Create* tab, *Forms* group].
   - A new blank form opens in *Layout* view (**Figure 4-24**).

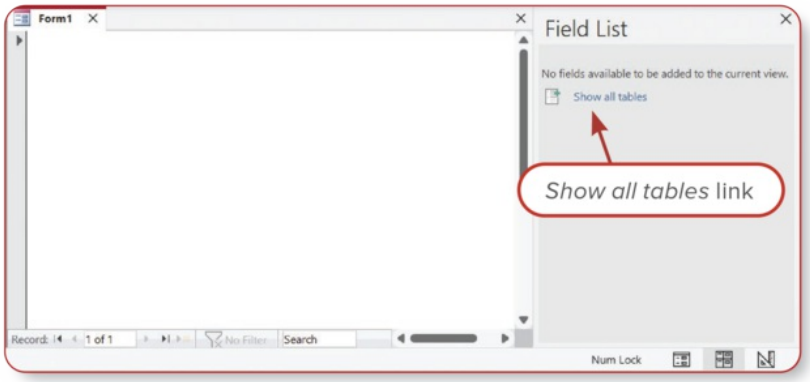


FIGURE 4-24 Blank form in *Layout* view

   - The *Field List* pane displays. The *Field List* contains the list of the tables in your database.

2. Click the **Show all tables** link to display the database tables.
3. Click the **plus sign** to the left of a table name to see the fields in the table (**Figure 4-25**).

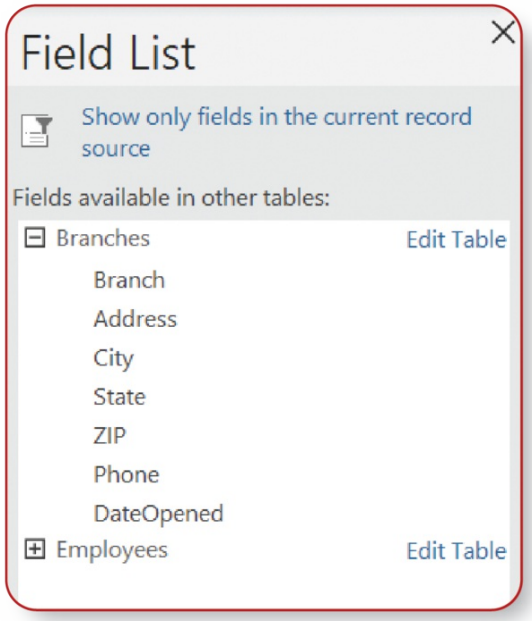


FIGURE 4-25 **Expanded *Field List* pane**

4. Click the **minus sign** to the left of a table name to collapse the list of fields in the table.

After you create the blank form, you are ready to start adding items onto the form. Remember to save the form and any changes you make to it.

Form Controls

In Access, the fields, labels, buttons, and so forth are all known as ***controls***. You can add controls to a form in either *Layout* view or *Design* view.

When viewing a form in *Layout* view, the controls are located in the *Controls* group of the *Form Layout Design* tab. The controls available in *Layout* view are shown in **Figure 4-26**.



FIGURE 4-26 ***Controls*** **group for a form**

Controls can be bound, unbound, or calculated. ***Bound*** **controls** are linked to a data source. For example, a text box that gets its value from a field in a table is a bound control. ***Unbound*** **controls** are not linked to a data source. For example, a label on a form that contains a form title is an unbound control. Finally, ***calculated*** **controls** contain an expression. For example, a text box that gets its value from an expression is a calculated control. The most common controls and their usage are described in **Table 4-1**.

Table 4-1: Common Form Controls

Control	Explanation
Text Box	Used to display data on a form or to accept data from a user when entering a value.
Label	Displays the content contained in its **caption property**. Does not accept any input from the user. You can edit the wording in a label on the form.
Button	Used to add a command button that performs an action such as *Close Form*, *Open Form*, *Delete Record*, etc.
Combo Box	Displays or accepts data in a drop-down list. Used for lookup fields.
Check Box	Used to display or accept data for a field with a *Yes/No* data type.

As you read this book, you will learn more about these controls and how they are used in a database.

Form Control Layouts

Control layouts provide a structure that helps to align the different controls on your form. This gives your form a more uniform appearance. Forms are not required to include a control layout, although a few of the form creation methods place all fields in a control layout by default. The two primary control layout options are tabular and stacked:

- ***Tabular***: The layout organizes data in rows and columns. Labels identifying the different fields are above the data values in a header section. **Figure 4-27** shows a tabular layout in *Layout* view. The tabular layout starts with each field having a fairly large column width. This can make it difficult to see all the fields on the screen at one time.

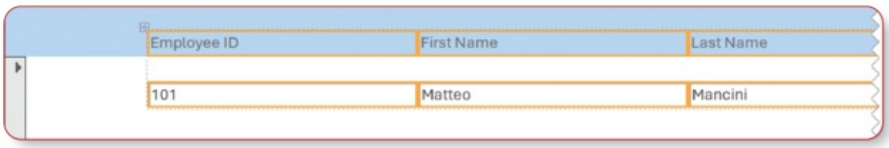


FIGURE 4-27 Tabular control layout

- ***Stacked***: The layout organizes data vertically. The labels are to the left of the data control. The fields all have the same width. **Figure 4-28** shows a stacked layout in *Layout* view.

A4-244

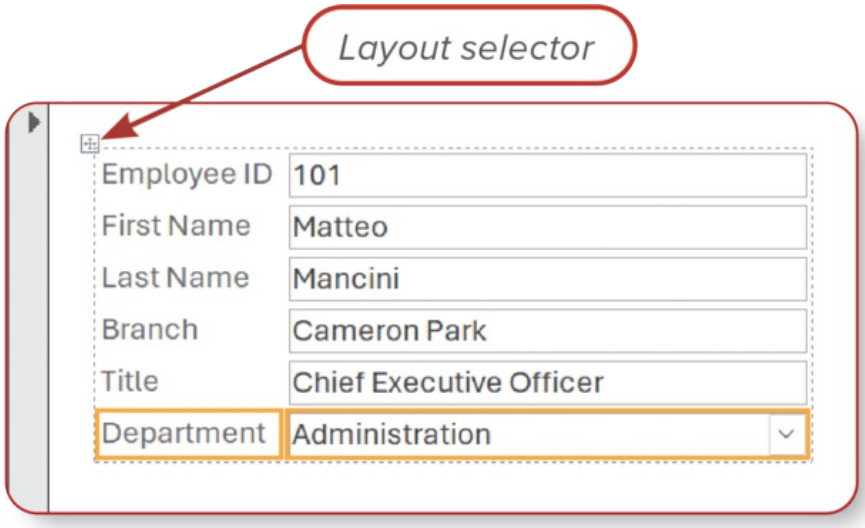


FIGURE 4-28 Stacked control layout

The small icon in the upper-left corner of a layout is the ***layout selector***. It displays when a control inside the layout has been selected.

Add Fields to a Control Layout

When a new blank form is created, no controls appear on the form. You can add any desired table fields to the form in *Layout* view. When you add a table field to a form, Access automatically determines the type of control to add based on the value in the *Display Control* property of the field. Recall that the *Display Control* property is initially set based on the field's data type. Most data types use *Text Box* to display the data, but *Yes/No* data types use a *Check Box*. If you created a lookup field, the *Display Control* property would be either *List Box* or *Combo Box*. When a table field is added to a form, Access adds a control for that field and also adds an attached label control. The label control displays the field name or the caption, if one has been entered for the field.

HOW TO: Add Fields into the Control Layout of a Blank Form

1. Open the form in *Layout* view.

2. Click the **Add Existing Fields** button [*Form Layout Design* tab, *Tools* group] if the *Field List* pane is not open (**Figure 4-29**).

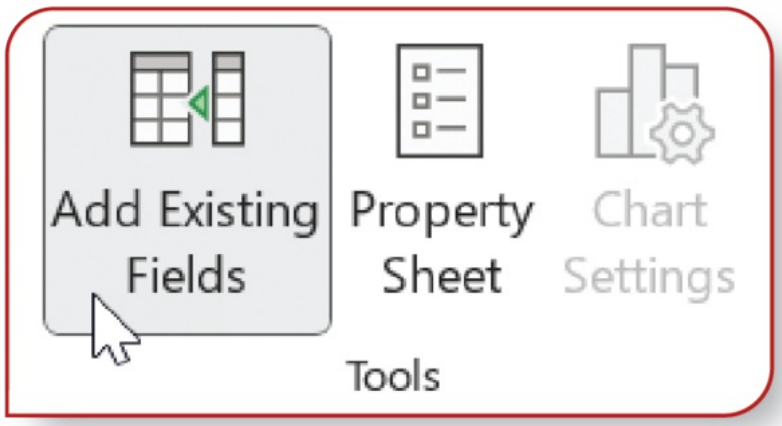


FIGURE 4-29 ***Add Existing Fields*** **button**

ANOTHER WAY

Press **Alt+F8** to show or hide the *Field List* pane.

3. Click the **Show all tables** link if the database tables do not show.
4. Click the **plus sign** next to the desired table name to display the fields.
5. Double-click the desired **field name**.
   - The field is added into a stacked layout (**Figure 4-30**).

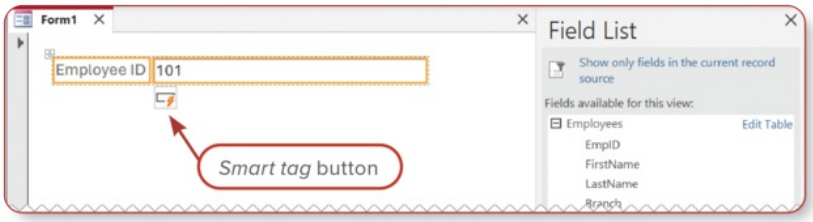


FIGURE 4-30 Add fields into a stacked layout of a blank form

   - Click the **smart tag** button to change to a tabular layout as desired.
   - A label control, associated with the field name, is also added to the form.
   - The most recently added field is highlighted with an orange border.
   - The next field added to the form appears below the orange-bordered field.

6. Continue adding the remaining fields.

ANOTHER WAY

Click, hold, and drag a **field** from the *Field List* into the form window to add it into the control layout.

HOW TO: Add Fields between Existing Fields in a Control Layout

1. Open the form in *Layout* view.
2. Click the **Add Existing Fields** button [*Form Layout Design* tab, *Tools* group] or press **Alt+F8** if the *Field List* pane is not open.
3. Click the **plus sign** next to the desired table name to display the fields.
4. Select the desired field name to add to the form. The field is highlighted in rose.
5. Click, hold, and drag the **field** to the desired location in the control layout. A rose-colored line indicates the position of the new field (**Figure 4-31**).

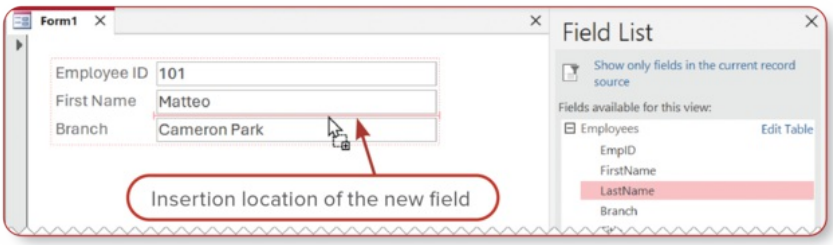


FIGURE 4-31 Drag a field to the desired location

- The rose-colored line appears both vertically and horizontally as you move to the new location.
- If the line is positioned horizontally, the existing rows move down to accommodate the inserted field.
- If the line is positioned vertically, the existing fields move to the right to accommodate the inserted field.

6. Release the pointer to add the field and its label.

Delete Fields from a Control Layout

As you saw in **SLO 4.1: Creating and Working with a Simple Form**, if you use the *Form* button to create a form, all table fields are automatically added to the control layout of the form. However, you may not want to keep all of the fields on the form. Although they are added together, the text box and the label are two separate controls associated with a field. If you select and delete the text box, the label is automatically deleted. However, if you only select and delete the label, the text box control remains on the form. Additionally, deleting a label or text box control does not automatically delete the row or column that contains the control from the control layout.

HOW TO: Delete a Field from a Control Layout

1. Open the form in *Layout* view.
2. Select the **text box control** of the field to delete.
3. Right-click to open the context menu.
4. Select the desired delete option (**Figure 4-32**). The choices work differently depending on the control layout.

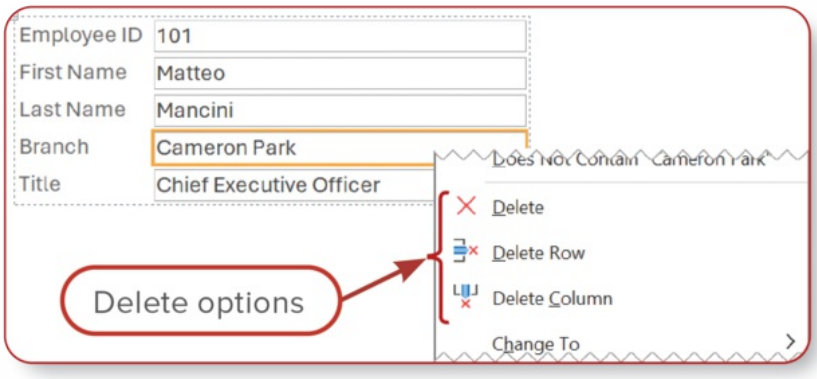


FIGURE 4-32 Context menu to delete a field

- In a stacked layout, select **Delete** to delete both the text box and label, but you keep the empty row in the control layout.
- In a stacked layout, select **Delete Row** to delete the text box, label, and row containing the controls.
- In a tabular layout, select **Delete** to delete the text box, but the label and column are not deleted.
- In a tabular layout, select **Delete Column** to delete the text box, label, and column containing the controls.

If necessary, you can delete the entire control layout. After selecting a control in the form, click the **layout selector** to select the entire layout and then press **Delete**.

Customize a Form in Layout View

Use *Layout* view to modify a form and to see the effects of the modifications in real time. In this section, you learn how to change control layouts, adjust control widths and heights, add and delete rows and columns in a control layout, move a control within a layout, move control layouts, and change font options in a control.

These options are available through the buttons in the *Table* and *Rows & Columns* groups on the *Arrange* tab (**Figure 4-33**).

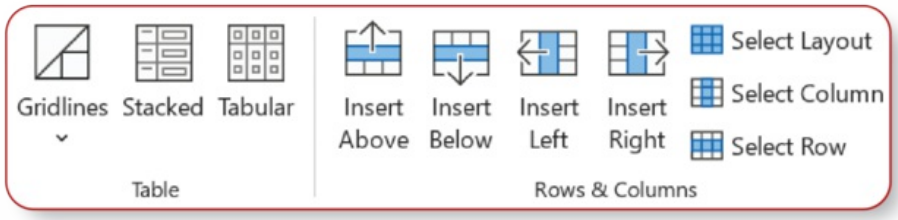


FIGURE 4-33 Customize a form layout using options in the *Table* and *Rows & Columns* groups

Change Control Layouts

When you create a form using one of the quick create options, the form starts with either a stacked or tabular layout. As you add and delete fields on the form, you may wish to change its layout.

HOW TO: Change Control Layouts

1. Open the form in *Layout* view.
2. Select one of the fields in the control layout. The orange border surrounds the selected field.
3. Click the **Select Layout** button [*Arrange* tab, *Rows & Columns* group]. The orange border surrounds all of the controls in the layout.

ANOTHER WAY

Click the **layout selector** to select all of the controls.

4. Select either the **Stacked** or **Tabular** button [*Arrange* tab, *Table* group]. The form updates to show the new layout.

Adjust Control Widths and Heights

Often, the initial width of the form fields is much larger than needed. Keep in mind that in a stacked layout, all of the fields have the same width. That means that when you change the width you need to ensure that the column is wide enough to fit the largest field.

HOW TO: Change Field Column Widths

1. Open the form in *Layout* view.
2. Select the **text box control** of the desired field in the control layout. The orange border surrounds the selected field.
3. Place your pointer over the right edge of the text box until it changes to the resize arrow.
4. Click, hold, and drag the **resize arrow** to increase or decrease the width of the text box.
   - The field(s) update to show the new width.
   - In a stacked layout, all fields change together to maintain the same width (**Figure 4-34**).

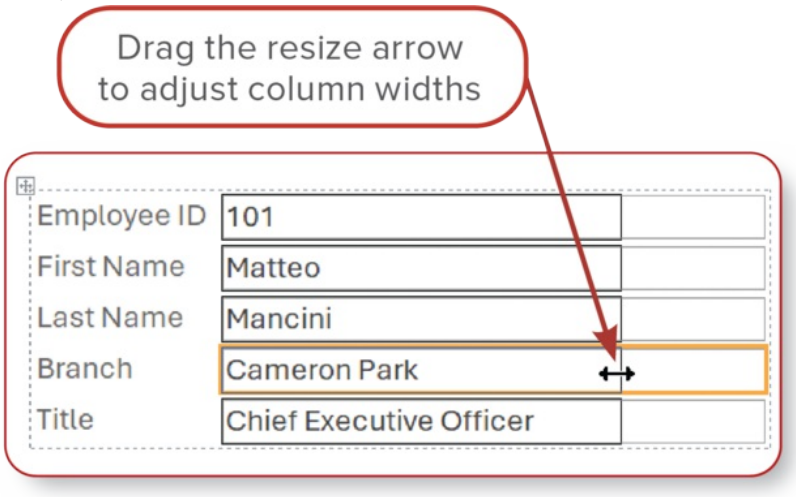


FIGURE 4-34 Adjust the width of all fields in a stacked layout

- In a tabular layout, you can set the width of each field individually (Figure 4-35).



FIGURE 4-35 Adjust the width of a single field in a tabular layout

Change the height of a field using a very similar process. After you select the control, place your pointer over the lower edge of the control. Click, hold, and drag the **resize arrow** up or down to adjust the height. If you have a stacked layout, you can set the height of each field individually. However, in a tabular layout, all fields change together to maintain the same height.

These same instructions can be used to change the width or height of many other controls, like labels and command buttons.

You can also change the width or height of a control on the *Format* tab of the *Property Sheet*. This enables you to enter a precise value.

HOW TO: Change Control Width or Height Using the Property Sheet

1. Open the form in *Layout* view.
2. Select one of the controls in the control layout. The orange border surrounds the selected field.
3. Click the **Property Sheet** button [*Form Layout Design* tab, *Tools* group].

ANOTHER WAY

Press **F4** to open or close the *Property Sheet*.

4. Enter the value in the *Width* or *Height* property box on the *Format* tab (Figure 4-36).

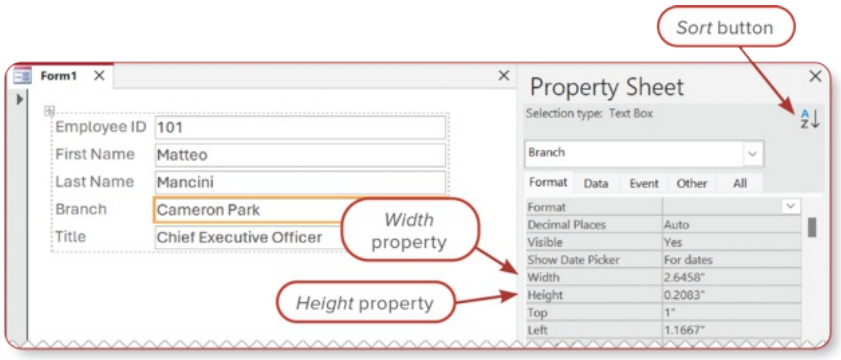


FIGURE 4-36 **Adjust the width and height in the *Property Sheet***

- You must press **Enter** or **Tab** after entering the value so that Access recognizes a changed value.
- Access automatically adds the inches mark (") to the end of the value if you didn't include it.
- The form updates to show the modified control.

MORE INFO

Sometimes, it is difficult to locate the desired property in the *Property Sheet*. Click the **Sort** button (see **Figure 4-36**) in the *Property Sheet* to sort the properties in ascending order.

Add and Delete Rows and Columns in a Control Layout

Often, you want to make minor modifications to the control layout. For example, you may want to create a second column in a stacked layout, or you may want to delete a row if you removed fields from the control layout.

HOW TO: Add a Column to a Control Layout

1. Open the form in *Layout* view.
2. Select a control in the column adjacent to the place where you want to add a new column.
3. Click the **Select Column** button [*Arrange* tab, *Rows & Columns* group].
4. Click the **Insert Left** or **Insert Right** button [*Arrange* tab, *Rows & Columns* group].

- The new column is added to the control layout (**Figure 4-37**).



FIGURE 4-37 A dotted border surrounds each cell in the added column

- A light gray dotted border surrounds each cell in the added column.

HOW TO: Add a Row to a Control Layout

1. Open the form in *Layout* view.
2. Select a control in the row adjacent to the place where you want to add a new row.
3. Click the **Select Row** button [*Arrange* tab, *Rows & Columns* group].
4. Click the **Insert Above** or **Insert Below** button [*Arrange* tab, *Rows & Columns* group].
   - The new row is added to the control layout (**Figure 4-38**).

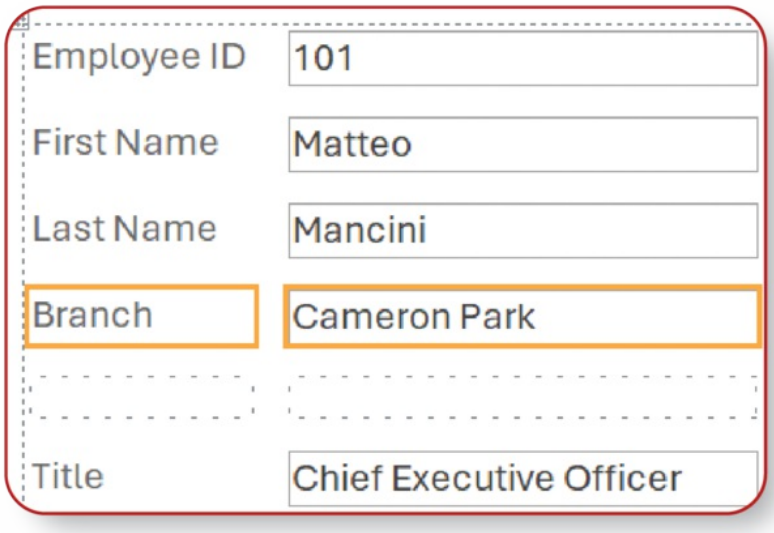


FIGURE 4-38 A dotted border surrounds each cell in the added row

- A light gray dotted border surrounds each cell in the added row.

HOW TO: Delete a Row or Column from a Control Layout

1. Open the form in *Layout* view.
2. Select a control in the row or column you wish to delete.
3. Click the **Select Row** or **Select Column** button [*Arrange* tab, *Rows & Columns* group].
4. Right-click to open the context menu.
5. Select **Delete Row** or **Delete Column**.

Move a Control within a Layout

After you make a modification to the control layout, you may want to move a control from one part of the layout to another.

HOW TO: Move a Control within a Layout

1. Open the form in *Layout* view.
2. Select the control that you wish to move. The orange border surrounds that control and the pointer changes to the move arrow.
3. Click hold, and drag the **control** to the new location. A rose color highlights the destination cell (**Figure 4-39**).

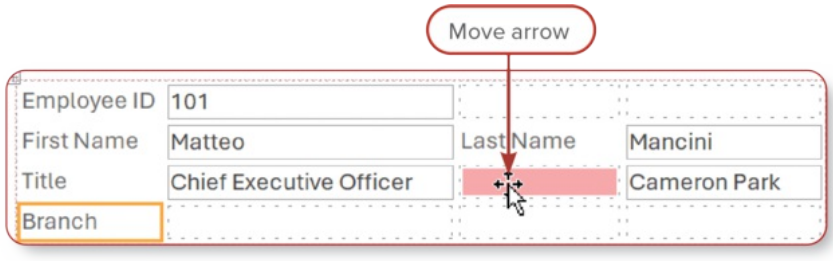


FIGURE 4-39 Drag a control to a new location in the form layout

ANOTHER WAY

Select multiple controls by pressing and holding **Shift** when you select controls.

Move Control Layouts

When you create a form using one of the quick create options, the control layout is positioned in the upper-left part of the form. One of the changes you can make is to move the entire control layout to a different location on the form.

HOW TO: Move Control Layouts

1. Open the form in *Layout* view.
2. Select one of the fields in the control layout. The orange border surrounds the selected field.
3. Click the **Select Layout** button [*Arrange* tab, *Rows & Columns* group]. The orange border surrounds all of the controls in the layout.

ANOTHER WAY

Click the **layout selector** to select all of the controls.

4. Place your pointer over any field. Click, hold, and drag the **control layout** to the new location on the form, and then release the pointer.

You can also change the location of the control layout by changing the ***Top*** and ***Left*** properties on the *Format* tab of the *Property Sheet*. This enables you to enter precise values. Select the control located in the upper-left position of the control layout and then change either or both properties of that control. The *Top* property value is relative to each section of the form. A value of .25" places the control .25" below the top of that section. The *Left* property value is the distance from the left side of the form. Remember that Access automatically adds the inches mark (") after you enter the value, so you don't have to type it.

Change the Font Options in a Form Control

When you create a form, the controls are assigned the default font face and font size in Access. As you add and delete controls on the form, you may wish to change the formatting options of the font. Modify the font of individual controls or make the same change to all controls within a control layout.

Select the controls you wish to change before you select the font characteristics. You can select an individual control, a set of controls, or click the layout selector to select all controls. To select a set of controls, click to select the first control, press and hold the **Ctrl** key, and then click to select the additional controls.

The type of change you wish to apply determines the specific menu options you select.

- Change the font face by clicking the **Font** drop-down list in the *Font* group [*Format* tab] and selecting the desired font.
- Change the size of the font by clicking the **Font Size** drop-down list in the *Font* group [*Format* tab] and selecting the size. You can also click the **Font Size** text box and type the desired size.
- Change the style of the font by clicking the desired style button in the *Font* group [*Format* tab].

Adjust Control Positioning on a Form

Depending on the design of your form, you may wish to make changes to the way controls are positioned on the form. Use the *Position* group [*Arrange* tab] to make these changes to the controls. The effects are visible when the form is viewed in *Form* or *Layout* view.

Control Margins set how much margin space surrounds the text inside a control. It is measured from the upper-left corner of the control to the position of the text inside the control. The margin options are *None*, *Narrow*, *Medium*, and *Wide*. Each option places slightly more space in the margin.

Control Padding sets how much space is between the controls in a control layout. The padding options are *None*, *Narrow*, *Medium*, and *Wide*. Each option places slightly more space between the controls. Compare the space between the text boxes in **Figure 4-38** and **Figure 4-39**. **Figure 4-38** illustrates medium padding while **Figure 4-39** illustrates narrow padding.

Anchoring is used to keep a control in a certain position on the form, even as the form is resized. If controls are placed inside a control layout, the entire layout is anchored, not individual controls. The *Anchoring* options are shown in **Figure 4-40**.

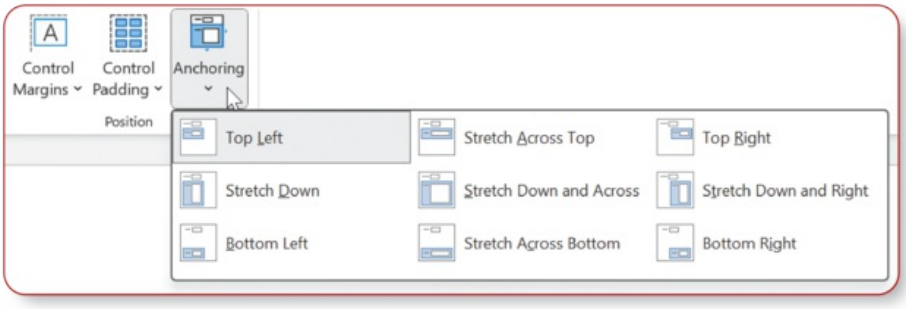


FIGURE 4-40 Select an *Anchoring* option

Figure 4-41 shows an example of controls anchored in a variety of locations. As the form is increased or decreased in size, the controls stay in their relative location. If controls are not anchored, as the form is decreased in size you may need to use the scroll bars to see all of the controls. **Figure 4-41** also illustrates two *Control Margin* settings. The *LastName* field is set to *Narrow* while the *FirstName* field is set to *Medium*. Notice that the lower part of "Matteo" is cut-off in the text box. Be sure that the height and width of the control is large enough so that the text can fully display.

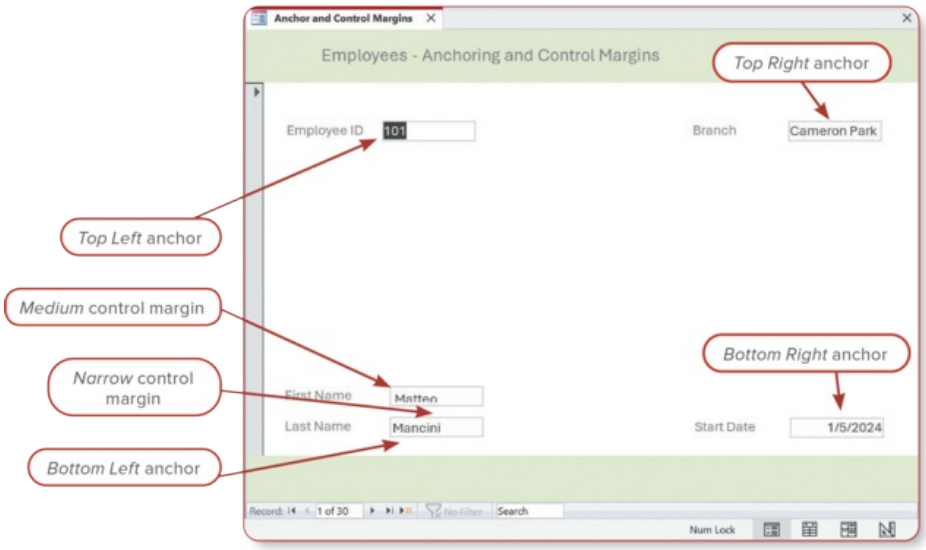


FIGURE 4-41 *Anchoring* and *Control Margin* examples

HOW TO: Adjust Control Positioning on a Form

1. Open the form in *Layout* view.
2. Select the desired control or control layout.
3. Click the **Control Margins**, **Control Padding**, or **Anchoring button** [*Arrange* tab, *Position* group].

4. Select the desired option.

Sort Records on a Form

If a new form is created based on a table or query, the form uses the sort order defined in the table or query. When you open the form in either *Form* view or *Layout* view, the records display in that sort order. You can change the sort order in a form without affecting the defined sort order in the table or query. Sort the form by one field, or multiple fields, in ascending or descending order. As desired, you can change the sort while viewing the form or you can make the change in the form's properties.

In **SLO 1.6: Using Search, Sort, and Filter Tools to Find Records in a Table**, you learned to change the sort order of a table in *Datasheet* view using options in the *Sort & Filter* group of the *Home* tab. Similar options exist in *Form* view or *Layout* view of a form.

HOW TO: Sort Data in a Form on a Single Field Using the Sort & Filter Group

1. Open the form in *Layout* view or *Form* view.
2. Select the control in the form on which you wish to sort.
3. Click either the **Ascending** or **Descending** button [*Home* tab, *Sort & Filter* group]. The form updates to show the results of the sort.
4. Click **Remove Sort** [*Home* tab, *Sort & Filter* group] to remove the *Sort* criteria as desired.
   - If you do not remove the sort, the form automatically remains in this sorted order.

You can also change the sort order of a form on the *Data* tab of the *Property Sheet*. To sort on multiple fields, you must use this option. The two properties you must set are the *Order By* and *Order By On Load* properties in the form property sheet.

The ***Order By*** property indicates how the results are sorted. Type the field name on which to sort in the property box using the following rules and guidelines for writing the *Order By* clause include:

- Enclose each field name in square brackets.
- The default sort order is ascending.
- Include *DESC* after the field name to sort in descending order.

- You can sort on multiple fields. If you sort on multiple fields, list the fields in the order in which you want the records sorted. Separate the fields with a comma. Recall from chapter 3 that additional fields affect the sort when more than one record is in the grouping.

The following are examples of how to write the contents in the *Order By* property box:

Example: *[LastName]*
Explanation: This example performs an ascending sort on the *LastName* field.
Example: *[LastName] DESC*
Explanation: This clause performs a descending sort on the *LastName* field.
Example: *[Branch] DESC, [LastName]*
Explanation: This clause performs a sort based on the combination of two fields. The records are sorted first by *Branch* (in descending order), and within each *Branch* by *LastName* (in ascending order.)

Set the ***Order By On Load*** property so Access performs the sort when the form is opened.

HOW TO: Change the Sort Order of a Form Using the Property Sheet

1. Open the form in *Layout* view.
2. Click the **Property Sheet** button [*Form Layout Design* tab, *Tools* group].
3. Click the **drop-down arrow** in the *Selection* box of the *Property Sheet* and select **Form**.
4. Click to select the **Data** tab of the *Property Sheet* if necessary.
5. Type the field name to sort by, enclosed in square brackets, in the *Order By* property box.
   - You must press **Enter** or **Tab** after entering the value so that Access recognizes a changed value.
6. Type DESC to sort this field in descending order as desired (**Figure 4-42**).

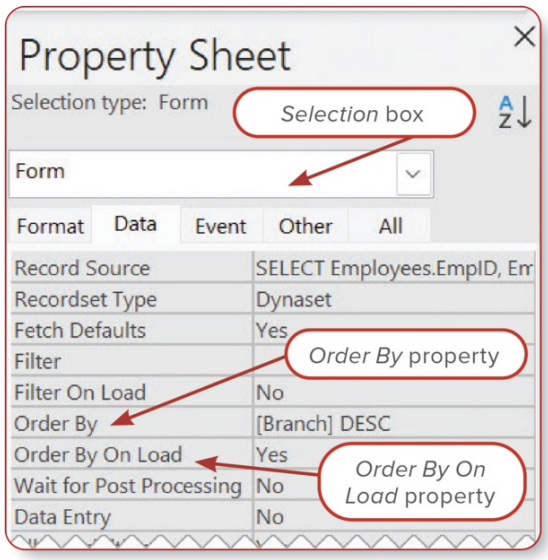


FIGURE 4-42 ***Order By*** **and** ***Order By On Load*** **properties**

7. Enter any additional fields as desired to create a compound sort. Remember that the fields must be separated by a comma.
8. Select **Yes** in the *Order By On Load* property box if necessary.

Add a Title, Date, or Logo to a Form

It is good design practice to title each form. This helps identify the form for the user. You can also display the current date and add a logo to forms. These controls are added to a form from the *Header/Footer* group [*Form Layout Design* tab] (**Figure 4-43**). If the form does not already contain a ***Form Header*** section, adding any of these items automatically adds a *Form Header* section to the form.

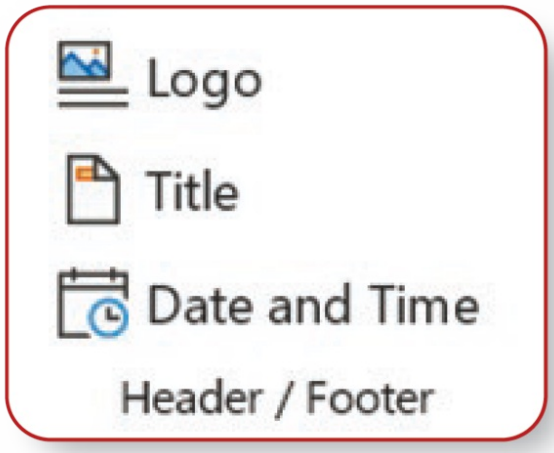


FIGURE 4-43 ***Header/Footer*** **group options**

The ***Date and Time*** button adds one or two text box controls into the *Form Header* section, depending on whether you choose to add only the date or time, or both. Access assigns each text box a default name; in this case *Auto_Date* and/or *Auto_Time*.

HOW TO: Add a Date to a Form in Layout View

1. Open the form in *Layout* view.
2. Click the **Date and Time** button [*Form Layout Design* tab, *Header/Footer* group] to add the *Auto_Date* and/or *Auto_Time* text box controls into the *Form Header* section of the form. The *Date and Time* dialog box displays (**Figure 4-44**).

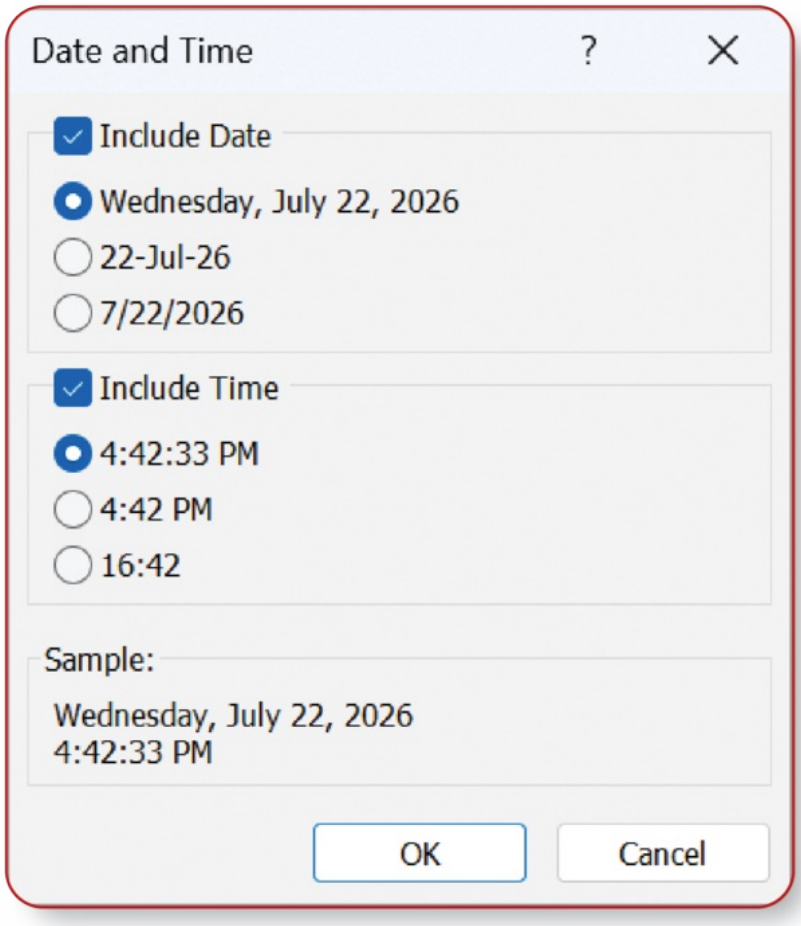


FIGURE 4-44 ***Date and Time*** **dialog box**

3. Select the check boxes and radio buttons corresponding to your choices.
4. Click **OK**.

The ***Logo*** button adds an image control into the *Form Header* section to display the image file you choose as your logo. Access names the image control *Auto_Logo*. The ***Title*** buttons adds a label control into the *Form Header* section to display the title. Access names the label control *Auto_Header*.

HOW TO: Add a Title or Logo to a Form in Layout View

1. Open the form in *Layout* view.
2. Click the **Title** button [*Form Layout Design* tab, *Header/Footer* group] to add a

title to the form. The default title is set to the form name.

3. Type a new title as desired.
4. Click the **Logo** button [*Form Layout Design* tab, *Header/Footer* group] to add a logo to the form. The *Insert Picture* dialog box displays.
5. Select the image file to use as the logo and click **OK**.

Figure 4-45 shows a form with a date and time, a title, and a logo. The background of the *Logo* image control, *Auto_Date* **text box control**, and *Auto_Time* text box control have each been set to a different background color to help in identifying each control. With the *Auto_Header* label control selected, notice that the width of this control overlaps onto both the *Auto_Date* and *Auto_time* controls. If necessary, you may need to adjust the width or location of these controls. You can also adjust the size or location of the *Auto_Logo* image control.

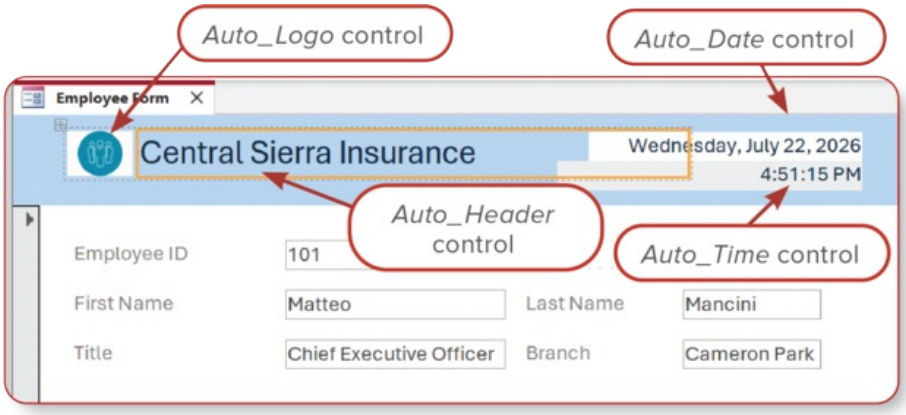


FIGURE 4-45 Controls in the header section

Add and Modify a Label on a Form

Recall that when a table field is added to a form, Access adds a control for that field and also adds an attached label control. The label control displays the field name or the caption, if one has been entered for the field. You also learned that the *Title* button adds a label control into the header section.

Often you will want to add other labels to a form to display additional titles, instructions or information about the form. Click the **Label** button to add labels into any section of the form. The text you enter in the label is stored in the label's *Caption* property. Access sizes the label to accommodate the text you enter.

HOW TO: Add a Label to a Form

1. Open the form in *Layout* view.
2. Click the **Label** button [*Form Layout Design* tab, *Controls* group] and move the pointer to the desired location in the control layout. A rose-colored cell indicates the position of the new label (**Figure 4-46**).

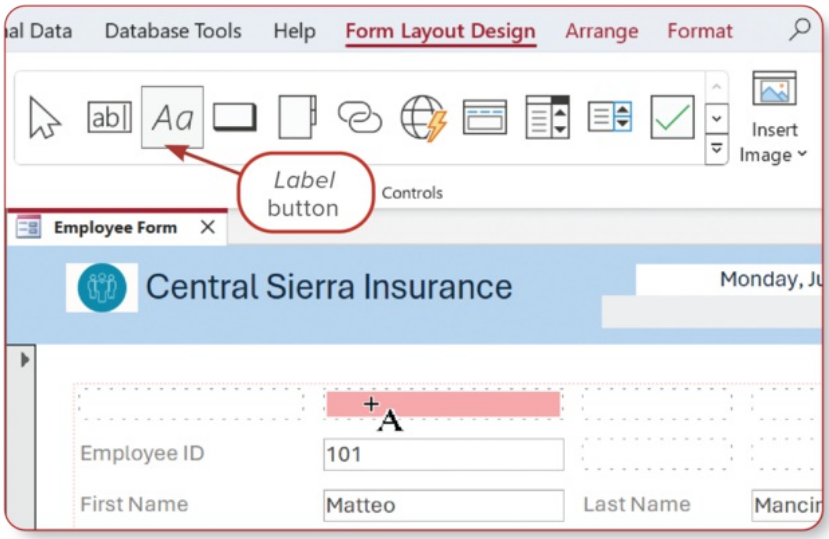


FIGURE 4-46 **Move the pointer to the desired location**

3. Click the **cell** to add the label.
4. Type the label contents.

After a label is created you may need to modify it.

- To change the font face, size, or style, select options in the *Font* group of the *Format* tab.
- To move the label, click and drag the label to move it to a different location. You can also change the location of the label by changing the ***Top*** and ***Left*** properties on the *Format* tab of the *Property Sheet*.
- To change the text in an existing label, click to select the label, click inside the label to open edit mode and edit the text. You can also edit the text in the *Caption* property on the *Format* tab of the *Property Sheet*.

Create a Form from a Template with Application Parts

Another option to creating a form is to use a pre-built form template. In **SLO 1.2: Creating and Managing a Database**, you learned that Access has a variety of templates that you can use to create a complete database. Access also has a set of ***Application Part***

s, pre-built parts of a database that can be added into an existing database. These parts include 10 pre-built forms from which you can choose. The *Application Parts* gallery displays the pre-built form options. If you place your pointer over a form in the gallery, a *ScreenTip* displays information about the basic layout of that form (**Figure 4-47**).

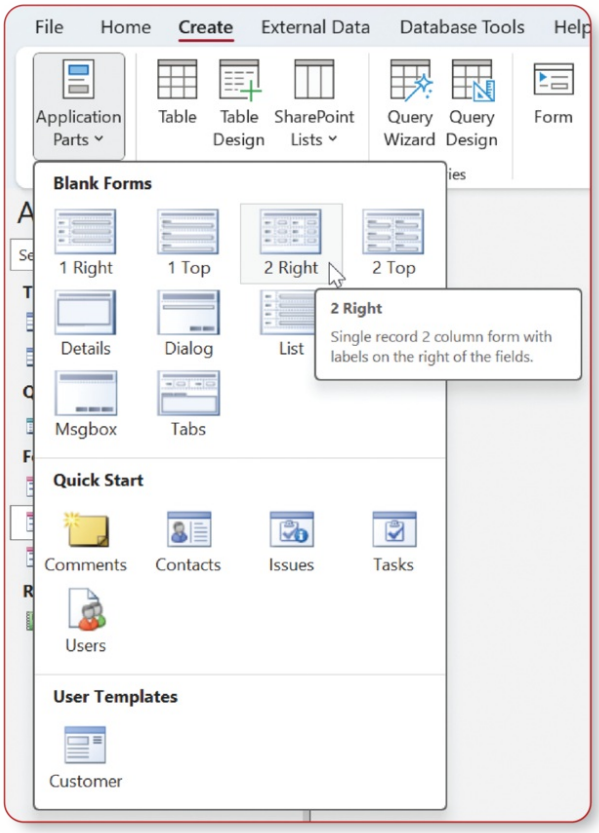


FIGURE 4-47 ***Application Parts*** **gallery**

HOW TO: Create a Form from a Template with Application Parts

1. Close any open objects.
2. Click the **Application Parts** button [*Create* tab, *Templates* group] to display the *Application Parts* gallery.
3. Select the desired form.
   - Access creates the form and assigns it a default name.
   - The form does not automatically open but displays in the *Navigation Pane*.

Although Access categorizes these as *Blank Forms* in the gallery, they do contain various controls and formatting layouts. For example, they typically have an existing control layout and

placeholder labels. However, a form that is created from *Application Parts* is not yet directly linked to a table in the database, just like a form created with the *Blank Form* button. After creating it, you must customize the form to link it to specific fields in a database table(s) and to modify or add controls on the form.

You can use the skills you have learned in this section to make these modifications in *Layout* view. However, you will notice a difference when adding fields into an *Application Parts* form compared to a form created with the *Blank Form* button, because the placeholder labels already exist.

HOW TO: Add Fields to a Form Created with Application Parts

1. Open the form in *Layout* view.
2. Click the **Add Existing Fields** button [*Form Layout Design* tab, *Tools* group] if the *Field List* pane is not open.
3. Click the **plus sign** next to the desired table name to display the fields.
4. Click to select the desired field name.
5. Press and hold the **Ctrl** key and drag and drop the field in to the placeholder control on the form. Release the **Ctrl** key after dropping the field.
   - The field is added into the layout and highlighted with an orange border (**Figure 4-48**).



FIGURE 4-48 Add a field to an *Application Parts* form

   - Edit the caption in the label (see *Field1* in **Figure 4-48**) as desired.

ANOTHER WAY

If you click, hold, drag, and drop the field without pressing the **Ctrl** key, Access inserts the label as well as the field. In this case, Access also adds an additional column to the left of the field to hold the label. The column of labels *Field1*, etc. still remains in the form.

6. Continue adding additional fields as desired.

COPILOT/GENERATIVE AI BEST PRACTICES

To learn more about these pre-built Application Parts, ask *Copilot* to explain how application parts are used in an Access form. Follow up with additional prompts such as “How do I customize an Application Part in Access”, or “What’s the difference between Application Parts and Templates in Access”

SLO 4.3

Facilitating Data Input with a Form

Forms enable you to view, change, or delete data already in a database or to add new data into a database. Sometimes, you use a form for all these purposes, but at other times you may want to create a single purpose form. When using a form for data entry, it is important to design it to help minimize potential data entry mistakes as well as to make the data entry efficient. Use the *Property Sheet* of the form to select the desired settings to limit actions available in a form (**Figure 4-49**).

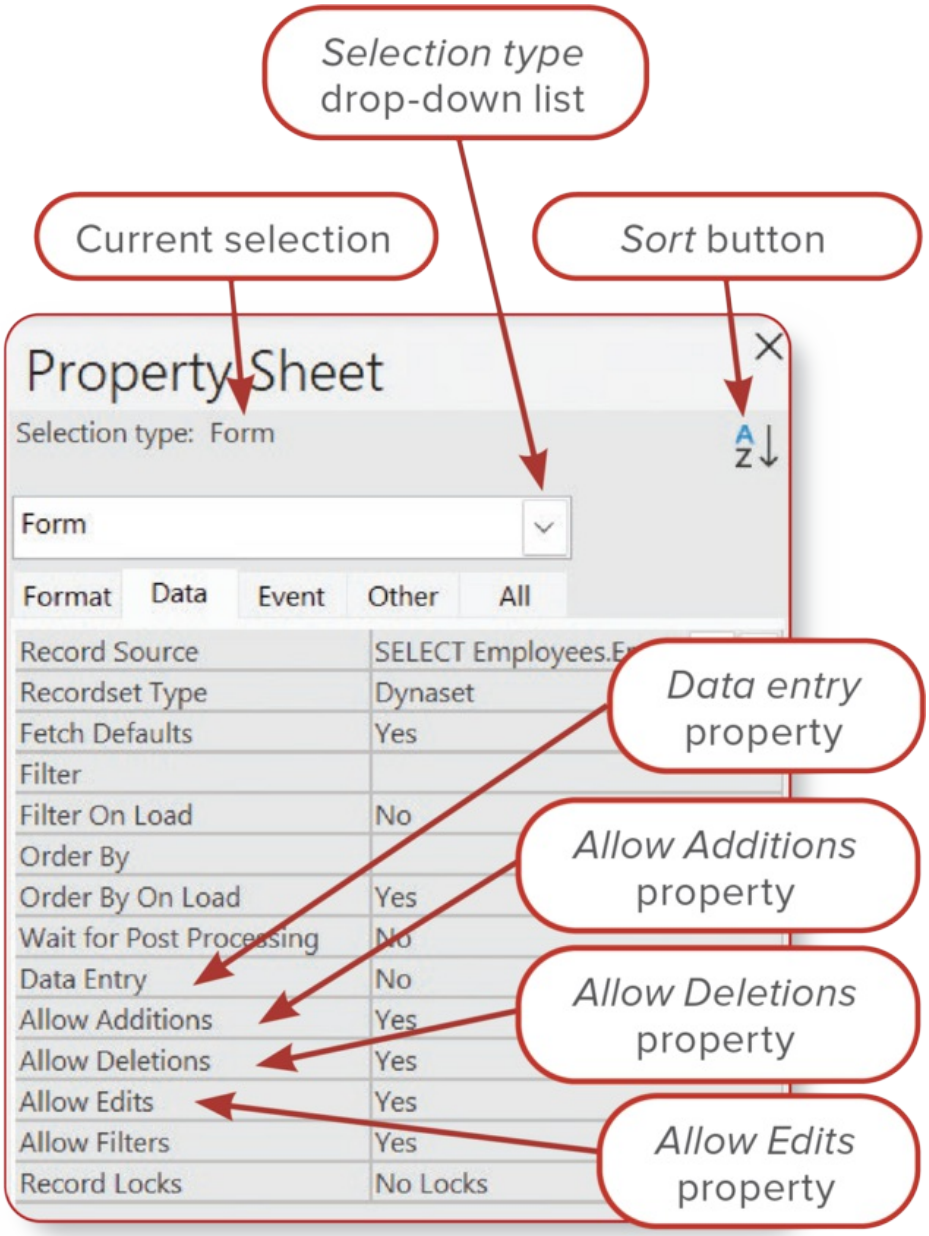


FIGURE 4-49 Properties to limit actions available in a form

The following form properties, located on the *Data* tab, control actions available in a form:

- ***Data Entry***: Determines whether a form is restricted to data entry. The default setting is *No*.
- ***Allow Additions***: Determines whether a user can use the form to add data into the database. The default setting is *Yes*.
- ***Allow Deletions***: Determines whether a user can use the form to delete a record from the database. The default setting is *Yes*.

- ***Allow Edits***: Determines whether a user can use the form to change values in a record in the database. The default setting is *Yes*.

Recall that you can click the **Sort** button in the *Property Sheet* to sort the properties in ascending order (see **Figure 4-49** if needed.) This can be helpful to find a specific property more quickly.

Restrict a Form to Data Entry

Restrict a form to only allow data entry when you don't want users to have access to all the data records that exist in the database. This enables you to limit certain activities to authorized users. Additionally, this feature can prevent users from accidentally changing or deleting existing records in the table.

HOW TO: Restrict a Form to Data Entry

1. Open the form in *Layout* view.
2. Click the **Property Sheet** button [*Form Layout Design* tab, *Tools* group].
3. Click the **drop-down arrow** in the *Selection* box of the *Property Sheet* and select **Form**.
4. Click to select the **Data** tab of the *Property Sheet* if necessary.
5. Select **Yes** in the ***Data Entry* property** box to restrict the form to data entry.
6. Select **Yes** in the ***Allow Additions* property** box.

A form that has been restricted to data entry does not show any existing records when viewed. This means that a user cannot delete or edit records. As a result, the settings in the ***Allow Deletions*** and ***Allow Edits*** property boxes don't have an impact.

Limit Edits and Deletions on a Form

Sometimes, you want users to be able to view existing records in a database but not to be able to edit or delete them. You can establish these limits through the *Property Sheet*.

HOW TO: Limit Edits and Deletions on a Form

1. Open the form in *Layout* view.
2. Click the **Property Sheet** button [*Form Layout Design* tab, *Tools* group] to open the *Property Sheet*.
3. Click the **drop-down arrow** in the *Selection* box of the *Property Sheet* and select

Form.

4. Select **No** in the *Data Entry* property box. The additional property selections you make in step 5 determine how users can access and change the data currently in the database.
5. Set the desired form properties.
   - Select **Yes** or **No** in the *Allow Additions* property box. If set to *Yes*, this will override the *Data Entry* property and enable records to be added into the database.
   - Select **Yes** or **No** in the *Allow Deletions* property box.
   - Select **Yes** or **No** in the *Allow Edits* property box.

Add a Command Button

A ***command button*** is a type of control that can perform a number of different actions. For example, command buttons can be set to print the current form, close the current form, navigate to the next record, or open another form. Buttons make a form more user-friendly.

The quickest way to add a command button to a form is to use the *Command Button Wizard*. The ***Command Button Wizard*** creates a button and attaches all of the necessary functionality to the button. The functionality is contained in a *Macro* and is attached to the *On Click* property of the button. Recall that a *Macro* is a database object that enables you to write and attach code to different objects and controls in your database.

The *Command Button Wizard* groups the available functionality into six different categories. Those categories and the available actions are shown in Table 4-2.

Table 4-2: Groupings of Categories and Actions in the Command Button Wizard

Category	Actions
Record Navigation	*Find Next* *Find Record* *Go To First Record* *Go To Last Record* *Go To Next Record* *Go To Previous Record*
Record Operations	*Add New Record* *Delete Record*

	Duplicate Record *Print Record* *Save Record* *Undo Record*
Form Operations	*Apply Form Filter* *Close Form* *Open Form* *Print a Form* *Print Current Form* *Refresh Form Data*
Report Operations	*Mail Report* *Open Report* *Preview Report* *Print Report* *Send Report to File*
Application	*Quit Application*
Miscellaneous	*Auto Dialer* *Print Table* *Run Macro* *Run Query*

The *Command Button Wizard* does not launch unless you first turn on the *Control Wizards* tool. The ***Control Wizards*** tool directs Access to launch an available wizard when adding controls to an object.

The *Control Wizards* tool uses an on/off setting. If the icon has a black border, the *Control Wizards* are on; if the icon does not have the black border, the *Control Wizards* are off.

HOW TO: Add a Command Button Using the Command Button Wizard

1. Open the form in *Layout* view.
2. Click the **Form Layout Design** tab.
3. Click the **Controls** arrow at the far right of the *Controls* group (**Figure 4-50**) to expand the *Controls* group. If the *Use Control Wizards* button does not have a black border surrounding it, select the **Use Control Wizards** button to turn on the wizard (**Figure 4-51**).

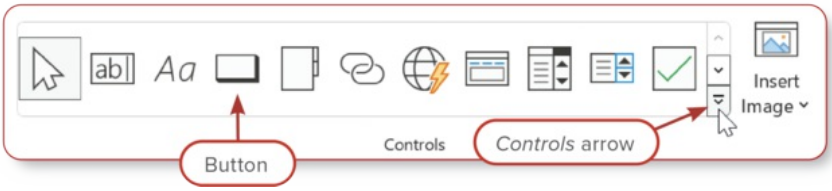


FIGURE 4-50 ***Controls*** **group**

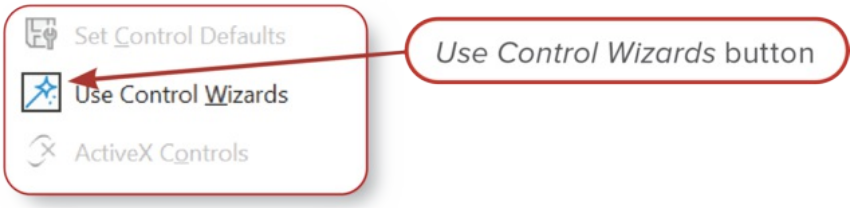


FIGURE 4-51 ***Use Control Wizards*** **button**

4. Click **Button** in the *Controls* group. Move the pointer to the desired location in the control layout and click a cell (**Figure 4-52**) to launch the *Command Button Wizard* (**Figure 4-53**).

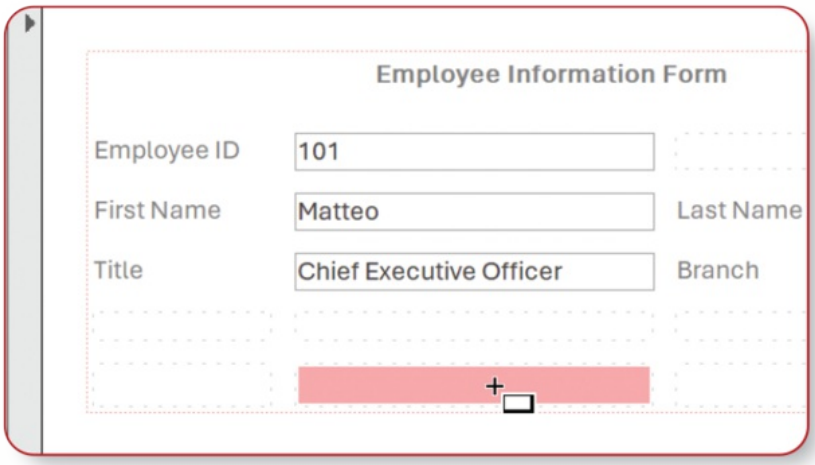


FIGURE 4-52 **Position the button control onto the form**

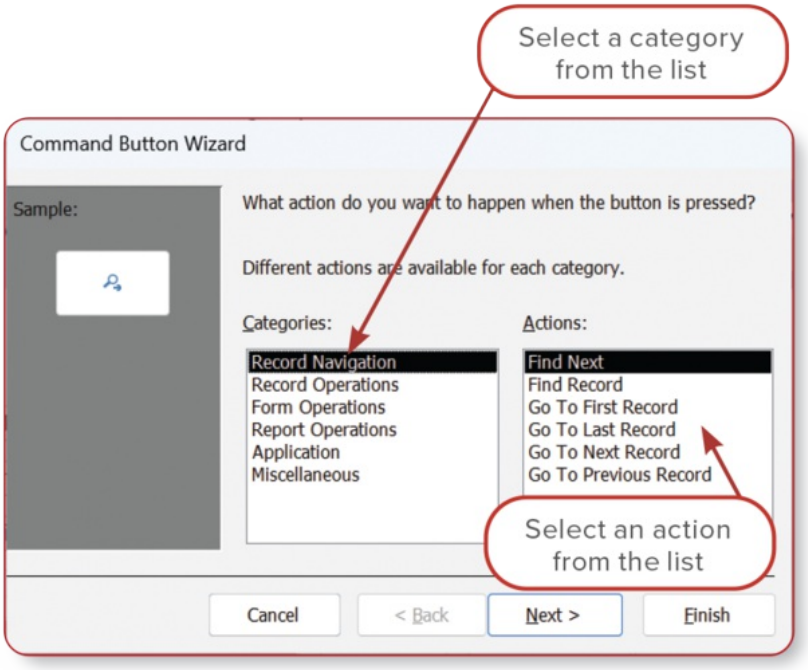


FIGURE 4-53 ***Command Button Wizard*, page 1**

- If the *Command Button Wizard* does not launch, *Control Wizards* is not turned on.
- Delete the button that was placed on the form.
- Repeat step 3 to turn the *Control Wizards* on.
- Repeat step 4 to add a button.

5. Select a **Category** and **Action** for the button.
6. Click **Next** to move to the second page of the *Command Button Wizard*.
7. Choose whether you want the button to display words or an image (**Figure 4-54**).

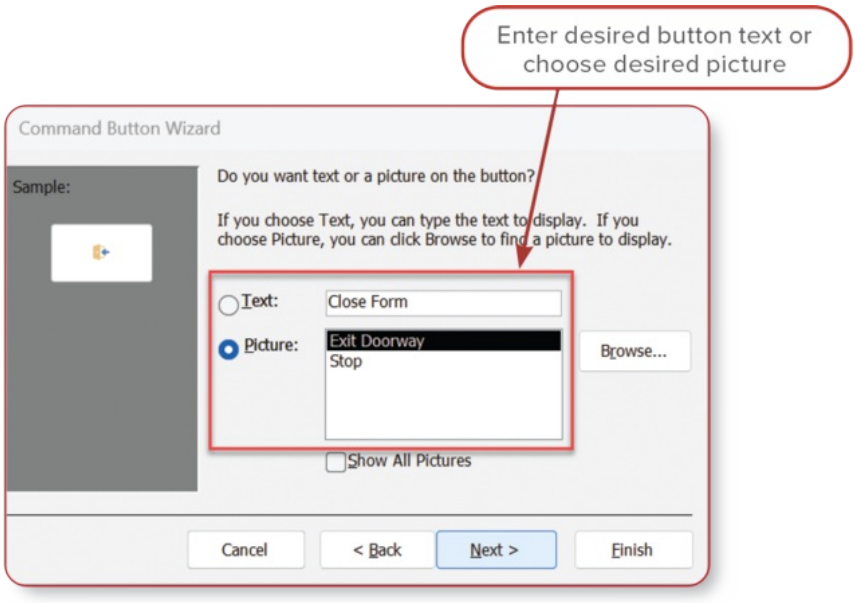


FIGURE 4-54 ***Command Button Wizard*, page 2**

8. Click **Next** to move to the last page of the wizard.

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9. Enter a name for the button as desired and click **Finish**.
   - The button name is important if you are going to modify the macro code attached to the button.
   - You may want the name to reference the form name and button action. For example, *EmployeeForm-CloseButton*.
   - The button displays in the form (**Figure 4-55**).

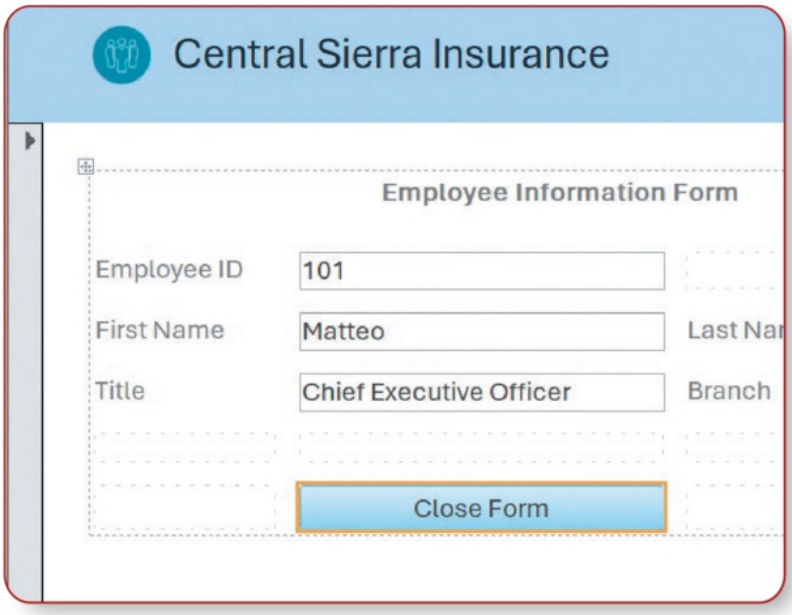


FIGURE 4-55 Completed button displays on the form

COPILOT/GENERATIVE AI BEST PRACTICES

The goal of form design is to create an intuitive and user-friendly interface. To ensure that users understand the purpose/function of the buttons on your forms, ask *Copilot* to explain the best practice for choosing button icons or images. Follow up with asking for examples of good button designs in real-world applications. The response should provide links where you can view these examples.

Test a Form

After you have built your form, it is important to switch to *Form* view and test the functionality of the form. You may have forgotten to add or delete a field on the form or you may want to change the text in a label to make it more user-friendly. You may also realize that you selected the wrong action to assign to a button.

Switch to *Form* view by clicking the **Views** button [*Form Layout Design* tab, *Views* group] and selecting ***Form View***. If you are in *Design* view, you can also press **F5** to switch to *Form* view.

Test the functionality of the form by performing the following tasks:

- Navigate through several records ensuring that the width of the fields is appropriate.
- Review the overall layout to ensure that the structure is easy-to-use and intuitive for the user.
- Test all buttons to ensure they behave as expected.
- Make any needed corrections and re-test as appropriate.

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PAUSE & PRACTICE: ACCESS 4-2

For this Pause & Practice, you build a form using the *Blank Form* button for the Central Sierra Insurance database. You modify the form to add a title, logo, and label, restrict it to data entry, add buttons, and test the form. This database contains an existing query and report that are used later in the chapter.

Files Needed: ***CentralSierra-04.accdb*** and ***CentralSierraLogo.png*** (**PP-A4-2**) *(Student data files are available in*

the Library *of your SIMnet account.)*

Completed Project File Name: ***[your initials] PP A4-2.accdb***

1. Open the ***CentralSierra-04*** database from your student data files. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close it.
2. Save the database as [your initials] PP A4-2.
3. Enable content in the database.
4. Create a new form using the *Blank Form* button.
   a. Click the **Blank Form** button [*Create* tab, *Forms* group]. A new blank form opens in *Layout* view.
   b. Click the **Show all tables** link in the *Field List* pane, if necessary.
   c. Click the **plus sign** to expand the *Employees* table to see the fields in the table.
   d. Double-click the **EmpID** field to add it to the form.
   e. Double-click the **FirstName** field to add it to the form.
   f. Continue adding all the fields from the *Employees* table into the form.
   g. Close the *Field List* pane. The form should be similar to **Figure 4-56**.

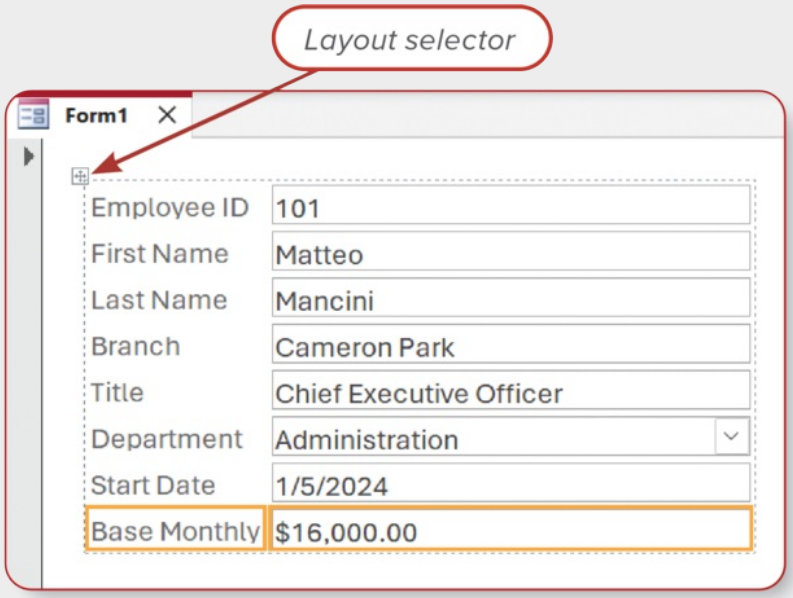


FIGURE 4-56 Employee form after adding all fields

5. Modify the control layout.
   a. Click one of the fields on the form. An orange border surrounds it.
   b. Click the **Select Layout** button [*Arrange* tab, *Rows & Columns* group] or click the **layout selector**. All the cells in the layout are bordered in orange.
   c. Place your pointer over any field. Ensure the pointer becomes the 4-pointed move arrow. Click, hold, and drag the **control layout** down about ¼" and to the right about ¼" (**Figure 4-57**), and then release the pointer.



FIGURE 4-57 Drag the control layout to a new location

d. Click the **Font Size** drop-down list [*Format* tab, *Font* group] and select **10**.

e. Navigate to record number 10. This record contains the employee with the longest title.

f. Click the **Title** text box control. Remember that the text box control displays the actual data. In this form, the text boxes are located to the right of the label.

g. Place your pointer over the right edge of the text box until it becomes the resize arrow.

h. Click, hold, and drag the **resize arrow** to decrease the width of the text box to remove the excess space.

6. Add a new column and new rows to the control layout.

a. Select the **EmpID** text box control.

b. Click the **Select Row** button [*Arrange* tab, *Rows & Columns* group].

c. Click the **Insert Above** button [*Arrange* tab, *Rows & Columns* group] to add a blank row.

d. Click the **Insert Above** button again to add a second blank row.

e. Select the **Base Monthly Salary** text box control.

f. Click the **Select Row** button [*Arrange* tab, *Rows & Columns* group].

g. Click the **Insert Below** button [*Arrange* tab, *Rows & Columns* group] to add a blank row.

h. Click the **Insert Below** button again to add a second blank row.

i. Select the **Base Monthly Salary** text box control.

j. Click the **Select Column** button [*Arrange* tab, *Rows & Columns* group].

k. Click the **Insert Right** button [*Arrange* tab, *Rows & Columns* group] to add a blank column.

7. Adjust the height and width of the new column and rows.

a. Select a cell in the new column.

b. Place your pointer over the right edge of the cell until it becomes the resize arrow.

c. Click, hold, and drag the **resize arrow** to increase the width of the cell. Make the width approximately the same as the first column.

d. Select a cell in the bottom blank row.

e. Press **F4** to open the *Property Sheet*.

f. Click the **Format** tab if necessary.

g. Type .4" in the *Height* property box and press **Enter**. Remember that Access automatically adds the inches mark (") after you enter the value, so you don't have to type it.

h. Select a cell in the top blank row.

i. Type .25" in the *Height* property box and press **Enter**.

j. Press **F4** to close the *Property Sheet*. The completed form should look similar to **Figure 4-58**.

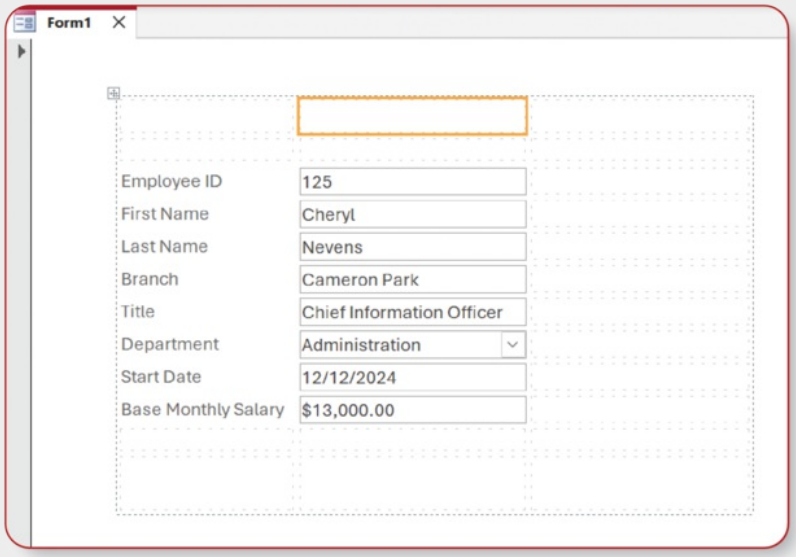


FIGURE 4-58 Employee form after adding and modifying rows and columns

8. Add command buttons to the form.

a. Click the **Form Layout Design** tab.

b. Click the **Controls** arrow on the far right of the *Controls* group and select the **Use Control Wizards** button if it does not already have a black border indicating it is selected.

c. Click **Button** in the *Controls* group. Click the left-most cell in the bottom row to launch the *Command Button Wizard*. If a *Microsoft Access Security Notice* box displays, click **Open**. If the *Command Button Wizard* does not launch, *Control Wizards* is not turned on. Delete the button that was added to the form and go back to step 8b.

d. Select the **Record Operations** *Category* and the **Save Record** *Action* of the button.

e. Click **Next** to move to the second page of the *Command Button Wizard*.

f. Select the **Text** radio button and change the wording to read Save Employee Record.

g. Click **Next** to move to the last page of the wizard.

h. Enter AddEmpForm-SaveButton as the name for the button and click **Finish**. The button displays in the form (**Figure 4-59**). The text in the button wraps depending on the width of the column.



FIGURE 4-59 Button added to form

i. Add a second button to the form. Place the button in the middle cell of the last row.

j. Select the **Record Operations** *Category* and the **Add New Record** *Action* of the button.

k. Click **Next** to move to the second page of the *Command Button Wizard*.

l. Select the **Text** radio button and change the wording to read Add New Employee.

m. Click **Next** to move to the last page of the wizard.

n. Enter AddEmpForm-AddButton as the name for the button and click **Finish**.

o. Add a third button to the form. Place the button in the right-most cell of the last row.

p. Select the **Form Operations** *Category* and the **Close Form** *Action* of the button.

q. Click **Next** to move to the second page of the wizard.

r. Select the **Text** radio button and accept the existing wording of "Close Form."

s. Click **Next** to move to the last page of the wizard.

t. Enter AddEmpForm-CloseButton as the name for the button and click **Finish**.

9. Add a title and a logo to the form.

   a. Click the **Title** button [*Form Layout Design* tab, *Header/Footer* group].

   b. Change the wording to read Central Sierra Insurance and press **Enter**.

   c. Click the **Logo** button [*Form Layout Design* tab, *Header/Footer* group]. The *Insert Picture* dialog box displays.

   d. Locate the ***CentralSierraLogo.png*** file, select the file, and click **OK**.

10. Add a label to the form.

    a. Click the **Label** button [*Form Layout Design* tab, *Controls* group].

    b. Click the middle cell in the top row of the control layout.

    c. Type New Employee Form and press **Enter**.

    d. Click the **Center** button [*Format* tab, *Font* group].

    e. Click the **Font Size** drop-down list button [*Format* tab, *Font* group] and select **14**. The form should look similar to **Figure 4-60**.

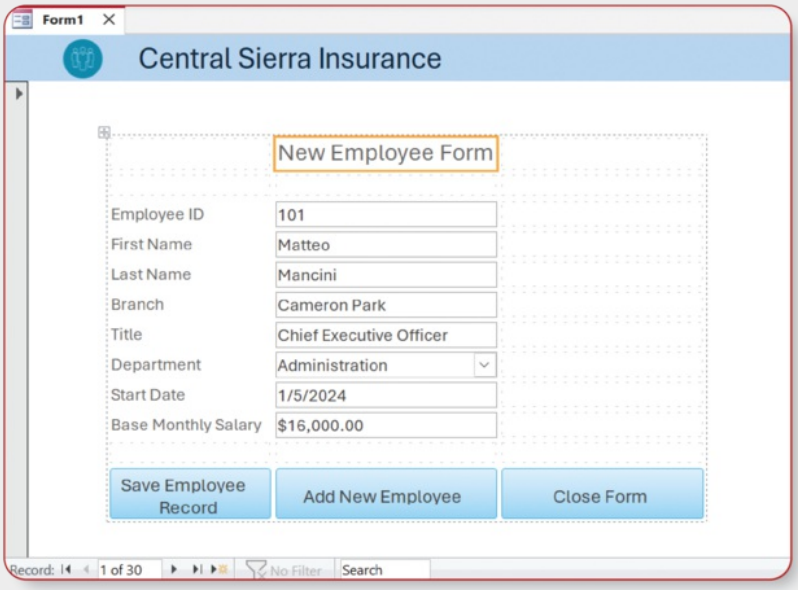


FIGURE 4-60 Completed form after adding a title and three buttons

11. Restrict the form to data entry.
    a. Press **F4** to open the *Property Sheet*.
    b. Click the **drop-down arrow** in the *Selection* box of the *Property Sheet* and select **Form**.
    c. Click to select the **Data** tab if necessary.
    d. Select **Yes** in the *Data Entry* property box.
    e. Select **Yes** in the *Allow Additions* property box if necessary.
    f. Close the *Property Sheet*.
12. Save the form. Enter AddNewEmployee as the *Form Name*.
13. Switch to *Form* view by clicking the **View** button drop-down arrow [*Form Layout Design* tab, *Views* group] and selecting **Form View**. The completed form displays.
14. Test the form.
    a. Enter 165 in the *Employee ID* text box.
    b. Enter Susan in the *First Name* text box.
    c. Enter Stone in the *Last Name* text box.
    d. Enter Granite Bay in the *Branch* text box.
    e. Enter Insurance Agent in the *Title* text box.
    f. Select **Health and Benefits** in the *Department* combo box.
    g. Enter 5/1/2026 in the *Start Date* text box.
    h. Enter 4200 in the *Base Monthly Salary* text box. The completed form should match the data shown in **Figure 4-61**.

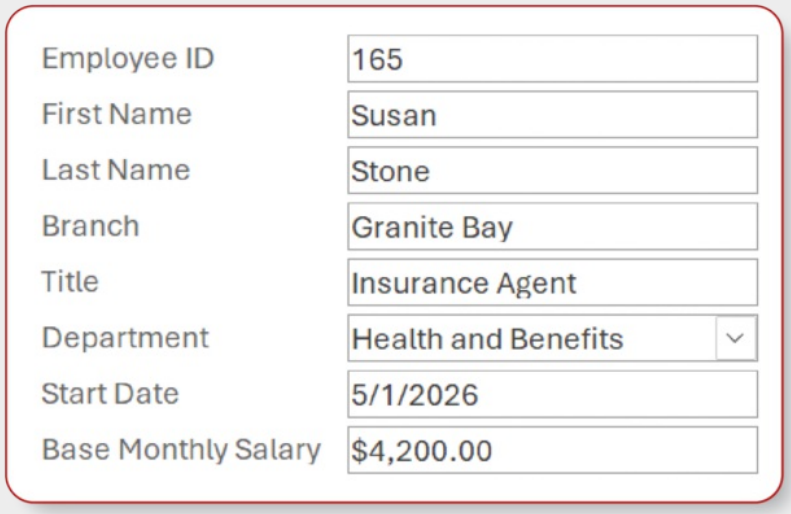


FIGURE 4-61 Employee record values to enter in form

i. Click the **Save Employee Record** button.

j. Click the **Add New Employee** button. A blank record should display in the form. In the *Navigation* bar, you can navigate back to the record you just entered, but you cannot view any other records in the table because the form is restricted to data entry.

k. Click the **Close Form** button.

15. Double-click the **Employees** table to open it in *Datasheet* view.
16. Scroll down to find the new record for employee 165 that you added into the database.
17. Close the table.
18. Close the database.

SLO 4.4

Creating and Working with a Simple Report

A4-263

A ***report*** is an object you can use to create an organized and professional output of the data in a database. Unlike forms, reports do *not* enable you to modify the underlying data. The reports in your database are directly connected to a table or query, the source of the data.

In **chapter 2**, you learned how to print the data records in a table. Reports provide a great deal more flexibility for viewing and printing the data in a database. A report can have fields from one or more tables or queries. Similar to a form, you select which fields from the tables or queries to include on the report. You also select grouping and summarizing options when you are choosing how to display your records. This flexibility helps you create reports that look professional, in addition to being more user-friendly than *Datasheet* view of a table. Ideally, a well-designed report makes it easier for the user to understand the information contained in the database.

Creating reports is similar to creating forms. You can apply much of what you already learned about creating forms as you learn to create reports. Access provides several different ways to create a report. You can create a report quickly or create reports that take a little more effort but provide a great deal more flexibility when it comes to report design and specialization. In this section, you are introduced to two ways to build a report: the *Report Wizard* and the *Blank Report* options. These options are available in the *Reports* group [*Create* tab] (**Figure 4-62**).

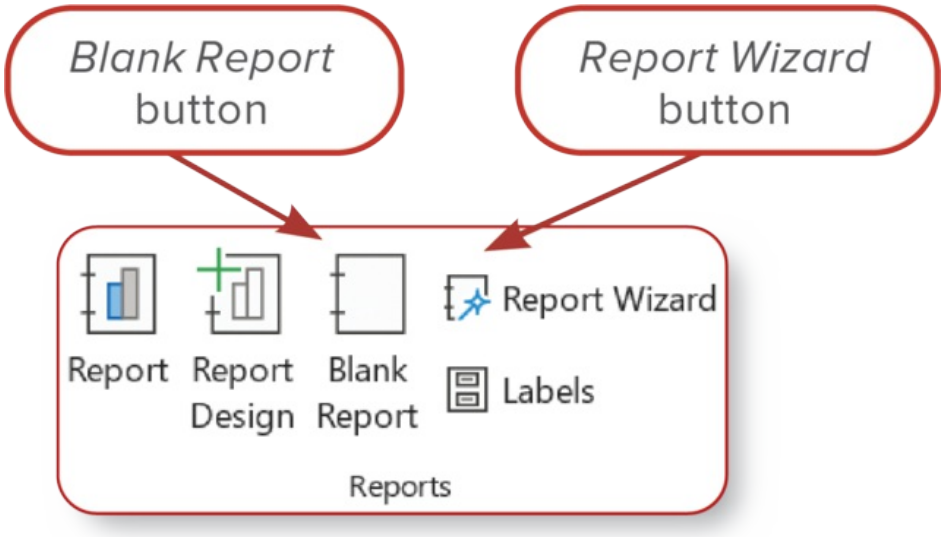


FIGURE 4-62 Report creation options

The Report Wizard

The ***Report Wizard*** steps you through the process of quickly creating a report. While you will probably need to fine-tune the initial report design, it provides a good starting point. The *Report Wizard* asks you which tables and queries you want to base the report on and which specific fields you want to include in the report. Additionally, you must determine if you want to group the data by any fields, sort on any fields, and choose the layout and orientation of the report. Your layout choices change based on whether you group the data or not.

The three layout choices for reports without grouping are columnar, tabular, and justified:

- *Columnar*: The layout displays the fields in one column (**Figure 4-63**). The field labels appear to the left of the data.



FIGURE 4-63 Columnar report layout

- *Tabular*: The layout displays the fields in a table (row and column) format. The field names display above the data (**Figure 4-64**).

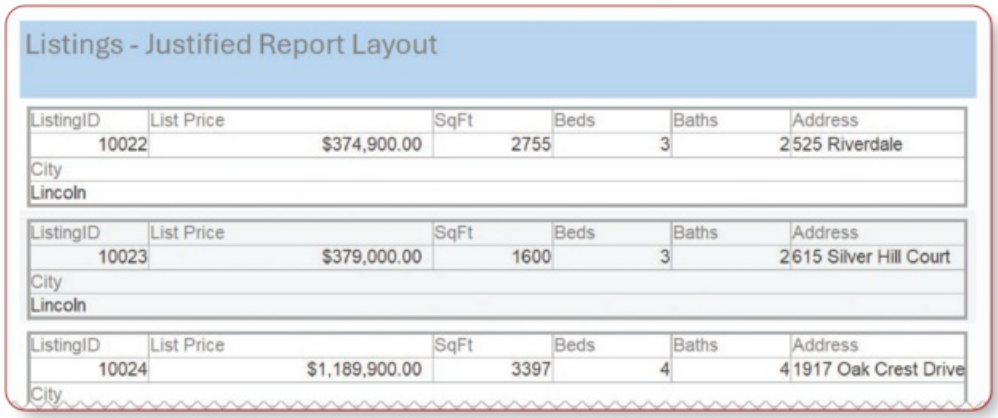


Listings - Tabular Report Layout

ListingID	List Price	SqFt	Beds	Baths	Address	City
10022	$374,900.00	2755	3	2	525 Riverdale	Lincoln
10023	$379,000.00	1600	3	2	615 Silver Hill Court	Lincoln
10024	$1,189,900.00	3397	4	4	1917 Oak Crest Drive	Roseville
10025	$439,000.00	1900	4	3	3420 Milburn Street	Rocklin
10027	$335,000.00	1184	3	2	2128 Wedgewood	Roseville

FIGURE 4-64 Tabular report layout

- *Justified*: The layout displays the fields in a horizontal, **justified layout** (**Figure 4-65**). The field names display above each field.



Listings - Justified Report Layout

ListingID	List Price	SqFt	Beds	Baths	Address
10022	$374,900.00	2755	3	2	525 Riverdale
City					
Lincoln					
ListingID	List Price	SqFt	Beds	Baths	Address
10023	$379,000.00	1600	3	2	615 Silver Hill Court
City					
Lincoln					
ListingID	List Price	SqFt	Beds	Baths	Address
10024	$1,189,900.00	3397	4	4	1917 Oak Crest Drive
City					

FIGURE 4-65 Justified report layout

A4-264

A4-265

A4-266

Grouping is useful when you want to organize and summarize the data in your report. For example, you could group all properties from the same city together or you could group all the songs from a particular artist together. The next figures show the sample reports grouped by the city field. The three layout choices for a grouped report are stepped, block, and outline:

- *Stepped*: The layout displays the fields in a table layout (**Figure 4-66**). The field names display in a row above the data. If the report is longer than one page, the field names appear at the top of each page. The grouped field displays in the left-most column. The data value appears in its own row at the start of each new grouping.



FIGURE 4-66 Stepped layout in a grouped report

- *Block*: The layout is very similar to a **stepped layout**; it has a table layout and field names at the top. The major difference is that the grouped field appears in the same row as the first record for that grouping (**Figure 4-67**). If the report is longer than one page, the field names appear at the top of each page. Additionally, the data rows are grouped a little more tightly together, meaning that more data can appear on each page.



FIGURE 4-67 Block layout in a grouped report

- *Outline*: The layout displays the grouped field and its label on a separate row at the start of each new grouping (**Figure 4-68**). The field names display above the first row of data in each grouping.

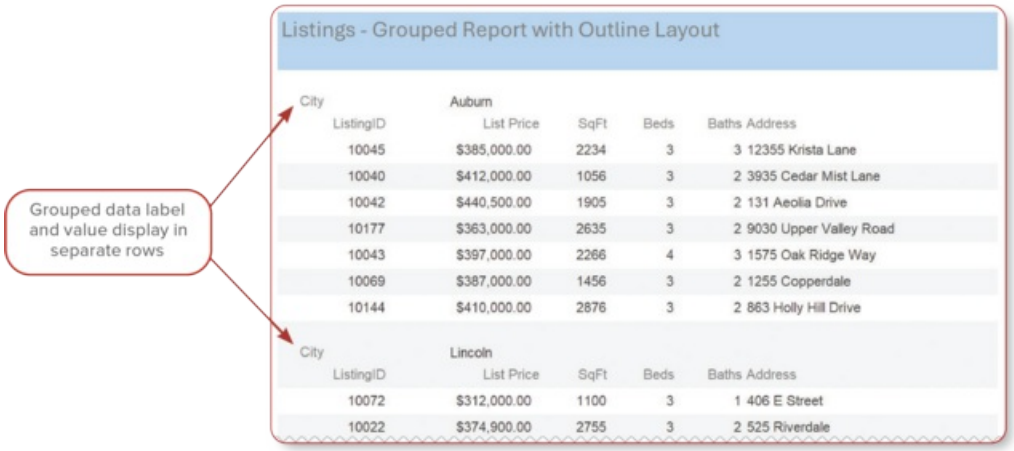


FIGURE 4-68 Outline layout in a grouped report

With grouped reports, you also have the option to have Access automatically calculate various summary values across the different groups. You can decide to display only the summary values (**Figure 4-69**) or to display both the detail records and summary values for each group (**Figure 4-70**).



Listings - Grouped Report with Summary Values, Block Layout

City	ListingID	List Price	SqFt	Beds	Baths	Address
Summary for 'City' = Auburn (7 detail records)						
Avg		$399,214.29				
Max		$440,500.00				
Summary for 'City' = Lincoln (13 detail records)						
Avg		$500,207.69				
Max		$1,379,000.00				

FIGURE 4-69 Grouped report with summary values only



Listings - Grouped Report with Detail and Summary, Block Layout

City	ListingID	List Price	SqFt	Beds	Baths	Address
Auburn	10045	$385,000.00	2234	3	3	12355 Krista Lane
	10040	$412,000.00	1056	3	2	3935 Cedar Mist Lane
	10042	$440,500.00	1905	3	2	131 Aeolia Drive
	10177	$363,000.00	2635	3	2	9030 Upper Valley Road
	10043	$397,000.00	2266	4	3	1575 Oak Ridge Way
	10069	$387,000.00	1456	3	2	1255 Copperdale
	10144	$410,000.00	2876	3	2	863 Holly Hill Drive
Summary for 'City' = Auburn (7 detail records)						
Avg		$399,214.29				
Max		$440,500.00				
Lincoln	10072	$312,000.00	1100	3	1	406 E Street
	10022	$374,900.00	2755	3	2	525 Riverdale
	10062	$338,500.00	2061	3	2	2811 Cardinal Drive

FIGURE 4-70 Grouped report with detail and summary values

After you have created a report using the *Report Wizard*, you can preview the report or open it in *Design* view to modify the layout. If you need to make changes to the report later, you can edit it using *Layout* view or *Design* view.

HOW TO: Create a Report Using the Report Wizard

1. Click the **Create** tab on the *Ribbon*.
2. Click the **Report Wizard** button [*Reports* group] to launch the *Report Wizard* (**Figure 4-71**).

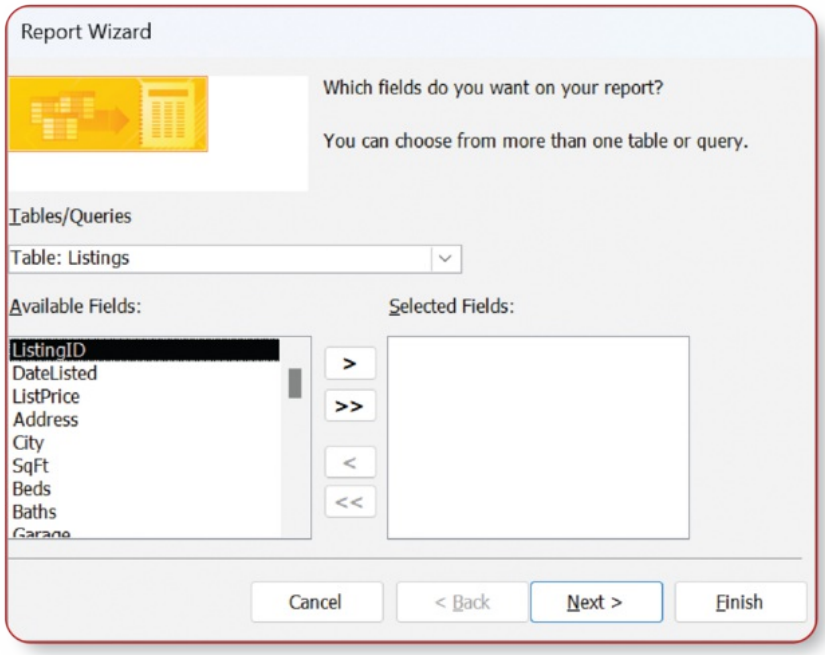


FIGURE 4-71 ***Report Wizard*, step 1**

- The values displayed in the *Tables/Queries* box and the *Available Fields* window change based on the contents of your database.

3. Click the **Tables/Queries** drop-down arrow and select the *Table* or *Query* name.
4. Select a field to include in the *Report* from those displayed in the *Available Fields* window.
   - Add fields in the order you want them to display in the report.
5. Click the **Move Single Field** button.
   - The field moves into the *Selected Fields* window.
   - The *Remove Single Field* and *Remove All Fields* buttons become active.
6. Continue moving all required fields (**Figure 4-72**), changing the selected *Table* or *Query* if needed.

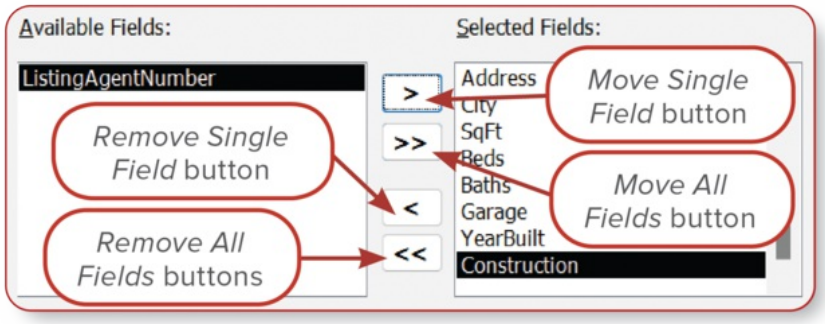


FIGURE 4-72 Move fields into the *Selected Fields* window

ANOTHER WAY

Click the **Move All Fields** button to quickly include all of the fields in the report.

7. Click the **Next** button when you are done adding all fields. The second page of the *Report Wizard* displays (**Figure 4-73**).

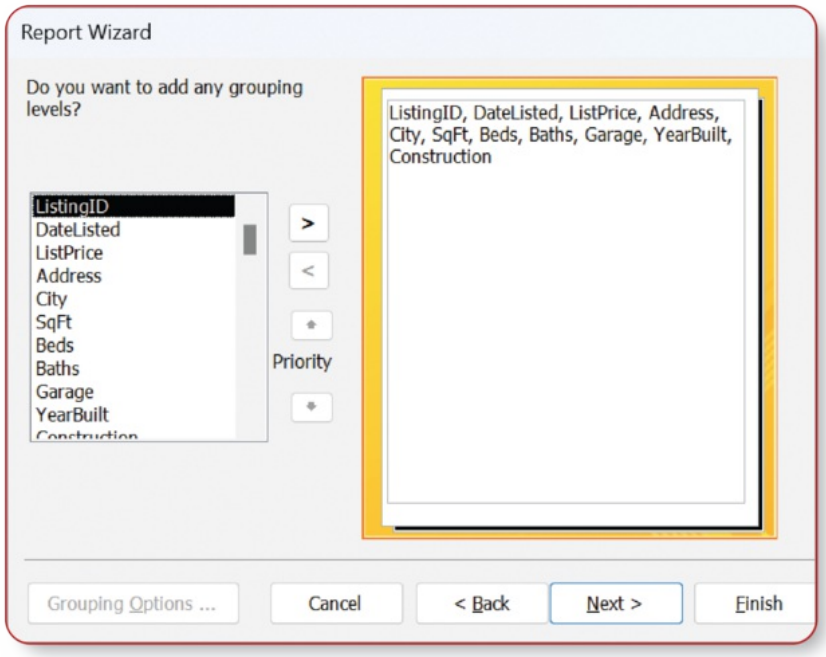


FIGURE 4-73 Select grouping levels

8. Select any fields you want to use to group the data and click the **Move Single Field** button.
   - When you select fields on which to group, Access moves those fields to the left-most columns of the report.
9. Click the **Next** button. The next page of the *Report Wizard* displays (**Figure 4-74**).

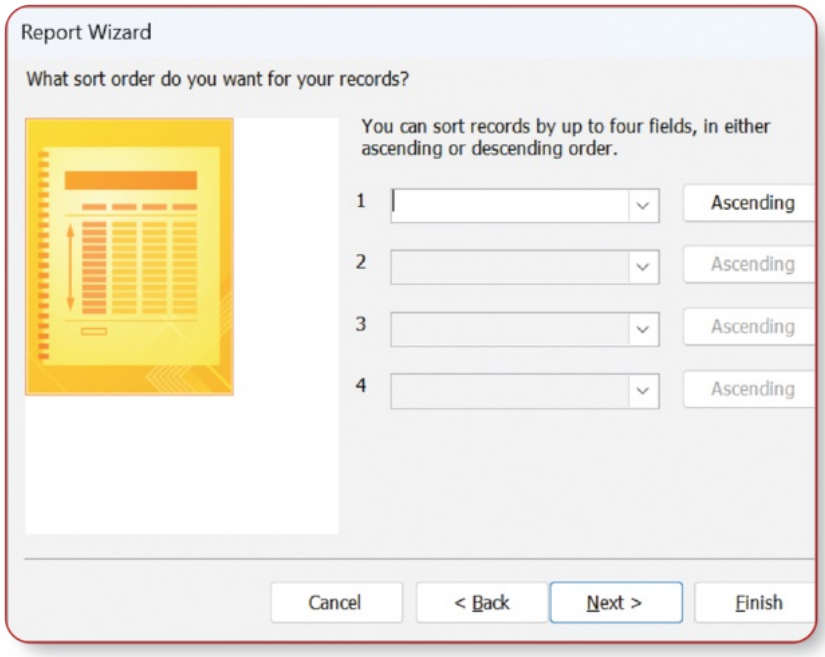


FIGURE 4-74 **Select sorting and summary options**

10. Select any fields you want to use to sort the report and select either **Ascending** *or* **Descending** sort order.
    - The *Summary Options* button only displays if you added grouping levels in step 8.
    - Click the **Summary Options** button to open the *Summary Options* dialog box, select the fields to calculate and choose the desired functions. You can choose from the *Sum*, *Avg*, *Min*, and *Max* functions. You can also choose whether to display only summary values or both detail and summary values.
11. Click the **Next** button. The next page of the *Report Wizard* displays (**Figure 4-75**).

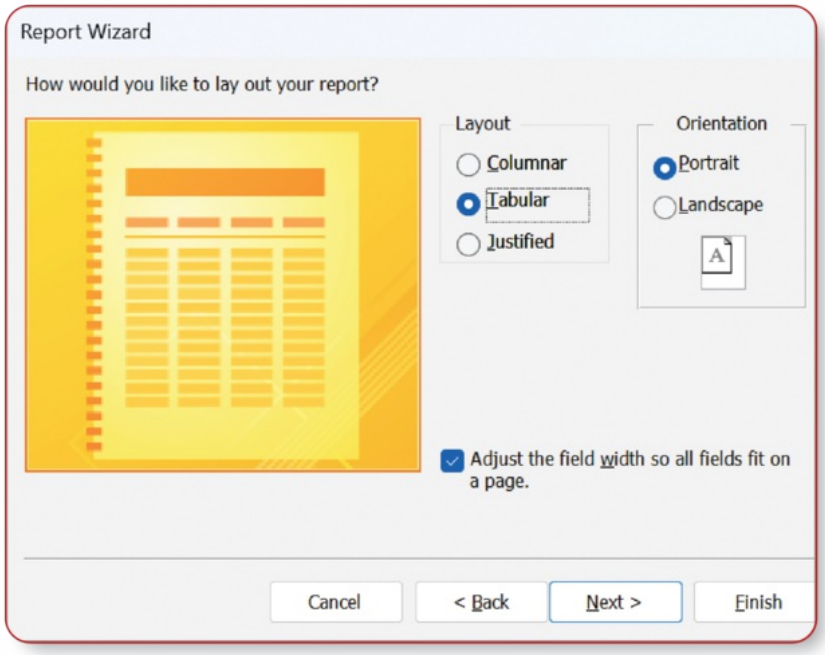


FIGURE 4-75 **Select layout and orientation options**

12. Select the desired layout and orientation. If you added grouping levels, the layout choices are *Stepped*, *Block*, and *Outline*.
13. Deselect the check box that fits all fields on one page as desired. If this box is selected and the combined width of all the included fields is greater than the width of the report, Access will automatically narrow a few of the fields and they may not be wide enough to display their full contents.
14. Click the **Next** button. The last page of the *Report Wizard* displays (**Figure 4-76**).

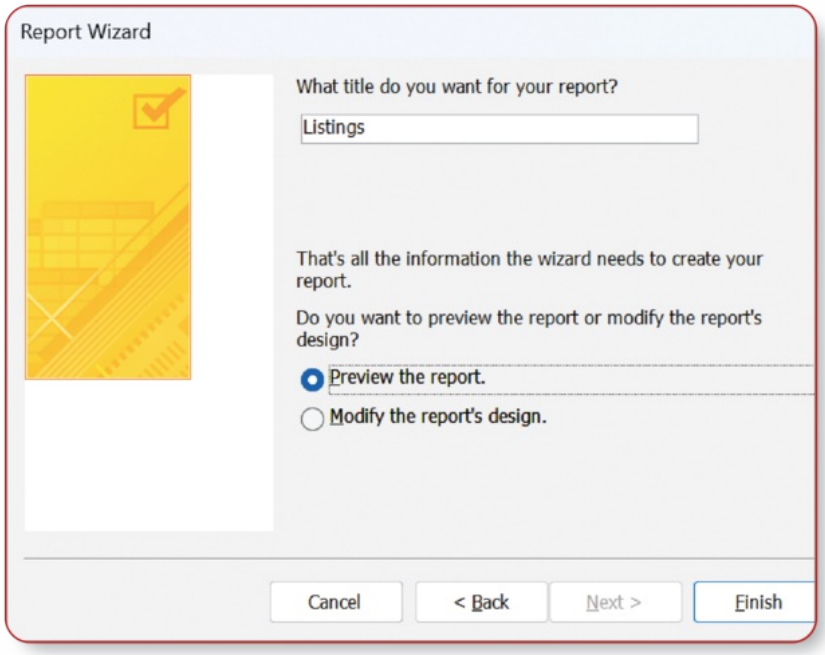


FIGURE 4-76 **Enter the title in the last step of the *Report Wizard***

15. Change the title.
16. Select the radio button to either **Preview the report** or to **Modify the report's design**.
17. Click **Finish**.
    - Access saves the report using the name provided in the title.
    - The report shows in either *Print Preview* view or *Design* view depending on the selection made in step 16.
    - Most of the fields appear in text boxes.
    - Fields that have a lookup appear in a combo box.
    - Fields that are a *Yes/No* data type appear as a check box.
    - The size of a field depends on the data type and the field size.
    - The report name displays in the *Reports* group on the *Navigation Pane*.
18. Close the report.
    - If the report was opened in *Print Preview* view, when you close *Print Preview* you are in *Design* view. You need to close that when you are done with the report.

View or Modify a Report

Access provides four different view options for a report:

- ***Report***: This view is used to execute the report and see the results (**Figure 4-77**). When you double-click a report in the *Navigation Pane*, it opens in **Report view**. In *Report* view you see all the data contained in the report. However, you do not see it separated into separate pages. Use the scroll bars to see parts of the report not visible on the screen.



FIGURE 4-77 ***Report*** **view of a report**

- ***Print Preview***: This view (**Figure 4-78**) enables you to see how the report will look in print. In **SLO 4.8: Printing a Report**, you will learn to use the *Print Preview* tab to make modifications to the print settings, such as margins, page orientation, page size, and so forth.

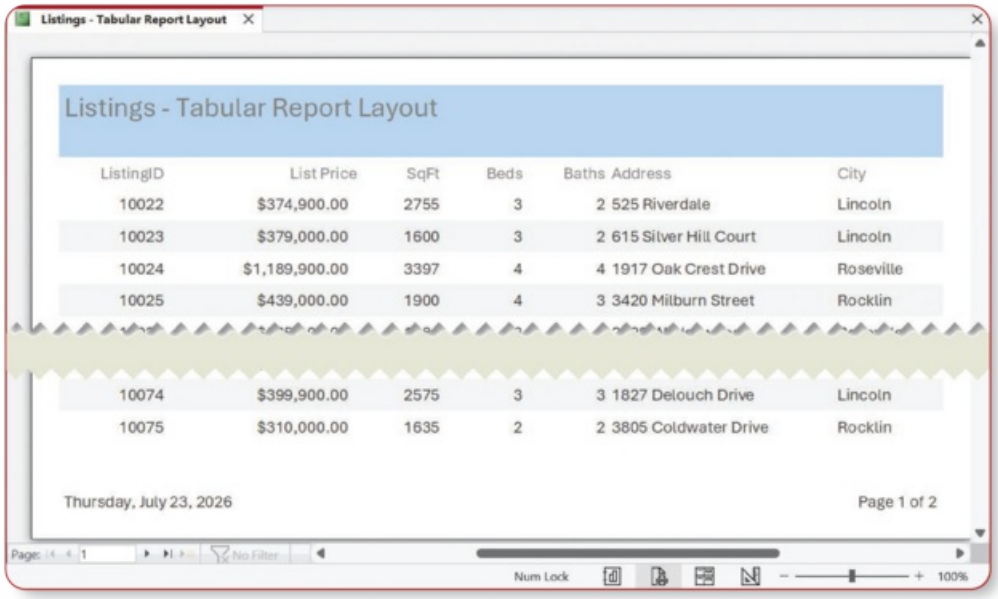


FIGURE 4-78 ***Print Preview*** **view of a report**

- *Design*: This view enables you to edit the report. In *Design* view, the report content is organized by the section in which it appears (**Figure 4-79**). All reports start with three primary sections: *Page Header*, *Detail*, and *Page Footer*. *Report Header* and *Report Footer* sections may be included in reports to display titles and grand totals. Additional sections display in reports where grouping levels have been added.

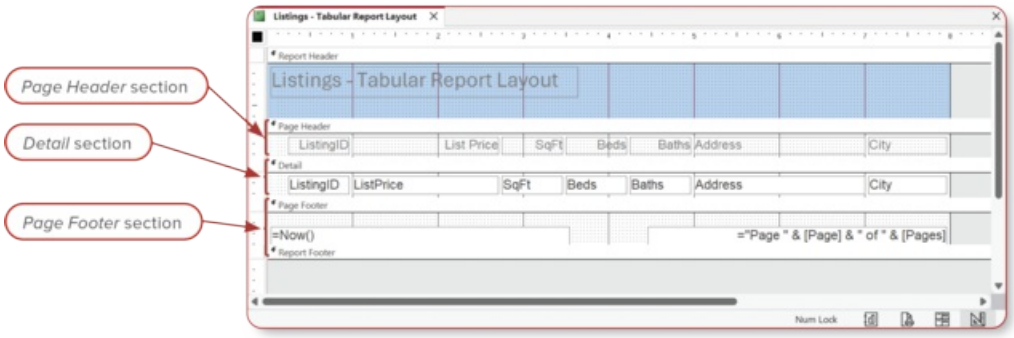


FIGURE 4-79 ***Design*** **view of a report**

Design view is good for adding labels and images into a report, editing text boxes, resizing the report sections, and changing report properties. When you are working in *Design* view, Access organizes your editing choices into four contextual tabs: *Report Design*, *Arrange*, *Format*, and *Page Setup*.

- *Layout*: This view is a more visually-oriented mode you can use to alter the design of a report and see the effects of the changes in real time. The *Layout* view of the same report shown in **Figure 4-79** is shown in **Figure 4-80**.



FIGURE 4-80 ***Layout*** **view of a report**

Because you can see how the data displays at the same time you are able to modify the design, *Layout* view is good for resizing fields or labels, changing colors or text alignment, or applying different formats. Like *Design* view, *Layout* view organizes your editing choices into four contextual tabs: *Report Layout Design*, *Arrange*, *Format*, and *Page Setup*. However, not all design options are available while in *Layout* view.

HOW TO: Switch Report Views to View or Modify a Report

1. Click the **View** button drop-down arrow [*Home* tab, *Views* group].
2. Select **Report View**, **Print Preview**, **Layout View**, or **Design View** (**Figure 4-81**).

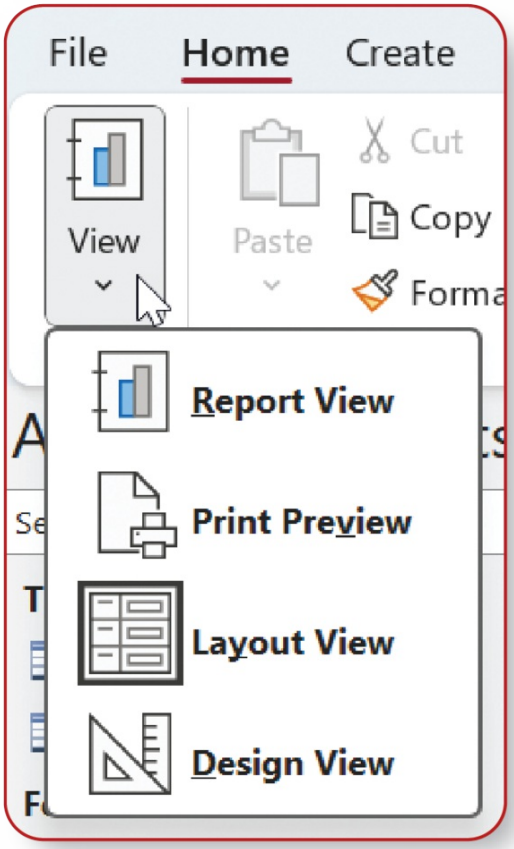


FIGURE 4-81 ***View*** **options for a report**

3. View the results or make any modifications.

ANOTHER WAY

The *View* button is also available on the *Report Layout Design* and *Report Design* tabs. You can also click a view icon from the lower-right corner of the *Status* bar.

Save a Report

A4-269

When a report is created, Access automatically assigns it a default name. When you create a report using the *Report Wizard*, Access automatically saves the report during the creation process. If you created a report using any of the other report options, or if you have made any modifications to the design of the report created with the wizard, you need to save those changes.

Save changes to a report by pressing **Ctrl**+**S** or clicking the **Save** icon on the *Quick Access* toolbar. The first time you save a report, you are prompted to change the default name in the *Save As* dialog box. As you have learned, it is important to use object names that effectively and immediately convey the meaning or purpose of the object.

A4-270

After a report has been created and saved, you may need to make a copy of that report. This may be done to have a backup of the original report or because another report will have the same initial characteristics.

ANOTHER WAY

Click the **Save** button [*File* tab] or press the **F12** function key to open the *Save As* dialog box.

HOW TO: Save a Copy of a Report

1. Click **Save As** [*File* tab] to display the *Save As* area.
2. Click **Save Object As** in the *File Types* options. *Save Object As* should be selected in the *Database File Types* options.
3. Click the **Save As** button to open the *Save As* dialog box (**Figure 4-82**).
   - The name of the current report displays in the *Save 'object name' to* box.
   - In **Figure 4-82**, *Listings – Tabular Report Layout* is the name of the current report.

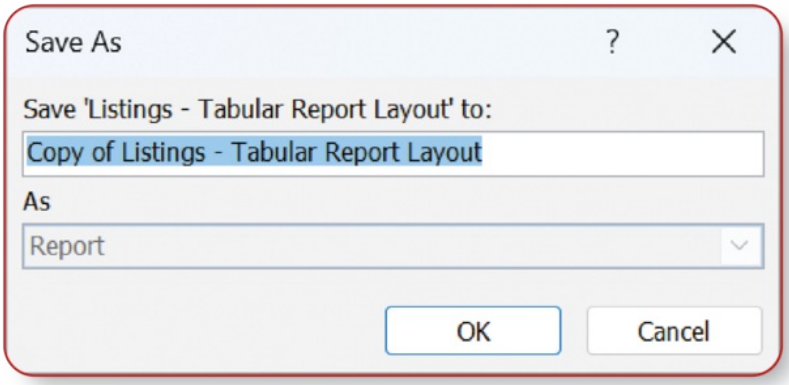


FIGURE 4-82 ***Save As*** **dialog box**

- The suggested name always begins with “Copy of.”

4. Type the name you wish to use in the *Save ‘object name’ to* box.
5. Click **OK**.

> **ANOTHER WAY**
>
> Press **F12** to open the *Save As* dialog box.

Once a report has been saved, it displays in the *Reports* group of the *Navigation Pane*.

Open a Saved Report

If you double-click a report name in the *Navigation Pane*, the report opens in *Report* view.

Open a saved report in *Print Preview* view, *Design* view, or *Layout* view by right-clicking the report name in the *Navigation Pane* and selecting **Print Preview**, **Design View**, or **Layout View** from the context menu. Selecting **Open** from the context menu opens the report in *Report* view.

Delete a Report

Occasionally, you have reports that no longer are needed in the database.

Delete a report by selecting the report name in the *Navigation Pane* and clicking the **Delete** button [*Home* tab, *Records* group].

> **ANOTHER WAY**
>
> Right-click the report name in the *Navigation Pane* and select **Delete** from the context menu.

SLO 4.5

Creating and Customizing a Report in Layout View

In *Layout* view, you can modify a report and see how the report looks with data displaying. In this section, you first learn how to create a blank report and then you explore the layout of a report and modify the report in *Layout* view.

The Blank Report Button

Sometimes, it is easier to start with a completely blank report and then add the fields, labels, or other controls.

HOW TO: Create a Blank Report

1. Click the **Blank Report** button [*Create* tab, *Reports* group].
   - A new blank report opens in *Layout* view (**Figure 4-83**).

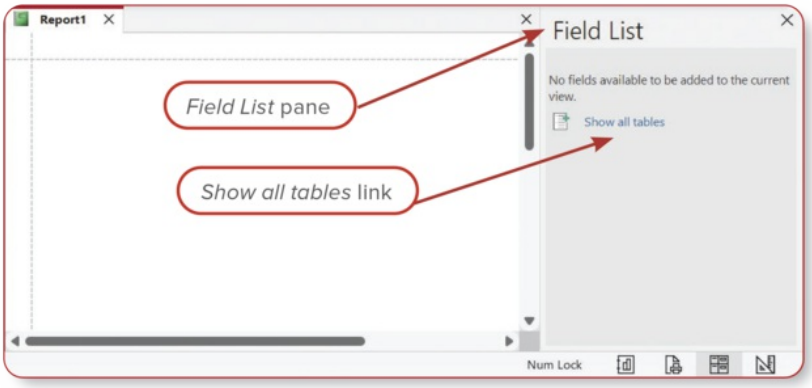


FIGURE 4-83 Blank report in *Layout* view

   - The *Field List* pane displays.
2. Click the **Show all tables** link to display the database tables.
3. Click the **plus sign** to the left of a table name to see the fields in the table.
4. Click the **minus sign** to the left of a table name to collapse the list of fields in the

table.

After you create the blank report, you are ready to add items to the report. Remember to save the report and any changes you make to it.

Report Controls

Recall that the fields, labels, buttons, and so forth are all known as *controls*. A report has fewer control options than a form. In a report, you add controls in either *Layout* view or *Design* view. The controls are accessed in the *Controls* group of the *Report Layout Design* tab. The report controls available in *Layout* view are shown in **Figure 4-84**.

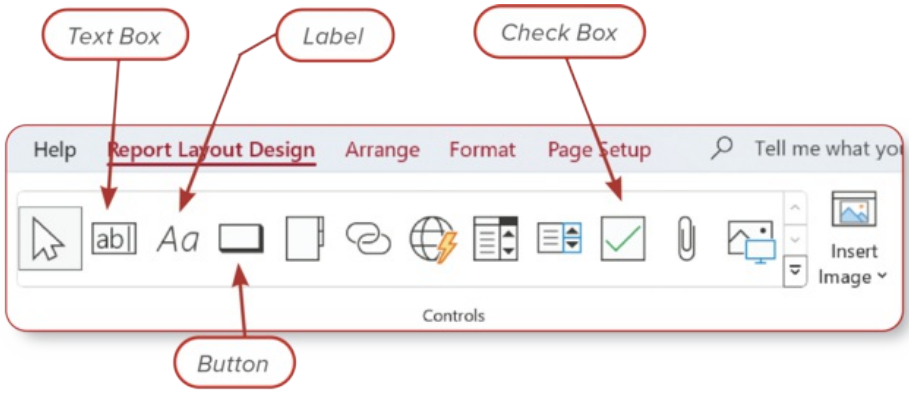


FIGURE 4-84 ***Controls*** **group for a report**

Like controls on forms, controls on reports are either *bound* to a data source, *unbound* and not linked to a data source, or *calculated* and their value comes from an expression. As you work through the book, you are introduced to a variety of report controls.

Report Control Layouts

Like forms, ***control layouts*** provide a structure to align the controls on your report. The two primary layout options are tabular and stacked:

- *Tabular*: This layout organizes data in rows and columns. The fields are placed in the *Detail* section. Labels identifying the different fields are above the data values in the *Page Header* section. In a multi-page report, the contents of the *Page Header* section prints at the top of every page. (**Figure 4-85**).



FIGURE 4-85 Tabular control layout in a report

- *Stacked*: This layout organizes data vertically. Both the fields and the labels are placed in the *Detail* section. The labels are to the left of the fields (Figure 4-86).

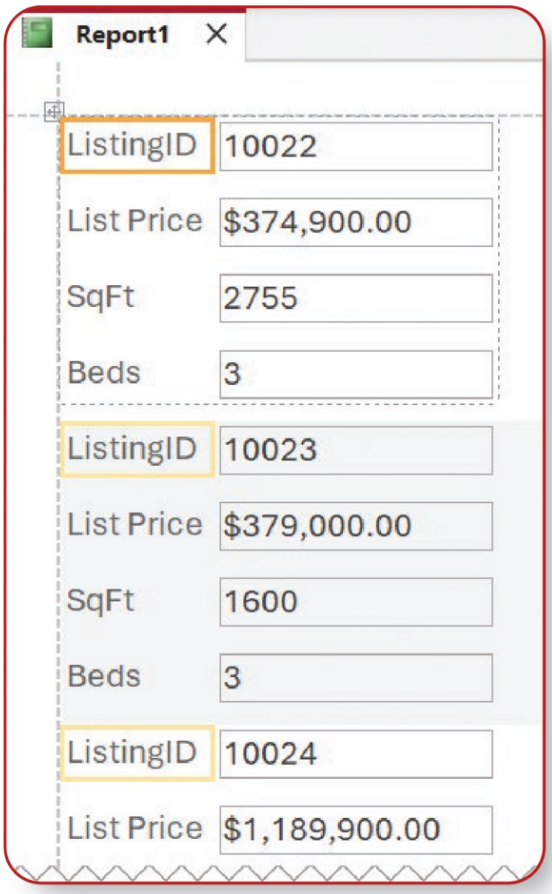


FIGURE 4-86 Stacked control layout in a report

Add and Delete Fields in a Control Layout

A new blank report initially has no controls. You can add table fields to the report in *Layout* view.

HOW TO: Add Fields into the Control Layout of a Blank Report

1. Open the report in *Layout* view.
2. Click the **Add Existing Fields** button [*Report Layout Design* tab, *Tools* group] if the *Field List* pane is not open.

ANOTHER WAY

Press **Alt+F8** to show or hide the *Field List* pane.

3. Click the **Show all tables** link if the database tables do not show.
4. Click the **plus sign** next to the table name to display the fields.
5. Double-click the **field name** to add the field into the report.
   - The field is added into a tabular layout (**Figure 4-87**).

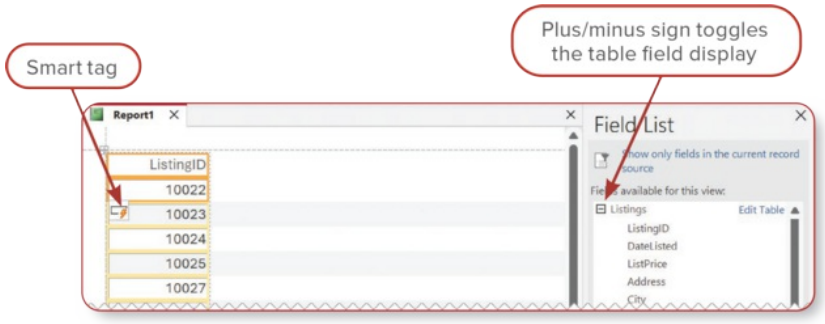


FIGURE 4-87 Add fields into a report

   - Click the **smart tag** button to change to a stacked layout as desired.
   - A label control, associated with the field name, is also added to the report.
   - The most recently added field is highlighted with a dark orange border.
6. Continue adding the remaining fields.

ANOTHER WAY

Click, hold, and drag a **field** from the *Field List* pane into the report window to add it into the control layout.

HOW TO: Add Fields between Existing Fields in a Control Layout

1. Open the report in *Layout* view.
2. Click the **Add Existing Fields** button [*Report Layout Design* tab, *Tools* group] if the *Field List* pane is not open.
3. Click the **plus sign** next to the desired table name to display the fields.
4. Select the field name to add to the report. The selected field is highlighted in rose.
5. Click, hold, and drag the **field** to the desired location in the control layout. A rose-colored line indicates the position of the new field (**Figure 4-88**).

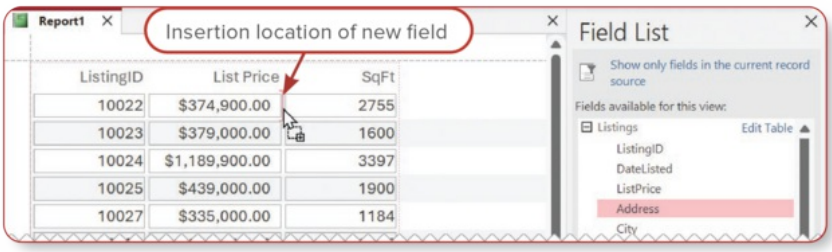


FIGURE 4-88 Add fields between existing fields in a control layout

- Pay attention to the rose-colored line's placement. Reports enable rows and columns to be combined.
- **Figure 4-89** shows the new field being added into a row of a tabular layout.

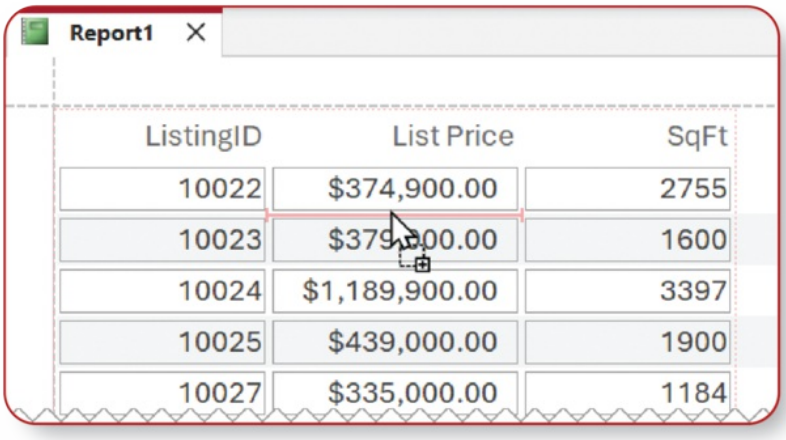


FIGURE 4-89 Insert a new field as a row in a tabular layout

- **Figure 4-90** shows the resulting report. This could create a confusing report organization.

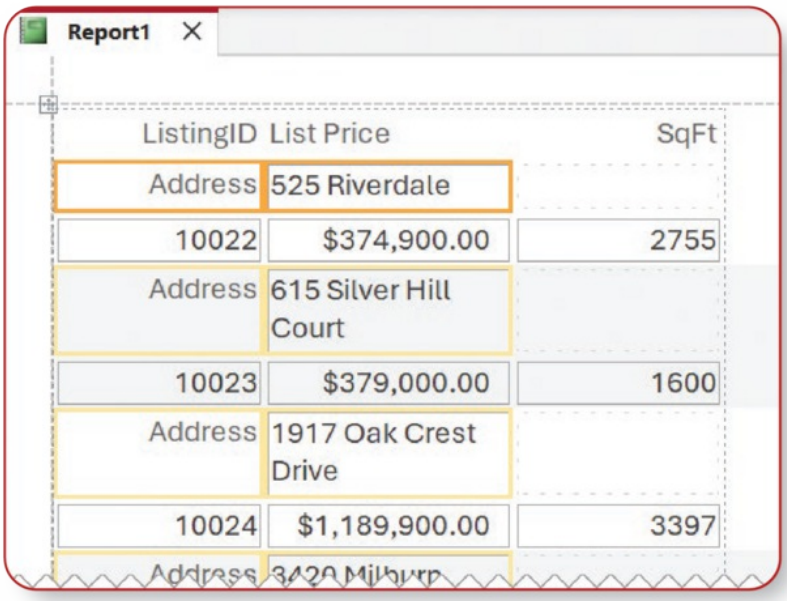


FIGURE 4-90 Report after new field added

As you improve the layout of a report, you may need to delete a field from the report.

HOW TO: Delete a Field from a Control Layout

1. Open the report in *Layout* view.
2. Select the text box control of the field you want to delete.
3. Right-click to open the context menu.
4. Select the desired delete option. The choices work differently depending on the control layout.
   - In a stacked layout, select **Delete** to delete both the text box and label, but you keep the empty row in the control layout.
   - In a stacked layout, select **Delete Row** to delete the text box, label, and row containing the controls.
   - In a tabular layout, select **Delete** to delete the text box, but the label and column are not deleted.
   - In a tabular layout, select **Delete Column** to delete the text box, label, and column containing the controls.

Customize a Report in Layout View

You can make a number of modifications to a report in *Layout* view. In this section, you learn how to change control layouts, adjust column widths, and add and delete rows and columns in a control layout.

These options are available through the buttons in the *Table* and *Rows & Columns* groups on the *Arrange* tab (**Figure 4-91**).

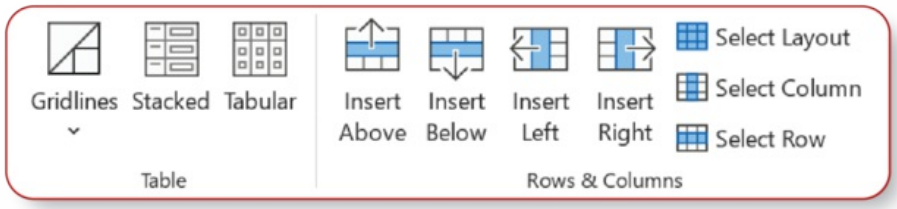


FIGURE 4-91 Customize a report layout using options in the *Table* and *Rows & Columns* groups

Change Control Layouts

When you create a report, the report starts with either a stacked or tabular layout. As you add and delete fields on the report, you may wish to change its layout.

HOW TO: Change Control Layouts

1. Open the report in *Layout* view.
2. Select one of the fields in the control layout. A dark orange border surrounds that field.
3. Click the **Select Layout** button [*Arrange* tab, *Rows & Columns* group] or click the **layout selector**. The orange border surrounds all of the controls in the layout.
4. Select either the **Stacked** or **Tabular** button [*Arrange* tab, *Table* group]. The report updates with the new layout.

Adjust Column Widths

Sometimes, the initial width of the report fields needs to be adjusted. Keep in mind that in a stacked layout, all of the fields have the same width. As a result, when changing the width, you need to ensure that the column is wide enough to fit the largest field. In a tabular layout, you can set the width of each field individually.

HOW TO: Change Field Column Widths Using the Property Sheet

1. Open the report in *Layout* view.
2. Select the text box control of the field in the control layout. A dark orange border surrounds that field.
3. Press **F4** or click the **Property Sheet** button [*Report Layout Design* tab, *Tools* group].
4. Click the **Format** tab if necessary.
5. Type the new value in the *Width* property (**Figure 4-92**) and press **Enter**. Remember that a series of **#** symbols indicates that the column is not wide enough to display the contents.

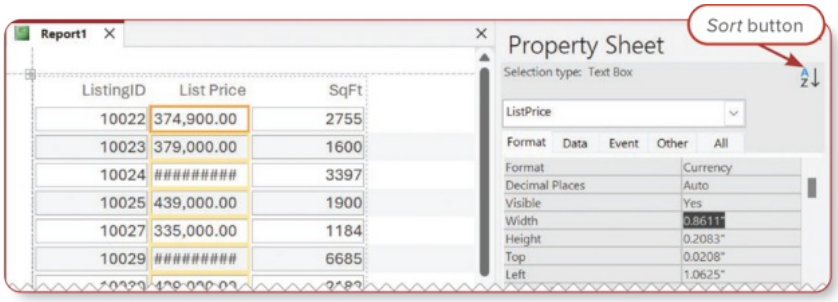


FIGURE 4-92 Adjust the width of a report field

MORE INFO

Recall that you can click the **Sort** button (see **Figure 4-92**) in the *Property Sheet* to sort the properties in ascending order.

ANOTHER WAY

You can also change the width of a text box control by using the resize arrow. Select the control. Place your pointer on the right edge of the control. Click, hold, and drag the **resize arrow** to increase or decrease the width of the control.

Add and Delete Rows and Columns in a Control Layout

A4-275

Often, you want to make minor modifications to the control layout. For example, you may want to create a second column in a stacked layout, or you may want to delete a row if you removed fields from the control layout. You can make these modifications using buttons in the *Rows & Columns* group of the *Arrange* tab.

HOW TO: Add a Column to a Control Layout

1. Open the report in *Layout* view.
2. Select a control in the column adjacent to where you want to add a new column.
3. Click the **Select Column** button [*Arrange* tab, *Rows & Columns* group].
4. Click the **Insert Left** or **Insert Right** button [*Arrange* tab, *Rows & Columns* group].
   - The new column is added to the control layout (**Figure 4-93**).



FIGURE 4-93 A dotted border surrounds each cell in the added column

- A light gray dotted border surrounds the cells in the added column.

HOW TO: Add a Row to a Control Layout

1. Open the report in *Layout* view.
2. Select a control in the row adjacent to where you want to add a new row.
3. Click the **Select Row** button [*Arrange* tab, *Rows & Columns* group]. A dark orange border surrounds the selected row while a light orange border surrounds the other cells.
4. Click the **Insert Above** or **Insert Below** button [*Arrange* tab, *Rows & Columns* group].
   - The new row is added to the control layout (**Figure 4-94**).



FIGURE 4-94 A dotted border surrounds each cell in the added row

- Notice that a new row is added between each of the existing rows in the

control layout.

- A light gray dotted border surrounds the cells in the new rows.

HOW TO: Delete a Row or Column from a Control Layout

1. Open the report in *Layout* view.
2. Select a control in the row or column you wish to delete.
3. Click the **Select Row** or **Select Column** button [*Arrange* tab, *Rows & Columns* group].
4. Right-click to open the context menu.
5. Select **Delete Row** or **Delete Column**.

Move a Control within a Layout

As you modify the control layout, you may need to move a control from one part of the layout to another.

HOW TO: Move a Control within a Layout

1. Open the report in *Layout* view.
2. Select the control that you wish to move.
   - A dark orange border surrounds that control.
   - To move the entire row or column including labels, click the **Select Row** or **Select Column** button [*Arrange* tab, *Rows & Columns* group].
3. Click the control, hold, and drag the **control** to the new location. A rose-colored line highlights the new location (**Figure 4-95**).

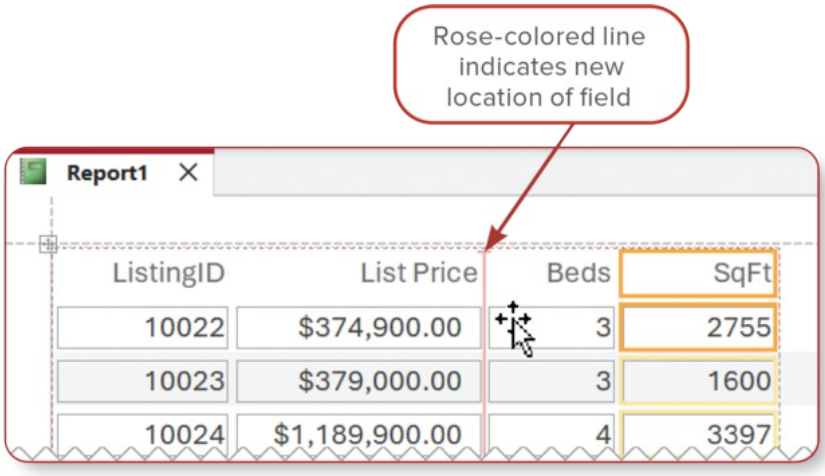


FIGURE 4-95 Drag a control to the new location

ANOTHER WAY

Select multiple controls by pressing and holding **Shift** when you select the controls. You can then move them together.

Change the Font Options in a Report Control

A4-276

Similar to a form, when you create a report, the controls are assigned the default font face, and font size in Access. As desired, you can change the formatting options of the font. Modify the font of individual controls or make the same change to all controls within a control layout.

Select an individual control, a set of controls, or click the layout selector to select all controls before you select the font characteristics.

The type of change you wish to apply determines the specific menu options you select.

- Change the font face by clicking the **Font** drop-down list in the *Font* group [*Format* tab] and selecting the desired font.
- Change the size of the font by clicking the **Font Size** drop-down list in the *Font* group [*Format* tab] and selecting the size. You can also click the **Font Size** text box and type the desired size.
- Change the style of the font by clicking the desired style button in the *Font* group [*Format* tab].

Adjust Control Positioning on a Report

As with a form, you may wish to make changes to the way controls are positioned on a report. These changes can be made to a report from the *Position* group [*Arrange* tab].

Control Margins set how much margin space surrounds the text inside a control. It is measured from the upper-left corner of the control to the position of the text inside the control. The margin options are *None*, *Narrow*, *Medium*, and *Wide*. Each option places slightly more space in the margin.

Control Padding sets how much space is between the controls. The padding options are *None*, *Narrow*, *Medium*, and *Wide*. Each option places slightly more space between the controls.

HOW TO: Adjust Control Positioning on a Report

1. Open the report in *Layout* view.
2. Select the desired control or control layout.
3. Click the **Control Margins** or **Control Padding** button [*Arrange* tab, *Position* group].
4. Select the desired option.

Add a Title, Logo, Date, or Page Numbers to a Report Header or Footer

It is good database design to title each report. This enables the user to quickly understand the purpose of the report. You also may want to have a logo, the current date, and page numbers displayed in a report. These controls are added to a report from the *Header/Footer* group [*Report Layout Design* tab] (**Figure 4-96**). If the report does not already contain a *Report Header* section, adding a title, logo, or the date and time automatically adds a *Report Header* section to the report. This section prints once at the top of the first page.

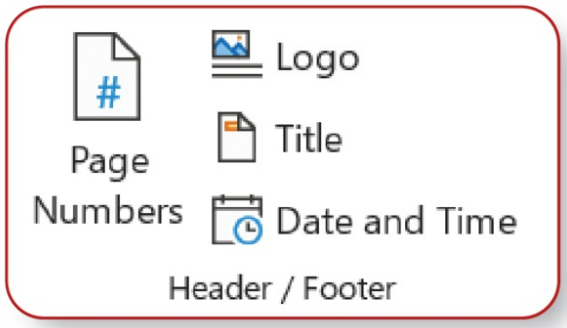


FIGURE 4-96 ***Header/Footer*** **group options**

Similar to a form, the *Date and Time* button adds one or two text box controls into the *Report Header* section, depending on whether you choose to add only the date or time, or both. Access assigns each text box a default name; in this case *Auto_Date* and/or *Auto_Time*.

HOW TO: Add a Date to a Report in Layout View

1. Open the report in *Layout* view.
2. Click the **Date and Time** button [*Report Layout Design* tab, *Header/Footer* group] to add the *Auto_Date* and/or *Auto_Time* controls into the *Report Header* section of the report. The *Date and Time* dialog box displays (**Figure 4-97**).

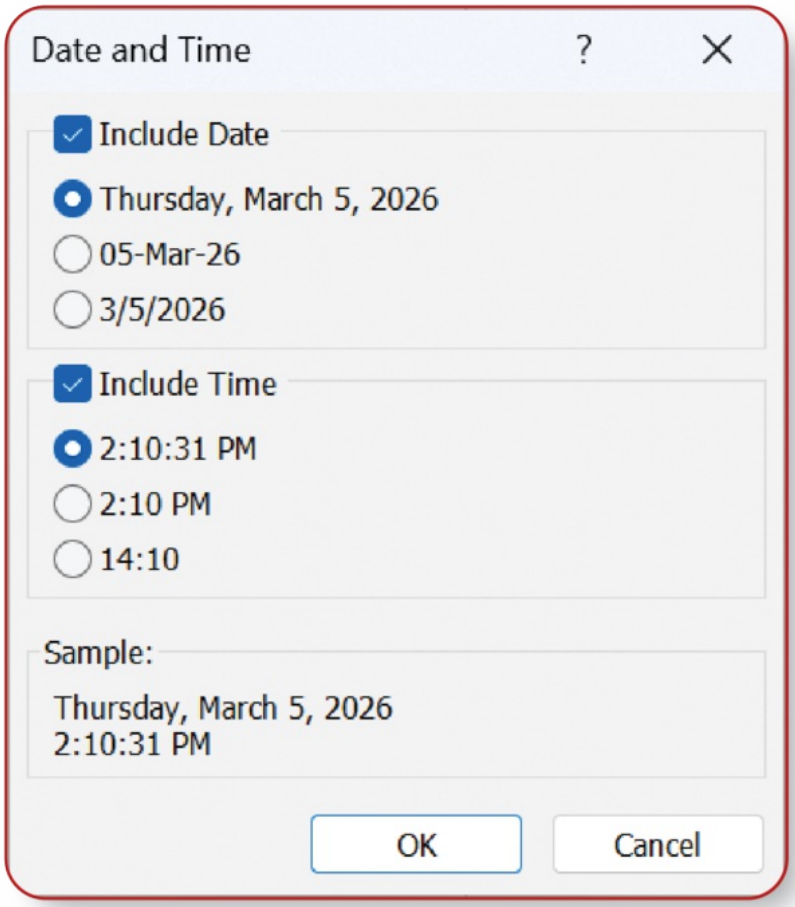


FIGURE 4-97 ***Date and Time*** **dialog box**

3. Select the check boxes and radio buttons corresponding to your choices.
4. Click **OK**.

The *Logo* button adds an image control into the *Report Header* section to display the image file you choose as your logo. Access names the image control *Auto_Logo*. The *Title* buttons adds a label control into the *Report Header* section to display the title. Access names the label control *Auto_Header*.

HOW TO: Add a Title or Logo to a Report in Layout View

1. Open the report in *Layout* view.
2. Click the **Title** button [*Report Layout Design* tab, *Header/Footer* group] to add a title into the *Report Header* section of the report. The default title is set to the

report name.

3. Type a new title as desired.
4. Click the **Logo** button [*Report Layout Design* tab, *Header/Footer* group] to add a logo to the *Report Header* section of the report. The *Insert Picture* dialog box displays.
5. Select the image file to use as the logo and click **OK**.

When adding page numbers, you make several choices regarding the format and placement. You can add the page numbers to the *Page Header* or *Page Footer* section. Recall that in a tabular layout, the field labels are placed in the *Page Header* section, which prints at the top of every page. The contents of the *Page Footer* section print at the bottom of every page. If the report does not already contain the section, adding the page numbers automatically adds the section to the report. Keep in mind that while a page number will display when the report is viewed in *Report* or *Layout* view, the value displayed is one. Only *Print Preview* view actually shows the separate report pages with the correct page number displayed.

HOW TO: Add a Page Numbers to a Report in Layout View

1. Open the report in *Layout* view.
2. Click the **Page Numbers** button [*Report Layout Design* tab, *Header/Footer* group] to open the *Page Numbers* dialog box (**Figure 4-98**).

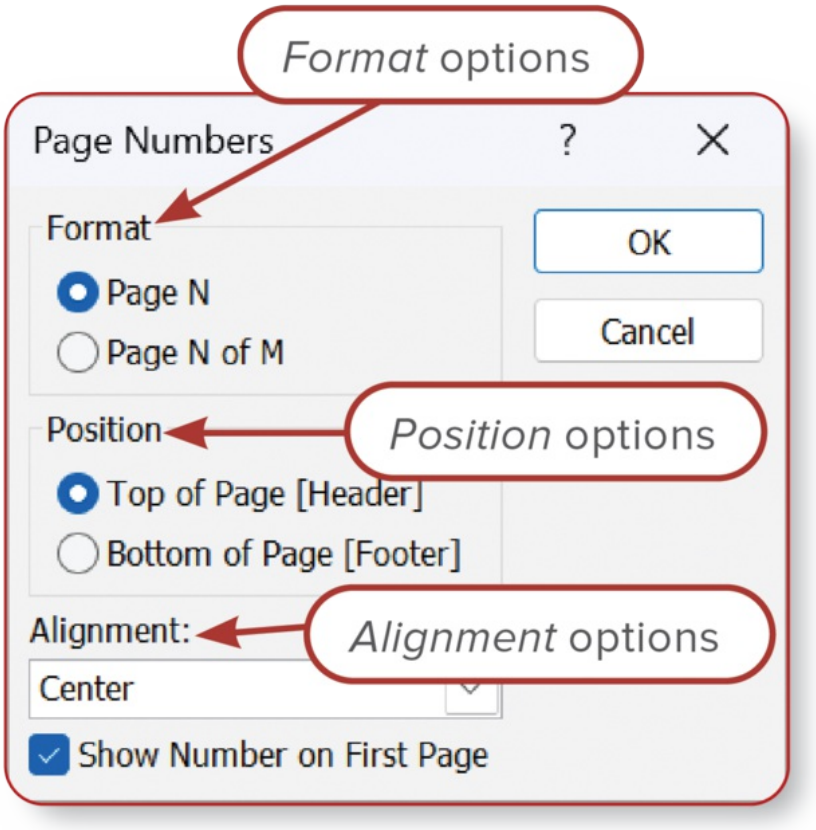


FIGURE 4-98 ***Page Numbers*** **dialog box**

3. Select the radio buttons corresponding to the appropriate *Format* and *Position* of the page numbers. The *Page Header* or *Page Footer* sections are added to the report as needed.
4. Select the alignment of the page numbers.
5. Deselect the check box to **Show Number on First Page** as desired.
6. Click **OK**. The page numbers appear in either the *Page Header* or *Page Footer* section (**Figure 4-99**).

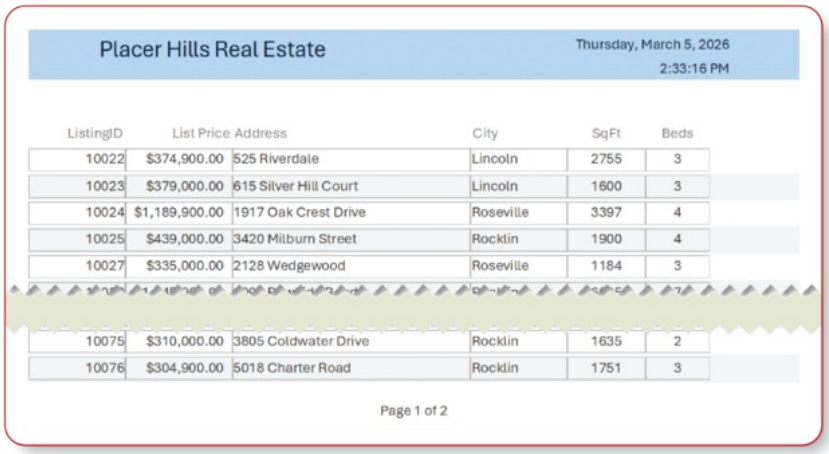


FIGURE 4-99 ***Print Preview*** **of a report with controls in the header and footer sections**

Add and Modify a Label on a Report

Recall that when a table field is added to a report, Access adds a control for that field and also adds an attached label control which displays the field name or the caption. You also learned that the *Title* button adds a label control into the header section.

Similar to a form, you can add other labels to a report to display additional titles, instructions, or information about the report. Click the **Label** button to add labels into any section of the report. The text you enter in the label is stored in the label's *Caption* property. Access sizes the label to accommodate the text you enter.

HOW TO: Add a Label to a Report

1. Open the report in *Layout* view.
2. Click the **Label** button [*Report Layout Design* tab, *Controls* group] and move the pointer to the desired location in the control layout. A rose-colored cell indicates the position of the new label (**Figure 4-100**).

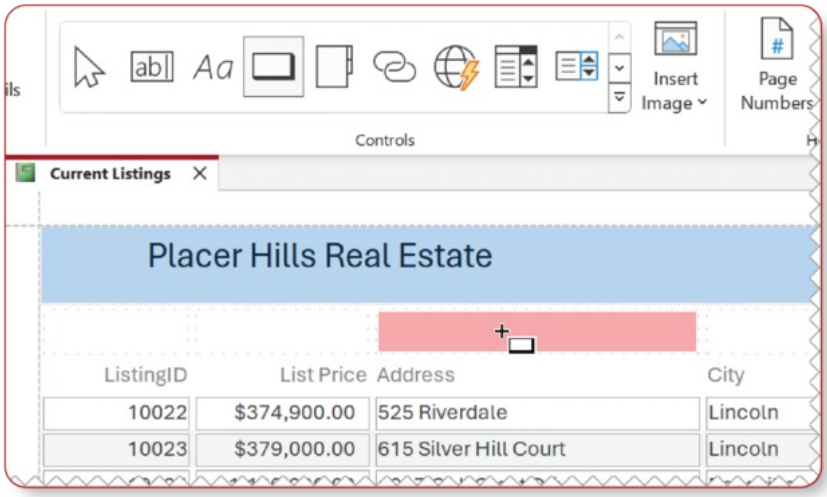


FIGURE 4-100 **Move the pointer to the desired location**

3. Click the **cell** to add the label.
4. Type the label contents.

After a label is created you may need to modify it.

- To change the font face, size, or style, select options in the *Font* group of the *Format* tab.
- To move the label, click and drag the label to move it to a different location. You can also change the location of the label by changing the ***Top*** and ***Left*** properties on the *Format* tab of the *Property Sheet*.
- To change the text in an existing label, click to select the label, click inside the label to open edit mode, and edit the text. You can also edit the text in the *Caption* property on the *Format* tab of the *Property Sheet*.

A4-279

A4-280

PAUSE & PRACTICE: ACCESS 4-3

For this Pause & Practice, you create two reports for the Placer Hills Real Estate database. Create one report using the *Report Wizard* and a second report using the *Blank Report* button.

File Needed: ***[your initials] PP A4-1.accdb***

Completed Project File Name: ***[your initials] PP A4-3.accdb***

1. Open the ***[your initials] PP A4-1*** database file that you created in ***Pause & Practice 4-1***.
2. Save a new copy of your database as [your initials] PP A4-3.

3. Enable content in the database.
4. Create a report using the *Report Wizard*.
    a. Click the **Report Wizard** button [*Create* tab, *Reports* group] to launch the *Report Wizard*.
    b. Click the **Tables/Queries** drop-down arrow and select the **Listings** table.
    c. Click the **Move All Fields** button.
    d. Select the **ListingAgentNumber** field in the *Selected Fields* window and click the **Remove Single Field** button.
    e. Remove the *Construction*, *YearBuilt*, *Garage*, and *DateListed* fields. The *Report Wizard* should look similar to **Figure 4-101**.

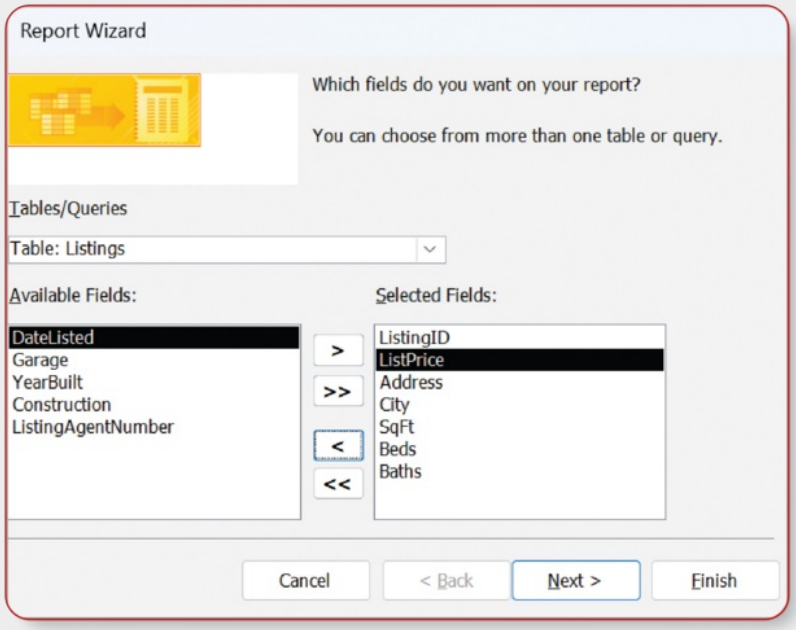


FIGURE 4-101 Select report fields

    f. Click the **Next** button to move to the second page of the *Report Wizard*.
    g. Do not group the data. Click the **Next** button to move to the third page of the *Report Wizard*.
    h. Sort the *ListPrice* field in ascending order.
    i. Click the **Next** button to move to the fourth page of the *Report Wizard*.
    j. Select a **Tabular** layout and **Portrait** orientation if necessary.
    k. Click the **Next** button to move to the last page of the *Report Wizard*.
    l. Type Listings - Report Wizard in the *Title* box.
    m. Click the **Finish** button. The report opens in *Print Preview* view (**Figure 4-102**). Notice that the *ListPrice* field moved to the left-most column because you are sorting on that field.

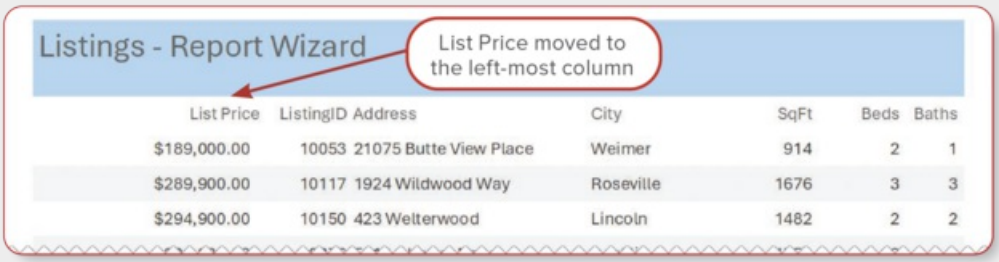


FIGURE 4-102 Listings report created using the *Report Wizard*

n. Use the navigation buttons to move among pages.

o. Click the **Close Print Preview** button.

p. Close the report.

5. Create a report using the *Blank Report* button.

   a. Click the **Blank Report** button [*Create* tab, *Reports* group] to open a new, blank report in *Layout* view.

   b. Click the **Show all tables** link in the *Field List* pane if necessary.

   c. Click the **plus sign** to expand the *Listings* table if necessary.

   d. Double-click the **ListingID** field to add it to the report.

   e. Double-click the **ListPrice** field to add it to the report

   f. Add the **SqFt**, **Beds**, **Baths**, **Address**, **City**, and **Garage** fields to the report. The report should look similar to **Figure 4-103**.



FIGURE 4-103 Add fields into a tabular layout of a blank report

g. Close the *Field List*.

6. Save the report. Enter Listings – Blank Report Button as the *Report Name*.

7. Add a title and page numbers to the report.

   a. Click the **Report Layout Design** tab if necessary.

   b. Click the **Title** button [*Header/Footer* group].

   c. Change the default wording of the title label in the *Report Header* section to Placer Hills Real Estate.

   d. Click the **Page Numbers** button [*Header/Footer* group].

   e. Select the **Page N of M** radio button in the *Format* group.

   f. Select the **Bottom of Page [Footer]** radio button in the *Position* group.

g. Select **Left** in the *Alignment* drop-down list.

h. Click **OK**.

8. Adjust the width of the report columns.

   a. Select a text box in the *ListingID* column.

   b. Click the **Property Sheet** button [*Report Layout Design* tab, *Tools* group].

   c. Click the **Format** tab if necessary.

   d. Type .62" in the *Width* property box and press **Enter**. Don't worry if Access adjusts the actual value to a slightly different number, such as .6201".

   e. Select a text box in the *SqFt* column, type .5" in the *Width* property box and press **Enter**.

   f. Select a text box in the *Beds* column. Press and hold the **Shift** key and select a text box in the *Baths* column, type .4" in the *Width* property box, and press **Enter**. Both columns adjust to the new width.

   g. Select a text box in the *ListPrice* column, type 1.2" in the *Width* property box, and press **Enter**.

   h. Select a text box in the *Address* column, type 2.2" in the *Width* property box, and press **Enter**.

   i. Select a text box in the *Garage* column, type 1.1" in the *Width* property box, and press **Enter**.

   j. Press **F4** to close the *Property Sheet*.

9. Add new rows to the control layout.

   a. Select the **ListingID** label.

   b. Click the **Select Row** button [*Arrange* tab, *Rows & Columns* group].

   c. Click the **Insert Above** button [*Arrange* tab, *Rows & Columns* group] to add a blank row.

   d. Click the **Insert Above** button again to add a second blank row.

10. Add a label to the report.

    a. Click the **Label** button [*Report Layout Design* tab, *Controls* group].

    b. Click the blank cell above the *Address* label in the top row of the control layout.

    c. Type Available Properties Report and press **Enter**.

    d. Click the **Bold** button [*Format* tab, *Font* group].

    e. Click the **Font Size** drop-down list button [*Format* tab, *Font* group] and select **12**.

11. Save the report.

12. Preview the report by clicking the **View** button drop-down arrow [*Report Layout Design* tab, *Views* group] and selecting **Print Preview**. The report should look similar to **Figure 4-104**. Depending on the default margin or printer settings, you may see a different number of records on each page.

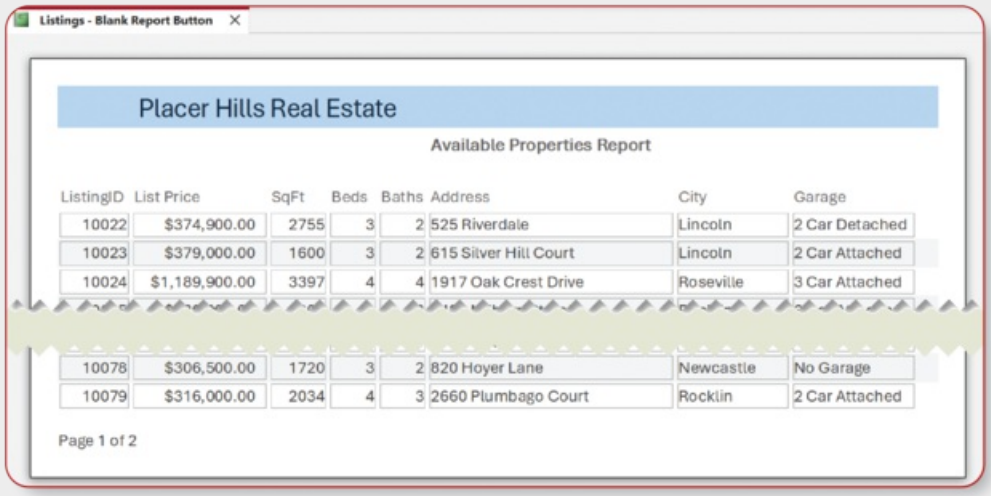


FIGURE 4-104 Completed listings report created using the *Blank Report* option

13. Click the **Close Print Preview** button.
14. Close the report.
15. Close the database.

SLO 4.6

Adding Grouping, Sorting, and Totals

A4-281

As you learned in the *Report Wizard* section, you can choose to sort records in a report on different fields, to add grouping to a report, or to add totals to a report. Add a ***group*** to a report when you want to organize and summarize your data. For example, you could group all employees from the same branch together in an insurance agency database, or you could group all the songs from a particular artist together in a music database.

When you create a grouping, Access can automatically calculate various summary values across the different groups. You can also combine sorting with grouping. Finally, totals can also be added to a report independent of grouping or sorting being used. The features are located on the *Report Layout Design* tab.

You add grouping and sorting to a report using the *Group & Sort* button [*Report Layout Design* tab, *Grouping & Totals* group] (**Figure 4-105**). Add totals using the *Totals* button [*Report Layout Design* tab, *Grouping & Totals* group].

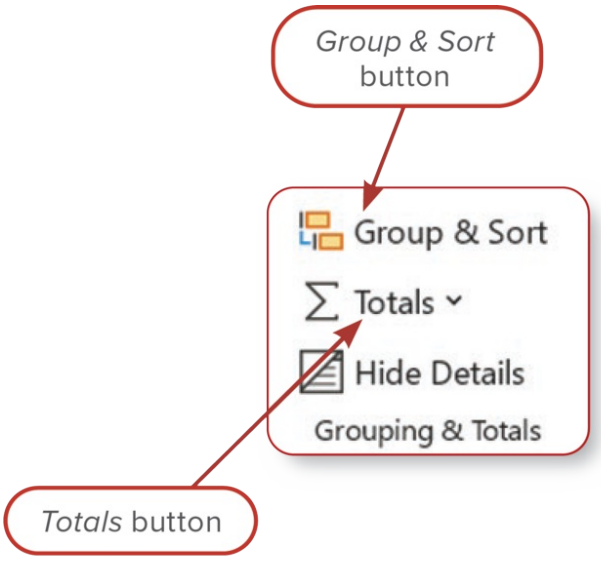


FIGURE 4-105 ***Grouping & Totals*** **group options**

Sorting

Data sorting is a very useful Access report feature. Sorting makes it easier to read and understand reports because it places all like data together. Access enables you to sort on multiple fields, with each field having its own sort order.

HOW TO: Add a Sort to a Report

1. Open the report in *Layout* view.
2. Click the **Group & Sort** button [*Report Layout Design* tab, *Grouping & Totals* group] to open the *Group, Sort, and Total* pane at the bottom of the report.
3. Click **Add a sort** in the *Group, Sort, and Total* pane.
4. Select the field you want to sort by from the field list (**Figure 4-106**).

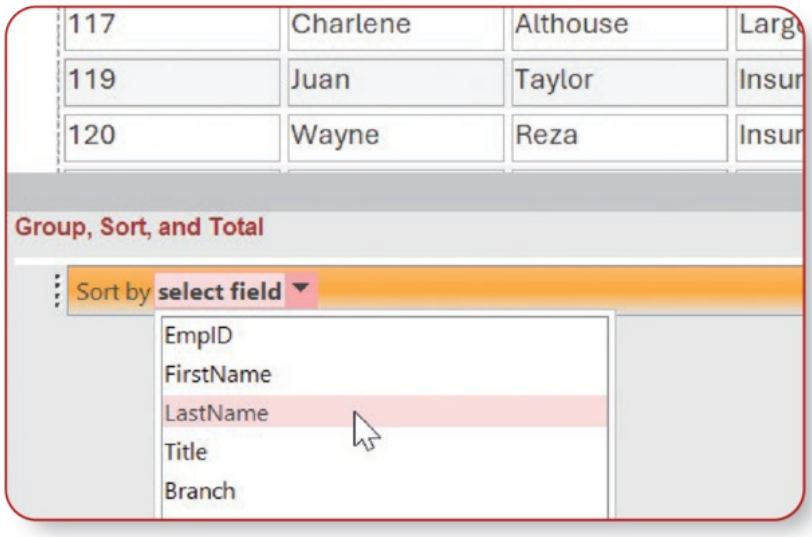


FIGURE 4-106 Select a sort field

- The report updates to display the data sorted in ascending order by the selected field.
- The *Group, Sort, and Total* pane updates to show how the report is being sorted (**Figure 4-107**).
- The default sort order is *with A on top* for text fields, *oldest to newest* for date fields, and *smallest to largest* for number fields.

5. Change the sort order by clicking the arrow to the right of the default sort order and selecting the new sort order. The default sort order in **Figure 4-107** is *with A on top*.

MORE INFO

You can add additional sorting levels to a report by clicking **Add a sort** again.

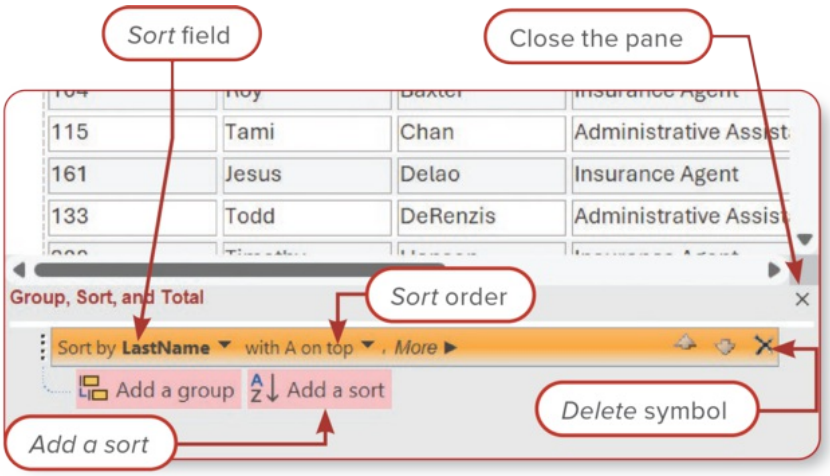


FIGURE 4-107 Updated *Group, Sort, and Total* pane

6. Close the *Group, Sort, and Total* pane by clicking the **X** in the upper-right corner of the *Group, Sort, and Total* pane. Be careful not to click the *Delete* symbol inside the pane or you remove the sort.

Add a Group to a Report

When you add a group in *Layout* view, a new section is added using a stepped layout. You can group on more than one field.

HOW TO: Add a Group to a Report

1. Open the report in *Layout* view.
2. Click the **Group & Sort** button [*Report Layout Design* tab, *Grouping & Totals* group] to open the *Group, Sort, and Total* pane at the bottom of the report.
3. Click **Add a group** in the *Group, Sort, and Total* pane.
4. Select the field you want to group on from the field list (**Figure 4-108**).

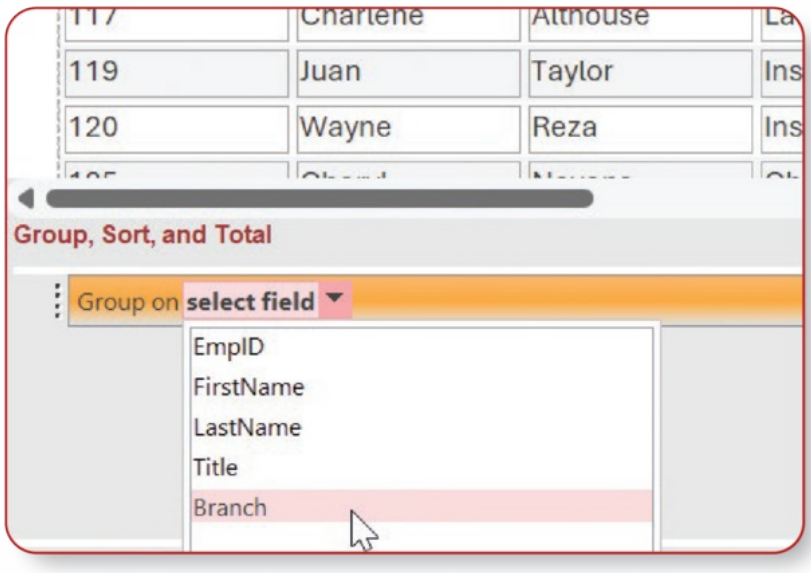


FIGURE 4-108 Select a group field

- The selected field moves to the left-most column (**Figure 4-109**).
- The report changes to a stepped layout.
- The *Group, Sort, and Total* pane updates to show how the report is being grouped (**Figure 4-110**).



FIGURE 4-109 Updated report after grouping added

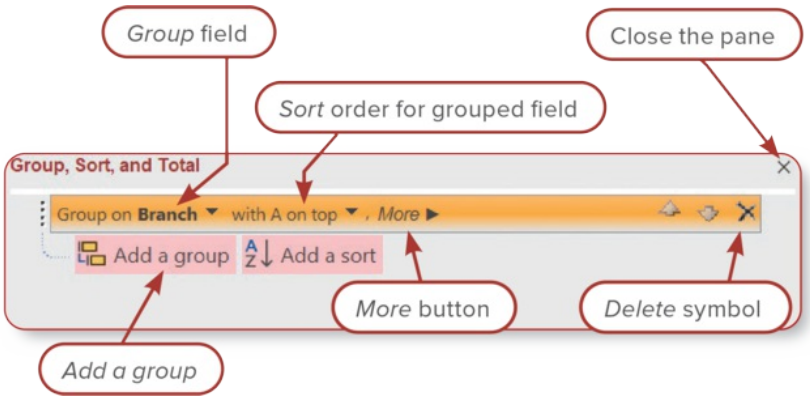


FIGURE 4-110 Updated *Group, Sort, and Total* pane

5. Change the sort order of the grouping by clicking the arrow to the right of the default sort order and selecting the new sort order. The default sort order of the grouping in **Figure 4-109** is *with A on top*.

> **MORE INFO**
>
> You can add additional grouping levels to a report by clicking **Add a group** again.

6. Close the *Group, Sort, and Total* pane by clicking the **X** in the upper-right corner of the *Group, Sort, and Total* pane. Be careful not to click the *Delete* symbol inside the pane or you remove the group.

Combine different grouping and sorting selections to create a report with the desired organization. For example, within each *Branch* group sort the records by *LastName*. To accomplish this, click **Add a sort** and select the *LastName* field.

Group and Sort Options

A4-283

You can modify the report design after adding a sort or group section. You can also change the location or format of the grouping field in the control layout.

Other modifications are available. Click **More** in the *Group, Sort, and Total* pane to display the options shown in **Figure 4-111** and explained in **Table 4-3**. Click **Less** to close the expanded list of options.

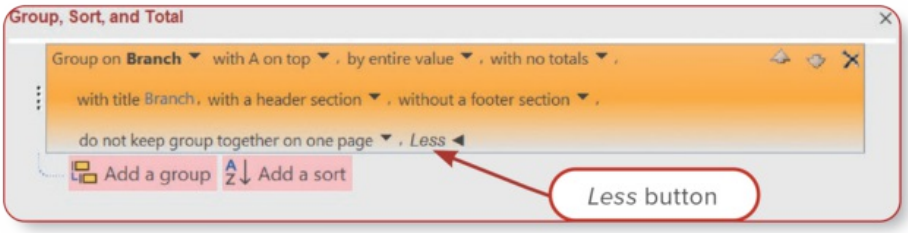


FIGURE 4-111 Expanded options in *Group, Sort, and Total* pane

Table 4-3: Options in the Group, Sort, and Total Pane

Category	Options	Explanation
Sorting	*Ascending*	The grouping field is sorted in ascending order.
	Descending	The grouping field is sorted in descending order.
Grouping	*By entire value*	The grouping is based on the entire value in the selected field.
	By partial value	The grouping is based on only part of the field. For example, in a text field, the grouping could be "by first character," which would group together all values that start with the same letter. In a date field, the grouping could be by year or month.
	Custom	The grouping is based on a specific number of characters that you provide.
Totals	*Select the field and type of calculation*	You choose which field in the report should be calculated, along with the calculation. Choices include *Sum*, *Average*, *Count*, *Maximum*, and *Minimum*.
	Show grand totals	Calculates overall totals for all records.
	Show group totals as percent of grand total	Displays the group totals as a percent of the grand total.
	Show in header or footer section	Determines which section displays the totals.
Title		Changes the wording in the label of the grouping field.
Header section	*With a header section / without a*	Determines whether to include a header section in the report.

	header section	
Footer section	*With a footer section / without a footer section*	Determines whether to include a footer section in the report.
Keep group together	*Do not keep group together on one page*	Enables a group to be split across multiple pages if it can't all fit in the space remaining on a page.
	Keep whole group together on one page	Starts a group on the following page if it can't all fit in the space remaining on a page.
	Keep header and first record together on one page	Prevents a header from printing on the bottom of a page unless at least one record of the group can also be printed with the header.

The wording that displays in the options may vary based on the data type of the field. For example, an ascending sort for a text field is *"with A on top"* while an ascending sort for a date field is "*from oldest to newest.*"

HOW TO: Modify Options in a Group or Sort

1. Open the report in *Layout* view.
2. Click the **Group & Sort** button [*Report Layout Design* tab, *Grouping & Totals* group] if the *Group, Sort, and Total* pane is not open.
3. Click **More** in the *Group, Sort, and Total* pane.
4. Click the **arrow** of the desired option and select the new option choice (**Figure 4-112**).

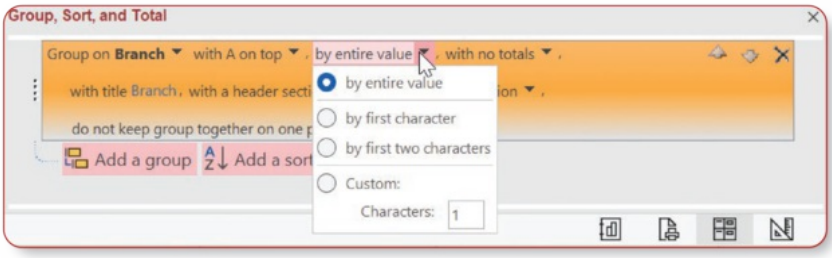


FIGURE 4-112 **Expanded grouping options in *Group, Sort, and Total* pane**

- The report updates to reflect the new option.
- The expanded list of options closes.

MORE INFO

Add additional options by selecting **More** again.

5. Click **Less** to close the expanded list of options if you decide not to make any modifications.
6. Close the *Group, Sort, and Total* pane by clicking the **X** in the upper-right corner of the *Group, Sort, and Total* pane.

Add Totals to a Report

A4-285

You can add totals to a report to allow performance of overall calculations based on your data. Calculation options include *Sum*, *Average*, *Count Records*, *Count Values*, *Max*, *Min*, *Standard Deviation*, and *Variance*. The options available for non-numeric fields are limited to *Count Records* and *Count Values*.

HOW TO: Add Totals to a Report

1. Open the report in *Layout* view.
2. Select a text box in the field you want to total.
3. Click the **Totals** button [*Report Layout Design* tab, *Grouping & Totals* group].
4. Select the desired calculation (**Figure 4-113**).

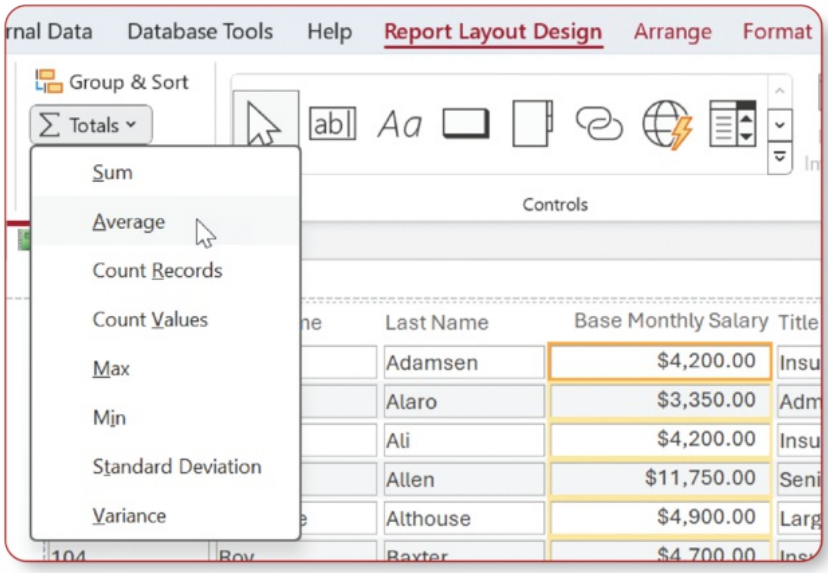


FIGURE 4-113 ***Totals*** **button options**

- The report updates with the total added to the bottom of the report.

5. Repeat steps 2–4 to add additional total calculations to the report.

In a report with grouping or sorting, add totals in the *Group, Sort, and Total* pane. Select the **with no totals** choice in the *Group, Sort, and Total* pane and then select the desired total options (**Figure 4-114**).

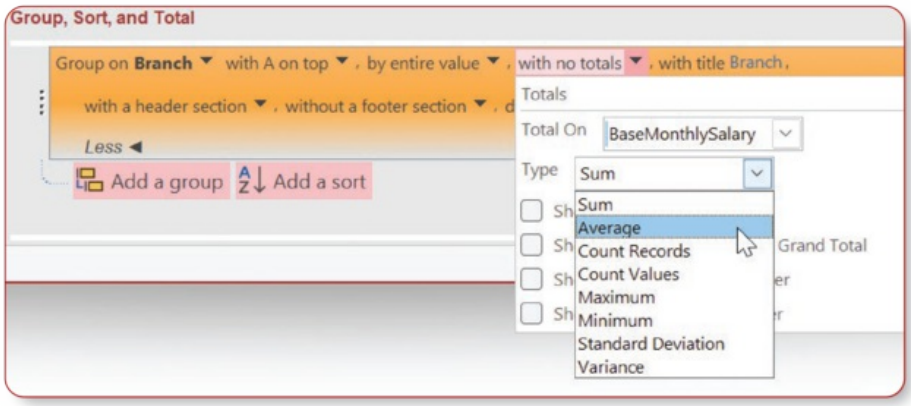


FIGURE 4-114 **Total options in** ***Group, Sort, and Total*** **pane**

SLO 4.7

Using Conditional Formatting in a Report

A4-286

Conditional formatting enables you to format only values that meet a certain condition. This helps you focus the user's attention to certain records in a report.

Conditional Formatting Rules

The formatting rules are defined in the *New Formatting Rule* dialog box (Figure 4-115). When building a rule, you must select the ***rule type***, conditions, and the desired formatting.

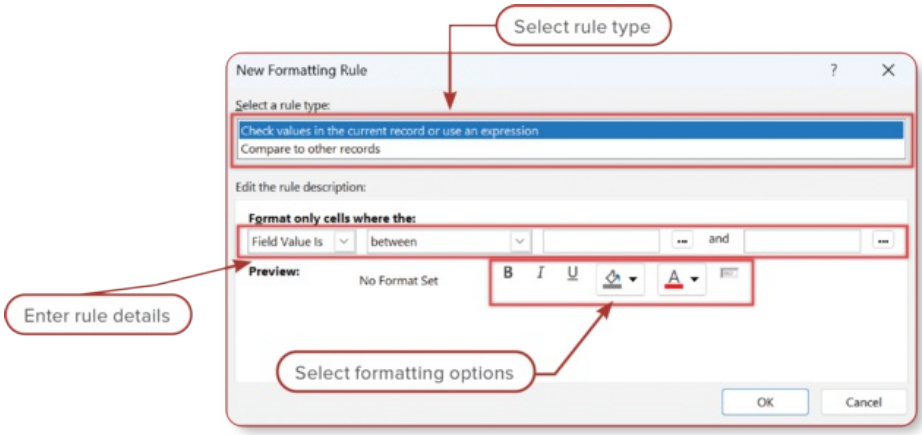


FIGURE 4-115 ***New Formatting Rule*** **dialog box**

The most common rule type is *Check values in the current record or use an expression*. Use the *Compare to other records* rule type to create data bars, which enable you to compare values across data records.

Most formatting rules compare the value in a field. When you are building a rule, the dialog box options change based on the selection you make. For example, Figure 4-116 shows a place where you enter only one data value based on the selection of the *less than* comparison. Compare this to Figure 4-117, where you enter two data values for a *between* comparison. These figures also show examples of different formatting options.

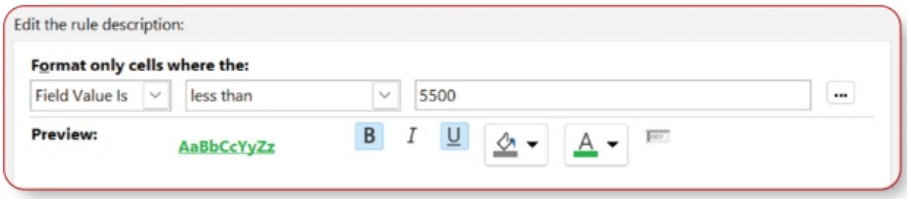


FIGURE 4-116 Example rule with *less than* comparison and one data value

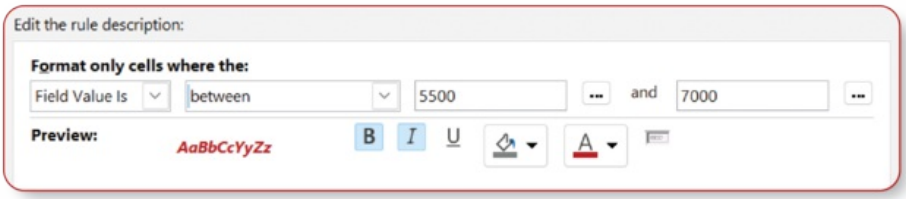


FIGURE 4-117 Example rule with *between* comparison and two data values

Once you build a rule, it displays in the *Conditional Formatting Rules Manager* dialog box. You can have multiple rules in one report and even multiple rules for the same field.

When you have multiple rules, the order in which they are listed is very important, because Access stops evaluating when a match is found. For example, the rule in **Figure 4-118** shows *BaseMonthlySalary* values that are less than 5,000 in blue instead of the desired brown color. That is because a value less than 5,000 is also less than 10,000. The evaluation stops after the condition in the first rule is met. To correct this situation, select the *Value < 10000* rule and click the **Move Down** arrow to make it the second rule instead of the first. As appropriate, you can also click the **Move Up** arrow to change the position of a rule.

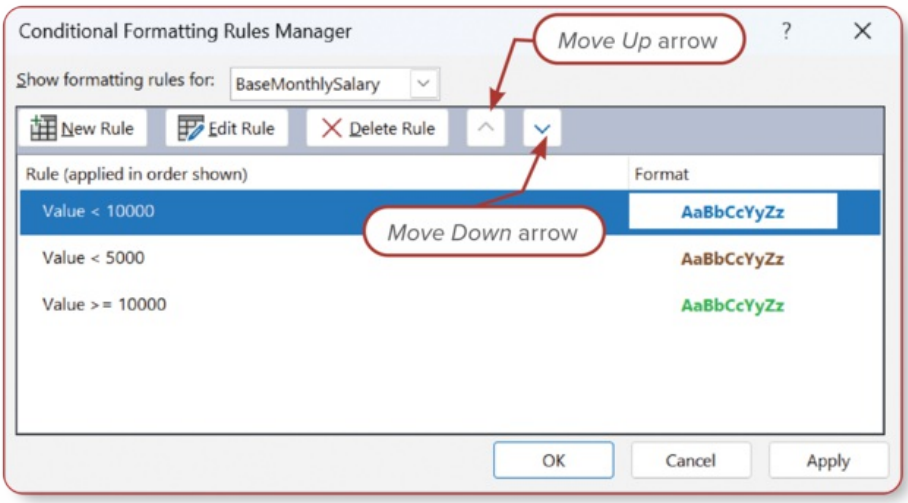


FIGURE 4-118 *Conditional Formatting Rules Manager* dialog box with multiple rules

Add Conditional Formatting to a Report

To add conditional formatting, you need to determine which fields will have formatting applied and the specific criteria you want to use to make the rule. Conditional formatting features are located on the *Format* tab.

HOW TO: Add Conditional Formatting to a Report to Check Values in the Current Record or Use an Expression

1. Open the report in *Layout* view.
2. Select any text box in the column where you wish to apply the criteria.

> **ANOTHER WAY**
>
> Select multiple fields and apply the same rule to all selected fields.

3. Click the **Conditional Formatting** button [*Format* tab, *Control Formatting* group] (**Figure 4-119**) to open the *Conditional Formatting Rules Manager* dialog box (**Figure 4-120**).

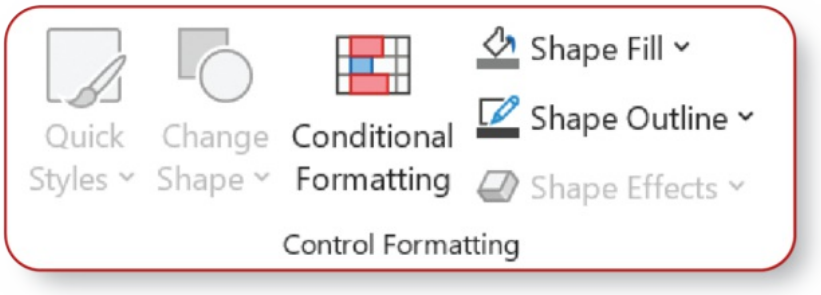


FIGURE 4-119 ***Conditional Formatting*** **button**

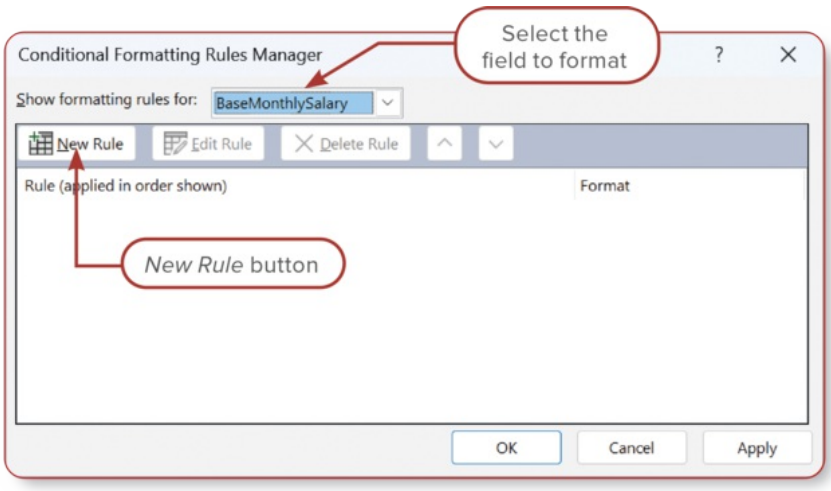


FIGURE 4-120 ***Conditional Formatting Rules Manager*** **dialog box**

- The selected field displays in the *Show formatting rules for* box.
- If more than one field is selected, *Multiple* displays in the box.

4. Change the field to format in the *Show formatting rules for* box if necessary.
5. Click the **New Rule** button to open the *New Formatting Rule* dialog box.
6. Select **Check values in the current record or use an expression** in the *Select a rule type* box.
7. Click the appropriate **arrows** to select the desired comparison.
8. Type the comparison values into the boxes.
9. Select formatting options as desired.
10. Click **OK**. The completed rule displays in the *Conditional Formatting Rules Manager* dialog box (**Figure 4-121**).

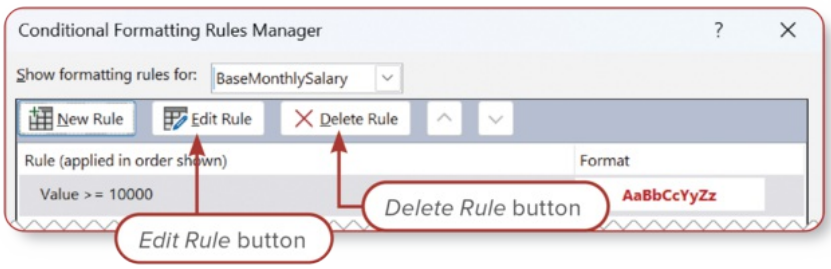


FIGURE 4-121 **Completed rule**

11. Add another rule to either the same field or a different field as desired.
12. Click **Apply** to have Access evaluate the data in the report and apply the formatting to the values that meet the criteria.
13. Click **OK** when you are finished building all rules.

COPILOT/GENERATIVE AI BEST PRACTICES

Conditional formatting can help focus the user's attention in a report. Ask *Copilot* to show examples of conditional formatting in an Access report. Follow-up prompts can ask for help to create custom rules for conditional formatting or for examples of complex rules for conditional formatting. You can also ask for examples of well-formatted reports with consistent styling.

Manage Conditional Formatting Rules

You can also edit or delete existing rules from the *Conditional Formatting Rules Manager* dialog box. The *Conditional Formatting Rules Manager* only displays rules for one field at a time. If you created rules for multiple fields, you must select the desired field first in the *Show formatting rules for* box to view the rules for that specific field.

To edit an existing rule, select the rule in the *Conditional Formatting Rules Manager* dialog box and click the **Edit Rule** button. The *Edit Formatting Rule dialog* box opens. This dialog box is similar to the *New Formatting Rule* dialog box, and you set options the same way.

To delete an existing rule, select the rule in the *Conditional Formatting Rules Manager* dialog box and click the **Delete Rule** button. Because you are not prompted to confirm the deletion, use caution to avoid an accidental deletion.

SLO 4.8

Printing a Report

A4-288

Reports can be viewed on screen, but most reports are designed to be printed. To ensure that your report prints as desired, take the time to review it in *Print Preview* view.

Preview a Report

Recall that *Print Preview* enables you to see how your report appears on a printed page. The options on the *Print Preview* tab enable you to adjust the size and margins of the page, change the orientation, and change the zoom level as needed.

HOW TO: Preview a Report

1. Click to select the desired report in the *Navigation Pane*.
2. Click the **Print** button [*File* tab].
3. Click **Print Preview.**

ANOTHER WAY

If the report is already open, click the **View** button drop-down arrow [*Home* tab, *Views* group] and select **Print Preview**. You can also click the **Print Preview** icon in the *Status* bar.

4. Make any desired adjustments to the report (**Figure 4-122**).

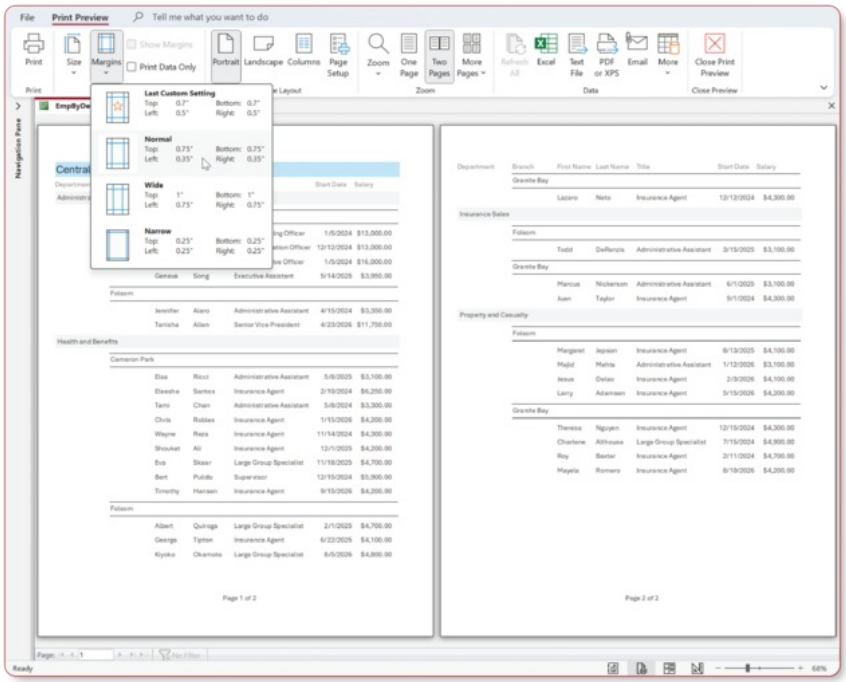


FIGURE 4-122 **Adjust printing options while viewing a report in *Print Preview***

5. Click the **Print** button [*Print Preview* tab, *Print* group] to open the *Print* dialog box if you are ready to print. Choose desired options and click **OK** to print the report.
6. Click the **Close Print Preview** button.

Print a Report without Print Preview

If you already know that your report is designed correctly, you can print the report without previewing it first.

HOW TO: Print a Report without Using Print Preview

1. Click to select the desired report in the *Navigation Pane*.
2. Click the **Print** button [*File* tab].
3. Choose the desired print option.
   - Click **Quick Print** to print the report on the default printer without making any changes.
   - Click **Print** to open the *Print* dialog box and customize printing options. Select a printer, desired printing options, and click **OK** to print.

Format and Print a Report with Multiple Columns

Occasionally, the fields in a report may not take up the full width of a report. For example, if you were printing a list of employees and their office phone numbers, or the song titles on different music albums, the fields would not span the entire width of the page. In these cases, you can choose to print the report using multiple columns. You do not make any special property settings or changes when designing the report. Instead, you choose the columns option when printing.

HOW TO: Print a Report with Multiple Columns

1. Click to select the desired report in the *Navigation Pane*.
2. Click the **Print** button [*File* tab].
3. Click **Print Preview**.

> **ANOTHER WAY**
>
> If the report is already open, click the **View** button drop-down arrow [*Home* tab, *Views* group] and select **Print Preview**.

4. Click the **Columns** button [*Print Preview* tab, *Page Layout* group]. The *Page Setup* dialog box opens with the *Columns* tab selected (**Figure 4-123**).

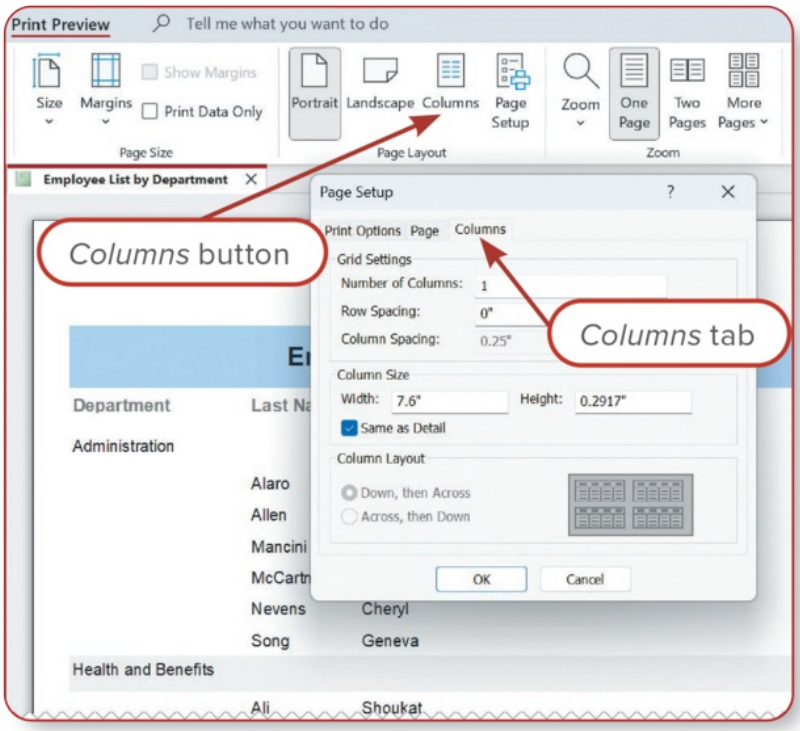


FIGURE 4-123 ***Columns*** **tab of the** ***Page Setup*** **dialog box**

5. Enter the number of columns to print.
6. Enter the width of the columns.
7. Select the desired *Column Layout* option.
8. Edit any other column settings.
9. Click **OK**. The report preview updates (**Figure 4-124**). Review the updated report to ensure that you made the correct selections in the dialog box. **Figure 4-124** shows a two-column report with a column width of 3.5".

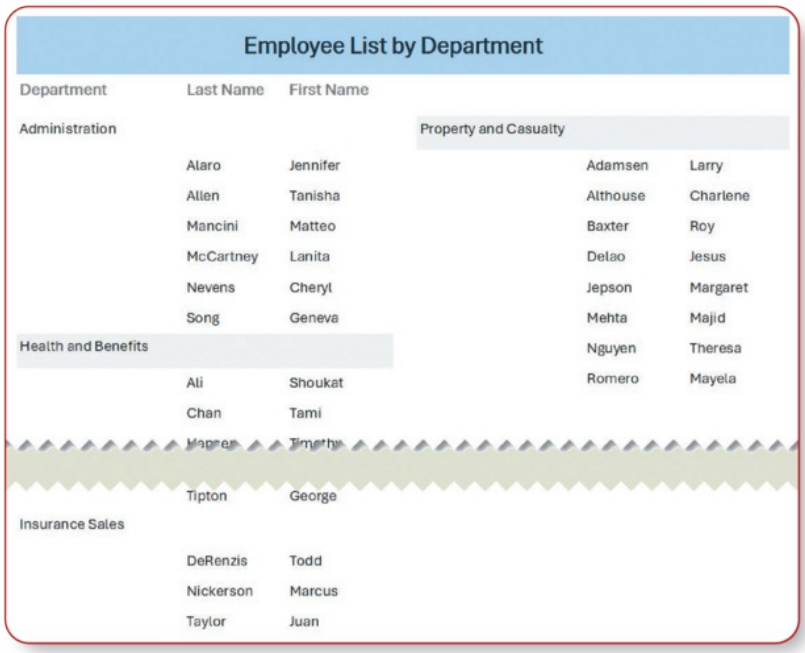


FIGURE 4-124 **Multiple column report preview**

10. Save the report.
11. Click **Print** to open the *Print* dialog box and customize printing options. Select a printer, desired printing options, and click **OK** to print.

A4-291

A4-292

PAUSE & PRACTICE: ACCESS 4-4

For this Pause & Practice, you edit a report based on a parameter query. You modify the report to add grouping and conditional formatting. Finally, you preview the report.

File Needed: ***[your initials] PP A4-2.accdb***

Completed Project File Name: ***[your initials] PP A4-4.accdb***

1. Open the ***[your initials] PP A4-2*** database file that you created in ***Pause & Practice 4-2***.
2. Save a new copy of your database as [your initials] PP A4-4.
3. Enable content in the database.
4. Double-click the **EmployeesBranchParameter** query.
5. Leave the value blank in the *Enter Parameter Value* dialog box, and click **OK**. The query executes and displays the results shown in **Figure 4-125**. The report you edit in this Pause & Practice was created using

this query as the data source instead of a table.

Employee	Title	Branch	Base Monthly Salary
Larry Adamsen	Insurance Agent	Folsom	$4,200.00
Jennifer Alaro	Administrative Assistant	Folsom	$3,350.00
Shoukat Ali	Insurance Agent	Cameron Park	$4,200.00
Tanisha Allen	Senior Vice President	Folsom	$11,750.00
Charlene Althouse	Large Group Specialist	Granite Bay	$4,900.00

FIGURE 4-125 ***EmployeesBranchParameter*** **query results**

6. Close the query.
7. Add grouping to the report.
   a. Right-click the **EmployeesBranch-ParameterReport** report and select **Layout View** to open the report in *Layout* view. The query executes.
   b. Click the **OK** button in the *Enter Parameter Value* dialog box without entering a value. The report opens in *Layout* view.
   c. Click the **Group & Sort** button [*Report Layout Design* tab, *Grouping & Totals* group] to open the *Group, Sort, and Total* pane at the bottom of the report.
   d. Click **Add a group** in the *Group, Sort, and Total* pane.
   e. Select the **Branch** field from the *Group on select field* list (**Figure 4-126**).

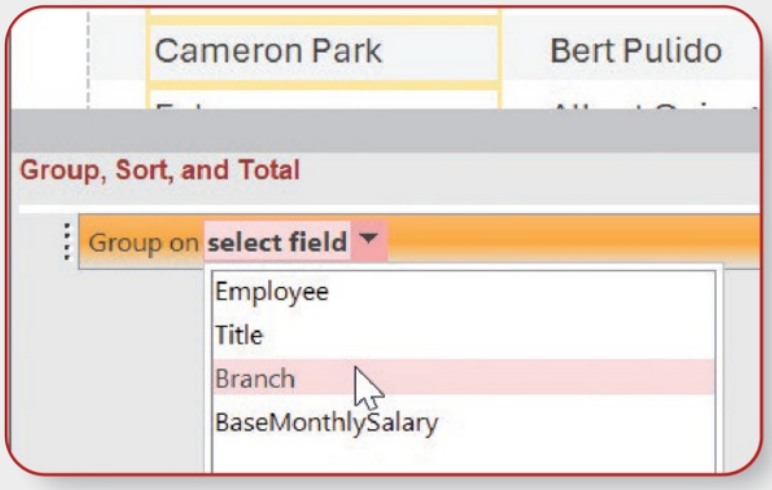


FIGURE 4-126 **Group on the** ***Branch*** **field**

   f. Close the *Group, Sort, and Total* pane by clicking the **X** in the upper-right corner of the *Group, Sort, and Total* pane. Be careful not to click the *Delete* symbol inside the pane or you remove the group.
8. Add conditional formatting to the report.
   a. Click any cell in the *Base Monthly Salary* column.
   b. Click the **Conditional Formatting** button [*Format* tab, *Control Formatting* group] to open the *Conditional*

Formatting Rules Manager dialog box. *BaseMonthlySalary* displays in the *Show formatting rules for* box.

c. Click the **New Rule** button to open the *New Formatting Rule* dialog box.

d. Select the **Check values in the current record or use an expression** rule type in the *Select a rule type* box if necessary.

e. Select **greater than or equal to** as the comparison.

f. Type 11000 into the value box.

g. Select **Bold** and a **Red** font. The *New Formatting Rule* dialog box should be similar to **Figure 4-127**.

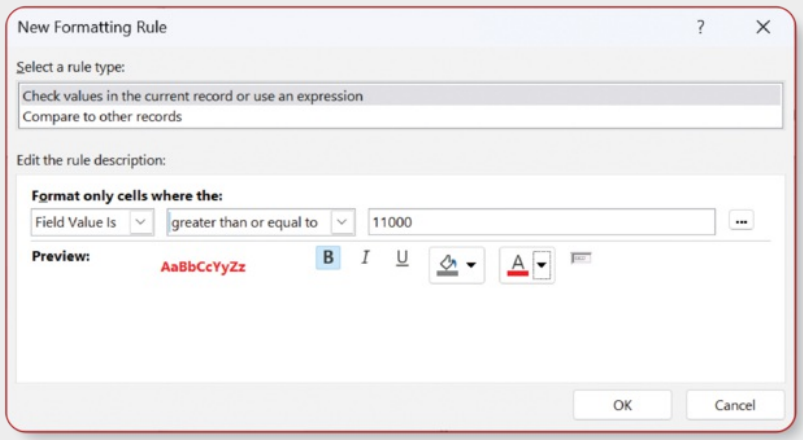


FIGURE 4-127 ***New Formatting Rule*** **dialog box for** ***BaseMonthlySalary*** **field**

h. Click **OK**. The completed rule displays in the *Conditional Formatting Rules Manager* dialog box (**Figure 4-128**).

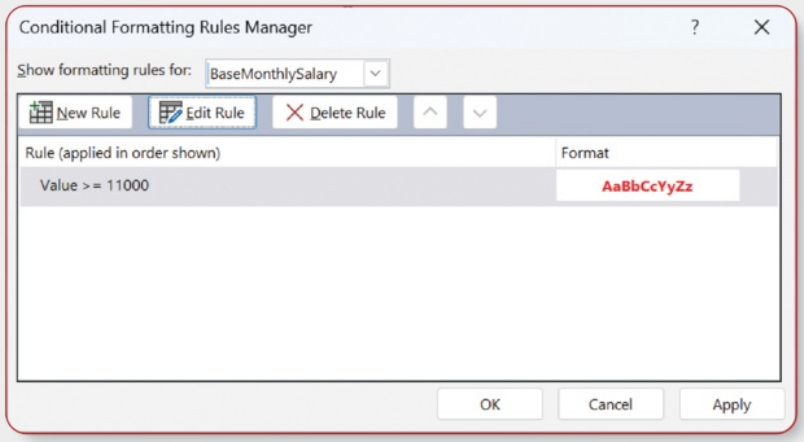


FIGURE 4-128 **Completed rule for** ***BaseMonthlySalary*** **field**

i. Click **Apply**. The report updates to reflect the conditional formatting.

j. Click **OK**.

9. Save and close the report.

10. Preview the way the report will print.

a. Right-click the **EmployeesBranchParameterReport** report and select **Print Preview**. The query executes.

b. Click **OK** in the *Enter Parameter Value* dialog box without entering a value.

c. Click the **Zoom** button arrow and select **Fit to Window**.

d. Click the **Margins** button arrow and select **Normal**. If a message displays that the section width is greater than the page width, click **OK** to acknowledge the message. Your report should look similar to **Figure 4-129**.



Employees by Branch

Branch	Employee	Title	Base Monthly Salary
Cameron Park			
	Geneva Song	Executive Assistant	$3,950.00
	Lanita McCartney	Chief Operating Officer	$13,000.00
	Eleesha Santos	Insurance Agent	$6,250.00
	Tami Chan	Administrative Assistant	$3,300.00
	Wayne Reza	Insurance Agent	$4,300.00
	Cheryl Nevens	Chief Information Officer	$13,000.00
	Bert Pulido	Supervisor	$5,900.00
	Matteo Mancini	Chief Executive Officer	$16,000.00
	Elsa Ricci	Administrative Assistant	$3,100.00
	Timothy Hansen	Insurance Agent	$4,200.00
	Shoukat Ali	Insurance Agent	$4,200.00
	Chris Robles	Insurance Agent	$4,200.00
	Eva Skaar	Large Group Specialist	$4,700.00
Folsom			
	Tanisha Allen	Senior Vice President	$11,750.00
	Margaret Jepson	Insurance Agent	$4,100.00
	George Tinton	Insurance Agent	$4,100.00

FIGURE 4-129 Completed report with grouping and conditional formatting

e. Close the *Print Preview* of the report.

11. Close the database.

Chapter Summary

4.1 Create a simple form using quick create options, and save, modify, and delete a form (p. A4-232).

- ***Forms*** enable you to view, add, update, and delete data in a database.
- Build forms from tables, queries, or both.
- ***Bound forms*** are linked to the data source; ***unbound forms*** don't have a connection to a direct link to a data source.
- Use ***Form view*** to enter and view data. Edit a form in ***Design view*** or ***Layout view*** and modify any aspect of the form's design. Forms created with a *Datasheet* layout also have a ***Datasheet view*** option.
- The ***Form Wizard*** enables you to quickly build a form by specifying the tables or queries to use, selecting the desired fields and the desired layout of the form.
- Use the ***Form*** button to create a form in one click.
- A ***split form*** enables you to view data in two ways on the same form by combining both a columnar display and a datasheet display.

4.2 Create a blank form, understand controls and control layouts, customize a form in *Layout* view, adjust control positions, sort records on a form, add a title, date, or logo to a form, add and modify a label, and create a form from a template (p. A4-242).

- The *Blank Form* button enables you to create a new form from scratch using *Layout* view.
- ***Controls*** are the buttons, labels, fields, and so forth that you place on a form.
- Controls can be ***bound***, ***unbound***, or ***calculated***.
- ***Control layouts*** provide the structure that aligns the controls on a form.
- The two primary control layouts are ***tabular*** and ***stacked***.
- Save each form with a unique name.
- Change the **Font**, **Font Size** and style to modify the default characteristics of the font controls on a form.
- Change the location of a control or control layout by modifying the ***Top*** and ***Left*** properties. Use the ***Control Margins***, ***Control Padding***, or ***Anchoring*** properties of a

control to change its spacing or position on a form.

- Use the ***Order By*** and ***Order By On Load*** properties to change the sort order of records on a form.
- Use the ***Title***, ***Date and Time***, and ***Logo*** buttons to add these controls to a form.
- Add labels to a form to display additional titles, instructions, or information about the form.
- Create a form from a template with ***Application Parts***, and then modify it to meet your needs.

4.3 Restrict a form to data entry, limit user edits and deletions on a form, add command buttons, and test a form (p. A4-255).

- When designing a form for data entry, choose design options that help minimize potential data entry errors and maximize efficiency for entering data.
- Use the ***Data Entry*** and ***Allow Additions*** properties of a form to restrict the form to only allow data entry. This prevents the user from viewing data already in the database.
- Use the ***Allow Edits*** and ***Allow Deletions*** properties of a form when you want to limit the user's ability to edit or delete records in the database.
- Add ***command buttons*** to a form to automate user tasks.
- Use the ***Command Button Wizard*** to easily add buttons to a form. The ***Control Wizards*** tool must be turned on before Access can launch an available wizard.
- After you build a form, test it to ensure that it functions as desired.

4.4 Create a simple report with the *Report Wizard*, and save, modify, and delete a report (p. A4-262).

- Use ***reports*** to create an organized and professional output of the data in a database.
- Build reports from tables, queries, or both.
- The ***Report Wizard*** enables you to quickly build a report by specifying the tables or queries to use, selecting the desired fields, selecting any grouping or sorting options, and specifying the layout of the report.
- ***Report*** view executes a report and displays the results.
- ***Print Preview*** view shows how a report will look in print while also enabling you to make modifications to the print settings.
- Modify reports in *Design* view or *Layout* view.

4.5 Create a blank report, understand controls and control layouts, customize a report in *Layout* view, adjust control positions, add a title, logo, date, and page numbers to a report, and add and modify a label (p. A4-271).

- The *Blank Report* button enables you to create a new report from scratch using *Layout* view.
- ***Control layouts*** provide the structure that aligns controls on a report.
- The two primary control layouts are tabular and stacked.
- The fields, labels, and so forth that you place on a report are controls. Controls can be bound, unbound, or calculated.
- Change the **Font**, **Font Size** and style to modify the default characteristics of the font controls on a report.
- Change the *Control Margins* or *Control Padding* properties of a control to modify its position on a report.
- It is good design practice to include titles, logos, dates, and page numbers on a report.
- Add labels to a form to display additional titles, instructions, or information about the report.
- Save each report with a unique name.

4.6 Enhance a report by adding grouping, sorting, and totals in *Layout* view (p. A4-281).

- Sorting the records in a report makes it easier to read and understand the data contained in the report.
- Sort a report in ascending or descending order on one or more fields.
- Add a ***group*** to a report to organize and summarize the data.
- A report can contain multiple groups.
- Within a grouping level, you can choose to include header or footer sections, integrate sorting, and include summary totals.
- Totals enable you to perform overall calculations based on the data in the report.
- Calculation options include *Sum*, *Average*, *Count Records*, *Count Values*, *Max*, *Min*, *Standard Deviation*, and *Variance*.

4.7 Integrate conditional formatting into a report (p. A4-285).

- ***Conditional formatting*** enables you to format only values that meet a specified condition.

- A report can contain multiple formatting rules.
- When using multiple rules, the order of specifying the rules is important because Access stops evaluating once it finds a rule that matches the data.
- You can add, modify, and delete rules from the *Conditional Formatting Rules Manager* dialog box.

4.8 Preview, modify print settings, print a report, and format and print a report with multiple columns (p. A4-288).

- To ensure that your report prints as desired, review it in *Print Preview* view.
- Adjust the print settings related to page size, margins, and page orientation using the *Print Preview* mode.
- Print a report directly from the *Backstage* view without using *Print Preview*.
- Format and print a report using multiple columns to make better use of the spacing on a page.

Check for Understanding

The SIMbook for this text (within your SIMnet account) provides the following resources for concept review:

- Multiple-choice questions
- Matching exercises
- Short answer questions

USING MICROSOFT ACCESS 365

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A4-296
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A4-298

Guided Project 4-1

In this project, you enhance the functionality of the database you built for your friend's music collection by building a form to display information about the albums and a report to show all of the songs on each album. To ensure consistency, the starting file is provided for you. Use the *Form Wizard* to create a form and use *Layout* view to edit the form. Create a report using the *Report Wizard*. Edit the report in *Layout* view, add totals to the report, and view the report using *Print Preview*.

[**Student Learning Outcome 4.1**, **Student Learning Outcome 4.2**, **Student Learning Outcome 4.4**, **Student Learning Outcome 4.5**, **Student Learning Outcome 4.6**, **Student Learning Outcome 4.8**]

File Needed: ***MusicDatabase-04.accdb*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Name: ***[your initials] Access 4-1.accdb***

Skills Covered in This Project

- Create a form using the *Form Wizard*.
- Edit a form in *Layout* view.
- Add the current date to a form.
- Create a report using the *Report Wizard*.
- Edit a report in *Layout* view.
- Add totals to a report.
- View a report using *Print Preview*.

1. Open the ***MusicDatabase-04.accdb*** database file. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close it.
2. Save the database as [your initials] Access 4-1.

3. Enable content in the database.
4. Create a form using the *Form Wizard*.
   a. Click the **Form Wizard** button [*Create* tab, *Forms* group] to launch the *Form Wizard*. If a *Microsoft Access Security Notice* box displays, click **Open**.
   b. Click the **Tables/Queries** drop-down arrow and select the **Albums** table if necessary.
   c. Click the **Move All Fields** button to move all of the fields from the *Available Fields* window to the *Selected Fields* window.
   d. Click the **Next** button to move to the second page of the *Form Wizard*.
   e. Select the **Columnar** radio button if necessary.
   f. Click the **Next** button to move to the last page of the *Form Wizard*.
   g. Type MusicAlbums in the *Title* box.
   h. Click **Finish**. The form opens in *Form* view.
   i. Use the navigation buttons to move to record album 29. This album has the longest album name.
5. Edit the form column widths in *Layout* view.
   a. Click the **View** button drop-down arrow [*Home* tab, *Views* group] and select **Layout View**.
   b. Close the *Field List* pane if it is open.
   c. Select the **AlbumName** text box.
   d. Click the **Property Sheet** button [*Form Layout Design* tab, *Tools* group].
   e. Click the **Format** tab if necessary.
   f. Type 3.4" in the *Width* property box and press **Enter**. Remember that Access automatically adds the inches mark (") after you enter the value, so you can omit typing it, if desired.
   g. Select the **Artist** text box, type 3.4" in the *Width* property box and press **Enter**.
   h. Select the **Genre** text box. Press and hold the **Shift** key and select the **Length** text box, type 1.5" in the *Width* property box and press **Enter**.
   i. Select the **RecordingLabel** text box, type 3.4" in the *Width* property box and press **Enter**.
   j. Press **F4** to close the *Property Sheet*.
6. Edit the **form header section**.
   a. Click to select the **MusicAlbums** label in the header section.
   b. Click inside the label to open the edit mode.
   c. Insert a space between “Music” and “Albums”.
   d. Click the header section outside the *Music Albums* label.

e. Click the **Date and Time** button [*Form Layout Design* tab, *Header/Footer* group].
f. Select the radio button to display the date using the **mm/dd/yyyy** format.
g. Deselect the check box to **Include Time**.
h. Click **OK**.
i. Use the navigation buttons to move to the last record.
j. Click the **Form View** icon in the *Status* bar. The completed form should look similar to **Figure 4-130**. Depending on the width of the Access window, your date field may be further to the right in your form header.

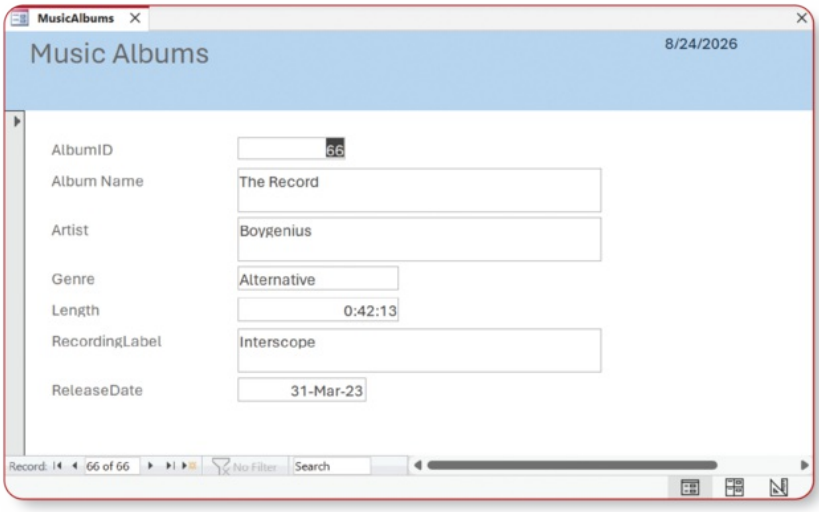


FIGURE 4-130 Completed *MusicAlbums* form

7. Save the form.
8. Close the form.
9. Create a report using the *Report Wizard*.
   a. Click the **Report Wizard** button [*Create* tab, *Reports* group] to launch the *Report Wizard*.
   b. Click the **Tables/Queries** drop-down arrow in the box and select the **SongsOnAlbums** query. This report is based on a query instead of a table.
   c. Select the **Artist** field.
   d. Click the **Move Single Field** button.
   e. Continue adding the **AlbumName**, **Genre**, and **SongTitle** and fields. Remember that you can click the **Remove Single Field** button if you accidentally add a field that is not needed.
   f. Click the **Next** button to move to the next page of the *Report Wizard*.
   g. Choose to view the data **by Albums**. Click **Next**.
   h. Select the **Artist** field to group and click the **Move Single Field** button. The

Report Wizard should look similar to **Figure 4-131**. Click the **Next** button to move to the next page of the *Report Wizard*.

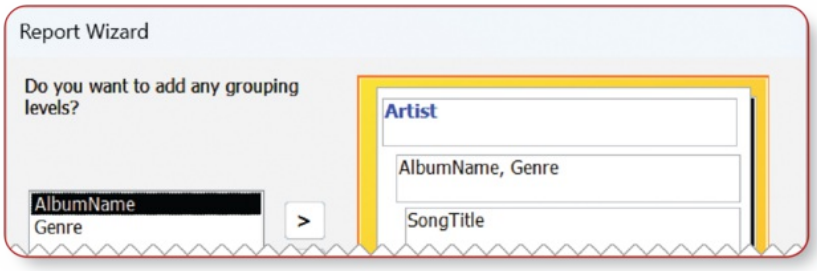


FIGURE 4-131 **Select to view the data *by Albums* and group by *Artist* in the *Report Wizard***

i. Do not sort the data. Click the **Next** button to move to the next page of the *Report Wizard*.
j. Select a **Stepped** layout and **Portrait** orientation if necessary.
k. Click the **Next** button to move to the last page of the *Report Wizard*.
l. Type SongsOnAlbums-ByArtist in the *Title* box.
m. Click the **Finish** button. The report opens in *Print Preview* view. Click **One Page** [*Print Preview* tab, *Zoom* group] to fit the entire page in the Access window. (**Figure 4-132**).



FIGURE 4-132 ***SongsOnAlbums*** **report**

n. Click the **Next Page** navigation button four times to move to the fifth page of the report. Notice that you can't see the entire album name on Cristian Castro's "*Mi Amigo . . .*" album. Don't worry if this album is on page four or page six. Also don't worry if your report contains a different number of pages. This could be caused by different default print settings in Access.

o. Click the **Last Page** navigation button to move to the last page of the report. Notice that some song titles on the "*Voice of Ages*" album are too long to completely display.

p. Click the **Close Print Preview** button. The report displays in *Design* view.

10. Edit the report header section.

a. Close the *Field List* pane, if it is open.

b. Switch the report to *Layout* view.

c. Click to select the **SongsOnAlbums-ByArtist** label in the header section.

d. Click inside the label to open the edit mode.

e. Insert a space between each word and the dash so the label reads "Songs On Albums – By Artist".

f. Click the header section outside the *Songs On Albums* label.
g. Save the report.

11. Edit the report column widths using *Layout* view.
    a. Click the **Property Sheet** button [*Report Layout Design* tab, *Tools* group] and click the **Format** tab if necessary.
    b. Select the **Artist** text box that contains "Adele," type 1.6" in the *Width* property box and press **Enter**.
    c. Select the **Artist** label, type 1" in the *Width* property box and press **Enter**.
    d. Select the **AlbumName** text box that contains "19," type 1.4" in the *Width* property box and press **Enter**.
    e. Type .5" in the *Height* property box and 1.8" in the *Left* property box. Be sure to press **Enter** after typing each value.
    f. Select the **Album Name** label, type 1.4" in the *Width* property box and 1.8" in the *Left* property box.
    g. Select the **Genre** text box that contains "Pop", type 1" in the *Width* property box, .5" in the *Height* property box, and 3.3" in the *Left* property box.
    h. Select the **Genre** label, type .5" in the *Width* property box and 3.3" in the *Left* property box.
    i. Select the **SongTitle** text box that contains "Best for Last,", type 4" in the *Width* property box and 3.9" in the *Left* property box.
    j. Select the **Song Title** label and type 3.9" in the *Left* property box.
    k. Close the *Property Sheet*.
    l. Save the report.
    m. Switch to *Print Preview* view.
    n. Click **One Page** [*Print Preview* tab, *Zoom* group] to fit the entire page in the Access window.
    o. Click the **Last Page** navigation button to move to the last page of the report. *The Chieftains* album contains the song with the longest title. Notice that all song titles are visible. The last page of the report should look similar to **Figure 4-133**.



FIGURE 4-133 **Report fields after adjusting size and location**

12. Add totals to the report to count the number of songs on each album.
    a. Switch to *Layout* view.
    b. Click the **Group & Sort** button [*Report Layout Design* tab, *Grouping & Totals* group] to open the *Group, Sort, and Total* pane at the bottom of the report.
    c. Click the **Group on AlbumName** row in the *Group, Sort, and Total* pane.
    d. Click **More** in the *Group on AlbumName* row.
    e. Select the **with no totals** arrow, select **SongTitle** in the *Total On* box, and check the **Show subtotal in group footer** box (**Figure 4-134**). The report updates to display the count below the last song on each album.

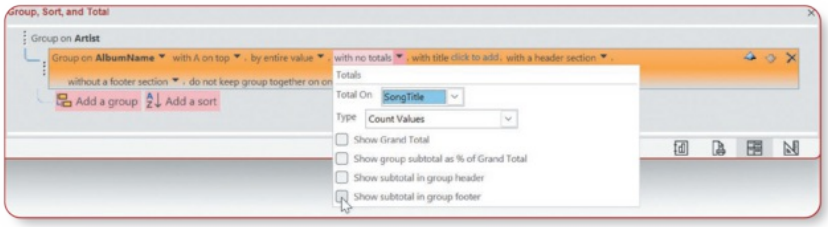


FIGURE 4-134 **Add totals to a grouped report in the *Group, Sort, and Total* pane**

    f. Close the *Group, Sort, and Total* pane by clicking the **X** in the upper-right corner of the *Group, Sort, and Total* pane. Be careful not to click the *Delete* symbol inside the pane or you remove the group.
    g. Save the report.
13. Switch to *Print Preview* view. The completed report should look similar to **Figure 4-135**.



Songs On Albums - By Artist

Artist	Album Name	Genre	Song Title
Adele			
	19	Pop	
			Best for Last
			Hometown Glory
			Tired
			My Same
			Make You Feel My Love
			Right as Rain
			First Love
			Melt My Heart to Stone
			Crazy for You
			Chasing Pavements
			Daydreamer
			Cold Shoulder
			12
	21	Pop/Rock	
			Rumour Has It
			He Won't Go
			11
Boygenius			
	The Record	Alternative	
			Emily I'm Sorry
			True Blue
			Cool About It
			Without You Without Them
			Revolution 0
			Anti-Curse
			We're in Love
			$20
			Not Strong Enough
			Satanist

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FIGURE 4-135 Completed report

14. Close the *Print Preview* of the report.
15. Close the report.
16. Close the database.

A4-299

A4-300

A4-301

A4-302

Guided Project 4-2

San Diego Sailing wants to add forms and a report to their database. To ensure consistency, the starting file is provided for you. Use the *Blank Form* button to create

the form and *Layout* view to modify the form, save a copy of the form, edit form properties, and add command buttons. Create a report using the *Report Wizard* and use *Layout* view to modify the report.

[Student Learning Outcome 4.1, Student Learning Outcome 4.2, Student Learning Outcome 4.3, Student Learning Outcome 4.4, Student Learning Outcome 4.5]

File Needed: ***SanDiegoSailing-04.accdb*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Name: ***[your initials] Access 4-2.accdb***

Skills Covered in This Project

- Create a form using the *Blank Form* button.
- Edit a form in *Layout* view.
- Sort records on a form.
- Save a copy of the form.
- Add a title to a form.
- Add buttons to a form.
- Set form properties.
- Create a report using the *Report Wizard*.
- Edit a report in *Layout* view.

1. Open the ***SanDiegoSailing-04*** database from your student data files. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close it.
2. Save the database as [your initials] Access 4-2.
3. Enable content in the database.
4. Create a new form using the *Blank Form* button.
   a. Click the **Blank Form** button [*Create* tab, *Forms* group]. A new blank form opens in *Layout* view.
   b. Click the **Show all tables** link in the *Field List* pane.
   c. Click the **plus sign** to expand the *SailboatFleet* table to see the fields in the table.
   d. Double-click the **BoatID** field to add it to the form.
   e. Double-click the **BoatType** field to add it to the form.
   f. Continue adding all the fields from the *SailboatFleet* table to the form. The form should look similar to **Figure 4-136**.

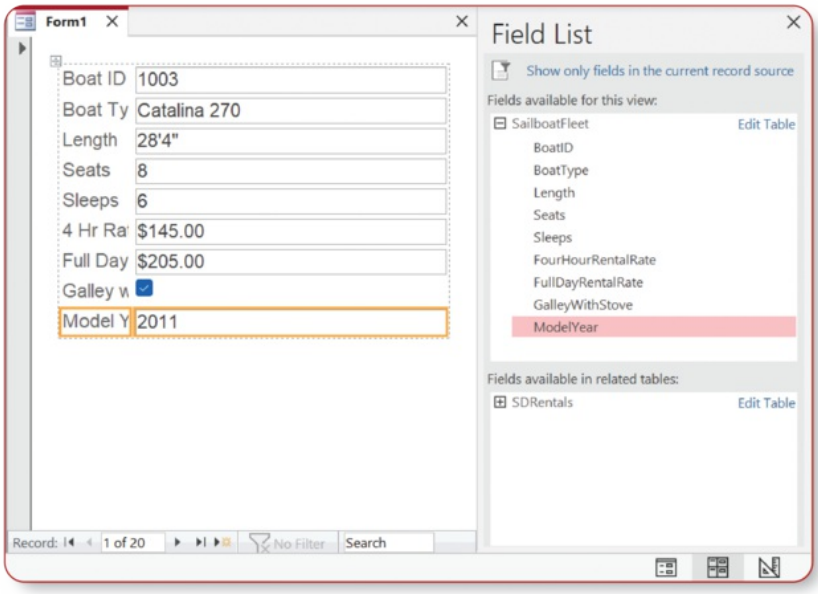


FIGURE 4-136 **Add fields from the *SailboatFleet* table onto the form**

g. Close the *Field List*.

5. Modify the control layout.

a. Click one of the fields on the form. An orange border surrounds it.

b. Click the **Select Layout** button [*Arrange* tab, *Rows & Columns* group] or click the **layout selector**. All the cells in the layout are bordered in orange.

c. Place your pointer over any field. Click, hold, and drag the **control layout** down about 1" and to the right about 1", and then release the pointer (**Figure 4-137**).

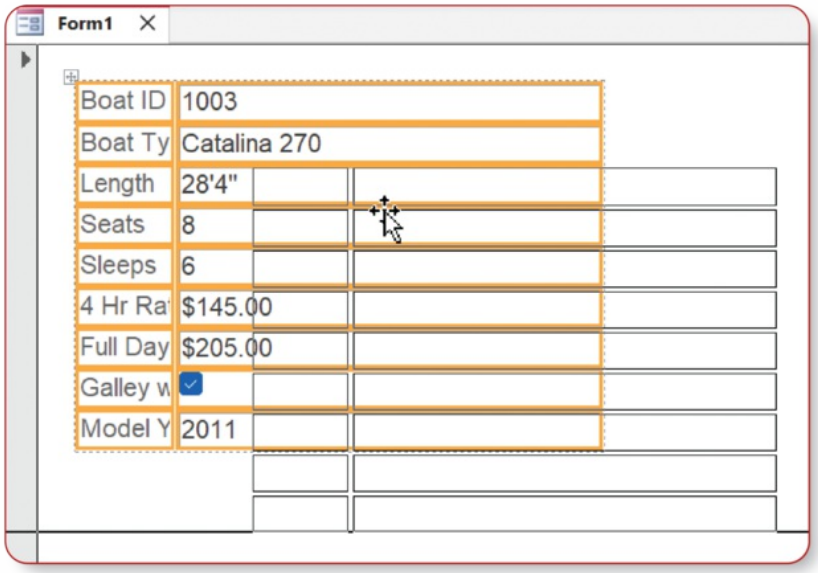


FIGURE 4-137 **Move the control layout**

d. Select the **Galley w/ Stove** label.
e. Click the **Property Sheet** button [*Form Layout Design* tab, *Tools* group].
f. Click the **Format** tab if necessary.
g. Type 1.1" in the *Width* property box and press **Enter**.
h. Navigate to record number 4. This record contains the longest value for *BoatType*.
i. Select the **BoatType** text box, type 1.3" in the *Width* property box and press **Enter**.

6. Add a title control to the form.
   a. Click the **Title** button [*Form Layout Design* tab, *Header/Footer* group].
   b. Change the wording of the label in the header section to View Sailboat Fleet Data.
   c. Click the form area to save the changes to the label. The form should look similar to **Figure 4-138**.

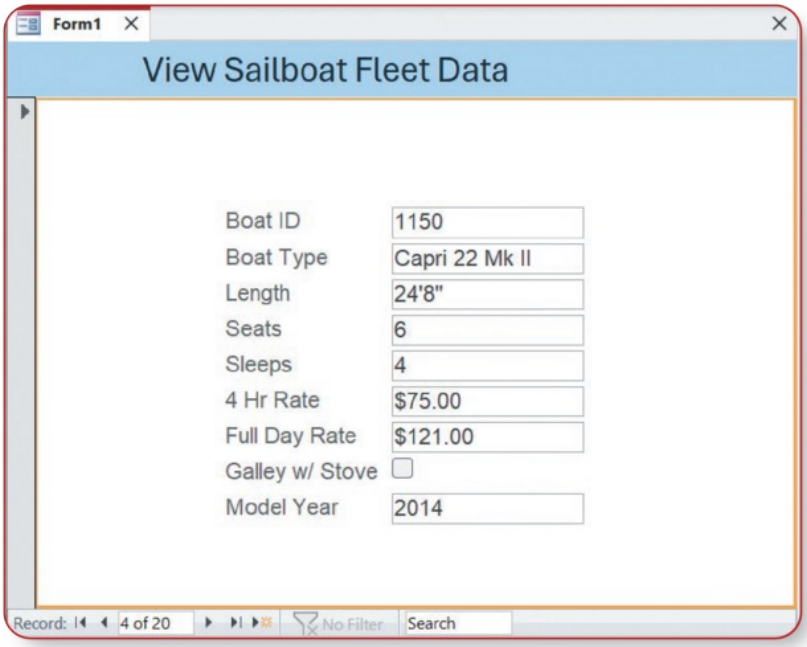


FIGURE 4-138 **Updated form**

7. Modify the form to limit user edits and deletions.
   a. Click the **drop-down arrow** in the *Selection* box of the *Property Sheet* and select **Form**.
   b. Click the **Data** tab.
   c. Select **No** in the *Data Entry* property box if necessary.

d. Select **No** in the *Allow Additions* property box.
e. Select **No** in the *Allow Deletions* property box.
f. Select **No** in the *Allow Edits* property box.

8. Sort the records on the form.
   a. Type [Length] in the *Order By* property box and press **Enter**.
   b. Select **Yes** in the *Order By On Load* property box if necessary.
   c. Close the *Property Sheet*.
9. Save the form. Enter ViewSailboatFleet as the *Form Name*.
10. Close the form. This allows the sort action to take effect when the form is next opened.
11. Test the form.
    a. Open the form in *Form* view. *Boat ID 1401* should display based on the sort applied.
    b. Try to change the value in the *BoatID* text box. You should not be able to edit the value. Notice that the *New (blank) record* icon is not visible in the *Navigation* bar and that the *Delete Record* button is not available in the *Records* group [*Home* tab].
12. Save another copy of the form by clicking **Save As** [*File* tab] and then selecting **Save Object As** and click the **Save As** button. Enter AddNewSailboat as the *Form Name*.
13. Edit the title label of the new form.
    a. Switch to **Layout** view.
    b. Click to select the label in the header section.
    c. Click inside the label to open the edit mode.
    d. Change the wording of the label to Add New Sailboat.
    e. Click the form area to save the changes to the label.
14. Add a new column and new rows to the control layout of the form.
    a. Select the **ModelYear** text box.
    b. Click the **Select Row** button [*Arrange* tab, *Rows & Columns* group].
    c. Click the **Insert Below** button [*Arrange* tab, *Rows & Columns* group] to add a blank row.
    d. Click the **Insert Below** button again to add a second blank row.
    e. Select the **ModelYear** text box.
    f. Click the **Select Column** button [*Arrange* tab, *Rows & Columns* group].
    g. Click the **Insert Right** button [*Arrange* tab, *Rows & Columns* group] to add a blank column.

15. Adjust the height and width of the new rows and column.
    a. Select a cell in the new column.
    b. Click the **Property Sheet** button [*Form Layout Design* tab, *Tools* group].
    c. Click the **Format** tab if necessary.
    d. Type 1.1" in the *Width* property box and press **Enter**.
    e. Select a cell in the bottom blank row.
    f. Type .45" in the *Height* property box and press **Enter**. The revised control layout on the form should look like **Figure 4-139**.

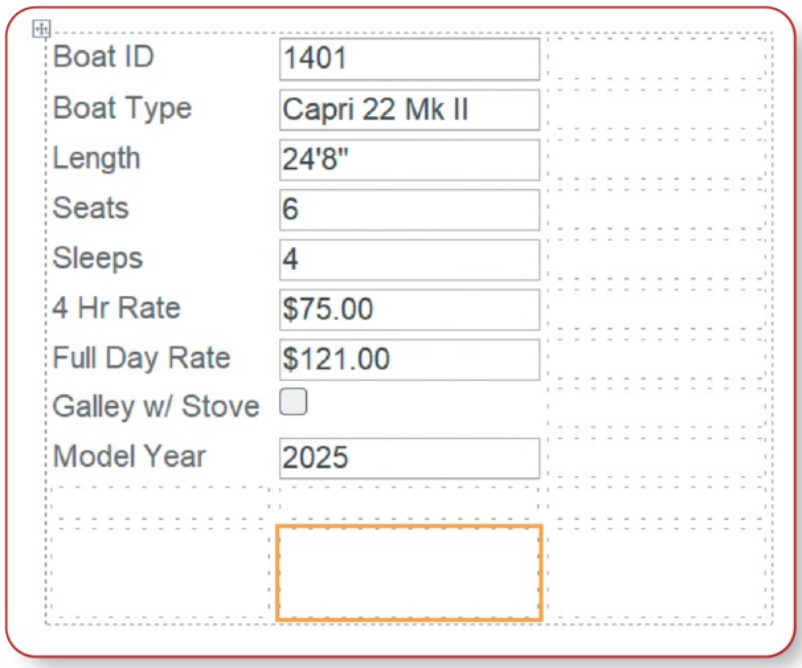


FIGURE 4-139 **Modified control layout**

    g. Close the *Property Sheet*.

16. Add command buttons to the form.
    a. Click the **Form Layout Design** tab if necessary.
    b. Click the **Controls** arrow at the far right of the *Controls* group and select the **Use Control Wizards** button if it does not already have a black border indicating it is selected.
    c. Click **Button** in the *Controls* group. Move the pointer to the left-most cell in the bottom row of the control layout and click. The *Command Button Wizard* launches.
    d. Select the **Record Operations** *Category* and the **Save Record** *Action* of the button.

e. Click **Next** to move to the second page of the *Command Button Wizard*.
f. Select the **Text** radio button and change the wording to read Save Sailboat Record.
g. Click **Next** to move to the last page of the *Wizard*.
h. Accept the default button name because you will not modify the button code and click **Finish**. The button displays in the form.
i. Add a second button to the form. Place the button in the middle cell of the last row.
j. Select the **Record Operations** *Category* and the **Add New Record** *Action* of the button. Click **Next**.
k. Select the **Text** radio button and change the wording to read Add New Sailboat. Click **Next**.
l. Accept the default button name because you will not modify the button code and click **Finish**.
m. Add a third button onto the form. Place the button in the right-most cell of the last row.
n. Select the **Form Operations** *Category* and the **Close Form** *Action* of the button. Click **Next**.
o. Select the **Text** radio button and use the existing “Close Form” wording. Click **Next**.
p. Accept the default button name because you will not modify the button code and click **Finish**. The form should look similar to **Figure 4-140**.

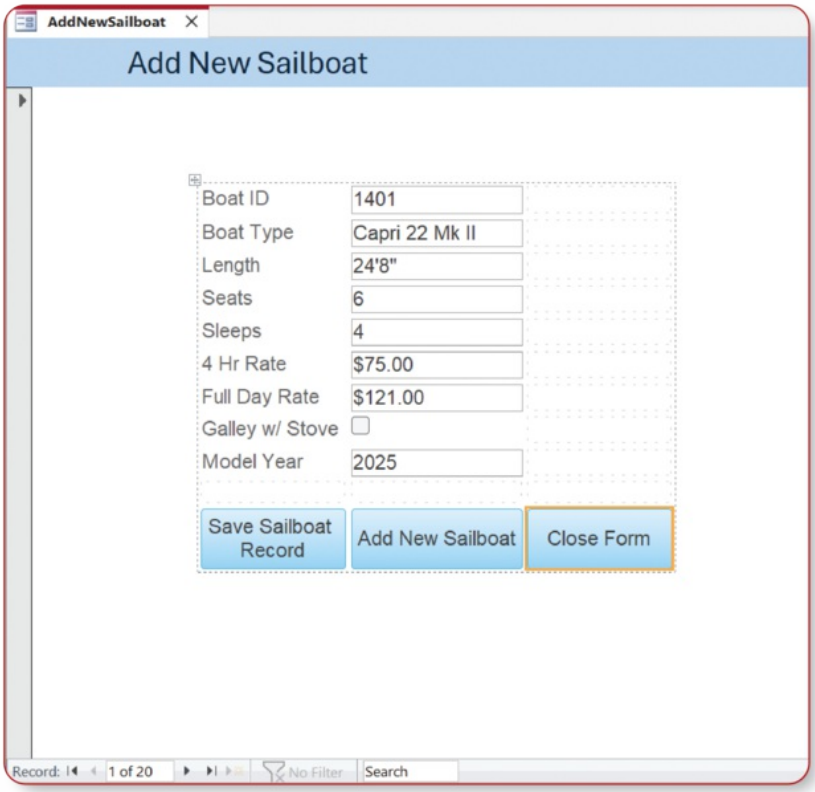


FIGURE 4-140 **Modified *AddNewSailboat* form**

q. Save the form.

17. Restrict the form to data entry.
    a. Click the **Property Sheet** button [*Form Layout Design* tab, *Tools* group] to open the *Property Sheet*.
    b. Click the **drop-down arrow** in the *Selection* box of the *Property Sheet* and select **Form**.
    c. Click to select the **Data** tab if necessary.
    d. Select **Yes** in the *Data Entry* property box.
    e. Select **Yes** in the *Allow Additions* property box.
    f. Close the *Property Sheet*.
    g. Save the form.
18. Switch to *Form* view by clicking the **View** button drop-down arrow [*Form Layout Design* tab, *Views* group] and selecting **Form View**. The completed form displays.
19. Test the form.
    a. Enter 1425 in the *Boat ID* text box.
    b. Enter Catalina 270 in the *Boat Type* text box.

c. Enter 28’ 4" in the *Length* text box.
d. Enter 8 in the *Seats* text box.
e. Enter 6 in the *Sleeps* text box.
f. Enter 145 in the *4 Hr Rate* text box.
g. Enter 205 in the *Full Day Rate* text box.
h. Select the **Galley w/ Stove** check box.
i. Enter 2025 in the *Model Year* text box. The completed form should match the data shown in **Figure 4-141**.

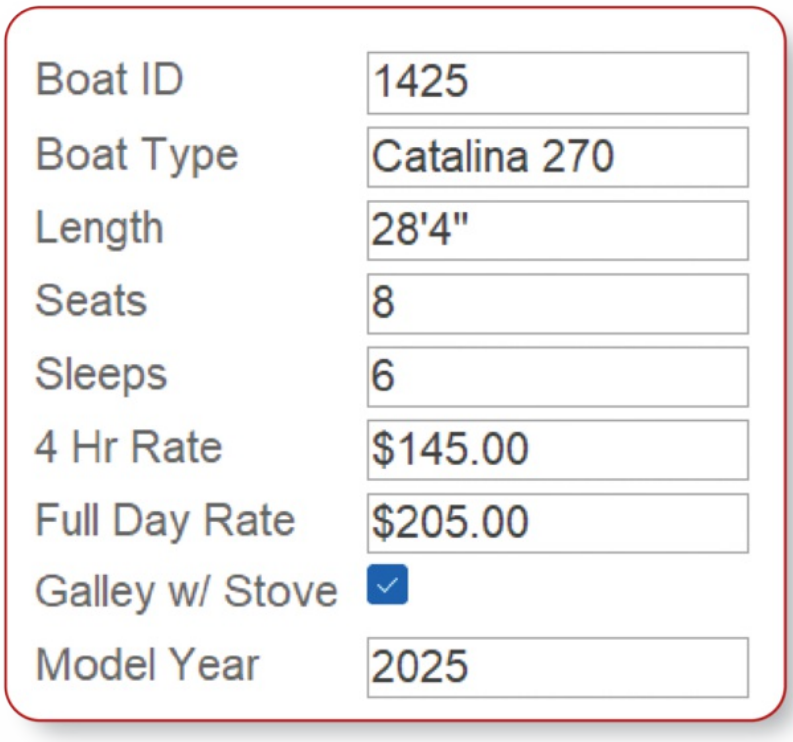


FIGURE 4-141 Sample data

j. Click the **Save Sailboat Record** button.
k. Click the **Add New Sailboat** button. A blank record should display in the form.
l. Click the **Close Form** button.

20. Create a report using the *Report Wizard*.

a. Click the **Report Wizard** button [*Create* tab, *Reports* group] to launch the *Report Wizard*.
b. Click the **Tables/Queries** drop-down arrow and select the **FullDayRentalsByBoatSummary** query.
c. Click the **Move All Fields** button and click **Next**. The next page of the *Report*

Wizard displays the grouping as shown in **Figure 4-142**.

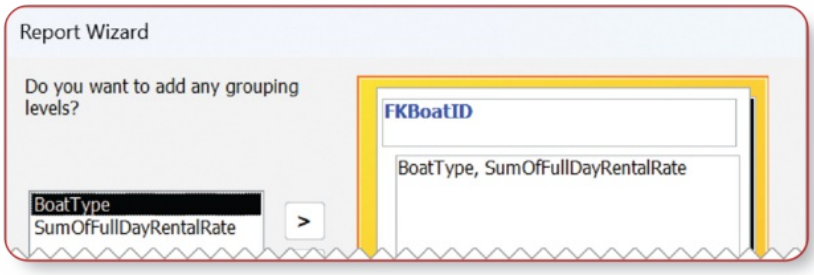


FIGURE 4-142 Suggested data grouping

d. Click the **Next** button to move to the next page of the *Report Wizard*.

e. Do not sort the data. Click the **Next** button to move to the next page of the *Report Wizard*.

f. Select a **Block** layout and **Portrait** orientation. Click **Next**.

g. Click the **Finish** button without making any changes to the suggested title. The report opens in *Print Preview* view (**Figure 4-143**).

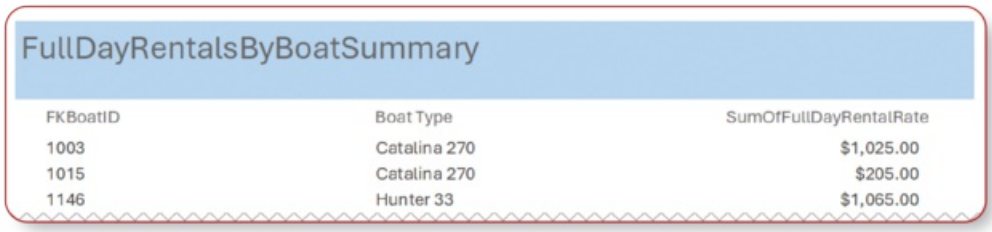


FIGURE 4-143 *Print Preview* view of report

h. Click the **Close Print Preview** button. The report displays in *Design* view.

21. Edit the report labels using *Layout* view.

a. Switch the report to **Layout** view.

b. Click to select the **FullDayRentalsByBoatSummary** label in the *Report Header* section.

c. Click inside the label to open the edit mode.

d. Insert a space between each of the words and add Report as the last word.

e. Click the *Report Header* section outside the label.

f. Edit the labels of the column headers. Change *FKBoatID* to Boat ID and *SumOfFullDayRental Rate* to Total Income from Full Day Rentals.

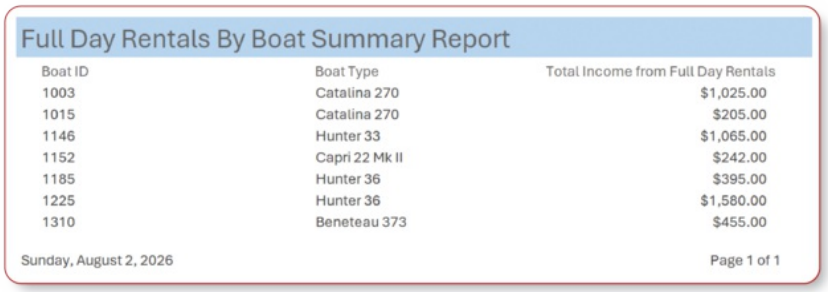
g. Click the **Property Sheet** button [*Report Layout Design* tab, *Tools* group] and click the **Format** tab if necessary.

h. Select the **page number** text box, type 4.2" in the *Left* property and press **Enter**.

i. Click inside the report to deselect the *page number* text box.

j. Save the report.

k. Switch to **Report** view. The report should look similar to **Figure 4-144**.



Full Day Rentals By Boat Summary Report

Boat ID	Boat Type	Total Income from Full Day Rentals
1003	Catalina 270	$1,025.00
1015	Catalina 270	$205.00
1146	Hunter 33	$1,065.00
1152	Capri 22 Mk II	$242.00
1185	Hunter 36	$395.00
1225	Hunter 36	$1,580.00
1310	Beneteau 373	$455.00

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FIGURE 4-144 Completed report in *Report* view

l. Close the report.

22. Close the database.

A4-303

A4-304

A4-305

Guided Project 4-3 - SIMnet Project

Life's Animal Shelter wants to add a report and form to its database. To ensure consistency, the starting file is provided for you. You edit a report that was created based on a query. In *Layout* view, add a title, grouping, and totals. Next, add conditional formatting to the report, preview the results, and adjust print settings. Finally, you create a split form, adjust control positions, and sort the records on the form.

[**Student Learning Outcome 4.1**, **Student Learning Outcome 4.2**, **Student Learning Outcome 4.5**, **Student Learning Outcome 4.6**, **Student Learning Outcome 4.7**, **Student Learning Outcome 4.8**]

File Needed: **LifesAnimalShelter-04.accdb** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Name: ***[your initials] Access 4-3.accdb***

Skills Covered in This Project

- Modify a report in *Layout* view.

- Add grouping and sorting to a report.
- Add conditional formatting to a report.
- Add totals to a report.
- Preview a report.
- Create a split form.
- Adjust control positions.
- Sort records on a form.

---

1. Open the ***LifesAnimalShelter-04*** database from your student data files. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close it.
2. Save the database as [your initials] Access 4-3.
3. Enable content in the database.
4. Right-click the **PetsWithoutMatchingOwner** report and select **Layout View** to open the report in *Layout* view.
5. Change the report to a **landscape** orientation.
   a. Click the **Page Setup** tab.
   b. Click the **Landscape** button [*Page Layout* group].
6. Adjust the width of the report columns
   a. Select a text box in the *Why I'd make a great companion* column.
   b. Press and hold **Shift** and click to select the **Why I'd make a great companion** label.
   c. Press **F4** to open the *Property Sheet* and click the **Format** tab if necessary.
   d. Enter 3.2" in the *Width* property. You must press **Enter** or **Tab** after entering the value so that Access recognizes a changed value.
   e. Enter 7" in the *Left* property.
   f. Select a text box in the *Color* column. Press and hold **Shift** and click to select the **Color** label.
   g. Enter 1.5" in the *Width* property.
   h. Enter 5.4" in the *Left* property.
   i. Set the *Width* property of the *Gender* column and label to .6" and set the *Left* property to 4.7".
   j. Set the *Width* property of the *Age* column and label to .5" and set the *Left* property to 4.1".
   k. Set the *Width* property of the *Breed* column and label to 1.3" and set the *Left* property to 2.6".
   l. Click a text box in the *Breed* column to select only the text box and to deselect

the *Breed* label.

m. Enter .5" in the *Height* property.

n. Set the *Width* property of the *Type* column and label to .7" and set the *Left* property to 1.8".

o. Set the *Width* property of the *Pet Name* column and label to 1" and set the *Left* property to .7".

p. Set the *Width* property of the *Pet ID* column and label to .4" and set the *Left* property to .2". The report should look similar to **Figure 4-145**.



FIGURE 4-145 ***PetsWithoutMatchingOwner* report**

q. Save the report.

7. Edit the header and footer sections.

a. Click the text box containing the *Date*.

b. Enter 7.3" in the *Left* property.

c. Click to select the title label and then click the label again to open the edit mode.

d. Change the label to Pets Available for Adoption.

e. Click outside the label to save the changes.

f. Scroll down to the bottom of the report and select the **page number** text box.

g. Enter 9" in the *Left* property and 11 in the *Font Size* property.

h. Press **F4** to close the *Property Sheet*.

8. Add grouping and sorting to the report.

a. Click the **Group & Sort** button [*Report Layout Design* tab, *Grouping & Totals* group] to open the *Group, Sort, and Total* pane at the bottom of the report.

b. Click **Add a group** in the *Group, Sort, and Total* pane.

c. Select the **Type** field from the *Group on select field* list.

d. Click **More** in the *Group, Sort, and Total* pane.

e. Click the arrow to the right of *do not keep group together on one page* and then select **keep header and first record together on one page** (**Figure 4-146**).

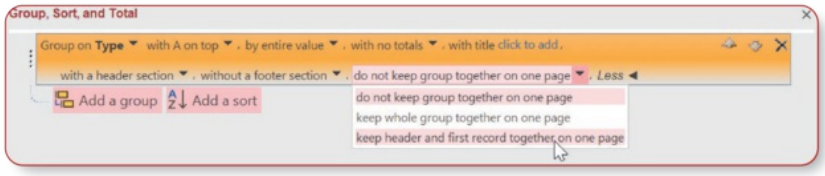


FIGURE 4-146 ***Keep header and first record together on one page* option**

f. Click **Add a sort** in the *Group*, *Sort*, *and Total* pane.

g. Select the **ID** field from the *Sort by select field* list.

h. Close the *Group, Sort, and Total* pane by clicking the **X** in the upper-right corner of the *Group, Sort, and Total* pane. Be careful not to click the *Delete* symbol inside the pane or you remove the group.

i. Scroll to the top of the report. The first record should be for "Tate," *Pet ID* number 8. Because the grouping uses a stepped layout, the word "Cat" appears in the *Type* column on the line above Tate.

9. Add conditional formatting to the report.

a. Click any cell in the *Gender* column.

b. Click the **Conditional Formatting** button [*Format* tab, *Control Formatting* group] to open the *Conditional Formatting Rules Manager* dialog box. *Gender* displays in the *Show formatting rules for* box.

c. Click the **New Rule** button to open the *New Formatting Rule* dialog box.

d. Select the **Check values in the current record or use an expression** rule type in the *Select a rule type* box if necessary.

e. Select **equal to** as the comparison.

f. Type M into the value box.

g. Select **Bold** and choose the **Dark Blue** font color from the *Standard Colors* (fourth column, first row).

h. Click **OK**. The completed rule displays in the *Conditional Formatting Rules Manager* dialog box (**Figure 4-147**).

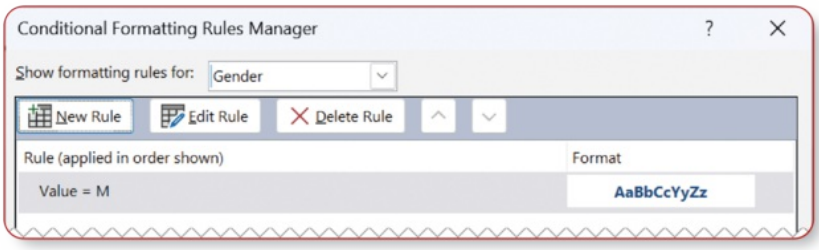


FIGURE 4-147 **Conditional formatting rule**

i. Click **Apply**.

j. Click **OK**.

k. Save the report.

10. Add totals to the report to count how many of each type of pet is available.

a. Select a text box in the **Pet ID** column.

b. Click the **Totals** button [*Report Layout Design* tab, *Grouping & Totals* group].

c. Select **Count Records**. The report updates to show the total at the end of each group and a grand total at the end of the report.

d. Save the report.

11. Preview the report.

a. Click the **View** button drop-down arrow [*Report Layout Design* tab, *Views* group] and select **Print Preview**. The report should look similar to **Figure 4-148**.

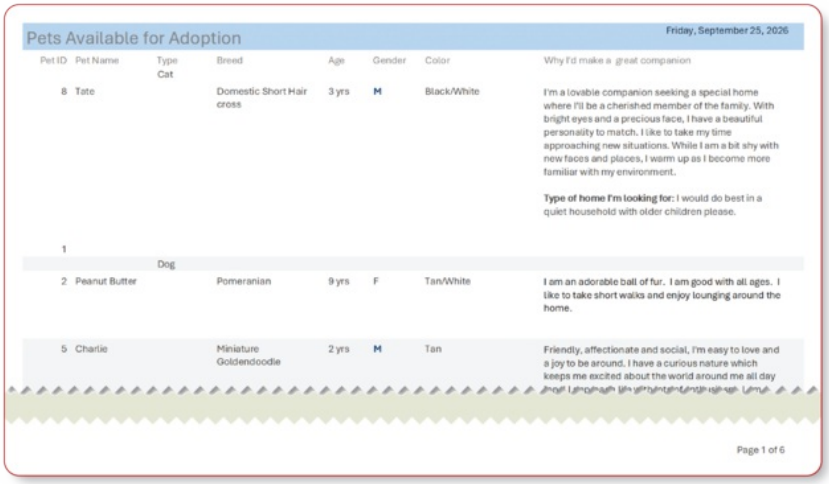


FIGURE 4-148 ***Print Preview*** **of completed report**

b. Click the **One Page** button [*Print Preview* tab, *Zoom* group] if necessary.

c. Use the navigation arrows to move among pages. Notice the value for the total number of each pet type displays in the *Pet ID* column because this is the field used to count records. Also notice that the "M" in the *Gender* column displays in bold, dark blue.

d. Click the **Close Print Preview** button.

12. Close the report.

13. Create a split form and adjust control positions on the form.

a. Click to select the **Owners** table in the *Navigation Pane*.

b. Click the **More Forms** button [*Create* tab, *Forms* group] and select **Split Form** to create a new form. Depending on the width of the Access window, your form may display the fields in two columns in the top half of the form.

c. Click the **Select Layout** button [*Arrange* tab, *Rows & Columns* group].

d. Click the **Control Padding** button [*Arrange* tab, *Position* group].

e. Select **Medium**.

f. Click inside the form to deselect the control layout. The completed form should look similar to **Figure 4-149**.

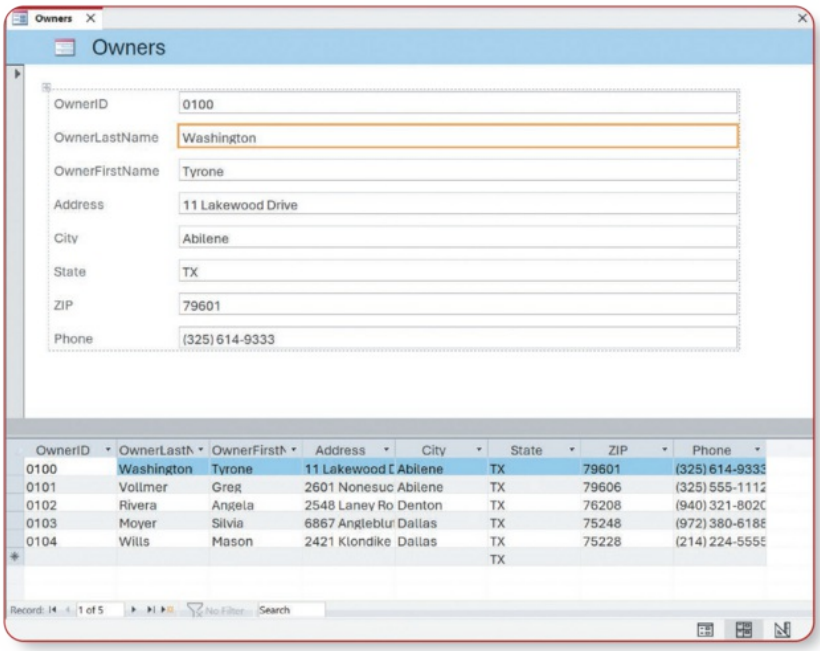


FIGURE 4-149 **Completed split form**

g. Save the form. Accept the suggested form name by clicking **OK**.

14. Sort the records on the form.

a. Press **F4** to open the *Property Sheet* and click the **Data** tab if necessary.

b. Click the **drop-down arrow** in the *Selection* box of the *Property Sheet* and select **Form**.

c. Type [OwnerLastName] in the *Order By* property box and press **Enter**.

d. Select **Yes** in the *Order By On Load* property box if necessary.

e. Close the *Property Sheet*.

f. Save and close the form. This allows the sort action to take effect when the form is next opened.

15. Test the form.

a. Open the form in *Form* view. *OwnerID 0103* should display based on the sort applied.

b. Use the navigation buttons to move among records. Notice that the highlighted record in the lower section updates as you navigate from one record to the next.

c. Close the form.

16. Close the database.

Independent Project 4-4 - SIMnet Project

American River Cycling Club wants to add a report and form to their database. To ensure consistency, the starting file is provided for you. Create a form with the *Form* button. Edit the form in *Layout* view and add a button. Create a report using the *Blank Report* option. In *Layout* view, modify the layout and add a title and grouping. Preview the results.

[**Student Learning Outcome 4.1**, **Student Learning Outcome 4.2**, **Student Learning Outcome 4.3**, **Student Learning Outcome 4.5**, **Student Learning Outcome 4.6**, **Student Learning Outcome 4.8**]

File Needed: **AmericanRiver-04.accdb** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Name: ***[your initials] Access 4-4.accdb***

Skills Covered in This Project

- Create a form using the *Form* button.
- Edit the form in *Layout* view.
- Add the current date to a form.
- Add buttons to a form.
- Set form properties.
- Create a blank report.
- Edit the report in *Layout* view.
- Add grouping to a report.
- Preview a report.

1. Open the ***AmericanRiver-04*** database from your student data files. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close it.
2. Save the database as [your initials] Access 4-4.
3. Enable content in the database.
4. Create a form using the *Form* button.

a. Select the **RaceResults** table and create a new form using the *Form* button. Your form should look similar to **Figure 4-150**, although the layout may be different depending on the size of the Access window when you created the form.

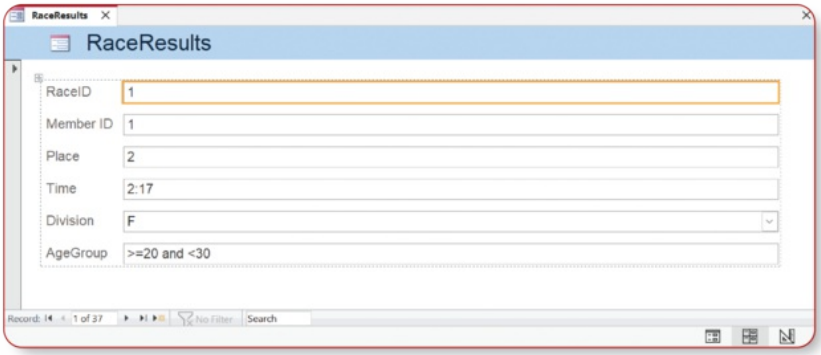


FIGURE 4-150 ***RaceResults* form created with *Form* button**

b. Save the form as ViewRaceResults.

5. Edit the form in *Layout* view.
   a. Open the *Property Sheet*.
   b. Change the *Width* of the *RaceID* text box to be 1". Remember that all the fields in this column change to the new width.
   c. Select all controls in the layout and change the *Font Size* to 10.
   d. Add two rows below the *AgeGroup* field.
   e. Change the *Height* of the bottom row to .4".
   f. Select the **RaceID** label and change the *Top* property to .75" and the *Left* property to 1.25". This moves the control layout down and to the right.
   g. Add the date to the form. Choose the *DD-Mon-YY* format. If necessary, deselect the **Include Time** check box so that only the date is added.
   h. Select the **Auto_Date** text box control in the *Form Header* and change the *Width* of the *Auto_Date* to .8" and the *Left* property to 4".
   i. Change the wording of the *RaceResults* label to read Member Race Results. Be careful to enter a space between each word.
   j. Change the *Width* of the *Auto_Header* label to 2.5". The form should be similar to **Figure 4-151**, although you have not yet added the button.

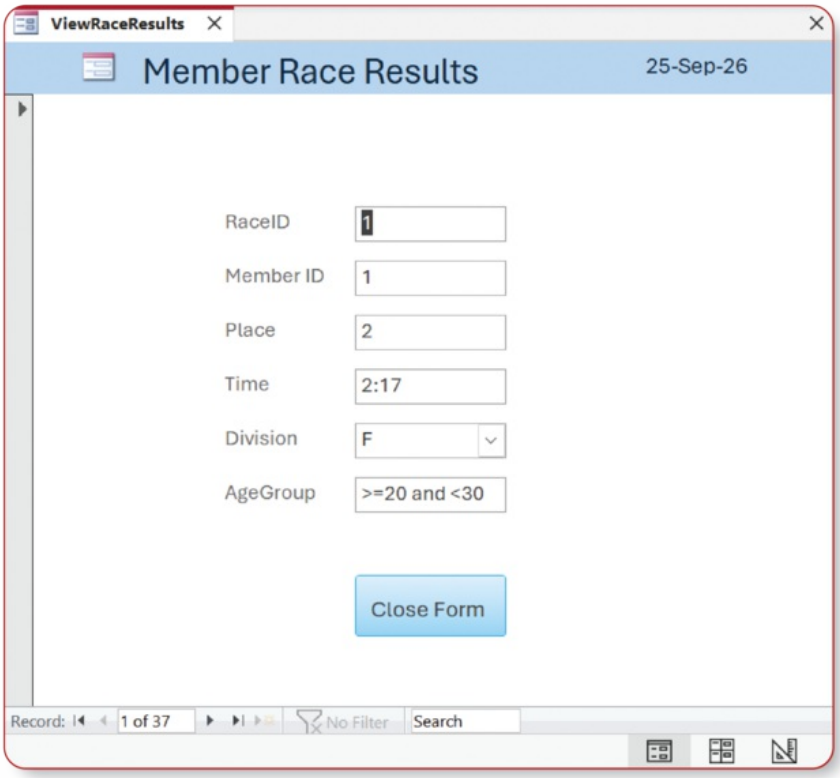


FIGURE 4-151 **Completed *ViewRaceResults* form**

6. Add a button to the form.
   a. Add a command button into the right-most cell in the second added row. The button should close the form [*Form Operations* category].
   b. Choose the **Text** radio button and use the suggested wording.
   c. Save the button as ViewFormCloseButton.
7. Edit the form properties to limit user edits and deletions.
   a. Set the *Data Entry*, *Allow Additions*, *Allow Deletions*, and *Allow Edits* properties to **No** in the *Property Sheet* of the form.
   b. Close the *Property Sheet*.
   c. Save the form.
8. Switch to *Form* view. The completed form should look similar to **Figure 4-151**.
   a. Use the navigation buttons to move among records.
   b. Close the form.
9. Create a report using the *Blank Report* button.
   a. Add all the fields from the *Members* table. The report should look similar to **Figure 4-152**.



FIGURE 4-152 Add fields into a blank report

10. Add grouping into the report.
    a. Group the report on the *City* field.
    b. Save the report as ClubMembers.
    c. Close the *Group, Sort, and Total* pane.
11. Modify the layout of the report.
    a. Select the **Page Setup** tab.
    b. Click **Margins** [*Page Size* group] and select **Normal**.
    c. Change the page layout to **Landscape**. Notice the light gray vertical, dashed line to the left of the cell phone field. This indicates that the cell phone column does not fit on the same page as the other fields.
    d. Change the *Width* of the *Member ID* column to .8".
    e. Change the *Width* of the *First Name* and *Last Name* columns to .9".
    f. Change the *Width* of the *Address* column to 1.7".
    g. Change the *Width* of the *State* and *ZIP* columns to .5".
    h. Change the *Width* of the *Email* column to 2".
    i. Select all of the column labels and apply the **Bold** format, on the *Format* tab, to the labels.
    j. Add a title to the report and enter List of Club Members as the title text.
    k. Apply the **Center** format, on the *Format* tab, to the title.
    l. Change the *Height* of the *Auto_Header* label to .4".
    m. Add page numbers to the bottom of the report. Use the **Page N of M** format and **Center** the alignment.
    n. Close the *Property Sheet*.
12. Save the changes made to the report.
13. View the report in *Print Preview*.
    a. Adjust the zoom to **One Page**. The report should look similar to **Figure 4-153**.



List of Club Members

City	Member ID	First Name	Last Name	Address	State	ZIP	Email	Cell Phone
Auburn								
	3	Ryan	Thomas	2227 Alexandra Drive	CA	95602	rthomas@gmail.com	916-753-5586
	14	Randy	Clemmins	7336 Lester Road	CA	95602	rclemmins@phre.com	916-450-3330
	18	Dean	Teague	2112 Stonebrook Court	CA	95602	teague.dean@sac.rr.com	916-599-2222
Cameron Park								
	7	Melanie	Figueroa	4511 Johnson Court	CA	95682	mfigueroa@phre.com	916-450-3336
	1	Geneva	Lingle	1850 Stoneridge Court	CA	95682	glingle@gmail.com	780-886-6625
Fair Oaks								
	10	Rick	Hermenn	9035 Masi Drive	CA	95628	rickh@gmail.com	916-450-6719
	5	Margaret	Jepson	28861 Newcastle Road	CA	95628	margaret@sac.rr.com	780-862-9851
Folsom								
	2	Megan	Walters	7105 High Street	CA	95630	mwalters@mcc.com	916-451-8325
Lincoln								
	11	Karen	Graves	6003 Ashland Road	CA	95648	kgraves@phre.com	916-450-3892
Rocklin								
	4	Roy	Baxter	705 First Street	CA	95677	roy@centralsierra.com	780-886-2471
	8	Sue	Schooler	4183 Braxton Way	CA	95677	sschooler@gmail.com	780-824-3525
Roseville								
	12	Robyn	Constantini	9581 Magnolia Way	CA	95661	robyn@gmail.com	780-886-2471
	6	Javier	Mendoza	8364 Marshall Street	CA	95661	mendozaj20@hotmail.com	916-450-3329
	13	John	Burgess	85741 Auberry Road	CA	95661	jburgess@hotmail.com	780-886-5862
	15	Amber	Harrison	488 Yale Drive	CA	95661	aharrison24@gmail.com	780-824-1111
	16	Mark	Pohlman	7377 Acorn Glen Loop	CA	95661	mpohlman@hotmail.com	916-541-5339
	17	Marco	Guzman	345 Wildflower Drive	CA	95661	guzmanmark@gmail.com	916-229-5822

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FIGURE 4-153 ***Print Preview*** **of completed report**

b. Close *Print Preview*.

14. Close the report.
15. Close the database.

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A4-310

A4-311

A4-312

Independent Project 4-5

The New York Department of Motor Vehicles wants to add a form and a report to its database so users can more easily view the information about drivers. To ensure consistency, the starting file is provided for you. Create a split form and edit the form in *Layout* view. Next, create a report using the *Blank Report* option. In *Layout* view, modify the layout, add a title, grouping, sorting, and totals. Preview the results.

[Student Learning Outcome 4.1, Student Learning Outcome 4.2, Student Learning Outcome 4.3, Student Learning Outcome 4.5, Student Learning Outcome 4.6, Student Learning Outcome 4.8]

File Needed: ***NewYorkDMV-04.accdb*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Name: ***[your initials] Access 4-5.accdb***

Skills Covered in This Project

- Create a form using the *Form* button.
- Edit a form in *Layout* view.
- Add the current date to a form.
- Move fields within the control layout.
- Test the functionality of a form.
- Create a blank report.
- Edit a report in *Layout* view.
- Add grouping and sorting to a report.
- Add totals to a report.
- Preview a report.

1. Open the ***NewYorkDMV-04*** database from your student data files. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close it.
2. Save the database as [your initials] Access 4-5.
3. Enable content in the database.
4. Create a split form. Recall that when creating a split form, the width of the Access window affects whether the fields are placed in one or two columns. Before creating the form, you adjust the size of the Access window to ensure that the initial layout of the form includes two columns.
   a. Click the **Restore Down** button if necessary so that the Access window is not maximized.
   b. Click the **Create** tab. If needed, reduce the width of the Access window to minimize the extra space to the right of the icons displayed on the *Ribbon*.
   c. Select the **Drivers** table in the *Navigation Pane* and create a split form. Your form should look similar to **Figure 4-154**. If your form does not have two columns, close the form without saving. Adjust the height and width of the Access window to make it a bit smaller and then create the form again.

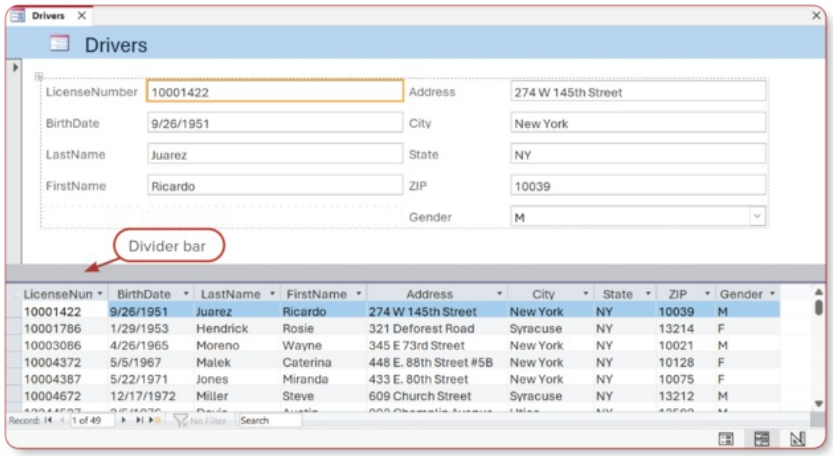


FIGURE 4-154 **Split form based on *Drivers* table**

d. Save the form as DriverInformation.

5. Edit the form in *Layout* view.
   a. Click the **Select All** button in the *Datasheet* portion of the form and then change *Font Size* to 10 on the *Format* tab.
   b. Use the resize arrow to decrease the column width of the *State*, *ZIP*, and *Gender* fields and to increase the width of the *Address* field in the *Datasheet* portion of the form. You can't use the *Property Sheet* to set the width of columns in the *Datasheet* portion of the form.
   c. Change the label for *LicenseNumber* to License# and insert spaces between the words in the labels for *BirthDate*, *LastName*, and *FirstName* in the single record portion of the form.
   d. Add the date and time to the form header. Choose the radio buttons for the long date and time formats.
   e. Enter 5.5" in the *Left* property for the *Date* and the *Time* controls.
6. Move controls within the layout to customize the layout.
   a. Add two rows below the *Gender* field so you have room to move the different fields. If necessary, you can drag the divider bar down to increase the available space in the single record portion of the form.
   b. Add one row above the *License#* field.
   c. Move the *License#* label to the cell in the top row. Don't worry if the height of that row is not yet tall enough.
   d. Move the *License#* text box to the cell below the label.
   e. Continue moving the labels and text boxes so that your fields are placed similar to those in **Figure 4-155**. You may need to move a few labels and text boxes to a temporary location in the layout during this process. Don't worry that the

row heights and column widths may not yet match **Figure 4-155** and that you have several empty rows and columns.

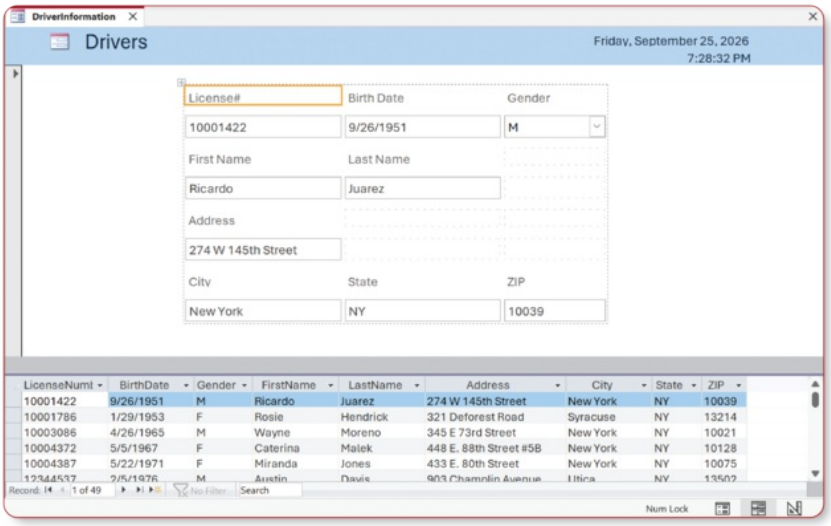


FIGURE 4-155 **Modified *DriverInformation* form**

f. Delete any unused rows and columns in the layout.

g. Select a cell in the left column and change the *Width* to 1.8".

h. Change the *Width* of the middle column to 1.8".

i. Change the *Width* of the right column to 1".

j. Change the *Height* of the rows that contain labels to .2".

k. Change the *Height* of the rows that contain text boxes to .25".

l. Select the **License#** label and change the *Left* property to 1.9". The form should be similar to **Figure 4-155**.

m. Save the form.

7. Switch to *Form* view and practice using a form to add and delete records.

a. Use the navigation buttons to move among records.

b. Use the **New (blank) record** button in the *Navigation* bar to add a new record. Enter the following data values:
LicenseNum#: 39998200
BirthDate: 5/7/2003
Gender: F
FirstName: Tamika
LastName: Lozada
Address: 12846 Sandy Point Drive
City: Utica
State: NY
ZIP: 13502

c. Navigate to the first record.
d. Navigate back to the last record. This should be the record you added.
e. Navigate to the sixth record. This should be Steve Miller's record.
f. Delete the record by clicking the **record selector** in the *Datasheet* portion to select the record, clicking the **Delete** button arrow [*Home* tab, *Records* group] and then selecting **Delete Record**. Click **Yes** in the dialog box to confirm the deletion.
g. Close the form when done.

8. Create a report using the *Blank Report* button. Add all the fields from the *Tickets* table into the report.
9. Modify the layout of the report.
   a. Change the *Width* of the *DLNumber*, *TicketDate*, and *OfficerBadgeNumber* columns to .85".
   b. Change the *Width* of the *PrimaryFactor* column to 2".
   c. Change the *Width* of the *Fine* column to .75".
   d. Modify the *TicketNumber*, *DLNumber*, *TicketDate*, and *PrimaryFactor* column labels by inserting a space between "Ticket" and "Number", "DL" and "Number", "Ticket" and "Date", and "Primary" and "Factor".
   e. Change the *OfficerBadgeNumber* column label to Officer#. The updated report should match **Figure 4-156**.

Report1

Ticket Number	DL Number	Ticket Date	City	Primary Factor	Officer#	Fine
4235879527	12348279	11/13/2025	Buffalo	Improper Cell Phone Use	A00032567	$150.00
4235879530	12346123	11/16/2025	New York	Passing/Lane Violation	A00061444	$150.00
4235879534	12389049	11/22/2025	Utica	Passing/Lane Violation	A00045729	$130.00
4235879759	15500786	11/25/2025	Yonkers	Alcohol	A00057706	$420.00

FIGURE 4-156 **Adjusted column width of report fields**

   f. Add a title to the *Report Header* and enter Ticket Report by City as the title text.
   g. Add page numbers. Use the **Bottom of Page [Footer]** position, **Page N of M** format, and **Center** the alignment.
   h. Save the report as TicketsByCity.
10. Add grouping and sorting to the report.
   a. Group the report on the *City* field.
   b. Sort the report on the *TicketDate* field in *from oldest to newest* order.
   c. Save the report.
11. Add totals to the report.
   a. Select a cell in the *Fine* column and choose to calculate the average dollar value

of the *Fine* field.

b. Scroll to the bottom of the report. Change the *Height* of the *Fine Average* text box for both the group and the overall average to .25".

c. Apply the **bold** format, on the *Format* tab, to the *Fine Average* text box for both the group and the overall average.

d. Save the report.

12. View the report in *Print Preview*.

a. Adjust the zoom to **One Page**.

b. Navigate to the second page of the report. Notice that the Utica group of tickets is spread across two pages. Don't worry if the Syracuse group of tickets is spread across two pages instead of the Utica group. This could be caused by different default settings in Access.

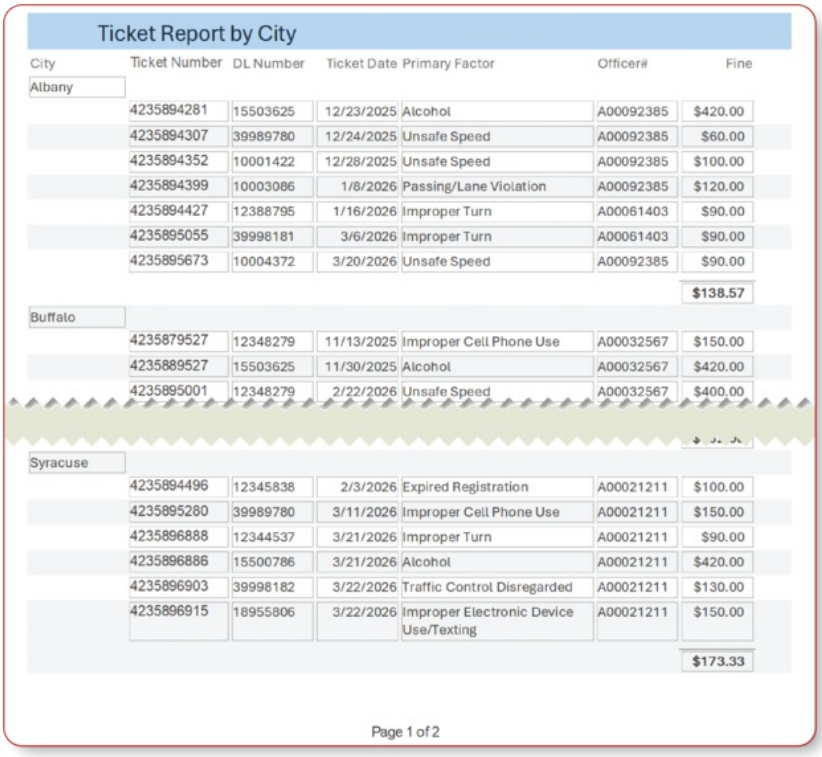
c. Close *Print Preview*.

13. Choose **keep whole group together on one page** for the *Group on City* in the *Group, Sort, and Total* pane.

14. Save the report.

15. Preview the report again.

a. Adjust the zoom to **One Page**. The report should look similar to **Figure 4-157**.



Ticket Report by City

City	Ticket Number	DL Number	Ticket Date	Primary Factor	Officer#	Fine
Albany						
	4235894281	15503625	12/23/2025	Alcohol	A00092385	$420.00
	4235894307	39989780	12/24/2025	Unsafe Speed	A00092385	$60.00
	4235894352	10001422	12/28/2025	Unsafe Speed	A00092385	$100.00
	4235894399	10003086	1/8/2026	Passing/Lane Violation	A00092385	$120.00
	4235894427	12388795	1/16/2026	Improper Turn	A00061403	$90.00
	4235895055	39998181	3/6/2026	Improper Turn	A00061403	$90.00
	4235895673	10004372	3/20/2026	Unsafe Speed	A00092385	$90.00
						$138.57
Buffalo						
	4235879527	12348279	11/13/2025	Improper Cell Phone Use	A00032567	$150.00
	4235889527	15503625	11/30/2025	Alcohol	A00032567	$420.00
	4235895001	12348279	2/22/2026	Unsafe Speed	A00032567	$400.00
Syracuse						
	4235894496	12345838	2/3/2026	Expired Registration	A00021211	$100.00
	4235895280	39989780	3/11/2026	Improper Cell Phone Use	A00021211	$150.00
	4235896888	12344537	3/21/2026	Improper Turn	A00021211	$90.00
	4235896886	15500786	3/21/2026	Alcohol	A00021211	$420.00
	4235896903	39998182	3/22/2026	Traffic Control Disregarded	A00021211	$130.00
	4235896915	18955806	3/22/2026	Improper Electronic Device Use/Texting	A00021211	$150.00
						$173.33

Page 1 of 2

FIGURE 4-157 Completed *TicketsByCity* report

b. Navigate to the second page. Notice that the Utica tickets are all on the second page. If the Syracuse group was spread across two pages in step 12b, then the Syracuse group will now be on the second page.
c. Close *Print Preview*.

16. Close the report.
17. Close the database.

Independent Project 4-6 - SIMnet Project

Courtyard Medical Plaza wants to add a form and a report to its database. To ensure consistency, the starting file is provided for you. Create a blank form and modify the form in *Layout* view. Edit properties to restrict the form to data entry and add buttons. Next, create a report using the *Report Wizard*. In *Layout* view, modify the layout, add sorting, and add conditional formatting. Finally, preview the results.

[**Student Learning Outcome 4.1**, **Student Learning Outcome 4.2**, **Student Learning Outcome 4.3**, **Student Learning Outcome 4.4**, **Student Learning Outcome 4.5**, **Student Learning Outcome 4.6**, **Student Learning Outcome 4.7**, **Student Learning Outcome 4.8**]

File Needed: **CourtyardMedicalPlaza-04.accdb** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Name: ***[your initials] Access 4-6.accdb***

Skills Covered in This Project

- Create a form using the *Form* button.
- Edit a form in *Layout* view.
- Add the current date to a form.
- Move fields within the control layout.
- Restrict a form to data entry.
- Create a report using the *Report Wizard*.
- Edit a report in *Layout* view.
- Add grouping and sorting to a report.

- Add totals to a report.
- Add conditional formatting to a report.
- Preview a report.

---

1. Open the ***CourtyardMedicalPlaza-04*** database from your student data files. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close it.
2. Save the database as [your initials] Access 4-6.
3. Enable content in the database.
4. Create a form using the *Blank Form* button.
   a. Add all the fields from the *Physicians* table in the following order: **DoctorID**, **FirstName**, **LastName**, **PrimarySpecialty**, **OfficeNumber**, and **MoveInDate**.
   b. Close the *Field List*.
   c. Save the form as AddNewPhysician.
5. Edit the form in *Layout* view, add a new column and new rows to the control layout, and modify their size.
   a. Add two rows below the *Tenant Since* row.
   b. Add one column to the right of the existing columns.
   c. Adjust the *Width* of each column to 1.6".
   d. Adjust the *Height* of the last row to .4".
6. Add command buttons, a title, and the date to the form.
   a. Add a button into the bottom row of the left-most column to save a record [*Record Operations Category*].
   b. Change the wording to Save Physician Record.
   c. Name the button AddPhysicianFormSaveButton.
   d. Add a second button into the bottom row of the middle column to add a new record [*Record Operations Category*].
   e. Change the wording to Add New Physician.
   f. Name the button AddPhysicianFormAddButton.
   g. Add a third button into the bottom row of the right most column to close the form [*Form Operations Category*].
   h. Use the existing wording for the button.
   i. Name the button AddPhysicianFormCloseButton.
   j. Select all controls in the layout and change the *Font Size* to 10.
   k. Add a title to the *Form Header*. Edit the title to include spaces between the words.
   l. Enter 2" in the *Width* property for the *Auto_Header* label control.

m. Add the date to the form. Use the *DD-Mon-YY* format. If necessary, deselect the **Include Time** check box so that only the date is added.

n. Enter 1.1" in the *Width* property and 4" in the *Left* property for the *Auto_Date* text box control.

o. Save the changes to the form. The revised form should look similar to **Figure 4-158**.

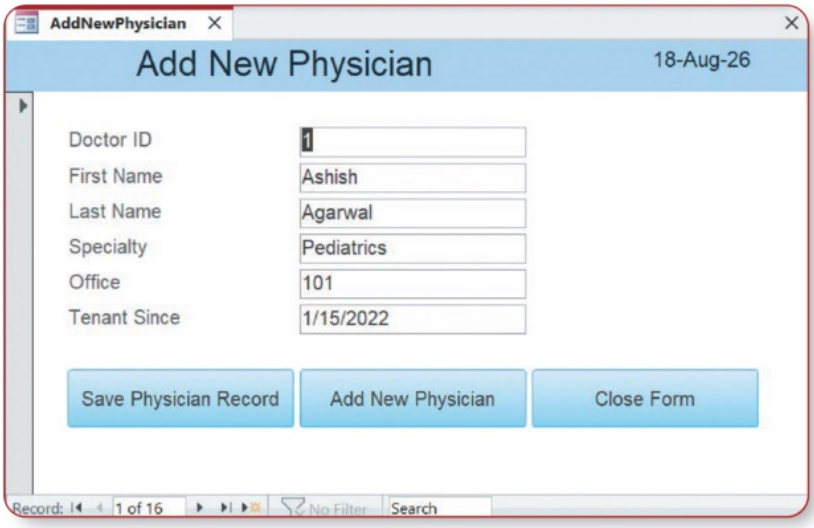


FIGURE 4-158 ***AddNewPhysician*** **form**

7. Restrict the form to data entry.

a. Open the *Property Sheet* for the form if necessary and select the **Data** tab.

b. Click the **drop-down arrow** in the *Selection* box of the *Property Sheet* and select **Form**.

c. Select **Yes** in the *Data Entry* property box.

d. Select **Yes** in the *Allow Additions* property box if necessary. Recall that when both the *Data Entry* and *Allow Additions* properties are set to *Yes*, the values in the *Allow Deletions* and *Allow Edits* properties do not have an impact

e. Save the form.

f. Switch to *Form* view. The form fields are blank except *DoctorID* which displays *(New)*.

g. Click the **Close Form** button to close the form.

8. Create a report using the *Report Wizard*.

a. Launch the *Report Wizard*.

b. Add all the fields from the *RentInvoices* table in the following order: **InvoiceID**, **FKDoctorID**, **InvoiceDate**, **Description**, **DueDate**, **DateReceived**, **AmountDue**, and **Discount**.

c. Accept the suggested grouping by *FKDoctorID* on the second page of the *Report Wizard*.

d. Add summary options on the third page of the *Report Wizard*. In the *Summary Options* dialog box, select the **Sum** of the *AmountDue* field and select the **Detail and Summary** radio button for the *Show* option if necessary (**Figure 4-159**).

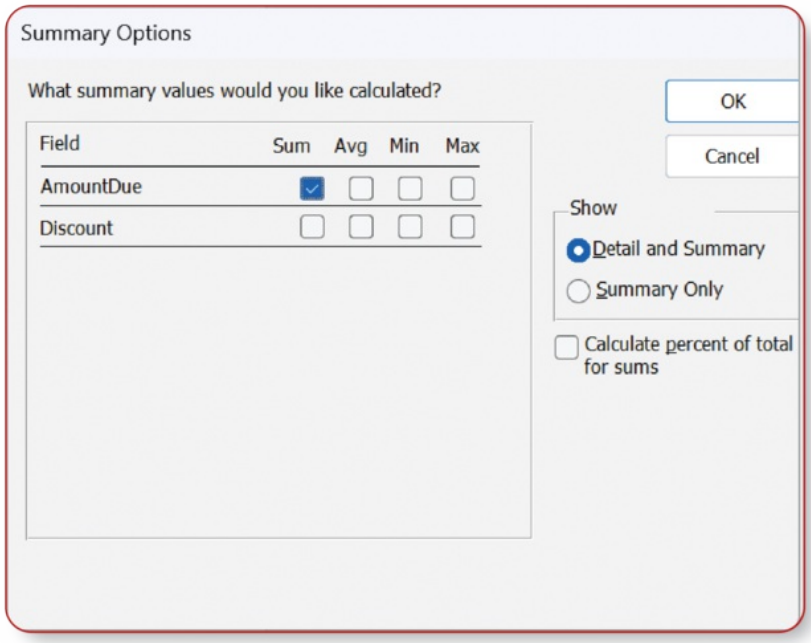


FIGURE 4-159 ***Summary Options*** **dialog box**

e. Choose a **Stepped** layout and **Landscape** orientation and deselect the *Adjust the field width so all fields fit on a page* check box.

f. Click the **Finish** button without making any changes to the suggested title. The preview of the report should look similar to **Figure 4-160**. Don't worry if not all fields are visible, or if some of your fields overlap or display the **#** symbols indicating that the column width is too narrow. You resize the columns in step 9. The wording for the summary line was automatically added using the totals created by the *Report Wizard*.



FIGURE 4-160 ***RentInvoices*** **report created using the** ***Report Wizard***

g. Close *Print Preview*.

9. Edit the report using *Layout* view so that your report matches **Figure 4-161**.



Rent Invoices

Doctor ID	Invoice ID	Invoice Date	Description	Due Date	Date Received	Amount Due	Discount
1							
	1	16-Mar-26	April 2026 Rent (Agarwal & Sharma)	01-Apr-26	3/31/2026	$1,400.00	
	46	14-Aug-26	September 2026 Rent (Agarwal & Sharma)	01-Sep-26		$1,400.00	
	19	14-May-26	June 2026 Rent (Agarwal & Sharma)	01-Jun-26	5/31/2026	$1,400.00	
	28	15-Jun-26	July 2026 Rent (Agarwal & Sharma)	01-Jul-26	7/1/2026	$1,400.00	
	10	15-Apr-26	May 2026 Rent (Agarwal & Sharma)	01-May-26	4/29/2026	$1,400.00	$28.00
	37	16-Jul-26	August 2026 Rent (Agarwal & Sharma)	01-Aug-26	8/1/2026	$1,400.00	
Summary for 'FKDoctorID' = 1 (6 detail records)							
					Sum	$8,400.00	
2							
	38	16-Jul-26	August 2026 Rent (Scher & Dyer)	01-Aug-26	8/1/2026	$1,250.00	
	2	16-Mar-26	April 2026 Rent (Scher & Dyer)	01-Apr-26	4/1/2026	$1,250.00	

FIGURE 4-161 ***RentInvoices*** **report after editing the layout**

a. Switch to *Layout* view and open the *Property Sheet* if necessary.
b. Select both the *FKDoctorID* label and text box and change the *Width* to .6".
c. Change the *Width* of the *InvoiceID* label and text box to .75" and change the *Left* property to 1".
d. Change the *Width* of the *Invoice Date* label and text box to 1" and change the *Left* property to 1.9".
e. Change the *Width* of the *Description* label and text box to 3" and change the *Left* property to 3".
f. Change the *Width* of the *Due Date* label and text box to 1" and change the *Left* property to 6".
g. Change the *Width* of the *DateReceived* label and text box to 1" and change the *Left* property to 7.1".
h. Change the *Width* of the *Amount Due* label and text box to 1" and change the *Left* property to 8.3".
i. Change the *Width* of the *Discount* label and text box to .7" and change the *Left* property to 9.4".
j. Edit the title label and the *InvoiceID* and *DateReceived* field labels by inserting a space between "Rent" and "Invoices", "Invoice" and "ID", and "Date" and "Received".
k. Remove the "FK" from the *FKDoctorID* label and insert a space between "Doctor" and "ID". The updated labels should match **Figure 4-161**.
l. Change the *Width* of the *Sum of AmountDue* text box that displays the total amount due for each doctor to 1" and change the *Left* property to 8.3".
m. Click to select a *Summary for 'FKDoctorID'* text box and change the *Width* to 6"

and the *Height* to .2".

n. Click to select a *Sum* label and change the *Left* property to 7.9".

o. Scroll to the bottom of the report. Change the *Width* of the *AmountDue Grand Total Sum* text box that displays the grand total amount due to 1" and change the *Left* property to 8.3".

p. Click to select the *Grand Total* label and change the *Left* property to 7.4".

q. Scroll to the lower-right corner of the report to find the text box with the page number. Click to select the page number and change the *Width* to 1" and change the Left property to 9.4".

r. Save the report.

s. Switch to *Report* view. Scroll to the top of the report if necessary. The report should look similar to **Figure 4-161**.

t. Switch back to *Layout* view.

10. Add an *oldest* to *newest* sort on the *InvoiceDate* field in the *Group, Sort, and Total* pane.

11. Add conditional formatting to the report so that any *Discount* values that *are greater than or equal to $30* display in a **Bold, green** font with a light green background color. Don't include the **$** symbol when entering the criteria. Choose the **Green 5** font from the *Standard Colors* (seventh column, sixth row) and the **Green 2** background color from the *Standard Colors* (seventh column, third row). Save and apply the formatting rule.

12. Save your changes to the report.

13. View the report in *Print Preview*.

a. Adjust the zoom to **One Page**. The report should look similar to **Figure 4-162**.



FIGURE 4-162 Completed *RentInvoices* report

b. Close *Print Preview*.

14. Save and close the report.
15. Close the database.

Advanced Project 4-7 - SIMnet Project

Mary's Equipment Rentals wants to improve its database. To ensure consistency, the starting file is provided for you. You improve the functionality of a form by editing controls on the form, modifying the layout, sorting records, and limiting edits and deletions. Improve the usability of a report by modifying the layout and adding grouping and sorting. Finally, preview how the report will print.

[Student Learning Outcome 4.2, Student Learning Outcome 4.3, Student Learning Outcome 4.5, Student Learning Outcome 4.6, Student Learning Outcome 4.8]

File Needed: **MarysRentals-04.accdb** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Name: ***[your initials] Access 4-7.accdb***

Skills Covered in This Project

- Edit a form in *Layout* view.
- Add a title and date to a form.
- Move fields within the control layout.
- Set properties to limit user edits and deletions.
- Sort records on a form.
- Test the functionality of a form.
- Edit a report in *Layout* view.
- Add grouping and sorting to a report.
- Preview a report.

1. Open the ***MarysRentals-04*** database from your student data files. If a Security Risk message or active content is blocked dialog box displays, click **OK** or the **X** to close it. If the message repeats in a later step, click **OK** or the **X** to close it.
2. Save the database as [your initials] Access 4-7.
3. Enable content in the database.
4. Edit the *ViewEquipment* form in *Layout* view so that your form matches

Figure 4-163.

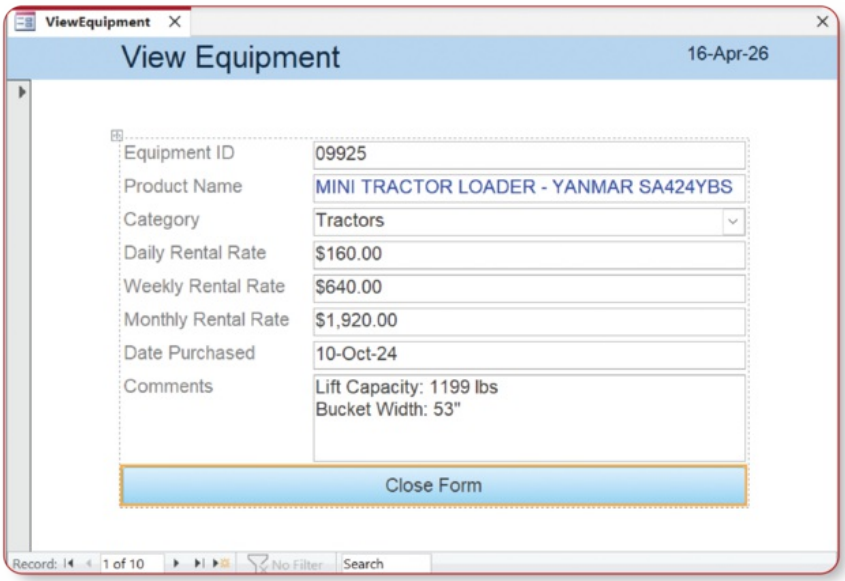


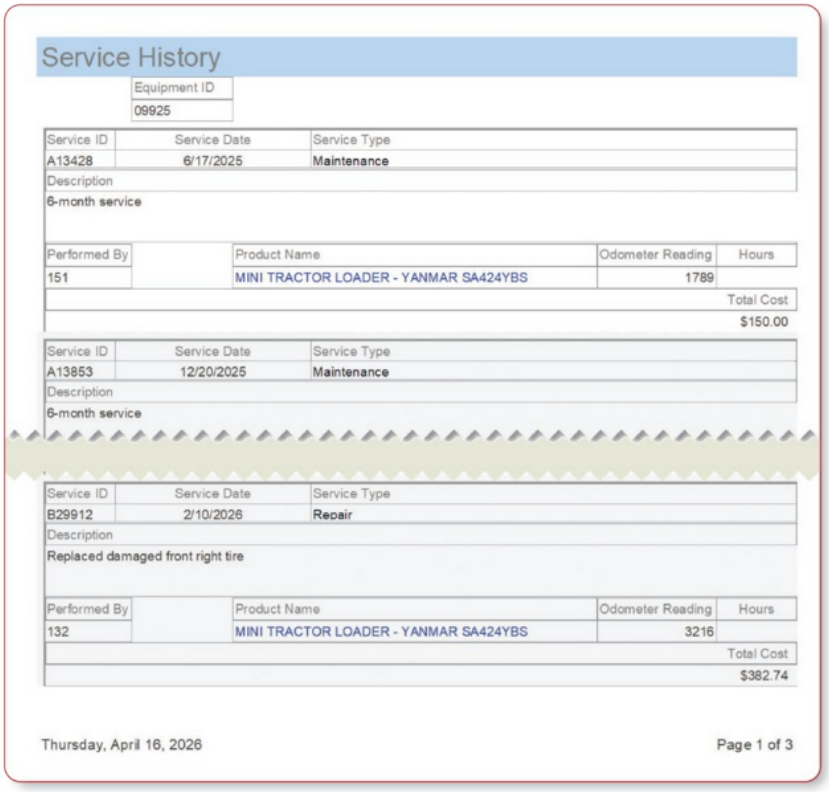
FIGURE 4-163 Completed *ViewEquipment* form

a. Increase the column width of the labels to 1.5" so that the entire caption displays.
b. Edit the label contents to insert blank spaces between the words. For example, change *EquipmentID* to *Equipment ID*.
c. Increase the column width of the text boxes to 3.5" so that the entire contents displays.
d. Add a title to the form. Enter View Equipment as the title text.
e. Add a date to the form with the *DD-Mon-YY* format.
f. Change the *Width* of the *Auto_Date* text box control to 1" and the *Left* property to 5".
g. Change the *Top* property of the *Equipment ID* label to .5" and the *Left* property to .75" to move the control layout down and to the right.
h. Increase the height of the bottom row that contains the button to .3".
i. Edit the misspellings in the button text by changing the button to read **Close Form**.
j. Select both cells in the bottom row and click the **Merge** button [*Arrange* tab, *Merge/Split* group].
k. Save the changes to the form. The revised form should look similar to **Figure 4-163**.

5. Edit the form properties to restrict user additions, edits, and deletions.
6. Sort the records on the form.

a. Edit the form properties to sort the records by the *Category* field and within each *Category* by the *EquipmentID* field. Review the *Order By* property in the "Sort Records on a Form" section in ***SLO 4.2: Creating and Customizing a Form in Layout View*** for help with this task.
b. Close the *Property Sheet*.
c. Save the changes and close the form so that the sorting takes effect.

7. Test the form.
   a. Open the form in *Form* view. The first record should be for *EquipmentID 10015* with a *Category* of *Generators*.
   b. Navigate through the records. The third record switches to the *Hand Tools Category* and is *Equipment ID 10129*.
   c. Try to change the value of one of the fields. That action should be restricted.
   d. Use the *Close Form* button to close the form.
8. Add grouping and sorting into the *ServiceHistory* report.
   a. Open the report in *Layout* view.
   b. Group the report on the *FKEquipmentID* field.
   c. Change to the option to **keep header and first record together on one page**.
   d. Sort the report on the *ServiceDate* field in *oldest to newest* order.
   e. Close the *Group, Sort, and Total* pane.
9. Edit the report in *Layout* view.
   a. Remove the *FK* from the *FKEquipmentID* label and insert a space between "Equipment" and "ID".
   b. Edit the captions in the labels, including the title, to insert spaces between the words.
   c. **Center** the *Service Date* label and text box and the *Hours* label and text box.
   d. **Align Right** the *Total Cost* label.
   e. Change the *Control Margins* to **Narrow** for each of the text boxes and labels related to the equipment and service history. Do not change the *Control Margins* for the title, date or page numbers.
   f. Save the report.
10. View the report in *Print Preview*.
    a. Adjust the zoom to **One Page**. The report should look similar to **Figure 4-164**.



Service History

Equipment ID: 09925

Service ID	Service Date	Service Type
A13428	6/17/2025	Maintenance

Description: 6-month service

Performed By	Product Name	Odometer Reading	Hours
151	MINI TRACTOR LOADER - YANMAR SA424YBS	1789	

Total Cost: $150.00

Service ID	Service Date	Service Type
A13853	12/20/2025	Maintenance

Description: 6-month service

Service ID	Service Date	Service Type
B29912	2/10/2026	Repair

Description: Replaced damaged front right tire

Performed By	Product Name	Odometer Reading	Hours
132	MINI TRACTOR LOADER - YANMAR SA424YBS	3216	

Total Cost: $382.74

Thursday, April 16, 2026 Page 1 of 3

FIGURE 4-164 Completed *ServiceHistory* report

b. Use the navigation buttons to move among the pages. Notice that the first record for each item is on the same page as the header for that item.

c. Close *Print Preview*.

11. Close the report.
12. Close the database.

A4-318

A4-319

A4-320

Copilot Challenge Project 4-8

Use *Copilot* or other generative AI to help you modify the fast-food menu item database used in *Challenge Project 3-8*. Use the *Report Wizard* and *Layout* view to create and modify the report. Use *Report* view and *Print Preview* view to ensure it displays as desired.

Student Learning Outcome 4.4, Student Learning Outcome 4.5,

Student Learning Outcome 4.6, Student Learning Outcome 4.7, Student Learning Outcome 4.8]

File Needed: ***FastFoodNutrition-04.accdb*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Name: ***[your initials] Access 4-8.accdb***

Open the database ***FastFoodNutrition-04*** and save a copy of it as [your initials] Access 4-8. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close it. If the message repeats in a later step, click **OK** or the **X** to close it.

Modify your database according to the following instructions:

- Open *Copilot* and ask it to show some example layouts of a nutritional analysis report for fast-food menu items. You may need to open suggested links to see the examples, or you may need to use follow-up prompts to get more specific details.
- Use those suggestions to decide on the layout of the specific report you will create. Because you have not yet learned to create calculated fields, it is not recommended that you include columns that show the "% Daily Value" information. Instead, you can display the grams, etc.
- Create a report with the *Report Wizard* button to display the report you designed.
  - Add the necessary fields from the *NutritionalAnalysis* query. This query includes a parameter where the user can enter a *Category* choice to limit the results that display.
  - Include the *Category, RegisteredName*, and *ItemName* fields in that order. Additionally include at least five of the nutritional value fields. View the data by *MenuItems*. Do not add any grouping levels or sort any fields in the wizard. You will add them later as you modify the report.
  - Choose a **Tabular** layout and **Landscape** orientation. Delete the "Adjust the field width. . ." check box.
  - Save the report. Change the default name to one that more accurately represents the report information. Finish the wizard.
  - Do not enter anything in the *Enter Parameter Value* dialog box. The report opens in *Print Preview* view. You may not be able to see all of the fields due to the default formatting. Close *Print Preview*.
- Change the font size. Because the report was created with the wizard, it does not initially display the layout selector.
  - Open the report in *Layout* view. Do not enter anything in the *Enter Parameter Value* dialog box.
  - Select the label name and first cell in each column. Remember to hold the **Shift**

key down to select multiple controls. You will need to scroll to the right to see all the fields.
  - Select a **Tabular** layout [*Arrange* tab]. The layout selector is now visible.
  - Change the **Font Size** [*Format* tab] to 10.
  - Save the report.
- Decrease the width of the *Category, Company*, and *ItemName* columns. This is just a first pass at getting the widths smaller so more fields will be visible in the report. You will fine-tune later. Note that in the query, the *RegisteredName* field's *Caption* property contains "Company".
- Add grouping and sorting to the report. Group by the *Category*. And within that by the *RegisteredName*.
- Edit the report in *Layout* view to improve the formatting. Follow the steps below. You may need to move back and forth between steps to obtain your ideal layout. For example, you may not be able to set all the column widths initially without "wrapping" the column headers. You may also need to adjust a few columns at a time to provide space in the report.
  - Adjust column widths as necessary.
  - Apply **Bold** to labels to emphasize them.
  - Edit column header (field name) labels as necessary. Recall in chapter 2 you learned to wrap the text in a column header. Press **Ctrl**+**Enter** at the point where you want the line break to occur. This could be used to have the measurement designation (e.g. *(g)* or *(mg)*) display below the name, or to have "Total", "Fat", and "(g)" each display on a separate line. This allows for a smaller column width, which in turn allows more fields to display on the same page.
  - Center the column header labels.
  - Save and close the report.
- Open the report in *Report* view. Do not enter anything in the *Enter Parameter Value* dialog box. The report displays with all the modifications you made. Close the report.
- Open the report again in *Report* view. Enter a category in the *Enter Parameter Value* dialog box. The report displays only those items in the category.
- Open *Copilot* and ask it to tell you the unhealthy nutritional level per day for each of the fields in your report. Before executing the prompt, include a screenshot of the fields names that also shows the measurement designation in the report. Click the **Open** button (+ sign) in *Copilot* and then select **Screenshot** to include this information. If the *Copilot* options have changed, ask *Copilot* how to upload a screenshot with your prompt. If you didn't get specific values/ranges, rephrase your prompt. You can also click on one of the suggested links to get more information. Use follow-up prompts to get values/ranges for good, acceptable and

unhealthy levels. It is possible that the answers from *Copilot* may be different based on the data sources used to answer each prompt. Don't worry if you didn't get usable answers for all five fields, since you will only use two of them.

- Select two of the nutritional information fields to conditionally format.
  - Build and apply *Conditional Formatting* rules for each of the two fields using the values you obtained. If the value is unhealthy, display it in a bold font with a red *Background color*. If it is acceptable, display it with a yellow *Background color*. If it is good, display it with a green *Background color*.
  - It will be easiest if you build all three rules for one field, before moving to the next field. Remember to pay attention to the order that you list the rules for each field so they execute correctly.
  - Save and close the report.
- Open the report in *Report* view. Do not enter anything in the *Enter Parameter Value* dialog box. Verify that the conditional formatting worked correctly.
- Edit the default title to better describe the report contents.
- Scroll to the lower-right corner of the report to find the text box with the page number. Decrease the width of the text box and move the page number to the left so it aligns under the right-most nutritional value field.
- Save the report.
- View the report in *Print Preview*. Make any needed changes to ensure that it will print as desired. Save the report if you made any changes.
- Close the database.

Challenge Project 4-9

Modify the database you created in *Challenge Project 3-9* for Blue Lake Sporting Goods. Your database contains a table with information about the different departments at Blue Lake Sporting Goods and a related table with information about the interns who are working at Blue Lake, along with the query you created. Create a form for the *Department* table and a report for the *Intern* table.

[Student Learning Outcome 4.2, Student Learning Outcome 4.3, Student Learning Outcome 4.5, Student Learning Outcome 4.6, Student Learning Outcome 4.7, Student Learning Outcome 4.8]

File Needed: ***[your initials] Access 3-9.accdb***

Completed Project File Name: ***[your initials] Access 4-9.accdb***

Open the database ***[your initials] Access 3-9*** and save a copy of it as [your initials] Access 4-9.

Modify your database according to the following instructions:

- Create a form for the *Department* table using the *Blank Form* button.
- Add all the fields to the form.
- Adjust the column widths as necessary so they are sized appropriately.
- Add a title to the form.
- Add a button to the form to close the form.
- Sort the form by the *Division* field.
- Save the form and view it in *Form* view to ensure it works as desired.
- Create a report using the *Blank Report* tool to show all the fields in the *Intern* table.
- Adjust the column widths as necessary so they are sized appropriately.
- Group the report on the *FKDepartmentName* field.
- Sort the records by intern *LastName*.
- Add totals to count the total number of interns in each department.
- Add conditional formatting to the *University* field. Apply a different font color for each of the university values contained in the database. You need to add several rules for the *University* field (one for each value).
- Edit the title of the report to indicate the contents.
- Save the report.
- View the report in *Print Preview* and adjust the orientation and margins as necessary.
- Save any changes that you made.
- Close any open objects and the database.

Challenge Project 4-10

Modify the database you created in *Challenge Project 3-10* for a travel agency. Your database contains a table with information about the different ships and a related table with information about upcoming cruises, along with the queries you added. Add a form to allow new ships to be added into the database. Add a report to display trip information, grouped by number of days. Modify both the form and report to improve the overall functionality.

[Student Learning Outcome 4.2, Student Learning Outcome 4.3,

Student Learning Outcome 4.4, Student Learning Outcome 4.5, Student Learning Outcome 4.6, Student Learning Outcome 4.8]

File Needed: ***[your initials] Access 3-10.accdb***

Completed Project File Name: ***[your initials] Access 4-10.accdb***

Open the database ***[your initials] Access 3-10*** and save a copy of it as [your initials] Access 4-10.

Modify your database according to the following instructions:

- Create a form for the *Ships* table using the *Blank Form* button.
- Add all the fields to the form.
- Adjust the column widths as necessary so they are sized appropriately.
- Add a title to the form.
- Change the form properties to restrict the form to data entry.
- Add three buttons to the form: Save a Record, Add New Record, and Close the Form.
- Save the form and view it in *Form* view to ensure it works as desired.
- Create a report using the *Report Wizard* to show all the fields in the *Trips* table.
- Group the report on the *NumberOfDays* field.
- Sort the records by cost per person.
- Add totals to calculate the average cost per person.
- Adjust the column widths as necessary so they are sized appropriately.
- Edit the title of the report to indicate the contents.
- Save the report.
- View the report in *Print Preview* and adjust the orientation and margins as necessary.
- Save any changes that you made.
- Close any open objects and the database.

Source of screenshots Microsoft Office 365 (2024): Word, Excel, Access, PowerPoint.

CHAPTER 5
Templates, Advanced Relationships, and Macros

CHAPTER OVERVIEW

Now that you have learned the basics of Access, you are ready to learn the skills to create more sophisticated databases. This chapter introduces three important skills. First, you learn more about creating and modifying databases based on Access templates. Next, you learn additional skills used to create table relationships, including how to create a many-to-many relationship. Finally, you learn how to create and use macros that improve the user-friendliness and functionality of your database.

STUDENT LEARNING OUTCOMES (SLOs)

After completing this chapter, you will be able to:

- **SLO 5.1** Analyze, create, use, and modify a database from an Access template; create a table from a template with *Application Parts;* and save a database as a template (p. A5-324).
- **SLO 5.2** Create a relationship with the *Lookup Wizard;* edit a relationship; edit properties of a lookup field; delete relationships created with a lookup field; and use a lookup with multiple fields (p. A5-333).
- **SLO 5.3** Implement a many-to-many relationship and explore join properties between tables (p. A5-338).
- **SLO 5.4** Describe a macro and use the *Macro Builder* (p. A5-346).
- **SLO 5.5** Build a stand-alone macro, build an embedded macro, and edit and delete user interface macros (p. A5-351).
- **SLO 5.6** Build an event-driven data macro, build a named data macro, and edit and delete data macros (p. A5-360).
- **SLO 5.7** Build more advanced macros by adding conditions, build a submacro, integrate parameters, test and debug a macro, and explore how to convert macros into *Visual Basic for Applications (VBA)* modules (p. A5-366).

CASE STUDY

As you progress through the Pause & Practice projects in this chapter, you will build a database from a template, implement many-to-many relationships, build user interface macros, and build data macros.

Pause & Practice 5-1: Create a database using a template, and explore and modify the database objects.

Pause & Practice 5-2: Create and edit a many-to-many relationship. Build the junction table,

use the *Lookup Wizard* to create relationships, edit the relationship, and enter data into the junction table.

Pause & Practice 5-3: Build and test a stand-alone and an embedded user interface macro.

Pause & Practice 5-4: Build and test event-driven and named data macros.

SLO 5.1

Using Access Templates and Application Parts

Recall from **chapter 1** that a ***template*** is a predesigned database that contains various pre-built objects. A template provides you with a complete, ready-to-use, database application. After creating a database that is based on a template, use the template database directly or customize the database to better meet your needs. If your needs are addressed in a template, it can be a great starting point. In this section, you also learn to create a table from a template with *Application Parts* and to save a database as a template.

Access Templates

You can choose from several templates that are included with Access. If you have created and saved your own templates, they are available under the *Personal* selection. Additionally, other templates are available on **Office.com**. The databases that you build in this book, whether from a blank database or a template, are known as desktop databases.

Previous editions of Access included templates designed to work on the web with a ***SharePoint*** server running *Access Services.* However, Microsoft no longer recommends this approach. Instead, to create a database used in a standard web browser, Microsoft recommends using *Microsoft PowerApps.*

MORE INFO

Use the *Access Help System* to learn more about creating and using *Microsoft PowerApps.*

Five of the more popular desktop database templates are described in **Table 5-1**. These templates all include a *Welcome* form with a help video about using the database.

Table 5-1: Access Templates

Template Name	Description	Contents
Event management	Used to track information about upcoming events.	The database contains three tables, one query, four forms, five reports,

		and three macros.
Asset tracking	Used to track assets within an organization, such as computers or office equipment.	The database contains four tables, three queries, seven forms, eight reports, two macros, and one module.
Contacts	Used to track information about people, such as team members, customers, vendors, etc.	The database contains two tables, one query, three forms, two reports, two macros, and one module.
Students	Used to track information about the students at a school, including details about their guardians.	The database contains six tables, five queries, eight forms, eleven reports, three macros, and one module.
Task management	Used to track information about work tasks your team needs to complete.	The database contains four tables, six queries, seven forms, nine reports, two macros, and one module.

You will find it very helpful to create sample databases based on several of these templates. This enables you to explore the range of functionality available in Access. By doing so, you will be able to see custom menus, different form and report designs, and how all of the Access objects work together.

Create a Database from a Desktop Database Template

If you have found a template that is appropriate for your needs, you create a new database that is based on that template.

HOW TO: Create a New Database Using a Template

1. Open Access to display the *Start* page and click the **New** button or the **More templates** link to display the thumbnails of sample templates (**Figure 5-1**).

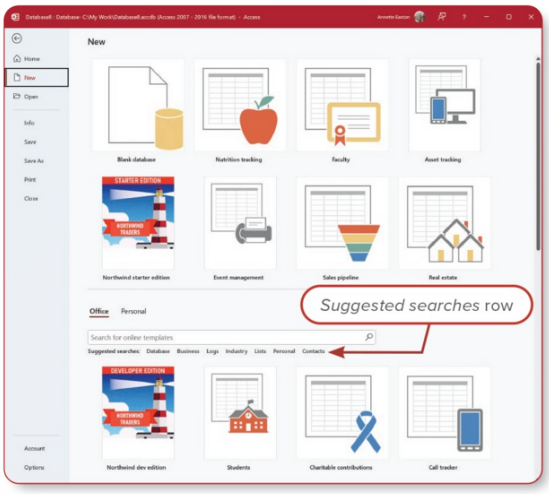


FIGURE 5-1 **Create a new database from a template**

- If Access is already open, click the **New** button [*File* tab].
- The templates may display in a different order based on the most recently selected template.

2. Select the **template** you wish to use, or to select a template you have created and saved, click the **Personal** link before selecting the template. A new dialog box displays where you can enter information about the database name and location (**Figure 5-2**).

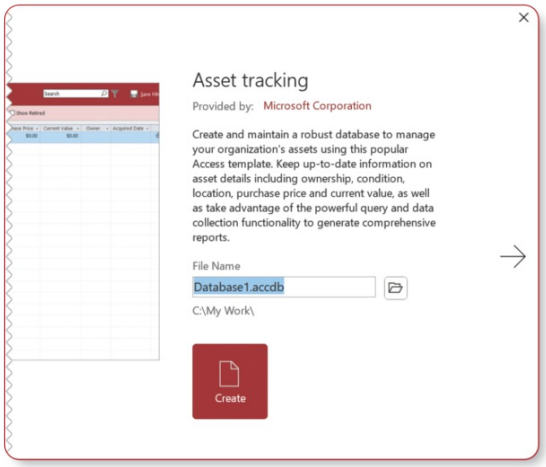


FIGURE 5-2 **Enter new database file name and location**

ANOTHER WAY

If the desktop database templates do not display in the template listing, either click a keyword in the *Suggested searches* row or enter the key words in the *Search for online templates* box and click the **magnify** icon. Select the desired template from the available options. Use *Search* to find alternate templates available on **Office.com**.

3. Type the file name in the *File Name* box.
4. Click the **Browse for a location to put your database** button and select a location on your computer or USB drive to save the database.
5. Click the **OK** button to close the *File New Database* dialog box.
6. Click the **Create** button.
   - The new database opens.
   - A *Welcome* form may display based on the template selected. Click the **Get Started** button on the *Welcome* form.
7. Enable content in the database.

Use and Modify a Template-based Database

After creating a database based on a template, you will want to open the database to fully explore the different components and see how it functions. Be sure to look at all of the features built into the database. To help you learn what to look for within a template-based database, this section includes examples from a sample database built using the *Asset tracking* template.

Explore the Database Functionality

When a new database is created from the *Asset tracking* template, the *Asset List* form (**Figure 5-3**) opens automatically.

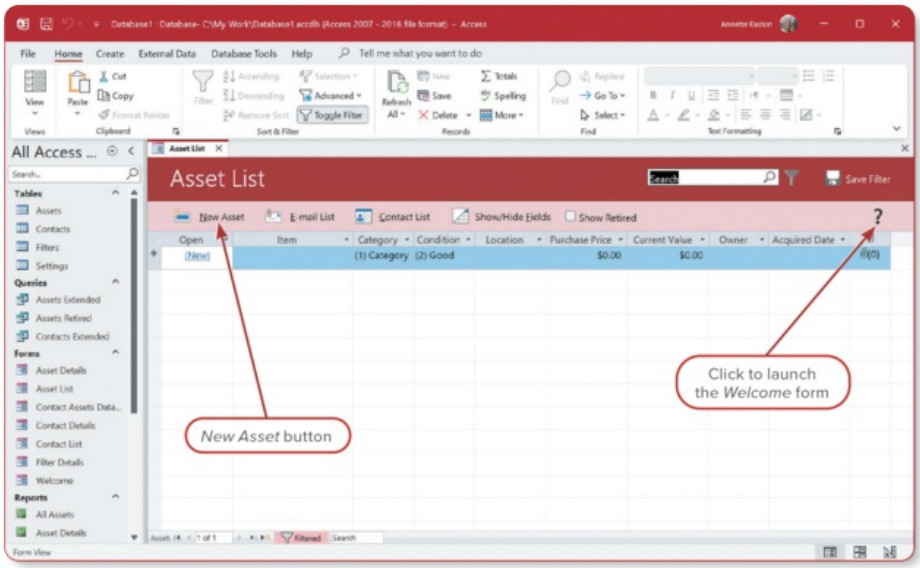


FIGURE 5-3 ***Asset List*** **form in a database created from the** ***Asset tracking*** **template**

Depending on the width of the Access window, the form may be covered by the template's *Welcome* form (**Figure 5-4**), which also opens automatically. The *Welcome* form contains a video on how to use the *Assets* database. When you are using templates, take advantage of any videos and other help resources. These resources will help you to make the best use of your database. Close the *Welcome* form when you are done. To reopen the *Welcome* form later, either double-click the form in the *Navigation Pane* or click the **question mark** icon on the *Asset List* form. If the *Show Welcome when this database is opened* check box is selected, the *Welcome* form opens automatically any time the database is opened or when you click to enable the content in the database.

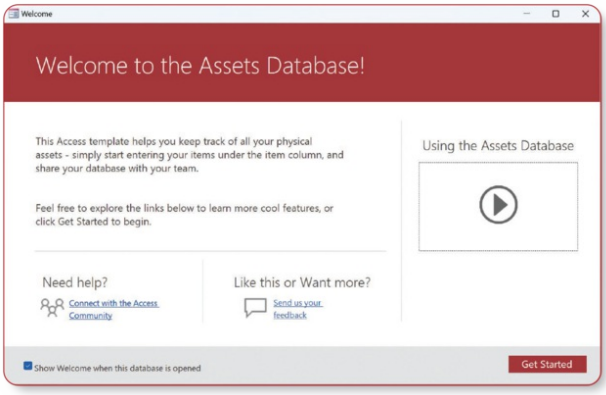


FIGURE 5-4 ***Welcome*** **form**

On the *Asset List* form, note that the details of each current asset display in datasheet view. Currently, no records appear because your database does not have any existing data to display.

Notice the *Search* box that enables you to easily find different records.

Near the top of the *Asset List* form, a rose-colored bar contains buttons that indicate the functions available in the database. To explore the functionality of the database, click each of the buttons on the *Asset List* form.

MORE INFO

This template has set button properties so the buttons blend in with the form instead of having a different border color, and also so the pointer changes to a hand pointer and *ScreenTip* text displays when the user hovers over a button.

Click the **New Asset** button to open the *Asset Details* form shown in Figure 5-5. The *Asset Details* form is a user-friendly interface used to add records into the database.

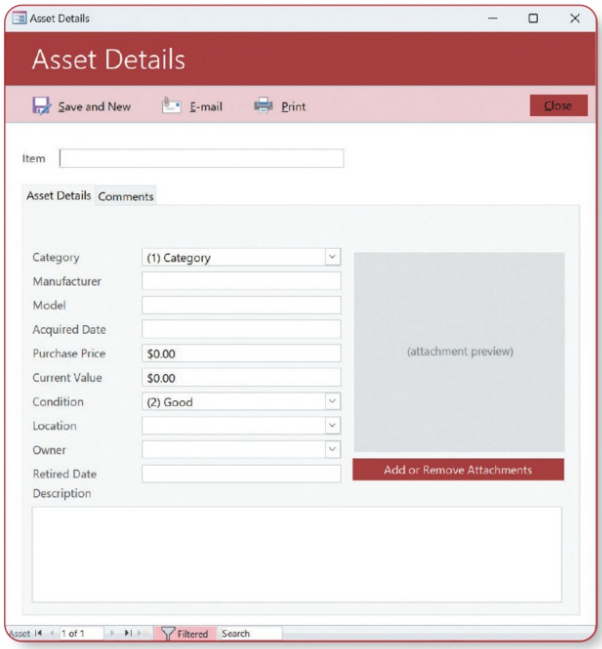


FIGURE 5-5 Use the *Asset Details* form to add new records into the database

Continue exploring the other forms and reports so you are comfortable with them, and you understand the different functions available in the database. Close the forms and reports you open after reviewing them.

At this point, you are ready to look at the objects used inside the database.

Explore the Navigation Pane, Objects, and Relationships

Many templates open with the *Navigation Pane* closed. Often, this is because the needed functionality has been incorporated into the menu/navigation that is built into the forms. However, to analyze the database design, it may be necessary to view the contents of the *Navigation Pane.* If the *Navigation Pane* is closed, click the **Shutter Bar Open/Close** button to view the contents.

The *Navigation Pane* should match **Figure 5-6**. You are already familiar with how the *Navigation Pane* groups objects (see "The Access Interface" section in ***SLO 1.1: Understanding Database Concepts***). Remember that your *Navigation Pane* may be narrower or wider and that you can adjust the width as desired.

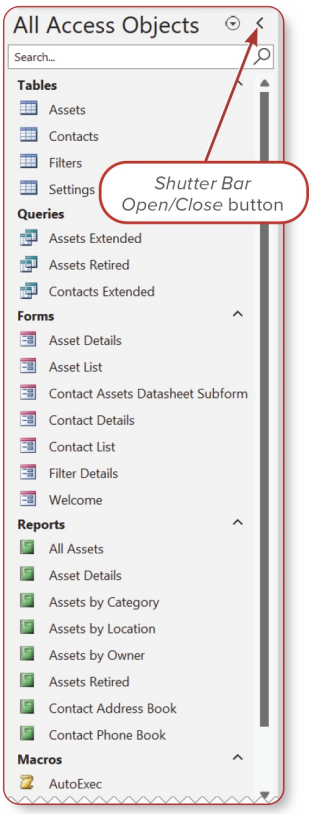


FIGURE 5-6
Navigation Pane

Some of the templates have a customized *Navigation Pane* that shows the database user only certain objects in the database. This is usually so a user doesn't accidentally delete or modify objects within the database. Depending on the template design, the customized *Navigation Pane* may automatically display when the database opens, while other times you may need to select it from the *Navigation* menu. The *Asset tracking* template contains a customized *Navigation Pane,* but it does not automatically display.

Recall from chapter 1 that you can use the *Navigation* menu to change what displays in the *Navigation Pane.* To switch to the customized *Navigation Pane,* click the **Navigation Pane** arrow to open the *Navigation* menu and select the **Assets Navigation** category (Figure 5-7). The *Navigation Pane* updates to show the customized *Navigation Pane* (Figure 5-8) which contains custom groups, such as *Assets, Contacts, Supporting Objects,* and *Unassigned Objects.* Notice that the *Filters* and *Settings* table are not available in the customized pane because the database user doesn't need to use them. To return to the original view, open the *Navigation* menu again and select the **Object Type** category.

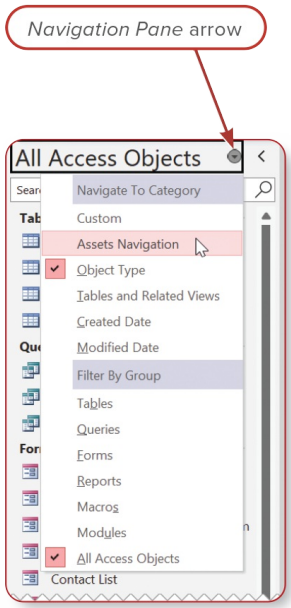


FIGURE 5-7
***Navigation* menu**

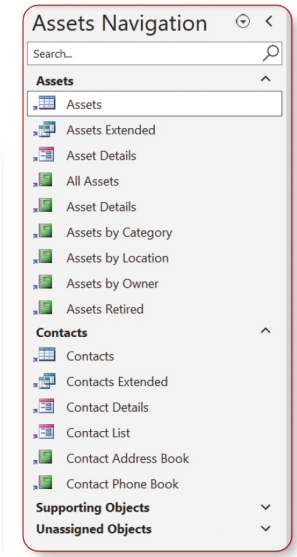


FIGURE 5-8

Open and view the design properties of the different tables, queries, forms, and reports. You may find objects in a template database with features that are more advanced than you learned in the first four chapters of the book. When you encounter features you don't know, use the Access help feature to learn more about the objects.

Additionally, it is a good idea to review the relationships that exist in the template database to see which tables are related. You should also look at the details of each relationship to determine whether referential integrity is being enforced and whether any of the cascade options have been selected. See ***SLO 2.6: Understanding and Designing Relational Databases*** for a review of these skills.

Modify the Database

Once you have reviewed the functionality and design properties of the database objects, you are ready to make modifications. Follow the steps you already learned in **chapter 1** through **chapter 4** about modifying the different database objects.

It is important to recognize the dependencies that different database objects have on each other, and how changes made to one object may affect another. For example, a text box on a form can be linked, or bound, to a field in a table. If you delete the field from the table, the text box remains on the form; however, the link to the table field becomes invalid. When the form displays, an error message now appears in the text box. To fix the problem, you need to modify the form and remove that text box. Remember that, as you make modifications to a database, you must fully inspect and test all of the objects to ensure the changes have not caused other objects or controls to no longer work correctly.

You may wish to make modifications that require skills that are covered in the remaining chapters of this book. Additionally, you may find objects in a template that include more advanced features than will be covered in this book. Use the options on the Access *Help* tab or consult with someone who has advanced knowledge of those features.

COPILOT/GENERATIVE AI BEST PRACTICES

Copilot can be a great resource for additional help with templates. Ask *Copilot* how to customize an Access database template. Alternatively, ask it to identify some common mistakes to avoid when customizing templates. You can also ask it about the limitations of using templates in Access or to recommend a template for a certain task, e.g. project

management.

Create a Table from a Template with Application Parts

In addition to templates to create an entire database, Access has *Application Parts* to add into an existing database. These *Application Parts* can be used to create a table from a template. This is beneficial to quickly building your database if these predesigned tables match your needs. In ***SLO 4.2: Creating and Customizing a Form in Layout View,*** you learned how to create a form from a template with *Application Parts.* The process to create a new table is similar. The *Quick Start* group in the *Application Parts* gallery displays the available template options available to create a new table. If you have created your own *Application Parts,* they display in the *User Templates* grouping.

Place your pointer over an option in the gallery to view a *ScreenTip* with information about the application part (**Figure 5-9**). The *Comments* table option adds a table with three fields: *ID, Comment Date,* and *Comment.* The four other *Quick Start* options each contain one table along with several related queries, forms, and/or reports.

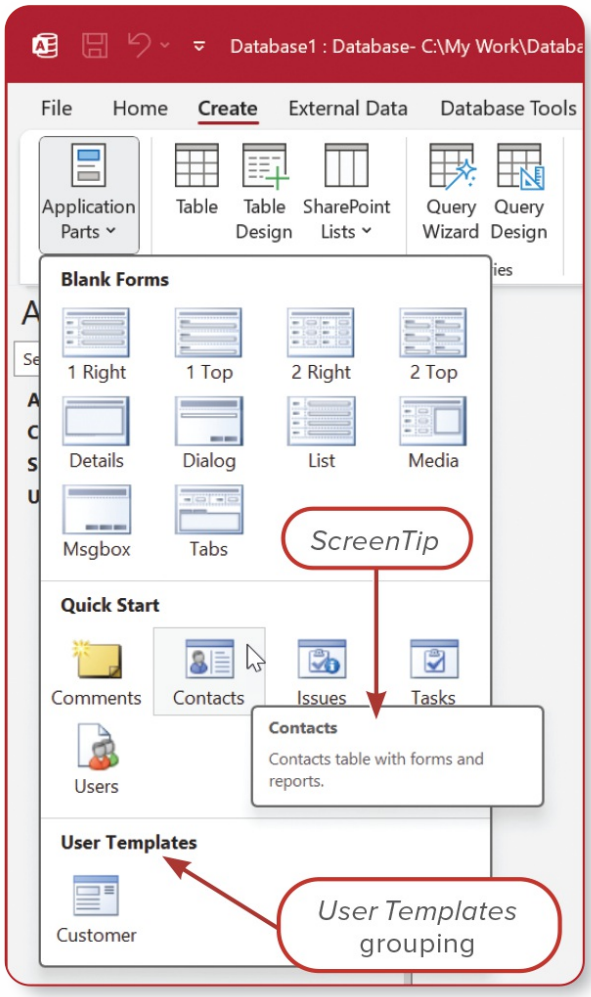


FIGURE 5-9 Create a table from an *Application Part*

HOW TO: Create a Table from a Template with Application Parts

1. Close any open objects.
2. Click the **Application Parts** button [*Create* tab, *Templates* group] to display the *Application Parts* gallery.
3. Select the desired *Quick Start* option.
   - If your database already contains tables, the *Create Relationship* wizard may start. This wizard prompts you to relate the new table to an existing table. Complete the wizard as necessary.
   - Access creates the table and assigns it a default name.
   - If the *Quick Start* option included additional objects, they are created and

assigned default names.

- The table and any associated objects do not automatically open but display in the *Navigation Pane*.

After the table and associated objects have been added to your database, use the techniques you have learned to modify the design of the objects. After you have finalized any changes to the table design, you can begin to add data to the table.

Save a Database as a Template

You may have created a database structure that you want to reuse in the future. After you are finished building your database, save it as a template so that you, or others, can create a new database based on your template. You decide whether to include the data records when saving the template. Some database designers recommend including at least a few sample data records so that future users can see how the forms and reports appear with data. You also decide whether to make the template available in the *Application Parts* gallery. This enables users to add the database parts into an existing database they have created instead of having to create a new database from the template.

A5-330

HOW TO: Save a Database as a Template with Application Parts

1. Click the **File** tab to open the *Backstage* view.
2. Click the **Save As** button, select **Template** in the *Database File Types* grouping of the *Save Database As* section (**Figure 5-10**), and click the **Save As** button. The *Create New Template from This Database* dialog box opens (**Figure 5-11**).

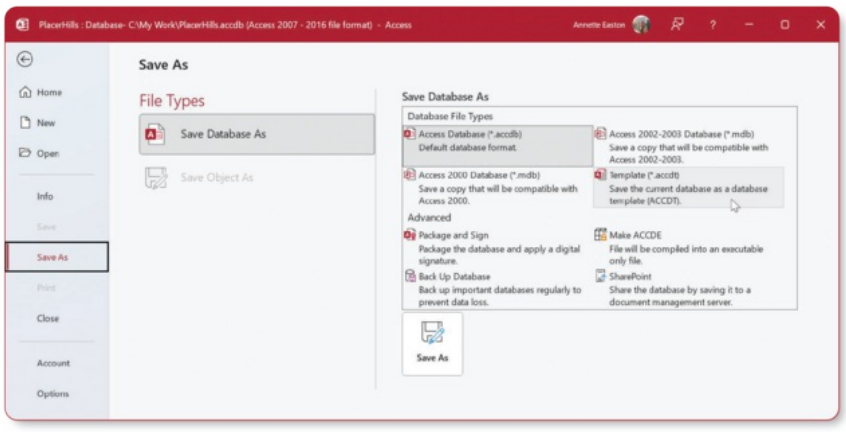


FIGURE 5-10 Save a database as a template

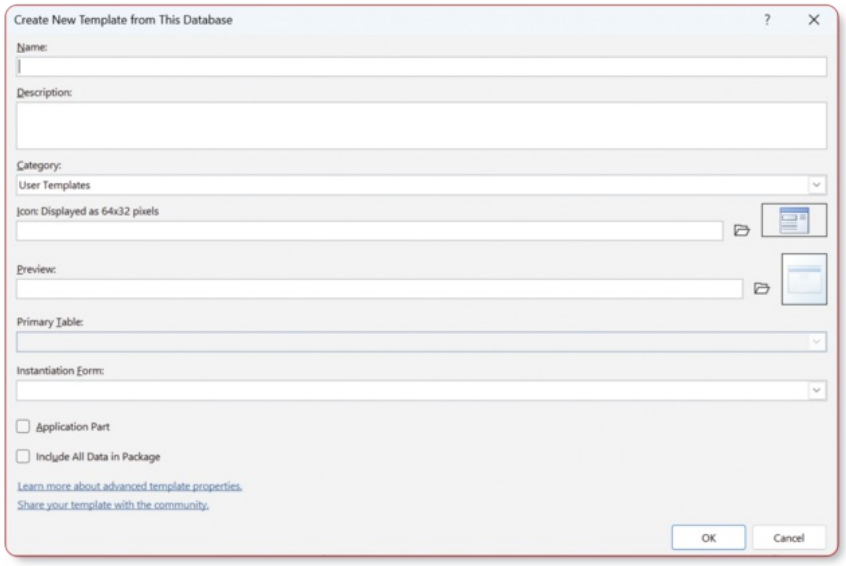


FIGURE 5-11 ***Create New Template from This Database*** **dialog box**

- Complete the *Name* and any other desired fields on the dialog box and click **OK** when done.
- Access stores the database template in your user profile \AppData\Roaming\Microsoft\Templates\Access. Template files are stored with an extension of .accdt.
- Access displays a dialog box indicating the template has been created. Click **OK** to acknowledge the message.

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The saved template is now available when you create a new database. Click the **Personal** link (see **Figure 5-1**) to view your templates. If you checked the *Application Part* box when creating the template, the saved template is now available in the *Application Parts* gallery in the *User Templates* group.

A5-332

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PAUSE & PRACTICE: ACCESS 5-1

For this Pause & Practice, you create a database using the *Contacts* template. You then explore the database functionality and modify database objects.

File Needed: ***Contacts.accdt*** (from online templates) or ***ContactsTemplate-05.accdb*** *(Student data files are*

available in the Library *of your SIMnet account.)*

Completed Project File Name: ***[your initials] PP A5-1.accdb***

1. Create a new database based on a template.
   a. Open Access and click **More templates**, or click the **New** button [*File* tab] if an Access database is already open.
   b. Select the **Contacts** template. If the *Contacts* template is not displayed, click **Database** in the *Suggested searches* row and select the **Contacts** template. A new dialog box displays where you enter information about the database name and location. *Note: If this template is not available in Access, skip to step 2.*
   c. Type [your initials] PP A5-1 in the *File Name* box.
   d. Click the **Browse for a location to put your database** button, select the location in which to save the database, and click the **OK** button.
   e. Click the **Create** button. The new database opens.
   f. Skip to step 3.
2. Open the ***ContactsTemplate-05*** database from your student data files.
   a. Click **OK** if a message box displays warning you that active content is blocked.
   b. Close the *Welcome* form if it displays.
   c. Close the *Contact List* form.
   d. Save a new copy of the database. Type [your initials] PP 5-1 as the file name.
3. Complete this step if the *Welcome* form displays (**Figure 5-12**). If the *Welcome* form does not display, skip to step 4. The *Welcome* form displays based on the selections made on your computer.

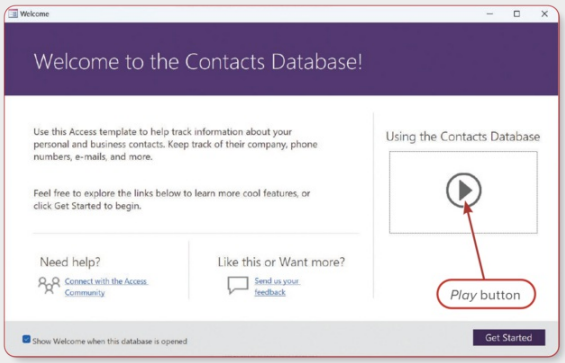


FIGURE 5-12 ***Welcome* form**

   a. Click the **Play** button to open the Microsoft Office web site. You need to have an internet connection in order to open this web page.
   b. Click the **Play** button on the web page to launch the *Use the Contacts Database template* help video. Watch the video.
   c. Close the web page and close the *Welcome* form.
4. Enable content in the security warning. If the *Welcome* form displays again, click **Get Started**.
5. Add a record into the database.

a. Click the **New Contact** button, the leftmost button in the light purple menu bar, to open the *Contact Details* form.

b. Type the information below into the form. Fields on the form that are not included below should be left blank. Add the data below into the form:

First Name: Simone

Last Name: Owens

Company: Applied Materials

Email: Owenss@AppliedMaterials.com

Category: Click the **drop-down arrow** and select **Business**

Street: 9700 Highway 290 East

City: Austin

State: TX

Zip: 78724

Country/Region: United States

Business Phone: 555-272-1234

c. Click the **Close** button (**Figure 5-13**) when finished. Note that the *Contact List* form is still open.

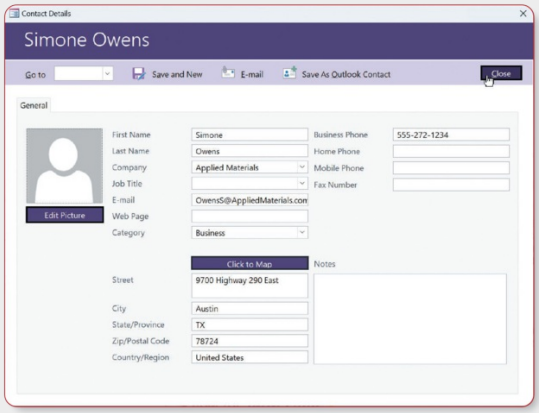


FIGURE 5-13 ***Contact Details* form**

6. Explore the *Navigation Pane* and database objects.

a. Double-click the **Contacts** table to open the table. The table contains Simone's contact data you added previously.

b. Switch to *Design* view of the table. A message box displays, informing you that another object bound to the *Contacts* table is open. Click **OK** to open the table as read-only. Access prevents you from making changes to the design of the *Contacts* table because the *Contact List* form is open.

MORE INFO

If you want to add additional fields to the table, or edit any of the existing fields, you need to close both the *Contact List* form and the *Contacts* table

and then re-open the *Contacts* table in *Design* view to make changes.

c. Select the **Category** field.

d. Click the **Lookup** tab in the *Field Properties* area in the lower half of the *Design* view window. Note the three choices in the ***Row Source* property**.

e. Close the *Contacts* table.

7. Modify the *Phone Book* report.

a. Open the *Phone Book* report.

b. Click the **View** button arrow [*Home* tab, *Views* group] and select **Layout View**.

c. Click the **Property Sheet** button [*Report Layout Design* tab, *Tools* group] if the *Property Sheet* is not open.

d. Click to select the **Format** tab in the *Property Sheet* if necessary. The *Selection type* box on the *Property Sheet* most likely contains *Contact Name.*

e. Click the **Selection type** box drop-down arrow and select **Report**. Note that the report tab displays *Phone Book by Group* (**Figure 5-14**). This is the contents of the *Caption* property.

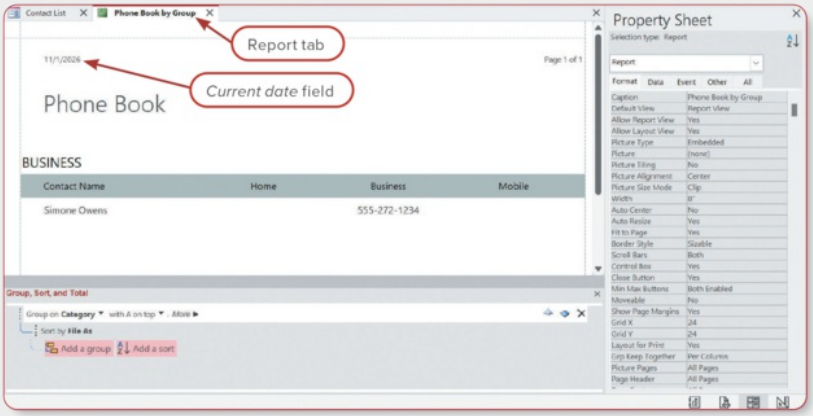


FIGURE 5-14 ***Layout* view of the *Phone Book* report**

f. Click the **Group & Sort** button [*Report Layout Design* tab, *Grouping & Totals* group] if the *Group, Sort, and Total* pane is not open. Verify that the report groups on the *Category* field.

g. Click the **current date** field in the report (see **Figure 5-14**) to select the *Text Box* control.

h. Select **Medium Date** in the *Format* property box. The text box updates to display the date using the *DD-Mon-YY* format.

ANOTHER WAY

Set the date format in the *Number* group of the *Format* tab.

i. Close the *Property Sheet.*

j. Save and close the report.

8. Explore the *Directory* report.
    a. Open the *Directory* report.
    b. Click the **Map** button. This button contains a macro that opens a browser and displays the contact's address in *Bing Maps*.
    c. Close the web page.
    d. Close the report.
9. Close the database.

SLO 5.2

Creating and Customizing a Relationship through the Lookup Wizard

In **chapter 2**, you learned about relationships and how they are used to connect related tables. You also learned how to create relationships using the *Relationships* window. Recall from the "Create Relationships between Tables" section in ***SLO 2.6: Understanding and Designing Relational Databases*** that if you elect to enforce referential integrity when you enter data into the table, Access requires that the user enter a data value in the foreign key field that matches the value in the primary key of an existing record in the related table. This step is important to maintaining integrity of the database, but it requires that the user knows the value to enter into the foreign key field.

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It may be more efficient to have users choose the value from a drop-down list of the possible values. You can do this with a lookup field. In **chapter 2**, you learned how to create a lookup field in a table using the ***Lookup Wizard*** and entering the list of possible values. In this section, you learn to create a relationship using the *Lookup Wizard.* In addition to creating the relationship, the *Lookup Wizard* also creates a *Combo Box* for the foreign key field that displays the list of possible values from the related table.

Define a Relationship with the Lookup Wizard

You create relationships after the foreign keys have been added as fields into the related tables. While you can add data into the table on the "one" side of the relationship, you should create the relationships before any data is added into the tables that contain the foreign keys. This helps ensure that all the data in the related tables has referential integrity.

HOW TO: Create a Relationship Using the Lookup Wizard

1. Open the table containing the foreign key in *Design* view.
2. Click to select the **foreign key** field.
3. Click the **Data Type property** box, click the **drop-down arrow** to display the list of data types, and then select **Lookup Wizard** (**Figure 5-15**). The *Lookup Wizard* dialog box opens.

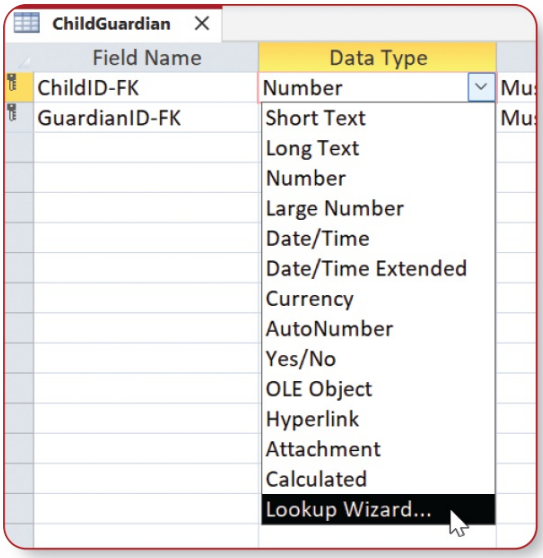


FIGURE 5-15 **Select the *Lookup Wizard* data type**

4. Select the **I want the lookup field to get the values from another table or query** radio button, if necessary, and click **Next** to move to the next step of the *Lookup Wizard*.
5. Select the related table from the "one" side of the relationship and click **Next** to move to the next step of the *Lookup Wizard*.
6. Select the matching field from the list of *Available Fields* and click the **Move Single Field** button to move the field into the *Selected Fields* window (**Figure 5-16**). Remember that the matching field is the primary key in that table.

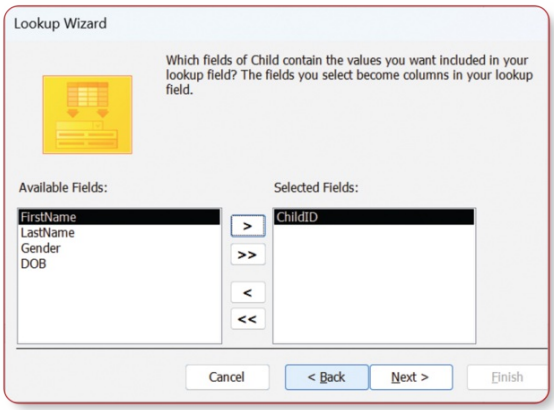


FIGURE 5-16 **Move the matching field into the *Selected Fields* window**

7. Click **Next** to move to the next step of the *Lookup Wizard*.
8. Select any sort options for the lookup field.

9. Click **Next** to move to the next step of the *Lookup Wizard*. The list of current data values from the matching table displays (**Figure 5-17**).

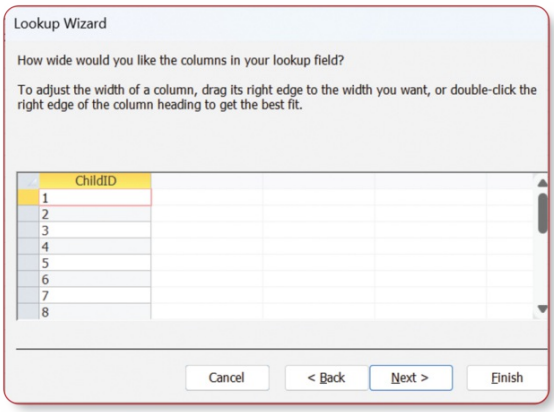


FIGURE 5-17 Adjust the width of the lookup field

10. Adjust the width of the column as desired and click **Next** to move to the last step of the *Lookup Wizard*.
11. Change the field label as desired. The label defaults to the original field name of the foreign key field. If you change the label contents, you also change the name of the field in the table.
12. Check the **Enable Data Integrity** check box and select either the **Cascade Delete** or the **Restrict Delete** radio buttons as desired (**Figure 5-18**).

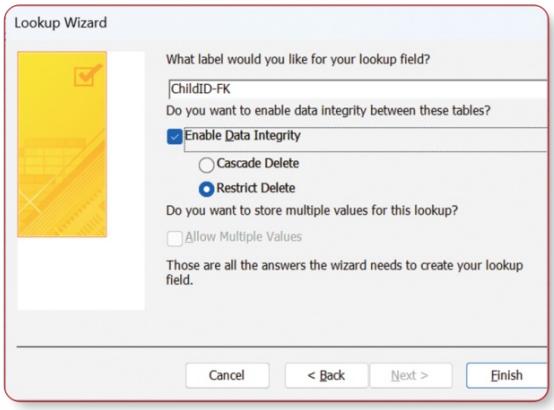


FIGURE 5-18 Select desired data integrity options

13. Click **Finish** to complete the wizard. A *Lookup Wizard* dialog box displays.
14. Click **Yes** to save the changes to the table so that Access can create the relationship.
15. Close the table.

View, Edit, and Save a Table Relationship

After completing the *Lookup Wizard,* Access automatically creates a relationship between the two tables. However, the *Lookup Wizard* does not ask you about all the characteristics of a relationship. For example, the wizard does not ask if you want to *Cascade Updates.* As a result, you may need to view and edit the relationship. Additionally, you may want to view the relationship in the *Relationships* window to verify that you answered all the questions correctly during the *Lookup Wizard.* Finally, you may want to change the relationship if the needs of your organization change. It is important that all of the tables involved in the relationship are closed before you attempt to edit a relationship.

In **chapter 2**, you learned how to edit a relationship. If necessary, review those instructions in the "Create Relationships between Tables" section in ***SLO 2.6: Understanding and Designing Relational Databases*** on how to view the relationship in the *Relationships* window (**Figure 5-19**) and how to edit the relationship in the *Edit Relationships* dialog box (**Figure 5-20**). Remember to save any changes you make to the relationship.

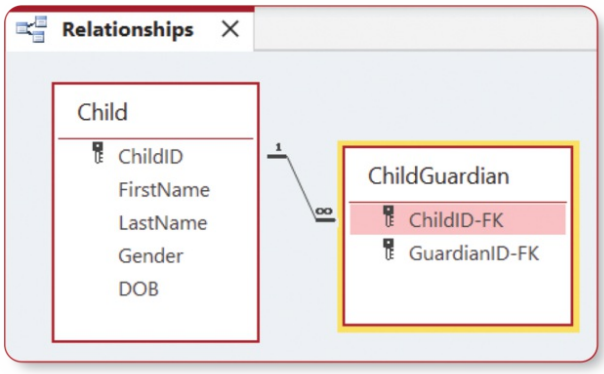


FIGURE 5-19 View and edit the relationship in the *Relationships* window

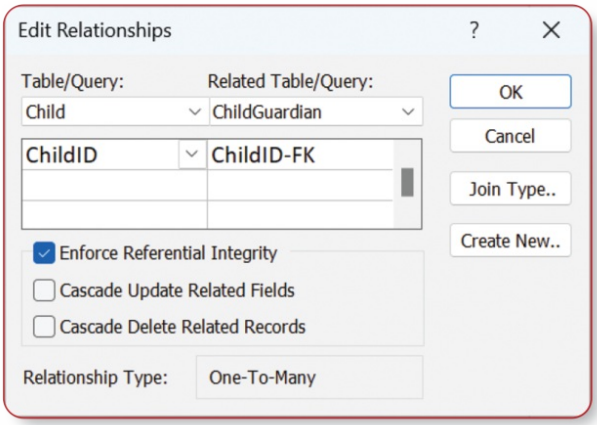


FIGURE 5-20 *Edit Relationships* dialog

box

Edit Properties of the Lookup Field

A lookup field has many properties that you can set on the *Lookup* tab in *Design* view, as you learned in **chapter 2**. A few of the properties are set automatically based on your answers to the *Lookup Wizard.* As desired, you may wish to modify those properties. If necessary, review the functions of those properties in the "Create a Lookup Field" section in ***SLO 2.4: Integrating Data Validation in Tables*** to determine if you need to edit any of the default settings.

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Recall that the values in the ***Limit to List*** and ***Allow Value List Edits*** properties will be overridden by Access if referential integrity is enforced in the relationship. Do not change the ***Row Source Type*** and *Row Source* properties. These are set automatically by the *Lookup Wizard* and the set values ensure that the lookup field displays the current set of values from the related table. The entry in the *Row Source* property is written in ***Structured Query Language (SQL)***, the underlying language in a relational database system. You will learn more about *SQL* in **chapter 9**.

HOW TO: Edit Properties of a Lookup Field

1. Click to select the desired field.
2. Click the **Lookup** tab (**Figure 5-21**).

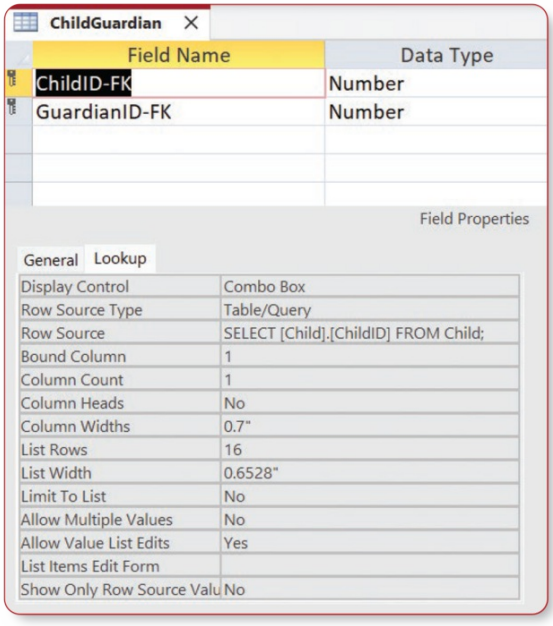


FIGURE 5-21 Properties of a *Combo Box* display

control on the *Lookup* tab

3. Click to select the property you wish to edit.
4. Enter the new value.
5. Repeat steps 3 and 4 as desired.
6. Save the table when you are done editing all properties.

Delete a Relationship Created with a Lookup Field

Occasionally, you may need to remove a relationship that was not created correctly. If the relationship was the result of using the *Lookup Wizard,* you most likely will need to delete both the relationship and the lookup attached to the field.

In **chapter 2**, you learned how to delete a relationship between tables (**Figure 5-22**). If the deleted relationship was created with the *Lookup Wizard,* you also need to change the ***Display Control* property** of the field, so it is no longer a *Combo Box.*

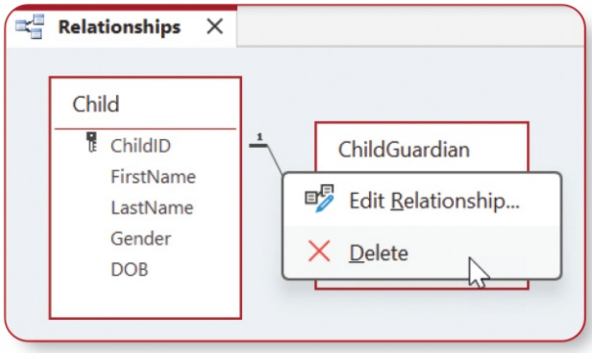


FIGURE 5-22 Delete a relationship

HOW TO: Remove a Lookup by Changing the Display Control Property

1. Open the table in *Design* view.
2. Select the field containing the *Combo Box* lookup.
3. Select the **Lookup** tab.
4. Select **Text Box** in the *Display Control* property.
5. Save your changes.

If the relationship and *Combo Box* were deleted because an error was made when creating the

relationship, repeat the *Lookup Wizard* to re-create the relationship correctly.

Use a Lookup with Multiple Fields

The lookup fields you have created so far have all displayed one field in the lookup list. Access enables you to display more than one field. This is useful when the field being displayed is not very intuitive for the user. This is often the case when an ID value is used as the primary key. For example, displaying only the *ChildID-FK* value, as shown in **Figure 5-23**, may not be as helpful to the user as displaying the child's name along with the *ChildID-FK* value, as shown in **Figure 5-24**.

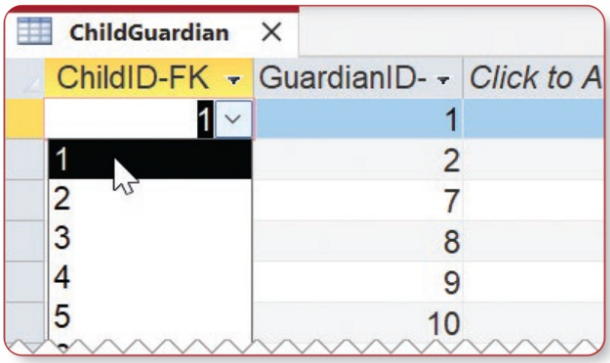


FIGURE 5-23 Lookup field showing one field

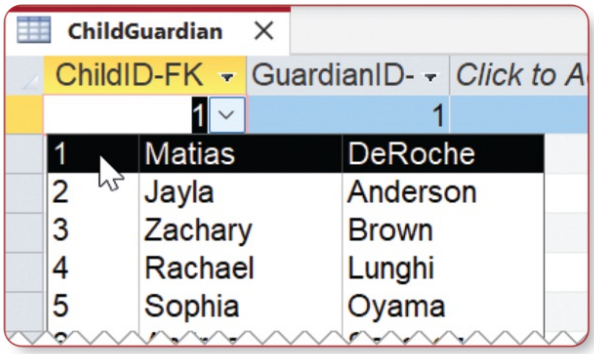


FIGURE 5-24 Lookup field showing multiple fields

HOW TO: Use Multiple Columns in a Lookup Field

1. Open the table in *Design* view.
2. Select the desired field.

3. Select **Lookup Wizard** in the *Data Type* property box to launch the *Lookup Wizard*.
4. Select the **I want the lookup field to get the values from another table or query** radio button and click **Next**.
5. Select the related table and click **Next**.
6. Select the matching field from the list of *Available Fields* and click the **Move Single Field** button to move the field into the *Selected Fields* window. Remember that the matching field is the primary key in the table.
7. Move the additional fields into the *Selected Fields* window in the order you wish to display the fields (**Figure 5-25**).

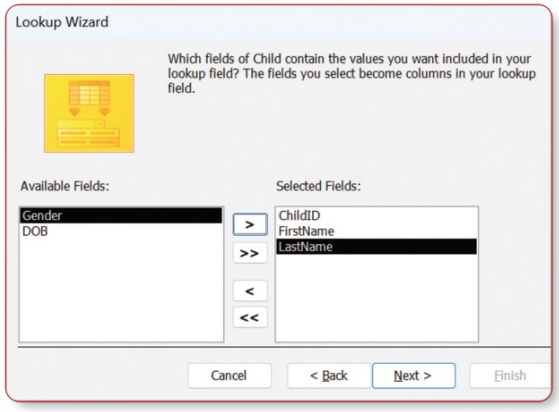


FIGURE 5-25 **Move the matching field and any additional fields to display into the *Selected Fields* window**

8. Click **Next** to move to the next step of the *Lookup Wizard*.
9. Select any sort options for the lookup field.
10. Click **Next** to move to the next step of the *Lookup Wizard*. The list of current data values from the matching table displays.
11. Deselect the **Hide key column** check box, as shown in **Figure 5-26**.

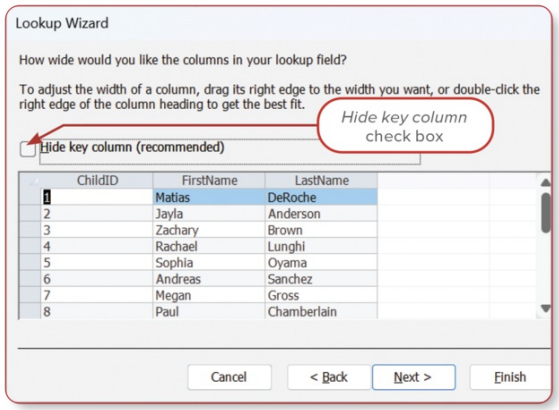


FIGURE 5-26 **Deselect the *Hide key column* check box**

12. Adjust the width of the columns as desired.
13. Click **Next** to move to the next step of the *Lookup Wizard*.
14. Select the field whose value you want to store in the table field (**Figure 5-27**). Most likely this should be the matching field that you selected in step 6.

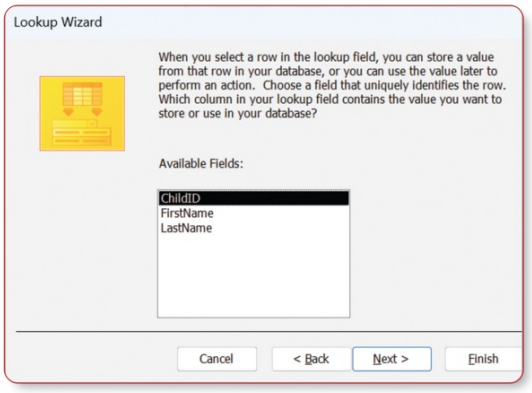


FIGURE 5-27 **Select the field to be stored in the table field**

15. Click **Next** to move to the last step of the *Lookup Wizard*.
    - The label defaults to the original field name you entered.
    - Change the field name as desired.
16. Check the **Enable Data Integrity** check box and select either the **Cascade Delete** or the **Restrict Delete** radio button, if appropriate.
17. Click **Finish** to complete the wizard. A *Lookup Wizard* dialog box displays.
18. Click **Yes** to save the changes to the table so that Access can create the relationship.

Although Access recommends hiding the key column, it is a better design practice to actually store that key column and just display the additional fields in the list. If you do hide the key column, then that value does not display in the drop-down list or in the field column (**Figure 5-28**). Note that “Matias” is the value that displays in the *ChildID-FK* field and both the first and last name display in the drop-down list. However, the value of the key column (*ChildID* in this example) is the one that is actually stored.

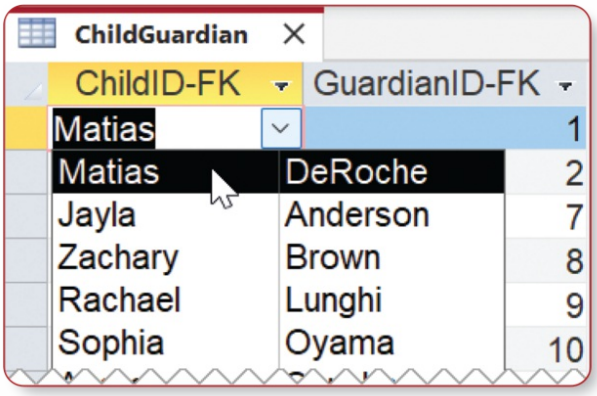


FIGURE 5-28 Lookup field with the key column hidden

This can be confusing, in addition to potentially creating problems. As a result, database designers often recommend against using multiple column lookup fields. Most of these recommendations are related to issues that arise when the key column is hidden. These issues include problems with queries and the sorting of records. Be sure to investigate any design guidelines that may exist at your organization prior to using lookup fields.

SLO 5.3

Working with Advanced Table Relationships

This section explores two additional concepts related to table relationships. First, you learn more about many-to-many relationships and how to implement them in a database. Second, you learn how Access actually relates, or joins, two tables together, along with the options that exist in setting the join property.

Implement a Many-to-Many Relationship

In **chapter 2**, you learned that a ***many-to-many* relationship** exists when many rows of data in one table can be associated with many rows of data in a second table. Consider creating a database for a college bookstore. You need to track book and author information of books that will be sold by the bookstore. As you work through the database design process, you initially identify two tables, *Author* and *Book,* shown in **Figure 5-29**. Because a book could have many different authors, and an author could have written many different books, you determine that this is a many-to-many relationship.

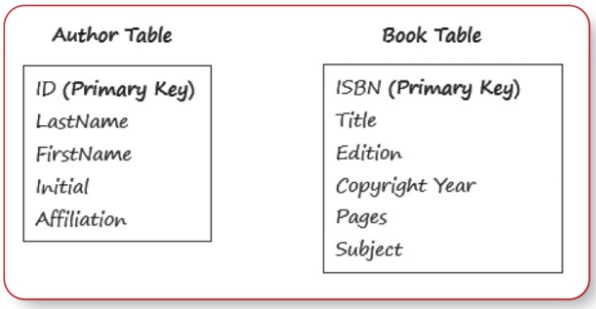
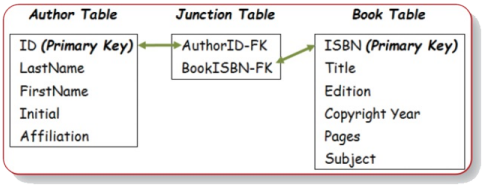


FIGURE 5-29 *Author* and *Book* tables

Relational databases, like Access, do not directly support many-to-many relationships. You must create a ***junction table*** or ***intersection table*** to match up the records. A junction table changes the many-to-many relationship into two one-to-many relationships. The guidelines for creating a junction table are fairly straightforward; however, the application of these guidelines takes a little bit of practice. Follow the steps below to implement a many-to-many relationship using a junction table.

Step	Bookstore Example
1. Create a junction table. • Recall that the junction table must contain the primary key from each of the related tables. • Each field is a foreign key that links back to the primary key in the related table.	Add the *ID* field from the *Author* table and the *ISBN* field from the *Book* table into the new junction table (**Figure 5-30**). Each field is a foreign key. To help identify these fields, use the initials *FK* as part of the field name. For clarity of naming, the foreign key field names also include the table name. *Note: ISBN stands for International Standard Book Number. It is a unique number, and publishers use one to identify each title they publish.*  **FIGURE 5-30 Create a junction table containing the foreign keys**
2. Determine if additional fields need to be stored in the junction table.	If the bookstore also wants to track information about the relationship that exists between a book and the author, like the visits an author has made to promote that book, that information can be stored in this table. In the database we are describing, the junction table only provides the link, or connection, between the two tables, so no other fields are needed.
3. Decide on a primary key for the junction table. • The combination of the primary key fields from the tables creates a ***concatenated primary key***. • Sometimes the table has another unique field which could also be used as the primary key.	Because no fields are added, the table has a concatenated primary key made by using both the *AuthorID-FK* and *BookISBN-FK*.
4. Decide on a name for the junction table. • If the new table	The new table is called *AuthorBook* because it shows which authors work on which books. The completed table is shown in **Figure 5-31**.

represents a concept in the organization, the name is obvious. Other times you may create a name that combines the names of the other two tables.

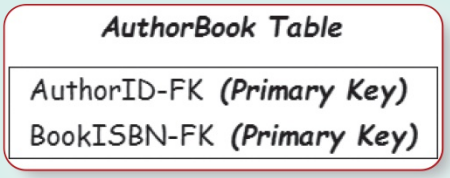
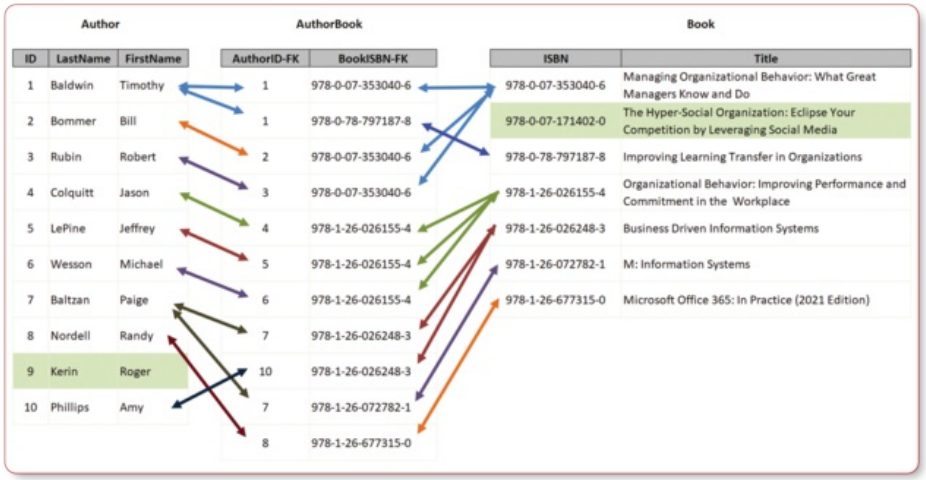


FIGURE 5-31 Completed junction table

Figure 5-32 shows these three tables with sample data. For simplicity, not all of the fields in the *Author* and *Book* tables have been included. The arrows illustrate how the *AuthorBook* junction table works to provide the connection, or relationship, back to the other tables. Recall that by creating the junction table, you changed the many-to-many relationship into two one-to-many relationships. One author can have many records in the *AuthorBook* table, and one book can have many records in the *AuthorBook* table. Note that not all authors, or all books, need to have a record in the *AuthorBook* table, as indicated by the two highlighted green-shaded records.



Author

ID	LastName	FirstName
1	Baldwin	Timothy
2	Bommer	Bill
3	Rubin	Robert
4	Colquitt	Jason
5	LePine	Jeffrey
6	Wesson	Michael
7	Baltzan	Paige
8	Nordell	Randy
9	Kerin	Roger
10	Phillips	Amy

AuthorBook

AuthorID-FK	BookISBN-FK
1	978-0-07-353040-6
1	978-0-78-797187-8
2	978-0-07-353040-6
3	978-0-07-353040-6
4	978-1-26-026155-4
5	978-1-26-026155-4
6	978-1-26-026155-4
7	978-1-26-026248-3
10	978-1-26-026248-3
7	978-1-26-072782-1
8	978-1-26-677315-0

Book

ISBN	Title
978-0-07-353040-6	Managing Organizational Behavior: What Great Managers Know and Do
978-0-07-171402-0	The Hyper-Social Organization: Eclipse Your Competition by Leveraging Social Media
978-0-78-797187-8	Improving Learning Transfer in Organizations
978-1-26-026155-4	Organizational Behavior: Improving Performance and Commitment in the Workplace
978-1-26-026248-3	Business Driven Information Systems
978-1-26-072782-1	M: Information Systems
978-1-26-677315-0	Microsoft Office 365: In Practice (2021 Edition)

FIGURE 5-32 Sample data in the three tables illustrates how the junction table relates the data across the tables

After designing the tables, you still must create the tables and set the field properties in your Access database. You can do this using the skills you learned in chapter 2. Keep in mind the following tips to ensure your database will function correctly:

- Build the tables on the "one" side of the relationship first.
- Define the primary key for each of the "one" side tables.
- Build the junction table. The foreign key fields should be the same data type and size as the matching field in the "one" side table. If the primary key in a "one" side table is an *AutoNumber* data type, then the foreign key field should use a *Number* data type. Both fields should have the

same number subtype, as indicated in the *Field Size* property.

- Define the primary key for the junction table. Remember that this table represents the "many" side of each relationship.

HOW TO: Define a Concatenated Primary Key

1. Click the **row selector** box to select the first foreign key field.
2. Press and hold the **Shift** key.
3. Click the **row selector** box to select the second foreign key field.
4. Click the **row selector** box of any additional foreign key fields that will be part of the concatenated primary key.
5. Click the **Primary Key** button [*Table Design* tab, *Tools* group]. The primary key symbol appears in the *row selector* box of each field in the concatenated primary key (Figure 5-33).

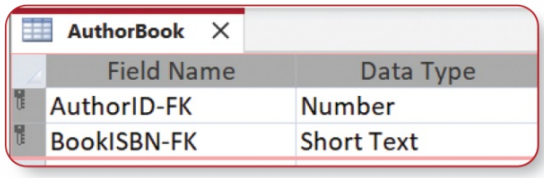


FIGURE 5-33 Concatenated primary key

Recall that just building the tables, including the addition of the foreign keys into the tables, does not create the relationships. You still need to create the relationships, following the steps introduced in the "Create Relationships between Tables" section in ***SLO 2.6: Understanding and Designing Relational Databases*** or by using the *Lookup Wizard,* covered earlier in this chapter. If you want a lookup for each of the foreign key fields, repeat the entire *Lookup Wizard* process for each field.

Figure 5-34 shows the relationship window after the relationships are created in the bookstore database. Notice the two one-to-many relationships.

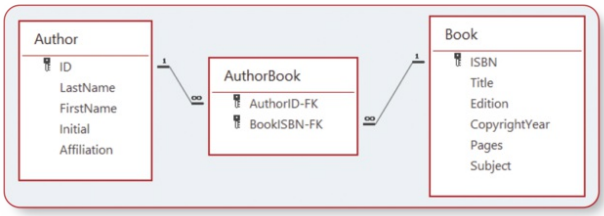


FIGURE 5-34 Completed relationships

Join Properties

Once a relationship is created, Access uses the properties of the relationship when a query is created. The ***Join Type* property** determines how to match the data in the two related tables. Three different types of joins exist in Access. To help understand the different joins, in the content that follows, you explore the relationship between the *Author* and the *AuthorBook* tables.

Inner Join

An ***inner join*** returns only records that have matching values in both tables. An inner join is the most common type of join.

In our bookstore example, an inner join would only return records for authors who have a book included in the *AuthorBook* table. **Figure 5-35** shows the join line in an inner join, while **Figure 5-36** shows the records that the inner join would return, using the sample data provided earlier in the bookstore example. The record for Roger Kerin (see ID number 9 in **Figure 5-32**) does not display because he does not have a book included in the *AuthorBook* table.

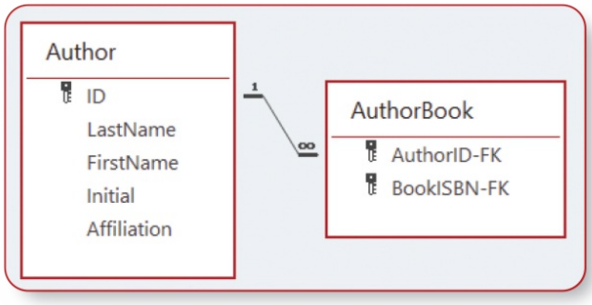


FIGURE 5-35 Inner join line in the *Relationships* window

Author-AuthorBook Inner Join

ID	LastName	FirstName	BookISBN-FK
1	Baldwin	Timothy	9780073530406
1	Baldwin	Timothy	9780787971878
2	Bommer	Bill	9780073530406
3	Rubin	Robert	9780073530406
4	Colquitt	Jason	9781260261554
5	LePine	Jeffrey	9781260261554
6	Wesson	Michael	9781260261554
7	Baltzan	Paige	9781260262483
7	Baltzan	Paige	9781260727821
8	Nordell	Randy	9781266773150
10	Phillips	Amy	9781260262483
(New)			

Record: 1 of 11 No Filter Search

FIGURE 5-36 Results of an inner join show records that match in both tables

Left Outer Join

A ***left outer join*** returns all the records from the table on the left side of the join and only the records that have a matching value from the table on the right side of the join. The "left" and "right" sides reference the order the tables are listed in the *Edit Relationships* dialog box, not their order in the *Relationships* window.

In our bookstore example, the left outer join would return all of the records from the *Author* table, whether or not a matching record exists in the *AuthorBook* table, but only the records in the *AuthorBook* table that match up to an author. **Figure 5-37** shows the join line in a left outer join. Notice the addition of an arrow on the right side of the relationship line. The arrow points to the side of the relationship that displays only the matching rows. **Figure 5-38** shows the records that a left outer join would return. The record for Roger Kerin (ID number 9) displays with an empty *BookISBN-FK* field because he doesn't have a book in the *AuthorBook* table.

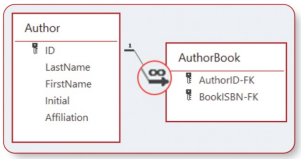


FIGURE 5-37 Left outer join line in the *Relationships* window

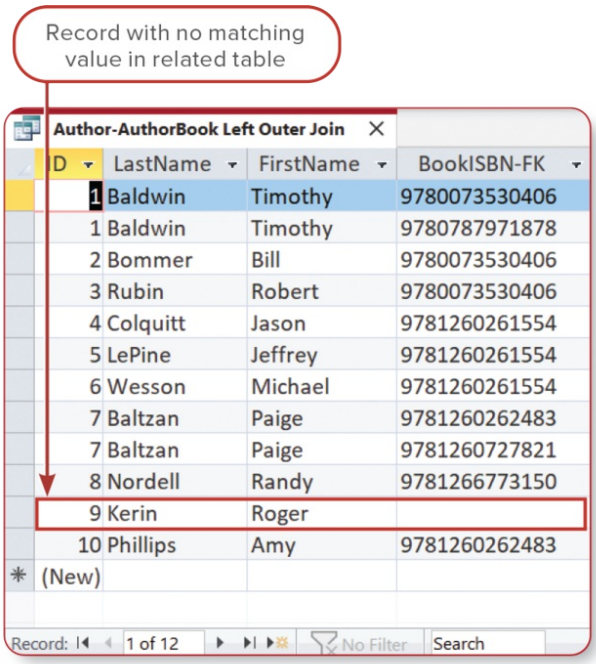


FIGURE 5-38 Results of a left outer join show all authors, even if they don't have a record in the *AuthorBook* table

Right Outer Join

A ***right outer join*** returns all the records from the table on the right side of the join and only the records that have a matching value from the table on the left side of the join.

In our bookstore example, this would return all of the records from the *AuthorBook* table, whether or not a matching record exists in the *Author* table. Figure 5-39 shows the join line in a right outer join. The arrow on the left side of the relationship line points to the side of the relationship that displays only the matching rows. Figure 5-40 shows the records that a right outer join would return, using the sample data provided earlier.

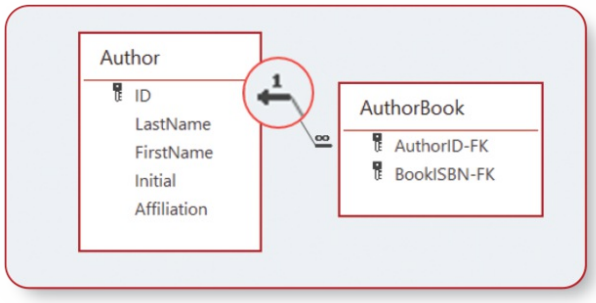


FIGURE 5-39 Right outer join line in the *Relationships* window

Author-AuthorBook Right Outer Join

ID	LastName	FirstName	BookISBN-FK
1	Baldwin	Timothy	9780073530406
1	Baldwin	Timothy	9780787971878
2	Bommer	Bill	9780073530406
3	Rubin	Robert	9780073530406
4	Colquitt	Jason	9781260261554
5	LePine	Jeffrey	9781260261554
6	Wesson	Michael	9781260261554
7	Baltzan	Paige	9781260262483
7	Baltzan	Paige	9781260727821
8	Nordell	Randy	9781266773150
10	Phillips	Amy	9781260262483
(New)			

Record: 1 of 11 No Filter Search

FIGURE 5-40 Results of a right outer join show all records from the *AuthorBook* table, even if a matching record doesn't exist in the *Author* table

Because referential integrity is enforced in this relationship, the same records are returned from the right outer join as were returned with the inner join. If you did not enforce referential integrity, and allowed records to be in the *AuthorBook* table without including an *AuthorID-FK* value, the right outer join would return those records with the author information left blank.

Change the Join Type

When a relationship is created, Access assigns it an inner join type. If the queries that will use this join are more likely to need one of the other two join types, change the join type of the relationship in the ***Join Properties*** dialog box. Changing a relationship's join type only affects the way queries, and any object built from a query, work.

HOW TO: Change the Join Type of a Relationship

1. Click the **Relationships** button [*Database Tools* tab, *Relationships* group] to open the *Relationships* window.
2. Select the **relationship line** you wish to edit.
3. Click **Edit Relationships** [*Relationships Design* tab, *Tools* group] to open the *Edit Relationships* dialog box.
4. Click the **Join Type** button to open the *Join Properties* dialog box (**Figure 5-41**).

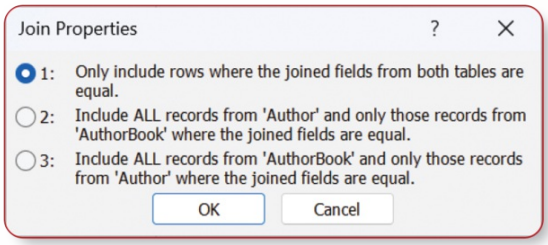


FIGURE 5-41 ***Join Properties*** **dialog box**

5. Select the desired **join type** radio button.
6. Click **OK** to close the *Join Properties* dialog box.
7. Click **OK** to close the *Edit Relationships* dialog box.
8. Click **Save** to save the changes made to the relationships.
9. Click **Close** [*Relationships Design* tab, *Relationships* group].

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MORE INFO

The join type can also be set individually for a query when the query is created. The join setting in a query overrides the join setting in the table relationship.

A5-344

A5-345

A5-346

PAUSE & PRACTICE: ACCESS 5-2

For this Pause & Practice, you create a many-to-many relationship for the River View Nursery School database. You build a junction table, use the *Lookup Wizard* to create the relationship, edit properties of the relationship, and enter data into the junction table.

File Needed: ***RiverView-05.accdb*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Name: ***[your initials] PP A5-2.accdb***

1. Open the ***RiverView-05*** database from your student data files. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close it.
2. Save a new copy of your database as [your initials] PP A5-2.
3. Enable content in the database.

4. Review the *Child* table.
    a. Open the *Child* table in *Datasheet* view and review the 11 data records contained in the table.
    b. Switch to *Design* view. Note that the primary key of *ChildID* is an *AutoNumber* data type with a field size of *Long Integer*.
5. Review the *Guardian* table.
    a. Open the *Guardian* table in *Datasheet* view and review the 17 data records contained in the table.
    b. Switch to *Design* view. Note that the primary key of *GuardianID* is an *AutoNumber* data type with a field size of *Long Integer*.
6. Determine the relationship type. A child can have many different guardians. For example, a child may have both a mother and a father. A guardian can have many different children. The *Child* and *Guardian* tables have a many-to-many relationship.
7. Close both tables.
8. Create the junction table.
    a. Click the **Table Design** button [*Create* tab, *Tables* group] to open a new table in *Design* view.
    b. Type ChildID-FK in the ***Field Name* property** box of the first row.
    c. Select the **Number** data type.
    d. Type Must match a ChildID in the Child table in the *Description* property box.
    e. Type GuardianID-FK in the *Field Name* property box of the second row.
    f. Select the **Number** data type.
    g. Type Must match a GuardianID in the Guardian table in the *Description* property box.
    h. Click the **row selector** box to select the **ChildID-FK** field.
    i. Press and hold the **Shift** key.
    j. Click the **row selector** box to select the **GuardianID-FK** field.
    k. Click the **Primary Key** button [*Table Design* tab, *Tools* group] to create the concatenated primary key (**Figure 5-42**).

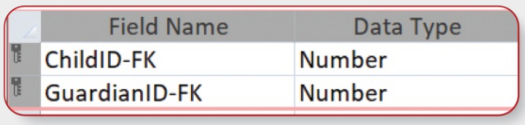


FIGURE 5-42 Concatenated primary key

    l. Click **Save** to save the table as ChildGuardian.
9. Use the *Lookup Wizard* to create a one-to-many relationship between *Child* and *ChildGuardian*. This lookup will display multiple fields.
    a. Select the **ChildID-FK** field in the *ChildGuardian* table.
    b. Select **Lookup Wizard** in the *Data Type* property box to launch the *Lookup Wizard*. If a *Microsoft Access Security Notice* box displays, click **Open**.
    c. Select the **I want the lookup field to get the values from another table or query** radio button and click

Next.

d. Select the **Child** table, if necessary, and click **Next**.

e. Select **ChildID** from the list of *Available Fields,* if necessary, and click the **Move Single Field** button to move the field into the *Selected Fields* window.

f. Move the **FirstName** and **LastName** fields into the *Selected Fields* window, as shown in **Figure 5-43**.

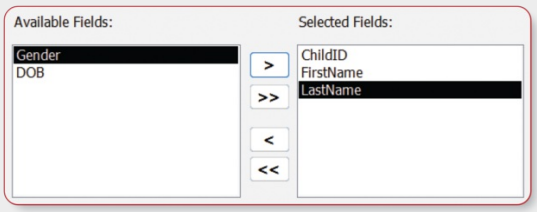


FIGURE 5-43 Select the fields to be used in the lookup

g. Click **Next**.

h. Don't sort on any fields and click **Next**.

i. Deselect the **Hide key column** check box.

j. Double-click the right edge of the **ChildID** column to adjust the width and click **Next**.

k. Select the **ChildID** field to store in the table and click **Next**.

l. Keep the default label, check the **Enable Data Integrity** check box, and select the **Cascade Delete** radio button.

m. Click **Finish** to complete the wizard. A *Lookup Wizard* dialog box displays.

n. Click **Yes** to save the changes to the table so that Access can create the relationship.

10. Use the *Lookup Wizard* to create a one-to-many relationship between *Guardian* and *ChildGuardian.* This lookup displays only one field, to enable you to compare the two approaches.

a. Select the **GuardianID-FK** field.

b. Select **Lookup Wizard** in the *Data Type* property box to launch the *Lookup Wizard.*

c. Select the **I want the lookup field to get the values from another table or query** radio button and click **Next**.

d. Select the **Guardian** table and click **Next**.

e. Select **GuardianID** from the list of *Available Fields* and click the **Move Single Field** button to move the field into the *Selected Fields* window.

f. Click **Next**.

g. Don't sort on any fields and click **Next**.

h. Double-click the right edge of the **GuardianID** column to adjust the width and click **Next**.

i. Keep the default label, check the **Enable Data Integrity** check box, and select the **Cascade Delete** radio button.

j. Click **Finish** to complete the wizard. A *Lookup Wizard* dialog box displays.

k. Click **Yes** to save the changes to the table so that Access can create the relationship. If prompted with

another dialog box informing you that changes have been made to the *ChildGuardian* table since the last time you opened it, click the **Yes** button to save your most recent changes.

11. Close the table.
12. Edit the relationship.
    a. Click the **Relationships** button [*Database Tools* tab, *Relationships* group] to open the *Relationships* window (**Figure 5-44**). If the tables do not display in the window, click the **Add Tables** button and add the missing tables into the *Relationships* window.

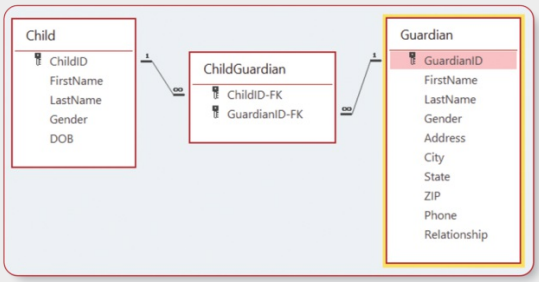


FIGURE 5-44 ***Relationships* window**

    b. Adjust the size of the table objects to see all of the fields.
    c. Move the table objects if necessary so they are located where you want them in the *Relationships* window.
    d. Select the **relationship line** between *Child* and *ChildGuardian*.
    e. Click **Edit Relationships** [*Relationships Design* tab, *Tools* group].
    f. Select the **Cascade Update Related Fields** check box and click **OK**.
    g. Select the **relationship line** between *Guardian* and *ChildGuardian*.
    h. Click **Edit Relationships** [*Relationships Design* tab, *Tools* group].
    i. Select the **Cascade Update Related Fields** check box and click **OK**.
    j. Click **Save** to save the changes made to the relationships.
    k. Close the *Relationships* window.
13. Add data into the *ChildGuardian* junction table.
    a. Open the *ChildGuardian* table in *Datasheet* view.
    b. Click the **ChildID-FK** drop-down arrow in the append row, select **1 Matias DeRoche**, and press **Enter**.
    c. Click the **GuardianID-FK** drop-down arrow in the append row, select **1**, and press **Enter**. The first record is added to the table. Note that the *GuardianID-FK* list does not display any additional fields to identify the guardian. In this case, having these extra columns in the *ChildID-FK* field makes it easier to use for data entry.
    d. Enter the remaining values from **Table 5-2** to add the additional records. Either type the numbers directly into the fields or select them from the drop-down lists.

Table 5-2

ChildID-FK	GuardianID-FK
1	2
2	7
3	8
3	9
4	10
4	11
5	5
5	6
6	12
6	13
7	14
7	15
8	3
8	4
9	16
9	17
10	1
10	2
11	14
11	15

14. Close the table.
15. Review the *Guardian* table.
    a. Open the *Guardian* table in *Datasheet* view.
    b. Click the **plus sign** on *Mauricio DeRoche's* record to display his matching records from the *ChildGuardian* table. Mauricio has two children in the table. If you click the **drop-down arrow** for one of the *ChildID-FK* values, the child's name will also display.
    c. Click the **plus sign** on *Julie Oyama's* record to display her matching records from the *ChildGuardian* table. Julie has one child in the table.
    d. Close the *Guardian* table.
16. Review the *Child* table.
    a. Open the *Child* table in *Datasheet* view.
    b. Click the **plus sign** on *Jayla Anderson's* record to display her matching record from the *ChildGuardian* table. Jayla has one guardian in the table. If you click the **drop-down arrow** for the *GuardianID-FK* values, no additional information displays because you only added the one field when creating the lookup.
    c. Close the *Child* table.
17. Close the database.

SLO 5.4

Exploring and Building a Macro

A ***macro*** is a database object that enables you to write and attach code to different objects and controls in your database. Macros can perform one or more actions and can automate tasks and add functionality to your database. In this section, you learn more about the power of macros and how to build your own macros.

MORE INFO

Macros in Access are very different than the macros you may have created in Excel or Word. For example, Access does not have a utility that records steps to help you build a macro.

MORE INFO

Macros are a common way to distribute viruses. To minimize potential damage, Office applications are set to block macros in files obtained from the internet. If you trust the source of your file, you can enable the macros.

The Purpose of a Macro

In ***SLO 4.3: Facilitating Data Input with a Form,*** you were briefly introduced to macros when you added command buttons to your forms and attached an action to those buttons. Those actions—to open another form or add a new record—were simple macros.

Most macros execute because an event occurred in the database. An ***event*** initiates when an action happens to an object or control. Events are occurring all of the time when you use a database. For example, when a report or form opens, the *On Open* event occurs. Likewise, when a user hovers the mouse pointer over a button on a form, the *On Mouse Move* event occurs. Or when a user presses a button on a form, the *On Click* event occurs. Even table objects have events. For example, when a user changes a value in a field, the *Before Change* event occurs.

The *Event* tab of the *Property Sheet* contains all the events that a form or report object, or a control placed on one of those objects, can respond to. Table events are located in the *Field,*

Record & Table Events groups on the *Table Tools Design* tab in *Design* view and in the *Before Events* and *After Events* groups on the *Table* tab in *Datasheet* view.

Within a typical database, most of the events that occur as a result of an action perform only the basic task of the event, like opening the form. However, with macros you can create a customized response to an event by having additional tasks occur. For example, choose to automatically display a message box when the form opens.

When creating a macro, you need to decide on the event that will cause the macro to execute; plan the logic behind the steps, or tasks, the macro will perform; determine the type of macro needed; and choose the best way to build the macro. It is also important to test the macro to ensure you have developed and written the logic correctly. You will learn how to test and debug a macro in the last section of this chapter.

In Access, macros are classified by the type of object or control to which they are attached.

- ***User Interface macros*** are attached to objects and controls, such as forms, reports, and command buttons, that are part of the user interface. They automate actions such as opening objects, customizing form information based on a data value, and displaying message boxes.
- ***Data macros*** are attached to tables. These macros are used with table events such as adding, changing, or deleting data. They can help ensure the accuracy of the data in the tables by comparing values across tables or automating tasks based on a change to the data.

The Macro Builder and Macro Design

The steps to initiate a new macro vary depending on the type of macro. Those steps are covered separately in ***SLO 5.5: Creating and Using User Interface Macros*** and ***SLO 5.6: Building and Using Data Macros***. However, independently of the way a macro is created, you write and edit the content of all macros using the ***Macro Builder*** (**Figure 5-45**).

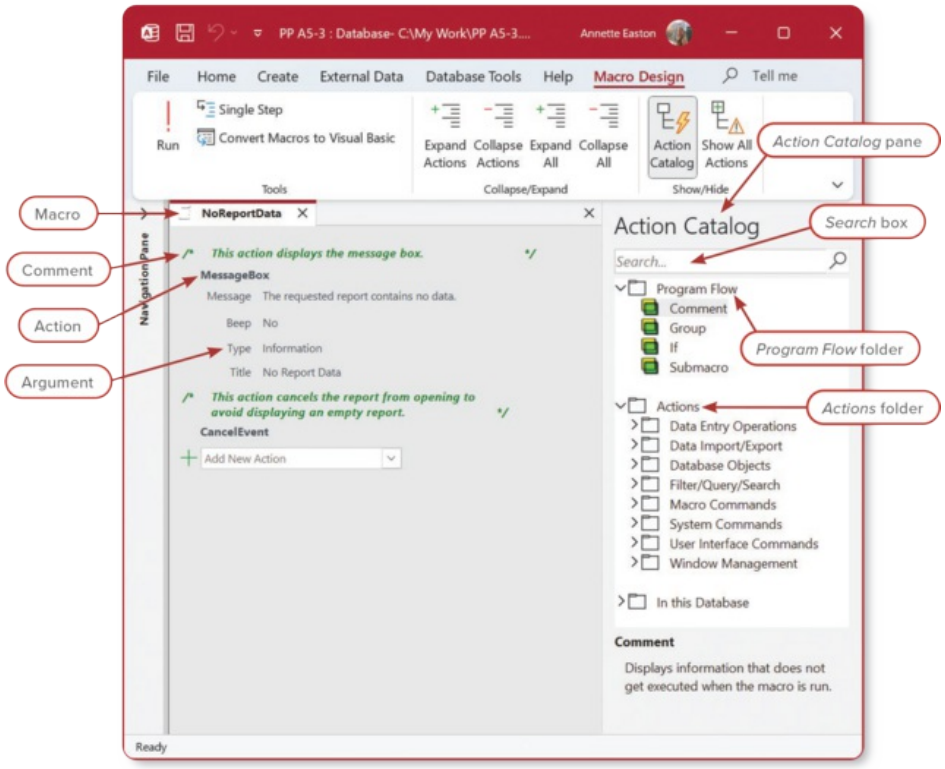


FIGURE 5-45 *Macro Builder*

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The *Macro Builder* contains the ***macro window***, the area where you enter and edit the action steps of the macro. The right side of the *Macro Builder* displays the *Action Catalog* task pane. The *Action Catalog* task pane contains a *Search* box, *Program Flow* folder, and *Actions* folder. Use the *Search* box to locate an action. The *Program Flow* folder contains four macro statements. A ***program flow statement*** provides organizational structure to the macro. The *Actions* folder contains the different actions, grouped into category folders, that are available to add into a macro. An ***action*** is an individual command inside a macro. Expand any of the category folders in the macro window to view the specific actions.

A macro contains at least one action, such as *MessageBox* to display a message box or *CancelEvent* to cancel or stop the Access event that executed the macro. The set of all the actions in a macro represents the required logic to perform a task. The macro executes the actions in the order listed, so it is important that you plan the logic necessary for the macro to work correctly.

The most common program flow statement is ***comment***. A comment is a note about the design and usage of the macro. Comments do not affect the logic or functionality of the macro and display in green text in the macro window. It is a good database design practice to include a comment above each action to briefly explain its purpose. These explanations make the macro actions more understandable, and they are useful in keeping you focused as you add many actions into a macro. Additionally, comments are very helpful when you, or another database designer,

need to make changes to the database in the future.

The sample macro shown in Figure 5-45 contains two comments and two actions. Some actions, like *MessageBox,* contain arguments. ***Arguments*** are pieces of information needed to complete the action. The information entered into each argument can be a variable, a constant, or an expression. For example, the *MessageBox* action, used to display a *Message Box* in the database, contains four arguments: *Message, Beep, Type,* and *Title.* Other actions, like the *CancelEvent* action, do not have any arguments. *CancelEvent* is used to stop an event, such as opening a report, from happening.

You may consider using additional program flow statements in a macro. In a lengthy or complex macro, group items together. A ***group*** is a named block of actions. Collapse or expand a group to make a macro more readable. You can also add an ***If block*** to integrate conditional logic into the execution of the macro. Finally, a user interface macro may contain submacros. A ***submacro*** is a named, executable set of actions that perform a specific task. Occasionally, you may have a set of actions that needs to be performed in several different macros. Instead of including the same set of actions in each macro, create a submacro and call that submacro when you need to execute those steps. As you work through this chapter, you will better understand these different parts and how they are used.

Use the Macro Builder

The *Macro Builder* has many easy-to-use features to help you write a macro. The five most important tasks are adding an action into a macro, editing an action, moving an action, copying an action, and deleting an action. The images shown in this section may contain macro actions that have not yet been covered. For now, don't worry if you are not sure how the macro actions work. Instead, focus on learning how to use the *Macro Builder.*

Add a New Action

You must add all comments, program flow items, and actions into the macro window. The *Action Catalog* task pane displays a list of available actions. You open and close the pane by clicking the **Action Catalog** button [*Macro Design* tab, *Show/Hide* group]. Additionally, the **Add New Action** box displays a drop-down list of the available choices.

HOW TO: Add a New Action to a Macro

1. Click the **Add New Action** drop-down arrow to display the list of available actions.
   - If the macro does not contain any actions, the *Add New Action* box initially displays as an empty box, as shown in Figure 5-46.

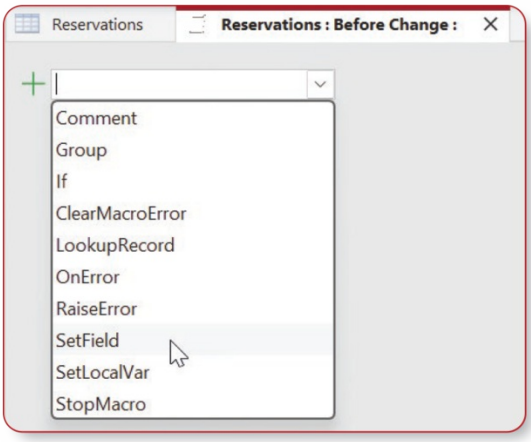


FIGURE 5-46 ***Add New Action*** **box**

- The available actions displayed vary based on the macro event.

2. Select the desired action.
   - The action is added to the macro window (**Figure 5-47**).

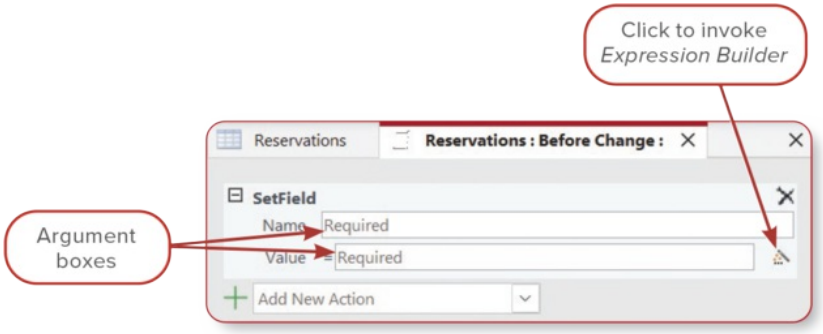


FIGURE 5-47 **Action added to the macro window**

- Once an action has been added to a macro, another *Add New Action* box displays below the action.

3. Fill in the arguments, if necessary, by clicking the argument box and entering the appropriate value. Some of the arguments enable you to open the *Expression Builder* or have a drop-down list enabling you to select a value.

ANOTHER WAY

Add actions into a macro by dragging the action from the *Action Catalog* task pane into the macro window or by double-clicking the action in the *Action Catalog* task pane.

Add as many actions as needed into the macro, but remember that actions are executed in the order they are listed.

When you select the *Comment* action from the drop-down list, an empty box displays in which to type comment text. Figure 5-48 shows a comment box with the text already entered. When you are done entering a comment, click outside the box. The comment then displays in green text.

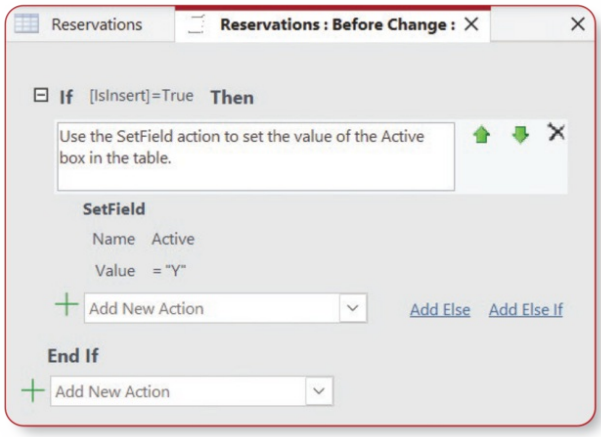


FIGURE 5-48 Example of text entered into a *Comment* action

Edit an Action

You may need to change an action that you have already entered into the macro.

HOW TO: Edit an Action in a Macro

1. Click to select the action. A gray box surrounds the arguments of the action (Figure 5-49).

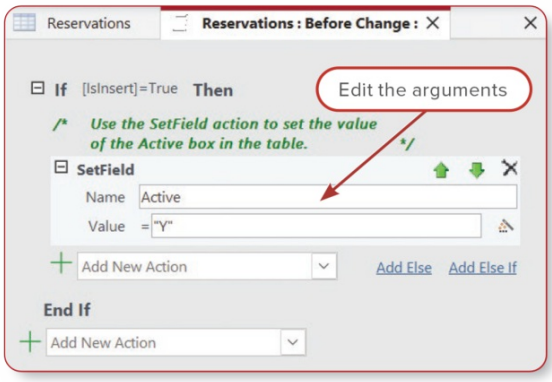


FIGURE 5-49 Edit the selected macro action

2. Make any necessary changes.
3. Click outside the box to accept the edits.

Move an Action

In a macro containing many actions, you may need to rearrange the order of the actions.

A5-350

HOW TO: Move an Action in a Macro

1. Click to select the action you want to move.
   - Green up and down arrows display in the upper-right corner of the selected item (see **Figure 5-49**).
   - If an item is at the top or bottom of the list of actions, only one arrow displays.
2. Click the **Move up** arrow or **Move down** arrow to move the item.
   - The item moves one position higher or lower.
   - Continue clicking the correct arrow until you have reached the desired location for the action.

Copy an Action

Instead of creating a new action, it may be quicker to make a copy of an existing action and edit the copied action.

HOW TO: Copy an Action in a Macro

1. Click to select the action.
2. Press **Ctrl+C** to copy the action.
3. Click outside the box.
4. Press **Ctrl+V** to paste the action.
5. Move the new copy of the action to the desired location.
6. Make any needed edits to the copied action and click outside the box to save the edits.

Delete an Action

If an action was entered in error or is no longer needed, delete it from the macro.

HOW TO: Delete an Action in a Macro

1. Click to select the action you want to delete.
2. Click the **Delete** button, displayed in the upper-right corner of the selected item (Figure 5-50).

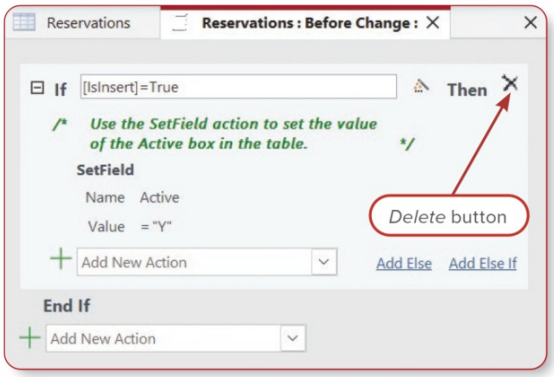


FIGURE 5-50 Click the *Delete* button to delete a macro action

Sometimes one action will actually contain several associated actions or program flow statements. In Figure 5-50, the *If* action has been selected. As you can see from the indenting of actions in the macro, this *If* action also contains one *Comment* and one *SetField* action. Deleting the *If* action also deletes the associated *Comment* and *SetField* action.

COPILOT/GENERATIVE AI BEST PRACTICES

Macros can be a powerful tool to include in your database but they can be challenging to learn how to create. Ask *Copilot* to explain best practices for designing a macro in Access. Follow up this prompt by asking *Copilot* to describe some common mistakes to avoid when designing your macros. You can also ask for more specific guidance in learning how to make your macros more efficient.

SLO 5.5

Creating and Using User Interface Macros

Many of the macros you build will be attached to different parts of your database's user interface. Access has two types of user interface macros: stand-alone macros and embedded macros.

- A ***stand-alone macro*** is a separate Access object that appears in the *Navigation Pane.* A stand-alone macro can be used independently of any other object. Additionally, you can assign it to events in many different objects, enabling you to reuse the same macro. For example, you may want to have the same message box display in many different forms or reports. Create a stand-alone macro to display the message box and then attach that macro to each form or report.
- An ***embedded macro*** is attached to one specific object or control on an object. Embedded macros do not display in the *Navigation Pane.* They are automatically executed by the object or control. Embedded macros are useful to automate tasks that are unique to a specific form or report in the database.

Embedded macros must be attached to an event, while stand-alone macros may be attached to an event or called independently. In Access, recall that an event occurs when an action happens to an object or control. For example, events occur when you open or close a form, add a record, or click a button. Each type of object or control has a unique set of events.

In this section, you learn how to create user interface macros. In doing so, you learn about the different actions that you can include in a macro. Additionally, you explore several of the common events that can call macros.

User Interface Macros

A user interface macro can contain many different types of actions. Inside the *Macro Builder,* the available actions are grouped into eight different categories, which are explained in **Table 5-3**. The general purpose of each action can be inferred from the action name. For example, *DeleteRecord* deletes the current record, while *OpenReport* opens a specific report. If you click an action in the *Macro Builder,* a short description displays at the bottom of the *Action Catalog* task pane. In this book, only a few actions are shown in the examples. Use the Access help feature to learn how to use the other actions.

Table 5-3: User Interface Macro Actions

Actions Category		

Folder	Explanation	Actions
Data Entry Operations	Related to changing the data.	*DeleteRecord, EditListItems, SaveRecord*
Data Import/Export	Related to importing, exporting, sending, and collecting data.	*AddContactFromOutlook, EMailDatabaseObject, ExportWithFormatting, SaveAsOutlookContact, WordMailMerge*
Database Objects	Related to changing controls and objects in the database.	*GoToControl, GoToPage, GoToRecord, OpenForm, OpenReport, OpenTable, PrintObject, PrintPreview, RepaintObject, SelectObject, SetProperty*
Filter/Query/Search	Related to filtering, querying, and searching records.	*ApplyFilter, FindNextRecord, FindRecord, OpenQuery, Refresh, RefreshRecord, RemoveFilterSort, Requery, SearchForRecord, SetFilter, SetOrderBy, ShowAllRecords*
Macro Commands	Related to making changes to the macro.	*CancelEvent, ClearMacroError, OnError, RemoveAllTempVars, RemoveTempVar, RunCode, RunDataMacro, RunMacro, RunMenuCommand, SetLocalVar, SetTempVar, SingleStep, StopAllMacros, StopMacro*
System Commands	Related to changing the database system.	*Beep, CloseDatabase, DisplayHourglassPointer, QuitAccess*
User Interface Commands	Related to controlling what displays on the screen.	*AddMenu, BrowseTo, LockNavigationPane, MessageBox, NavigateTo, Redo, SetDisplayedCategories, SetMenuItem, UndoRecord*
Window Management	Related to managing the database windows.	*CloseWindow, MaximizeWindow, MinimizeWindow, MoveAndSizeWindow, RestoreWindow*

Before you write the content of a macro, you must decide how and when the macro will be used.

When planning a macro, determine which object or control will use the macro and decide which specific event will execute the macro. For example, if you want a button on a form to change color when a user hovers the mouse pointer over the button, build a macro for the *On Mouse Move* event of the button. Or if you want to have a button on a report create a PDF of the report when the button is clicked, build a macro for the *On Click* event of the button. You can also create a stand-alone macro that executes automatically when the database is first opened.

The *Property Sheet* of an object or control displays all the possible events on the *Event* tab. Each type of object or control has its own set of events. **Figure 5-51** shows events for a command button and for a form. You will discover that several common events, explained in **Table 5-4**, are shared by many objects and controls. Events may have parameters that contain additional information. For example, the *On Mouse Down* event has a parameter that indicates which mouse button was pressed. Your macro can include code to check the value of the parameter. In this case, the macro can check whether the *Left, Right,* or *Middle* mouse button was pressed.

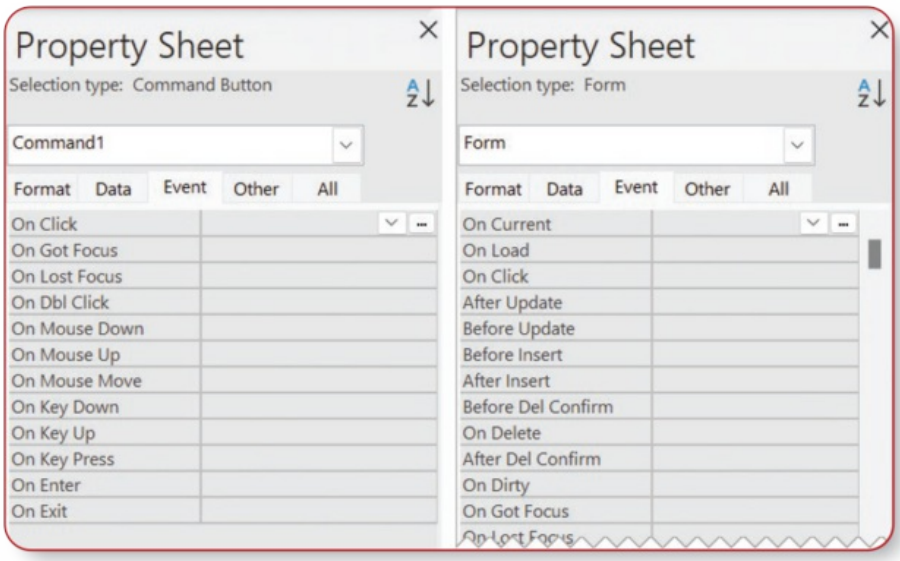


FIGURE 5-51 ***Event*** **tab of the** ***Property Sheet*** **for a command button and a form**

Table 5-4: Common Events in Access Objects and Controls

Category	Event	Explanation
Click events	*On Click*	Executes after the object/control is clicked.
	On Dbl Click	Executes after the object/control is double-clicked.
Focus-based events	*On Got Focus*	Executes when an object/control receives focus.
	On Lost	Executes when an object/control loses focus.

	Focus	
	On Enter	Used only with text box controls. This event happens immediately before the text box obtains the focus. This can be used to provide instructions before that control becomes active.
	On Exit	Executes immediately before a control, on a form or report, loses the focus to another control on the same form or report. Use the *On Exit* event to verify that an entry is correct before leaving the field. If it isn't correct, include an action in the macro to cancel the exit from happening.
Mouse events	*On Mouse Down*	Executes when the mouse pointer is positioned over an object/control and the user presses a mouse button. The *On Mouse Down* event contains parameters to enable you to determine which mouse button was pressed, whether another key (like **Shift**) was pressed while pressing the mouse button, and the location of the mouse pointer.
	On Mouse Up	Executes when a mouse button is released after having been pressed. The *On Mouse Up* event contains parameters to enable you to determine if the user pressed another key while pressing the mouse, along with the location of the mouse pointer.
	On Mouse Move	Executes when the user moves the mouse pointer over an object/control.
Keyboard events	*On Key Up*	Executes when the user releases a key that he or she was pressing. The *On Key Up* event contains parameters to determine which key was pressed and whether another key was also being pressed.
	On Key Down	Executes when a key is pressed. The *On Key Down* event contains parameters to determine which key was pressed and whether the user was also pressing another key.
	On Key Press	Executes when a key is pressed, but the *On Key Press* event only contains a parameter about which key was pressed, not whether additional keys were also pressed.
Form/report events	*On Open*	Executes when a form or report is opened. If an object is already open, and the user simply clicks the object to make it the active object, the *On Open* event does not occur. Use the *On Activate* event instead.
	On Activate	Executes after a form or report is already opened and the object gains the focus.
	On Deactivate	Executes when the form or report loses the focus to another object.

	On Close	Executes after a form or report is closed.

A5-353

Additionally, many events relate to objects and controls gaining or losing focus. ***Focus*** refers to the status of a control or object. The active control or object is said to "have the focus." When a user tabs into, or clicks, a control, the *On Got Focus* event occurs.

Now that you have been introduced to events and actions, you are ready to learn how to write and use a macro. To help illustrate the process, let's review a macro that solves a common dilemma. In Access, if you open a report that doesn't contain any data, the report still displays. As shown in **Figure 5-52**, the report shows just the header and footer, but no data. A user might think that the database report didn't work correctly, instead of realizing that no records exist for that report.

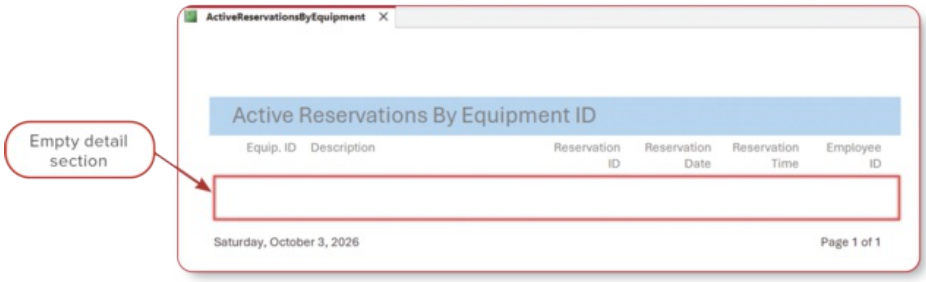


FIGURE 5-52 A report without data displays the header and footer

Instead of displaying an empty report, you want the database to display a message to users alerting them that the report doesn't have any data. One of the events in a report is *On No Data.* The *On No Data* event executes as part of the opening event in a report. This event occurs before a report displays or prints. Use this event to display a message and then stop the report from opening.

In order to have all of your reports behave this way, create a stand-alone macro. This saves you the time and effort of having to create the same macro actions for each report. The ability to assign a macro to multiple objects is a key advantage of stand-alone macros.

A5-354

Figure 5-53 shows the code in the sample macro. The macro contains two actions, along with comments that explain what is happening inside the macro. Let's explore the actions in this macro.

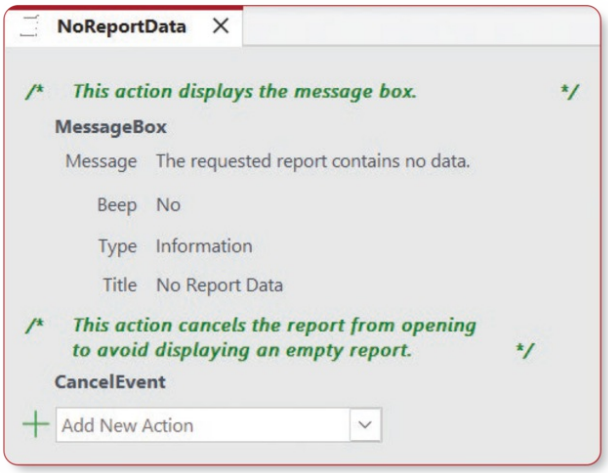


FIGURE 5-53 Sample code for an *On No Data* event macro of a report

The MessageBox Action

As the name implies, this action causes a message box to display. The *MessageBox* action has the following arguments:

- *Message:* Enter the text that you want displayed inside the message box.
- *Beep:* Select *Yes* or *No,* depending on whether you want Access to make a sound when the message box displays.
- *Type:* Select the type of icon to display in the message box. **Table 5-5** illustrates the five choices and their corresponding icon.

Table 5-5: Message Box Types

Type	Icon
None	
Critical	
Warning?	
Warning!	
Information	

- *Title:* Enter the text that you want to display in the *Title* bar of the message box. If no title is entered, the phrase "Microsoft Access" displays in the *Title* bar.

The CancelEvent Action

This stops the report from opening. This action does not contain any arguments.

After you enter the macro code, you must save the macro. When you save a stand-alone macro, you assign it a name. The saved macro then displays in the *Macros* group of the *Navigation Pane* (Figure 5-54).

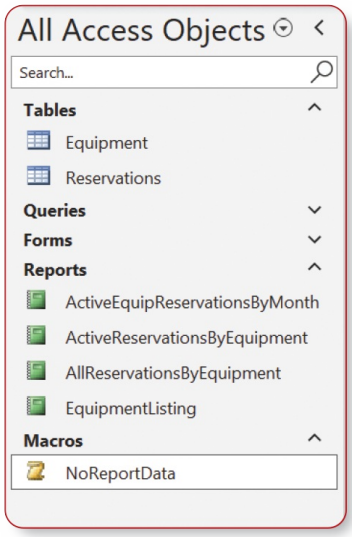


FIGURE 5-54 Macro in the *Navigation Pane*

A5-355

After you create a stand-alone macro, you are able to assign it to an event of an object or control. Figure 5-55 shows the *Event* tab of the *Property Sheet* for a report. The name of the sample macro, *NoReportData,* is in the property box of the *On No Data* event. You must assign this macro to the *On No Data* event for each report in the database.

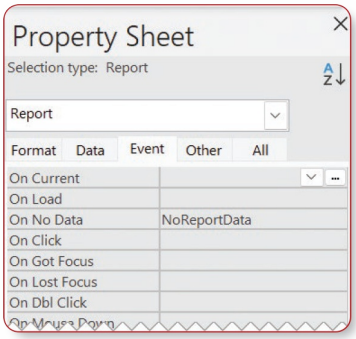


FIGURE 5-55 Macro called from the *On No Data* property

Now when the report is opened, if it doesn't contain any data, the message box shown in Figure 5-56 displays instead of the empty report. Review the message box in Figure 5-56 to

see how and where the different arguments of the *MessageBox* action display.

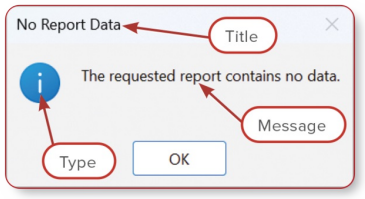


FIGURE 5-56 Message box called from the macro

Build a Stand-Alone Macro

Create a stand-alone macro when you want to call a macro from several different objects or controls, or when you want to create a macro that executes automatically when the database is first opened.

Use the *Macro Builder* to create a stand-alone macro.

HOW TO: Build a Stand-Alone Macro

1. Click the **Macro** button [*Create* tab, *Macros & Code* group] (**Figure 5-57**) to open the *Macro Builder*. The insertion point is positioned in the *Add New Action* box.

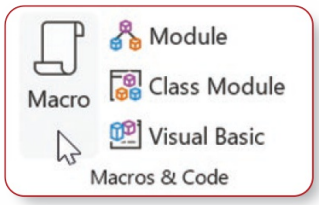


FIGURE 5-57 *Macro* button

2. Click the **Add New Action** drop-down arrow and select the desired action. The action is added to the macro window. The words "Add New Action" may not display inside the box depending on whether you have clicked anything else.
3. Fill in arguments by clicking the argument box and entering the appropriate value. Press **Tab** after entering the value.
4. Add any additional actions into the macro.
5. Add comments into the macro to explain the purpose/logic of the macro actions. Press **Tab** after entering the comment.
6. Save the macro.

- The *Save As* dialog box prompts you to assign a name to the macro.
- The completed macro appears in the *Macros* group of the *Navigation Pane*.

7. Close the macro.

MORE INFO

Use the *Help* feature in Access to learn how each action operates and the different arguments used in a particular action.

A macro that runs when a database is first opened is an ***AutoExec* macro**. This kind of macro is usually set up to perform initial actions in the database, like opening the main form in the database, modifying settings to restrict user actions, and opening a login form.

- To create a macro that executes automatically when the database is opened, save your stand-alone macro with the name *AutoExec*.
- To bypass the execution of the *AutoExec* macro, a user can press and hold the **Shift** key when opening the database.

Run a Stand-Alone Macro

Run a stand-alone macro three different ways:

- Double-click the macro name in the *Navigation Pane*.
- Call the macro from another macro using the *RunMacro* or *OnError* macro action. Enter the name of the macro in the *Macro Name* argument of the *RunMacro* or *OnError* action.
- Attach the macro to an event property of an object or control.

HOW TO: Attach a Stand-Alone Macro to an Event Property

1. Open the object in *Design* view.
2. Select a control on the object, if you want to attach the macro to that specific control.
3. Click the **Property Sheet** button [*Form Design* or *Report Design* tab, *Tools* group] to open the *Property Sheet*.
4. Click to select the **Event** tab of the *Property Sheet*.
5. Enter the macro name in the property box of the desired event.

6. Save the object.

Build an Embedded Macro

Create an embedded macro when the actions of the macro are unique to a specific object. For example, if only one report in your database might not have data to display, the macro code to display the message and stop the event could be entered into an embedded macro for the *On No Data* event for just that one report. An embedded macro is built using the actions and events previously described.

Before creating an embedded macro, you must first open the *Property Sheet* of the object or control.

HOW TO: Build an Embedded Macro

1. Open the object in *Design* view.
2. Select the control, if the macro will be attached to a specific control on the object.
3. Click the **Property Sheet** button [*Form Design* or *Report Design* tab, *Tools* group] to open the *Property Sheet*.
4. Click to select the **Event** tab of the *Property Sheet*.
5. Click the property box of the desired event.
6. Click the **Build** button (**Figure 5-58**) to open the *Choose Builder* dialog box.

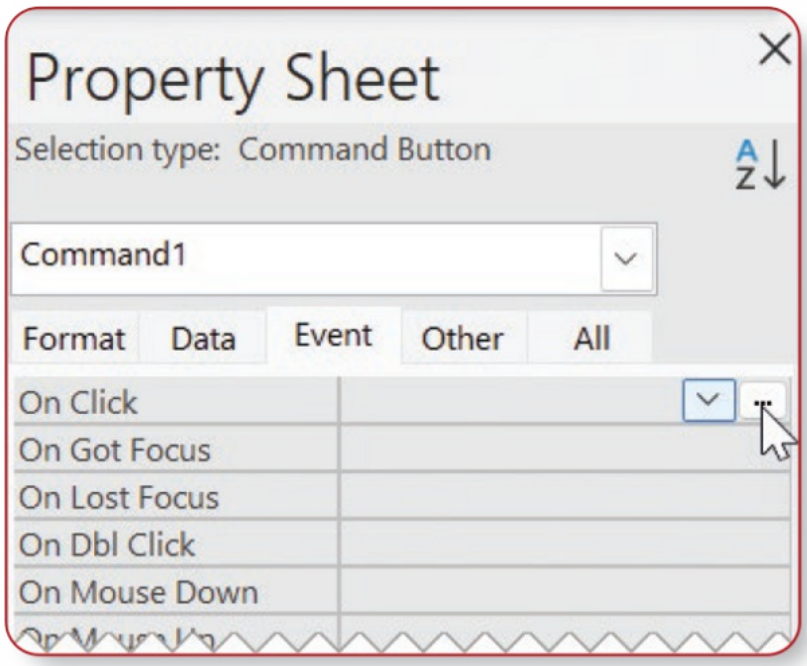


FIGURE 5-58 **Click the *Build* button of the desired event**

7. Select **Macro Builder** and click **OK**.
8. Click the **drop-down arrow** and select the desired action.
9. Fill in arguments by clicking the argument box and entering the appropriate value.
10. Add any additional actions into the macro.
11. Add comments into the macro to explain the purpose/logic of the macro actions.
12. Save and close the macro. The property box of the event property updates to display *[Embedded Macro]* (**Figure 5-59**).

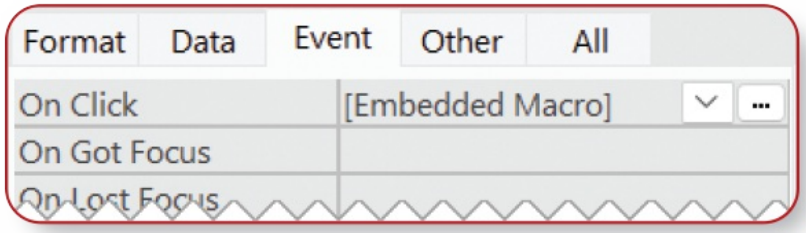


FIGURE 5-59 ***Embedded Macro* displays in the event property**

13. Save the object.

ANOTHER WAY

An embedded macro is automatically created when you use the *Command Button Wizard* to attach functionality to a button, as you learned in ***SLO 4.3: Facilitating Data Input with a Form***.

An embedded macro automatically runs when the event to which it is attached executes.

Edit or Delete a User Interface Macro

After a macro is built, you may need to edit the macro.

HOW TO: Edit a Stand-Alone Macro

1. Right-click the macro name in the *Navigation Pane* and select **Design View**. The macro opens in the *Macro Builder*.

2. Edit the macro code as desired.
3. Save and close the macro.

HOW TO: Edit an Embedded Macro

1. Open the object that contains the macro in *Design* view. If the macro is attached to a specific control on the object, select that control.
2. Click the **Property Sheet** button [*Form Design* or *Report Design* tab, *Tools* group] to open the *Property Sheet* and select the **Event** tab of the *Property Sheet*.
3. Click the **Build** button in the property box of the event. The macro opens in the *Macro Builder*.
4. Edit the macro code as desired.
5. Save and close the macro.
6. Save the object.

Delete macros from the database that have been created in error or are no longer needed.

Deleting a stand-alone macro is very straightforward. Right-click the macro name in the *Navigation Pane* and select **Delete**.

HOW TO: Delete an Embedded Macro

1. Open the object that contains the macro in *Design* view. If the macro is attached to a specific control on the object, select that control.
2. Click the **Property Sheet** button [*Form Design* or *Report Design* tab, *Tools* group] to open the *Property Sheet* and select the **Event** tab of the *Property Sheet*.
3. Click the property box of the event and delete the phrase **[Embedded Macro]**.
4. Save the object.

PAUSE & PRACTICE: ACCESS 5-3

For this Pause & Practice, you create two user interface macros for the Challenger Middle School database. You build a stand-alone macro to display a message box instead of a blank report. You build an embedded macro to open all the reports by clicking a button on a form. You also execute each macro to ensure that it works as planned.

File Needed: ***ChallengerMiddleSchool-05.accdb*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Name: ***[your initials] PP A5-3.accdb***

1. Open the ***ChallengerMiddleSchool-05.accdb*** database from your student data files. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close it.
2. Save a new copy of your database as [your initials] PP A5-3.
3. Enable content in the database.
4. Create a stand-alone macro to display a message box instead of showing a report with no data.
   a. Click the **Macro** button [*Create* tab, *Macros & Code* group] to open the *Macro Builder*.
   b. Click the **Add New Action** drop-down arrow (**Figure 5-60**) and select **Comment**. The words "Add New Action" may not display inside the box depending on whether you have clicked anything else.

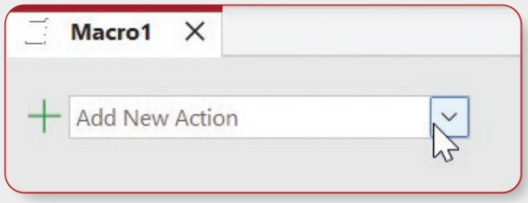


FIGURE 5-60 Add a new action to the macro

   c. Type This action displays the message box.
   d. Click the **Add New Action** drop-down arrow and select **MessageBox**.
   e. Type The requested report contains no data. in the *Message* argument and press **Tab**.
   f. Select **No** in the *Beep* argument.
   g. Select **Information** in the *Type* argument.
   h. Type No Report Data in the *Title* argument.
   i. Click the **Add New Action** drop-down arrow and select **Comment**.
   j. Type This action cancels the report from opening to avoid displaying an empty report.
   k. Click the **Add New Action** drop-down arrow and select **CancelEvent**.
   l. Click the **Save** button [*File* tab], type NoReportData in the *Macro Name* box, and click **OK** to save the macro.
   m. Close the macro.
5. Double-click the **ActiveReservationsByEquipment** report to run the report.
6. Type XXX in the *Enter Parameter Value* dialog box and click **OK**. The report should open but no records will display because no equipment has an *EquipID* of *XXX*.

7. Attach the macro to the *ActiveReservationsByEquipment* report.
    a. Click the **View** button [*Home* tab, *Views* group] and select **Design View**.
    b. Click the **Property Sheet** button [*Report Design* tab, *Tools* group] to open the *Property Sheet.*
    c. Click to select the **Event** tab of the *Property Sheet.*
    d. Type NoReportData in the **On No Data** property box. As you type the macro name, the *IntelliSense* tool in Access recognizes the macro name and completes it for you. Tab out of the property box to accept the value that was autocompleted.
    e. Close the *Property Sheet.*
    f. Save and close the report.
8. Test the macro.
    a. Double-click the **ActiveReservationsByEquipment** report to run the report.
    b. Type XXX in the *Enter Parameter Value* dialog box and click **OK**. The message box that you created in your macro displays. Click **OK** to close the message box.
    c. Double-click the **ActiveReservationsByEquipment** report to run the report again.
    d. Don't type anything into the *Enter Parameter Value* dialog box and click **OK**. The report should open and show all records.
    e. Close the report.
9. Attach the macro to the *AllReservationsByEquipment* report following the directions in step 7. Remember to open the report in *Design* view.
10. Examine the functionality of the *ExecuteReports* form.
    a. Open the **ExecuteReports** form in *Form* view.
    b. Click the **Active Reservations by Equipment ID** button.
    c. Type 2 in the *Enter Parameter Value* dialog box and click **OK**. The report should open and show the eight records.
    d. Close the report.
    e. Click the **All Reservations by Equipment ID** button.
    f. Type XXX in the *Enter Parameter Value* dialog box and click **OK**. The message box that you created in your macro displays. Click **OK** to close the message box.
    g. Click the **Preview All Reports** button. Nothing should happen.
11. Examine the macro on the *Active Reservations by Equipment ID* button.
    a. Switch to *Design* view of the **ExecuteReports** form.
    b. Select the **Active Reservations by Equipment ID** button.
    c. Click the **Property Sheet** button [*Form Design* tab, *Tools* group] to open the *Property Sheet.* In the drop-down box near the top of the *Property Sheet,* notice the name of this button is *Command5.*
    d. Click to select the **Event** tab of the *Property Sheet.* Note the existing embedded macro in the *On Click* event.
    e. Click the **Build** button of the *On Click* event to open the *Macro Builder* (**Figure 5-61**). This macro was automatically created when the button was added to the form using the *Command Wizard.*

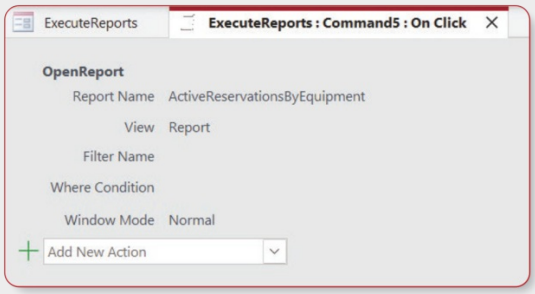


FIGURE 5-61 ***On Click*** **event macro code of the** ***Active Reservations by Equipment ID*** **button**

f. Close the macro.

12. Create an embedded macro to open all four reports from a button on a form.

a. Select the **Preview All Reports** button.

b. Click to select the **Event** tab of the *Property Sheet* if necessary.

c. Click the property box of the **On Click** event and click the **Build** button.

d. Select **Macro Builder** in the *Choose Builder* dialog box and click **OK**.

e. Click the **Add New Action** drop-down arrow and select **Comment**.

f. Type The following commands open the database reports in Print Preview mode.

g. Click the **Add New Action** drop-down arrow and select the **OpenReport** action.

h. Type ActiveEquipReservationsByMonth in the *Report Name* argument. The *Intellisense* tool should autocomplete the name as you begin to enter it.

> **ANOTHER WAY**
>
> Click the **drop-down arrow** in the *Report Name* argument and select the desired report.

i. Select **Print Preview** in the *View* argument.

j. Add three more **OpenReport** actions for the *ActiveReservationsByEquipment*, the *AllReservationsByEquipment*, and the *EquipmentListing* reports. Type Print Preview in the *View* argument for each report. The completed *Macro Builder* window should look like the example in **Figure 5-62**.

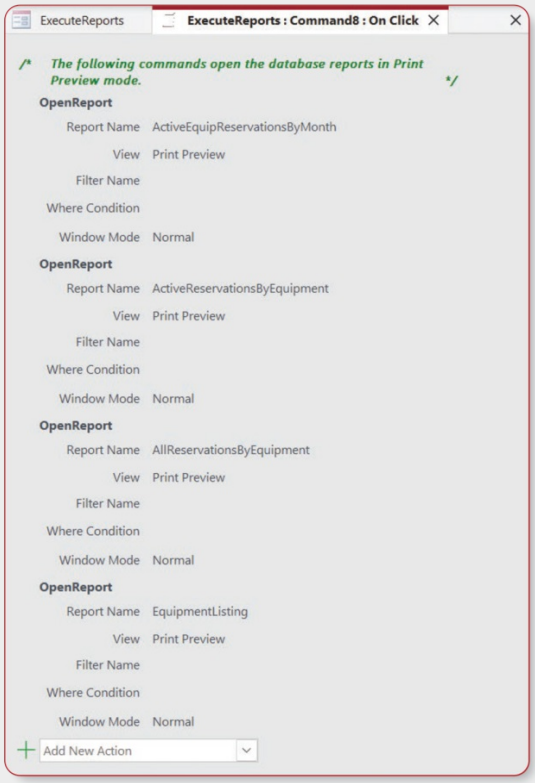


FIGURE 5-62 Completed macro code for the *Preview All Reports* button

k. Save and close the macro. The property box of the *On Click* event property updates to display *[Embedded Macro]*.

l. Close the *Property Sheet*.

m. Save the form.

13. Test the embedded macro.

a. Switch to *Form* view of the *ExecuteReports* form.

b. Click the **Preview All Reports** button. The *ActiveEquipReservationsByMonth* report displays. The *Enter Parameter Value* dialog box opens for the *ActiveReservationsByEquipment* report.

c. Do not enter a parameter value and click **OK**. The report opens in *Print Preview* mode and the *Enter Parameter Value* dialog box opens for the *AllReservationsByEquipment* report.

d. Type XXX in the *Enter Parameter Value* dialog box and click **OK**. The *No Report Data* message box displays.

e. Click the **OK** button. The *EquipmentListing* report opens in *Print Preview* mode. Note that you can click the tabs to switch between the different reports.

f. Close the three reports.

g. Close the form. Click **Yes** if prompted to save changes to the form.

14. Close the database.

SLO 5.6

Building and Using Data Macros

In contrast to user interface macros, ***data macros*** enable you to automate tasks related to the database tables. In this section, you explore different uses of data macros, create and test data macros, and understand the differences between event-driven and named data macros.

Data Macros

Use data macros to ensure that the data in tables is accurate. Additionally, you can use them to automate tasks related to adding, deleting, or changing data. Because these macros are attached to a table, they execute any time a table's data is updated. Create data macros to respond to any of the five events in Table 5-6.

A5-361

Table 5-6: Data Macro Events

Event	Explanation	Additional Information
Before Change	Executes before a record is saved to validate the changes and then makes the decision to save the new values, change values, or display an error to stop the changes.	Use the *[IsInsert]* property to determine if the change is an insert or an update.
Before Delete	Executes before a record is deleted to validate the deletion, and then performs the deletion or displays an error to stop the deletion.	
After Insert	Executes after a record is added to the table.	Use the *Updated("Field Name")* function to check if a field has been changed.
After Update	Executes after an existing record is changed.	Use the *[Old].[Field Name]* to check the value of a field before the change.
After Delete	Executes after a record is deleted.	Use the *[Old].[Field Name]* to check the

		value of a field before the deletion.

MORE INFO

In addition to these five events, you can create a *Named Data Macro,* which is explained at the end of this section.

After selecting the type of event, you are ready to select the action steps that will occur inside the macro. A data macro has a more limited set of actions than a user interface macro. These actions are explained in Table 5-7. An **X** in an event column indicates that you can use the action in that event.

Table 5-7: Data Macro Actions

Action	Explanation	Before Change	Before Delete	After Insert	After Update	After Delete
CancelRecordChange	Exits an *EditRecord* or *CreateRecord* data block and does not save the current record.			X	X	X
ClearMacroError	Clears the *MacroError* object. The *MacroError* object contains information about errors that have occurred during the execution of a macro.	X	X	X	X	X
DeleteRecord	Deletes a record from an expression.			X	X	X
ExitForEachRecord	Exits the innermost *ForEachRecord*.			X	X	X
LogEvent	Adds a record into the *USysApplicationLog* table, an Access table that contains information related			X	X	X

	to data macro and application errors.					
OnError	Contains the action to perform if an error occurs.	X	X	X	X	X
RaiseError	Notifies the application that an error has occurred.	X	X	X	X	X
RunDataMacro	Executes a *Named Data Macro*.			X	X	X
SendEmail	Sends an email using the email program installed on your computer.			X	X	X
SetField	Sets the specified field to the indicated value	X		X	X	X
SetLocalVar	Creates or modifies a local variable used in the macro.	X	X	X	X	X
StopAllMacros	Directs Access to stop the execution of all macros currently running.			X	X	X
StopMacro	Directs Access to stop the execution of the current macro.	X	X	X	X	X

In addition to the data macro actions listed in the table, four additional macro actions are classified as data blocks. A *data block* performs an action but usually requires additional actions related to the block. For example, in order to create a record, you must include actions to assign values to the different fields in the record. These four data blocks are listed in **Table 5-8**. The table also indicates the event macros in which you can use these data blocks.

Table 5-8: Data Block Macro Actions

Data Block	Explanation	Before Change	Before Delete	After Insert	After Update	After Delete
CreateRecord	Creates a new record in			X	X	X

	a table. Typically used in conjunction with the *SetField* action to assign values for the fields in the record.					
EditRecord	Changes the values in the existing record. Typically will include actions to set the value of a field.			X	X	X
ForEachRecord	Repeats a set of actions for each record specified.			X	X	X
LookupRecord	Locates a specific record and performs a set of actions on that record.	X	X	X	X	X

Figure 5-63 illustrates a simple data macro. The macro is automatically named by using a combination of the table name and the event type. In **Figure 5-63**, the name in the tab *Members: Before Change* identifies that this is a *Before Change* event in the *Members* table. In accordance with good database design guidelines, the macro includes a comment to explain the purpose of the macro/action.

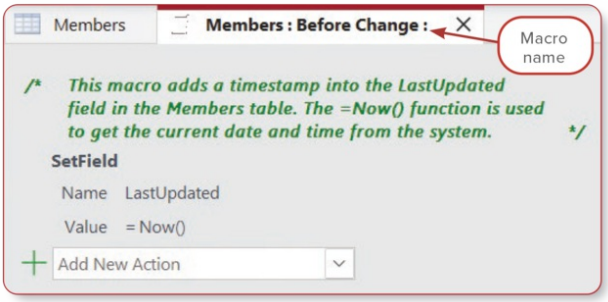


FIGURE 5-63 Sample code in a *Before Change* Data Macro

As you can see in the comment, this macro automatically records a timestamp when a record is changed. To accomplish this, the macro uses the *SetField* action. *SetField* has two arguments: the *Name* of the field in the table and the *Value* to assign to that field. The macro executes when the *Before Change* event happens in the *Members* table. The *Before Change* event automatically occurs if any of the table's fields are changed. When this happens, the actions in the macro obtain the current date and time from the computer and store them in the *LastUpdated* field. The new value in the *LastUpdated* field, along with the changed value that caused the *Before Change* event to occur, is saved into the table.

COPILOT/GENERATIVE AI BEST PRACTICES

Copilot can help provide additional examples and explanations about data macros. Ask *Copilot* to explain some common uses of data macros in Access. Alternatively, ask for more help in understanding the difference between event-driven and named data macros in Access.

Build an Event-Driven Data Macro

Create an ***event-driven data macro*** when the actions of the macro are unique to a specific event in a table.

HOW TO: Build an Event-Driven Data Macro

1. Open the table in *Datasheet* view.
2. Click the **Table** tab (**Figure 5-64**).

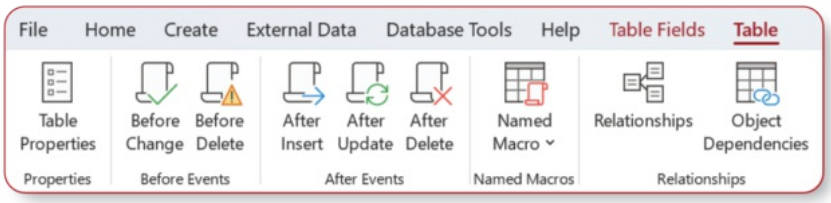


FIGURE 5-64 Event-driven macro buttons on the *Table* tab

3. Select the desired event button from the *Before Events* group or the *After Events* group to open the *Macro Builder*.
4. Click the **drop-down arrow** and select the desired action.
5. Fill in any of the arguments by clicking the argument box and entering the appropriate value.
6. Add any additional actions into the macro.
7. Add comments into the macro to explain the purpose/logic of the macro actions.
8. Save and close the macro.

ANOTHER WAY

Build an event-driven data macro from *Design* view of a table. Click the **Create Data Macros** button [*Table Design tab, Field, Record & Table Events* group] and select the desired event

option.

After you have built the macro, the *Ribbon* of the *Table* tab updates to highlight the event button where you attached the macro (Figure 5-65). A table can have macros attached to each of the different events.

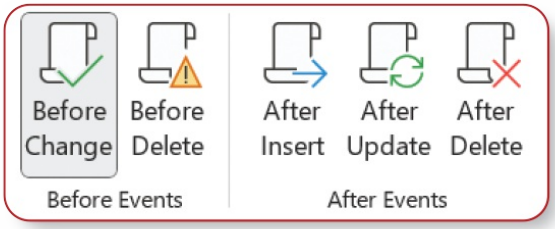


FIGURE 5-65 Highlighted event button indicates that a macro exists

An event-driven data macro executes automatically whenever the specified table event occurs in the database. For example, a *Before Change* event occurs every time data is changed in the table. This could be the addition of a brand-new record, or a change in the values of an existing record.

Named Data Macros

A ***named data macro*** is associated with a specific table, but it is not attached to any particular event. Instead, a named data macro is run by another event-driven macro or by a stand-alone macro. Named data macros have the following characteristics:

- They can use all of the data block actions and all of the event actions described in the *Data Macro Actions* and *Data Block Macro Actions* tables.
- They can use an additional action, *SetReturnVar*. *SetReturnVar* sets the value of a variable to be returned, or passed back, to the object that called the named data macro.
- They can use parameters, if needed. A ***parameter*** passes a value or an object reference into a macro. The name you assign to the parameter (in the *Name* box) is the name you use to refer to the parameter inside your macro.
- Named data macros are executed by using the ***RunDataMacro*** action to call the named data macro. Call a named data macro from an event-driven data macro or from a user interface macro.

Build a Named Data Macro

Create a named data macro in the following situations:

- You need to have the same set of table actions executed from different objects or events.

- You want the actions to occur only from certain objects or events instead of all the time.
- You want to pass data into the macro.

Named data macros use the *Macro Builder*. However, the macro window includes an additional component at the top, shown in **Figure 5-66**, which is used to add parameters into the macro. You will learn more about parameters in the next section of the chapter.

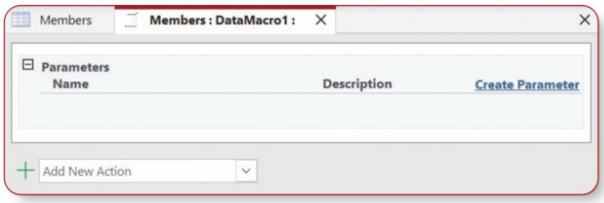


FIGURE 5-66 A named data macro can contain parameters

HOW TO: Build a Named Data Macro

1. Open the table in *Datasheet* view.
2. Click the **Named Macro** button [*Table* tab, *Named Macros* group] and select the **Create Named Macro** option (**Figure 5-67**). The *Macro Builder* opens.

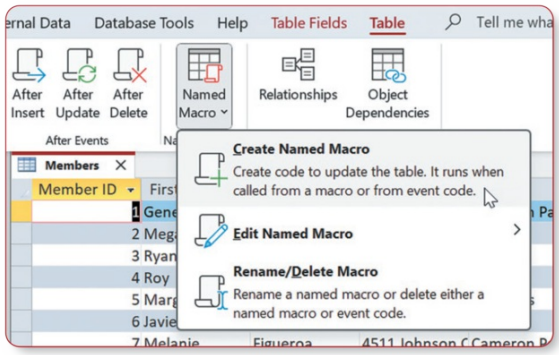


FIGURE 5-67 ***Create Named Macro* option**

3. Click the **Create Parameter** link to add a parameter as desired. See *How To: Add a Parameter into a Named Data Macro* in ***SLO 5.7: Building More Advanced Macros***.
4. Click the **Add New Action** drop-down arrow and select the desired action.
5. Fill in arguments by clicking the argument box and entering the appropriate value.
6. Add any additional actions into the macro.
7. Add comments into the macro to explain the purpose/logic of the macro actions.
8. Save the macro.

9. Type the desired macro name into the *Save As* dialog box and click **OK**.
10. Close the macro.

ANOTHER WAY

Build a named data macro from *Design* view of a table. Click the **Create Data Macros** button [*Table Design* tab, *Field, Record & Table Events* group] and select **Create Named Macro**.

After you have built a named data macro, the *Edit Named Macro* option becomes active when you select the **Named Macro** button from the *Named Macros* group. A table can have many different named data macros.

HOW TO: Execute a Named Data Macro

1. Add a **Run Data Macro** action to an event-driven data macro or a user interface macro.
2. Enter the data macro name in the *Macro Name* argument box.
   - You must enter the table name along with the macro name, as shown in Figure 5-68.

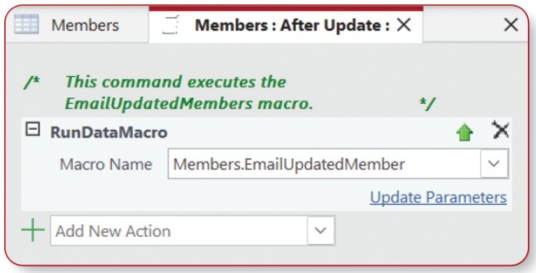


FIGURE 5-68 ***RunDataMacro* action**

   - A period separates the table name from the macro name.

Edit or Delete a Data Macro

After you build a data macro, you may need to edit it. Open the table in *Datasheet* view. Although the process of entering the changes into a macro doesn't vary, the process to re-open a macro does

vary depending on whether it is an event-driven data macro or a named data macro.

HOW TO: Edit an Event-Driven Data Macro

1. Click the event button of the macro you wish to edit from either the *Before Events* group or the *After Events* group [*Table* tab]. The macro opens in the *Macro Builder*.
2. Make desired edits to the macro code.
3. Save and close the macro.

HOW TO: Edit a Named Data Macro

1. Click the **Named Macro** button [*Table* tab, *Named Macros* group] and select the **Edit Named Macro** option. The names of the available macros display (**Figure 5-69**).

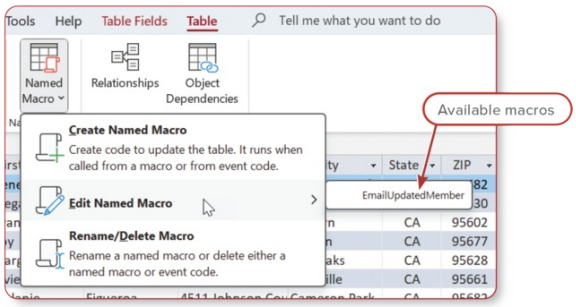


FIGURE 5-69 Selecting the *Edit Named Macro* option displays the list of available macros

2. Select the name of the macro you wish to edit. The macro opens in the *Macro Builder*.
3. Make desired edits to the macro code.
4. Save and close the macro.

Delete any macros from the database that you created in error or that are no longer needed. The process to delete a macro is the same for both event-driven and named data macros.

HOW TO: Delete a Data Macro

1. Open the table in *Datasheet* view.
2. Click the **Named Macro** button [*Table* tab, *Named Macros* group] and select the **Rename/Delete Macro** option. The *Data Macro Manager* opens (**Figure 5-70**).

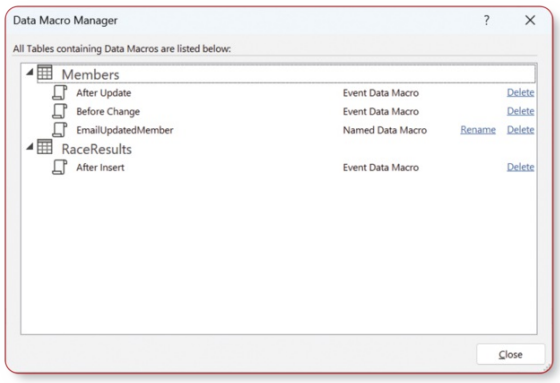


FIGURE 5-70 ***Data Macro Manager*** **dialog box**

3. Click the **Delete** option of the macro you wish to delete. A dialog box displays asking you to confirm the deletion.
4. Click the **Yes** button.
5. Close the *Data Macro Manager*.
6. Save the table.

MORE INFO

To change the name of a named data macro in the *Data Macro Manager* dialog box, select the **Rename** option.

SLO 5.7

Building More Advanced Macros

As you become more comfortable building and using macros, you may need to create macros that involve more advanced concepts. In this section, you learn to add conditions to a macro, create a submacro, and add parameters to a named data macro. Finally, you learn how to test and debug macros.

Add Conditions to a Macro

Many times, the task you are automating with a macro involves asking a question or making a comparison to test a condition. Add an *If* block into a macro to enable you to test a condition and then perform different actions based on the result of the test.

Figure 5-71 shows a simple *If* statement that compares today's date, obtained with the *Date()* function, to the value in the *LastReviewDate* table field. If the difference is greater than or equal to 180 days, then a macro action is processed. In this case, the macro action sets the value of the *EligibleForReview* field to *"Y"*. If the comparison is not true (in this example, if the difference is less than 180 days), the macro exits without performing any action.

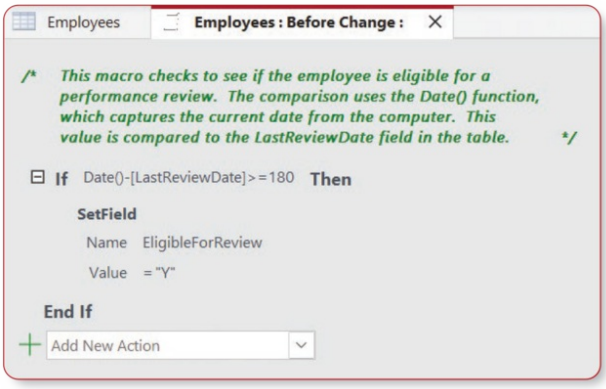


FIGURE 5-71 Add conditions to a macro with an *If* block

HOW TO: Add an If Block into a Macro

1. Click the **Add New Action** drop-down arrow and select **If** to add an *If* block into the macro window (**Figure 5-72**).

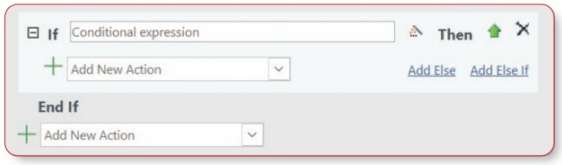


FIGURE 5-72 **An *If* block contains a condition and at least one action**

2. Enter a condition into the *If* box.
3. Click the **Add New Action** drop-down arrow below the condition and select the desired action.
4. Fill in any arguments used in the action by clicking the argument box and entering the appropriate value.
5. Add additional actions into the macro as desired.
6. Click the ***Add Else*** or ***Add Else If*** links if you need to create a more complex comparison.
7. Add comments into the macro to explain the purpose/logic of the macro actions.
8. Save the macro.
9. Close the macro if you have finished adding all actions and comments.

COPILOT/GENERATIVE AI BEST PRACTICES

One common use of data macros is to validate data. Ask *Copilot* whether it is better to use a validation rule in a table or a macro to ensure data integrity.

Figure 5-73 shows an example of a *Nested If condition,* in which one *If* statement occurs inside another *If* statement. The actions in the green box occur only when the result of the first test is true. The first *If* tests to see whether the event that triggered the macro resulted from adding a new record into the table. The blue box contains the second (nested) *If* statement. In this example, the second *If* tests whether the *FourHourRental?* field, a *Yes/No* data type, is checked. A *Yes/No* data type field contains **−1** if it is checked and **0** if it is unchecked. If the result of the second test is true, the first *SetField* action is performed. If the result of the second test is false, then the *Else* part of the second *If* statement executes and the second *SetField* action is performed.

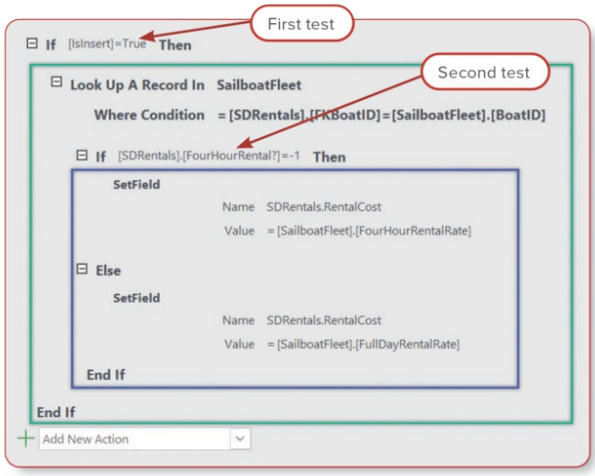


FIGURE 5-73 Example logic in a *Nested If* statement

As you can imagine, the logic in macros can get very involved. It is important to spend time in the planning and design process to ensure that you have created a macro that performs as intended. The macro in **Figure 5-73** does not include any comments. Viewing this macro without comments helps illustrate the benefit of including comments. Comments not only make it easier for someone else to understand your logic, but they help you. For example, in this case, comments could help you determine if you entered the correct *SetField* actions for the true versus false sides of the *If* statement.

Build a Submacro

Occasionally, you may need to create a ***submacro***, which is a named, executable set of actions that perform a specific task. Once you create a submacro, call that submacro when you need to execute that task. Creating submacros can be a useful organizational approach; you end up with fewer separate, smaller macros when you use submacros.

You can only create a submacro in a stand-alone macro, and the submacro must appear at the end of the stand-alone macro. The only code that can follow a submacro is another submacro.

HOW TO: Add a Submacro into a Macro

1. Double-click **Submacro** from the *Action Catalog Program Flow* grouping to add a *Submacro* block into the macro window (**Figure 5-74**).

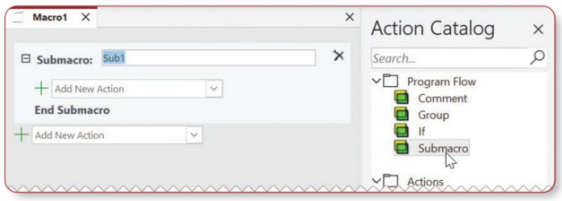


FIGURE 5-74 Add a *Submacro* block

2. Replace the default macro name by entering a unique name in the *Submacro* box.
3. Click the **Add New Action** drop-down arrow and select the desired action.
4. Fill in arguments by clicking the argument box and entering the appropriate value.
5. Add additional actions into the macro as desired.
6. Add comments into the submacro to explain the purpose/logic of the macro actions.
7. Save the macro.
8. Close the macro if you have finished adding all actions and comments.

Figure 5-75 shows a macro named *WhichPetsToShow*. This macro contains two submacros that are designed to filter the records that are available to display from a table. One submacro is named *ShowAllPets* and one is named *ShowAvailable*.

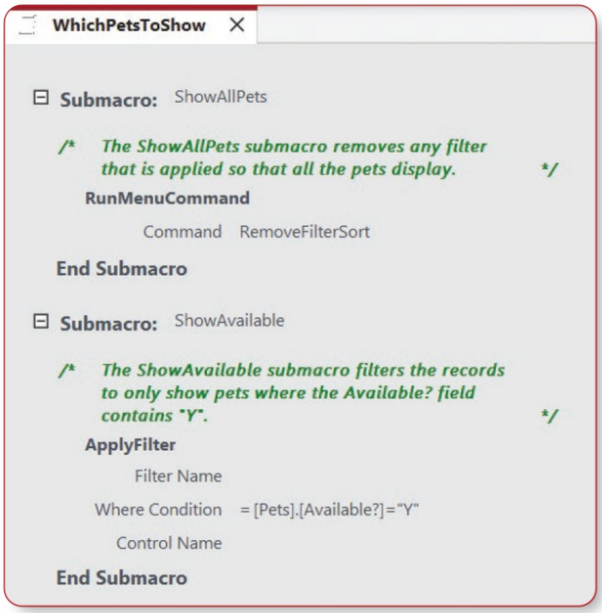


FIGURE 5-75 Submacro examples in the *WhichPetToShow* macro

The *ShowAvailable* submacro uses the *ApplyFilter* action to display only the records where the

Available field is *Y*.

After creating a submacro, you must execute it by calling the submacro. We use the *WhichPetsToShow* example to illustrate three different ways to call a submacro:

Method 1: Call a macro from within a macro using the *RunMacro* action.

- The *RunMacro* action (Figure 5-76) has three arguments.

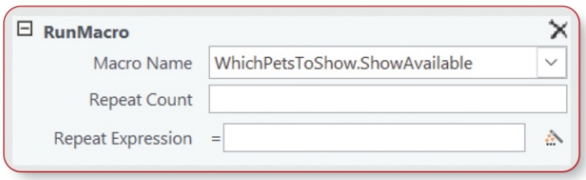


FIGURE 5-76 ***RunMacro* action**

- In the *Macro Name* box, which is a required argument, enter the name of the submacro using the following format: MacroName.SubMacroName.
- After the submacro executes, the calling macro continues to execute.

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Method 2: Call a macro from within a macro using the *OnError* action.

- The ***OnError*** action (Figure 5-77) tells the macro what to do if an error occurs while the macro is executing. The options for *OnError* include calling a macro, going to the next action, or stopping execution of the macro.

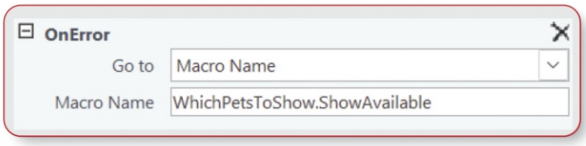


FIGURE 5-77 ***OnError* action**

- Usually the *OnError* action is the first one in the macro, although it can appear later in the macro.
- Select **Macro Name** in the *Go to* argument and enter the submacro name in the *Macro Name* argument using the following format: MacroName.SubMacroName.

MORE INFO

In the *Go To* argument of the *OnError* action, select *Next* to advance to the next action or select *Fail* to stop the execution of the macro.

Method 3: Call a macro from an event in an object or control.

- Enter the submacro name in the property box of the desired event. In this example, the *ShowAllPets* submacro is called from the *On Click* event of a button (Figure 5-78).

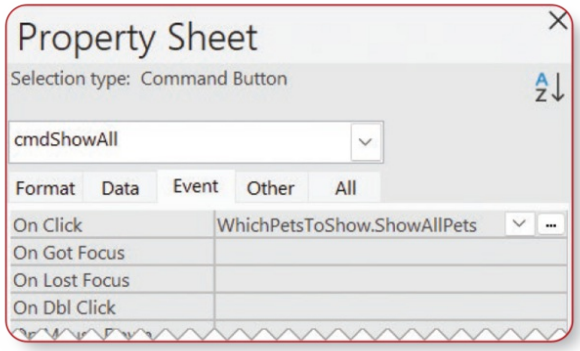


FIGURE 5-78 Call a submacro from an event

Add Parameters to a Named Data Macro

Using a parameter in a named data macro enables you to pass data into the macro. The data can come from another data macro, a form, or a user interface macro. Parameters increase the power and usability of data macros.

When you create a new named data macro, the macro window includes a *parameter area* at the top of the macro. You assign a name to each parameter you add. Inside the macro you refer to the data value using the parameter name.

HOW TO: Add a Parameter into a Named Data Macro

1. Click the **Create Parameter** link in the parameter area. A parameter is added into the parameter area (Figure 5-79).

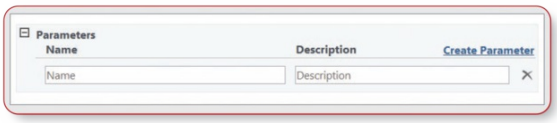


FIGURE 5-79 Parameter area in a named data macro

2. Type a name into the *Name* box.
3. Type a description into the *Description* box. This is optional but the description shows in a tool tip when the parameter is used and serves as a comment for the parameter, so it is good practice to include a description.

4. Add additional parameters as desired.
5. Click outside the parameter area, or click the **Add New Action** box when you are done adding parameters. The parameter area displays the added parameters (**Figure 5-80**).

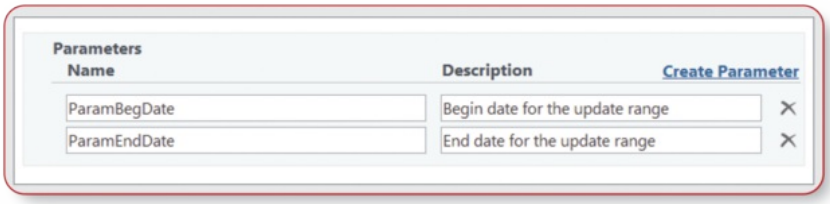


FIGURE 5-80 **Completed parameter area**

To illustrate how parameters are used in the following material, you explore a macro that changes the value of a table field if the record meets certain conditions. This macro uses two data blocks: *ForEachRecord* and *EditRecord.*

ForEachRecord Data Block

The *ForEachRecord* data block repeats the listed actions for each record. The *ForEachRecord* data block has two arguments, which we explain in the following material; only the *In* argument is required.

- The *In* argument can contain a table name, a query name, or an *SQL* statement. This argument tells Access what data to use.
- The *Where Condition* argument can contain an expression to limit the records that are affected. If this condition is omitted, all the records are processed.

As desired, click the **Add Alias** link to add an alias for the argument. An alias provides an alternate name, usually shorter, for the table or query specified in the *In* argument.

In the example shown in **Figure 5-81**, the *ForEachRecord* block specifies that Access will use the *Reservations* table, and that only records where the *ResDate* field is between the *ParamBegDate* and the *ParamEndDate* will process. After completing the arguments, you need to add the desired actions into the *ForEachRecord* block.

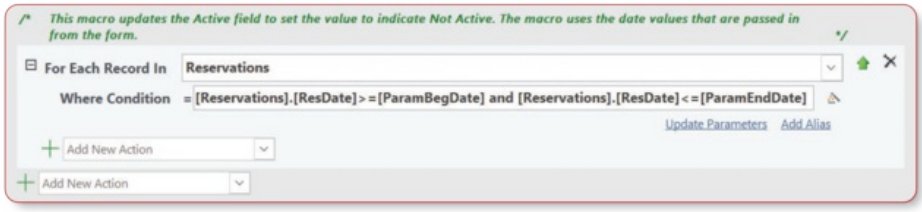


FIGURE 5-81 ***ForEachRecord*** **block**

Figure 5-82 shows an example of the completed macro that includes the two parameters, along with the actions that use those parameters. Notice that the *ForEachRecord* block uses an *EditRecord* data block.

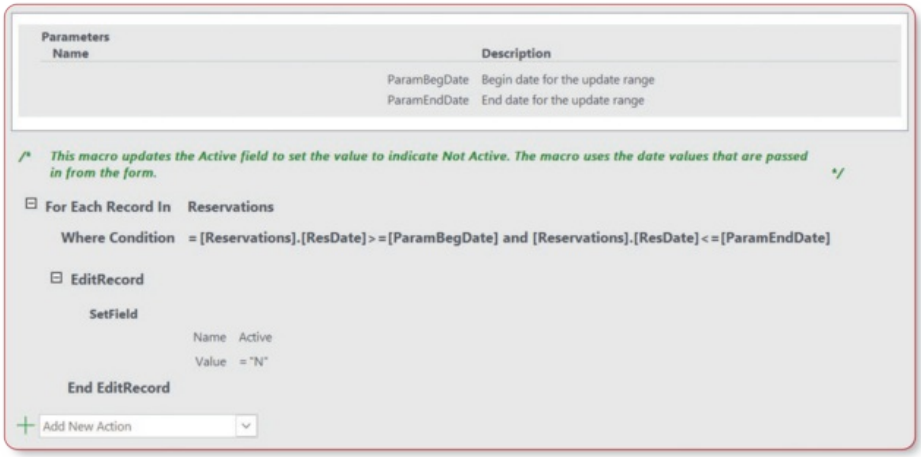


FIGURE 5-82 **Complete macro includes a** ***ForEachRecord*** **data block and an** ***EditRecord*** **data block**

EditRecord Data Block

The *EditRecord* data block edits the values of an existing record. Because this action appears within the *ForEachRecord* block, it operates on the data specified in that block. *Alias* is an optional argument used to provide an alternate name to refer to the record. In the example in **Figure 5-82**, the *EditRecord* block uses the *SetField* action to assign a value of *N* to the *Active* field for records that meet the specified condition.

Pass Values into Parameters

Recall that named data macros are executed by using the *RunDataMacro* action inside another macro.

In the *Macro Name* argument, if you enter a macro that contains parameters, the *RunDataMacro* action changes and requires you to fill in the values for each parameter (**Figure 5-83**).

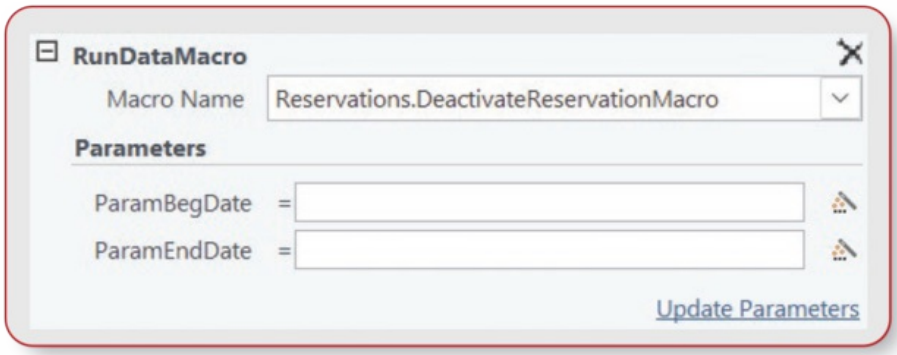


FIGURE 5-83 **If a macro uses parameters, when you add a *RunDataMacro* command you must fill in the parameter values**

As part of the macro design process, you should have already determined which fields or controls will have the parameter values. If the macro is being called from a form, it is common to have the parameter values come from text boxes on the form. If the macro is being called from a data macro of a table, then you may want the parameter values to come from the table fields.

Enter the name of the text box control or table field names into the parameter arguments (**Figure 5-84**). In the example shown here, the parameters come from two text boxes on a form. This macro is called from an embedded macro attached to the *OnClick* event of a button on the form.



FIGURE 5-84 **These parameters get their values from text boxes**

Test and Debug a Macro

After you create a macro, it is important to test it to ensure that it performs as planned. Thorough testing requires you to develop a specific plan to test the macro. This may involve creating test data and test scenarios in your database. For example, with the *NoReportData* macro from ***Pause & Practice 5-3,*** we need two scenarios: Run the report once when the report would not find any data in the underlying tables, and run it a second time when it would find data.

As you are developing your databases, you may need to create or modify the sample data in the table(s) in order to test all possible conditions of a macro. During testing you may discover that a logic error results from selecting the wrong event to trigger the macro. For example, imagine that you want to create a stand-alone macro that executes whenever a form is closed. You have a *Close Form* button on every form, so it is logical to attach the macro to the *On Click* event of the button. However, you need to think of different scenarios and ways the database may be used. For example, if a user closed the form by clicking the **X** in the form tab, your macro would not execute. In this situation, it would be better to attach the macro to the *On Close* event for the form.

In addition to creating test data, other tools are available to help you debug macros. With user interface macros, you debug a macro by adding error handling into a macro or by using the single step utility. With data macros, you use error handling and the *Application Log* table.

Error Handling

Recall that one use of a submacro is to handle errors. **Figure 5-85** illustrates a common design of an error-handling submacro.

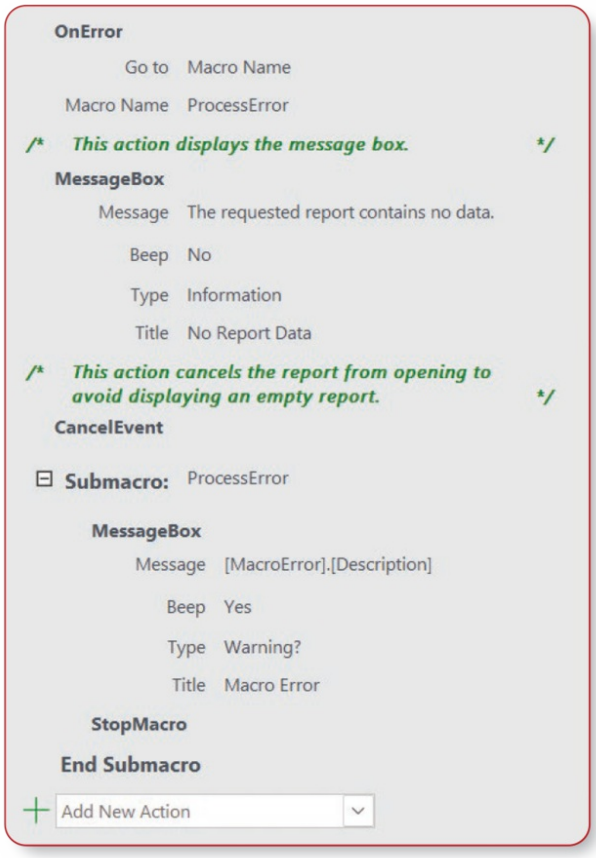


FIGURE 5-85 Sample error-handling macro

- The submacro displays a message box, which will show the description of the error that occurred. In this case, the submacro also contains an action to stop the execution of the macro.
- The *OnError* action tells the macro what to do if an error occurs while the macro is executing.

Including a list of all the possible errors is not practical due to the large number of different errors. They range from *"Division by zero"* to "*An expression you entered is the wrong data type for one of the arguments."* Use the Access help feature to research an error description. Use the help information when you review the design of the macro to repair the problem.

While submacros are not available in data macros, the *OnError* action is. In a data macro, the *OnError* action only allows the *Next* or *Fail* options in the *Go To* argument (**Figure 5-86**).

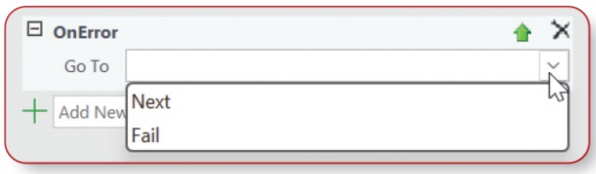


FIGURE 5-86 ***OnError*** **options in a data macro**

COPILOT/GENERATIVE AI BEST PRACTICES

Ask *Copilot* to show examples of custom error handling routines in an Access macro. Follow this up with asking about best practices for designing robust error handling routines in Access applications.

The Single Step Tool

The *Macro Builder* contains the ***Single Step*** tool, which executes the macro one action, or step, at a time. When a macro executes in *Single Step* mode, the *Macro Single Step* dialog box displays (**Figure 5-87**). The dialog box displays the *Macro Name, Condition, Action Name, Arguments* of the action, and the *Error Number.* If no error occurred in a step, the error number is 0. The condition box contains information only when the action is part of an *If* block.

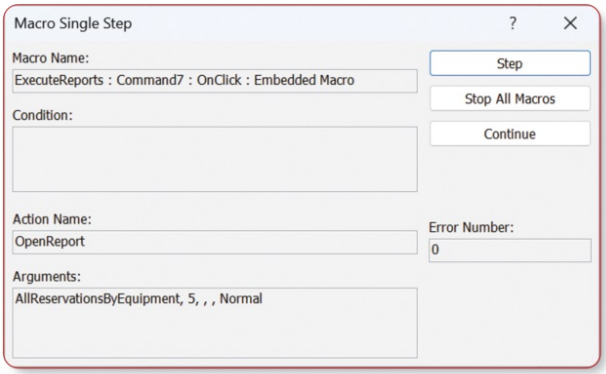


FIGURE 5-87 ***Macro Single Step*** **dialog box**

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Depending on the information you see in the dialog box, you click one of the three buttons.

- **Step:** Advances the macro to the next step.
- **Stop All Macros:** Stops the execution of all macros that are running. This leaves the macro in *Single Step* mode the next time the macro executes.
- **Continue:** Exits *Single Step* mode and continues the execution of the macro. Because *Single Step* mode has been turned off, if you want to debug the macro in the future, you need to turn it back on.

HOW TO: Use the Single Step Tool

1. Open the macro in *Design* View.
2. Turn on *Single Step* by clicking the **Single Step** button [*Macro Design* tab, *Tools* group]. The *Single Step* button is highlighted on the *Ribbon,* indicating that it has been turned on (**Figure 5-88**).

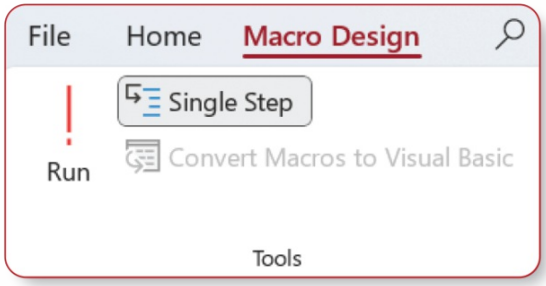


FIGURE 5-88 ***Single Step*** **button**

3. Save and close the macro.

4. Run the macro. The *Macro Single Step* dialog box displays.
5. Click the **Step**, **Stop All Macros**, or **Continue** button.

To turn off *Single Step* mode, click the **Single Step** button [*Macro Design* tab, *Tools* group]. The *Single Step* button is no longer highlighted.

The *Single Step* mode is not an available option in data macros.

The Application Log Table

In data macros, the ***Application Log*** table is available to help you debug a macro. Inside a database, Access maintains a variety of tables with information about the database. These tables do not appear in the *Navigation Pane.* The *Application Log* table (**Figure 5-89**) contains data related to errors encountered when executing data macros. Refer to the information in the table to determine what happened when the macro executed.

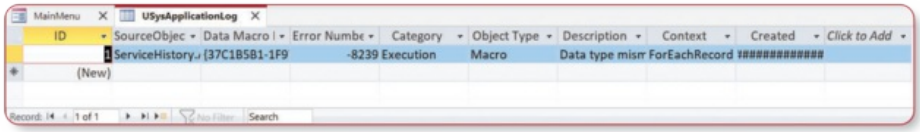


FIGURE 5-89 ***Application Log* table**

To view the *Application Log* table, click the **Info** button [*File* tab] and then select the **View Application Log Table** button. You may want to widen various columns in the table to more easily read the contents.

MORE INFO

The *View Application Log Table* button does not display on the *Info* tab until the table has been created as a result of a macro error.

Visual Basic for Applications (VBA)

An alternative to the *Macro Builder* is to write code in a Visual Basic for Applications (VBA) module. ***Visual Basic for Applications (VBA)*** is a programming language you can use to add functionality to Office applications. In Access, *VBA* provides more commands and options than are available in *Macro Builder,* but it is more difficult to learn. The subset of commands available in *Macro Builder* is usually robust enough to accomplish the features you may wish to automate in your database.

If it becomes necessary to incorporate *VBA* into your database, you can convert existing macro code started in the *Macro Builder* to a *VBA* module. A ***module*** is a database object that contains VBA code used to automate tasks and add functionality to your database. You can only convert a stand-alone macro or embedded macros.

HOW TO: Convert a Stand-Alone Macro into VBA

1. Open the macro in *Design* view.
2. Click the **Convert Macros to Visual Basic** button [*Macro Design* tab, *Tools* group]. The *Convert macro: MacroName* dialog box opens. The name of the macro displays instead of *MacroName*.
3. Uncheck the **Add error handling to generated functions** check box and the **Include macro comments** check box as desired and click **Convert**. The *Convert macros to Visual Basic* message box displays confirming the conversion.
4. Click **OK** to close the message box.
   - The *Microsoft Visual Basic for Applications* window opens.
   - The macro is converted into a module and displays in the *Modules* folder (**Figure 5-90**).

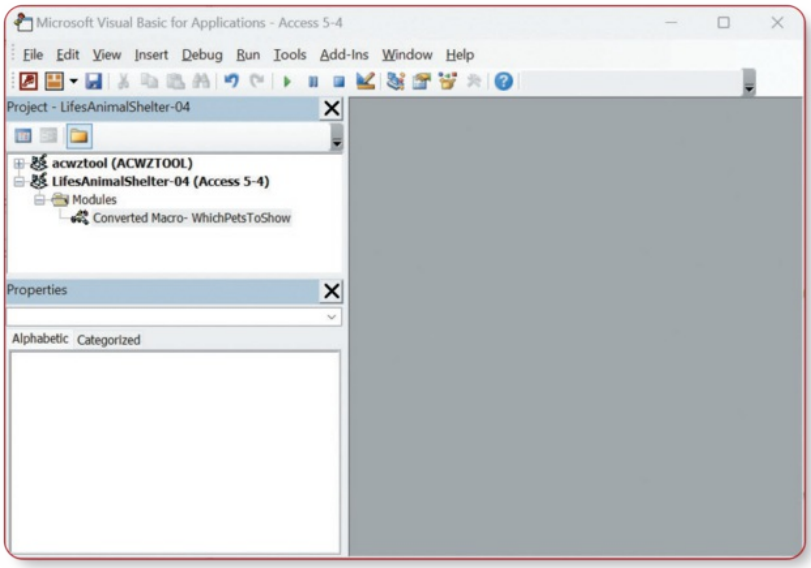


FIGURE 5-90 ***Microsoft Visual Basic for Applications* window**

5. Double-click the module name to open it.
6. Edit the module code as desired.
7. Click **Save** [*File* tab] to save any edits.

8. Click **Close and Return to Microsoft Access** [*File* tab] when finished. A *Modules* group is added into the *Navigation Pane,* containing the new module that was created.
9. Close the macro.

HOW TO: Convert an Embedded Macro into VBA

1. Open the form or report in *Design* view.
2. Click the **Convert Form's Macros to Visual Basic** button [*Form Design* tab, *Tools* group] or the **Convert Report's Macros to Visual Basic** button [*Report Design* tab, *Tools* group]. The *Convert object macro: MacroName* dialog box opens. The type of object (form or report) displays instead of *object* and the name of the macro displays instead of *MacroName*.
3. Uncheck the **Add error handling to generated functions** check box and the **Include macro comments** check box as desired and click **Convert**. The *Convert macros to Visual Basic* message box displays confirming the conversion.
4. Click **OK** to close the message box.
5. Open the corresponding event procedure to open the *Microsoft Visual Basic for Applications* window to view and edit the code.
6. Click **Save** [*File* tab] to save any edits.
7. Click **Close and Return to Microsoft Access** [*File* tab] when finished.
8. Save and close the form.

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While it is beyond the scope of this chapter to cover *VBA,* you can use the Access and *VBA* help systems to learn more about incorporating *VBA* into your database.

VBA can also be used to add a digital signature to your database to let your users know that they can trust the macros and modules in your database. As you learned earlier, macros are a common way to distribute viruses. To convey trust to the users of your database, use *VBA* to digitally sign your database. Adding a digital signature along with other approaches to enhancing database security are covered in chapter 9.

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PAUSE & PRACTICE: ACCESS 5-4

For this Pause & Practice, you continue to work on the Challenger Middle School database. You create and test an event-driven macro to set the value of the *Active* field when a record is added. Then, you create and test a named data macro that uses parameters.

File Needed: ***PP A5-3.accdb***

Completed Project File Name: ***[your initials] PP A5-4.accdb***

1. Open the ***[your initials] PP A5-3*** database file you created in ***Pause & Practice 5-3***.
2. Save a new copy of your database as [your initials] PP A5-4.
3. Enable content in the database.
4. Create an event-driven data macro to set the value of the *Active* field when a user adds a record.
   a. Expand the *Tables* group in the *Navigation Pane*.
   b. Open the *Reservations* table in *Datasheet* view.
   c. Click the **Before Change** button from the [*Table* tab, *Before Events* group] to open the *Macro Builder*.
   d. Click the **Add New Action** drop-down arrow and select **Comment**.
   e. Type This macro automatically sets the value of the Active field to "Y" when a new reservation record is added. The first action checks whether the BeforeChange event is the result of adding a new record (the IsInsert function would be true) versus a change to an existing record.
   f. Click the **Add New Action** drop-down arrow and select **If**.
   g. Enter [IsInsert]=True in the *If* box.
   h. Click the **Add New Action** drop-down arrow directly below the *If* action and select **Comment**.
   i. Type Use the SetField action to set the value of the Active field in the table.
   j. Click the **Add New Action** drop-down arrow directly below the *Comment* and select **SetField**.
   k. Enter Active in the *Name* argument.
   l. Enter "Y" in the *Value* argument. Click outside the *Value* box. The finished macro should look similar to **Figure 5-91**.

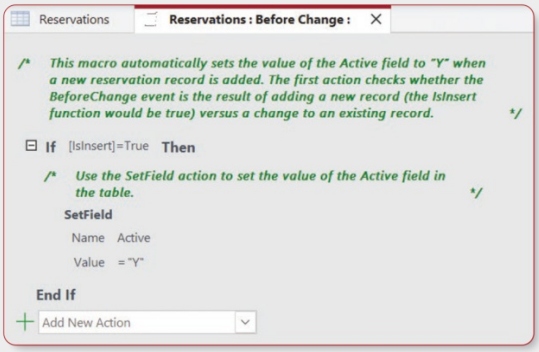


FIGURE 5-91 Completed *Before Change* macro code

m. Save and close the macro. The *Reservations* table is still open in *Datasheet* view.

5. Test the event-driven macro by adding a new record using the *AddNewReservation* form.
   a. Verify that the last record in the *Reservations* table is for *ResID* 25.
   b. Close the table.
   c. Open the *AddNewReservation* form. Note that the form does not have a text box to enter the value for the *Active* field.
   d. Type 2 in the *Employee Number* box.
   e. Select *Equipment ID* **1**.
   f. Type 5/7/2026 in the *Pick Up Date*.
   g. Type 9:00 in the *Pick Up Time*.
   h. Click the **Save Reservation** button (**Figure 5-92**).

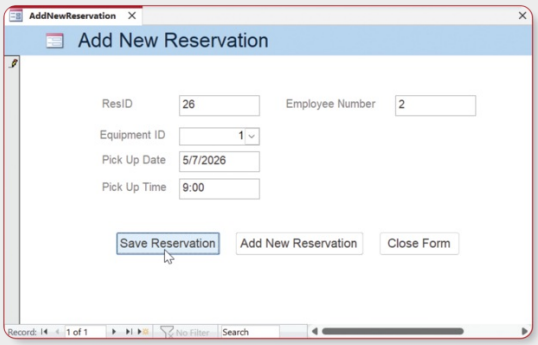


FIGURE 5-92 ***AddNewReservation* form**

   i. Click the **Close Form** button.
   j. Open the *Reservations* table in *Datasheet* view. Verify that the new record for *ResID* 26 has been added and that the value for the *Active* field has been set to *Y*. Also, note that among the many active records, six reservations are for October, November and December 2025 (*ResID*s 4, 5, 8, 9, 10, 11). Those records are deactivated in step 9.

6. Create a named data macro to change the value of the *Active* field to *N* for selected records.
   a. Click the **Named Macro** button [*Table* tab, *Named Macros* group] and then select the **Create Named Macro** option to open the *Macro Builder*.
   b. Click the **Create Parameter** link to add a parameter to the macro.
   c. Type ParamBegDate into the *Name* box.
   d. Type Begin date for the update range into the *Description* box.
   e. Click the **Create Parameter** link to add a parameter to the macro.
   f. Type ParamEndDate into the *Name* box.
   g. Type End date for the update range into the *Description* box.
   h. Click the **Add New Action** drop-down arrow and select **Comment**.

i. Type This macro updates the Active field to set the value to indicate Not Active. The macro uses the date values that are passed in from the form.

j. Click the **Add New Action** drop-down arrow and select **ForEachRecord**.

k. Type Reservations into the *For Each Record In* box.

l. Type [Reservations].[ResDate]>=[ParamBegDate] and [Reservations].[ResDate]<=[ParamEndDate] into the *Where Condition* box.

m. Click the **Add New Action** drop-down arrow directly below *Where Condition* and select **EditRecord**.

n. Click the **Add New Action** drop-down arrow directly below *EditRecord* and select **SetField**.

o. Type Active in the *Name* box.

p. Type "N" in the *Value* box. Click outside the *Value* box. The completed macro should look similar to **Figure 5-93**.

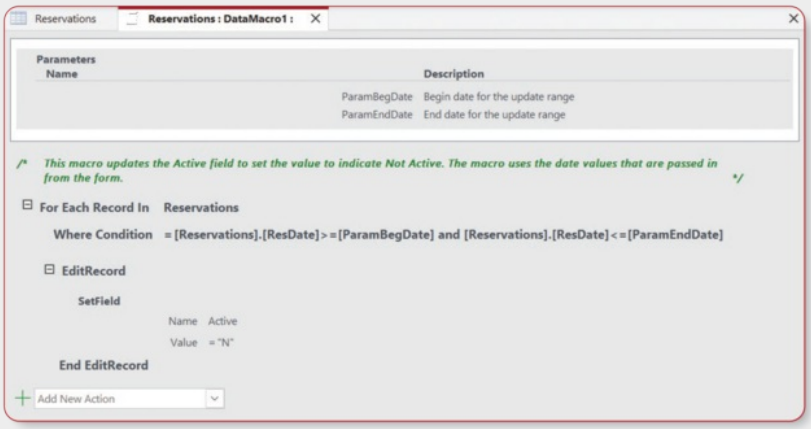


FIGURE 5-93 Complete named data macro code

q. Save the macro as DeactivateReservationMacro and close the macro.

r. Close the *Reservations* table.

7. Prepare to call the named macro.

a. Open the **DeactivateReservation** form in *Design* view.

b. Click to select the **unbound** text box to the right of the *Enter the Beginning Date of the range* label (**Figure 5-94**).

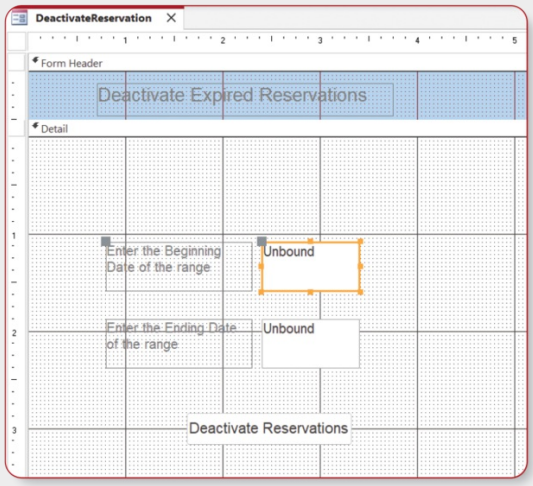


FIGURE 5-94 Select the text box in *Design* view of the *DeactivateReservation* form

c. Click the **Property Sheet** button [*Form Design* tab, *Tools* group].

d. Select the **Other** tab. In the *Name* property, note that the name of this text box is *txtBegDate*.

e. Click to select the **unbound** text box to the right of the *Enter the Ending Date of the range* label. In the *Name* property, note that the name of this text box is *txtEndDate*.

8. Call the named macro from another macro.

a. Click the **Deactivate Reservations** button.

b. Select the **Event** tab.

c. Click the property box of the **On Click** event and click the **Build** button.

d. Select **Macro Builder** in the *Choose Builder* dialog box and click **OK**.

e. Click the **drop-down arrow** and select **Comment**.

f. Type This macro executes the DeactivateReservationMacro, a named data macro attached to the Reservations table. It uses two parameters that get their values from the text boxes on the form.

g. Click the **Add New Action** drop-down arrow and select **RunDataMacro**.

h. Click the **drop-down arrow** in the *Macro Name* argument and select **Reservations.DeactivateReservationMacro**.

i. Enter [txtBegDate] in the *ParamBegDate* argument.

j. Enter [txtEndDate] in the *ParamEndDate* argument.

k. Click the **Add New Action** drop-down arrow and select **Comment**.

l. Type The next action executes after all the updates have occurred. A message box displays.

m. Click the **drop-down arrow** and select **MessageBox**.

n. Type Reservations have been updated. in the *Message* argument.

o. Select **No** in the *Beep* argument.

p. Select **Information** in the *Type* argument.

q. Leave the *Title* argument empty and click outside the *Type* argument. The completed macro should look similar to **Figure 5-95**.

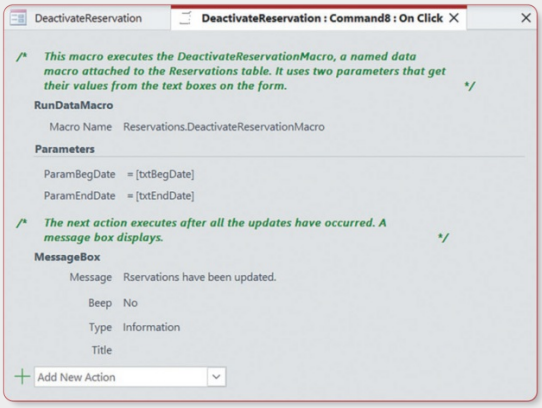


FIGURE 5-95 Completed *OnClick* macro code

r. Save and close the macro.

s. Save the form.

9. Test the macro.

a. Switch to *Form* view of the *DeactivateReservation* form.

b. Type 10/1/2025 in the *Enter the Beginning Date of the range* text box.

c. Type 12/31/2025 in the *Enter the Ending Date of the range* text box.

d. Click the **Deactivate Reservations** button. The *Message Box* displays.

e. Click **OK** to close the *Message Box.*

f. Open the *Reservations* table in *Datasheet* view. Verify that the *Active* field has changed to *N* for the six records in the October, November and December 2025 date range.

10. Close the table.

11. Close the form.

12. Close the database.

Chapter Summary

A5-379

A5-380

5.1 Analyze, create, use, and modify a database from an Access template; create a table from a template with *Application Parts;* and save a database as a template (p. A5-324).

- ***Templates*** are predesigned databases that provide a complete, ready-to-use, database application.
- Select from a variety of templates, covering a range of business scenarios, which install with Access.
- Create a new database from a template by selecting the desired template from the *File* tab.
- After creating a database from a template, review the different objects. Make any changes needed to customize the database to fit your needs.
- The *Application Parts* gallery provides templates that can be used to create a new database table. Application Parts may include related queries, forms and/or reports in addition to the table.
- To reuse a database structure in the future, save it as a template.

5.2 Create a relationship with the *Lookup Wizard;* edit a relationship; edit properties of a lookup field; delete relationships created with a lookup field; and use a lookup with multiple fields (p. A5-333).

- Use the *Lookup Wizard* to create a relationship between two tables.
- Edit the properties of a relationship in the *Relationships* window.
- After completing the *Lookup Wizard,* the foreign key field will have changed to use a *Combo Box* display control.
- Edit the ***List Rows*** and ***List Width*** properties of the lookup field to alter the way the data displays in the combo box.
- The *Lookup Wizard* automatically fills in the *Row Source* property, which tells Access where to get the values. The contents are written in ***Structured Query Language (SQL)***, the underlying language in a relational database system.
- Set a lookup field to display multiple fields in a list.

5.3 Implement a many-to-many relationship and explore join properties between tables (p. A5-338).

- A ***many-to-many*** relationship exists when many rows of data in one table can be associated with many rows of data in a second table.
- To implement a many-to-many relationship, you must first create a ***junction table*** to match the records in the two tables. The *junction table* is sometimes called an ***intersection table***.
- A junction table has a ***concatenated primary key***, which is made by creating a primary key that uses the primary keys from each of the two tables.
- The ***Join Type*** property of a relationship tells Access how to match the data in the related tables.
- Joins can be an ***inner join***, a ***left outer join***, or a ***right outer join***.
- Change the *join type* in the ***Join Properties*** dialog box.

5.4 Describe a macro and use the *Macro Builder* (p. A5-346).

- ***Macros*** are database objects that help automate tasks and add functionality to your database.
- An ***event*** initiates when an action happens to an object or control. Most macros execute because an event occurred in the database.
- ***User interface*** macros attach to objects and controls that are part of the user interface and automate actions such as opening objects, customizing forms, and displaying message boxes.
- ***Data macros*** attach to tables and automate tasks that involve adding, changing, or deleting data.
- Build macros using the ***Macro Builder*** utility. Macros are executed by calling them either from an event or from another macro.
- You build macros by adding various macro ***actions*** or commands. Select the actions from the *Action Catalog* task pane or the **Add New Action** box in the macro window.
- ***Arguments*** are pieces of information needed to complete an action.
- Macros can also contain ***program flow*** items such as ***comments***, ***groups***, ***If blocks***, and ***submacros***.

5.5 Build a stand-alone macro, build an embedded macro, and edit and delete

user interface macros (p. A5-351).

- User interface macros perform a variety of actions related to interface objects such as importing/exporting data, searching data records, and controlling what displays on the screen.
- Attach user interface macros to many different types of events such as clicking a button, moving the mouse pointer, or the opening or closing of an object.
- ***Stand-alone*** macros and ***embedded*** macros are the two types of user interface macros.
- A stand-alone macro is a separate Access object that appears in the *Navigation Pane* and can be assigned to events in many different objects.
- A stand-alone macro can be executed by calling it from another macro or by attaching it to an event of an object or control.
- An embedded macro is attached to an event in one specific object or control of an object.
- ***Focus*** refers to the status of a control or object. The active control or object is said to "have the focus."
- An ***AutoExec*** macro runs automatically when a database is first opened.

5.6 Build an event-driven data macro, build a named data macro, and edit and delete data macros (p. A5-360).

- ***Data macros*** help ensure that the data in tables is accurate and help automate tasks related to tables.
- ***Event-driven data macros*** respond to the following table events: *After Insert, After Update, After Delete, Before Delete,* and *Before Change.*
- A data macro has a more limited set of actions than a user interface macro, and the availability of those actions depends on the type of table event.
- A ***named data macro*** is associated with a specific table, but it is not attached to any particular event.
- Named data macros can utilize parameters. A ***parameter*** passes a value or an object reference into a macro.
- A named data macro can be executed by calling it with a ***RunDataMacro*** action from another macro.

5.7 Build more advanced macros by adding conditions, build a submacro,

integrate parameters, test and debug a macro, and explore how to convert macros into *Visual Basic for Applications* (*VBA*) modules (p. A5-366).

- Add conditional logic into a macro using an *If* block.
- A ***submacro*** is a named, executable set of actions that perform a specific task.
- Call a submacro when you need to execute a task and limit duplicated code in your database.
- It is important to test the logic in your macros to ensure that they are designed and written correctly. You may need to create sample test data, as well as test scenarios, as part of the testing process.
- Add the ***OnError*** action into a macro to tell the macro what to do if an error occurs.
- Executing user interface macros in ***Single Step*** mode can help you to determine when and why an error occurs.
- Review errors that occur when a data macro executes by opening the ***Application Log*** table.
- ***Visual Basic for Applications*** (***VBA***) is a programming language used in Office applications. If needed, convert a macro into a VBA ***module***.

Check for Understanding

The SIMbook for this text (within your SIMnet account) provides the following resources for concept review:

- Multiple-choice questions
- Matching exercises
- Short answer questions

USING MICROSOFT ACCESS 365

Guided Project 5-1 SIMnet Project

For this project, you create a new database based on the *Faculty* template. You explore the functionality of the database, modify the table and query, and enhance the database by adding a new table and creating a relationship using the *Lookup Wizard*.

[Student Learning Outcome 5.1, Student Learning Outcome 5.2]

File Needed: ***Faculty.accdt*** (from online templates) or **Faculty-05.accdb** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Name: ***[your initials] Access 5-1.accdb***

Skills Covered in This Project

- Build a database from a template.
- Review and modify template objects.
- Create a new table.
- Define a relationship with the *Lookup Wizard*.
- Use multiple columns in a lookup field.
- View and edit relationship properties.
- Edit properties of the lookup field.

IMPORTANT: If you are a Canadian user, be sure to verify that your browser and Microsoft Office use the same country settings. See here for a Help topic on how to change your settings.

1. Create a new database based on a template.
   a. Open Access and click **More templates**, or click the **New** button [*File* tab] if Access is already open.
   b. Click the **Search for online templates** box, type Faculty, and click the **magnify**

icon.

c. Select the **Faculty** template (**Figure 5-96**). *Note: If this template is not available in Access, skip to step 2.*

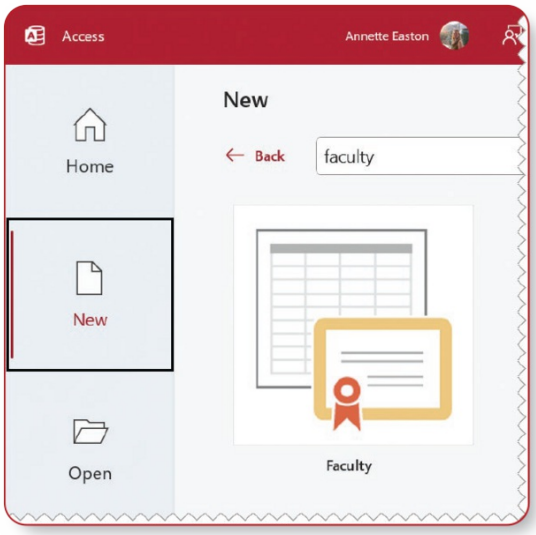


FIGURE 5-96 ***Faculty*** **template**

d. Type [your initials] Access 5-1 in the *File name* box.

e. Click the **Browse for a location to put your database** button, select the location where you will save the database, and click the **OK** button.

f. Click the **Create** button. The database opens and displays the *Faculty List* form.

g. Skip to step 4.

2. Open the ***Faculty-05*** database from your student data files. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close it.
3. Save a new copy of the database. Type [your initials] Access 5-1 as the file name.
4. Enable content in the database.
5. Close the *Faculty List* form.
6. Explore the *Navigation Pane* and database objects.
   a. Click the **Shutter Bar Open/Close** button to open the *Navigation Pane.*
   b. Widen the *Navigation Pane* to see the entire name of each object,
   c. Click the **Navigation Pane** arrow to open the *Navigation* menu.
   d. Select the **Object Type** category. The *Navigation Pane* updates to show all of the objects (**Figure 5-97**).

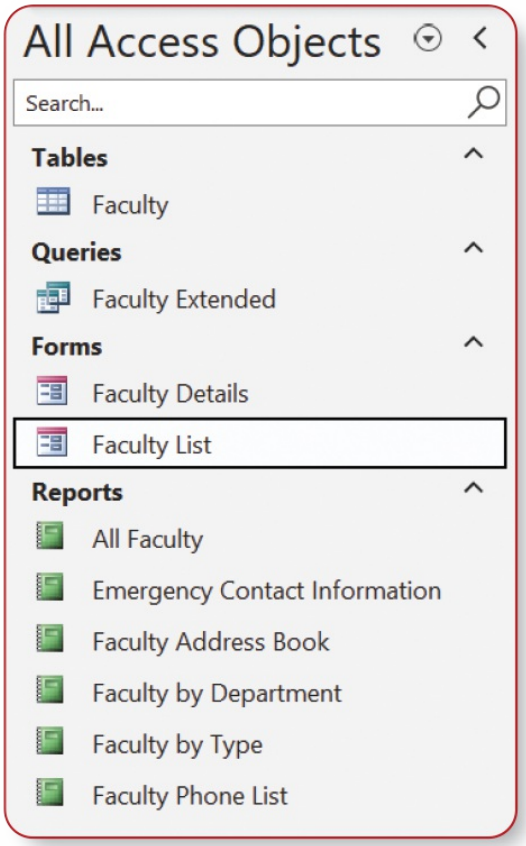


FIGURE 5-97 ***Navigation Pane*** **showing all objects**

e. Open the *Faculty Details* form to get a sense of the design of this template.
f. Close the *Faculty Details* form.
g. Open the *Faculty List* form.
h. Click the **Reports** drop-down arrow on the *Faculty List* form and select the **All Faculty** report. The report displays, but no faculty records display.
i. Close the report.
j. Close the *Faculty List* form.

7. Modify the *Faculty* table because several fields are not needed and others require changes.
   a. Open the *Faculty* table in *Design* view.
   b. Select the **Company** field and click the **Delete Rows** button [*Table Design* tab, *Tools* group]. Click **Yes** in the *Message Box* informing you that the index for this field will also be deleted.
   c. Delete the **ID Number**, **Fax Number**, **Country/Region**, and **Web Page** fields.
   d. Change the *Field Name* of the *Education Level/Degree* field to Highest Degree.

e. Select the **Department** field.
f. Click the **Lookup** tab in the *Field Properties* area.
g. Edit the *Row Source* property and add ;"Art";"History";"Music" to the list.
h. Save and close the table.

8. Edit the *Faculty Extended* query.
   a. Open the *Faculty Extended* query in *Design* view. This query uses the company field you deleted from the table. As a result, you need to update the query.
   b. Click the **File As** cell in the *Field* row, right-click to open the context menu, and select the **Zoom** button (**Figure 5-98**) to open the *Zoom* window.

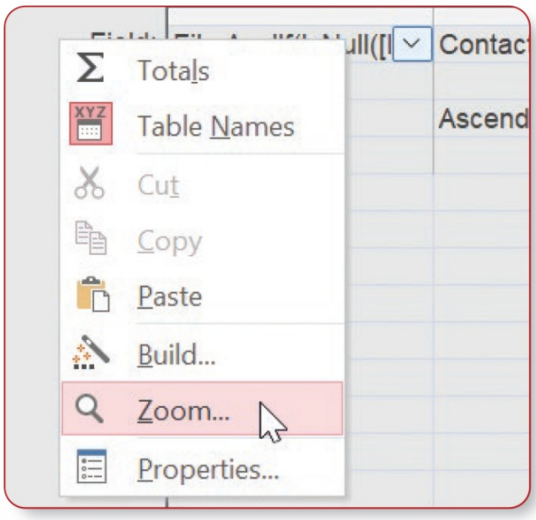


FIGURE 5-98 **Context menu**

   c. Delete **[Company]**, from the expression. *Note: You must delete the comma that appears after* [Company] *for the query to work correctly.*
   d. Click **OK**.
   e. Click the **Contact Name** cell in the *Field* row, right-click to open the context menu, and select the **Zoom** button to open the *Zoom* window.
   f. Delete **[Company]**, from the expression.
   g. Click **OK**.
   h. Save and run the query. The query executes but no records display.
   i. Close the query.

9. Explore the *Faculty Details* form and add records into the database.
   a. Open the *Faculty Details* form. Note that the form opens in a separate window and you cannot switch to *Design* view while the form is in *Form* view. This is a result of property settings and macros attached to the form.
   b. Click the **First Name** text box and enter Bruce. Note that the *Web Page, Fax*

Number, and *Country/Region* text boxes display *#Name?* because the links back to the table fields are invalid. You won't modify the form to remove the invalid text boxes because you will not use this database later.

c. Click the **Last Name** text box and type Elkins.

d. Click the **Save and New** button on the form.

e. Click the **First Name** text box and enter Charlotte. Note that the *Web Page, Fax Number,* and *Country/Region* text boxes display *#Name?* because the links back to the table fields are invalid.

f. Click the **Last Name** text box and type Liu.

g. Click the **Save and New** button on the form.

h. Close the form.

10. Add a second table into the database.

a. Click the **Table Design** button [*Create* tab, *Tables* group].

b. Add fields into the table using the information in **Table 5-9**.

Table 5-9

Field Name	Data Type	Description	FieldSize
DegreeID	**AutoNumber**	Unique identifier for each degree	
ID-FK	**Number**	Must match a value in the ID field in the Faculty table	
Degree	**Short Text**	Type of degree earned	50
DegreeYear	**Number**	Year degree was awarded	
Institution	**Short Text**	Institution granting the degree	50

c. Designate the **DegreeID** field as the primary key.

d. Select the **Degree** field.

e. Click the **Lookup** tab.

f. Select **Combo Box** in the *Display Control* property box.

g. Select **Value List** in the *Row Source Type* property box.

h. Type "High School Diploma";"G.E.D.";"Bachelor's Degree";"Master's Degree";"Ph.D." in the *Row Source* property box.

i. Select the **DegreeYear** field and click the **General** tab.

j. Type #### in the *Input Mask* property box.

k. Save the table as Degrees.

11. Create a relationship using the *Lookup Wizard*.

a. Click the **Data Type** property box of the *ID-FK* field, click the **drop-down arrow** to display the list of data types, and then select **Lookup Wizard** to launch the wizard.

b. Select the **I want the lookup field to get the values from another table or query** radio button and click **Next**.

c. Select the **Faculty** table and click **Next**.

d. Select **ID** from the list of *Available Fields* and click the **Move Single Field** button to move the field into the *Selected Fields* window.

e. Move the **First Name** and **Last Name** fields (**Figure 5-99**).

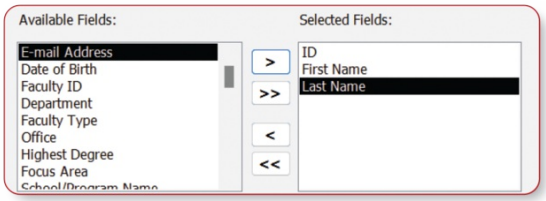


FIGURE 5-99 **Select fields in the *Lookup Wizard***

f. Click **Next**.

g. Don't sort on any fields and click **Next**.

h. Deselect the **Hide key column** check box and click **Next**.

i. Select the **ID** field to store in the table and click **Next**.

j. Check the **Enable Data Integrity** box and the **Cascade Delete** radio button.

k. Click **Finish** to complete the wizard. A *Lookup Wizard* dialog box displays.

l. Click **Yes** to save the changes to the table so that Access can create the relationship.

m. Select the **ID-FK** field and click the **Lookup** tab.

n. Click the **Column Widths** property box.

o. Change the entry so it reads .5";1";1". The *ID* column does not need to be as wide as the name columns.

p. Save the table. If a dialog box displays informing you that the table has changed since the last time you opened it, click **Yes** to save your changes.

q. Close the table.

12. Edit the relationship.

a. Click the **Relationships** button [*Database Tools* tab, *Relationships* group] to

open the *Relationships* window. If the relationships do not display in the window, click the **All Relationships** button [*Database Tools* tab, *Relationships* group] to display the relationships.

b. Select the **relationship line**.

c. Click **Edit Relationships** [*Relationships Design* tab, *Tools* group].

d. Select the **Cascade Update Related Fields** check box.

e. Click **OK**.

f. Click **Save** to save the changes made to the relationships.

g. Close the *Relationships* window.

13. Add records into the *Degrees* table.

a. Open the *Degrees* table in *Datasheet* view.

b. Click the **ID-FK** field, click the **drop-down arrow** and select **Bruce Elkins** (**Figure 5-100**). The *DegreeID* column is narrower because of the property changes you made in step 8o.

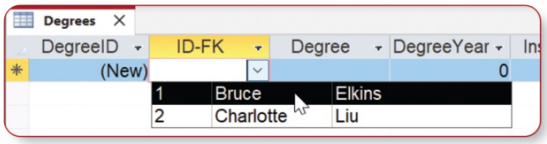


FIGURE 5-100 **Drop-down list for the *ID-FK* field**

c. Select **Ph.D.** from the drop-down list in the *Degree* field.

d. Type 2015 in the *DegreeYear* field.

e. Type University of Arizona in the *Institution* field.

f. Click the **ID-FK** field in the second row, click the **drop-down arrow**, and select **Charlotte Liu**.

g. Select **Ph.D.** from the drop-down list in the *Degree* field.

h. Type 2017 in the *DegreeYear* field.

i. Type Rutgers in the *Institution* field.

j. Save and close the table.

14. Test the cascade delete property of the relationship.

a. Open the *Faculty* table in *Datasheet* view.

b. Click the **plus sign** on *Bruce Elkin's* row to see his related degree records.

c. Click the **minus sign**.

d. Click the **row selector** box for *Bruce Elkin's* record in the table.

e. Click the **Delete** button [*Home* tab, *Records* group]. A warning message displays alerting you that you will delete related records in another table.

f. Click **Yes**.

g. Close the table.
h. Open the *Degrees* tables in *Datasheet* view to verify that the record was deleted.
i. Close the table.

15. Save and close the database.

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A5-388
A5-389

Guided Project 5-2

Mary's Equipment Rentals wants to improve its database. To ensure consistency, the starting file is provided for you. You improve the functionality by debugging several macros that are not working correctly. You view and edit the *Application Log* table. After making changes, retest the macros.

[Student Learning Outcome 5.4, Student Learning Outcome 5.5, Student Learning Outcome 5.6, Student Learning Outcome 5.7]

File Needed: ***MarysRentals-05.accdb*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Name: ***[your initials] Access 5-2.accdb***

Skills Covered in This Project

- Use the *Macro Builder.*
- Build and test an embedded macro.
- Use the single step tool to debug a macro.
- Edit an embedded macro.
- Edit an event-driven data macro.
- Use parameters in a macro.
- Use the *Application Log* table to debug a macro.
- Edit an embedded macro to call a named data macro.

1. Open the ***MarysRentals-05.accdb*** database from your student data files. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or

the **X** to close it.

2. Save a new copy of your database as [your initials] Access 5-2.
3. Enable content in the database.
4. Review the existing tables.
   a. Open the *ServiceHistory* table in *Datasheet* view. Recall that this table contains the individual transactions related to repairs on the equipment. If you add the *TotalCost* fields of the four records for *FKEquipmentID 09925,* the total is $*982.74*.
   b. Open the *Equipment* table in *Datasheet* view. Verify that the *LifetimeMaintenanceCost* for *EquipmentID 09925* is $*982.74*. Also note that several pieces of equipment have $*0.00* for the *LifetimeMaintenanceCost* field.
   c. Close both tables.
5. Add an *On Activate* event to the *EquipmentListing* form.
   a. Open the *MainMenu* form in *Form* view.
   b. Click the **View Equipment List** button. The form opens. Instead, you want a message box to display before the form opens, informing the user that the form is read-only.
   c. Switch to *Design* view of the *EquipmentListing* form.
   d. Click the **Property Sheet** button [*Form Design* tab, *Tools* group] if the *Property Sheet* is not open.
   e. Select the **Event** tab.
   f. Click the **Build** button in the **On Activate** event.
   g. Select **Macro Builder** in the *Choose Builder* dialog box and click **OK**. An embedded macro opens.
   h. Click the **drop-down arrow** and select **Message Box**.
   i. Type This information is read-only. Changes cannot be made on this form. in the *Message* argument.
   j. Select **No** in the *Beep* argument.
   k. Select **Information** in the *Type* argument.
   l. Click the **drop-down arrow** in the *Add New Action* box and select **Comment**.
   m. Type This macro displays a Message Box about the read-only nature of the form.
   n. Select the *Comment,* if necessary, and click the green **Move up** arrow to move the *Comment* action to the top of the macro.
   o. Save and close the macro.
   p. Save and close the *EquipmentListing* form.
6. Retest the *EquipmentListing* form.
   a. Click the **View Equipment List** button on the *MainMenu* form. The message box

displays.

b. Click **OK** to acknowledge the message. The *EquipmentListing* form opens.

c. Click several fields and try to edit the contents. You are not able to change any values.

d. Close the *EquipmentListing* form.

7. Edit the *On Activate* event of the *EquipmentWithNoRepairs* form.

a. Click the **View Equipment with No Repairs** button on the *MainMenu* form. A message box displays a read-only message. Click **OK** to acknowledge the message. The form opens but no records display (**Figure 5-101**). You know that several pieces of equipment have not yet needed repairs. Records for those pieces should display in the form.

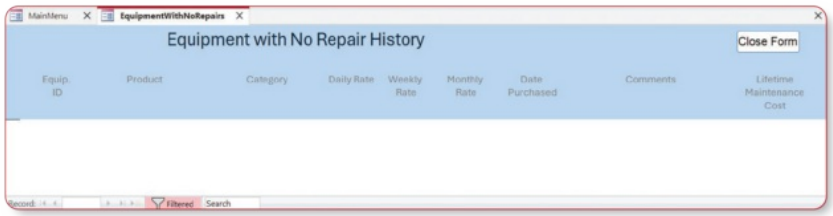


FIGURE 5-101 ***EquipmentWithNoRepairs*** **form**

b. Switch to *Design* view of the *EquipmentWithNoRepairs* form.

c. Select the **Event** tab if necessary.

d. Click the **Build** button in the **On Activate** event. The existing embedded macro opens.

e. Click **Single Step** [*Macro Design* tab, *Tools* group] to help debug the macro.

f. Save and close the macro.

g. Save and close the *EquipmentWithNoRepairs* form.

h. Click the View Equipment with No Repairs button on the *Main Menu* form. The *Macro Single Step* dialog box opens (**Figure 5-102**).

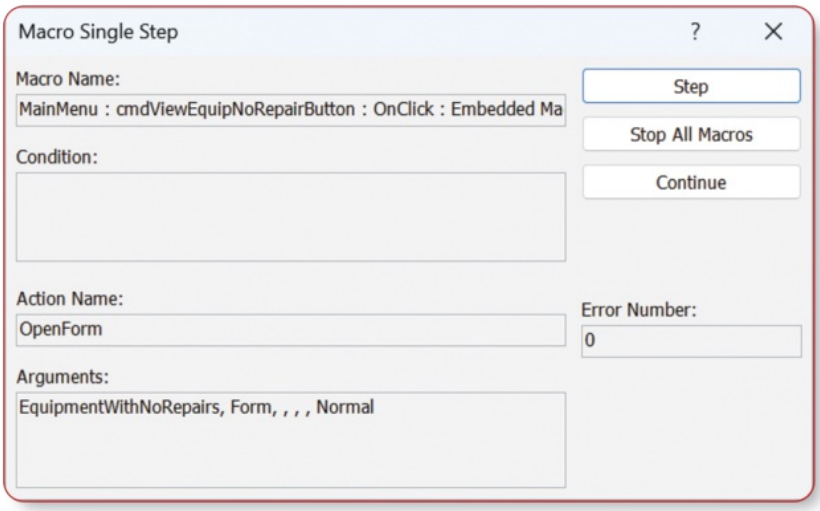


FIGURE 5-102 ***Macro Single Step*** **dialog box**

In the *Macro Name* line, note that the macro being executed came from the *MainMenu,* the *cmdViewEquipNoRepairButton,* as a result of an *OnClick* event, and it is an *Embedded Macro.*
In the *Action Name,* note that the action is *OpenForm.*

i. Click **Step** to advance to the next macro step. The contents of the dialog box update.
In the *Macro Name* line, note that the *On Activate* event of the *EquipmentWithNoRepairs* form is now being executed.
In the *Action Name* box, note that the *ApplyFilter* action is called.
In the *Arguments* box, look at the condition. The macro is looking for a *LifetimeMaintenanceCost =Null.* That is not correct. You want to find records where the value *=0.* Remember that null is empty, which is different than zero.

j. Click **Stop All Macros**. The *EquipmentWithNoRepairs* form opens in *Form* view.

k. Switch to *Design* view of the form.

l. Click the **Build** button in the **On Activate** event to open the embedded macro.

m. Click the *Where Condition* clause of the *ApplyFilter* action and change the contents to [Equipment].[LifetimeMaintenanceCost]=0.

n. Click **Single Step** [*Macro Design* tab, *Tools* group] to turn off the *Single Step* mode because you are confident this was the problem.

o. Save and close the macro.

p. Save and close the *EquipmentWithNoRepairs* form.

8. Retest the *View Equipment with No Repairs* button.

a. Click the **View Equipment with No Repairs** button on the *MainMenu* form.

b. Click **OK** to acknowledge the message box. The six equipment records display.

Note that *EquipmentID 10103* is one of the items that has no repairs. You use this *EquipmentID* later to test the database.

c. Close the *EquipmentWithNoRepairs* form.

9. Review the macros for the *ServiceHistory* table because users have reported that the database is not working correctly when a new record is added into this table.

   a. Open the *ServiceHistory* table in *Datasheet* view.
   When a record is added into the *ServiceHistory* table, the value in the *TotalCost* field should be added to the *LifetimeMaintenanceCost* in the *Equipment* table.
   When a record is changed in the *ServiceHistory* table, if the *TotalCost* of the repair was updated, that change should be reflected in the *LifetimeMaintenanceCost* in the *Equipment* table.
   When a record is deleted in the *ServiceHistory* table, the *TotalCost* of the repair should be subtracted from the *LifetimeMaintenanceCost* in the *Equipment* table.
   The change and deletions have not been a problem; however, the insertion of a new record does not work correctly.

   b. Click the **After Delete** button [*Table* tab, *After Events* group]. Note that this macro calls a data macro in the *Equipment* table named *UpdateTotalMaintenanceCost*. It passes in two parameters: one for the *ParamEID* and one for the *ParamCost*. The use of *[Old]* in conjunction with the field name enables Access to pass in the field value from the record that was just deleted.

   c. Close the macro and the table.

10. Review the named data macro.

    a. Open the *Equipment* table in *Datasheet* view.

    b. Click the **Named Macro** button [*Table* tab, *Named Macros* group], select **Edit Named Macro**, and select the *UpdateTotalMaintenanceCost* named macro. The code should match **Figure 5-103**. Note that the *LifetimeMaintenanceCost* field is updated to add to it the value of what was passed in via the *ParamCost* parameter.

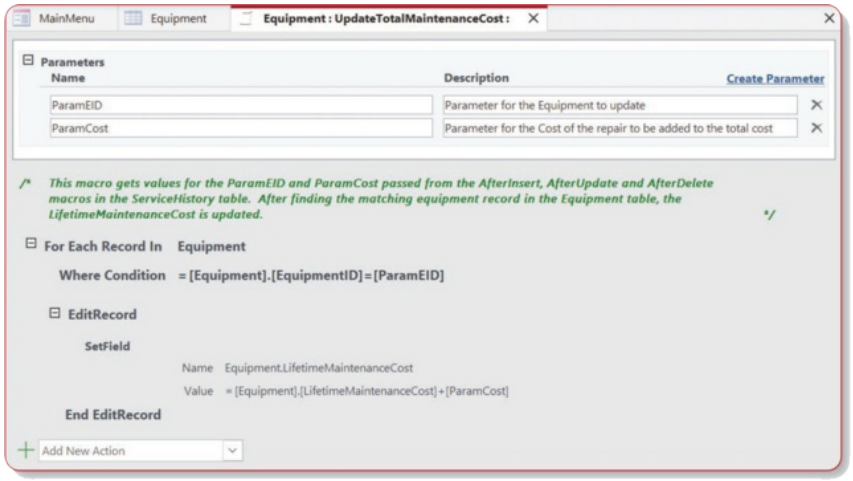


FIGURE 5-103 Macro code in the *UpdateTotalMaintenanceCost* macro

c. Close the macro.

d. Close the *Equipment* table.

11. Test the *ServiceHistory* table by adding a new record.

a. Click the **Add New Service Record** button on the *MainMenu* form.

b. Add the following data into the form:
Service ID: C00235
Service Date: 2/14/2026
Service Type: Inspection
Description: 6-month inspection
Performed By: 177
Equipment ID: 10103
Odometer Reading: Leave this field empty.
Hours: Leave this field empty.
Cost of Repair: 95.00
Recall that item *10103* has no previous repairs. This will make it easy to determine if the *After Insert* macro works correctly.

c. Click the **Save Equipment Service Record** button. A dialog box displays a *Data type mismatch in criteria expression* message, and the *Status* bar updates to reflect *New Application Errors* (**Figure 5-104**).

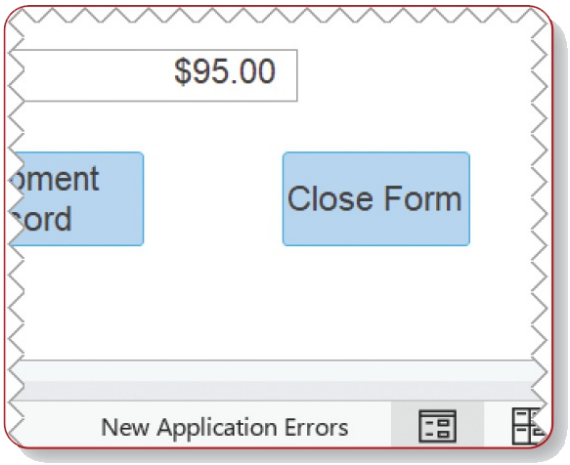


FIGURE 5-104 Error message in *Status* bar

d. Click **OK** to acknowledge the message.

e. Click the **Close Form** button.

12. Review the errors in the *Application Log* table.

a. Click the **Info** button [*File* tab] and then click the **View Application Log Table**

button. The *Application Log* table opens (**Figure 5-105**).

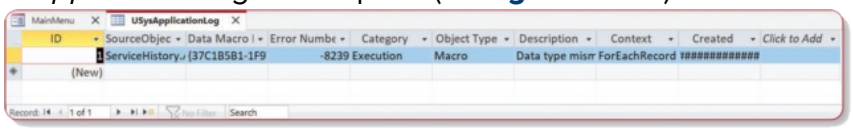


FIGURE 5-105 **Record in *USysApplicationLog* table**

You may have additional records in the table, and the value in the *ID* field may be different if you have done other activities in the database. If you have more than one record, look at the last record in the table.
Review the contents of the following fields that give you an indication of the problem. Widen any columns that are too narrow to read the entire contents. You can also adjust the row height as desired.
Source Object: ServiceHistory.AfterInsert
Description: Data type mismatch in criteria expression.
Context: ForEachRecord Equipment, [Equipment].[EquipmentID]=[ParamEID]
Note that it appears that the error is related to the values of the *EquipmentID* and *ParamEID* fields.

b. Close the table. You don't need to save any changes made to the table layout.

13. Review the tables.
    a. Open the *Equipment* table in *Datasheet* view. Note that the *LifetimeMaintenanceCost* for *EquipmentID 10103* is still *$0.00.* Because the *After Insert* macro had an error, the value did not update.
    b. Close the table.
    c. Open the *ServiceHistory* table in *Datasheet* view. The record was added for *ServiceID C00235,* including the *TotalCost* of *$95.* Nothing was wrong with adding the record, so the problem is in the *After Insert* macro. Keep the *ServiceHistory* table open.
14. Fix the *After Insert* macro.
    a. Click the **After Insert** button [*Table* tab, *After Events* group]. Review the parameters. Note that both parameters are being set to the *TotalCost* value. Someone made a mistake when creating this macro and this is causing the type mismatch error.
    b. Replace the *ParamEID* parameter value with [FKEquipmentID]. The corrected *Parameters* section should be: *ParamEID =[FKEquipmentID]* and *ParamCost = [TotalCost].*
    c. Save and close the macro.
    d. Select the record you just added for *ServiceID C00235* and click the **Delete** button [*Home* tab, *Records* group].
    e. Save and close the table.

15. Correct the record for *EquipmentID 10103* in the *Equipment* table.
    a. Open the *Equipment* table in *Datasheet* view. Review the *LifetimeMaintenanceCost* for *EquipmentID 10103.* The value is *($95.00).* Obviously, that is not the correct value. This occurred because even though the *After Insert* macro didn't add the *$95.00* cost into the *LifetimeMaintenanceCost,* the *After Delete* macro subtracted the value.
    b. Enter 0 in the *LifetimeMaintenanceCost* field.
    c. Save and close the table.
16. Retest the macro.
    a. Click the **Add New Service Record** button on the *MainMenu* form.
    b. Add the following data into the form:
    Service ID: C00235
    Service Date: 2/14/2026
    Service Type: Inspection
    Description: 6-month inspection
    Performed By: 177
    Equipment ID: 10103
    Odometer Reading: Leave this field empty.
    Hours: Leave this field empty.
    Cost of Repair: 95.00
    c. Click the **Save Equipment Service Record** button.
    d. Click the **Close Form** button.
17. Verify that the record was updated.
    a. Open the *Equipment* table in *Datasheet* view. Verify that the *LifetimeMaintenanceCost* for *EquipmentID 10103* is *$95.00.*
    b. View the related service record for *EquipmentID 10103.*
    c. Close the table.
18. Close the *MainMenu* form.
19. Close the database.

Guided Project 5-3

San Diego Sailing wants to add a macro to its database. To ensure consistency, the starting file is provided for you. You complete an event-driven data macro to place a value in the *RentalCost* field of the *SDRentals* table. The value is based on whether the rental is a four-hour or full day rental and comes from the *SailboatFleet* table. After you test the event-driven macro, you complete a named macro to update rental rates. Finally, you complete the embedded macro that calls the named macro.

[Student Learning Outcome 5.4, Student Learning Outcome 5.5, Student Learning Outcome 5.6, Student Learning Outcome 5.7]

File Needed: ***SanDiegoSailing-05.accdb*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Name: ***[your initials] Access 5-3.accdb***

Skills Covered in This Project

- Use the *Macro Builder.*
- Edit an event-driven data macro.
- Use conditions in a macro.
- Use the *LookupRecord* action in a macro.
- Test a macro.
- Edit a named data macro.
- Use parameters in a macro.
- Use the *ForEachRecord* action in a macro.
- Edit an embedded macro to call a named data macro.

1. Open the ***SanDiegoSailing-05.accdb*** database from your student data files. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close it.
2. Save a new copy of your database as [your initials] Access 5-3.
3. Enable content in the database.
4. Edit an event-driven data macro to set the value of the *RentalCost* field when a record is added.
   a. Open the *SDRentals* table in *Datasheet* view.
   b. Click the **Table** tab. Because the *Before Change* button is highlighted, you know that a macro already exists for this event.
   c. Click the **Before Change** button to open the macro.
   d. Click to select the **Look Up A Record In** statement. The block activates.

e. Click the **Add New Action** drop-down arrow directly below the *Comment* in that block and select **If**.

f. Type [SDRentals].[FourHourRental?]=−1 in the *If* box.

g. Click the **Add New Action** drop-down arrow directly below the *If* and select **Comment**.

h. Type Use the SetField action to set the value of the RentalCost field to the FourHourRentalRate from the SailboatFleet table.

i. Click the **Add New Action** drop-down arrow directly below the *Comment* and select **SetField**.

j. Type SDRentals.RentalCost in the *Name* argument.

k. Type [SailboatFleet].[FourHourRentalRate] in the *Value* argument.

l. Click the **Add Else** link located to the right of the *Add New Action* box.

m. Click the **Add New Action** drop-down arrow directly below *Else* and select **Comment**.

n. Type Use the SetField action to set the value of the RentalCost field to the FullDayRentalRate from the SailboatFleet table.

o. Click the **Add New Action** drop-down arrow directly below the *Comment* and select **SetField**.

p. Enter SDRentals.RentalCost in the *Name* argument.

q. Enter [SailboatFleet].[FullDayRentalRate] in the *Value* argument. The finished macro should look similar to **Figure 5-106**.

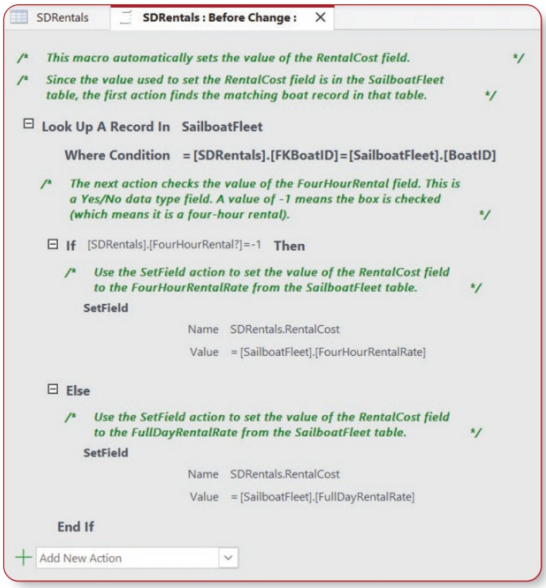


FIGURE 5-106 **Completed *Before Change* macro code**

r. Save and close the macro. The *SDRentals* table should still be open in *Datasheet* view.

5. Test the event-driven macro by adding a new record into the *SDRentals* table.
   a. Click the **Rental ID** field of the append row of the *SDRentals* table and enter the following data values:
   Rental ID: 99999
   BoatID: 1003
   Rental Date: 8/1/2026
   b. Enter 1212 in the *Member Number* field and then press the **down arrow** key to trigger the *BeforeChange* event.
   c. Verify that the *RentalCost* was automatically updated to the value of *$205.00*.
6. Test that the macro works when a change is made to a record.
   a. Click the **Four Hour Rental** field of the record that you just added to select the check box.
   b. Press the **down arrow** key to leave the record and trigger the *BeforeChange* event.
   c. Verify that the *RentalCost* automatically updated to *$145.00*.
   d. Click the **row selector** box for rental 99999.
   e. Click the **Delete** button [*Home* tab, *Records* group]. A warning message displays notifying you that you will delete a record.
   f. Click **Yes**.
   g. Close the *SDRentals* table.
7. Edit and finish the named data macro that updates the rental rates in the *SailboatFleet* table. This macro will be called from a button on the *UpdateRentalRates* form.
   a. Open the *SailboatFleet* table in *Datasheet* view. Note that the *4 Hr Rate* for *Boat ID 1003* is *$145.00*. You will use that value in step 10 when you test your macro.
   b. Click the **Named Macro** button [*Table* tab, *Named Macros* group], select the **Edit Named Macro** option, and select **UpdateFleetRates** (**Figure 5-107**) to open the macro. The parameter section and first few lines have been entered for you. Read the comments to understand the purpose of the macro.

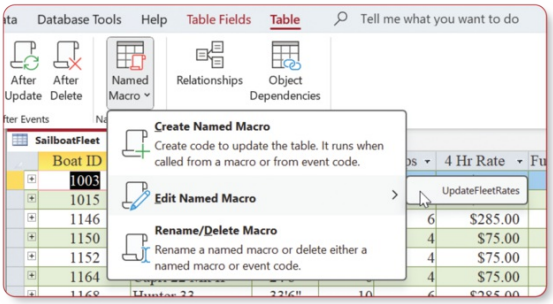


FIGURE 5-107 Edit the *UpdateFleetRates* named data macro

c. Click to select the **For Each Record In** statement. The block activates.
d. Click the **Add New Action** drop-down arrow directly below *Where Condition* and select **Comment**.
e. Type Perform the actions in the EditRecord block when a match has been found.
f. Click the **Add New Action** drop-down arrow below the *Comment* and select **EditRecord**.
g. Click the **Add New Action** drop-down arrow directly below *EditRecord* and select **If**.
h. Type Not IsNull([Param4HrRate]) into the *If* box.
i. Click the **Add New Action** drop-down arrow directly below *If* and select **Comment**.
j. Type Only change the field if a value was entered into the text box on the form.
k. Click the **Add New Action** drop-down arrow below the *Comment* and select **SetField**.
l. Type FourHourRentalRate in the *Name* argument.
m. Type [Param4HrRate] in the *Value* argument.
n. Click to select the **If** block.
o. Click the **Add New Action** drop-down arrow directly below the *End If* statement (**Figure 5-108**) and select **If**.

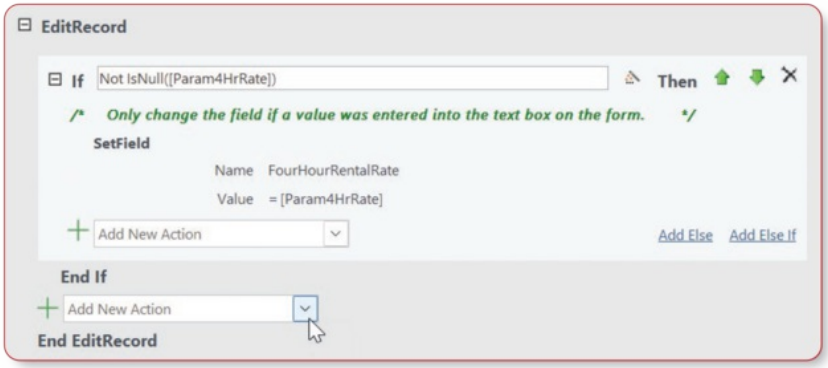


FIGURE 5-108 Click the *Add New Action* box below the *End If* statement

p. Enter Not IsNull ([ParamDailyRate]) into the *If* box.
q. Click the **Add New Action** drop-down arrow directly below *If* and select **Comment**.
r. Type Only change the field if a value was entered into the text box on the form.
s. Click the **Add New Action** drop-down arrow below the *Comment* and select

SetField.

t. Enter FullDayRentalRate in the *Name* argument.

u. Enter [ParamDailyRate] in the *Value* argument. Click outside the *Value* argument. The completed macro should look similar to **Figure 5-109**.

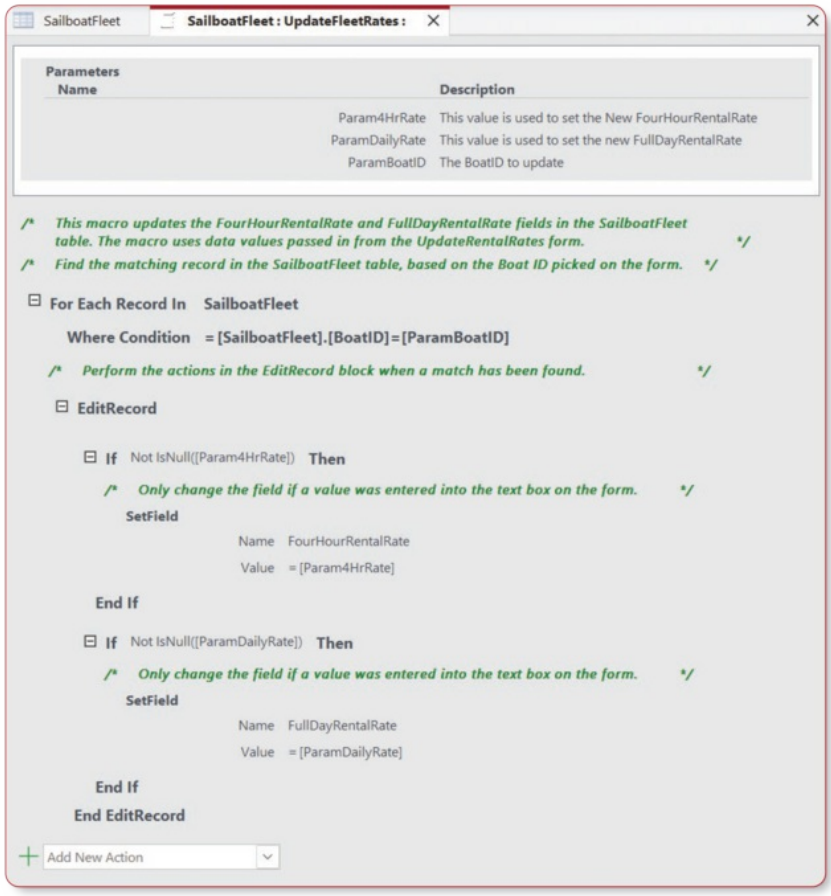


FIGURE 5-109 Completed *UpdateFleetRates* macro

v. Save and close the macro.

w. Save and close the *SailboatFleet* table.

8. Prepare to call the named macro.

a. Open the *UpdateRentalRates* form in *Design* view.

b. Click to select the **unbound** text box to the right of the *Select the Boat to Update* label (**Figure 5-110**).

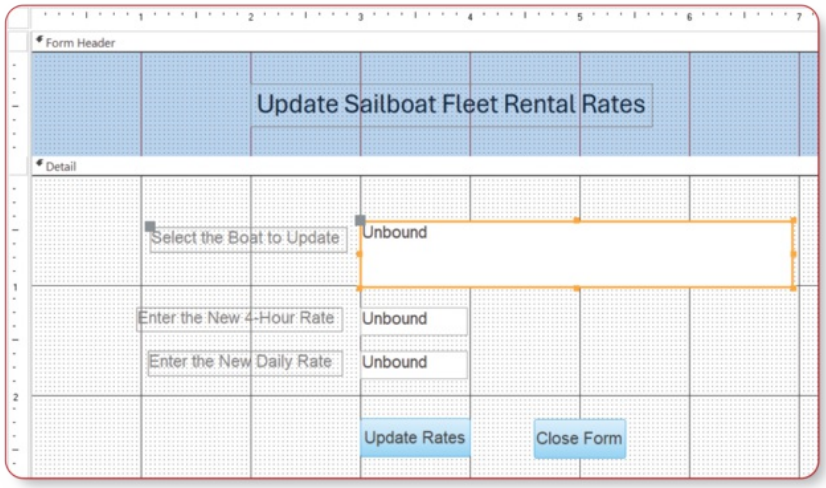


FIGURE 5-110 **Select the top unbound text box in *Design* view of the form**

c. Click the **Property Sheet** button [*Form Design* tab, *Tools* group] and select the **Other** tab, if needed. At the top of the *Property Sheet,* note that the *Selection type* is a *List Box.* In the *Name* property, note that the name of this list box is *LstBoatID.*

d. Click to select the **unbound** text box to the right of the *Enter the New 4-Hour Rate* label. In the *Name* property, note that the name of this text box is *txtNew4HrRate.*

e. Click to select the **unbound** text box to the right of the *Enter the New Daily Rate* label. In the *Name* property, note that the name of this text box is *txtNewDailyRate.*

9. Edit the embedded macro that calls the named macro.

a. Click to select the **Update Rates** button.

b. Select the **Event** tab.

c. Click the **Build** button in the **On Click** event. An embedded macro opens. The macro code has been started for you.

d. Click the **Add New Action** drop-down arrow and select **If**.

e. Type IsNull([txtNew4HrRate]) And IsNull([txtNewDailyRate]) Or IsNull([LstBoatID]) into the *If* box.

f. Click the **Add New Action** drop-down arrow directly below *If* and select **MessageBox**.

g. Type Update not performed. Verify that rental rates have been entered and a boat selected. in the *Message* argument. Leave the other arguments as they are.

h. Click the **Add Else** link located to the right of the *Add New Action* box.

i. Click the **Add New Action** drop-down arrow directly below *Else* and select **MessageBox**.

j. Enter Rental rates have been updated. in the *Message* argument. Leave the other arguments as they are.
k. Click the **Add New Action** drop-down arrow directly below the *Title* argument and select **SetProperty**.
l. Type txtNew4HrRate in the *Control Name* argument.
m. Select **Value** in the *Property* argument. Leave the *Value* argument blank.
n. Click the **Add New Action** drop-down arrow directly below the *Value* argument and select **SetProperty**.
o. Enter txtNewDailyRate in the *Control Name* argument.
p. Select **Value** in the *Property* argument. Leave the *Value* argument blank.
q. Click the **Add New Action** drop-down arrow directly below the *Value* argument and select **SetProperty**.
r. Enter LstBoatID in the *Control Name* argument.
s. Select **Value** in the *Property* argument. Leave the *Value* argument blank and click outside the *Value* box. The completed macro should look similar to **Figure 5-111**. Notice in this macro the comment above the *If* block that explains the way the entire *If* block works. Be sure to read that comment. It will help you to understand the different macro actions you have entered.

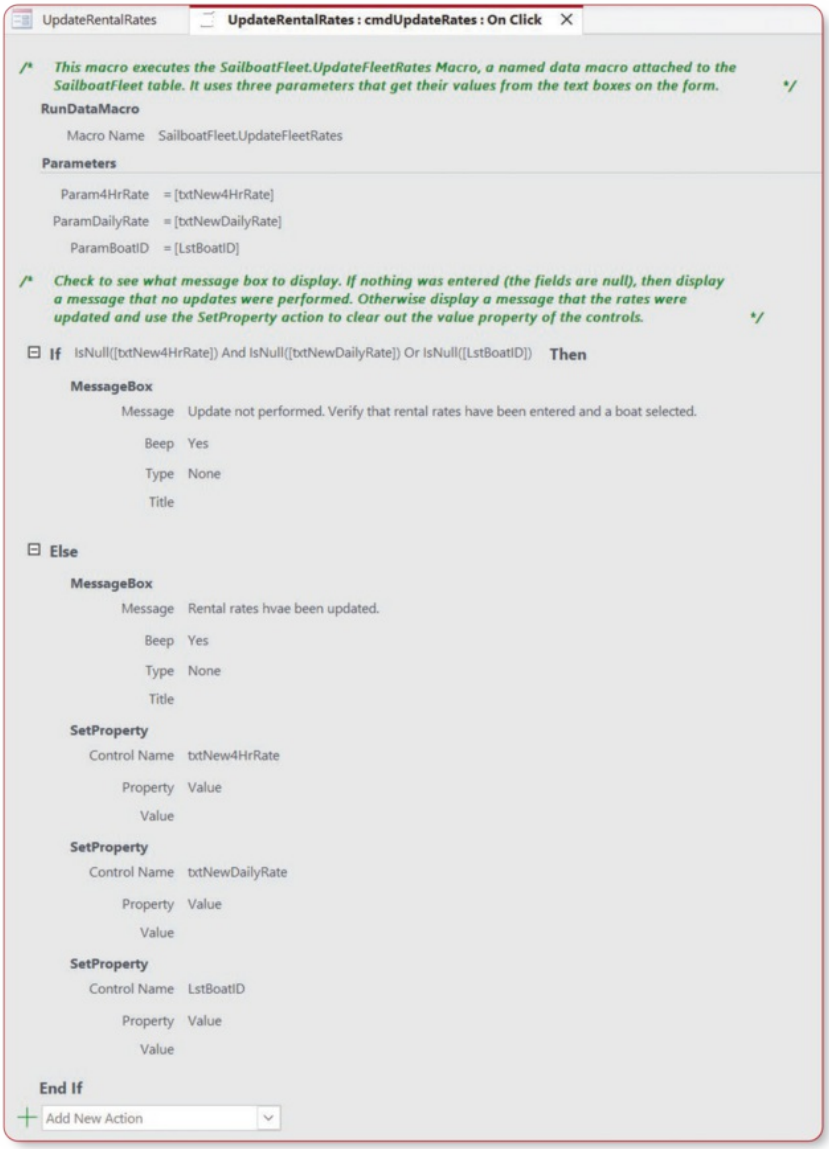


FIGURE 5-111 Completed *cmdUpdateRates* embedded macro

t. Save and close the macro.

u. Close the *Property Sheet* of the form.

v. Save the form.

10. Test the embedded macro and the named data macro.

a. Switch the form to *Form* view. Note that the listing of boats displays inside the *List Box* control.

b. Click the **Update Rates** button. The message box for not performing an update displays. This is correct because no values were entered. Click **OK**.

c. Select boat **1003** in the list box.

d. Click the **Update Rates** button. The message box for not performing an update displays. This is also correct because even though a boat was selected, no rates were entered. Click **OK**.
e. Select boat **1003** in the list box.
f. Enter 150 in the text box for the *4-Hour rate*.
g. Click the **Update Rates** button. The message box indicating that the rates were updated displays. Click **OK**. The list box is deselected and the *4-Hour rate* text box is cleared.
h. Close the form. If prompted, save changes to the form.
i. Open the *SailboatFleet* table in *Datasheet* view.
j. Verify that the *4 Hr Rate* for *Boat ID 1003* has been updated to *$150.00.*
k. Close the table.

11. Close the database.

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A5-397
A5-398
A5-399

Independent Project 5-4

Life's Animal Shelter wants you to create two macros to enhance the functionality of its database. To ensure consistency, the starting file is provided for you. Before creating the macros, you fix the existing relationship between tables. You next create an event-driven macro that automatically sets the value of three table fields when a new pet record is added. You then test that macro. Next, you create a stand-alone macro. This macro includes submacros that are called to determine which records display in a form. Finally, you test those submacros.

[Student Learning Outcome 5.2, Student Learning Outcome 5.4, Student Learning Outcome 5.5, Student Learning Outcome 5.6, Student Learning Outcome 5.7]

File Needed: ***LifesAnimalShelter-05.accdb*** *(Student data files are available in the* Library *of your SIMnet account)*

Completed Project File Name: ***[your initials] Access 5-4.accdb***

Skills Covered in This Project

- Delete a relationship created with a lookup field.

- Define a relationship with the *Lookup Wizard*.
- Use the *Macro Builder*.
- Build an event-driven data macro.
- Use conditions in a macro.
- Create a stand-alone macro.
- Use a submacro in a macro.
- Test a macro.

---

1. Open the ***LifesAnimalShelter-05.accdb*** database from your student data files. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close it.
2. Save a new copy of your database as [your initials] Access 5-4.
3. Enable content in the database.
4. Delete the existing relationship between the *Owners* and *Pets* tables because it was not created correctly.
   a. Open the *Relationships* window.
   b. Select the **relationship line** between the tables.
   c. Right-click to open the context menu and delete the relationship. Click **Yes** in the dialog box to confirm the deletion.
   d. Save your changes and close the *Relationships* window.
5. Remove a lookup from the *FKOwnerID* field in the *Pets* table.
   a. Open the *Pets* table in *Design* view.
   b. Select the **FKOwnerID** field.
   c. Select **Text Box** in the *Display Control* property on the *Lookup* tab.
   d. Save your changes.
6. Use the *Lookup Wizard* to create a new one-to-many relationship between the *Owners* and *Pets* tables.
   a. Select **Lookup Wizard** in the *Data Type* property box of the *FKOwnerID* field.
   b. Choose to look up a field from the *Owners* table.
   c. Include the *OwnerID* field in the *Selected Fields* window.
   d. Sort by the *OwnerID* field in ascending order.
   e. Enable data integrity and restrict deletes.
   f. Save and close the table.
7. Edit the relationship.
   a. Open the *Relationships* window.
   b. Edit the relationship between *Owners* and *Pets* to cascade updates.

c. Save the changes.
d. Close the *Relationships* window.

8. Add a sort to the *Pets* table.
   a. Open the *Pets* table in *Datasheet* view.
   b. Sort the table in ascending order by the *FKOwnerID* field.
   c. Save the changes.

9. Create an event-driven data macro in the *Pets* table to automatically set the value of three table fields when a record is added.
   a. Create a *Before Change* event-driven data macro.
   b. Add a **Comment** action into the *Macro Builder* and type The IsInsert function checks to see if this is a record being added versus a change.
   c. Add an **If** action below the *Comment* and enter [IsInsert]=True into the *If* box.
   d. Add a **Comment** directly below *If* and enter The following SetField actions are executed only when a pet is added. The Available? field is set to yes. The DateAdopted and FKOwnerID fields are set to null. These fields do not display on the Add New Pet form and are set as a result of this macro.
   e. Add a **SetField** action below the *Comment,* enter Available? in the *Name* argument and enter "Y" in the *Value* argument.
   f. Add a second **SetField** action, enter DateAdopted in the *Name* argument and enter Null in the *Value* argument.
   g. Add a third **SetField** action, enter FKOwnerID in the *Name* argument and enter Null in the *Value* argument.
   h. Click outside the *Value* box. The completed macro should look similar to **Figure 5-112**.

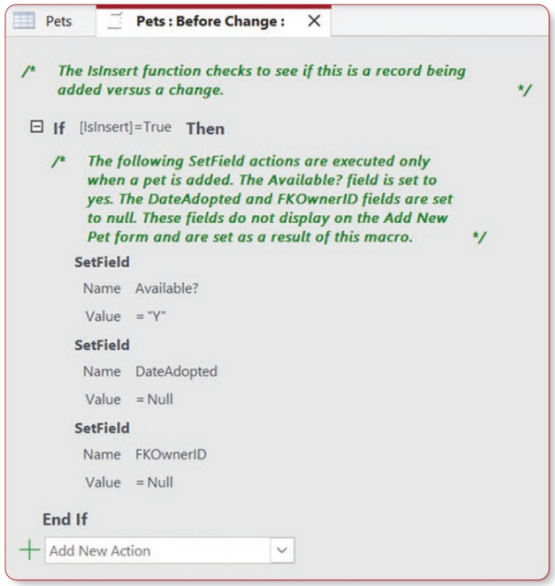


FIGURE 5-112 Macro code for the *Before Change* event in the *Pets* table



i. Save and close the macro.

j. Save and close the *Pets* table.

10. Test the macro by adding a new record.

a. Open the *AddNewPet* form in *Form* view. This form has been created to easily enable an employee to add the data into the table.

b. Add the data below into the form.
Pet Name: Scooter
Type: Dog
Breed: Shepherd cross
Age: 3 yrs
Gender: F
Color: Tan/Black
Details: I am an energetic, fun loving companion. I enjoy playing with kids and adults. I love taking long walks, playing catch or running. What thrills me most is sharing my love with those around me. I can't wait to find a special family to make my own!

c. Click the **Save Pet** button. A message box displays with the title of *Pet Successfully Added*. Do not worry about the content of the message. You will not return to the *Main Menu* because you did not start from that form. Click **OK** to acknowledge the message. The form closes.

d. Open the *Pets* table in *Datasheet* view.

e. Scroll down to find the record for *Scooter*. The table is sorted on the *FKOwnerID* field. As a result, the pets that are not available are at the bottom of the table. The record appears right above the first pet that is unavailable (*Pet ID 1*). Verify that the *Available?* field is set to *Y* and the *DateAdopted* and *FKOwnerID* fields are *null*.

f. Close the table.

11. Create a stand-alone macro, using four different submacros, which will control the records that display.

a. Click the **Macro** button [*Create* tab] to open the *Macro Builder*.

b. Add a **Comment** action into the *Macro Builder* and type This macro contains four submacros. These submacros are called from different buttons on the View Pets form.

c. Add a **Submacro** from the *Program Flow* group below the *Comment* and enter ShowAllPets into the *Submacro* box.

d. Add a **Comment** action directly below *Submacro* and type The ShowAllPets submacro removes any filter that is applied so that all the pets display.

e. Add a **RunMenuCommand** action below the *Comment* and type

RemoveFilterSort in the *Command* argument.

f. Add a second **Submacro** below the *End Submacro* and enter ShowAvailable into the *Submacro* box.

g. Add a **Comment** action directly below *Submacro* and type The ShowAvailable submacro filters the records to only show pets where the Available? field contains "Y".

h. Add an **ApplyFilter** action below the *Comment* and type [Pets].[Available?]="Y" in the *Where Condition* box.

i. Add a third **Submacro** below the second *End Submacro* and enter ShowAvailableCats into the *Submacro* box.

j. Add a **Comment** action directly below *Submacro* and type The ShowAvailableCats submacro filters the records to only show pets where the Available? field contains "Y" and the Type field contains "cat".

k. Add an **ApplyFilter** action below the *Comment* and type [Pets].[Available?]="Y" And [Pets].[Type]="cat" in the *Where Condition* argument.

l. Add a fourth **Submacro** below the third *End Submacro* and enter ShowAvailableDogs into the *Submacro* box.

m. Add a **Comment** action directly below *Submacro* and type The ShowAvailableDogs submacro filters the records to only show pets where the Available? field contains "Y" and the Type field contains "dog".

n. Add an **ApplyFilter** action below the *Comment* and type [Pets].[Available?]="Y" And [Pets].[Type]="dog" in the *Where Condition* argument. The completed macro is shown in **Figure 5-113**.

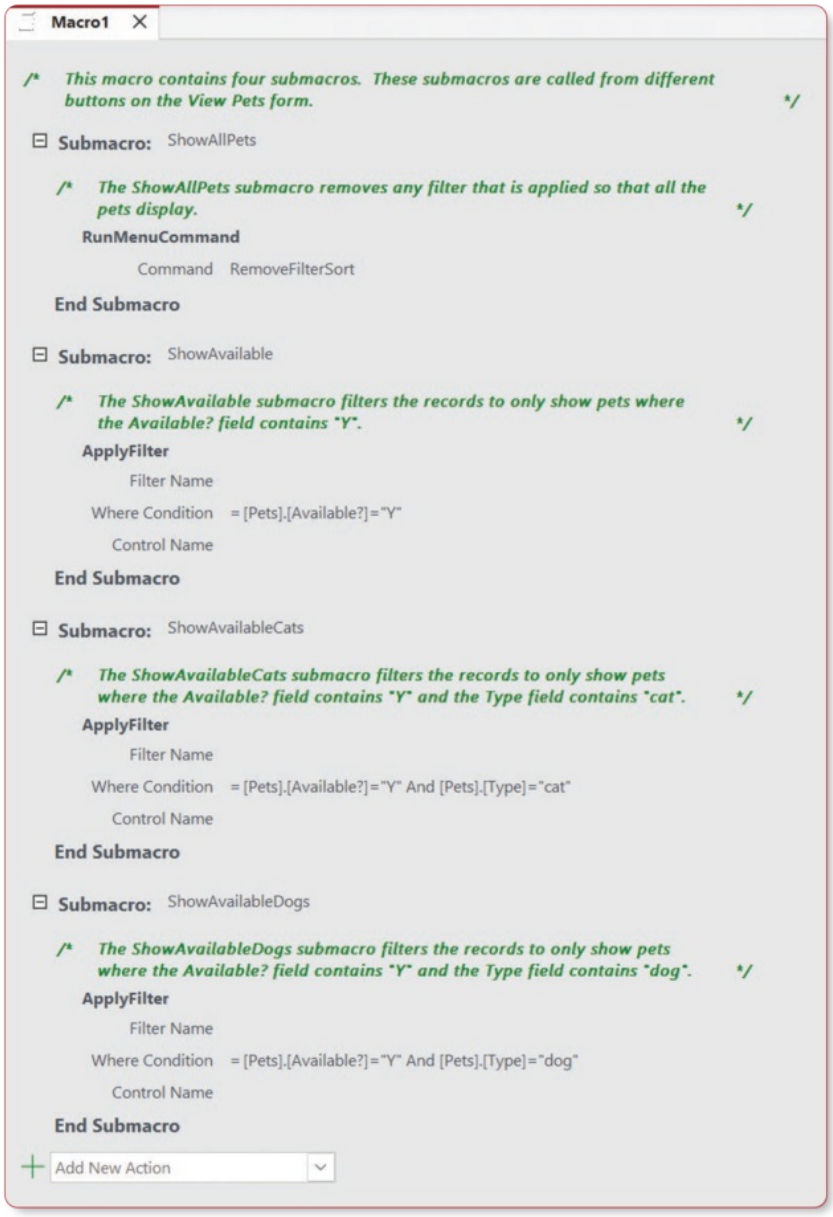


FIGURE 5-113 ***WhichPetsToShow*** **stand-alone macro code**

o. Save the macro as WhichPetsToShow.

p. Close the macro.

12. Call the submacros.

a. Open the *ViewPets* form in *Design* view.

b. Open the *Property Sheet,* if necessary.

c. Click to select the *ShowAllPets* button, click the *On Click* event property, and select the **WhichPetsToShow.ShowAllPets** submacro. Widen the *Property Sheet* pane, if needed, to see the entire macro name.

d. Assign the correct submacro to the *On Click* event of the other form buttons. The *Close Form* button already has an embedded macro completed for you.
e. Save the form.

13. Test the submacros.
    a. Switch to *Form* view. The form opens displaying all of the 20 pet records.
    b. Click the **Show All Available Pets** button. The form updates to display 16 records. The *Filtered* indicator shows in the filter status message.
    c. Click the **Show Available Cats** button. The form updates to display one record. The *Filtered* indicator shows in the filter status message.
    d. Click the **Show Available Dogs** button. The form updates to display 11 records. The *Filtered* indicator shows in the filter status message.
    e. Click the **Show All Pets** button. The form updates to display all 20 records. The *Unfiltered* indicator shows in the filter status message.
    f. Close the form.
14. Close the database.

A5-400

A5-401

A5-402

Independent Project 5-5 SIMnet Project

The New York Department of Motor Vehicles wants to extend the functionality of its database. Add a table to store information about their officers and have that table relate to the tickets table. Finally, build and test an event-driven data macro to automatically add a timestamp when a ticket is added.

[Student Learning Outcome 5.2, Student Learning Outcome 5.3, Student Learning Outcome 5.4, Student Learning Outcome 5.6, Student Learning Outcome 5.7]

File Needed: ***NewYorkDMV-05.accdb*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Name: ***[your initials] Access 5-5.accdb***

Skills Covered in This Project

- Edit a junction table with a unique primary key.
- Define a relationship with the *Lookup Wizard.*

- Use multiple columns in the lookup field.
- Use the *Macro Builder*.
- Build an event-driven data macro.
- Use conditions in a macro.
- Test a macro.
- Add the current date to a form.
- Preview a report.

---

1. Open the ***NewYorkDMV-05.accdb*** database from your student data files. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close it.
2. Save a new copy of your database as [your initials] Access 5-5.
3. Enable content in the database.
4. Create a new table to store officer information.
   a. Click the **Table Design** button to open a new table in *Design* view.
   b. Enter the table fields using the information in **Table 5-10**.

Table 5-10

Field Name	Data Type	Description	Field Size	Format
OfficerID	**Short Text**	Officer's unique ID/Badge number	9	
FirstName	**Short Text**	Officer's first name	20	
LastName	**Short Text**	Officer's last name	20	
DateHired	**Date/Time**	Date of employment		**Short Date**

   c. Designate the *OfficerID* field as the primary key.
   d. Save the table as Officers.
5. Add the data into the table.
   a. Switch to *Datasheet* view. Enter the records shown in **Table 5-11** into the *Officers* table.

Table 5-11

OfficerID	FirstName	LastName	DateHired
A00021211	Reggie	DeFrank	10/1/2003
A00032567	Alex	Rodriguez	6/2/2006
A00045729	Robert	Chung	9/2/2011
A00056591	Jackie	Markley	3/17/2020
A00057706	Rupal	Jain	2/12/2022
A00061403	Carlos	Villanueva	12/20/2022
A00061444	Amanda	Freed	4/1/2024
A00092385	Javier	Torres	6/13/2024

b. Close the table.

6. Review the existing *Drivers* table.
   a. Open the *Drivers* table in *Datasheet* view.
   b. Click the **plus sign** to expand the first record, *LicenseNumber 10001422,* to view the related records in the *Tickets* table (**Figure 5-114**). Note that the *Tickets* table already has an *OfficerBadgeNumber* field.

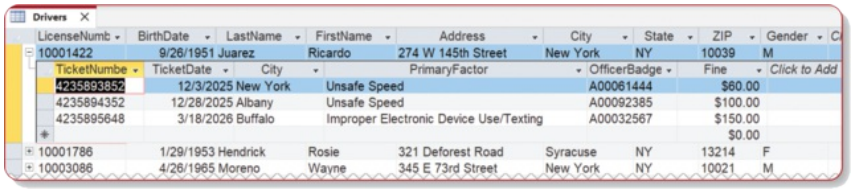


FIGURE 5-114 ***Drivers*** **table and related records from the** ***Tickets*** **table**

7. Determine the relationship type. A driver can have many different tickets. An officer can have written many different tickets. A many-to-many relationship exists between records in the *Drivers* and *Officers* table. This relationship is via the *Tickets* table. The *Tickets* table is the junction table.
8. Close the *Drivers* table.
9. Review the junction table.
   a. Open the *Tickets* table in *Design* view. Review that the *TicketNumber* field is the primary key. Note that this table has the two foreign keys of *DLNumber* and *OfficerBadgeNumber*. If a junction table has its own unique identifier, like *TicketNumber,* then it does not need to use a concatenated primary key. However, the foreign keys must still be in the table to provide the relationship.
   b. Select the **OfficerBadgeNumber** field.
   c. Change the description of the *OfficerBadgeNumber* field to read Must match an OfficerID in the Officers table. The description doesn't affect the database but makes the table design more understandable.
10. Use the *Lookup Wizard* to create a one-to-many relationship between *Officers* and

Tickets. This lookup will display multiple fields.

a. Select **Lookup Wizard** in the *Data Type* property box of the *OfficerBadgeNumber* field to create a relationship between the *Officers* and *Tickets* tables.
b. Choose to look up a field from the *Officers* table.
c. Include the *OfficerID, FirstName,* and *LastName* fields in the *Selected Fields* window.
d. Sort by the *LastName* field in ascending order.
e. Do not hide the key column.
f. Store the *OfficerID* field.
g. Enable data integrity and restrict deletes.
h. Save and close the table.

11. Edit the relationship.

a. Open the *Relationships* window (**Figure 5-115**). If all three tables do not display, click the **Add Tables** button to add the missing tables into the window. Recall that you previously created the relationship between *Drivers* and *Tickets* in **chapter 2**.

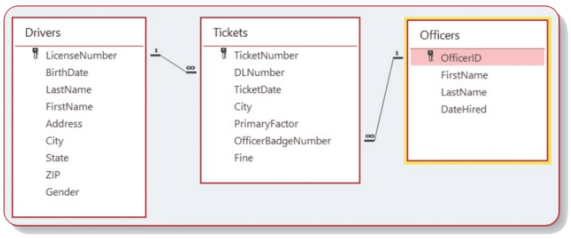


FIGURE 5-115 **New York DMV database relationships**

b. Edit the relationship between *Officers* and *Tickets* to cascade updates.
c. Save the changes.
d. Close the *Relationships* window.

12. Edit the *Tickets* table to add a timestamp field.

a. Open the *Tickets* table in *Design* view.
b. Add a new field using the information below:
Field Name: RecordAddedTimestamp
Data Type: **Date/Time**
Description: Store the date and time the record was added to the table
Format: **General Date**
c. Save the table.

13. Create an event-driven data macro to store the timestamp when a record is added

to the *Tickets* table.

a. Switch to *Datasheet* view.

b. Create a *Before Change* event-driven data macro.

c. Add a **Comment** action into the *Macro Builder* and type This macro adds the current date and time into the RecordAddedTimestamp field in the Tickets table.

d. Add a second **Comment** action and type The IsInsert function checks to see if this is a record being added versus a change. The timestamp should only be set at the time the record is first added into the table.

e. Add an **If** action below the second *Comment* and enter [IsInsert]=True into the *If* box.

f. Add a **Comment** directly below *If* and enter Set the value of the RecordAddedTimestamp field to the current date and time. The **=Now() function** is used to get the current date and time from the system.

g. Add a **SetField** action below the *Comment*, enter RecordAddedTimestamp in the *Name* argument and enter Now() in the *Value* argument. The completed macro is shown in **Figure 5-116**.

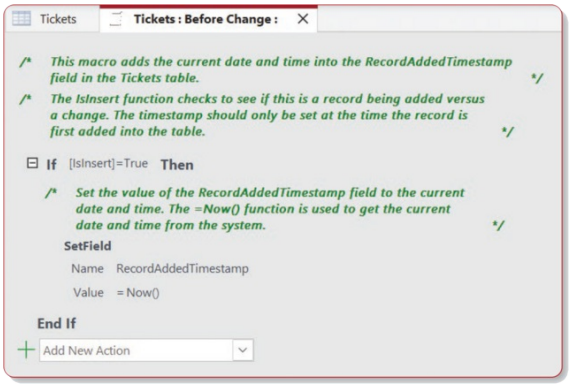


FIGURE 5-116 **Macro code for the *Before Change* event-driven macro**

h. Save and close the macro.

14. Test the macro.

a. Add the following record into the table. When entering the *OfficerBadgeNumber*, use the drop-down list and verify that all three fields show in the list.
TicketNumber: 4235896919
DLNumber: 10004372
TicketDate: 3/27/2026
City: Syracuse
PrimaryFactor: Unsafe Speed
OfficerBadgeNumber: A00057706

Fine: 90
Press the **down arrow** key after entering the *Fine*. Upon leaving the record, the *RecordAddedTimestamp* field updates. Most likely the field displays *####,* indicating the field is not wide enough.

b. Widen the *RecordAddedTimestamp* field to see the contents. Make a note of the current value, including the time.

c. Change the *PrimaryFactor* to Improper Cell Phone Use and the *Fine* to 150. Press the **down arrow** key to leave the record and have the changes saved. Verify that the contents of the *RecordAddedTimestamp* field did not change.

d. Save and close the table.

15. Close the database.

A5-403

A5-404

A5-405

A5-406

A5-407

A5-408

Independent Project 5-6

Courtyard Medical Plaza wants to expand its database. To ensure consistency, the starting file is provided for you. You create an event-driven macro to determine if a discount should be given, calculate the discount, and set the value of another table field. You then test that macro. Next, you create embedded macros to add functionality to a form and test the macros. Finally, you add error handling into a macro.

[Student Learning Outcome 5.4, Student Learning Outcome 5.5, Student Learning Outcome 5.6, Student Learning Outcome 5.7]

File Needed: ***CourtyardMedicalPlaza-05.accdb*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Name: ***[your initials] Access 5-6.accdb***

Skills Covered in This Project

- Use the *Macro Builder*.
- Build an event-driven data macro.

- Build an embedded macro.
- Test a macro.
- Use conditions in a macro.
- Add error handling into a macro.

---

1. Open the ***CourtyardMedicalPlaza-05.accdb*** database from your student data files. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close it.
2. Save a new copy of your database as [your initials] Access 5-6.
3. Enable content in the database.
4. Create an event-driven data macro to automatically set fields when a record is changed.
   a. Open the *RentInvoices* table in *Datasheet* view. Scroll to the far right of the table to see the *Paid* field. Scroll down through the records and note that all the records through the *Invoice Date* of 16-Jul-26 have a check mark in the *Paid* field. The September invoices for all the doctors do not have any values in the *DateReceived, Discount* and *Paid* fields.
   b. Create a *Before Change* event-driven data macro. The macro will contain a *Nested If* condition.
   c. Add an **If** action into the *Macro Builder* and enter [IsInsert]=False into the *If* box.
   d. Add a **Comment** directly below *If* and enter Process an invoice payment when the event is called as a result of a change.
   e. Add an **If** action directly below the *Comment* inside the first *If* and enter Not IsNull([DateReceived]) into the *If* box.
   f. Add a **Comment** directly below this *If* and enter The following actions are done only if there is a value in the DateReceived field, ensuring that the updates are done only if the payment is being processed (not when the invoice was added).
   g. Add an **If** action directly below the *Comment* inside the second *If* and enter [DueDate]-[DateReceived]>=3 into the *If* box.
   h. Add a **Comment** directly below this *If* and enter Process a 2% discount if payment received at least 3 days early.
   i. Add a **SetField** action below the *Comment* inside the third *If,* enter Discount in the *Name* argument and enter [AmountDue]*0.02 in the *Value* argument.
   j. Click the ***Add Else If*** link below *SetField* and enter [DueDate]-[DateReceived]=2 into the *Else If* box.
   k. Add a **Comment** directly below *Else If* and enter Process a 1% discount if payment received 2 days early.
   l. Add a **SetField** action below the *Comment,* enter Discount in the *Name* argument and enter [AmountDue]*0.01 in the *Value* argument.

m. Click on the *Else If* line to activate the *ElseIf* block, click to add a **Comment** directly below the first *End If* and enter Update the Paid field to True.

n. Add a **SetField** action below the *Comment,* enter Paid in the *Name* argument and enter True in the *Value* argument. The completed macro is shown in **Figure 5-117**.

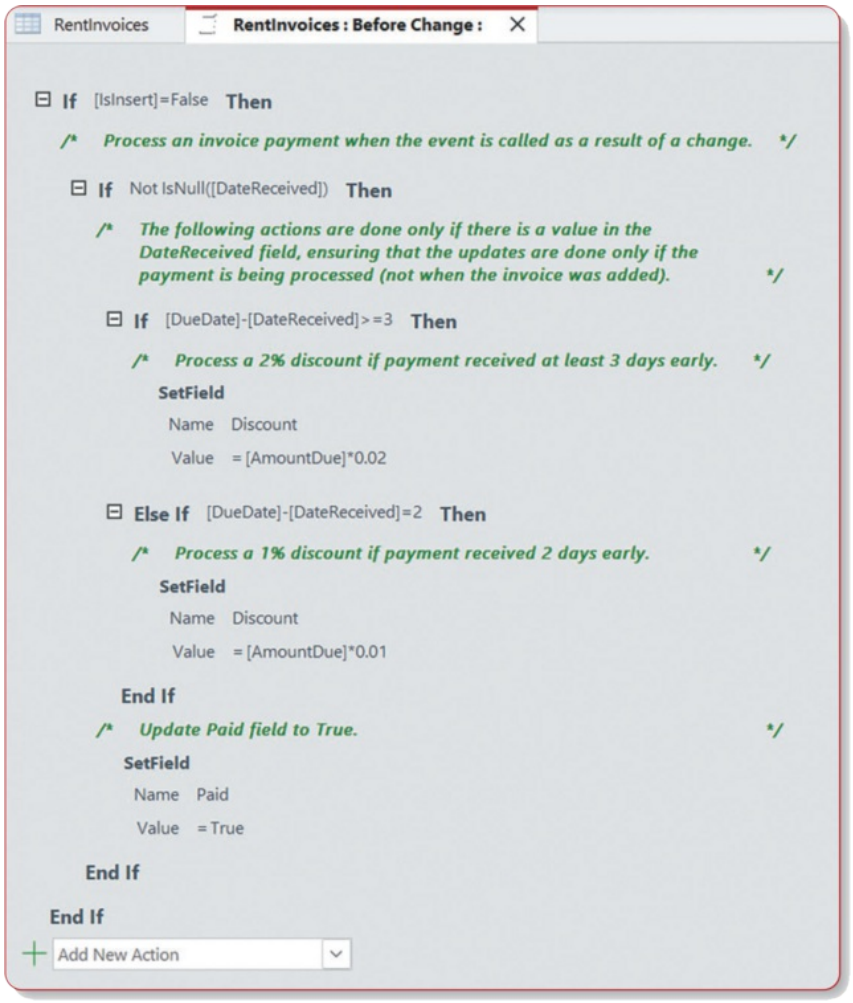


FIGURE 5-117 Macro code for *Before Change* event-driven macro

o. Save and close the macro.

5. Test the macro by adding a new invoice. Eventually, all the data entry will be done through forms, but during the design process, you use the table directly to test the data macro.

a. Navigate to the append row and add the following record into the table. The macro should not activate because this is an *add* versus a *change* to the table.
InvoiceID: 67
Invoice Date: 9/16/2026
Due Date: 10/1/2026

Amount Due: 1400
Doctor ID: 1
Description: October 2026 Rent (Agarwal & Sharma)

b. Tab past the *DateReceived, Discount,* and *Paid* fields. Upon leaving the record, verify that the *DateReceived, Discount,* and *Paid* fields do not contain any values. The *Discount* field displays *$0.00* due to the currency data type.

6. Test the macro by recording a payment that should not get a discount.
   a. Select the record for *InvoiceID 67*.
   b. Enter 10/1/2026 into the *DateReceived* field and navigate out of the record to save the changes. Verify that the *Paid* field is checked and the *Discount* field displays *$0.00*.
7. Test the macro by recording a payment that should get a 1% discount.
   a. Select the record for *InvoiceID 67*.
   b. Change the value of the *DateReceived* field to 9/29/2026 and navigate out of the record. Verify that the *Paid* field is *checked* and the *Discount* field is *$14.00*.
8. Test the macro by recording a payment that should get a 2% discount.
   a. Select the record for *InvoiceID 67*.
   b. Change the value of the *DateReceived* field to 9/26/2026 and navigate out of the record. Verify that the *Paid* field is *checked* and the *Discount* field is *$28.00*.
   c. Close the *RentInvoices* table.
9. Create an embedded macro that executes when a form activates.
   a. Open the *RecordInvoicePayment* form in *Form* view. This form has been created to easily enable an employee to enter the receipt of a payment. In the *Navigation* bar at the bottom of the form, note that you can move through all 67 records of the *RentInvoices* table.
   b. Change to *Design* view.
   c. Open the *Property Sheet* and verify that the object selected is the form.
   d. Create an embedded macro for the *On Activate* event.
   e. Add a **Comment** action in the *Macro Builder* and enter When the form becomes active, this macro executes.
   f. Add a second **Comment** action and type The first action filters the records to display only those that have not been paid. If a check box field contains 0, the box is not checked. In this case, an unchecked box indicates an unpaid invoice.
   g. Add an **ApplyFilter** action below the *Comment* and type [Paid]=0 in the *Where Condition* argument.
   h. Add a **Comment** below the *ApplyFilter* and enter This action causes the form to appear before the message box displays.

i. Add a **RepaintObject** action below the *Comment,* select **Form** in the *Object Type* argument and select **RecordInvoicePayment** in the *Object Name* argument.

j. Add a **Comment** below *RepaintObject* and enter Display a message box informing the user about what to do.

k. Add a **MessageBox** below the *Comment,* enter Enter the date the payment was received and then click the Record Payment button. in the *Message* argument, select **No** in the *Beep* argument, and select **Information** in the *Type* argument. The completed macro is shown in **Figure 5-118**.

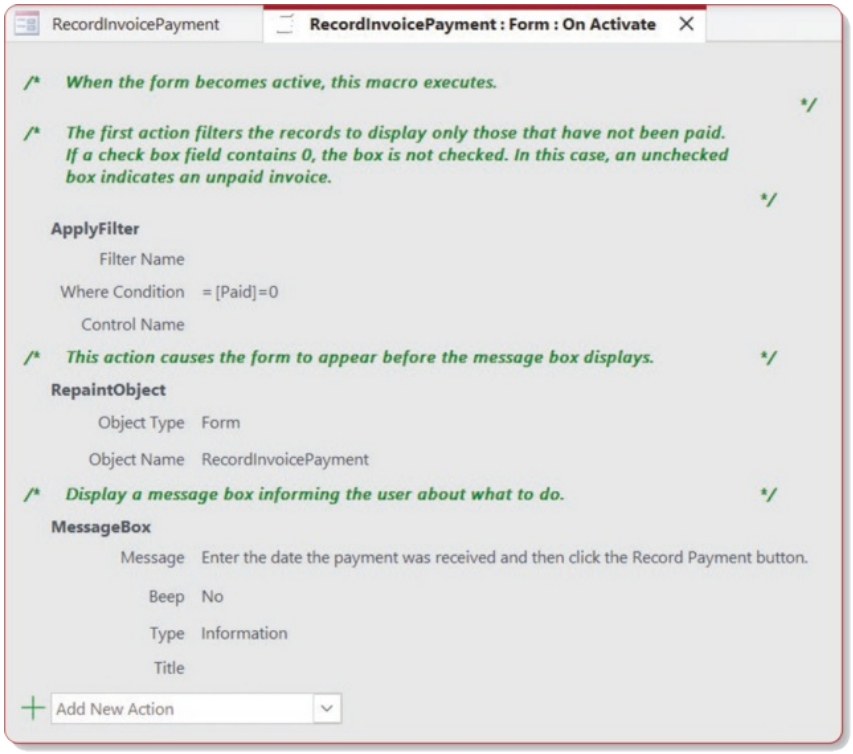


FIGURE 5-118 **Macro code for the *On Activate* macro**

l. Save and close the macro.

m. Save the form.

10. Test the *On Activate* macro.

a. Change the *RecordInvoicePayment* form to *Form* view. The message box from the *On Activate* event of the form displays.

b. Click **OK** to acknowledge the message. Note that *InvoiceID 56* is the current record and *Filtered* displays in the filter status message.

c. Navigate through the records. The form only displays the September invoices that have not been paid.

11. Create an embedded macro that is used in conjunction with executing the data

macro.

a. Change back to *Design* view.

b. Create an embedded macro for the *On Click* event of the *Record Payment* button.

c. Add a **Comment** action in the *Macro Builder* and type The following actions save the record, display a confirmation message, advance to the next record, and move the focus to the txtDateReceived text box.

d. Add a **RunMenuCommand** action below the *Comment* and type SaveRecord in the *Command* argument.

e. Add a **MessageBox** below *RunMenuCommand,* enter Invoice Processed in the *Message* argument and accept the default entries in the other arguments.

f. Add a **GoToRecord** action below *MessageBox* and accept the default entries in the arguments.

g. Add a **GoToControl** action below *GoToRecord* and type txtDateReceived in the *Control Name* argument. The completed macro is shown in **Figure 5-119**.

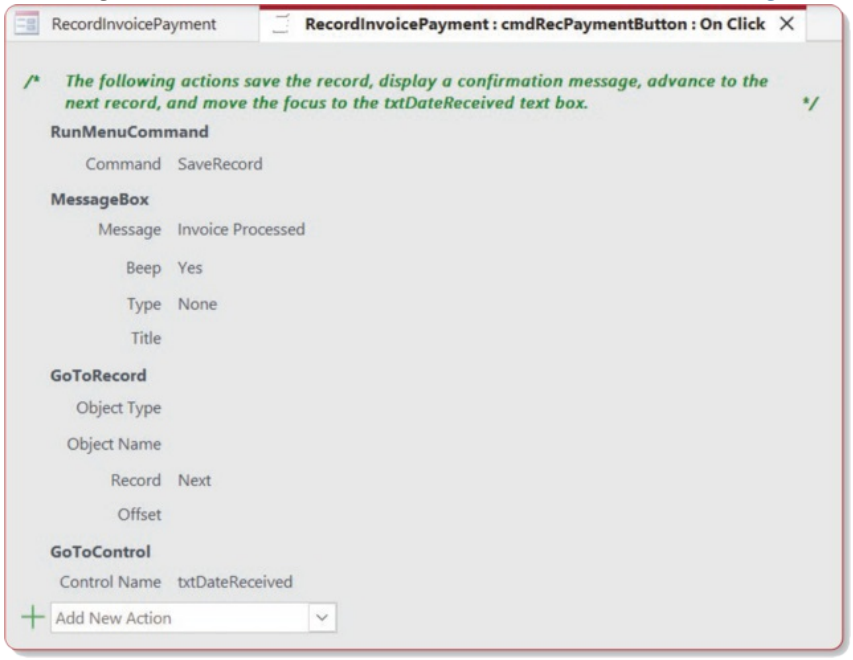


FIGURE 5-119 **Macro code for the *On Click* event**

h. Save and close the macro.

i. Save the form.

12. Explore the *Go To Next Record* and *Close Form* buttons. The macros for those buttons were created with the *Command Button Wizard.*

a. Open the embedded macro on the *On Click* event for the *Go To Next Record* button. Review the code to become familiar with the design and functionality of

the button.

b. Close the macro.

c. Repeat these steps for the *Close Form* button.

13. Test the *Record Payment* button with the scenario that no date is entered into the text box and the *Record Payment* button is pressed.

    a. Change the *RecordInvoicePayment* form to *Form* view. The message box from the *On Activate* event displays. Click **OK** to acknowledge the message. The record for invoice 56 displays.

    b. Click the **Record Payment** button. The message box displays informing you that the invoice was processed. This should not occur because the date received was not entered. Click **OK**.

    c. Open the *RentInvoices* table and look at the record for *InvoiceID 56.* The *DateReceived, Discount,* and *Paid* fields are empty. This matches the code from the *Before Change* event-driven data macro. Recall that the changes are made only if a value exists in the *DateReceived* field. However, the macro on the *Record Payment* button should not display the *Invoice Processed* message when it really was not processed.

    d. Close the *RentInvoices* table.

14. Add error handling to improve the macro.

    a. Switch the *RecordInvoicePayment* form to *Design* view to repair the problem.

    b. Open the embedded macro in the *On Click* event of the *Record Payment* button. Because the *Add New Action* box is located at the bottom of the macro, your new code will be added at the bottom of the macro. You then use the arrows to move the code to the top of the macro.

    c. Add a **Comment** below *GoToControl* and enter The If block works to avoid errors by checking if a value is in the DateReceived text box.

    d. Click the green **Move up** arrow to move the *Comment* action to the top of the macro. You will need to click the *Move up* arrow several times to move the action all the way to the top.

    e. Add an **If** action below *GoToControl* and enter IsNull([DateReceived]) into the *If* box.

    f. Add a **Comment** directly below this *If* and enter If nothing is in the text box, display a message and stop the macro from continuing.

    g. Add a **MessageBox** below the *Comment,* enter You must enter the date the payment was received. in the *Message* argument and select **Warning!** in the *Type* argument.

    h. Add a **GoToControl** action below *MessageBox* and type txtDateReceived in the *Control Name* argument.

i. Add a **StopMacro** action below *GoToControl*.

j. Click to select the **If** block.

k. Click the green M**ove up** arrow to move the *If* block to below the first comment in the macro. You will need to click the *Move up* arrow several times to move the action all the way to the top. Be careful to select the *Move up* arrow of the *If* block each time, instead of an arrow for one of the other actions. The new macro code, along with the existing comment you have in the macro from step 11, is shown in **Figure 5-120**.

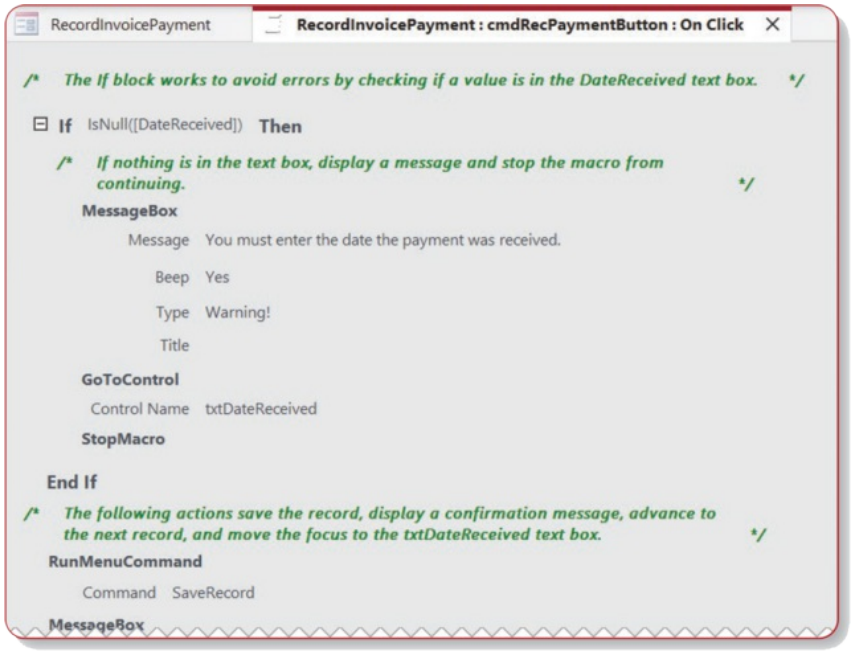


FIGURE 5-120 **Add error handling code into the macro**

l. Save and close the macro.

m. Close the *Property Sheet*.

n. Save the form.

15. Retest the macro.

a. Change the *RecordInvoicePayment* form to *Form* view. Click **OK** to acknowledge the message. The record for invoice 56 displays.

b. Click the **Record Payment** button. The message box displays, informing you that you must enter the date. Click **OK**.

c. Enter 8/31/2026 into the text box to the right of the *Enter Date Received* label.

d. Click the **Record Payment** button. The *Invoice Processed* message box displays.

e. Click **OK**. The form advances to the next record.

f. Enter the data from **Table 5-12** to process the following payments. You must click **OK** to acknowledge the *Invoice Processed* message box for each payment.

Table 5-12

InvoiceID	DateReceived
57	9/1/2026
58	8/30/2026
59	9/1/2026
60	9/1/2026

g. Close the form. You do not yet have payments for the remaining September 2026 rent invoices.

16. Verify that the payments were processed correctly.
    a. Open the *RentInvoices* table and verify that the *Paid* field is checked for invoices 56 through 60. *InvoiceID 58* should also have a $15.00 discount.
    b. Close the table.
17. Close the database.

A5-409

A5-410

A5-411

A5-412

A5-413

Advanced Project 5-7 SIMnet Project

TextbooksRUs is building a database to store information about the books they sell. The database contains a table to store book information and another table to store author information. For this project, you extend the database functionality by modifying the database so it can represent the many-to-many relationship between these tables. You also build and test an *AutoExec* macro to open the author and book tables when the database opens.

[**Student Learning Outcome 5.2**, **Student Learning Outcome 5.3**, **Student Learning Outcome 5.4**, **Student Learning Outcome 5.5**, **Student Learning Outcome 5.7**]

File Needed: ***TextbooksRUs-05.accdb*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Name: ***[your initials] Access 5-7.accdb***

Skills Covered in This Project

- Determine the need for a many-to-many relationship.
- Create a junction table with a concatenated primary key.
- Define a relationship with the *Lookup Wizard*.
- Use multiple columns in a lookup field.
- Add data into a junction table.
- Use the *Macro Builder*.
- Build a stand-alone *AutoExec* macro.
- Test a macro.
- Add error handling into a macro.
- Add conditions into a macro.
- Add a submacro in a macro.

---

1. Open the ***TextbooksRUs-05.accdb*** database from your student data files and save a new copy of your database as [your initials] Access 5-7. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close it. Enable content in the database.
2. Review the existing tables.
   a. Open the *Book* table in *Datasheet* view. View the 12 data records contained in the table.
   b. Switch to *Design* view. Note that the primary key of *ISBN* is a *Short Text* data type, with a field size of *13*.
   c. Open the *Author* table in *Datasheet* view. View the 26 data records contained in the table.
   d. Switch to *Design* view. Note that the primary key of *ID* is an *AutoNumber* data type, with a field size of *Long Integer*.
3. Determine the relationship type. A *Book* could have many different authors. An *Author* could have written many different books. A many-to-many relationship exists between the *Book* and *Author* tables.
4. Close both tables.
5. Create a junction table using *Table Design*.
   a. Add the fields in **Table 5-13** into the table and set field properties.

Table 5-13

Field Name	Data Type	Description	Field Size

AuthorID-FK	**Number**	Must match an ID in the Author table	
ISBN-FK	**Short Text**	Must match an ISBN in the Book table	13

b. Create a concatenated primary key using the combination of *AuthorID-FK* and *ISBN-FK* (**Figure 5-121**).

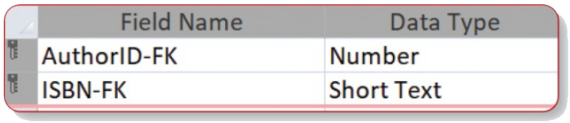


FIGURE 5-121 Concatenated primary key

c. Save the table as AuthorBook.

6. Use the *Lookup Wizard* to create a one-to-many relationship between *Author* and *AuthorBook*. This lookup displays multiple fields.

a. Select **Lookup Wizard** in the *Data Type* property box of the *AuthorID-FK* field to launch the *Lookup Wizard*.

b. Choose to look up a field from the *Author* table.

c. Include the *ID, FirstName* and *LastName* fields in the *Selected Fields* window.

d. Sort by the *LastName* field in ascending order.

e. Do not hide the key column.

f. Double-click the right edge of the *ID* column heading to automatically adjust the field width (**Figure 5-122**).

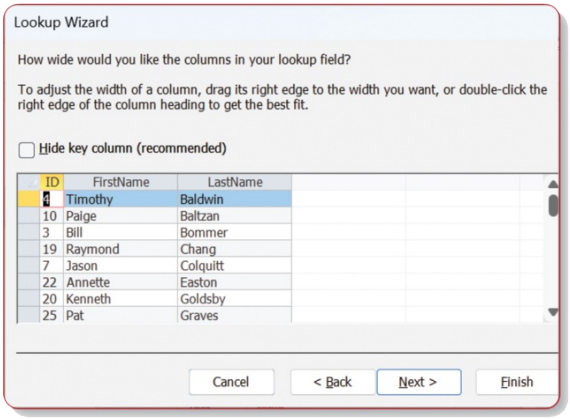


FIGURE 5-122 Adjust the column width of the *ID* column

g. Store the *ID* field.

h. Enable data integrity and cascade deletes.

i. Complete the wizard. Save the changes to the table, if prompted.

7. Use the *Lookup Wizard* to create a one-to-many relationship between *Book* and *AuthorBook*. This lookup displays multiple fields.
   a. Select **Lookup Wizard** in the *Data Type* property box of the *ISBN-FK* field.
   b. Choose to look up a field from the *Book* table.
   c. Include the *ISBN* and *Title* fields in the *Selected Fields* window.
   d. Don't sort on any fields.
   e. Do not hide the key column.
   f. Store the *ISBN* field.
   g. Enable data integrity and cascade deletes.
   h. Complete the wizard. Save the changes to the table, if prompted.
   i. Select the **ISBN-FK** field, if necessary, to adjust the column width on the *Lookup* tab.
   j. Change the *Column Width* property entry to read 1.2";4.8".
   k. Click the *List Width* property box and change the entry to read 6".
   l. Save the table. If prompted with another dialog box informing you that changes have been made to the *AuthorBook* table since the last time you opened it, click the **Yes** button to save your most recent changes.
   m. Close the table.
8. Edit the relationship.
   a. Open the *Relationships* window (**Figure 5-123**). If necessary, add any tables that do not display in the window.

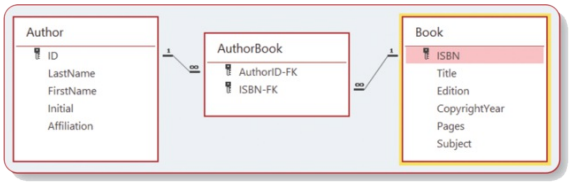


FIGURE 5-123 **Relationships in the *TextbooksRUs* database**

   b. Edit the relationship between *Author* and *AuthorBook* to cascade updates.
   c. Edit the relationship between *Book* and *AuthorBook* to cascade updates.
   d. Save the changes made to the relationships.
   e. Close the *Relationships* window.
9. Explore three ways to add the data into the *AuthorBook* junction table.
   a. Open the *Author* table in *Datasheet* view.
   b. Expand *Ray Whittington's* record to view the related records in the *AuthorBook* table.

c. Select **9781260247954 Principles of Auditing & Other Assurance Services** in the *ISBN-FK* field. This adds the record in the *AuthorBook* table.
d. Close the *Author* table.
e. Open the *Book* table in *Datasheet* view.
f. Expand *978-1-26-654647-1 Business Driven Information Systems'* record to view the related records in the *AuthorBook* table.
g. Select **10 Paige Baltzan** in the *AuthorID-FK* field. This adds the record in the *AuthorBook* table.
h. Click the *AuthorID-FK* field in the append row and select **21 Amy Phillips** to add the second record in the *AuthorBook* table because this book has two authors. You may need to scroll in the drop-down list to find her record because they are sorted on last name.
i. Close the *Book* table.
j. Open the *AuthorBook* table in *Datasheet* view. The three records you added display.
k. Use *AutoFit* to increase the column width of the *ISBN-FK* field width.
l. Add the remaining 11 records from **Table 5-14** into the *AuthorBook* junction table. **Table 5-14** shows the values in the additional lookup fields to aid in your data entry. You may need to use the scroll bars in the drop-down lists to find some of the author records.

Table 5-14

AuthorID-Fk	FirstName	LastName	ISBN-FK	Tit
10	Paige	Baltzan	9781260727821	M: Sy
2	Randy	Nordell	9781266773150	Mi Off Pra Edi
4	Timothy	Baldwin	9780078112782	Or Be So Re Ch
6	Robert	Rubin	9780078112782	Or Be So Re

				Challenges
3	Bill	Bommer	9780078112782	Organizational Behavior: Real Solutions to Real Challenges
5	Dhruv	Grewal	9781260260359	M: Marketing
13	Michael	Levy	9781260260359	M: Marketing
5	Dhruv	Grewal	9781266691430	Marketing
13	Michael	Levy	9781266691430	Marketing
18	Kurt	Pany	9781260247954	Principles of Auditing & Other Assurance Services
23	Marielle	Hoefnagels	9781260709636	Biology: The Essentials

m. Save and close the table.

10. Open the *Author* table in *Datasheet* view.
    a. Expand *Paige Baltzan's* record to view the ISBN of the two books she has in the database.
    b. Expand *Jason Colquitt's* record. You haven't linked him to any books in the database.
    c. Close the table.
11. Create a stand-alone macro to open the *Author* and *Book* tables when the database opens.
    a. Open the *Macro Builder.*
    b. Add a **Comment** action in the *Macro Builder* and enter This action opens the Author table.
    c. Add an **OpenTable** action below the *Comment,* select **Author** in the *Table Name* argument, and accept the default entry of *Datasheet* in the *View* argument and *Edit* in the *Data Mode* argument.
    d. Add a **Comment** action below the *Open Table* and enter This action opens the Book table.
    e. Add an **OpenTable** action below the *Comment,* select **Book** in the *Table Name* argument, and accept the default entry of *Datasheet* in the *View* argument and *Edit* in the *Data Mode* argument.

f. Save the macro as AutoExec. The *Macros* group is added to the *Navigation Pane* and displays the *AutoExec* macro.

g. Close the macro.

12. Test the macro.

a. Close Access.

b. Open the ***[your initials] Access 5-7.accdb*** database file. The database starts and opens both the *Author* and *Book* tables in *Datasheet* view.

c. Close both tables.

d. Select the **Book** table in the *Navigation Pane,* open the context menu and use **Rename** to change the name to BookTest. This enables you to see what happens when a table referenced in the macro doesn't exist.

e. Double-click the **AutoExec** macro in the Navigation *Pane.* Because you already know that the macro executes when the database is opened, run it from within the database to see what happens when the *Book* table doesn't exist. The *Author* table opens, and Access displays the error message shown in **Figure 5-124**.



FIGURE 5-124 **Macro error message**

f. Click **OK**. The *Macro Single Step* dialog box opens.

g. Click the **Stop All Macros** button.

h. Close the *Author* table.

13. Add error handling to the macro.

a. Open the **AutoExec** macro in the *Design view.*

b. Add a **Submacro** action below the second *OpenTable.*

c. Enter ProcessError into the *Submacro* box.

d. Add an **If** action between *Submacro* and *End Submacro,* and enter [MacroError].[Number]=7874 in the *If* box. Error 7874 occurs when a table referenced in an action doesn't exist.

e. Add a **MessageBox** action directly below *If,* enter Cannot find the specified table. in the *Message* argument, select **No** in the *Beep* argument, select **Warning!** in the *Type* argument, and leave the *Title* argument empty.

f. Add a **StopMacro** action directly below the *Title* argument.

g. Click the **Add Else** link located to the right of the *Add New Action* box below *StopMacro.*

h. Add a **MessageBox** action and enter =[MacroError].[Description] in the *Message* argument, select **No** in the *Beep* argument, select **Warning!** in the *Type* argument, and leave the *Title* argument empty. If the error is anything but 7874, this message displays what the error is.

i. Add an **OnError** action directly below *End Submacro.* Access moves the *OnError* action above the *SubMacro* action. Select **Macro Name** in the *Go to* argument, and enter ProcessError in the *Macro Name* argument.

j. Move the *OnError* action to the top of the macro. You may need to click the **Move up** arrow several times to move the action all the way to the top. The completed macro should look similar to **Figure 5-125**.

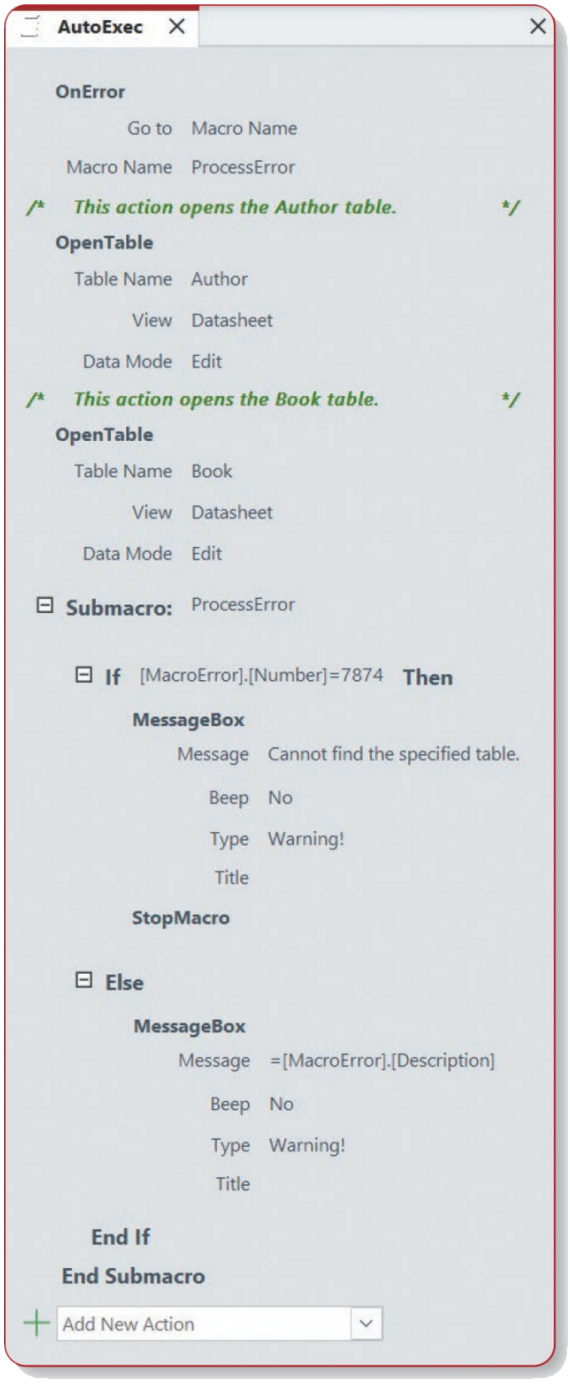


FIGURE 5-125 **Completed *AutoExec* macro with error handling**

k. Save and close the macro.

14. Retest the macro.

a. Run the **AutoExec** macro from the *Navigation Pane*. The message box displays "Cannot find the specified table."

b. Click **OK**.
c. Close the *Author* table.
d. Rename the **BookTest** table in the *Navigation Pane* to Book.
e. Run the **AutoExec** macro from the *Navigation Pane*. Both the *Author* and *Book* tables open in *Datasheet* view.
f. Close both tables.

15. Close the database.

Copilot Challenge Project 5-8

Use *Copilot* or other generative AI to help you modify the fast-food menu item database used in ***Copilot Challenge Project 4-8.*** Create a stand-alone *AutoExec* macro, add a field to a table, create an event-driven data macro to update that field, and test the macros.

[Student Learning Outcome 5.4, Student Learning Outcome 5.5, Student Learning Outcome 5.6, Student Learning Outcome 5.7]

File Needed: ***FastFoodNutrition-05.accdb***

Completed Project File Name: ***[your initials] Access 5-8.accdb***

Open the database ***FastFoodNutrition-05.accdb***. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close it. Save a copy of the database as [your initials] Access 5-8. Enable content in the database.

Modify your database according to the following guidelines:

- Open *Copilot* and ask it to create an Access *On Activate* event macro, using *MacroBuilder,* to display a message box before a form opens. The message is This information is read-only. Changes cannot be made on this form. Decide on appropriate entries for the remaining arguments. Include informative comments to explain the purpose of the macro.
  - Customize the response as needed and create the macro in the *On Activate* event in the *NutritionFacts* form. Note: If *Copilot* tells you to select **Event Procedure** in the *On Activate* event, ignore that instruction and simply click on the ellipsis button to open the *MacroBuilder*.
  - Save and close the form.
  - Open the form to test that the macro works as desired.
  - Make any needed corrections to the macro. Save and retest the form if necessary. Close the form when the macro performs as described.
- Open *Copilot* and ask it to create an example *AutoExec* macro, using

MacroBuilder, to open the *NutritionFacts* form when the database is opened.

- Customize the response as needed and create the macro in your database.
- Save and test the macro. If you are unsure of how to test it, ask *Copilot* how to test if the macro is working.
- Make any needed corrections to the macro. Save and retest the macro if necessary.

- Edit the *MenuItems* table to add a timestamp field. The field will be used in a macro to update with the current date and time any time the record is changed. Any of the existing records in the table will not have a value for this field because they were added prior to this new field.
  - Open the table in *Design* view.
  - Add a new *Date/Time* field into the table using the following information:
    Field Name: LastModified
    Data Type: **Date/Time**
    Description: Store the date and time the record was added to the table
    Format: **General Date**
  - Save the table.
- Ask *Copilot* to create a *Before Change* event-driven data macro to store a timestamp when a record is changed in the *MenuItems* table. Include both the date and time in the timestamp and store the value in the *LastModified* field. Include informative comments to explain the purpose of the macro. Use those suggestions to design your macro.
  - Customize the response as needed and create the *Before Change* event-driven data macro.
  - Test the macro under the conditions of adding a new record and changing an existing record.
  - Make any needed corrections to the macro.
  - Save any changes you make.
- Save and close the table.
- Close the database.

Challenge Project 5-9

For this project, you modify the database you created in ***Challenge Project 4-9*** for Blue Lake Sporting Goods. Your database contains a *Department* table and a related

Intern table with information about interns who are working at Blue Lake, along with the other objects created previously. Modify the *Intern* table and create an event-driven data macro for that table. The macro will set the value of a table field based on looking up related information in the *Department* table. Test the macro to ensure it works correctly.

[Student Learning Outcome 5.4, Student Learning Outcome 5.6, Student Learning Outcome 5.7]

File Needed: ***[your initials] Access 4-9.accdb***

Completed Project File Name: ***[your initials] Access 5-9.accdb***

Open the database ***[your initials] Access 4-9*** and save a copy of it as [your initials] Access 5-9.

Modify your database according to the following guidelines:

- Edit the *Intern* table and add a new field to store the InternshipLength.
- Save the changes to the table.
- Add a *Before Change* event-driven data macro to the *Intern* table. When creating the macro, keep the following in mind:
  - Use an *If* block using conditional logic to perform only the actions if the record is being added versus changed.
  - Use the *LookUpRecord* data block to find the matching record in the *Department* table. The *Where* condition should match the foreign key field in the *Intern* table to the primary key field in the *Department* table.
  - The logic in the macro should set the value for the *InternshipLength* field. If the *Division* is “Golf” or “Water Sports,” then the *InternshipLength* is four months. For all other divisions, it is a six-month *InternshipLength*.
- Save and test the macro. You need to add several records into the database to test whether the macro works for the different sides of the condition. Also test that it doesn’t make the change on an existing record.
- Make any necessary corrections to the macro code.
- Save any changes you made to the database.
- Close any open objects and the database.

Challenge Project 5-10

For this project, you modify the database you created in ***Challenge Project 4-10*** for a travel agency. Your database contains a *Ships* table with information about the different ships and a related *Trips* table with information about upcoming cruises, along with other objects created previously. Create a new *TripInformation* table that has a one-to-many relationship with the existing *Trips* table via the *TripName* field. Create the relationship using the *Lookup Wizard.* Create and test an embedded macro on the *On Activate* event of the form.

[Student Learning Outcome 5.2, Student Learning Outcome 5.3, Student Learning Outcome 5.4, Student Learning Outcome 5.5, Student Learning Outcome 5.7]

File Needed: ***[your initials] Access 4-10.accdb***

Completed Project File Name: ***[your initials] Access 5-10.accdb***

Open the database ***[your initials] Access 4-10*** and save a copy of it as [your initials] Access 5-10.

Modify your database according to the following guidelines:

- Create a new TripInformation table to store information about trips.
- Add the following fields into the table: TripName, Description, StartMonth, and EndMonth.
- *TripName* should be the primary key.
- Choose appropriate data types and field sizes.
- Save the table.
- Add data into the table.
  - Be sure to add records for the *TripName* values you already have in the *Trips* table.
  - Search the web for samples of what to enter in the *Description* field. For example, for a *TripName* of Western Caribbean you might use a *Description* entry of “The Caribbean’s warm sun, sandy beaches, and sparkling waters invite you to relax. Explore ports-of-call in the Caribbean Sea and wrap yourself in the unique culture of diverse islands.”
  - Cruises typically sail in a region only during certain months of the year. In *StartMonth,* enter the month name when the season starts, and in *EndMonth,* enter the month name when the season ends.
- Select the *Trips* table and rename the *TripName* field TripNameFK. Use the *Lookup Wizard* to create a one-to-many relationship between the *TripNameFK* field and the *TripName* field in the *Trips* table.
- Enforce referential integrity and cascade updates and deletes.
- Save all changes to the tables and the relationships.

- Add an embedded macro to the *On Activate* event of the form. The macro should display a message box informing the user that this form can only be used to add new records into the table. Be sure that the message box displays after the form appears.
- Save and test the macro.
- Save any changes you make.
- Close any open objects and the database.

Source of screenshots Microsoft Office 365 (2024): Word, Excel, Access, PowerPoint.

CHAPTER 6
Creating Advanced Queries and Reports

CHAPTER OVERVIEW

As your databases continue to evolve, you will need to incorporate advanced queries and reports. This chapter addresses how to create and use action queries and how to create queries that perform more powerful tasks. In this chapter, you also learn how to use *Design* view to create and modify reports, including the use of subreports.

STUDENT LEARNING OUTCOMES (SLOs)

After completing this chapter, you will be able to:

- **SLO 6.1** Understand action queries; create and use *Update, Append, Delete,* and *Make Table* queries (p. A6-418).
- **SLO 6.2** Use the *Query Wizard* to create a find duplicate records query and a find unmatched records query (p. A6-424).
- **SLO 6.3** Use the top values property, explore and use date functions, and create a query with a subquery (p. A6-428).
- **SLO 6.4** Understand report sections, build a report and add and delete fields in *Design* view, understand the data source of a report, use control layouts, and create a parameter report (p. A6-435).
- **SLO 6.5** Use *Design* view to add a control to a report; modify the size, location, font characteristics, and formatting properties of a control; modify the height and colors of a section; and change properties of multiple controls (p. A6-443).
- **SLO 6.6** Use calculations in a control on a report, create a running total in a control, and **concatenate** text data in a report (p. A6-451).
- **SLO 6.7** Understand when to use a subreport, create a main report and a subreport, add a subreport onto a main report, and customize a subreport (p. A6-460).
- **SLO 6.8** Insert a chart in a report and customize the chart (p. A6-470).

CASE STUDY

For the Pause & Practice projects in this chapter, you work on the Placer Hills Real Estate database. As you progress through the Pause & Practice projects, you incorporate skills you learn in the chapter to create action queries, implement advanced query features, create and edit reports in Design *view, build a subreport, and add charts to a report.*

Pause & Practice 6-1: Create a make table query, a delete query, and a parameter query that uses date functions.

Pause & Practice 6-2: Create and edit a report in *Design* view. Use a parameter query as the data source, and modify an existing report in *Design* view. Add calculated fields and modify several controls on the report.

Pause & Practice 6-3: Create a main report and a subreport, add a subreport onto a main report, and customize a subreport.

Pause & Practice 6-4: Create a report, add and customize a clustered bar chart to the report, and add and customize a clustered column chart to the report.

SLO 6.1

Creating and Using Action Queries

In **chapter 3**, you learned to write a *select query* to locate data in a database. Access provides another type of query, an ***action query***, which you use to make changes to the data in a database. In this section, you learn how to create and use the four different action queries: an update query, an append query, a delete query, and a make table query.

Understand Action Queries

When creating action queries, it is important that you clearly define and understand the business task you need the query to accomplish, including knowing how frequently the task needs to be done. The following scenarios help to illustrate several different tasks, along with their frequency.

- A company closes a branch office and needs to assign employees to a different branch. This business task needs to be done only one time or very infrequently.
- A store manager needs to update the purchase cost of each item when the manufacturer who supplies goods to a store raises product prices. This business task might be part of a recurring process that happens periodically.
- At the end of every semester, a clerk in a university equipment office needs to remove the equipment reservations from the reservation table. However, the university still needs to keep the reservation records in a history table. This business task involves using several action queries together. First, the clerk appends the old reservations into a history table before deleting the records from the reservation table.

You can automate each of the tasks described above using an action query. An action query makes a permanent change to the data in the database and the *Undo* button is not available to reverse the action. As a result, it is a good practice to make a backup copy of your database before you run any action query. This will enable you to restore your original data if the query does not work correctly. As additional protection, Access displays a message box (**Figure 6-1**) alerting you to the change before executing an action query. The exact message varies depending on the type of action query.

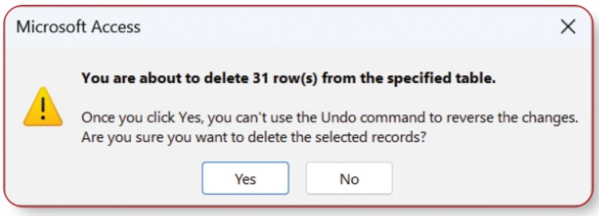


FIGURE 6-1 Action query message box

MORE INFO

Action queries do not display confirmation messages after the action is complete. Be careful not to execute the query a second time because that repeats the action, potentially resulting in invalid data.

It is good practice to create an action query in two steps.

1. Create and execute a regular select query to verify that you are finding the correct records.
2. Convert the select query to the desired action query, enter any required values related to the action, and execute the action query.

If you have not enabled the content in the database, you may encounter a warning message in the left corner of the *Status* bar (Figure 6-2) when trying to run an action query. If this message displays, you must enable the content from the security warning (Figure 6-3) or by opening the ***Trust Center*** after selecting the **Options** button from the *File* tab.

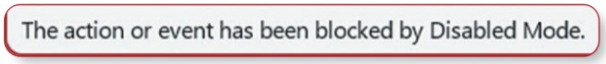


FIGURE 6-2 Action query message in *Status* bar



FIGURE 6-3 Security warning message

Each query type displays in the *Navigation Pane* with a unique identifying icon (Figure 6-4). For comparison purposes, Figure 6-4 also shows a sample of a select query icon and a crosstab query icon. You learned to build those queries in chapter 3.

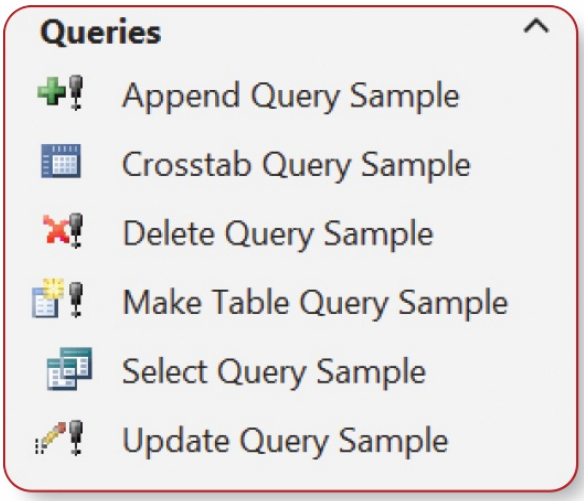


FIGURE 6-4 Query icon examples

Create an Update Query

An ***update query*** updates data in the database. While you could open a table in *Datasheet* view and modify each record individually, an update query enables you to make the change to all records using one command.

- Write the query to update a single field or multiple fields.
- The query can update all the records in a table or only records that meet a specific condition. For example, write an update query to give all employees a 4% pay raise or to give a raise only to employees in one specific department or job type.
- The query design grid includes an *Update To* row that is used to enter the new value.
- **Figure 6-5** shows a query that updates the *BaseMonthlySalary* field for all the records in the *Employees* table. The formula gives everyone a 4% raise.

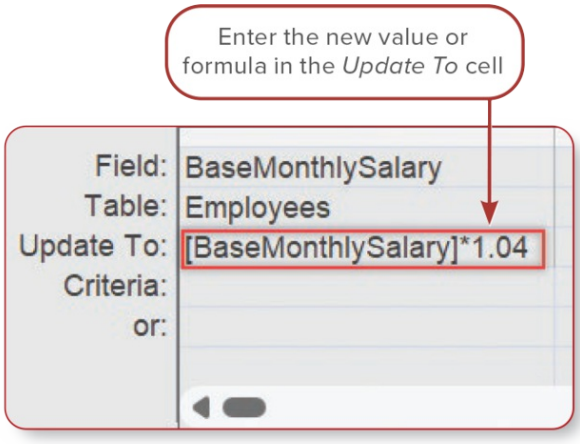


FIGURE 6-5 Update query design grid

- **Figure 6-6** shows a query that updates the *BaseMonthlySalary* field with the same 4% raise. However, in this case, the update applies only to employees whose *Title* is *Insurance Agent* and who work in the *Branch* of *Cameron Park*.

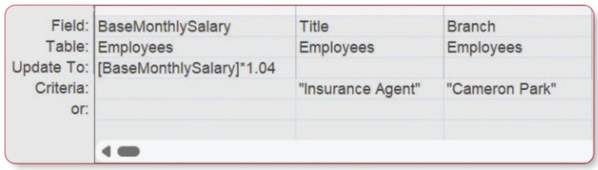


FIGURE 6-6 Update query design grid with criteria

HOW TO: Create an Update Query

1. Click the **Query Design button** [*Create* tab, *Queries* group]. The *Add Tables* task pane opens.
2. Double-click the first table to use in the query to add the table into the *Query Design* window.
3. Continue adding all required tables.
4. Close the *Add Tables* task pane. The *Select* button is highlighted in the *Query Type* group [*Query Design* tab].
5. Add the desired fields into the query design grid. Do not use the asterisk (*) to include all fields because each field will have a separate update value.
6. Add any criteria into the query design grid.
7. Run the query to verify that the query finds the correct records.
8. Switch back to *Design* view.
9. Click the **Update** button [*Query Design* tab, *Query Type* group] (**Figure 6-7**) to convert the query to an update query.

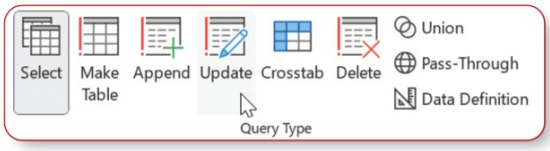


FIGURE 6-7 *Update* query button

- The *Sort* and *Show* rows of the select query are replaced with the *Update To* row of the update query.

- The *Select* button is no longer highlighted.

10. Click the **Update To** cell of the desired field.
11. Type the new value or formula expression.
    - If necessary, enter the formula in the *Expression Builder* or *Zoom* dialog boxes.
12. Run the query. An Access message box displays, informing you that records are about to be changed.
13. Click **Yes** to execute the query.
14. Save the query.

MORE INFO

Unlike the *Criteria* row, the *Update To* row is case sensitive. Value(s) entered into the *Update To* row are added exactly as written, case included, into the records in the table.

If you execute an update query by running it directly from the *Navigation Pane,* Access displays a message box alerting you to the execution of an update query.

Create an Append Query

An ***append query*** adds records into an existing table in a database. An append query does not move the records from one table to another; rather, it puts a copy of the records into the destination table.

- Choose to copy records from one or multiple tables into the destination table.
- Copy all of the records from a table or only the records that meet a specific condition. **Figure 6-8** shows a query that copies the records of employees whose *Branch* is *Folsom.*



FIGURE 6-8 Append query design grid

- The query design grid includes an *Append To* row that is used to match the fields across the tables.
- If the field names are the same in the source and destination tables, Access matches the names

in the *Append To* row (Figure 6-8). Change the name in the *Append To* row if the names do not match.

- If the field names do not match, you select the matching field names in the *Append To* row, as shown in Figure 6-9.



FIGURE 6-9 Select the matching field name in the *Append To* row

HOW TO: Create an Append Query

1. Click the **Query Design** button [*Create* tab, *Queries* group]. The *Add Tables* task pane opens.
2. Double-click the first table that contains records that you want to copy. The table is added into the *Query Design* window.
3. Continue adding all required tables.
4. Close the *Add Tables* task pane. The *Select* button is highlighted in the *Query Type* group [*Query Design* tab].
5. Add the desired fields into the query design grid.
   - To include all of the fields from the table in the query, either double-click the asterisk (*) from the *Table* in the *Query Design* window or select the **TableName**.* field from the drop-down list of fields displayed in the query design grid.
6. Add any criteria into the query design grid.
   - If you use criteria on a field, you must add each field individually instead of using the asterisk (*).
7. Run the query to verify that the query finds the correct records.
8. Switch back to *Design* view.
9. Click the **Append** button [*Query Design* tab, *Query Type* group] (Figure 6-10) to convert the query to an append query. The *Append* dialog box opens (Figure 6-11).

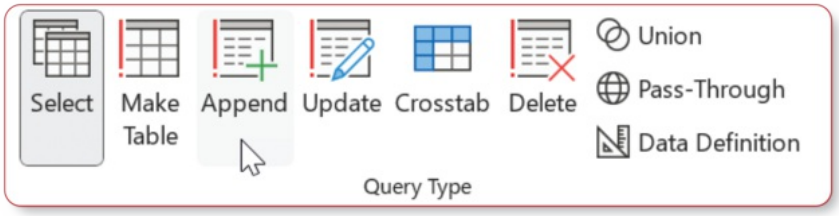


FIGURE 6-10 ***Append*** **query button**

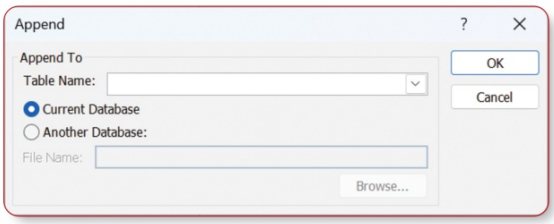


FIGURE 6-11 ***Append*** **dialog box**

10. Click the **Table Name** drop-down arrow and select the destination table.
11. Select either the **Current Database** or **Another Database** radio button, depending on the location of the destination table.
12. Click **OK**.
    - The *Show* row of the select query is replaced with the *Append To* row of the append query.
    - The *Append To* row contains the matching field names in the destination table.
    - The *Select* button is no longer highlighted.
13. Enter or edit the field names in the *Append To* row if necessary.
14. Run the query. An Access message box displays, informing you that you are about to append rows into the table.
15. Click **Yes** to execute the query.
16. Save the query.

If you execute an append query by running it directly from the *Navigation Pane,* Access displays a message box alerting you to the execution of an append query.

Create a Delete Query

A ***delete query*** deletes records from a table in a database. A delete query can save you a significant amount of time if you want to delete a number of records from a table.

- A delete query deletes the entire record. You cannot use this query to delete selected fields.
- If the table from which you are deleting participates in a relationship, be certain you are aware of any relationship constraints that may apply, such as cascade deletes.
- The query design grid includes a *Delete* row.
- If you use the asterisk (*) to include all fields, the *Delete* row displays *From,* as shown in Figure 6-12.

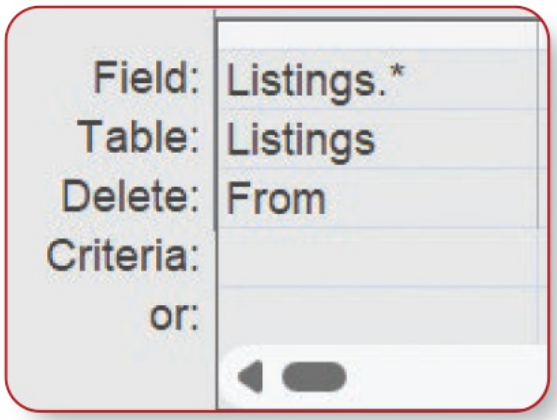


FIGURE 6-12 Delete query design grid

- If a field is listed individually, the *Delete* row displays *Where* so you can enter criteria in the *Criteria* row, as shown in Figure 6-13.

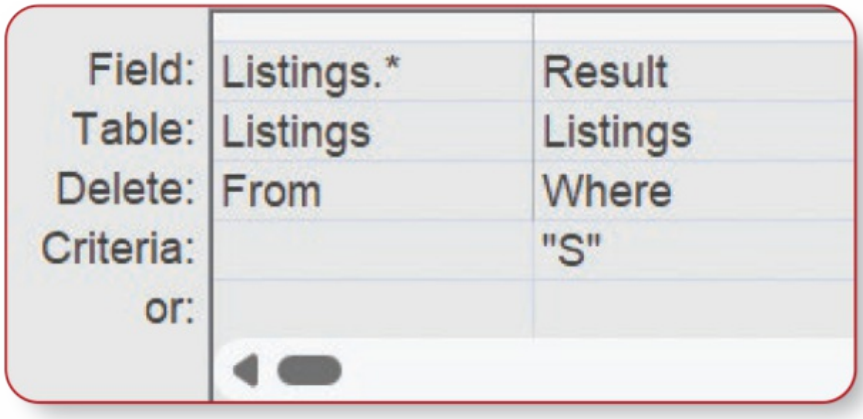


FIGURE 6-13 Delete query design grid with criteria

HOW TO: Create a Delete Query

1. Click the **Query Design** button [*Create* tab, *Queries* group]. The *Add Tables* task

pane opens.

2. Double-click the first table that contains records that you want to delete to add the table into the *Query Design* window.
3. Continue adding all required tables.
4. Close the *Add Tables* task pane. The *Select* button is highlighted in the *Query Type* group [*Query Design* tab].
5. Add the desired fields into the query design grid.
   - To include all of the fields from the table in the query, either double-click the asterisk (*) from the *Table* in the *Query Design* window or select the **TableName**.* field from the drop-down list of fields displayed in the query design grid.
   - Add any fields that will use criteria into the query design grid.
   - When using criteria, if the table has a large number of fields, you may wish to include just a few of the fields used to verify that the query criteria finds the correct records (Figure 6-14). Remember that when you convert this to a delete query, the entire record is deleted so it is not necessary to display all of the fields.



FIGURE 6-14 Delete query design grid with fewer fields and criteria

6. Type the criterion expression into the *Criteria* row cell of the desired field.
7. Run the query to verify that the query finds the correct records.
8. Switch back to *Design* view.
9. Click the **Delete** button [*Query Design* tab, *Query Type* group] (Figure 6-15) to convert the query to a delete query.

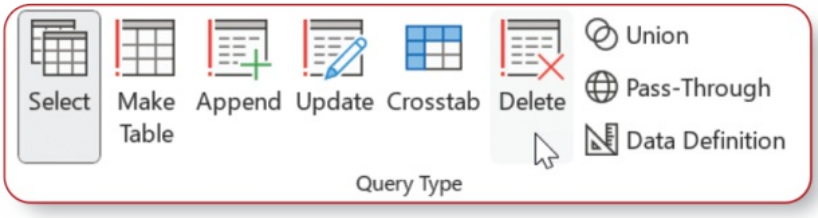


FIGURE 6-15 ***Delete*** **query button**



- The *Sort* and *Show* rows of the select query are replaced with the *Delete* row of the delete query.
- The *Select* button is no longer highlighted.

10. Run the query. An Access message box displays, informing you that you are about to delete rows from the table.
11. Click **Yes** to execute the query.
12. Save the query.

If you execute a delete query by running it directly from the *Navigation Pane,* Access displays a message box alerting you to the execution of a delete query.

Create a Make Table Query

A ***make table query*** creates a new table in a database and also copies records into the new table. Organizations often use a make table query to create a history table, which they then use to store old records. For example, a university might store equipment reservations from previous semesters in a history table. Management could review the history table to analyze usage patterns on the equipment.

- A make table query can create a new table from fields in one or multiple tables.
- Select which fields from a table should appear in the new table.
- Choose to copy all of the records or only the records that meet a specific condition into the new table.
- After the query executes, designate a primary key in the new table.
- The new table you create does not have any relationships to the existing tables in the database.

HOW TO: Create a Make Table Query

1. Click the **Query Design** button [*Create* tab, *Queries* group]. The *Add Tables* task pane opens.
2. Double-click the first table that contains records you want to copy. The table is added into the *Query Design* window.
3. Continue adding all required tables.
4. Close the *Add Tables* task pane. The *Select* button is highlighted in the *Query Type* group [*Query Design* tab].

5. Add the desired fields into the query design grid.
   - To include all of the fields from the table in the query, either select the asterisk (*) from the *Table* in the *Query Design* window or select the **TableName**.* field from the drop-down list of fields displayed in the query design grid.
6. Add any criteria into the query design grid.
   - If you use criteria on a field, you must add all fields separately instead of using the asterisk (*).
7. Run the query to verify that the query finds the correct records.
8. Switch back to *Design* view.
9. Click the **Make Table** button [*Query Design* tab, *Query Type* group] (**Figure 6-16**) to convert the query to a make table query. The *Make Table* dialog box opens (**Figure 6-17**).

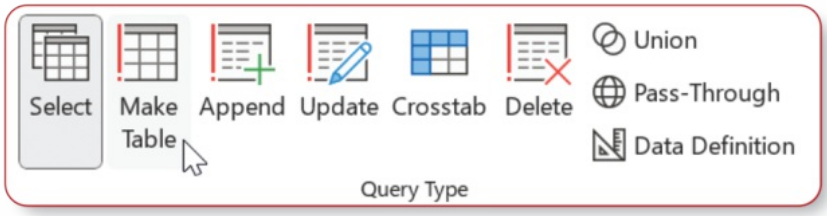


FIGURE 6-16 ***Make Table*** **query button**

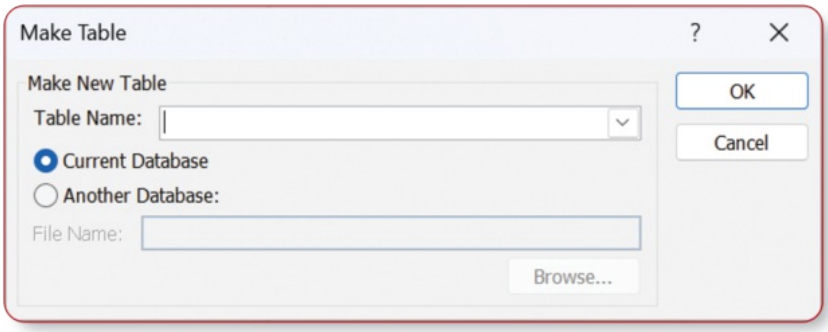


FIGURE 6-17 ***Make Table*** **dialog box**

10. Enter the name of the new table in the *Table Name* box.
11. Select either the **Current Database** or **Another Database** radio button, depending on the location of the new table.
12. Click **OK**. The *Select* button is no longer highlighted.
13. Run the query. An Access message box displays, informing you that you are about to paste rows into a new table.
14. Click **Yes** to execute the query.
15. Save the query.

If you execute a make table query by running it directly from the *Navigation Pane,* Access displays a message box alerting you to the execution of a make table query. If the table already exists when a make table query executes, Access asks you to confirm deleting the existing table before creating a new one.

SLO 6.2

Exploring the Query Wizard

The ***Query Wizard*** is a tool that makes it easier to build four different types of queries. In **chapter 3**, you used the *Simple Query Wizard* to create a select query, and you used the *Crosstab Query Wizard* to create a crosstab query. In this section, you use the two other types of query wizards—the *Find Duplicates Query Wizard* and the *Find Unmatched Query Wizard*—to create two special types of select queries. Both of these query wizard options are available in the *New Query* dialog box (**Figure 6-18**).

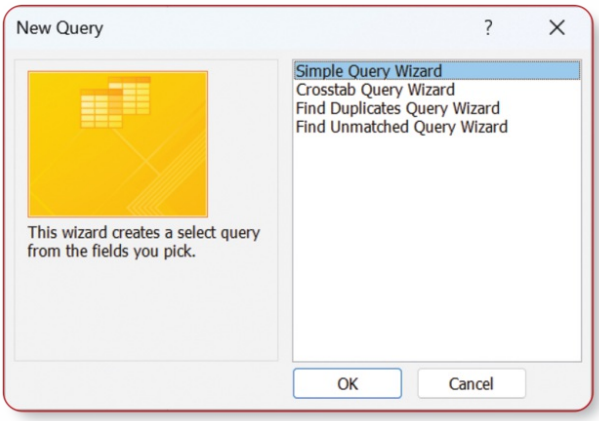


FIGURE 6-18 ***Query Wizard*** **options in the** ***New Query*** **dialog box**

Find Duplicate Records

If ***duplicate records*** are present, two or more records in a table share the same values. Generally speaking, you should avoid having duplicate records in your database. When you follow good database design guidelines, you include features that prevent your database from allowing duplicate data. For example, when you designate a field as a primary key, Access will not allow you to have two records with the same value in the primary key field.

Unfortunately, even when you practice good database design, you still may end up with duplicated data. Consider customers who forget their login IDs and passwords and create new accounts, or a salesperson who accidentally enters the same order twice. Having two records for the same customer, even though the login ID is different, or two records of the same order, even though the order number is different, results in duplicate data. You need to remove duplicated records in

situations like these. Additionally, you may inherit a database that was poorly designed and does not have primary keys created, or you may import data from another source that contains duplicate data. Before you can create and enforce a primary key, you need to find and remove duplicate data.

Keep in mind that all duplicated data is not bad. For example, the same product number or salesperson ID appears on multiple sales records. You want to find and correct only data that clearly is a problematic duplication of existing data. A ***find duplicates query*** locates data that is duplicated in your database. You can create a find duplicates query using *Query Design;* however, it is much easier to create the query using the ***Find Duplicates Query Wizard***.

When the query is initially created in the query wizard, Access returns only records that have a match on the entire value in a field. Edit the query after it is created to look for partial matches by adding criteria that use wildcards, as you learned in **chapter 3**.

HOW TO: Create a Query Using the Find Duplicates Query Wizard

1. Click the **Query Wizard** button [*Create* tab, *Queries* group] to launch the *Query Wizard.*
2. Select **Find Duplicates Query Wizard** in the *New Query* dialog box and click **OK**. The *Find Duplicates Query Wizard* launches (**Figure 6-19**).

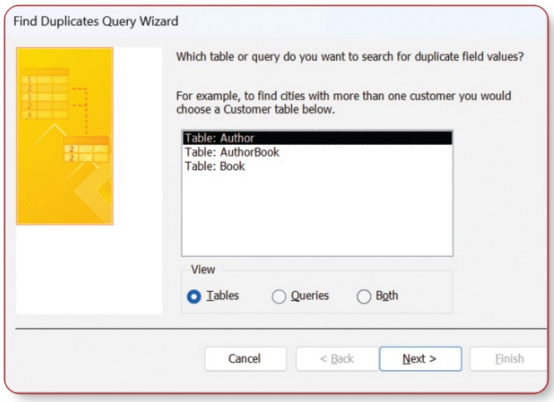


FIGURE 6-19 ***Find Duplicates Query Wizard*, step 1**

3. Select the table that contains the data you want to analyze. If necessary, click the **Queries** radio button to see the list of available queries and then select the desired query instead of a table.
4. Click **Next** to move to the next page of the wizard.
5. Select the field that may contain duplicate data from the *Available Fields* window and click the **Move Single Field** button to move the field into the *Duplicate-value fields* window.

6. Move any additional fields that may have duplicated data into the window (Figure 6-20).

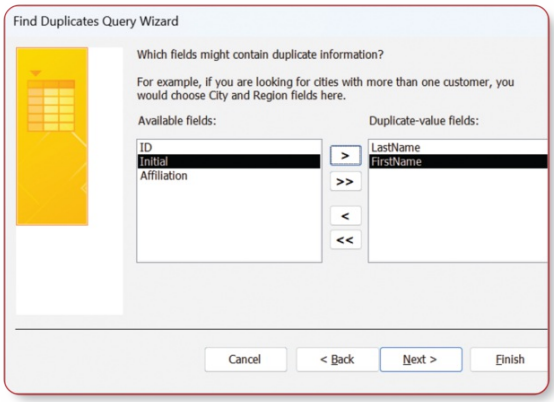


FIGURE 6-20 ***Find Duplicates Query Wizard*, step 2**

- If you use multiple fields, Access checks all the fields to determine if data is duplicated. For example, two authors with the last name of "Chang" are not considered duplicates if the authors have different first names and you include both the last name and first name fields.

7. Click **Next** when you have finished adding fields to move to the next page of the wizard.
8. Move any additional fields from the *Available Fields* window that you want to include in the results (Figure 6-21).



FIGURE 6-21 ***Find Duplicates Query Wizard*, step 3**

- These fields may help you identify if the record really is a duplicate.

9. Click **Next** to move to the last page of the wizard.
10. Enter the name of the query and click **Finish**.
    - The query executes and displays the results of any records that contain

duplicated data (Figure 6-22).

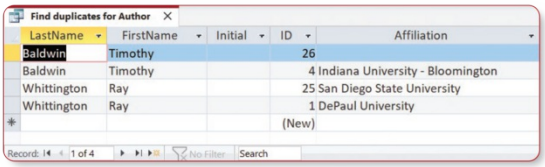


FIGURE 6-22 Find duplicates query results

11. Review the data records to determine if any duplicates can be deleted from the database.
12. Close the query.

When you review the results of a find duplicates query, you may need to conduct further analysis to determine whether the records are actually duplicates. This may involve looking at data in other tables, conducting research, or talking with employees or customers. For example, consider the duplicate records in Figure 6-22. Further research indicates that both records for Ray Whittington refer to the same person, who switched affiliations during his career. The two Timothy Baldwin records, however, refer to two different people who happen to have the same first and last names.

Before deleting duplicate records, change the foreign key connection of any related records in other tables so they are associated with the record that remains in the database.

Find Unmatched Records

Unmatched records are records in one table that do not contain any matching records in a related table. For example, imagine that San Diego Sailing wants to determine which boats have not been rented, or a retail store wants to find out which products have not been purchased in the last quarter. This information can help these organizations make business decisions about reducing the price, running a promotional special, discontinuing a product, etc.

The situations described in the previous paragraph do not indicate a problem with the database design. However, as noted in the previous description of the use of the find duplicates query, sometimes you may inherit a poorly designed database. Referential integrity may not have been enforced, resulting in records that do not have valid relationships. If this happened, you need to find the unmatched records and either remove them or connect them to valid records.

An ***unmatched records query*** compares records in two tables and determines which ones are not matched. You can create a find unmatched records query using *Query Design;* however, it is much easier to create the query using the ***Find Unmatched Query Wizard***.

HOW TO: Create a Query Using the Find Unmatched Query Wizard

1. Click the **Query Wizard** button [*Create* tab, *Queries* group] to launch the *Query Wizard*.
2. Select **Find Unmatched Query Wizard** in the *New Query* dialog box and click **OK**. The *Find Unmatched Query Wizard* launches (Figure 6-23).



FIGURE 6-23 ***Find Unmatched Query Wizard*, step 1**

3. Select the table that may have unmatched records. If necessary, click the **Queries** radio button to see the list of available queries and select the desired query. The data from the selected table or query displays in the query results.
4. Click **Next** to move to the next page of the wizard.
5. Select the table that contains the related records (Figure 6-24).

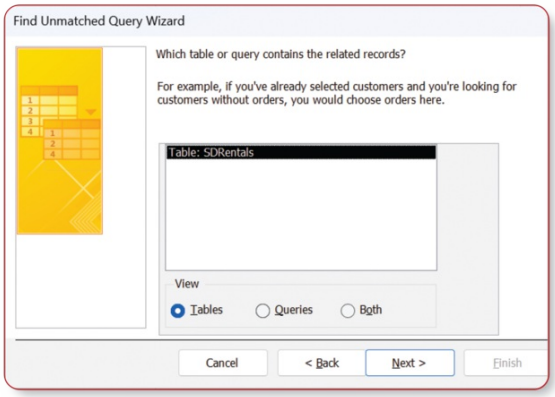


FIGURE 6-24 ***Find Unmatched Query Wizard*, step 2**

- This table must have a field in common with the first table.
- While the tables don't have to be joined with a relationship, they often are.

6. Click **Next** to move to the next page of the wizard.
7. Select the matching field in each table and click the < = > button (Figure 6-25). If the fields are already linked via a relationship, they may already be selected.



FIGURE 6-25 ***Find Unmatched Query Wizard*, step 3**

8. Click **Next** to move to the next page of the wizard.
9. Select any additional fields from the *Available fields* window that you want to include in the results (Figure 6-26).

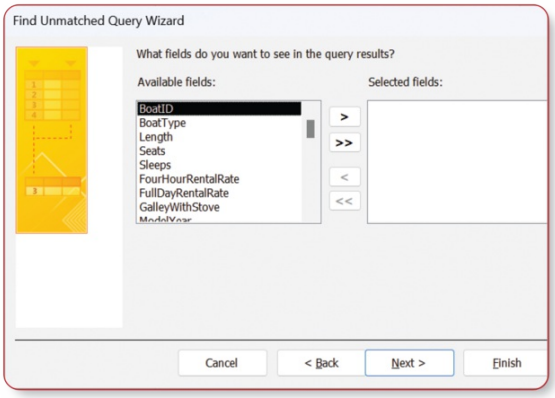


FIGURE 6-26 ***Find Unmatched Query Wizard*, step 4**

- You can only select fields from the first table selected (the one that may have unmatched data).
- If you don't select any fields, Access displays all the fields in the query results.

10. Click **Next** to move to the last page of the wizard.
11. Enter the name of the query and click **Finish**. The query executes and displays the results of any unmatched records (Figure 6-27).

SailboatFleet Without Matching SDRentals

Boat ID	Boat Type	Length	Seats	Sleeps	4 Hr Rate	Full Day Rate	Galley w/ Stc	Model Year
1150	Capri 22 Mk II	24'8"	6	4	$75.00	$121.00	☐	2014
1164	Capri 22 Mk II	24'8"	6	4	$75.00	$121.00	☐	2017
1168	Hunter 33	33'6"	10	6	$285.00	$355.00	☑	2017
1175	Beneteau 40	39'10"	12	6	$475.00	$555.00	☑	2018
1180	Beneteau 373	36'11"	10	6	$355.00	$455.00	☑	2019
1190	Beneteau 373	36'11"	10	6	$355.00	$455.00	☑	2019
1200	Beneteau 373	36'11"	10	6	$355.00	$455.00	☑	2020
1205	Beneteau 40	39'10"	12	6	$475.00	$555.00	☑	2021
1254	Hunter 36	35'6"	10	6	$335.00	$395.00	☑	2022
1342	Hunter 33	33'6"	10	6	$285.00	$355.00	☑	2024
1410	Beneteau 40	39'10"	12	6	$475.00	$555.00	☑	2025
1425	Catalina 270	28'4"	8	6	$145.00	$205.00	☑	2025

Record: 1 of 12 | No Filter | Search

FIGURE 6-27 **Unmatched records query results**

12. Save and close the query.

If you create an unmatched records query because you are concerned about the design of your database, review the results of the query to determine appropriate action. This may involve looking at data in other tables, conducting research, or talking with employees or customers. You may determine that the unmatched records should be deleted or that they need to be matched to a record in a related table.

SLO 6.3

Creating Advanced Queries and Changing Query Properties

Queries provide a great deal of power and flexibility to help you accomplish many tasks in your database. As the number of records in your database increases, use query properties to limit the number of records that display in a result. Additionally, as the processing of your database becomes more sophisticated, you may need to write queries that use more complex functions or queries that use other queries as their data source. In this section, you learn how to create queries to deal with these more complex situations.

Find the Top Values in a Query

The ***Top Values* query property** (**Figure 6-28**) limits the number of records that display in a query answer. This can be helpful when you want to focus attention on certain aspects of a business. For example, an organization may want to find out who its top-performing salespersons were in the past year.

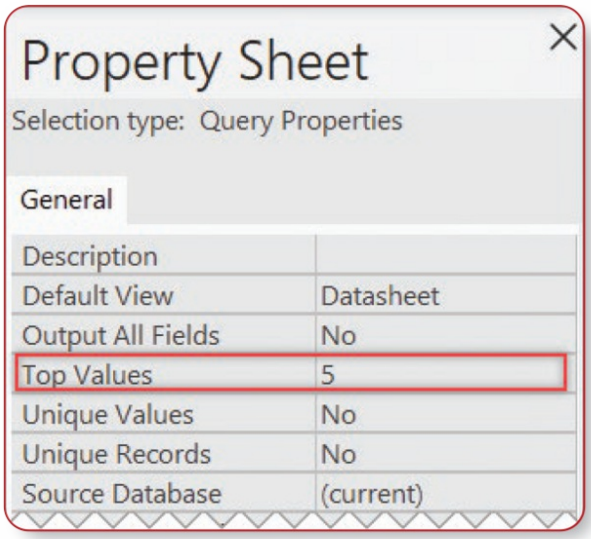


FIGURE 6-28 ***Top Values* query property**

The queries you have written so far have returned all of the records that meet the criteria. This is because the default setting of the *Top Values* property is *All.* For your top values query to function

correctly, you must keep the following points in mind:

- You must select either a fixed number of records or a percentage value.
- The preset choices are *5, 25, 100, 5%, 25%,* and *All.*
- Enter a specific value if it is not one of the preset choices.
- When the query executes, the selected number or percentage of records display, starting with the first record that is in the query result.
- To have the query return the top values, you must sort the query results in descending order on the desired field.
- To have the query return the bottom values, sort the query results in ascending order.

HOW TO: Create a Top Values Property in a Query

1. Create a new query using *Query Design.*
2. Add the tables into the query design grid and close the *Add Tables* task pane.
3. Add the necessary fields from the tables into the query design grid.
4. Click the **Sort** row cell of the field that determines the top values, click the **drop-down arrow** and select **Ascending** or **Descending**, depending on whether you want the top or bottom values.
5. Add criteria to the query as desired.
6. Click the **Return** box drop-down arrow [*Query Design* tab, *Query Setup* group] and select the value (**Figure 6-29**). Alternatively, enter the value directly into the *Return* box or into the *Top Values* property on the *Property Sheet* of the query.

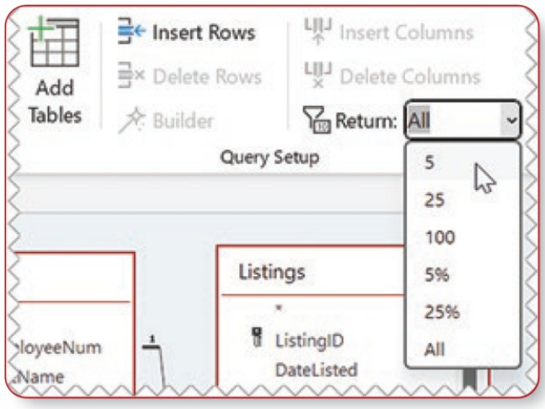


FIGURE 6-29 **Select the desired value in the *Return* box**

7. Run the query.
8. Save and close the query.

Remember to test your query to verify that it returns the correct records. Figure 6-30 shows a sample query. The *Top Values* property, not shown in the figure, contains *5*. This query will display the agent's first and last name, along with the price, for the five most expensive properties based on the *ListPrice* field. To find the five least expensive properties, change the *Sort* to **Ascending**.

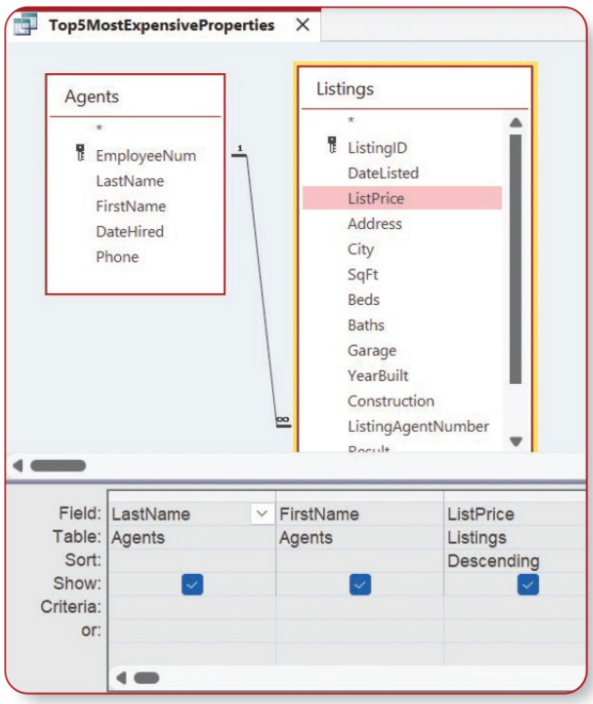


FIGURE 6-30 Query design grid of top values query

Understand and Use Date Functions in a Query

In chapter 5, you were introduced to the *Date()* function, which retrieves the current date from your computer. Access has a variety of other functions that enable you to work with dates. For example, use date functions in queries to find the real estate properties listed in the current month, find students who are 18 years old, or find products that are nearing their expiration dates. In this section, the date functions are explained in the context of using them with a query. However, you can also use date functions in other objects and controls that use expressions.

As you start to work more with dates, it helps to know that Access internally represents each date as a serial number. The serial number is designated by the number of days the date is from January 1, 1900. For example, the serial number for 12/31/2025 is 46022, while the serial number for 1/1/2026 is 46023. This format enables Access to perform date arithmetic.

Additionally, when working with many of the date functions, it is important to understand how

Access represents the intervals (pieces) of a date. These are explained in Table 6-1.

Table 6-1: Access Date Intervals

Interval	Description	Value
		For 4/15/2026
yyyy	Year	2026
q	Quarter (1–4)	2
m	Month	4
y	Day of year (1–365)	105
d	Day (1–31)	15
w	Weekday (1–7)	4
ww	Week (1–52)	16

MORE INFO

Access enables you to work with time in addition to dates. The *Now()* function retrieves the current date, including the time, from your computer. Refer to the *Access Help System* for information about using the time intervals of a *Date/Time* field.

Several of the more common date functions are described in Table 6-2. In this table, the *DateListed* field contains 12/17/2025 and today's date is 1/4/2026. One of the *DatePart()* examples uses a specific date value. When a specific date is used, the date must be surrounded by the number sign (**#**) (for example, #4/15/2025#).

Table 6-2: Access Date Functions

Function	Description	Examples	Result
Date( )	Retrieves the current system date.	Date( )	1/4/2026
DatePart( )	Determines a specific piece, or interval, of a date.	DatePart("q", [DateListed]) DatePart("yyyy", [DateListed])	4 2025
DateSerial( )	Converts values into a date value.	DateSerial(2025,2,20)	2/20/2025
DateAdd( )	Adds to a date. You must specify the value along with the interval.	DateAdd("yyyy",3, [DateListed])	12/17/2028 This example added 3 years to

			the *DateListed*.
DateDiff( )	Determines the difference between two dates. You must specify the interval.	DateDiff("d", [DateListed],Date( ))	18 This example calculated how many days it has been since the property was listed.
MonthName( )	Retrieves the name of the month number.	MonthName(2)	February
WeekdayName( )	Retrieves the name of the weekday number.	WeekdayName(7)	Saturday Access considers Sunday as day 1 and Saturday as day 7.

ANOTHER WAY

Use the *Month()* and *Year()* functions to display the month and year numeric values.

Many times an expression combines several functions. For example, to display the name of today's month, you write:

MonthName(DatePart("m",Date( )))

This expression uses the *MonthName()* function to determine the actual name of the month. However, that function needs the month number. The month number comes from the *DatePart()* function, which retrieves the month from the *Date()* function. As you know, the *Date()* function retrieves today's date from your computer. Don't worry; the description makes the process seem more complicated than it really is.

HOW TO: Use a Date Function in a Calculated Field in a Query

1. Open a query in *Design* view.
2. Click the **Field** box of the column that will contain the calculated field.
3. Right-click and select **Zoom** to open the *Zoom* box or **Build** to open the *Expression Builder*.
4. Enter the formula, including the appropriate date function.
   - The example in **Figure 6-31** uses the *DateDiff( )* and *Date( )* functions.

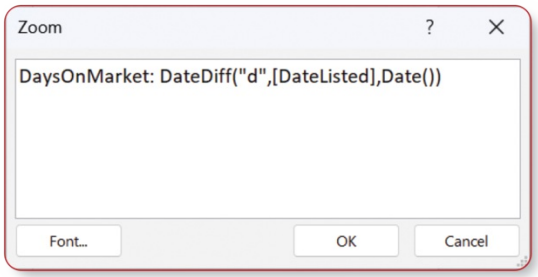


FIGURE 6-31 Calculated field using *DateDiff()* and *Date()* functions

- Remember to include a name for the calculated field. Enter the name first, followed by a colon (**:**).

5. Click **OK** in the *Zoom* box or *Expression Builder* when finished entering the formula.
6. Save and close the query.

Remember to run your query to verify that the date calculation field works correctly. **Figure 6-32** shows a sample query. The query displays only properties that have active listings due to the *Is Null* criteria in the *Result* field. Recall that the *Result* field in the *Listings* table is either empty, or contains an "S" (sold), an "E" (expired), or a "C" (canceled). The *DaysOnMarket* field contains the expression shown in **Figure 6-31** which calculates the number of days since the property was listed. The more you work with expressions involving date functions, the easier it becomes.

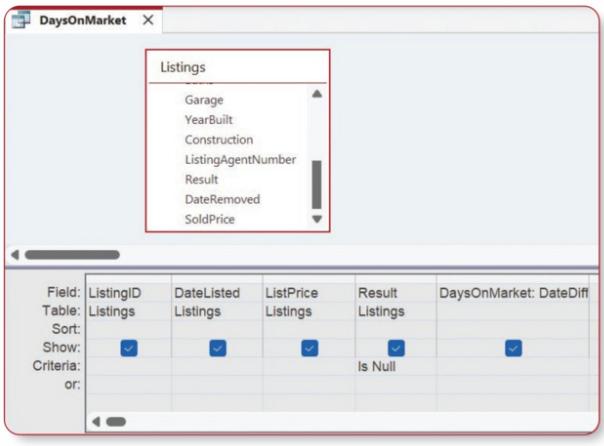


FIGURE 6-32 Completed query design grid

MORE INFO

The date functions can also be used in expressions entered into calculated controls used on forms and reports.

COPILOT/GENERATIVE AI BEST PRACTICES

Date functions provide a variety of options for manipulating and querying your data. Ask *Copilot* for help with writing a formula using a date function. You can also ask for an explanation of how to use a specific date function or to provide examples of different date functions.

Create a Subquery

The query examples used so far have all used a table as the data source for a query. A query can also use another query as the data source. A ***subquery*** is a query that is used inside another query. Creating a query and then using it inside another query can be helpful when you have a common starting point (the original query) but want to customize it for additional purposes (the additional query). Using a subquery may be a more efficient way to get the results you are seeking, but it depends on the size of the database and the design of the query.

To incorporate a subquery, you follow the general process you have learned in this book to create a query. The only thing you do differently is to select the **Query Name** from the *Queries* tab of the *Add Tables* task pane, instead of selecting the **Table Name** from the *Tables* tab.

Occasionally, you may need to use a subquery when the business question is too complex for a single query. For example, suppose Placer Hills Real Estate wants to find out which agents have listings greater than the average listing price for all properties. The results should include the agent's first and last name, listing ID, and price. In the following material, you learn how to write a query to display the desired result.

- To determine the final result, first you need to have Access calculate the average listing price for all the properties. You might try to write a query structured like the one shown in **Figure 6-33**. However, when you try to create and run this query, you receive an error message because Access does not allow you to use an aggregate function in the criteria.

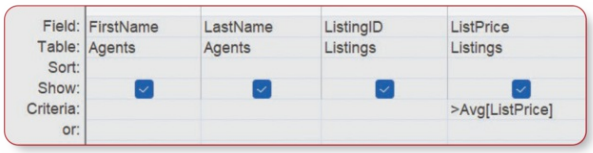


FIGURE 6-33 Incorrect query criteria using an aggregate function

- Instead, you must perform the average aggregate function in a separate summary query, as shown in Figure 6-34. When this query executes, it generates the result shown in Figure 6-35. This *AvgListingPrice* query will be used as a subquery.

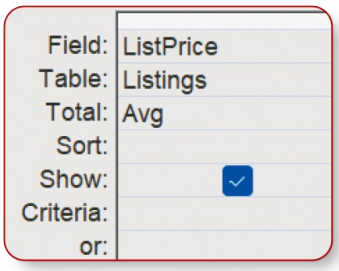


FIGURE 6-34 Query design to calculate the average list price

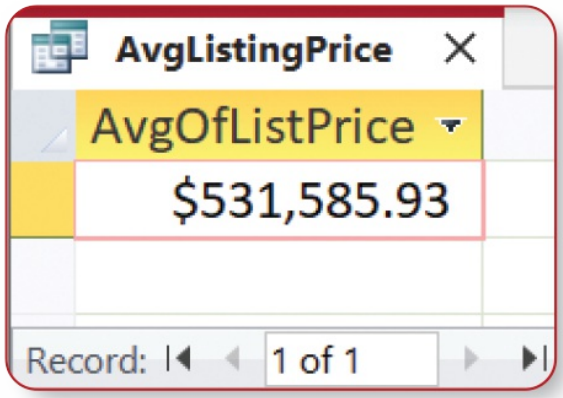


FIGURE 6-35 *AvgListingPrice* query results

- The last step is to create the query to display the final desired result. This query (Figure 6-36) includes the *Agents* and *Listings* tables and the *AvgListingPrice* subquery. Notice that the criterion in the *ListPrice* field has a greater than comparison (>) to the *AvgOfListPrice* field in the subquery.

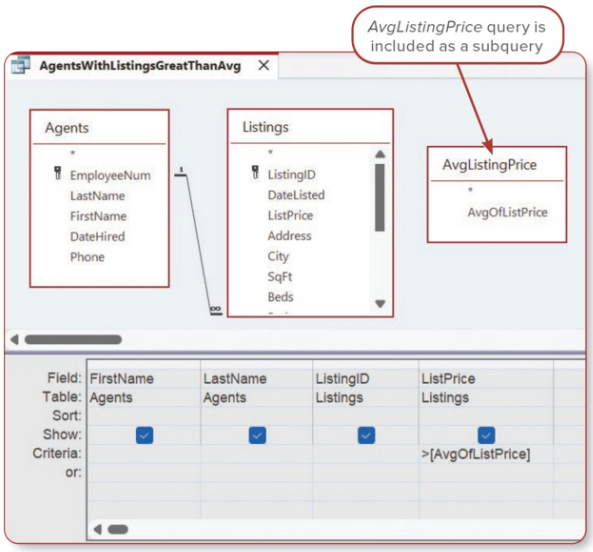


FIGURE 6-36 ***Design*** **view of a query that uses the** ***AvgListingPrice*** **subquery**

A6-433

A6-434

A6-435

PAUSE & PRACTICE: ACCESS 6-1

For this Pause & Practice, you create three queries for the Placer Hills Real Estate database. First, you create a make table query to build a table to store the records of sold properties. Next, you create a delete query to delete the sold properties from the *Listings* table. Finally, you create a parameter query that uses date functions to display information about property listings.

File Needed: ***PlacerHills-06.accdb*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Names: ***[your initials] PP A6-1.accdb***, ***[your initials] PP A6-1_Backup.accdb***, and ***[your initials] PP A6-1_Backup-2.accdb***

1. Open the ***PlacerHills-06*** database from your student data files. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close it. If the message repeats in a later step, click **OK** or the **X** to close the message.
2. Save a new copy of your database as [your initials] PP A6-1.
3. Enable content in the database.
4. Back up your database.
   a. Click the **File** tab to open the *Backstage* view.
   b. Click the **Save As** button.

c. Select the **Back Up Database** button in the *Advanced* grouping of the *Save Database As* section and click the **Save As** button.

d. Enter [your initials] PP A6-1_Backup as the file name, select the desired location, and then click the **Save** button.

5. Open the *Listings* table in *Datasheet* view to verify that the table contains 57 records. Click in the **Construction** field of the first record. Note that the *Construction* field has been modified to use a drop-down list. Scroll to the right if necessary and note that three new columns have been added to the table: *Result, DateRemoved,* and *SoldPrice.* As appropriate, these fields are updated when a property is sold, the listing expires, or the listing is canceled.
6. Close the table.
7. Create a make table query to create a *SoldProperties* table.
   a. Click the **Query Design** button [*Create* tab, *Queries* group]. The *Add Tables* task pane opens.
   b. Double-click the **Listings** table to add the table into the *Query Design* window and close the *Add Tables* task pane.
   c. Add all 15 of the fields into the query design grid. Do not use the asterisk (*) because you will be adding criteria.
   d. Type "S" in the *Criteria* box of the *Result* field.
   e. Run the query. Verify that the query finds the 10 records displayed in Figure 6-37.

Query1

ListingID	Date Listed	List Price		Result	DateRemov	SoldPrice
10025	9/14/2025	$439,000.00	3420 M	S	9/29/2025	$439,000.00
10027	9/20/2025	$335,000.00	2128 W	S	10/14/2025	$349,000.00
10033	9/28/2025	$347,500.00	4336 N	S	12/22/2025	$361,000.00
10042	10/8/2025	$440,500.00	131 Ae	S	11/17/2025	$449,000.00
10045	10/15/2025	$385,000.00	12355	S	11/19/2025	$380,000.00
10052	11/10/2025	$329,500.00	1096 Kl	S	11/10/2025	$330,000.00
10054	11/23/2025	$328,500.00	272 Lar	S	12/14/2025	$325,000.00
10069	12/12/2025	$387,000.00	1255 C	S	1/5/2026	$395,000.00
10095	12/26/2025	$319,900.00	3115 C	S	1/9/2026	$325,000.00
10172	2/8/2026	$387,500.00	324 Ce	S	2/25/2026	$405,000.00
0		$0.00				$0.00

Record: 1 of 10 No Filter Search

FIGURE 6-37 Query results showing sold properties

   f. Switch back to *Design* view.
   g. Click the **Make Table** button [*Query Design* tab, *Query Type* group] to convert the query to a make table query. The *Make Table* dialog box opens.
   h. Type SoldProperties in the *Table Name* box and click **OK**.
   i. Run the query. An Access message box displays, informing you that *"You are about to paste 10 row(s) into a new table."*
   j. Click **Yes** to execute the query. The new table displays in the *Tables* group of the *Navigation Pane.*
   k. Save the query as MakeSoldPropertiesTable.
   l. Close the query.
8. Open the *SoldProperties* table in *Datasheet* view to verify that it contains the properties that were sold.
9. Close the table.

10. Back up your database again and enter [your initials] PP A6-1_Backup-2 as the file name. Remember, you should do this before any action that makes a permanent change to the database.
11. Create a delete query to delete the sold properties from the *Listings* table.
    a. Click the **Query Design** button [*Create* tab, *Queries* group]. The *Add Tables* task pane opens.
    b. Double-click the **Listings** table to add the table into the *Query Design* window and close the *Add Tables* task pane.
    c. Add the **ListingID** and **Result** fields into the query design grid. The *ListingID* field is included to help you determine if the query works correctly.
    d. Type "S" into the *Criteria* box of the *Result* field.
    e. Run the query to verify that the query finds the correct records. The query should display the same 10 properties that were found in the make table query.
    f. Switch back to *Design* view.
    g. Click the **Delete** button [*Query Design* tab, *Query Type* group] to convert the query to a delete query.
    h. Run the query. An Access message box displays, informing you that *"You are about to delete 10 row(s) from the specified table."*
    i. Click **Yes** to execute the query.
    j. Save the query as DeleteSoldPropertiesFromListingsTable.
    k. Close the query.
12. Open the *Listings* table to verify that the table now contains only 47 records.
13. Close the table.
14. Create a parameter query that uses date functions to display the properties listed in a specific month. Refer back to ***SLO 3.6: Creating and Using a Simple Parameter Query*** if you need a review on working with parameters.
    a. Click the **Query Design** button [*Create* tab, *Queries* group]. The *Add Tables* task pane opens.
    b. Double-click the **Listings** table to add the table into the *Query Design* window and close the *Add Tables* task pane.
    c. Add the **ListingID**, **DateListed**, **ListPrice**, **SqFt**, **Address**, **City**, and **ListingAgentNumber** fields into the query design grid.
    d. Click the **Criteria** box of the *DateListed* field to add a parameter.
    e. Right-click to open the context menu and select **Zoom**.
    f. Type DatePart("m",[DateListed])=([Enter the number of the month (January = 1) to see properties listed in that month]) in the *Zoom* window and click **OK**. This criterion looks for records where the month part of the *DateListed* field is equal to the parameter value entered when the query executes.
    g. Run the query to test that it works.
    h. Type 9 in the *Enter Parameter Value* dialog box and click **OK**. The query should display the seven properties that were listed in September (the ninth month).
15. Edit the query to add a calculated field that uses a date function.
    a. Switch back to *Design* view.

b. Click to select the empty **Field** box to the right of the *ListingAgentNumber* field.

c. Right-click to open the context menu and select **Zoom**.

d. Type DaysOnMarket: DateDiff("d", [DateListed],Date()) in the *Zoom* window and click **OK**. This calculation finds the difference between today's date and the *DateListed* field.

e. Save the query as DaysOnMarketWithMonthParameter.

f. Run the query.

g. Type 9 in the *Enter Parameter Value* dialog box and click **OK**. The query should display the records shown in Figure 6-38. The values in the *DaysOnMarket* column will vary, and may be negative, depending on the day you run the query.

DaysOnMarketWithMonthParameter

ListingID	Date Listed	List Price	SqFt	Address	City	Agent	DaysOnMar
10022	9/10/2025	$374,900.00	2755	525 Riverdale	Lincoln	103	34
10023	9/10/2025	$379,000.00	1600	615 Silver Hill Court	Lincoln	127	34
10024	9/13/2025	$1,189,900.00	3397	1917 Oak Crest Drive	Roseville	160	31
10029	9/22/2025	$1,645,900.00	6685	3998 Rawhide Road	Rocklin	151	22
10030	9/23/2025	$429,000.00	2182	1720 Grey Owl Circle	Roseville	103	21
10031	9/23/2025	$419,900.00	2385	2024 Brixham	Roseville	168	21
10032	9/24/2025	$865,000.00	3821	4018 Legend Drive	Rocklin	160	20
0		$0.00	0				

Record: 1 of 7 | No Filter | Search

FIGURE 6-38 Parameter query results

h. Close the query. If you reopen the query in *Design* view, you will notice that Access has revised the query. The criteria you entered in step 14f for the *DateListed* field has been moved to create a new *DatePart* field. This is due to the way Access processes the query. It does not affect the way the query runs.

16. Close the database.

SLO 6.4

Building a Report in Design View

As you saw in chapter 4, reports offer an organized and professional way to view the data in a database. While the skills you have previously learned while creating and editing reports with the *Report Wizard* and *Layout* view still apply, *Design* view provides additional flexibility and tools for creating and editing a report. In this section, you first learn about the different sections in a report and then learn how to use *Design* view to create and edit reports.

Understand Report Sections

A report can contain many different sections, explained in Table 6-3. When you are viewing a report in *Layout* or *Print Preview* view, the sections are not as obvious as they are in *Design* view. You need to understand how each section works in order to build your reports correctly.

Table 6-3: Report Sections

Section	Commonly Used To	Prints Where/When?
Report Header	Print a report title or logo.	Once, at the top of the first page.
Report Footer	Print report totals or other information at the end of the report. (In *Design* view, this section appears below the page footer, but in other views, and when the report is printed, this section prints above the page footer.)	Once, at the bottom of the last page above the page footer.
Page Header	Print column headings, page numbers, or dates.	At the top of every page. (Prints below the report header on page 1.)
Page Footer	Print page numbers or dates.	At the bottom of each page.
Group Header	Print the group title/value.	At the top of each group.
Group Footer	Print aggregate calculations for each group.	At the bottom of each group.

Detail	Print the fields from each record.	Once for every record.

Figure 6-39 is an example of how the report sections appear in *Design* view. In addition to ***Report Header***, *Page Header, Detail, Page Footer,* and ***Report Footer*** **sections**, this report contains two *Group Header* and *Group Footer* sections: one for the *City* field and one for the *Construction* field. A section bar containing the name of that section displays at the top of each section.

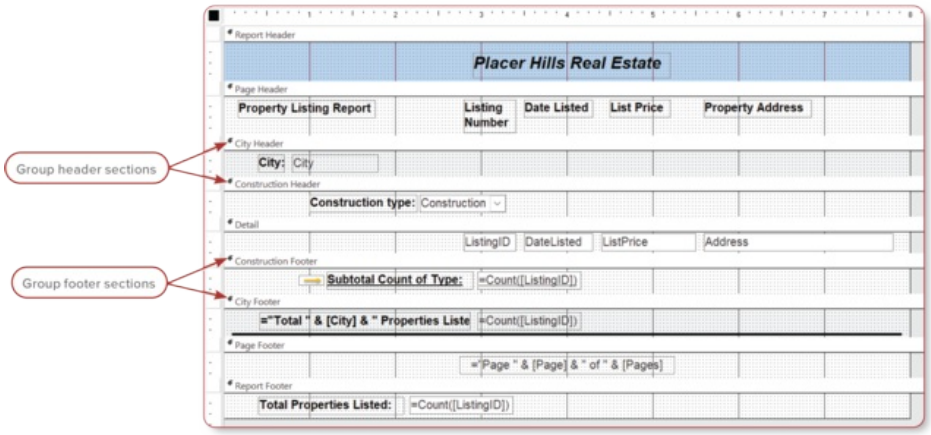


FIGURE 6-39 ***Design*** **view of report with two** ***Group Header*** **and** ***Group Footer*** **sections**

Figure 6-40, **Figure 6-41**, and **Figure 6-42** show pages of the same report in *Print Preview* view.

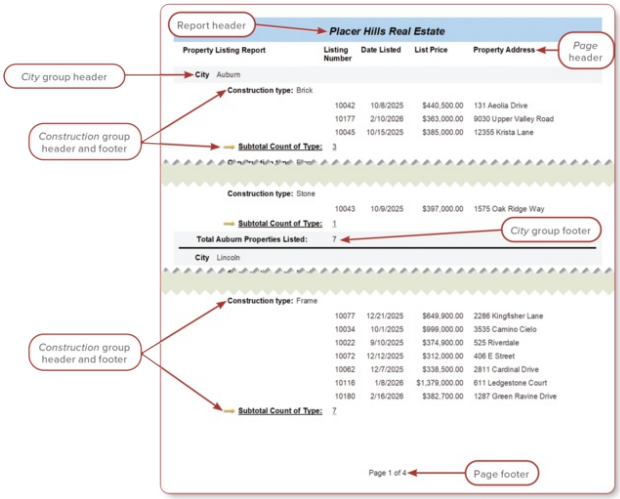


FIGURE 6-40 ***Print Preview*** **view of report, page 1**



FIGURE 6-41 ***Print Preview*** **view of report, page 2**

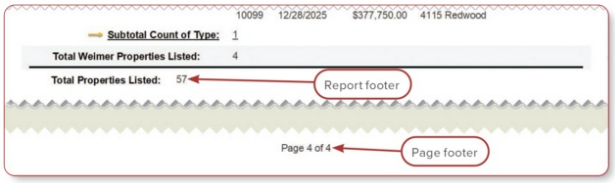


FIGURE 6-42 ***Print Preview*** **view of report, last page**

Figure 6-40 shows page 1, which illustrates the *Report Header, **Page Header**, Group Header, Detail, Group Footer,* and ***Page Footer*** **sections**.

Figure 6-41 illustrates that only the *Page Header,* and not the *Report Header,* appears on subsequent pages.

Figure 6-42 shows the *Report Footer* displays only on the last page. Note that the *Report Footer* appears above the *Page Footer.*

The page header and footer and the report header and footer work as matched sets. For example, when you add a page header you also add a page footer. However, if you don't need one of those sections, leave it empty and even reduce the space allocated to the section.

Add or Delete Page and Report Sections in Design View

When you create a report in *Design* view, Access automatically includes *Page Header, Detail,* and *Page Footer* sections. Add or remove sections in a report as needed.

HOW TO: Add or Delete Page and Report Sections

1. Open the report in *Design* view.
2. Right-click inside the report to open the context menu and select either the **Page Header/Footer** or **Report Header/Footer** option (**Figure 6-43**). This selection works as a toggle.

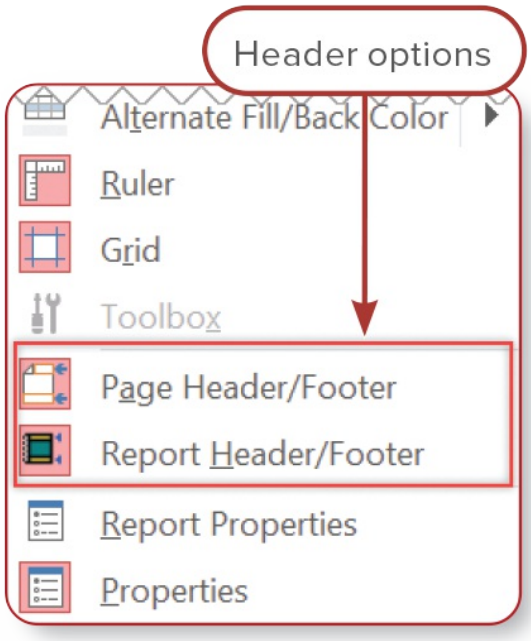


FIGURE 6-43 Context menu

- If the specified header or footer is on the report and you select it, Access deletes the sections.
- If the section is not on the report, Access adds the section.

Add or Delete Group Sections in Design View

As you learned in **chapter 4**, a report can have more than one *Group Header* and *Group Footer* section if you have multiple fields on which you want to group. Additionally, you add the *Group Header* and ***Group Footer* sections** independently, so you are not required to have both. Refer back to ***SLO 4.6: Adding Grouping, Sorting, and Totals*** for additional information about working with group sections.

HOW TO: Add Group Sections

1. Open the report in *Design* view.
2. Click the **Group & Sort** button [*Report Design* tab, *Grouping & Totals* group] to open the *Group, Sort, and Total* pane at the bottom of the report.
3. Select the **Add a group** option in the *Group, Sort, and Total* pane.

4. Select the desired field on which to group from the field list.
   - The *Group Header* section is added to the report.
   - The *Group, Sort, and Total* pane updates to show how the report is being grouped.
5. Click the **More** button in the *Group, Sort, and Total* pane to display the available options shown in Figure 6-44.

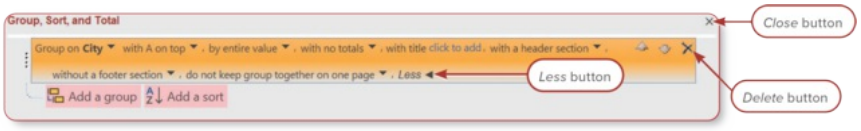


FIGURE 6-44 **Options in the *Group, Sort, and Total* pane**

- The *More* button changes to the *Less* button.

6. Click the **without a footer section** drop-down arrow and select **with a footer section** to add a *Group Footer* section.
7. Close the *Group, Sort, and Total* pane by clicking the **X** on the *Group, Sort, and Total* pane header. Be careful not to click the *Delete* button inside the pane or you will remove the group.

HOW TO: Delete Group Sections

1. Open the report in *Design* view.
2. Click the **Group & Sort** button [*Report Design* tab, *Grouping & Totals* group] to open the *Group, Sort, and Total* pane at the bottom of the report.
3. Click to select the **Group on** row of the desired field (Figure 6-45) if you have multiple grouping levels in the report.

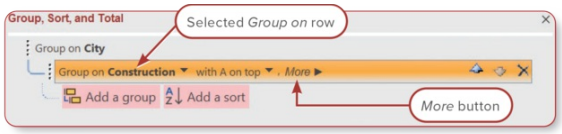


FIGURE 6-45 **Select the *Group on* row of the desired field**

4. Click the **More** button in the *Group, Sort, and Total* pane to display the available options.
5. Choose the desired section to delete.
   - To delete both the *Group Header* and *Group Footer* sections, click the **Delete** button at the far right of the *Group on* row.

- To delete only a *Group Header* section, change the *with a header section* option to **without a header section**.
- To delete only a *Group Footer* section, change the *with a footer section* option to **without a footer section**.

6. Close the *Group, Sort, and Total* pane by clicking the **X** on the *Group, Sort, and Total* pane header. Be careful not to click the *Delete* button inside the pane or you will remove the group.

Create a Report in Design View

Creating a report in *Design* view provides you with the most flexibility. After you create the report, edit it to add the fields, labels, or other controls that you need. You can also add or remove sections on the report, as you just learned.

A6-439

- To create a report in *Design* view, click the **Report Design** button [*Create* tab, *Reports* group] (**Figure 6-46**). A new report opens.

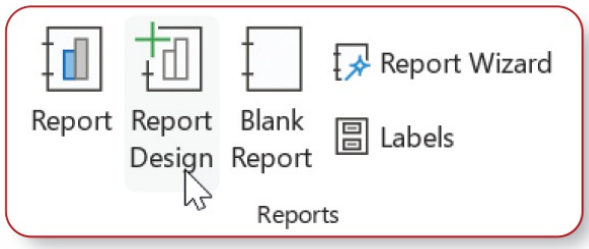


FIGURE 6-46 ***Report Design*** **button**

After you create the report, you are ready to start adding items to the report. It is important you save the new report and any changes made to it.

MORE INFO

Design view can be used to edit reports created in *Design* view or reports created using one of the other report tools discussed in **chapter 4**.

Understand the Report Data Source

The ***Record Source*** **property** of a report regulates which database fields are available in the report. When a report is first created in *Design* view, the *Record Source* property is blank. When a record

source is assigned, all of the fields that are included in the record source become accessible to the report. This enables you to reference the contents of a field without including it on the report. For example, consider a report in the Placer Hills database in which the *Listings* table is the record source. A text box on the report contains a formula to calculate the potential commission of a property listing. This formula uses the *ListPrice* field from the table; however, that field is not displayed in the report. Because the field is accessible through the record source, the calculation works correctly.

HOW TO: Assign a Data Source to a Report

1. Open the report in *Design* view.
2. Press **F4** to open the *Property Sheet* if necessary.
3. Click the **Data** tab.
4. Select **Report** in the *Selection type* box if necessary.
5. Click the **Record Source** property drop-down arrow and select the table or query (Figure 6-47). Be sure to press **Enter** after selecting the query to have Access recognize the change.

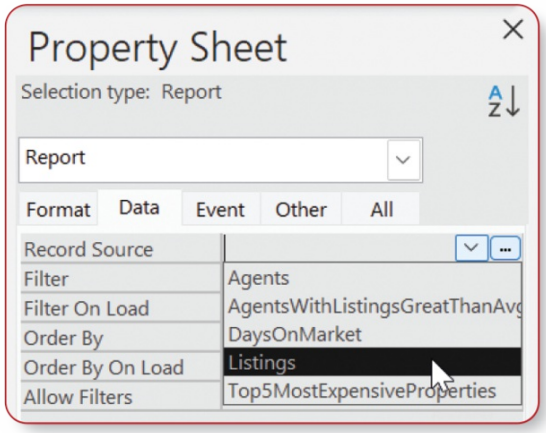


FIGURE 6-47 ***Record Source*** **property can be set to a table or query**

After setting the *Record Source* property, add fields to the report.

In *Design* view, you can also add table fields directly to the report from the ***Field List*** without first setting the *Record Source* property. You learn how to add and delete table fields in the next section. When you add fields without setting the *Record Source* property, Access automatically sets the value of the *Record Source* property to an embedded query (Figure 6-48), written in *SQL*. Recall that ***SQL*** stands for *Structured Query Language*, the underlying language in a

relational database system. You will learn more about *SQL* in *SLO 9.6: Using SQL*.

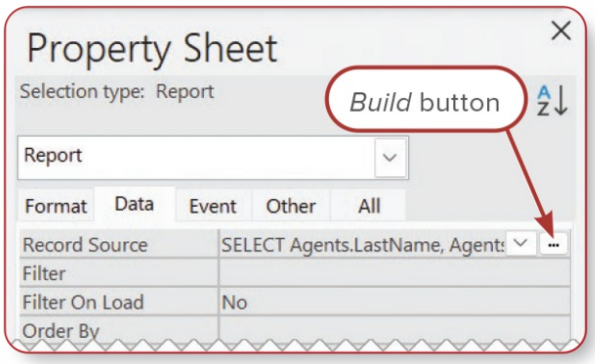


FIGURE 6-48 Embedded *SQL* query is created when you add table fields directly to a report

An embedded query automatically updates as you add and remove fields from the report. Only the fields that are included in the embedded query are accessible to the report. You can also add fields to an embedded query to make them accessible without having to add them as a field on the report.

HOW TO: Edit an Embedded Query in a Record Source

1. Open the report in *Design* view.
2. Press **F4** to open the *Property Sheet*.
3. Click the **Data** tab.
4. Select **Report** in the *Selection type* box if necessary.
5. Click the **Build** button in the *Record Source* property box (Figure 6-48) to open the *Query Builder* (Figure 6-49). The embedded query displays.

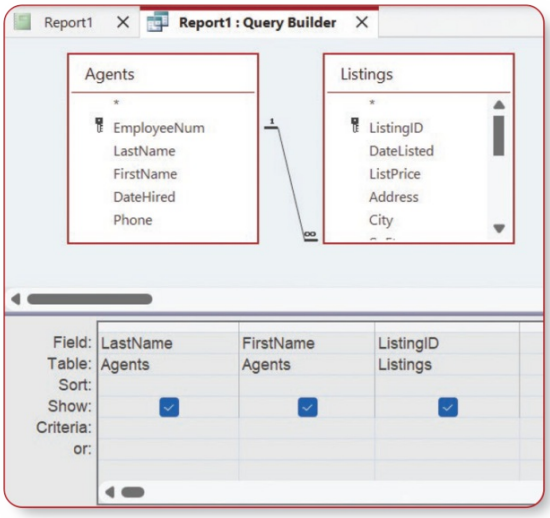


FIGURE 6-49 ***Design*** **view of the embedded query**

6. Add or remove any fields in the query. If needed, add or remove tables from the query design grid.
7. Save the query.
8. Click the **Close** button to close the *Query Builder.*

If a table is assigned as the *Record Source* of a report, be cautious about clicking the *Build* button. Access asks if you want to create a query based on the table. If you proceed to open the *Query Builder,* the report may become unstable unless all of the fields currently displayed in the report are added into the query source.

Add and Delete Fields in Design View

Usually, one of the first tasks in building a report is to add the data fields. The data fields can come from tables or queries.

HOW TO: Add Fields in Design View

1. Open the report in *Design* view.
2. Click the **Add Existing Fields** button [*Report Design* tab, *Tools* group] if the *Field List* is not open.
   - If a table or query is assigned in the *Record Source* property, the *Field List* displays the available fields.
   - If the *Record Source* property is empty, or you want to see fields in other

tables, click the **Show all tables** link.

- To add fields from an existing query, you must first enter the query name in the *Record Source* property of the report.

3. Click the **plus sign** next to the desired table name to display the fields if necessary.
4. Double-click the desired field name to add it.
   - The field is added into the *Detail* section.
   - The most recently added field is highlighted with an orange border.
5. Add the remaining fields. Each additional field is added below the prior field (**Figure 6-50**).

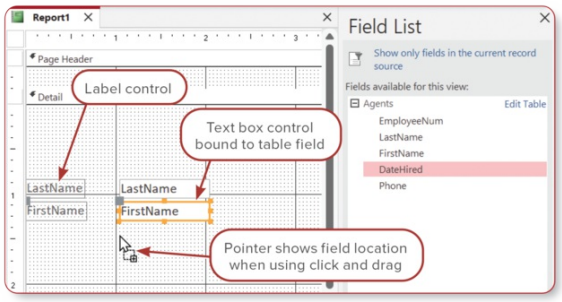


FIGURE 6-50 **Click and drag a field from the *Field List* to the report**

ANOTHER WAY

Drag a field from the *Field List* and place it in the desired location on the report.

When you add a field into a report, both a control bound to the table field and a label are created (**Figure 6-50**). Visually, the label has a transparent background, while the control bound to the data field has a white background. Recall that a label displays the name of the field if a value has not been entered into the *Caption* property. In *Design* view, the bound control displays the field name.

The type of control that is added is based on the value in the field's *Display Control* property. For most fields, this is a *Text Box.* But fields with a *Check Box, Combo Box,* or *List Box* value in the *Display Control* property will be added using the corresponding control.

If you no longer need to include a field in a report, you can delete it. When you delete a bound

control, the label associated with that control is deleted as well. You can, however, select just the label to delete only the label from the report.

HOW TO: Delete a Field in Design View

1. Open the report in *Design* view.
2. Select the **bound control** of the field to delete.
3. Right-click to open the context menu and select the **Delete** option.

Work with Control Layouts

In *SLO 4.5: Creating and Customizing a Report in Layout View* you learned about tabular and stacked layouts. Recall that when you add fields into a report created using the *Blank Report* button the fields are placed into a tabular layout. Control layouts provide a structure to align the controls on your report. However, they also limit flexibility in modifying controls. For example, in a tabular layout, all controls in the same row must have the same height. And in a stacked layout, all controls in a column must have the same width. Additionally, you are limited to placing controls into the defined rows and columns of the layout.

In *Design* view, the fields you add to a report are not placed into a layout, rather they are able to be placed anywhere. **Figure 6-51** illustrates fields in both a tabular and a stacked control layout, and also shows fields that are not in a layout. Notice that when a field is selected in either a tabular or stacked layout, the entire control layout is activated, and the layout selector displays in the upper-left corner of the layout.

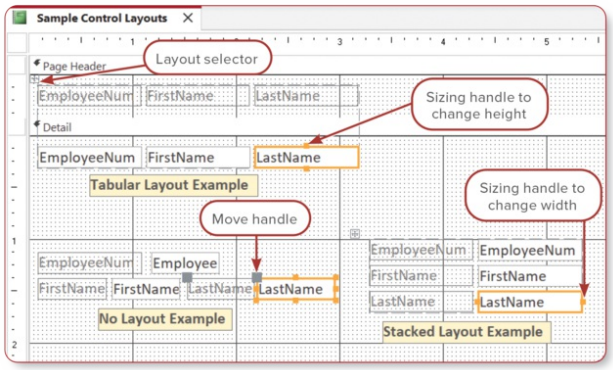


FIGURE 6-51 Fields in tabular and stacked layouts and not in a layout

You also see that the sizing handles vary depending on the layout type or whether a field is in a layout. In a tabular layout, the sizing handles enable you to increase or decrease the height and

indicate that all the controls in that row will maintain the same height. In a stacked layout, the sizing handles enable you to increase or decrease the width and indicate that all the controls in that column will maintain the same width. Controls that are not in a layout have more sizing handles that enable you to change both the height and the width, and modifications to one control do not affect other controls. Additionally, these controls have a move handle, the gray control in the upper-left corner of the control, that you can use to drag the field to a new location.

Figure 6-51 also demonstrates that one report can have multiple control layouts, and those layouts can also be mixed with fields that are not in a control layout. This can be helpful when you have some fields in a record that you want to display in a tabular format, where the labels would be in the section above them, and then other related fields that are placed into one or more stacked layouts. Multiple control layouts are also good when the table or query has too many fields to display in a tabular format.

Because the fields you add to a report in *Design* view are not placed into a layout, you may decide to use a layout to provide a uniform organization. Occasionally you will initially put the fields into a control layout to quickly align the controls and then remove it later to provide greater flexibility to refine the report layout.

HOW TO: Add a Control Layout in Design View

1. Open the report in *Design* view.
2. Select the text box control of the fields you want to place in the layout. Do not select the associated label controls.
3. Click either the **Tabular** or **Stacked** button [*Arrange* tab, *Table* group] to change the layout. The report updates with the new layout.

As desired, you can change the current layout used in a report.

HOW TO: Change Control Layouts in Design View

1. Open the report in *Design* view.
2. Select one of the fields in the layout. Do not select the associated label controls.
3. Click the **Select Layout** button [*Arrange* tab, *Rows & Columns* group] or click the **layout selector**. The orange border surrounds all of the controls in the layout.
4. Click either the **Tabular** or **Stacked** button [*Arrange* tab, *Table* group] to change the layout.

Remove a control layout to provide more flexibility. This enables you to place the controls

anywhere in a section, without affecting other controls or being constrained by the current layout. This also allows the width and height of controls to be set individually.

HOW TO: Remove a Control Layout in Design View

1. Open the report in *Design* view.
2. Select a **control** in the layout.
3. Click the **Select Layout** button [*Arrange* tab, *Row & Columns* group] or click the **layout selector**. All controls are highlighted with an orange border.
4. Click the **Remove Layout** button [*Arrange* tab, *Table* group]. The controls remain in the same location but are no longer in a control layout.

Create a Parameter Report

You have learned about using parameter queries to increase the efficiency and flexibility of your database. By creating a parameter report, you can also apply those benefits to the reports in your database. A ***parameter report*** asks the user to enter the specific criteria value for a field when the report is run. This enables you to create one report but have the contents displayed vary based on the value of the parameter that is entered. Recall that the parameter text is enclosed inside square brackets in the criteria row of the desired field. Refer back to ***SLO 3.6: Creating and Using a Simple Parameter Query*** if you need a review on working with parameters.

If a parameter query has already been created, assign that query to the *Record Source* property of the report. When you view the report, the *Enter Parameter Value* dialog box displays, enabling you to enter the desired value. If a parameter query does not exist, in *Design* view open the *Query Builder* of the *Record Source* property to add a parameter to the report.

HOW TO: Add Parameters to a Report Not Based on a Parameter Query

1. Open the report in *Design* view.
2. Press **F4** to open the *Property Sheet*.
3. Choose **Report** in the *Selection type* box if necessary.
4. Click the **Record Source** property drop-down arrow on the *Data* tab and then click the **Build** button to open the *Query Builder*. If the report *Record Source* property contains a table:
   - Access displays a dialog box asking if you want to create a query based on the

table.
   - Click **Yes** to create a query.
   - Add all of the fields that are used in the report into the query design grid.
5. Enter the parameter into the *Criteria* box of the desired parameter field.
6. Save and close the *Query Builder*.
   - The next time the report displays, the *Enter Parameter Value* dialog box opens.

SLO 6.5

Customizing a Report in Design View

After creating a report and adding the required fields, you typically will want to enhance the design of the report. Common improvements include adding titles and page numbers. As appropriate, you may also want to change the size or font of fields or the size or color of sections. The information you learned in **chapter 4** about using *Layout* view to modify reports, and even forms, can be applied to making modifications in *Design* view.

Many times, the modification can be made by directly editing the control or section. For example, you can select a different font on the *Ribbon*, drag the control to a new location, or use the sizing handles to change the control's size. Other times you will change the corresponding property on the *Property Sheet.* The choice often depends on the precision needed, and both methods will be introduced in this section. For example, if you need a text box to be exactly 1" wide, you should set the value in the *Width* property. If you just need it big enough to show the data, use the sizing handles to change the width.

Add a Control to a Report

One of the first modifications you often make is to add controls not associated with table fields. You can add *controls* such as text boxes, labels, images, or lines to a report. Remember that each control you add to a report is assigned a default name that combines the type of control along with a sequential number, such as *Text3, Label10,* or *Line8.*

HOW TO: Add a Control to a Report

1. Open the report in *Design* view.
2. Click the desired control button [*Report Design* tab, *Controls* group].
3. Move the pointer to the desired location on the report, and then click to add a standard-sized control on the report.
   - For a **label control**, you must enter the caption into the label or Access will delete the control.
   - A text box control added from the *Controls* group is not bound to a data source.

ANOTHER WAY

To draw a custom-sized control, move the pointer to the desired location, then click, hold, and drag the pointer to the desired control size.

A label added to the *Detail* section displays a ***Trace Error*** button (Figure 6-52). The *Trace Error* button indicates that Access has found an error. If you hover over the button Access displays the following message: "This is a new label and is not associated with a control." Technically this situation is not an error but rather a warning message that this is an independent label and is not associated with another control. Most likely, the label you added contains a title, or additional information about the report, and is not associated with another control.

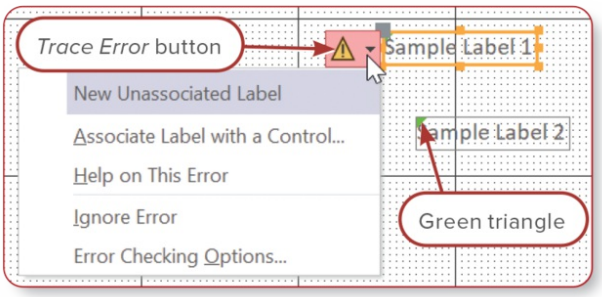


FIGURE 6-52 Unassociated labels

In these cases, you can choose to do nothing, and when the label is not selected, like *Sample Label 2,* the *Trace Error* button disappears, and a small green triangle displays in the upper-left corner of the label. The green triangle does not affect the way the label displays in the report. As desired, you can remove the green triangle. Select the label (see *Sample Label 1*), click the **Trace Error** button to display the *New Unassociated Label* drop-down list and select **Ignore Error**. If you need to associate the label with a control, select **Associate Label with a Control**.

Adjust the Size of a Control

As you continue to work with the report, you may find that you need to adjust the size of the controls. Either use the sizing handles or set the *Height* or *Width* properties to change the size.

HOW TO: Change the Size of a Control

1. Open the report in *Design* view.

2. Select the control.
3. Move your pointer to the border over a sizing handle. The pointer changes to the resize arrow (Figure 6-53).

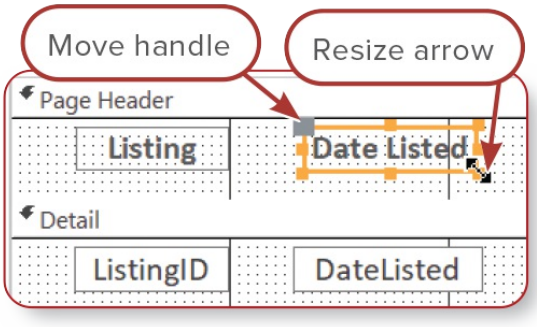


FIGURE 6-53 Adjust size of a control

4. Click, hold, and drag the **resize arrow** to change the size.
5. Release the pointer.

HOW TO: Change the Size of a Control with the Property Sheet

1. Open the report in *Design* view.
2. Open the *Property Sheet* and click the **Format** tab.
3. Select the control.
4. Enter the new measurement in the *Width* property.
5. Enter the new measurement in the *Height* property.

MORE INFO

Remember that Access automatically adds the inches mark (") to the end of the measurement value if you didn't include it.

Move a Control

Often, you need to move a control from one location to another. Either use the move arrow to drag the control or set the *Top* or *Left* properties to change the location. Note that the value entered into the *Top* property is relative to the particular section. For example, you can have a text box in the *Report Header* section with a .25" value in the *Top* property and a text box in the *Detail*

section with a .25" value in the *Top* property. The .25" indicates the distance from the top of that section. The value in the *Left* property is the distance from the left margin of the report.

HOW TO: Move a Control

1. Open the report in *Design* view.
2. Select the control to move.
3. Move your pointer to the border of the control. The pointer changes to the move arrow. Be careful not to move the pointer to a sizing handle because the pointer changes to the resize arrow and not the move arrow.
4. Click, hold, and drag to move the control to the new location.
   - If you are moving a text box, the associated label also moves.
   - If you are moving a label, the associated text box also moves.
5. Release the pointer.

ANOTHER WAY

Click, hold, and drag the gray move handle (see Figure 6-53) to move only the selected control without moving its associated label or text box.

MORE INFO

If you are trying to swap the exact location of two controls, you will need to move the first one to a temporary location. You then move the second control to the original location of the first control, before completing the permanent move of the first control.

HOW TO: Move a Control with the Property Sheet

1. Open the report in *Design* view.
2. Open the *Property Sheet* and click the **Format** tab.
3. Select the control.
4. Enter the value for distance from the top margin of the section in the *Top* property.

5. Enter the value for the distance from the left margin in the *Left* property.

When you move a control by changing the properties, you only move the selected control. It does not automatically move the associated label or text box.

MORE INFO

Remember that the values in the *Top* property are relative to the section where the control is located. You must consider the size of other sections in the report to know the true position on the report. Consider a report containing a *Report Header* section and a *Detail* section. The *Report Header* section has a height of .5". A control in *Detail* section with a *Top* property value of .25" will be located .75" from the top of the report. The margin settings of the report (*Page Setup* tab) affect the actual location on the printed page.

Change the Font Characteristics of a Control

You can easily change the default font used in a label or text box using the font options in the *Format* tab, *Font* group.

HOW TO: Change the Font Options of a Control

1. Open the report in *Design* view.
2. Select the control.
3. Click the **Format** tab.
4. Click the desired options in the *Font* group (Figure 6-54).

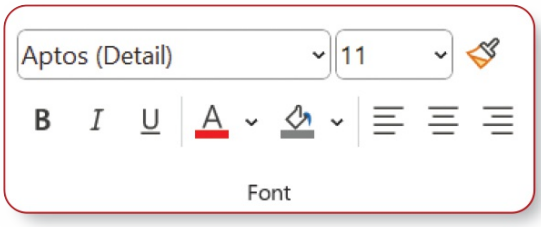


FIGURE 6-54 Font formatting options

The default font characteristics can also be changed on the *Property Sheet.* Most of the property

names are self-evident as to the result, such as *Font Name* or *Font Size.* But a few are not quite as obvious. *Font Weight* is used to make a font bold. The nine weight choices you can assign are *Thin, Extra Light, Light, Normal, Medium, Semi-bold, Bold, Extra Bold,* and *Heavy. Fore Color* is used to change the color of the text. Remember to avoid using too many different fonts and colors, as it can be distracting.

HOW TO: Change Font Options with the Property Sheet

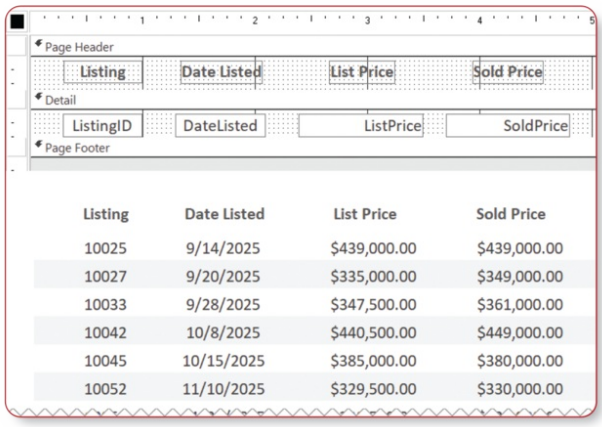
1. Open the report in *Design* view.
2. Open the *Property Sheet* and click the **Format** tab.
3. Select the control.
4. Click the **Font Name** property drop-down arrow and select the desired font.
5. Click the **Font Size** property drop-down arrow and select the desired size.
6. Click the **Text Align** property drop-down arrow and select the desired alignment.
7. Click the **Font Weight** property drop-down arrow and select the desired weight.
8. Click the **Font Underline** property drop-down arrow and select **Yes** or **No**.
9. Click the **Font Italic** property drop-down arrow and select **Yes** or **No**.
10. Click the **Fore Color** property drop-down arrow and select the desired color. You can also click the **Build** button and select the desired color from the color palette.

ANOTHER WAY

Click or tab into the desired property box and type the desired value instead of selecting it from the drop-down list.

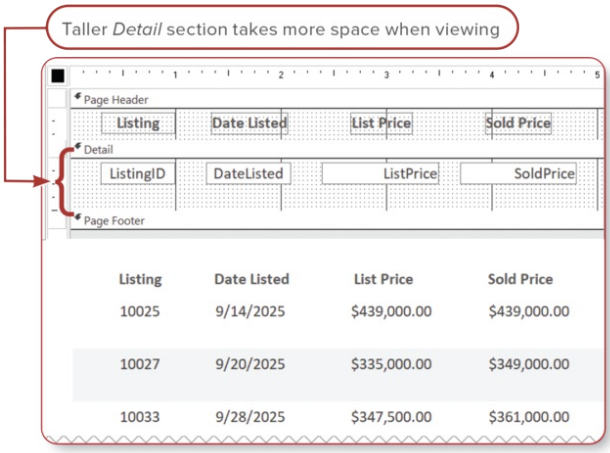
Change the Height of a Section

Many times, the initial size of a section is larger or smaller than you need it to be. Additionally, as you add controls into a section or modify the sizes of various controls, you may need to adjust the height of a section. In particular, you should pay attention to the height of the detail section because that section repeats once for each record in the report. **Figure 6-55** shows the *Design* and *Print Preview* views of a report where the height of the *Detail* section is set to .25". Compare this to **Figure 6-56** where the height of the *Detail* section is set to .5". In *Design* view the impact of the increased height is not that noticeable but look at how much additional space is required in the *Print Preview* view. If you are printing many records, this could make a significant difference in how many pages are in the report.



Listing	Date Listed	List Price	Sold Price
10025	9/14/2025	$439,000.00	$439,000.00
10027	9/20/2025	$335,000.00	$349,000.00
10033	9/28/2025	$347,500.00	$361,000.00
10042	10/8/2025	$440,500.00	$449,000.00
10045	10/15/2025	$385,000.00	$380,000.00
10052	11/10/2025	$329,500.00	$330,000.00

FIGURE 6-55 ***Design*** **view and** ***Print Preview*** **view of a report**



Listing	Date Listed	List Price	Sold Price
10025	9/14/2025	$439,000.00	$439,000.00
10027	9/20/2025	$335,000.00	$349,000.00
10033	9/28/2025	$347,500.00	$361,000.00

FIGURE 6-56 ***Design*** **view and** ***Print Preview*** **view of a report with a larger** ***Detail*** **section**

HOW TO: Change the Height of a Section

1. Open the report in *Design* view.
2. Move your pointer to the lower border of a section.
   - The pointer changes to the resize arrow (Figure 6-57).

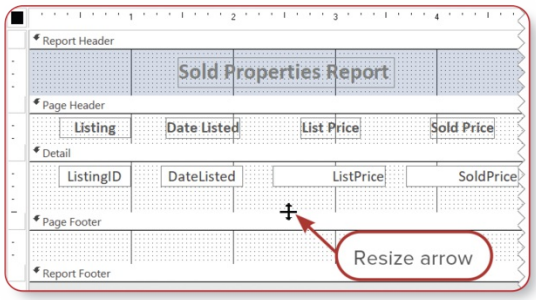


FIGURE 6-57 Adjust the size of report sections by dragging the resize arrow

- In Figure 6-57, the size of the *Detail* section is being adjusted.
- If a section does not have any space in it, such as the *Report Footer* section, move your pointer to the bottom of the section bar.

3. Click, hold, and drag the **resize arrow** to increase or decrease the height of the section.
   - A black horizontal line moves with your pointer to indicate the new height.
   - If a section does not contain any controls, such as the *Page Footer* section, you can adjust the height of that section to remove any space in it, as shown in Figure 6-58.

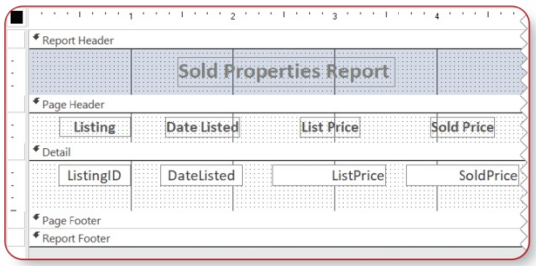


FIGURE 6-58 The *Page Footer* section does not have any space

HOW TO: Change the Height of a Section with the Property Sheet

1. Open the report in *Design* view.
2. Open the *Property Sheet* and click the **Format** tab.
3. Click to select the desired section bar on the report. The section bar updates to a black background indicating it is selected.

4. Enter the new measurement in the *Height* property.

Understand and Change Report Section Colors

When a report is created in *Design* view, Access sets the background color of each section to white. You can change the background color of any section. Often, you change the color of the header and footer sections to differentiate them from the rest of the report. Use the ***Back Color*** property to set the background color.

HOW TO: Change the Back Color of a Section with the Property Sheet

1. Open the report in *Design* view.
2. Open the *Property Sheet* and click the **Format** tab.
3. Click to select the desired section bar on the report. The section bar updates to a black background indicating it is selected.
4. Click the **Back Color** property drop-down arrow and select the desired color. You can also click the **Build** button and select the desired color from the color palette.

Group Header, Group Footer, and *Detail* sections also have an ***Alternate Back Color*** property. This property sets the color for every other row of data in that section. The default is to alternate between white and a light gray (see **Figure 6-55**). The alternate color is not visible in *Design* view. You must switch to one of the other report views to see the alternating colors.

While using alternating colors can help you scan a report quickly, you may have reports where the colors are distracting. You may decide to keep alternating colors in the *Detail* section but remove them for the group header and footer sections.

As desired, change the default alternate color, or choose not to have an alternating color.

HOW TO: Change the Alternate Back Color of a Section with the Property Sheet

1. Open the report in *Design* view.
2. Open the *Property Sheet* and click the **Format** tab.
3. Click to select the desired section bar on the report. The section bar updates to a black background indicating it is selected.
4. Click the **Alternate Back Color** property drop-down arrow and select the desired

color. You can also click the **Build** button and select the desired color from the color palette or select **No Color**.

Change Formatting Properties of a Control

Many modifications to a control can be made directly on the control or by choosing options on the *Ribbon.* However, a number of properties can only be modified in the *Property Sheet.* As you work more with Access, you will become familiar with locating and modifying the properties.

Recall that the specific properties vary by the type of control, but many controls share common formatting properties. The common properties, available on the *Format* tab of the *Property Sheet,* are described in **Table 6-4**.

Table 6-4: Formatting Properties of a Control

Property	Description
Format	Set the way the field displays in the control. Choices include *Number, Currency, Date, Time,* and *Percent.*
Decimal Places	Set a fixed number of decimal places to display.
Visible	Determines whether a control shows in *Report* view or *Print Preview* view of a report.
Back Color	Set the fill color of a control. If you don't want the background color of a text box to be different than the background color of a section, set the *Back Color* of each to the same setting.
Border Style	Set the type of border, if any, that displays around a control. For text box controls, the default is a solid border. For label controls, the default is a transparent border.
Border Width	Set the width of the border. This controls the thickness of the line used as the border. The default is *Hairline,* but you can also choose *1 pt., 2 pt., 3 pt., 4 pt., 5 pt.,* and *6 pt.*
Border Color	Set the color of the border.
Fore Color	Set the font color.
Can Grow	Determines whether a text box control can automatically increase its size vertically when the width is not large enough to display the entire field contents. The default is *No.* When the property is *No,* only the text that fits displays. When the property is *Yes,* the text box dynamically grows to display the entire contents.

As you refine your report, keep in mind that you want to create a professional-looking report that is easy to read. Don't use too many different colors across the report; however, you might consider changing the background color of an important field to help it stand out. Additionally, select formats and border styles that make the data easy to understand.

COPILOT/GENERATIVE AI BEST PRACTICES

The primary goal when designing a report is to create an effective, informative and user-friendly report. Ask *Copilot* to explain considerations for creating a well-designed report in Access. Follow up with specific questions related to one topic, such as best practices for using colors or fonts in a report. Or ask for examples of well-designed reports in real-world applications.

Change Multiple Controls Simultaneously

If you want to perform the same modification on several controls, select them all before performing the change. For example, to remove the box around all of the text boxes, select all of the text boxes and then set the *Border Style* property to **Transparent**. This can save time and ensure that the same changes are done for all of desired controls.

HOW TO: Select Multiple Controls

1. Open the report in *Design* view.
2. Select the first control.
3. Press and hold the **Shift** key.
4. Click to select the additional controls. All of the selected controls are highlighted in orange.

You can also click the ruler to quickly select multiple horizontally or vertically aligned controls.

HOW TO: Select Multiple Controls Using the Ruler

1. Open the report in *Design* view.
2. Move your pointer over the ruler. The selection pointer appears.
   - Use the vertical ruler to select multiple horizontally aligned controls.
   - Use the horizontal ruler to select multiple vertically aligned controls.

3. Click the selection pointer.
   - On the vertical ruler, all of the controls to the right of where you clicked are selected (Figure 6-59).

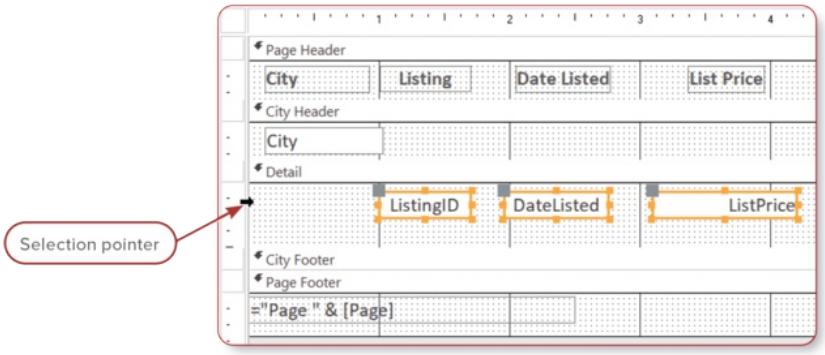


FIGURE 6-59 Click the selection pointer over the ruler to select multiple controls

   - On the horizontal ruler, all of the controls below where you clicked are selected.

MORE INFO

As desired, you can select several sets of horizontally or vertically aligned controls. After selecting the first set of controls, press and hold the **Shift** key and click the ruler in a different location to select additional controls.

When multiple controls are selected, the *Selection Type* in the *Property Sheet* displays *Multiple selection.* Once the controls have been selected, apply the desired changes by modifying the control or entering a new value in the desired property.

Use the Size/Space Button with Multiple Controls

The ***Size/Space*** button enables you to quickly set the size or the spacing of a group of controls. For example, with the *Size* options you can change all the controls to match the tallest or widest of the group. The *Spacing* options enable you to easily adjust the horizontal or vertical spacing between the controls.

HOW TO: Adjust the Size or Spacing of Multiple Controls with the Size/Space

Button

1. Open the report in *Design* view.
2. Select all of the controls to adjust. The selected controls are highlighted in orange. Click the **Size/Space** button [*Arrange* tab, *Sizing & Ordering* group] (Figure 6-60) to open the *Size/Space* menu (Figure 6-61).

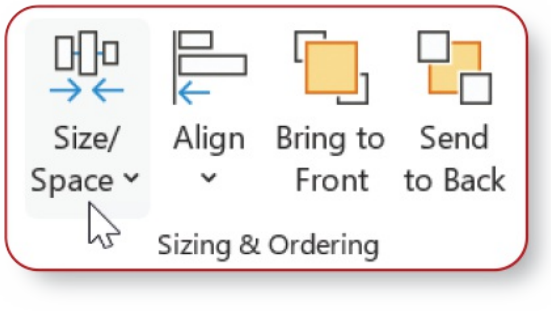


FIGURE 6-60 ***Size/Space*** **button**

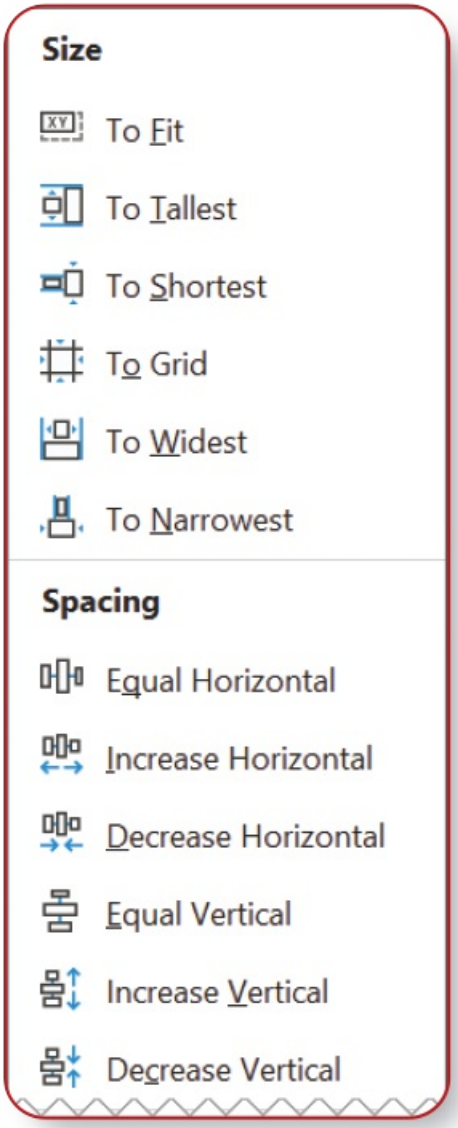


FIGURE 6-61 ***Size/Space*** **menu**

3. Select the desired size or spacing option.

Use the Align Button with Multiple Controls

To align multiple controls to the same reference point, use the ***Align*** button. For example, if you want all of the text boxes to be aligned to the one furthest to the left, select them all and choose the *Left* alignment option.

HOW TO: Adjust the Alignment of Multiple Controls with the Align Button

1. Open the report in *Design* view.
2. Select all of the controls to adjust. The selected controls are highlighted in orange.
3. Click the **Align** button [*Arrange* tab, *Sizing & Ordering* group] (Figure 6-62) to open the *Align* menu (Figure 6-63).

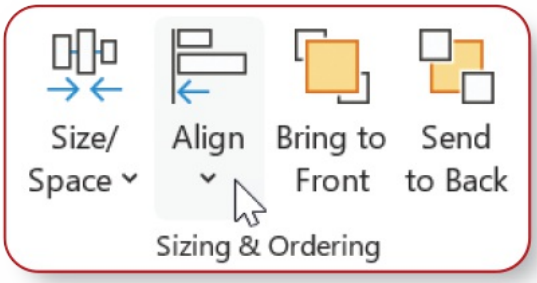


FIGURE 6-62 *Align* button

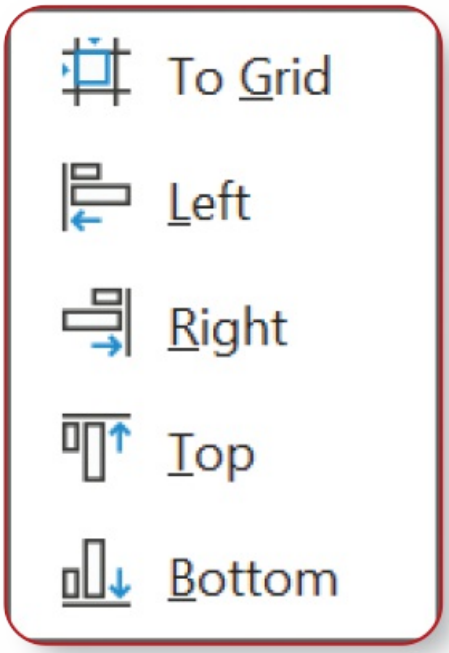


FIGURE 6-63 *Align* menu options

4. Select the desired option.

SLO 6.6

Using Calculated Controls on a Report

A ***calculated control*** contains an expression in the *Control Source* property. Use calculated controls to show the results of a mathematical equation, an aggregate function, or a text-based equation. You can use a calculated control in any report section. Several controls can be used as calculated controls, but the most common choice is a text box. In ***SLO 3.7: Adding Calculated Fields to a Query,*** you learned how to use a calculated field in a query. The basics of what you learned will help you in this section. Remember that you can set the *Format* and *Decimal Places* properties of the control on the *Format* tab to change the default formatting.

A6-452

Understand and Perform Calculations

Access evaluates expressions with the standard order of operations. Follow these rules when you enter an expression into a control:

- Enter the expression directly into the *Control Source* property [*Property Sheet Data* tab].
- If you need more space to enter the expression, open the *Expression Builder* or *Zoom* window.
- Start each expression with an equals sign (=).
- Assign a name to the control in the *Name* property [*Property Sheet Other* tab].
- Enclose any fields used in the expression inside square brackets **[ ]**.
- If you include a function in the expression, such as *DatePart()* or *UCase(),* you must follow the usage rules for that function.

The expression is visible inside the control when the report is in *Design* view, and it also displays in the *Control Source* property if the *Property Sheet* is displayed (**Figure 6-64**). However, most expressions are longer than the width of the control. This means you cannot read the entire expression in either the control or the property box. For example, in **Figure 6-64** you cannot read the entire formula, which is *=[SoldPrice]/[ListPrice]* in either the text box control or the property box. To see the entire expression, use the *Expression Builde*r or *Zoom* window.

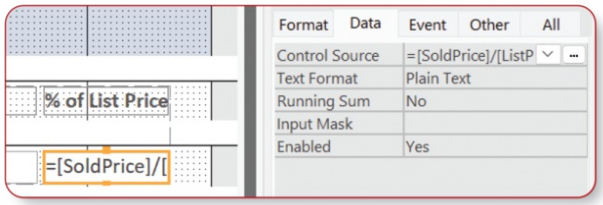


FIGURE 6-64 Expression displays inside the control and in the *Control Source* property box

Any fields you use in the expression must be included in the query or table used as the record source of the report. Fields you have added to the report are automatically included in the record source. Occasionally, you have an expression that needs to reference a field you don't want to display on the report. In this case, either edit the *Record Source* property and add the field into the query or add the field to the report but set the *Visible* property of the field to **No**.

You can place calculated controls in any section of a report. However, if you use an aggregate function in a control, the result of the calculation depends on where the control is placed. Recall that aggregate functions, such as *Sum* or *Count,* perform calculations over a group of records. An example of an expression using the *Count* aggregate function is *=Count([ListingID]).* If the control containing that formula is in a group header or group footer, the function aggregates the value of only the records in that group. For example, if the report is grouped by city, the *Count* function counts the total number of listings in each city. If the control is in a report header or report footer, the function aggregates the value of all the records in the report. In the previous example, the *Count* function would count the total number of listings. Do not include aggregate functions in the *Page Header* or *Page Footer* sections. If you do, an error results when you try to view the report.

Use a Running Total

A ***running total*** is a field that gets its value by accumulating a total over a set of records. Use a running total field to show a running balance, cumulative total, or counting. A running total is not the same as an aggregate function. With a running total, a value shows for each record instead of just the overall total value at the end of a group.

- To create a running total, use the ***Running Sum* property** of the text box. The property has three possible values:
  - *No* is the default value in this property, indicating that the text box is not a running total.
  - *Over Group* accumulates the total within the same group level. When a new group starts, the value is reset.
  - *Over All* accumulates the total across all of the records in the report.
- Set the *Control Source* property of the text box to the field name you wish to accumulate. If necessary, you can also enter an expression in the *Control Source* property.

In the sample report in Figure 6-65, the *Cumulative Repair Cost* is a running total. The *Control Source* is the *RepairCost* field. The *Running Sum* property is set to *Over Group.* Notice that when the group switches from the first *EquipID* to the second *EquipID,* the *Cumulative Repair Cost* resets.



FIGURE 6-65 Sample report with a running total

HOW TO: Calculate a Running Total in a Text Box Control

1. Open the report in *Design* view.
2. Add a **Text Box** control to the report.
3. Open the *Property Sheet* of the text box and click the **Data** tab.
4. Enter the field name to total, or an expression, in the *Control Source* property.
5. Click the **Running Sum** property box, click the **drop-down arrow** and select either **Over Group** or **Over All** (Figure 6-66).

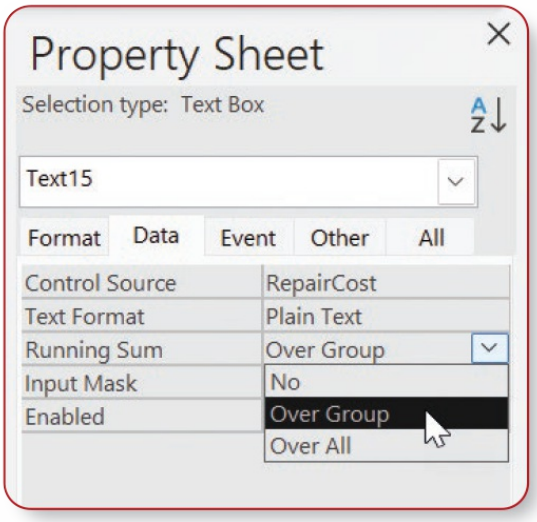


FIGURE 6-66 *Running Sum* property options

6. Set additional properties on the *Format* tab to modify the way the control

displays.

7. Enter a name for the text box in the *Name* property on the *Other* tab.
8. Select the label control that was added with the text box. Either delete the label if it is not needed or edit the *Caption* property and the location of the label on the report.

Number Rows in a Report

One unique way to use a running total is to number the rows in a report (Figure 6-67). For the report sample shown, the text box control has the following *Property Sheet* settings:

- *Control Source* property [*Data* tab]: *=1*
- *Running Sum* property [*Data* tab]: *Over All*
- *Border Style* property [*Format* tab]: *Transparent*
- *Font Weight* property [*Format* tab]: *Bold*
- ***Format* property** [*Format* tab]: . *(Note: This property contains a period, which results in the period displaying after the number.)*

Property Listings

	Listing ID	Date Listed	List Price
1.	10022	9/10/2025	$374,900.00
2.	10023	9/10/2025	$379,000.00
3.	10024	9/13/2025	$1,189,900.00
4.	10029	9/22/2025	$1,645,900.00

FIGURE 6-67 Running sum used to number rows

HOW TO: Use a Running Total to Number Rows in a Report

1. Open the report in *Design* view.
2. Add a **Text Box** control to the report.
3. Open the *Property Sheet* of the text box and click the **Data** tab.
4. Enter =1 in the *Control Source* property.
5. Click the **Running Sum** property box, click the **drop-down arrow** and select either **Over Group** or **Over All**, depending on if you want the row numbers to restart with each group.

6. Type a period (.) in the *Format* property on the *Format* tab if you want the row numbers to be followed by periods.
7. Set additional properties on the *Format* tab to modify the way the control displays.
8. Enter a name for the text box in the *Name* property on the *Other* tab.
9. Select the label control that was added with the text box. Either delete the label if it is not needed or edit the *Caption* property and the location of the label on the report.

Concatenate Text Data

Concatenation combines different parts of an expression using the ***&*** operator. In a report, you may wish to concatenate different fields to improve the way the results appear. For example, combining the first and last name, or the city, state, and ZIP code together, can produce a more readable report. In **Figure 6-68**, the *FirstName* and *LastName* fields display as individual fields and also together because they are concatenated in the *Agent Name* text box. The text boxes display a border (*Border Style* property set to *Solid*) to help illustrate field sizes and how concatenation affects the resulting display.



FIGURE 6-68 The *FirstName* and *LastName* fields are concatenated to create the *Agent Name*

A concatenated expression can combine fields from a table or query, along with constants. Include a constant, such as a specific word or punctuation mark inside quotation marks. Recall that a constant is a hard-coded value.

Examples of concatenation formulas include:

=[FirstName] & " " & [LastName]

=[City] & ", " & [State] & " " & [ZIP]

Remember that you must include all required spacing and punctuation within the formula. For

example, the *& " " &* part of the first formula example inserts a blank space between the first and last names while the *& ", " &* part of the second example formula inserts a comma and a blank space between the city and state.

HOW TO: Use a Concatenation Formula in a Control

1. Open the report in *Design* view.
2. Add a **Text Box** control to the report.
3. Open the *Property Sheet* of the text box and click the **Data** tab.
4. Enter the concatenation expression in the *Control Source* property. As desired, click the **Build** button to open the *Expression Builder.*
5. Enter a name for the text box in the *Name* property on the *Other* tab.
6. Select the label control that was added with the text box. Either delete the label if it is not needed or edit the *Caption* property and the location of the label on the report.

Potential Problems with Concatenation Formulas

A common problem in writing concatenation formulas is misspelling the field names. If fields are misspelled, when you try to view the report in *Layout* view, *Report* view, or *Print Preview* view, an *Enter Parameter Value* dialog box displays. Remember that you may have created a query where the dialog box should display when you run the query. However, if you are not expecting an *Enter Parameter Value* dialog box to display, pay attention to the name of the parameter displayed in the dialog box. In the example shown in **Figure 6-69**, the dialog box expects a value for *FistName.* Dialog boxes such as this one can help you determine what is wrong with the formula; in this case, the field name should have been *FirstName.*

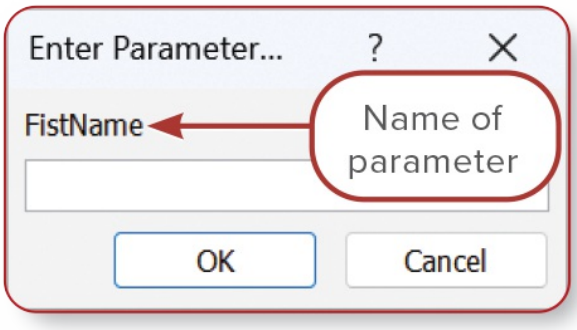


FIGURE 6-69 Check the name of the parameter if you are not expecting an *Enter Parameter Value* dialog box

COPILOT/GENERATIVE AI BEST PRACTICES

Use *Copilot* to learn more tips about how you write a concatenation formula in an Access report. Use follow-up prompts to see examples of concatenating fields. You can also ask about advanced topics such as how to handle null values when concatenating fields.

Hide Repeated Values

Sometimes, when you view a report, you see repeated values. Consider a report that shows property information sorted by city. Because grouping has not been done, the report in **Figure 6-70** repeats the city name in each record. To hide the repeated values, like the report in **Figure 6-71**, set the ***Hide Duplicates*** property.



Sold Properties Sorted by City

City	Listing ID	Date Listed	Sold Price
Auburn	10069	12/12/2025	$395,000.00
Auburn	10045	10/15/2025	$380,000.00
Auburn	10042	10/8/2025	$449,000.00
Lincoln	10054	11/23/2025	$325,000.00
Lincoln	10052	11/10/2025	$330,000.00
Newcastle	10172	2/8/2026	$405,000.00

FIGURE 6-70 ***City*** **field without hiding duplicates**



Sold Properties Sorted by City

City	Listing ID	Date Listed	Sold Price
Auburn	10069	12/12/2025	$395,000.00
	10045	10/15/2025	$380,000.00
	10042	10/8/2025	$449,000.00
Lincoln	10054	11/23/2025	$325,000.00
	10052	11/10/2025	$330,000.00
Newcastle	10172	2/8/2026	$405,000.00

FIGURE 6-71 ***City*** **field with duplicates hidden**

HOW TO: Hide Repeated Values in a Report

1. Open the report in *Design* view.
2. Select the text box of the field that contains duplicate values.
3. Open the *Property Sheet* of the text box and click the **Format** tab.
4. Select **Yes** in the *Hide Duplicates* property.

PAUSE & PRACTICE: ACCESS 6-2

For this Pause & Practice, you create a report for the Placer Hills Real Estate database in *Design* view that uses a parameter query as the data source. You modify the design of the report to improve its appearance. Next, you modify an existing report by adding two calculated fields and modifying several controls on the report.

File Needed: ***[your initials] PP A6-1.accdb***

Completed Project File Name: ***[your initials] PP A6-2.accdb***

1. Open the ***[your initials] PP A6-1*** database file you created in *Pause & Practice 6-1.*
2. Save a new copy of your database as [your initials] PP A6-2.
3. Enable content in the database.
4. Create a report in *Design* view, assign a data source, and add fields.
   a. Click the **Report Design** button [*Create* tab, *Reports* group] to open a new report.
   b. Click the **Property Sheet** button [*Report Design* tab, *Tools* group] if the *Property Sheet* is not open.
   c. Click the **Data** tab if necessary.
   d. Click the **drop-down arrow** in the *Record Source* property and select **DaysOnMarketWithMonthParameter** to assign the query as the data source for the report.
   e. Click the **Add Existing Fields** button [*Report Design* tab, *Tools* group] to open the *Field List*.
   f. Double-click the **ListingID** field to add it to the report.
   g. Add the following additional fields into the *Detail* section of the report: **DateListed**, **ListPrice**, **City**, and **DaysOnMarket**. The layout should look similar to that shown in **Figure 6-72**.

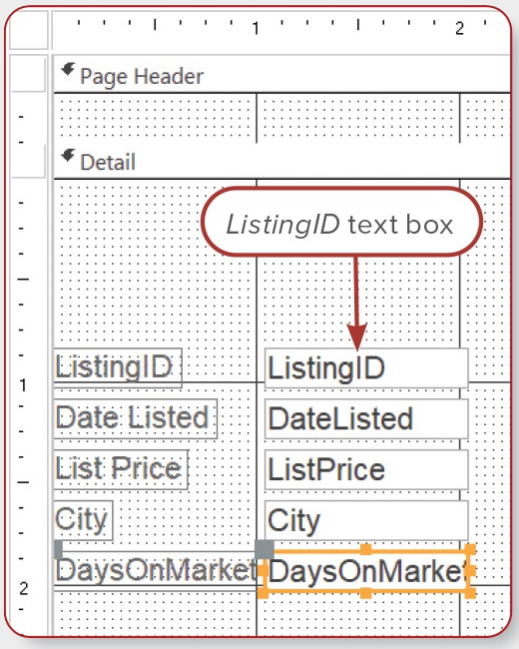


FIGURE 6-72 ***Design*** **view of report after adding fields**

h. Close the *Field List* pane.

i. Save the report as DaysOnMarketListing.

5. Modify the location of the fields and adjust the size of the *Detail* section.

a. Click to select the **ListingID** text box.

b. Press and hold the **Shift** key.

c. Click to select the text boxes of the remaining fields. Each field should be surrounded by an orange border.

d. Click the **Tabular** button [*Arrange* tab, *Table* group]. The layout should change, as shown in Figure 6-73.



FIGURE 6-73 **Tabular layout of fields**

e. Click anywhere in the **Detail** section to deselect the controls.

f. Click the **Property Sheet** button [*Report Design* tab, *Tools* group] if the *Property Sheet* is not open and

click the **Format** tab if necessary.

g. Click to select the **ListingID** text box.

h. Enter .05" in the *Top* property. All of the text boxes in the layout move to the top of the section. When entering property values, remember that Access automatically adds the inches mark (") after you enter the value, so you don't have to type it. Also, don't worry if Access slightly changes a few of the values (for example, .05" becomes .0486").

i. Click the **Detail** section bar.

j. Enter .3" in the *Height* property.

k. Move your pointer to the right edge of the *Detail* section. The pointer changes to the resize arrow.

l. Widen the report to **8"**.

m. Click to select the **ListPrice** text box.

n. Press and hold the **Shift** key and select the **ListPrice** label.

o. Enter 1.2" in the *Width* property.

6. Add *Report Header* and *Report Footer* sections and edit those sections.

a. Right-click inside the report to open the context menu.

b. Select the **Report Header/Footer** option. The *Report Header* and *Report Footer* sections display on the report.

c. Click the **Report Header** section bar.

d. Enter .5" in the *Height*.

e. Click the **Back Color** property, click the **Build** button and select the **Brown 2** color (tenth column, third row of the *Standard* colors).

f. Close the *Property Sheet*.

7. Add a label into the *Report Header* and page numbers into the *Page Footer* sections.

a. Click the **Label** button [*Report Design* tab, *Controls* group].

b. Move the pointer into the *Report Header* section and click to add the label.

c. Type Days on Market Report into the label. Click anywhere outside the label.

d. Click to select the **label** in the *Report Header* section.

e. Click to select the **Format** tab.

f. Type 14 in the *Font size* [*Format* tab, *Font* group], and click the buttons for **Center** alignment and **Italic** formatting.

g. Adjust the size of the label as needed so the entire label text displays.

h. Move the label so the left edge is approximately at **3"**.

i. Click the **Page Numbers** button [*Report Design* tab, *Header/Footer* group]. The *Page Numbers* dialog box opens.

j. Select the **Page N of M** radio button in the *Format* area and the **Bottom of Page [Footer]** radio button in the *Position* area.

k. Click **OK**. The page number is added to the report. The *Design* view of the report should look similar to

Figure 6-74.

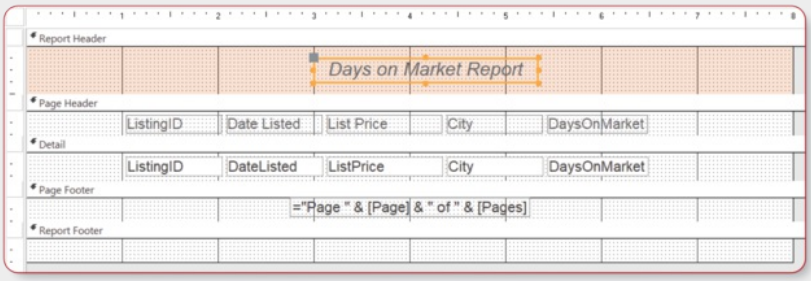


FIGURE 6-74 ***Design* view of *DaysOnMarketListing* report**

l. Save the report.

8. Test the report.
   a. Switch to *Print Preview* view of the report. The *Enter Parameter Value* dialog box displays.
   b. Enter 9 and click **OK**. The report should execute, display seven records, and look similar to the report shown in Figure 6-75. Remember that the values in the *DaysOnMarke*t field differ, and they may be negative, depending on the day you run the report.

Days on Market Report

ListingID	Date Listed	List Price	City	DaysOnMarket
10022	9/10/2025	$374,900.00	Lincoln	34
10023	9/10/2025	$379,000.00	Lincoln	34
10024	9/13/2025	$1,189,900.00	Roseville	31
10029	9/22/2025	$1,645,900.00	Rocklin	22

FIGURE 6-75 ***Print Preview* view of report**

   c. Close *Print Preview*.
   d. Close the report.
9. Double-click the **SoldPropertiesListing** report to open it in *Report* view. The report should display the 10 records that are in the *SoldProperties* table. Note that two columns do not yet display any data.
10. Change to *Design* view of the *SoldPropertiesListing* report.
11. Add calculations into two text boxes, format those text boxes, and change the captions of their labels.
    a. Click the **Property Sheet** button [*Report Design* tab, *Tools* group].
    b. Change the *Selection type* to **Report** if necessary.
    c. Click the **Data** tab. Verify that the *Record Source* contains the table name *SoldProperties*.
    d. Select the **Unbound** text box to the right of the *SqFt* text box.
    e. Click the **Other** tab and type BedsBaths in the *Name* property.
    f. Click the **Data** tab and then click the **Build** button in the *Control Source* property.
    g. Enter =[Beds]&"/"&[Baths] in the *Expression Builder* and click **OK**. As you are typing, the *Intellisense* tool suggests the field names. Either select them from the list or continue typing them yourself.
    h. Select the **Unbound** text box to the right of the *SoldPrice* text box.

i. Click the **Other** tab and type %OfListPrice in the *Name* property.

j. Click the **Data** tab and then click the **Build** button in the *Control Source* property.

k. Type =[SoldPrice]/[ListPrice] in the *Expression Builder* and click **OK**.

l. Click the **Format** tab of the *Property Sheet.*

m. Select **Percent** in the *Format* property.

n. Select the **Text32** label control.

o. Change the *Caption* property [*Format* tab] to % of List Price. Be sure to press **Enter** after typing the contents to have Access recognize the change.

p. Enter 1" in the *Width* property.

q. Select the **Text22** label.

r. Change the *Caption* property [*Format* tab] to Beds/Baths.

s. Close the *Property Sheet.*

t. Save the report.

12. Modify the formatting of multiple controls simultaneously.

a. Click to select the **ListingID** text box.

b. Press and hold the **Shift** key, and then select the seven additional text boxes in the *Detail* section.

c. Click the **Center** button [*Format* tab, *Font* group]. You may need to click the button twice.

d. Move your pointer over the vertical ruler to the left of the labels in the *Page Header* section, and then click the selection pointer to select all of the labels in the *Page Header* section.

e. Click the **Center** button [*Format* tab, *Font* group]. You may need to click the button twice.

f. Click the **Underline** button and change the *Font Color* to **Black** (the second column and first row of the *Standard Colors*).

g. Click anywhere in the report to deselect the labels. The *Design* view of the report should look similar to Figure 6-76.

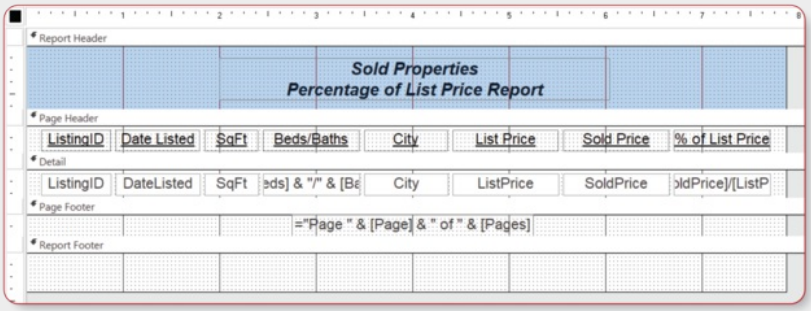


FIGURE 6-76 ***Design* view of completed *SoldPropertiesListing* report**

h. Save the report.

13. Test the report.

a. Switch to *Print Preview* view of the report. The report should execute and look similar to Figure 6-77.



Sold Properties
Percentage of List Price Report

ListingID	Date Listed	SqFt	Beds/Baths	City	List Price	Sold Price	% of List Price
10025	9/14/2025	1900	4/3	Rocklin	$439,000.00	$439,000.00	100.00%
10027	9/20/2025	1184	3/2	Roseville	$335,000.00	$349,000.00	104.18%
10033	9/28/2025	1840	2/2	Rocklin	$347,500.00	$361,000.00	103.88%
10042	10/8/2025	1905	3/2	Auburn	$440,500.00	$449,000.00	101.93%
10045	10/15/2025	2234	3/3	Auburn	$385,000.00	$380,000.00	98.70%

FIGURE 6-77 ***Print Preview*** **view of completed** ***SoldPropertiesListing*** **report**

b. Close the *Print Preview* and close the report.

14. Close the database.

SLO 6.7

Using Subreports

At times you need to create a report that shows data from tables that have a one-to-many relationship. For example, you may want to see a report of the Placer Hills Real Estate agents that also includes data about the agents' current property listings. In this section, you learn how to use a subreport to accomplish this task.

Understand Subreports

A ***subreport*** is a report inserted within another report. To work correctly, a relationship must exist between the two reports. Typically, the reports represent the different sides of a one-to-many relationship. The report from the "one" side of the relationship is the ***main report***, while the report from the "many" side of the relationship is the subreport.

You create the main report and subreport as two separate reports. Then, you add the subreport to the main report. Once you add the subreport, it still exists as a separate object. The main report, however, contains both the original "one" side fields from the main report, plus all of the "many" side fields on the subreport.

Before you create a subreport, you need to plan the design of the finished report. Determine what tables or fields will be on the main report and what tables or fields will be on the subreport. **Figure 6-78** shows an example of a finished report in which the agent (employee) information is in the main report and the listing information is in the subreport. This sample subreport also calculates the average list price with an aggregate function.

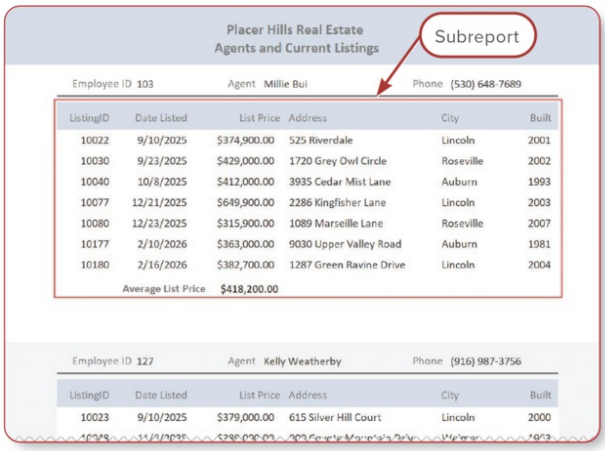


FIGURE 6-78 Main report with a subreport



Create a Report That Includes a Subreport

You can build both the main report and the subreport using any of the report tools you have learned. Three main tasks are involved in creating a report that includes a subreport:

1. Create the main report.
2. Create the subreport.
3. Add the subreport to the main report.

Build the main report and the subreport in any order, but the most common approach is to build the main report first.

HOW TO: Create a Main Report in Design View

1. Click the **Report Design** button [*Create* tab, *Reports* group] to open a new report.
2. Click the **Property Sheet** button [*Report Design* tab, *Tools* group].
3. Click the **Data** tab.
4. Click the **drop-down arrow** in the *Record Source* property and select the table or query containing the data from the "one" side of the relationship.
5. Click the **Add Existing Fields** button [*Report Design* tab, *Tools* group] to open the *Field List*.
6. Add the desired fields into the *Detail* section.
7. Adjust the height of the *Detail* section, but be sure to leave enough space in the section for the subreport.
8. Format the *Detail* section as desired to adjust the background and alternate row colors.
9. Right-click to open the context menu and select the **Report Header/Footer** option to add *Report Header* and *Report Footer* sections to the report.
10. Add a **Label** into the *Report Header* section as desired.
11. Add page numbers into the report as desired.
12. Format any of the controls as desired to add/remove borders, adjust font characteristics, etc.
13. Save and close the report.

Figure 6-79 shows a main report in *Design* view. This main report contains fields from the *Agents* table.

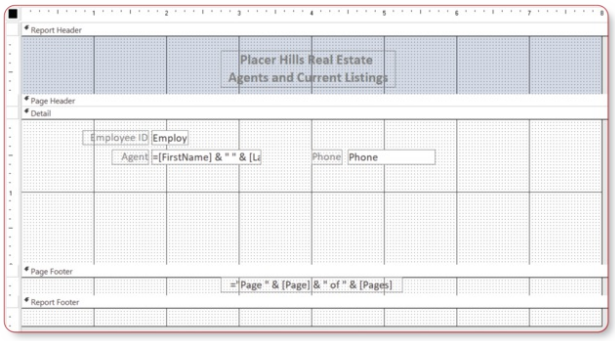


FIGURE 6-79 ***Design* view of a main report**

The second task is to create the subreport. It is common to use a tabular layout for the fields. In these cases, a quick starting point is to create the initial report with the *Report* tool and then to modify it using both *Layout* view and *Design* view.

Controls in the *Page Header* or *Page Footer* sections of a subreport do not display once you add the subreport onto the main report. If those sections were automatically included when you created the report, it is common to delete those sections.

HOW TO: Create a Subreport

1. Select the table that contains the data from the "many" side of the relationship.
2. Click the **Report** button [*Create* tab, *Reports* group] to open a new report in *Layout* view.
3. Delete any fields that are not necessary by selecting the field, right-clicking to open the context menu, and selecting **Delete Column**.
4. Adjust the width of any fields by selecting the field and using the sizing handles.
5. Switch to *Design* view.
6. Select all of the controls in the *Report Header* section and delete them.
7. Select all of the label controls in the *Page Header* section.
8. Click the **Move Up** button [*Arrange* tab, *Move* group] to move the labels into the *Report Header* section.
9. Delete the page number control from the *Page Footer* section.
10. Right-click inside the report to open the context menu and select the **Page Header/Footer** option to delete the *Page Header* and *Page Footer* sections.
11. Adjust the width of the report.
12. Format any of the controls as desired to adjust the size, add or remove borders, adjust font characteristics, etc.

13. Format the *Detail* section as desired to adjust background and alternate row colors.
14. Save the report using a combination of the table name and the word subreport. This helps you identify the report later.
15. Close the report.

A subreport in *Design* view is shown in **Figure 6-80**. This subreport contains fields from the *Listings* table.



FIGURE 6-80 ***Design* view of a subreport**

The last task is to insert the subreport into the main report. Be sure the *Use Control Wizards* option is selected [*Report Design* tab, *Controls* group] before starting this activity. Use the *Subform/Subreport* button to launch the ***SubReport Wizard*** to add the subreport. The *SubReport Wizard* steps you through the process of adding a subreport into a main report.

HOW TO: Add an Existing Subreport into a Main Report

1. Open the main report in *Design* view.
2. Click the **Subform/Subreport** button [*Report Design* tab, *Controls* group] (**Figure 6-81**).

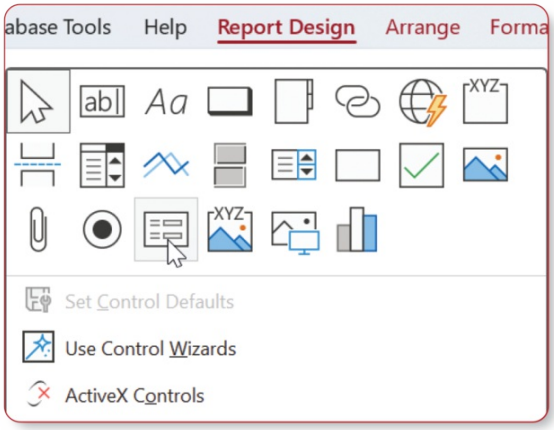


FIGURE 6-81 *Subform/Subreport* button

3. Click inside the *Detail* section of the main report, in the upper left of where you want to position the subreport. The *SubReport Wizard* launches.
4. Select the **Use an existing report or form** radio button (Figure 6-82).

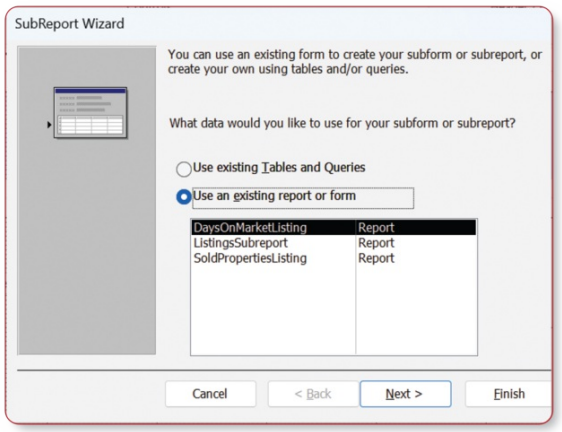


FIGURE 6-82 *SubReport Wizard*, step 1

5. Select the name of the subreport from the list and click **Next**.
   - The next page of the wizard prompts you to choose how to link the subreport to the main report (Figure 6-83).

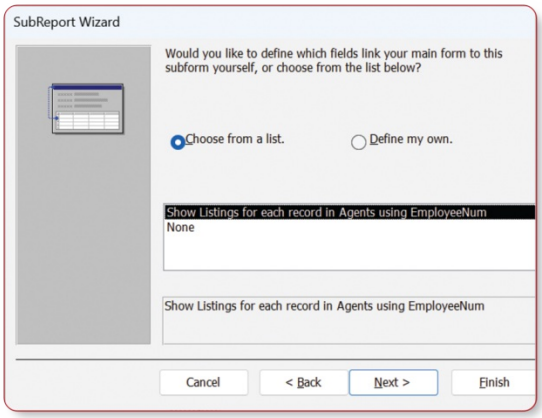


FIGURE 6-83 *SubReport Wizard*, step 2

   - If Access detects fields in common, the wizard displays a statement that shows how the tables are related.
6. Accept the **Choose from a list** radio button and the default linking statement, and then click **Next**.
7. Accept the suggested name for the subreport and click **Finish**. The subreport is

added into the main report (Figure 6-84).

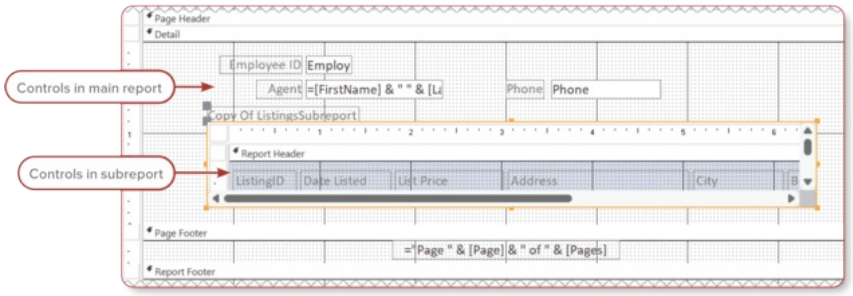


FIGURE 6-84 Subreport added into the main report

8. Switch to *Layout* view (Figure 6-85). Verify that the subreport is correctly linked to the main report. Scroll down to verify that each grouping displays only the records associated with that group.

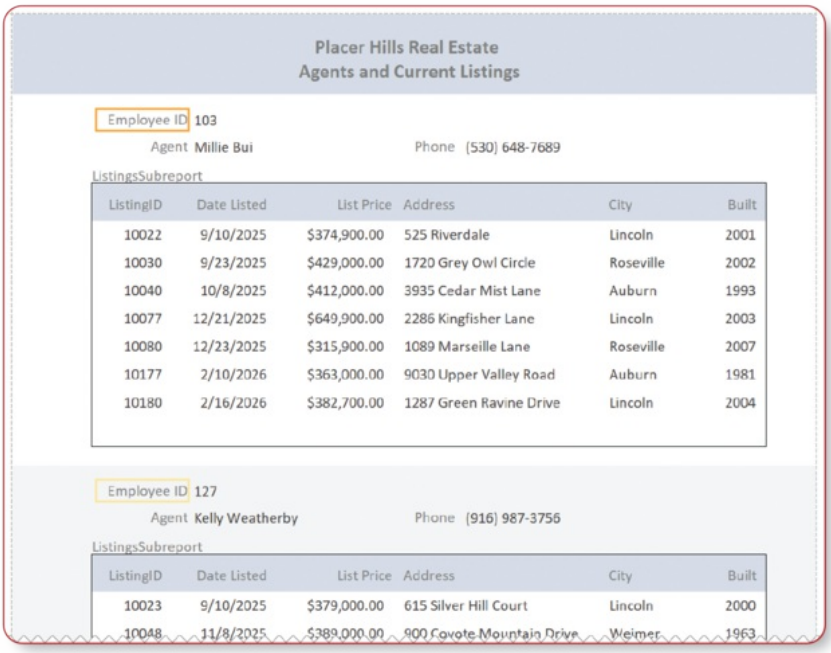


FIGURE 6-85 Verify that the subreport is correctly linked to the main report in ***Layout*** view

9. Save and close the report.

A6-463

Instead of first creating a subreport, launch the *SubReport Wizard* and add a table or query into the main report. Access creates the subreport object for you and attaches it to the main report.

A6-464

HOW TO: Use a Table or Query as a Subreport in a Main Report

1. Open the main report in *Design* view.
2. Click the **Subform/Subreport** button [*Report Design* tab, *Controls* group].
3. Click inside the *Detail* section of the main report, in the upper left of where you want to position the subreport. The *SubReport Wizard* launches.
4. Ensure that the **Use existing Tables and Queries** radio button is selected and click **Next**. Note that the list on the first page of the wizard only displays existing reports or forms. It does not update to show existing tables.
5. Select the table/query, move the desired fields to include in the subreport (**Figure 6-86**) and click **Next**.

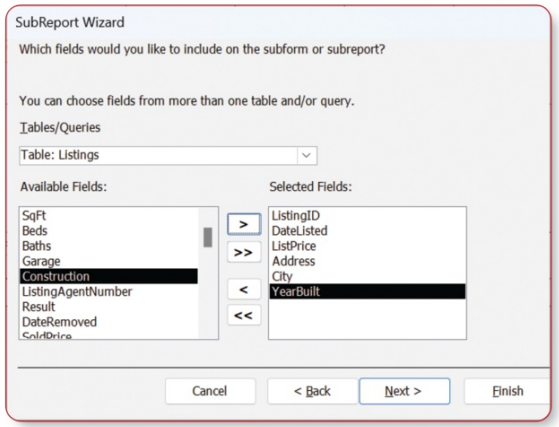


FIGURE 6-86 Select the table/query and the desired fields to use in the subreport

- The next page of the wizard prompts you to choose how to link the subreport to the main report.
- If Access detects fields in common, the wizard displays a statement that shows how the tables are related.

6. Accept the **Choose from a list** radio button and the default linking statement, and click **Next**.
7. Accept the suggested name for the subreport and click **Finish**. The subreport is added into the main report and is also created as a separate report object in the *Navigation Pane.*
8. Switch to *Layout* view. Verify that the subreport is correctly linked to the main report.
9. Save and close the report.

If Access was not able to determine the correct linking fields between the subreport and the main report, or if you created an incorrect link, you can manually establish the link. In the subreport, you set the values of the *Link Child Fields* and *Link Master Fields* properties to make the correct connection.

HOW TO: Set the Link Child Fields and Link Master Fields on a Subreport

1. Open the main report in *Design* view. The subreport should already have been added onto the main report.
2. Open the *Property Sheet* and click the **Data** tab if necessary.
3. Click to select the **subreport** in the *Detail* section of the main report.
4. Click the **Build** button in the *Link Master Fields* property box (Figure 6-87) to open the *Subreport Field Linker* dialog box (Figure 6-88).

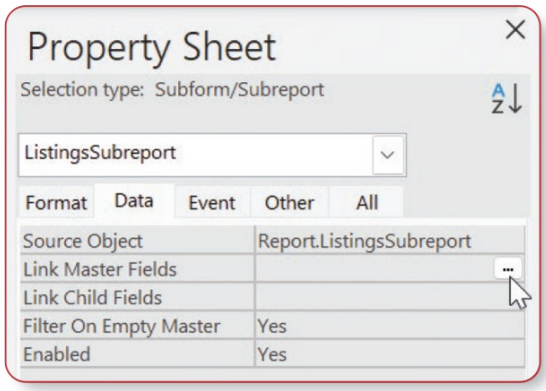


FIGURE 6-87 ***Link Master Fields*** **property**



FIGURE 6-88 ***Subreport Field Linker*** **dialog box**

5. Click the **Master Fields** box drop-down arrow and select the desired field if necessary.
6. Click the **Child Fields** box drop-down arrow and select the desired field if necessary.

ANOTHER WAY

Click the **Suggest** button to have Access attempt to determine which fields should be linked together.

7. Click **OK**.
8. Save the changes to the report.

MORE INFO

If the linking fields are not available in the *Subreport Field Linker,* you may need to edit the *Record Source* property of the subreport to include the required linking fields. Remember that the linking fields are most likely the primary key in the "one" table and the foreign key in the "many" table.

Customize the Main Report and Subreport

After you add the subreport to the main report, you should customize the overall report so that it has a professional appearance. When you open the main report, the subreport opens automatically because the objects are now attached. This enables you to edit both objects together and create a cohesive report. Alternatively, open the subreport separately and edit just that object.

Anticipate switching back and forth frequently between *Design* view, *Layout* view, and *Print Preview* view as you work to edit the report.

Common modifications to the report, which you already know how to do, include the following:

- Adjust the size and spacing of the text box and label controls.
- Modify font characteristics or formatting of the text boxes and label controls.
- Change the border property or back color property of the controls or sections.
- Adjust the size of the subreport or the sections on both the main report and subreport.
- Remove the label attached to the subreport.

Adding an aggregate function to a main report with a subreport involves special considerations. Use the skills you have learned to add calculated controls to a subreport. However, if you want to use an aggregate function to calculate a value over a group of records, you need to adjust the placement of that control. Your subreport most likely does not contain a *Group Header* or a *Group*

Footer section. Instead, the grouping occurs as a result of the way the subreport functions when it is attached to the main report.

To use an aggregate function, place the calculation in either the *Report Header* or *Report Footer* section of the subreport. When the finished report displays, that value is calculated on each grouping in the subreport.

A6-466

A6-467

A6-468

A6-469

PAUSE & PRACTICE: ACCESS 6-3

For this Pause & Practice, you create a main report and a subreport for the Placer Hills Real Estate database. You add the subreport onto the main report and modify the design of the report to improve its appearance.

File Needed: ***[your initials] PP A6-2.accdb***

Completed Project File Name: ***[your initials] PP A6-3.accdb***

1. Open the ***[your initials] PP A6-2*** database file you created in ***Pause & Practice 6-2***.
2. Save a new copy of your database as [your initials] PP A6-3.
3. Enable content in the database.
4. Build the main report.
    a. Click the **Report Design** button [*Create* tab, *Reports* group] to open a new report.
    b. Click the **Property Sheet** button [*Report Design* tab, *Tools* group], if necessary, to open the *Property Sheet*.
    c. Click the **Data** tab.
    d. Click the **drop-down arrow** in the *Record Source* property and select the **Agents** table.
    e. Click the **Add Existing Fields** button [*Report Design* tab, *Tools* group] to open the *Field List*.
    f. Double-click the **EmployeeNum** and **Phone** fields to add them into the *Detail* section.
    g. Click the **Property Sheet** button [*Report Design* tab, *Tools* group].
    h. Save the report as CurrentListingsByAgent.
5. Add a *Report Header/Footer* section and modify the report.
    a. Right-click inside the report to open the context menu.
    b. Select the **Report Header/Footer** option to add *Report Header* and *Report Footer* sections to the report.
    c. Choose **Report** in the *Selection type* box of the *Property Sheet,* if necessary, and click the **Format** tab.
    d. Type 8" in the *Width* property.
    e. Click the **Report Header** section bar and enter .8" in the *Height* property.

f. Add a **Label** control into the *Report Header* section and type Placer Hills Real Estate Agents and Current Listings into the label.

g. Select the label and enter 2.4" in the *Width* property, .5" in the *Height* property, .2" in the *Top* property, 2.75" in the *Left* property, 14 in the *Font Size* property, select **Center** in the *Text Align* property and **Bold** in the *Font Weight* property.

h. Click the **Page Numbers** button [*Report Design* tab, *Header/Footer* group].

i. Select the **Page N of M** radio button, the **Bottom of Page [Footer]** radio button, and a **Center** alignment if necessary.

j. Click **OK**.

k. Move your pointer to the bottom edge of the *Page Header* section, not the section bar. The pointer changes to the resize arrow. Move the **resize arrow** up to the *Page Header* section bar to remove the space in the section.

l. Save the report.

6. Add a concatenated field and modify the *Detail* section.

a. Add a **Text Box** control [*Report Design* tab, *Controls* group] below the *Phone* field in the *Detail* section.

b. Click the **Data** tab.

c. Click the **Build** button in the *Control Source* property.

d. Enter =[FirstName] & " " & [LastName] in the *Expression Builder* and click **OK**.

e. Select the label that was added with the text box.

f. Click the **Format** tab of the *Property Sheet* and enter Agent in the *Caption* property, .5" in the *Width* property, 1.25" in the *Left* property, and select **Right** in the *Text Align* property. Don't worry that the label temporarily overlaps with the text box.

g. Select the **EmployeeNum** text box and enter .5" in the *Width* property, .15" in the *Top* property, and 1.8" in the *Left* property.

h. Select the *EmployeeNum* label and enter Employee ID in the *Caption* property, .9" in the *Width* property, .15" in the *Top* property, and .85" in the *Left* property, and select **Right** in the *Text Align* property.

i. Select the text box containing the concatenation formula and enter 1.5" in the *Width* property, and 1.8" in the *Left* property.

j. Press and hold the **Shift** key and select the *Agent* label. Both the concatenation formula text box and the *Agent* label are selected. Enter .5" in the *Top* property. Both controls move to the new location.

k. Select the **Phone** text box and enter 1.2" in the *Width* property, .5" in the *Top* property, and 4.5" in the *Left* property.

l. Select the **Phone** label and enter .5" in the *Top* property, and 4" in the *Left* property.

m. Select the **Phone** text box, press and hold the **Shift** key and select the other two text boxes in the *Detail* section, and then select **Transparent** in the *Border Style* property to remove the border from these text boxes. The border displays in *Design* view but does not display when you view the report in *Report, Print Preview,* or *Layout* view.

n. Choose **Detail** in the *Selection type* box of the *Property Sheet* and enter 2" in the *Height* property. The

report should look similar to Figure 6-89.

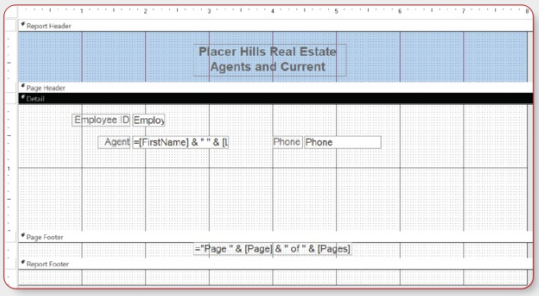


FIGURE 6-89 ***Design*** **view of the main report**

o. Save and close the report.

7. Build the subreport.

a. Select the **Listings** table.

b. Click the **Report** button [*Create* tab, *Reports* group] to open a new report in *Layout* view.

c. Select a cell in the **Garage** column. You may need to scroll to the right to locate the column.

d. Press and hold the **Shift** key and select a cell in the **SqFt** column. The *SqFt, Beds, Baths,* and *Garage* columns are all selected. Right-click inside the selected columns to open the context menu and select **Delete Column**.

e. Select a cell in the **Construction** column.

f. Press and hold the **Shift** key and select a cell in the **Agent**, **Result**, **DateRemoved**, and **SoldPrice** columns, right-click inside the selected columns to open the context menu, and select **Delete Column**.

g. Select a cell in the **ListingID** column. Press and hold the **Shift** key and select the **ListingID** label. Enter .7" in the *Width* property.

h. Repeat this process to change the *Width* property for each of the following fields and its label: *Date Listed* (1"), *List Price* (1.2"), *Address* (2"), *City* (1"), and *Built* (.5").

i. Switch to *Design* view.

j. Select all of the controls in the *Report Header* section and delete them.

k. Click inside the *Report Footer* section below the words "*Report Footer.*" An orange border surrounds the *EmptyCell* control that is selected. Access automatically added these controls when the report was created.

l. Right-click and select **Delete Row** from the context menu to delete these unneeded controls.

m. Select all of the label controls in the *Page Header* section.

n. Click the **Move Up** button [*Arrange* tab, *Move* group].

o. Enter .25" in the *Height* property and .1" in the *Top* property.

p. Delete the **page number** control from the *Page Footer* section. You may need to scroll to the right to locate the control in the report.

q. Right-click inside the report to open the context menu and select the **Page Header/Footer** option to delete the *Page Header* and *Page Footer* sections.

r. Choose **Report Header** in the *Selection type* box of the *Property Sheet* and enter .3" in the *Height* property.

s. Click to select the **Detail** section bar.

t. Click the **Build** button in the *Alternate Back Color* property and select **No Color**.

u. Choose **Report** in the *Selection type* box of the *Property Sheet,* if necessary, and enter 6.7" in the *Width* property. The report should look similar to the report shown in Figure 6-90.



FIGURE 6-90 ***Design*** **view of the subreport**

v. Save the report as ListingsSubreport.

w. Close the report.

8. Add the subreport onto the main report.

a. Open the *CurrentListingsByAgent* report in *Design* view.

b. Click the **Controls** arrow at the far right of the *Controls* group [*Report Design* tab] and verify that the *Use Control Wizards* button is selected (it will have a black border surrounding the icon). If it is not selected, click the **Use Control Wizards** button.

c. Click the **Subform/Subreport** button [*Report Design* tab, *Controls* group].

d. Click inside the *Detail* section of the report, near the .75" horizontal mark and below the fields in the *Detail* section (Figure 6-91). If a *Microsoft Access Security Notice* box displays, click **Open**. The *SubReport Wizard* launches.

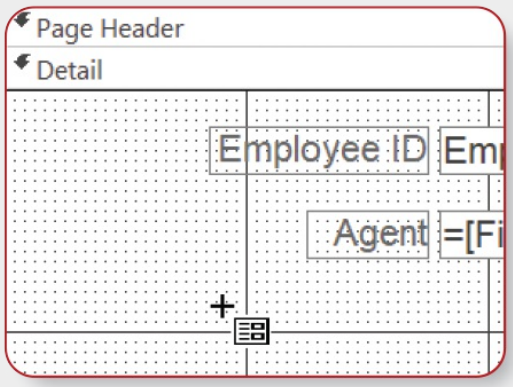


FIGURE 6-91 **Position the** ***Subform/Subreport*** **icon in the report**

e. Select the **Use an existing report or form** radio button.

f. Select the **ListingsSubreport** report from the list.

g. Click **Next**.

h. Accept the **Choose from a list** radio button and the highlighted **Show** statement, and then click **Next**.

i. Accept the suggested name for the subreport and click **Finish** to add the subreport to the main report.

j. Switch to *Layout* view (Figure 6-92). Verify that the subreport is correctly linked to the main report.



FIGURE 6-92 ***Layout* view of the main report after adding the subreport**

k. Save the report.

9. Customize the main report and subreport.

a. Switch to *Design* view.

b. Click to select the **ListingsSubreport** label.

c. Press **Delete**.

d. Select the subreport.

e. Enter .9" in the *Top* property and .75" in the *Left* property.

f. Select **Transparent** in the *Border Style* property on the *Format* tab of the *Property Sheet.* This removes the border that surrounds the entire subreport.

g. Save and close the report.

10. Open the *ListingsSubreport* in *Design* view. Although you can make these changes when viewing the report through the *CurrentListingsByAgent* main report, it is easier to enter edits directly on the subreport.

a. Add a **Text Box** control to the *Report Footer* section.

b. Open the *Property Sheet* and click the **Data** tab if necessary.

c. Click the **Build** button on the *Control Source* property.

d. Enter =Count([ListingID]) into the *Expression Builder* and click **OK**.

e. Click the **Format** tab.

f. Enter .5" in the *Width* property, .08" in the *Top* property, and 6.15" in the *Left* property. When entering property values, don't worry if Access slightly changes a few of the values (for example, .08" becomes .0799").

g. Select the label control that was added with the text box.

h. Click the **Format** tab of the *Property Sheet,* if necessary, and enter Total number of listings: in the *Caption* property, 1.65" in the *Width* property, .08" in the *Top* property, and 4.5" in the *Left* property.

i. Click to select the **Report Footer** section bar.

j. Enter .35" in the *Height* property.

k. Switch to *Layout* view. Because you are viewing the subreport by itself, the records are not grouped by agent. Scroll to the bottom of the report to find the text box you just added. The report should look similar to Figure 6-93.

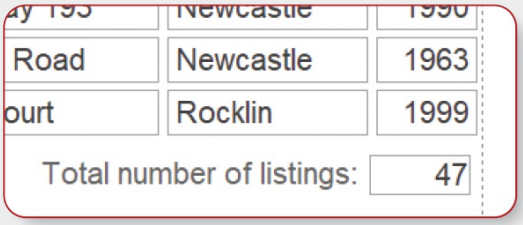


FIGURE 6-93 Aggregate function added to subreport

l. Save and close the report.

11. Open the *CurrentListingsByAgent* report in *Report* view. The completed report should look similar to the report in Figure 6-94.



FIGURE 6-94 *Report* view of completed report

12. Save and close the report.

13. Close the database.

SLO 6.8

Using Charts

Add a ***chart*** to a report to visually display numeric data. A chart helps you make comparisons, show relationships among data, recognize patterns, and identify trends. You link the chart to a table or query and then customize the chart by setting properties. Charts can only be added and edited in *Design* view. You can add a chart to an existing report that displays data records or to a new report designed to display only the chart.

Prior to adding a chart to a report, you first determine the purpose of the chart and the data that will be used. Next, spend time selecting the type of chart that best displays the data you are presenting. **Table 6-5** describes Access chart types.

Table 6-5: Access Chart Types

Chart Type	Commonly Used to Show	Subtypes
Column	Comparisons among items, or comparisons over time. Best used with fewer items or periods.	*Clustered Column* *Stacked Column* *100% Stacked Column*
Bar	Comparisons among items, or comparisons over time. Essentially, a horizontal column chart. Use when you have a larger number of items or periods, or when the label names are long.	*Clustered Bar* *Stacked Bar* *100% Stacked Bar*
Line	Trends or change in data over time.	*Line* *Stacked Line* *100% Stacked Line*

Area	The magnitude of change over time by combining elements from bar charts and line charts.	*Area* *Stacked Area* *100% Stacked Area*
Radar	Multiple variables in a circular format. Useful to show patterns and trends, identify strengths and weaknesses, and compare multiple variables.	*Radar* *Radar Filled*
Pie	Data as a percentage of the whole. Best used with fewer than eight data points (pie pieces).	N/A
Combo	Different but related data graphed on two or more chart types (for example, a clustered column chart and a line chart).	N/A
Arc	Data as a percentage of the whole. Similar to a pie chart but allows two or more data series to be plotted simultaneously.	N/A
Box and Whisker	The distribution of the data within a range. Displays the minimum, maximum, median, lower quartile, upper quartile, and outlier values for a data range. Also called box plots.	N/A
Bubble	Relationships between three variables using different size bubbles Also called bubble plots.	N/A
Doughnut	Data as a percentage of the whole. Variation of a pie chart that contains a hole which can display additional information or improve readability. Can display more than one data series, each displays as a separate ring.	N/A
Funnel	The progressive change in data as it moves through stages in a process. Often used for a sales pipeline or conversion rates.	N/A
Pareto	Relative importance of different categories. It combines elements of a bar chart and line chart.	N/A
Scatter	The relationship between two measures. Also called scatter plots or scatter diagrams.	N/A
Waterfall	How an initial value is affected by a series of additions and subtractions to it. Also called cascade or bridge charts.	N/A
Word Cloud	Text data where the size of the word indicates importance or frequency. Also called text clouds or tag clouds.	N/A

Microsoft Access 365 Note: Many of the new modern charts are only available in Access 365. Users running earlier versions, including the Access 2024 perpetual version, may not see all of the charts described in **Table 6-5**.

Use the Access help feature and search for “insert modern chart” to see examples, get information

on choosing the best chart type, and learn best practices for creating Access charts.

COPILOT/GENERATIVE AI BEST PRACTICES

Copilot can also help you learn to create charts to effectively convey information. Ask *Copilot* to show examples of different charts in an Access report. Follow up prompts can ask for best practices in creating charts, help in creating a specific chart type, or for common mistakes to avoid when designing charts.

Insert a Chart

Once you have decided on the type of chart that best displays the data you are presenting, you are ready to insert a chart in a report.

HOW TO: Add a Chart with the Insert Modern Chart Button

1. Open the report in *Design* view. If necessary, click the **Report Design** button [*Create* tab, *Reports* group] to create and open a new report.
2. Click the **Insert Modern Chart** button [*Report Design* tab, *Controls* group] to display the list of available charts ( **Figure 6-95**).

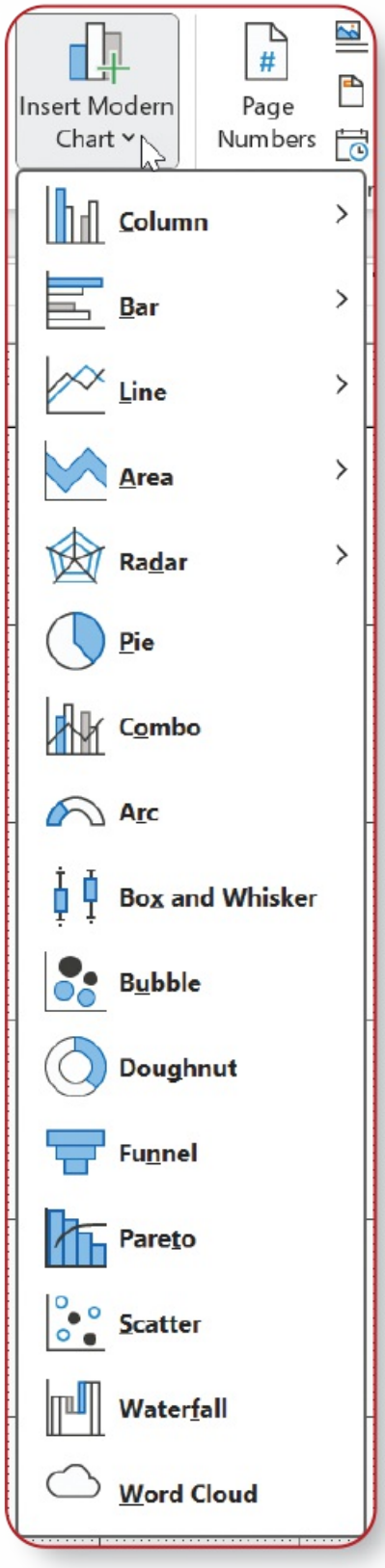


FIGURE 6-95 ***Insert Modern Chart*** **button**

3. Select a chart type from the list.
   - Selecting the *Column, Bar, Line, Area,* or *Radar* options displays an additional set of available charts from which you choose a chart subtype.
4. Move the pointer to the desired location on the report, and click to insert the chart.
   - A sample chart is added to the report.
   - The ***Chart Settings*** pane opens (Figure 6-96).

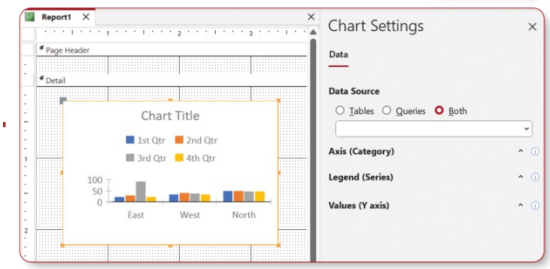


FIGURE 6-96 Sample chart and *Chart Settings* pane

5. Save the report.

After the sample chart is added to the report, use the ***Chart Settings*** pane to map the data fields and to customize the settings.

Customize Chart Data

Sample data displays in the graph when the chart is added to the report. After inserting a chart, you must replace the sample data with your own data. Customize the data for the chart using the *Data* tab in the *Chart Settings* pane. You first assign the ***Data Source***. Next, you must also select at least one field in the ***Axis (Category)*** section and one in the ***Values (Y axis)*** section. As desired, you can select one field in the ***Legend (Series)*** section.

- The ***Data Source***, similar to the *Record Source* property of a report, controls which data are available to the chart. The chart data can be from a table or a query. Figure 6-97, which shows four chart types, uses the *Listings* table as the *Data Source*.

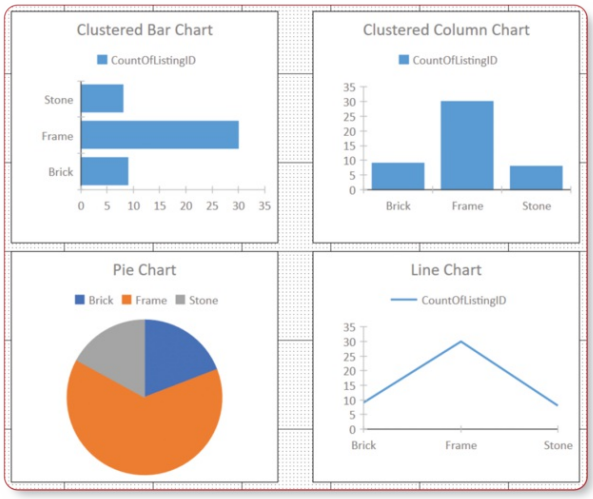


FIGURE 6-97 ***Axis (Category)*** **and** ***Values (Y axis)*** **selections by chart type**

- The ***Axis (Category)*** field displays horizontal axis values on a column and line chart, vertical axis values on a bar chart, and legend values on a pie chart. In **Figure 6-97**, all four charts have selected the *Construction* field as the *Axis (Category).* If you select a date field for the *Axis (Category),* Access defaults to aggregate the data by *Month.* You can change the type of aggregation or choose not to aggregate.
- The ***Values (Y axis)*** **field** represents the ***data series***, a group of related values that display on the chart. The *ListingID* field is selected as the *Values (Y axis)* in **Figure 6-97**. Access defaults to aggregate the field. The default aggregation is *Sum* for numeric and currency fields and *Count* for all other fields. You can change the type of aggregation or choose not to aggregate. The charts in **Figure 6-97** use the *Count* aggregation on the *ListingID* field to display the total number of listings by construction type. Access automatically displays a legend at the top of the chart. A ***legend*** is text that describes the data represented in the chart. The default legend text combines the aggregation type with the *Values (Y axis)* field name. In **Figure 6-97**, the legend text is "CountOfListingID". Later in this section, you learn how to customize the legend text, how to place the legend, and how to remove the legend as desired.
- The *Legend (Series)* field changes the data series into a set of separate data series. In **Figure 6-98**, the *City* field was added as a *Legend (Series)* to the "Clustered Column Chart," "Line Chart," and "Clustered Bar Chart 1." This results in each of the different cities becoming a separate data series. Note that the chart legend updates when a *Legend (Series)* selection is made. The *Legend (Series)* selection is not appropriate for a pie chart. In the "Line Chart," it becomes more evident that this is not the best chart type for this data, because the data does not reflect changes over time. "Clustered Bar Chart 2" shows how the data appears when the *Axis (Category)* and *Legend (Series)* are switched. In this case, the *City* field is selected as the *Axis (Category)* and the *Construction* field is selected for the *Legend (Series).*



FIGURE 6-98 ***Legend (Series)*** **added to example charts**

HOW TO: Customize Chart Data Settings

1. Click the chart in the report, if not already selected.
2. Click **Data** in the *Chart Settings* pane, if not already selected.
   - The *Data* tab is the only one available until a *Data Source* has been assigned.
3. Select the **Tables**, **Queries**, or **Both** radio button in the *Data Source* section.
4. Click the **drop-down arrow** in the *Data Source* box and then select the data source.
   - The sample chart updates to use the selected data source. If the chart does not update, open the *Property Sheet* and ensure that the ***Preview Live Data*** property contains “Yes”.
   - The *Chart Settings* pane updates to display the ***Format*** tab in addition to the *Data* tab.
   - The first field in the data source is automatically used as the *Axis (Category)* element, and the second field in the data source is automatically used as the *Values (Y axis)* element. These preselected fields often are not the fields you wish to include in the chart.
5. Select the **Axis (Category)** field. As desired, select additional fields for this section.

6. Change the default aggregation of a date *Axis (Category)* field as desired.
   - Hover over the field and then click the arrow (Figure 6-99) to display the list of aggregation choices (Figure 6-100).

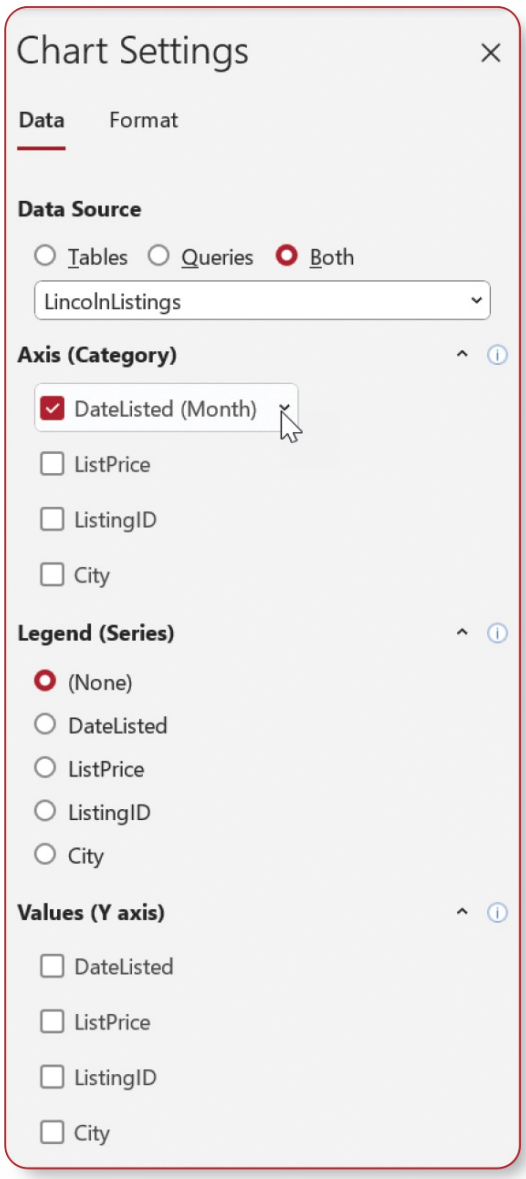


FIGURE 6-99 Change the aggregation of an *Axis (Category)* field

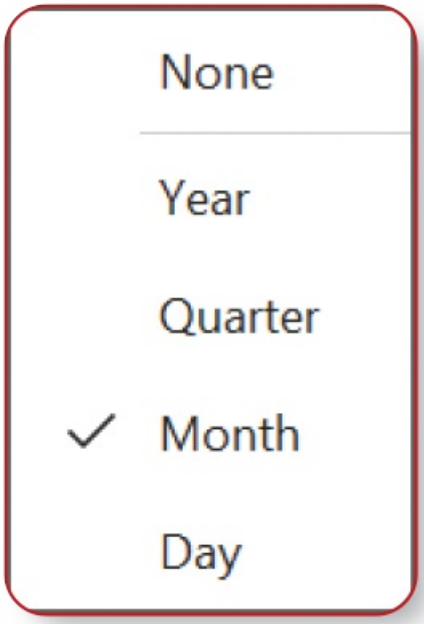


FIGURE 6-100 Date field aggregation choices

- Select the desired aggregation choice.

7. Select the **Legend (Series)** field as desired.
8. Select the **Values (Y axis)** field. As desired, select additional fields for this section. If a *Legend (Series)* field was selected, you can only have one *Values (Y axis)* field.
   - The text in the chart legend updates.
9. Change the default aggregation of the *Values (Y axis)* field as desired.
   - Hover over the field and then click the arrow to display the list of aggregation choices (**Figure 6-101**).

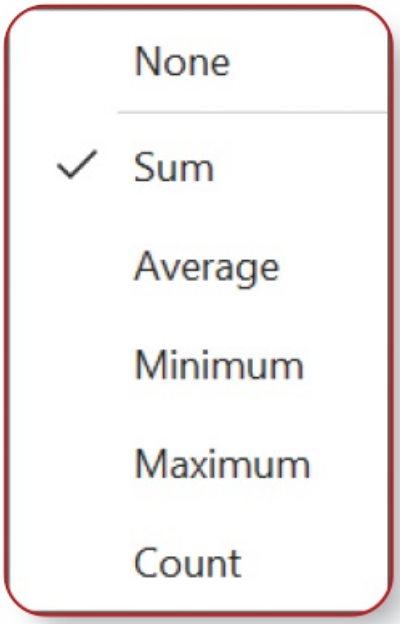


FIGURE 6-101 ***Values (Y axis)*** **field aggregation choices**

- Select the desired aggregation choice.
- The text in the chart legend updates.

10. Based on a column clustered chart having already been selected, **Figure 6-102** shows the updated chart after selecting an *Axis (Category)* of "*DateListed* (Month)", a *Legend (Series)* of "None", and a *Values (Y axis)* field of "ListPrice".

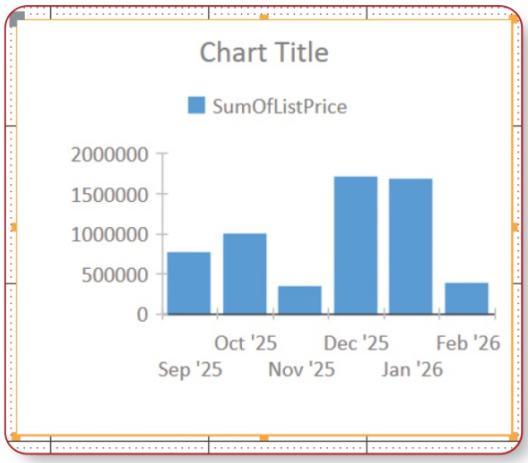


FIGURE 6-102 **Updated chart example**

As you become more familiar with designing charts, you will learn when it is appropriate to select multiple fields in the *Axis (Category)* and *Values (Y axis)* sections.

Format Data Series

Use the *Format* tab on the *Chart Settings* pane to customize the display of each data series. **Table 6-6** describes the properties available on the *Format* tab.

Table 6-6: Data Series Properties

Property	Description	Used in These Charts
Display Name	Used to customize the name to display on the legend.	All
Chart Type	Used to change the chart type for each of the different data series. This is not the same as the *Chart Type* property for the entire chart.	*Combo*
Line Weight	Used to change the weight of the line.	*Line*
Dash Type	Used to change the way the line displays. Available options include *Solid, Dash, Dot, Dash Dot,* and *Dash Dot Dot.*	*Line*
Plot Series On	Used to change the axis on which to plot the data series when the data series values vary widely or are different types of values.	*Column, Bar, Line, Combo*
Missing Data Policy	Select how Access should deal with missing data. Available options include *Plot as Zero, Do Not Plot,* and *Plot as Interpolated.*	*Line*
Series Fill Color	Choose a color to fill the data series.	*Column, Bar, Line, Combo*
Series Border Color	Choose a color to border the data series.	*Column, Bar, Line, Combo*
Display Data Label	Choose to display numerical labels on columns, bars, lines, or pie segments that display the number or percent for each value on the chart.	All
Trendline Options	Select to include a trendline that charts the trend between data points. Available options include *None, Linear, Exponential, Logarithmic, Polynomial, Power,* and *Moving Average.*	*Column, Bar, Line, Combo*

Trendline Name	Used to customize the name to display on the trendline.	*Column, Bar, Line, Combo*
Marker Shape	Select to add a marker to display on the line. Available options include *None, Square, Diamond, Triangle, X, Asterisk, Short Dash, Long Dash, Circle,* and *Plus.*	*Line*
Data Label Display Format	Choose to display a data label along with the format (Number or Percentage).	*Pie, Arc, Doughnut*
Percentage Decimal Places	Choose how many decimal places to show. Available options are 1 through 7.	*Pie, Arc, Doughnut*
Data Label Position	Choose where the label should display. Available options include Best Fit, Inside Center, Inside End, Outside Circle, Outside End.	*Pie, Arc, Doughnut*
Gridlines	Choose to display horizontal or vertical lines that extend across the plot area to help identify values and labels. Available options include Major, Minor, or Major and Minor.	*Column, Bar, Line, Area, Combo, Radar, Box & Whisker, Bubble, Scatter, Waterfall*
Gridlines Color	Choose a color for the gridlines.	*Column, Bar, Line, Area, Combo, Radar, Box & Whisker, Bubble, Scatter, Waterfall*
Sort Order	Choose to display the graph in a sorted order. Available options include None, Ascending, and Descending. The default setting is no sorting. If the chart uses a Legend (Series), the sort order will be ignored.	*All*

Figure 6-103 shows two separate clustered column charts that display data regarding the list price for all listings in the city of Lincoln. Both charts have the following settings:

- *Data Source: Lincoln Listings* (a query that displays only listings in the city of Lincoln)
- *Axis (Category): DateListed* field (with default *Month* aggregation of a *Date/Time* data type)
- *Values (Y axis): ListPrice* field
- *Legend (Series): None*



FIGURE 6-103 ***Data Series*** **formatting and modified chart properties added to a sample chart**

The left chart uses the default *Sum* aggregation on the *ListPrice* field and has not changed any of the data series format properties. The right chart changed the *ListPrice* aggregation to *Average* on the *Data* tab of the *Chart Settings* pane. The *Format* tab of the *Chart Settings* pane shows settings for the selected chart (the right chart). The right chart illustrates the effect of customizing the following data series format properties: *Display Name, Series Fill Color, Series Border Color, Display Data Label, Trendline Options, Gridlines,* and *Gridline Color.*

HOW TO: Customize Data Series Format Properties

1. Click **Format** in the *Chart Settings* pane, if not already selected.
2. Click the **drop-down arrow** in the *Data Series* box and then select the data series. Remember that the available properties vary depending on the type of chart.
3. Type a new value in the *Display Name* property as desired.
4. Check the **Display Data Label** property box as desired.
5. Select additional properties and modify the default selections as desired.

The chart updates in real time as you modify the data series format properties. Remember to periodically save the report to ensure that your settings have been saved.

The right chart also illustrates several chart properties related to titles and legends that have been modified. Those are described in the next section.

Format Chart Properties

In addition to the data displayed on a chart, a chart contains other components, such as the chart title, axis titles, and legend. If you have created charts in Excel, Word, or PowerPoint, you know

that you can directly select and edit these different parts. In Access, these components are properties of the chart object. You modify these components on the *Property Sheet.* **Table 6-7** lists and describes the common chart properties.

Table 6-7: Common Chart Properties

Chart Property	Description
Border Style	Determines whether a border surrounds the chart. Default is *Transparent.* Related properties enable you to customize the border appearance by modifying the width or color of the border.
Has Legend	Determine whether a legend appears on the chart. Default is *Yes.*
Legend Position	Choose a left, top, right, or bottom location to display the legend. Default is *Top.* Customize the font using the associated *Legend Text Font Color* and *Legend Text Font Size* properties. Remember, the legend text comes from the *Display Name* property in the data series format settings.
Has Title	Determine whether a title appears on the chart. Default is *Yes.*
Chart Title	Text that describes the chart's content and purpose. Default is *Chart Title.* Related properties enable you to customize the font, color, and size.
Has Subtitle	Determine whether a subtitle appears on the chart. Default is *No.*
Chart Subtitle	Text that describes a secondary or explanatory title about the chart. Default is *Subtitle.* Related properties enable you to customize the font, color, and size.
Has Axis Titles	Determines whether the horizontal axis and vertical axis appear on the chart. Default is *Yes.*
Category Axis Title	Text that describes *Axis (Category)* field. The title displays below the horizontal values on a column and line chart and left of the vertical values on a bar chart. Default is blank. Related properties enable you to customize the font.
Primary Values Axis Title	Text that describes the *Value (Y axis)* field. The title displays below the horizontal values on a bar chart and left of the vertical values on a column and line chart. Default is blank. Related properties enable you to customize the title font and also to customize the range and format of the axis values.

In **Figure 6-103**, the right chart reflects modifications to the following properties:

- *Legend Position: Bottom*
- *Chart Title:* Listings in Lincoln

- *Has Subtitle: Yes*
- *Chart Subtitle:* Modified Format Settings
- *Category Axis Title:* Month
- *Primary Value Axis Title:* List Price

You can also customize the chart size and position. As with other objects and controls, charts have the standard properties to set the size and location of the chart, as well as the padding surrounding the chart. These settings are modified on the *Property Sheet.* You can also use the sizing handles to change the size of the chart, and click and drag the chart to a new location.

HOW TO: Customize Chart Properties

1. Select the chart object, if not already selected.
2. Click the **Property Sheet** button [*Report Design* tab, *Tools* group].
3. Click to select the desired property on the chart and either select a choice from the drop-down list or type a new value in the property box.
4. Select additional chart properties and modify as desired.
5. Press **F4** to close the *Property Sheet.*

A6-477

As desired, you can modify the chart properties and the data series properties in any order. It is common to change a few chart properties first, like the chart size and title, and then modify the data series properties. Feel free to try different settings in the properties to experiment with how they affect the chart.

MORE INFO

Charts can also be added to a form. Follow the same steps described in this section, except open a form in *Design* view instead of a report.

A6-478

A6-479

PAUSE & PRACTICE: ACCESS 6-4

For this Pause & Practice, you create a new report that will contain two charts for the Placer Hills Real Estate database. Next, you create and customize a clustered bar chart that compares the number of listings in each city,

by construction type. Finally, you create and customize a clustered column chart to compare the average listing price, by month, for the listings in Lincoln.

File Needed: ***[your initials] PP A6-3.accdb***

Completed Project File Name: ***[your initials] PP A6-4.accdb***

1. Open the ***[your initials] PP A6-3*** database file you created in ***Pause & Practice 6-3***.
2. Save a new copy of your database as [your initials] PP A6-4.
3. Enable content in the database.
4. Create a report for two charts.
   a. Click the **Report Design** button [*Create* tab, *Reports* group] to open a new report.
   b. Right-click inside the report to open the context menu and select **Page Header/Footer** to delete the *Page Header* and *Page Footer* sections.
   c. Click the **Detail** section bar.
   d. Press **F4** to open the *Property Sheet* if necessary.
   e. Enter 9" in the *Height* property on the *Format* tab.
   f. Save the report as ListingsDataCharts.
5. Create a clustered bar chart.
   a. Click the **Insert Modern Chart** button [*Report Design* tab, *Controls* group] to display the list of available charts.
   b. Select **Bar** from the list and then select **Clustered Bar** from the additional set of available charts.
   c. Move the pointer into the *Detail* section of the report, and click to insert the chart. The sample chart is added to the report and the *Chart Settings* pane opens (**Figure 6-104**).

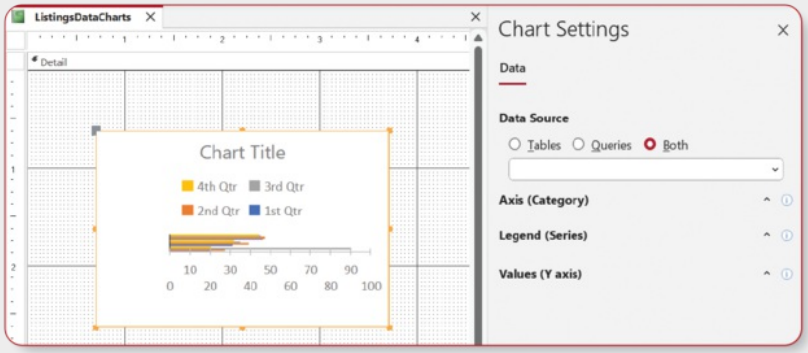


FIGURE 6-104 Sample chart and *Chart Settings* pane

6. Customize the chart data.
   a. Click **Data** in the *Chart Settings* pane, if not already selected. This should be the only tab available because a *Data Source* has not been assigned.
   b. Select the **Tables** radio button in the *Data Source* section.
   c. Click the **drop-down arrow** in the *Data Source* box and select **Listings**. The sample chart updates to use

the selected data source, and the *Chart Settings* pane updates to display the *Format* tab in addition to the *Data* tab.

d. Select **Construction** as the *Axis (Category)* field.

e. Select **City** as the *Legend (Series)* field

f. Select **City** as the *Values (Y axis)* field.

7. Modify the chart properties.

a. Click the **Property Sheet** button [*Report Design* tab, *Tools* group].

b. Enter 4" in the *Width* property, 4" in the *Height* property, .25" in the *Top* property, and .25" in the *Left* property.

c. Select **Right** in the *Legend Position* property.

d. Enter Count of Listings by City in the *Chart Title* property.

e. Select **Yes** in the *Has Subtitle* property.

f. Enter Grouped by Construction in the *Chart Subtitle* property.

g. Enter Construction Type in the *Category Axis Title* property.

h. Enter Number of Listings in the *Primary Values Axis Title* property.

i. Press **F4** to close the *Property Sheet*.

8. Save the report. The completed chart should look similar to **Figure 6-105**.

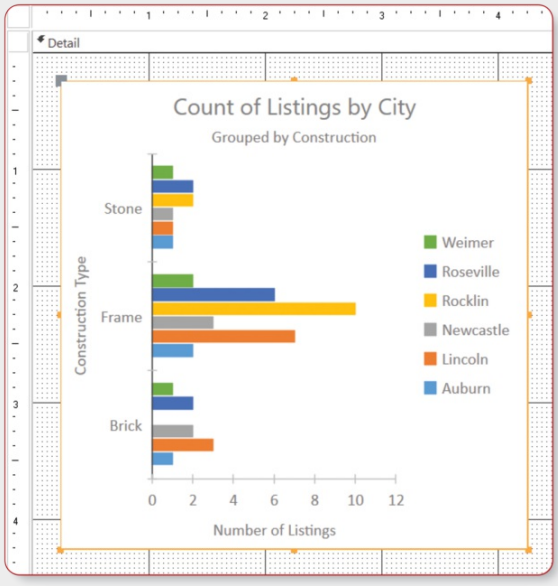


FIGURE 6-105 ***Design* view of completed *Count of Listings by City* chart**

9. Create a clustered column chart.

a. Click the **Insert Modern Chart** button [*Report Design* tab, *Controls* group] to display the list of available charts.

b. Select **Column** from the list and then select **Clustered Column** from the additional set of available charts.

c. Move the pointer into the *Detail* section of the report, below the first chart, and click to insert the chart. The sample chart is added to the report and the *Chart Settings* pane opens.

10. Customize the chart data.
    a. Click **Data** in the *Chart Settings* pane, if not already selected.
    b. Select the **Queries** radio button in the *Data Source* section.
    c. Click the **drop-down arrow** in the *Data Source* box and select **LincolnListings**. The sample chart updates to use the selected data source and the *Chart Settings* pane updates to display the ***Format*** tab in addition to the *Data* tab.
    d. Select **DateListed** as the *Axis (Category)* field. Accept the default aggregation of *Month.*
    e. Select **ListPrice** as the *Values (Y axis)* field.
    f. Hover over the **ListPrice** field and then click the arrow to display the list of aggregation choices.
    g. Select **Average**.
11. Modify the chart properties.
    a. Click the **Property Sheet** button [*Report Design* tab, *Tools* group].
    b. Select **Solid** in the *Border Style* property.
    c. Enter 4" in the *Width* property, 4" in the *Height* property, 4.75" in the *Top* property, and .25" in the *Left* property.
    d. Select **Bottom** in the *Legend Position* property.
    e. Enter Listings in Lincoln in the *Chart Title* property.
    f. Select **Yes** in the *Has Subtitle* property.
    g. Delete **Subtitle** from the *Chart Subtitle* property and leave it blank. You want to have more space between the *Chart Title* and the chart.
    h. Enter Month Listed in the *Category Axis Title* property.
    i. Enter List Price in the *Primary Values Axis Title* property.
    j. Press **F4** to close the *Property Sheet.*
    k. Save the report.
12. Format the data series.
    a. Click **Format** in the *Chart Settings* pane, if not already selected.
    b. Select **AvgOfListPrice** in the *Data Series* box, if not already selected.
    c. Enter Average List Price in the *Display Name* property.
    d. Select **Green 4** (the seventh column and fifth row of the *Standard Colors*) in the *Series Fill Color* property.
    e. Select **Green 5** (the seventh column and sixth row of the *Standard Colors*) in the *Series Border Color* property.
    f. Select the **Display Data Label** check box.
    g. Select **Moving Average** in the *Trendline Options* property.
    h. Select **Major** in the *Gridlines* property.
    i. Click inside the **Detail** section to deselect the chart. This enables you to see the border surrounding this

chart. The completed chart should look similar to Figure 6-106.

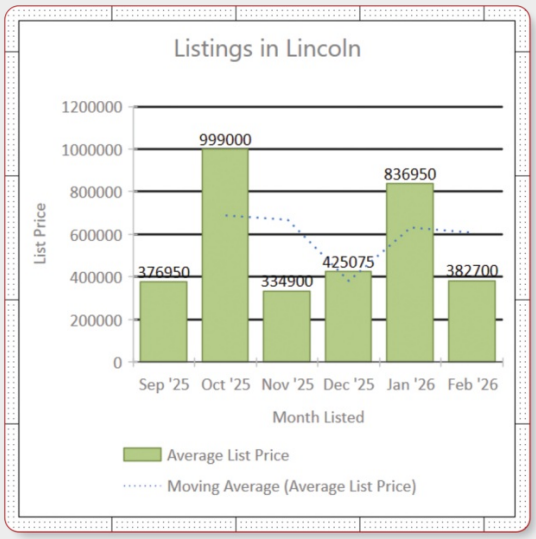


FIGURE 6-106 ***Design*** **view of completed** ***Listings in Lincoln*** **chart**

j. Save the report.

13. Change to *Report* view to see the finalized charts.
14. Close the report.
15. Close the database.

Chapter Summary

A6-480

A6-481

6.1 Understand action queries; create and use *Update, Append, Delete,* and *Make Table* queries (p. A6-418).

- Use an ***action query*** to change data in a database.
- Back up your database before running an action query because action queries make permanent changes to data and cannot be undone.
- An ***update query*** updates data in a database.
- Add records to an existing table with an ***append query***.
- A ***delete query*** deletes records from a table.
- Create a new table and copy records into that table with a ***make table query***.
- To ensure your action query performs as desired, first build and test it as a normal select query, and then convert it to the desired action query.

6.2 Use the *Query Wizard* to create a find duplicate records query, and a find unmatched records query (p. A6-424).

- In addition to launching the *Simple Query Wizard* to create select queries, use the ***Query Wizard*** to launch the ***Find Duplicates Query Wizard*** and the ***Find Unmatched Query Wizard***.
- If ***duplicate records*** are present in a database, two or more records in a table share the same values. To locate potential duplicated data in a table, create a ***find duplicates query***.
- ***Unmatched records*** are records in one table that do not contain any matching records in a related table. An ***unmatched records query*** locates records in one table that do not have any matching records in a related table.
- While these types of queries can be created directly in *Query Design,* it is easiest to first create a query using the wizard and edit the query in *Design* view if needed.

6.3 Use the top values property, explore and use date functions, and create a query with a subquery (p. A6-428).

- Use the ***Top Values*** query property to limit the number of records that display in a

query answer. Select from preset choices or enter your own value.

- When you use the *Top Values* property, you must sort the records in descending order on the desired field to retrieve the top values. Use an ascending order sort to return the lowest values.
- Use the available date functions in Access to perform date arithmetic, to retrieve parts of a date, such as the year, or to retrieve the name of the month or weekday of a specific date value.
- Use date functions in a calculated field in a query or in a text box control on a form or report.
- A ***subquery*** is a query that is used inside another query.

6.4 Understand report sections, build a report and add and delete fields in *Design* view, understand the data source of a report, use control layouts, and create a parameter report (p. A6-435).

- The sections within a report determine where and when the content displays.
- A report can contain the following sections: ***Report Header***, ***Report Footer***, ***Page Header***, ***Page Footer***, ***Group Header***, ***Group Footer***, and ***Detail***.
- Creating a report in *Design* view provides the most flexibility in building the report.
- The ***Record Source*** property specifies which database fields are available to use in a report.
- Add fields to a report by selecting them from the ***Field List***.
- To provide a uniform structure to a report, you can move fields into a tabular or stacked control layout. You can also change layouts or remove them a report.
- A ***parameter report*** asks a user to enter the specific criteria value each time the report is run. Add a parameter to a report by opening the *Record Source* and entering the parameter in the *Criteria* box of the desired field.

6.5 Use *Design* view to add a control to a report; modify the size, location, font characteristics, and formatting properties of a control; modify the height and colors of a section; and change properties of multiple controls (p. A6-443).

- Add *controls* to a report in *Design* view by selecting them from the *Controls* group on the *Report Design* tab.
- A label added to the *Detail* section displays a ***Trace Error*** button, which indicates

that Access has found an error.

- Change the size of a control with the sizing handles or by entering a specific value in the *Height* or *Width* properties.
- Adjust the location of a control by dragging the control or by entering a specific value in the *Top* or *Left* properties.
- Modify the font characteristics of a control in the *Font* group on the *Format* tab or by entering a specific value in the *Font Name, Font Size, Text Align, Font Weight, Font Underline, Font Italic,* or *Fore Color* properties.
- Change the height of a section with the sizing handles or by entering a specific value in the *Height* property.
- Change the background color of a section in the ***Back Color*** property. To modify the alternating color of data rows in a section, change the ***Alternate Back Color*** property.
- Adjust the formatting properties of a control by entering the desired value in the appropriate property located on the *Format* tab.
- Change multiple controls simultaneously by selecting all of the controls and then entering the desired value in the property.
- Use the ***Align*** button and the ***Size/Space*** button to change the size or alignment of a group of controls.

6.6 Use calculations in a control on a report, create a running total in a control, and concatenate text data in a report (p. A6-451).

- A ***calculated control*** contains an expression in the *Control Source* property. The most common calculation control is the text box.
- Enter the expression by typing it directly into the *Control Source* property or by opening the *Expression Builder* or *Zoom* window.
- A ***running total*** field accumulates a total over a set of records.
- Create a running total by setting the ***Running Sum*** property of the text box. Select *Over Group* to reset the total when a new group begins. Select *Over All* to accumulate a total across all the records.
- A ***concatenation*** formula combines the contents of fields or text boxes with constants to create a more readable value. The ***&*** operator combines the different pieces.
- If values in a report repeat across multiple records, use *the* ***Hide Duplicates***

property to hide the repeated values.

6.7 Understand when to use a subreport, create a main report and a subreport, add a subreport onto a main report, and customize a subreport (p. A6-460).

- A ***subreport*** is a report inserted within another report; the two reports must have a relationship.
- The most common situation features a ***main report*** that contains fields from the "one" side of a one-to-many relationship and a subreport that contains fields from the "many" side of the relationship.
- Create the main report and subreport as two separate reports. Use the ***SubReport Wizard*** to add a subreport onto a main report.
- To use an aggregate function in a subreport, you must place the control in either the *Report Header* or the *Report Footer* sections of the subreport.

6.8 Insert a chart in a report and customize the chart (p. A6-470).

- ***Charts*** visually display numeric data.
- The *Insert Modern Chart* button inserts a chart in a report.
- Assign a table or query to the ***Data Source*** of the chart and then select at least one field for the ***Axis (Category)*** and one for the ***Values (Y axis)***, which represents the ***data series***.
- A ***legend*** is text that describes the data represented in the chart. The ***Legend (Series)*** field changes the data series into a set of separate data series.
- Format the *Data Series* properties to customize how the data series displays. The available properties vary based on the type of chart.
- Format chart properties such as *Border Style, Has Legend, Legend Position, Has Title, Chart Title, Has Subtitle, Chart Subtitle, Has Axis Titles, Category Axis Title,* and *Primary Values Axis Titles.*
- Customize the chart size and position using the standard properties to set the size and location of an object or control.

Check for Understanding

The SIMbook for this text (within your SIMnet account) provides the following resources for concept review:

- Multiple-choice questions

- Matching exercises
- Short answer questions

USING MICROSOFT ACCESS 365

A6-482
A6-483
A6-484
A6-485
A6-486
A6-487

Guided Project 6-1 SIMnet Project

For this project, you enhance the functionality of the database for a friend's music collection. Recall that in **Guided Project 4-1** you used the *Report Wizard* to create a report that shows all the songs on each album. For this project, you create an improved report that is grouped by artist and shows all the albums and song details. You use *Design* view to create the main report and the subreport and customize the report in *Design* view to add sections, add and edit controls, and add a running total. Finally, you create and customize a clustered bar chart in a new report.

[**Student Learning Outcome 6.4**, **Student Learning Outcome 6.5**, **Student Learning Outcome 6.6**, **Student Learning Outcome 6.7**, **Student Learning Outcome 6.8**]

File Needed: **MusicDatabase-06.accdb** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Name: ***[your initials] Access 6-1.accdb***

Skills Covered in This Project

- Create a main report in *Design* view.
- Edit a report in *Design* view.
- Add a group section to a report.
- Add and edit a control in a report.
- Create a subreport using the *Report Wizard.*
- Add a subreport to a main report.
- Change height and colors in a section.

- Add totals to a subreport.
- Concatenate text data.
- Add totals to a main report.
- Create and customize a chart in a report.

---

1. Open the ***MusicDatabase-06*** database from your student data files. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close it. If the message repeats in a later step, click **OK** or the **X** to close the message.
2. Save the database as [your initials] Access 6-1.
3. Enable content in the security warning.
4. Build the main report. To provide context for the steps in the project, view the completed report in **Figure 6-111**.
   a. Click the **Report Design** button [*Create* tab, *Reports* group] to open a new report.
   b. Click the **Property Sheet** button [*Report Design* tab, *Tools* group] and the **Format** tab if necessary.
   c. Enter 8" in the *Width* property.
   d. Click the **Data** tab.
   e. Click the **drop-down arrow** in the *Record Source* property and select the **Albums** table.
   f. Click the **Add Existing Fields** button [*Report Design* tab, *Tools* group] to open the *Field List*.
   g. Double-click the **AlbumName** and **Artist** fields to add them into the ***Detail* section**.
   h. Save the report as SongListing-AlbumsByArtist.
5. Add a group section to the report.
   a. Click the **Group & Sort** button [*Report Design* tab, *Grouping & Totals* group] if the *Group, Sort, and Total* pane is not open at the bottom of the report.
   b. Select the **Add a group** option in the *Group, Sort, and Total* pane.
   c. Select the **Artist** field from the field list.
   d. Click the **More** button in the *Group, Sort, and Total* pane to display the available options (**Figure 6-107**).

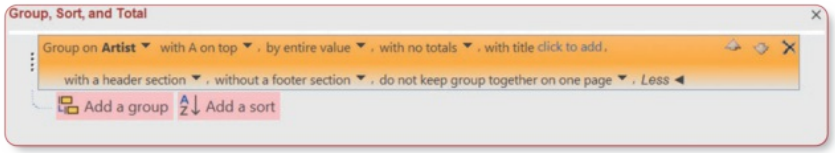


FIGURE 6-107 ***Group, Sort, and Total* pane**



e. Change the *without a **footer** section* option to **with a footer section**.
f. Change the *do not keep group together on one page* option to **keep whole group together on one page**.
g. Close the *Group, Sort, and Total* pane by clicking the **X** on the *Group, Sort, and Total* pane header. Be careful not to click the *Delete* button inside the pane or you will remove the group.
h. Save the changes made to the report.

6. Modify the report.
   a. Move your pointer to the bottom edge of the *Page Header* section. The pointer changes to the resize arrow. Move the **resize arrow** up to the *Page Header* bar to remove the space in the section.
   b. Right-click inside the report to open the context menu and select the **Report Header/Footer** option to add *Report Header* and *Report Footer* sections to the report.
   c. Click inside the *Report Header* section.
   d. Press **F4** to open the *Property Sheet* and click the **Format** tab if necessary.
   e. Enter .5" in the *Height* property and select **Light Blue 2** (the fifth column and third row of the *Standard Colors*) in the *Back Color* property.
   f. Click inside the *Artist Header* section.
   g. Enter .3" in the *Height* property.
   h. Follow the same steps to set the *Height* property of the *Artist Footer* section and *Page Footer* section to .25", if necessary, and the *Detail* section to 2".
   i. Add a **Label** control into the *Report Header* section and type Songs on My Albums into the label.
   j. Select the label and enter 2.4" in the *Width* property, .3" in the *Height* property, .1" in the *Top* property, 2.8" in the *Left* property, 16 in the *Font Size* property, select **Bold** in the *Font Weight* property, and **Yes** in the *Font Italic* property, and select **Dark Gray 5** (the second column and sixth row of the *Standard Colors*) in the *Fore Color* property.
   k. Click the **Page Numbers** button [*Report Design* tab, *Header/Footer* group].
   l. Select the **Page N of M** radio button, the **Bottom of Page [Footer]** radio button, and **Center** alignment.
   m. Click **OK**.
   n. Select the **Artist** text box. Press and hold the **Shift** key and select the **Artist** label. Both controls should be selected.
   o. Drag the **selected controls** into the *Artist Header* section. Click anywhere to deselect both controls.

p. Select the **Artist** text box and enter 2.5" in the *Width* property, .03" in the *Top* property, and 1.55" in the *Left* property, and select **Transparent** in the *Border Style* property. When entering property values, don't worry if Access slightly changes a few of the values (for example, .03" becomes .0299").

q. Select the **Artist** label and enter Recording Artist in the *Caption* property, 1.1" in the *Width* property, .03" in the *Top* property, .35" in the *Left* property, and select **Right** in the *Text Align* property.

r. Select the **AlbumName** label and enter Album in the *Caption* property, .5" in the *Width* property, .05" in the *Top* property, .65" in the *Left* property, and select **Right** in the *Text Align* property.

s. Select the **AlbumName** text box and enter 3.5" in the *Width* property, .05" in the *Top* property, and 1.2" in the *Left* property, and select **Transparent** in the *Border Style* property. The report should look similar to Figure 6-108.

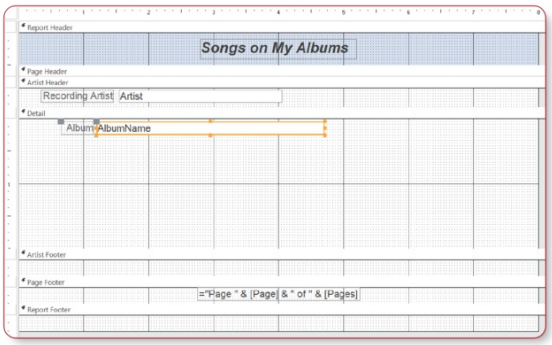


FIGURE 6-108 ***Design*** **view of the main report**

t. Save and close the report.

7. Build the subreport.

a. Click the **Report Design** button [*Create* tab, *Reports* group] to create a new report.

b. Press **F4** to open the **Property Sheet** and click the **Format** tab if necessary.

c. Type 6" in the *Width* property.

d. Click the **Data** tab.

e. Click the **drop-down arrow** in the *Record Source* property and select the **Songs** table.

f. Click the **Add Existing Fields** button [*Report Design* tab, *Tools* group] to open the *Field List*.

g. Add the **SongTitle** and **Length** fields into the *Detail* section. The *Length* text box should be selected.

h. Press and hold the **Shift** key and select the **SongTitle** text box.

i. Click **Tabular** [*Arrange* tab, *Table* group].

j. Press **F4** to open the *Property Sheet* and click the **Format** tab if necessary.
k. Enter .02" in the *Top* property and .5" in the *Left* property.
l. Right-click inside the report to open the context menu and select the **Report Header/Footer** option to add *Report Header* and *Report Footer* sections to the report.
m. Select both label controls in the *Page Header* section.
n. Click the **Move Up** button [*Arrange* tab, *Move* group].
o. Enter .2" in the *Height* property and .02" in the *Top* property.
p. Right-click inside the report to open the context menu and select the **Page Header/Footer** option to delete the *Page Header* and *Footer* sections.
q. Click the **Report Header** section bar and enter .25" in the *Height* property.
r. Follow the same steps to set the *Height* property of the *Detail* and *Report Footer* sections to .25" if necessary. The report should look similar to Figure 6-109.

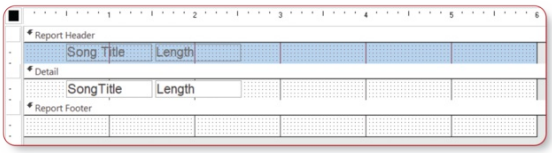


FIGURE 6-109 ***Design*** **view of the subreport**

s. Save the report as SongsSubreport.
t. Close the report.

8. Add the subreport to the main report.
a. Open the ***SongListing-AlbumsByArtist*** report in *Design* view.
b. Click the **Subform/Subreport** button [*Report Design* tab, *Controls* group].
c. Click inside the *Detail* section of the report, below the *Album* label, close to the left border. The *SubReport Wizard* launches.
d. Select the **Use an existing report or form** radio button. The *SongsSubreport* report should be highlighted in the list.
e. Click **Next**.
f. Accept the **Choose from a list** radio button and the **Show Songs for each record in Albums using AlbumID** statement and click **Next**.
g. Accept the suggested name for the subreport and click **Finish**. The subreport is added into the main report.
h. Switch to *Layout* view (Figure 6-110). Verify that the subreport is correctly linked to the main report.



FIGURE 6-110 ***Layout*** **view of the main report after adding the subreport**

i. Save the report.

9. Customize the main report and subreport.
   a. Switch to *Design* view.
   b. Click to select the **SongsSubreport** label.
   c. Press **Delete**.
   d. Select the subreport.
   e. Enter .35" in the *Top* property, 1" in the *Left* property, and select **Transparent** in the *Border Style* property.
   f. Save and close the report.
10. Open the ***SongsSubreport*** in *Design* view.
   a. Open the *Property Sheet* and click the **Format** tab if necessary.
   b. Select both the **Length** text box and label.
   c. Enter .5" in the *Width* property.
   d. Select both the **SongTitle** text box and label.
   e. Enter .2" in the *Left* property and 4.7" in the *Width* property.
   f. Select the **Detail** section bar, click the **Alternate Back Color** property, click the **Build** button and select **No Color**.
   g. Select the **Report Footer** section bar and enter .3" in the *Height* property.
   h. Add a **Text Box** control to the *Report Footer* section.
   i. Click the **Data** tab and then click the **Build** button on the *Control Source* property.
   j. Type =Count([SongTitle]) into the *Expression Builder* and click **OK**.
   k. Click the **Format** tab, and enter .35" in the *Width* property, .2" in the *Height* property, .02" in the *Top* property, 3.6" in the *Left* property of the text box, select **Transparent** in the *Border Style* property, and select **Yes** in the *Font Underline* property.
   l. Select the **label** control of that text box.
   m. Enter Total number of songs: in the *Caption* property, 1.6" in the *Width* property, .2" in the *Height* property, if necessary, .02" in the *Top* property, 2" in the *Left*

property, select **Right** in the *Text Align* property, and select **Yes** in the *Font Underline* property.

n. Save and close the report.

11. Open the ***SongListing-AlbumsByArtist*** report in *Design* view.

a. Click the **Detail** section bar of the main report and enter 1.45" in the *Height* property.

b. Add a **Text Box** control to the *Artist Footer* section.

c. Delete the **label** control of that text box.

d. Select the **text box**, and on the *Data* tab click the **Build** button in the *Control Source* property.

e. Type ="Total number of albums by " & [Artist] & ": " & Count([AlbumName]) into the *Expression Builder* and click **OK**.

f. Click the **Format** tab and enter 3.3" in the *Width* property, .2" in the *Height* property, .02" in the *Top* property, .7" in the *Left* property, select **Transparent** in the *Border Style* property, and select **Left** in the *Text Align* property, and select **Medium** in the *Font Weight* property.

g. Enter .35" in the *Height* property of the *Artist Footer* section.

h. Click the **Margins** button [*Page Setup* tab, *Page Size* group] to display the list of preset margin options and then select **Narrow** from the list.

i. Save the report.

j. Switch to *Print Preview* view. The completed report should look similar to **Figure 6-111**. Notice how Adele's name appears only once, at the top of both of her albums. This is because *Artist* is the grouping header.

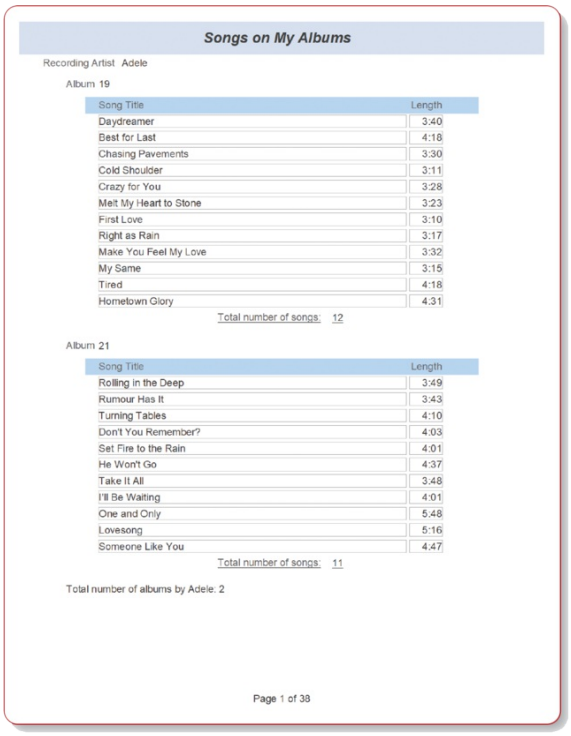


FIGURE 6-111 ***Print Preview*** **view of completed report**

k. Navigate to page 7 and then 8 of the report. Notice how Daddy Yankee's data starts on the top of page 8 instead of near the bottom of page 7. This is because *keep the whole group together on one page* is selected in the grouping options.

l. Click the **Close Print Preview** button.

m. Close the report.

12. Create a report for the chart.

a. Click the **Report Design** button [*Create* tab, *Reports* group] to open a new report.

b. Press **F4** to close the *Property Sheet* if necessary.

c. Save the report as AlbumDataChart.

13. Create a clustered bar chart.

a. Click the **Insert Modern Chart** button [*Report Design* tab, *Controls* group] to display the list of available charts.

b. Select **Bar** from the list and then select **Clustered Bar** from the additional set of available charts.

c. Move the pointer into the *Detail* section of the report, and click to insert the chart.

14. Customize the chart data and format.

a. Click **Data** in the *Chart Settings* pane, if not already selected.
b. Select the **Tables** radio button in the *Data Source* section.
c. Click the **drop-down arrow** in the *Data Source* box and select **Albums**.
d. Select **Genre** as the *Axis (Category)* field.
e. Select **AlbumID** as the *Values (Y axis)* field.
f. Hover over the **AlbumID** field and then click the arrow to display the list of aggregation choices.
g. Select **Count**.
h. Click **Format** in the *Chart Settings* pane.
i. Select **Light Blue 2** (the fifth column and third row of the *Standard Colors*) in the *Series Fill Color* property.
j. Select **Light Blue 5** (the fifth column and sixth row of the *Standard Colors*) in the *Series Border Color* property.
k. Select **Descending** in the *Sort Order* property.

15. Modify the chart properties.
a. Click the **Property Sheet** button [*Report Design* tab, *Tools* group].
b. Enter 4.5" in the *Width* property, 4" in the *Height* property, .5" in the *Top* property, and 1" in the *Left* property.
c. Select **No** in the *Has Legend* property.
d. Enter Albums by Genre in the *Chart Title* property.
e. Enter 16 in the *Chart Title Font Size* property.
f. Enter Number of Albums in the *Primary Values Axis Title* property.
g. Press **F4** to close the *Property Sheet*.
h. Save the report. The completed chart should look similar to Figure 6-112.

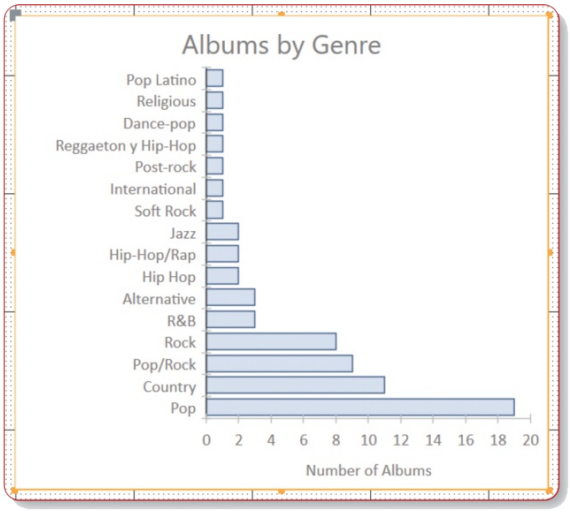


FIGURE 6-112 ***Design*** **view of completed** ***Albums***

by Genre chart

16. Close the report.
17. Close the database.
18. Close the database.

A6-488

A6-489

A6-490

A6-491

Guided Project 6-2

TextbooksRUs needs a query to find unmatched data in the database and a report to show available books in a subject area. Use the *Unmatched Query Wizard* to create a query to find which authors do not have any books included in the database. Create a query to display book information. Use *Design* view to build a report based on that query and add a parameter to the report. Finally, customize the report in *Design* view.

[**Student Learning Outcome 6.2**, **Student Learning Outcome 6.4**, **Student Learning Outcome 6.5**, **Student Learning Outcome 6.6**]

File Needed: ***TextbooksRUs-06.accdb*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Name: ***[your initials] Access 6-2.accdb***

Skills Covered in This Project

- Create a query using the *Unmatched Query Wizard.*
- Create a parameter report in *Design* view.
- Edit a report in *Design* view.
- Hide repeated values in a report.
- Add a control to a report.
- Edit properties of a control in a report.
- Add a group section to a report.

1. Open the ***TextbooksRUs-06*** database from your student data files. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close it. If the message repeats in a later step, click **OK** or the **X** to close the

message.

2. Save a new copy of your database as [your initials] Access 6-2.
3. Enable content in the security warning.
4. Build an unmatched records query to identify authors without records for books they have written.
   a. Click the **Query Wizard** button [*Create* tab, *Queries* group] to launch the *Query Wizard*.
   b. Select **Find Unmatched Query Wizard** in the *New Query* dialog box and click **OK** to launch the *Find Unmatched Query Wizard*.
   c. Select the **Author** table if necessary.
   d. Click **Next** to move to the next page of the wizard.
   e. Select the **AuthorBook** table if necessary. This table contains the related records.
   f. Click **Next** to move to the next page of the wizard. The *Matching fields* area displays *ID <=> AuthorID-FK* because these fields have already been linked via a relationship.
   g. Click **Next** to move to the next page of the wizard.
   h. Click the **Move All Fields** button to move all the fields from the *Available fields* window into the *Selected fields* window.
   i. Click **Next** to move to the last page of the wizard.
   j. Edit the suggested query name to remove spaces between the words. The query name should read AuthorWithoutMatchingAuthorBook.
   k. Click **Finish**. The query executes and displays the results of any unmatched records (Figure 6-113).

AuthorWithoutMatchingAuthorBook

ID	LastName	FirstName	Initial	Affiliation
7	Colquitt	Jason	A	University of Georgia
8	LePine	Jeffrey	A	Arizona State University
9	Wesson	Michael	J	Texas A&M University
11	Kerin	Roger	A	Southern Methodist University
12	Hartley	Steven	W	University of Denver
14	Rudelius	William		University of Minnesota - Minneapolis
15	Schiller	Bradley	R	University of Nevada Reno
16	Hill	Cynthia		Idaho State University
17	Wall	Sherri		University of Alaska - Fairbanks
19	Chang	Raymond		Williams College
20	Goldsby	Kenneth		University of Florida
22	Easton	Annette		San Diego State University
24	Overby	Jason		College of Charleston
25	Graves	Pat		Eastern Illinois University
26	Stewart	Kathleen		Moraine Valley Community College
(New)				

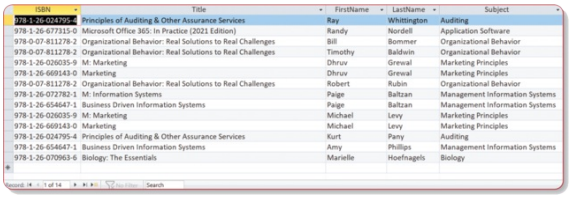
Record: 1 of 15 No Filter Search

FIGURE 6-113 Unmatched records query results

5. Edit the query.
   a. Change to *Design* view of the query. Having viewed the query results you no longer need the *Affiliation* to display.

b. Click to select the **Affiliation** column in the design grid.
c. Click **Delete Columns** [*Query Design* tab, *Query Setup* group].
d. Save the query.
e. Run the query. The same records shown in **Figure 6-113** display; however, the *Affiliation* column does not show.
f. Close the query.

6. Create a query to display the book information.
   a. Click the **Query Design** button [*Create* tab, *Queries* group]. The *Add Tables* task pane opens.
   b. Select the **Author** table.
   c. Press and hold the **Shift** key, select the **AuthorBook** and the **Book** tables, and click **Add Selected Tables** to add all three tables into the query.
   d. Close the *Add Tables* task pane.
   e. Add the following fields into the query design grid: **ISBN**, **Title**, **FirstName**, **LastName**, and **Subject**.
   f. Click **Run** [*Query Design* tab, *Results* group] to run the query. Your results should match those shown in **Figure 6-114**. Currently, the query results show the ISBN and title of a book each time a book has multiple authors. When you create the report, you will hide the duplicated values.



ISBN	Title	FirstName	LastName	Subject
978-1-26-024795-4	Principles of Auditing & Other Assurance Services	Ray	Whittington	Auditing
978-1-26-677315-0	Microsoft Office 365: In Practice (2021 Edition)	Randy	Nordell	Application Software
978-0-07-811278-2	Organizational Behavior: Real Solutions to Real Challenges	Bill	Bommer	Organizational Behavior
978-0-07-811278-2	Organizational Behavior: Real Solutions to Real Challenges	Timothy	Baldwin	Organizational Behavior
978-1-26-026035-9	M: Marketing	Dhruv	Grewal	Marketing Principles
978-1-26-669143-0	Marketing	Dhruv	Grewal	Marketing Principles
978-0-07-811278-2	Organizational Behavior: Real Solutions to Real Challenges	Robert	Rubin	Organizational Behavior
978-1-26-072782-1	M: Information Systems	Paige	Baltzan	Management Information Systems
978-1-26-654647-1	Business Driven Information Systems	Paige	Baltzan	Management Information Systems
978-1-26-026035-9	M: Marketing	Michael	Levy	Marketing Principles
978-1-26-669143-0	Marketing	Michael	Levy	Marketing Principles
978-1-26-024795-4	Principles of Auditing & Other Assurance Services	Kurt	Pany	Auditing
978-1-26-654647-1	Business Driven Information Systems	Amy	Phillips	Management Information Systems
978-1-26-070963-6	Biology: The Essentials	Marielle	Hoefnagels	Biology

FIGURE 6-114 **Query results**

   g. Save the query as BookListing.
   h. Close the query.

7. Build a report using *Design* view. To provide context for the steps to build the report, view the completed report in **Figure 6-118**.
   a. Click the **Report Design** button [*Create* tab, *Reports* group].
   b. Press **F4** to open the *Property Sheet* if necessary.
   c. Click the **Data** tab.
   d. Click the **drop-down arrow** in the *Record Source* property and select **BookListing** to assign the query as the data source for the report. Be sure to press **Enter** after selecting the query.
   e. Click the **Add Existing Fields** button [*Report Design* tab, *Tools* group] to open the *Field List*.

f. Double-click the **ISBN** field to add it to the report.
g. Repeat that process to add all the other fields into the *Detail* section of the report.
h. Close the *Field List* pane. The last field added into the report should be selected.
i. Press and hold the **Shift** key and select the **text boxes** of the other fields.
j. Click the **Tabular** button [*Arrange* tab, *Table* group].
k. Press **F4** to open the *Property Sheet* and click to select the **Format** tab.
l. Enter .05" in the *Top* property, 1" in the *Left* property and select **Transparent** in the *Border Style* property.
m. Click the **Detail** section bar.
n. Enter .3" in the *Height* property.
o. Save the report as BookListingWithSubjectParameter.

8. Add a group section to the report.
   a. Click the **Group & Sort** button [*Report Design* tab, *Grouping & Totals* group] to open the *Group, Sort, and Total* pane at the bottom of the report.
   b. Select the **Add a group** option in the *Group, Sort, and Total* pane.
   c. Select the **Subject** field from the field list.
   d. Close the *Group, Sort, and Total* pane by clicking the **X** on the *Group, Sort, and Total* pane header. Be careful not to click the *Delete* button inside the pane or you will remove the group.
   e. Save the changes made to the report.
9. Edit the *Subject Header* section.
   a. Move your pointer over the vertical ruler to the left of the labels in the *Page Header* section. The selection pointer appears.
   b. Click the selection pointer to select all the labels in the *Page Header* section.
   c. Click **Move Down** [*Arrange* tab, *Move* group].
   d. Right-click inside the report to open the context menu and select the **Page Header/Footer** option to delete the *Page Header* and *Footer* sections.
   e. Select the **Subject** text box in the *Detail* section.
   f. Click **Move Up** [*Arrange* tab, *Move* group].
   g. Click the **layout selector** to select the entire layout ( **Figure 6-115**).

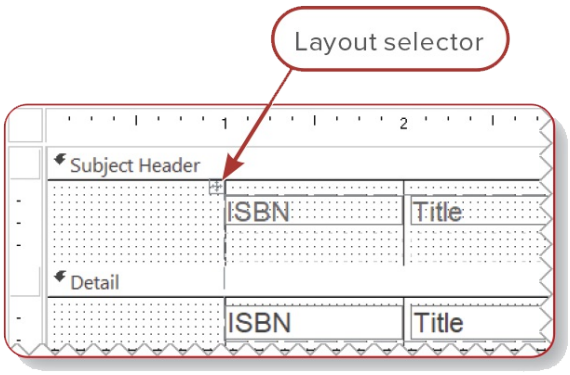


FIGURE 6-115 **Click the layout selector**

h. Click **Remove Layout** [*Arrange* tab, *Table* group].

i. Click inside the *Subject Header* section to deselect all the items and select that section.

j. Click the **Format** tab of the *Property Sheet* and enter .7" in the *Height* property.

k. Select the **ISBN** label.

l. Press and hold the **Shift** key and select the **Title**, **FirstName**, and **LastName** labels.

m. Enter .2" in the *Height* property, .4" in the *Top* property, and select **Yes** in the *Font Underline* property.

n. Select the **Subject** label.

o. Enter .6" in the *Width* property, .2" in the *Height* property, .1" in the *Top* property, .5" in the *Left* property, 12 in the *Font Size* property, and select **Dark Gray 4** (the second column and fifth row of the *Standard Colors*) in the *Fore Color* property.

p. Select the **Subject** text box.

q. Enter 3" in the *Width* property, .2" in the *Height* property .1" in the *Top* property, and 1.2" in the *Left* property, and 12 in the *Font Size* property.

r. Drag the **right border** of the report to **6.5"** wide.

s. Save the changes made to the report. The report should look similar to Figure 6-116.

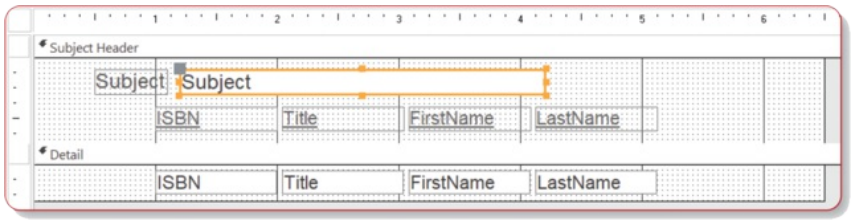


FIGURE 6-116 **Report after updating the *Subject Header* section**

10. Edit controls in the report.

a. Select the **LastName** text box.
b. Press and hold the **Shift** key and select the **LastName** label.
c. Enter .9" in the *Width* property and 5.4" in the *Left* property.
d. Select the **FirstName** text box.
e. Press and hold the **Shift** key and select the **FirstName** label.
f. Enter .9" in the *Width* property and 4.4" in the *Left* property.
g. Change the *FirstName* label to read First Name and change the *LastName* label to read Last Name.
h. Select the **Title** text box.
i. Press and hold the **Shift** key and select the **Title** label.
j. Enter 2.2" in the *Width* property and 2.1" in the *Left* property.
k. Select the **ISBN** text box.
l. Press and hold the **Shift** key and select the **ISBN** label.
m. Enter 1.3" in the *Width* property, and .7" in the *Left* property.
n. Click anywhere in the report to deselect the text box and label items.
o. Save the changes made to the report.
p. Change to *Layout* view to review the changes (Figure 6-117). Notice that many of the titles are too long to display completely. Look at the records in the *Auditing* subject. The ISBN and title repeat when a book has multiple authors. Also notice the alternating colors for both the subject headers and the book details.

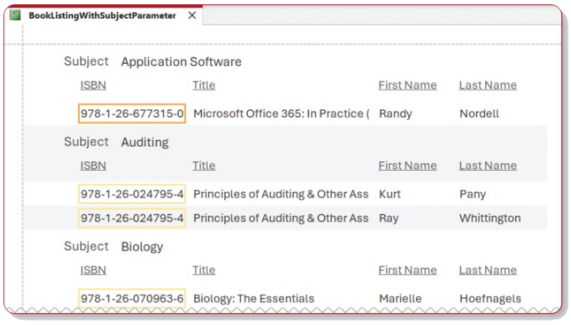


FIGURE 6-117 ***Layout*** **view of report**

11. Hide the repeated values of the *ISBN* and *Title*.
    a. Change to *Design* view.
    b. Select the **ISBN** text box.
    c. Press and hold the **Shift** key and select the **Title** text box.
    d. Select **Yes** in the *Hide Duplicates* property.
12. Improve the report design.

a. Select the **Detail** section bar, click the **Alternate Back Color** property, click the **Build** button and select **No Color**.
b. Select the **Subject Header** section bar, click the **Alternate Back Color** property, click the **Build** button, and select **No Color**. Select **Light Gray 1** (the first column and second row of the *Standard Colors*) in the *Back Color* property.
c. Select the **Title** text box.
d. Select **Yes** in the *Can Grow* property.
e. Save the changes.
f. Change to *Report* view. Notice that the alternating colors in the book listings have been removed. The subject headings all display the same background color. Also notice that the entire title displays for all books, and the ISBN and title only display once when a book has multiple authors.

13. Add the parameter to the report.
a. Change to *Design* view.
b. Choose **Report** in the *Selection type* box of the *Property Sheet*.
c. Click the **Data** tab, click the **Record Source** property box and then click the Build button to open the *Query Builder*.
d. Type [Enter the desired subject area] into the *Criteria* box of the *Subject* field.
e. Save the query. Note that you have modified the query to require a parameter. If you run the *BookListing* query or a report based on the query, the *Enter Parameter Value* dialog box displays.
f. Close the *Query Builder*.
g. Save the report.

14. Test the report.
a. Click the **Report View** icon on the *Status* bar. The *Enter Parameter Value* dialog box displays.
b. Enter Marketing Principles and click **OK**. The results should match those shown in Figure 6-118.



FIGURE 6-118 Completed report

c. Close the report.

15. Close the database.

Guided Project 6-3

San Diego Sailing needs an update query to repair the rental dates in its database. The organization also wants a report of sailboats that have not been rented. Create an unmatched records query and then build and customize a report in *Design* view.

[Student Learning Outcome 6.1, Student Learning Outcome 6.2, Student Learning Outcome 6.3, Student Learning Outcome 6.4, Student Learning Outcome 6.5]

File Needed: ***SanDiegoSailing-06.accdb*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Name: ***[your initials] Access 6-3.accdb***

Skills Covered in This Project

- Create an update action query.
- Use the *DateAdd* function in a query.
- Create an unmatched records query.
- Create a report in *Design* view.
- Add *Report Header* and *Report Footer* sections.
- Add a control to a report.
- Change the font characteristics of a control.
- Adjust the size of a control.
- Change the format properties of a control.

1. Open the ***SanDiegoSailing-06*** database from your student data files. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close it. If the message repeats in a later step, click **OK** or the **X** to close the message.
2. Save a new copy of your database as [your initials] Access 6-3.
3. Enable content in the security warning.
4. Modify validation rule and validation text properties.
   a. Open the *SDRentals* table in *Datasheet* view. Note that all the values in the *Rental Date* column are for the year 2026. Management has realized that a data

entry error was made when the records were loaded into the database and all dates entered were off by one year.

b. Switch to *Design* view of the table.
c. Click the **RentalDate** field. Before changing the values in this field, the *Validation Rule* must be updated.
d. Change the *Validation Rule* property to read >=#1/1/2025#.
e. Change the *Validation Text* property to read The Rental Date must be greater than or equal to 1/1/2025.
f. Save the table. An Access message box displays, indicating that data integrity rules have changed. Click **Yes**.
g. Close the table.

5. Create an update query to modify the data in the *RentalDate* field of the *SDRentals* table.
   a. Click the **Query Design** button [*Create* tab, *Queries* group]. The *Add Tables* task pane opens.
   b. Double-click the **SDRentals** table to add it into the *Query Design* window.
   c. Close the *Add Tables* task pane.
   d. Double-click the **RentalDate** field to add it into the query design grid.
   e. Click the **Update** button [*Query Design* tab, *Query Type* group] to convert the query to an update query. The *Sort* and *Show* rows of the select query are replaced with the *Update To* row.
   f. Enter DateAdd("m",-12,[RentalDate]) in the *Update To* box of the *RentalDate* field. The design of this *DateAdd* function will add a negative 12 months to the *RentalDate* field. The net effect is to subtract 12 months. Because the function adds to a field, the value must be written as a negative number to effectively subtract.
   g. Run the query. An Access message box displays, informing you that "*You are about to update 34 row(s).*" Click **Yes** to execute the query.
   h. Save the query as SubtractOneYearRentalDate.
   i. Close the query.
6. Open the *SDRentals* table in *Datasheet* view to verify that the dates have been changed.
7. Close the table.
8. Create a query to find the sailboats that have not been rented.
   a. Click the **Query Wizard** button [*Create* tab, *Queries* group] to launch the *Query Wizard*.
   b. Select **Find Unmatched Query Wizard** in the *New Query* dialog box and click **OK** to launch the *Find Unmatched Query Wizard*. If a *Microsoft Access Security*

Notice box displays, click **Open**.

c. Accept the selected **SailboatFleet** table. This is the table that may have unmatched records, and click **Next** to move to the next page of the wizard.

d. Accept the selected **SDRentals** table. This is the table that has the related records, and click **Next** to move to the next page of the wizard. The *Matching fields* box should read *BoatID < => FKBoatID* because those fields are already linked via a relationship.

e. Click **Next** to move to the next page of the wizard.

f. Click the **Move All Fields** button to move all the fields from the *Available fields* window to the *Selected fields* window.

g. Click **Next** to move to the last page of the wizard.

h. Edit the suggested query name to remove the spaces between the words. The query name should be SailboatFleetWithoutMatchingSDRentals.

i. Click **Finish**. The query executes. Your results should match those shown in Figure 6-119.

SailboatFleetWithoutMatchingSDRentals

Boat ID	Boat Type	Length	Seats	Sleeps	4 Hr Rate	Full Day Rate	Galley w/ Stc	Model Year
1150	Capri 22 Mk II	24'8"	6	4	$75.00	$121.00	☐	2014
1164	Capri 22 Mk II	24'8"	6	4	$75.00	$121.00	☐	2017
1168	Hunter 33	33'6"	10	6	$285.00	$355.00	☑	2017
1175	Beneteau 40	39'10"	12	6	$475.00	$555.00	☑	2018
1180	Beneteau 373	36'11"	10	6	$355.00	$455.00	☑	2019
1190	Beneteau 373	36'11"	10	6	$355.00	$455.00	☑	2019
1200	Beneteau 373	36'11"	10	6	$355.00	$455.00	☑	2020
1205	Beneteau 40	39'10"	12	6	$475.00	$555.00	☑	2021
1254	Hunter 36	35'6"	10	6	$335.00	$395.00	☑	2022
1342	Hunter 33	33'6"	10	6	$285.00	$355.00	☑	2024
1410	Beneteau 40	39'10"	12	6	$475.00	$555.00	☑	2025
1425	Catalina 270	28'4"	8	6	$145.00	$205.00	☑	2025

Record: 1 of 12 | No Filter | Search

FIGURE 6-119 **Unmatched records query results**

j. Close the query.

9. Create a report in *Design* view.

a. Click the **Report Design** button [*Create* tab, *Reports* group].

b. Click the **Landscape** button [*Page Setup* tab, *Page Layout* group].

c. Press **F4** to open the *Property Sheet* if necessary.

d. Choose **Report** in the *Selection type,* if necessary, and click the **Data** tab.

e. Click the **drop-down arrow** in the *Record Source* property and select **SailboatFleetWithoutMatchingSDRentals** to assign the query as the data source for the report. Be sure to press **Enter** after selecting the query.

f. Click the **Add Existing Fields** button [*Report Design* tab, *Tools* group] to open the *Field List.*

g. Double-click the **BoatID** field to add it to the report.

h. Repeat that process to add all the other fields into the *Detail* section of the

report.

i. Close the *Field List* pane. The last field added into the report should be selected.
j. Press and hold the **Shift** key and select the **Galley w/ Stove** check box and all of the text boxes. Note that the *Galley w/ Stove* check box is to the left of its label. Be careful to select the check box and not the label.
k. Click the **Tabular** button [*Arrange* tab, *Table* group].
l. Press **F4** to open the *Property Sheet*.
m. Click to select the **Format** tab.
n. Enter .08" in the *Top* property and select **Transparent** in the *Border Style* property. When entering property values, don't worry if Access slightly changes a few of the values (for example, .08" becomes .0833").
o. Click anywhere in the report to deselect all the items.
p. Save the report as SailboatFleetWithoutMatchingSDRentals.

10. Customize the report.

a. Click the vertical ruler of the *Page Header* section to select all the labels.
b. Enter .375" in the *Height* property.
c. Click anywhere in the report to deselect all the items.
d. Select the **BoatID** text box. Press and hold the **Shift** key and select the **Boat ID** label.
e. Enter .6" in the *Width* property and .5" in the *Left* property.
f. Select the **BoatType** text box and label, and enter 1.3" in the *Width* property.
g. Select the **Length**, **Seats**, **and Sleeps** text boxes and labels, and enter .5" in the *Width* property and select **Center** in the *Text Align* property.
h. Select the **FourHourRentalRate** and **FullDayRentalRate** text boxes and labels, and enter .7" in the *Width* property.
i. Click the **Select Layout** button [*Arrange* tab, *Rows & Columns* group].
j. Click **Remove Layout** [*Arrange* tab, *Table* group].
k. Click anywhere in the report to deselect all the items.
l. Select the **Full Day Rate** label and select **Center** in the *Text Align* property.
m. Select the **Galley w/ Stove** label, and enter .7" in the *Width* property and select **Center** in the *Text Align* property.
n. Select the **Galley w/ Stove** check box, and enter .2" in the *Width* property, .12" in the *Top* property, and 5.9" in the *Left* property.
o. Select the **ModelYear** text box and label, and enter .5" in the *Width* property, 6.35" in the *Left* property, and select **Center** in the *Text Align* property.
p. Click the **Detail** section bar and enter .3" in the *Height* property.
q. Choose **Report** in the *Selection type* and enter 7" in the *Width* property. The

report should look similar to Figure 6-120.

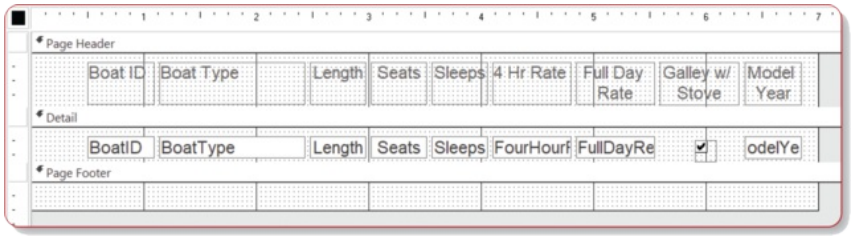


FIGURE 6-120 ***Design*** **view of controls in the report**

r. Save the changes to the report.

11. Add and customize *Report Header* and *Report Footer* sections.
    a. Right-click inside the report to open the context menu and select the **Report Header/Footer** option.
    b. Click inside the *Report Header* section.
    c. Enter .5" in the *Height* property.
    d. Click inside the *Report Footer* section.
    e. Enter .5" in the *Height* property.
    f. Add a **Label** control into the *Report Header* section and type Listing of Boats that have not been Rented into the label.
    g. Using the options on the *Format* tab in the *Font* group, change the label font to **14 pt** and apply **bold** and **italics**.
    h. Click the **Format** tab of the *Property Sheet,* and set the *Width* property of the label to 4", the *Height* property to .3", and the *Left* property to 1.5".
    i. Click the **Page Numbers** button [*Report Design* tab, *Header/Footer* group].
    j. Select the **Page N of M** radio button, the **Bottom of Page [Footer]** radio button, and a **Center** alignment if necessary.
    k. Click **OK**.
    l. Click the **Portrait** button [*Page Setup* tab, *Page Layout* group].
    m. Save the changes to the report.
12. Click the **Print Preview** icon on the *Status* bar to view the report. Your results should look similar to those shown in Figure 6-121.



Listing of Boats that have not been Rented

Boat ID	Boat Type	Length	Seats	Sleeps	4 Hr Rate	Full Day Rate	Galley w/ Stove	Model Year
1150	Capri 22 Mk II	24'8"	6	4	$75.00	$121.00	☐	2014
1164	Capri 22 Mk II	24'8"	6	4	$75.00	$121.00	☐	2017
1168	Hunter 33	33'6"	10	6	$285.00	$355.00	☑	2017
1175	Beneteau 40	39'10"	12	6	$475.00	$555.00	☑	2018
1180	Beneteau 373	36'11"	10	6	$355.00	$455.00	☑	2019
1190	Beneteau 373	36'11"	10	6	$355.00	$455.00	☑	2019

FIGURE 6-121 Completed report

13. Close the report.
14. Close the database.

Independent Project 6-4

Mary's Equipment Rentals wants to improve its database. To ensure consistency, the starting file is provided for you. You improve the functionality by debugging a find unmatched query and a top values query that are not working correctly. You view and edit the *RentalsListing* report to improve the design, fix a calculated field, and add a ***Group Header* section**.

[Student Learning Outcome 6.2, Student Learning Outcome 6.3, Student Learning Outcome 6.4, Student Learning Outcome 6.5, Student Learning Outcome 6.6]

File Needed: ***MarysRentals-06.accdb*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Name: ***[your initials] Access 6-4.accdb***

Skills Covered in This Project

- Create an unmatched query.
- Edit a top values query.
- Edit a report in *Design* view.

- Use calculated controls in a report.
- Edit properties of multiple controls simultaneously.
- Add a group section to a report.
- Add a control to a report.

---

1. Open the ***MarysRentals-06*** database from your student data files. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close it. If the message repeats in a later step, click **OK** or the **X** to close the message.
2. Save a new copy of your database as [your initials] Access 6-4.
3. Enable content in the security warning.
4. Open the *Rentals* table in *Datasheet* view. This new table contains details about the different instances when customers have rented each piece of equipment. The table lists 47 records.
5. Close the table.
6. Open the *Relationships* window. Notice that the *Rentals* table participates in a one-to-many relationship with the *Equipment* table.
7. Close the *Relationships* window.
8. Execute the *RentalsWithoutMatchingEquipment* query. The query displays no records in the results. You know a problem exists with the query because the rental company has told you that a few pieces of equipment have not been rented.
9. Review the query to identify and repair the problem.
   a. Change to *Design* view of the query. The query design is shown in Figure 6-122. The query uses a *Left Outer Join*. Recall from **chapter 5** that this join type returns all the records from the table on the left but only the records from the table on the right that match. However, the *RentalsWithoutMatchingEquipment* query also includes criteria to only find records in the *Equipment* table that have a null value in the *EquipmentID* field. Because the *EquipmentID* field is a primary key, it will never be null. This query is not designed correctly.

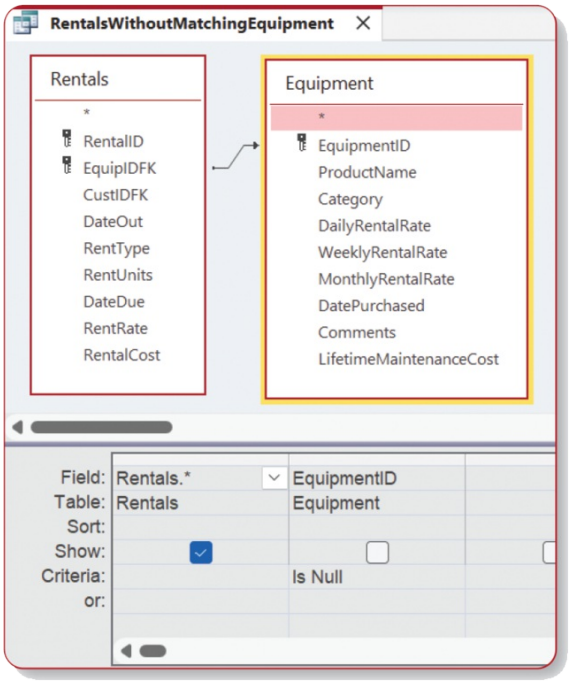


FIGURE 6-122 ***Design* view of *RentalsWithoutMatchingEquipment* query**

b. Close the query.

10. Create a new unmatched records query that is designed correctly.
    a. Create a new query using the **Find Unmatched Query Wizard**.
    b. Select the **Equipment** table because it may have unmatched records on the first page of the wizard.
    c. Advance to the second page of the wizard and choose the **Rentals** table as containing related records.
    d. Advance to the third page of the wizard and accept the *EquipmentID* < => *EquipIDFK* as the *Matching fields*.
    e. Advance to the fourth page of the wizard and move the **EquipmentID**, **ProductName**, and **Category** fields into the *Selected fields* window.
    f. Advance to the last page of the wizard and name the query EquipmentWithoutMatchingRentals. Notice how this name reverses the order of the tables from the *RentalsWithoutMatchingEquipment* query.
    g. **Finish** the query to execute it. Three unmatched records display (Figure 6-123).

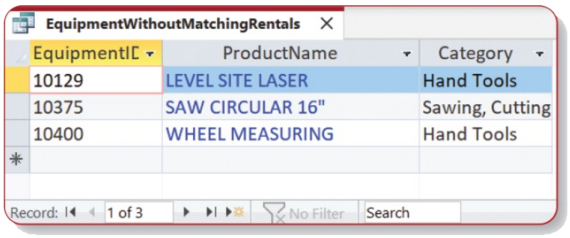


FIGURE 6-123 **Unmatched records query results**

h. Save and close the query when done.

11. Execute the *Top5ProductRentals* query. The query results display five rows containing the values for *EquipmentIDFK* of *09925,* a *Mini Tractor Loader–Yanmar SA424YBS.*

12. Edit the query to repair it so that it shows the top five products that have been rented, in order of the frequency of rentals. Note that this query does not take into account the length of time of the rentals; it only takes into account the number of times the product has been rented. We are not interested in individual *EquipmentID* numbers, but rather the *ProductName*. For example, *10236* and *10426* are both *Snake Drain ½" Electric* products. The rentals of either of those will be combined into the total for the *ProductName*.

    a. Change to *Design* view of the query.

    b. Add a **Total** row to the query.

    c. Select **Count** as the aggregate function in the *EquipIDFK* column.

    d. Apply a **Descending** sort on *EquipIDFK*.

    e. Enter # of Rentals in the *Caption* property of *EquipIDFK*. The completed query is shown in **Figure 6-124**.

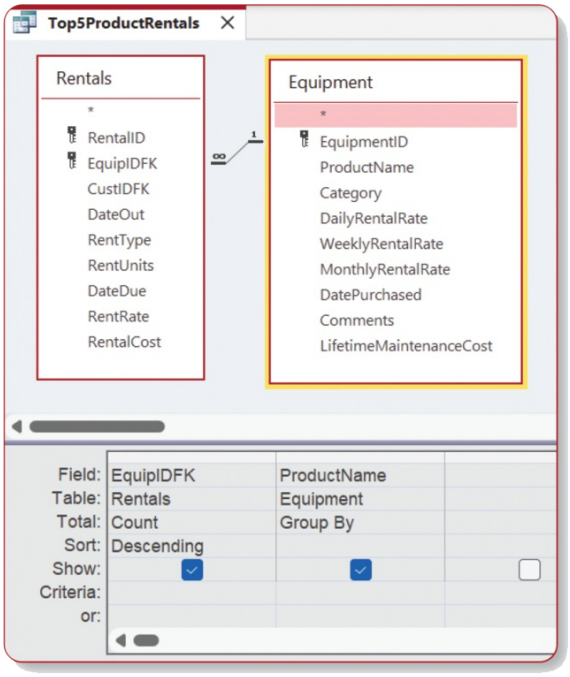


FIGURE 6-124 ***Design*** **view of top values query**

f. Run the query.

g. Widen the *ProductName* field so the entire contents are visible. The query results should match the results shown in **Figure 6-125**.

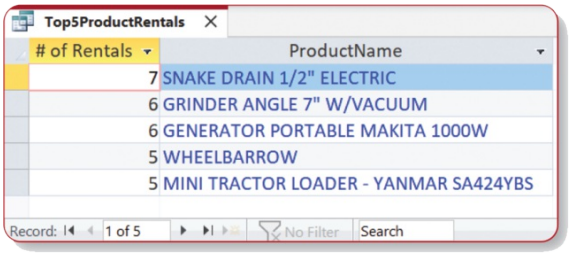


FIGURE 6-125 **Completed top values query results**

h. Save and close the query.

13. Open the *RentalsListing* report. The *Enter Parameter Value* dialog box displays asking for a value for *Rent Units*.

a. Click **OK** to leave the box empty because this should not display. The report opens and displays the data in the *Rentals* table.

b. Scroll to the bottom of the report to review the report layout. Notice several opportunities to improve the report by fixing the dialog box problems, adding grouping so that all rentals from the same *EquipIDFK* display together, and adjusting the controls. To provide context for the steps to customize the report, view the completed report in **Figure 6-127**.

14. Fix the *Enter Parameter Value* dialog box problem.
    a. Switch to *Design* view. Notice that the third text box contains a field named *Rent Units*. This is the field that the dialog box referred to.
    b. Select that text box.
    c. Open the *Property Sheet* if necessary.
    d. Open the *Expression Builder* on the *Control Source* property. Notice that the equation combines the value of *Rent Units,* a *space,* the value of *RentType,* and the word *Rental,* with a space in front of it.
    e. Correct the equation to use the correct field name in the *Rentals* table of RentUnits instead of *Rent Units*.
    f. Enter RentalPeriod in the *Name* property on the *Other* tab to change the default name of *Text22*.
    g. Switch to *Report* view. The *Rental Period* text box now displays *1 D Rental* for the first record.
    h. Scroll down a little to *RentalID 2515,* the sixth record. Notice that the *Rental Period* text box displays *1 W Rental.* Management wants the report to display the word *Day* or *Week* instead of the letter.
    i. Switch to *Design* view, select the **RentalPeriod** textbox, and open the *Expression Builder* on the *Control Source* property.
    j. Edit the *[RentType]* part of the formula to read IIf([RentType]="d","Day",IIf([RentType]="w","Week","Month")). This uses the Access *IIF* (Immediate If) function, which is similar to the *IF* function in Excel. Based on the contents of the *RentType* field, the *IIF* function chooses the correct word to use instead.
    k. Switch to *Report* view. The *Rental Period* now displays *1 Day Rental* for the first record.
    l. Save the report.
15. Add a group section in *Design* view.
    a. Switch to *Design* view.
    b. Open the *Group, Sort, and Total* pane.
    c. **Add a group** for the **EquipIDFK** field.
    d. Click **More**, if necessary, and change the *do not keep group together on one page* to **keep whole group together on one page**.
    e. Close the *Group, Sort, and Total* pane when done adding the group.
    f. Click the **EquipIDFK Header** section and change the *Height* property to .8".
    g. Select the **EquipIDFK** combo box and label and drag them into the *EquipIDFK Header* section.
    h. Click anywhere in the report to deselect both controls.

i. Save your changes and check your progress in *Report* view. The report records now display grouped by *EquipIDFK* (Figure 6-126).

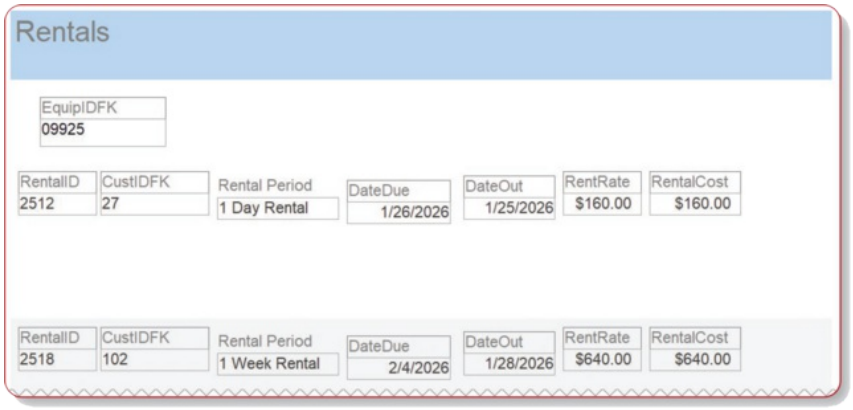


FIGURE 6-126 ***RentalsListing*** **report after adding a** ***Group Header*** **section**

16. Improve the layout and readability of the report controls in *Design* view.
    a. Switch to *Design* view.
    b. Select the **EquipIDFK** label and enter Equipment ID in the *Caption* property, 1.1" in the *Width* property, .3" in the *Top* property, .125" in the *Left* property, select **Transparent** in the *Border Style* property and **Bold** in the *Font Weight* property.
    c. Select the **EquipIDFK** combo box and enter .7" in the *Width* property, .3" in the *Top* property, 1.3" in the *Left* property, select **Transparent** in the *Border Style* property and **Bold** in the *Font Weight* property.
    d. Add a **Line** control in the *EquipIDFK Header* section and enter 7" in the *Width* property, 0" in the *Height* property, .65" in the *Top* property, .08" in the *Left* property, and select **2 pt** in the *Border Width* property.
    e. Select the **line** and copy and paste the line into the *EquipIDFK Header* section. You now have two lines in the *EquipIDFK Header* section.
    f. Select the second **line** control and set the *Top* property to .2" and the *Left* property to .08".
    g. Change the *Height* property of the *EquipIDFK Header* section back to .8" if necessary.
    h. Select all the text boxes and labels in the *Detail* section.
    i. Click the **Align** button on the *Arrange* tab to align the selected labels and text boxes to the **Top**.
    j. Click the **Size/Space** button on the *Arrange* tab and set the spacing to **Equal Horizontal**. All controls in the *Detail* section should still be selected.
    k. Select **Transparent** in the *Border Style* property and **Center** in the *Text Align* property.
    l. Select the **Detail** section and set the *Height* property to .55".

m. Select the **CustIDFK** label and change the *Caption* property to read Customer ID. Enter a space between the words of the other labels in the *Detail* section.

n. Change the *Selection type* to **Report**, and change the *Width* property of the report to 7.2".

o. Select the label in the *Report Header* section and change the *Caption* property to Listing of All Rentals, the *Width* property to 2.6", and the *Left* property to 2.3".

p. Select the text box in the *Page Footer* section and change the *Left* property to 3".

q. Change the *Alternate Back Color* property of the *EquipIDFK Header* section to **No Color**.

r. Save the changes to the report.

17. View the completed report in *Print Preview*. Your report should look similar to **Figure 6-127**.



FIGURE 6-127 Completed *RentalsListing* report

a. Navigate to page 2. Notice the blank space between the last rental for equipment number 10236 and the bottom of the page. Recall that you set the grouping to *keep whole group together on one page*. The blank space is because page 2 doesn't have enough room for all of the records in the next group.

b. Navigate through the remaining report pages.

c. Close the report when done.

18. Close the database.

Independent Project 6-5 SIMnet Project

The New York Department of Motor Vehicles wants to extend the functionality of its database. Use the top values property in a query. Edit a main report to add a concatenation formula to a text box. Add a subreport to a main report. Customize the subreport in *Design* view and add a running total to number the rows in the report. Finally, create and customize a stacked bar chart in a new report.

[Student Learning Outcome 6.3, Student Learning Outcome 6.4, Student Learning Outcome 6.5, Student Learning Outcome 6.6, Student Learning Outcome 6.7, Student Learning Outcome 6.8]

File Needed: **NewYorkDMV-06.accdb** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Name: ***[your initials] Access 6-5.accdb***

Skills Covered in This Project

- Find top values in a query.
- Edit multiple controls on a report simultaneously.
- Add a control to a report.
- Edit formatting properties of a control.
- Use a concatenation formula in a text box.
- Add a subreport to a main report.
- Use an aggregate function on a subreport.
- Edit *Report Header* and *Report Footer* sections.
- Create and customize a chart in a report.

1. Open the ***NewYorkDMV-06*** database from your student data files. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close it. If the message repeats in a later step, click **OK** or the **X** to close the message.
2. Save a new copy of your database as [your initials] Access 6-5.
3. Enable content in the security warning.
4. Create a query to find the two most common reasons (factors) tickets are written.

a. Open the *TicketCountByFactor* query in *Datasheet* view. The query executes and shows each of the nine primary factors along with a count of how many tickets have been written.

b. Save a copy of that query as TopTwoTicketCountByFactor. If necessary, review "How To: Save a Copy of an Object" in ***SLO 1.2: Creating and Managing a Database***.

c. Edit the *TopTwoTicketCountByFactor* query in *Design* view. In the *Top Values* property of the query, enter 2 to limit the query results to only the two factors that appear most frequently on all the tickets. Refer back to the "Find the Top Values in a Query" section in ***SLO 6.3: Creating Advanced Queries and Changing Query Properties,*** if you need additional guidance.

d. Edit the query to not show the *TicketNumber* in the results.

e. Save the changes to the query. Test the query. The query results should match those shown in **Figure 6-128**.

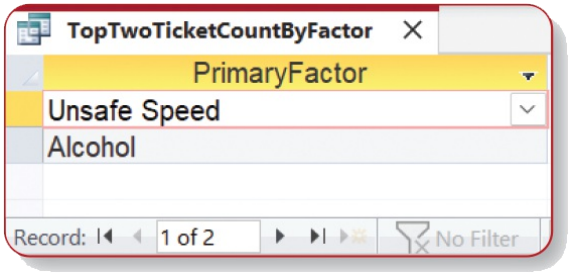


FIGURE 6-128 Top two ticket factors

f. Edit the query to change the *TicketNumber* field to an **Ascending** sort and show the *Ticket Number*. This enables you to further explore how the sorting choice influences the query results when using the *Top Values* property.

g. Run the query. The query now shows the two reasons that appear on the fewest number of tickets. *Failed to Yield R.O.W.* and *Expired Registration* should display in the results.

h. Close the query without saving the changes because that is not what you want the query to display.

5. Add a concatenation formula to a text box in the *OfficerTicketListing* report.

a. Open *OfficerTicketListing* in *Design* view. To provide context for the steps to customize the report, view the completed report in **Figure 6-131**.

b. Edit the unbound text box on the report. Add a concatenation formula into the *Control Source* property that will combine the *FirstName* field, a space, and the *LastName* field.

c. Select **Transparent** in the *BorderStyle* property.

d. Save the changes.

e. View the report in *Report* view to ensure that the formula works correctly.

6. Add a subreport to the *OfficerTicketListing* main report. Refer back to "How To: Use a Table or Query as a Subreport in a Main Report" in *SLO 6.7: Using Subreports* if you need additional guidance.

a. Change the *OfficerTicketListing* report to *Design* view.

b. Use the **Subform/Subreport** button to add a subreport onto the main report. Position the subreport below the existing fields near the left side of the main report.

c. Verify that the **Use existing Tables and Queries** button is selected on the first page of the *SubReport Wizard*.

d. Advance to the second page of the *SubReport Wizard* and choose the **Tickets** table and add all the fields except the *OfficerBadgeNumber* and the *RecordAddedTimeStamp* from the *Tickets* table onto the subreport.

e. Advance to the third page of the *SubReport Wizard,* accept the **Choose from a list** radio button and the default linking statement.

f. Advance to the last page of the wizard and edit the suggested name for the subreport so it reads TicketsSubreport.

g. Use *Layout* view to verify that the subreport is correctly linked to the main report. The report should look similar to Figure 6-129.



FIGURE 6-129 ***Layout* view after subreport is added to main report**

h. Save and close the report.

7. Edit the *TicketsSubreport* in *Design* view.

a. Open the *TicketsSubreport* in *Design* view. If needed, open the *Property Sheet*.

b. Select the **City** text box and label and enter 1" in the *Width* property and 3.1" in the *Left* property.

c. Select the **TicketDate** text box and label and enter .8" in the *Width* property and 2.15" in the *Left* property.

d. Select the **DLNumber** text box and label and enter .9" in the *Width* property and 1.2" in the *Left* property.
e. Select the **TicketNumber** text box and label and enter 1" in the *Width* property and .1" in the *Left* property.
f. Select the **PrimaryFactor** combo box and enter 1.3" in the *Width* property, 4.2" in the *Left* property, select **Transparent** in the *Border Style* property, and **Yes** in the *Can Grow* property.
g. Select the **PrimaryFactor** label and enter 1.3" in the *Width* property and 4.2" in the *Left* property.
h. Select the **Fine** text box and label and enter .7" in the *Width* property and 5.6" in the *Left* property.
i. Edit the *Caption* property of labels by inserting a space between *Ticket* and *Number, DL* and *Number, Ticket* and *Date,* and *Primary* and *Factor.*
j. Adjust the *Text Align* property of all labels to **Left**.
k. Adjust the *Width* property of the report to be 6.6".
l. Adjust the *Height* property of the *Detail section* to be .3".
m. Save your changes.

8. Use an aggregate function on the subreport.
a. Select the **Report Footer** section bar and enter .4" in the *Height* property.
b. Add a **Text Box** control near the left side of the report footer of the subreport.
c. Select the **text box** and enter =Count([TicketNumber]) in the *Control Source* property, .5" in the *Width* property, 1.35" in the *Left* property, **Transparent** in the *Border Style* property, and **Bold** in the *Font Weight* property.
d. Select the **label** of the text box and enter Total Tickets: in the *Caption* property, .95" in the *Width* property, .35" in the *Left* property, and **Bold** in the *Font Weight* property.
e. Save and close the subreport.

9. Edit the *OfficerTicketListing* report in *Design* view to add *Report Header* and *Report Footer* sections and ensure the report has a professional appearance.
a. Open the *OfficerTicketListing* in *Design* view. If needed, open the *Property Sheet.*
b. Select the **TicketsSubreport** control and change the *Width* property to 7", the *Left* property to .7", and the *Border Style* property to **Transparent**.
c. Delete the *TicketsSubreport* label.
d. Adjust the *Height* property of the *Detail section* to 1.9".
e. Adjust the *Width* property of the *Report* to 7.8".
f. Add a **Report Header** and **Report Footer** section to the report.

g. Adjust the *Height* property of the *Report Header* section to .4".

h. Remove the *Page Header* and *Page Footer* sections from the report.

i. Add a **Label** with the *Caption* of Listing of Tickets by Officer to the *Report Header* section.

j. Select the label and enter 2.5" in the *Width* property, .25" in the *Height* property, .08" in the *Top* property, 2.6" in the *Left* property, and 14 in the *Font Size* property. When entering property values, don't worry if Access slightly changes a few of the values (for example, .08" becomes .0799").

k. Adjust the *Height* property of the *Report Footer* section to .4".

l. Add a **Label** with the *Caption* of Report created by Student Name to the *Report Footer* section. Enter your name in place of "Student Name".

m. Select the label and enter 3.5" in the *Width* property, .2" in the *Height* property, .08" in the *Top* property, and .15" in the *Left* property.

n. Click the **Margins** button [*Page Setup* tab, *Page Size* group] to display the list of preset margin options and then select **Narrow** from the list.

o. Save the report. The completed report should look similar to **Figure 6-130**.

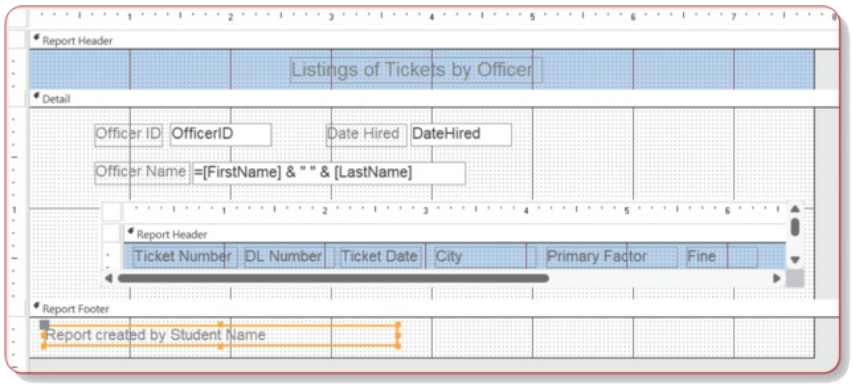


FIGURE 6-130 ***Design*** **view of the completed** ***OfficerTicketListing*** **report**

10. Change to *Print Preview* view to view the completed report. **Figure 6-131** shows the finished report.



Listings of Tickets by Officer

Officer ID A00021211 Date Hired 10/1/2003

Officer Name Reggie DeFrank

Ticket Number	DL Number	Ticket Date	City	Primary Factor	Fine
4235894496	12345838	2/3/2026	Syracuse	Expired Registration	$100.00
4235895280	39989780	3/11/2026	Syracuse	Improper Cell Phone Use	$150.00
4235896886	15500786	3/21/2026	Syracuse	Alcohol	$420.00
4235896888	12344537	3/21/2026	Syracuse	Improper Turn	$90.00
4235896903	39998182	3/22/2026	Syracuse	Traffic Control Disregarded	$130.00
4235896915	18955806	3/22/2026	Syracuse	Improper Electronic Device Use/Texting	$150.00

Total Tickets 6

Officer ID A00032567 Date Hired 6/2/2006

Officer Name Alex Rodriguez

Ticket Number	DL Number	Ticket Date	City	Primary Factor	Fine
4235879527	12348279	11/13/2025	Buffalo	Improper Cell Phone Use	$150.00
4235889527	15503625	11/30/2025	Buffalo	Alcohol	$420.00

FIGURE 6-131 ***Report* view of the completed report**

11. Close the report.
12. Create a report that will contain one chart.
    a. Create a new report using **Report Design**.
    b. Save the report as TicketDataChart.
13. Insert a **Stacked Bar** chart in the *Detail* section of the report.
14. Customize the chart data.
    a. Assign the **Tickets** table as the *Data Source*.
    b. Select **PrimaryFactor** as the *Axis (Category)* field.
    c. Select **City** as the *Legend (Series)* field
    d. Select **City** as the *Values (Y axis)* field.
15. Modify the chart properties.
    a. Open the *Property Sheet*.
    b. Enter 7" in the *Width* property, 4" in the *Height* property, .5" in the *Top* property, and .5" in the *Left* property.
    c. Enter Tickets by Factor and City in the *Chart Title* property.
    d. Enter Ticket Factor in the *Category Axis Title* property.
    e. Enter Number of Tickets in the *Primary Values Axis Title* property.

f. Close the *Property Sheet*.

g. Save the report. The completed chart should look similar to Figure 6-132.

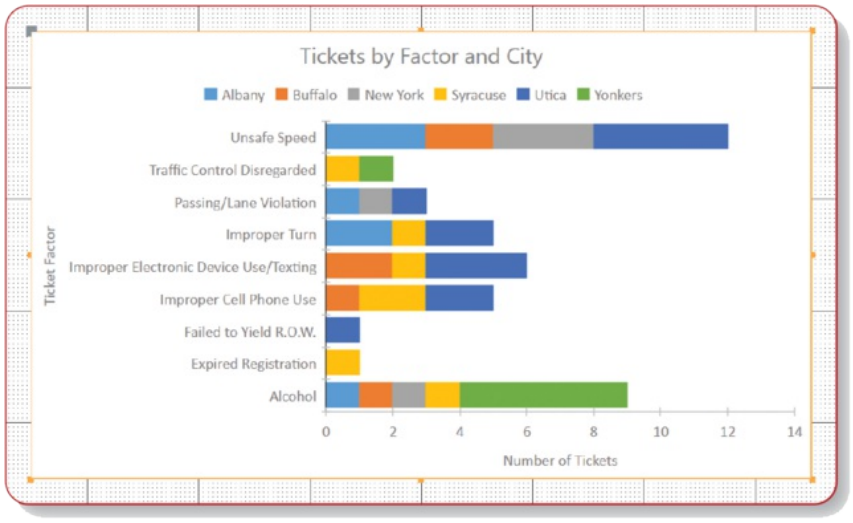


FIGURE 6-132 ***Design* view of completed *Tickets by Factor and City* chart**

h. Close the report.

16. Close the database.

A6-504

A6-505

A6-506

Independent Project 6-6

American River Cycling Club wants to expand its database. To ensure consistency, the starting file is provided for you. Create a query in *Design* view to show race results for club members, and add a concatenated field to the query to combine the first and last names. Next, use *Design* view to create a report based on that query. Hide repeated values and customize the report in *Design* view.

[Student Learning Outcome 6.4, Student Learning Outcome 6.5, Student Learning Outcome 6.6]

File Needed: ***AmericanRiver-06.accdb*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Name: ***[your initials] Access 6-6.accdb***

Skills Covered in This Project

- Create a query using *Design* view.
- Use a concatenation formula in a query.
- Create a report in *Design* view.
- Add a control to a report.
- Edit formatting properties of a control.
- Hide repeated values in a report.
- Edit *Report Header* and *Report Footer* sections.

---

1. Open the ***AmericanRiver-06*** database from your student data files. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close it. If the message repeats in a later step, click **OK** or the **X** to close the message.
2. Save a new copy of your database as [your initials] Access 6-6.
3. Enable content in the security warning.
4. Create a select query to show race results for club members.
   a. Open a new query using **Query Design**.
   b. Add both tables into the query and close the *Add Tables* task pane.
   c. Add the following fields into the query: **MemberID**, **City**, **RaceID**, **Place**, **Time**, **Division**, and **AgeGroup**.
   d. Save the query as MembersRaceResults.
   e. Run the query to test it. The results show 39 records.
5. Edit the query to add a concatenated field.
   a. Change back to *Design* view.
   b. Insert a column to the left of the *City* field.
   c. Edit the inserted column by adding a calculated field to concatenate the *FirstName* and *LastName* fields using the following formula: MemberName: [FirstName] & " " & [LastName].
   d. Save the changes to the query.
   e. Run the query to test it. The results should look similar to those shown in **Figure 6-133**.

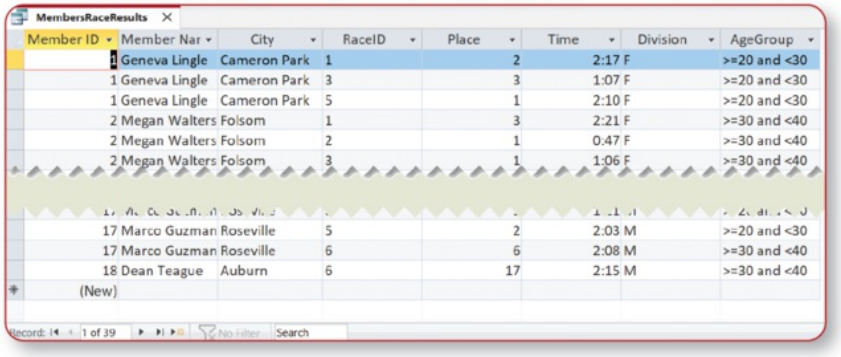


FIGURE 6-133 ***MembersRaceResults*** **query results**

f. Close the query.

6. Create a report in *Design* view. To provide context for the steps to build the report, view the completed report in **Figure 6-136**.
   a. Create a new report using **Report Design**.
   b. Open the *Property Sheet* and change the *Selection type* to **Report**, if necessary.
   c. Change the *Width* property to 11".
   d. Assign the **MembersRaceResults** query to the *Record Source* property.
   e. Open the *Field List*.
   f. Add all of the fields into the *Detail* section of the report.
   g. Close the *Field List* pane.
   h. Select all of the text boxes and the one combo box.
   i. Click the **Tabular** button on the *Arrange* tab.
   j. Click anywhere in the report to deselect all the items.
   k. Save the report as RaceResultsByMember.
7. Customize the report.
   a. Open the *Property Sheet* if necessary.
   b. Select the **MemberID** text box.
   c. Enter .7" in the *Width* property, .05" in the *Top* property, and .3" in the *Left* property. When entering property values, don't worry if Access slightly changes a few of the values (for example, .05" becomes .0486"). Also note that the position of the other controls adjusts due to the tabular control layout.
   d. Change the *Width* of the *RaceID* text box to .4".
   e. Change the *Width* of the *Place* and *Time* text boxes to .5".
   f. Change the *Width* of the *Division* combo box to .6".
   g. Change the *Width* of the *AgeGroup* text box to 1.1".

h. Change the *Width* of the *MemberName* text box to 1.5".

i. Change the *Width* of the *City* text box to 1.2".

j. Change the *Height* of all the labels to .4" and **Center** the alignment.

k. Change the *Border Style* of all the fields in the *Detail* section to **Transparent**.

l. Edit the *Caption* property of the labels by inserting a space between *Member* and *Name, Race* and *ID,* and *Age* and *Group.*

m. **Center** the alignment of the *MemberID, RaceID,* and *Place* text boxes and the *Division* combo box.

n. Change the *Height* of the *Detail* section to .3" and apply **No Color** to the *Alternate Back Color.*

o. Change the *Width* of the report to 7.5".

p. Save the report. The design should look similar to that shown in Figure 6-134.

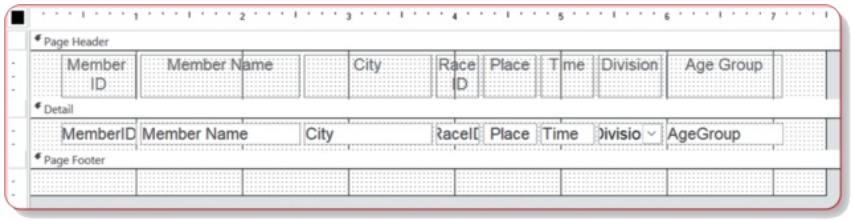


FIGURE 6-134 ***Design*** **view of controls in the report**

q. View the report in *Report* view. Notice that the records display in order of the *RaceID* field.

8. Change the report order and hide repeated values in the report.

a. Change back to *Design* view.

b. Click the **Data** tab and change the *Order By* property of the *Report* to MemberID. This causes all the records for the same member to display together.

c. Select the **MemberID**, **MemberName**, and **City** text boxes.

d. Click the **Format** tab and change the *Hide Duplicates* property to **Yes**.

9. Customize the *Page Header* and *Page Footer* sections.

a. Change the *Height* of the *Page Header* section to .8".

b. Select all the labels and change the *Top* to .3" and the *Font Weight* to **Bold**.

c. Change the *Height* of the *Page Footer* section to .3".

d. Add page numbers to the report using the **Page N of M** radio button, the **Bottom of Page [Footer]** radio button, and a **Center** alignment.

10. Add and customize *Report Header* and *Report Footer* sections.

a. Add *Report Header* and *Report Footer* sections to the report.

b. Change the *Height* of the *Report Header* section to .4".

c. Add a **Label** with the *Caption* of Race Results by Member to the *Report Header* section.

d. Select the label and enter 2.4" in the *Width* property, .25" in the *Height* property, .08" in the *Top* property, 2.6" in the *Left* property, 14 in the *Font Size* property, and **Bold** in the *Font Weight* property.

e. Change the *Back Color* of the *Report Header* section to **Green 2** (seventh column, third row of the *Standard Colors*).

f. Click the **Margins** button [*Page Setup* tab, *Page Size* group] to display the list of preset margin options and then select **Narrow** from the list.

g. Save the change to the report. *Design* view of the completed report should look similar to Figure 6-135.

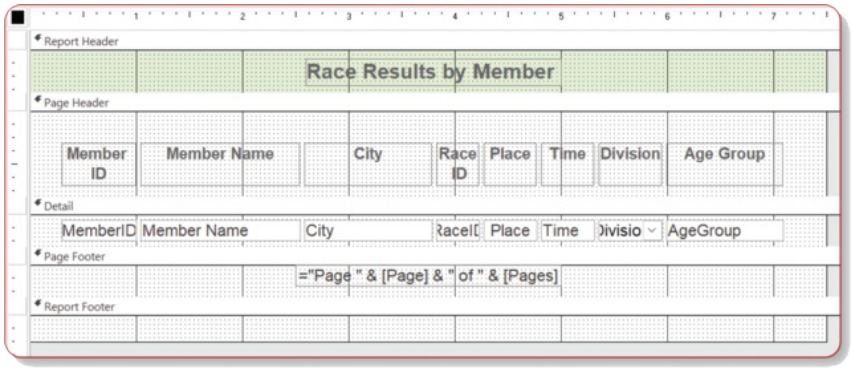
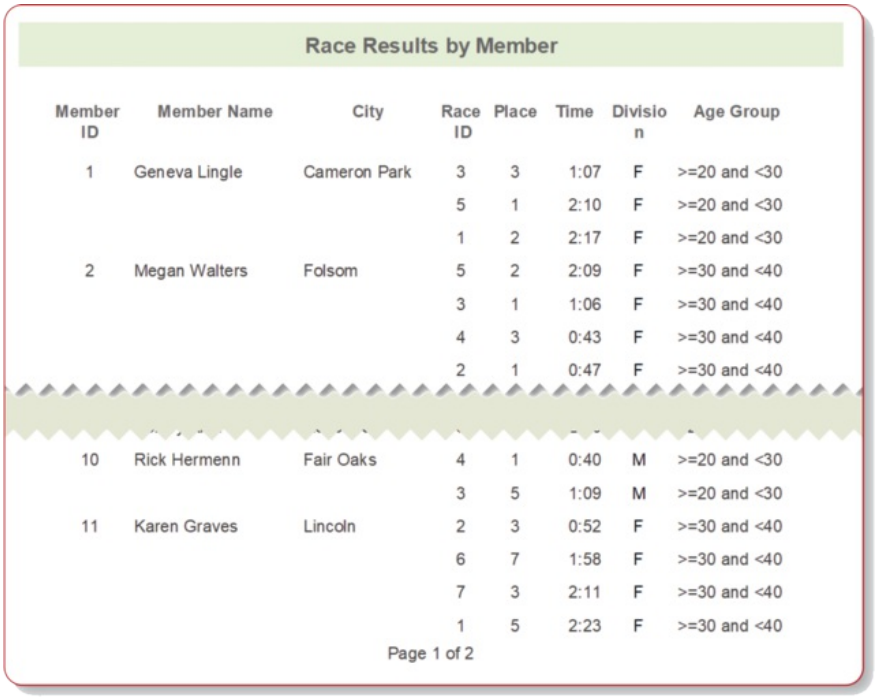


FIGURE 6-135 ***Design*** **view of the completed** ***RaceResultsByMember*** **report**

11. View the report in *Print Preview* view. Your results should look similar to Figure 6-136.



Race Results by Member

Member ID	Member Name	City	Race ID	Place	Time	Division	Age Group
1	Geneva Lingle	Cameron Park	3	3	1:07	F	>=20 and <30
			5	1	2:10	F	>=20 and <30
			1	2	2:17	F	>=20 and <30
2	Megan Walters	Folsom	5	2	2:09	F	>=30 and <40
			3	1	1:06	F	>=30 and <40
			4	3	0:43	F	>=30 and <40
			2	1	0:47	F	>=30 and <40
10	Rick Hermenn	Fair Oaks	4	1	0:40	M	>=20 and <30
			3	5	1:09	M	>=20 and <30
11	Karen Graves	Lincoln	2	3	0:52	F	>=30 and <40
			6	7	1:58	F	>=30 and <40
			7	3	2:11	F	>=30 and <40
			1	5	2:23	F	>=30 and <40

Page 1 of 2

FIGURE 6-136 ***Print Preview*** **view of completed report**

12. Close the report.
13. Close the database.

Advanced Project 6-7 SIMnet Project

Life's Animal Shelter wants you to enhance the functionality of its database. To ensure consistency, the starting file is provided for you. First, create a make table query to build a table to store the records of adopted pets. Next, create a delete query to delete the adopted pets from the *Pets* table. Finally, add a parameter to a report, number rows in a report, and customize the report in *Design* view.

[**Student Learning Outcome 6.1**, **Student Learning Outcome 6.4**, **Student Learning Outcome 6.5**, **Student Learning Outcome 6.6**]

File Needed: ***LifesAnimalShelter-06.accdb*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Names: ***[your initials] Access 6-7.accdb***, ***[your initials] Access 6-7_Backup.accdb***, and ***[your initials] Access 6-7_Backup-2.accdb***

Skills Covered in This Project

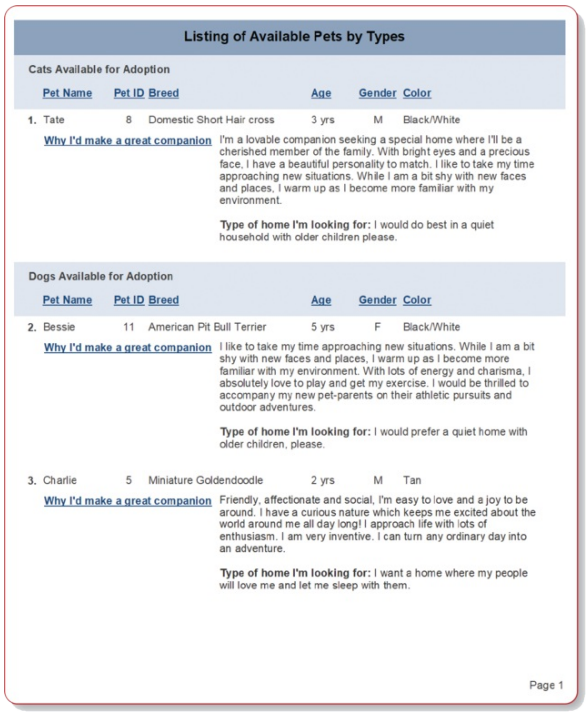
- Create a make table action query.
- Create a delete action query.
- Add a parameter to a report.
- Edit multiple controls on a report simultaneously.
- Change the alignment and formatting of a control.
- Add a control to a report.
- Add a running total to number rows.
- Edit *Report Header* and *Report Footer* sections.

---

1. Open the ***LifesAnimalShelter-06*** database from your student data files. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close it. If the message repeats in a later step, click **OK** or the **X** to close the message. Save a copy of your database as [your initials] Access 6-7. Enable content in the security warning.
2. Back up your database. Save the file as [your initials] Access 6-7_Backup.
3. Open the *Pets* table in *Datasheet* view to verify that the table contains 20 records. Scroll to the right and notice that a few of the pets have been adopted already.
4. Close the table.
5. Create a make table query to create an *AdoptedPets* table. Refer back to ***Pause & Practice 6-1*** if you need additional guidance.
   a. Create a new query using *Query Design*.
   b. Add the **Pets** table into the *Query Design* window and add all of the fields into the query design grid. Do not use the asterisk (*) because you will be adding criteria.
   c. Enter "N" as the *Criteria* of the *Available?* field.
   d. Run the query. Verify that the query finds the four pets that have been adopted (*Pet IDs 1, 3, 12,* and *14*).
   e. Switch back to *Design* view, convert the query into a make table query, and name the new table AdoptedPets.
   f. Run the query. Click **Yes** when the Access message box informs you that you are pasting rows into a new table.
   g. Save the query as MakeAdoptedPetsTable.
   h. Close the query.
6. Back up your database again since the contents have changed. Save the file as [your initials] Access 6-7_Backup-2.
7. Create a delete query to delete the adopted pets from the *Pets* table.

a. Create a new query using *Query Design*.
b. Add the **Pets** table into the *Query Design* window and add the **ID**, **PetName**, and **Available?** fields into the query design grid.
c. Enter "N" as the *Criteria* of the *Available?* field.
d. Run the query to verify that the query finds the same four pets that have been adopted.
e. Switch back to *Design* view and convert the query into a delete query.
f. Run the query. Click **Yes** when the Access message box displays, informing you that you are deleting rows from the table.
g. Save the query as DeleteAdoptedPets.
h. Close the query.

8. Open the *Pets* table to verify that the table now contains only 16 records.
9. Close the table.
10. Open the *PetListingTypeParameter* report in *Report* View. The 16 pets display grouped by the type of pet. Notice that the *Details* field and label, which has a *Caption* of "Why I'd make a great companion", are not large enough to display the entire contents. Overall, the report is hard to read. To provide context for the steps to customize the report, view the completed report in Figure 6-137.



Listing of Available Pets by Types

Cats Available for Adoption

	Pet Name	Pet ID	Breed	Age	Gender	Color
1.	Tate	8	Domestic Short Hair cross	3 yrs	M	Black/White

Why I'd make a great companion: I'm a lovable companion seeking a special home where I'll be a cherished member of the family. With bright eyes and a precious face, I have a beautiful personality to match. I like to take my time approaching new situations. While I am a bit shy with new faces and places, I warm up as I become more familiar with my environment.

Type of home I'm looking for: I would do best in a quiet household with older children please.

Dogs Available for Adoption

	Pet Name	Pet ID	Breed	Age	Gender	Color
2.	Bessie	11	American Pit Bull Terrier	5 yrs	F	Black/White

Why I'd make a great companion: I like to take my time approaching new situations. While I am a bit shy with new faces and places, I warm up as I become more familiar with my environment. With lots of energy and charisma, I absolutely love to play and get my exercise. I would be thrilled to accompany my new pet-parents on their athletic pursuits and outdoor adventures.

Type of home I'm looking for: I would prefer a quiet home with older children, please.

	Pet Name	Pet ID	Breed	Age	Gender	Color
3.	Charlie	5	Miniature Goldendoodle	2 yrs	M	Tan

Why I'd make a great companion: Friendly, affectionate and social, I'm easy to love and a joy to be around. I have a curious nature which keeps me excited about the world around me all day long! I approach life with lots of enthusiasm. I am very inventive. I can turn any ordinary day into an adventure.

Type of home I'm looking for: I want a home where my people will love me and let me sleep with them.

Page 1

FIGURE 6-137 Completed report in *Print Preview* view

11. Edit the *PetListingTypeParameter* report to add a parameter.

a. Switch to *Design* view and open the *Property Sheet* if necessary.
b. Change the *Selection type* to **Report**, if necessary, and open the *Query Builder* in the *Record Source* property. Click **Yes**, when prompted, to create a query based on the table.
c. Add the **ID**, **PetName**, **Type**, **Breed**, **Age**, **Gender**, **Color**, **Details**, and **Available?** fields into the query.
d. Enter "Y" as the *Criteria* of the *Available?* field to show only pets that are currently available. Even though all the pets in the table currently are available, those values may change in the future.
e. Enter Like "*" & [Enter the type of pet to search for (Leave blank to search for all pet types)] & "*" as the *Criteria* for the *Type* field. This will create a flexible parameter so users can leave the parameter blank if they wish to see all of the available pets.
f. Save the query and close the *Query Builder.*
g. Save the report.
h. Switch to *Report* view to test the changes made to the report. Enter Cat when prompted. The report should show the one cat that is currently available for adoption.

12. Edit the controls in the *Type Header* section.
    a. Switch to *Design* view.
    b. **Align** all six labels in the *Type Header* section to the **Top**. Do not include the text box that has the concatenation formula for the *Type* field.
    c. **Size** the six labels using the **To Tallest** option. Keep the six labels selected for the next step.
    d. Select the **Details** field label, located in the *Detail* section, so that all seven labels are now selected. Remember that the label displays the *Caption* of *Why I'd make a great companion.*
    e. Change the following properties for the seven labels: Select **Dark Blue** (the fourth column and first row of the *Standard Colors*) as the *Fore Color,* **Bold** as the *Font Weight,* and **Yes** in *Font Underline.*
    f. Choose **No Color** as the *Alternate Back Color* of the *Type Header* section and **Dark Blue 1** (the fourth column and second row of the *Standard Colors*) as the *Back Color.*

13. Add a running total to number the rows.
    a. Add a **Text Box** to the report below the *Details* text box in the *Detail* section.
    b. Delete the **label** that was automatically added with the text box.
    c. Set the *Control Source* of the text box to =1, the *Running Sum* to Over All, the *Format* to a period (.), the *Width* to .3", the *Height* to .22", the *Top* to .05", and the

Left to .03". Choose **Transparent** as the *Border Style* and choose **Bold** as the *Font Weight.* When entering property values, don't worry if Access slightly changes a few of the values (for example, .22" become .2201").

d. Save the changes to the report.

14. Edit the controls in the *Detail* section.
    a. Set the *Height* of the *Detail* section to .8" and choose **No Color** as the *Alternate Back Color.*
    b. Choose **Yes** in *Can Grow* of the *Details* text box.
    c. Save the changes to the report.
15. Customize the header and footer sections in the report.
    a. Set the *Height* of the *Report Header* section to .5" and choose **Dark Blue 3** (the fourth column and fourth row of the *Standard Colors*) as the *Back Color.*
    b. Add a **Label** into the *Report Header* section and enter Listing of Available Pets by Types into the label.
    c. Change the *Width* of the label to 3.2", the *Height* to .3", the *Top* to .1", the *Left* to 2.4", and the *Font Size* to 14. Select **Bold** as the *Font Weight,* and **Black** (the second column and first row of the *Standard Colors*) as the *Fore Color.*
    d. Choose **Transparent** as the *Border Style* of the text box with the concatenation formula in the *Type Header* section and choose **Dark** Blue 1 (the fourth column and second row of the *Standard Colors*) as the *Back Color.* This makes the text box background the same as the background of the section header.
    e. Add page numbers to the report using the **Page N**, **Bottom of Page [Footer]**, and **Right** options.
    f. Save the report.
16. Test and finalize the report.
    a. Change to *Print Preview* view. Leave the *Enter Parameter Value* dialog box empty to show all the pet types.
    b. Navigate to page 3 and scroll to the bottom. Notice that the header for "rabbits" appears on the bottom of the page, but the records for this group start on the next page.
    c. Switch back to *Design* view to adjust the grouping option for the *Type* field.
    d. Change the *do not keep group together on one page* option to **keep header and first record together on one page**. When you run the report the next time, the header for "rabbits" will start on the fourth page along with the first rabbit record.
    e. Close the *Group, Sort, and Total* pane.
    f. Save the report.

g. Change to *Print Preview* view to test the report. Leave the *Enter Parameter Value* dialog box empty to see all the pet types. The report should resemble Figure 6-137.

h. Navigate to page 3 and scroll to the bottom. Notice that the header for “rabbits” no longer appears at the bottom of the page. Navigate to page 4 to see the header for “rabbits” is on the fourth page.

i. Close the report.

17. Close the database.

Copilot Challenge Project 6-8

Use *Copilot* or other generative AI to help you modify the fast-food menu item database used in ***Challenge Project 5-8***. Create a regular select query to find records in your database and convert that query into a make table query. Create a delete query to remove the records from the first table that were placed in the new table. Create a report in *Design* view to display a chart. Insert a chart into the report and modify the chart settings and properties to ensure it is professional in appearance.

[Student Learning Outcome 6.1, Student Learning Outcome 6.4, Student Learning Outcome 6.8]

File Needed: ***FastFoodNutrition-06.accdb***

Completed Project File Names: ***[your initials] Access 6-8.accdb*** and ***[your initials] Access 6-8_Backup.accdb***

Open the database ***FastFoodNutrition-06.*** If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close it. If the message repeats in a later step, click **OK** or the **X** to close the message. Save a copy of the database as [your initials] Access 6-8. Enable content in the database.

Modify your database according to the following guidelines:

- Open the *MenuItems* table in *Datasheet* view to verify that it contains 100 records. Navigate to record 15. Scroll to the far right to review the contents of the *Discontinued* field, a new field added to the table. Note that this record contains a “Y” in this field, but most of the other records contain an “N” in this field. The *MenuItems* table contains several items that have been discontinued and need to be put into a new table that will store these discontinued items.

- Open *Copilot* and ask it to explain the best practices for creating and using a make table query in Microsoft Access to store records that have been discontinued in the table. In the prompt, include a screenshot of the fields in the *MenuItems* table (*Design* view of the table may be the best option). Incorporate *Copilot's* suggestions as you complete this project.
  - Make a backup copy of the database. Name the file **[your initials] Access 6-8_Backup**.
  - Create and execute a select query that shows all the fields from the *MenuItems* table. Modify the query to return only the records for discontinued items. Test the query to ensure it returns the correct records.
  - Convert the query into a make table query to create a new table, named *DiscontinuedItems.* Save and execute the query.
  - Open the *DiscontinuedItems* table to verify it contains the 7 discontinued items.
- Create, test, and execute a delete query to delete the records from the *MenuItems* table that were copied into the new table. Save and close the query.
- Ask *Copilot* for suggestions about which type of chart would work best to convey information about the *MenuItems* Use follow-up prompts as needed to obtain examples or additional help. Use this information to decide on one chart to build and the specific information it will convey. Depending on what you decide to include in your chart, you may need to create a query that will first contain all the needed fields.
  - Create a report in *Design* view that will contain this chart. As you complete the following steps, ensure that you are creating a chart that is professional in appearance and accurately conveys the information.
  - Insert the correct chart type in the *Detail* section of the report. Customize the *Data Source, Axis, Legend,* and *Values* settings as appropriate.
  - Customize the display of the data series on the *Format* tab as appropriate. For example, you may change the *Display Name, Series Fill Color, Display Data Label, Gridlines,* or *Sort Order* properties.
  - Modify the chart properties to adjust the *Width* and *Height.* Enter a custom *Chart Title.*
  - Save the report.
- View the finalized chart in *Report* view.
- Close the report.
- Close the database.

Challenge Project 6-9

For this project, you modify the database you created in ***Challenge Project 5-9*** for Blue Lake Sporting Goods. Your database contains a table with information about the different departments at Blue Lake Sporting Goods and a related table with information about interns who are working at Blue Lake, along with the other objects created previously. Create a query that uses a date function to calculate the end date of the internship. Use that field to find only the intern records where the internship has ended. Convert that query into a make table query to put those records into a new table. Then, create a delete query to remove those records from the Intern table. Finally, create a report to display the records from the new table.

[Student Learning Outcome 6.1, Student Learning Outcome 6.4, Student Learning Outcome 6.5]

File Needed: ***[your initials] Access 5-9.accdb***

Completed Project File Name: ***[your initials] Access 6-9.accdb***

Open the database ***[your initials] Access 5-9*** and save a copy of it as [your initials] Access 6-9.

Modify your database according to the following guidelines:

- Create a regular select query that displays all the fields from the intern table. Also add a calculated field to the query that determines the *EndDate*. To calculate the *EndDate,* use the *DateAdd* function to add the number of months from the Internship length to the *Start Date,* for example, *DateAdd("m",[InternshipLength], [StartDate]).* Test the query to ensure it calculates correctly.
- Modify the query to return only the records of the interns who have internships that have ended. These records can be located when the *EndDate* is less than today's date. Test the query.
- Convert the query into a make table query to create an *ExpiredInternship* table. Deselect the show check box on the *EndDate* field so this field is not added into the new table. Save and execute the query.
- Create, test, and execute a delete query to delete the records from the *Intern* table for the interns whose internships have expired.
- Create a report in *Design* view that shows all the records in the *ExpiredInternship* table. Add a grouping level of the department where the students had their internships (remember that this was the foreign key field).
- Customize the report in *Design* view to adjust the formatting of the different sections and add a report header and page numbers. Ensure the report is well-designed and professional in appearance.
- Save any changes you make to the database.

- Close any open objects and the database.

Challenge Project 6-10

For this project, you modify the database you created for a travel agency in ***Challenge Project 5-10***. Your database contains a table with information about the different ships and a related table with information about upcoming cruises, along with other objects created previously. Create a query to find the average number of passengers on all the ships. Use that query as a subquery to find all the trips on ships that have a number of passengers greater than the average. Finally, create a report based on that query. Customize the design of the report and add a calculated control to number the rows in the report.

[**Student Learning Outcome 6.3**, **Student Learning Outcome 6.4**, **Student Learning Outcome 6.5**, **Student Learning Outcome 6.6**]

File Needed: ***[your initials] Access 5-10.accdb***

Completed Project File Name: ***[your initials] Access 6-10.accdb***

Open the database ***[your initials] Access 5-10*** and save a copy of it as [your initials] Access 6-10.

Modify your database according to the following guidelines. *(Hint: Refer to the example where you found agents with listings greater than the average listing price in the* "Create a Subquery" *section in* **SLO 6.3: Creating Advanced Queries and Changing Query Properties**.)

- Create a query to find the average *NumberOfPassengers* on all the ships. Save this query.
- Create another query that includes the "average" query as a subquery. This second query should display the *TripID, TripName, DepartureCity, DepartureDate,* and *ShipName* for all trips on ships that have a *NumberofPassengers* greater than the average number of passengers. Save this query.
- Create a report in *Design* view. Use the second query as the report data source.
- Add a calculated control to the report that uses a running total to number the rows in the report.
- Customize the report in *Design* view to format the controls to ensure that the report is professional in appearance.
- Save any changes you make to the database.
- Close any open objects and the database.

Source of screenshots Microsoft Office 365 (2024): Word, Excel, Access, PowerPoint.

CHAPTER 7
Creating Advanced Forms

CHAPTER OVERVIEW

In chapter 4, you learned how forms enable you to easily view, add, update, and delete data in a database. This chapter addresses the use of *Design* view to create and modify forms. In chapter 7, you learn about form properties and using calculated controls on a form. Additionally, you learn how to create more sophisticated forms, including a one-to-many form, a navigation form, and a form to capture parameter data.

STUDENT LEARNING OUTCOMES (SLOs)

After completing this chapter, you will be able to:

- **SLO 7.1** Create and edit a form in *Design* view and insert, remove, and change the size of form sections (p. A7-514).
- **SLO 7.2** Understand form properties, change tab properties, enable and lock controls, change border options, and remove a scroll bar and record selector (p. A7-519).
- **SLO 7.3** Explore a one-to-many form, create a main form, create a subform, and link a subform to a main form (p. A7-529).
- **SLO 7.4** Use a calculated control on a form, explore aggregate functions, and reference controls on other forms (p. A7-536).
- **SLO 7.5** Enhance the appearance of a form by adding lines, rectangles, images, background images, and web pages; modifying colors and fonts; using themes; integrating conditional formatting; and reviewing accessibility (p. A7-545).
- **SLO 7.6** Add data validation to controls with the *Validation Rule* and *Validation Text* properties (p. A7-554).
- **SLO 7.7** Add a combo box to a form to find records and customize the combo box properties (p. A7-555).
- **SLO 7.8** Add a tab control to a form and create and modify a navigation form (p. A7-563).
- **SLO 7.9** Create a form to capture parameter data, create macros for the form buttons, and test a form (p. A7-573).

CASE STUDY

For the Pause & Practice projects in this chapter, you develop several different forms for Placer Hills Real Estate. As you progress through the Pause & Practice projects in this chapter, you incorporate new skills to create and edit forms in Design *view, add controls to improve the appearance and*

functionality of forms, and create special-purpose forms.

Pause & Practice 7-1: Create and edit a form in *Design* view. Add sections and controls to a form. Modify properties and controls on a form.

Pause & Practice 7-2: Create and edit a main form and add a subform to it, customize a subform, and add a calculated field to a form.

Pause & Practice 7-3: Add a line and an image, modify colors and fonts, and apply conditional formatting to enhance the look of a form. Add data validation to a control.

Pause & Practice 7-4: Add a tab control to a form. Create and modify a navigation form.

Pause & Practice 7-5: Create a form to collect parameter values for a query. Build the macro code for form buttons and test a completed form.

SLO 7.1

Building a Form in Design View

Recall from **chapter 4** that forms provide flexible access to data in a database. While the skills you learned in **chapter 4** about creating and editing forms using the *Form Wizard*, ***Form* button**, *Split Form* option, *Blank Form* button, and *Layout* view still apply, *Design* view provides additional flexibility and tools for creating and editing forms. In this section, you first learn how to use *Design* view to create a form. You then learn about using the different sections in a form.

Create a Form in Design View

Design view provides you with the most flexibility in creating forms. After you create the form, edit it to add the fields, labels, or other controls you need. You can also add or remove sections.

- To create a form in *Design* view, click the **Form Design** button [*Create* tab, *Forms* group] (**Figure 7-1**). A new form opens.

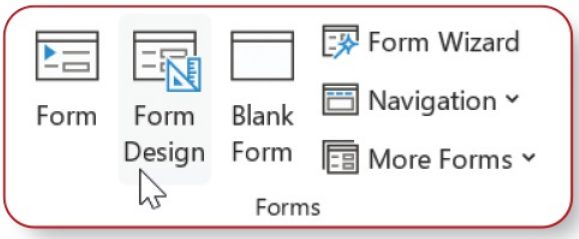


FIGURE 7-1 ***Form Design* button**

After you create the form, you are ready to start adding fields and controls to it. In *Design* view, you accomplish these tasks using skills similar to those you learned in **chapter 4** about working in *Layout* view, as well as in **chapter 6** about working with a report in *Design* view. Those skills are briefly summarized below. If you need additional guidance, refer back to **chapter 6** (***SLO 6.4: Building a Report in Design View*** and ***SLO 6.5: Customizing a Report in Design View***) to review how to perform those tasks.

- To add fields from a table to a form, click the **Add Existing Fields** button [*Form Design* tab, *Tools* group] to open the *Field List* pane, click the **Show all tables** link to display the database tables, and add the desired fields. As you learned with reports, if you want to add fields from an existing query to a form, you must first enter the query name in the *Record Source* property of

the form.

- To assign a record source, click the **Property Sheet** button [*Form Design* tab, *Tools* group] to open the *Property Sheet.* Choose **Form** in the *Selection type* box. Recall that the *Selection type* box is located above the five tabs on the *Property Sheet.* On the *Data* tab, click the **Record Source** property drop-down arrow and select the desired data source.
- To add controls to a form, click the desired control [*Form Design* tab, *Controls* group] and then click inside the desired section to add it to the form.

Once controls have been added to a form, you may want to change their default properties. For example, you may want to change the size of a text box. In ***SLO 6.5: Customizing a Report in Design View,*** you learned a number of skills to modify the controls on a report. For example, you learned to move a control, adjust the size of a control, change formatting properties, and align controls, among other tasks. The controls you add to a form behave the same as those on a report, so those skills are not reintroduced in this chapter. If you need to, refer back to **chapter 6** to review how to use those skills.

After you have created a new form in *Design* view, it is important for you to save the new form and any changes made to it.

MORE INFO

Although text boxes on a form have a *Can Grow* property, it only affects the control when the form is printed or viewed in *Print Preview.* It does not allow the control to increase in size when viewed in *Form* view, *Datasheet* view, or *Design* view.

MORE INFO

Use the *Design* view skills you are learning in this chapter to edit forms created in *Design* view, as well as forms created using one of the other form tools discussed in **chapter 4**.

Form Sections

A form can contain several different sections. In *Design* view, each section is identified with a separator bar that includes the section name. In *Layout* or *Form* view, form sections may not be as obvious as they are in *Design* view, especially when they have the same background color. **Table 7-1** lists and explains the sections available in an Access form.

Table 7-1: Form Sections

Table 7-1: Form Sections

Section	Description
Detail	Displays the fields from each record. Can also contain buttons and other controls. This is the primary section of a form.
Form Header	Displays a form title, logo, or date. Appears once at the top of the screen in *Form* view and at the top of the first page when the form is printed.
Form Footer	Displays totals or other information at the bottom of the form. Often contains other controls such as buttons. In *Design* view, this section appears below the page footer, but when the form is printed, this section prints on the last page only, above the page footer.
Page Header	Displays information when a form is printed. Visible only in *Design* or *Print Preview* view. Appears at the top of every page when printed. On the first page, it appears below the form header.
Page Footer	Displays information when a form is printed. Visible only in *Design* or *Print Preview* view. Appears at the bottom of every page when printed.

Figure 7-2 shows how the form sections appear in *Design* view, while **Figure 7-3** shows that same form in *Form* view. Notice that the *Page Header* and *Page Footer* sections do not appear in *Form* view. Also notice in *Form* view that it is difficult to differentiate between sections when they all have the same background color.

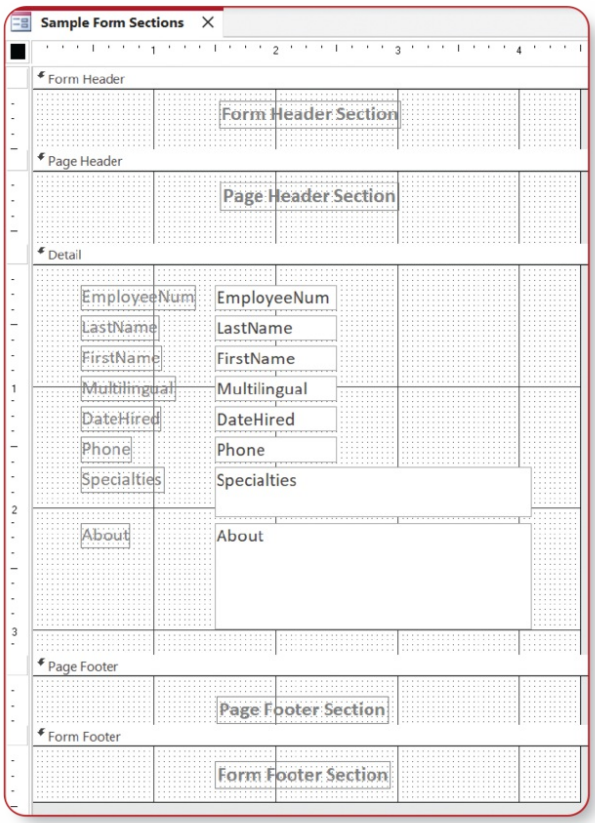


FIGURE 7-2 ***Design*** **view of form sections**

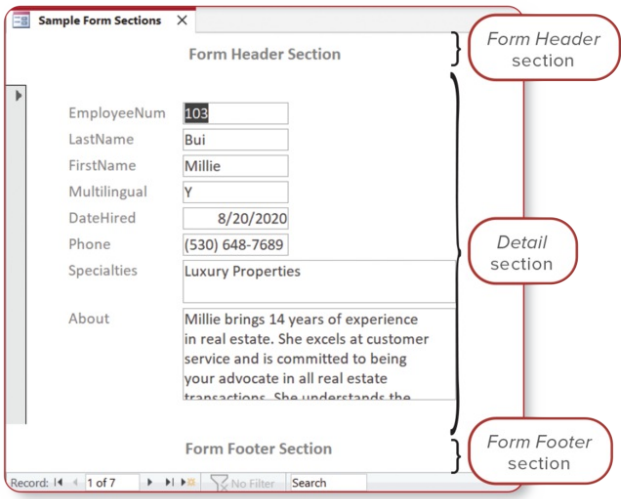


FIGURE 7-3 ***Form*** **view of form sections**

Although not as commonly used, *Print Preview* view can also be used to view a form. However, this view of a form is not available on the *View* menu. To open a form in *Print Preview* view, select the **Print** option [*File* tab] and then select the **Print Preview** option.

Figure 7-4 and **Figure 7-5** show pages of the same form in *Print Preview* view. **Figure 7-4** shows page 1, which illustrates the *Form Header, Page Header, Detail,* and *Page Footer* sections on the first page. The second page, not shown, contains the *Page Header, Detail,* and *Page Footer* sections. The last page, shown in **Figure 7-5**, contains the *Page Header, Detail, Form Footer,* and *Page Footer* sections. Note how the ***Form Footer*** **section** prints above the *Page Footer* section.

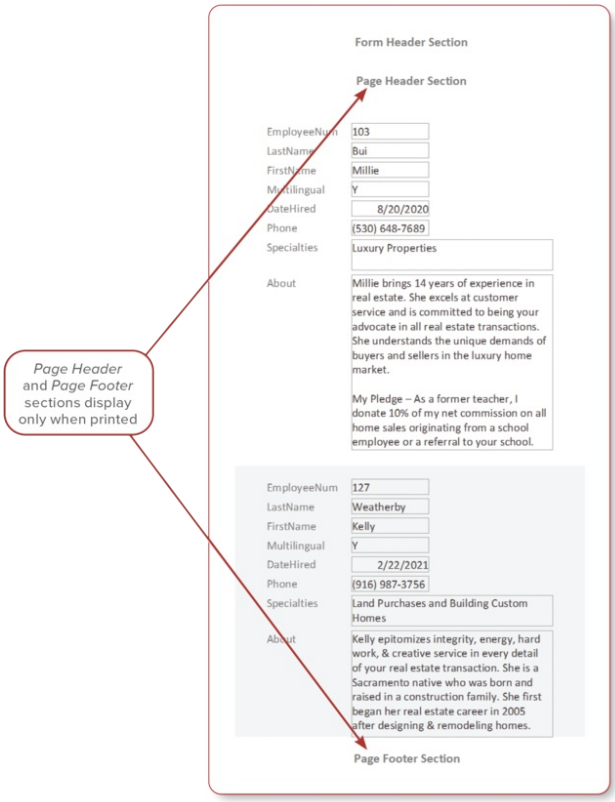


FIGURE 7-4 ***Print Preview*** **view of form, first page**

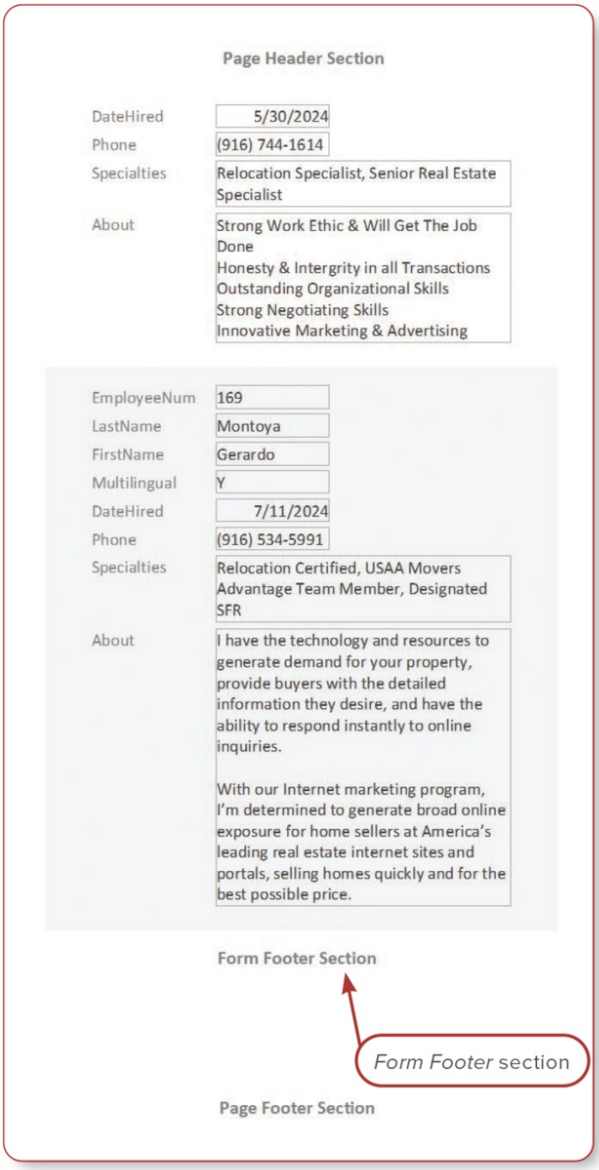


FIGURE 7-5 ***Print Preview*** **view of form, last page**

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As you learned in chapter 4 and chapter 6, database designers prefer to use reports for printing data. As a result, the *Page Header* and *Page Footer* sections are not commonly used in forms.

Figure 7-3, Figure 7-4, and Figure 7-5 also show the impact of changing the *Can Grow* property of a form field. Compare the height of the *Specialties* and *About* text boxes in these figures. In Figure 7-3, the *Can Grow* property is set to **No**, while Figure 7-4 and Figure 7-5

reflect the *Can Grow* property set to **Yes**. The *Can Grow* property is most useful for reports, because it doesn't alter the display in *Form* view. The height difference results when the form is displayed in *Print Preview* view, as shown in Figure 7-4 and Figure 7-5.

Insert and Remove Form Sections

The sections that initially appear on a form vary depending on the method you use to create the form. When you create a form in *Design* view, the *Detail* section is the only section automatically added to the form. You can add or remove header and footer sections in a form as needed.

The page header and footer and the form header and footer sections work as matched sets. For example, when you add a form header, you also add a form footer. However, if you don't need one of those sections, leave it empty and reduce the space allocated to the section.

HOW TO: Add or Delete Page and Form Header/Footer Sections

1. Open the form in *Design* view.
2. Right-click inside the form to open the context menu.
3. Select either the **Page Header/Footer** or **Form Header/Footer** option (Figure 7-6).

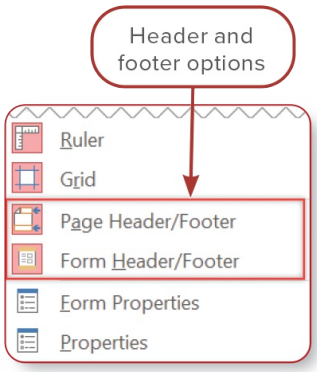


FIGURE 7-6 Context menu

- This selection works as a toggle. If the specified header/footer sections are on the form and you select that option, Access deletes the sections. If the sections are not on the form and you select that option, Access adds the sections.
- If you delete a section that contains controls, Access displays a message box informing you that the controls will also be deleted and asking you whether to proceed with the section deletion.

Change the Size of Form Sections

Many times, the default size of a section is larger or smaller than you need it to be. Additionally, as you add controls or modify the size of controls in a section, you may need to adjust the height or width of a section. In particular, you should pay attention to the size of the *Detail* section because that section shows the data about records in the database. Recall from ***SLO 4.1: Creating and Working with a Simple Form*** that a form may have a control layout (stacked or tabular) that helps to align the controls used in the form. The layout influences the size required for the *Detail* section.

HOW TO: Change the Height of a Section

1. Open the form in *Design* view.
2. Move your pointer to the lower border of the section you want to change.
   - The resize arrow appears (**Figure 7-7**). In **Figure 7-7**, the size of the *Form Header* section is being adjusted.

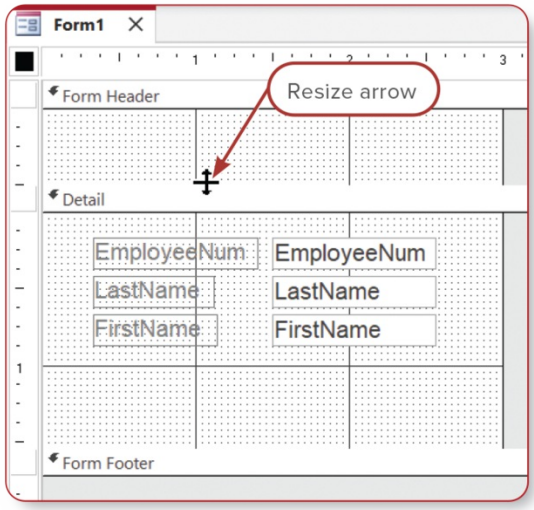


FIGURE 7-7 Adjust the height of form sections by dragging the resize arrow

   - If a section does not have any space in it, such as the *Form Footer* section, move your pointer to the bottom of the section bar.
3. Click, hold, and drag the **resize arrow** to increase or decrease the height of the section.
   - A black horizontal line moves with your pointer to indicate the new height.
   - If a section does not contain any controls, adjust the height of that section so it does not have any space in it, as shown in **Figure 7-8**.

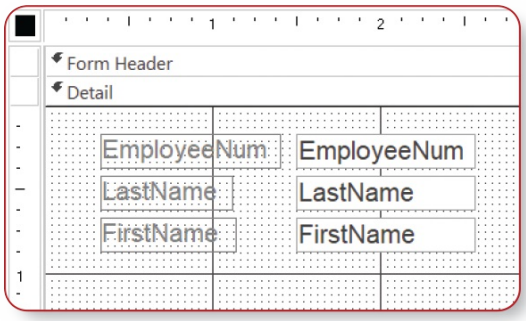


FIGURE 7-8 The *Form Header* section does not have any space

HOW TO: Change the Width of the Form

1. Open the form in *Design* view.
2. Open the *Property Sheet* and click the **Format** tab.
3. Choose **Form** in the *Selection type* box.
4. Enter the new measurement in the *Width* property.

You can adjust the height of each section independently of other sections on the form. However, the width of the form is the same for all sections.

HOW TO: Change the Height of a Section with the Property Sheet

1. Open the form in *Design* view.
2. Open the *Property Sheet* and click the **Format** tab.
3. Click to select the desired section bar on the form. The section bar updates to a black background.
4. Enter the new measurement in the *Height* property. Remember to press **Enter** or **Tab** after setting the property because property settings don't take effect until the current property is no longer selected.

ANOTHER WAY

Change the width of a form by placing your pointer on the right-hand border of the form and dragging the resize arrow. Because all sections resize, it doesn't matter in which section your pointer is located.

MORE INFO

If you are unable to reduce the height of a section or the width of the form, it is because a control somewhere in the form requires the space. Frequently, it is a control that is much larger than it needs to be. You must first reduce the size of the control. Often, this large control is a result of the *Auto_Header* label added with the *Title* button (see ***SLO 4.2: Creating and Customizing a Form in Layout View***).

In *Form* view it may be difficult to see the effect of the *Width* property. The default settings in Access display objects using *Tabbed Documents.* Each open object displays in its own tab. Click a tab to bring it to the top and make it the active object. This is the setting used in the previous chapters. Prior to Access 2007, the default setting displayed objects using *Overlapping Windows.* With *Overlapping Windows,* multiple open objects display in the Access interface and they overlap if the window is not large enough to display all of them. You can change the size and location of each open window.

Figure 7-9 illustrates the differences between *Overlapping Windows* and *Tabbed Documents.* The size of the Access window is constant across the three example images. The left image shows *Design* view of a sample form with a 3" width. The middle image shows *Form* view of that same form using the default setting of *Tabbed Documents.* Note that the form takes the size of the Access application window, which is greater than 3". This results in extra white space in the width as well as the height of the form. If you change the size of the Access window, the form increases or decreases in size. The right image also shows *Form* view of that same form. However, the options for the database have been changed to display *Overlapping Windows.* In this case the form displays as 3" wide. Access uses the *Tabbed Documents* interface option to avoid objects opening on top of each other. You can change the default setting as desired. Note that this setting applies only to the current database. You will need to make this change for each database in which you wish to use *Overlapping Windows.*

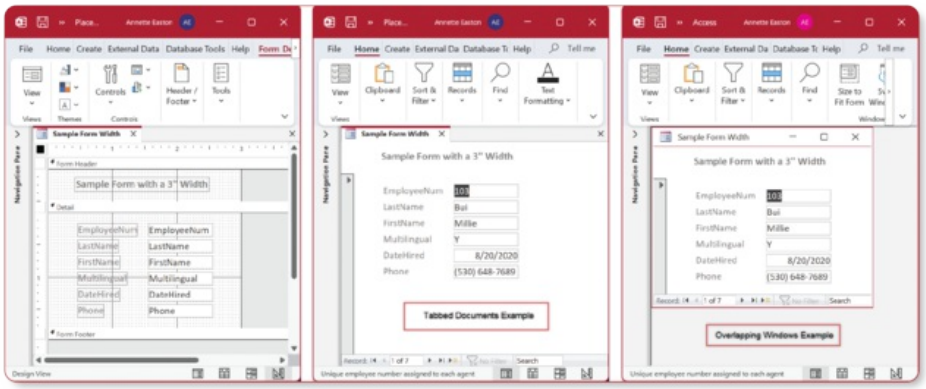


FIGURE 7-9 Sample form comparison of *Overlapping Windows* and *Tabbed Documents* display options

HOW TO: Change the Default Display Option for Access Objects

1. Click **Options** [*File* tab] to open the *Access Options* dialog box.
2. Click the **Current Database** button on the left.
3. Select either the **Overlapping Windows** or **Tabbed Documents** radio button in the *Application Options* area.
4. Click **OK** to close the dialog box. A message box informs you that you must close and then re-open the database for the settings to take effect.
5. Click **OK**.
6. Close and re-open the database to use the new settings.

SLO 7.2

Modifying Form Properties

After adding the required fields and other controls, you may want to change properties that influence how the controls behave on the form. Remember that fields are displayed through a control such as a text box or radio button. This section introduces several common modifications, including changing the tab properties, enabling and locking controls, changing border style, and removing a scroll bar and record selector.

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Modify Tab Properties

When using a form, a user typically presses **Enter** or **Tab** to move from one control to another. Many of these controls are text boxes used to capture and display data, although a user can navigate to other controls, such as buttons, as well. The order that Access navigates from one control to another is determined by the value in the ***Tab Index* property**. To make data entry easier, generally the tab order should operate from top to bottom and left to right.

By default, the tab order is initially set based on the order that fields and other controls have been added to the form. Often, this will not need to be modified. However, if you have rearranged the location of fields or have added or deleted fields and controls at different points in time, the order may not be optimal. From a design and usability perspective, the recommended tab order is to move from top-to-bottom and left-to-right.

HOW TO: Set the Tab Order

1. Open the form in *Design* view.
2. Click the **Tab Order** button [*Form Design* tab, *Tools* group] (**Figure 7-10**) to open the *Tab Order* dialog box (**Figure 7-11**).

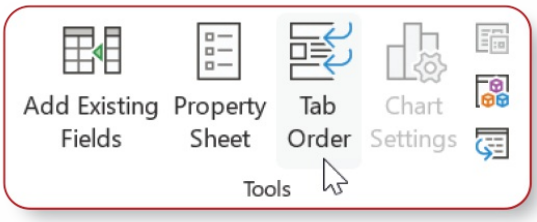


FIGURE 7-10 ***Tab Order* button**

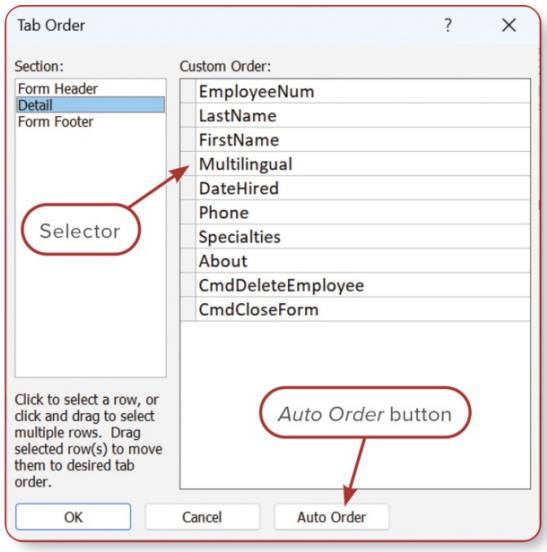


FIGURE 7-11 ***Tab Order*** **dialog box**

- The dialog box initially opens to display the controls in the section selected on the form.
- Only controls that have a *Tab Index* property display.
- **Figure 7-11** also illustrates the importance of assigning a name to **button controls**. If the two buttons (*cmdDeleteEmployee* and *cmdCloseForm*) displayed default names, such as *Command1* or *Command2,* it would be hard to know which button should be first in the tab order.

3. Click to select a different section in the *Section* area if necessary.
4. Click the **selector** of the control you want to move. The row is highlighted in black.
5. Click and hold the **selector** again and drag the control to the new location in the list (**Figure 7-12**). The black line moves with you to indicate the position of the control. Release the pointer.

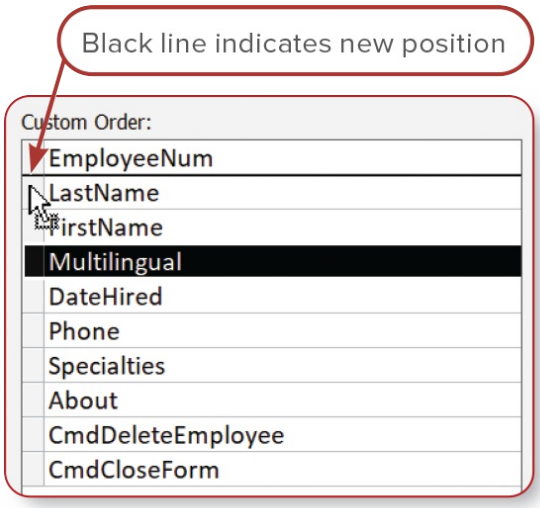


FIGURE 7-12 Drag a control to its new location

ANOTHER WAY

Click the **Auto Order** button to automatically create a top-to-bottom and left-to-right order, based on the location of the controls on the form.

6. Repeat steps 4 and 5 to move any additional controls if necessary.
7. Click **OK** to save the changes and close the dialog box.

The values in the *Tab Index* property range from 0 to the number of controls on the form. The control that is automatically selected when a form is opened has a value of 0 in the *Tab Index* property. In addition to using the *Tab Order* dialog box to change the order, you can enter the value directly in the *Property Sheet.*

HOW TO: Set the Tab Order on the Property Sheet

1. Open the form in *Design* view.
2. Open the *Property Sheet* and click the **Other** tab.
3. Select the desired control.
4. Enter the new value in the *Tab Index* property.

Several controls, like labels, lines, and images, do not have a *Tab Index* property, because a user cannot navigate to them on the form. Other controls may have a *Tab Index* property, but you may not want the user to tab to them when entering records. For example, a button to delete a record or close a form would only be pressed occasionally. It would not be efficient to tab to those buttons for every record the user enters in the database. The ***Tab Stop* property** determines whether a control can "have the focus" when the user presses **Tab** or **Enter**. Remember that *focus* is the ability of a control to be the active control and receive input from a mouse or keyboard action. The text box and the button are the two most common controls on a form able to have the focus. When a text box control has the focus, an insertion point displays waiting for input. If the text box already contains data, instead of displaying an insertion point the data value is selected. If a button control has the focus, a thin dotted rectangle displays inside the button border.

HOW TO: Remove a Tab Stop

1. Open the form in *Design* view.
2. Open the *Property Sheet* and click the **Other** tab.
3. Select the desired control.
4. Select **No** in the *Tab Stop* property.

When the user tabs out of the control with the largest *Tab Index* value, Access automatically advances to the first field of the next record and sets the focus to the control with the *Tab Index* value of 0. Sometimes, you may not want this to occur. Instead, you may want to have Access stay on the current record. The ***Cycle*** property of a form controls this behavior. The possible settings of the *Cycle* property are:

- *All Records:* When the user tabs out of the last field, Access advances to the first field of the next record.
- *Current Record:* When the user tabs out of the last field, Access moves to the first field of the current record.
- *Current Page:* Use on forms that contain multiple pages. When the user tabs out of the last field on the form page, Access moves back to the first field of the current page.

HOW TO: Modify the Tab Setting for the Last Field on a Form

1. Open the form in *Design* view.
2. Open the *Property Sheet* and click the **Other** tab.
3. Choose **Form** in the *Selection type* box.
4. Select the desired option in the *Cycle* property.

Enable and Lock Controls

In ***SLO 4.3: Facilitating Data Input with a Form,*** you learned how to limit edits on a form. Those properties applied to the entire form. In certain cases, however, you may want the limitation to apply only to a few fields instead of the entire form. For example, you may want to prevent your user from changing data in a Social Security number field while still allowing the user to make changes to the name and address fields. Occasionally, you may want to restrict the user from even clicking into a certain field. This prevents them from being able to copy the data to another location. While the *Tab Stop* property skips a field when the user presses **Tab** or **Enter** to leave a field, it does not prevent a user from clicking into the field by using the mouse.

The ***Locked*** property determines whether a user can change the contents in a field. The default setting of the *Locked* property is *No.*

To prevent edits in a field, change the default setting of the *Locked* property.

HOW TO: Prevent Edits in a Field

1. Open the form in *Design* view.
2. Select the desired control.
3. Open the *Property Sheet* and click the **Data** tab.
4. Select **Yes** in the *Locked* property to prevent a user from changing the contents of that field.

If the *Locked* property is set to *Yes,* users can still tab into that field or click the pointer to access that field. However, they are not able to change it. The ***Enabled* property** determines whether a control can have the focus. This can be used to prevent a user from accessing the field with the pointer or with the **Tab** key. The default setting of the *Enabled* property is *Yes.*

To prevent a user from accessing a field, change the default setting of both the *Locked* and *Enabled* properties.

HOW TO: Prevent Users from Accessing a Field

1. Open the form in *Design* view.
2. Select the desired control.
3. Open the *Property Sheet* and click the **Data** tab.
4. Select **No** in the *Enabled* property to prevent a user from accessing a field.

5. Select **Yes** in the *Locked* property to prevent a user from changing the contents of that field.

Another alternative is to change only the default setting of the *Enabled* property. In this situation, you prevent a user from accessing a field and also change the field to display in a dimmed state. In **Figure 7-13**, both the *EmployeeNum* text box and its associated label are dimmed. In this example, the *Caption* property of the label has been changed to *Employee ID*. Generally, when you change the property of a text box, it does not also affect the properties of the associated label. For example, if you changed a text box to display in bold, the label does not automatically change to display in bold. However, setting the *Enabled* property to *No* does affect the way the label displays, as you see in **Figure 7-13**.

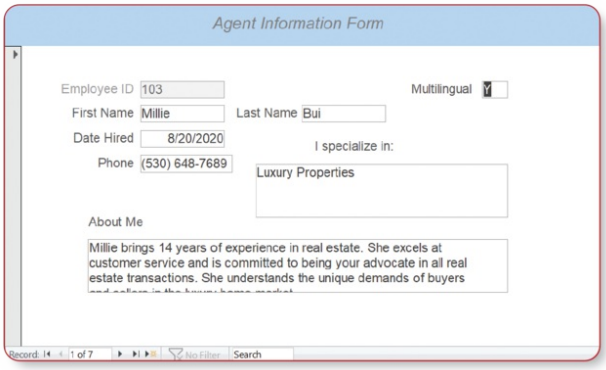


FIGURE 7-13 The *EmployeeNum* text box and associated label are dimmed through the *Enabled* property

HOW TO: Prevent Users from Accessing a Field and Dim the Field

1. Open the form in *Design* view.
2. Select the desired control.
3. Open the *Property Sheet* and click the **Data** tab.
4. Select **No** in the *Enabled* property.

MORE INFO

Most of the time, you will apply these changes to text box controls. However, these instructions apply to any control that has the *Enabled* or *Locked* properties.

Change Border Properties

Most of the controls on a form are surrounded by a border. Change the appearance of the border by modifying the border properties. These properties, available on the *Format* tab of the *Property Sheet,* are described Table 7-2.

Table 7-2: Border Properties of a Control

Property	Description	Options
Border Style	Set the type of border, if any, that displays around a control.	• *Transparent, Solid, Dashes, Short Dashes, Dots, Sparse Dots, Dash Dot, Dash Dot Dot* • The default *Border Style* selection is *Solid.* • Choose *Transparent* if you do not want a border to display around a control.
Border Width	Set the width of the border.	• *Hairline, 1 pt, 2 pt, 3 pt, 4 pt, 5 pt, 6 pt* • The default *Border Width* is *Hairline.*
Border Color	Set the color of the border.	• Click the **drop-down arrow** to select from a preset list. • Click the **Build** button to select from the color palette.

HOW TO: Change the Border of a Control

1. Open the form in *Design* view.
2. Select the desired control.
3. Open the *Property Sheet* and click the **Format** tab.
4. Click the **Border Style** property drop-down arrow and select the desired option.
5. Click the **Border Width** property drop-down arrow and select the desired option.
6. Click the **Border Color** property drop-down arrow, or the **Build** button, and select the desired option.

Remove a Scroll Bar and Record Selector

Scroll bars are used to move up and down or side to side in a form. This enables the user to see content that is not completely visible on the screen. When a form is viewed in *Form* view, Access automatically determines whether a vertical scroll bar, horizontal scroll bar, or both scroll bars are necessary based on the position of the controls on the form, the size of the form sections, and the size of the window. Additionally, when a text box is bound to a *Long Text* field, a vertical scroll bar appears when a person clicks that control.

The form in **Figure 7-14** displays horizontal and vertical scroll bars on the form. It also displays a vertical scroll bar in the text box below the *About Me* label because that field has the focus.

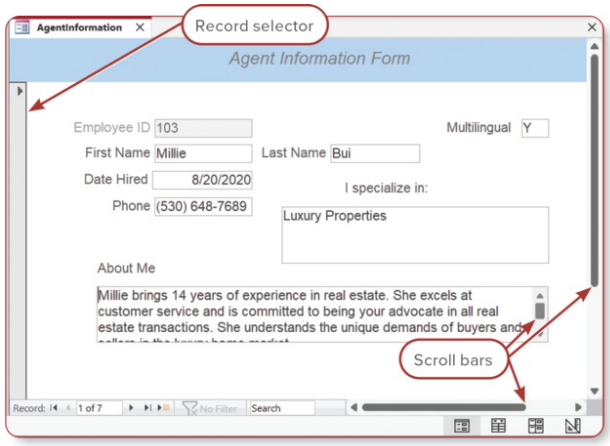


FIGURE 7-14 Scroll bars on a form and a text box and record selector for the form

The ***record selector*** is used to select a record in a form. In ***SLO 1.3: Creating and Using a Table in Datasheet View,*** you learned how to click the record selector in *Datasheet* view of a table. The record selector in a form works similarly. If a user clicks to select the record, the record selector turns black. The user can then select the copy command to copy all of the fields together, click the row selector in the target table, and paste all the field values into a record at one time.

In a form that shows only one record at a time, like **Figure 7-14**, the record selector displays as a vertical bar on the left of the screen. In forms that use a datasheet layout, the record selector appears as the gray box to the left of each record, as it does in *Datasheet* view of a table. In **Figure 7-14**, the record selector is not really needed if users don't have a need to select and copy all of the fields at one time. In cases like these, remove the record selector.

HOW TO: Remove the Record Selector from a Form

1. Open the form in *Design* view.
2. Open the *Property Sheet* and click the **Format** tab if necessary.
3. Choose **Form** in the *Selection type* box.

4. Select **No** in the *Record Selectors* property. The record selector no longer displays on the form when it is viewed in *Form* view or *Layout* view (**Figure 7-15**). Because the *Multilingual* text box has the focus, the vertical scroll bar in the *About* text box does not display.

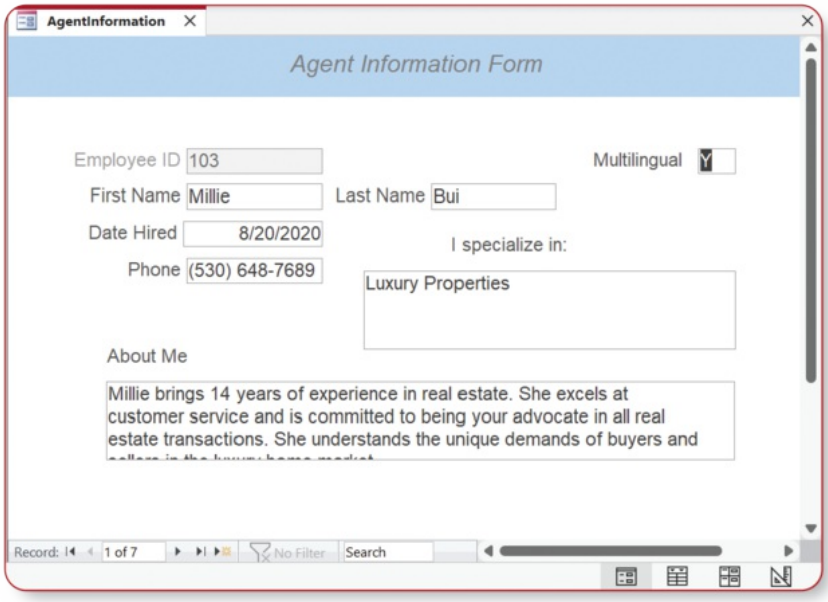


FIGURE 7-15 **Record selector removed from form**

Sometimes, the scroll bars display on a form even when they are not needed. This occurs because the size of the form itself is larger than it needs to be, which causes Access to show unnecessary scroll bars. Consider the form in **Figure 7-15**. Even though all the controls are visible, Access still displays vertical and horizontal scroll bars. If they are used, the user will simply scroll to a blank part of the form.

Figure 7-16 shows *Design* view of that form. Notice that both the width of the form and the height of the detail section are larger than necessary.

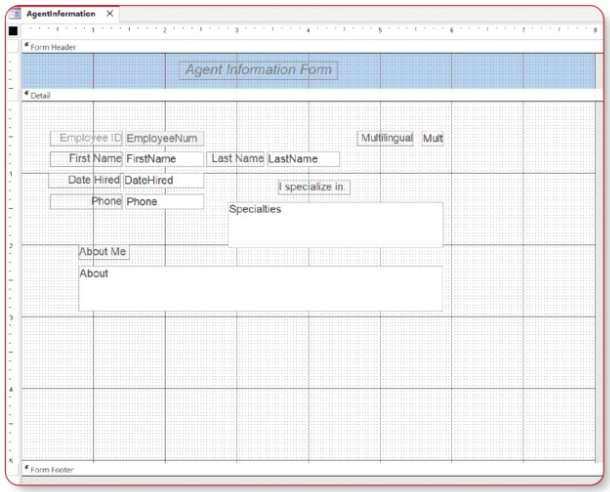


FIGURE 7-16 The width of the form and the height of the detail section are much larger than needed

In this situation, you want to reduce the width of the form and the height of the detail section. In general, the size of the form should be just large enough to show all the controls.

If the form is sized properly, you may want to control whether scroll bars display on the form. You use the settings in the *Scroll Bars* property of the form to change the way scroll bars display in the form. The possible choices are:

- *Neither:* A scroll bar never appears on the form.
- *Horizontal Only:* A horizontal scroll bar appears as needed. The vertical scroll bar does not display, even if necessary.
- *Vertical Only:* A vertical scroll bar appears as needed. The horizontal scroll bar does not display, even if necessary.
- *Both:* Horizontal and vertical scroll bars appear as needed. This is the default setting.

HOW TO: Change the Scroll Bars on a Form

1. Open the form in *Design* view.
2. Open the *Property Sheet* and click the **Format** tab if necessary.
3. Choose **Form** in the *Selection type* box.
4. Click the **Scroll Bars** property box, click the **drop-down arrow**, and select the desired option.

As you saw in Figure 7-14, a text box that is bound to a long text field displays a vertical scroll

bar when a person clicks the field. You use the settings in the *Scroll Bars* property of a text box to change the way scroll bars display in a text box. The possible choices are:

- *None:* A scroll bar never appears in a text box.
- *Vertical:* A vertical scroll bar appears when you click the control, whether it is needed or not. This is the default setting.

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HOW TO: Change the Scroll Bars on a Text Box Control

1. Open the form in *Design* view.
2. Select the desired control.
3. Open the *Property Sheet* and click the **Format** tab if necessary.
4. Click the **Scroll Bars** property box, click the **drop-down arrow**, and select the desired option.

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PAUSE & PRACTICE: ACCESS 7-1

For this Pause & Practice, you create a form for the Placer Hills Real Estate database in *Design* view. You add fields and modify the location of those fields. Next, you add sections and controls to the form. To improve functionality, you modify properties and controls for the form.

File Needed: ***PlacerHills-07.accdb*** *(Student data files are available in the* Library *of your SIMnet account.)*
Completed Project File Name: ***[your initials] PP A7-1.accdb***

1. Open the ***PlacerHills-07*** database from your student data files. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close it. If the message repeats in a later step, click **OK** or the **X** to close the message.
2. Save a new copy of your database as [your initials] PP A7-1.
3. Enable content in the database.
4. Create a form in *Design* view and add fields to the form.
    a. Click the **Form Design** button [*Create* tab, *Forms* group] to open a new form.
    b. Click the **Add Existing Fields** button [*Form Design* tab, *Tools* group] to open the *Field List* pane.
    c. Click the **Show all tables** link to display the database tables.
    d. Click the **plus sign** to expand the *Agents* table.

e. Double-click the **EmployeeNum** field to add it to the form.

f. Add the following additional fields into the *Detail* section of the form: **LastName**, **FirstName**, **Multilingual**, **DateHired**, **Phone**, **Specialties**, and **About**. The layout should be similar to that shown in Figure 7-17.

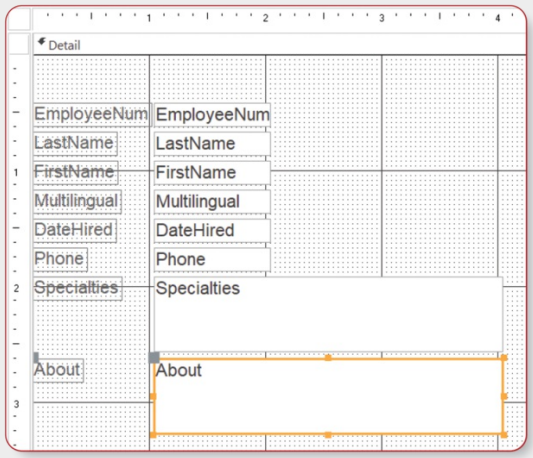


FIGURE 7-17 ***Design* view of form after adding fields**

g. Close the *Field List* pane.

h. Save the form as AgentInformation.

5. Modify the location and sizes of the fields.

a. Click the **Property Sheet** button [*Form Design* tab, *Tools* group] and click the **Format** tab if necessary.

b. Select the **LastName** text box and enter .7" in the *Top* property and 3.6" in the *Left* property.

c. Select the **LastName** label and change the *Caption* property to Last Name, and enter .75" in the *Width* property, .7" in the *Top* property, and 2.8" in the *Left* property. Keep the *LastName* label selected for the next step.

d. Press and hold the **Shift** key and select the **FirstName** label and text box. Release the *Shift* key.

e. Click the **Align** button drop-down arrow [*Arrange* tab, *Sizing & Ordering* group] and select **Top**.

f. Select the **Multilingual** text box and enter .3" in the *Width* property, and 5.5" in the *Left* property.

g. Select the **Multilingual** label and enter 4.65" in the *Left* property. Keep the *Multilingual* label selected for the next step.

h. Press and hold the **Shift** key and select the **Multilingual** text box and the **EmployeeNum** text box. Release the *Shift* key.

i. Click the **Align** button drop-down arrow [*Arrange* tab, *Sizing & Ordering* group] and select **Top**.

j. Select the **Phone**, **DateHired**, **FirstName**, and **EmployeeNum** text boxes, and enter 1.1" in the *Width* property and 1.45" in the *Left* property.

k. Select the **EmployeeNum** label and change the *Caption* property to Employee ID, enter .9" in the *Width* property, and .55" in the *Left* property.

l. Select the **FirstName** label and change the *Caption* property to First Name, enter .75" in the *Width*

property, and .65" in the *Left* property.

m. Select the **DateHired** label and change the *Caption* property to Date Hired, enter .75" in the *Width* property, and .65" in the *Left* property. Keep the *DateHired* label selected for the next step.

n. Press and hold the **Shift** key and select the **DateHired** text box, and enter 1" in the *Top* property.

o. Select the **Phone** label and enter .93" in the *Left* property. Keep the *Phone* label selected for the next step.

p. Press and hold the **Shift** key and select the **Phone** text box, and enter 1.3" in the *Top* property.

q. Select the **Specialties** text box and enter 1.4" in the *Top* property, and 2.8" in the *Left* property.

r. Select the **Specialties** label and change the *Caption* property to I specialize in:, and enter 1" in the *Width* property, 1.1" in the *Top* property, and 3.5" in the *Left* property.

s. Select the **About** text box and enter 5" in the *Width* property, 2.3" in the *Top* property, and .8" in the *Left* property.

t. Select the **About** label and change the *Caption* property to About Me and enter .7" in the *Width* property, 2" in the *Top* property, and .8" in the *Left* property.

u. Save the changes to your form. The completed layout should be similar to **Figure 7-18**.

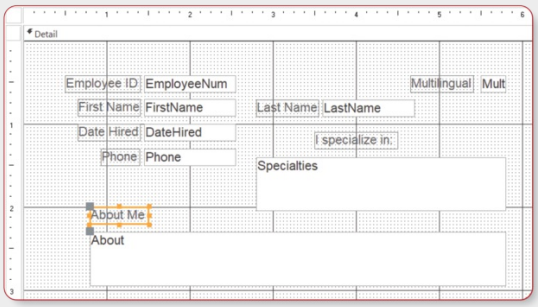


FIGURE 7-18 Completed layout of form fields

6. Change the size of the form and add a *Form Header* and a *Form Footer* section.

a. Click anywhere in the **Detail** section to deselect the controls.

b. Move your pointer to the lower border of the *Detail* section. The resize arrow appears.

c. Click, hold, and drag the **resize arrow** to decrease the height of the section to the first tick mark below 3" on the height ruler.

d. Move your pointer to the right edge of the *Detail* section. The resize arrow appears.

e. Change the width of the form to the first tick mark past 6.5".

f. Right-click inside the form to open the context menu.

g. Select the **Form Header/Footer** option. The *Form Header* and *Form Footer* sections display on the form.

7. Edit the *Form Header* and *Form Footer* sections and add a label into the *Form Header* section.

a. Click the **Form Header** section bar.

b. Enter .5" in the *Height* property.

c. Click the **Label** button [*Form Design* tab, *Controls* group].

d. Move the pointer into the **Form Header** section and click to add the label.

e. Type Agent Information Form into the label and press **Enter**.

f. Click to select the **Format** tab on the *Ribbon*.

g. Use the options and buttons in the *Font* group to change the font size to **14** and select **Center** alignment and **Italic** formatting.

h. Enter 2.2" in the *Width* property, .25" in the *Height* property, .12" in the *Top* property, and 2.2" in the *Left* property. When entering property values, don't worry if Access slightly changes a few of the values (for example, .12" becomes .1201").

i. Move your pointer to the lower border of the *Form Footer* section. The resize arrow appears.

j. Click, hold, and drag the **resize arrow** to decrease the height of the *Form Footer* section so no space remains in this section. The *Design* view of the form should look similar to Figure 7-19.

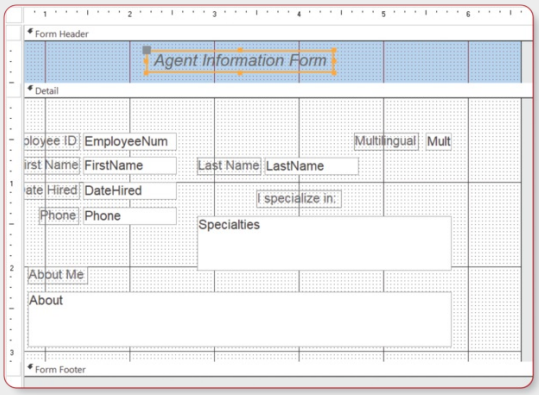


FIGURE 7-19 ***Form Header*** **and** ***Form Footer*** **sections added to form**

k. Save the form.

8. Test the form.

a. Switch to *Form* view. The first record displays. The *103* value in the *EmployeeNum* text box is selected, indicating this field has the focus.

b. Press **Tab**. The focus moves to the *LastName* text box.

c. Press **Tab**. The focus moves to the *FirstName* text box. Notice that the tab order does not follow a consistent path, because the controls were moved after having been added to the form.

d. Press **Tab** four more times. The focus moves to the *Specialties* text box. Notice that the vertical scroll bar displays in that text box even though all the text displays.

e. Press **Tab**. The focus moves to the *About* text box. Notice that this text box is still too small to display the entire contents but the vertical scroll bar allows you to scroll through all of the text.

f. Press **Tab**. The focus moves to the *EmployeeNum* text box of the next record.

9. Prevent users from accessing the *EmployeeNum* text box, dim the control, and change border properties.

a. Switch to *Design* view.

b. Select the **EmployeeNum** text box.

c. Open the *Property Sheet* and click the **Data** tab if necessary.

d. Select **No** in the *Enabled* property.

e. Click the **Format** tab.

f. Select **Transparent** in the *Border Style* property.

10. Remove the scroll bar from the *Specialties* text box and the form's record selector.

    a. Select the **Specialties** text box.

    b. Select **None** in the *Scroll Bars* property.

    c. Choose **Form** in the *Selection type* box. Recall that the *Selection type* box is located above the tabs on the *Property Sheet*.

    d. Select **No** in the *Record Selectors* property.

11. Increase the size of the *About* text box, although the scroll bars will still be necessary.

    a. Select the **About** text box.

    b. Enter .95" in the *Height* property. Notice that the height of the *Detail* section automatically adjusts to accommodate the increased height of the text box.

    c. Close the *Property Sheet*.

12. Change the tab order.

    a. Click the **Tab Order** button [*Form Design* tab, *Tools* group] to open the *Tab Order* dialog box. *Detail* should be selected in the *Section* area of the dialog box.

    b. Click the **Multilingual** control selector.

    c. Click and hold the **selector** again and then drag the control to above the *LastName* control. Release the pointer.

    d. Click the **LastName** control selector.

    e. Click and hold the **selector** again and then drag the control to below the *FirstName* control. Release the pointer.

    f. Click **OK** to save the changes and close the dialog box.

    g. Save and close the form.

13. Test the form.

    a. Double-click the **AgentInformation** form to open it in *Form* view. The form should look similar to **Figure 7-20**. Notice that the record selector does not display, the *Employee ID* label and *EmployeeNum* text box are dimmed, and that the tab order starts at the *Multilingual* text box.

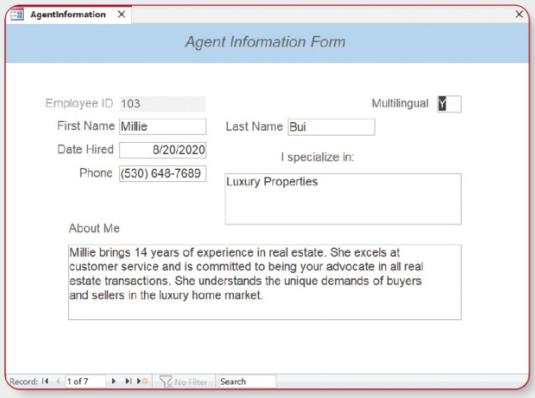


FIGURE 7-20 ***Form* view of completed form**

b. Press **Tab** five times to navigate to the *Specialties* text box. Notice that the vertical scroll bar does not appear.

c. Press **Tab** to move to the *About* text box. Notice that the vertical scroll bar still appears.

d. Close the form.

14. Close the database.

SLO 7.3

Creating a One-to-Many Form

Sometimes you need to create a form that shows data from tables that have a one-to-many relationship. For example, Placer Hills Real Estate may want a form to include data about both a real estate agent and also the agent's current property listings. This process is similar to the main report and subreport skills learned in *SLO 6.7: Using Subreports*. While the creation process is similar, because you are creating forms instead of reports, you can use the forms to add, edit, or delete data in the database instead of simply viewing and printing the data. In this section, you learn how to create a main form and a subform and how to add the subform to the main form.

The ***main form*** displays data from the "one" side of the relationship. The ***subform*** displays data from the "many" side of the relationship. You create both forms as separate objects, and then you add the subform to the main form. Once you add the subform, it still exists as a separate object. The main form, however, contains both the original "one" side fields from the main form, plus all of the "many" side fields on the subform. **Figure 7-21** shows an example of a finished form in which the agent information is in the main form and the property information is in the subform. This form also uses an aggregate function to total the number of listings each agent has.

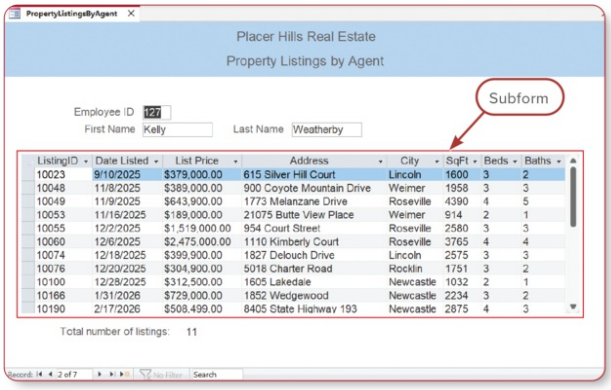


FIGURE 7-21 Main form with a subform

While you can build the forms in any order, the most common approach is to build the main form first.

Create the Main Form

Build the main form using any of the form tools you have learned. In this section, we use *Design* view to create the form based on a table.

HOW TO: Create a Main Form in Design View

1. Click the **Form Design** button [*Create* tab, *Forms* group] to open a new form.

> **MORE INFO**
>
> If you want to use a query as the record source, assign the query to the *Record Source* property of the form. See ***SLO 7.1: Building a Form in Design View*** for more information.

2. Click the **Add Existing Fields** button [*Form Design* tab, *Tools* group] to open the *Field List*.
3. Click the **Show all tables** link to display the database tables. If the record source is a query, the fields in that query are already displayed.
4. Add the desired fields into the *Detail* section.
5. Close the *Field List* pane.
6. Right-click inside the *Detail* section to open the context menu.
7. Select the **Form Header/Footer** option to add *Form Header* and *Form Footer* sections to the form.
8. Adjust the height and width of the *Detail* section, but be sure to leave space in the section for the subform. While you will fine-tune the amount of space needed later, at this point leave at least two inches for the subform.
9. Add a label into the *Form Header* section.
10. Adjust the height of the header and footer sections, as needed.
11. Format any of the controls as desired to change size, move location, add or remove borders, change font characteristics, etc.
12. Save and close the form.

Figure 7-22 shows a completed main form in *Design* view. The form at this stage often has unused space to allow for placement of the subform.

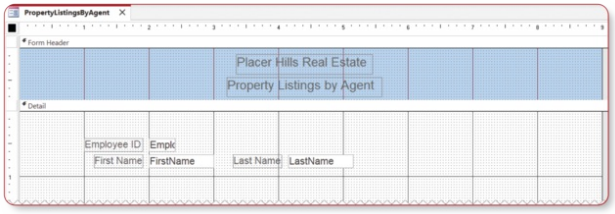


FIGURE 7-22 ***Design*** **view of main form**

Create the Subform

After creating the main form, you are ready to create the subform. It is common to use a datasheet layout to display the fields. In these cases, a quick starting point is to select the ***Datasheet*** option to create a form that shows multiple records in a *Datasheet* view. After the initial form is created, you then can modify it using both *Datasheet* and *Design* view. On a datasheet form, you cannot switch to *Form* view or *Layout* view. The *Datasheet* option is located on the *More Forms* button [*Create* tab, *Forms* group].

HOW TO: Create a Subform

1. Select the table in the *Navigation Pane* that contains the data from the "many" side of the relationship.
2. Click the **More Forms** button [*Create* tab, *Forms* group] and select **Datasheet** (**Figure 7-23**) to open a new form in *Datasheet* view.

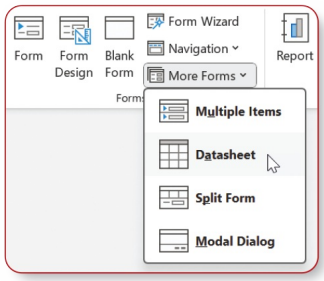


FIGURE 7-23 ***More Forms*** **button options**

3. Delete any fields that are not necessary by selecting the field, right-clicking to open the context menu, and selecting **Delete**.
   - Recall that in *Datasheet* view, you position the pointer over the column header and click to select the field.
   - Generally, you should not include the foreign key field on the subform because

it wastes space. It is the same as the primary key displayed on the main form, and you don't need it to display on every record in the subform.

4. Adjust the width of any fields by selecting the field and using the sizing handles on the field name.

ANOTHER WAY

You can also modify the column width by right-clicking the field name to open the context menu and selecting **Field Width** to open the *Column Width* dialog box. Enter the desired width and click **OK**.

5. Save the form using a combination of the table name and the word *Subform.* This helps you identify the form later.
6. Close the form.

Figure 7-24 shows a subform in *Datasheet* view.

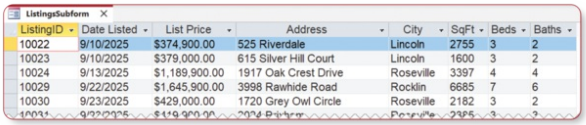


FIGURE 7-24 ***Datasheet* view of a subform**

Add the Subform to the Main Form

The last task in the process is to insert the subform into the main form. Use the *Subform/Subreport* button to launch the ***SubForm Wizard*** to add the subform. The *SubForm Wizard* steps you through the process of adding a subform into a main form. Be sure that the *Use Control Wizards* option is selected [*Form Design* tab, *Controls* group] before starting this activity.

HOW TO: Add an Existing Subform into a Main Form

1. Open the main form in *Design* view.
2. Click the **Subform/Subreport** button [*Form Design* tab, *Controls* group] (**Figure 7-25**).

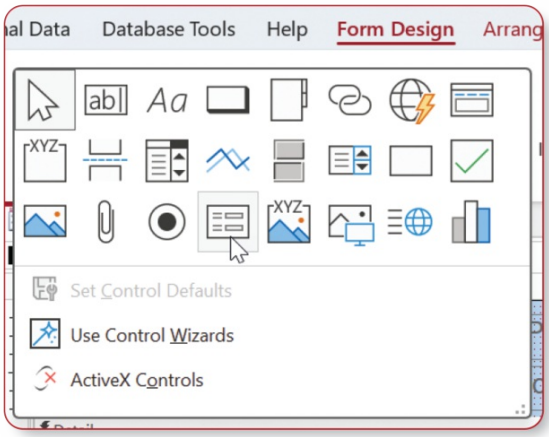


FIGURE 7-25 ***Subform/Subreport*** **button**

3. Click inside the **Detail** section of the form, in the upper left of where you want to position the subform. The *SubForm Wizard* launches.
4. Select the **Use an existing form** radio button (Figure 7-26).

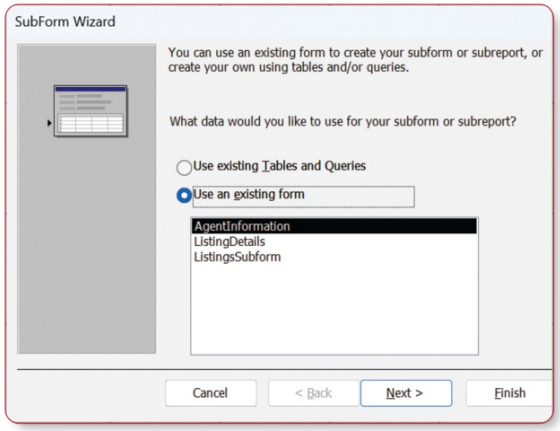


FIGURE 7-26 ***SubForm Wizard*****, step 1**

5. Select the name of the subform from the list and click **Next**.
   - The next page of the wizard prompts you to choose how to link the subform to the main form (Figure 7-27).

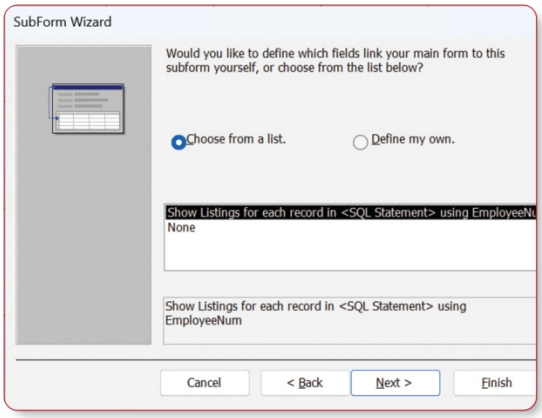


FIGURE 7-27 ***SubForm Wizard*, step 2**

- If the subform and main form have fields in common, the wizard displays a statement that shows how the underlying tables are related.

6. Accept the **Choose from a list** radio button and the default linking statement and click **Next**.
7. Accept the suggested name for the subform and click **Finish**. The subform is added into the main form (Figure 7-28).

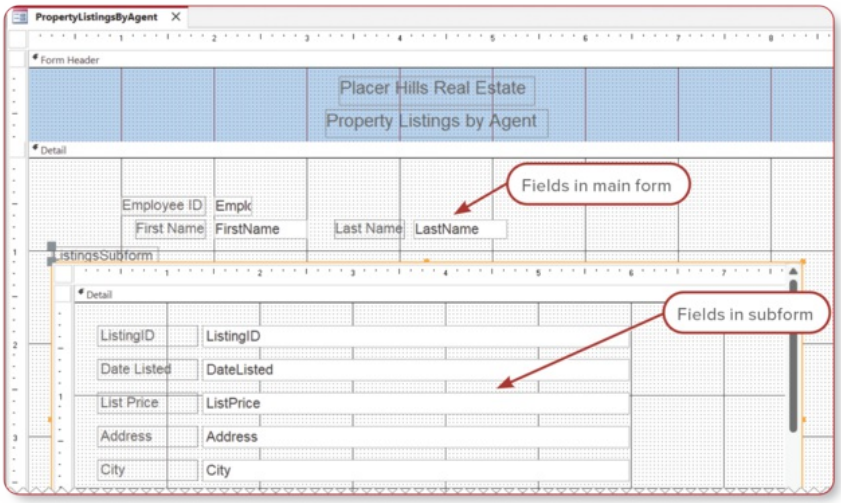


FIGURE 7-28 **Subform added into the main form**

- In *Design* view, the fields in the subform display in a **columnar layout**.
- In *Form* view or *Layout* view, the fields in the subform display in a datasheet layout.
- If the size of the subform is larger than the space available on the main form, Access may increase the height and width of the main form.

8. Switch to *Layout* view (Figure 7-29). Notice that the subform and the main form

each have their own *Navigation* bar. When moving between records, be sure to use the correct *Navigation* bar.

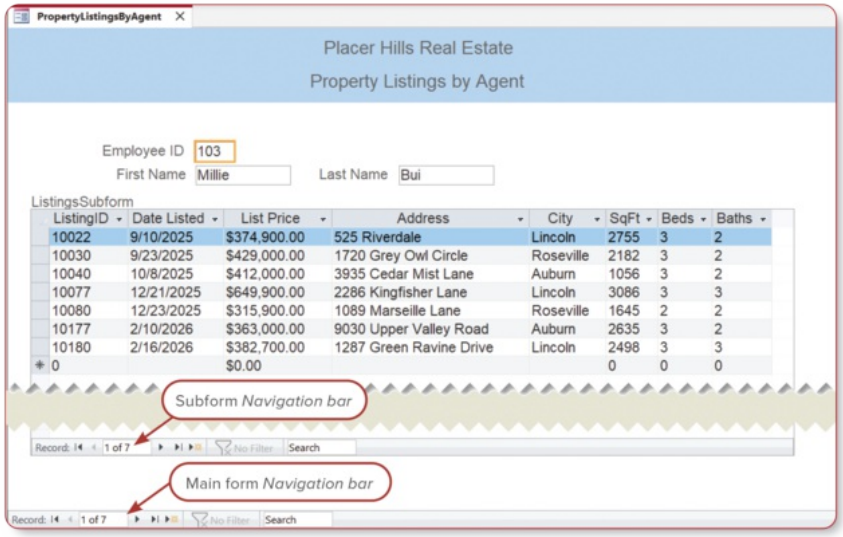


FIGURE 7-29 **Verify that the subform is correctly linked to the main form in *Layout* view**

9. Click the **Next record** arrow in the *Navigation* bar of the main form to advance to the next record. Verify that the subform is correctly linked to the main form and shows only the records that are associated with the record currently displayed in the main form.
10. Save and close the form.

A7-533

Instead of first creating a separate subform, you can also launch the *SubForm Wizard* and add a table or query into the main form. Access creates the subform object for you and attaches it to the main form.

HOW TO: Use a Table or Query as a Subform in a Main Form

1. Open the main form in *Design* view.
2. Click the **Subform/Subreport** button [*Form Design* tab, *Controls* group].
3. Click inside the **Detail** section of the form in the upper left of where you want to position the subform. The *SubForm Wizard* launches.
4. Ensure that the **Use existing Tables and Queries** radio button is selected and click **Next**.
5. Select the table/query, move the desired fields to use as the subform (

Figure 7-30), and click **Next**.

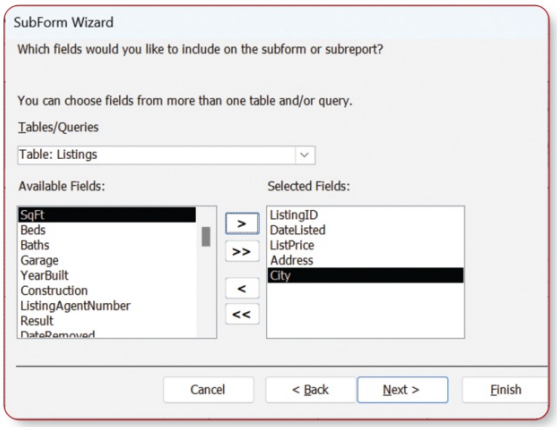


FIGURE 7-30 Select the table or query and the desired fields to use in the subform

- The next page of the wizard prompts you to choose how to link the subform to the main form.
- If the main form and subform have fields in common, the wizard displays a statement that shows how the tables are related.

6. Accept the **Choose from a list** radio button and the default linking statement, and click **Next**.
7. Accept the suggested name for the subform and click **Finish**.
   - The subform is added into the main form and is also created as a separate form object in the *Navigation Pane*.
8. Switch to *Layout* view. Verify that the subform is correctly linked to the main form.
9. Save and close the form.

If Access was not able to determine the correct linking fields between the subform and the main form, or if you created an incorrect link, you can manually establish the link. In the subform, you set the values of the *Link Child Fields* and *Link Master Fields* properties to make the correct connection.

HOW TO: Set the Link Fields on a Subform

1. Open the main form in *Design* view. The subform should already have been added onto the main form.
2. Open the *Property Sheet* and click the **Data** tab.

3. Choose the desired subform in the *Selection type* box.
4. Click the **Build** button in the *Link Master Fields* property box (Figure 7-31) to open the *Subform Field Linker* dialog box (Figure 7-32).

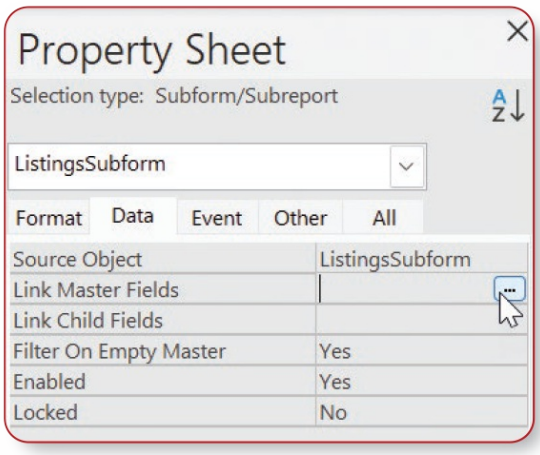


FIGURE 7-31 ***Link Master Fields*** **property**

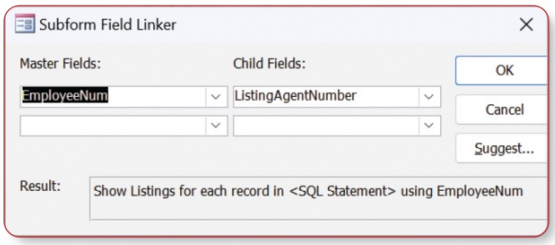


FIGURE 7-32 ***Subform Field Linker*** **dialog box**

5. Click the **Master Fields** box drop-down arrow and select the desired field.
6. Click the **Child Fields** box drop-down arrow and select the desired field.

ANOTHER WAY

If you click the **Suggest** button, Access attempts to determine which fields should be linked together for you.

7. Click **OK**.
8. Save the changes to the form.

MORE INFO

Occasionally you may need to edit the *Record Source* property in the subform or main form to include the required linking fields. Remember that the linking fields are typically the primary key in the "one" table and the foreign key in the "many" table.

The examples described in this section used tables as the record source for both the main form and the subform. Based on the needs of your database, a query may be the best source to display the desired results. For example, what if a real estate company wants to show only the listings of properties that are unsold? To accomplish this, you first create a query and specify the criteria to limit the results to show only unsold properties. Next, you use that query as the record source for the subform. This example illustrates that it is important to spend time planning and designing the best way to build your forms.

Customize the Main Form and the Subform

After you add the subform to the main form, you will want to customize the overall form so it has a professional appearance. When you open the main form, the subform opens and displays automatically because the objects are now attached. This enables you to edit both objects together and create a cohesive form. Alternatively, open the subform separately and edit just that object.

Anticipate switching back and forth frequently between *Design* view and *Layout* view as you work to edit the form.

Common modifications to the form, which you have already learned how to do, include the following:

- Adjust the size and spacing of the text box and label controls.
- Modify font characteristics or formatting of the text boxes and label controls.
- Change the border property or back color property of the controls or sections.
- Adjust the size of the subform or the sections on both the main form and subform.
- Remove the label attached to the subform.

When the main form is open, so you can edit both the main form and subform, keep in mind the following special considerations as you make changes on the subform portion:

- In *Design* view, the fields in the subform display in a columnar format. As a result, you should use *Layout* view to change the width of those fields.
- Because the subform uses a datasheet layout, it is not possible to customize the font characteristics of individual fields on the subform. All fields on the subform use the same font

characteristics. To change the font characteristics, select one field and modify the font properties.

- The captions in the labels on the subform must be edited in *Design* view.
- The width of the columns on the subform must be changed in *Layout* view.

Finally, as you have seen, both the subform and the main form have a border and a *Navigation* bar. Some designers prefer that the border and *Navigation* bar not appear in the subform. Use the *Border Style* property to control whether a border displays around the subform control. Use the ***Navigation Buttons*** property to control whether the *Navigation* bar appears at the bottom of the subform.

HOW TO: Remove the Border in a Subform Control

1. Open the main form in *Design* view. The subform should already have been added onto the main form.
2. Open the *Property Sheet* and click the **Format** tab.
3. Choose the desired subform in the *Selection type* box. Be sure the *Selection type* shows *Subform/Subreport* (**Figure 7-33**).

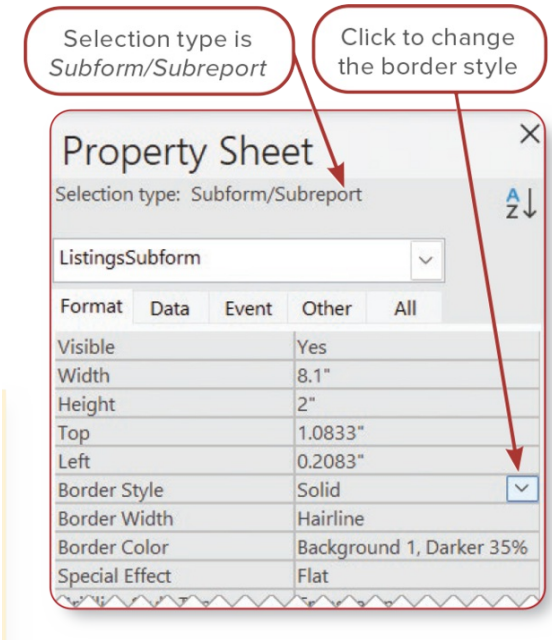


FIGURE 7-33 **Verify that the *Selection type* indicates *Subform/Subreport***

4. Select **Transparent** in the *Border Style* property.

MORE INFO

Instead of removing the border by selecting *Transparent,* you can also customize it by selecting a different style. Choose from *Solid, Transparent, Dashes, Short Dashes, Dots, Sparse Dots, Dash Dot,* and *Dash Dot Dot.*

HOW TO: Remove the Navigation Buttons on a Form

1. Open the main form in *Design* view. The subform should already have been added onto the main form.
2. Open the *Property Sheet* and click the **Format** tab.
3. Choose the desired subform in the *Selection type* box. Be sure the *Selection type* shows *Subform/Subreport.*
4. Click the **Select All** box in the subform to select the subform (Figure 7-34). In the *Property Sheet,* the *Selection type* updates to show *Form,* and the *Select All* box in the subform updates to display a black square.

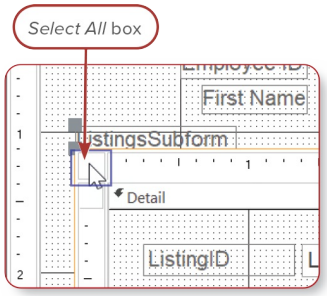


FIGURE 7-34 Click to select the *Select All* box

5. Select **No** in the *Navigation Buttons* property.

Figure 7-35 illustrates how the subform shown in Figure 7-29 displays after changes to borders and navigation buttons have been made. Notice no border displays around the subform control, and the *Navigation* bar displays only for the main form.

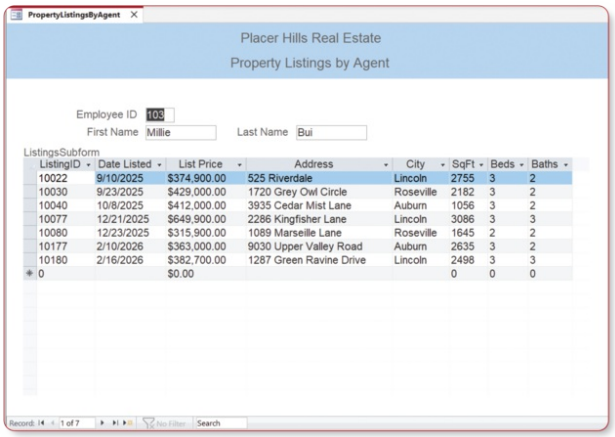


FIGURE 7-35 Modified subform without a border and *Navigation* bar

MORE INFO

Navigation buttons can be removed from any form. Database designers may do this to limit user actions to only selecting from buttons placed on the form.

SLO 7.4

Using Calculated Controls on a Form

Recall from ***SLO 3.7: Adding Calculated Fields to a Query*** and ***SLO 6.6: Using Calculated Controls on a Report*** that a ***calculated control*** contains an expression in the *Control Source* property. The basics of what you learned in **chapter 3** will help you in this section. You can use a calculated control in any form section. While several controls can be used as calculated controls, the most common choice is a text box.

A7-537

Add a Calculated Control to a Form

Controls on a form behave the same as controls on a report. Follow these rules when you enter an expression into a control:

- Enter the expression directly into the ***Control Source* property** [*Property Sheet Data* tab].
- If you need more space to enter the expression, open the *Expression Builder* or *Zoom* window.
- Start each expression with an equals sign (=).
- Assign a name to the control in the *Name* property [*Property Sheet Other* tab].
- Enclose any fields used in the expression inside square brackets **[ ]**.
- If you include a function in the expression, such as *DatePart()* or *UCase(),* you must follow the usage rules for that function.

The expression is visible inside the control when the form is in *Design* view, and it also displays in the *Control Source* property if the *Property Sheet* displays (**Figure 7-36**). The expression in **Figure 7-36** uses the *DateDiff* function to determine the difference between the date a property was listed and today's date. Although this is not true in **Figure 7-36**, most expressions are longer than the size of the control. In those instances, use the *Expression Builde*r or *Zoom* window to see the entire expression.

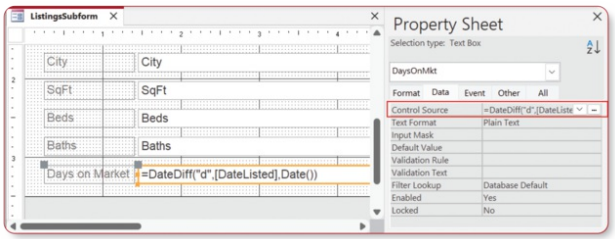


FIGURE 7-36 Expression displays inside

the control and in the *Control Source* property



You must include any fields you use in the expression in the *Record Source* of the form. Fields you have added to the form are automatically included in the *Record Source.* Occasionally, you have an expression that needs to reference a field you don't want to display on the form. In this case, either edit the *Record Source* and add the field into the query or add the field to the form but set the *Visible* property to *No.*

HOW TO: Add a Control with a Calculated Formula to a Form

1. Open the form in *Design* view.
2. Add a **Text Box** control to the form.
3. Open the *Property Sheet* and click the **Data** tab.
4. Enter the formula in the *Control Source* property. As desired, click the **Build** button to open the *Expression Builder.*
5. Enter a name for the text box in the *Name* property on the *Other* tab.

Aggregate Functions

You add calculated controls to a subform or main form using the skills you have already learned. However, if you want to use an aggregate function, such as *Avg* or *Count,* to calculate a value over a group of records, you need to adjust the placement of that control.

A7-538

To aggregate over a group of records on the subform, you must place the aggregate function calculation in either the *Form Header* or the *Form Footer* section of the subform. However, those sections do not display when the subform uses a datasheet layout. So you must also add a text box onto the main form to display the result of an aggregate calculation from the subform. Relax; this process sounds more complicated than it is!

HOW TO: Add an Aggregate Function to the Footer Section of a Subform

1. Open the subform in *Design* view.
2. Right-click inside the form to open the context menu and select the **Form Header/Footer** option to add those sections to the subform.
3. Click, hold, and drag the **vertical scroll bar** on the subform until the *Form Footer* section is visible.

4. Move your pointer to the bottom border of the *Form Footer* section, and then click, hold, and drag the **resize arrow** down to increase the height of that section if necessary.
5. Add a **Text Box** control to the *Form Footer* section of the subform. It doesn't matter where you place the text box in the footer, because it will not display when the form is viewed in *Form* view.
6. Open the *Property Sheet* and click the **Data** tab.
7. Enter the aggregate function expression in the *Control Source* property of the text box. As desired, click the **Build** button to open the *Expression Builder* and enter the formula in the *Expression Builder*.
8. Enter a name for the text box in the *Name* property on the *Other* tab. You will need to use this name in a subsequent formula, so it is important to remember it.
9. Delete the **label** that was added with the text box because it is not needed.

A completed aggregate function is illustrated in Figure 7-37, Figure 7-38, and Figure 7-39. Figure 7-37 shows the text box control in the footer of the subform. Figure 7-38 shows the *Name* property of the text box. Figure 7-39 shows the aggregate function entered into the *Control Source* property. The formula in this example is: =Count([ListingID]). The field that is being aggregated, *ListingID* in this case, must be on the subform.

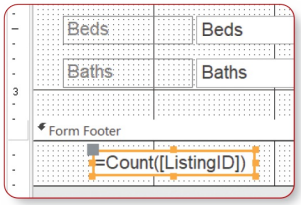


FIGURE 7-37 Text box added to footer of subform

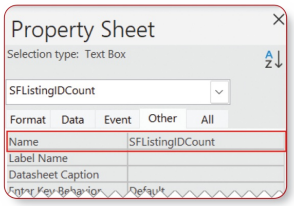


FIGURE 7-38 *Name* property of the text box

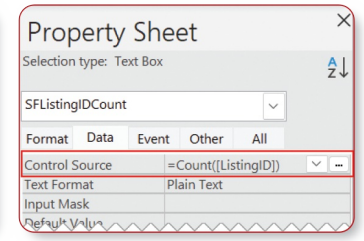


FIGURE 7-39 ***Control Source*** **property of the text box**

While you can assign any name you want to the text box, a more meaningful name is used in this example. This makes the name easier to remember. The name consists of three parts: *SF,* to indicate the subform; *ListingID,* to indicate the field that is being aggregated; and *Count,* to indicate the specific aggregate function.

MORE INFO

As is true with any control, when you add the text box to the form, it is assigned a default name, such as *Text1* or *Text7.* Although you could use that name instead of entering your own name, doing so does not follow good database design guidelines.

If you switch to *Form* view after adding the aggregate function onto the subform, you will not see any differences in the form. Recall that the *Form Header* and *Form Footer* sections on a subform do not display. To see the results of this aggregation, you must access the value from the text box on the subform and have it display on the main form. This skill is covered next.

Refer to Controls on Another Form

In most databases, you need to have a control on one object reference a control that is located on another object. A common example is to have a text box control on a main form reference a text box control on a subform. To do this, you add a text box control to the main form and enter an expression in the control source property that tells Access what to display in this text box.

The expression must use the following format:
=[Subform Name].[Form]![Control Name]

- Inside the first set of brackets, substitute the name of the subform. If you don't remember, the name of the subform displays in the *Navigation Pane.*
- Include the .[Form]! part of the expression exactly as written.

- Inside the third set of brackets, substitute the name of the text box control located in the footer of your subform.

To reference the text box control shown in Figure 7-39, you could write the following expression:

=[ListingsSubform].[Form]![SFListingIDCount]

From this expression, you see that the subform name is *ListingsSubform* and the text box control name is *SFListingIDCount.* It is very important that you enter the form name and control name exactly as they are written in the database.

HOW TO: Show the Value in a Subform Footer Control on a Main Form

1. Open the form in *Design* view.
2. Add a **Text Box** control to the main form.
3. Open the *Property Sheet* and click the **Data** tab.
4. Enter the expression to refer to a control on another form in the *Control Source* property. As desired, click the **Build** button to open the *Expression Builder* and enter the formula in the *Expression Builder*.
5. Enter a name for the text box in the *Name* property on the *Other* tab if this text box will be referenced elsewhere in the database.
6. Edit the caption of the label that was added with the text box.
7. Edit any formatting properties of the text box as desired.

A completed main form is illustrated in Figure 7-40, Figure 7-41, and Figure 7-42. Figure 7-40 shows the *Expression Builder,* which displays the contents of the text box's *Control Source* property. Figure 7-41 shows the text box control on the main form. While this text box is placed below the subform, it could be placed anywhere on the main form. Figure 7-42 shows the *Form* view of the completed form.

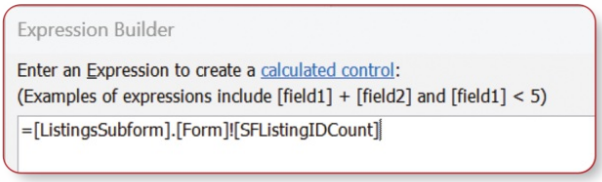


FIGURE 7-40 Expression to reference a control on a subform

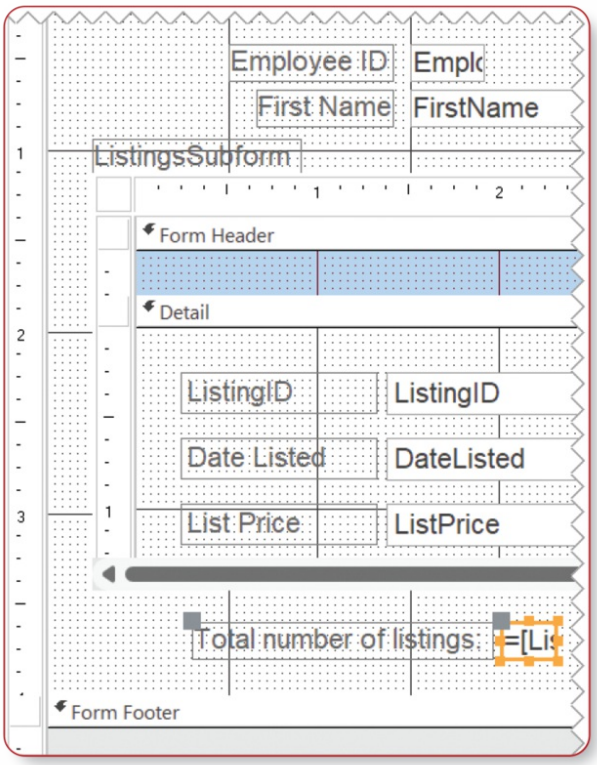


FIGURE 7-41 ***Design*** **view of the text box on the main form**

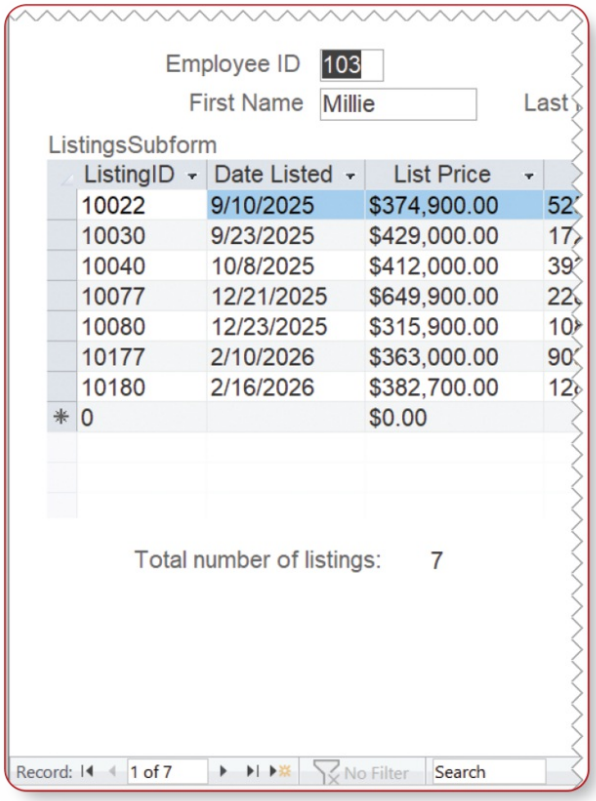


FIGURE 7-42 ***Form*** **view of the completed form**

While this example references a control on a subform, you can reference a control located on any other form. For example, you may have ordered a product from a company where you entered your user name on a main login form. Later, when you navigate to the order form, your user name displays at the top in a text box.

Use the same skills to reference a control located on any other form. However, change the format of the expression to:

=[Forms]![Form Name]![Control Name]

Troubleshoot Calculated Controls

You may encounter problems with referencing a control on another form. For example, when you view a completed form in *Form* view, a text box on the main form may display either *#Name?* or *#Error* instead of a value.

- The ***#Name?* error** means you have used a name for a field, control, form, or function that is not valid. This error is often caused by a misspelling or occurs because you referenced a field that is not in the form's record source. Consider the following examples:

Example 1: =[ListingSubform].[Form]! [SFListingIDCount]

Example 2: =Cont([ListingID])

- In example 1, the form name is misspelled. The actual form name is *ListingsSubform.*
- In example 2, the aggregate function name is misspelled. The correct function name is *Count.*

- The ***#Error*** error indicates that Access can't evaluate the expression that provides the control's value. This error is usually caused by a misspelling in the control name used in the formula. Consider the following examples:

  Example 1: =[ListingsSubform].[Form]![SFListingCount]

  Example 2: =Count([LstingID])

  - In example 1, the formula in the main form control is invalid. The actual control name on the subform is *SFListingIDCount.* In the example, "ID" is not included in the control name.
  - In example 2, the formula in the subform control is invalid. The actual control name on the subform is *ListingID.* In the example, "i" is not included in the control name.

  To correct either of these errors, review the formulas you have entered into the text boxes on the main form and on the subform. Verify that names are spelled the same as they are in the actual form and in the controls in the database and that the function is spelled correctly.

A7-541

Occasionally, you may find that the formula does not provide the correct answer. In these cases, you need to review the structure of the formula. Make sure you have used the correct fields and have written the formula correctly to calculate the result. A common mistake is using the wrong aggregate function or referencing the wrong field name.

A7-542

A7-543

A7-544

PAUSE & PRACTICE: ACCESS 7-2

For this Pause & Practice, you build a main form and a subform for the Placer Hills Real Estate database. You add the subform onto the main form and modify the design of the form to improve its appearance. You also add a calculated field that uses an aggregate function.

File Needed: ***[your initials] PP A7-1.accdb***

Completed Project File Name: ***[your initials] PP A7-2.accdb***

1. Open the ***[your initials] PP A7-1*** database file you created in *Pause & Practice 7-1.*
2. Save a new copy of your database as [your initials] PP A7-2.
3. Enable content in the database.
4. Build the main form.

a. Click the **Form Design** button [*Create* tab, *Forms* group] to open a new form.
b. Click the **Add Existing Fields** button [*Form Design* tab, *Tools* group] to open the *Field List,* if necessary.
c. Click the **Show all tables** link to display the database tables, if necessary.
d. Click the **plus sign** next to the *Agents* table to display the fields.
e. Add the **EmployeeNum**, **FirstName**, and **LastName** fields into the *Detail* section.
f. Close the *Field List* pane.
g. Save the form as PropertyListingsByAgent.

5. Add header and footer sections and label controls, and adjust the size of the sections.
   a. Right-click inside the form to open the context menu.
   b. Select the **Form Header/Footer** option to add *Form Header* and *Form Footer* sections to the form.
   c. Open the *Property Sheet* and click the **Format** tab if necessary.
   d. Choose **Form** in the *Selection type* box, if necessary, and enter 9" in the *Width* property.
   e. Choose **Detail** in the *Selection type* box and enter 4" in the *Height* property. You fine-tune the height and width of the main form near the end of the project, but these values give you enough room to build the different components.
   f. Choose **FormHeader** in the *Selection type* box and enter .8" in the *Height* property.
   g. Add a **Label** control into the *Form Header* section and enter Placer Hills Real Estate into the label.
   h. Select the **label**, if necessary, and change the *Width* property to 2.1", the *Height* property to .3", the *Top* property to .1", the *Left* property to 3.35", and the *Font Size* property to 14.
   i. Add a second **Label** control into the *Form Header* section, below the first label, and enter Property Listings by Agent into the label.
   j. Change the *Width* property to 2.4", the *Height* property to .3", the *Top* property to .45", the *Left* property to 3.2", and the *Font Size* property to 14.
   k. Move your pointer to the lower border of the *Form Footer* section. The resize arrow appears.
   l. Click, hold, and drag the **resize arrow** to decrease the height of the section so no space remains in this section.
   m. Save your changes to the form.

6. Modify the controls in the *Detail* section of the form.
   a. Select the **EmployeeNum** text box.
   b. Change the *Width* property to .4" and the *Left* property to 2".
   c. Select the **EmployeeNum** label.
   d. Change the *Caption* property to Employee ID, the *Width* property to .9", and the *Left* property to 1".
   e. Select the **LastName** text box and change the *Left* property to 4.15".
   f. Select the **LastName** label and change the *Caption* property to Last Name, the *Width* property to .75", and the *Left* property to 3.3".
   g. Select the **FirstName** text box and change the *Left* property to 2".

h. Select the **FirstName** label and change the *Caption* property to First Name, the *Width* property to .75", and the *Left* property to 1.15".

i. Select the **LastName** text box.

j. Press and hold the **Shift** key and select the **Last Name** label and the **FirstName** text box.

k. Click the **Align** button drop-down arrow [*Arrange* tab, *Sizing & Ordering* group] and select **Top**.

7. Remove the record selector.

a. Choose **Form** in the *Selection type* box.

b. Select **No** in the *Record Selectors* property.

c. Close the *Property Sheet*. Your form should look similar to Figure 7-43.

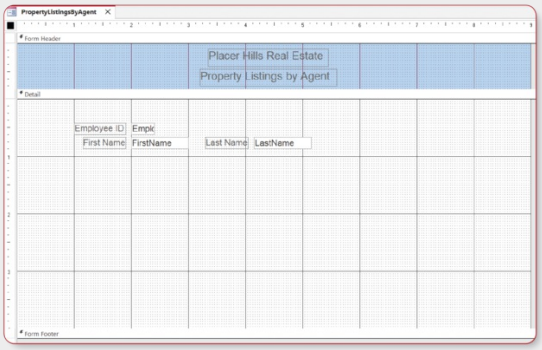


FIGURE 7-43 ***Design*** **view of completed main form**

d. Save and close the form.

8. Build the subform.

a. Select the **Listings** table in the *Navigation Pane*.

b. Click the **Maximize** button if necessary to ensure that the Access window is sized large enough to ensure that the form fields are placed in one column when viewed in *Design* view.

c. Click the **More Forms** button [*Create* tab, *Forms* group] and then select **Datasheet** to open a new form in *Datasheet* view.

d. Position the pointer over the **Garage** column header, click and hold to select that column, and drag the pointer to the right to also select the **YearBuilt**, **Construction**, **ListingAgentNumber**, **Result**, **DateRemoved**, and **SoldPrice** columns. Release the pointer. The seven columns are selected.

e. Position the pointer over one of the selected column headers, right-click to open the context menu, and select **Delete**.

f. Click the **Restore Down** button if necessary to return the Access window to the size it was before being maximized.

g. Switch to *Design* view. All of the controls are selected.

h. Click anywhere in the form to deselect all of the controls.

i. Open the *Property Sheet* and click the **Format** tab on the *Property Sheet* if necessary.

j. Click to select one of the text box controls, and enter 4.6" in the *Width* property. The width of all the text

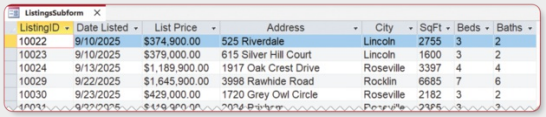
box controls changes.

k. Choose **Form** in the *Selection type* box and enter 7.7" in the *Width* property.

l. Choose **Detail** in the *Selection type* box and enter 3.2" in the *Height* property.

m. Save the form as ListingsSubform.

n. Switch to *Datasheet* view. The form should look similar to the form shown in Figure 7-44.



ListingID	Date Listed	List Price	Address	City	SqFt	Beds	Baths
10022	9/10/2025	$374,900.00	525 Riverdale	Lincoln	2755	3	2
10023	9/10/2025	$379,000.00	615 Silver Hill Court	Lincoln	1600	3	2
10024	9/13/2025	$1,189,900.00	1917 Oak Crest Drive	Roseville	3397	4	4
10029	9/22/2025	$1,645,900.00	3998 Rawhide Road	Rocklin	6685	7	6
10030	9/23/2025	$429,000.00	1720 Grey Owl Circle	Roseville	2182	3	2

FIGURE 7-44 ***Datasheet* view of the subform**

o. Close the form.

9. Add the subform onto the main form.

a. Open the *PropertyListingsByAgent* form in *Design* view.

b. Click the **Subform/Subreport** button [*Form Design* tab, *Controls* group].

c. Click inside the **Detail** section of the form, near the left border and below the fields in the *Detail* section (Figure 7-45). If a *Microsoft Access Security Notice* box displays, click **Open**. The *SubForm Wizard* launches.

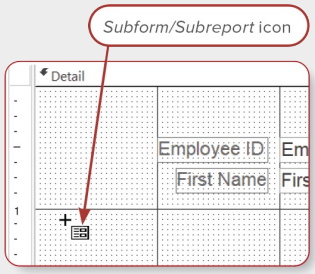


FIGURE 7-45 **Position the *Subform/Subreport* icon in the form**

d. Select the **Use an existing form** radio button.

e. Select the **ListingsSubform** form from the list and click **Next**.

f. Accept the **Choose from a list** radio button and the highlighted **Show** statement and click **Next**.

g. Accept the suggested name for the subform and click **Finish** to add the subform to the main form.

h. Save the form.

i. Switch to **Layout** view.

j. Click the **Next record** arrow in the *Navigation* bar of the main form to advance to the next record. Verify that the subform data updates and displays the correct information for Kelly Weatherby (Figure 7-46).

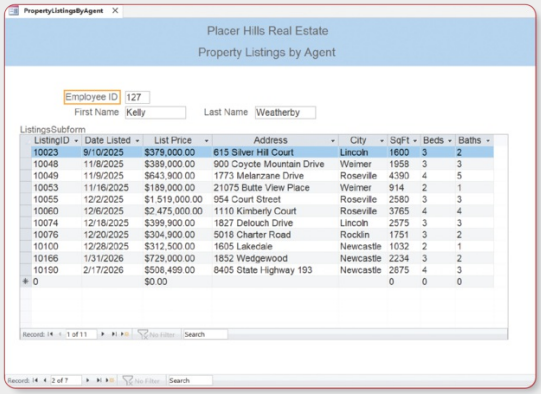


FIGURE 7-46 ***Layout*** **view of the main form after adding the subform**

10. Customize the subform to remove the border, *Navigation* bar, and label and to change the scroll bars.
    a. Switch to *Design* view.
    b. Choose **ListingsSubform** in the *Selection type* box on the *Property Sheet* if necessary.
    c. Select **Transparent** in the *Border Style* property.
    d. Click the **Select All** box in the subform to select the subform (Figure 7-47). In the *Property Sheet,* the *Selection type* updates to show *Form* and the *Select All* box in the subform updates to display a black square.

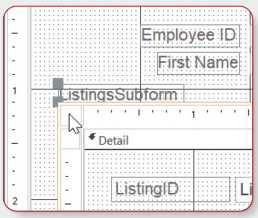


FIGURE 7-47 ***Select All*** **box**

    e. Select **No** in the *Navigation Buttons* property and **Vertical Only** in the *Scroll Bars* property.
    f. Click to select the **ListingsSubform** label.
    g. Press the **Delete** key.
    h. Save the form.
    i. Switch to *Layout* view. Verify that the border, *Navigation* bar, and label have been removed.
11. Add a calculated control onto the subform, enter an aggregate function, and edit the subform size.
    a. Switch to *Design* view.
    b. Click the **Detail** section bar of the subform to select it. You may have to click it twice.
    c. Right-click inside the *Detail* section of the subform to open the context menu.
    d. Select the **Form Header/Footer** option to add those sections to the subform.

e. Click, hold, and drag the **vertical scroll bar** on the subform to move down to the *Form Footer* section.

f. Click the **Form Footer** section bar and enter .4" in the *Height* property.

g. Add a **Text Box** control [*Form Design* tab, *Controls* group] to the *Form Footer* section of the subform.

h. Click the **Data** tab of the *Property Sheet*.

i. Click the **Build** button on the *Control Source* property.

j. Enter =Count([ListingID]) into the *Expression Builder* and click **OK**.

k. Enter SFListingIDCount in the *Name* property on the *Other* tab.

l. Delete the label that was added with the text box, because it is not needed.

m. Switch to *Layout* view. You will not see the new text box.

n. Switch back to *Design* view.

o. Choose **ListingsSubform** in the *Selection type* box.

p. Click the **Format** tab of the *Property Sheet* and enter 8.05" in the *Width* property and 2.3" in the *Height* property.

q. Save the form.

12. Add a text box to the main form and reference a control from the subform.

a. Add a **Text Box** control below the subform.

b. Click the **Data** tab and click the **Build** button on the *Control Source* property.

c. Enter =[ListingsSubform].[Form]![SFListingIDCount] into the *Expression Builder* and click **OK**.

d. Click the **Format** tab, change the *Width* property to .3", the *Top* property to 3.6", the *Left* property to 2.5", and select **Transparent** in the *Border Style* property.

e. Click the **label** control of that text box.

f. Click the **Format** tab, enter Total number of listings: in the *Caption* property and change the *Width* property to 1.65", the *Top* property to 3.6", and the *Left* property to .8".

g. Save the form.

13. Finalize the height and width of the main form.

a. Choose **Form** in the *Selection type* box and enter 8.5" in the *Width* property.

b. Choose **Detail** in the *Selection type* box and enter 4" in the *Height* property.

c. Save and close the form.

14. Open the *PropertyListingsByAgent* form in *Form* view. The completed form displays.

a. Click the **Next record** arrow in the *Navigation* bar of the main form to advance to the next record. Verify that the text box on the main form shows 11 total listings for Kelly Weatherby and that your form looks similar to **Figure 7-48**. Note that the subform now includes a vertical scroll bar because all of Kelly's records don't show at one time.

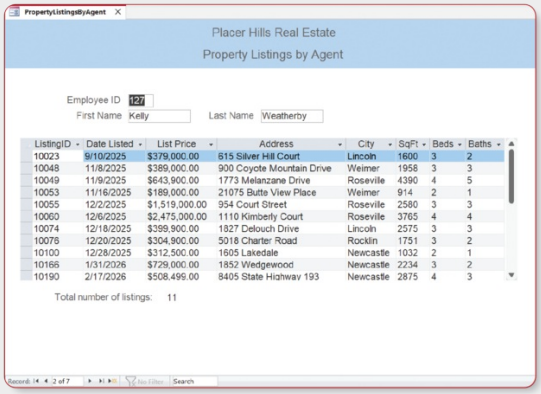


FIGURE 7-48 **Completed main form with a subform**

b. Close the form.

15. Close the database.

SLO 7.5

Enhancing the Look of a Form

After creating a basic form, you typically will want to enhance the design of the form. In addition to making your form more visually appealing, these changes can also aid in making the form easier to use and more helpful for users. Common improvements include adding a title or command buttons; changing the size, font, or location of fields; or changing the size or color of sections. Apply the information you learned in **chapter 4** about using *Layout* view to modify forms, and even reports, along with the information in ***SLO 6.5: Customizing a Report in Design View,*** to make modifications to a form in *Design* view. This section explains several additional modifications you can make to a form. As you decide what to change, an important consideration is not to overload the form. Pick a few elements that create a professional look. Several of the controls introduced in this section are highlighted in **Figure 7-49**, which shows the extended *Controls* group after the *Controls* arrow has been pressed.

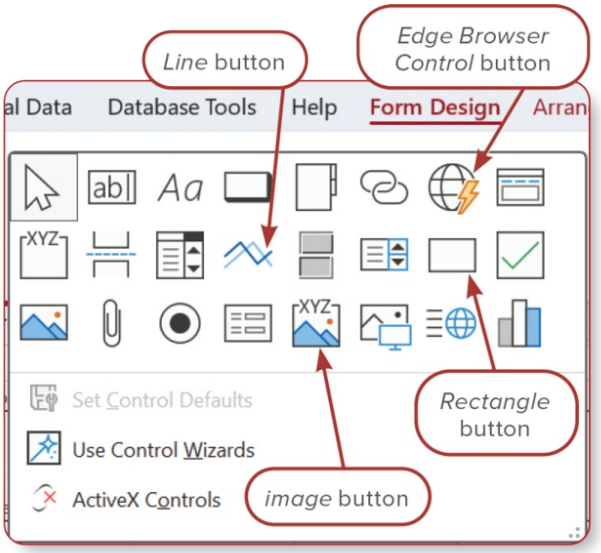


FIGURE 7-49 Options in the *Controls* group to enhance a form

Lines and Rectangles

Lines and rectangles can be added to a form to provide visual interest and aid in its readability. They can help separate controls, provide a logical grouping around multiple controls, or

differentiate areas in the form.

HOW TO: Add and Modify a Line Control in a Form

1. Open the form in *Design* view.
2. Click the **Controls** arrow at the far right of the *Controls* group [*Form Design* tab] to expand the *Controls* group.
3. Click the **Line** button in the *Controls* group.
4. Move the pointer to the desired location on the form and click to add a standard-size line.

> **ANOTHER WAY**
>
> You can also click, hold, and drag to draw a line onto a form.

5. Open the *Property Sheet* to modify the following properties of the line control:
   - Change the size and location with the *Width, Height, Top,* and *Left* properties.
   - Change the line style (solid, dashes, dots) with the *Border Style* property.
   - Change the line thickness with the *Border Width* property.
   - Change the line color with the *Border Color* property.

A rectangle initially is set to be transparent, meaning that any controls included inside the rectangle area display through the rectangle. You can change properties of a rectangle so it displays as a solid shape. After you have changed a rectangle to a solid shape, you can change the background color as desired.

HOW TO: Add and Modify a Rectangle Control in a Form

1. Open the form in *Design* view.
2. Click the **Controls** arrow at the far right of the *Controls* group [*Form Design* tab] to expand the *Controls* group.
3. Click the **Rectangle** button in the *Controls* group.
4. Move the pointer to the desired location on the form, and click inside the form to draw a standard-size rectangle.

ANOTHER WAY

You can also click, hold, and drag to draw the rectangle onto the form.

5. Open the *Property Sheet* to modify the following properties of the rectangle control:
   - Change the size and location with the *Width, Height, Top,* and *Left* properties.
   - Change the line style (solid, dashes, dots) surrounding the rectangle with the *Border Style* property.
   - Change the line thickness surrounding the rectangle with the *Border Width* property.
   - Change the line color surrounding the rectangle with the *Border Color* property.
   - Change from a transparent to a solid shape with the *Back Style* property.
   - Change the background color of the rectangle with the *Back Color* property.

Images

Add images to a form to display a company logo, add visual interest, or supplement the textual content. In the "*Customize a Form in Layout View*" section in ***SLO 4.2: Creating and Customizing a Form in Layout View,*** you learned how to add a logo into the header section of a form using the *Logo* button. If you prefer the image used as a logo to appear in a different location on the form, or if you want to have images displayed elsewhere on the form, add the image directly to the form. When using images in a database, be sure to consider the size of the image file because it can impact storage needs and the performance of the database. You can save images as a .jpg file, which results in a smaller file size, instead of using a larger .bmp file.

Two options are available for adding an image to a form. These options are located in the *Controls* group of the *Form Design* tab.

The ***Image*** button inserts an embedded image. This means the actual image is stored on the form itself.

HOW TO: Add an Image with the Image Button

1. Open the form in *Design* view.
2. Click the **Controls** arrow at the far right of the *Controls* group [*Form Design* tab] to expand the *Controls* group.

3. Click the **Image** button in the *Controls* group.
4. Move the pointer to the desired location on the form, and click to insert the image. The *Insert Picture* dialog box opens.
5. Locate and select the desired image file and click **OK** to insert the picture on the form.

If you add many images to a form or to a report, or if you add the same images to many forms or reports, the overall size of your database can increase significantly. Potentially, this could negatively impact the performance of your system.

A7-547

An alternative to using the *Image* button is to use the ***Insert Image*** button. The *Insert Image* button inserts a shared image. This means the image file is not stored as part of each form or report to which it is added. Instead, the file is stored once, in the *Image Gallery* of the database. This is a good approach if you are going to use the same image on multiple forms or reports. Not only does it reduce the overall size of the database, it makes it easier to update the image on all forms and reports.

HOW TO: Add an Image with the Insert Image Button

1. Open the form in *Design* view.
2. Click the **Insert Image** button [*Form Design* tab, *Controls* group]. If no images have been added to the *Image Gallery* for this database, only the *Browse* button is available (**Figure 7-50**).

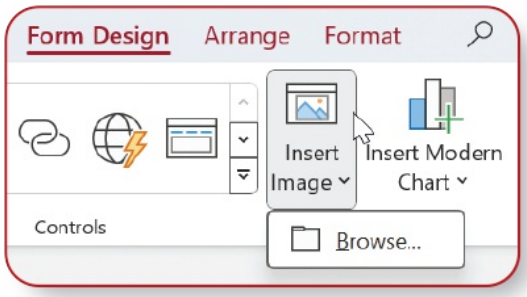


FIGURE 7-50 ***Insert Image*** **button**

3. Select an image from the list, or select the **Browse** button to open the *Insert Picture* dialog box, locate the chosen image, and click **OK**.
4. Move the pointer to the desired location on the form, and click to insert the image on the form.

If this is the first time you have selected an image, in addition to being added to the form, the image is added into the *Image Gallery*. It is easier to add an image from the *Image Gallery* onto subsequent forms or reports.

Using images that are added to the *Image Gallery* conserves file space in the database. It also makes it easier to update these shared images since a single change updates the image in all forms or reports where the image is used.

HOW TO: Replace an Image with the Insert Image Button

1. Open the form in *Design* view.
2. Click the **Insert Image** button [*Form Design* tab, *Controls* group]. The *Image Gallery* displays the images that can be updated.
3. Right-click the image you wish to update to open the context menu and select **Update** (Figure 7-51) to open the *Insert Picture* dialog box.

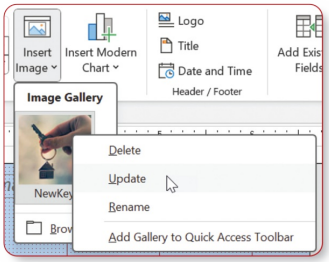


FIGURE 7-51 Replace an existing image
Photo Source: sommart/iStock/Getty Images Plus

4. Select the new image and click **OK**. The image is updated on the current form and is replaced on any other forms or reports where it is used.

Insert a Background Image

An image can also be used as the background of a form. The ***Background Image*** button inserts an image into the background of a form. The image can display in a corner of the form or be centered. The image can be stretched, clipped, or zoomed to fit the size of the form, but you will need to use a separate image-editing program to make more precise alterations. After you have added the picture to the form, you can change several form properties that pertain to the image. For example, the *Picture Size Mode* property controls the display size of the image, while the

Picture Alignment property determines the location of the image.

HOW TO: Add an Image to the Form Background

1. Open the form in *Design* view.
2. Click the **Background Image** button [*Format* tab, *Background* group]. The *Image Gallery* displays the images that can be updated, or if no images have been added to the *Image Gallery* for this database, only the *Browse* button is available (Figure 7-52).

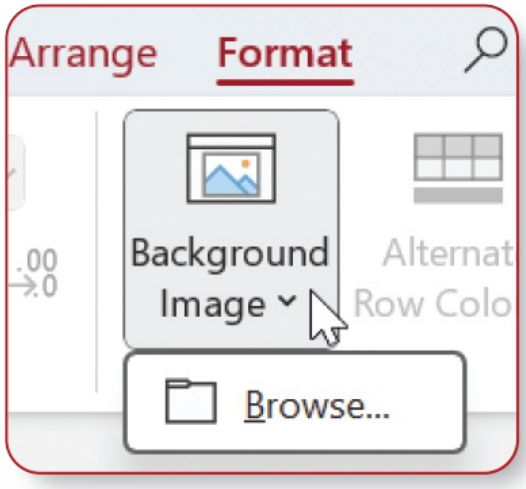


FIGURE 7-52 ***Background Image*** **button**

3. Select an image from the list, or select the **Browse** button to open the *Insert Picture* dialog box, locate the chosen image, and click **OK**.
4. Open the *Property Sheet* and select the **Format** tab to modify the values of the following form properties associated with the picture: *Picture Type, Picture, Picture Tiling, Picture Alignment,* and *Picture Size Mode.*

Be cautious about deciding to use a background image because doing so will slow the performance of the database. You also need to consider how the image affects the readability of text and the visibility of other controls. Finally, background images may be more appropriate for certain types of forms, such as a welcome form, compared to data entry forms.

COPILOT/GENERATIVE AI BEST PRACTICES

Get recommendations from *Copilot* about the best way to use images in Access forms. For

example, you can ask about the tradeoffs in using a background image or how to optimize performance of your database when adding images into an Access form. Follow up with asking for best practices and examples of well-designed forms that effectively use images in real-world applications.

Edge Browser Control

Use the *Edge Browser Control* to display web content on a form. Depending on the content and purpose of a form, the browser control can display a web page or a file. In forms that displays multiple records, you also specify whether the web page is the same for each record or whether it varies based on the contents of a field in each record. For example, display a picture of each employee that is already stored on the company website or show a map location of a supplier address.

MORE INFO

The *Edge Browser Control* only displays in the *Controls* group if you have a Microsoft 365 subscription. You also must be using build 16.0.16327.20214 or greater. Click the **Account** button [*File* tab] to display information about your subscription and version build number.

When you add an *Edge Browser Control* onto a form, Access displays an *Insert Hyperlink* dialog box in which you specify what the browser control displays. In the *Insert Hyperlink* dialog box, you can choose the type of link and provide the URL or file location.

HOW TO: Add an Edge Browser Control to a Form

1. Open the form in *Design* view.
2. Click the **Controls** arrow at the far right of the *Controls* group [*Form Design* tab] to expand the *Controls* group.
3. Click the **Edge Browser Control** button in the *Controls* group.
4. Move the pointer to the desired location on the form, and click to insert the control. The *Insert Hyperlink* dialog box opens.
5. Enter the URL or file path address and click **OK** to insert the control on the form.
6. Open the *Property Sheet* to modify the following properties of the browser control.
   - Change the size and location with the *Width, Height, Top,* and *Left* properties.
   - Change the line style (solid, dashes, dots) surrounding the browser control with

the *Border Style* property.

- Change the line thickness surrounding the browser control with the *Border Width* property.
- Change the line color surrounding the browser control with the *Border Color* property.

MORE INFO

Some database developers have reported problems when using the *Edge Browser Control.* Occasionally, after property updates have been made to the control, the control still displays results based on prior property settings. If your form does not appear to display the Web or file contents from the current property settings, perform a *Compact & Repair Database* to remove the corrupted contents. Refer back to ***SLO 2-8: Using the Compact & Repair Database Utility*** if you need additional guidance.

Colors and Fonts

A quick way to add visual interest to a form is to add color or change the default font. You can change the color of fonts, controls, borders, and even the background color of sections. You can also change many characteristics of the fonts, including the actual font itself, as well as implement formatting effects like bold, italics, and underline.

Keep in mind the following design considerations when changing colors or fonts in a form:

- Use color sparingly. Too many different colors make the form distracting and unappealing to your users.
- Avoid using too many different fonts, because it creates a distracting form. A general rule is to use a maximum of three different fonts.
- Select fonts that create a professional, polished look. Avoid silly or cartoonish fonts.
- Verify that adequate contrast exists between the colors of the text and background on the form so it can be easily read.
- Verify that the colors work well on different monitors and with different lighting conditions.
- Recognize that certain colors have implied meanings. For example, red is associated with “stop” or “danger.” When used with numbers, red implies a negative amount. Green, on the other hand, is associated with “go” or “continue.” Displaying an error message in green may have an unintended consequence of confusing users.
- Limit the use of bold, italics, and other font effects. These effects can be distracting and can make the text hard to read on a form.

Several different properties can be changed to control the use of color. The properties are located on the *Format* tab of the *Property Sheet* and are explained in Table 7-3. Not all of these properties are available on every control.

Table 7-3: Access Color Properties

Property Name	Description
Back Color	Changes the background color of a control or section. If you don't want the background color of a text box to be different than the background color of a section, set the *Back Color* of each to the same setting. The default color is white.
Alternate Back Color	Sets a different background color for alternating rows of data in a section. The default alternate color is a light gray.
Border Color	Changes the color of the border surrounding a control or object.
Fore Color	Changes the font color of text that displays in the control.

HOW TO: Change the Color Options of a Control or Section with the Property Sheet

1. Open the form in *Design* view.
2. Open the *Property Sheet* and click the **Format** tab.
3. Select the control or the section bar.
4. Enter the new value in the desired property (*Back Color, Alternate Back Color, Border Color,* or *Fore Color*). Enter the new value, either by clicking the **drop-down arrow** and selecting one of the predefined colors from the list or by clicking the **Build** button and selecting a color from the color palette.

In addition to the color options, you can change the default font characteristics used in a label or text box.

HOW TO: Change the Font Options of a Control with the Property Sheet

1. Open the form in *Design* view.
2. Open the *Property Sheet* and click the **Format** tab.

3. Select the desired control.
4. Click the **Font Name** property drop-down arrow and select the desired font.
5. Click the **Font Size** property drop-down arrow and select the desired size.
6. Click the **Text Align** property drop-down arrow and select the desired alignment. Options include *General, Left, Center, Right,* and *Distribute*.
7. Click the **Font Weight** property drop-down arrow and select the desired weight. Options include *Thin, Extra Light, Light, Normal, Medium, Semi-bold, Bold, Extra Bold,* and *Heavy*.
8. Click the **Back Style** property drop-down arrow and select **Transparent** or **Normal**.
9. Click the **Font Underline** property drop-down arrow and select **Yes** or **No**.
10. Click the **Font Italic** property drop-down arrow and select **Yes** or **No**.

You can also change the default font used in a label or text box using the font options on the *Format* tab in the *Font* group.

Use Themes in a Form

An easy way to enhance the look of a form is to select one of the predefined themes available in Access. A ***theme*** creates an overall design for a form, combining a preselected set of colors and fonts. One benefit to choosing a theme is that it has been specifically created to adhere to the design considerations discussed earlier.

HOW TO: Change the Theme of a Form

1. Open the form in *Design* view.
2. Click the **Themes** button [*Form Design* tab, *Themes* group] to display the gallery of available themes (Figure 7-53). Depending on your computer setup, in addition to the *Office* group, you may also have themes that are available in a *Custom* group.

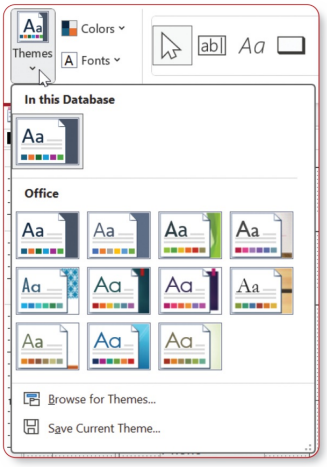


FIGURE 7-53 ***Themes*** **gallery**

3. Click the button of the desired theme.

MORE INFO

Hover over a theme button before selecting it and Access updates the form to preview how the theme appears.

After applying a new theme, modify any parts you don't like. For example, you can change the font name or size or the background color of a section.

Add Conditional Formatting to a Control

Recall that ***conditional formatting*** enables you to format only values that meet a certain condition. In ***SLO 4.7: Using Conditional Formatting in a Report***, you learned how to create conditional formatting rules in a report. You can also create rules that apply to controls on a form.

To add conditional formatting, you need to determine which fields will have formatting applied and the specific criteria you want to use to make the rule.

HOW TO: Add Conditional Formatting to a Control on a Form

1. Open the form in *Design* view.
2. Select the text box control where you wish to apply the criteria.

ANOTHER WAY

Select multiple controls to apply the same rule to all selected controls.

3. Click the **Conditional Formatting** button [*Format* tab, *Control Formatting* group] to open the *Conditional Formatting Rules Manager* dialog box (Figure 7-54).

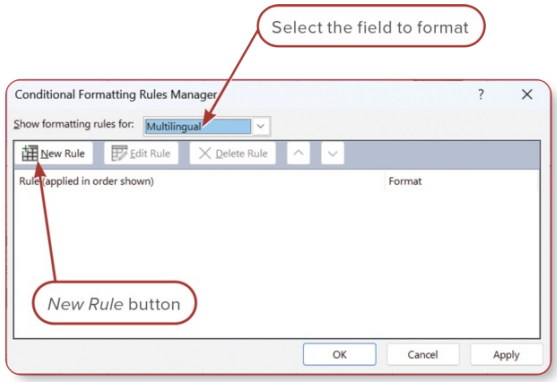


FIGURE 7-54 ***Conditional Formatting Rules Manager* dialog box**

- The selected control displays in the *Show formatting rules for* box.
- If more than one control is selected, *Multiple* displays in the box.

4. Change the control to format in the *Show formatting rules for* box if necessary.
5. Click the **New Rule** button to open the *New Formatting Rule* dialog box.
6. Select **Check values in the current record or use an expression** in the *Select a rule type* box.
7. Click the appropriate **arrows** to select the desired comparison.
8. Type the comparison values into the boxes.
9. Select formatting options as desired.
10. Click **OK**. The completed rule displays in the *Conditional Formatting Rules Manager* dialog box (Figure 7-55).

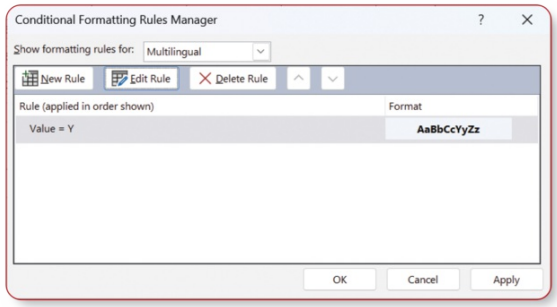


FIGURE 7-55 Completed rule

11. Add another rule to either the same field or a different field as desired.
12. Click **Apply** to have Access evaluate the data in the form and apply the formatting to the values that meet the criteria.
13. Click **OK** when you are finished building all the rules.

Recall that the ***Conditional Formatting Rules Manager*** displays rules for only one control at a time. To see the rule for a different control, select the desired control first in the *Show formatting rules for* box.

To edit or delete an existing rule, select the rule in the *Conditional Formatting Rules Manager* dialog box and click either the **Edit Rule** or the **Delete Rule** button.

Some database designers use conditional formatting to create a rule that emphasizes the form control that has the focus. After that rule has been applied, when the form is viewed in *Form* view (**Figure 7-56**), the control that has the focus displays with a colored background. Note the distinction of color of the label and text box of the *Employee ID* field in **Figure 7-56** from the label and text box of the *Last Name* field. The *Employee ID* field is dimmed compared to the *Last Name* field which has the focus.

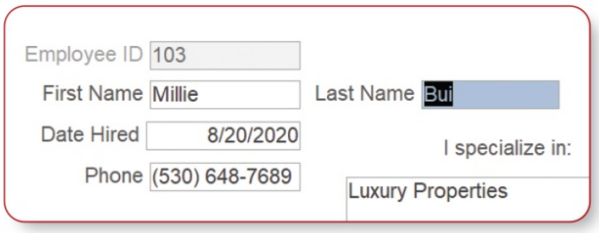


FIGURE 7-56 In *Form* view, the control with the focus displays with a different background color

HOW TO: Add Conditional Formatting to Emphasize the Control That Has the Focus

1. Open the form in *Design* view.
2. Select all of the controls that can be tabbed into.
3. Click the **Conditional Formatting** button [*Format* tab, *Control Formatting* group] to open the *Conditional Formatting Rules Manager* dialog box.
4. Click the **New Rule** button to open the *New Formatting Rule* dialog box.

5. Select **Check values in the current record or use an expression** in the *Select a rule type* box.
6. Click the first **drop-down arrow** and select **Field Has Focus** (Figure 7-57).

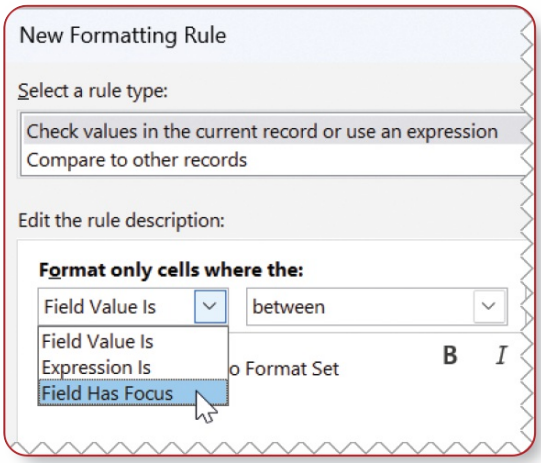


FIGURE 7-57 **Choose the *Field Has Focus* option in the *Edit the rule description* area**

7. Click the **Background Color** button and select the new color.
8. Click **OK**. The completed rule displays in the *Conditional Formatting Rules Manager* dialog box.
9. Click **Apply** to have Access evaluate the data in the form and apply the formatting to the values that meet the criteria.
10. Click **OK** when you are finished building all the rules.

Change the Form Caption

When a form is open, the name of the form displays in a small tab at the top of the form. You can change the caption that displays in the tab at the top of the form. By default, the tab is set to display the name of the form.

HOW TO: Edit the Form Caption

1. Open the form in *Design* view.
2. Open the *Property Sheet* and click the **Format** tab.
3. Choose **Form** in the *Selection type* box.
4. Edit the contents of the *Caption* property to change the wording that displays in

the tab.

- In *Design* view, the tab still displays the form name.
- In *Form* view or *Layout* view, the tab updates to display the contents of the *Caption* property (Figure 7-58).



FIGURE 7-58 Form caption displays in the tab

Accessible Forms

As you are learning, you should create forms that are easy to use and that help minimize the chance for errors. This includes logically grouping related fields together, providing labels for fields, only including necessary fields, minimizing scrolling, and designing for simplicity. A related concept is to ensure your forms are accessible**.** An ***accessible form*** ensures that all users, including those with disabilities, are able to understand and use the form. A comprehensive tutorial on designing for accessibility is beyond the scope of this book. However, you should understand the importance of label design usage for assistive technologies, such as computer screen readers. When a screen reader is used and a user tabs from one control to another, the screen reader announces the information in the label that is attached to the control that gets the focus. If a label is not attached to the control, the reader may not correctly announce the control.

As you know, a label is automatically included when you add a text box or similar control to a form. The label text should clearly describe the content of the control. The importance of label text becomes more critical when considering the use of screen readers. To ensure an accessible form, some designers recommend including the word “required” as part of the label caption for any fields that must be completed on the form. Additionally, you should include text that explains any specific formatting for the field, such as a DD-MON-YY date format. Consider including an example entry, such as 15-Aug-2026, if it makes the control requirements more clear.

Recall that if you delete a control with an associated label, both the control and label are removed. Occasionally, a database designer may delete a label associated with a control. If they later add a label to the form, it is not automatically attached to another control. A label that is not attached to a control displays a small green triangle in the upper-left corner (Figure 7-59). If you click the **label**, an exclamation mark displays. Move your pointer over the exclamation mark and then select the **drop-down arrow** on this exclamation mark to display the available options (Figure 7-60).

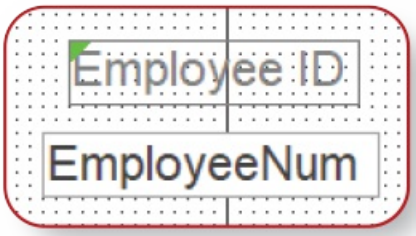


FIGURE 7-59 Label not attached to a control

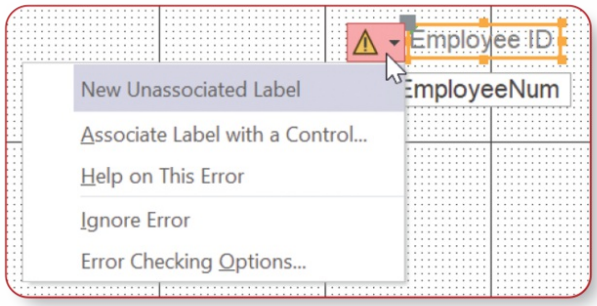


FIGURE 7-60 View available label options

To ensure that a screen reader knows a label is related to a control, you must use the ***Label Name*** property to attach the added label.

A7-554

HOW TO: Attach a Label to a Control

1. Open the form in *Design* view.
2. Select the control to which you will attach the label.
3. Open the *Property Sheet* and click the **Other** tab.
4. Type the *Name* of the label, not the *Caption,* in the *Label Name* property of the control.

ANOTHER WAY

Click the **label**, move your pointer over the exclamation mark, click the **drop-down arrow**, and then select **Associate Label with a Control.** The *Associate Label* dialog box opens. Select the desired control and click **OK** to have Access update the *Label Name* property of the selected control.

COPILOT/GENERATIVE AI BEST PRACTICES

Copilot can help you learn more about how to create accessible forms. Ask *Copilot* about any federal guidelines for developing accessible computer applications. Follow up by further exploring any links or documents that provide examples or tutorials on how you can design forms that meet accessibility guidelines, Also, ask for examples of forms that illustrate best practices for accessibility.

SLO 7.6

Integrating Data Validation in Controls

Recall that data validation is the process of verifying the accuracy, or integrity, of the data in your database. In ***SLO 2.3: Understanding Data Integrity and Data Validation*** and ***SLO 2.4: Integrating Data Validation in Tables,*** you learned about data validation and how to add validation rules to fields and tables in a database. Those validation rules limit entries into a field to a certain range of values or to matching a specified format. Sometimes you may want to create the data validation rules added to controls in a form instead of directly to the fields in the table. For example, when a rule is built on a table field, you may be prevented from fixing a previous data entry error. Consider a rule that requires the *Order Date* field to be greater than or equal to "today's date." In this instance, if several days after entering an order a sales clerk realizes that the wrong order date was entered for an order, the validation rule in the table fields would prevent the clerk from making the correction in the table. However, if the rule was applied in the form instead of in the table, a manager, or other user with designated authority, could go into the table directly and make the required change. In this section, you learn how to apply validation rules to controls in a form.

Modify the Validation Rule Property

Enter a validation rule into the ***Validation Rule*** property of a control. To review how to structure an expression for a validation rule, and see examples of different rules, including those using wildcards, see ***SLO 2.4: Integrating Data Validation in Tables.*** Access checks the validation rule when a user navigates out of that control. If the data violates the rule, Access requires the user to fix the problem before he or she can leave the field.

HOW TO: Create a Validation Rule for a Control

1. Open the form in *Design* view.
2. Select the control.
3. Open the *Property Sheet* and click the **Data** tab.
4. Type the text of the desired rule directly in the *Validation Rule* property or click the **Build** button to open the *Expression Builder* dialog box.

Modify the Validation Text Property

When data is entered that violates a validation rule, Access automatically displays a message box alerting the user to the problem. The message box text, as shown in **Figure 7-61**, includes a generic message.

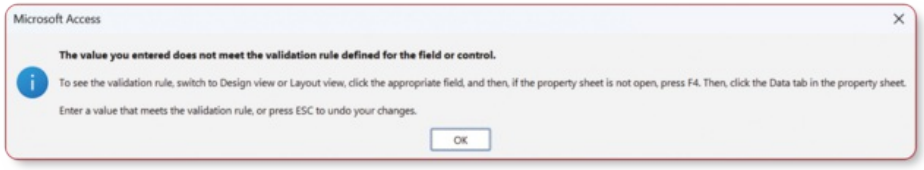


FIGURE 7-61 Generic error message displays when a validation rule is violated

Use the ***Validation Text* property** of a control to enter a custom message that displays instead of the default message.

HOW TO: Create Validation Text for a Control

1. Open the form in *Design* view.
2. Select the control.
3. Open the *Property Sheet* and click the **Data** tab.
4. Enter the text of the desired message in the *Validation Text* property.

ANOTHER WAY

Enter the message in the *Zoom* window. Open the *Zoom* window by right-clicking the **Validation Text** property box and selecting the **Zoom** button or by pressing **Shift+F2**.

SLO 7.7

Using a Combo Box to Find Records on a Form

You learned to create and use a ***combo box*** to have users choose a value in a table field in the "*Create a Lookup Field*" section in ***SLO 2.4 Integrating Data Validation in Tables*** and in ***SLO 5.2 Creating and Customizing a Relationship through the Lookup Wizard***. Recall that a combo box provides an easy way for your user to select an item from a list. As you know, when you add a field to a form, Access determines the type of control to use based on the value in the *Display Control* property of the field. As a result, table fields that have *Combo Box* in the *Display Control* property use a combo box control when they are added to a form. Because these combo boxes are directly linked to a table field, they are a bound control. To improve the functionality of a form, database designers can add additional bound or unbound combo boxes to a form. In this section you learn to create and customize an unbound combo box to search for a record on a form.

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Add a combo box to a form with the *Combo Box* button [*Form Design* tab, *Controls* group] (**Figure 7-62**). The ***Combo Box Wizard*** is available to step you through the process of creating a combo box on a form. To use the wizard, be sure that the *Use Control Wizards* option is selected before starting this activity. Once you are more familiar with combo box properties, you can create and edit a combo box without using the wizard.

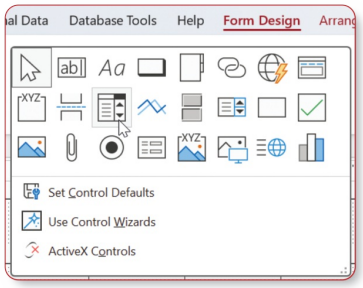


FIGURE 7-62 ***Combo Box*** **button**

Add an Unbound Combo Box to Find Records

When a form is open in *Form* view, you can find a specific record using two primary methods. First, click the *Navigation* buttons in the *Navigation* bar to move among records. Second, use the *Search* box in the *Navigation* bar, as well as the *Find* button on the *Home* tab, to search for specific

data. Unfortunately, these approaches are not the quickest or easiest way to find a record, especially in a database with many records.

An alternative is to add an unbound *Combo Box* control to the form. The combo box is specifically designed to find a record on the form because it is not bound to any field in the table or query. When a value is selected from the combo box, the form advances automatically to the desired record. This is quicker and easier than having a user type a value into the *Find and Replace* dialog box. The process to add a combo box to a form uses many of the skills you know. In this section you use the *Combo Box Wizard* to step you through the process of adding the combo box.

For the combo box to work correctly, the form's *Record Source* property must be a table or query. If the current record source is an SQL statement that Access created when you dragged fields onto the form, you must change it to a table or query before you add the combo box.

HOW TO: Change the Record Source from an SQL Statement

1. Open the form in *Design* view.
2. Open the *Property Sheet* and click the **Data** tab.
3. Choose **Form** in the *Selection type* box.
4. Click the **Record Source** property and select the appropriate table or query to change from the *SQL Select* statement to a table or query.

Before you add the combo box, keep the following points in mind:

- Verify that the form's *Record Source* property is a table or query.
- Verify that the *Use Control Wizards* option is selected [*Form Design* tab, *Controls* group] prior to launching the wizard.
- Position the combo box anywhere on the form but ensure that it is easy to locate and use.
- Set the combo box to display multiple fields, as desired, to help your user more easily identify the records. For example, the user may not easily remember each employee's ID number. Instead of only displaying the ID number, the combo box can also display the employee's name.
- Enter text in the associated label to ensure the user knows how to use the combo box.

HOW TO: Add the Combo Box to Find Records to a Form

1. Open the form in *Design* view.
2. Click the **Combo Box** button [*Form Design* tab, *Controls* group].

3. Click inside the form where you want to position the combo box. The *Combo Box Wizard* launches.
4. Select the **Find a record on my form based on the value I selected in my combo box** radio button (Figure 7-63) and click **Next**. This radio button option only displays in the *Combo Box Wizard* when the form's record source is a table or query.

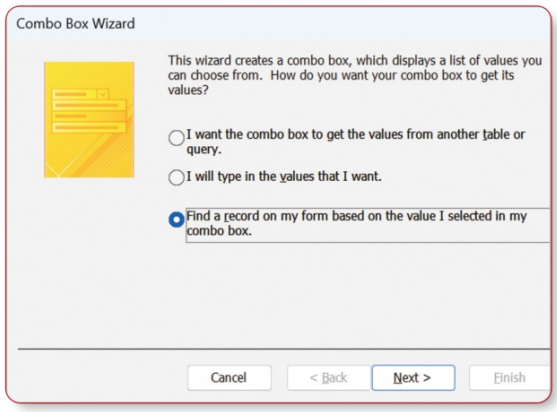


FIGURE 7-63 ***Combo Box Wizard*, step 1**

5. Select a field to display from the list of *Available Fields* and click the **Move Single Field** button to move the field into the *Selected Fields* window.
6. Move any additional fields into the *Selected Fields* window in the order you wish to display the fields (Figure 7-64) and click **Next**.

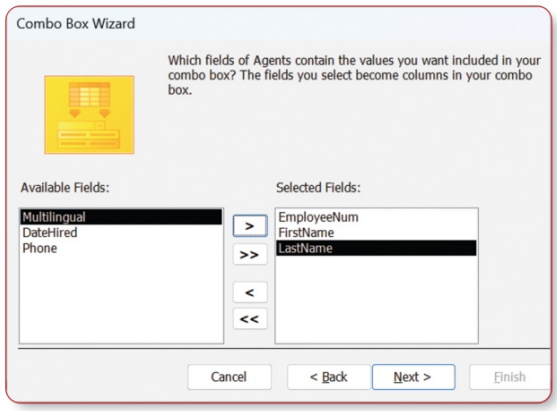


FIGURE 7-64 ***Combo Box Wizard*, step 2**

7. Deselect the **Hide key column** check box, as desired, if you wish to display the primary key field in the drop-down list.
8. Adjust the widths of the columns (Figure 7-65), as desired, and click **Next**.

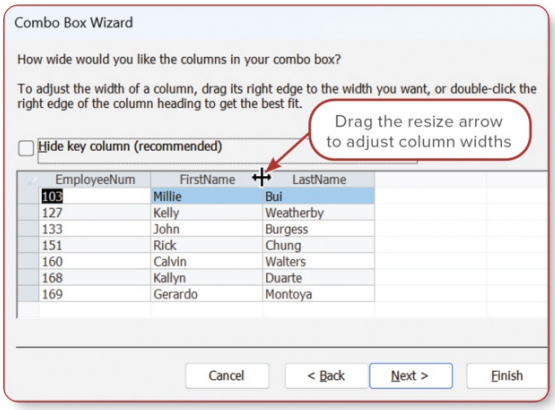


FIGURE 7-65 ***Combo Box Wizard*, step 3**

9. Change the suggested label text, as desired, and click **Finish**. It is recommended that you edit the label text to provide clear instructions about using the combo box to find a record. The completed combo box displays on the form. The process created a query and assigned it to the *Row Source* property of the *Combo Box*.
10. Save the form.

Customize the Combo Box

The choices you made during the *Combo Box Wizard* set several properties of the *Combo Box* control. The more relevant properties, and their initial values, are explained in **Table 7-4**.

Table 7-4: Combo Box Properties

Property	Tab	Explanation	Setting Contents
Row Source Type	*Data*	Designates from where the combo box gets its values.	*Table/Query*
Row Source	*Data*	Contains the name of the table or query, or the actual list of values.	An SQL statement created based on the fields chosen to display.
Bound Column	*Data*	Designates the number of the column in the SQL statement that is bound to the underlying field in the *Control Source* property or that Access stores in an unbound combo box.	1 Access adds the primary key to the SQL

			statement as the first field.
Limit to List	*Data*	Designates whether a user can enter a value into the field that is not on the list.	*Yes* This is the default entry.
Allow Value List Edits	*Data*	Designates whether the existing list of items can be edited.	*Yes* This is the default entry.
Column Count	*Format*	Contains the number of columns in the SQL statement.	Contents based on SQL statement.
Column Widths	*Format*	Contains the display width of each column in the SQL statement. Set a column width to 0" to not have it display. If you chose *Hide key column* in the wizard, that column's width is set to 0".	Contents based on choices made during wizard. Sample entry is .75";1.25"
List Rows	*Format*	Contains the number of rows to display in the list. A vertical scroll bar automatically appears when the list has more choices than rows.	16 This is the default number.
List Width	*Format*	Contains the width of the drop-down list. A horizontal scroll bar automatically appears when the total width of all the columns is greater than the *List Width*.	The sum of all the values in the *Column Widths* property.

As with all controls, a combo box also has a *Width* property. Keep in mind that the combo box displays the drop-down arrow, so you must account for its size in the width. It is important to clarify the distinction and interaction among the *Column Widths, List Width,* and *Width* properties of the combo box. Consider the sample combo box shown in **Figure 7-66** that has the following settings:

- Row Source: *Select EmployeeNum, FirstName, LastName from Agents;*
- Column Count: 3
- Column Widths: 0";0.7";0.8"
- List Width: 1.3"
- List Rows: 4
- Width: 1"



FIGURE 7-66 Sample combo box displays two columns

In *Form* view, when the drop-down arrow is clicked, the horizontal scroll bar displays because the *List Width* of 1.3" is less than the specified combined width of 1.5" (0 + .7 + .8) of all three columns. The vertical scroll bar displays because more than four items are in the list. The width of the list (1.3") is separate from, and can be different from, the width of the combo box (1") itself. When you click the drop-down arrow, the larger list displays. The *EmployeeNum* does not display, even though it is in the SQL statement, because the width of its column is set to 0". Although it isn't obvious in Figure 7-66, the list displays in sorted order based on the first field in the Select statement (*EmployeeNum* in this example). Additionally, after an item is selected in the list, only the first field displays (*FirstName* in this example) in the box.

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After adding the combo box, adjust the width, position, and formatting characteristics of the combo box and the associated label using the skills you have learned. Additionally, modify any of the additional properties explained in Table 7-4.

Modifying the *Row Source* property is one of the most common changes you will make. For example, to change the order in which the records display in the drop-down list you modify the *Row Source* property. Additionally, you may want to change the data that displays after selecting a list item. For example, if you want both the *FirstName* and *LastName* to display after selecting a list item, you must modify the *Row Source* property to display a concatenated field.

HOW TO: Change the Row Source Property of a Combo Box

1. Open the form in *Design* view.
2. Open the *Property Sheet* and click the **Data** tab.
3. Click to select the unbound combo box.
4. Click the **Build** button in the *Row Source* property box. The *Query Builder* opens (Figure 7-67), allowing you to edit the query properties of the combo box.

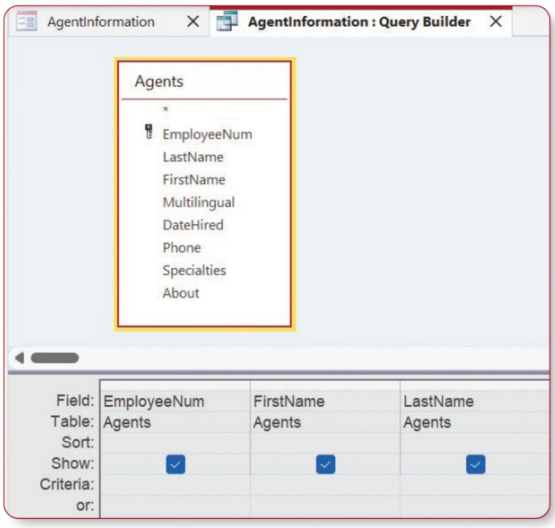


FIGURE 7-67 **Edit the *Row Source* query in *Query Builder***

5. Click the **Sort** row cell of a desired field, click the **drop-down arrow**, and select **Ascending** or **Descending**.
6. Add or remove fields from the query.
7. Add a calculated field to concatenate separate fields to display in the list box, as desired. Review ***SLO 3.7: Adding Calculated Fields to a Query*** if you need help.
8. Click the **Close** button [*Query Design* tab, *Close* group].
9. Click **Yes** if prompted to save changes.

When you edit the query the SQL statement changes. However, the other properties do not automatically update. Review their contents and edit to match changes made to the query. In particular, ensure that the *Column Count* and *Column Widths* properties match any updates you made.

Figure 7-68 shows the following changes made to the combo box shown in **Figure 7-66**. The top part of the figure shows the modified query. It was changed to sort by *LastName,* display a concatenated value of *LastName, FirstName,* and remove *FirstName* because it was no longer needed.

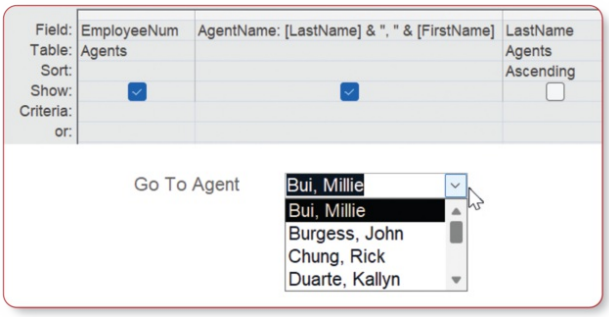


FIGURE 7-68 Modified query and resulting combo box

The bottom part of Figure 7-68 shows the resulting combo box. It also reflects the following additional properties changes:

- Column Count: 3
- Column Widths: 0";1.5";0"
- List Width: 1.5"
- Width: 1.5"

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The combo box list displays in ascending order by last name, and the concatenated *LastName, FirstName* field displays in the drop-down list and in the combo box after a choice is made.

After making any changes to the properties, you should also test the form to ensure that the combo box works correctly. Switch to *Form* view to test the form. Click the combo box drop-down arrow in the combo box on the form and select the desired value. Verify that the form updates and shows the data record that matches the selected value in the combo box.

COPILOT/GENERATIVE AI BEST PRACTICES

Use *Copilot* to learn more tips about how to create and use a combo box to find records on an Access form. For example, ask why you should hide the key column, or for help on changing some of the properties of the combo box. Use follow-up prompts to see examples.

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PAUSE & PRACTICE: ACCESS 7-3

For this Pause & Practice, you enhance the look of the *AgentInformation* form for Placer Hills Real Estate. You add a line and an image, modify colors and fonts, and apply conditional formatting. You also add data validation to a control and add a combo box to find records.

Files Needed: ***[your initials] PP A7-2.accdb*** and ***NewKey.jpg (PP-A7-3)*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Name: ***[your initials] PP A7-3.accdb***

1. Open the ***[your initials] PP A7-2*** database file you created in ***Pause & Practice 7-2***.
2. Save a new copy of your database as [your initials] PP A7-3.
3. Enable content in the database.
4. Open the *AgentInformation* form in *Design* view.
5. Add an image to the form using the *Image Gallery*.
   a. Click the **Insert Image** button [*Form Design* tab, *Controls* group] and then select **Browse** to open the *Insert Picture* dialog box.
   b. Browse to the location of the ***NewKey.jpg*** file, select the file, and click **OK**.
   c. Move the pointer to the **5"** width mark near the top of the *Form Header* section and click to insert the image on the form. The image is added to the form. An orange border surrounds the image indicating it is selected.
   d. Open the *Property Sheet* and click the **Format** tab if necessary.
   e. Enter .75" in the *Width* property, .73" in the *Height* property, .1" in the *Top* property, and 5" in the *Left* property if necessary.
6. Modify colors and fonts in the form.
   a. Click to select the **Form Header** section bar.
   b. Enter .9" in the *Height* property.
   c. Click the **Build** button in the *Back Color* property box and select **Light Blue 2** (the fifth column, third row, in the *Standard Colors* area).
   d. Select the **Agent Information Form** label in the *Form Header* section.
   e. Enter 2.3" in the *Width* property, .3" in the *Top* property, and select **Bold** in the *Font Weight* property.
   f. Click the **Build** button in the *Fore Color* property box and select **Light Blue 5** (the fifth column, sixth row, in the *Standard Colors* area).
   g. Select the **Employee ID** label in the *Detail* section. Press and hold the **Shift** key, and select the remaining seven labels in the *Detail* section.
   h. Click the **Build** button in the *Fore Color* property box and select **Medium Gray 5** (the third column, sixth row, in the *Standard Colors* area).
   i. Save the changes to the form.
   j. Switch to *Form* view to see the impact on the form. Notice that the *Employee ID* label color is not the *Medium Gray 5* color. This is because, in *Pause & Practice 7-1,* you set the *Enabled* property to *No* for the *EmployeeNum* text box. That property setting overrides the *Fore Color* property, so the label remains in the dimmed state.

7. Add a line to the form.
    a. Switch back to *Design* view of the form.
    b. Click the **Controls** arrow at the far right of the *Controls* group [*Form Design* tab] to expand the *Controls* group.
    c. Click the **Line** button in the *Controls* group.
    d. Move the pointer to below the *Agent Information Form* label and click. A standard-size line is drawn on the form.
    e. Enter 2.3" in the *Width* property, .7" in the *Top* property, and 2.2" in the *Left* property.
    f. Select **2 pt** in the *Border Width* property.
    g. Click the **Build** button in the *Border Color* property and select **Light Blue 5** (the fifth column, sixth row, in the *Standard Colors* area).
    h. Click anywhere in the **Form Header** section to deselect the line control. *Design* view of the form should look similar to Figure 7-69. Don't worry if the size of your image is slightly different.

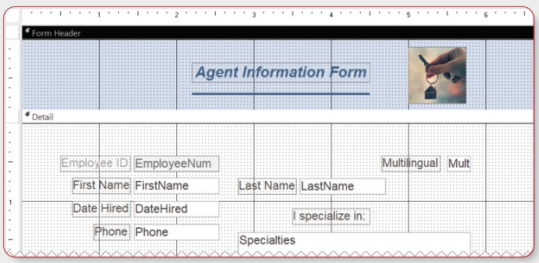


FIGURE 7-69 ***Form Header* section after adding image and line controls**
Photo Source: sommart/iStock/Getty Images Plus

    i. Save the changes to the form.

8. Enter a validation rule and validation text.
    a. Click to select the **Multilingual** text box.
    b. Click the **Data** tab on the *Property Sheet*.
    c. Enter "Y" Or "N" in the *Validation Rule* property.
    d. Enter You must enter Y or N in the *Validation Text* property.
    e. Save the changes to the form.
    f. Switch to *Form* view to test the form. The first record should display information about *Employee ID 103* for Millie Bui. The focus is on the *Multilingual* text box.
    g. Enter X in place of the current value.
    h. Press **Tab** to leave the field. The message box displays because your entry was invalid. Click **OK** to acknowledge the message.
    i. Press the **Esc** key to undo the change you previously made. The original entry of *Y* should display in the *Multilingual* text box.

9. Add conditional formatting to the *Multilingual* text box and center the text.

a. Switch back to *Design* view of the form.
b. Select the **Multilingual** text box if necessary.
c. Click the **Conditional Formatting** button [*Format* tab, *Control Formatting* group] to open the *Conditional Formatting Rules Manager* dialog box.
d. Click the **New Rule** button to open the *New Formatting Rule* dialog box.
e. Select **Check values in the current record or use an expression** in the *Select a rule type* box if necessary.
f. Click the **drop-down arrow** next to *between* and select **equal to**.
g. Type Y into the expression box.
h. Click the **Bold** formatting button and select the **Light Blue 1** *Background color* (the fifth column, second row, in the background color palette).
i. Click **OK**. The completed rule displays in the *Conditional Formatting Rules Manager* dialog box.
j. Click the **New Rule** button to add a second rule to the *Multilingual* text box.
k. Click the **drop-down arrow** next to *between* and select **equal to**.
l. Type N into the expression box.
m. Click the **Bold** formatting button and select the **Medium Gray 1** *Background color* (third column, second row in the background color palette).
n. Click **OK**. The completed rules display in the *Conditional Formatting Rules Manager* dialog box (Figure 7-70).

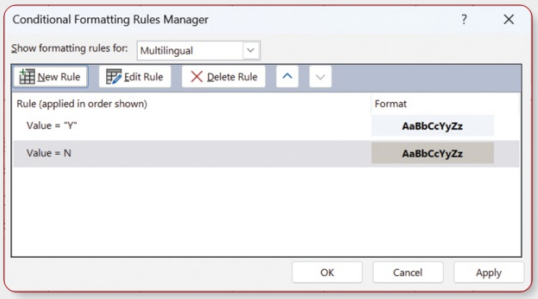


FIGURE 7-70 Completed conditional formatting rules

o. Click **Apply** to have Access evaluate the data in the form and apply the formatting to the values that meet the criteria.
p. Click **OK**.
q. Click the **Format** tab in the *Property Sheet.*
r. Select **Center** in the *Text Align* property.
s. Save the changes to the form.

10. Change the form caption.
    a. Choose **Form** in the *Selection Type* box.
    b. Enter Placer Hills Agents in the *Caption* property.

c. Save the changes to the form.

11. Change the record source of the form.
    a. Click the **Data** tab.
    b. Select **Agents** in the *Record Source* property. You must change the record source to use this table instead of the SQL statement created when you added fields to the form.
12. Add a combo box to find records on the form.
    a. Click the **Combo Box** button [*Form Design* tab, *Controls* group].
    b. Move the pointer to the **.5"** width and **.5"** height mark of the *Form Header* section and click to insert the combo box on the form. If a *Microsoft Access Security Notice* box displays, click **Open**. The **Combo Box Wizard** launches.
    c. Select the **Find a record on my form based on the value I selected in my combo box** radio button and click **Next**.
    d. Select **EmployeeNum** from the *Available Fields* window and click the **Move Single Field** button.
    e. Move the **LastName** field into the *Selected Fields* window. Click **Next**.
    f. Leave the **Hide key column** check box checked, don't adjust the column width, and click **Next**.
    g. Change the label text to Select an Employee and click **Finish**. The updated combo box and label display.
    h. Select the **Select an Employee** label in the *Form Header* section and click the **Format** tab in the *Property Sheet*.
    i. Enter .25" in the *Top* property, .4" in the *Left* property, select **Aptos (Detail)** in the *Font Name* property, enter 11 in the *Font Size* property, and select **Bold** in the *Font Weight* property.
    j. Select the **combo box** in the *Form Header* section and enter 1.3" in the *Width* property, .55" in the *Top* property, .4" in the *Left* property and select **Bold** in the *Font Weight* property.
    k. Save the changes to the form.
13. Modify the row source of the combo box.
    a. Select the **combo box** control if necessary.
    b. Click the **Data** tab.
    c. Click the **Build** button in the *Row Source* property. The *Query Builder* opens.
    d. Sort the query in ascending order by the *LastName* field.
    e. Deselect the **Show** box of the *LastName* field.
    f. Type AgentName:[LastName] & ", " & [FirstName] in the *Field* row of the first empty cell. Use the *Zoom* box as desired.
    g. Move the concatenated field to the left of the *LastName* field in the query grid. The completed query grid should match Figure 7-71.

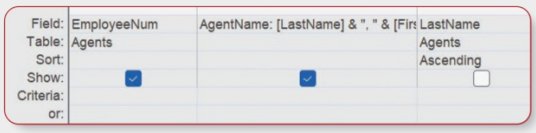


FIGURE 7-71 Modified query design

h. Close the query. Save changes when prompted.

14. Modify properties of the combo box.

    a. Select the **combo box** control if necessary.

    b. Click the **Format** tab on the *Property Sheet*.

    c. Change the *Column Widths* property to 0";1.2", the *List Width* property to 1.2", and the *Width* property to 1.5".

    d. Save the changes to the form.

15. Test the completed form.

    a. Switch to *Form* view to test the form. Note that *Placer Hills Agents* displays in the form's tab. The first record should display information about Millie Bui.

    b. Tab to the **FirstName** text box to more easily see the effect of the conditional formatting. The *Y* in the *Multilingual* text box should display in a bold font with a light blue background.

    c. Click the **drop-down arrow** in the combo box. Notice that the list displays in ascending order by last name. Select **Kallyn Duarte** (Figure 7-72). The record updates. The *N* in the *Multilingual* text box should display in a bold font with a gray background.

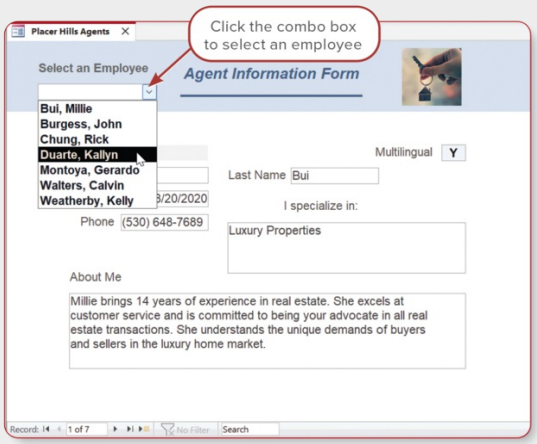


FIGURE 7-72 Completed form

Photo Source: sommart/iStock/Getty Images Plus

    d. Close the form.

16. Close the database.

SLO 7.8

Using Tab Controls and Navigation Forms

A ***tab control*** creates a layered area on a form. Each of the layered areas is called a ***page*** and contains its own controls. Using a tab control enables you to create a more organized form. It is especially useful when you have a large number of fields to display because you can group certain fields together on a page.

A7-564

A ***navigation form*** is a special type of form that contains tabs. Each tab links to a different form or report in the database. When you select a tab on the form, the navigation form enables you to easily switch between the different forms and reports without having to open them individually from the *Navigation Pane.*

Visually, a form that uses tab controls is similar to a navigation form; however, performance differences exist between the two. The navigation form loads each form or report when you click the tab. This results in the most current data being loaded each time. Additionally, the navigation form offers improved performance as a result of how the form loads. In this section, you learn about using tab controls on a form and how to create a navigation form.

Tab Controls

The form in **Figure 7-73** contains a tab control with two pages. One of the pages contains fields related to location information about a property, while the second page contains fields related to additional details about the property.

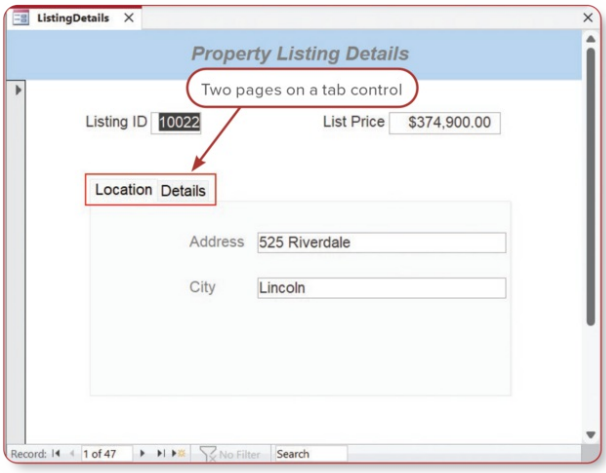


FIGURE 7-73 The *ListingDetails* form contains one tab control with two pages

A tab control creates a more organized way to display fields and controls on a form.

HOW TO: Add a Tab Control to a Form

1. Open the form in *Design* view.
2. Click the **Tab Control** button [*Form Design* tab, *Controls* group] (Figure 7-74).

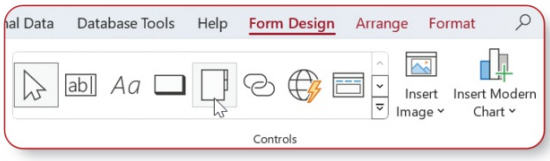


FIGURE 7-74 *Tab Control* button

3. Move the pointer to the desired location on the form, and click to add a tab control to the form (Figure 7-75).

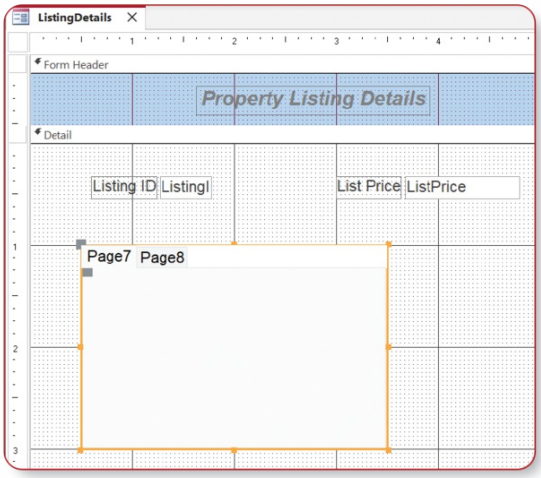


FIGURE 7-75 Tab control added to a form

When you add a tab control, it initially contains two pages. The page tabs are each assigned a default name. In Figure 7-75, those default names are *Page7* and *Page8*. As with other types of controls, Access keeps track of what numbers have previously been used and assigns the next default name in sequence. After the tab control has been added to the form, add other controls, such as text boxes, labels, and buttons, to the different pages of the control. When you are working with the tab control, it is important to pay attention to the different parts of the control.

- Click a page tab to select a specific page to modify the controls on that page.
- Click the blank space to the right of the tabs to select the entire tab control. You can then add an additional page to the tab control, delete a page, or modify properties of the tab control.

HOW TO: Add Fields and Controls to a Tab Control

1. Open the form in *Design* view.
2. Move your pointer over the name of the desired page tab and click to select it. An orange line surrounds the interior border of the page (Figure 7-76).

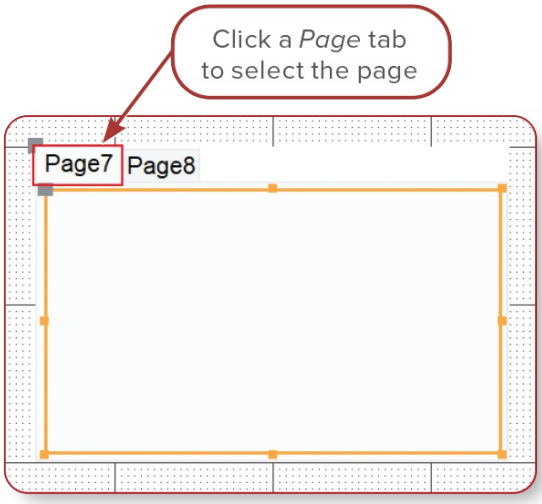


FIGURE 7-76 ***Page7*** **is selected in the tab control**

3. Add fields to the page by clicking the **Add Existing Fields** button [*Form Design* tab, *Tools* group] to open the *Field List*.
4. Click the **Show All Tables** link and click the **plus sign** to the left of the desired table if necessary.
5. Click, hold, and drag the desired field from the *Field List* to the page in the tab control.
   - The page of the tab control turns black, indicating that you are placing a control on the page (Figure 7-77).

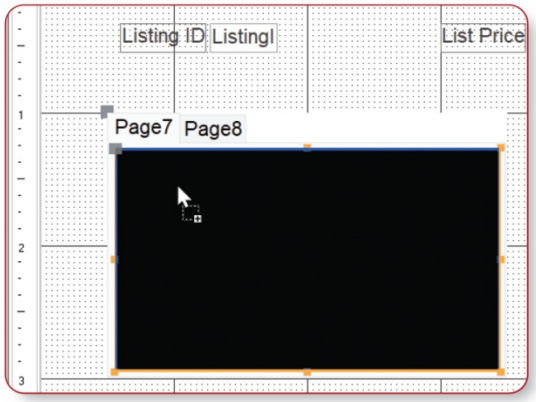


FIGURE 7-77 The page control turns black as you drag a control onto the page

- Release the pointer to add the field to the page (Figure 7-78). The tab control may adjust in size or location to fit the size requirements of the text box.

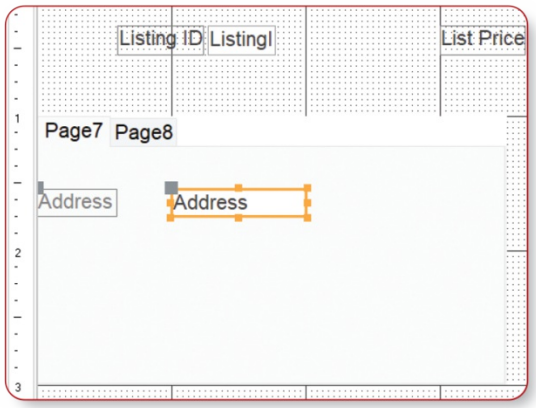


FIGURE 7-78 The page control may increase in size or location to fit the added text box

6. Continue adding other fields or controls to the page.
7. Edit the control properties as desired.

You can add additional pages, if necessary, and also change the default name of the page. Use the *Insert Page* button [*Form Design* tab, *Controls* group] to add a new page. This button displays in the *Controls* group only if a tab control has already been added to the form and only if the tab control is selected.

HOW TO: Add a New Page to a Tab Control

1. Open the form in *Design* view.
2. Click the blank space to the right of the page tabs to select the tab control. An orange border surrounds the entire tab control.
3. Click the **Controls** arrow [*Form Design* tab, *Controls* group] to expand the *Controls* group and click the **Insert Page** button [*Form Design* tab, *Controls* group] (Figure 7-79).

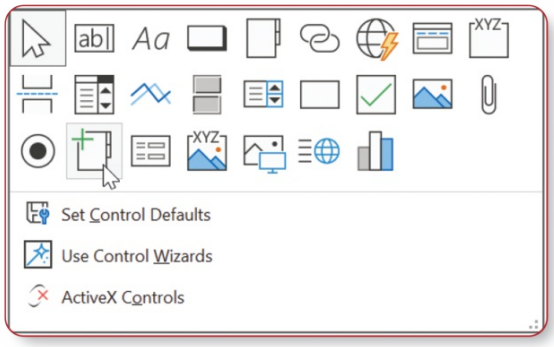


FIGURE 7-79 ***Insert Page*** **button**

- The *Insert Page* button only displays in the *Controls* group after a tab control has been added to a form and the tab control is selected.
- A new page is added to the right of the last page in the tab control (Figure 7-80).

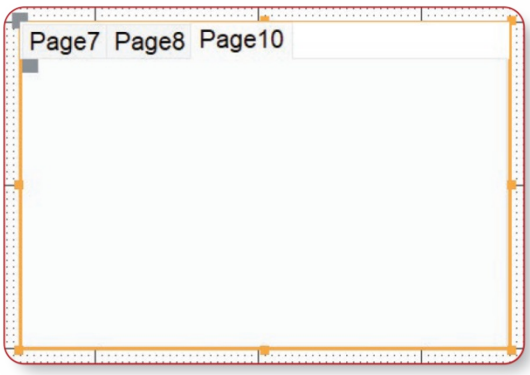


FIGURE 7-80 Add an additional page to a tab control

- The default name of the page includes the next sequential page number that has not been used in the database.

HOW TO: Change the Name of a Page in a Tab Control

1. Open the form in *Design* view.
2. Move your pointer over the name of the desired page tab and click to select it. An orange line surrounds the interior border of the page.
3. Open the *Property Sheet* and click the **Other** tab.
4. Enter the new name to display on the page tab in the *Name* property.

Occasionally, you may need to delete a page from a tab control or change the order in which the pages appear in the tab control.

HOW TO: Delete a Page from a Tab Control and Change the Page Order

1. Open the form in *Design* view.
2. Move your pointer over the name of the desired page tab and click to select it. An orange line surrounds the interior border of the page.
3. Right-click to open the context menu (Figure 7-81).

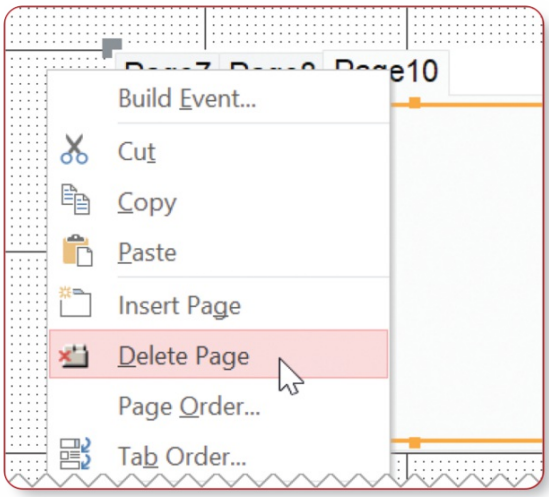


FIGURE 7-81 Context menu on a tab control page

- To delete a page, select the **Delete Page** button.
- To re-order the pages, select the **Page Order** button to open the *Page Order* dialog box. Change the page order and click **OK**.

Navigation Forms

A navigation form is an alternative to using tab controls on a regular form. Instead of having a tab control to which you add different controls, the navigation form has tabs that display other forms and report objects that you have created in the database. An example of a navigation form in a task management database is shown in **Figure 7-82**. This form uses a two-level hierarchy in which you define a top level, or topic, and sub-levels which are available below. In **Figure 7-82**, the top level contains three tabs: *Contact Information, Task Information,* and *Reports.* By default, the active tab displays a different background and font color.

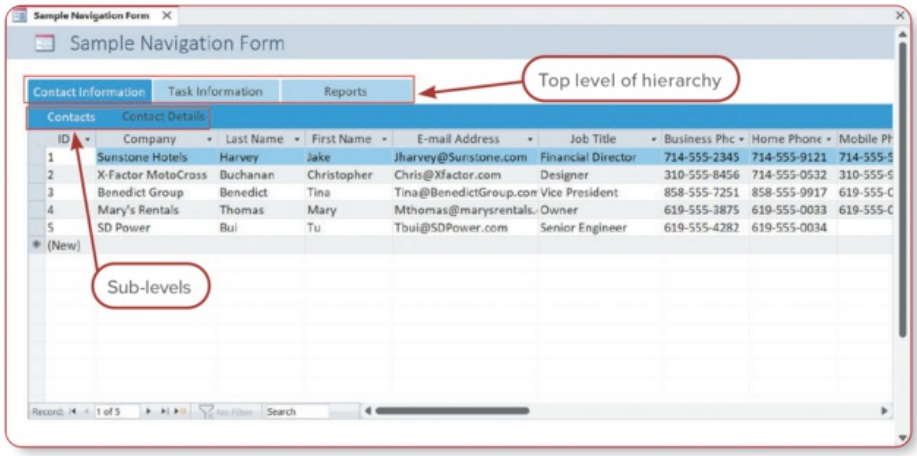


FIGURE 7-82 Navigation form contains three different top-level tabs

Each of these tabs can contain sub-tabs. For example, the *Contact Information* tab contains two sub-tabs: *Contacts* and *Contact Details.* The object linked to the leftmost tab opens when the navigation form is opened. In this example, the *Contacts* form opens because it is the leftmost tab in the *Contact Information* tab. In the sub-tabs, the properties have been modified so that the active tab does not change to a different background color, but the font does change colors. If you click the *Task Information* tab or the *Reports* tab, the navigation form switches to display the leftmost sub-tab under those tabs. Note that the *Contacts* form displays the *Navigation* bar at the bottom of the form, but the designers chose not to display the *Navigation* bar in the main *Sample Navigation Form.*

Figure 7-83 displays the *Contact Phone List* report that opens if the second tab under *Reports* is clicked. Remember that a tab can be associated with either a form or a report in the database. As you can see, a navigation form makes it easy to navigate between different objects in a database. A navigation form loads each individual form or report when you click the tab. This results in the most current data being loaded each time, in contrast to switching pages in a control tab on a form.

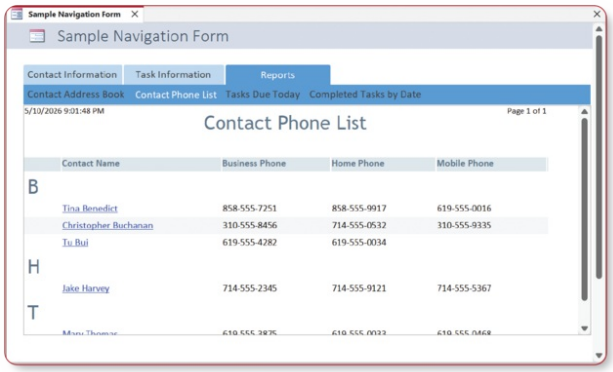


FIGURE 7-83 The *Contact Phone List* tab is located on the *Reports* tab

When you create a navigation form, you must select the basic style of the form. The six preset styles are shown in Figure 7-84. The styles vary based on the placement of the tabs, as well as the number of levels of tabs. Before creating a form, spend time to plan the form's design. A navigation form is similar to having a menu, and as you plan, you need to decide which options should be on the menu.

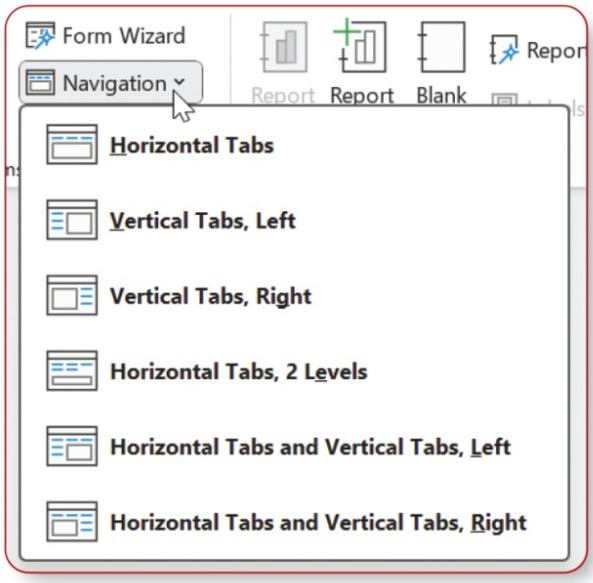


FIGURE 7-84 Navigation form styles

If you choose to group on two levels, like the example in Figure 7-81, you need to decide the best way to group items on the form. This enables you to define a main category, or topic, and have sub-categories available below. For example, two possible ways to group are by functional departments in a company (Human Resources, Sales, Accounting, etc.) or by job classifications or tasks (Front Desk, Housekeeping, Maintenance, Catering, etc.).

Ultimately, when planning the navigation form, choose a style and a grouping that helps users perform tasks as efficiently and effectively as possible.

HOW TO: Create a Navigation Form

1. Click the **Navigation** button [*Create* tab, *Forms* group].
2. Select the desired form style from the list of choices. The form opens in *Layout* view (Figure 7-85).

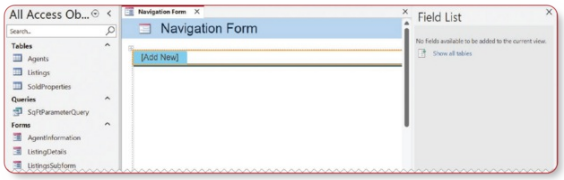


FIGURE 7-85 **Navigation form based on the *Horizontal Tabs* style**

- The colors of your form may be different.
- The field list opens.
- The form contains placeholder tabs, represented by the *[Add New]* button, that you can modify.

3. Save the form.

MORE INFO

A navigation form does not have a separate click event for each tab on the form. If you have a macro that needs to execute when the form is opened, the macro code should be placed in either the *On Load* or *On Open* events.

Modify a Navigation Form

Once the navigation form is created, you are ready to add the forms and reports to the navigation form. Add each form or report separately to an *[Add New]* button to create the tabs. You cannot attach a table to a navigation form. However, you can mimic this functionality if you first use the *Datasheet* option to create a datasheet form. Recall that datasheet forms look like you are viewing the records in a table.

After you add the forms and reports, edit the tab labels and the form caption.

HOW TO: Add a Form or Report to a Navigation Form

1. Open the *Navigation* form in *Layout* view.
2. Open the *Navigation Pane* if necessary.
3. Click, hold, and drag the desired form or report from the *Navigation Pane* to the *[Add New]* button on the desired tab (Figure 7-86). Access creates a connection between the form or report and the tab. The form or report displays in the navigation form, and a new *[Add New]* button is added to the form (Figure 7-87).

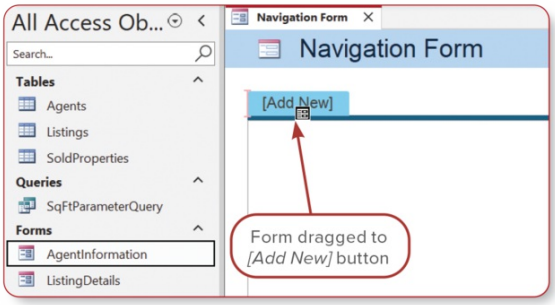


FIGURE 7-86 Drag the form or report to the *[Add New]* button

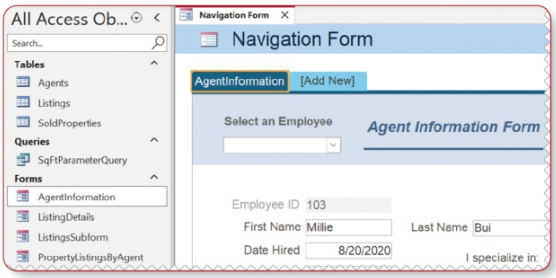


FIGURE 7-87 The form updates and a new *[Add New]* button is added

4. Continue adding any additional forms or reports.
5. Save the form.

When a navigation form is created, it includes an *Auto_Header()* label added into the *Form Header* section. The *Caption* property of the label contains *Navigation Form,* which displays in the label.

HOW TO: Edit a Label at the Top of a Navigation Form

1. Open the form in *Design* view.
2. Open the *Property Sheet* and click the **Format** tab if necessary.
3. Click to select the **label** in the *Form Header* section. *Auto_Header()* should display in the *Selection type* box.
4. Edit the contents of the *Caption* property to change the wording in the label.

By default, the navigation tab displays as a rectangle. You can change the shape or color of the navigation tab. The different formatting options are available on the *Format* tab in the *Control Formatting* group (**Figure 7-88**). Compare the two navigation tabs in **Figure 7-89**. The *Listing Details Form* tab shows the default rectangle shape and colors, while the *Agent Information Form* tab includes changes to the *Change Shape, Shape Fill,* and *Shape Outline* options. The navigation tab has many common properties that you can edit. For example, you change the width or height of the tab, or the text that displays in the navigation tab, or the color of the font. Both tabs in **Figure 7-89** have modified the text that displays in the tab, as well as the height and width of the tabs. If you modify the *Height* property of a tab, all other tabs will change to that same height.

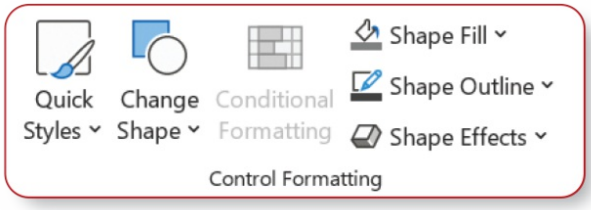


FIGURE 7-88 Formatting options for the *Navigation* tab

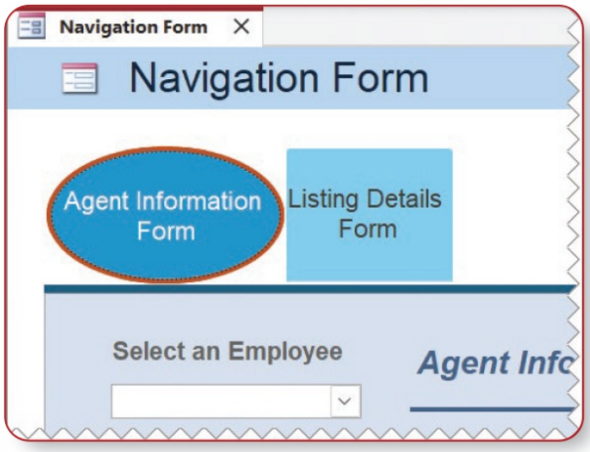


FIGURE 7-89 The color and shape of the *Agent Information Form* tab are modified

MORE INFO

Technically, Access creates the navigation tabs as buttons. When changing their properties, the *Selection type* references a *Navigation Button.*

A7-570

HOW TO: Edit the Caption, Color, or Shape of a Navigation Tab

1. Open the form in *Design* view.
2. Click the navigation tab on the form you want to change.
3. Select the **Format** tab.
4. Click the **Quick Styles** button to select a predefined style, and then select the desired option.
5. Click the **Change Shape** button to change the shape of the tab, and then select the desired shape.
6. Click the **Shape Fill** button to change the color of the fill used in the shape, and then select the desired fill color or **Transparent** if you don't want a fill color.
7. Click the **Shape Outline** button to change the line thickness, type, or color of the line surrounding the shape, and then select the desired changes.
8. Click the **Shape Effects** button to add any special effects, like glow or bevel, to the tab, and then select the desired option.
9. Open the *Property Sheet* and click the **Format** tab if necessary.
10. Edit the contents of the *Caption* property to change the wording in the navigation tab.
11. Edit the *Height* and *Width* properties if necessary.

COPILOT/GENERATIVE AI BEST PRACTICES

Visually, tab controls and navigation forms look similar. Ask *Copilot* to help you understand when you should use tab controls compared to a navigation form. Use follow-up prompts to describe other scenario examples. Use these examples to learn more tips about designing these types of forms.

PAUSE & PRACTICE: ACCESS 7-4

For this Pause & Practice, you add a tab control to a form for the Placer Hills database. You also create and modify a navigation form.

File Needed: ***[your initials] PP A7-3.accdb***

Completed Project File Name: ***[your initials] PP A7-4.accdb***

1. Open the ***[your initials] PP A7-3*** database file you created in ***Pause & Practice 7-3***.
2. Save a new copy of your database as [your initials] PP A7-4. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close it.
3. Enable content in the database.
4. Add a tab control to the *ListingDetails* form.
   a. Open the *ListingDetails* form in *Design* view.
   b. Click the **Tab Control** button [*Form Design* tab, *Controls* group].
   c. Move the pointer near the **.5" wide** and **1" tall** mark on the form (**Figure 7-90**) and click to add a tab control to the form (**Figure 7-91**). The default names assigned to the pages in the tab control may be different from the ones shown in these examples.

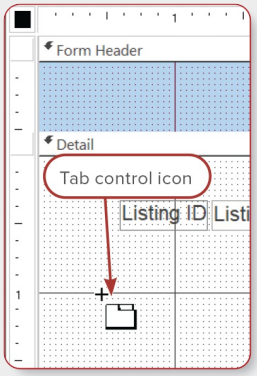


FIGURE 7-90 Position the tab control pointer on the form

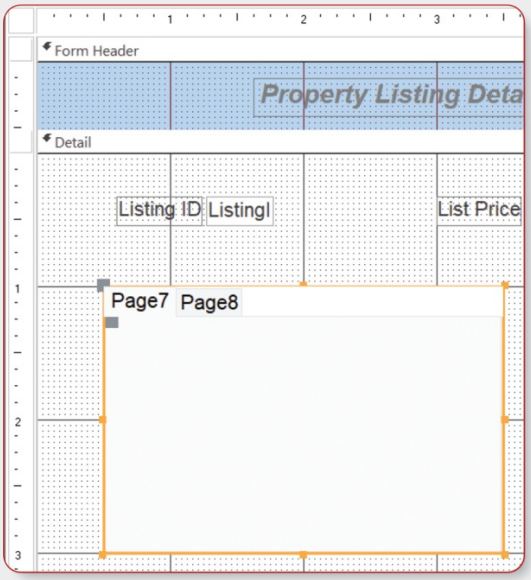


FIGURE 7-91 Tab control added to form

5. Modify properties of the tab control.
   a. Open the *Property Sheet*. The *Selection type* should show *Tab Control* and the default name of the control shows in the *Selection type* drop-down box.
   b. Enter 4" in the *Width* property, 3" in the *Height* property, 1" in the *Top* property, and .65" in the *Left* property.
6. Add fields to the pages of the first tab control.
   a. Click the **leftmost page tab** (*Page7* in Figure 7-91) to select the page. An orange line surrounds the interior border of the page.
   b. Click the **Add Existing Fields** button [*Form Design* tab, *Tools* group] to open the *Field List*.
   c. Click the **Show All Tables** link and then click the **plus sign** to the left of the *Listings* table if necessary.
   d. Click, hold, and drag the **Address** field from the *Field List* to the page in the tab control. The page of the tab control turns black, indicating you are placing a control on the page. Release the pointer to add the field to the page. The tab control may adjust in size or location to fit the size requirements of the text box. You will fix that later.
   e. Click, hold, and drag the **City** field to the page, below the address field. The page should look similar to Figure 7-92. Don't worry if your controls are not in the exact same places on the page.

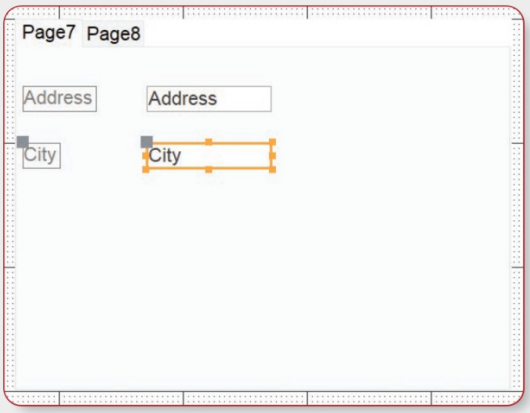


FIGURE 7-92 Fields added to a page in the tab control

f. Click to select the **Address** text box, press and hold the **Shift** key, and select the **City** text box.

g. Open the *Property Sheet*.

h. Enter 2.5" in the *Width* property and 1.7" in the *Left* property.

i. Click anywhere in the form to deselect both controls.

j. Click to select the **Address** label, press and hold the **Shift** key, and select the **City** label.

k. Enter 1" in the *Left* property.

l. Save the form.

7. Add fields to the pages of the second tab control.

a. Click the **second page tab** (*Page8* in Figure 7-92) to select the page.

b. Click the **Add Existing Fields** button [*Form Design* tab, *Tools* group] to open the *Field List*.

c. Click, hold, and drag the **SqFt** field from the *Field List* to the page, near the top, in the tab control.

d. Click, hold, and drag the **Beds**, **Baths**, **Garage**, **Year Built**, and **Construction** fields to the page, below the *SqFt* field.

e. Open the *Property Sheet*.

f. Select the **SqFt** label and enter 1.4" in the *Top* property and .8" in the *Left* property.

g. Select the **SqFt** text box and enter .5" in the *Width* property, 1.4" in the *Top* property, and 1.4" in the *Left* property.

h. Select the **Beds** label and enter 1.8" in the *Top* property and .8" in the *Left* property.

i. Select the **Beds** text box and enter .5" in the *Width* property, 1.8" in the *Top* property, and 1.4" in the *Left* property.

j. Select the **Baths** label and enter 1.8" in the *Top* property and 2.2" in the *Left* property.

k. Select the **Baths** text box and enter .5" in the *Width* property, 1.8" in the *Top* property, and 2.7" in the *Left* property.

l. Select the **Garage** label and enter 2.2" in the *Top* property and .8" in the *Left* property.

m. Select the **Garage** text box and enter 1.5" in the *Width* property, 2.2" in the *Top* property, and 1.4" in the *Left* property.

n. Select the **Built** label and enter 2.6" in the *Top* property and .8" in the *Left* property.

o. Select the **YearBuilt** text box and enter .5" in the *Width* property, 2.6" in the *Top* property, and 1.4" in the *Left* property.

p. Select the **Construction** label and enter 2.6" in the *Top* property and 2.2" in the *Left* property.

q. Select the **Construction** combo box and enter 1" in the *Width* property, 2.6" in the *Top* property, and 3.2" in the *Left* property.

r. Click the blank area to the right of the **second page tab**. The *Selection type* should show *Tab Control,* and the default name of the control shows in the *Selection type* drop-down box.

s. Enter the following values if needed: 4" in the *Width* property, 2.2" in the *Height* property, and .65" in the *Left* property.

t. Save the changes to the form.

8. Change the names of the pages.

a. Click the **leftmost page tab** to select it.

b. Click the **Other** tab on the *Property Sheet.*

c. Enter Location in the *Name* property.

d. Click the **second page tab** to select it.

e. Enter Details in the *Name* property. **Figure 7-93** shows the completed *Design* view of this page.

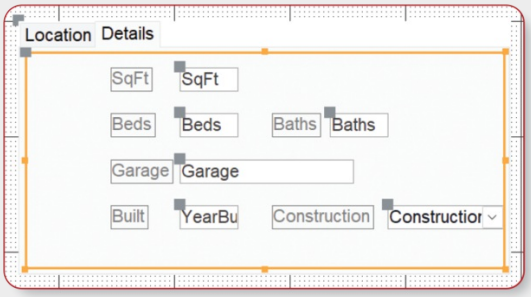


FIGURE 7-93 ***Design* view of completed page**

f. Save the changes to the form.

g. Close the *Property Sheet.*

9. Test the form.

a. Switch to *Form* view. The form shows the *Location* page for *Listing ID 10022.*

b. Click the **Details** page tab. The form updates to show the details for this listing.

c. Click the **Next record** arrow in the *Navigation* bar of the form to advance to the next record. Verify that the form and tab control updates to display the data on *Listing ID 10023.*

d. Close the form.

10. Create a navigation form.

a. Click the **Navigation** button [*Create* tab, *Forms* group].
b. Select the **Horizontal Tabs** form style from the list of choices. The form opens in *Layout* view.
c. Save the form as PlacerHillsNavigation.

11. Add forms and reports to the navigation form.
    a. Click, hold, and drag the **AgentInformation** form from the *Navigation Pane* to the *[Add New]* button. Access makes a connection between the form and the tab. The form displays in the navigation form and a new *[Add New]* button is added to the form.
    b. Click, hold, and drag the **ListingDetails** form to the *[Add New]* button.
    c. Click, hold, and drag the **PropertyListingsByAgent** form to the *[Add New]* button.
    d. Click, hold, and drag the **SoldPropertiesListing** report to the *[Add New]* button.
    e. Save the form.
12. Change the navigation form labels.
    a. Change to *Design* view.
    b. Click to select the **AgentInformation** tab.
    c. Open the *Property Sheet* and click the **Format** tab.
    d. Enter Agent Information Form in the *Caption* property, 1.4" in the *Width* property, and .5" in the *Height* property.
    e. Click to select the **ListingDetails** tab.
    f. Enter Listing Details Form in the *Caption* property and 1.2" in the *Width* property.
    g. Click to select the **PropertyListingsByAgent** tab.
    h. Enter Property Listings By Agent Form in the *Caption* property and 1.9" in the *Width* property.
    i. Click to select the **SoldProperties Listing** tab.
    j. Enter Sold Properties Listing Report in the *Caption* property and 1.6" in the *Width* property. Keep the *SoldProperties Listing* tab selected for the next step.
    k. Press and hold the **Shift** key and select the other three tabs. The most recently selected tab has a darker color but all tabs have an orange border.
    l. Click the **Quick Styles** button [*Format* tab, *Control Formatting* group] and select **Colored Outline – Dark Teal**, **Accent 1** (the second column, first row, in the *Theme Styles* palette).
    m. Close the *Property Sheet.*
    n. Save and close the form.
13. Test the form.
    a. Open the *PlacerHillsNavigation* form in *Form* view. The form shows four navigation tabs, with the *Agent Information Form* opened to display *Millie Bui* (**Figure 7-94**).

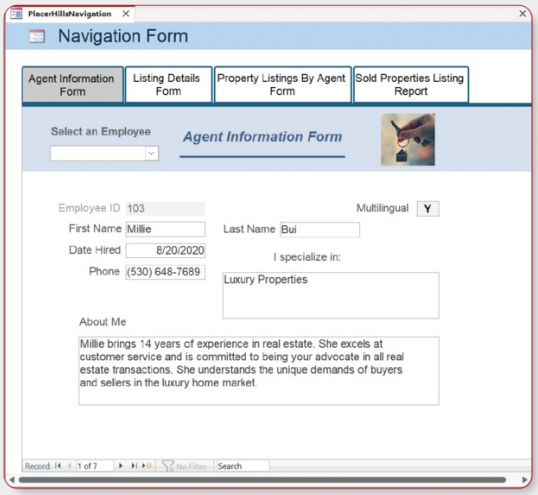


FIGURE 7-94 Completed navigation form

Photo Source: sommart/iStock/Getty Images Plus

b. Click the **Listing Details Form** tab. The form updates to show the tab control form you created earlier.

c. Click the **Property Listings By Agent Form** tab. The form updates to show this main form and subform.

d. Click the **Sold Properties Listing Report** tab. The form updates to show the report of sold properties.

14. Close the navigation form.

15. Close the database.

SLO 7.9

Creating a Form to Capture Parameter Data

You have previously created queries and reports that use a parameter in ***SLO 3.6: Creating and Using a Simple Parameter Query*** and ***SLO 6.4: Building a Report in Design View***. Recall that when the query or report runs, the *Enter Parameter Value* dialog box appears. If a query or report needs multiple parameters, a separate dialog box appears for each parameter. An alternative is to create a form to collect the parameters and then pass those along to the query or report. This can be especially helpful when you have multiple parameters because they can all be collected at the same time. This also permits a user to change a value that is entered into one of the parameters prior to submitting all of the values. Additionally, you can customize the type of control used for each parameter, and you can even use the validation rule property to help ensure that only valid data is entered. The three main tasks associated with creating and using a form to capture parameter data are explained in this section. You should previously have created the *Parameter Query*.

The Parameter Form

The process of creating a form to capture the input parameters starts with the same form building steps you have learned. However, you can complete additional steps to ensure that your form works as desired. Most forms used to capture parameters have an *OK* button and a *Cancel* button. While you can add different buttons if needed, the *How To* instructions in this section are primarily designed to help you add these two buttons onto the form.

You can use a text box or a combo box to capture the data values from a user. The process varies a little depending on which control you chose to use.

HOW TO: Create a Parameter Form That Uses a Text Box

1. Click the **Form Design** button [*Create* tab, *Forms* group] to create a new form in *Design* view.
2. Add a **Text Box** control to the form to capture the first input parameter.
3. Open the *Property Sheet* and click the **Other** tab.
4. Enter a name for the control in the *Name* property.
5. Enter an expression in the *Validation Rule* and *Validation Text* property boxes of

the control, as desired.

6. Change any formatting properties of the control.
7. Customize the contents and formatting of the label if necessary.
8. Repeat steps 2–7 to add controls to capture any additional parameters.
9. Save the form.

Adding a combo box is a little more involved than adding a text box. The following *How To* explains the choices to make in the wizard to display choices from another table or query. This process is similar to what you have already learned about the *Combo Box* wizard as well as the *Lookup Wizard* from ***SLO 5.2: Creating and Customizing a Relationship through the Lookup Wizard***.

You do not need to modify the form's *Record Source* property because you are not using the combo box to find records. However, verify that the *Use Control Wizards* option is selected [*Form Design* tab, *Controls* group] prior to adding the combo box.

HOW TO: Create a Parameter Form That Uses a Combo Box to Display Choices

1. Click the **Form Design** button [*Create* tab, *Forms* group] to create a new form in *Design* view.
2. Click the **Combo Box** button [*Form Design* tab, *Controls* group].
3. Click inside the form where you want to position the combo box. The *Combo Box Wizard* launches.
4. Select the **I want the combo box to get the values from another table or query** radio button and click **Next**.
5. Select the table or query that contains the values and click **Next**.
6. Select a field to display from the list of *Available Fields* and click the **Move Single Field** button to move the field into the *Selected Fields* window.
7. Move any additional fields into the *Selected Fields* window in the order you wish to display the fields and click **Next**.
8. Select any sort options for the field and click **Next**.
9. Deselect the **Hide key column** check box, as desired, if you wish to display the primary key field in the drop-down list. This option does not display if you only moved one field into the *Selected Fields* window.
10. Adjust the widths of the columns, as desired, and click **Next**.
11. Select the field to store in the database. This wizard page only displays if you selected multiple fields and deselected the *Hide key column* check box. Click **Next** as appropriate.

12. Change the suggested label text, as desired, and click **Finish**. The completed combo box displays on the form. The process created a query and assigned it to the *Row Source* property of the *Combo Box*.
13. Enter a name for the control in the *Name* property [*Other* tab].
14. Repeat steps 2–13 to add controls to capture any additional parameters.
15. Save the form.

You have created a form with either text boxes or combo boxes, depending on the controls use chose to use to capture the parameters. You now add an *OK* button and a *Cancel* button to the form.

HOW TO: Add Buttons to a Parameter Form

1. Open the parameter form in *Design* view if necessary.
2. Click the **Controls** arrow at the far right of the *Controls* group [*Form Design* tab] to expand the *Controls* group. If the *Use Control Wizards* button is selected (it will have a black border surrounding it), click the **Use Control Wizards** button to toggle off the feature.
3. Add a **Button** control (Figure 7-95) to the form.

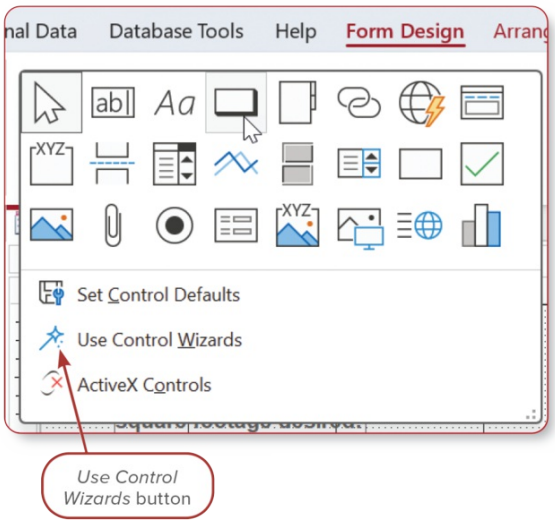


FIGURE 7-95 ***Button*** **control**

4. Click the **Format** tab of the *Property Sheet* and enter OK in the *Caption* property.
5. Click the **Other** tab of the *Property Sheet* and type cmdOK in the *Name* property.
6. Add a second **Button** control to the form.

7. Click the **Format** tab of the *Property Sheet* and enter Cancel in the *Caption* property.
8. Click the **Other** tab of the *Property Sheet* and type cmdCancel in the *Name* property.
9. Save the form.

At this point, you have created a normal form (Figure 7-96). After the form is created, you may wish to customize the design and behavior of the form. A common modification is to change the properties of the form so the form behaves as a dialog box (Figure 7-97).

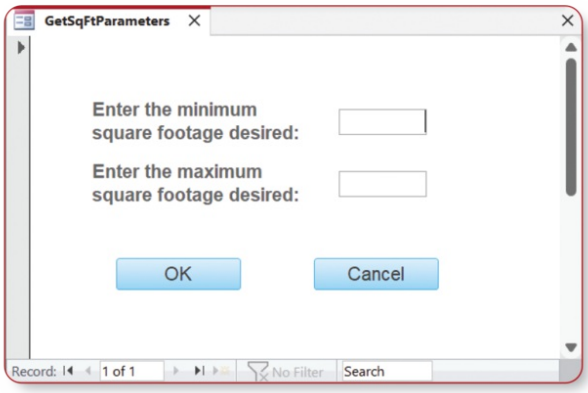


FIGURE 7-96 Normal form created to capture parameters



FIGURE 7-97 Dialog box style form to capture parameters

Change the following properties to turn your form into a dialog box:

- ***Pop Up*** property: Set to *YES* to have the form open as a pop-up box instead of a full-size form. This property is located on the *Other* tab of the *Property Sheet.*

- ***Modal*** property: Set to *YES* to require the users to close the form before they can move the focus to another object. This property is located on the *Other* tab of the *Property Sheet.*
- ***Caption*** property: Enter text to display in the top bar of the dialog box. This property is located on the *Format* tab of the *Property Sheet.*
- ***Auto Center*** property: Set to *YES* so the form opens in the center of the Access window. This property is located on the *Format* tab of the *Property Sheet.*
- ***Border Style*** property: Set to *Dialog* so the form cannot be resized and displays with a thicker border. This property is located on the *Format* tab of the *Property Sheet.*
- ***Record Selectors*** property: Set to *NO* so the record selector does not appear to the left of the form; the record selector is not needed in a dialog box form. This property is located on the *Format* tab of the *Property Sheet.*
- ***Navigation Buttons*** property: Set to *NO* so the navigation buttons do not appear at the bottom of the form; they are not needed in a dialog box form. This property is located on the *Format* tab of the *Property Sheet.*
- ***Scroll Bars*** property: Set to *Neither* because a dialog box form does not need to have scroll bars. This property is located on the *Format* tab of the *Property Sheet.*

If you make any of these changes to the properties of the form, be sure to save the form after you make the changes.

The next step is to modify the contents of the *Criteria* row in the query so the query uses the parameters obtained from the controls on the form. The new expression entered into the *Criteria* row of the query field must use the following format:

[Forms]![Form Name]![Control Name]

- The first part of the expression tells Access to look in the forms area in the database. Include the *[Forms]* part exactly as written.
- Inside the second set of brackets, substitute the name of the form you created.
- Inside the third set of brackets, substitute the name of the control located on the form. Be sure to use the name entered into the *Name* property on the *Data* tab.
- Separate each part of the expression with an exclamation mark.

HOW TO: Modify a Query Parameter to Reference a Form Control

1. Open the query in *Design* view.
2. Click the **Criteria** row cell of the first field with a parameter.
3. Right-click to open the context menu and select **Build** to open the *Expression Builder* window.

4. Enter the expression to reference the value from the control on the form.
   - The expression must use this format: [Forms]![Form Name]![Control Name]
   - **Figure 7-98** shows an example using multiple parameters in the same field.

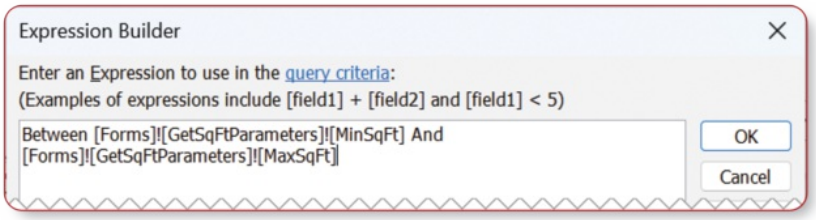


FIGURE 7-98 Referencing multiple parameters in the same field

5. Click **OK** to close the *Expression Builder* window.
6. Repeat steps 2–5 for any additional parameter fields.
7. Save and close the query.

Build the Macros for the Form Buttons

After the form has been created and the query has been updated, you need to write the macro code that is attached to the form buttons. Recall that you did not use the *Control Wizards* when you added the buttons because you needed to add customized code. In ***SLO 5.5: Creating and Using User Interface Macros,*** you learned to write an embedded macro using the *Macro Builder.* Recall that an embedded macro is code that is attached to an event of a control or object. Also recall that a macro can contain many different actions, and some of those actions require you to make choices for the different arguments, or pieces of information, used by the action. Additionally, remember that it is good practice to include comments to explain the purpose of the macro.

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In order for the parameter form to work correctly, you must write the code for the *OK* button and the *Cancel* button.

The *OK* button needs to perform four main tasks when it is clicked. The tasks, along with examples of the macro code, are described in the following list:

1. Verify that both text boxes have a value.
   An example of the code to check if a text box has a value is shown in **Figure 7-99**. You wrote a similar macro in *Guided Project 5-3.* The code contains an *If* action that uses the *IsNull* function to check if a control contains anything. In cases where the control is null, the macro displays a message box and stops the macro from continuing. This enables the user to fill in any

missing values.

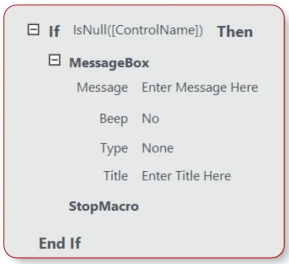


FIGURE 7-99 Macro code to verify that a text box has a value

Substitute the name of the control on your form in place of *[ControlName]* in the *If* statement. Additionally, customize the entries in the *MessageBox* arguments so the message displays as you desire. Refer back to ***SLO 5.5: Creating and Using User Interface Macros*** to review how the *MessageBox* action works.

2. Set the *Visible* property of the form to **False**. The *Visible* property determines whether you can see a form or not. When it is set to *False,* Access keeps the form open, but makes it invisible so it doesn't display. This is necessary so that the query can still access the values stored in the text box controls.
Figure 7-100 shows the code used to set the *Visible* property. Use the *SetProperty* action to change the value of properties on the form. Leave the *ControlName* argument blank because you are referring to the form containing the button that called this macro. In the *Property* argument, select **Visible**. In the *Value* argument, enter **False**.



FIGURE 7-100 Set the *Visible* property of the form

MORE INFO

To change the *Visible* property of a control on a form, enter the name of the control in the *ControlName* argument.

3. Run the query. Use the *OpenQuery* action to tell Access to execute a query (**Figure 7-101**).

Substitute the name of your query in place of the *EnterQueryNameHere* value. In the *View* argument, select **Datasheet**. In the *Data Mode* argument, select **Edit**. To prevent users from changing the data values displayed in the query results, change the *Data Mode* to **Read Only** instead of *Edit*.

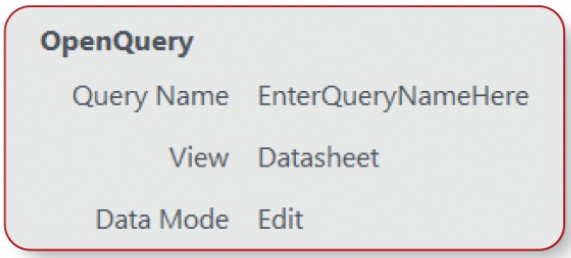


FIGURE 7-101 **Run the query with the *OpenQuery* action**

1. Close the form. After the query has executed, the form no longer needs to be open. Use the *CloseWindow* action to have Access close an object (**Figure 7-102**). In the *Object Type* argument, select **Form**. Substitute the name of your form in place of the *EnterFormNameHere* value. In the *Save* argument, select **No**. You don't need to save the form because no changes have been made. Access displays a warning icon for this action when you select *No* in the *Save* argument. Ignore this icon because you don't need to save the form.

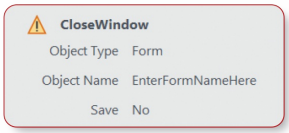


FIGURE 7-102 **Close the form action**

HOW TO: Build the Macro Code for the OK Button

1. Open the form in *Design* view.
2. Select the **OK** button on the form.
3. Open the *Property Sheet* and click the **Event** tab.
4. Click the **On Click** property and click the **Build** button to open the *Choose Builder* dialog box.
5. Select **Macro Builder** and click the **OK** button to open the *Macro Builder*.
6. Click the **Add New Action** box drop-down arrow (**Figure 7-103**) and select the **If** action.

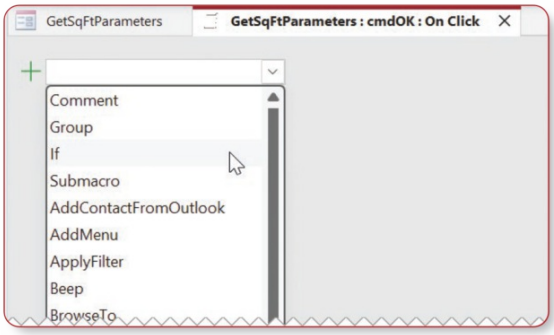


FIGURE 7-103 Select an action in the *Macro Builder*

7. Write the code for the *If* action to verify that all controls on the form contain a value.
8. Fill in required arguments by clicking the **argument** box and entering the appropriate value.
9. Add the **SetProperty** action.
10. Select **Visible** in the *Property* argument and enter False in the *Value* argument.
11. Add the **OpenQuery** action.
12. Enter the query name in the *Query Name* argument, select **Datasheet** in the *View* argument, and select **Edit** in the *Data Mode* argument.
13. Add the **CloseWindow** action.
14. Select **Form** in the *Object Type* argument, select the form name in the *Object Name* argument, and select **No** in the *Save* argument.
15. Add comments into the macro to explain the purpose or logic of the macro actions.
16. Save and close the macro.
17. Save the form.

The code for the *Cancel* button is less complicated. When this button is clicked, the only task that needs to be performed is to close the form. This is the same code that was described in the third task in the list above for the *OK* button (*3. Run the query*). Remember that the user will click either the *OK* button or the *Cancel* button.

HOW TO: Build the Macro Code for the Cancel Button

1. Open the form in *Design* view.
2. Select the **Cancel** button on the form.
3. Open the *Property Sheet* and click the **Event** tab.

4. Click the **On Click** property and click the **Build** button to open the *Choose Builder* dialog box.
5. Select **Macro Builder** and click the **OK** button to open the *Macro Builder.*
6. Click the **Add New Action** box drop-down arrow and select the **CloseWindow** action.
7. Select **Form** in the *Object Type* argument, select the form name in the *Object Name* argument, and select **No** in the *Save* argument.
8. Add comments into the macro to explain the purpose or logic of the macro actions.
9. Save and close the macro.
10. Save the form.

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Test the Form

After you've created the form, including the macros, it is important to test the form to ensure it performs as planned. In this case, you should run the form and leave the text boxes blank, but click the **OK** button. Verify that the message box displays. Run the form again and click the **Cancel** button. Ensure that the form closes with no errors. Finally, run the form again and enter values in the text boxes. Verify that the query results display as planned.

If any of the above scenarios do not work correctly, pay attention to the error message you receive. This will help you determine if the problem is due to the macro or if you have an error in the expression entered into the query parameter. Fix the error in *Design* view of the form or query. You may need to click the **On Click** event property box of a button to open the *Macro Builder* to edit macro code.

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PAUSE & PRACTICE: ACCESS 7-5

For this Pause & Practice, you add a form into the Placer Hills database to collect parameters for a query. After creating the form, you write the macro code and test the form.

File Needed: ***[your initials] PP A7-4.accdb***

Completed Project File Name: ***[your initials] PP A7-5.accdb***

1. Open the ***[your initials] PP A7-4*** database file you created in *Pause & Practice 7-4.*

2. Save a new copy of your database as [your initials] PP A7-5. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close it.
3. Enable content in the database.
4. Double-click the **SqFtParameterQuery** query to run it.
    a. Enter 2500 in the first *Enter Parameter Value* dialog box and click **OK**.
    b. Enter 3000 in the second *Enter Parameter Value* dialog box and click **OK**. The query executes and displays the six records that meet both parameters.
    c. Close the query.
5. Create a form to collect parameters for the *SqFtParameterQuery*.
    a. Click the **Form Design** button [*Create* tab, *Forms* group] to create a new form in *Design* view.
    b. Add a **Text Box** control to the form to capture the first input parameter. The text box should be selected.
    c. Open the *Property Sheet* and click the **Other** tab if necessary.
    d. Enter MinSqFt in the *Name* property.
    e. Click the **Format** tab and enter .7" in the *Width* property, .6" in the *Top* property, 2.5" in the *Left* property, and select **Right** in the *Text Align* property.
    f. Click the **label** control associated with the text box.
    g. Type Enter the minimum square footage desired: in the *Caption* property, and enter 1.7" in the *Width* property, .4" in the *Height* property, .5" in the *Top* property, .5" in the *Left* property, select **Aptos (Detail)** in the *Font Name* property, enter 11 in the *Font Size* property, and select **Bold** in the *Font Weight* property.
    h. Add another **Text Box** control to the form to capture the second parameter.
    i. Click the **Other** tab in the *Property Sheet* and enter MaxSqFt in the *Name* property.
    j. Click the **Format** tab and enter .7" in the *Width* property, 1.1" in the *Top* property, 2.5" in the *Left* property, and select **Right** in the *Text Align* property.
    k. Click the **label** control associated with the text box.
    l. Type Enter the maximum square footage desired: in the *Caption* property, and enter 1.7" in the *Width* property, .4" in the *Height* property, 1" in the *Top* property, .5" in the *Left* property, select **Aptos (Detail)** in the *Font Name* property, enter 11 in the *Font Size* property, and select **Bold** in the *Font Weight* property.
    m. Save the form as GetSqFtParameters.
6. Add buttons to the parameter form.
    a. Click the **Controls** arrow at the far right of the *Controls* group [*Form Design* tab] to expand the *Controls* group. If the *Use Control Wizards* button is selected (it will have a black border surrounding it), click the **Use Control Wizards** button to toggle it off.
    b. Add a **Button** control to the form. Position the button below the labels. Keep the button selected for the next step.
    c. Enter OK in the *Caption* property, 1.8" in the *Top* property, and .7" in the *Left* property.
    d. Click the **Other** tab of the *Property Sheet* and enter cmdOK in the *Name* property.

e. Add a second **Button** control to the form. Position the button below the text boxes.

f. Click the **Format** tab of the *Property Sheet* and enter Cancel in the *Caption* property, 1.8" in the *Top* property, and 2.3" in the *Left* property.

g. Click the **Other** tab of the *Property Sheet* and enter cmdCancel in the *Name* property.

h. Save the form. The form should look similar to Figure 7-104.

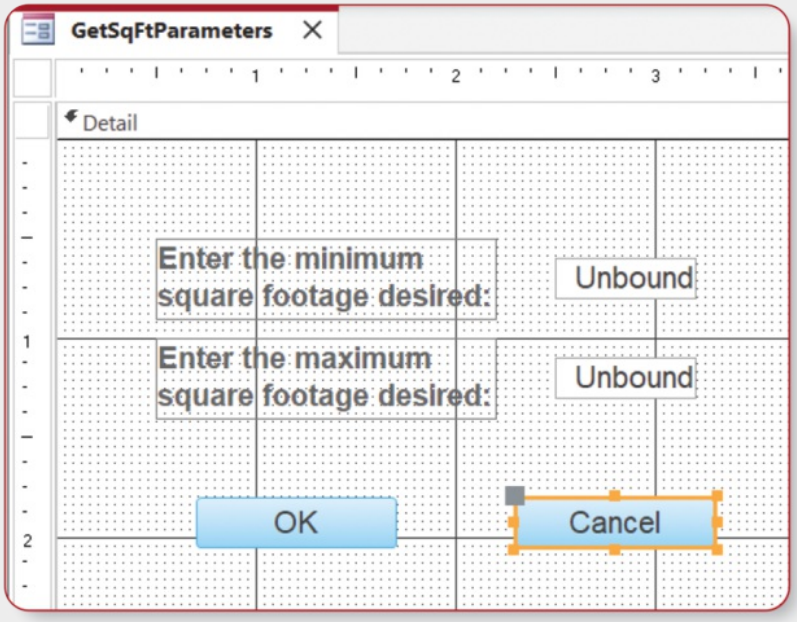


FIGURE 7-104 ***Design* view of *GetSqFtParameters* form**

7. Modify the form properties to make a dialog box.

a. Choose **Form** in the *Selection type* box. The **Other** tab of the *Property Sheet* should still be active.

b. Select **Yes** in the *Pop Up* property.

c. Select **Yes** in the *Modal* property.

d. Click the **Format** tab of the *Property Sheet.*

e. Select **Yes** in the *Auto Center* property.

f. Select **Dialog** in the *Border Style* property.

g. Select **No** in the *Record Selectors* property.

h. Select **No** in the *Navigation Buttons* property.

i. Select **Neither** in the *Scroll Bars* property.

j. Enter Placer Hills Property Square Footage in the *Caption* property and 4" in the *Width* property.

k. Choose **Detail** in the *Selection type* box.

l. Enter 2.5" in the *Height* property.

m. Save the form and change to *Form* view. The form should look similar to Figure 7-105. Click the **X** button to close the form; the *Cancel* button currently does not function.



FIGURE 7-105 ***Form*** **view of the completed form**

8. Modify the query parameters to reference form controls.
   a. Open the *SqFtParameterQuery* query in *Design* view.
   b. Click the **Criteria** cell of the *SqFt* field.
   c. Right-click to open the context menu and select **Build** to open the *Expression Builder* window.
   d. Edit the current parameter to read:
   Between [Forms]![GetSqFtParameters]![MinSqFt] And [Forms]![GetSqFtParameters]![MaxSqFt].
   e. Click **OK** to close the *Expression Builder* window.
   f. Save and close the query.
9. Add the macro code for the *OK* button.
   a. Open the *GetSqFtParameters* form in *Design* view.
   b. Select the **OK** button on the form.
   c. Open the *Property Sheet* and click the **Event** tab.
   d. Click the **On Click** property box and click the **Build** button to open the *Choose Builder* dialog box.
   e. Select **Macro Builder** and click **OK** to open the *Macro Builder.*
   f. Click the **Add New Action** box drop-down arrow and select the **Comment** action.
   g. Type Verify that both text boxes contain a value. If not, display a message and stop the macro.
   h. Click the **Add New Action** drop-down arrow directly below the *Comment* and select **If**.
   i. Type IsNull([MinSqFt]) Or IsNull([MaxSqFt]) in the *If* box.
   j. Click the **Add New Action** box drop-down arrow directly below *If* and select **MessageBox**.
   k. Type You must enter a value in both text boxes in the *Message* argument, select **No** in the *Beep* argument, select **Warning!** in the *Type* argument, and leave the *Title* argument blank.
   l. Click the **Add New Action** box drop-down arrow below *MessageBox* and select **StopMacro**.

m. Click the **Add New Action** drop-down arrow directly below the *End If* statement and select **Comment**.

n. Type Perform the following steps only if both text boxes contain a value.

o. Click the **Add New Action** drop-down arrow below the *Comment* and select **SetProperty**.

p. Select **Visible** in the *Property* argument and type False in the *Value* argument.

q. Click the **Add New Action** drop-down arrow below *SetProperty* and select **OpenQuery**.

r. Select **SqFtParameterQuery** in the *Query Name* argument. Accept the default values in the *View* and *Data Mode* arguments.

s. Click the **Add New Action** drop-down arrow below *OpenQuery* and select **CloseWindow**.

t. Select **Form** in the *Object Type* argument, **GetSqFtParameters** in the *Object Name* argument, and **No** in the *Save* argument. The completed macro is shown in Figure 7-106. Remember that you can use the up and down arrows in the *Macro Builder* to move actions and comments.

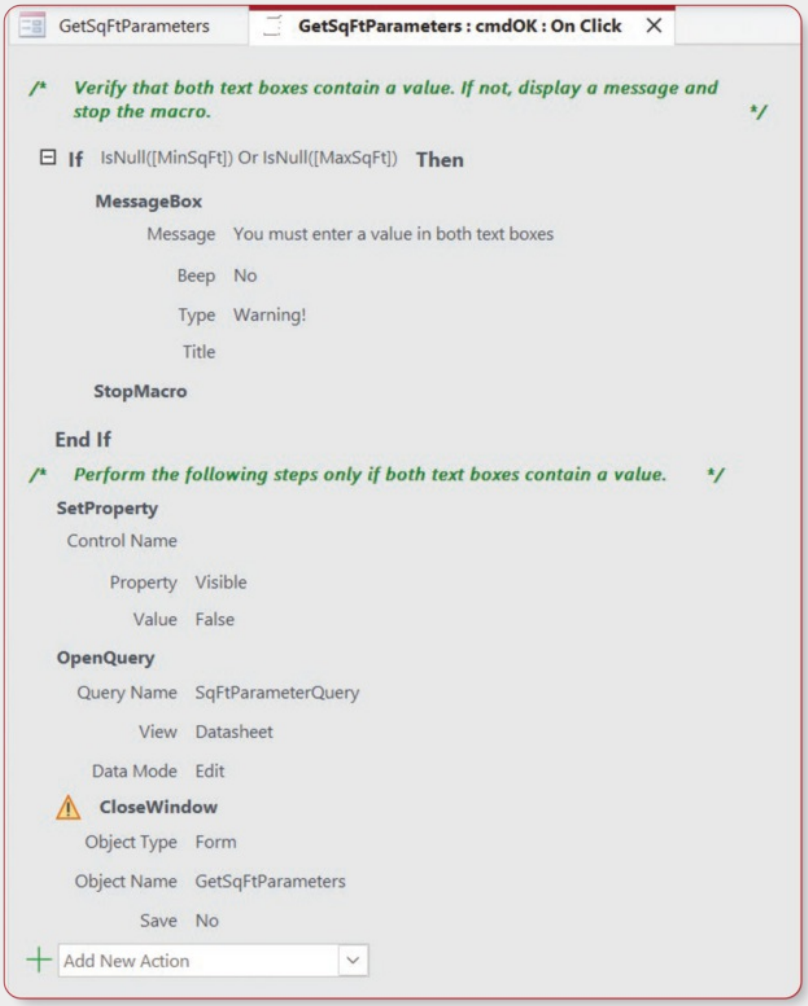


FIGURE 7-106 Macro code for the *OK* button

u. Save and close the macro.

10. Add the macro code for the *Cancel* button.

a. Select the **Cancel** button on the form.
b. Click the **On Click** property box and click the **Build** button to open the *Choose Builder* dialog box.
c. Select **Macro Builder** and click the **OK** button to open the *Macro Builder*.
d. Click the **Add New Action** box drop-down arrow and select the **CloseWindow** action.
e. Select **Form** in the *Object Type* argument, **GetSqFtParameters** in the *Object Name* argument, and **No** in the *Save* argument.
f. Save and close the macro.
g. Save and close the form.

11. Test the form.
    a. Double-click **GetSqFtParameters** to open the form.
    b. Click the **OK** button without entering any values in the text boxes. The message box displays, informing you that you must enter a value in both text boxes. Click **OK** to acknowledge the message.
    c. Enter 2500 in the text box for the minimum square footage and click the **OK** button. The message box displays, informing you that you must enter a value in both text boxes. Click **OK** to acknowledge the message.
    d. Enter 3000 in the text box for the maximum square footage.
    e. Click the **OK** button. The query executes and displays the six records that meet both parameters.
    f. Close the query.
12. Close the database.

Chapter Summary

A7-583

A7-584

7.1 Create and edit a form in *Design* view and insert, remove, and change the size of form sections (p. A7-514).

- *Design* view provides the most flexibility in building a form.
- The sections within a form determine where and when content displays.
- A form can contain the following sections: ***Detail***, ***Form Header***, ***Form Footer***, ***Page Header***, and ***Page Footer***.
- Add fields to a form by selecting them from the *Field List.*
- The *Record Source* property specifies which database fields are available to use in a form.
- Add controls to a form by selecting them from the *Controls* group on the *Form Design* tab.
- Adjust the height and width of a section with the sizing handles or by entering a specific value in the *Height* or *Width* properties.
- The effect of the *Width* property for a form depends on the settings in Access on how to display objects. With *Tabbed Documents* each open object displays in its own tab and take the width of the Access interface. With *Overlapping Windows,* multiple open objects display in the Access interface and the object width is determined by the *Width* property.

7.2 Understand form properties, change tab properties, enable and lock controls, change border options, and remove a scroll bar and record selector (p. A7-519).

- The ***Tab Index*** property establishes the order in which Access moves from one control to another.
- Change the value in the ***Tab Stop*** property if you don't want the control to be able to have the focus when the user presses **Tab** or **Enter**.
- Change the ***Cycle*** property of a form to control where the focus moves when a user tabs out of the control with the largest *Tab Index* value.
- The ***Locked*** property determines whether a user can change the contents in a

field. The ***Enabled*** property determines whether a control can have the focus.

- Use the ***Border Style***, ***Border Width***, and ***Border Color*** properties to modify the way the border appears around a form.
- ***Scroll bars*** display on a form to let the user move up and down or side to side in a form. Change the settings in the *Scroll Bars* property to change how the scroll bars display.
- The ***record selector*** displays on a form to let the user select the entire record. Change the settings in the *Record Selectors* property if you don't want it to display.

7.3 Explore a one-to-many form, create a main form, create a subform, and link a subform to a main form (p. A7-529).

- Use a one-to-many form to show data from tables that have a one-to-many relationship.
- The most common situation features a ***main form*** that contains fields from the "one" side of a one-to-many relationship and a ***subform*** that contains fields from the "many" side of the relationship.
- Create the main form and subform as two separate forms. Use the ***SubForm Wizard*** to add a subform onto a main form.
- Customize the design of the main form and subform using controls and tools available in *Design* view and *Layout* view.
- The ***Navigation Buttons*** property controls whether the *Navigation* bar appears at the bottom of the subform.

7.4 Use a calculated control on a form, explore aggregate functions, and reference controls on other forms (p. A7-536).

- A ***calculated control*** contains an expression in the *Control Source* property. The most common calculation control is the text box.
- Enter an expression by typing it directly into the *Control Source* property or by opening the *Expression Builder* or *Zoom* window.
- Use an aggregate function to calculate a value over a group of records. In a one-to-many form, the aggregate function must be located in either the *Form Header* or *Form Footer* section of the subform. You must add a text box onto the main form that displays the results of the calculation.
- To refer to a control on another form, the expression must specify the form name and the control name.

- You may encounter errors when referencing a control on another form. The ***#Name?*** error indicates you have used an invalid name for a field, control, object, or function. The ***#Error*** error indicates that Access can't evaluate the expression that provides the control's value. This is usually caused by misspelling a control name used in the formula.

7.5 Enhance the appearance of a form by adding lines, rectangles, images, and background images, and web pages; modifying colors and fonts; using themes; integrating conditional formatting; and reviewing accessibility (p. A7-545).

- Enhance the look of a form to make the form easier to use and more helpful to your users.
- Add line and rectangle controls to create logical groupings around multiple controls or to differentiate areas in the form.
- Add images for visual interest or to supplement the text content in a form.
- The ***Image*** button inserts an embedded image, while the ***Insert Image*** button inserts a shared image.
- Use the ***Background Image*** button to add an image to the background of a form.
- Add a web page to a form with the ***Edge Browser Control*** button.
- Adding color or changing the default font can enhance the look of a form but limit the number of different colors and fonts used.
- Applying a ***theme*** to a form is an easy way to change the overall design of the form.
- Add ***conditional formatting*** to controls on a form to format only values that meet a specified condition. You can add, modify, and delete rules from the ***Conditional Formatting Rules Manager*** dialog box.
- The ***Label Name*** property is used to associate a label to another control.
- Design ***accessible forms*** to ensure that all users, including those who rely on computer screen readers, can understand and use the form.

7.6 Add data validation to controls with the *Validation Rule* and *Validation Text* properties (p. A7-554).

- Add data validation rules to controls on a form instead of to fields in a table to provide additional flexibility in entering and correcting data in the database.

- Enter an expression to check for data integrity in the ***Validation Rule*** property of a control.
- Enter a custom error message into the ***Validation Text*** property. The message displays when data is entered that violates a validation rule.

7.7 Add a combo box to a form to find records and customize the combo box properties (p. A7-555).

- Add a ***combo box*** to a form to create a user-friendly way to find a record. The combo box can be located anywhere on the form. Use the ***Combo Box Wizard*** to step you through the process of adding a combo box.
- The *Record Source* property of the form must be set to a table or query for the combo box to work correctly.
- Modify the SQL statement in the *Row Source* property to change sort options, add or delete fields, and create concatenated fields.
- To customize the size and format of the combo box list, set the *Column Count, Column Widths, List Rows, List Width,* and *Width* properties.

7.8 Add a tab control to a form and create and modify a navigation form (p. A7-563).

- Add a ***tab control*** to a form to create a layered area consisting of pages. Each ***page*** can contain its own controls.
- ***Navigation forms*** have tabs that link to different forms or reports in a database. You can use them to create an easy-to-use navigation structure.

7.9 Create a form to capture parameter data, create macros for the form buttons, and test a form (p. A7-573).

- Create a custom form to collect parameter data and pass those values to a query that uses parameter values.
- Add text box or combo box controls to capture the data input.
- To have the parameter form display in a dialog box style, set the ***Pop Up***, ***Modal***, ***Caption***, ***Auto Center***, ***Border Style***, ***Record Selectors***, ***Navigation Buttons***, and ***Scroll Bars*** properties.
- Modify the *Criteria* row in the query to reference a control on the form.
- Build macro code for the buttons on the form so they perform as desired.

Check for Understanding

The SIMbook for this text (within your SIMnet account) provides the following resources for concept review:

- Multiple-choice questions
- Matching exercises
- Short answer questions

USING MICROSOFT ACCESS 365

A7-585
A7-586
A7-587
A7-588
A7-589

Guided Project 7-1 SIMnet Project

For this project, you enhance the functionality of a database for a friend's music collection. You use *Design* view to create a main form and a subform, and customize the form to add sections, modify properties, enhance the look of the form, add a calculated control, and add a combo box to find records.

[Student Learning Outcome 7.1, Student Learning Outcome 7.2, Student Learning Outcome 7.3, Student Learning Outcome 7.4, Student Learning Outcome 7.5, Student Learning Outcome 7.7]

Files Needed: ***MusicDatabase-07.accdb*** and *AlbumArt.png* (**GP-A7-1**) *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Name: ***[your initials] Access 7-1.accdb***

Skills Covered in This Project

- Create a main form in *Design* view.
- Edit a form in *Design* view.
- Create a subform using the *Datasheet* option.
- Add *Form Header* and *Form Footer* sections to a form.
- Add and edit a control in a form.
- Change the tab stop property of a control.
- Change the border style property of a form.
- Add a subform to a main form using the *SubForm Wizard.*
- Use an aggregate function on a subform.
- Add a control on a main form that refers to a control on a subform.
- Apply a theme to a form.

- Add an image to a form.
- Add a combo box to find records.

---

1. Open the ***MusicDatabase-07*** database from your student data files. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close it. If the message repeats in a later step, click **OK** or the **X** to close the message.
2. Save the database as [your initials] Access 7-1.
3. Enable content in the database.
4. Build the main form.
   a. Click the **Form Design** button [*Create* tab, *Forms* group] to open a new form.
   b. Open the Property Sheet and click the **Data** tab if necessary.
   c. Select **Albums** in the *Record Source* property and press **Enter**. Because you will add a combo box to find records, set the record source to use this table before adding fields to the form.
   d. Click the **Add Existing Fields** button [*Form Design* tab, *Tools* group] to open the *Field List*. The fields in the *Albums* table display.
   e. Double-click the **AlbumID** field to add it into the *Detail* section.
   f. Double-click the **AlbumName** field to add it into the *Detail* section.
   g. Double-click the **Artist** field to add it into the *Detail* section.
   h. Close the *Field List* pane.
   i. Save the form as SongListingOnAlbumsByArtist.
5. Add header and footer sections, label controls, and adjust the size of the sections.
   a. Right-click inside the *Detail* section to open the context menu.
   b. Select the **Form Header/Footer** option to add *Form Header* and *Form Footer* sections to the form.
   c. Open the *Property Sheet* and click the **Format** tab if necessary.
   d. Choose **Form** in the *Selection type* box, if necessary, and enter 7.5" in the *Width* property.
   e. Choose **Detail** in the *Selection type* box and enter 4" in the *Height* property.
   f. Choose **Form Header** in the *Selection type* box and enter .8" in the *Height* property.
   g. Add a **Label** control into the *Form Header* section and enter Songs on My Albums into the label. Keep the label selected for the next step.
   h. Change the *Width* property to 2.1", the *Height* Property to .3", the *Top* property to .2", the *Left* property to 1.5", select **14** in the *Font Size* property, and **Bold** in the *Font Weight* property.
   i. Move your pointer to the lower border of the *Form Footer* section. The resize

arrow appears.

j. Click, hold, and drag the **resize arrow** to decrease the height of the section so no space remains in this section.

k. Save your changes to the form.

6. Modify the controls in the *Detail* section of the form.

a. Select the **AlbumID** label.

b. Right-click to open the context menu and select **Delete**.

c. Select the **AlbumID** text box.

d. Change the *Visible* property to **No** and the *Top* property to .1". You need this field on the main form to have the relationship with the subform, but it is not a useful piece of information to display to the user.

e. Select the **AlbumName** text box.

f. Change the *Width* property to 3.2", the *Top* property to .4", the *Left* property to 1.4", and select **Transparent** in the *Border Style* property. On the *Other* tab, in the *Tab Stop* property, select **No**.

g. Select the **AlbumName** label.

h. Click the **Format** tab, change the *Caption* property to Album, the *Width* property to .5", the *Top* property to .4", the *Left* property to .8", and select **Right** in the *Text Align* property.

i. Select the **Artist** text box and change the *Width* property to 1.5", the *Top* property to .7", the *Left* property to 1.4", and select **Transparent** in the *Border Style* property. On the *Other* tab, in the *Tab Stop* property, select **No**.

j. Select the **Artist** label, click the **Format** tab, and change the *Caption* property to Recording Artist, the *Width* property to 1.1", the *Top* property to .7", and select **Right** in the *Text Align* property. Keep the label selected for the next step.

k. Press and hold the **Shift** key and select the **Album** label.

l. Click the **Align** button [*Arrange* tab, *Sizing & Ordering* group] and select the **Right** option. Your form should look similar to Figure 7-107. Don't worry about the location of the *AlbumID* field because it is not visible to the user.

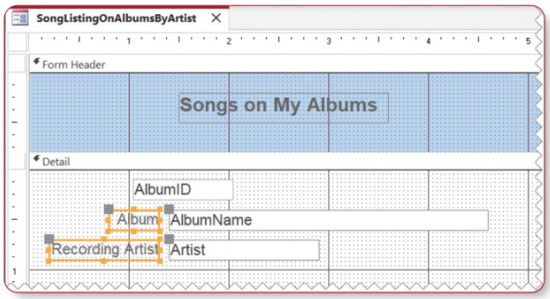


FIGURE 7-107 ***Design*** **view of main form**

m. Save and close the form.

7. Build the subform.
   a. Select the **Songs** table in the *Navigation Pane*.
   b. Click the **More Forms** button [*Create* tab, *Forms* group], and then select **Datasheet** to open a new form in *Datasheet* view.
   c. Position the pointer over the **SongID** column header, right-click to open the context menu, and select **Delete**.
   d. Position the pointer over the **AlbumID** column header, right-click to open the context menu and select **Delete** because you don't need to include the foreign key in the subform.
   e. Position the pointer over the **SongTitle** column header, right-click to open the context menu, select **Field Width**, enter 60 in the *Column Width* and click **OK**.
   f. Switch to *Design* view. All of the controls are selected. Click inside the **Detail** section to deselect the controls.
   g. Select the **Length** text box and enter 4.6" in the *Width* property.
   h. Choose **Form** in the *Selection type* box and enter 6" in the *Width* property.
   i. Choose **Detail** in the *Selection type* box and enter 2.5" in the *Height* property.
   j. Save the form as SongsSubform.
   k. Switch to *Datasheet* view. The form should look similar to the form shown in Figure 7-108.



FIGURE 7-108 ***Datasheet* view of subform**

   l. Close the form.

8. Add the subform onto the main form.
   a. Open the *SongListingsOnAlbumsByArtist* form in *Design* view.
   b. Click the **Use Control Wizards** button [*Form Design* tab, *Controls* group] to toggle it on if the *Use Control Wizards* option is not selected.
   c. Click the **Subform/Subreport** button [*Form Design* tab, *Controls* group].
   d. Click inside the **Detail** section of the form below the fields (near the ½" width tick mark and 1" height tick mark). If a *Microsoft Access Security Notice* box displays, click **Open**. The *SubForm Wizard* launches.
   e. Select the **Use an existing form** radio button.
   f. Select the **SongsSubform** form from the list and click **Next**.

g. Accept the **Choose from a list** radio button and the highlighted **Show** statement and click **Next**.

h. Accept the suggested name for the subform and click **Finish** to add the subform to the main form.

i. Save the form.

j. Switch to *Layout* view. Note that the *AlbumID* text box displays in *Layout* view, even though the *Visible* property is set to *No.* It does not display in *Form* view.

k. Click the **Next record** arrow in the *Navigation* bar of the main form to advance to the next record. Verify that the subform updates to display the 12 songs on J. Cole's *KOD* album.

9. Customize the subform to adjust field widths, and remove the border, *Navigation* bar, and label.

a. Type 40 in the *Current Record* box of the *Navigation* bar of the main form and press **Enter**.

b. Scroll down in the subform until the song *The Chieftains in Orbit (with NASA Astronaut Cady Coleman)* is visible. This song has the longest title in the database. The entire title should be visible in the text box.

c. Switch to *Design* view.

d. Open the *Property Sheet* and click the **Format** tab if necessary.

e. Choose **SongsSubform** in the *Selection type* box if necessary and enter 5.6" in the *Width* property.

f. Select **Transparent** in the *Border Style* property.

g. Click the **Select All** box in the subform to select the subform (Figure 7-109). In the *Property Sheet,* the *Selection type* updates to show *Form* and the *Select All* box in the subform updates to display a black square.

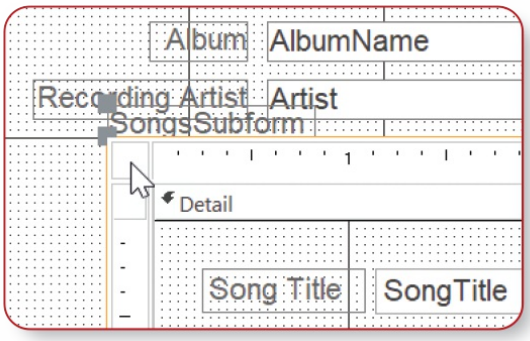


FIGURE 7-109 ***Select All*** **box in the subform**

h. Select **No** in the *Navigation Buttons* property.

i. Click to select the **SongsSubform** label.

j. Right-click to open the context menu and click **Delete**.

k. Save the form. If Access displays a message box that the main form has changed since you opened it, click **Yes** to save the changes.

l. Switch to *Form* view. Verify that the border, *Navigation* bar, and label have been removed. The vertical scroll bar doesn't display on the screen because all the songs from the album *The Thrill of It All* fit in the window size of the subform.

m. Click the **Next record** arrow three times. The scroll bar appears because the songs on *Queen's Greatest Hits (Volume One)* album don't all fit in the window size of the subform.

10. Add a calculated control onto the subform and enter an aggregate function.

a. Switch to *Design* view.

b. Click the **Detail** section bar of the *subform* to select it. You may have to click it twice.

c. Right-click inside the **Detail** section to open the context menu and select the **Form Header/Footer** option to add those sections to the subform. If you get a dialog box about deleting these sections, you most likely are in the *Detail* section of the main form and not the subform. Click **No** and repeat steps b and c.

d. Click, hold, and drag the **vertical scroll bar** on the subform down to the *Form Footer* section.

e. Move your pointer to the bottom border of the *Form Footer* section, and then click, hold, and drag the **resize arrow** down to increase the height of that section to approximately **.5"**.

f. Add a **Text Box** control to the *Form Footer* section of the subform.

g. Open the *Property Sheet* and click the **Data** tab if necessary.

h. Click the **Build** button on the *Control Source* property.

i. Enter =Count([SongTitle]) into the *Expression Builder* and click **OK**.

j. Enter SFSongTitleCount in the *Name* property on the *Other* tab.

k. Delete the **label** that was added with the text box, because it is not needed.

l. Save the form.

11. Add a text box to the main form and reference a control from the subform.

a. Add a **Text Box** control to the right of the *Artist* text box.

b. Switch to the **Data** tab and click the **Build** button on the *Control Source* property.

c. Enter =[SongsSubform].[Form]![SFSongTitleCount] into the *Expression Builder* and click **OK**.

d. Click the **Format** tab, change the *Width* property to .3", the *Top* property to .7", the *Left* property to 5", and select **Transparent** in the *Border Style* property. On the *Other* tab, in the *Tab Stop* property, select **No**.

e. Click the **label** control of that text box.

f. Click the **Format** tab of the *Property Sheet,* enter Total number of songs in the *Caption* property and change the *Width* property to 1.5", the *Top* property to .7", the *Left* property to 3.4", and select **Right** in the *Text Align* property.

g. Click anywhere to deselect the label.

h. Save the form.

12. Enhance the look of the form.

a. Click the **Themes** button [*Form Design* tab, *Themes* group] to display the gallery of available themes.

b. Click the **Integral** theme, the first button in the second row of the Office group (Figure 7-110). Depending on your computer settings, the theme buttons may display in a different order. The form updates to apply this new theme. **IMPORTANT:** Due to a Microsoft Access bug, double check the application of the *Integral* theme before submitting your file. You will need to close the database and then reopen it. Open the database object and reapply the theme.

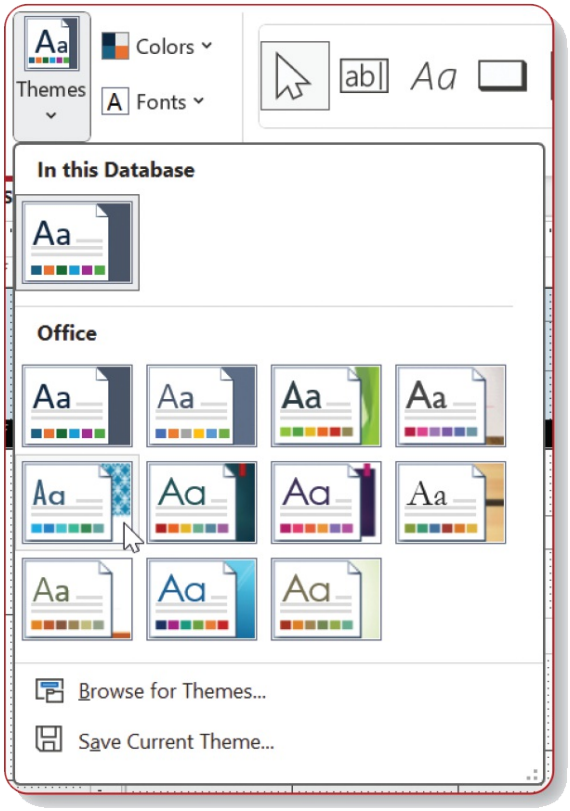


FIGURE 7-110 ***Themes*** **gallery choices**

c. Click the **Insert Image** button [*Form Design* tab, *Controls* group].

d. Select **Browse** to open the *Insert Picture* dialog box, locate and select the **AlbumArt.png** image file, and click **OK**.

e. Move the pointer to the left of the label in the *Form Header* section and click to

insert the image on the form.

f. Set the following properties for the image: Enter .2" in the *Top* property and .5" in the *Left* property.

g. Choose **Form Header** in the *Selection type* box and enter .8" in the *Height* property.

h. Click the **label** control in the *Form Header* section. Enter .27" in the *Top* property and 1.5" in the *Left* property.

i. Choose **Form** in the *Selection type* box and enter 6.5" in the *Width* property.

j. Save the form.

13. Add a combo box to find records on the form.

a. Click the **Combo Box** button [*Form Design* tab, *Controls* group].

b. Move the pointer to the **4"** width and **.5"** height mark of the *Form Header* section and click to insert the combo box on the form. If a *Microsoft Access Security Notice* box displays, click **Open**. The **Combo Box Wizard** launches.

c. Select the **Find a record on my form based on the value I selected in my combo box** radio button and click **Next**.

d. Select **AlbumName** from the *Available Fields* window and click the **Move Single Field** button. Click **Next**.

e. Drag the right edge of the **Album Name** column to adjust the column width to about 3" (use the border between the *Back* and *Next* buttons as a reference) and click **Next**.

f. Change the label text to Select an Album to view and click **Finish**. The updated combo box and label display.

g. Select the **Select an Album to view** label in the *Form Header* section and click the **Format** tab in the *Property Sheet*.

h. Enter 1.9" in the *Width* property, .2" in the *Top* property, 4.2" in the *Left* property, select **12** in the *Font Size* property, and **Bold** in the *Font Weight* property.

i. Select the **combo box** in the *Form Header* section and enter 2.1" in the *Width* property, .45" in the *Top* property, 4" in the *Left* property, and select **Bold** in the *Font Weight* property.

j. Click the **Data** tab and click the **Build** button in the *Row Source* property box to open the *Query Builder*.

k. Click the **Sort** row cell of the *AlbumName* field, click the **drop-down arrow**, and select **Ascending**.

l. Click the **Close** button [*Query Design* tab, *Close* group]. Click **Yes** if prompted to save changes.

m. Save and close the form.

14. Open the *SongListingOnAlbumsByArtist* form in *Form* view. The completed form

displays Sam Smith's *The Thrill of It All* album.

a. Click the **drop-down arrow** in the combo box and select **Midnights**. Verify that the subform updates to display the 13 songs on Taylor Swift's *Midnights* album and that your form looks similar to Figure 7-111. Don't worry if the size of your image in the header is slightly different.

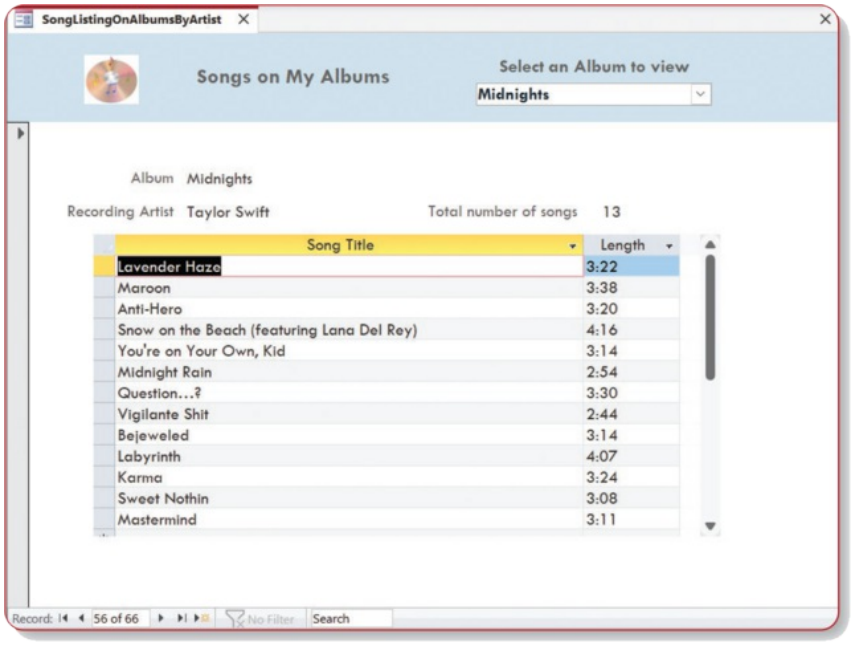


FIGURE 7-111 ***Form* view of completed main form with a subform**

b. Close the form.

15. Close the database.

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A7-591

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Guided Project 7-2

Courtyard Medical Plaza wants to expand its database. To ensure consistency, the starting file is provided for you. You create a form to collect query parameters with a combo box and text boxes, and write the macros to complete the form. Next, you

create and modify a navigation form.

[Student Learning Outcome 7.1, Student Learning Outcome 7.2, Student Learning Outcome 7.5, Student Learning Outcome 7.7, Student Learning Outcome 7.8, Student Learning Outcome 7.9]

File Needed: ***CourtyardMedicalPlaza-07.accdb*** *(Student data files are available in the of your SIMnet account.)*

Completed Project File Name: ***[your initials] Access 7-2.accdb***

Skills Covered in This Project

- Create a form in *Design* view.
- Add and edit a control in a form.
- Add a line control to a form.
- Change the border style property of a form.
- Remove a scroll bar and record selector.
- Modify a navigation form.
- Create a form to capture parameters with a combo box and text boxes.
- Modify combo box properties.
- Build macros for a parameter form button.
- Modify a query to reference a combo box and text boxes on a form.
- Test a parameter form.

1. Open the ***CourtyardMedicalPlaza-07*** database from your student data files. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close it. If the message repeats in a later step, click **OK** or the **X** to close the message.
2. Save a new copy of your database as [your initials] Access 7-2.
3. Enable content in the database.
4. Review the existing parameter query.
   a. Double-click the **InvoiceHistory** query to run it.
   b. Type Camacho in the first *Enter Parameter Value* dialog box and click **OK**.
   c. Don't enter anything in the second *Enter Parameter Value* dialog box and click **OK**.
   d. Don't enter anything in the third *Enter Parameter Value* dialog box and click **OK**. The query executes and displays the seven payments received from Dr. Camacho.
   e. Close the query results and then run the query again.
   f. Don't enter anything in the first *Enter Parameter Value* dialog box and then click

OK.

g. Type 5/1/2026 in the second *Enter Parameter Value* dialog box and click **OK**.

h. Type 6/1/2026 in the third *Enter Parameter Value* dialog box and click **OK**. The query executes and displays the 22 invoices with a due date between 5/1/2026 and 6/1/2026.

i. Close the query.

5. Create and modify a form to collect parameters for the *InvoiceHistory* query. The form uses both a combo box and text boxes to collect data.

a. Click the **Form Design** button [*Create* tab, *Forms* group] to create a new form in *Design* view.

b. Click the **Controls** arrow at the far right of the *Controls* group [*Form Design* tab] to expand the *Controls* group. If the *Use Control Wizards* button is not already selected (it will have a black border surrounding it), click the **Use Control Wizards** button to toggle it on.

c. Add a **Combo Box** control to the form to capture the last name parameter.

d. Select the **I want the combo box to get the values from another table or quer**y radio button and click **Next**.

e. Select the **Physicians** table and click **Next**.

f. Select the **DoctorID** field in *Available Fields* and click the **Move Single Field** button to move the field into the *Selected Fields* window.

g. Move the **LastName** and **Firstname** fields into the *Selected Fields* window and click **Next**.

h. Select the **LastName** field, **Ascending** sort, and click **Next**.

i. Deselect the **Hide key column** check box, don't adjust the column widths, and click **Next**.

j. Select the **LastName** field to store the value and click **Next**. This allows the *LastName* to be used in the query.

k. Edit the label text to read Select the doctor's name and click **Finish**. The completed combo box displays on the form.

l. Open the *Property Sheet* and click the **Other** tab, if necessary, and enter comboLastName in the *Name* property.

m. Click the **Format** tab and enter 0";0.8";0.7" in the *Column Widths* property, 5 in the *List Rows* property, 1.5" in the *List Width* property, 1.3" in the *Width* property, .22" in the *Height* property, .5" in the *Top* property, and 2.8" in the *Left* property.

n. Click the **label** control associated with the combo box and enter 1.7" in the *Width* property, .5" in the *Top* property, 1.1" in the *Left* property, and select **Right** in the *Text Align* property.

o. Add a **Text Box** control to the form, below the combo box, to capture the starting

date parameter.

p. Click the **Other** tab in the *Property Sheet* and enter StartDate in the *Name* property.

q. Click the **Format** tab and select **Short Date** in the *Format* property. Enter 1" in the *Width* property, .22" in the *Height* property, 1.1" in the *Top* property, and 2.8" in the *Left* property.

r. Click the **label** control associated with the text box and enter Enter the start date of the time period in the *Caption* property, 2.5" in the *Width* property, 1.1" in the *Top* property, .2" in the *Left* property, and select **Right** in the *Text Align* property.

s. Add a second **Text Box** control to the form, below the first text box, to capture the ending date parameter.

t. Click the **Other** tab in the *Property Sheet* and enter EndDate in the *Name* property.

u. Click the **Format** tab and select **Short Date** in the *Format* property. Enter 1" in the *Width* property, .22" in the *Height* property, 1.6" in the *Top* property, and 2.8" in the *Left* property.

v. Click the **label** control associated with the text box and enter Enter the end date of the time period in the *Caption* property, 2.5" in the *Width* property, 1.6" in the *Top* property, .2" in the *Left* property, and select **Right** in the *Text Align* property.

w. Save the form as GetInvoiceParameters.

6. Add buttons to the parameter form.

a. Click the **Controls** arrow in the *Controls* group [*Form Design* tab] and deselect the **Use Control Wizards** button if it is currently selected.

b. Add a **Button** control to the form. Position the button below the labels.

c. Enter OK in the *Caption* property, 2.2" in the *Top* property, and .8" in the *Left* property.

d. Click the **Other** tab of the *Property Sheet* and enter cmdOK in the *Name* property.

e. Add a second **Button** control to the form. Position the button below the text boxes.

f. Click the **Format** tab of the *Property Sheet* and enter Cancel in the *Caption* property, 2.2" in the *Top* property, and 2.3" in the *Left* property.

g. Click the **Other** tab of the *Property Sheet* and enter cmdCancel in the *Name* property.

h. Save the form. The form should look similar to **Figure 7-112**.

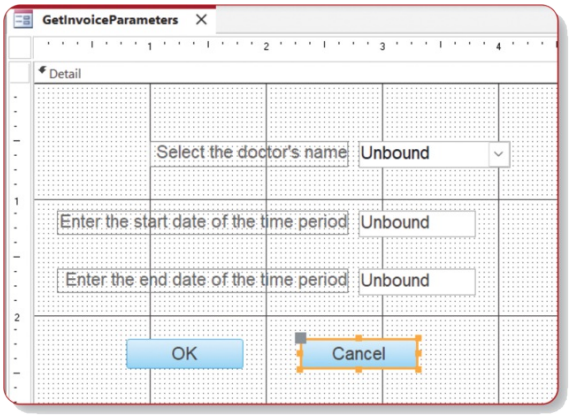


FIGURE 7-112 ***Design* view of *GetInvoiceParameters* form**

7. Enhance the form design and modify properties to convert it into a dialog box.
   a. Choose **Form** in the *Selection type* box.
   b. Select **Yes** in the *Pop Up* property.
   c. Select **Yes** in the *Modal* property.
   d. Click the **Format** tab of the *Property Sheet*.
   e. Select **Yes** in the *Auto Center* property.
   f. Select **Dialog** in the *Border Style* property.
   g. Select **No** in the *Record Selectors* property.
   h. Select **No** in the *Navigation Buttons* property.
   i. Select **Neither** in the *Scroll Bars* property.
   j. Enter Courtyard Medical Plaza Invoice History in the *Caption* property and 4.55" in the *Width* property.
   k. Choose **Detail** in the *Selection type* box.
   l. Enter 2.8" in the *Height* property.
   m. Add a **Line** control below the *Select the doctor's name* label. Keep the line selected for the next step.
   n. Enter 1" in the *Width* property, .9" in the *Top* property, and .8" in the *Left* property; select **2 pt** in the *Border Width* property, click the **Build** button in the *Border Color* property, and select **Light Gray**, **Background 2**, **Darker 50%** (the third column, fourth row, in the *Theme Colors* area). Be sure to press **Enter** after selecting the *Border Color*.
   o. Click the **line control** in the form to move the focus out of the current property box and reactivate the selection. Press **Ctrl+C** to copy the line control.
   p. Press **Ctrl**+**V** to paste a copy of the line control. Keep the second line selected for the next step.

q. Enter .9" in the *Top* property and 2.25" in the *Left* property.

r. Add a **Label** control between the two line controls. Type OR inside the label and press **Enter**.

s. Enter .24" in the *Width* property, .8" in the *Top* property, and 1.9" in the *Left* property. Be sure to press **Enter** after entering the *Left* value.

t. Click the border of the **label** control in the form to move the focus out of the current property box and reactivate the selection; don't click inside the label. Press **Ctrl+C** to copy the label control.

u. Press **Ctrl+V** to paste a copy of the label control.

v. Enter AND in the *Caption* property, .35" in the *Width* property, 1.37" in the *Top* property, and 1.85" in the *Left* property. Be sure to press **Enter** after entering the *Left* value.

w. Close the *Property Sheet*.

x. Save the form and change to *Form* view. Click the **drop-down arrow** in the combo box. Notice that the list displays five doctors in ascending order by last name. Use the vertical scroll bar to display more doctors. The form should look similar to Figure 7-113. Click the **X** button to close the form because the *Cancel* button currently does not do anything.

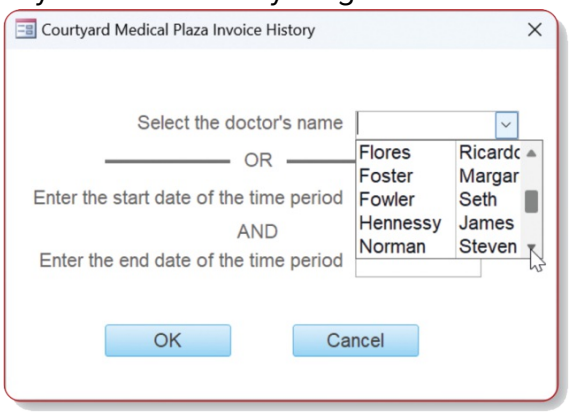


FIGURE 7-113 ***Form* view of the completed form**

8. Modify the query parameters to reference form controls.

a. Open the *InvoiceHistory* query in *Design* view. Scroll to the right of the query design grid, if necessary, so the *LastName* and *DueDate* fields are visible.

b. Click the **Criteria** row cell of the *LastName* field, right-click to open the context menu, and select **Build** to open the *Expression Builder* window.

c. Edit the current parameter so it reads [Forms]![GetInvoiceParameters]![comboLastName].

d. Click **OK** to close the *Expression Builder* window.

e. Click the **or** row cell of the *DueDate* field. Right-click to open the context menu

and select **Build** to open the *Expression Builder* window.

f. Edit the current parameter so it reads:
Between [Forms]![GetInvoiceParameters]![StartDate] And [Forms]![GetInvoiceParameters]![EndDate].

g. Click **OK** to close the *Expression Builder* window.

h. Save and close the query.

9. Add the macro code for the *OK* button.

a. Open the *GetInvoiceParameters* form in *Design* view.

b. Click the **OK** button on the form.

c. Open the *Property Sheet* and click the **Event** tab.

d. Click the **On Click** property box and click the **Build** button to open the *Choose Builder* dialog box.

e. Select **Macro Builder** and click the **OK** button to open the *Macro Builder*.

f. Click the **Add New Action** box drop-down arrow and select the **Comment** action.

g. Type Verify that the correct text boxes have been completed. If not, display a message and stop the macro.

h. Click the **Add New Action** drop-down arrow directly below the *Comment* and select **If**.

i. Type IsNull([comboLastName]) And (IsNull([StartDate]) Or IsNull([EndDate])) in the *If* box.

j. Click the **Add New Action** box drop-down arrow directly below the *If* box and select **MessageBox**.

k. Type You must either select a doctor or enter both the Start and End Dates in the text boxes in the *Message* argument.

l. Select **No** in the *Beep* argument and **Warning!** in the *Type* argument. Do not enter anything in the *Title* argument.

m. Click the **Add New Action** box drop-down arrow below *MessageBox* and select **StopMacro**.

n. Click the **Add New Action** drop-down arrow directly below the *End If* statement and select **Comment**.

o. Type Perform the following steps only if the correct text boxes contain a value.

p. Click the **Add New Action** drop-down arrow below the *Comment* and select **SetProperty**.

q. Select **Visible** in the *Property* argument and type False in the *Value* argument.

r. Click the **Add New Action** drop-down arrow below *SetProperty* and select **OpenQuery**.

s. Select **InvoiceHistory** in the *Query Name* argument. Accept the default values in

the *View* and *Data Mode* arguments.

t. Click the **Add New Action** drop-down arrow below *OpenQuery* and select **CloseWindow**.

u. Select **Form** in the *Object Type* argument, **GetInvoiceParameters** in the *Object Name* argument, and **No** in the *Save* argument. The completed macro is shown in **Figure 7-114**. Remember to use the up and down arrows in the *Macro Builder* to move actions and comments, if needed.

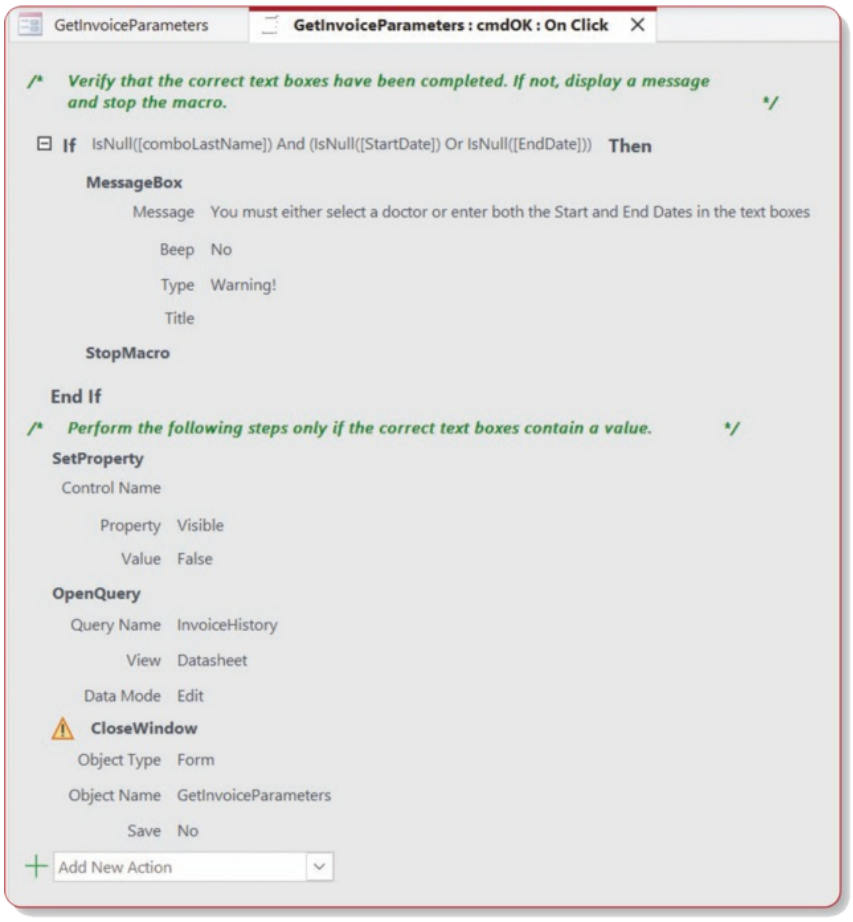


FIGURE 7-114 **Macro code for the *OK* button**

v. Save and close the macro.

10. Add the macro code for the **Cancel** button.

a. Select the **Cancel** button on the form.

b. Open the *Property Sheet* and click the **Event** tab if necessary.

c. Click the **On Click** property box and click the **Build** button to open the *Choose Builder* dialog box.

d. Select **Macro Builder** and click the **OK** button to open the *Macro Builder.*

e. Click the **Add New Action** box drop-down arrow and select the **CloseWindow**

action.

f. Select **Form** in the *Object Type* argument, **GetInvoiceParameters** in the *Object Name* argument, and **No** in the *Save* argument.

g. Save and close the macro.

h. Save and close the form.

11. Test the form.

a. Double-click **GetInvoiceParameters** to open the form.

b. Click the **OK** button without entering any values in the text boxes. The message box displays. Click **OK** to acknowledge the message.

c. Select **Camacho Juan** in the doctor's name combo box and click OK. The query executes and displays the seven payments received from Dr. Camacho.

d. Close the query results.

e. Double-click **GetInvoiceParameters** to open the form.

f. Type 5/1/2026 in the *StartDate* text box.

g. Type 6/1/2026 in the *EndDate* text box and click **OK**. The query executes and displays the 22 invoices with a due date between 5/1/2026 and 6/1/2026.

h. Close the query.

12. Create a navigation form.

a. Click the **Navigation** button [*Create* tab, *Forms* group].

b. Select the **Vertical Tabs**, **Left** form style from the list of choices. The form opens in *Layout* view.

c. Save the form as CourtyardMedicalNavigation.

13. Add forms and reports to the navigation form. You do not add the *GetInvoiceParameters* form because it will not work correctly as part of a navigation form.

a. Click, hold, and drag the **Physicians** form from the *Navigation Pane* to the *[Add New]* button.

b. Click, hold, and drag the **AddNewPhysician** form to the *[Add New]* button.

c. Click, hold, and drag the **RecordInvoicePayment** form to the *[Add New]* button.

d. Click, hold, and drag the **RentInvoices** report to the *[Add New]* button.

e. Save the form.

14. Change the label captions.

a. Change to *Design* view.

b. Click to select the **AddNewPhysician** tab.

c. Edit the text to insert spaces between the words so the tab reads *Add New Physician.*

d. Add spaces into the *RecordInvoicePayment* and *RentInvoices* tabs.

e. Click to select the **Add New Physician** tab, press and hold the **Shift** key, and select the three other tabs.

f. Click the **Shape Outline** button [*Format* tab, *Control Formatting* group] and select **Dark Teal**, **Accent 1**, **Darker 50%** (the fifth column, sixth row, in the *Theme Colors* area).

g. Click the **Shape Outline** button [*Format* tab, *Control Formatting* group], select **Line Thickness** and select **2 pt** (the third line in the list).

h. Open the *Property Sheet* and click the **Format** tab.

i. Enter 1.8" in the *Width* property.

j. Save and close the form.

15. Test the form.

a. Double-click to open the **CourtyardMedicalNavigation** form. The form shows four navigation tabs; the *Physicians* tab is open to display the information about Dr. Agarwal (**Figure 7-115**).

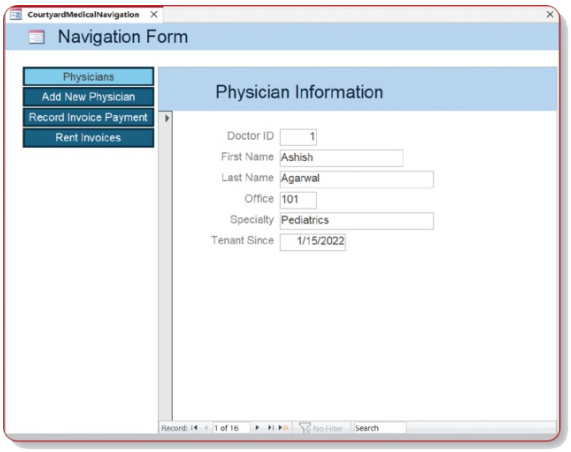


FIGURE 7-115 **Completed navigation form**

b. Click the **Add New Physician** tab. The form updates to show this form.

c. Click the **Record Invoice Payment** tab. The form updates to show this form.

d. Click the **Rent Invoices** tab. The form updates to show the report.

16. Close the form.

17. Close the database.

Guided Project 7-3

San Diego Sailing wants to add functionality to its database. To ensure consistency, the starting file is provided for you. For this project, you modify properties of controls and add controls to enhance the look of a form. You also create and modify a form in *Design* view, add and edit controls on the form, and integrate data validation.

[**Student Learning Outcome 7.1**, **Student Learning Outcome 7.2**, **Student Learning Outcome 7.5**, **Student Learning Outcome 7.6**]

Files Needed: ***SanDiegoSailing-07.accdb*** and ***SailboatSunset.jpg*** (GP-A7-3.zip)
(Student data files are available in the Library *of your SIMnet account.)*

Completed Project File Name: ***[your initials] Access 7-3.accdb***

Skills Covered in This Project

- Edit a form in *Design* view.
- Change the tab order of a control.
- Remove a scroll bar and record selector.
- Remove navigation buttons.
- Apply a theme to a form.
- Add an image to a form.
- Add a line to a form.
- Create a form in *Design* view.
- Add *Form Header* and *Form Footer* sections to a form.
- Add and edit a control in a form.
- Change the enabled property of a control.
- Add data validation to a control.

1. Open the ***SanDiegoSailing-07*** database from your student data files. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close it. If the message repeats in a later step, click **OK** or the **X** to close the message.
2. Save the database as [your initials] Access 7-3.
3. Enable content in the database.
4. Review the existing form.
   a. Double-click the **AddNewSailboat** form to open it in *Form* view.
   b. Press the **Tab** key nine times until you reach the *Save Sailboat Record* button.

Notice that the tab order jumps around the different controls. Conditional formatting has been applied to the text boxes to change color when the control has the focus. Note that a **check box control** does not have a back color property so it doesn't change color.

c. Move the pointer over each button. Note that the button background and font colors change when the pointer hovers over it.

d. Click the **Close Form** button to close the form.

5. Modify control properties in the *AddNewSailboat* form.

a. Open the *AddNewSailboat* form in *Design* view.

b. Click the **Tab Order** button [*Form Design* tab, *Tools* group] to open the *Tab Order* dialog box. *Detail* should be selected in the *Section* area of the dialog box.

c. Click the **ModelYear** control selector (Figure 7-116). The row turns black.

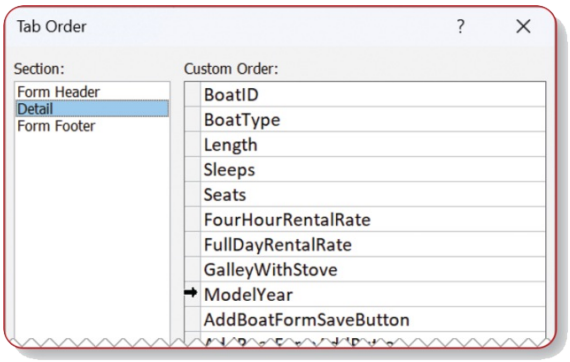


FIGURE 7-116 **Click the selector of the *ModelYear* control**

d. Click and hold the **selector** again and drag the control to below the *BoatType* control. Release the pointer.

e. Repeat this process to move the *Seats* control below the *Length* control and to move the *GalleyWithStove* control below the *Sleeps* control.

f. Click the **OK** button to save the changes and close the dialog box.

g. Open the *Property Sheet* and click the **Format** tab if necessary.

h. Choose **Form** in the *Selection type* box if necessary.

i. Select **No** in the *Record Selectors* property.

j. Select **No** in the *Navigation Buttons* property.

k. Select **Neither** in the *Scroll Bars* property.

l. Save the form.

6. Enhance the look of the form.

a. Click the **Themes** button [*Form Design* tab, *Themes* group] to display the gallery

of available themes.

b. Click the **Ion** theme, the second button in the second row of the *Office* group. Depending on your computer settings, the theme buttons may display in a different order. The form updates to use this new theme.
c. Click the **Controls** arrow [*Form Design* tab, *Controls* group] to expand the *Controls* group and then click the **Image** button in the *Controls* group.
d. Move the pointer to the left of the label in the *Form Header* section, and click to insert the image. The *Insert Picture* dialog box opens.
e. Locate and select the **SailboatSunset.jpg** image file and click **OK** to insert the picture. Keep the image selected for the next step.
f. Enter .8" in the *Width* property, .5" in the *Height* property, .12" in the *Top* property, and .5" in the *Left* property.
g. Click the **image** control to move the focus out of the current property box and press **Ctrl+C** to copy the image control.
h. Press **Ctrl+V** to paste a copy of the image control. Keep the copy of the image selected for the next step.
i. Enter .12" in the *Top* property and 4.2" in the *Left* property.
j. Choose **Form Header** in the *Selection type* box and enter .8" in the *Height* property.
k. Add a **Line** control below the *Model Year* label. Keep the line selected for the next step.
l. Enter 4.4" in the *Width* property, 1.4" in the *Top* property, .6" in the *Left* property, and select **1 pt** in the *Border Width* property.
m. Click the **line** control to reactivate the selection and press **Ctrl+C** to copy the line control.
n. Press **Ctrl+V** to paste a copy of the line control. Keep the copy of the line control selected for the next step.
o. Enter 2.2" in the *Top* property and .6" in the *Left* property.
p. Click to select the **Save Sailboat Record** button, press and hold the **Shift** key, and select the two other buttons.
q. Click the **Build** button in the *Hover Color* property and select **Dark Red, Accent 1, Darker 25%** (the fifth column, fifth row, in the *Theme Colors* area.)
r. Click the **Build** button in the *Hover Fore Color* property and select **Dark Gray 3** (the second column, fourth row, in the *Standard Colors* area.)
s. Save the form and switch to *Form* view. The completed form should look similar to **Figure 7-117**. Don't worry if the size of your images is slightly different.

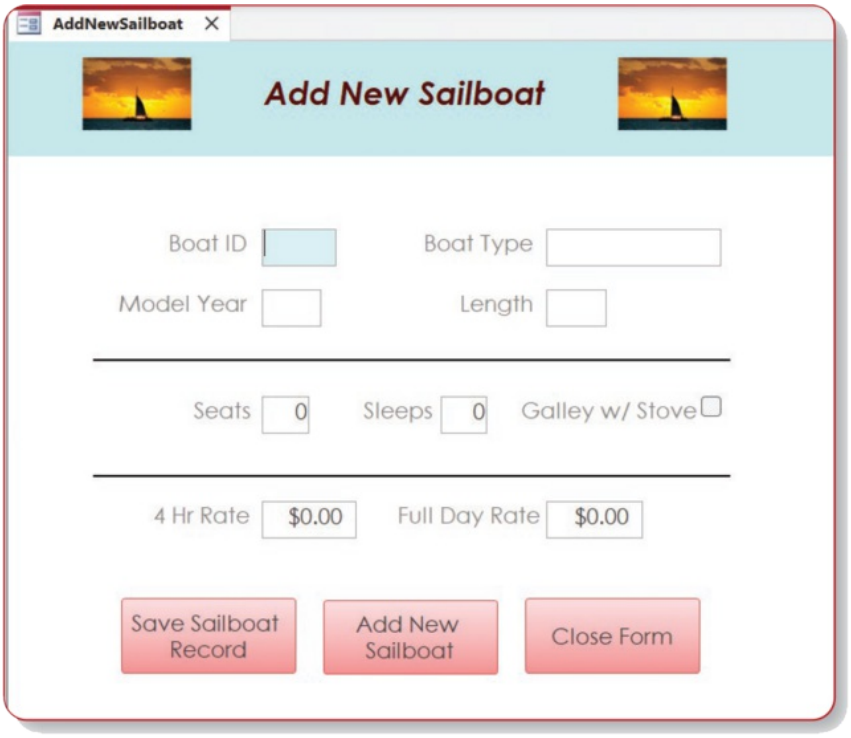


FIGURE 7-117 ***Form* view of completed *AddNewSailboat* form**

Photo Source: Stephen Frink/Image Source

t. Move the pointer over each of the buttons to see the impact of changing the *Hover Color* and *Hover Fore Color* properties.

u. Close the form.

7. Create a form in *Design* view and add fields to the form.

a. Click the **Form Design** button [*Create* tab, *Forms* group] to open a new form.

b. Click the **Add Existing Fields** button [*Form Design* tab, *Tools* group] to open the *Field List*.

c. Click the **Show all tables** link to display the database tables.

d. Click the **plus sign** to expand the *SDRentals* table.

e. Double-click the **RentalID** field to add it to the form.

f. Double-click the **FKBoatID** field to add it to the form.

g. Click the **plus sign** to expand the *SailboatFleet* table.

h. Double-click the **BoatType** field to add it to the form.

i. Add the following additional fields from the *SDRentals* table into the *Detail* section of the form: **RentalDate**, **FourHourRental?**, and **MemberID**. The layout should be similar to that shown in Figure 7-118.

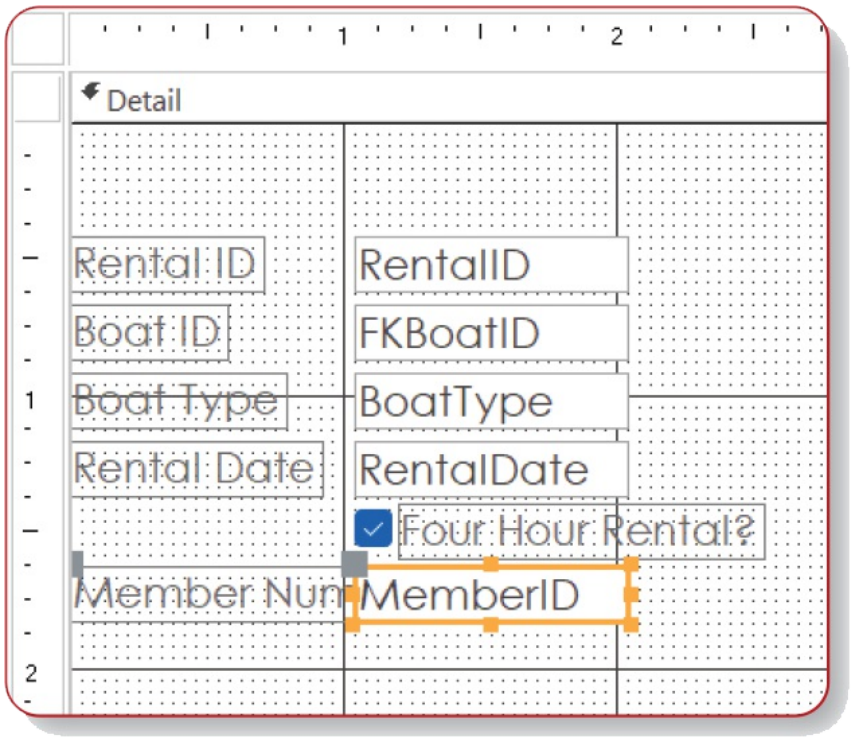


FIGURE 7-118 ***Design* view of form after adding fields**

j. Close the *Field List* pane.

k. Save the form as RentalInformation.

8. Modify the location and sizes of the fields.

a. Open the *Property Sheet* and click the **Format** tab if necessary.

b. Click to select the **RentalID** text box, press and hold the **Shift** key, and select the **FKBoatID BoatType, RentalDate**, and **MemberID** text boxes and the **FourHourRental?** check box.

c. Enter 2.3" in the *Left* property.

d. Click to select the **Rental ID** label, press and hold the **Shift** key, and select the **Boat ID, Boat Type, Rental Date, Four Hour Rental?**, and **Member Number** labels.

e. Enter 1.4" in the *Width* property, .65" in the *Left* property, and select **Right** in the *Text Align* property.

f. Select the **RentalID, FKBoatID**, and **MemberID** text boxes.

g. Enter .5" in the *Width* property.

h. Click to select the **BoatType** text box.

i. Enter 1.2" in the *Width* property.

j. Click to select the **RentalDate** text box.

k. Enter .9" in the *Width* property.

l. Save the changes to the form.

9. Change the size of the form and add a *Form Header* and a *Form Footer* section.
   a. Choose **Detail** in the *Selection type* box and enter 3" in the *Height* property.
   b. Choose **Form** in the *Selection type* box and enter 4" in the *Width* property.
   c. Right-click inside the form to open the context menu.
   d. Select the **Form Header/Footer** option. The *Form Header* and *Form Footer* sections display on the form.
10. Edit the header and footer sections and add a label into the header section.
   a. Click the **Form Header** section bar.
   b. Enter .5" in the *Height* property.
   c. Close the *Property Sheet*.
   d. Click the **Label** button [*Form Design* tab, *Controls* group].
   e. Move the pointer into the *Form Header* section and click to add the label.
   f. Type Boat Rental Information into the label. Click anywhere outside the label.
   g. Click to select the **label** in the *Form Header* section.
   h. Click to select the **Format** tab in the Access *Ribbon*.
   i. Select **14** in the font size [*Font* group] and click the **Center, Italic**, and **Bold** formatting buttons.
   j. Use the **sizing arrows** to adjust the size of the label as needed, so the entire label text displays.
   k. Move the label so it is approximately centered both vertically and horizontally in the *Form Header* section.
   l. Move your pointer to the lower border of the *Form Footer* section. The resize arrow appears.
   m. Click, hold, and drag the **resize arrow** to decrease the height of the section so no space remains in this section.
   n. Save the form. The form should look similar to **Figure 7-119**.

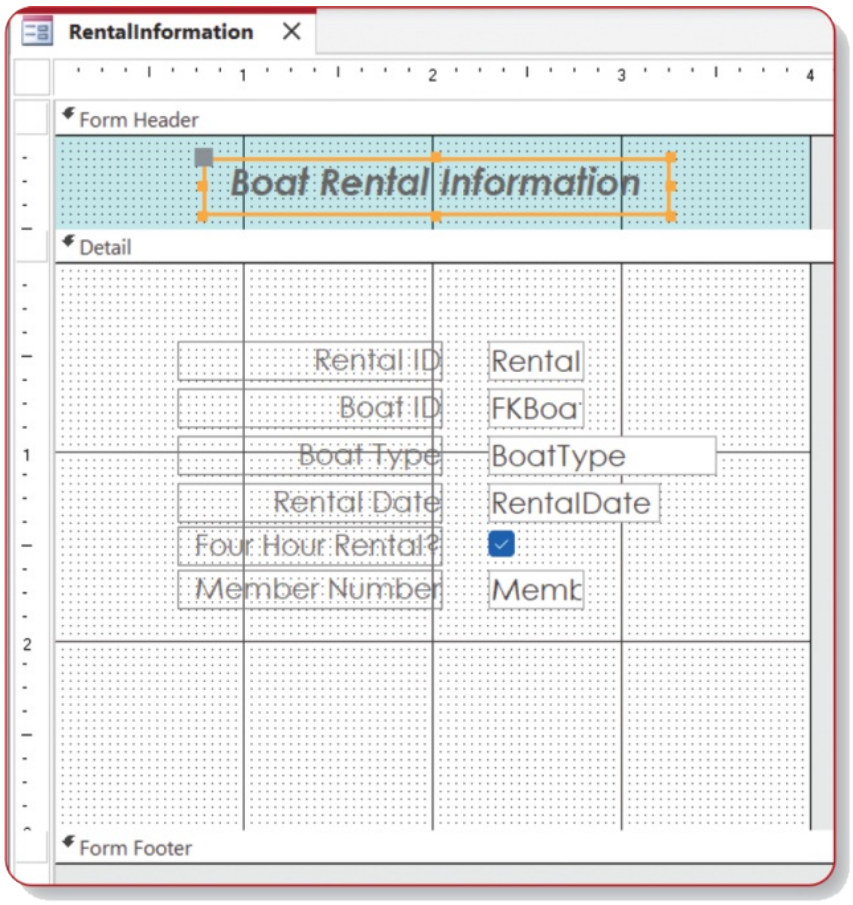


FIGURE 7-119 **Revised layout with *Form Header* and *Form Footer* sections added to form**

11. Test the form.
    a. Switch to *Form* view. The first record displays information about *Rental ID 08035* for *BoatID 1003*.
    b. Click the **Next record** arrow. The second record displays information about *RentalID 08040* for *BoatID 1003*. The records are displaying in ascending order of *BoatID* with a secondary sort on the *RentalID*. You want the records to display in ascending order by the *RentalID*.
12. Change the sort order.
    a. Switch to *Design* view.
    b. Open the *Property Sheet* and click the **Data** tab if necessary.
    c. Choose **Form** in the *Selection type* box if necessary.
    d. Enter RentalID in the *Order By* property.
    e. Save the form.
13. Prevent users from accessing the *RentalID* text box and dim the control.

a. Select the **RentalID** text box.
b. Select **No** in the *Enabled* property.

14. Enter a validation rule and validation text.
    a. Select the **RentalDate** text box.
    b. Enter >=#5/1/2026# in the *Validation Rule* property.
    c. Enter The Rental Date must be greater than or equal to 5/1/2026 in the *Validation Text* property. If you need more space to enter the validation text, right-click the **Validation Text** property box and select the **Zoom** button, enter the expression, and click **OK**.
    d. Save the changes to the form.
15. Test the form.
    a. Switch to *Form* view to test the form. The form should look similar to Figure 7-120. The first record now displays information about *Rental ID 08013* because of the change to the *Order By* property. Note that the *RentalID* text box and label are dimmed.

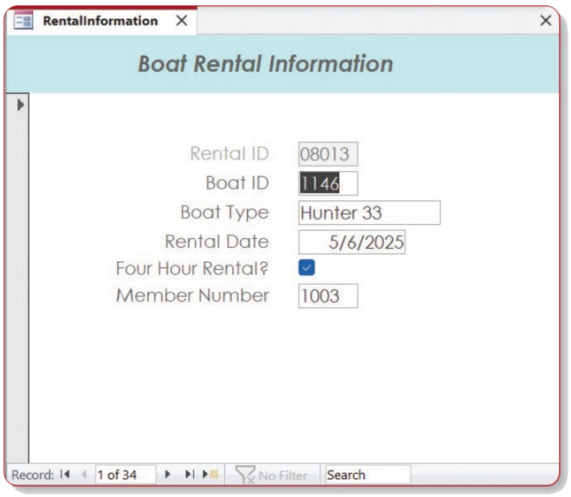


FIGURE 7-120 Completed *RentalInformation* form

    b. Tab to the *RentalDate* text box and enter 4/15/2026.
    c. Tab out of the field. The message box displays because your entry was invalid. Click **OK** to acknowledge the message.
    d. Press the Esc key to undo the change you previously made. The original entry of *5/6/2025* should display in the *RentalDate* text box.
    e. Close the form.
16. Close the database.

Independent Project 7-4

Central Sierra Insurance wants you to create two forms to enhance the functionality of its database. To ensure consistency, the starting file is provided for you. Use *Design* view to create and edit a form that uses a tab control. You then test that form. Create a form to collect query parameters with a combo box and write the macros to complete the form. Finally, you test the parameter form.

[**Student Learning Outcome 7.1**, **Student Learning Outcome 7.2**, **Student Learning Outcome 7.5**, **Student Learning Outcome 7.7**, **Student Learning Outcome 7.8**, **Student Learning Outcome 7.9**]

File Needed: ***CentralSierra-07.accdb*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Name: ***[your initials] Access 7-4.accdb***

Skills Covered in This Project

- Create a form in *Design* view.
- Add and edit a control in a form.
- Remove the record selector.
- Change the border style property of a form.
- Add a tab control to a form.
- Add fields to a tab control.
- Apply a theme to a form.
- Create a form to capture parameters with a combo box.
- Modify combo box properties.
- Build macros for a parameter form button.
- Modify a query to reference text boxes on a form.
- Test a parameter form.

1. Open the ***CentralSierra-07*** database from your student data files. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close it. If the message repeats in a later step, click **OK** or the **X** to close the message.

2. Save the database as [your initials] Access 7-4.
3. Enable content in the database.
4. Create a form in *Design* view, add fields and a tab control to the form, and change form and control properties.
   a. Create a new form using **Form Design**.
   b. Open the *Field List,* expand the *Employees* table, and double-click to add the **EmpID, FirstName**, and **LastName** fields onto the form.
   c. Open the *Property Sheet*.
   d. Select the **EmpID** text box and enter the following values on the *Format* tab: .15" in the *Top* property and 1.8" in the *Left* property.
   e. Select the **LastName** text box and enter .5" in the *Top* property and 3.8" in the *Left* property.
   f. Select the **Last Name** label and enter .5" in the *Top* property and 3" in the *Left* property.
   g. Select the **FirstName** text box and enter .5" in the *Top* property and 1.8" in the *Left* property.
   h. Select the **Employee ID** label and enter .15" in the *Top* property and .85" in the *Left* property. Keep the *Employee ID* label selected for the next step.
   i. Press and hold the **Shift** key and select the **First Name** label. Use the **Align** button to align the labels to the **Right**.
   j. Select the **FirstName** text box and the **First Name** label. Use the **Align** button to align the controls to the **Top**.
   k. Click the **Tab Control** button, move the pointer to the **1" wide** and **1" high** mark on the form, and click to add the tab control. Keep the tab control selected for the next step.
   l. Enter 3.7" in the *Width* property, 2" in the *Height* property, 1" in the *Top* property, and 1" in the *Left* property if necessary.
   m. Choose **Form** in the *Selection type* box, enter 5.3" in the *Width* property, and select **No** in the *Record Selectors* property.
   n. Choose **Detail** in the *Selection type* box and enter 3.5" in the *Height* property.
   o. Save the form as EmployeeInformation.
5. Change the names of the page tabs in the tab control.
   a. Click the **first page tab**. An orange line surrounds the entire tab control, indicating it has been selected.
   b. Click the **first page tab** again to select it. An orange line surrounds the interior border of the page, indicating it has been selected.
   c. Enter Job Location in the *Name* property on the *Other* tab.

d. Click the **second page tab** and enter Hire Details in the *Name* property.

6. Add fields to a tab control page.
   a. Click the **Job Location** tab to select it.
   b. Open the *Field List,* expand the *Employees* table and drag the **Branch, Title**, and **Department** fields to the tab control.
   c. Click the **Hire Details** tab to select it.
   d. Drag the **Start Date** and **BaseMonthlySalary** fields to the tab control.
   e. Close the *Field List* pane.
   f. Save the form.

7. Change the size and location of the controls on the pages and enhance the look of the form.
   a. Open the *Property Sheet*.
   b. Select the **StartDate** text box and enter the following values on the *Format* tab: 1.6" in the *Top* property and 2.8" in the *Left* property.
   c. Select the **BaseMonthlySalary** text box and enter the following values on the *Format* tab: 2" in the *Top* property and 2.8" in the *Left* property.
   d. Select the **Start Date** label and enter 1.6" in the *Top* property and 1.9" in the *Left* property.
   e. Select the **Base Monthly Salary** label and enter 2" in the *Top* property and 1.25" in the *Left* property. The completed page should look similar to Figure 7-121.

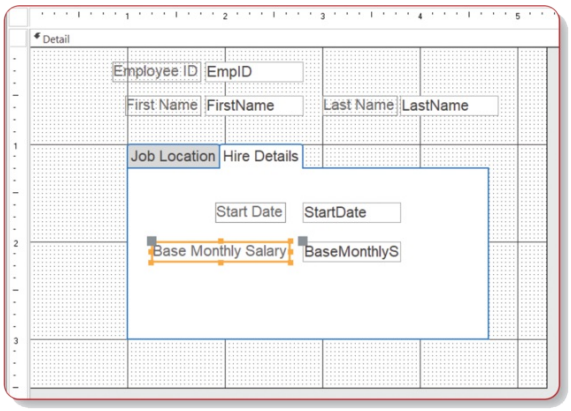


FIGURE 7-121 ***Hire Details*** **page of tab control**

   f. Select the **Job Location** tab.
   g. Select the **Branch** label and enter 1.6" in the *Top* property and 1.5" in the *Left* property.
   h. Select the **Branch** text box and enter 1.6" in the *Top* property and 2.6" in the *Left* property.
   i. Select the **Title** label and enter 2" in the *Top* property and 1.5" in the *Left*

property.

j. Select the **Title** text box and enter 1.8" in the *Width* property, 2" in the *Top* property, and 2.6" in the *Left* property.

k. Select the **Department** combo box and enter 1.8" in the *Width* property, 2.4" in the *Top* property, and 2.6" in the *Left* property.

l. Select the **Department** label and enter 2.4" in the *Top* property and 1.6" in the *Left* property. Be sure to press **Enter** after entering the *Left* property. Keep the *Department* label selected for the next step.

m. Press and hold the **Shift** key and select the **Title** and **Branch** labels. Use the **Align** button to align the labels to the **Right** because that is consistent with the alignment on the *Hire Details* tab. The completed page should look similar to Figure 7-122.

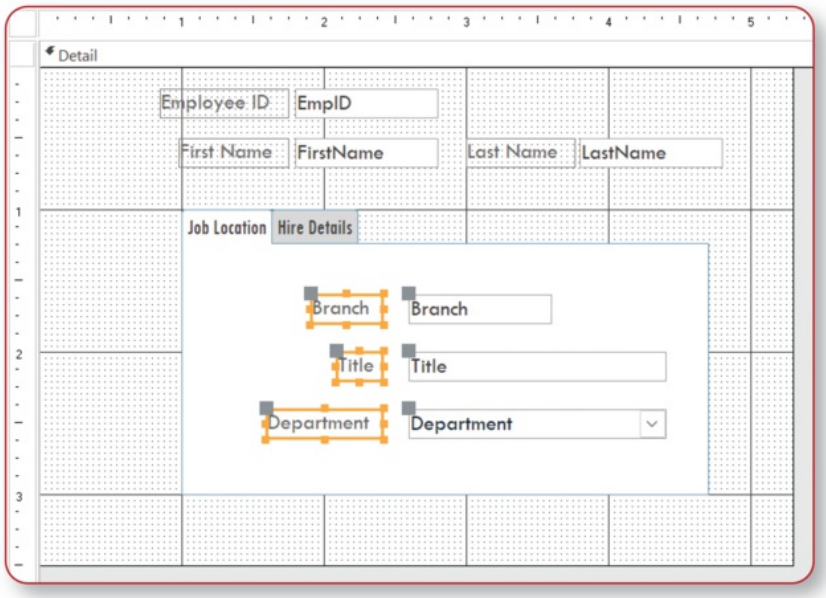


FIGURE 7-122 ***Job Location*** **page of tab control**

n. Apply the **Integral** theme, the first button in the second row of the *Office* group.

o. Save the form.

8. Test the tab control form.

a. Switch to *Form* view to test the form. The completed form should look similar to Figure 7-123. Navigate to different records and click each page of the tab control to ensure the fields display correctly.

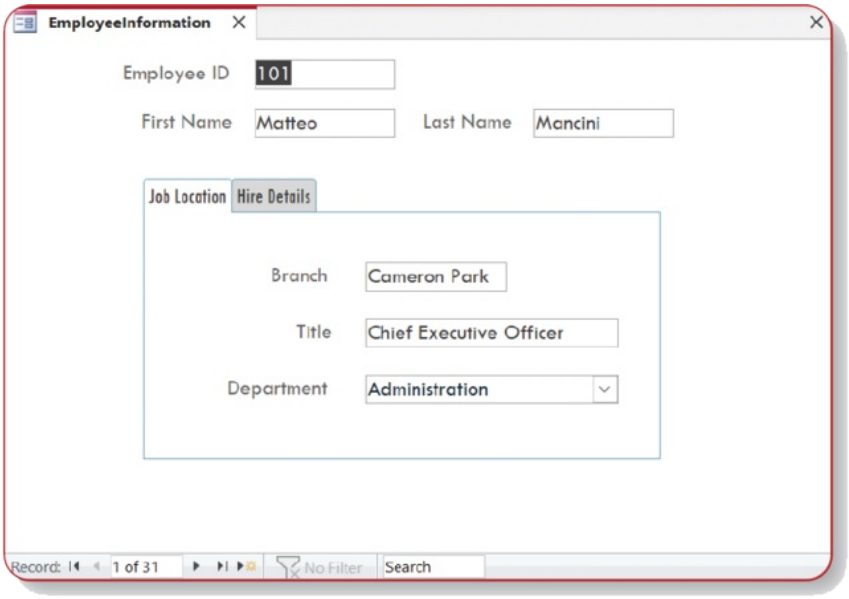


FIGURE 7-123 ***Form*** **view of completed tab control form**

b. Make any needed corrections.
c. Save and close the form.

9. Review the existing parameter query.
   a. Run the *EmployeesBranchParameter* query. The *Enter Parameter Value* dialog box displays.
   b. Type Folsom and click **OK**. The query executes and displays the ten employees in the Folsom branch.
   c. Switch to *Design* view and then run the query again.
   d. Don't enter anything in the *Enter Parameter Value* dialog box and click **OK**. The query executes and displays the 31 employees.
   e. Close the query.
10. Create a form to collect a parameter for the *EmployeesBranchParameter* query.
   a. Create a new form using **Form Design**.
   b. Select the **Use Control Wizards** button if it is currently not selected.
   c. Add a **Combo Box** control to the form to capture the branch parameter.
   d. Select **I want the combo box to get the values from another table or query**.
   e. Select the **Branches** table and then move the **Branch** field into the *Selected Fields*.
   f. Don't sort on any fields and don't adjust the width of the column.
   g. Change the label text to Click the arrow to select the desired branch and click OK and finish the wizard. The label and combo box are added to the form. Don't worry if the combo box is on top of the label. Keep the combo box selected for

the next step.

h. Set the following properties for the combo box: Enter comboBranch in the *Name* property, 1.2" in the *Width* property, .5" in the *Top* property, 2.4" in the *Left* property, select **Tw Cen MT (Detail)** in the *Font Name* property, and enter 11 in the *Font Size* property.

i. Set the following properties for the label associated with the combo box: Enter 1.9" in the *Width* property, 1" in the *Height* property, .5" in the *Top* property, .3" in the *Left* property, select **Tw Cen MT (Detail)** in the *Font Name* property, enter 11 in the *Font Size* property, and select **Center** in the *Text Align* property.

j. Open the *Zoom* window in the *Caption* property to add more text to the caption. Type , (comma and space) after OK, and then press **Shift+Enter**. Continue typing or and then press **Shift+Enter**. Continue typing simply click OK to display employees at all branches. Click **OK**. Pressing **Shift+Enter** wrapped the text at those points in the caption.

k. Save the form as GetBranchParameter.

11. Add buttons to the parameter form.

a. Deselect the **Use Control Wizards** button.

b. Add a **Button** control to the form and set the following properties for the button: Enter OK in the *Caption* property, 2" in the *Top* property, .6" in the *Left* property, and cmdOK in the *Name* property.

c. Add a second **Button** control to the form and set the following properties for the button: Enter Cancel in the *Caption* property, 2" in the *Top* property, 2.3" in the *Left* property, and cmdCancel in the *Name* property.

d. Save the form. The form should look similar to Figure 7-124.

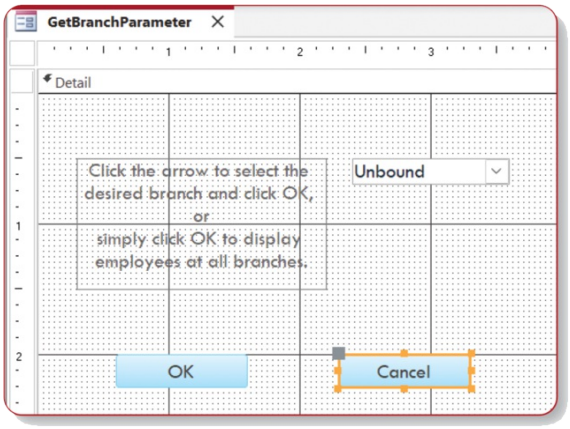


FIGURE 7-124 ***Design* view of *GetBranchParameter* form**

12. Enhance the form design and modify properties to make it become a dialog box.

a. Set the following properties for the form: Select **Yes** in the *Pop Up* property, **Yes** in the *Modal* property, **Yes** in the *Auto Center* property, **Dialog** in the *Border Style* property, **No** in the *Record Selectors* property, **No** in the *Navigation Buttons* property, and **Neither** in the *Scroll Bars* property. Type Central Sierra Employee Listing in the *Caption* property and 4" in the *Width* property.

b. Set the following property for the *Detail* section: Enter 2.7" in the *Height* property.

c. Close the *Property Sheet*.

d. Save the form and change to *Form* view.

e. Click the **drop-down arrow** in the combo box to display the branches. The form should look similar to Figure 7-125. Click the **X** button to close the form.

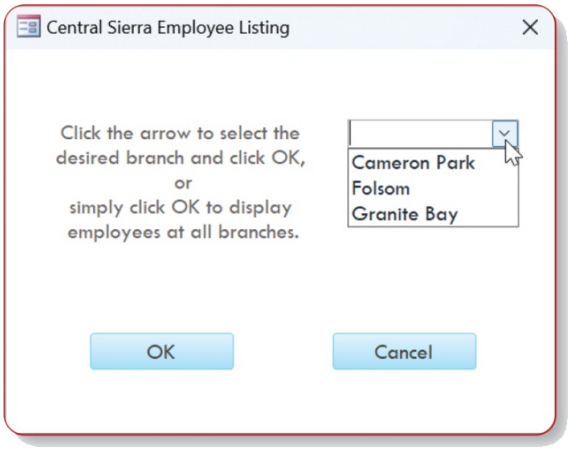


FIGURE 7-125 ***Form* view of the completed form**

13. Modify the query parameters to reference form controls.

a. Open the *EmployeesBranchParameter* query in *Design* view.

b. Click the **Criteria** row cell of the *Branch* field, open the *Expression Builder,* and edit the current parameter so it reads Like "*" & [Forms]![GetBranchParameter]![comboBranch] & "*".

c. Save and close the query.

14. Add the macro code for the *OK* button.

a. Open the *GetBranchParameter* form in *Design* view.

b. Open the *MacroBuilder* for the *On Click* property of the *OK* button.

c. Click the **Add New Action** drop-down arrow and select **Comment**.

d. Type This macro passes the value from the combo box to the query. It is permissible for the combo box to be empty, in which case the query returns all records.

e. Click the **Add New Action** drop-down arrow below the *Comment* and select **SetProperty**.

f. Select **Visible** in the *Property* argument and type False in the *Value* argument.

g. Click the **Add New Action** drop-down arrow below *SetProperty* and select **OpenQuery**.

h. Select **EmployeesBranchParameter** in the *Query Name* argument. Accept the default values in the *View* and *Data Mode* arguments.

i. Click the **Add New Action** drop-down arrow below *OpenQuery* and select **CloseWindow**.

j. Select **Form** in the *Object Type* argument, **GetBranchParameter** in the *Object Name* argument, and **No** in the *Save* argument. The completed macro is shown in Figure 7-126.

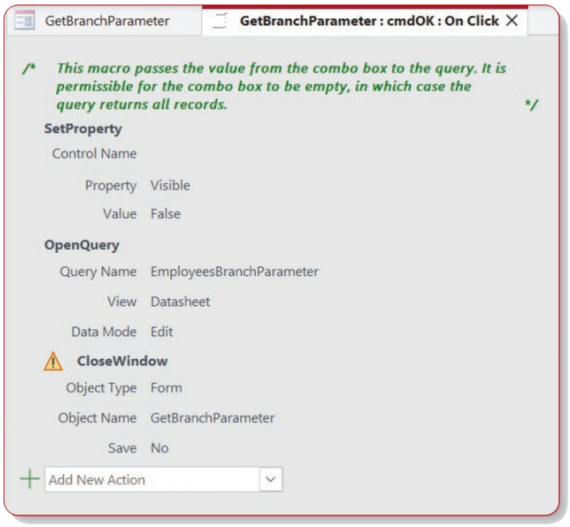


FIGURE 7-126 **Macro code for the *OK* button**

k. Save and close the macro.

15. Add the macro code for the *Cancel* button.

a. Open the *MacroBuilder* for the *On Click* property of the *Cancel* button.

b. Add the **CloseWindow** action.

c. Select **Form** in the *Object Type* argument, **GetBranchParameter** in the *Object Name* argument, and **No** in the *Save* argument.

d. Save and close the macro.

e. Save and close the form.

16. Test the form.

a. Double-click **GetBranchParameter** to open the form.

b. Select **Folsom** in the combo box and click **OK**. The query executes and displays the ten employees in the Folsom branch.

c. Close the query results.

d. Double-click **GetBranchParameter** to open the form.
e. Click **OK**. The query executes and displays the 31 employees.
f. Close the query results.
g. Double-click **GetBranchParameter** to open the form.
h. Click **Cancel**. The form closes.

17. Close the database.

Independent Project 7-5 SIMnet Project

Mary's Equipment Rentals wants to improve its database. To ensure consistency, the starting file is provided for you. You improve the form by enhancing the look and functionality of a main form and subform and adding the subform to the main form. You add conditional formatting and data validation to controls on the form. Finally, you modify a navigation form that was created but never finished.

[**Student Learning Outcome 7.1**, **Student Learning Outcome 7.2**, **Student Learning Outcome 7.3**, **Student Learning Outcome 7.5**, **Student Learning Outcome 7.6**, **Student Learning Outcome 7.8**]

File Needed: ***MarysRentals-07.accdb*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Name: ***[your initials] Access 7-5.accdb***

Skills Covered in This Project

- Edit a main form in *Design* view.
- Edit the properties of a control.
- Change the tab order of a control.
- Change the locked property of a control.
- Change the border style property of a form.
- Edit a subform.
- Add *Form Header* and *Form Footer* sections to a form.
- Add a subform to a main form.

- Add conditional formatting to a control.
- Add data validation to a control.
- Remove navigation buttons.
- Remove a record selector.
- Modify a navigation form.

---

1. Open the ***MarysRentals-07*** database from your student data files. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close it. If the message repeats in a later step, click **OK** or the **X** to close the message.
2. Save the database as [your initials] Access 7-5.
3. Enable content in the database.
4. Review the existing main form and subform.
   a. Open the *EquipmentServiceHistory* form in *Form* view. Tab through all six fields. Note that the tab sequence is not in a logical order and that the labels and fields could be aligned better.
   b. Close the *EquipmentServiceHistory* form.
   c. Open the *ServiceHistorySubform* form in *Form* view. Overall, this form looks fine, although alignment inconsistencies exist in the column headers.
5. Improve the design of the *ServiceHistorySubform* form.
   a. Switch to *Design* view of the *ServiceHistorySubform* form.
   b. Press and hold the **Shift** key and select all of the labels in the form. Select **Center** in the *Text Align* property and **Semi-bold** in the *Font Weight* property.
   c. Select the **Hours** label and text box and enter .5" in *Width* property.
   d. Select the **TotalCost** label and text box and enter 6.93" in *Left* property.
   e. Save and close the form.
6. Improve the design of the *EquipmentServiceHistory* form.
   a. Open the *EquipmentServiceHistory* form in *Design* view.
   b. Insert a space between “Equipment” and “ID” in the *EquipmentID* label.
   c. Insert a space between “Product” and “Name” in the *ProductName* label.
   d. Select the **Equipment ID, Product Name, Date Purchased, Category**, and **Lifetime Maintenance Cost** labels. Select **Right** in the *Text Align* property and Semi-bold in the *Font Weight* property.
   e. Select the **DatePurchased** text box and enter 6.5" in *Left* property.
   f. Select the **Category** combo box and enter .6" in the *Height* property and 6.5" in the *Left* property.
   g. Select the **Lifetime Maintenance Cost** label and enter 1.4" in the *Width* property,

.4" in the *Height* property, and 1.1" in the *Top* property.

h. Select the **Date Purchased** label and enter 5.1" in the *Left* property. Keep the *Date Purchased* label selected for the next step.

i. Select the **Category** and **Lifetime Maintenance Cost** labels. Use the **Align** button to align the controls to the **Right**.

j. Select the **LifetimeMaintenanceCost** text box and enter 1.2" in the *Top* property and 6.5" in the *Left* property.

k. Select the **Comments** label and text box and enter .9" in the *Top* property.

l. Save the changes to the form.

7. Add a header and footer section.

a. Add a *Form Header* and *Form Footer* section to the *EquipmentServiceHistory* form.

b. Change the *Height* property of the *Form Header* section to .5".

c. Add a **Label** control into the *Form Header* section and enter Equipment Service History into the label.

d. Set the following properties for the label: Change the *Width* property to 2.6", the *Height* property to .25", the *Top* property to .12", and the *Left* property to 2.75". Select **14** in the *Font Size* property and **Bold** in the *Font Weight* property.

e. Select the **Form Footer** section and change the *Height* property to .5" and the *Back Color* property to Text 2, Lighter 80%. Enter the *Back Color* text exactly as written.

8. Modify properties of the form and add conditional formatting.

a. Click the **Detail** section bar.

b. Click the **Tab Order** button and change the tab order of the controls to the following: *EquipmentID, DatePurchased, ProductName, Category, Comments,* and *LifetimeMaintenanceCost.* Click **OK** to close the dialog box.

c. Select **Form** in the *Selection type* box and select **No** in the *Record Selectors* property.

d. Select the **LifetimeMaintenanceCost** text box.

e. Use the **Conditional Formatting** button to open the *Conditional Formatting Rules Manager* dialog box. Create a **New Rule** rule for the *LifetimeMaintenanceCost* text box to check for values *greater than or equal to $1,000.* Format those values in a **bold red** font. Choose the **Red** font from the *Standard Colors* (second column, seventh row.) Don't include the dollar sign or comma formatting symbols in the formatting rule. Save and apply the formatting rule.

f. Save the changes to the form.

9. Add the subform onto the main form using the *Subform Wizard.*

a. Ensure that *Use Control Wizards* is turned on.
b. Use the **Subform/Subreport** button to add the subform onto the main form. Position the subform inside the **Detail** section of the main form (below the *Comments* text box and near the left border). The *SubForm Wizard* launches.
c. Choose to **Use an existing form** and select the **ServiceHistorySubform**.
d. Accept the **Choose from a list** radio button and the highlighted **Show** statement.
e. Accept the suggested name for the subform and **Finish** the wizard.
f. Save the main form.
g. Switch to *Layout* view to preview the form (Figure 7-127).

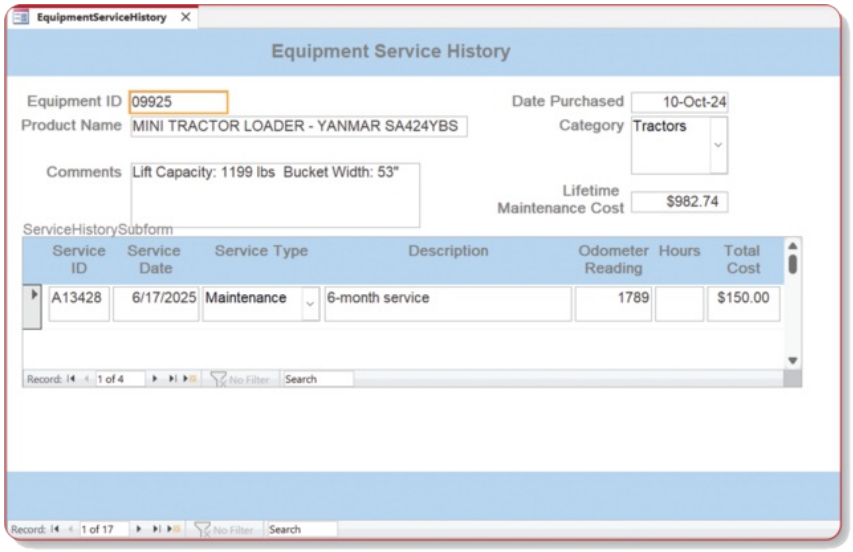


FIGURE 7-127 ***Layout*** **view of main form with added subform**

h. Navigate to the ninth equipment record and verify that the subform updates to display the repair for *Equipment ID 10283*. Verify that the size of the *Category* combo box is large enough to display the entire category value. Remember that not all equipment items have been repaired. The subform for those items will not contain any data.

10. Customize the form in *Design* view to adjust form widths, change the border, and remove the record selectors, *Navigation* bar, and label.
a. Switch to *Design* view, select the **Detail** section bar of the main form and enter 4.5" in the *Height* property.
b. Delete the *ServiceHistorySubform* label.
c. Select the subform and enter 2.25" in the *Height* property, 1.7" in the *Top* property, .15" in the *Left* property, and select **Dash Dot** in the *Border Style* property.
d. Click the **Select All** box in the subform to select the subform. The *Select All* box

in the subform updates to display a black square.

e. Select **No** in the *Record Selectors* property and **No** in the *Navigation Buttons* property.

f. Delete the *ServiceHistorySubform* label.

g. Select the **Detail** section bar of the subform and enter Background 1 in the *Alternate Back Color* property. This keeps the background the same for all the rows.

h. Save the form.

11. Lock a control and create a validation rule and validation text.

a. Select the **DatePurchased** text box and enter <=Date() in the *Validation Rule* property and The Date Purchased must be less than or equal to today in the *Validation Text* property.

b. Select the **LifetimeMaintenanceCost** text box and select **Yes** in the *Locked* property.

c. Save the form.

12. Switch to *Form* view to test the completed form. The form should look similar to Figure 7-128.

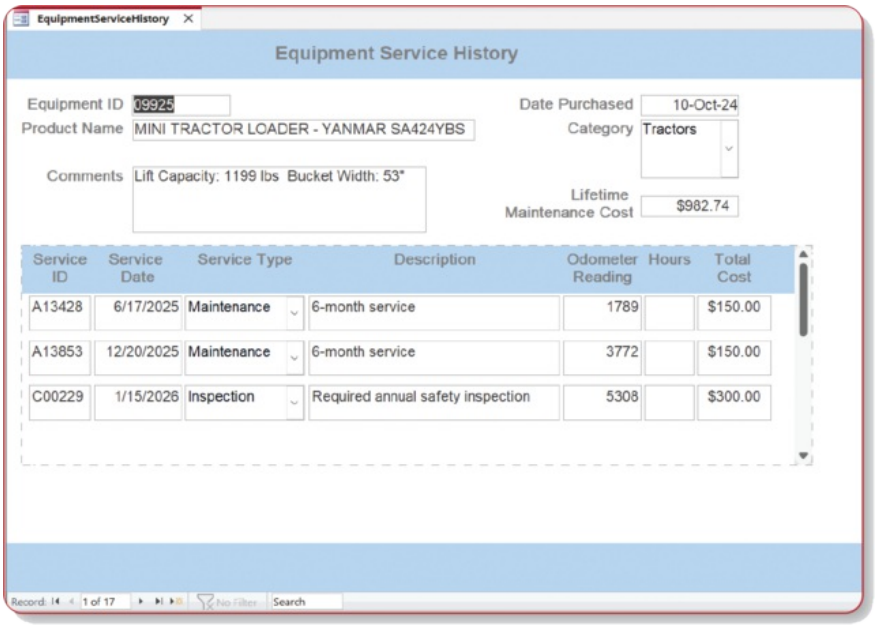


FIGURE 7-128 Completed *EquipmentServiceHistory* form

a. Tab to the *LifetimeMaintenanceCost* text box. Try to change the value. You should be prevented from typing in that text box.

b. Navigate among the records.

c. Click the **New (blank) record** navigation button and enter 99999 in the

EquipmentID text box and 12-Jan-30 in the *DatePurchased* text box. When you tab out of the *DatePurchased* text box, a message box displays if that date is greater than today's date. Click **OK** to acknowledge the message. If Access displays an additional message box, click **OK** to acknowledge that message. Press **Esc** twice to undo the typing in this test record.

d. Close the form.

13. Complete the navigation form.
    a. Open the *MarysRentalsNavigation* form in *Layout* view.
    b. Click, hold, and drag the **EquipmentServiceHistory** form to the *[Add New]* button. Notice that the tab color of the last item added is white, making it hard to read that tab. You change this in the next step.
    c. Add the **RentalsListing** report to the *[Add New]* button.
    d. Add the **Top5ProductRentals** report to the *[Add New]* button.
    e. Save the form.
14. Modify the tabs in *Design* view.
    a. Press and hold the **Shift** key and select all three tabs.
    b. Enter Accent 1, Lighter 60% in both the *Hover Color* property and in the *Pressed Color* property.
    c. Enter Text 1, Lighter 25% in both the *Hover Fore Color* property and the *Pressed Fore Color* property.
    d. Enter 2" in the *Width* property, if necessary, so the text can display on a single line.
    e. Edit the text in each of the tabs to insert a space between the words (*Equipment Service History, Rentals Listing,* and *Top 5 Product Rentals*).
    f. Save the form.
15. Test the form.
    a. Switch to *Form* view and close the *Navigation Pane*.
    b. Click the **Equipment Service History** tab, if necessary. The form should look similar to **Figure 7-129**.

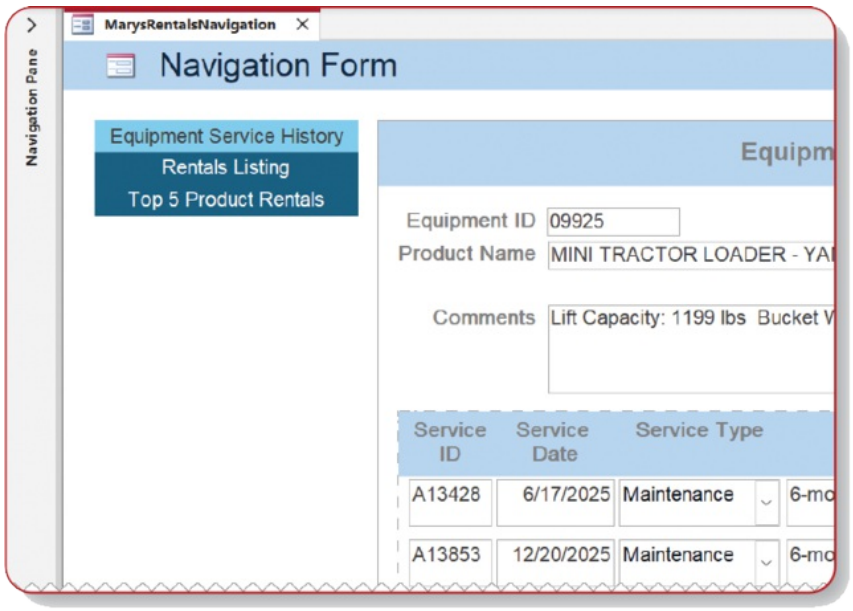


FIGURE 7-129 **Completed navigation form**

c. Click the **Rentals Listing** tab. The *RentalsListing* report opens and displays in the navigation form.

d. Click the **Top 5 Product Rentals** tab. The *Top5ProductRentals* report opens and displays in the navigation form.

e. Close the *MarysRentalsNavigation* form.

16. Close the database.

A7-608

A7-609

A7-610

A7-611

Independent Project 7-6 SIMnet Project

American River Cycling Club wants to expand its database. To ensure consistency, the starting file is provided for you. Use *Design* view to build a subform and add the subform to a main form. Customize the form to add sections, modify properties, enhance the look of the form, and add a calculated control and a combo box to find records.

[**Student Learning Outcome 7.1**, **Student Learning Outcome 7.2**, **Student Learning Outcome 7.3**, **Student Learning Outcome 7.4**, **Student Learning Outcome 7.5**, **Student Learning Outcome 7.7**]

Files Needed: ***AmericanRiver-07.accdb*** and ***BikeRace.jpg*** (IP-A7-6.zip) *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Name: ***[your initials] Access 7-6.accdb***

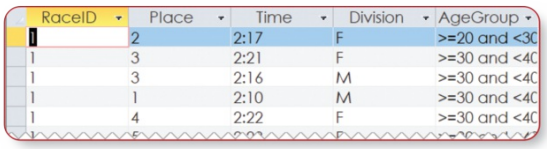
Skills Covered in This Project

- Edit a main form in *Design* view.
- Edit a control to add an expression to concatenate fields.
- Change the tab stop property of a control.
- Change the border style property of a form.
- Create a subform.
- Add *Form Header* and *Form Footer* sections to a form.
- Add a subform to a main form.
- Use an aggregate function on a subform.
- Add a control on the main form that refers to a control on a subform.
- Attach a label to a control.
- Remove navigation buttons.
- Remove a scroll bar and a record selector.
- Change the enabled property of a control.
- Add an image to a form.
- Add a combo box to find records.

1. Open the ***AmericanRiver-07*** database from your student data files. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close it. If the message repeats in a later step, click **OK** or the **X** to close the message.
2. Save the database as [your initials] Access 7-6.
3. Enable content in the database.
4. Build the subform.
   a. Select the **RaceResults** table and select **Datasheet**, located under the *More Forms* button, to open a new form in *Datasheet* view.
   b. Delete the **MemberID** column from the form.
   c. Switch to *Design* view. Click inside the **Detail** area to deselect the controls.
   d. Select the **AgeGroup** text box and enter 2" in the *Width* property.
   e. Change the *Width* property of the *Form* to 4".
   f. Change the *Height* property of the *Detail* section to 2.5".
   g. Apply the **Ion** theme to the form. **IMPORTANT:** Due to a Microsoft Access bug,

double check the application of the *Ion* theme before submitting your file. You will need to close the database and then reopen it. Open the database object and reapply the theme.

h. Switch to *Datasheet* view. The form should be similar Figure 7-130.



RaceID	Place	Time	Division	AgeGroup
1	2	2:17	F	>=20 and <30
1	3	2:21	F	>=30 and <40
1	3	2:16	M	>=30 and <40
1	1	2:10	M	>=30 and <40
1	4	2:22	F	>=30 and <40

FIGURE 7-130 ***Datasheet* view of subform**

i. Save the form as RaceResultsSubform.

j. Close the form.

5. Add the subform onto the main form.

a. Open the *MemberRaceDetails* form in *Design* view.

b. Ensure that *Use Control Wizards* is turned on.

c. Click the **Subform/Subreport** button and click inside the **Detail** section of the form (near the 4" width tick mark and .5" height tick mark). Choose to add the **RaceResultsSubform** onto the main form; accept the **Choose from a list** radio button and the highlighted **Show** statement, and accept the suggested name for the subform.

d. Save the main form.

e. Switch to *Layout* view to preview the form (Figure 7-131).

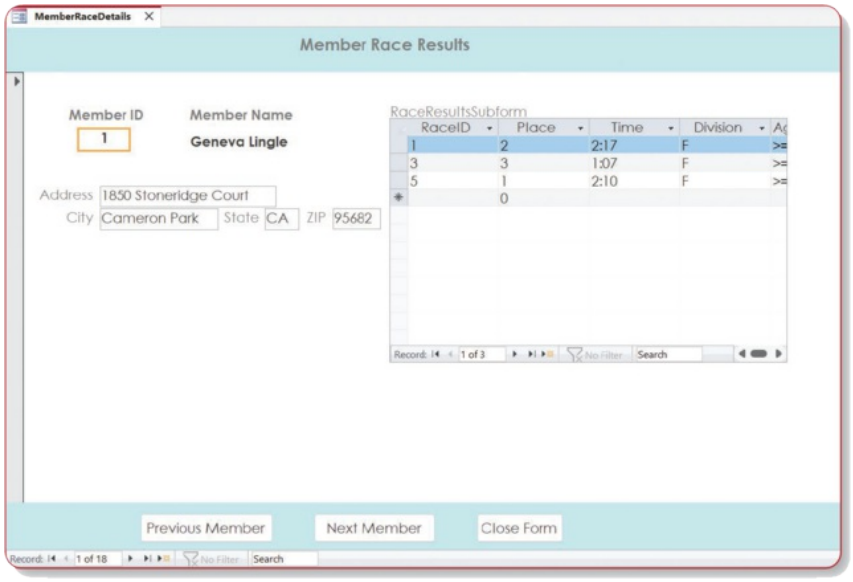


FIGURE 7-131 ***Layout* view of main form with added subform**

f. Navigate to the next record and verify that the subform updates to display the

six races for Megan Walters. Because buttons don't work in *Layout* view, use the navigation arrows.

6. Customize the subform to adjust field widths, and remove the border, *Navigation* bar, and label.
   a. Switch to *Design* view. The subform should be selected.
   b. Change the *Height* property to 1.8" and select **Transparent** in the *Border Style* property. Change the *Top* property to .5" and the *Left* property to 4" if necessary.
   c. Click the **Select All** box in the subform to select the subform and then select **No** in the *Navigation Buttons* property.
   d. Delete the *RaceResultsSubform* label.
   e. Switch to *Layout* view.
   f. Use the sizing arrow to adjust the width of the **RaceID, Place, Time, Division** and **AgeGroup** columns so the entire field name and contents are visible. The subform should still have about ¼" of space to the right of the *AgeGroup* column.
   g. Use the **Center** button to center the alignment of each of the five columns.
   h. Save the form.
7. Add a calculated control onto the subform and enter an aggregate function.
   a. Switch to *Design* view.
   b. Add a **Form Header** and a **Form Footer** section to the subform.
   c. Click, hold, and drag the **vertical scroll bar** on the subform to move down to the *Form Footer* section.
   d. Move your pointer to the bottom border of the *Form Footer* section, and click, hold, and drag the **resize arrow** down to increase the height of that section to about **.5"**.
   e. Add a **Text Box** control to the *Form Footer* section of the subform.
   f. Enter =Count([RaceID]) into the *Control Source* property and SFRaceCount in the *Name* property.
   g. Delete the **label** that was added with the text box.
   h. Save the form.
8. Add a text box to the main form and reference a control from the subform.
   a. Add a **Text Box** control on the main form below the subform and make the following changes to these properties: Enter =[RaceResultsSubform].[Form]![SFRaceCount] into the *Control Source* property, .3" in the *Width* property, 2.4" in the *Top* property, and 6.6" in the *Left* property. Select **Transparent** in the *Border Style* property, **Bold** in the *Font Weight* property, and **No** in the *Tab Stop* property.
   b. Click the **label** control added with the text box and make the following changes

to these properties: Enter Total number of races in the *Caption* property, 1.7" in the *Width* property, 2.4" in the *Top* property, and 4.8" in the *Left* property. Select **Bold** in the *Font Weight* property.

c. Save the form.

9. Modify properties of the *MemberRaceDetails* form by selecting **No** in the *Record Selectors* property, **No** in the *Navigation Buttons* property, and **Neither** in the *Scroll Bars* property.
10. Attach the *Member ID* label to the *MemberID* text box.
    a. Select the **Member ID** label, click the **Other** tab of the property sheet, and note the value in the *Name* property.
    b. Select the **MemberID** text box and enter the value from the label's *Name* property into the *Label Name* property of the text box.
11. Select **No** in the *Enabled* property of the *MemberID* text box to prevent users from accessing or changing the control. Click anywhere to deselect the text box.
12. Add an image to the form.
    a. Click the **Insert Image** button, select **Browse** to open the *Insert Picture* dialog box, locate and select the ***BikeRace.jpg*** image.
    b. Insert the image below the *City* text box.
    c. Change the *Top* property of the image to 2" and the *Left* property to 1.4".
    d. Save the form.
13. Add a combo box to find records on the form.
    a. Change the *Left* property of the three buttons to make room for the combo box. Change *Previous Member* to .9", *Next Member* to 2.7", and *Close Form* to 6.5".
    b. Insert a **Combo Box** in the *Form Footer* and place it near the 5" width tick mark.
    c. Choose to **Find a record on my form based on the value I selected in my combo box**, move **MemberID** and **LastName** to the *Selected Fields* window, keep the key column hidden and don't adjust the column widths, and change the label text to Go To Member. Finish the wizard so the updated combo box and label display.
    d. Select the **Go To Member** label and enter 1.2" in the *Width* property, .05" in the *Top* property, 4.65" in the *Left* property, and **Bold** in the *Font Weight* property.
14. Modify the row source of the combo box to create a concatenated field.
    a. Select the **combo box**, click the **Data** tab, and click the **Build** button in the *Row Source* property.
    b. Sort the query in ascending order by the *LastName* field and deselect the **Show** box.
    c. Type Member: [LastName] & "," & [FirstName] in the *Field* row of the first empty

cell.

d. Move the concatenated field to the left of the *LastName* field in the query grid.

e. Close the query. Save changes when prompted. Keep the combo box selected for the next step.

15. Modify the properties of the combo box.

a. Change the *Column Widths* property to 0";1.5", the *List Rows* property to 5, the *List Width* property to 1.5", the *Width* property to 1.7", the *Top* property to .25", the *Left* property to 4.4", and select **Bold** in the *Font Weight* property.

b. Save and close the form.

16. Open the *MemberRace Details* form in *Form* view.

a. Click the **drop-down arrow** in the combo box and select **Figueroa, Melanie**. The form should look similar to Figure 7-132. Depending on the location of the Access window on your screen, the drop-down list may display below the form or in the form but above the combo box. Verify that the subform updates to display the three races Melanie participated in.

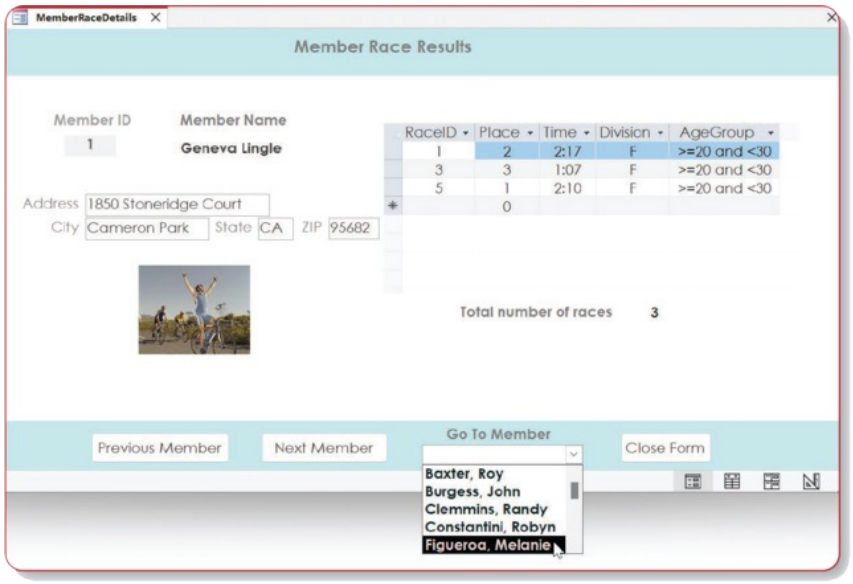


FIGURE 7-132 ***Form* view of completed form**

Photo Source: © Sam Edwards/age fotostock

b. Close the form.

17. Close the database. **IMPORTANT:** Due to a Microsoft Access bug, double check the application of the *Ion* theme before submitting your file. You will need to close the database and then reopen it. Open the appropriate database object and reapply the theme. See step 4g.

Advanced Project 7-7

The New York Department of Motor Vehicles wants to extend the functionality of its database. You use *Design* view to finish building a main form, add a calculated control to concatenate the first and last name, and add header and footer sections. You also add a table as a subform and customize the form to add sections, modify properties, enhance the look of the form, add a calculated control and a combo box to find records.

[**Student Learning Outcome 7.1**, **Student Learning Outcome 7.2**, **Student Learning Outcome 7.3**, **Student Learning Outcome 7.4**, **Student Learning Outcome 7.5**, **Student Learning Outcome 7.7**]

File Needed: ***NewYorkDMV-07.accdb*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Name: ***[your initials] Access 7-7.accdb***

Skills Covered in This Project

- Edit a main form in *Design* view.
- Add *Form Header* and *Form Footer* sections to a form.
- Edit a control to add an expression to concatenate fields.
- Change the tab order of a control.
- Change the border style property of a form.
- Remove the record selector.
- Add and edit a control in a form.
- Use a table as the subform in the *SubForm Wizard*.
- Use an aggregate function on a subform.
- Add a control on a main form that refers to a control on a subform.
- Add a combo box to find records.
- Modify combo box properties.

1. Open the ***NewYorkDMV-07*** database from your student data files. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close it. If the message repeats in a later step, click **OK** or the **X** to close the message. Save a copy of your database as [your initials] Access 7-7. Enable content in the security warning.

2. Complete the main form.
   a. Open the *DriverTicketDetails* form in *Design* view. The form contains fields from the *Drivers* table. Additionally, it contains a rectangle and four labels related to the subform you will add. Because a datasheet subform can't wrap the field headings, the rectangle and labels help to accomplish this concept.
   b. Change the *Height* of the *Detail* section to 4".
   c. Edit the *Control Source* of the *Unbound* text box to contain =[FirstName] & " " & [LastName] and enter 1.5" as the *Width* property and DriverName as the *Name*.
   d. Add a *Form Header* and *Form Footer* section to the form.
   e. Change the *Height* of the *Form Header* section to .6" and select **Brown 3** (the tenth column, fourth row, in the *Standard Colors* area) as the *Back Color*.
   f. Change the *Height* of the *Form Footer* section to .6" and select **Brown 3** (the tenth column, fourth row, in the *Standard Colors* area) as the *Back Color*.
   g. Add a **Label** into the *Form Header* section that reads Ticket Details by Driver.
   h. Edit the label to have a *Width* of 2.3" and a *Height* of .25". Set the *Top* to .2", the *Left* to 3.2", the *Font Size* to 14, and the *Font Weight* to **Bold**.
   i. Change the tab order of the controls to the following: *LicenseNumber, Gender, DriverName, BirthDate, Address, City, State,* and *ZIP*.
   j. Remove the record selectors from the form.
   k. Save your changes to the form. Your form should look similar to **Figure 7-133**.

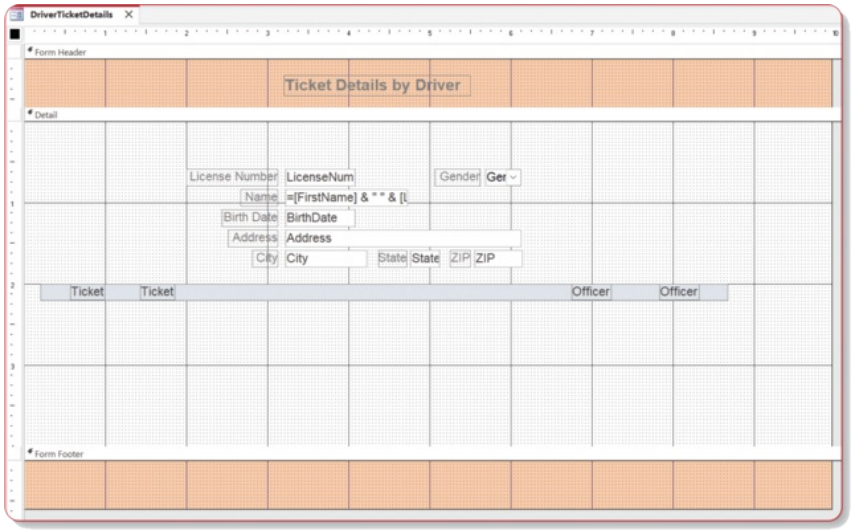


FIGURE 7-133 ***Design*** **view of main form**

3. Add a table as a subform in a main form. Ensure that *Use Control Wizards* is turned on before proceeding.
   a. Add a subform onto the main form (near the left border and at the 2.5" height mark).

b. In the *SubForm Wizard,* choose **Use existing Tables and Queries**, add the **TicketNumber, TicketDate, City, PrimaryFactor**, and **Fine** fields from the *Tickets* table into the *Selected Fields* area in the *SubForm Wizard.* Also add the **FirstName** and **LastName** fields from the *Officers* table into the *Selected Fields* area.

c. Select the **Show Tickets for each record in Drivers using LicenseNumber** link statement.

d. Change the default name to TicketsSubform and finish the wizard.

e. Save the main form.

f. Switch to *Layout* view. The *Detail* section of the form should be similar to Figure 7-134.

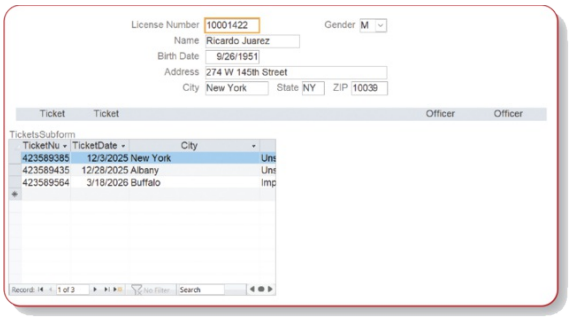


FIGURE 7-134 ***Layout*** **view of the** ***Detail*** **section of the main form**

g. Navigate to the next record. Verify that the subform updates to display one ticket for Rosie Hendrick.

h. Switch to *Design* view.

i. Change the *Width* of the *TicketsSubform* to 8.6" and the *Left* location to .2".

j. Save and close the form to ensure that all updates are correctly processed. If prompted, save your changes.

4. Customize the subform to adjust label captions.

a. Open the *TicketsSubform* form in *Design* view.

b. Change the *TicketNumber* label to read Number and the *TicketDate* label to read Date.

c. Edit the *Caption* property of the *PrimaryFactor, FirstName* and *LastName* labels to include a space between the words.

d. Save and close the form.

5. Customize the subform to adjust field widths and remove the border, *Navigation* bar, and label. Recall that the column widths of a subform can only be changed in *Layout* view.

a. Open the *DriverTicketDetails* form in *Layout* view.

b. Right-click and select **Field Width** from the context menu of the *TicketNumber* field to change the *Column Width* to 13. Remember that while you changed the caption of this field in step 4 to "Number", the field name is still *TicketNumber*.

c. Change the *Column Width* of the remaining fields using the values below. You may need to scroll to see all the fields.
TicketDate: 12
City: 13
PrimaryFactor: 40
Fine: 10
FirstName: 14
LastName: 16

d. Save your changes. The completed subform should look similar to Figure 7-135.

TicketsSubform

Number	Date	City	Primary Factor	Fine	First Name	Last Name
4235893852	12/3/2025	New York	Unsafe Speed	$60.00	Amanda	Freed
4235894352	12/28/2025	Albany	Unsafe Speed	$100.00	Javier	Torres
4235895648	3/18/2026	Buffalo	Improper Electronic Device Use/Texting	$150.00	Alex	Rodriguez

FIGURE 7-135 **Adjusted column widths in the subform**

e. Switch to *Design* view. If prompted, save your changes.

f. Delete the *TicketsSubform* label.

g. Change the *Width* of the *TicketsSubform* to 8.6", the *Height* to 1.2", the *Top* to 2.2", the *Left* to .2", and the *Border Style* to **Transparent**.

h. Click the **Select All** box in the subform to select the subform. Don't display the *Navigation Buttons* and select **Vertical Only** in the *Scroll Bars*.

i. Save the form.

j. Switch to *Form* view. Verify that the border, *Navigation* bar, and label have been removed.

6. Add a calculated control onto the subform and enter an aggregate function.

a. Switch to *Design* view.

b. Drag the vertical scroll bar on the subform to move down to the *Form Footer* section.

c. Change the *Height* of the ***Form Footer*** section to .5".

d. Add a **Text Box** to the *Form Footer* section of the subform.

e. Enter =Sum([Fine]) into the *Control Source* and SFTotalFine in the *Name*.

f. Delete the **label** that was added with the text box.

g. Save the form.

7. Add a text box to the main form and reference a control from the subform.

a. Add a **Text Box** to the *Form Footer* section of the main form. Enter =[TicketsSubform]. [Form]![SFTotalFine] into the *Control Source*. Change the *Width* to .8", the *Top* to .125", and the *Left* to 5.8". Select **Currency** as the *Format,* **Transparent** as the *Border Style,* **Bold** as the *Font Weight,* and **No** as the *Tab Stop.*

b. Edit the **label** of that text box to read Total cost of fines. Change the *Width* to 1.3", the *Top* to .125", the *Left* to 4.5", and select **Bold** as the *Font Weight.*

c. Change the *Height* of the *Detail* section of the main form to 3.5".

d. Remove the scroll bars from the form.

e. Save the form.

8. Add a combo box to find records on the form.

a. Add a **Combo Box** onto the main form (near the **3"** width mark and just below the section bar of the *Detail* section).

b. In the *Combo Box Wizard* choose **Find a record on my form based on the value I selected in my combo box**, move **LicenseNumber** and **LastName** to the *Selected Fields* window, keep the key column hidden, and change the label text to Select a Driver to view. Finish the wizard so the updated combo box and label display.

c. Change the ***Select a Driver to view*** label to have a *Width* of 1.8", a *Top* of .15", a *Left* of 2", and select **12** as the *Font Size,* and **Bold** as the *Font Weight.* Don't worry if the label overlaps with the combo box.

9. Modify the row source of the combo box to create a concatenated field.

a. Select the **combo box** and open the *Query Builder* in the *Row Source* property.

b. Sort the query in ascending order by the *LastName* field and deselect the **Show** box.

c. Type DriverName: [LastName] & ", " & [FirstName] in the *Field* row of the first empty cell.

d. Move the concatenated field to the left of the *LastName* field in the query grid.

e. Close the query. Save changes when prompted. Keep the combo box selected for the next step.

10. Modify the properties of the combo box.

a. Change the *Column Widths* to 0";1.4", the *List Width* to 1.4", the *Width* to 1.6" in, the *Top* to .15", the *Left* property to 3.9", and select **Bold** in the *Font Weight.*

b. Save and close the form.

11. Open the *DriverTicket Details* form in *Form* view. The form should be similar to **Figure 7-136**. Depending on the default font size and the width of the fields in the subform, the label headers in the subform may not be aligned with the top row.

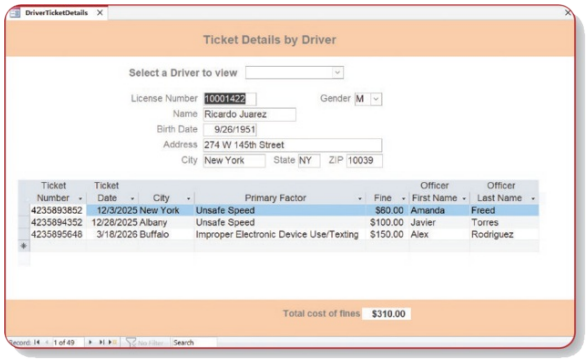


FIGURE 7-136 ***Form*** **view of completed main form with a subform**

a. Click the **drop-down arrow** in the combo box and select **Finch, Michael**. Verify that the subform updates to display the 3 tickets Michael received.

b. Close the form.

12. Close the database.

Copilot Challenge Project 7-8

Use Copilot or other generative AI to help you modify the fast-food menu item database used in ***Challenge Project 6-8***. Create a subform to display nutritional information. Customize the subform to include a calculated control. Add the subform to the main form. Modify the design and properties of both the subform and main form to ensure they have a professional appearance. Add a combo box to the main form to find records.

[Student Learning Outcome 7.1, Student Learning Outcome 7.2, Student Learning Outcome 7.3, Student Learning Outcome 7.4, Student Learning Outcome 7.5, Student Learning Outcome 7.7]

File Needed: ***FastFoodNutrition-07.accdb***

Completed Project File Name: ***[your initials]Access 7-8.accdb***

Open the database ***FastFoodNutrition-07***. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close it. If the message repeats in a later step, click **OK** or the **X** to close the message. Save a copy of it as [your initials] Access 7-8. Enable content in the database.

Modify your database according to the following instructions:

- Open *Copilot* and ask it to show some example layouts of a nutritional analysis form for fast food menu items. In the prompt, you may want to include a screenshot of the fields in the *MenuItems* table. You may need to open suggested links to see the examples, or you may need to use follow-up prompts to get more specific details. Incorporate *Copilot's* suggestions as you design the subform in this project. A very basic main form is provided for you as a starting point. It contains the fast food company's name as well as navigation buttons.
- Decide on the specifics of the subform you will create. Since your form must show multiple food items for each company, use a *Datasheet* layout. Include the *Category* and *ItemName* fields and at least four of the nutritional value fields from the *MenuItems* table. Additionally, you must add at least one calculated control. For example, it can calculate and show the "% Daily Value" of a particular field.
- Use *Copilot* to help you determine the formula for the calculated control. Open *Copilot* and ask it to tell you the recommended daily value or nutritional level per day for each of the nutritional fields in your subform. Before executing the prompt, include a screenshot of the field names that also shows the measurement designation in the form. If you didn't get specific values, rephrase your prompt. You can also click on one of the suggested links to get more information. It is possible that the answers from *Copilot* may be different based on the data sources used to answer each prompt. Don't worry if you didn't get usable answers for all four fields, since you will only use one or two of them.
- Create the subform. The easiest way is to choose the *Datasheet* option under *More Forms* [*Create* tab, *Forms* group].
  - Delete any fields that you don't want to include.
  - Switch to *Design* view to modify and enhance the form.
  - Add the calculated control(s). Verify that the formula you entered works correctly.
  - Modify the height and width of the subform as needed.
  - You may need to switch back and forth between *Datasheet* and *Design* view.
  - Save the form. Include "Subform" as part of the name to help identify the form in the Navigation Pane.
- Add the calculated control to the subform.
  - Switch to *Design* view if necessary.
  - Select the text box that will be to the left of the calculated control you will add.
  - Click the ***Arrange*** tab, click ***Select Row*** and then ***Insert Below*** to add a blank row to the layout grid.
  - Add a text box to the form, near the bottom.
  - Select the unbound textbox and drag it to the blank row you added. The cell will

turn pink. Release the pointer to move the textbox and label into the layout grid.
    - Enter the formula into the *Control Source*
    - Change the *Format* property to reflect formatting appropriate to the cell contents (e.g. Percent).
    - Edit the *Caption* of the associated label.
    - Adjust the height so it is the same as the other cells.
    - Switch to *Datasheet* view to verify the formula you entered works correctly.
    - Save and close the form.
- Improve the design of the main form.
    - Add and/or modify the label in the form header. Change font size, font face, color, location, etc.
    - Change the font size, wording and location of the label and text box in the detail section.
    - Locate and add an image. The image should be related to the content of the form.
    - Save the form.
- Add the subform onto the main form.
    - Add the subform onto the main form. Complete all steps of the wizard.
    - Switch to *Form* view to ensure that the form works. Click the *Next Company* and *Previous Company* buttons to verify the form updates correctly.
- Customize the subform to improve the design.
    - Use *Layout* view to change the height and width of the fields in the subform. Remember that in *Layout* view, the *CompanyID* and informational label display. Use the sizing pointer to drag the border of a record selector in the datasheet to increase the height of the rows. This allows you to decrease the width of the *ItemName* field since the text will wrap inside the cell.
    - Modify the subform's border, navigation buttons, and label as desired.
    - You may need to move back and forth between views and fields to obtain your ideal layout. For example, you may need to adjust a few columns at a time to provide space in the form.
    - Refine the width and height of the subform as needed.
    - Save the form.
- Add a combo box onto the main form to allow the user to select a particular company.
    - When completing the *Combo Box Wizard,* choose the ***Find a record on my form based on the value I selected in my combo box***

- Adjust the properties of the combo box as needed. Modify the *Row Source* property of the combo box to sort the list in ascending order.
- Save the form.
- Switch to *Form* view and test the combo box. Switch back to *Design* view to make any needed modifications.
- Save any changes and close the form.

- Rename the main form to one that more accurately represents the form contents/purpose.
- View the finalized form in *Form* Test all the buttons.
- Close the form.
- Close the database.

Challenge Project 7-9

For this project, you modify the database you created in ***Challenge Project 6-9*** for Blue Lake Sporting Goods. Your database contains a table with information about the different departments at Blue Lake Sporting Goods and a related table with information about interns who are working at Blue Lake, along with the other objects created previously. Create a parameter form to capture the parameter used by the query created in ***Challenge Project 3-9***. Create a form to display the values in the *Intern* table.

[Student Learning Outcome 7.1, Student Learning Outcome 7.2, Student Learning Outcome 7.4, Student Learning Outcome 7.5, Student Learning Outcome 7.6, Student Learning Outcome 7.9]

File Needed: ***[your initials] Access 6-9.accdb***

Completed Project File Name: ***[your initials] Access 7-9.accdb***

Open the database ***[your initials] Access 6-9*** and save a copy of it as [your initials] Access 7-9.

Modify your database according to the following instructions:

- Create a parameter form to capture the *Division* value for the query created in *Challenge Project 3-9*.
- Add a validation rule to the text box on the parameter form to verify that the value entered is a valid division. Create a custom error message using the validation text property.
- Add *OK* and *Cancel* buttons to the parameter form and save the form.

- Modify the query to reference the text box control on the form.
- Build the macro code for the *OK* button. The macro will need to include the following actions:
  - Verify that the text box has a value. If not, display a message and stop the macro.
  - Set the *Visible* property of the form to *False*.
  - Run the query.
  - Close the form.
- Build the macro code for the *Cancel* button. The macro needs to include an action to close the form.
- Save and test the macros. You will need to test the form three times with the *OK* button (leaving the text box blank, entering an invalid division value, and entering a valid division value) and once with the *Cancel* button.
- Make any necessary corrections to the macro code.
- Create a second form in *Design* view to display all of the fields from the *Intern* table.
- Add a calculated control to the form to show the date the internship ends. The expression entered into the control source property of the text box determines the *EndDate*. To calculate the *EndDate,* use the *DateAdd* function to add the number of months from the internship length to the start date (DateAdd("m", [InternshipLength],[StartDate])). If necessary, review the *DateAdd* function in the *"Understand and Use Date Functions in a Query"* section in ***SLO 6.3: Creating Advanced Queries and Changing Query Properties.***
- Customize the form to adjust the size of the different controls.
- Add a form header and add a label into the *Form Header* section.
- Enhance the look of the form by changing the color and font of several of the controls.
- Remove the scroll bars and record selector from the form.
- Add conditional formatting to the *University* field. Change the font to a different color for each of the university values contained in the database. You will need to add several rules for the university field (one for each value.)
- Save and test the form to ensure the form works as desired and that it is professional in appearance.
- Save any changes you make to the database.
- Close any open objects and the database.

Challenge Project 7-10

For this project, you modify the database you created in *Challenge Project 6-10* for a travel agency. Your database contains a *Ships* table with information about the different ships. The *Ships* table has a one-to-many relationship with the *Trips* table, which contains specific details about upcoming cruises. The database also contains a *TripInformation* table that contains overview information about the trips. The *TripInformation* table has a one-to-many relationship with the *Trips* table. Create a one-to-many form to show all of the specific trips offered for each different *TripName*. Create a navigation form that links to each of the forms and reports in the database.

[Student Learning Outcome 7.1, Student Learning Outcome 7.2, Student Learning Outcome 7.3, Student Learning Outcome 7.4, Student Learning Outcome 7.5, Student Learning Outcome 7.8]

File Needed: ***[your initials] Access 6-10.accdb***

Completed Project File Name: ***[your initials] Access 7-10.accdb***

Open the database ***[your initials] Access 6-10*** and save a copy of it as [your initials] Access 7-10.

Modify your database according to the following instructions:

- Create a main form that contains all of the fields from the *TripInformation* table.
- Instead of first creating a subform, use the *Subform/Subreport* button to add all of the fields, except the *FKTripName* and *FKShipID* fields, from the *Trips* table into the *Selected Fields* area in the *SubForm Wizard.* Also add the *ShipName* and *CruiseLineName* from the *Ships* table into the *Selected Fields* area.
- Complete the wizard and save the subform as TripsSubform.
- Customize the main form and subform using a combination of *Design* view and *Layout* view. Adjust the size and spacing of the controls, as well as the form sections. Add a form header with a label to the main form.
- Remove the border and the navigation buttons from the subform.
- Add an aggregate function to the *Form Footer* section of the subform. Use the *AVG* function to calculate the average *CostPerPerson* for the cruises offered. Name the control SFAvgCost.
- Add a text box control on the main form to display the results of the average calculation. Use the expression =[TripsSubform].[Form]![SFAvgCost].
- Save your changes. Test the main form in *Form* view to ensure the form works as desired and that it is professional in appearance.
- Create a navigation form using the horizontal tabs style.
- Link each existing form and report to a different tab.

- Test the navigation form in *Form* view to ensure it works as desired.
- Save any changes you make to the database.
- Close any open objects and the database.

Source of screenshots Microsoft Office 365 (2024): Word, Excel, Access, PowerPoint.

CHAPTER 8
Integrating Applications

CHAPTER OVERVIEW

As you have learned, Access helps you organize and manage personal, business, and educational data in a database. Data, however, exists in many different formats outside a database. Sometimes companies have data stored in other types of files. Other companies may transfer their data to a web page. And still other companies may want to include data in a report. At some point, you will probably need to either import data into an Access database or export data from an Access database. A useful feature of Access is its ability to import and export data from many other programs. This chapter covers the basics of interfacing with data created and used by these other programs.

STUDENT LEARNING OUTCOMES (SLOs)

After completing this chapter, you will be able to:

- **SLO 8.1** Explain importing and exporting, save import and export steps, and use a saved import or saved export (p. A8-620).
- **SLO 8.2** Import data from Excel to create a new table, append records to an existing table, and create a linked table (p. A8-621).
- **SLO 8.3** Import tables and other objects from other databases (p. A8-631).
- **SLO 8.4** Import data from delimited and fixed-width text files to create a new table, append records to an existing table, and create a linked table (p. A8-633).
- **SLO 8.5** Export data to other applications and formats including Excel, text files, Word, and HTML (p. A8-646).
- **SLO 8.6** Import data from an XML file and export data to an XML file (p. A8-661).
- **SLO 8.7** Create a mail merge letter and mailing labels (p. A8-667).

CASE STUDY

In the Pause and Practice projects in this chapter, you use the import and export features available in Access to help Placer Hills Real Estate integrate its database with other applications.

Pause & Practice 8-1: Import an Excel worksheet to create a new table and edit the table to finalize the design.

Pause & Practice 8-2: Append records to a table by importing a delimited text file using a comma separated value format.

Pause & Practice 8-3: Export data from a table to Excel. Export data from a query to a comma

separated value delimited text file. Export selected records from a table to a Rich Text File for use in Word.

Pause & Practice 8-4: Import an XML file, including the XSD schema, to create a new table.

Pause & Practice 8-5: Use the *Mail Merge Wizard* to create a form letter.

SLO 8.1

Importing and Exporting Basics

Importing is the process of getting data from an outside source into an Access database. In ***SLO 1.4: Importing Data Records from Excel,*** you imported data from Excel into a table you had already created. During the import process, instead of choosing to append records into a table, you can choose to import the data records into a new table or choose to link the data records by creating a linked table. You can also choose to import data from other sources, such as text files. A text file is a document that includes raw data with no formatting.

Occasionally, you may need to share the data from an Access database with another application. ***Exporting*** is the process of saving data in a format that can be used by another program or application. You have many choices in terms of which data to export, along with the source, such as a table or form. You can also choose the format of the exported data. For example, you can export it to be used in a spreadsheet or website.

In this chapter, you learn how to import data into an Access database and how to export data from an Access database. Access uses wizards to perform the import and export tasks. Depending on the action and the type of data file, Access opens a different wizard. For example, Access opens the *Import Text Wizard* when getting data from a text file, the *Import Spreadsheet Wizard* when getting data from Excel, and the *Export Text Wizard* when saving data as a text file.

Many of the import or export wizards provide an option to save the steps at the end of the wizard. If you plan to frequently repeat the import or export process, it is a good idea to save the steps.

HOW TO: Save Import or Export Steps

1. Check the **Save import steps** box or the **Save export steps** box. The *Save Import Steps* or *Save Export Steps* screen updates to display additional options (**Figure 8-1**). Both screens display equivalent choices.

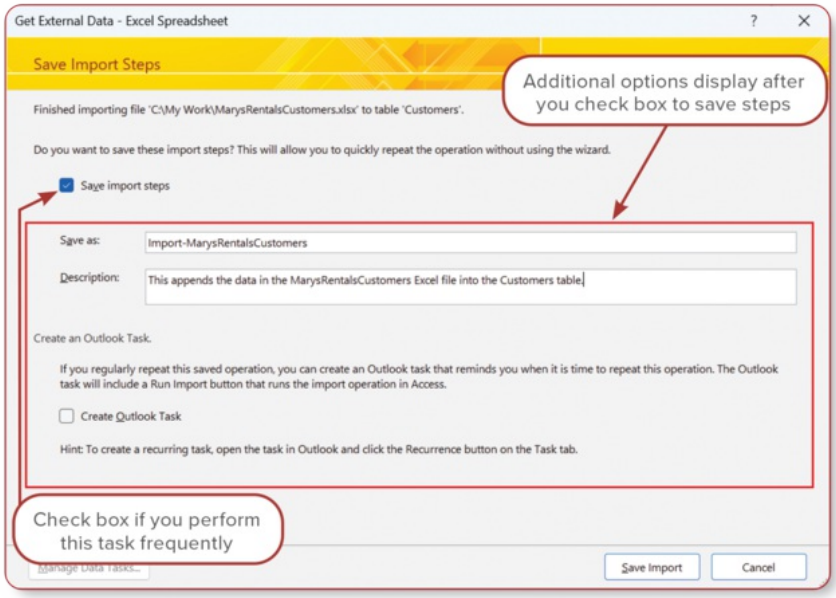


FIGURE 8-1 ***Save Import Steps*** **screen**

2. Edit the default name in the *Save as* box as desired.
3. Enter a description of the process in the *Description* box as desired.
4. Check the **Create Outlook Task** box, as desired, to create a Microsoft Outlook task that reminds you to perform the operation.
5. Click the **Save Import** or **Save Export** button. The wizard completes and closes.

If you save the steps to an import or export action, you can run the saved action in the future.

HOW TO: Use a Saved Import or Saved Export

1. Click the **Saved Imports** button [*External Data* tab, *Import & Link* group] or **Saved Exports** button [*External Data* tab, *Export* group]. The *Manage Data Tasks* dialog box launches (Figure 8-2).

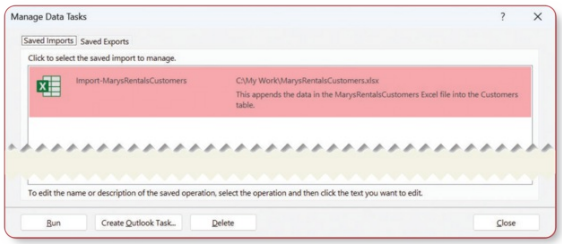


FIGURE 8-2 ***Manage Data Tasks*** **dialog box**

- The *Saved Imports* tab is selected if you are performing an import.
- The *Saved Exports* tab is selected if you are performing an export.

2. Select the desired saved import or export task from the list and click the **Run** button.
   - If exporting and the file already exists, Access displays a message box asking if you want to update the existing file. Click **Yes** or **No**. If you select *No,* the export is canceled. To export the data into a different filename, click the **filename** in the *Manage Data Tasks* dialog box and enter another file name.
   - Access displays a message box either informing you that all objects were imported or exported successfully or alerting you to any problems that occurred. Click **OK**.
3. Click the **Close** button.

Use the *Manage Data Tasks* dialog box to make select changes to a saved import or export, or to remove one.

To edit the name or description of a saved import or export, select the desired data task, click the name or description, and enter the new information.

To delete a saved import or export that is no longer needed, select the desired data task and click the **Delete** button.

In the remaining sections of the chapter, you will learn the specific requirements and options to perform various imports and exports.

SLO 8.2

Importing from an Excel Worksheet

Excel files are a common source of data to import into your Access database. Excel files typically have an extension of ***.xlsx***. The import process begins when you click the **New Data Source** button [*External Data* tab, *Import & Link* group], select **From File**, and then select **Excel** (Figure 8-3), which opens the *Get External Data - Excel Spreadsheet* dialog box (Figure 8-4). The dialog box enables you to select the file to import and to choose whether to import into a new table, append records to an existing table, or create a linked table. This section explores these three methods to import data from Excel.

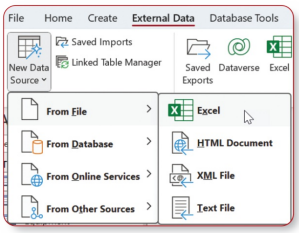


FIGURE 8-3 ***Excel*** **option in the** ***Import & Link*** **group**

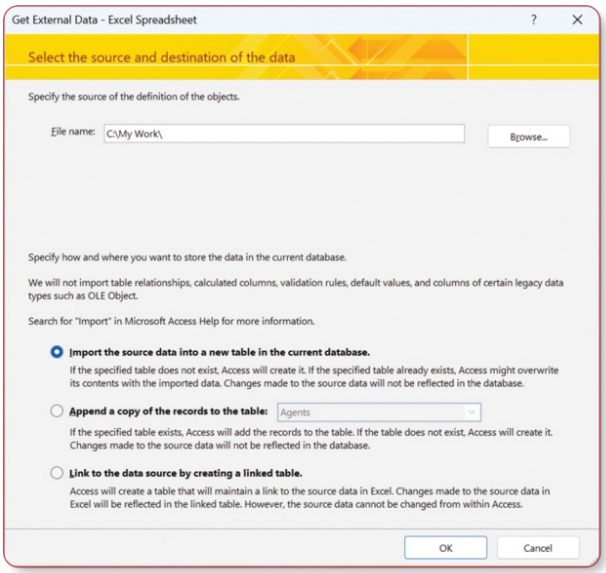


FIGURE 8-4 ***Get External Data – Excel Spreadsheet*** **dialog box**

After you select the source and destination of the data, the ***Import Spreadsheet Wizard*** launches. The wizard guides you through the import process. It is possible your Excel file contains multiple worksheets. It may also contain multiple named ranges. A ***named range*** in Excel defines a specific block of cells. The import process limits you to importing data from one worksheet or named range at a time. If the Excel file contains multiple worksheets or multiple named ranges, the *Import Spreadsheet Wizard* prompts you to select the data to use (**Figure 8-5**). You must select the worksheet or range to use in the import.

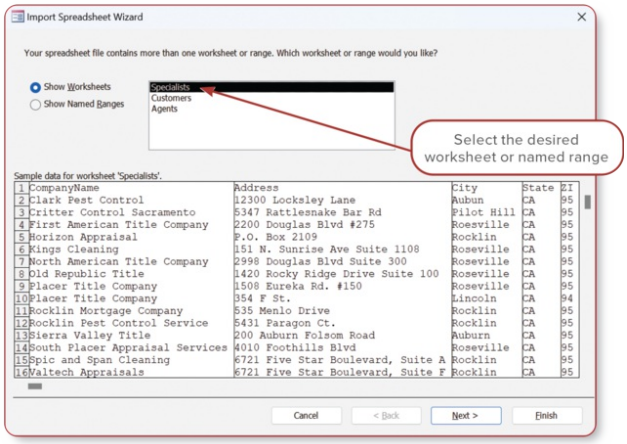


FIGURE 8-5 Select the worksheet or named range to use in the import

Prepare to Import or Link Excel Data

Prior to importing an Excel file, you need to ensure it is formatted correctly. Review the data before starting the import to correct any missing or invalid data values. Additionally, you should delete any blank rows at the top of the worksheet and any blank columns that appear between existing columns with data. The formatting rules have differences depending on whether you are appending data or creating a new table.

Formatting Rules When Appending Data into an Existing Table

When you import and append the data to an existing table, keep the following rules in mind:

- The first row of the Excel file must contain the names of all of the fields in the Access table, and those names must match exactly.
- The data fields don't need to be in the same order.
- All of the fields in the table do not need to be in the Excel file, as long as the ***Required*** **property**

allows the field to be empty and the *Validation Rule* property allows null values.

- The cells in each column of the Excel file must all have the same data format.
- If the fields are not of the same data type (for example, the Access field data type is *Number* but the field in the Excel file contains *Text*), Access still performs the import, but the contents of that field are left empty. In this case, the *Required* property must allow the field to be empty.
- If appropriate, apply a format to a column to ensure that Access imports the data correctly. For example, apply a *Text* format to the ZIP Code data so Access recognizes it as *Short Text.*

Formatting Rules When Creating a New Table

When you import and create a new table, keep the following rules in mind:

- If the first row of the Excel file contains column headings, Access uses those as the field names when creating the table.
- If the first row of the Excel file does not contain column headings, Access assigns field names of *Field1, Field2,* etc.
- When importing into a new table, Access uses the data in the first eight rows of each column to determine which data type to assign. If the content of those cells does not use the same format, Access may assign the wrong data type. If needed, apply a format to a column to ensure a consistent data type.

General Considerations When Preparing Excel Data

In addition to the formatting rules, review the following general considerations prior to importing the data:

- If you are appending data into an existing table, and that table contains a foreign key, ensure that the data values in that field meet the referential integrity constraints established in the table relationships.
- To import only selected data cells on a worksheet, define a named range in Excel that specifies the cells to import.
- The Excel file must be closed prior to importing the data.

Import a Worksheet into a New Table

Once the Excel file is prepared, import the data into the database. If the database table does not already exist, use the import option to create a new table and copy all of the records into the table. The original Excel file is not changed in any way during the process. If changes are made to the Excel file after the import process is completed, the changes do not automatically carry forward into the Access database.

HOW TO: Import Data from Excel into a New Table

1. Click the **New Data Source** button [*External Data* tab, *Import & Link* group], select **From File**, and then select **Excel**. The *Get External Data – Excel Spreadsheet* dialog box opens.
2. Click the **Browse** button to open the *File Open* dialog box.
3. Locate and select the Excel file that contains the records you want to import, and click the **Open** button. The *File Open* dialog box closes.
4. Verify that the **Import the source data into a new table in the current database** radio button is selected and click **OK** to launch the *Import Spreadsheet Wizard*. The data records should display in the wizard window.
5. Select the desired worksheet or named range, if prompted, and click **Next**.
6. Check the **First Row Contains Column Headings** box (Figure 8-6), as desired, and click the **Next** button to advance to the next page of the wizard (Figure 8-7). This page enables you to modify a few of the field properties for each field.

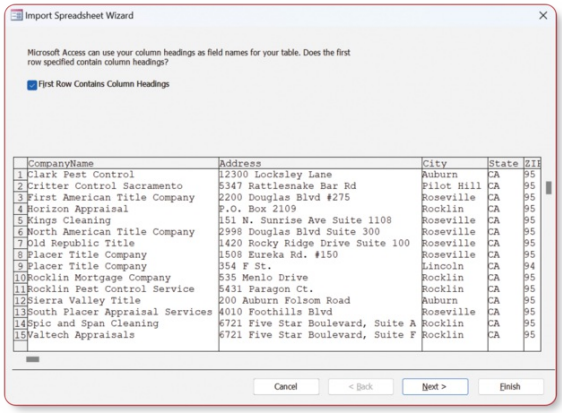


FIGURE 8-6 *Import Spreadsheet Wizard*



FIGURE 8-7 **Modify field options**

7. Type a new value in the *Field Name* box to change the default field name.

8. Click the **Data Type** drop-down arrow to change the data type and select a new data type.
9. Select **Yes (No Duplicates)** in the *Indexed* box if the field represents the primary key.
10. Check the **Do not import field (Skip)** box as desired.
11. Click another column in the *Import Spreadsheet Wizard* to change the properties of another field.
12. Repeat steps 7–11 for the remaining fields. Click **Next** when you are done modifying field properties to advance to the next page of the wizard (Figure 8-8).



FIGURE 8-8 Specify a primary key

- This page enables you to specify a primary key for the table.
- By default, Access adds a primary key which displays in the leftmost column.

13. Select the **Choose my own primary key** radio button, if you want to choose an existing field as the primary key, and then click the **drop-down arrow** in the box and select a field name. The default primary key column is removed.
14. Click **Next** to advance to the final page of the wizard.
15. Enter the name of the new table in the *Import to Table* box and click **Finish**.
    - The wizard displays the *Save Import Steps* screen.
    - Because you are creating a new table with this import, it is unlikely you will repeat this import process.
16. Click the **Close** button.
    - If any errors occur during the import process, Access displays a message box with information about the error.
    - Depending on the error, Access may not have created the new table, or the table was created but Access did not import all of the fields and/or records.
    - If no errors occur, Access creates the table, and it is added into the *Navigation Pane*.

It is a good idea to open the table in *Datasheet* view to ensure that the import process worked as you intended. For example, Access may have performed the import, but you made incorrect selections during the wizard. As a result, the table needs to be fixed. It is especially important to review the table if you encountered errors during the process.

Even if the table is successfully created, during the import process you are able to modify only a few properties of the table fields. In most cases you need to further modify the new table in *Design* view. The additional modifications often include:

- Setting the *Field Size, Format, Caption, Default Value,* and *Required* properties.
- Creating field validation rules and validation text.
- Creating record validation rules and validation text.
- Creating a lookup field or defining an input mask.
- Enforcing referential integrity by defining relationships between the table and any associated tables.

Use the skills you learned in **chapter 2** to perform these tasks.

Import a Worksheet into an Existing Table

If the table already exists in the database, use the import option to append the data to an existing table. A copy of the data is added into the table. The original Excel file is not changed in any way during the process. If changes are made to the Excel file after the import process is complete, the changes do not automatically carry forward into the Access database. If you perform an import task regularly, choose to save the import steps. This streamlines the import process in the future.

In ***SLO 1.4: Importing Data Records from Excel,*** you imported data from Excel into a table you had already created. This process appended (or added) the new data records to any existing data records already in the table. Refer back to "*How To: Import Data from Excel*" in ***SLO 1.4*** if you need to review how to append records into an existing table.

Link to a Worksheet

Instead of importing data into Access, you may decide to create a linked table. A ***linked table*** enables you to see and use the data but does not actually contain any records. This saves space by not having the data stored both in an Excel file and again in an Access table. However, because the data is not stored inside the database, a linked table provides ***read-only*** capabilities within Access. This means that if you want to modify the data in any way, the changes must be made in the Excel file. These changes could include adding or deleting records or adding or deleting columns. With a linked file, if changes are made to the Excel file after the import process is completed, the changes automatically carry forward into the Access database the next time the table is opened.

Linked tables are useful when the data will be primarily used in Excel but you want to use the

query and reporting capabilities of Access.

HOW TO: Create a Link to Data in Excel

1. Click the **New Data Source** button [*External Data* tab, *Import & Link* group], select **From File**, and then select **Excel**. The *Get External Data – Excel Spreadsheet* dialog box launches.
2. Click the **Browse** button to launch the *File Open* dialog box.
3. Locate and select the Excel file that contains the records you want to use in the linked table, and then click the **Open** button. The *File Open* dialog box closes.
4. Select the **Link to the data source by creating a linked table** radio button and click **OK** to launch the *Link Spreadsheet Wizard* (Figure 8-9). The data records should display in the wizard window.

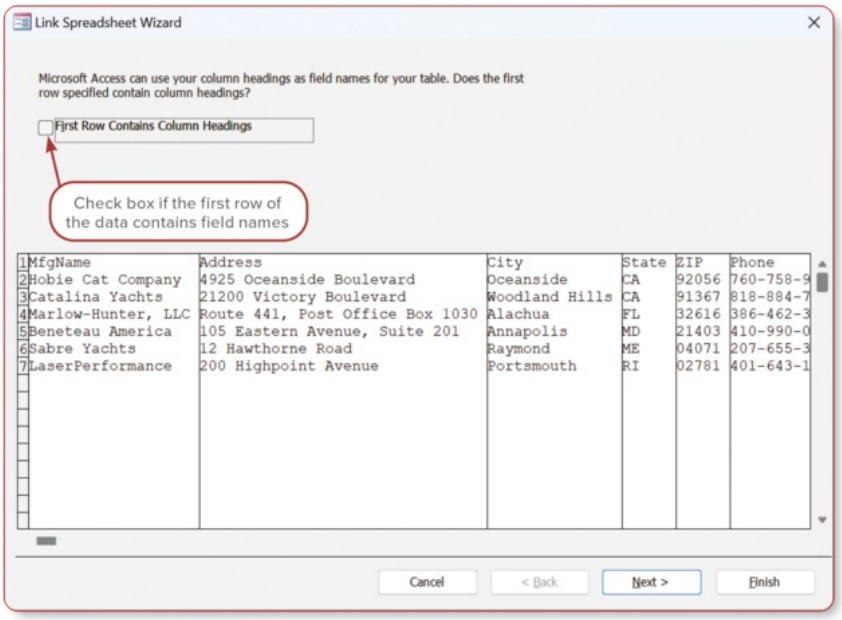


FIGURE 8-9 *Link Spreadsheet Wizard*

5. Select the desired worksheet or named range, if prompted, and click **Next**.
6. Check the **First Row Contains Column Headings** box, if appropriate, and click **Next**.
7. Enter the name of the table in the *Linked Table Name* box and click **Finish**.
   - If any errors occur during the import process, Access displays a message box with information about the error.
   - Depending on the error, Access may not have created the new table.
   - If no errors occur, Access creates the table and Access displays a message box confirming the creation of the linked table. Click **OK** to acknowledge the

message. The table is added into the *Tables* group of the *Navigation Pane* (Figure 8-10).

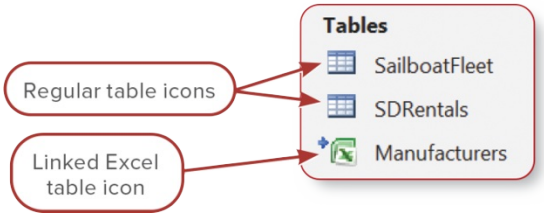


FIGURE 8-10 Table icons in the *Navigation Pane*

- The linked table icon displays an arrow pointing to the Excel icon.
- You are not able to save the import steps when creating a linked table.

A8-626

It is a good idea to open the linked table in *Datasheet* view to ensure that the linking process worked as you intended. For example, Access may have created the linked table, but a few columns might contain incomplete or inaccurate data. It is especially important to review the table if you encounter errors during the import process.

As mentioned earlier, you can only modify the data in the Excel file. If you want to make modifications, the linked table must *not* be open in Access when you open the Excel file.

- If the table is open in Access, and you subsequently try to open the Excel file, Excel displays a *File in Use* message box (Figure 8-11). Click **Cancel** to stop the file from opening, close the Access table, and reopen the Excel file.



FIGURE 8-11 The *File in Use* message box displays when trying to open an Excel file that is already opened as a linked table in Access

- Once the file is open in Excel, you can open the table in Access. However, any changes made in the Excel file while the Access table is open are not immediately reflected in Access. Close and reopen the Access table to display the most current data.

A8-627

Find and Fix Errors

Ideally, the import or linking to Excel works as planned. However, you may encounter errors during the process. This section explains the more common errors.

Common Errors When Importing into a New Table or Existing Table

- *Error with importing the file:* If an import process fails completely, the table is not created or updated and an *Import Spreadsheet Wizard* message box displays the "*An error occurred trying to import file*" message. Read the additional information provided in the message box to determine the corrective action needed. Cancel the import and make the necessary corrections before trying to restart the import process.
- *Subscript out of range:* A common error that causes a failed import is "*Subscript out of range.*" If you receive an *Import Spreadsheet Wizard* message box with this message, you may need to cancel the import and recheck the following items:
  - Verify that all the column headers are the same as the existing table.
  - Verify that all fields in a column have the same data type and that the data type matches the existing Access table.
  - If, after correcting those problems, the message box still displays, close and reopen Access before restarting the import process.
- *Primary key error:* If you attempt to add records where the primary key column contains inconsistent, missing, or duplicated data, an *Import Spreadsheet Wizard* message box displays, alerting you to the primary key problem. In most cases, the table is still created and the data imported. Open the table to correct any fields that may have invalid data. If you are appending records, in most cases the data is not appended to the table.

Common Errors When Importing into a Linked Table

- *Truncated text values:* A field in a linked table can only contain a maximum of 255 characters. If fields are longer, import the data instead of linking.
- *Formulas in the Excel column:* If a cell contains a formula in Excel, only the results display in Access.
- ***#Num! error** value displays in a field:* If the data in an Excel column contains mixed values (a few cells contain text, while others contain numbers) the *#Num!* error may display in some cells. Access tends to display the values of the most prominent data type and does not import the values of other data types. For example, if the Excel column contains mostly number values, number values are the only data that displays. The other cells display the *#Num!* error.
- *Numbers display instead of dates:* If the data in an Excel column contains mostly numbers, but also includes dates in a few cells, the dates in cells may display as five-digit numbers in the Access table.
- *Dates display instead of numbers:* If the data in an Excel column contains mostly dates but also

includes numbers in a few cells, the numbers in cells may display as a date in the Access table.

A8-628

In situations with inconsistent data, fix the data in the Excel file and then try linking again.

Errors in Associated Objects with a Linked Table

Another error consideration to be aware of involves Access objects that use the linked table as a data source. For example, you may create a report based on the linked table. If you later delete a column from the Excel file, the report still contains the control for the field. The next time the report is opened, Access displays the *Enter Parameter Value* dialog box because it cannot locate that field. To fix the error you must modify the report to delete the control. Similarly, if new columns are added to the Excel file, you must modify the Access object to add those fields.

MORE INFO

Use the Access Help system if you encounter errors that are not explained in this section.

COPILOT/GENERATIVE AI BEST PRACTICES

Copilot can be a great resource for more information about importing data from Excel. Ask *Copilot* to help you understand whether to import or link the data source. You can also ask for more guidance on preparing the Excel data for import. Follow up with asking about the most common errors that occur when importing Excel data.

A8-629

A8-630

PAUSE & PRACTICE: ACCESS 8-1

For this Pause & Practice, you create and edit a new table in the Placer Hills Real Estate database by importing an Excel worksheet. An assistant entered the records into an Excel file. You determine it is better to store and use the data inside the company's database.

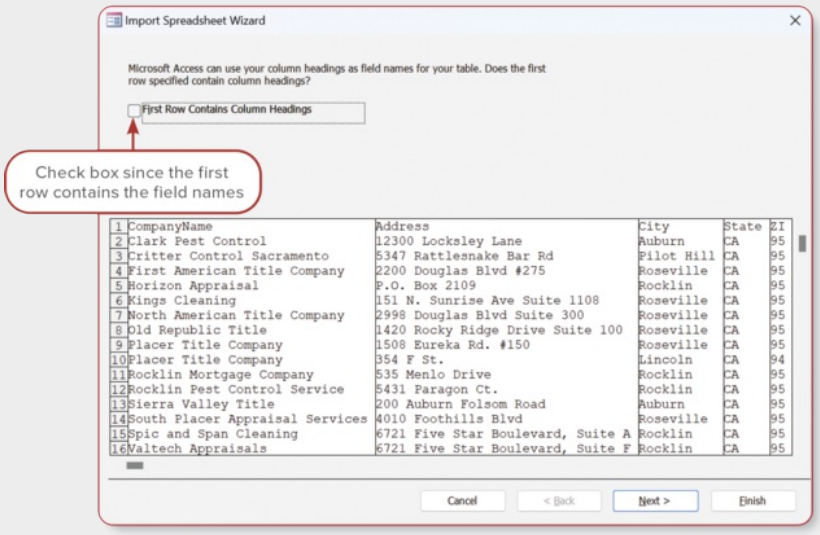
Files Needed: ***PlacerHills-08.accdb*** and ***ApprovedSpecialists-08.xlsx*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Names: ***[your initials] PP A8-1.accdb*** and ***[your initials] ApprovedSpecialists.xlsx***

1. Open the ***PlacerHills-08*** database from your student data files. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close it. If the message repeats in a later step, click **OK** or

the **X** to close the message.

2. Save a new copy of your database as [your initials] PP A8-1.
3. Enable content in the database.
4. Prepare the Excel worksheet to be imported.
   a. Open the ***ApprovedSpecialists-08*** Excel spreadsheet from your student data files. Click **Enable Editing** if the file opened in *Protected View*.
   b. Delete the blank row at the top of the worksheet.
   c. Correct the misspelling of **Auburn** in cell **C2** and **Roseville** in cell **C4**.
   d. Save the file as [your initials] ApprovedSpecialists.xlsx and close the file.
5. Import data from Excel into a new table.
   a. Click the **New Data Source** button [*External Data* tab, *Import & Link* group], select **From File**, and then select **Excel**. The *Get External Data – Excel Spreadsheet* dialog box opens.
   b. Click the **Browse** button to launch the *File Open* dialog box.
   c. Locate and select the ***[your initials] ApprovedSpecialists.xlsx*** file, and click the **Open** button. The *File Open* dialog box closes.
   d. Verify that the **Import the source data into a new table in the current database** radio button is selected and click **OK** to launch the *Import Spreadsheet Wizard*. If a *Microsoft Access Security Notice* box displays, click **Open**. The wizard displays the data records from the Excel file (Figure 8-12).



	CompanyName	Address	City	State	ZI
2	Clark Pest Control	12300 Locksley Lane	Auburn	CA	95
3	Critter Control Sacramento	5347 Rattlesnake Bar Rd	Pilot Hill	CA	95
4	First American Title Company	2200 Douglas Blvd #275	Roseville	CA	95
5	Horizon Appraisal	P.O. Box 2109	Rocklin	CA	95
6	Kings Cleaning	151 N. Sunrise Ave Suite 1108	Roseville	CA	95
7	North American Title Company	2998 Douglas Blvd Suite 300	Roseville	CA	95
8	Old Republic Title	1420 Rocky Ridge Drive Suite 100	Roseville	CA	95
9	Placer Title Company	1508 Eureka Rd. #150	Roseville	CA	95
10	Placer Title Company	354 F St.	Lincoln	CA	94
11	Rocklin Mortgage Company	535 Menlo Drive	Rocklin	CA	95
12	Rocklin Pest Control Service	5431 Paragon Ct.	Rocklin	CA	95
13	Sierra Valley Title	200 Auburn Folsom Road	Auburn	CA	95
14	South Placer Appraisal Services	4010 Foothills Blvd	Roseville	CA	95
15	Spic and Span Cleaning	6721 Five Star Boulevard, Suite A	Rocklin	CA	95
16	Valtech Appraisals	6721 Five Star Boulevard, Suite F	Rocklin	CA	95

FIGURE 8-12 ***Import Spreadsheet Wizard***

   e. Check the **First Row Contains Column Headings** box and click **Next** to advance to the next page of the wizard.
   f. Click to select the **ZIP** column (Figure 8-13). Slide the **horizontal scroll bar** to the right, if necessary, to select that column.

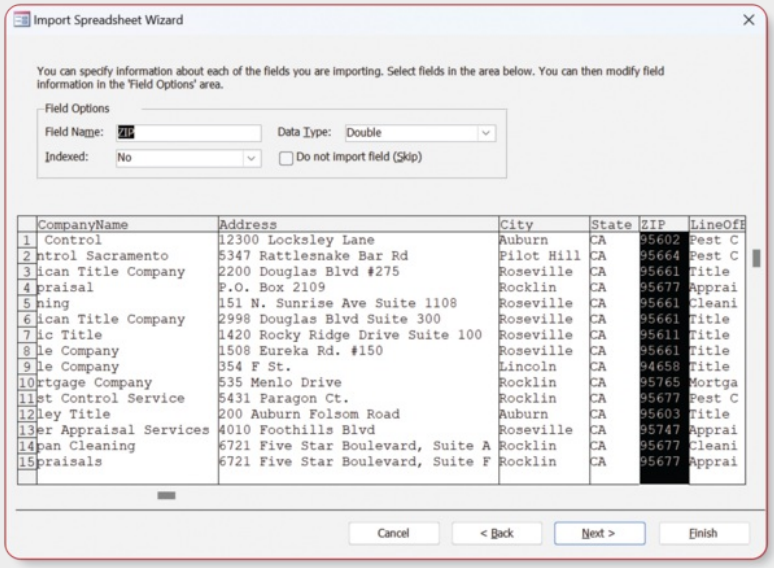


FIGURE 8-13 Modify field options

g. Select **Short Text** from the *Data Type* box drop-down list.

h. Click **Next**.

i. Accept the **Let Access add primary key** selection because *CompanyName* is not a unique field, and click **Next** to advance to the final page of the wizard.

j. Type ApprovedSpecialists in the *Import to Table* box and click **Finish**. The *Save Import Steps* screen displays.

k. Do not save the import steps and click the **Close** button. Access creates the table, and it is added into the *Navigation Pane*.

6. Open the *ApprovedSpecialists* table in *Datasheet* view to verify that the 15 records shown in Figure 8-14 were imported into the table.

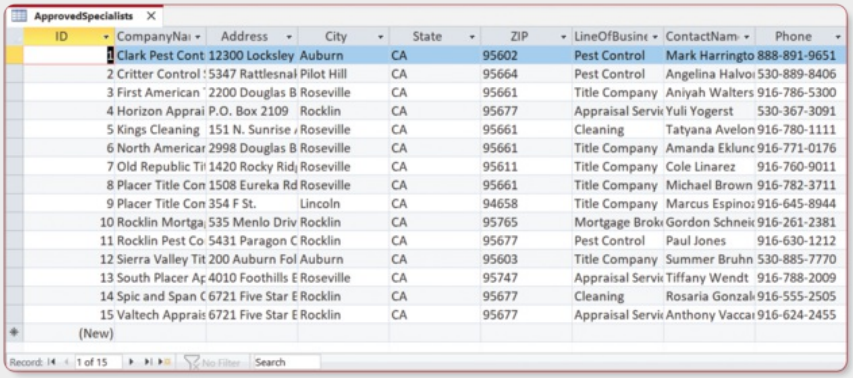


FIGURE 8-14 *Datasheet* view of the *ApprovedSpecialists* table

7. Modify properties of the table fields.

a. Switch to *Design* view of the table.

b. Change the *Field Size*, *Default Value*, and *Required* properties of the table fields using the information in Table 8-1.

Table 8-1

Field Name	Field Size	Default Value	Required
CompanyName	40		Yes
Address	35		Yes
City	20		Yes
State	2	CA	Yes
ZIP	5		Yes
LineOfBusiness	20		Yes
ContactName	40		
Phone	12		Yes

c. Select the **LineOfBusiness** field and click the **Lookup** tab. Change the *Display Control* property to **Combo Box**, the *Row Source Type* property to **Value List**, and type Appraisal Services; Cleaning; Mortgage Broker; Pest Control; Title Company in the *Row Source* property box.

d. Save the changes to the table. Click **Yes** to acknowledge the warning message that data may be lost due to field size changes. Click **Yes** to acknowledge the warning message that data integrity rules have been changed and to test the existing data against the new rules.

e. Switch to *Datasheet* view of the table, change the *Field Width* of each field to **Best Fit**, and **Center** the *State* field.

f. Save and close the table.

8. Close the database.

SLO 8.3

Importing Tables and Other Objects from Other Databases

Data you want to import into Access may also be stored in tables in another database instead of an Excel file. Four database file formats can be imported: Access, SQL Server, Azure Database, and dBASE File. In this section, we focus on importing from another Access database, although importing from the other formats works similarly.

When you import from another Access database, not only can you import the tables and their data, you can also import other objects, such as forms and reports. The capability of importing objects from an existing database can be a very powerful tool in building a new database. Additionally, as you learned in the "*Back Up and Recover a Database*" section in ***SLO 1.2: Creating and Managing a Database,*** you can use this process to recover selected objects from a backup copy if your database is damaged.

The overall import process for database files is similar to that for an Excel file. To import an Access database file, click the **New Data Source** button [*External Data* tab, *Import & Link* group], select **From Database**, and then select **Access** (**Figure 8-15**), which opens the *Get External Data - Access Database* dialog box (**Figure 8-16**). The dialog box enables you to choose whether to import objects into the database or create a linked table. This section explores the importing objects option.

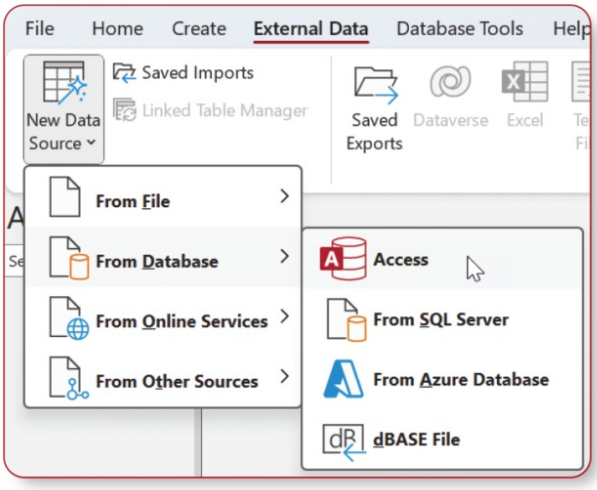


FIGURE 8-15 ***Access* option in the *Import & Link* group**

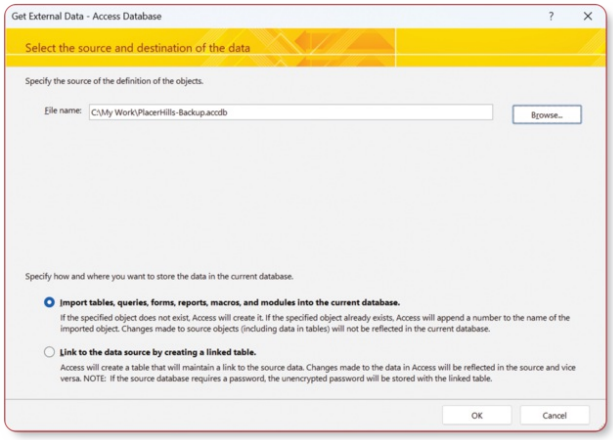


FIGURE 8-16 ***Get External Data – Access Database*** **dialog box**

MORE INFO

Unlike linking to an Excel file, when you link to a table in another Access database, you are permitted to add, modify, and delete data in the linked table.

After you select the source and destination of the data, the ***Import Objects*** dialog box launches. You choose which objects to import from the various tabs. Click the **Options** button to view the complete list of import choices (**Figure 8-17**). These choices apply to the overall import, not to a specific object. In the *Import* area, choose whether to include table relationships, as well as other customized settings, in the database. In the *Import Tables* area, you choose whether to import only the table definition or to also import the data. In the *Import Queries* area, you choose whether to import queries as a query or create a new table based on that query.

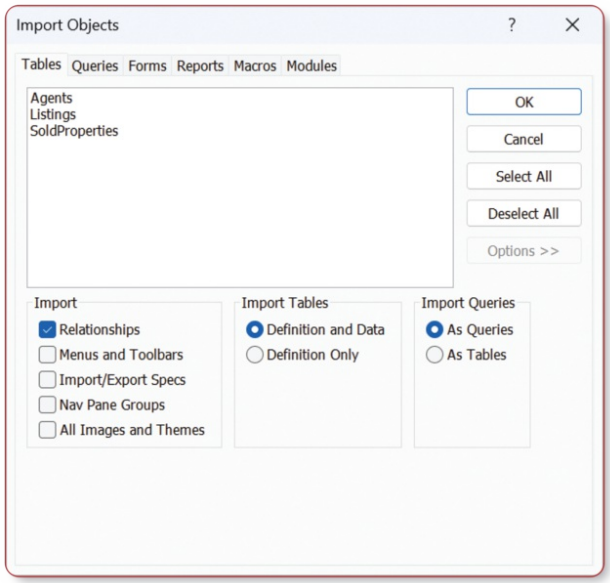


FIGURE 8-17 ***Import Objects*** **dialog box with** ***Options*** **displayed**

HOW TO: Import Tables and Other Objects from an Access Database

1. Click the **New Data Source** button [*External Data* tab, *Import & Link* group], select **From Database**, and then select **Access**. The *Get External Data – Access Database* dialog box launches.
2. Click the **Browse** button to launch the *File Open* dialog box.
3. Locate and select the Access file that contains the objects you want to import and click the **Open** button. The *File Open* dialog box closes.
4. Verify that the **Import tables, queries, forms, reports, macros, and modules into the current database** radio button is selected and click **OK** to open the *Import Objects* dialog box.
5. Click the tab corresponding to the type of object you wish to import.
6. Select the objects you wish to import.
   - You can select multiple objects on a tab.
   - Click the **Select All** button to select all of the objects on the tab.
7. Repeat steps 5 and 6 to select objects from a different tab.
8. Click the **Options** button to display the available import options.
9. Select the desired check boxes and radio buttons in the *Import, Import Tables,* and *Import Queries* areas.
10. Click **OK**. The *Save Import Steps* screen displays.

11. Click the **Close** button.

In *SLO 8.2: Importing from an Excel Worksheet* you learned that it is a good idea to open the imported objects to ensure that the import process worked as you intended. This is true when importing data from any data source. Also, you should review the objects to determine if they need any additional modifications so they work as intended in your database.

SLO 8.4

Importing Text Files

Text files are another source of data that you can import into Access. ***Text files***, also called plain text files, are commonly used to transfer data between different programs. Text files are identified by the following characteristics:

- Text files contain only the data without any formatting, such as bold or italics. This means they contain only the letters A to Z, numbers 0 to 9, and common punctuation marks.
- Text files can be created in a text editor, such as Notepad or WordPad, or through an export utility in many programs. ***Notepad*** is the default text editor in Windows.

MORE INFO

If your Windows *Start* page has Notepad displayed, click the **Notepad** tile to launch the application. If Notepad is not on the *Start* page, search for the app. Click **Search**, and type **Notepad** into the *Search* box. Windows displays the matching app. Click **Notepad** to launch it.

The overall import process for text files is similar to that for an Excel file. To import a text file, click the **New Data Source** button [*External Data* tab, *Import & Link* group], select **From File**, and then select **Text File** (**Figure 8-18**) which opens the *Get External Data - Text File* dialog box (**Figure 8-19**). The dialog box enables you to choose whether to import the text file into a new table, append records to an existing table, or create a linked table. This section explores these three methods for importing data from a text file. After you select the source and destination of the data, the ***Import Text Wizard*** launches. The wizard guides you through the import process.

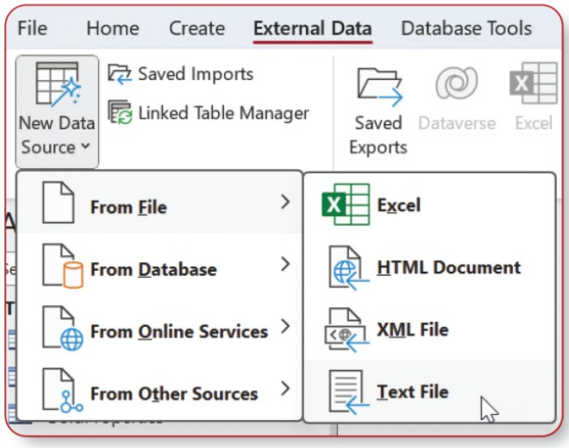


FIGURE 8-18 ***Text File*** **option in the** ***Import & Link*** **group**

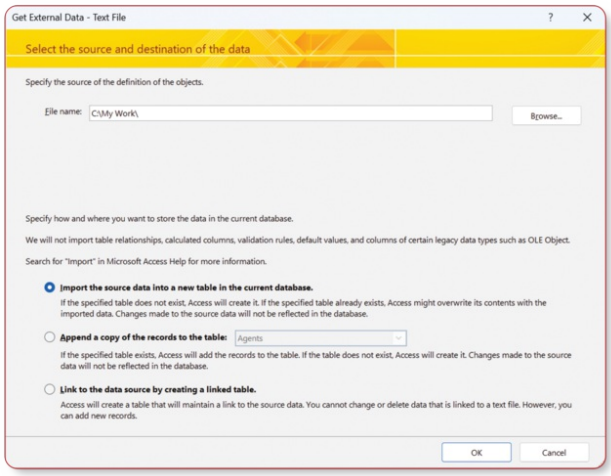


FIGURE 8-19 ***Get External Data – Text File*** **dialog box**

Prepare the Text Data

Text files are usually created using either a delimited file format or a fixed-width file format.

- A ***delimited*** **file** uses a character or tab to separate each field. One of the most common delimited files is a ***Comma Separated Value (CSV)*** file. These files usually have an extension of ***.csv***. As the name implies, this file includes a comma as the delimiter to separate the different fields. **Figure 8-20** is an example of a CSV file viewed in the Notepad text editor program. The first row contains the field names.

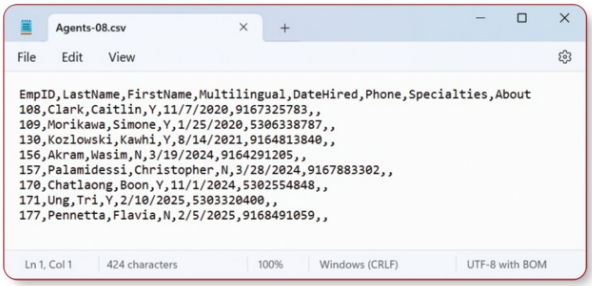


FIGURE 8-20 ***Comma Separated Value*** **text file**

- A ***fixed-width*** **file** stores the data fields within predefined positions. For example, the *EmpID* is in positions 1–3, the *LastName* is in positions 4–15. These files usually have an extension of ***.txt***. **Figure 8-21** shows an example of a fixed-width file viewed in the Notepad text editor program. Typically, a fixed-width file does not include the field names in the first row, because the names are generally longer than the data and could cause problems with importing.

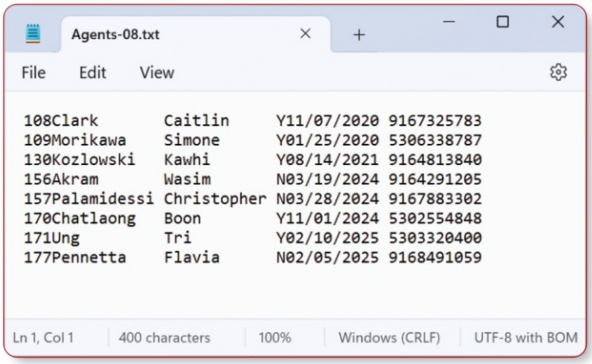


FIGURE 8-21 ***Fixed-width*** **text file**

You select whether your text file contains delimited or fixed-width data on the first page of the *Import Text Wizard* (**Figure 8-22**).

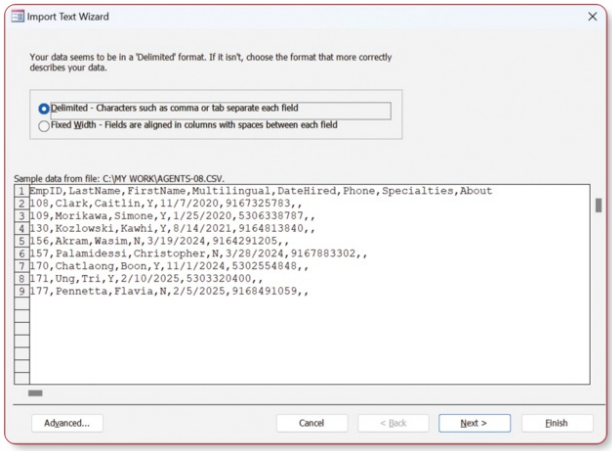


FIGURE 8-22 Select the *Delimited* or *Fixed Width* radio button to specify the file format

Formatting Rules When Importing Text Data

Prior to importing the file, make sure that the text file is formatted correctly. Open the file in a text editor, like Notepad, to ensure it meets the following rules:

- In a delimited file, the first row of the text file must contain the names of all of the fields in the Access table, and those names must match exactly if appending the data to an existing table. However, the data fields don't need to be in the same order because Access uses the field names to match up the text file values with the table fields.
- In a fixed-width file, do not include field names in the first row.
- In a fixed-width file, edit any necessary records to ensure that the values in each field use the same number of positions. For example, compare the difference in the *DateHired* values in Figure 8-20 to those in Figure 8-21. In particular, note the date on the last record. The delimited file contains 2/5/2025 while the fixed-width file contains 02/05/2025. Each date value must contain 10 characters (including the / characters) in the fixed-width file. In the delimited file each date value can be a different length, because the comma delimiter separates the fields.
- All of the fields in the table do not need to have a value in the text file as long as the *Required* property allows the field to be empty and the *Validation Rule* property allows null values. However, the empty field still must be represented in the data file.
  - In a CSV file, this is done by having successive delimiters. Compare these two records:
    Walters,Megan,7/1/2025,F
    Elkins,Aaron,,M
    The record for Aaron Elkins does not have a value for the date field. However, the record still has the comma delimiter after the null, or empty, value.
  - In a fixed-width file, simply ensure that all values are entered in their correct positions in the file. A null value is represented by blank spaces in those positions.
- Verify that the cells in each column of the text file all have the same data format.
- If the fields are not of the same data type (for example, the Access field data type is *Number* but the text file field contains *Text*), Access still imports the file but the contents of that field are left empty. In this case, the *Required* property must allow the field to be empty.
- Remove any blank lines or any extra delimiter characters.
- In a delimited file, text fields may be enclosed in single or double quotation marks as shown in this example:
  "Walters","Megan",7/1/2025,"F"

- Note that the comma still separates each value and appears outside the quotation marks.
- The quotation mark is called a ***text qualifier***.
- Only one type of text qualifier (either the single or the double quotation marks) should be used in a file, otherwise the records will not import correctly.

- In a delimited file, if the field value contains the delimiter character as part of the value, that value *must be* enclosed in quotation marks.
  - For example, because the street address in this record contains a comma, the entire address must be enclosed in quotation marks:
    "Sanchez","Jose","124 Maple Street, Apt #1"
  - It is also acceptable to just use quotation marks around selected fields, instead of all fields on the record, as shown in this example:
    Sanchez,Jose,"124 Maple Street, Apt #1"

Additional Formatting Rules When Importing Text Data into a New Table

If you are creating a new table, keep the following rules in mind:

- If the first row of the delimited text file contains column headings, Access uses those as the field names when creating the table.
- For fixed-width files, or delimited files that do not include field names, Access assigns field names of *Field1, Field2,* etc.
- If importing into a new table, Access uses the data in the first 25 rows of each column to determine which data type to assign. If the content of those cells does not use the same format, Access may assign the incorrect data type.

General Considerations When Preparing Text Data

In addition to formatting guidelines, review the following general considerations prior to importing the data:

- If you are appending data into an existing table, and that table contains a foreign key, ensure that the data values in that field meet the referential integrity constraints established in the table relationships.
- While you can choose to skip columns during the import process, you cannot choose to skip rows. To import only selected rows of the data, edit the text file before importing so that it includes only the desired rows.
- Close the text file prior to importing the data.

Import a Delimited Text File

Once the delimited text file is prepared, you are ready to import the data into the database. This section introduces importing a delimited file to create a new table, append to an existing table, and create a linked table. The examples use a comma separated value file type; the process is similar if you are using a different delimiter.

Import a Delimited File into a New Table

If the database table does not already exist, use the import option to create a new table and copy all of the records into the table. The original text file is not changed in any way during the process. If changes are made to the text file after the import process is completed, the changes do not automatically carry forward into the Access database.

HOW TO: Import Data from a CSV File into a New Table

1. Click the **New Data Source** button [*External Data* tab, *Import & Link* group], select **From File**, and then select **Text File**. The *Get External Data – Text File* dialog box launches.
2. Click the **Browse** button to launch the *File Open* dialog box.
3. Locate and select the CSV text file that contains the records you want to import and click the **Open** button. The *File Open* dialog box closes.
4. Verify that the **Import the source data into a new table in the current database** radio button is selected and click **OK** to launch the *Import Text Wizard.* The wizard displays the data records.
5. Verify that the **Delimited** radio button is selected and click the **Next** button to advance to the next page of the wizard (**Figure 8-23**). This page enables you to choose the delimiter used in the file. Access usually preselects the correct option.

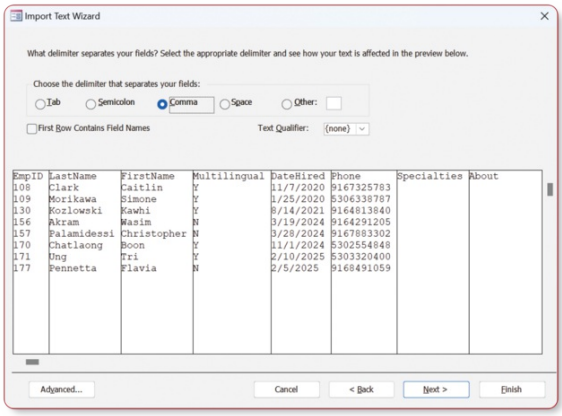


FIGURE 8-23 Select the delimiter used in the file

- Select the **Comma** radio button if it is not already selected.
- Check the **First Row Contains Field Names** box, if appropriate.
- If the data includes single or double quotation marks around any values, click the **Text Qualifier** box drop-down arrow (Figure 8-24) and select either the **single quotation mark** or **double quotation mark**.

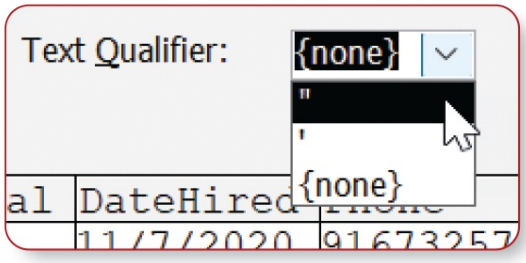


FIGURE 8-24 Select the text qualifier

6. Click the **Next** button to advance to the next page of the wizard (Figure 8-25). This page enables you to modify a few of the field properties for each field, as desired.

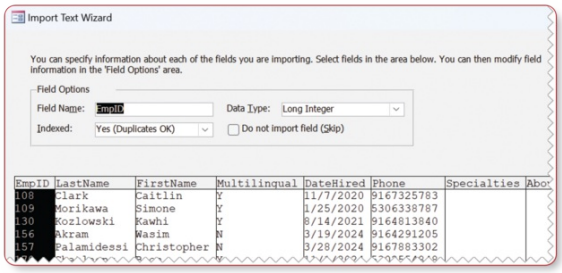


FIGURE 8-25 Modify field options

7. Type a new value in the *Field Name* box to change the default field name.
8. Click the **Data Type** drop-down arrow to change the data type, and then select a new data type.
9. Select **Yes (No Duplicates)** in the *Indexed* box if the field represents the primary key.
10. Check the **Do not import field (Skip)** box as desired.
11. Click to select another column in the *Import Text Wizard* to change properties for that field.
12. Repeat steps 7–11 for the remaining fields. Click **Next** when done modifying field properties to advance to the next page of the wizard (Figure 8-26).

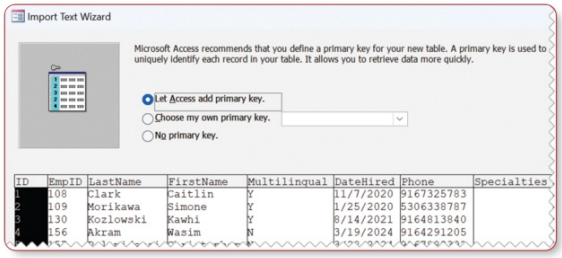


FIGURE 8-26 **Specify a primary key**

- This page enables you to specify a primary key for the table.
- By default, Access adds a primary key which displays in the leftmost column.

13. Select the **Choose my own primary key** radio button, if you want to choose an existing field as the primary key, and then click the **drop-down arrow** in the box and select a field name. The default primary key column is removed.
14. Click **Next** to advance to the final page of the wizard.
15. Enter the name of the new table in the *Import to Table* box and click **Finish**.
    - The wizard displays the *Save Import Steps* screen.
    - Because you are creating a new table with this import, it is unlikely you will repeat this import process.
16. Click the **Close** button.
    - If any errors occur during the import process, Access displays a message box with information about the error.
    - Depending on the error, Access may not have created the new table, or it may have created the table but did not import all of the fields and/or records.
    - If no errors occur, Access creates the table, and it is added into the *Navigation Pane.*

Remember to open the table in *Datasheet* view to ensure that the import process worked as you intended. Additionally, you may need to use *Design* view to modify the field or table properties to complete the table and to create any needed relationships between the table and any associated tables.

Import a Delimited File into an Existing Table

If the database table already exists, use the append option. The original text file is not changed in any way during the process. If changes are made to the text file after the import process is completed, the changes do not automatically carry forward into the Access database.

HOW TO: Append Data from a CSV File into an Existing Table

1. Click the **New Data Source** button [*External Data* tab, *Import & Link* group], select **From File**, and then select **Text File**. The *Get External Data – Text File* dialog box launches.
2. Click the **Browse** button to launch the *File Open* dialog box.
3. Locate and select the CSV text file that contains the records you want to import and click the **Open** button. The *File Open* dialog box closes.
4. Select the **Append a copy of the records to the table** radio button, click the **table name** drop-down arrow and select the desired table, and then click **OK** to launch the *Import Text Wizard*.
5. Verify that the **Delimited** radio button is selected and click the **Next** button to advance to the next page of the wizard. On this page (Figure 8-27), choose the delimiter used in the file. Access usually preselects the correct option.

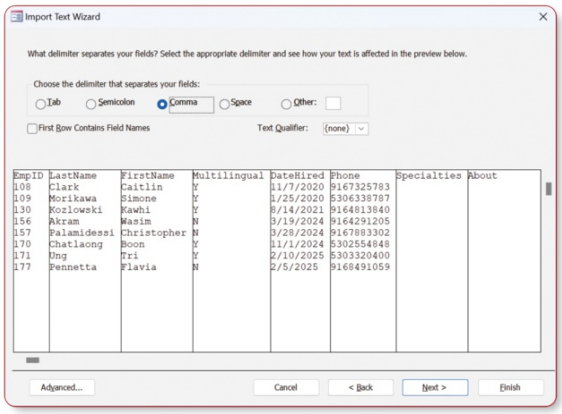


FIGURE 8-27 Select the delimiter used in the file

- Select the **Comma** radio button if it is not already selected.
- Check the **First Row Contains Field Names** box, if appropriate.
- If the data includes single or double quotation marks around any values, click the **Text Qualifier** box drop-down arrow and select either the **single quotation mark** or **double quotation mark**.

6. Click the **Next** button to advance to the next page of the wizard. Access confirms the name of the table in which to append the records.
7. Click **Finish**. The wizard displays the *Save Import Steps* screen.
8. Check the **Save import steps** box as desired. Enter a file name and description and click the **Save Import** button.
9. Click the **Close** button, if you did not check the *Save import steps* box in step 8, to complete the wizard.

- If any errors occur during the import process, Access displays a message box with information about the error.
- Depending on the error, Access may not have appended any records or may have appended only a few of the rows or columns.

If you saved the steps to an import action, use the ***Saved Imports*** [*External Data* tab, *Import & Link* group] button to run the import in the future. If necessary, review *How To: Use a Saved Import or Saved Export* in ***SLO 8.1: Importing and Exporting Basics***.

Link to a Delimited File

If you wish to link to the text file, use the link option. Recall that linked tables are useful when you will primarily work with the data in the text file but you want to use query and reporting capabilities in Access.

HOW TO: Create a Link to Data in a CSV File

1. Click the **New Data Source** button [*External Data* tab, *Import & Link* group], select **From File**, and then select **Text File**. The *Get External Data – Text File* dialog box launches.
2. Click the **Browse** button to launch the *File Open* dialog box.
3. Locate and select the CSV text file that contains the records you want to use in the linked table and click the **Open** button. The *File Open* dialog box closes.
4. Select the **Link to the data source by creating a linked table** radio button and click **OK** to launch the *Link Text Wizard*.
5. Verify that the **Delimited** radio button is selected and click the **Next** button to advance to the next page of the wizard. On this page, choose the delimiter used in the file. Access usually preselects the correct option.
   - Select the **Comma** radio button if it is not already selected.
   - Check the **First Row Contains Field Names** box, if appropriate.
   - If the data includes single or double quotation marks around any values, click the **Text Qualifier** box drop-down arrow and select either the **single quotation mark** or **double quotation mark** wizard (**Figure 8-28**).

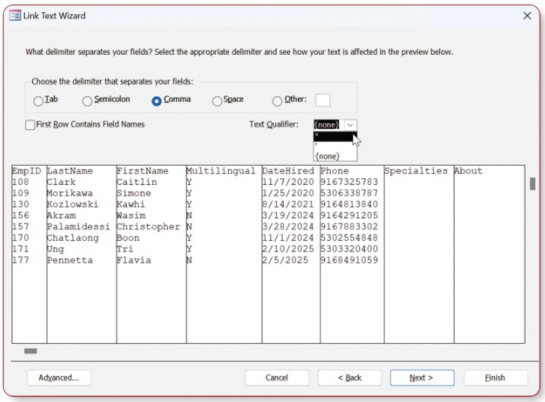


FIGURE 8-28 Select the delimiter used in the file

6. Click the **Next** button to advance to the next page of the wizard (Figure 8-29). This page enables you to modify a few of the field properties for each field.

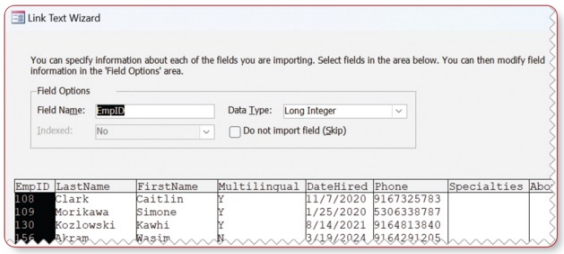


FIGURE 8-29 Modify field options

7. Type a new value in the *Field Name* box to change the default field name.
8. Click the **Data Type** drop-down arrow to change the data type and select a new data type.
9. Check the **Do not import field (Skip)** box as desired.
10. Click to select another column in the *Link Text Wizard* to change properties for that field.
11. Repeat steps 7–10 for the remaining fields. Click **Next** when you are done modifying field properties to advance to the last page of the wizard.
12. Enter the name of the table in the *Linked Table Name* box and click **Finish**.
    - If any errors occur during the import process, Access displays a message box with information about the error.
    - Depending on the error, Access may not have created the new table.
    - If no errors occur, Access creates the table and displays a message box confirming the creation of the linked table. Click **OK** to acknowledge the message. The table is added into the *Tables* group of the *Navigation Pane* (Figure 8-30).

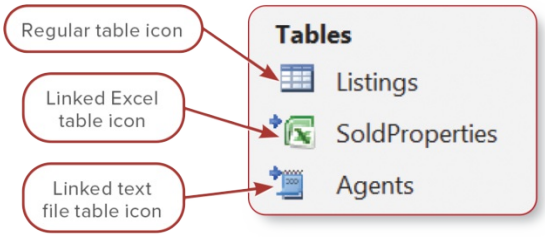


FIGURE 8-30 Table icons in the *Navigation Pane*

- The linked table icon displays an arrow pointing to a notepad icon.

Import a Fixed-Width Text File

As with a delimited text file, once the fixed-width text file is ready, you can import the data into the database. The process used is very similar to importing a delimited text file. Remember that fixed-width files do not include field names in the first row.

HOW TO: Import Data from a Fixed-Width Text File into a Table

1. Click the **New Data Source** button [*External Data* tab, *Import & Link* group], select **From File**, and then select **Text File**. The *Get External Data – Text File* dialog box launches.
2. Click the **Browse** button to launch the *File Open* dialog box.
3. Locate and select the text file that contains the records you want to import and click the **Open** button. The *File Open* dialog box closes.
4. Select the desired radio button and click **OK** to launch the *Import Text Wizard* (**Figure 8-31**). The wizard displays the data records.

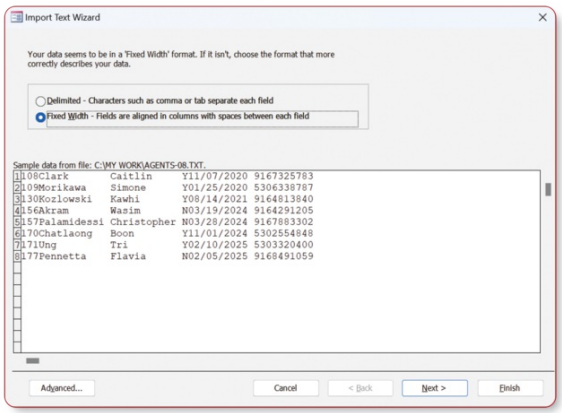


FIGURE 8-31 Select the *Fixed Width* radio button to specify the file format

5. Select the **Fixed Width** radio button if it is not already selected and click the **Next** button to advance to the next page of the wizard (Figure 8-32). On this page, indicate the columns represented by each field. Access usually preselects field breaks based on spacing between fields, but they may not be correct, or all the breaks may not be indicated.

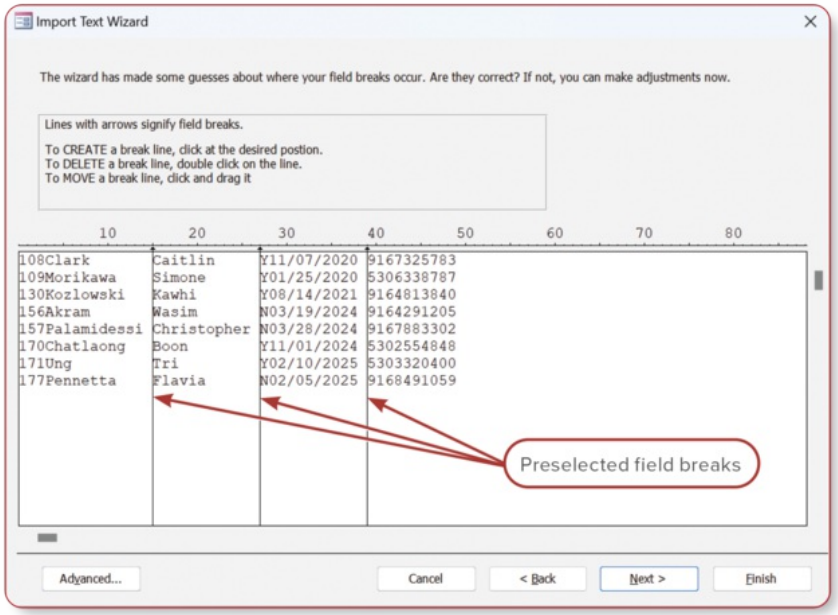


FIGURE 8-32 Select the breaks to indicate each field

- To add a field break, click either on the *Ruler* or in the data at the desired position (Figure 8-33). The new break is added into the window (Figure 8-34).

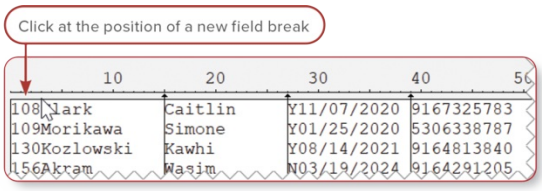


FIGURE 8-33 Click to add a new field break

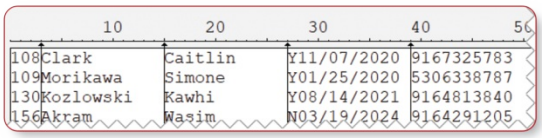


FIGURE 8-34 The added field break

- To delete a break, double-click the line.
- To move a break, click and drag it to the new location.

6. Click the **Next** button, when all the field breaks are positioned properly, to advance to the next page of the wizard (Figure 8-35). On this page, assign field names and modify a few of the field properties for each field.

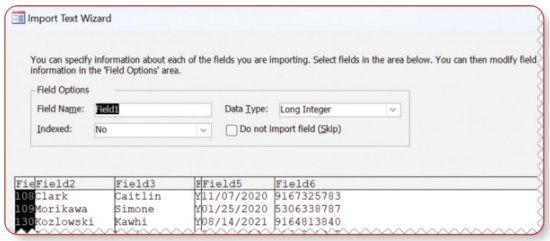


FIGURE 8-35 Modify field options

MORE INFO

If you selected the *Append a copy of the records to the table* radio button in step 4, the wizard does not display as shown in Figure 8-35. Instead, it advances directly to step 13.

7. Type a new value in the *Field Name* box, as desired, to change the default field name.
8. Click the **Data Type** drop-down arrow, as desired, to change the data type, and select a new data type.
9. Select **Yes (No Duplicates)** in the *Indexed* box if the field represents the primary key.
10. Check the **Do not import field (Skip)** box as desired.
11. Click to select another column in the *Import Text Wizard* to change properties for that field.
12. Repeat steps 7–11 for the remaining fields. Click **Next** when you are done modifying field properties to advance to the next page of the wizard.
13. Select the desired radio button to specify a primary key and click **Next** to advance to the final page of the wizard.
14. Enter the name of the new table (or confirm the name of the existing table when

appending records) in the *Import to Table* box and click **Finish**.

15. Check the **Save import steps** box as desired. Enter a file name and description and click the **Save Import** button.
16. Click the **Close** button, if you did not check the *Save import steps* box in step 15, to complete the wizard.
    - If any errors occur during the import process, Access displays a message box with information about the error.
    - Depending on the error, Access may not have created the new table or created the table but did not import all of the fields and/or records.
    - If no errors occur, Access creates the table, and it is added into the *Navigation Pane*. If a linked table was created, Access displays a message box confirming the creation of the linked table.

During the wizard, you can also adjust the position of the fields by clicking the **Advanced** button (see Figure 8-32) to open the *[file name] Import Specification* dialog box (Figure 8-36). The file name changes to display the name of the import file. Figure 8-37 shows modifications you can make in the *Field Information* area.

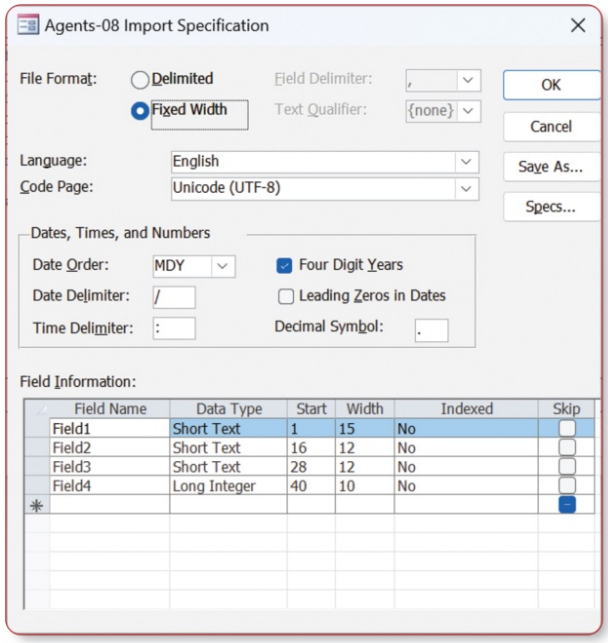


FIGURE 8-36 ***Import Specification*** **dialog box**

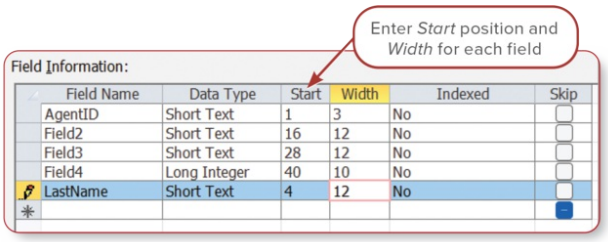


FIGURE 8-37 Edit *Field Information* values

- If Access did not correctly preselect the field widths, change the *Start* and *Width* values in the *Field Information* area.
  - Assign the actual field name as desired.
  - If all fields were not included in the original field list, add them in a new row. Notice how *LastName* is added into the append row. As long as the *Start* and *Width* values are correct, you can enter the fields in any order. If you close and then reopen the *Import Specification* dialog box, the fields will appear in order by *Start* value.
  - Check the **Skip** box for any fields you do not wish to import.
  - Click **OK** when done.

Find and Fix Errors

Ideally, your import or linking to a text file worked as planned. However, you may encounter errors during the process. This section explains the more common errors.

Common Errors When Importing into a New Table or Existing Table

- *Missing data values:* A few fields are blank, even though they contained a value in the text file. This is usually caused by mixed data types in a column. Access only imports the values that match the data type of the field in the table.
- *Error with importing the file:* If an import process fails completely, the table is not created or updated and an *Import Text Wizard* message box displays the "*An error occurred trying to import file*" message. Read the additional information provided in the message box to determine the corrective action needed. Cancel the import and make the needed corrections before trying to restart the import process.
- *Missing fields:* An error that causes a failed import is "*Field doesn't exist in destination table.*" If you receive an *Import Text Wizard* message box with this message, you may need to cancel the import and verify that all the column headers are the same as the existing table.
- *Primary key error:* If you attempt to add records where the primary key column contains

inconsistent, missing, or duplicated data, a message box displays alerting you to the primary key problem. In most cases, the table will still be created and the data imported. Open the table to correct any fields that may have invalid data. If you are appending records, in most cases, the records that contained duplicated primary keys will not be appended to the table.

A8-643

Common Errors When Importing into a Linked Table

- *Truncated text values:* A field in a linked table can only contain a maximum of 255 characters. If fields are longer, import the data instead of linking.
- *#Num! error value displays in a field:* If the data in a text column contains mixed values (a few cells contain text, while others contain numbers) the *#Num!* error may display in a few cells in that column. Access tends to display the values of the most prominent data type and does not import the values of other data types.

In situations with inconsistent data, fix the data in the text file and try linking again.

Some import errors are recorded in an error log table (Figure 8-38) that is automatically created by Access. The table name follows the format *TextFileName_ImportErrors,* where the placeholder of "TextFileName" is replaced with the actual file that was used in the import. The table contains three fields: *Error, Field,* and *Row.* The contents of those fields describe the type of error and location of the error in the table. This information can be helpful as you correct the data in the table.

MarysRentalsEmployees-08_ImportErrors

Error	Field	Row
Type Conversion Failure	DateHired	2
Type Conversion Failure	EID	3
Type Conversion Failure	DateHired	3

FIGURE 8-38 Error log table created during import

MORE INFO

Use the Access Help system if you encounter errors that are not explained in this section.

A8-644

A8-645

PAUSE & PRACTICE: ACCESS 8-2

For this Pause & Practice, you import a delimited text file and append the records to the *Agents* table in the Placer Hills Real Estate database. The data needed for the Placer Hills database comes from several old systems. Employee data was located in a payroll system that is being phased out. The data was able to be saved in a CSV format.

Files Needed: ***[your initials] PP A8-1.accdb*** and ***Agents-08.csv*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Names: ***[your initials] PP A8-2.accdb*** and ***[your initials] Agents.csv***

1. Open the ***[your initials] PP A8-1*** database file you created in *Pause & Practice 8-1*.
2. Save a new copy of your database as [your initials] PP A8-2.
3. Enable content in the database.
4. Review the *Agents* table.
    a. Open the *Agents* table in *Datasheet* view. The records for the existing seven agents display. Note the formatting of the *Phone* field.
    b. Switch to *Design* view.
    c. Click each of the fields and note whether the field is required or not.
    d. Select the **Phone** field. Note that this is a *Short Text* field, the size is 10, and that it has an input mask. This mask does not store any of the special mask symbols like parentheses or dashes.
    e. Close the table.
5. Prepare to import the text file.
    a. Right-click the ***Agents-08.csv*** file in File Explorer, select **Open with**, and then select **Notepad**.

MORE INFO

If the file extensions do not display in File Explorer, click the **View** tab, select **Show**, and select **File name extensions** to view the extensions along with the file name.

    b. Delete the three blank rows at the bottom of the file that contain only commas.
    c. Verify that the first row contains the field names.
    d. Correct the phone number values in the second and third data rows by removing the dashes.
    e. Add quotation marks before and after the phone number values in all rows. For example, the corrected first row should be: 108,Clark, Caitlin,Y,11/7/2020,"9167325783",,

MORE INFO

The quotation mark text qualifier ensures that Access imports the numbers

as a text value to match the properties of the field.

f. Enter 3/19/2024 as the *DateHired* for *Wasim Akram* to correct the missing value.

g. Save the file as [your initials] Agents.csv and close the file. Be sure to include the extension in the file name. Note that the *Save as type* box displays *Text documents (*.txt)* because your CSV file is a delimited type of text document.

6. Import data from the CSV file into the *Agents* table.

a. Click the **New Data Source** button [*External Data* tab, *Import & Link* group], select **From File**, and then select **Text File**. The *Get External Data – Text File* dialog box launches.

b. Click the **Browse** button to launch the *File Open* dialog box.

c. Locate and select the ***[your initials] Agents.csv*** text file, which contains the eight records you want to import, and click the **Open** button. The *File name extensions* (.csv in this case) may not display in the *File Open* dialog box depending on the *Windows File Explorer* settings on your computer. The *File Open* dialog box closes.

d. Select the **Append a copy of the records to the table** radio button, verify that *Agents* displays in the *table name* box, and click **OK** to launch the *Import Text Wizard*.

e. Verify that the **Delimited** radio button is selected and click the **Next** button to advance to the next page of the wizard.

f. Select the **Comma** radio button if it is not already selected.

g. Check the **First Row Contains Field Names** box.

h. Click the **Text Qualifier** box drop-down arrow and select the **double quotation mark**. Your screen should look like Figure 8-39.

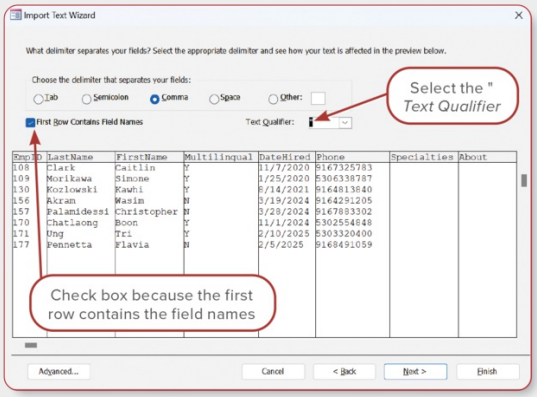


FIGURE 8-39 Select the delimiter used in the file

i. Click the **Next** button to advance to the next page of the wizard. Access confirms the name of the table.

j. Click **Finish**. A message box displays, indicating that the *EmpID* field doesn't exist in the *Agents* table. Click **OK** to acknowledge the message. A second message box displays, indicating that an error occurred during the import process. Click **OK** to acknowledge the message.

k. Click **Cancel** to stop the import.

7. Open the *Agents* table in *Design* view. Note that the first field is named *EmployeeNum*. Close the table.
8. Fix the text file.
    a. Open the ***[your initials] Agents.csv*** file in Notepad.
    b. Replace *EmpID* with EmployeeNum.
    c. Save and close the file.
9. Repeat steps 6a–i to import the corrected CSV file into the *Agents* table.
10. Click **Finish**. The wizard displays the *Save Import Steps* screen.
    a. Check the **Save import steps** box. The *Save Import Steps* screen updates to display additional options (Figure 8-40).

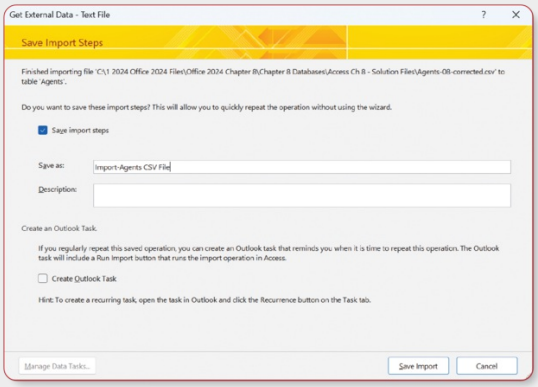


FIGURE 8-40 ***Save Import Steps*** **screen**

    b. Edit the default name in the *Save as* box to Import-Agents CSV File.
    c. Click the **Save Import** button. The wizard completes and closes.
11. Open the *Agents* table in *Datasheet* view to verify that the records were imported correctly. The table should contain 15 records and look similar to Figure 8-41.

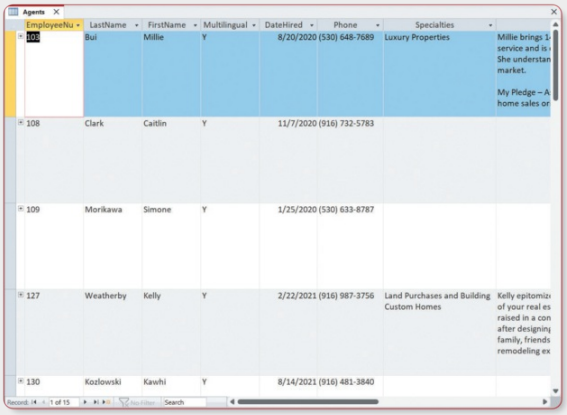


FIGURE 8-41 ***Datasheet*** **view of the** ***Agents*** **table after appending records**

12. Close the table and the database.

SLO 8.5

Exporting to Other Applications and Formats

Occasionally, you may need to share the data from an Access database with another application. In other programs, such as Word or Excel, the *Save As* command enables you to save a copy of your work in a different format. In Access, however, you use the export options to save a copy of the data instead. You can choose to export from a table, a query, a form, or a report. Additionally, you can choose to export only selected records when viewing data in *Datasheet* view. The export process begins when you click one of the icons in the *Export* group [*External Data* tab] (**Figure 8-42**). The different icons, or buttons, correspond to the different types of file format you wish to create. This section explores how to export data to Excel, Text, Word, and HTML formats.

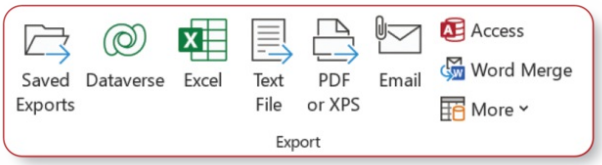


FIGURE 8-42 Options in the *Export* group

For exports that will be performed frequently, choose to save the export steps. Refer to "*How To: Save Import or Export Steps*" in ***SLO 8.1: Importing and Exporting Basics***. If you choose to export selected records, you are not able to save the export because the records must be selected each time.

COPILOT/GENERATIVE AI BEST PRACTICES

Access also exports to PDF or XPS files, Email, Access databases, SharePoint Lists, ODBC Databases, and dBASE files. Ask *Copilot* to help you learn more about these different formats and how to export to any of these formats. The response should provide links to various tutorials you can view.

Export Data to Excel

Excel includes powerful tools to analyze data and to create graphs. Export data from Access into an Excel format to take advantage of these features. When you export forms and reports to Excel,

the results can be inconsistent. This is especially true when exporting forms with a subform or reports with a subreport. This section of the chapter focuses on exporting tables and queries because they provide the most utility in Excel.

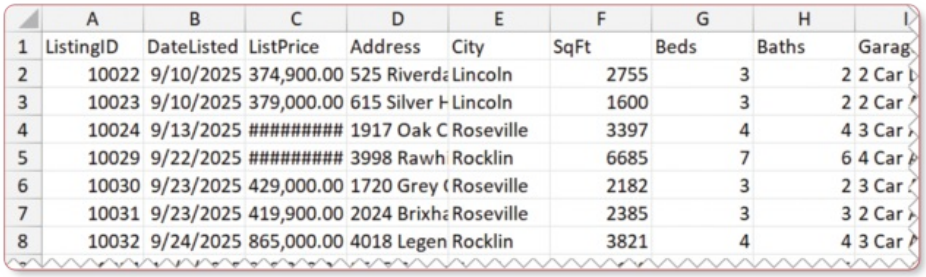
During the export process, you must decide whether to export just the data from the table or query or if you also want to export the formatting. Figure 8-43 shows an original Access table. Figure 8-44 shows the data in the Excel file after just the data has been exported, while Figure 8-45 shows the data in Excel that has been exported with the formatting. In Figure 8-44, you see that all columns exported with the same default width, which may not be large enough to display the data. Additionally, the alignment, date, and currency formatting has been removed.



Listings

ListingID	Date Listed	List Price	Address	City	SqFt	Beds	Baths	Gara
10022	9/10/2025	$374,900.00	525 Riverdale	Lincoln	2755	3	2	2 Car D
10023	9/10/2025	$379,000.00	615 Silver Hill Court	Lincoln	1600	3	2	2 Car At
10024	9/13/2025	$1,189,900.00	1917 Oak Crest Drive	Roseville	3397	4	4	3 Car At
10029	9/22/2025	$1,645,900.00	3998 Rawhide Road	Rocklin	6685	7	6	4 Car At
10030	9/23/2025	$429,000.00	1720 Grey Owl Circle	Roseville	2182	3	2	3 Car At
10031	9/23/2025	$419,900.00	2024 Brixham	Roseville	2385	3	3	2 Car At
10032	9/24/2025	$865,000.00	4018 Legend Drive	Rocklin	3821	4	4	3 Car At

FIGURE 8-43 Data in original Access table



	A	B	C	D	E	F	G	H	I
1	ListingID	DateListed	ListPrice	Address	City	SqFt	Beds	Baths	Garag
2	10022	9/10/2025	374,900.00	525 Riverda	Lincoln	2755	3	2	2 Car
3	10023	9/10/2025	379,000.00	615 Silver H	Lincoln	1600	3	2	2 Car
4	10024	9/13/2025	#########	1917 Oak C	Roseville	3397	4	4	3 Car
5	10029	9/22/2025	#########	3998 Rawh	Rocklin	6685	7	6	4 Car
6	10030	9/23/2025	429,000.00	1720 Grey (	Roseville	2182	3	2	3 Car
7	10031	9/23/2025	419,900.00	2024 Brixha	Roseville	2385	3	3	2 Car
8	10032	9/24/2025	865,000.00	4018 Legen	Rocklin	3821	4	4	3 Car

FIGURE 8-44 Data in Excel after exporting just data



	A	B	C	D	E	F	G	H	I
1	ListingID	Date Listed	List Price	Address	City	SqFt	Beds	Baths	Garag
2	10022	10-Sep-25	$374,900.00	525 Riverdale	Lincoln	2755	3	2	2 Car Detac
3	10023	10-Sep-25	$379,000.00	615 Silver Hill Court	Lincoln	1600	3	2	2 Car Attac
4	10024	13-Sep-25	$1,189,900.00	1917 Oak Crest Drive	Roseville	3397	4	4	3 Car Attach
5	10029	22-Sep-25	$1,645,900.00	3998 Rawhide Road	Rocklin	6685	7	6	4 Car Attac
6	10030	23-Sep-25	$429,000.00	1720 Grey Owl Circle	Roseville	2182	3	2	3 Car Attach
7	10031	23-Sep-25	$419,900.00	2024 Brixham	Roseville	2385	3	3	2 Car Attac
8	10032	24-Sep-25	$865,000.00	4018 Legend Drive	Rocklin	3821	4	4	3 Car Attach

FIGURE 8-45 Data in Excel after exporting the data and the formatting

HOW TO: Export a Table or Query to an Excel File

1. Select the table or query in the *Navigation Pane*.
2. Click the **Excel** button [*External Data* tab, *Export* group]. The *Export – Excel Spreadsheet* dialog box launches (Figure 8-46).



FIGURE 8-46 ***Export – Excel Spreadsheet* dialog box**

ANOTHER WAY

Right-click the table or query in the *Navigation Pane* to open the context menu, select **Export**, and then select **Excel**.

3. Click the **Browse** button to launch the *File Save* dialog box.
4. Locate the folder where you want to save the file, modify the *File name* as desired, and click the **Save** button. The *File Save* dialog box closes.

MORE INFO

Access assigns a default file name that combines the object name with a .xlsx extension.

5. Check the **Export data with formatting and layout** box, as desired, to export both the data and the formatting.
   - The *Open the destination file after the export operation is complete* check box becomes available.
   - Check the box as desired.
6. Click **OK** to export the file.
   - If the file already exists, Access displays a message box asking you if you want to replace the existing file. Click **Yes** or **No**.
   - If you select *No,* the *Output To* dialog box opens, letting you enter another file name.

7. Check the **Save export steps** box as desired. Enter a file name and description and click the **Save Export** button. The wizard completes and closes.
8. Click the **Close** button, if you did not check the *Save export steps* box in step 7, to complete the wizard.

It is a good idea to open the exported file in Excel to ensure that the export process worked as you intended. Common issues you may encounter include the following:

- *Images are not exported:* If images are needed in the Excel file, you must add them to the worksheet.
- *Data displays in the wrong column:* Missing, or null, values are replaced by data that should be in the next column.
- *Formulas used in expressions are not exported, only the result of the calculation is exported:* If you need a formula, you must enter it into the worksheet.

The process to export selected records is very similar to exporting an entire table or query. However, you must open the table or query in *Datasheet* view and select the desired records prior to starting the export process. You can only select contiguous, or adjacent, records. Choose to filter or sort the records before selecting them, if appropriate. You cannot save the export steps because you must open and select the records each time the export is run.

HOW TO: Export Selected Records from a Table or Query to an Excel File

1. Open the table or query in the *Datasheet* view.
2. Select the records to export (Figure 8-47). Sort or filter the data if needed to ensure the desired records are adjacent.



FIGURE 8-47 Selected records in *Datasheet* view

3. Click the **Excel** button [*External Data* tab, *Export* group]. The *Export – Excel Spreadsheet* dialog box launches.
4. Click the **Browse** button to launch the *File Save* dialog box.
5. Locate the folder where you want to save the file, modify the *File Name* as desired, and click the **Save** button. The *File Save* dialog box closes.

6. Check the **Export data with formatting and layout** box. The other check boxes become available.
7. Check the **Export only the selected records** box (Figure 8-48).

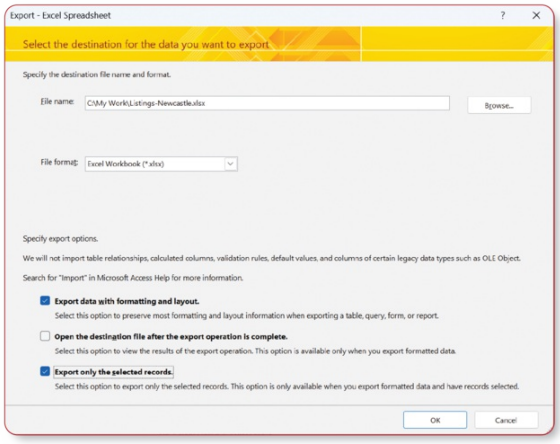


FIGURE 8-48 **Export options to export selected records**

8. Check the **Open the destination file after the export operation is complete** box as desired.
9. Click **OK** to export the file.
   - If the file already exists, Access displays a message box asking you if you want to replace the existing file.
   - Click **Yes** or **No**.
   - If you select *No,* the *Output To* dialog box opens, letting you enter another file name.
   - The export completes and closes.

Export Data to a Text File

You may want to export data from Access as a text file instead of an Excel file. Recall that text files can either be delimited or fixed-width. When exporting, you can also create a text file that contains the formatting and layout of the data. During the export process, you must choose the export format you want to use. Figure 8-49 shows a query exported with data and formatting, Figure 8-50 shows the same file exported as a CSV delimited file, and Figure 8-51 shows the file exported as a fixed-width file. Recall that a fixed-width file does not include the field names in the first row.

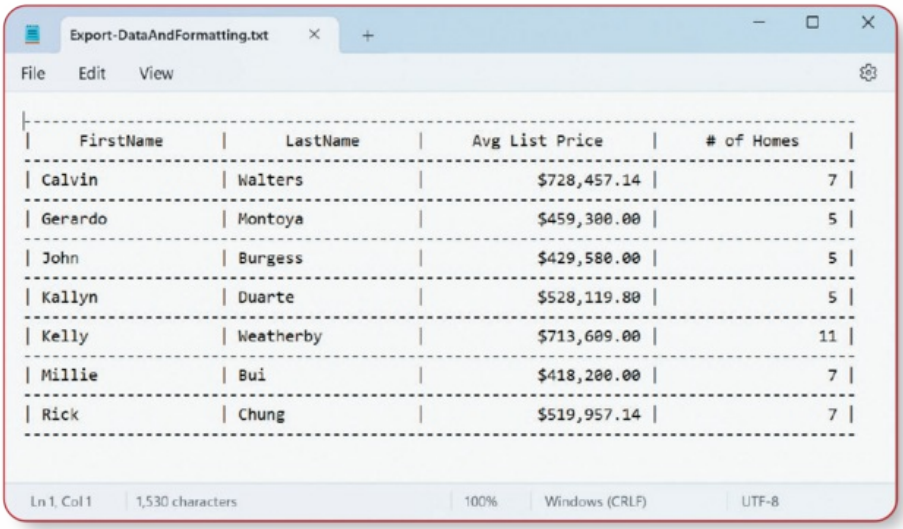


FIGURE 8-49 Table exported as a text file with formatting and layout

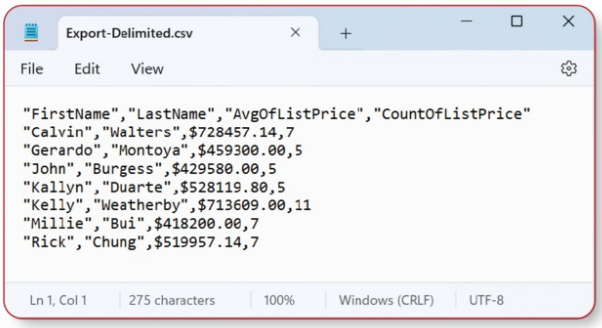


FIGURE 8-50 Table exported as a delimited text file

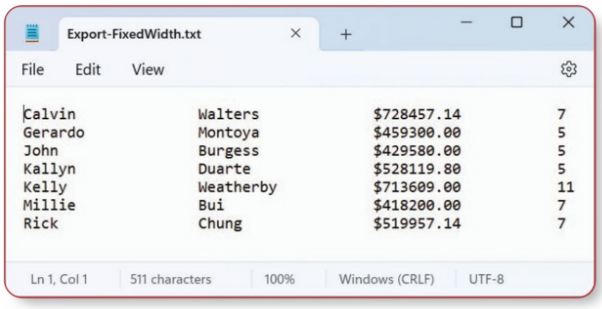


FIGURE 8-51 Table exported as a fixed-width text file

In this section, you learn how to export data to a delimited text file, how to export data to a fixed-

width text file, and how to export data to a text file with formatting and layout.

HOW TO: Export a Table or Query to a Delimited Text File

1. Select the table or query in the *Navigation Pane*.
2. Click the **Text File** button [*External Data* tab, *Export* group]. The *Export – Text File* dialog box launches (Figure 8-52).

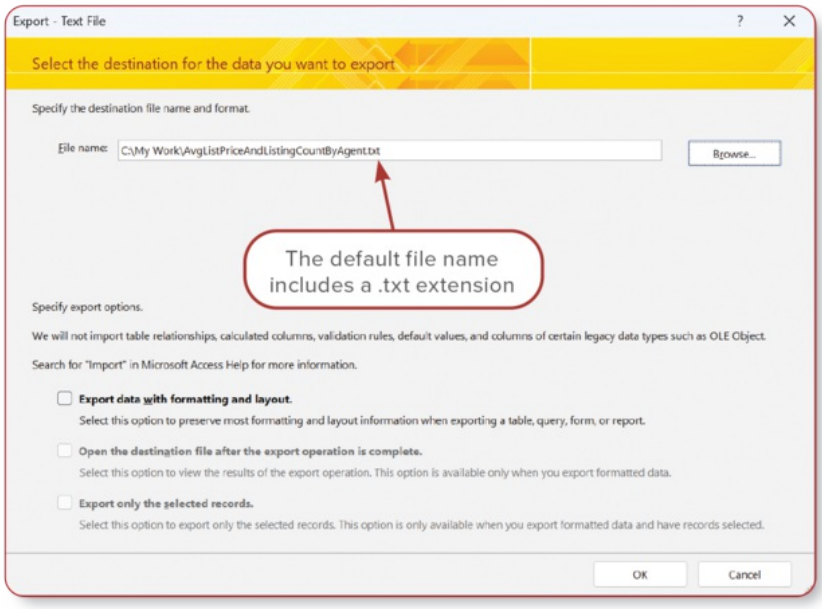


FIGURE 8-52 ***Export – Text File*** **dialog box**

ANOTHER WAY

Right-click the table or query in the *Navigation Pane* to open the context menu, select **Export**, and then select **Text File**.

3. Click the **Browse** button to launch the *File Save* dialog box.
4. Locate the folder where you want to save the file, modify the *File Name* as desired, and click the **Save** button. The *File Save* dialog box closes.

MORE INFO

Access assigns a default file name that combines the object name with a .txt

extension. If you are creating a CSV file, you may want to change the extension to .csv.

5. Do not select any export options and click **OK** on the *Export - Text File* dialog box.
   - If the file already exists, Access displays a message box asking you if you want to replace the existing file.
   - Click **Yes** or **No**.
   - If you select *No,* the *Output To* dialog box opens, letting you enter another file name.
   - The *Export Text Wizard* launches (Figure 8-53).

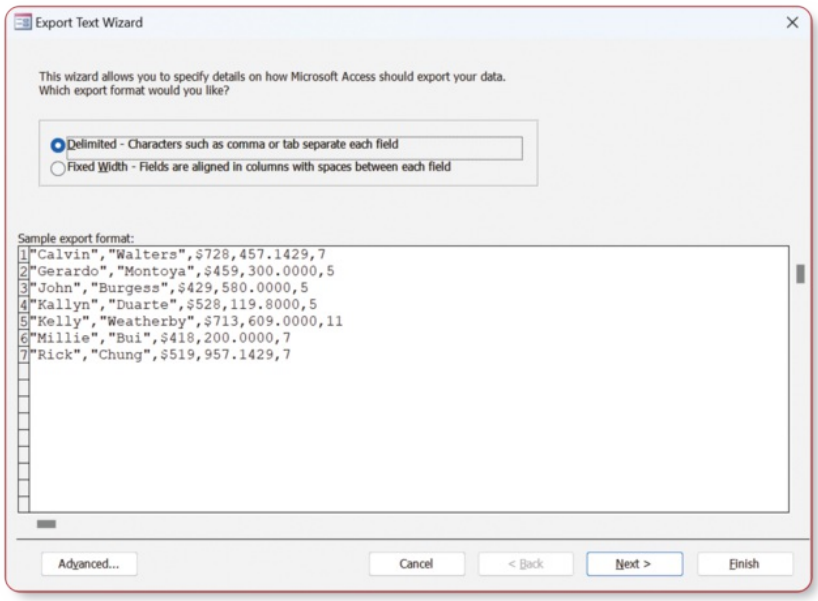


FIGURE 8-53 ***Export Text Wizard***

6. Select the **Delimited** radio button if it is not already selected.
7. Click the **Next** button to advance to the next page of the wizard (Figure 8-54). On this page, choose the delimiter to use in the file.

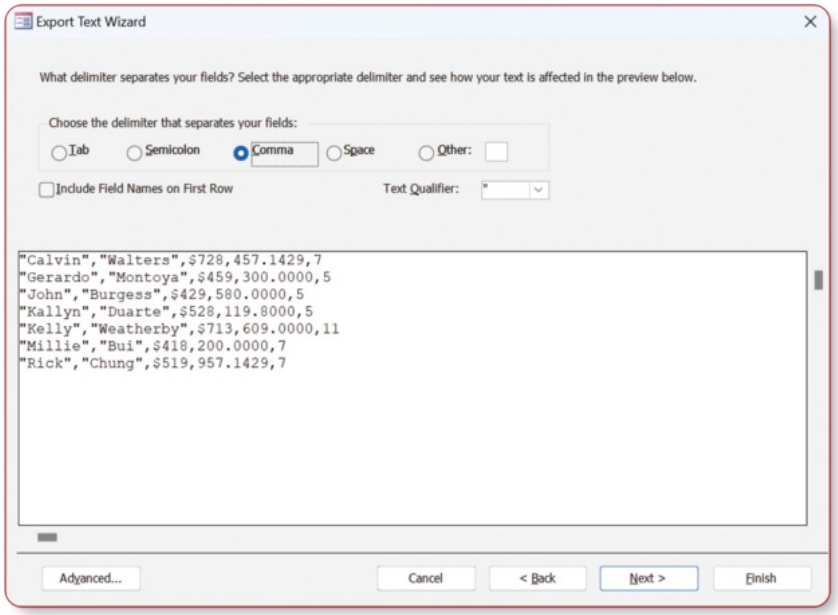


FIGURE 8-54 **Choose the delimiter to use in the file**

- Select the **Comma** radio button if it is not already selected.
- Check the **Include Field Names on First Row** box, if appropriate.
- To change the *Text Qualifier* from double quotation marks to single or no quotation marks, click the **Text Qualifier** box drop-down arrow and select the desired option.

8. Click **Next**. Access confirms the name of the file to create.
9. Click **Finish**.
10. Check the **Save export steps** box, as desired. Enter a file name and description and click the **Save Export** button. The wizard completes and closes.
11. Click the **Close** button, if you did not check the *Save export steps* box in step 10, to complete the wizard.

ANOTHER WAY

Export specific records by opening the table or query in *Datasheet* view, selecting the records, and then starting the export process. The *Save Export Steps* screen does not display when you export selected records.

HOW TO: Export a Table or Query to a Fixed-Width Text File

1. Select the table or query in the *Navigation Pane*.
2. Click the **Text File** button [*External Data* tab, *Export* group]. The *Export – Text File* dialog box launches (Figure 8-55).

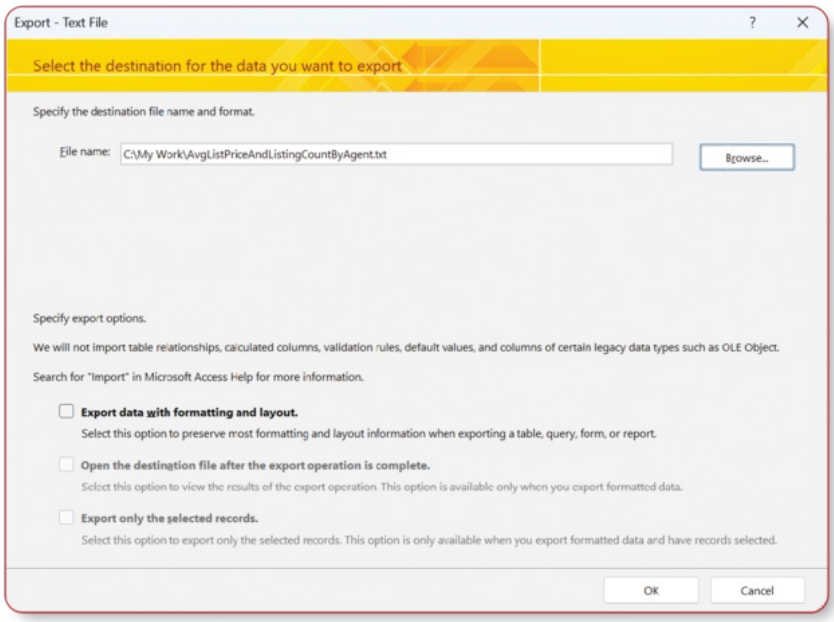


FIGURE 8-55 ***Export – Text File*** **dialog box**

3. Click the **Browse** button to launch the *File Save* dialog box.
4. Locate the folder where you want to save the file, modify the *File Name* as desired, and click the **Save** button. The *File Save* dialog box closes.
5. Do not select any export options and click **OK** on the *Export - Text File* dialog box.
   - If the file already exists, Access displays a message box asking you if you want to replace the existing file.
   - Click **Yes** or **No**.
   - If you select *No,* the *Output To* dialog box opens, letting you enter another file name.
   - The *Export Text Wizard* launches.
6. Select the **Fixed Width** radio button (Figure 8-56). Access preselects field breaks based on the table field sizes.

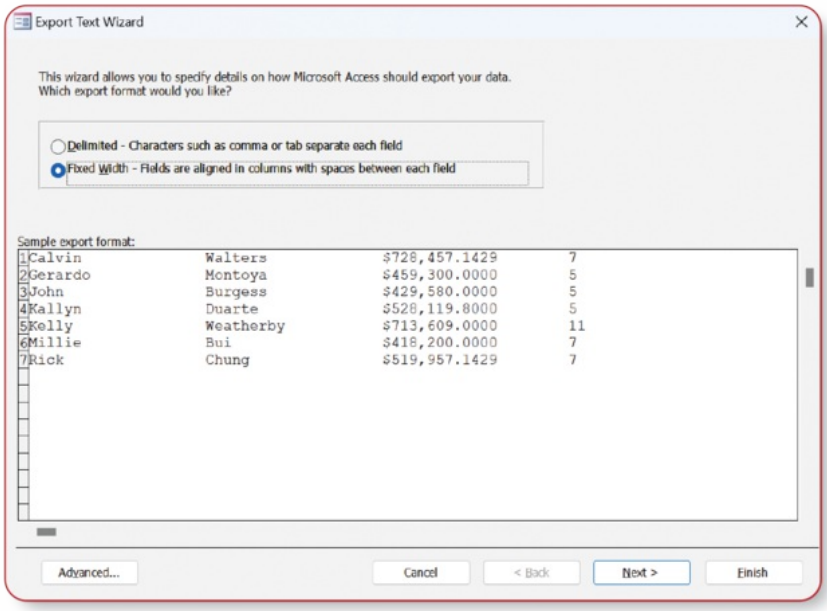


FIGURE 8-56 ***Export Text Wizard***

7. Click the **Next** button to advance to the next page of the wizard (Figure 8-57). On this page, adjust the field breaks in the file if needed.

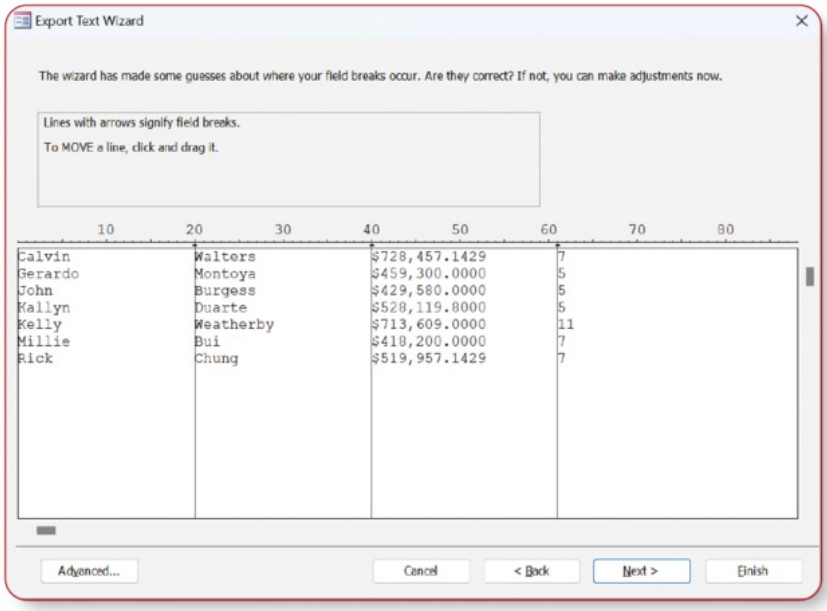


FIGURE 8-57 **Adjust field breaks**

- To add a field break, click either the *Ruler* or in the data at the desired position. The new break is added into the window.
- To delete a break, double-click the line.

- To move a break, click and drag it to a new location.

8. Click **Next**. Access confirms the name of the file to create.
9. Click **Finish**.
10. Check the **Save export steps** box as desired. Enter a file name and description and click the **Save Export** button. The wizard completes and closes.
11. Click the **Close** button, if you did not check the *Save export steps* box in step 10, to complete the wizard.

During the wizard, you can also adjust the preselected field breaks by clicking the **Advanced** button (see Figure 8-57) to open the *[file name] Export Specification* dialog box (Figure 8-58). The *file name* changes to display the name of the export file. This dialog box is especially useful when the size of the fields is large and not easily viewed in the *Export Text Wizard* window.

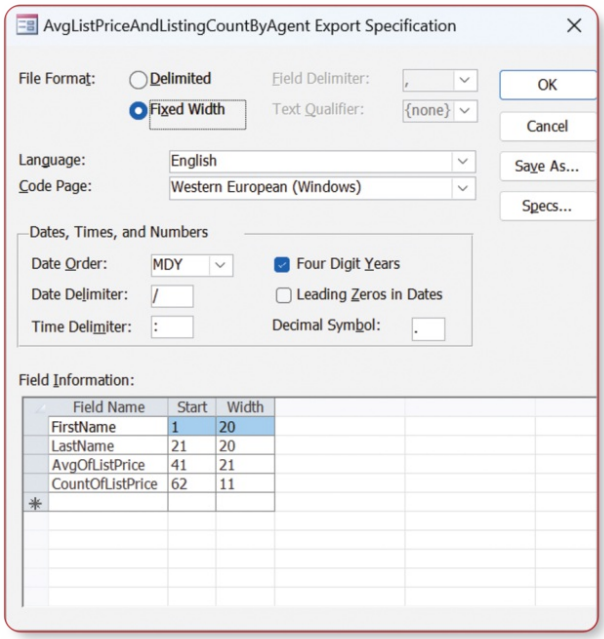


FIGURE 8-58 Enter the export specifications for the table

- If Access did not correctly preselect the field widths, change the *Start* and *Width* values in the *Field Information* area.
- Click **OK** when done.
- If any values are not consistent, Access displays a message box alerting you to the problem. Fix the problems before continuing.

HOW TO: Export a Table or Query to a Text File with Formatting and Layout

1. Select the table or query in the *Navigation Pane*.
2. Click the **Text File** button [*External Data* tab, *Export* group]. The *Export – Text File* dialog box launches.
3. Click the **Browse** button to launch the *File Save* dialog box.
4. Locate the folder where you want to save the file, modify the *File Name* as desired, and click the **Save** button. The *File Save* dialog box closes.
5. Check the **Export data with formatting and layout** box (Figure 8-59).

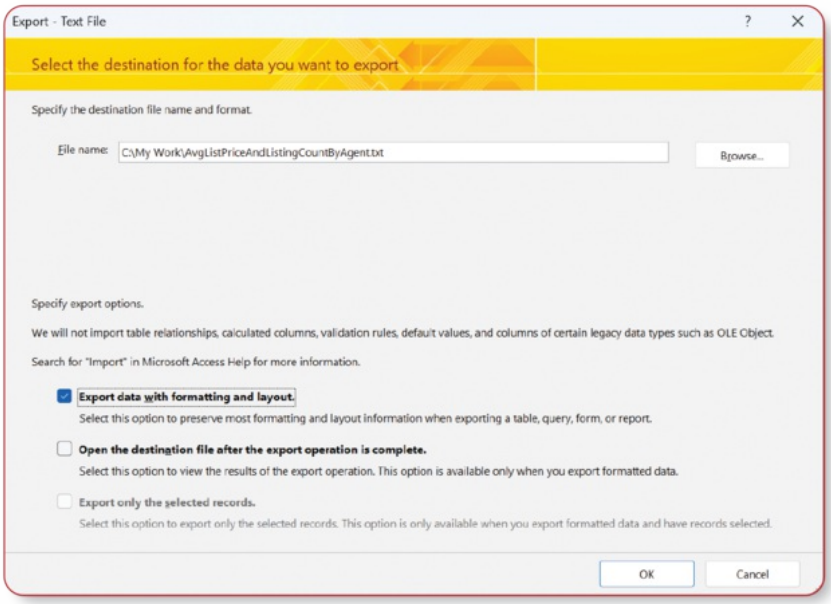


FIGURE 8-59 ***Export – Text File*** **dialog box**

- The *Open the destination file after the export operation is complete* check box becomes available.
- Check the box as desired.

6. Click **OK** to export the file.
   - If the file already exists, Access displays a message box asking you if you want to replace the existing file.
   - Click **Yes** or **No**.
   - If you select *No,* the *Output To* dialog box opens, letting you enter another file name.
7. Select the encoding format in the *Encode 'Table/Query' As* dialog box (

Figure 8-60) and click **OK**.

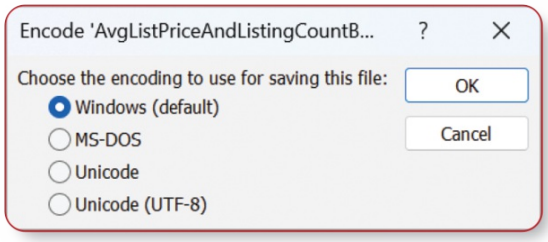


FIGURE 8-60 **Select the encoding format**

8. Check the **Save export steps** box as desired. Enter a file name and description and click the **Save Export** button. The wizard completes and closes.
9. Click the **Close** button, if you did not check the *Save export steps* box in step 8, to complete the wizard.

Export Data to Word

Access data can be exported to Word by exporting to a ***Rich Text Format (RTF)* file**. An RTF file preserves the formatting of the data. The default extension for these files is ***.rtf***. While you can export tables, forms, reports, and queries, it works best to limit your selection to objects that have a tabular format. Once you create the RTF file, edit it in Word to insert additional text or to format the table containing the data.

HOW TO: Export a Table or Query to Word

1. Select the table or query in the *Navigation Pane*.

> **ANOTHER WAY**
>
> Export specific records by opening the table or query in *Datasheet* view, selecting the contiguous records, and then starting the export process.

2. Click the **More** button [*External Data* tab, *Export* group] and select the **Word** option (Figure 8-61). The *Export – RTF File* dialog box launches (Figure 8-62).

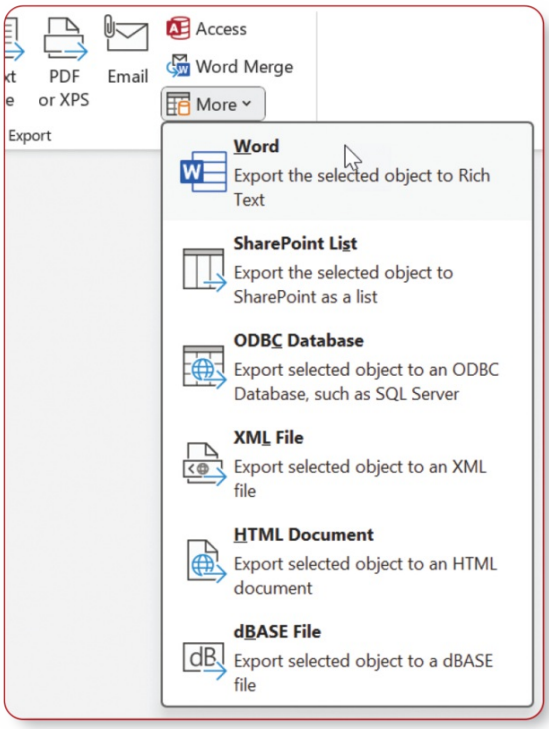


FIGURE 8-61 Select the *Word* option

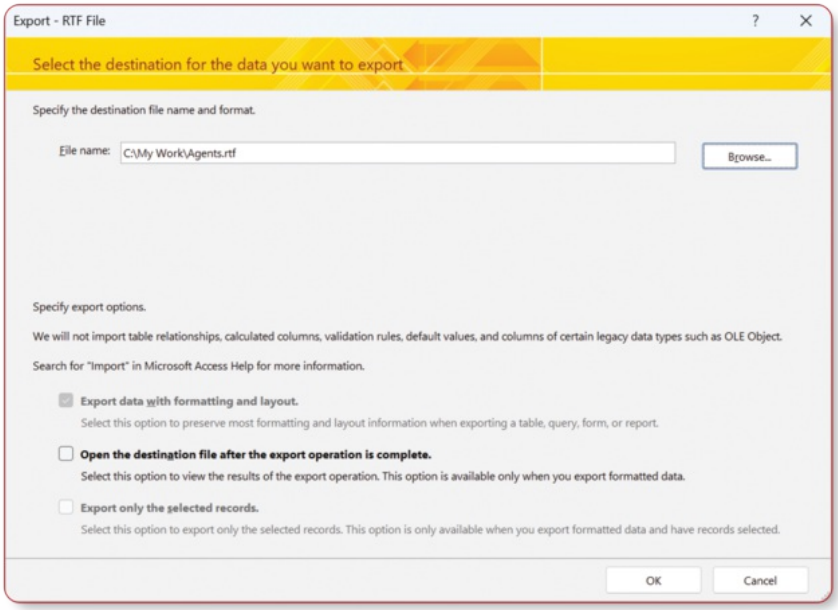
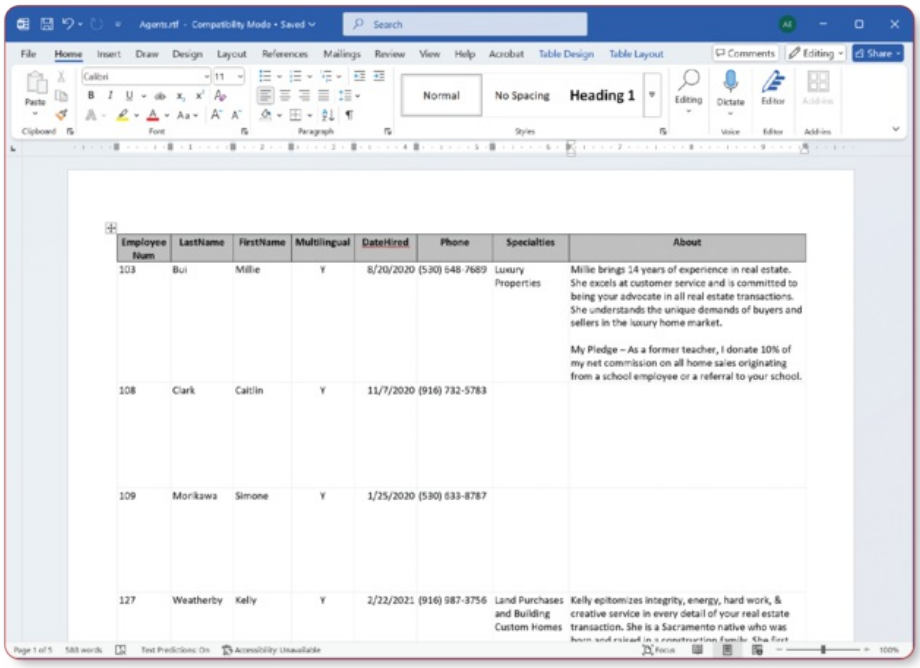


FIGURE 8-62 *Export – RTF File* dialog box

3. Click the **Browse** button to launch the *File Save* dialog box.
4. Locate the folder where you want to save the file, modify the *File Name* as desired, and then click the **Save** button. The *File Save* dialog box closes.

5. Check the **Open the destination file after the export operation is complete** box as desired.
6. Check the **Export only the selected records** box if you selected records in *Datasheet* view prior to starting the export.
7. Click **OK** to export the file.
   - If the file already exists, Access displays a message box asking if you want to replace the existing file.
   - Click **Yes** or **No**.
   - If you select *No,* the *Output To* dialog box opens, letting you enter another file name.
   - If you selected to open the destination file, Word opens the file. You may need to switch Windows to return to the Access application.
8. Check the **Save export steps** box as desired. Enter a file name and description and click the **Save Export** button. The wizard completes and closes.
9. Click the **Close** button, if you did not check the *Save export steps* box in step 8, to complete the wizard.

After the export is complete, edit the file in Word. The data is formatted as a Word table. Use the tools available on the *Table Design* or *Table Layout* tabs in Word to modify the table (**Figure 8-63**). These contextual tabs display when a table is selected in Word. Adjust the font size, paragraph alignment, and other text formatting on the *Home* tab and change *Page Setup* options on the *Table Layout* tab. If you make changes to the RTF file, use the *Save As* option in Word to save the changes to the file as a *Word Document (*.docx)* type.



Employee Num	LastName	FirstName	Multilingual	DateHired	Phone	Specialties	About
103	Bui	Millie	Y	8/20/2020	(530) 648-7689	Luxury Properties	Millie brings 14 years of experience in real estate. She excels at customer service and is committed to being your advocate in all real estate transactions. She understands the unique demands of buyers and sellers in the luxury home market. My Pledge – As a former teacher, I donate 10% of my net commission on all home sales originating from a school employee or a referral to your school.
108	Clark	Caitlin	Y	11/7/2020	(916) 732-5783		
109	Morikawa	Simone	Y	1/25/2020	(530) 633-8787		
127	Weatherby	Kelly	Y	2/22/2021	(916) 987-3756	Land Purchases and Building Custom Homes	Kelly epitomizes integrity, energy, hard work, & creative service in every detail of your real estate transaction. She is a Sacramento native who was

FIGURE 8-63 The data is exported into a Word table

Export Data to HTML

Hypertext Markup Language (HTML) is the primary language used to build web pages. A markup language consists of ***tags***, the code that defines the structure of the data, along with the actual content or data. Most tags consist of both a start tag and an end tag. The end tag is simply the start tag preceded by a slash (/). **Figure 8-64** shows two examples of HTML tags, along with their content.



FIGURE 8-64 Sample HTML tags

MORE INFO

The *title* tag shown in Figure 8-64 tells the web page what content should display in the title bar. The *p* tag defines a paragraph and is used to display text on the web page.

As with many of the other export options, even though you can export an Access form or report to HTML, it works best to export from tables or queries.

The data exported by Access is structured in an HTML table. An HTML table is defined with a *table* tag, along with a set of related tags that describe each of the pieces in the table.

During the export process, you must decide whether to export just the data from the table or query, or whether to also export the formatting. Figure 8-65 shows a web page after just the data has been exported, while Figure 8-66 shows the same web page after the data has been exported with the formatting.

ApprovedSpecialists-DataOnly

1	Clark Pest Control	12300 Locksley Lane	Auburn	CA	95602	Pest Control	Mark Harrington	888-891-9651
2	Critter Control Sacramento	5347 Rattlesnake Bar Rd	Pilot Hill	CA	95664	Pest Control	Angelina Halvorson	530-889-8406
3	First American Title Company	2200 Douglas Blvd #275	Roseville	CA	95661	Title Company	Aniyah Walters	916-786-5300
4	Horizon Appraisal	P.O. Box 2109	Rocklin	CA	95677	Appraisal Services	Yuli Yogerst	530-367-3091
5	Kings Cleaning	151 N. Sunrise Ave Suite 1108	Roseville	CA	95661	Cleaning	Tatyana Avelon	916-780-1111
6	North American Title Company	2998 Douglas Blvd Suite 300	Roseville	CA	95661	Title Company	Amanda Eklund	916-771-0176
7	Old Republic Title	1420 Rocky Ridge Drive Suite 100	Roseville	CA	95611	Title Company	Cole Linarez	916-760-9011
8	Placer Title Company	1508 Eureka Rd. #150	Roseville	CA	95661	Title Company	Michael Brown	916-782-3711
9	Placer Title Company	354 F St.	Lincoln	CA	94658	Title Company	Marcus Espinoza	916-645-8944
10	Rocklin Mortgage Company	535 Menlo Drive	Rocklin	CA	95765	Mortgage Broker	Gordon Schneider	916-261-2381
11	Rocklin Pest Control Service	5431 Paragon Ct.	Rocklin	CA	95677	Pest Control	Paul Jones	916-630-1212
12	Sierra Valley Title	200 Auburn Folsom Road	Auburn	CA	95603	Title Company	Summer Bruhn	530-885-7770
13	South Placer Appraisal Services	4010 Foothills Blvd	Roseville	CA	95747	Appraisal Services	Tiffany Wendt	916-788-2009
14	Spic and Span Cleaning	6721 Five Star Boulevard, Suite A	Rocklin	CA	95677	Cleaning	Rosaria Gonzales	916-555-2505
15	Valtech Appraisals	6721 Five Star Boulevard, Suite F	Rocklin	CA	95677	Appraisal Services	Anthony Vaccarello	916-624-2455

FIGURE 8-65 Data in HTML after exporting just the data

ApprovedSpecialists

ID	CompanyName	Address	City	State	ZIP	LineOfBusiness	ContactName	Phone
1	Clark Pest Control	12300 Locksley Lane	Auburn	CA	95602	Pest Control	Mark Harrington	888-891-9651
2	Critter Control Sacramento	5347 Rattlesnake Bar Rd	Pilot Hill	CA	95664	Pest Control	Angelina Halvorson	530-889-8406
3	First American Title Company	2200 Douglas Blvd #275	Roseville	CA	95661	Title Company	Aniyah Walters	916-786-5300
4	Horizon Appraisal	P.O. Box 2109	Rocklin	CA	95677	Appraisal Services	Yuli Yogerst	530-367-3091
5	Kings Cleaning	151 N. Sunrise Ave Suite 1108	Roseville	CA	95661	Cleaning	Tatyana Avelon	916-780-1111
6	North American Title Company	2998 Douglas Blvd Suite 300	Roseville	CA	95661	Title Company	Amanda Eklund	916-771-0176
7	Old Republic Title	1420 Rocky Ridge Drive Suite 100	Roseville	CA	95611	Title Company	Cole Linarez	916-760-9011
8	Placer Title Company	1508 Eureka Rd. #150	Roseville	CA	95661	Title Company	Michael Brown	916-782-3711
9	Placer Title Company	354 F St.	Lincoln	CA	94658	Title Company	Marcus Espinoza	916-645-8944
10	Rocklin Mortgage Company	535 Menlo Drive	Rocklin	CA	95765	Mortgage Broker	Gordon Schneider	916-261-2381
11	Rocklin Pest Control Service	5431 Paragon Ct.	Rocklin	CA	95677	Pest Control	Paul Jones	916-630-1212
12	Sierra Valley Title	200 Auburn Folsom Road	Auburn	CA	95603	Title Company	Summer Bruhn	530-885-7770
13	South Placer Appraisal Services	4010 Foothills Blvd	Roseville	CA	95747	Appraisal Services	Tiffany Wendt	916-788-2009
14	Spic and Span Cleaning	6721 Five Star Boulevard, Suite A	Rocklin	CA	95677	Cleaning	Rosaria Gonzales	916-555-2505
15	Valtech Appraisals	6721 Five Star Boulevard, Suite F	Rocklin	CA	95677	Appraisal Services	Anthony Vaccarello	916-624-2455

FIGURE 8-66 Data in HTML after exporting the data and the formatting

HTML files can be created from a variety of sources, including export utilities in many applications. One of the simplest ways to create and view an HTML file is in a text editor, such as Notepad. HTML files typically have an extension of ***.html***.

HOW TO: Export a Table or Query to HTML

1. Select the table or query you want to export in the *Navigation Pane*.

A8-657

ANOTHER WAY

Export specific records by opening the table or query in *Datasheet* view, selecting the records, and then starting the export process.

2. Click the **More** button [*External Data* tab, *Export* group] and select the **HTML Document** option (Figure 8-67). The *Export – HTML Document* dialog box launches (Figure 8-68).

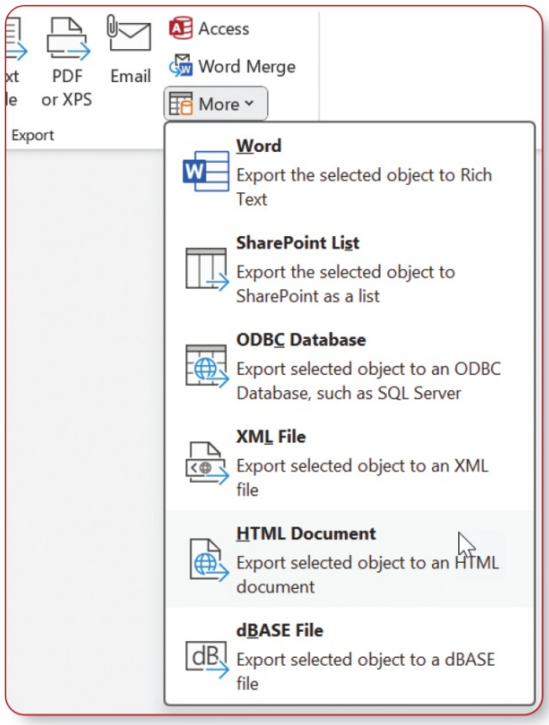


FIGURE 8-67 Select the *HTML Document* option

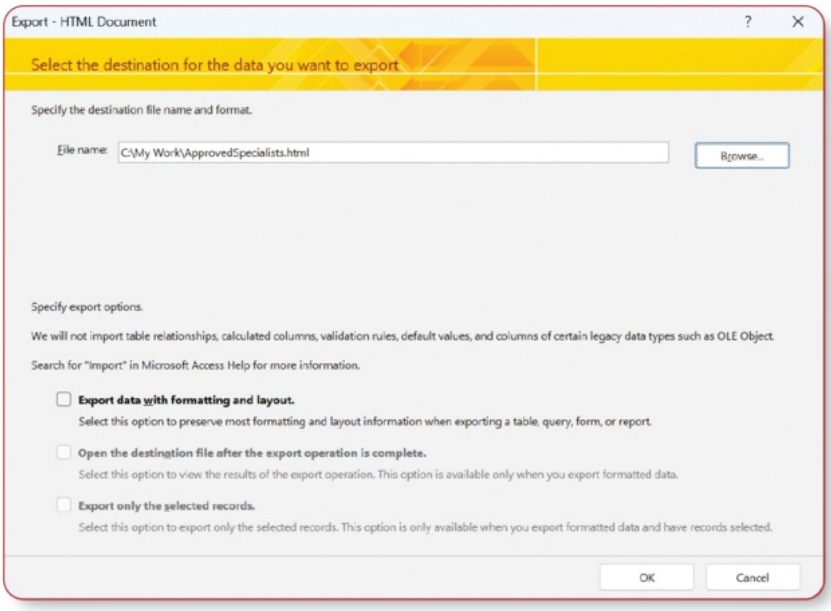


FIGURE 8-68 ***Export – HTML Document*** **dialog box**

3. Click the **Browse** button to launch the *File Save* dialog box.
4. Locate the folder where you want to save the file, modify the *File Name* as desired, and then click the **Save** button. The *File Save* dialog box closes.
5. Check the **Export data with formatting and layout** box, as desired, to export both the data and the formatting. You must check this box if you are exporting only selected records.
   - The *Open the destination file after the export operation is complete* check box becomes available.
   - Check the box as desired.
6. Check the **Export only the selected records** box if you selected records in *Datasheet* view prior to starting the export.
7. Click **OK** to export the file.
   - If the file already exists, Access displays a message box asking you if you want to replace the existing file.
   - Click **Yes** or **No**.
   - If you select *No,* the *Output To* dialog box opens, letting you enter another file name.
8. If you are exporting the data with formatting and layout, the *HTML Output Options* dialog box opens (**Figure 8-69**). As desired, select a template and change the encoding format. Click **OK**.

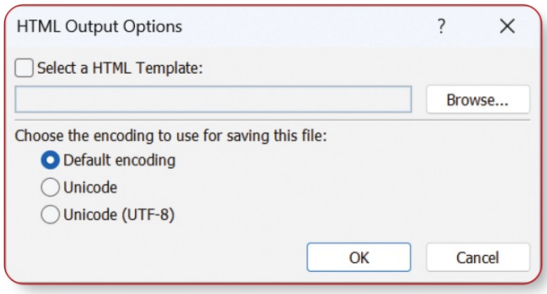


FIGURE 8-69 Select HTML output options

9. Check the **Save export steps** box as desired. Enter a file name and description and click the **Save Export** button. The wizard completes and closes.
10. Click the **Close** button, if you did not check the *Save export steps* box in step 9, to complete the wizard.

After the export is complete, view the exported file in your browser. Edit the HTML code file by opening the file in Notepad.

A8-658

A8-659

A8-660

PAUSE & PRACTICE: ACCESS 8-3

For this Pause & Practice, you export data from the Placer Hills Real Estate database. First, export a table to Excel where it can be further analyzed using Excel's statistical tools. Next, export a query to a delimited text file which will be sent to a company that creates a report aggregating sales data from different real estate agencies. Finally, export selected records from a table to Word where it will be used in a flyer to highlight different agents.

File Needed: ***[your initials] PP A8-2.accdb***

Completed Project File Names: ***[your initials] PP A8-3.accdb, [your initials] Listings_Export.xlsx, [your initials] AvgListPriceAndListingCountByAgent_Export.csv***, and ***[your initials] Title_Company_Approved_Specialists_Export.rtf***

1. Open the ***[your initials] PP A8-2*** database file that you created in *Pause & Practice 8-2*.
2. Save a new copy of your database as [your initials] PP A8-3.
3. Enable content in the database.
4. Export the *Listings* table to Excel.
   a. Select the **Listings** table in the *Navigation Pane*.
   b. Click the **Excel** button [*External Data* tab, *Export* group]. The *Export – Excel Spreadsheet* dialog box

launches.

c. Click the **Browse** button to launch the *File Save* dialog box.

d. Locate the folder where you want to save the file, edit the file name to be [your initials] Listings_Export.xlsx, and click the **Save** button.

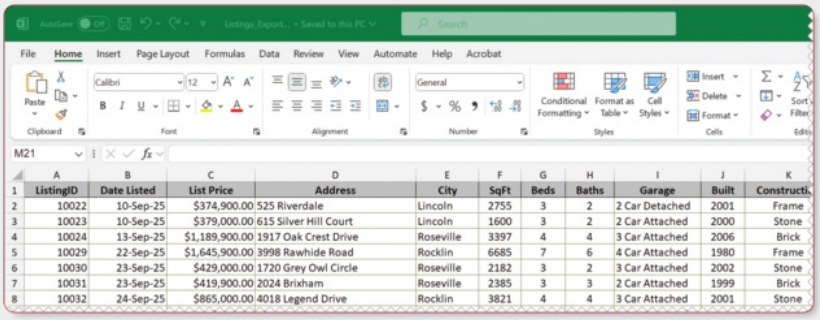
e. Check the **Export data with formatting and layout** box.

f. Click **OK** to export the file. The wizard displays the *Save Export Steps* screen.

g. Click the **Close** button; you do not need to save the export steps.

5. Review the exported file.

a. Open the ***[your initials] Listings_Export*** Excel spreadsheet that you just created. It should be similar to Figure 8-70.



	A	B	C	D	E	F	G	H	I	J	K
1	ListingID	Date Listed	List Price	Address	City	SqFt	Beds	Baths	Garage	Built	Constructi
2	10022	10-Sep-25	$374,900.00	525 Riverdale	Lincoln	2755	3	2	2 Car Detached	2001	Frame
3	10023	10-Sep-25	$379,000.00	615 Silver Hill Court	Lincoln	1600	3	2	2 Car Attached	2000	Stone
4	10024	13-Sep-25	$1,189,900.00	1917 Oak Crest Drive	Roseville	3397	4	4	3 Car Attached	2006	Brick
5	10029	22-Sep-25	$1,645,900.00	3998 Rawhide Road	Rocklin	6685	7	6	4 Car Attached	1980	Frame
6	10030	23-Sep-25	$429,000.00	1720 Grey Owl Circle	Roseville	2182	3	2	3 Car Attached	2002	Stone
7	10031	23-Sep-25	$419,900.00	2024 Brixham	Roseville	2385	3	3	2 Car Attached	1999	Brick
8	10032	24-Sep-25	$865,000.00	4018 Legend Drive	Rocklin	3821	4	4	3 Car Attached	2001	Stone

FIGURE 8-70 ***Listings*** **table exported to Excel**

b. Close Excel.

6. Export the *AvgListPriceAndListingCountByAgent* query to a delimited text file.

a. Right-click the ***AvgListPriceAndListingCountByAgent*** query in the *Navigation Pane* to open the context menu, select **Export**, and then select **Text File**.

b. Click the **Browse** button to launch the *File Save* dialog box.

c. Locate the folder where you want to save the file and edit the file name to [your initials] AvgListPriceAndListingCountByAgent_Export.csv. Note that the *Save as type* box displays *Text Files (*.txt;*.csv;*.tab;*.asc)* because your CSV file is a delimited type of text document. Click the **Save** button. The *File Save* dialog box closes.

d. Click **OK**. The *Export Text Wizard* launches.

e. Select the **Delimited** radio button if it is not already selected.

f. Click the **Next** button to advance to the next page of the wizard.

g. Select the **Comma** radio button if it is not already selected.

h. Check the **Include Field Names on First Row** box.

i. Click the **Text Qualifier** box drop-down arrow and select **{none}**. The completed *Export Text Wizard* screen should look like the example in Figure 8-71.

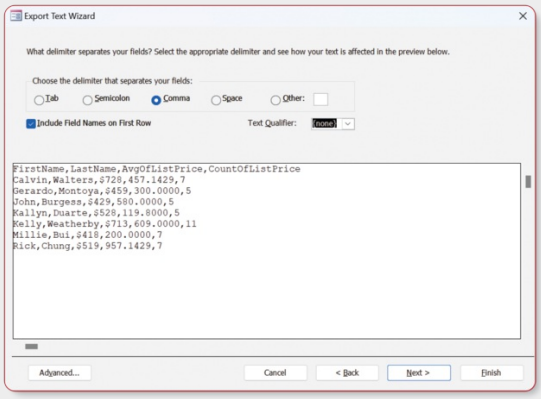


FIGURE 8-71 Choose the delimiter to use in the file

j. Click **Next**. Access confirms the name and location of the file to create.

k. Click **Finish**. The wizard displays the *Save Export Steps* screen.

l. Click the **Close** button; you do not need to save the export steps.

7. Review the exported file.

a. Right-click the ***[your initials] AvgListPrice AndListingCountByAgent_Export.csv*** file in File Explorer, select **Open with**, and then select **Notepad**. The *File name extensions* (.csv in this case) may not display in the *File Open* dialog box depending on the *Windows File Explorer* settings on your computer. The *File Open* dialog box closes.

b. The file should look similar to **Figure 8-72**.

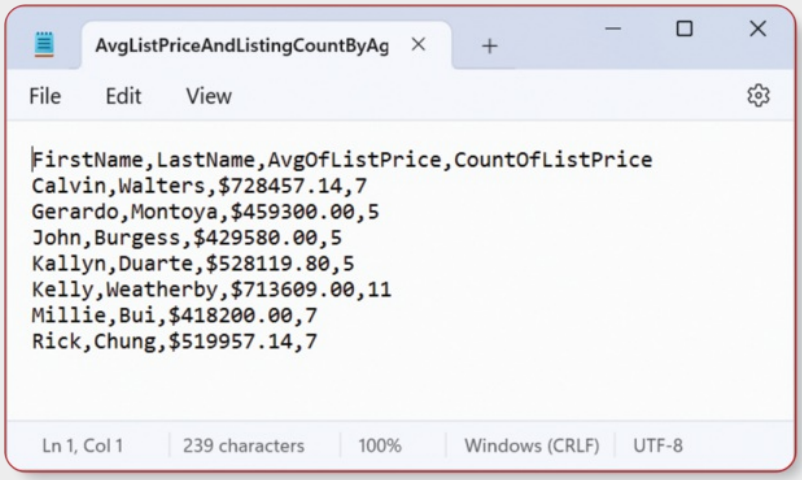


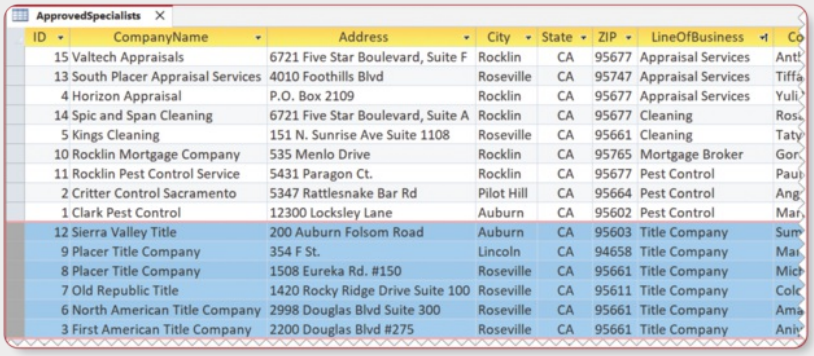
FIGURE 8-72 *AvgListPriceAndListingCountByAgent* query exported to a CSV delimited text file

c. Close Notepad.

8. Export selected records from the *ApprovedSpecialists* table to Word.

a. Open the *ApprovedSpecialists* table in *Datasheet* view.

b. *Sort* or *Filter* the records on the *LineOfBusiness* field so that the *Title Company* records are adjacent to each other. Select the six *Title Company* records (**Figure 8-73**).



ApprovedSpecialists

ID	CompanyName	Address	City	State	ZIP	LineOfBusiness	Co
15	Valtech Appraisals	6721 Five Star Boulevard, Suite F	Rocklin	CA	95677	Appraisal Services	Antl
13	South Placer Appraisal Services	4010 Foothills Blvd	Roseville	CA	95747	Appraisal Services	Tiffa
4	Horizon Appraisal	P.O. Box 2109	Rocklin	CA	95677	Appraisal Services	Yuli
14	Spic and Span Cleaning	6721 Five Star Boulevard, Suite A	Rocklin	CA	95677	Cleaning	Ros
5	Kings Cleaning	151 N. Sunrise Ave Suite 1108	Roseville	CA	95661	Cleaning	Taty
10	Rocklin Mortgage Company	535 Menlo Drive	Rocklin	CA	95765	Mortgage Broker	Gor
11	Rocklin Pest Control Service	5431 Paragon Ct.	Rocklin	CA	95677	Pest Control	Paul
2	Critter Control Sacramento	5347 Rattlesnake Bar Rd	Pilot Hill	CA	95664	Pest Control	Ang
1	Clark Pest Control	12300 Locksley Lane	Auburn	CA	95602	Pest Control	Mar
12	Sierra Valley Title	200 Auburn Folsom Road	Auburn	CA	95603	Title Company	Sum
9	Placer Title Company	354 F St.	Lincoln	CA	94658	Title Company	Mai
8	Placer Title Company	1508 Eureka Rd. #150	Roseville	CA	95661	Title Company	Mich
7	Old Republic Title	1420 Rocky Ridge Drive Suite 100	Roseville	CA	95611	Title Company	Colc
6	North American Title Company	2998 Douglas Blvd Suite 300	Roseville	CA	95661	Title Company	Ama
3	First American Title Company	2200 Douglas Blvd #275	Roseville	CA	95661	Title Company	Ani

FIGURE 8-73 Select the *Title Company* records

Click the **More** button [*External Data* tab, *Export* group] and select the **Word** option. The *Export – RTF File* dialog box launches.

c. Click the **Browse** button to launch the *File Save* dialog box.

d. Locate the folder where you want to save the file, edit the file name to be [your initials] Title_Company_Approved_Specialists_Export.rtf, and then click the **Save** button. The *File Save* dialog box closes.

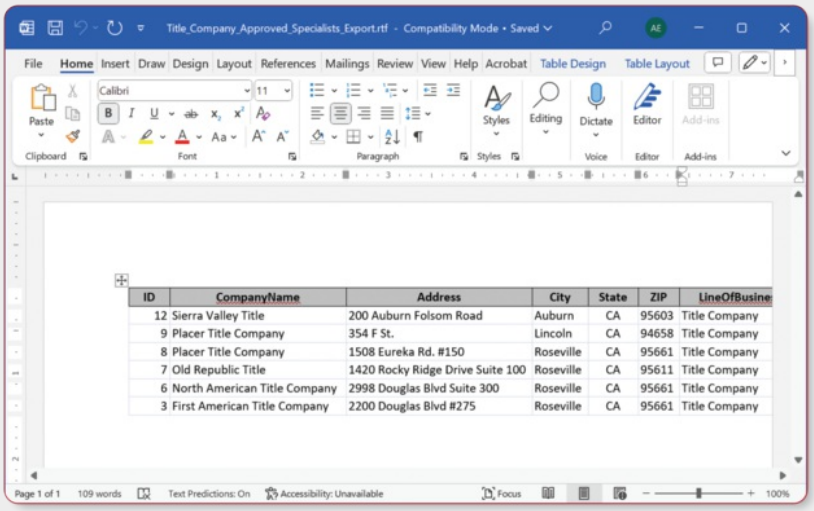
e. Check the **Export only the selected records** box.

f. Click **OK** to export the file.

g. Close the Access table. Do not save any changes to the table.

9. Review the exported file.

a. Open the ***[your initials] Title_Company_Approved_Specialists_Export.rtf*** file in Word. The file should look similar to **Figure 8-74**.



Title_Company_Approved_Specialists_Export.rtf - Compatibility Mode • Saved

ID	CompanyName	Address	City	State	ZIP	LineOfBusine
12	Sierra Valley Title	200 Auburn Folsom Road	Auburn	CA	95603	Title Company
9	Placer Title Company	354 F St.	Lincoln	CA	94658	Title Company
8	Placer Title Company	1508 Eureka Rd. #150	Roseville	CA	95661	Title Company
7	Old Republic Title	1420 Rocky Ridge Drive Suite 100	Roseville	CA	95611	Title Company
6	North American Title Company	2998 Douglas Blvd Suite 300	Roseville	CA	95661	Title Company
3	First American Title Company	2200 Douglas Blvd #275	Roseville	CA	95661	Title Company

FIGURE 8-74 Selected records from the *ApprovedSpecialists* table

exported to Word



b. Close Word. You don't need to make any formatting adjustments at this point.

10. Close Access.

SLO 8.6

Working with XML

Extensible Markup Language (XML) is an industry standard markup language used to describe, store, and transfer data. XML is one of the most common formats used to transfer data between different programs or applications; it is especially important when working with data that will be processed or displayed on the web. XML files can be opened and view in browsers, text editors like Notepad, and special purpose XML editors. Edit an XML file in a text editor or special purpose XML editor. In this section, you gain a basic understanding of XML and learn how to import XML data into Access and how to export data from Access into an XML format.

Understand XML

Extensible Markup Language (XML) is one of several markup languages. In the last section, you were introduced to HTML, the markup language used to build web pages. Like other markup languages, XML uses tags to define the structure of the data. However, XML does not use predefined tags, such as *title, p,* or *table,* which exist in other markup languages. In XML, you create the tags you need to describe the data. Those tags usually incorporate the table and field names from your database. **Figure 8-75** is an example of an XML file viewed in Notepad.

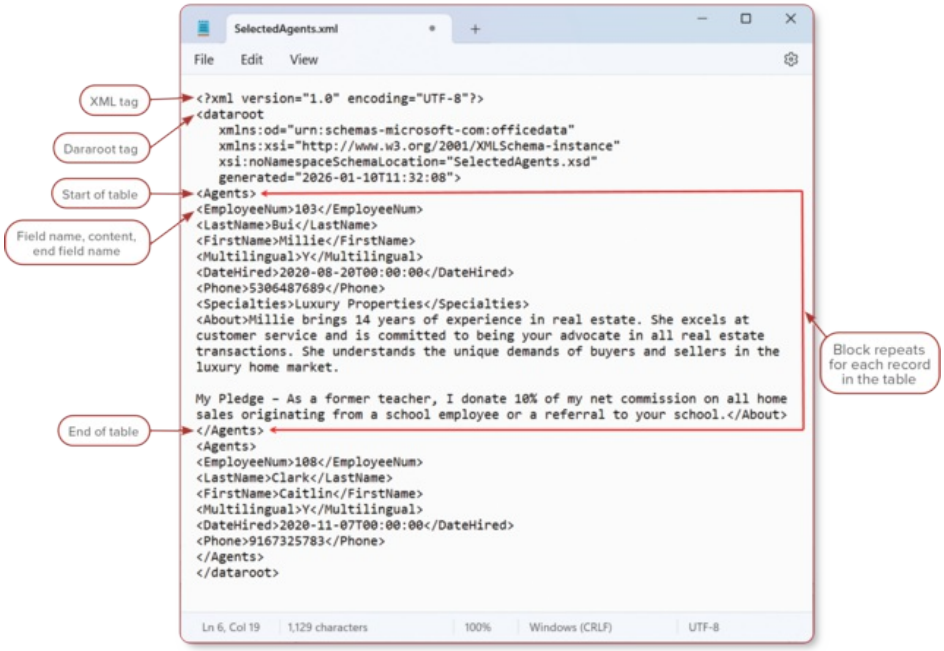


FIGURE 8-75 Example XML code

The first row in the figure contains the XML tag, which tells the program what version of XML is being used. The dataroot tag, sometimes called the root tag, appears second. This tag contains technical details about the schema, or structure of the database. The remaining tags specify the table name, as well as the field name and contents. A table name block exists for each record in the table and each table name block contains the data for the fields of that record. In XML the data is identified by a field name tag, the contents, and an end field name tag. This repeats for each field of the record. If a particular field does not contain any data in a record, the XML file does not include that field. For example, in **Figure 8-75** note that the second employee does not have field name tags and content for the *Specialties* and *About* fields. Many XML files are created using an export process from an application, although XML files can also be created in a text editor, such as Notepad. XML files typically have an extension of ***.xml***.

Often, a separate ***XML Schema Definition*** file exists along with an XML file. A ***schema*** describes the structure of the database by specifying the complete property details of the table and field definitions, such as field sizes, data types, etc. You don't need to learn how to create this file because it usually has been created for you. The schema file has an extension of ***.xsd***.

MORE INFO

The combination of the .xml and the .xsd files makes XML a powerful data transfer tool. The detailed structure, as well as the data, provides increased consistency and data integrity, and saves time by providing a more seamless data transfer process.

MORE INFO

When viewing a list of files in a *File Explorer* window, an .xml file may display with the Microsoft Edge HTML icon. This indicates that Microsoft Edge is the default application for XML files on your computer. As desired, you can change the default program to a text editor (like Notepad) or simply choose to open the file with Notepad when necessary. Review "*Customize File Explorer*" in **SLO Intro.8** for additional information on viewing files and customizing file properties in *File Explorer*.

Import XML Data

You can import an XML data file to either append records to an existing table or to create a new table. The original XML file is not changed in any way during the process. If changes are made to the XML file after the import process is completed, the changes do not automatically carry

forward into the Access database. If an XSD file does not exist, Access creates the table using default field characteristics the same way it does when importing Excel and text files.

HOW TO: Import an XML File

1. Click the **New Data Source** button [*External Data* tab, *Import & Link* group], select **From File**, and then select **XML File**. (Figure 8-76). The *Get External Data – XML File* dialog box launches (Figure 8-77).

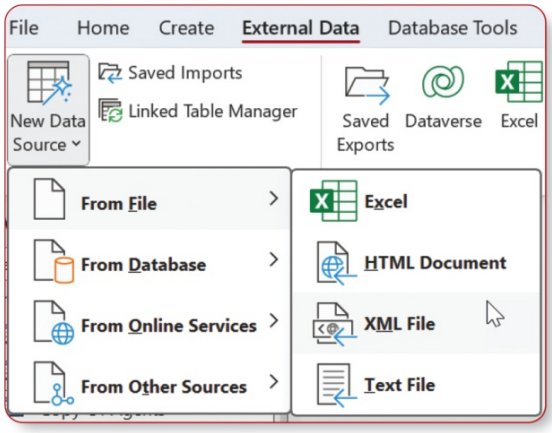


FIGURE 8-76 ***XML File*** **option**

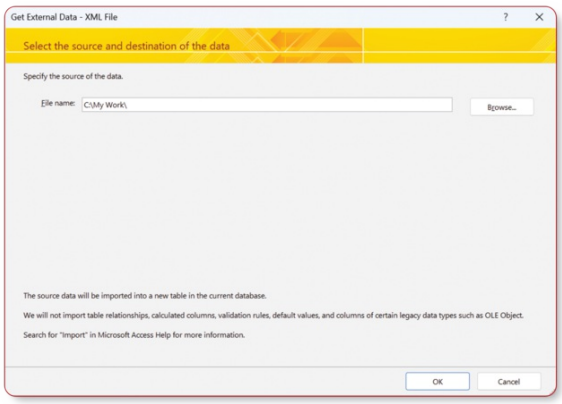


FIGURE 8-77 ***Get External Data – XML*** **File dialog box**

2. Click the **Browse** button to launch the *File Open* dialog box.
3. Locate and select the XML file that contains the records you want to import and click the **Open** button. The *File Open* dialog box closes.
4. Click **OK** to start the import process. The *Import XML* dialog box opens (Figure 8-78).

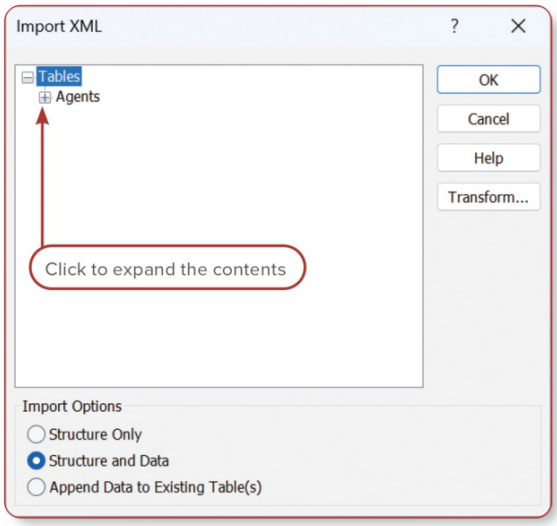


FIGURE 8-78 Import XML dialog box

5. Below the *Tables* item, click the **plus sign** to the left of the table name to display the fields in the table (Figure 8-79).

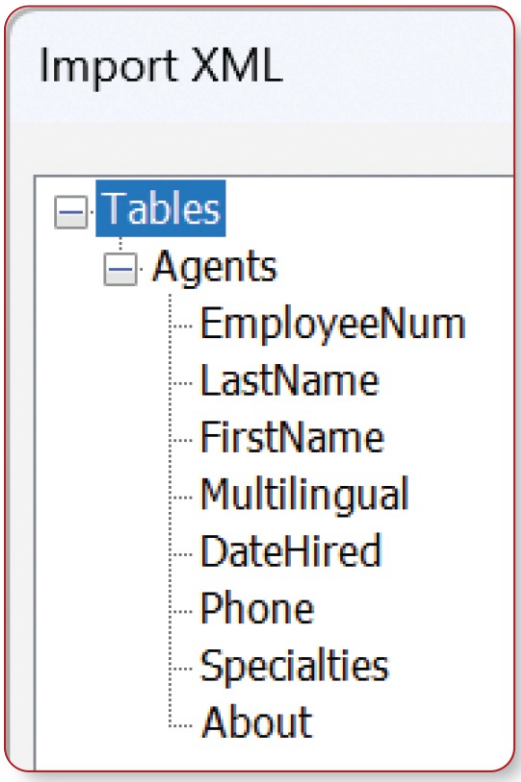


FIGURE 8-79 Fields within the table

6. Select the desired radio button in the *Import Options* area.

- To create a new table without adding any data, select the **Structure Only** radio button.
- To create a new table and add data, select the **Structure and Data** radio button.
- To append to an existing table, select the **Append Data to Existing Table(s)** radio button.

7. Click **OK** to import the file.
8. Click the **Close** button to complete the wizard without saving the import steps.
   - If any errors occur during the import process, Access displays a message box with information about the error.
   - Depending on the error, Access may not have created the new table or created the table but did not import all of the fields and/or records.
   - If no errors occur, Access creates the table, and it is added into the *Navigation Pane*.

A8-663

As you learned with other import processes, it is a good idea to open the table in *Datasheet* view to ensure that the import process worked as you intended. Additionally, you may need to use *Design* view to modify the field or table properties to complete the table and to create any needed relationships between the table and any associated tables.

Export XML Data

Because XML is an industry standard, you may choose to transfer, or export, data from your Access database using an XML format. While you can choose to export a form or report, in XML the most common choice is either a table or query. Additionally, you can export a selected record by starting the export from within an open table as desired. When you export to XML, a copy of the data is created and saved using the XML format. If you choose to export the schema, an XSD file is also created.

A8-664

HOW TO: Export a Table to an XML File

1. Select the table you want to export in the *Navigation Pane*.
2. Click the **More** button [*External Data* tab, *Export* group] and select the **XML File** option (Figure 8-80). The *Export – XML File* dialog box launches (Figure 8-81).

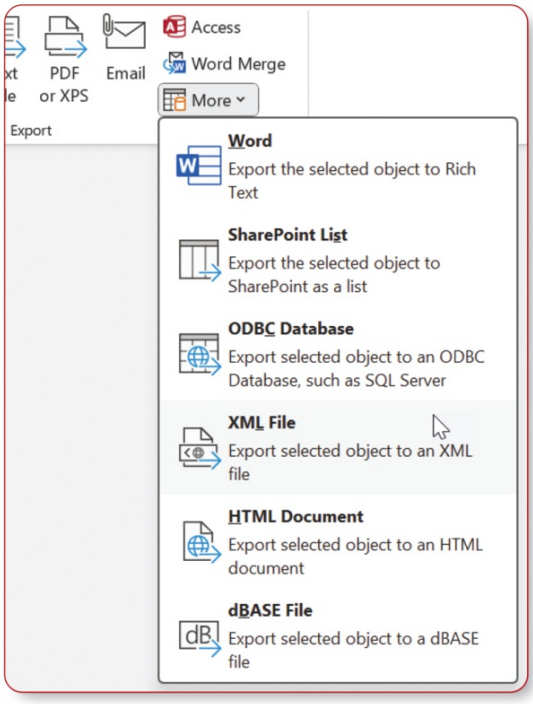


FIGURE 8-80 Select the *XML File* option

Figure 8-80 Select the *XML File* option

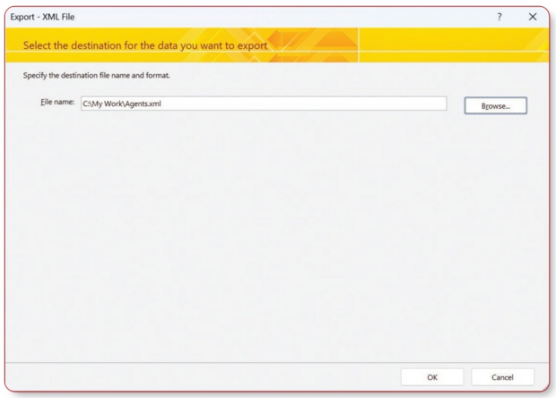


FIGURE 8-81 *Export – XML File* dialog box

ANOTHER WAY

Right-click the table in the *Navigation Pane* to open the context menu, select **Export**, and then select **XML File**.

3. Click the **Browse** button to launch the *File Save* dialog box.

4. Locate the folder where you want to save the file, modify the *File Name* as desired, and then click the **Save** button. The *File Save* dialog box closes.

MORE INFO

Access assigns a default file name that combines the table name with a .xml extension.

5. Click **OK** to start the export process. The *Export XML* dialog box opens (Figure 8-82).

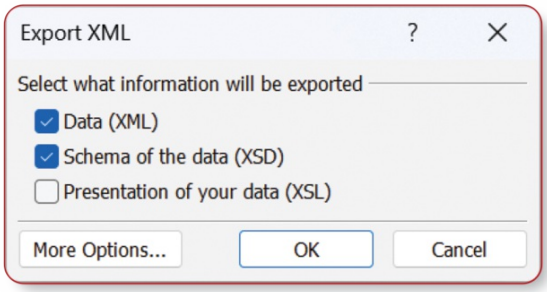


FIGURE 8-82 ***Export XML*** **dialog box**

6. Check the desired boxes in the dialog box.
   - To export the table and field names, and the data, check the **Data (XML)** box.
   - To export the properties of the fields and table, check the **Schema of the data (XSD)** box.
   - To export the formatting details of the fields and table, check the **Presentation of your data (XSL)** box.
7. Click the **More Options** button to open a more detailed *Export XML* dialog box (Figure 8-83). This enables you to select more advanced XML settings.

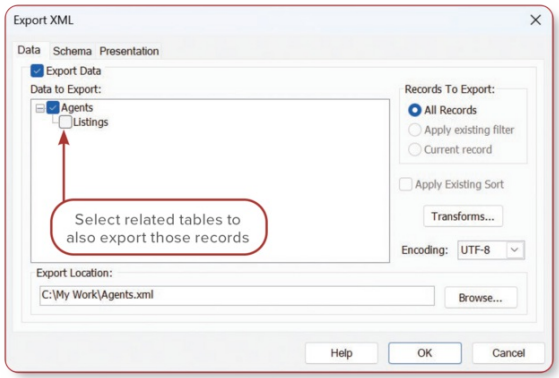


FIGURE 8-83 ***Data*** **tab in the** ***Export XML*** **dialog box**

- On the *Data* tab, select the **All Records** or **Current record** radio buttons. The *Current record* radio button is only available if you started the export from an open table.
- If the table has related records in another table, select the additional tables to also export the related data.
- On the *Schema* tab (**Figure 8-84**), select the details you want to include in the schema. You can also choose to embed the schema in the XML document instead of creating a separate file.

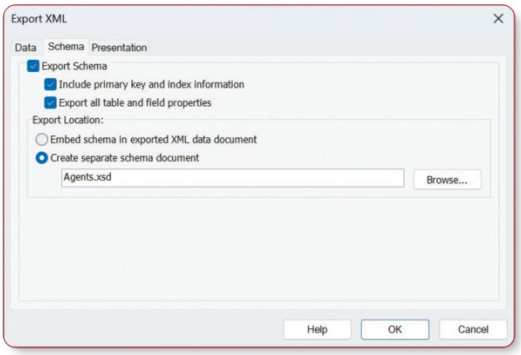


FIGURE 8-84 ***Schema*** **tab in the** ***Export XML*** **dialog box**

8. Click **OK** to export the file. The wizard displays the *Save Export Steps* screen.
9. Check the **Save export steps** box as desired. Enter a file name and description and click the **Save Export** button. The wizard completes and closes.
10. Click the **Close** button, if you did not check the *Save export steps* box in step 9, to complete the wizard.

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A8-666

PAUSE & PRACTICE: ACCESS 8-4

In this Pause & Practice project, you import an XML file to create a *CustomerLeads* table in the Placer Hills Real Estate database. The data source contains both the structure and the data.

Files Needed: ***[your initials] PP A8-3.accdb***, ***CustomerLeads-08.xml***, and ***CustomerLeads-08.xsd*** (CustomerLeads-08.zip) *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Name: ***[your initials] PP A8-4.accdb***

1. Open the ***[your initials] PP A8-3*** database you created in *Pause & Practice 8-3*.
2. Save a new copy of your database as [your initials] PP A8-4.
3. Enable content in the database.
4. Import the XML file.
   a. Click the **New Data Source** button [*External Data* tab, *Import & Link* group], select **From File**, and then select **XML File**. The *Get External Data – XML File* dialog box launches.
   b. Click the **Browse** button to launch the *File Open* dialog box.
   c. Locate and select the ***CustomerLeads-08.xml*** file that contains the records you want to import. Don't worry if your XML file displays with a Microsoft Edge HTML icon.

> **MORE INFO**
>
> Be sure that both the *CustomerLeads-08.xml* and *CustomerLeads-08.xsd* files are in the same folder.

   d. Click the **Open** button. The *File Open* dialog box closes.
   e. Click **OK** to start the import process. The *Import XML* dialog box opens.
   f. Click the **plus sign** to the left of the *CustomerLeads* table to display the fields in the table (**Figure 8-85**).

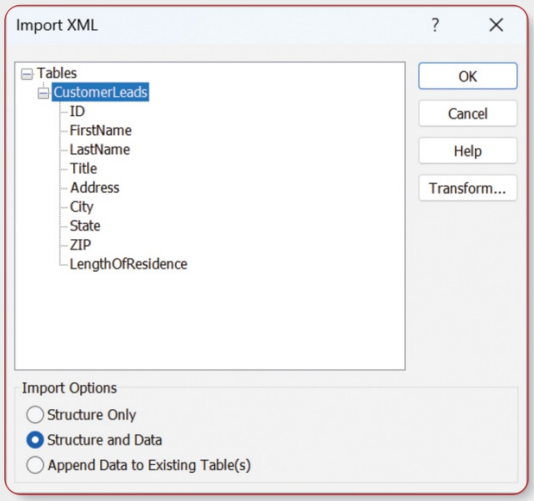
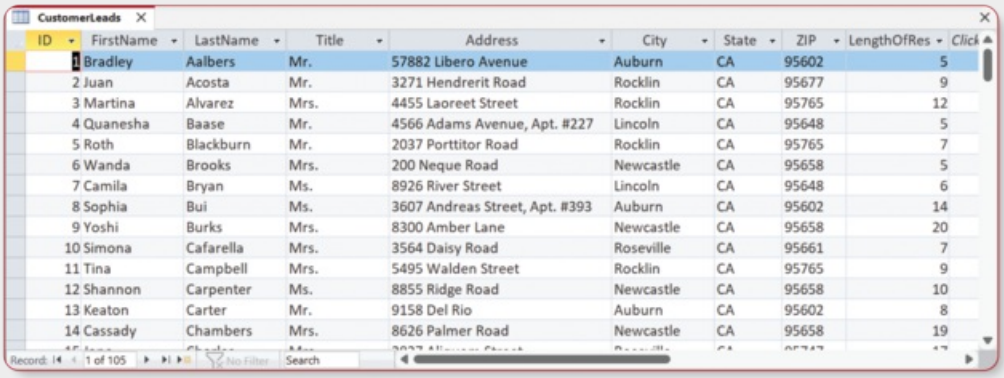


FIGURE 8-85 ***Import XML*** **dialog box**

   g. Select the **Structure and Data** radio button in the *Import Options* area, if not already selected, to create a new table using the details in the schema file.
   h. Click **OK** to import the file.
   i. Click the **Close** button to complete the wizard without saving the import steps. Access creates the table,

and it is added into the *Navigation Pane*.

5. Open the *CustomerLeads* table in *Datasheet* view to verify that the data matches Figure 8-86 and that all 105 records were imported into the table.



CustomerLeads

ID	FirstName	LastName	Title	Address	City	State	ZIP	LengthOfRes	Click
1	Bradley	Aalbers	Mr.	57882 Libero Avenue	Auburn	CA	95602	5	
2	Juan	Acosta	Mr.	3271 Hendrerit Road	Rocklin	CA	95677	9	
3	Martina	Alvarez	Mrs.	4455 Laoreet Street	Rocklin	CA	95765	12	
4	Quanesha	Baase	Mr.	4566 Adams Avenue, Apt. #227	Lincoln	CA	95648	5	
5	Roth	Blackburn	Mr.	2037 Porttitor Road	Rocklin	CA	95765	7	
6	Wanda	Brooks	Mrs.	200 Neque Road	Newcastle	CA	95658	5	
7	Camila	Bryan	Ms.	8926 River Street	Lincoln	CA	95648	6	
8	Sophia	Bui	Ms.	3607 Andreas Street, Apt. #393	Auburn	CA	95602	14	
9	Yoshi	Burks	Mrs.	8300 Amber Lane	Newcastle	CA	95658	20	
10	Simona	Cafarella	Mrs.	3564 Daisy Road	Roseville	CA	95661	7	
11	Tina	Campbell	Mrs.	5495 Walden Street	Rocklin	CA	95765	9	
12	Shannon	Carpenter	Ms.	8855 Ridge Road	Newcastle	CA	95658	10	
13	Keaton	Carter	Mr.	9158 Del Rio	Auburn	CA	95602	8	
14	Cassady	Chambers	Mrs.	8626 Palmer Road	Newcastle	CA	95658	19	

Record: 1 of 105 Search

FIGURE 8-86 ***Datasheet* view of the *CustomerLeads* table**

6. View the properties of the table fields.
   a. Switch to *Design* view of the table. Note that the *ID* field is an *AutoNumber* data type and is set as the primary key.
   b. Select each of the remaining fields to review the properties of that field. They should already be set to the specifications in Table 8-2.

Table 8-2

Field Name	Field Size	Required	Default Value
FirstName	20	Yes	
LastName	20	Yes	
Title	4	No	
Address	40	Yes	
City	20	Yes	
State	2	Yes	"CA"
ZIP	5	Yes	
LengthOfResidence	Byte	No	

MORE INFO

Note that using the XML and XSD files prevents you from having to modify the field properties in the new table, which saves time. Recall that in *Pause & Practice 8-1* you needed to modify all the properties after the table was imported from Excel.

7. Close the table and close the database.

SLO 8.7

Working with Mail Merge

Mail Merge enables you to merge documents, such as form letters, labels, or envelopes, with data sources from your Access databases. Merges can be very simple; for example, create a list of mailing labels from a customer table. Or they can be more complex; for example, a real estate company merges address and rental history information to create a promotional offer for customers. The most common merges are used to create letters, labels, and envelopes.

In this section, you learn to use the ***Microsoft Word Mail Merge Wizard*** to export data from Access into letters and labels in Word.

MORE INFO

Use the Word Help system for a complete review of using *Mail Merge* in Word.

Mail Merge Basics

In Access, you must first select the table or query, the ***data source***, prior to starting the *Microsoft Word Mail Merge Wizard.*

After selecting the data source, begin the mail merge process by clicking the **Word Merge** button in the *Export* group [*External Data* tab] (**Figure 8-87**).

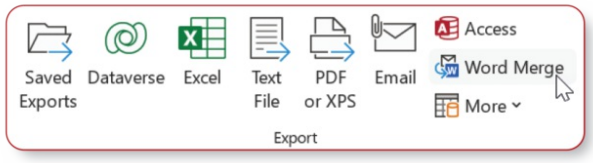


FIGURE 8-87 ***Word Merge*** **button**

ANOTHER WAY

The mail merge process can be initiated from within Word by clicking the **Start Mail Merge** button [*Mailings* tab, *Start Mail Merge* group].

When you initiate a mail merge, Access opens the *Microsoft Word Mail Merge Wizard.* The wizard opens Microsoft Word and walks you through the following six main steps that you must complete:

Step 1: Select document type.

Step 2: Select starting document.

Step 3: Select recipients.

Step 4: Arrange your document. (Note that the name of this step varies depending on the type of document you are merging and whether you are using an existing or new document.)

Step 5: Preview your document.

Step 6: Complete the merge.

After starting a mail merge, you are first prompted to indicate whether you will use an existing document or create a new document (**Figure 8-88**). If you create a new document, you start at step 1 and must choose the type of document. The options are *Letters, E-mail messages, Envelopes, Labels,* and *Directory.* The *Letters* type encompasses a variety of documents such as reports, memos, and forms, as well as letters.

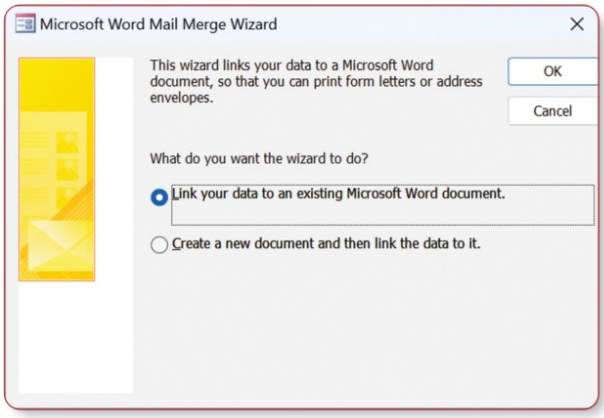


FIGURE 8-88 ***Microsoft Word Mail Merge Wizard***

A8-668

A8-669

A8-670

A8-671

The starting document is often called the ***main document***. You merge this main document with recipient information from a table or query in your database. If you choose to use an existing document in the mail merge, you start at step 3 and select the recipients.

During the merge process, select the specific fields from the data source to include in the

document. These specific fields are called ***merge fields***. In a Word document, merge fields are surrounded by double angle brackets (**<< >>**). In addition to being able to add individual fields from the data source, you can select from two predefined merge fields—an ***address block*** and a ***greeting line***. The predefined merge fields may save you time from having to individually add several fields into your document.

When the wizard opens Word, a *Mail Merge* pane displays on the right side of the Word window. The *Mail Merge* pane lists the steps of the wizard that are required to complete the merge.

Create a Mail Merge Letter

One of the most common mail merges involves merging data from a table or query with a letter. This enables you to easily create customized letters to send to employees or customers. While you can create a new Word document during the merge process, the examples in this section use an existing document.

When merging with an existing document, the first two steps in the mail merge are completed prior to the *Mail Merge* pane opening.

HOW TO: Create a Mail Merge Letter Using an Existing Word Document

1. Select the table or query in the *Navigation Pane*.
2. Click the **Word Merge** button [*External Data* tab, *Export* group] to launch the *Microsoft Word Mail Merge Wizard*.
3. Select the **Link your data to an existing Microsoft Word document** radio button and click **OK**. The *Select Microsoft Word Document* dialog box opens.
4. Locate and select the **Word file** that contains the document you want to merge and click the **Open** button.
   - The *Select Microsoft Word Document* dialog box closes.
   - The document opens in Word. If necessary, click the **Windows Taskbar** to switch to the Word document.
   - The *Mail Merge* pane opens on the right side of the document (**Figure 8-89**).

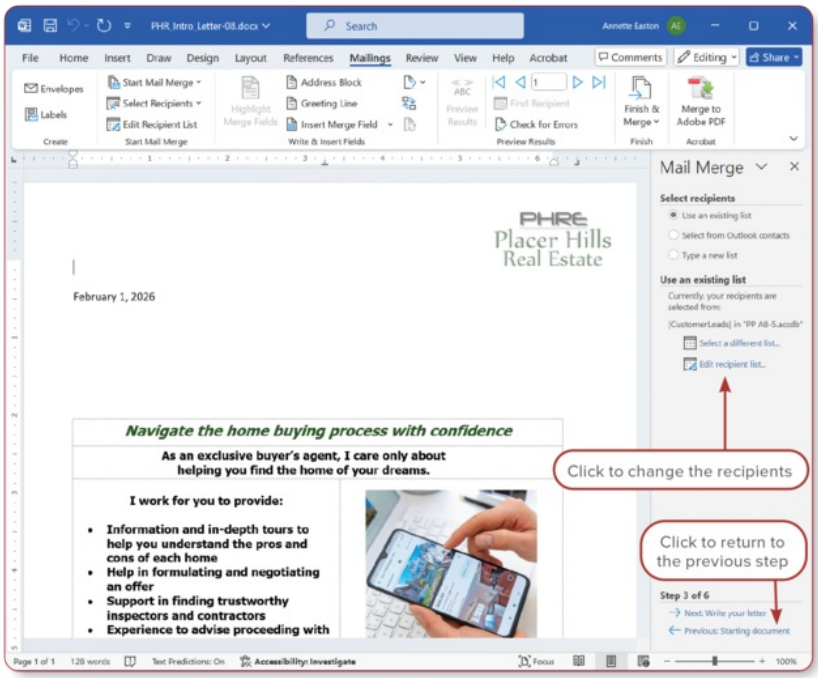


FIGURE 8-89 ***Mail Merge*** **pane in Word**

Photo Source: Yuen Man Cheung/Alamy Stock Photo/McGraw Hill

- Because you are using an existing document, you begin on *Step 3 of 6.*
- The *Use an existing list* radio button in the *Select recipients* area is selected and the *Use an existing list* area shows the current data source.

MORE INFO

At any point in the wizard, click the **Previous** link to return to the previous step.

5. Click **Edit recipient list**, as desired, to select only certain records in the data source. The *Mail Merge Recipients* dialog box (**Figure 8-90**) opens.

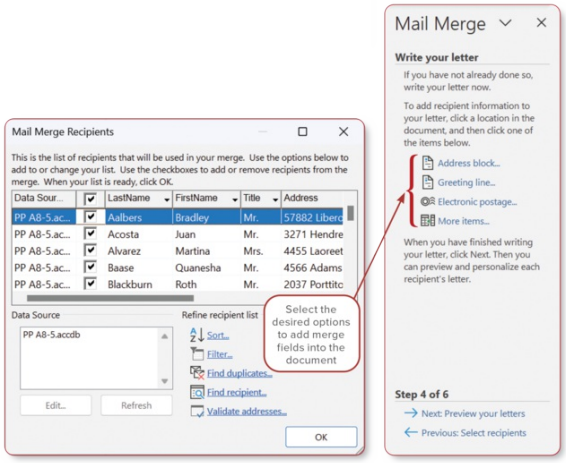


FIGURE 8-90 **Edit the mail merge recipients**

FIGURE 8-91 ***Mail Merge Wizard*, Step 4**

- Select the recipients to be included in the merge, sort by a field in the data source, or filter the data source by specific criteria.
- Increase the size of the dialog box as desired.
- Increase the width of the columns as desired.
- Click **OK** to close the *Mail Merge Recipients* dialog box when you have finished editing the recipient list.

6. Click the **Next: Write your letter** link to move to *Step 4 of 6.* The *Mail Merge* pane updates (Figure 8-91).

MORE INFO

To more easily identify correct line placement in a document, click **Show/Hide** [*Home* tab, *Paragraph* group] to display paragraph marks and other formatting characters.

7. Click inside the Word document to position the insertion point where you want to insert the address block merge field and click the **Address block** link to insert the merge field into your main document. The *Insert Address Block* dialog box opens (Figure 8-92).

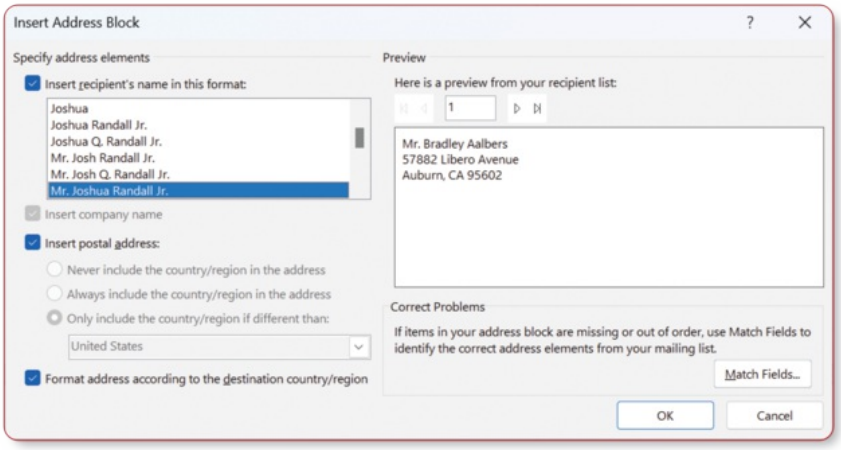


FIGURE 8-92 ***Insert Address Block*** **dialog box**

8. Select the format of the recipient's name in the *Specify address elements* area.
9. Click the **Match Fields** button if any values do not display correctly in the *Preview* area. The *Match Fields* dialog box opens (Figure 8-93).

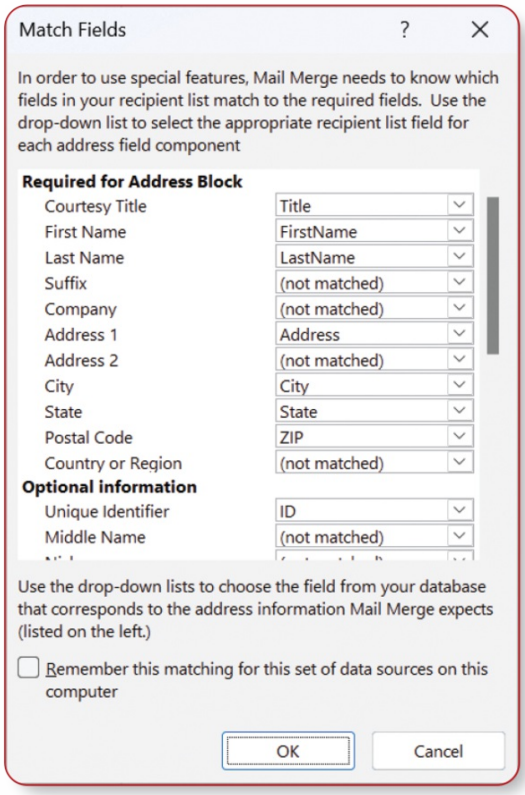


FIGURE 8-93 ***Match Fields*** **dialog box**

- Match the fields from your data source with the Word merge fields used in the address block.

- Not all of the fields have to be matched. Word ignores the fields that are not matched.
- Click **OK** to close the *Match Fields* dialog box.

10. Click **OK** to close the *Insert Address Block* dialog box. The *<<AddressBlock>>* merge field is inserted into the document.

ANOTHER WAY

To insert individual merge fields into the document instead of using the address block, click the **More items** link in the *Write your letter* area. The *Insert Merge Field* dialog box opens. Select one or more merge fields to add to the document. You can also click the **Insert Merge Field** button [*Mailings* tab, *Write & Insert Fields* group] and select the merge field to insert.

11. Click inside the Word document to position the insertion point where you want to insert the greeting line merge field and click the **Greeting line** link. The *Insert Greeting Line* dialog box opens.
12. Select the desired options in the *Insert Greeting Line* dialog box to specify how you want the greeting line to appear (**Figure 8-94**).

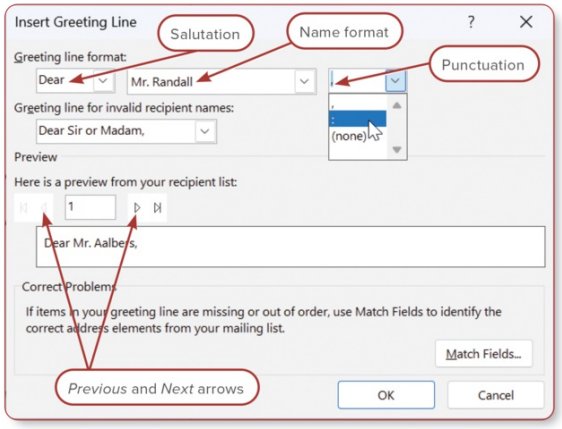


FIGURE 8-94 ***Insert Greeting Line*** **dialog box**

- In the *Greeting line format* area, select the salutation, name format, and punctuation. If writing a business letter, select a colon as punctuation for the greeting line.
- In the *Greeting line for invalid recipient names* area, specify a generic greeting to use if a recipient name has an invalid format.
- In the *Preview* area, click the **Next** or **Previous** arrow to preview the greeting line for each of your recipients.

13. Click **OK** to close the *Insert Greeting Line* dialog box. The *<<GreetingLine>>* merge field is inserted into the document (**Figure 8-95**).

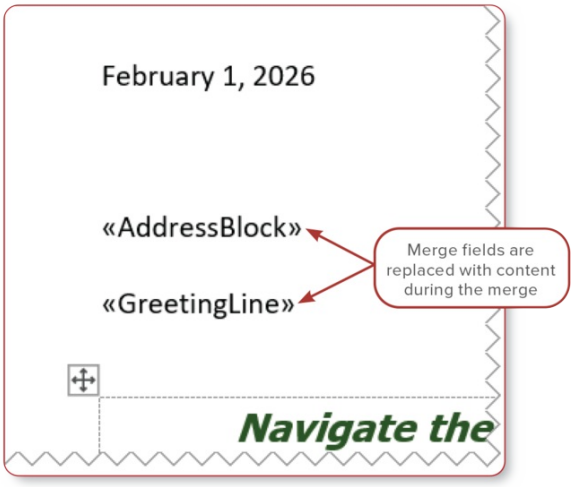


FIGURE 8-95 ***AddressBlock*** **and** ***GreetingLine*** **merge fields in the document**

14. Click the **Next: Preview your letters** link to move to *Step 5 of 6*.
    - The document updates to show how the merged data will appear (**Figure 8-96**).

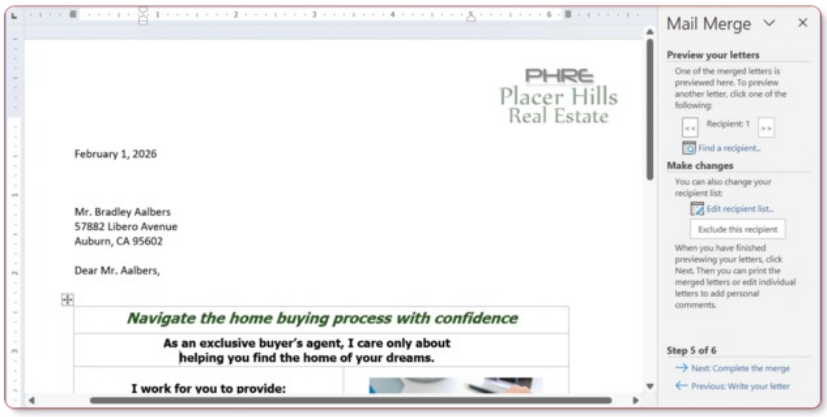


FIGURE 8-96 Preview of merged document

Photo Source: Yuen Man Cheung/Alamy Stock Photo

    - The *Mail Merge* pane updates.

15. Click the navigation arrows in the *Preview your letters* area to scroll through the letters and verify that the merge will work correctly. Make needed edits to spacing or formatting of the merge fields.
16. Click the **Next: Complete the merge** link to finish the merge. The *Mail Merge* pane updates to *Step 6 of 6*.

17. Select the desired link to complete the merge.
    - To send the merged document directly to the printer, select **Print**.
    - To edit individual letters, select **Edit individual letters**. The *Merge to New Document* dialog box opens (Figure 8-97). Select the desired radio button to choose which records to merge and click **OK**. Word opens a new document with the merge performed. This new document contains all of the merged letters. Print this document as desired. You can also save the completed merge document if you need to maintain a record of the merge being completed.

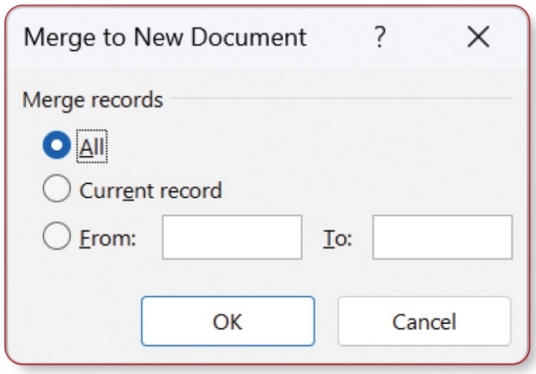


FIGURE 8-97 ***Merge to New Document*** **dialog box**

18. Save the main document, as desired, to easily create the merged letter in the future.
    - This saves all of the merge selections made during the wizard.
    - It is a good idea to include the word "Main" as part of the file name to easily recognize the main merge document.
    - To re-merge the letter, open the Word document and click **Finish & Merge** [*Mailings* tab, *Finish* group]. This is equivalent to starting at step 16 of this *How To*. Select **Edit Individual Documents**, **Print Documents**, or **Send Email Messages** from the list of merge choices.

When merging number and date fields from Access, the formatting may not transfer into the Word document. To format numbers in a merge field, change the field codes prior to completing the merge. To change the field codes, right-click a merge field and select **Toggle Field Codes**.

The code looks similar to *{ MERGEFIELD "FieldName" }*. Add characters to the field codes to change the formatting. Several common field code characters are described in **Table 8-3**.

Table 8-3: Field Code Formatting Characters

Character	Effects
\#	Informs the document that number formatting should be applied to the merge field.
$	Displays a dollar sign.
#	Specifies how many digits to display. The number of # symbols indicates how many digits display. If the data value contains fewer digits than the number of # symbols listed, a blank space displays for each extra # symbol.
,	Displays a comma.
.00	Displays a decimal point with two places.

Always add the codes after the field name and before the right brace. The following example illustrates the use of the field codes:

{ MERGEFIELD "AmountDue" \# $#,###.00 }

Based on these field codes, the results in the *AmountDue* merge field would be as follows:

- 900.12 would display as $ 900.12
- 1356.92 would display as $1,356.92

HOW TO: Format a Merge Field

1. Right-click the **<<FieldName>>** merge field to open the context menu and select **Toggle Field Codes**. The merge field display changes to *{ MERGEFIELD "FieldName" }*.
2. Enter the desired field code characters in the merge field.
3. Right-click the **<<FieldName>>** merge field to open the context menu and select **Toggle Field Codes** to return to the original view.

COPILOT/GENERATIVE AI BEST PRACTICES

Field formatting characters provide a powerful way to customize the display of your data. Ask *Copilot* for more information about the formatting characters you can use when doing a mail merge. As desired, use follow-up prompts to get more specific instructions about how to use the characters or for more examples. If the *Copilot* response did not include characters to use in formatting a *Date/Time* field, ask for specific examples for this type of formatting.

Create Mailing Labels

You can also use mail merge to create professional-looking mailing labels. The process to create mailing labels is very similar to creating a letter, but four primary differences exist between the two processes.

- You must select the label type and size that corresponds with the label sheets you have. **Figure 8-98** shows the *Label Options* dialog box used to make your selections. In addition to specifying printer information, select the label vendor and the specific label product number.

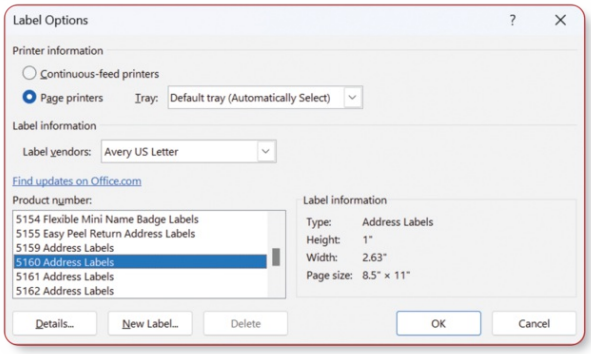


FIGURE 8-98 ***Label Options*** **dialog box**

MORE INFO

Avery 5160 is one of the most common types of address labels.

- When adding the fields into the label document, Word inserts the merge fields only in the first cell (label).
- You may need to adjust the default formatting of the labels. Adjust the left indent, line spacing, and *Before* and *After* paragraph spacing as desired. Remember that all formatting should be done in the first label.
- During *Step 4 of 6,* you must click the **Update all labels** button in the *Mail Merge* pane, so that Word copies the merge fields onto each label. With labels, Word automatically inserts a next record (<<*NextRecord*>>) merge field code. When the merge is performed, Word inserts the values from the table or query into each subsequent label until all records are inserted. **Figure 8-99** shows a label set using the <<*AddressBlock*>> merge field, while **Figure 8-100** shows a label set using individual merge fields.

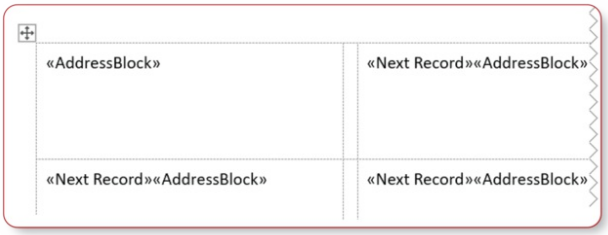


FIGURE 8-99 Updated labels with the *<<AddressBlock>>* merge field



FIGURE 8-100 Updated labels with the individual merge fields

MORE INFO54

In addition to standard mailing labels, use mail merge to create virtually any type of label, including name badges, product tags, or project folder labels.

While you can use an existing document to create mailing labels, in this section, you create a new Word document for the labels during the merge process. Remember that at any point in the wizard you can click the **Previous** link to return to the previous step.

HOW TO: Create Mail Merge Labels

1. Select the table or query in the *Navigation Pane*.
2. Click the **Word Merge** button [*External Data* tab, *Export* group] to launch the *Microsoft Word Mail Merge Wizard*.
3. Select the **Create a new document and then link the data to it** radio button and click **OK**.
   - Word opens with a new blank document.
   - The *Mail Merge* pane opens on the right side of the window (**Figure 8-101**).

The wizard starts at *Step 1 of 6* when creating a new document.

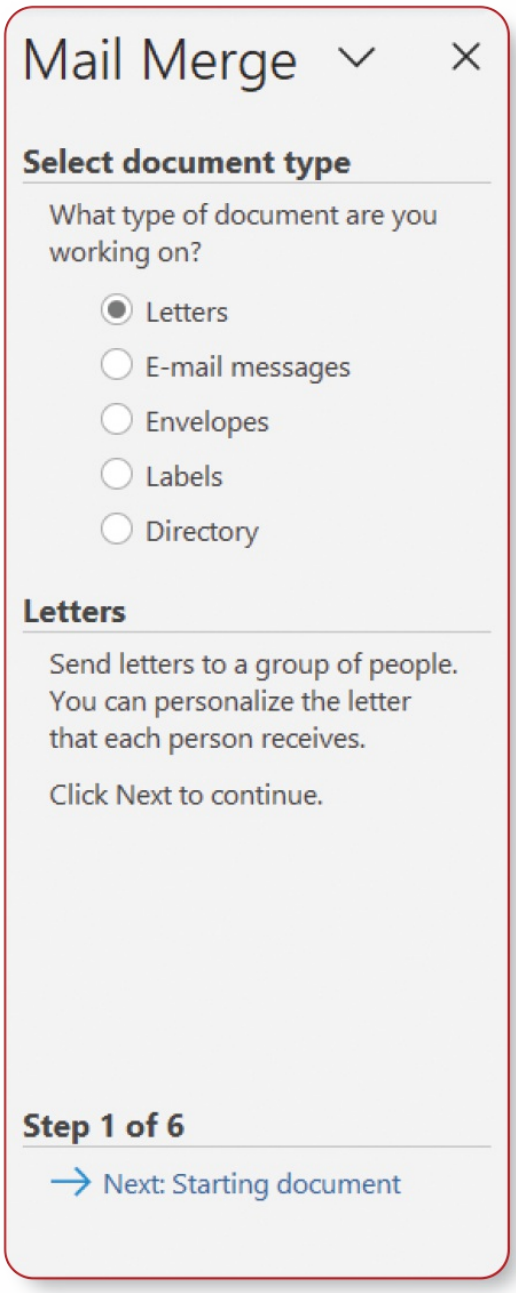


FIGURE 8-101 ***Mail Merge*** **pane displays Step 1 of the** ***Mail Merge Wizard***

4. Select the **Labels** radio button.
5. Click the **Next: Starting document** link to move to *Step 2 of 6*. The *Mail Merge* pane updates (**Figure 8-102**).

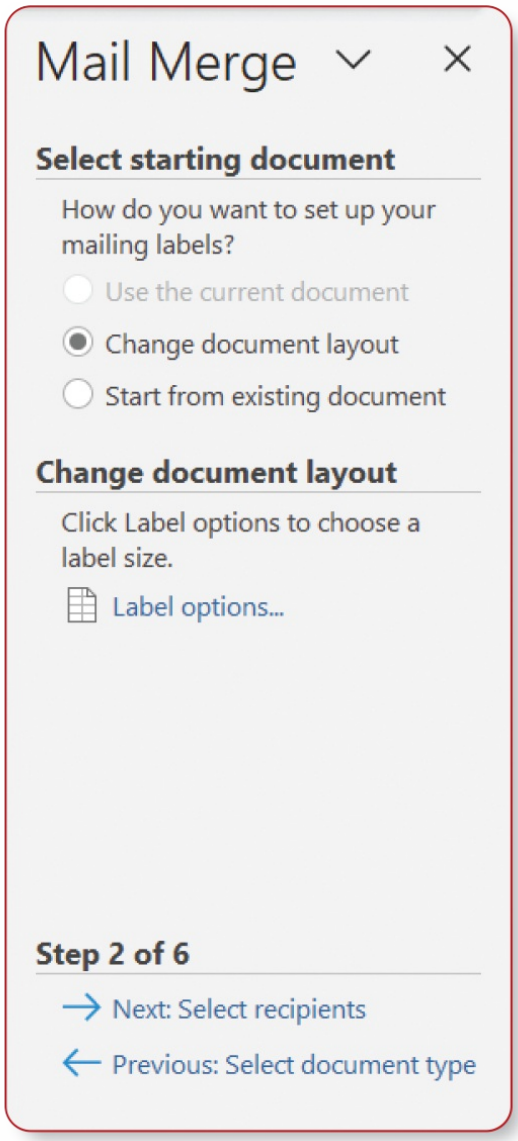


FIGURE 8-102 ***Mail Merge Wizard*, Step 2**

6. Select the **Change document layout** radio button in the *Select starting document* area, if it is not already selected.
7. Click the **Labels options** link in the *Change document layout* area. The *Labels Options* dialog box opens.
8. Select the desired vendor from the *Label vendors* drop-down list and choose the product number in the *Product number* list to match the specification of the label sheets you have.
9. Click **OK** to close the *Label Options* dialog box. The document updates with a preset table. The table cells represent the labels.

MORE INFO

To more easily see the labels, click **View Gridlines** [*Table Layout* tab, *Table* group] to show the gridlines around each label. Be sure to first select the table and then click the *Layout* contextual tab at the far right of the *Ribbon*.

10. Click the **Next: Select recipients** link to move to *Step 3 of 6*.
    - Because you selected the table or query in Access prior to starting the merge, the *Use an existing list* radio button in the *Select recipients* area is selected and the *Use an existing list* area shows the name of the current data source.
    - As desired, make changes to the data source by clicking the **Select a different list** or **Edit recipient list** links.
11. Click the **Next: Arrange your labels** link to move to *Step 4 of 6*. The *Mail Merge* pane updates (**Figure 8-103**).

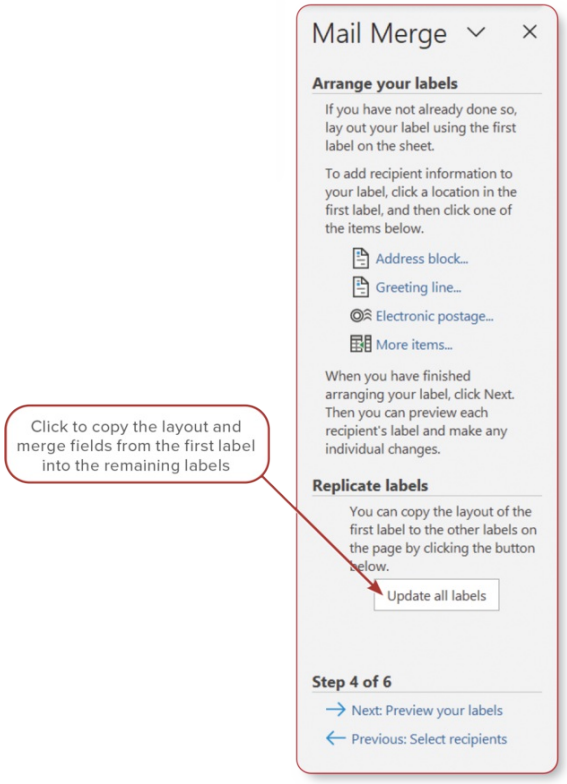


FIGURE 8-103 ***Mail Merge Wizard*, Step 4**

12. Click inside the Word document to position the insertion point in the first label and click the **Address block** link to insert the merge field into your main document. The *Insert Address Block* dialog box opens (**Figure 8-104**).

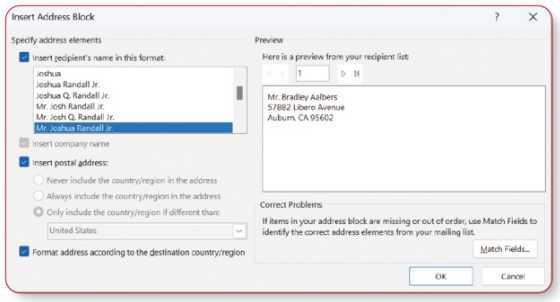


FIGURE 8-104 ***Insert Address Block*** **dialog box**

13. Select the format for the recipient's name in the *Specify address elements* area.
14. Click the **Match Fields** button if any values do not display correctly in the *Preview* area. The *Match Fields* dialog box opens.
    - Match the fields from your data source with the Word merge fields used in the address block.
    - Not all of the fields have to be matched. Word ignores the fields that are not matched.
    - Click **OK** to close the *Match Fields* dialog box.
15. Click **OK** to close the *Insert Address Block* dialog box. The *<<AddressBlock>>* merge field is inserted into the first label in the document. The *<<Next Record>>* merge field is inserted into the other labels in the document.

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A8-676

ANOTHER WAY

Insert individual merge fields into the label instead of the address block. Click the **More items** link in the *Arrange your labels* area of the *Mail Merge* pane to open the *Insert Merge Field* dialog box. Add one or more merge fields from the dialog box to the label. You can also click the **Insert Merge Field** button [*Mailings* tab, *Write & Insert Fields* group] and select the merge field to insert.

16. Click the **Update all labels** button in the *Replicate labels* area of the *Mail Merge* pane. The *<<AddressBlock>>* or individual field codes are inserted into each of the label cells in the document.
17. Click the **Next: Preview your labels** link to move to *Step 5 of 6.* The document

updates to show how the merged data appears in a label, and the *Mail Merge* pane updates (**Figure 8-105**).

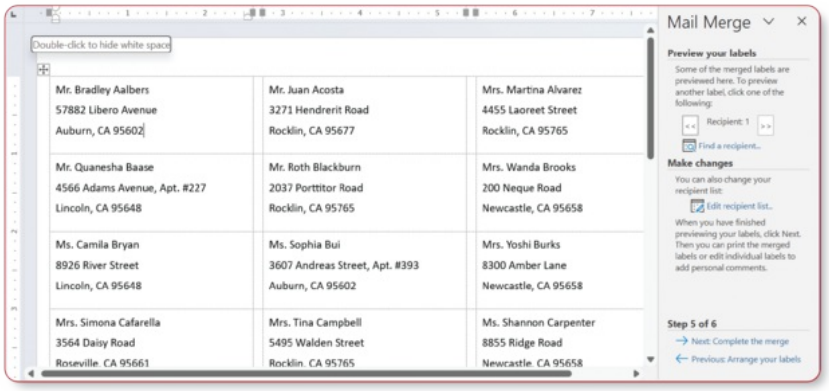


FIGURE 8-105 **Preview of merged labels**

18. Click the navigation arrows in the *Preview your labels* area to scroll through the labels and verify that the merge will work correctly. If necessary, use the formatting options in Word to adjust the label so that the contents display correctly. For example, you may need to adjust the line spacing between rows in the labels to enable the entire text to fit on a label.
    - Click the **Previous: Arrange your labels** link.
    - Select the **<<AddressBlock>>** merge field in the first table cell.
    - Click the **Paragraph** launcher [*Home* tab, *Paragraph* group] to open the *Paragraph* dialog box (**Figure 8-106**) and change the settings in the *Spacing* area. Click **OK** when all changes are made.

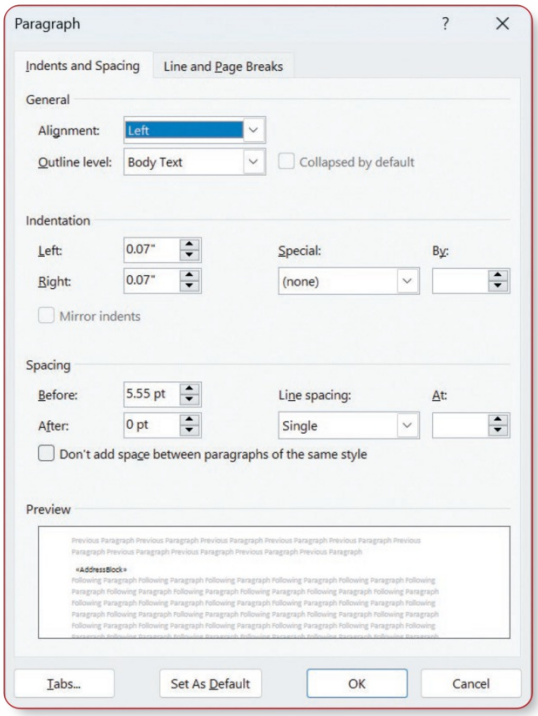


FIGURE 8-106 ***Paragraph*** **dialog box**

- Click the **Update all labels** button.
- Click the **Next: Preview your labels** link.

19. Click the **Next: Complete the merge** link to finish the merge. The *Mail Merge* pane updates.
20. Select the desired radio button to complete the merge.
    - To send the merged document directly to the printer, select **Print**.
    - To edit individual labels, select **Edit individual labels**. The *Merge to New Document* dialog box opens (**Figure 8-107**). Select the desired radio button to choose which records to merge and click **OK**. Word opens a new document with the merge performed. This new document contains all of the merged labels. Save and print this document as desired.

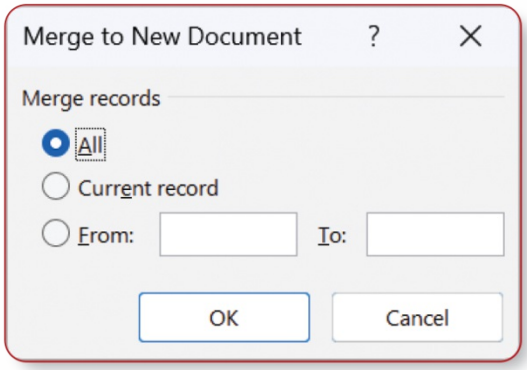


FIGURE 8-107 ***Merge to New Document*** **dialog box**

21. Save the main document, as desired, so you will be able to create the merged labels again in the future.
    - This saves all of the merge selection made during the wizard.
    - It is a good idea to include the word "Main" as part of the file name to easily recognize the main merge document.
    - To re-merge the labels, open the Word document, click **Finish & Merge** [*Mailings* tab, *Finish* group]. This is equivalent to starting at step 19 of this *How To*.

MORE INFO

You can also create labels using the report options in Access. Click the **Label** button [*Create* tab, *Reports* group] and follow the steps of the *Label Wizard.* Use the Access Help system for a complete review of creating a label type of report.

A8-677

A8-678

PAUSE & PRACTICE: ACCESS 8-5

In this Pause & Practice project, you perform a mail merge for real estate agent Emma Cavalli. You merge an existing promotional letter with data in the *CustomerLeads* table of the Placer Hills Real Estate database.

Files Needed: ***[your initials] PP A8-4.accdb*** and ***PHR_Intro_Letter-08.docx*** *(Student data files are available in*

the Library *of your SIMnet account.)*

Completed Project File Names: ***[your initials] PP A8-5 Intro_Letter_Main.docx*** and ***[your initials] PP A8-5 Intro_Letter_Merge.docx***

1. Open the ***[your initials] PP A8-4*** database that you created in ***Pause & Practice 8-4***. You don't save a new copy of the database in this project.
2. Select the **CustomerLeads** table in the *Navigation Pane*.
3. Click the **Word Merge** button [*External Data* tab, *Export* group] to launch the *Microsoft Word Mail Merge Wizard*. If a *Microsoft Access Security Notice* box displays, click **Open**.
4. Select **Link your data to an existing Microsoft Word document**, if necessary, and click **OK**. The *Select Microsoft Word Document* dialog box opens.
5. Locate and select the ***PHR_Intro_Letter-08*** Word document from your student data files and click the **Open** button. The document opens in Word, and the *Mail Merge* pane opens on the right. If necessary, click the **Windows Taskbar** to switch to the Word document. Because you are using an existing document, you begin on *Step 3 of 6*. The *Use an existing list* radio button in the *Select recipients* area is selected, and the *Use an existing list* area shows the current data source.
6. Click the **Next: Write your letter** link to move to *Step 4 of 6*. The *Mail Merge* pane updates (**Figure 8-108**).

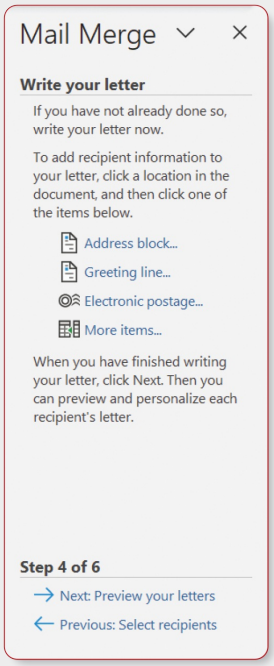


FIGURE 8-108 ***Mail Merge Wizard*, Step 4**

7. Click the **Show/Hide** button in Word [*Home* tab, *Paragraph* group] to display the paragraph marks if necessary. This helps you more easily identify the correct line placement.
8. Click inside the Word document, on the fourth blank line below the date, to position the insertion point (**Figure 8-109**) and click the **Address block** link to insert the merge field into your main document. The *Insert*

Address Block dialog box opens.

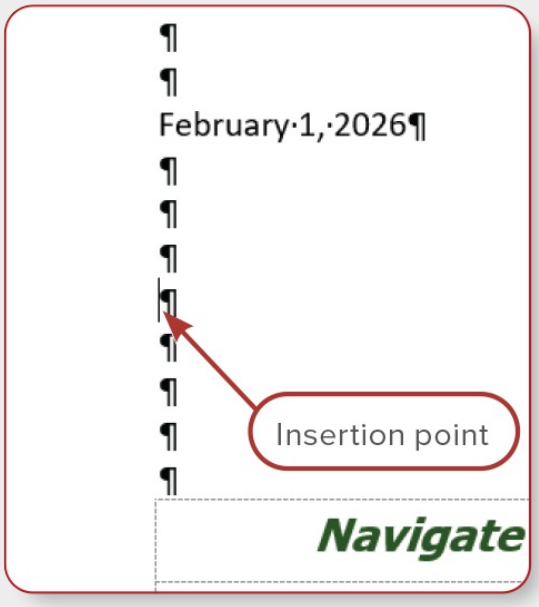


FIGURE 8-109 Position the insertion point for the address

9. Accept the default format and click **OK** to close the *Insert Address Block* dialog box. The *<<AddressBlock>>* merge field is inserted into the document.
10. Click inside the Word document, on the second blank line below the *<<AddressBlock>>*, to position the insertion point (Figure 8-110) and click the **Greeting line** link. The *Insert Greeting Line* dialog box opens.

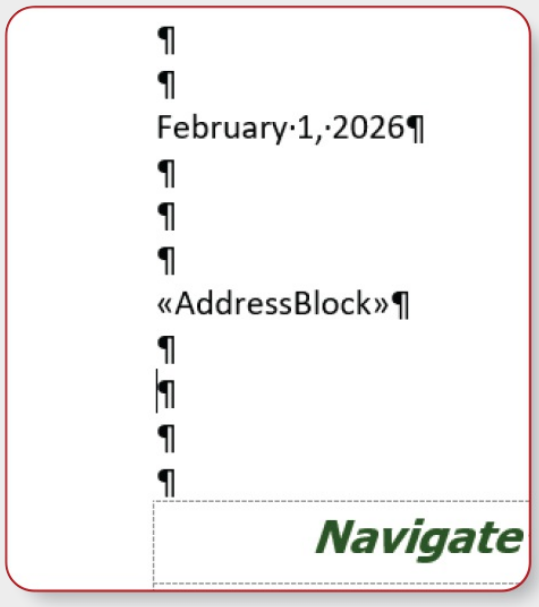


FIGURE 8-110 Position the insertion point for the greeting

11. Select the colon (:) from the punctuation drop-down list in the *Greeting line format* area.
12. Click the **Next** arrow in the *Preview* area to preview the greeting line for the next recipient, Mr. Acosta (Figure 8-111).

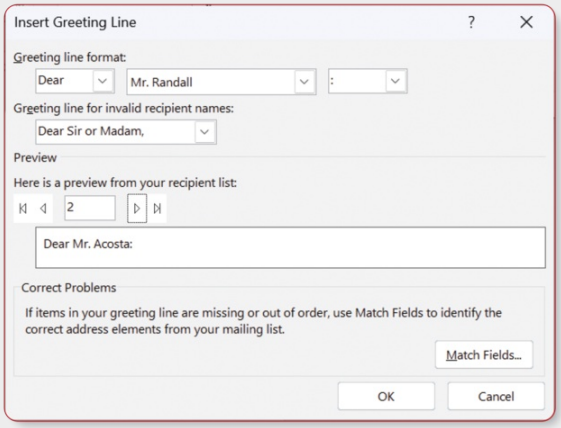


FIGURE 8-111 ***Insert Greeting Line*** **dialog box**

13. Click **OK** to close the *Insert Greeting Line* dialog box. The greeting line merge field (*<<GreetingLine>>*) is inserted into the document.
14. Click the **Next: Preview your letters** link to move to *Step 5 of 6.* The document updates to show how the merged data will appear (Figure 8-112). Because you had advanced to the second record, the preview shows the record for Juan Acosta. The *Mail Merge* pane also updates.

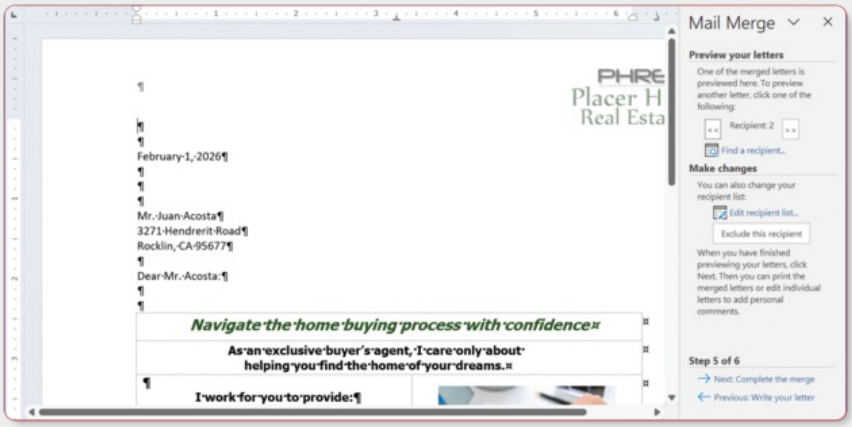


FIGURE 8-112 **Preview of merged letter**

Photo Source: Yuen Man Cheung/Alamy Stock Photo/McGraw Hill

15. Click the **Show/Hide** button in Word [*Home* tab, *Paragraph* group] to toggle off the paragraph marks. Although they don't appear when a document is printed, you no longer need to display them.
16. Click the navigation arrows in the *Preview your letters* area to scroll through the letters and verify that the merge will work correctly.
17. Click the **Next: Complete the merge** link to finish the merge. The *Mail Merge* pane updates.

18. Click the **Edit individual letters** link. The *Merge to New Document* dialog box opens.
19. Click **OK** to merge all records. Word opens a new document with the merge performed. This document should have 105 pages. It might take a few minutes for the merge to complete and all 105 pages to appear in the document.
20. Save the completed merged document as [your initials] PP A8-5 Intro_Letter_Merge.docx and close the document. Note that it is not typical to save a merged document because it occupies too much space, and the recipient list may have changed since you generated the merged document. You save it in this case to submit it as part of your assignment.
21. Save a copy of the main document as [your initials] PP A8-5 Intro_Letter_Main.docx to preserve the merge settings.
22. Close the document.
23. Close the database.

Chapter Summary

A8-679

A8-680

8.1 Explain importing and exporting, save import and export steps, and use a saved import or saved export (p. A8-620).

- ***Importing*** is the process of getting data from an outside source into an Access database.
- Import data into a new table, append data to an existing table, or create a linked table.
- ***Exporting*** is the process of saving data in a format that can be used by another program or application.
- If you perform an import or export frequently, save the steps in Access.
- Use the *Manage Data Tasks* dialog box to make changes to, or to delete, a saved import or export.

8.2 Import data from Excel to create a new table, append records to an existing table, and create a linked table (p. A8-621).

- An Excel file typically has an extension of ***.xlsx***.
- Prior to importing data from an Excel worksheet, it is important to review the file to ensure it is formatted correctly for importing.
- Use the *Excel* option to launch the ***Import Spreadsheet Wizard***, which steps you through the import process.
- Import an entire worksheet or a ***named range*** on a worksheet.
- After creating a new table through an import, modify the table properties using *Design* view to complete the table.
- To import an Excel worksheet into an existing table, the first row must contain the field names from the Access table.
- The original Excel file does not change during the import process.
- If you perform the same import task regularly, check the *Save import steps* box at the end of the wizard.
- A ***linked table*** enables you to see and use the data, but does not actually contain

any records.

- A linked table is ***read-only***, which prevents you from making changes to the existing data, including not being able to add or delete any data.
- It is important to review the table after importing to verify that the import worked as desired.

8.3 Import tables and other objects from other databases (p. A8-631).

- Import data and objects from Access databases and other database formats.
- If you link to another Access database, you are permitted to add, modify, and delete data in the linked file.
- Use the *Access* option to launch the ***Import Objects*** dialog box, which enables you to select the desired objects.

8.4 Import data from delimited and fixed-width text files to create a new table, append records to an existing table, and create a linked table (p. A8-633).

- ***Text files***, a common format to transfer data between programs, contain only letters, numbers, and punctuation.
- Use ***Notepad***, the default text editor in Windows, to view and edit a text file.
- Prior to importing data from a text file, review the file to ensure that it is formatted correctly for importing.
- Use the *Text File* option to launch the ***Import Text Wizard*** process.
- A ***delimited*** text file uses a character or tab to separate each field.
- ***Comma Separated Value (CSV)*** files are a common delimited file. These files typically have a ***.csv*** file name extension.
- Data fields are stored in predefined positions in a ***fixed-width*** text file. These files typically have a ***.txt*** file name extension.
- The quotation mark is called a ***text qualifier*** and is used to surround text fields in a delimited file.
- It is important to review the table after importing to verify that the import worked as desired.

8.5 Export data to other applications and formats including Excel, text files, Word, and HTML (p. A8-646).

- Export data to Excel to use the data analysis and graphing tools in Excel.

- Export from a table, query, form, or report. Additionally, you can choose to export only selected records.
- If you perform the same export task frequently, check the **Save export steps** box at the end of the wizard.
- Use Access to export data to a delimited or fixed-width text file, or to create a text file that also contains the formatting and layout of the data.
- Export data to Word by exporting to a ***Rich Text Format (RTF)*** file. These files typically have a ***.rtf*** file name extension.
- Access can export data to ***Hypertext Markup Language (HTML)***, the primary language used to build web pages. An HTML file typically has a ***.html*** file name extension.
- In HTML, ***tags*** are the code that defines the structure of the data.

8.6 Import data from an XML file and export data to an XML file (p. A8-661).

- ***Extensible Markup Language (XML)*** is an industry standard used to describe, store, and transfer data between different programs or applications.
- XML file tags define the structure of the data by specifying the tables and fields.
- An XML file typically has a ***.xml*** extension.
- The ***XML Schema Definition*** file specifies the details of table and field definitions such as field sizes, data types, etc. The table details and field definitions are called the ***schema***.
- An XML Schema Definition file typically has a ***.xsd*** extension.
- When you import the XML and XSD files to create a new table, you increase consistency and save time over other import processes.
- Access can import from an XML file and can export to an XML file.

8.7 Create a mail merge letter and mailing labels (p. A8-667).

- ***Mail Merge*** enables you to merge a document with data from your Access database.
- Access uses the ***Microsoft Word Mail Merge Wizard*** to create and customize a mail merge.
- A mail merge combines a ***main document*** with selected fields from the ***data source*** to create the new merged document.

- The *Mail Merge* pane appears on the right side of the Word window.
- The *Mail Merge Wizard* walks you through each step of the merge process and provides you with links and buttons to customize your merge.
- Insert individual ***merge fields***, or insert an ***address block*** or ***greeting line*** merge field into the main document. These blocks combine individual fields from the data source to create a standard address block or greeting line for a letter or labels.
- Use *Mail Merge* to create professional-looking labels, as well as other merge documents.

Check for Understanding

The SIMbook for this text (within your SIMnet account) provides the following resources for concept review:

- Multiple-choice questions
- Matching exercises
- Short answer questions

USING MICROSOFT ACCESS 365

A8-681
A8-682
A8-683
A8-684

Guided Project 8-1 SIMnet Project

For this project, you add data to the tables in the database for a friend's music collection. To ensure consistency, the starting file is provided for you. Append records from an Excel file to the *Albums* table and append records from a fixed-width text file to the *Songs* table. Edit data records and create a query.

[Student Learning Outcome 8.1, Student Learning Outcome 8.2, Student Learning Outcome 8.4]

Files Needed: ***MusicDatabase-08.accdb***, ***NewAlbums-08.xlsx***, and *NewSongs-08.txt* (GP-A8-1) *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Names: ***[your initials] Access 8-1.accdb*** and ***[your initials] CorrectedAlbums.xlsx***

Skills Covered in This Project

- Prepare an Excel file for importing.
- Append data from an Excel file to an existing table.
- Prepare a text file for importing.
- Review a table after importing data.
- Append data from a fixed-width text file to an existing table.

1. Open the ***MusicDatabase-08*** database from your student data files. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close it. If the message repeats in a later step, click **OK** or the **X** to close the message.
2. Save the database as [your initials] Access 8-1.
3. Enable content in the database.
4. Prepare to import an Excel file.

a. Click the **Relationships** button [*Database Tools* tab, *Relationships* group] to open the *Relationships* window. Note the one-to-many relationship between *Albums* and *Songs.* Because you are importing records to both tables, you must import the records into the "one-side" table, *Albums,* first.
b. Close the *Relationships* window.
c. Open the *Albums* table in *Design* view.
d. Click through each field to note the *Field Name* and the *Required* property setting of the field.
e. Change the *Required* property of the *Length* and *RecordingLabel* fields to **Yes**.
f. Change the *Format* property of the *ReleaseDate* field to **Short Date**. Click the **Property Update Options** smart tag and select **Update Format everywhere ReleaseDate is used**. A message box displays. Click **OK** to close the message box.
g. Open the ***NewAlbums-08*** Excel spreadsheet from your student data files. Click **Enable Editing** if the file opened in *Protected View.*
h. Delete the blank space between the words in the column headers in cells A1, B1, F1, and G1 so that the names match the field names in the table. Note that every cell on the data rows contains a value. This matches the *Required* property settings of the fields in the *Albums* table.
i. Save the file as [your initials] CorrectedAlbums.xlsx and close Excel.
j. Save the *Albums* table. Access warns you that data integrity rules have changed. Click **Yes** to test the data with the new rules.
k. Close the *Albums* table.

5. Append data from Excel to an existing table.
   a. Click the **New Data Source** button [*External Data* tab, *Import & Link* group], select **From File**, and then select **Excel**. The *Get External Data – Excel Spreadsheet* dialog box opens.
   b. Click the **Browse** button to launch the *File Open* dialog box.
   c. Locate and select the ***[your initials] CorrectedAlbums*** Excel file and click the **Open** button. The *File Open* dialog box closes.
   d. Select the **Append a copy of the records to the table** radio button. Select the **Albums** table in the drop-down box if it is not already selected.
   e. Click **OK** to launch the *Import Spreadsheet Wizard.* If a *Microsoft Access Security Notice* box displays, click **Open**.
   f. Confirm that the data records display in the wizard window (**Figure 8-113**) and click the **Next** button to advance to the next page of the wizard. Access confirms the name of the table in which to append the records.

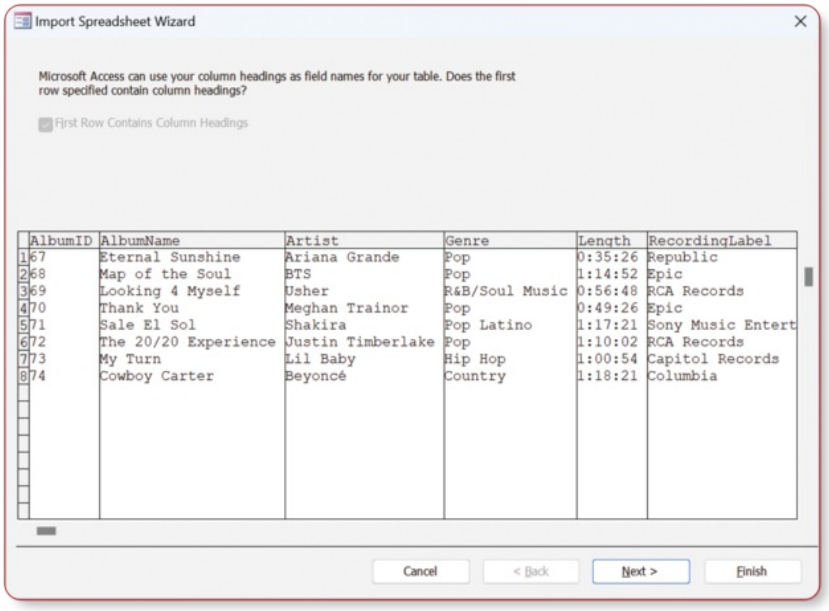


FIGURE 8-113 ***Import Spreadsheet Wizard***

g. Click **Finish**. The wizard displays the *Save Import Steps* screen.

h. Click the **Close** button to complete the wizard without saving the import steps. Access appends the records to the table.

6. Verify that the records appended successfully.

a. Open the *Albums* table in *Datasheet* view to verify that the records for *AlbumIDs* 67, 68, 69, 70, 71, 72, 73, and 74 were appended to the table (**Figure 8-114**).

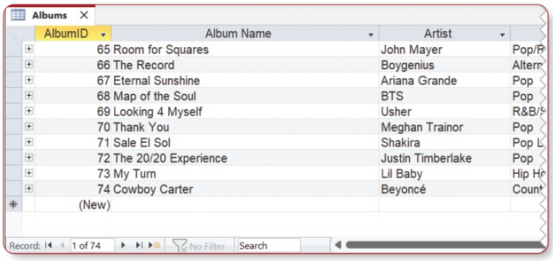


FIGURE 8-114 ***Datasheet* view of the *Albums* table**

b. Click the **plus sign** to the left of *AlbumID 67* to expand the related records. Note that no songs have been attached to this album.

c. Close the *Albums* table.

7. Prepare to import the fixed-width text file.

a. Open the *Songs* table in *Design* view.

b. Click through each field to note the *Field Name* and the *Required* property setting of the field. Also notice that the *Data Type* of the *SongID* field is set to

AutoNumber.

c. Right-click the ***NewSongs-08.txt*** file in File Explorer, select **Open with**, and select **Notepad** to open the file (Figure 8-115).



FIGURE 8-115 **Song text file in Notepad**

d. Note that the first row does not contain field names. Also note the blank space at the far left to represent the *SongID* field. Even though the *SongID* value is added automatically due to the field's data type in the table, the field must be represented in the fixed-width file.

e. Close Notepad.

f. Close the *Songs* table.

8. Append data from a fixed-width text file to an existing table.

a. Click the **New Data Source** button [*External Data* tab, *Import & Link* group], select **From File**, and then select **Text File**. The *Get External Data – Text File* dialog box launches.

b. Click the **Browse** button to launch the *File Open* dialog box.

c. Locate and select ***NewSongs-08.txt*** and click the **Open** button. The *File Open* dialog box closes.

d. Select the **Append a copy of the records to the table** radio button, click the **table name** box drop-down arrow and select **Songs**. Click **OK** to launch the *Import Text Wizard* (Figure 8-116). The wizard displays the data records.

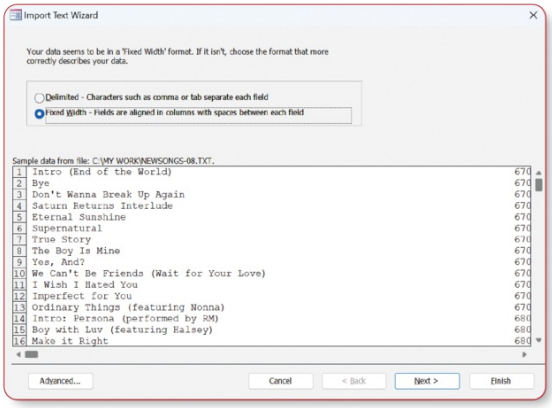


FIGURE 8-116 **Select the *Fixed Width* radio button to specify the file format**

e. Select the **Fixed Width** radio button if it is not already selected, and click the **Next** button to advance to the next page of the wizard. This page indicates the columns represented by each field. Access preselected field breaks based on spacing between fields, but they are not correct and not all the breaks are indicated.

f. Click the **Advanced** button to open the *Import Specification* dialog box (Figure 8-117).

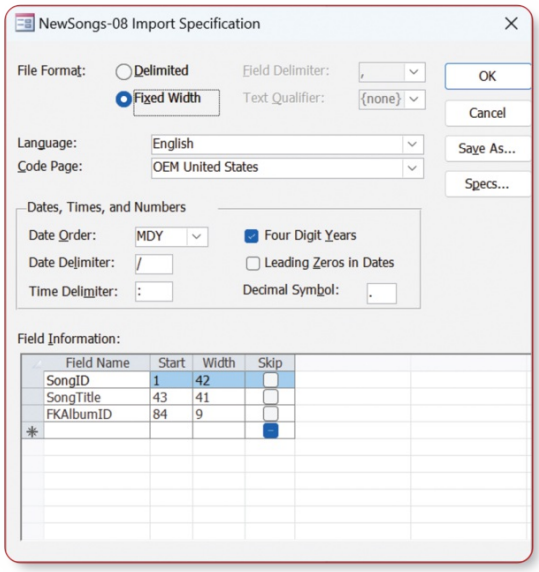


FIGURE 8-117 ***Import Specification* dialog box**

g. Change the *Width* value of the *SongID* field to 1 and check the **Skip** box because Access will automatically add this value.

h. Change the *Start* value of the *SongTitle* field to 2 and the *Width* value to 82.

i. Change the *Start* value of the *FKAlbumID* field to 84 if necessary, and the *Width* value to 2.

j. Type Length in the *Field Name* cell of the append row, 86 in the *Start* value if necessary, and 7 in the *Width* value. The updated *Field Information* area should match (Figure 8-118).

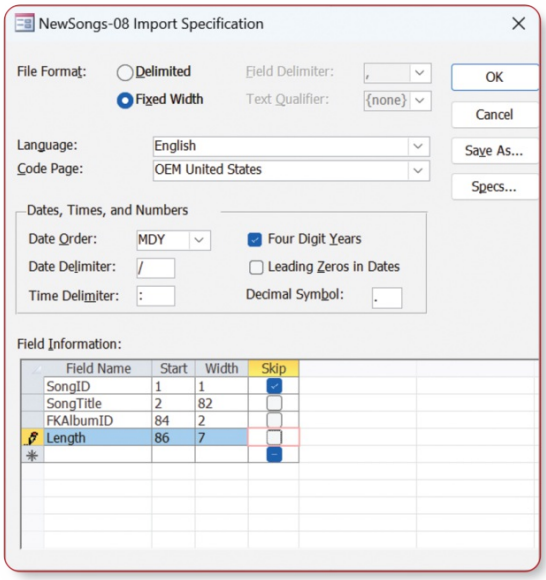


FIGURE 8-118 Updated *Field Information* area

k. Click **OK** to close the dialog box. The updated *Import Text Wizard* reflects the updated field breaks (Figure 8-119).

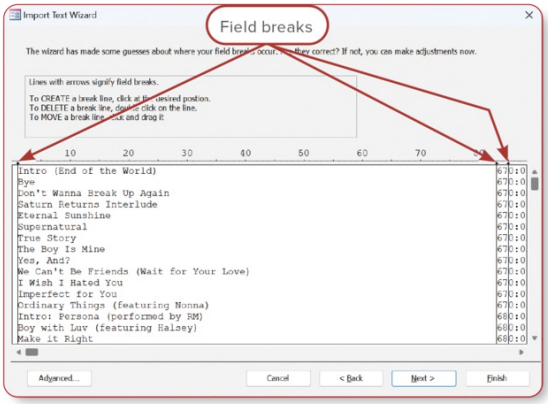


FIGURE 8-119 Updated field breaks

l. Click the **Next** button to advance to the final page of the wizard.

m. Verify that the *Songs* table name displays in the *Import to Table* box and click **Finish**.

n. Click the **Close** button to complete the wizard without saving the import steps.

9. Verify that the records appended successfully.
   a. Open the *Songs* table in *Datasheet* view. Scroll down in the table to verify that the records for *SongIDs* 842 through 975 were appended to the table.
   b. Save and close the table.
   c. Open the *Albums* table in *Datasheet* view.
   d. Click the **plus sign** to the left of *AlbumID 67* to expand the related records. The table should match the records shown in **Figure 8-120**.

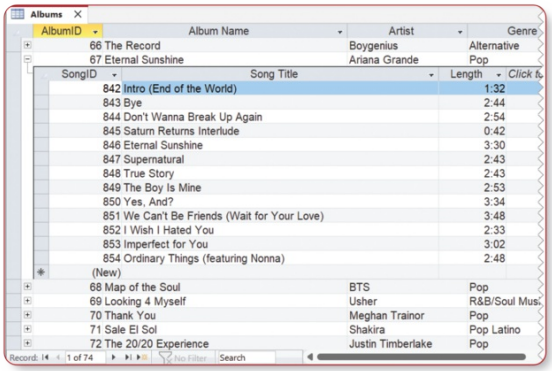


FIGURE 8-120 Songs on *Eternal Sunshine* album

   e. Close the *Albums* table.
10. Create a new query in *Design* view. The query finds albums belonging to the Sony recording labels.
   a. Add the *Albums* table into the *Query Design* window.
   b. Add all seven fields into the query.
   c. Type Like "*Sony*" as the criteria for the *RecordingLabel* field.
   d. Save the query as SonyAlbums.
   e. Run the query. The datasheet should display three records.
   f. Change the misspelling of “Entertianment” to “Entertainment” in the *RecordingLabel* field of *AlbumID* 71. Remember that the change is automatically made in the table.
   g. Close the query.
11. Close the database.
12. Redundant.

Guided Project 8-2

Courtyard Medical Plaza needs to append records to their *RentInvoices* table from a CSV file. A temporary worker mistakenly entered the data into another program instead of the Access database. The data has been saved in a CSV delimited file. After the records are imported, use *Mail Merge* to generate the billing statements for the most recent month's rent payments.

[Student Learning Outcome 8.1, Student Learning Outcome 8.4, Student Learning Outcome 8.7]

Files Needed: ***CourtyardMedicalPlaza-08.accdb***, ***CMP_RentInvoices-08.csv***, and ***CMP_BillingState ment-08.docx*** (GP-A8-2) *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Names: ***[your initials] Access 8-2.accdb***, ***[your initials] CMP_BillingStatement_MainSettings.docx***, and ***[your initials] CMP_BillingStatement_Merge.docx***

Skills Covered in This Project

- Prepare a delimited text file for importing.
- Append data from a CSV delimited file to an existing table.
- Use *Mail Merge* to create a form letter.
- Filter recipients in a mail merge.
- Save the settings in a mail merge document.
- Open a saved merge in Word to remerge a document.

1. Open the ***CourtyardMedicalPlaza-08*** database from your student data files. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close it. If the message repeats in a later step, click **OK** or the **X** to close the message.
2. Save a new copy of your database as [your initials] Access 8-2.
3. Enable content in the database.
4. Prepare to import the delimited text file.
   a. Open the *RentInvoices* table in *Design* view.
   b. Click through each field to note the *Field Name* and the *Required* property setting of the field.

c. Right-click the ***CMP_RentInvoices-08.csv*** file in File Explorer, select **Open with**, and select **Notepad** to open the file (Figure 8-121). Note that all the field names are included on the first row and match those from the table. The *DateReceived, Discount,* and *Paid* values are null. This is okay because the fields are not required. Also note the double quotation mark (") text qualifier used around the *AmountDue* values.

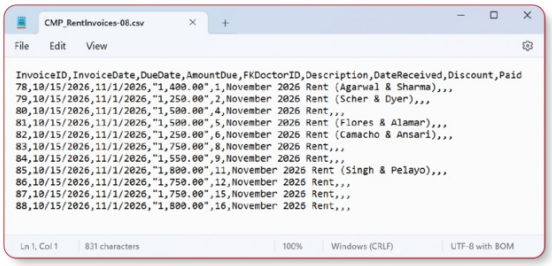


FIGURE 8-121 **Preview the CSV file in Notepad**

d. Close Notepad.

e. Close the *RentInvoices* table.

5. Append data from the delimited text file to an existing table.

a. Click the **New Data Source** button [*External Data* tab, *Import & Link* group], select **From File**, and then select **Text File**. The *Get External Data – Text File* dialog box launches.

b. Click the **Browse** button to launch the *File Open* dialog box.

c. Locate and select ***CMP_RentInvoices-08.csv*** and click the **Open** button. The *File Open* dialog box closes.

d. Select the **Append a copy of the records to the table** radio button, click the **table name** box drop-down arrow and select **RentInvoices**, and click **OK** to launch the *Import Text Wizard*.

e. Select the **Delimited** radio button if it is not already selected, and click the **Next** button to advance to the next page of the wizard (Figure 8-122).

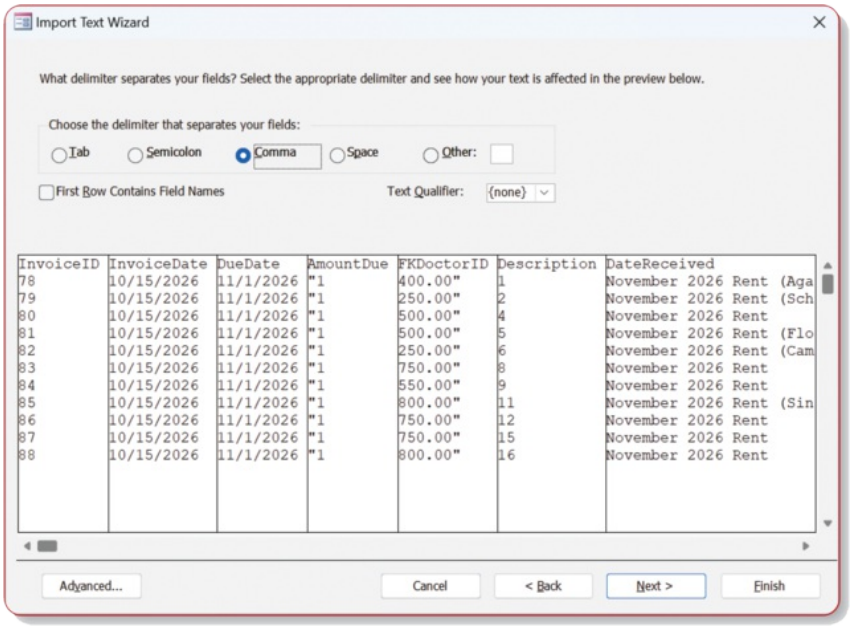


FIGURE 8-122 Select the delimiter used in the file

f. Select the **Comma** radio button if it is not already selected.

g. Check the **First Row Contains Field Names** box.

h. Select the **double quotation mark** from the *Text Qualifier* box drop-down list because Access did not assign the *AmountDue* to the correct column. The wizard updates to show the data correctly assigned.

i. Click the **Next** button to advance to the next page of the wizard. Access confirms the name of the table in which to append the records.

j. Click **Finish**. The wizard displays the *Save Import Steps* screen.

k. Click the **Close** button to complete the wizard without saving the import steps.

6. Verify that the records appended successfully.

a. Open the **RentInvoices** table in *Datasheet* view. Scroll down in the table to verify that the records for *InvoiceIDs* 78 through 88 have been appended to the table (Figure 8-123).

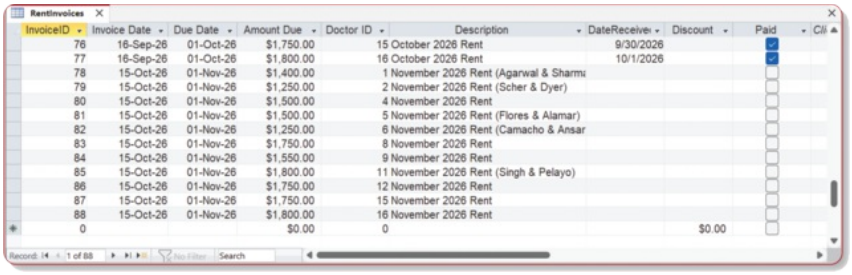


FIGURE 8-123 *RentInvoices* table after appending records

b. Close the table.

7. Review the data source for the mail merge.

a. Run the *InvoiceStatementsToMerge* query. The results show 88 records. The query uses fields from both the *RentInvoices* and *Physician*s tables. To only send billing statements to the unpaid records, you select records during the merge process.

ANOTHER WAY

Add criteria to the query to limit the records it returns.

b. Close the query.

8. Perform a mail merge using an existing letter.

a. Select the **InvoiceStatementsToMerge** query in the *Navigation Pane,* if not already selected.

b. Click the **Word Merge** button [*External Data* tab, *Export* group] to launch the *Microsoft Word Mail Merge Wizard.* If a *Microsoft Access Security Notice* box displays, click **Open**.

c. Select the **Link your data to an existing Microsoft Word document** and click **OK**. The *Select Microsoft Word Document* dialog box opens.

d. Locate and select the ***CMP_BillingStatement-08.docx*** Word file and click the **Open** button. The document opens in Word and the *Mail Merge* pane opens on the right (Figure 8-124) at *Step 3 of 6.* If necessary, click the **Windows Taskbar** to switch to the Word document. Note that this document contains placeholders to show you where to position the merge fields.

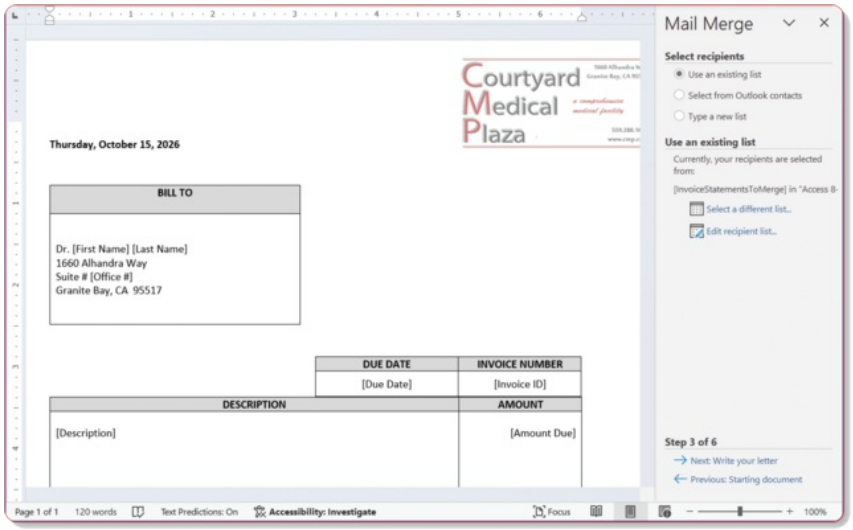


FIGURE 8-124 ***Mail Merge*** **pane, Step 3**

Photo Source: McGraw Hill

9. Edit the recipient list.
   a. Verify that the *Use an existing list* radio button is selected in the *Select recipients* area and that the *Use an existing list* area shows the *InvoiceStatementsToMerge* query in your database, and then click the **Edit recipient list** link to open the *Mail Merge Recipients* dialog box (Figure 8-125). Increase the size of the dialog box or the width of the columns as desired.

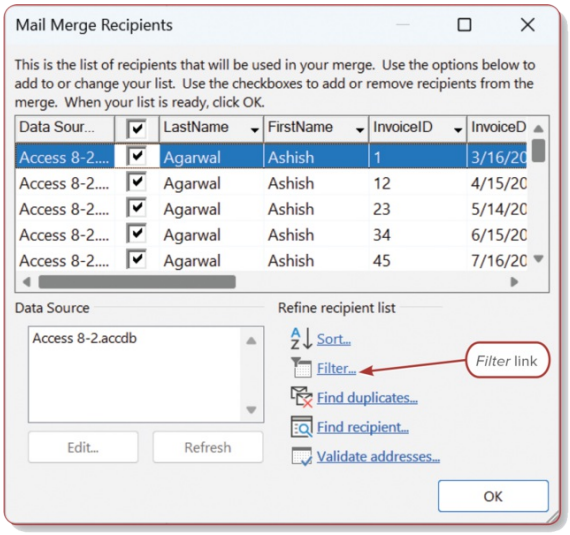


FIGURE 8-125 ***Mail Merge Recipients*** **dialog box**

   b. Slide the **horizontal scroll bar** to the right until you see the *Paid* field, and slide the **vertical scroll bar** to the bottom until you get to the last record. Note that the *Paid* field has values of *True* and *False*.
   c. Click the **Filter** link to open the *Filter and Sort* dialog box.
   d. Select **Paid** from the *Field* box drop-down list. The *Comparison* box updates to display *Equal to*.
   e. Type False in the *Compare to* box. The completed dialog box should look like Figure 8-126.

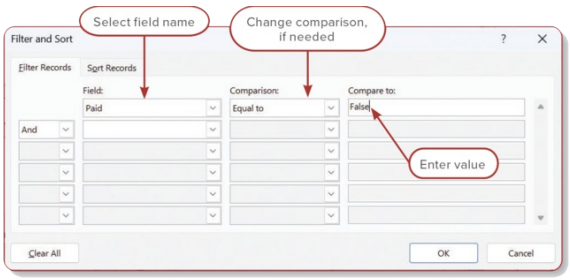


FIGURE 8-126 **Completed** ***Filter and Sort*** **dialog box**

f. Click **OK**. The *Filter and Sort* dialog box closes. The *Mail Merge Recipients* dialog box updates to display only the records where the *Paid* field contains *False.* Recall that these are the records you just imported.

ANOTHER WAY

If you press **Enter** after typing False in step 9e, the *Filter and Sort* dialog box closes automatically.

g. Click **OK** to close the *Mail Merge Recipients* dialog box.

10. Complete the mail merge.

a. Click the **Next: Write your letter** link to move to *Step 4 of 6.* The *Mail Merge* pane updates (Figure 8-127).

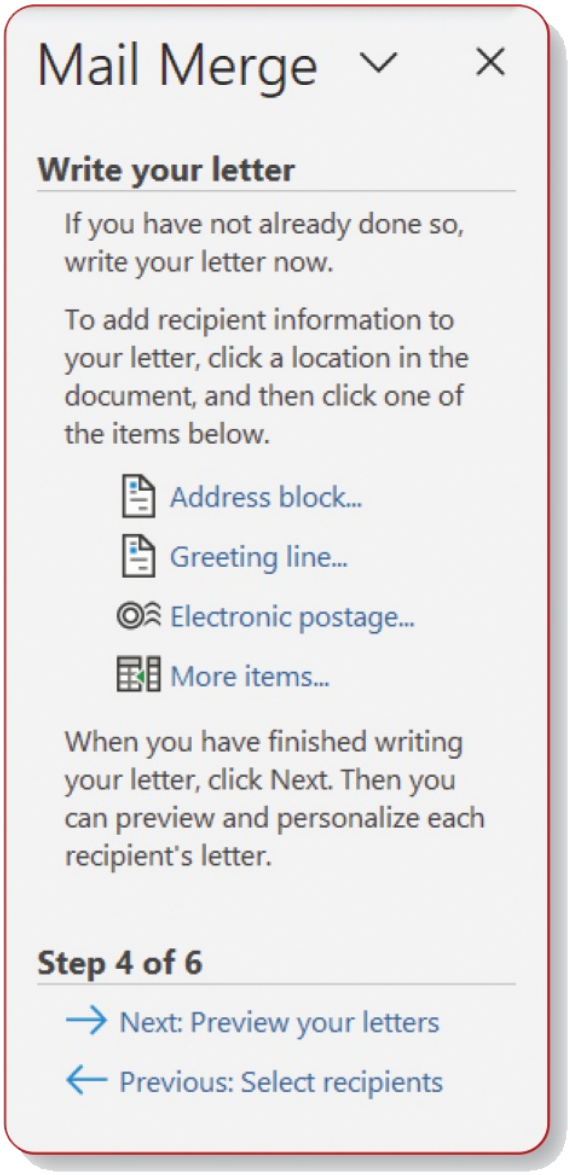


FIGURE 8-127 ***Mail Merge Wizard*, Step 4**

b. Delete the *[First Name]* placeholder in the Word document.

c. Click the **More items** link to open the *Insert Merge Field* dialog box, select the **FirstName** field, click **Insert**, and click **Close**. The merge field is inserted into the document. Note the blank space between the *FirstName* field and the *[Last Name]* placeholder. Be sure to keep that space between the fields.

d. Repeat steps 10b–c to continue replacing the *[Last Name], [Office #], [Due Date], [Invoice ID], [Description],* and *[Amount Due]* placeholders with the corresponding database fields from the dialog box. In step 10c, you may find it quicker to click **Insert Merge Field** [*Mailings* tab, *Write & Insert Fields* group] and then select the appropriate field name instead of using the *More items* button.

Because the placeholders are not actual fields, their values don't have to match exactly to the field name you select from the database table. The street address, 1660 Alhandra Way, is the same for all doctors, because they all have an office in Courtyard Medical Plaza.

e. Right-click the **<<AmountDue>>** merge field to open the context menu and select **Toggle Field Codes** to display the field codes.

f. Edit the merge field display to read *{ MERGEFIELD "AmountDue" \# $##,###.00 }*.

g. Right-click the **<<AmountDue>>** merge field to open the context menu, and select **Toggle Field Codes** to turn off the field codes display.

h. Click the **Next: Preview your letters** link to move to *Step 5 of 6.* The document updates to show how the merged data will appear (**Figure 8-128**).

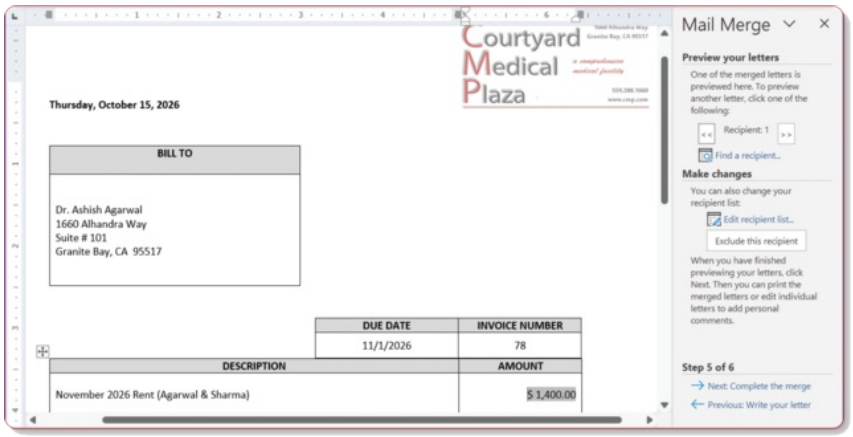


FIGURE 8-128 **Preview of merged billing statement**

Photo Source: McGraw Hill

i. Click the navigation arrows in the *Preview your letters* area to scroll through the 11 letters to verify that the merge will work correctly.

j. Click the **Next: Complete the merge** link to finish the merge. The *Mail Merge* pane updates.

k. Click the **Edit individual letters** link. The *Merge to New Document* dialog box opens.

l. Click **OK** to merge all records. Word opens a new document with the merge performed. This document should have 11 pages. Don't worry if your document contains a blank 12th page.

m. Save the completed merged document as [your initials] CMP_BillingStatement_Merge.docx and close the document.

11. Save a copy of the main document as [your initials] CMP_BillingStatement_MainSettings.docx to preserve the merge settings.
12. Close the document.
13. Review the saved Word document.

a. Open the ***[your initials] CMP_BillingStatement_MainSettings.docx*** file in Word. A Microsoft Word dialog box opens, informing you that the Word document will execute an *SQL* command.
b. Click **Yes**. The document opens and displays one invoice.
c. Click **Finish & Merge** [*Mailings* tab, *Finish* group] and select **Edit Individual Documents**. The *Merge to New Document* dialog box opens.
d. Click **OK** to merge all records. Word opens a new document with the merge performed. This document should have 11 pages. Don't worry if your document contains a blank 12th page.
e. Close the merged document. Don't save any changes when prompted.
f. Close the main Word document. Don't save any changes when prompted.

14. Close the database.

Guided Project 8-3

San Diego Sailing needs to integrate its Access database with Word and Excel. To ensure consistency, the starting file is provided for you. Export data into an RTF format for use in a Word document and save the export steps, create a new linked table to an Excel worksheet, fix incorrect data in the Excel worksheet, and create labels using mail merge.

[Student Learning Outcome 8.1, Student Learning Outcome 8.2, Student Learning Outcome 8.5, Student Learning Outcome 8.7]

Files Needed: ***SanDiegoSailing-08.accdb*** and ***BoatManufacturers-08.xlsx*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Names: ***[your initials] Access 8-3.accdb, [your initials] FleetRentals.rtf, [your initials] FleetRentals_Memo.docx, [your initials] BoatManufacturers_Corrected.xlsx, [your initials] BoatLabels_Main.docx***, and ***[your initials] BoatLabels_Merge.docx***

Skills Covered in This Project

- Export data to Word.
- Save export steps.

- Edit an RTF file after exporting.
- Create a linked table to an Excel worksheet.
- Use a linked table in Access.
- Use *Mail Merge* to create labels.

---

1. Open the ***SanDiegoSailing-08*** database from your student data files. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close it. If the message repeats in a later step, click **OK** or the **X** to close the message.
2. Save a new copy of your database as [your initials] Access 8-3.
3. Enable content in the database.
4. Export data from a query to Word.
   a. Select the **SailboatFleetWithoutMatchingSDRentals** query in the *Navigation Pane*.
   b. Click the **More** button [*External Data* tab, *Export* group] and select the **Word** option. The *Export – RTF File* dialog box launches.
   c. Click the **Browse** button to launch the *File Save* dialog box.
   d. Locate the folder where you want to save the file, and save the file as [your initials] FleetRentals.rtf. The *File Save* dialog box closes.
   e. Check the **Open the destination file after the export operation is complete** box to open the file after the export process.
   f. Click **OK** to export the file. The document opens in Word. If necessary, click the **Windows Taskbar** to switch to your database and the wizard displays the *Save Export Steps* screen.
   g. Check the **Save export steps** box.
   h. Enter Exports data from the Sailboat FleetWithoutMatchingSDRentals query into an RTF file in the *Description* box.
   i. Click the **Save Export** button. The wizard completes and closes.
5. Finalize the document in Word.
   a. If necessary, click the **Windows Taskbar** to switch back to Word. Position the pointer over the table so the table selector displays. Click, hold, and drag the **table selector** to move the table to around the 4" height mark (**Figure 8-129**).

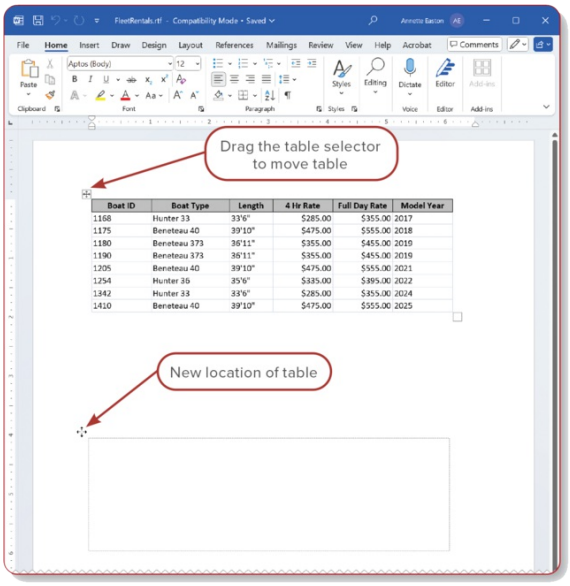


FIGURE 8-129 Move the table in the Word RTF file

b. Click the pointer on the first line at the top of the document and press **Enter** twice.

c. Type TO:, press **Tab** twice, type Lia Harvey, and press **Enter**.

d. Type FROM:, press **Tab** twice, type Your Name, replacing "Your Name" with your first and last name, and press **Enter**.

e. Type DATE:, press **Tab** twice, type Today's Date, replacing "Today's Date" with the actual day you write the memo and press **Enter**.

f. Type SUBJECT:, press **Tab** once, type Boats without any rentals, and press **Enter** twice.

g. Type the following and press **Enter** only after typing the last word: As you requested, I created the table below listing the boats that have not been rented this year. While this lack of demand can be partially attributed to normal seasonal fluctuations, I would recommend that we review the rental rates to ensure that we are competitive. I also recommend that we review whether our selection of boat types and lengths best meets our customers' desires.

h. Type the following: Please let me know if you would like me to perform this analysis.

i. Position the pointer over the table and click the **table selector**.

j. Click the **Properties** button [*Table Layout* tab, *Table* group] to open the *Table Properties* dialog box.

k. Click the **Table** tab if necessary.

l. Click **Center** in the *Alignment* area and click **OK**. Click inside the document to deselect the table. The completed document should look similar to Figure 8-130. Depending on the margins and font used in your document, the

spacing and alignment may be different from that in Figure 8-130.

TO: Lia Harvey

FROM: Your Name

DATE: Today's Date

SUBJECT: Boats without any rentals

As you requested, I created the table below listing the boats that have not been rented this year. While this lack of demand can be partially attributed to normal seasonal fluctuations, I would recommend that we review the rental rates to ensure that we are competitive. I also recommend that we review whether our selection of boat types and lengths best meets our customers' desires.

Please let me know if you would like me to perform this analysis.

Boat ID	Boat Type	Length	4 Hr Rate	Full Day Rate	Model Year
1168	Hunter 33	33'6"	$285.00	$355.00	2017
1175	Beneteau 40	39'10"	$475.00	$555.00	2018
1180	Beneteau 373	36'11"	$355.00	$455.00	2019
1190	Beneteau 373	36'11"	$355.00	$455.00	2019
1205	Beneteau 40	39'10"	$475.00	$555.00	2021
1254	Hunter 36	35'6"	$335.00	$395.00	2022
1342	Hunter 33	33'6"	$285.00	$355.00	2024
1410	Beneteau 40	39'10"	$475.00	$555.00	2025

FIGURE 8-130 Memo contents

m. Click the **File** tab to open the *Backstage* view.

n. Click the **Save As** button.

o. Select a displayed folder or click the **Browse** button to open the *Save As* dialog box (Figure 8-131).

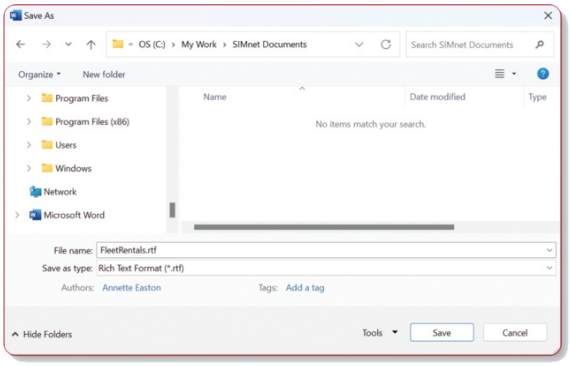


FIGURE 8-131 *Save As* dialog box in Word

p. Change the *Save as type* to *Word Document (*.docx).* The extension in *the File name* box updates.

q. Save the file as [your initials] FleetRentals_Memo.docx.

r. Close the document.

6. Preview an Excel worksheet before linking.

a. Open the ***BoatManufacturers-08.xlsx*** file in Excel. Click **Enable Editing** if the file opened in *Protected View*. Notice that the data in the *ZIP* and *Phone* fields are backward for the Beneteau America record.
b. Change the values in the Beneteau America record so the *ZIP* is 21403 and the *Phone* is 410-990-0270.
c. Apply a **Text** format to the *ZIP* cell if necessary.
d. Save a copy of the file as [your initials] BoatManufacturers_Corrected.xlsx.
e. Close the file.

7. Create a linked table to an Excel worksheet.
   a. Click the **New Data Source** button [*External Data* tab, *Import & Link* group], select **From File**, and then select **Excel**. The *Get External Data – Excel Spreadsheet* dialog box launches.
   b. Click the **Browse** button to launch the *File Open* dialog box.
   c. Locate and select ***[your initials] BoatManufacturers_Corrected.xlsx*** and click the **Open** button. The *File Open* dialog box closes.
   d. Select the **Link to the data source by creating a linked table** radio button and click **OK** to launch the *Link Spreadsheet Wizard*.
   e. Check the **First Row Contains Column Headings** box and click **Next**.
   f. Enter Manufacturers as the name of the table in the *Linked Table Name* box and click **Finish**. Access displays a message box confirming the creation of the linked table. Click **OK** to acknowledge the message. The table is added into the *Tables* group of the *Navigation Pane*.
8. Review the *Manufacturers* linked table.
   a. Open the *Manufacturers* table in *Datasheet* view. Widen the columns to see all of the data. Note that the *MfgName* is spelled wrong for the first record. The correct name is Hobie Cat Company.
   b. Click the **MfgName** field for the first record. Try to change the entry. Note that you are restricted from making any changes in a linked table.
   c. Save and close the table.
   d. Open the ***[your initials] BoatManufacturers_Corrected.xlsx*** file.
   e. Correct the *MfgName* to read Hobie Cat Company.
   f. Save and close the file.
   g. Open the *Manufacturers* table in *Datasheet* view. Note that the correct *MfgName* displays.
   h. Close the table.
9. Use *Mail Merge* to create labels.
   a. Select the **SailboatFleet** table in the *Navigation Pane*.

b. Click the **Word Merge** button [*External Data* tab, *Export* group] to launch the *Microsoft Word Mail Merge Wizard.*

c. Select **Create a new document and then link the data to it** and click **OK**. Word opens with a new blank document, and the *Mail Merge* pane opens on the right side of the window in *Step 1 of 6.* If necessary, click the **Windows Taskbar** to switch to the Word document.

d. Select the **Labels** radio button to create identification labels to place on equipment used on the boats.

e. Click the **Next: Starting document** link to move to *Step 2 of 6.* The *Mail Merge* pane updates (Figure 8-132).

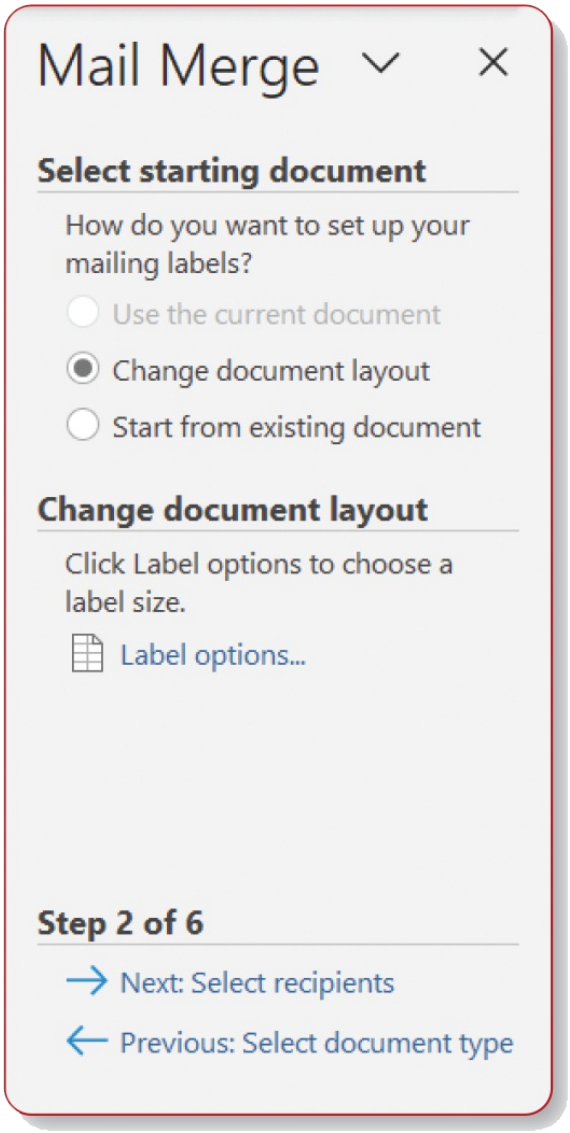


FIGURE 8-132 ***Mail Merge Wizard*, Step 2**

f. Select the **Change document layout** radio button in the *Select starting*

document area, if it is not already selected.

g. Click the **Label options** link in the *Change document layout* area. The *Label Options* dialog box opens.

h. Select **Avery US Letter** in the *Label vendors* drop-down list and select the **5160 Address Labels** in the *Product number* list.

i. Click **OK** to close the *Label Options* dialog box. The document updates with a preset table. The table cells represent the labels. To see the labels more easily, click **View Gridlines** [*Table Layout* tab, *Table* group] to show the gridlines around each label.

j. Click the **Next: Select recipients** link to move to *Step 3 of 6.* Verify that the *SailboatFleet* table displays in the *Use an existing list* area.

k. Click the **Next: Arrange your labels** link to move to *Step 4 of 6.*

l. Click to place the insertion point in the upper left of the first label and type Boat ID: . Be sure to also enter a space after the colon.

m. Click the **More items** link to open the *Insert Merge Field* dialog box, select the **BoatID** field, click **Insert**, and click **Close**. The merge field is inserted into the document. Press **Enter** to advance to the next line.

n. Select the *Boat ID:* text and merge field and change the font size to **12 pt**. [*Home* tab, *Font* group] and apply **Bold** formatting [*Home* tab, *Font* group].

o. Click to place the insertion point on the blank line below *Boat ID* and type Model Year: . Be sure to also enter a space after the colon.

p. Click the **More items** link to open the *Insert Merge Field* dialog box, select the **ModelYear** field, click **Insert**, and click **Close**. The merge field is inserted into the document. Press **Enter** to advance to the next line.

q. Click the **More items** link, select the **Length** field, click **Insert**, and click **Close**. The merge field is inserted into the document.

r. Press the **Spacebar**, click the **More items** link, select the **BoatType** field, click **Insert**, and click **Close**. The merge field is inserted into the document. Your label should match the one shown in Figure 8-133.

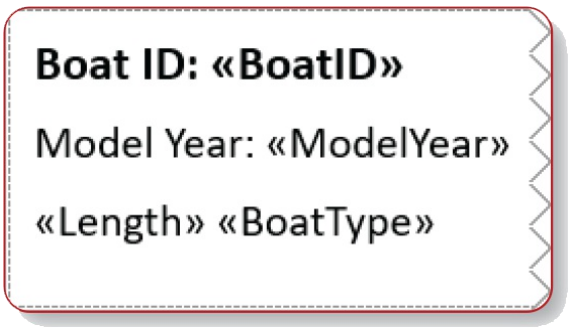


FIGURE 8-133 Text and merge fields in label

s. Click the **Update all labels** button in the *Replicate labels* area of the *Mail Merge* pane. This inserts the *<<Next Record>>* merge field code, as well as the label contents, into all the labels.

t. Click the **Next: Preview your labels** link to move to the next step. The document updates to show how the merged data appears in a label (Figure 8-134).

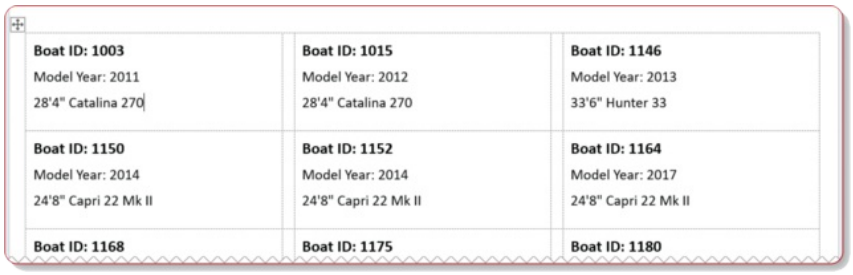


FIGURE 8-134 **Preview of merged labels**

u. Click the **Next: Complete the merge** link to finish the merge. The *Mail Merge* pane updates.

v. Select **Edit individual labels**. The *Merge to New Document* dialog box opens. Click **OK** to merge all records. Word opens a new document with the merge performed.

w. Save the completed merged labels as [your initials] BoatLabels_Merge.docx and close the document.

10. Save a copy of the main document as [your initials] BoatLabels_Main.docx to preserve the merge settings.
11. Close the document.
12. Close the database.

A8-695

A8-696

A8-697

Independent Project 8-4 SIMnet Project

Mary's Equipment Rentals wants to improve its database. To ensure consistency, the starting file is provided for you. You find and fix errors in an import that did not work correctly. Run the import to append records from a CSV delimited file to a table and export the *ServiceHistory* table to Excel. Finally, you run a merge using an existing Word document and modify the file to improve the labels.

[Student Learning Outcome 8.1, Student Learning Outcome 8.4, Student Learning Outcome 8.5, Student Learning Outcome 8.7]

Files Needed: ***MarysRentals-08.accdb, MarysRentalsEmployees-08.csv***, and ***CustomerLabels-08.docx*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Names: ***[your initials] Access 8-4.accdb, [your initials]MarysRentalsEmployees_Corrected.csv, [your initials] ServiceHistory.xlsx, and [yourinitials] CustomerLabels_Main.docx***

Skills Covered in This Project

- Find and fix errors in an import.
- Prepare a delimited text file for importing.
- Append data from a CSV delimited file to an existing table.
- Export to Excel.
- Open a saved merge in Word to remerge the document.
- Find and fix errors in a mail merge.
- Use *Mail Merge* to create labels.

1. Open the ***MarysRentals-08*** database from your student data files. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close it. If the message repeats in a later step, click **OK** or the **X** to close the message.
2. Save a new copy of your database as [your initials] Access 8-4.
3. Enable contents in the database.
4. Open the *Employees* table in *Datasheet* view. Note that the first record does not have a value in the *LastName* field and that several records are missing values in the *DateHired* field. The employee who imported the records into the table took screenshots of the two error messages that displayed while the records were being appended to the table.
   The first message (Figure 8-135) indicates that one record was not imported due to a key violation.

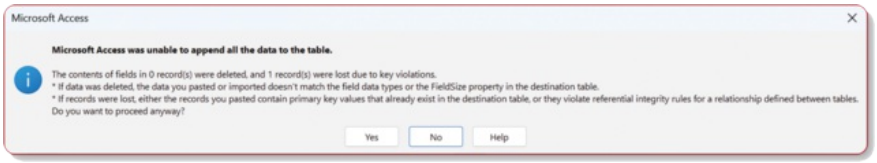


FIGURE 8-135 **Error message about primary key violation**

The second message (Figure 8-136) indicates that not all of the fields were imported due to bad data values, and that an *ImportErrors* table was created with details about the errors.



FIGURE 8-136 **Error message references *ImportErrors* table**

5. Find and fix the import errors.
   a. Open the *MarysRentalsEmployees-08_ImportErrors* table in *Datasheet* view. Widen the *Error* column if needed. Note that the error message is a *Type Conversion Failure* of the *DateHired* field for rows 1, 2, and 3.
   b. Close the *MarysRentalsEmployees-08_ImportErrors* table. Do not save changes to the layout if prompted.
   c. Change to *Design* view of the *Employees* table. Note that *Data Type* of the *DateHired* field is a *Number*.
   d. Open the ***MarysRentalsEmployees-08.csv*** file in Notepad (Figure 8-137).

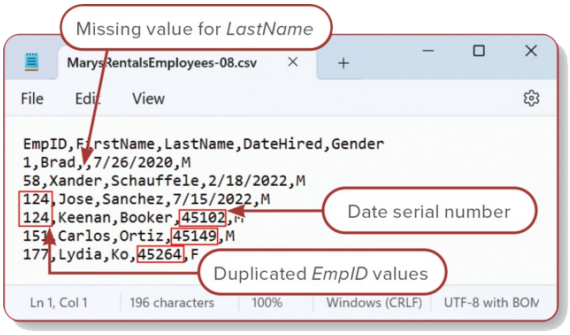


FIGURE 8-137 **Employee data file in Notepad**

   e. Enter Thomas to fix the missing *LastName* for employee 1.
   f. Change Keenan Booker's *EmpID* to 132, his correct ID. This duplicated primary key value, two records both with a value of 124 as the *EmpID,* caused the error message shown in Figure 8-135 to display.
   g. Change the *DateHired* value on Keenan Booker's record to 6/25/2023 in place of *45102*. 45102 is the serial number (the internal representation of a date). Correct the inconsistent entries on the next two records by changing the serial numbers into the short date format. Enter 8/11/2023 in place of *45149,* and enter 12/4/2023 in place of *45264.*

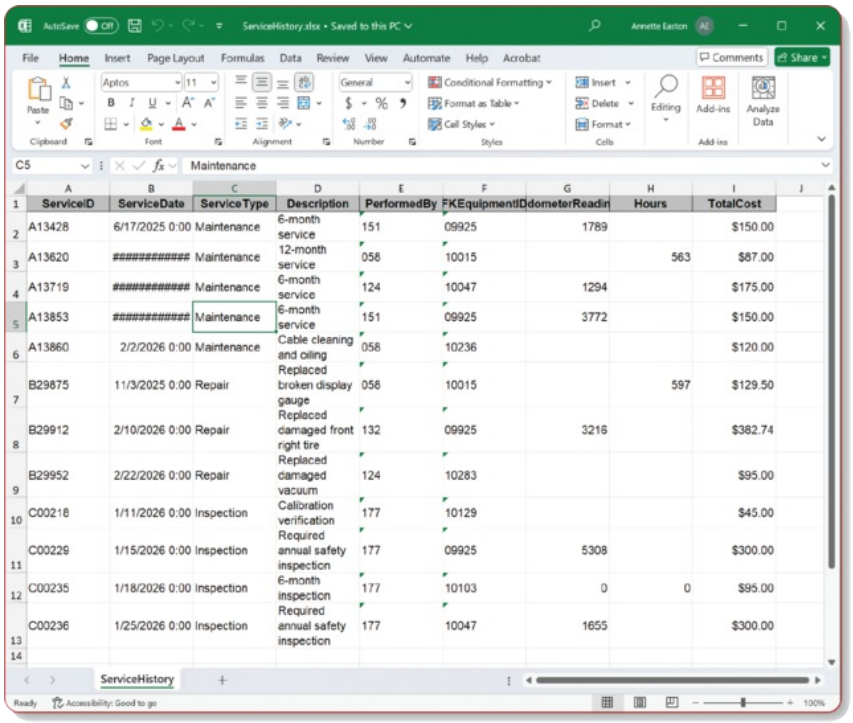
MORE INFO

Recall from ***SLO 8.4: Importing Text Files*** that when mixed data types

exist in the import column, Access makes a determination about which ones to import. In this case, it used the *Number* data type of the last three records.

h. Use *Save As* to save a copy of the file as [your initials] MarysRentalsEmployees_Corrected.csv. Note that the *Save as type* box displays *Text documents (*.txt)* because your CSV file is a delimited type of text document.
i. Close Notepad. The *Employees* table is still open in *Design* view.
j. Change the *Date Type* of the *DateHired* field to **Date/Time**.

6. Reimport the corrected data.
   a. Change back to *Datasheet* view of the *Employees* table. Save the table, if prompted.
   b. Delete all of the records.
   c. Save and close the table.
   d. Click the **New Data Source** button, select **From File**, and then select **Text File**.
   e. Locate, select, and open the ***[your initials] MarysRentalsEmployees_Corrected.csv*** file.
   f. Choose to **append** a copy of the records to the **Employees** table and click **OK** to launch the import process. If a *Microsoft Access Security Notice* box displays, click **Open**.
   g. Choose a **Delimited** format and click **Next**.
   h. Make the selections to indicate that the data uses the comma delimiter and that field names are in the first row.
   i. Complete the import into the *Employees* table. Do not save the import steps.
   j. Open the *Employees* table in *Datasheet* view to confirm that all six records were added successfully.
   k. Close the table.
7. Export from a table to Excel.
   a. Select the **ServiceHistory** table.
   b. Click **Excel** to start an export.
   c. Use [your initials] ServiceHistory.xlsx as the file name.
   d. Export the data with formatting and layout, choose to open the destination file after the export, and click **OK** to run the export. The file opens in Excel ( **Figure 8-138**).



ServiceID	ServiceDate	ServiceType	Description	PerformedBy	FKEquipmentID	OdometerReadin	Hours	TotalCost
A13428	6/17/2025 0:00	Maintenance	6-month service	151	09925	1789		$150.00
A13620	##########	Maintenance	12-month service	058	10015		563	$87.00
A13719	##########	Maintenance	6-month service	124	10047	1294		$175.00
A13853	##########	Maintenance	6-month service	151	09925	3772		$150.00
A13860	2/2/2026 0:00	Maintenance	Cable cleaning and oiling	058	10236			$120.00
B29875	11/3/2025 0:00	Repair	Replaced broken display gauge	058	10015		597	$129.50
B29912	2/10/2026 0:00	Repair	Replaced damaged front right tire	132	09925	3216		$382.74
B29952	2/22/2026 0:00	Repair	Replaced damaged vacuum	124	10283			$95.00
C00218	1/11/2026 0:00	Inspection	Calibration verification	177	10129			$45.00
C00229	1/15/2026 0:00	Inspection	Required annual safety inspection	177	09925	5308		$300.00
C00235	1/18/2026 0:00	Inspection	6-month inspection	177	10103	0	0	$95.00
C00236	1/25/2026 0:00	Inspection	Required annual safety inspection	177	10047	1655		$300.00

FIGURE 8-138 **Exported *ServiceHistory* table in Excel**

e. Verify that the records exported successfully. Don't worry if several cells display #####, because the columns are too narrow.

f. Close Excel.

g. Close the *Export – Excel Spreadsheet* dialog box without saving the export steps.

8. Perform a mail merge using an existing document to produce mailing labels.

a. Select the **Customers** table and click **Word Merge**. If a *Microsoft Access Security Notice* box displays, click **Open**.

b. Choose to **Link your data to an existing Microsoft Word document**.

c. Locate and select the ***CustomerLabels-08.docx*** file and click **Open**. The document opens and displays the label sheet (Figure 8-139). The labels need to be changed so they include the ZIP Code.



FIGURE 8-139 **Mail merge labels missing ZIP Code**

d. Click the **Previous: Starting document** link, and then click the **Previous: Select document type** link.

e. Choose the **Labels** radio button. Even though your document has a label layout, Word opened the file as a letter document.
f. Click **Next: Starting document** and **Next: Select recipients**. If a *Label Options* dialog box opens, verify that *Avery US Letter* is selected in the *Label vendors* and *5160 Address Labels* is selected as the *Product number,* and click **OK**. If a *Mail Merge* message displays about deleting the current contents, click **Cancel**.
g. Click **Next: Arrange your labels**.
h. Click inside the first label after the *<<State>>* merge field and insert one space.
i. Click the **More Items** link to open the *Insert Merge Field* dialog box. Insert the **ZIP** field.
j. Click **Update all labels**.
k. Click the **Next: Preview your labels** link. The document should show five customer labels.
l. Save your changes to the main document as [your initials] CustomerLabels_Main.docx.
m. Close the Word document.

9. Close the database.

A8-698

A8-699

A8-700

Independent Project 8-5

The New York Department of Motor Vehicles needs to export data to share with various state and local agencies. Unfortunately, most agencies have their own system and specific formatting needs for the files. To ensure consistency, the starting file is provided for you. Export to XML the data and structure from three tables, export to an Excel file, and create a query and export selected records from the query to the HTML format.

[Student Learning Outcome 8.1, Student Learning Outcome 8.5, Student Learning Outcome 8.6]

File Needed: ***NewYorkDMV-08.accdb*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Names: ***[your initials] Access 8-5.accdb, [your initials] Tickets_Drivers_and_Officers.xml, [your initials] March_Ticket_Count.xlsx***, and ***[your initials] Syracuse_Utica_Ticket_Details.html***

Skills Covered in This Project

- Export to XML.
- Export to an Excel file.
- Create a query to use for exporting.
- Export selected records to HTML.

---

1. Open the ***NewYorkDMV-08*** database from your student data files. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close it. If the message repeats in a later step, click **OK** or the **X** to close the message.
2. Save a new copy of your database as [your initials] Access 8-5.
3. Enable content in the database.
4. Export the *Tickets* table, and the related records in the *Drivers* and *Officers* tables, to XML.
   a. Select the **Tickets** table, click the **More** button, and select the **XML File** option. The *Export – XML File* dialog box launches.
   b. Save the file as [your initials] Tickets_Drivers_and_Officers.xml.
   c. Start the export process. The *Export XML* dialog box opens.
   d. Choose to export both the data and the schema and click the **More Options** button.
   e. Expand the *[Lookup Data]* option on the *Data* tab, and select the **Drivers** and **Officers** tables. This exports the data from all three tables in one XML file.
   f. Choose to embed the schema in the XML data document on the *Schema* tab. Click **OK** to export the file.
   g. Close the wizard without saving the export steps.
5. Review the exported XML file.
   a. Open the ***[your initials] Tickets_Drivers_and_Officers.xml*** file in Notepad to verify it was created successfully. It should be similar to **Figure 8-140**. Note that the XSD definitions appear at the top of the file and that the tables are defined in order of *Tickets, Drivers,* and *Officers*.

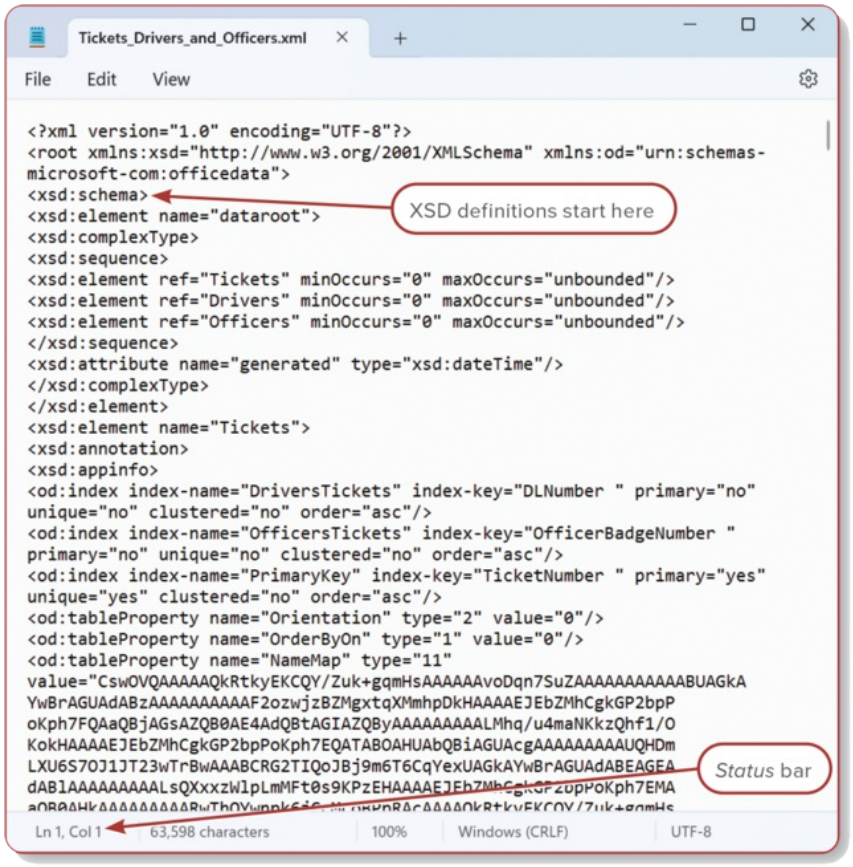


FIGURE 8-140 XML file after exporting the *Tickets*, *Drivers*, and *Officers* data and schema

b. Click **View** on the *Menu bar* and select **Status Bar** if the bottom of the Notepad window does not currently show the *Status Bar* information. If the *Status Bar* option is dimmed, first disable the *Word Wrap* option under the *Format* tab.

c. Click **Edit** on the *Menu bar* and select **Go To** to open the *Go To Line* dialog box. You can also press **Ctrl+G** to open the *Go To Line* dialog box.

d. Type 174 in the *Line number* box and click **Go To**. You advance to the field definitions for the *PrimaryFactor* field in the *Tickets* table.

e. Scroll down a few rows until the row that begins with *<od:fieldProperty name="RowSource" . . .* is visible. Note that the lookup values for this field are stored in this property.

f. Open the *Go To Line* dialog box again.

g. Type 738 in the *Line number* box and click **Go To**. You advance to the beginning of the XML portion that contains the data records. Note that row 737 contains *</xsd:schema>,* which ends the definition of the schema. Row 739 contains *<Tickets>,* which starts the definition of the *Tickets* table data. Scroll down and review the data values for the first record, *TicketNumber 4235879527.*

h. Open the *Go To Line* dialog box again.

i. Type 1144 in the *Line number* box and click **Go To**. Note that row 1144 contains *</Tickets>,* which ends the definition of the *Tickets* table data. Row 1145 starts the definition of the *Drivers* table data. Exporting to XML provides a quick and powerful way to share the entire database structure and data.

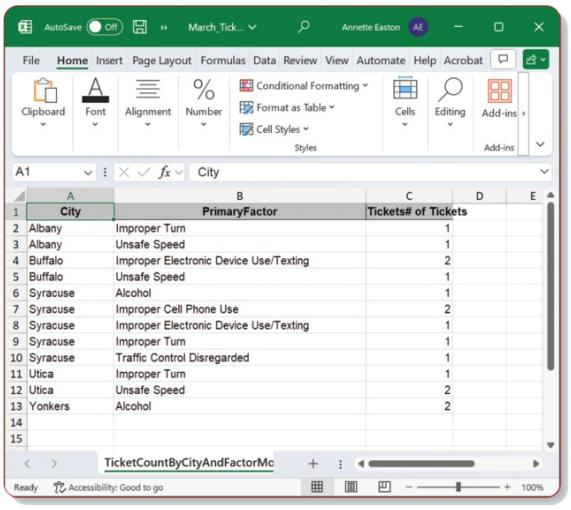
j. Close the XML file.

6. Run the *TicketCountByCityAndFactorMonthParameter* query to test it. Enter 3, when prompted by the *Enter Parameter Value* dialog box. Twelve records display. Close the query.

7. Export the *TicketCountByCityAndFactorMonthParameter* query to Excel.

a. Start the export by selecting the **TicketCountByCityAndFactorMonthParameter** query and selecting **Excel** from the *Export* options. Enter [your initials] March_Ticket_Count.xlsx as the file name. Choose to **Export data with formatting and layout** and **Open the destination file after the export operation is complete**.

b. Choose to export the data from March when prompted. The exported file opens in Excel (**Figure 8-141**). The records should match what you saw in step 6.



	A	B	C	D	E
1	City	PrimaryFactor	Tickets# of Tickets		
2	Albany	Improper Turn	1		
3	Albany	Unsafe Speed	1		
4	Buffalo	Improper Electronic Device Use/Texting	2		
5	Buffalo	Unsafe Speed	1		
6	Syracuse	Alcohol	1		
7	Syracuse	Improper Cell Phone Use	2		
8	Syracuse	Improper Electronic Device Use/Texting	1		
9	Syracuse	Improper Turn	1		
10	Syracuse	Traffic Control Disregarded	1		
11	Utica	Improper Turn	1		
12	Utica	Unsafe Speed	2		
13	Yonkers	Alcohol	2		
14					
15					

FIGURE 8-141 **Exported ticket count in Excel**

c. Close the Excel file.

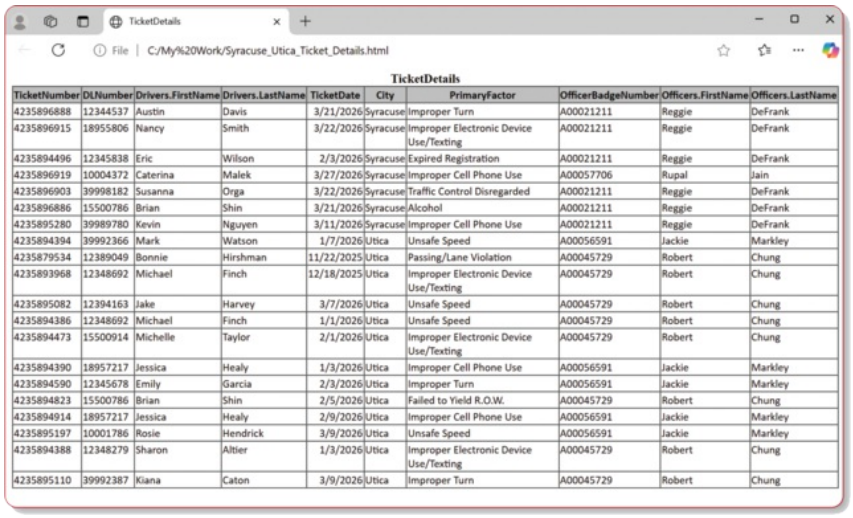
d. Close the *Export – Excel Spreadsheet* dialog box without saving the export steps.

8. Create a new query.

a. Add the following fields into the query: *TicketNumber, DLNumber* (from *Tickets* table); *FirstName, LastName* (from *Drivers* table); *TicketDate, City, PrimaryFactor, OfficerBadgeNumber* (from *Tickets* table); and *FirstName, LastName* (from *Officers* table) fields.

b. Save the query and enter TicketDetails as the query name.
c. Run the query to test it. The query should display 45 records.

9. Export selected records from a query to HTML.
a. Sort the records in the *TicketDetails* query results in ascending order by *City*.
b. Select the records for *Syracuse* and *Utica*.
c. Choose to export to an **HTML Document**.
d. Use [your initials] Syracuse_Utica_Ticket_Details.html as the file name.
e. Choose to **Export data with formatting and layout**, **Open the destination file after the export**, and **Export only the selected records**, and click **OK**.
f. Click **OK** to accept the choices in the *HTML Output Options* dialog box. The *Export Wizard* closes and the file opens in your default browser (Figure 8-142).



TicketDetails

TicketNumber	DLNumber	Drivers.FirstName	Drivers.LastName	TicketDate	City	PrimaryFactor	OfficerBadgeNumber	Officers.FirstName	Officers.LastName
4235896888	12344537	Austin	Davis	3/21/2026	Syracuse	Improper Turn	A00021211	Reggie	DeFrank
4235896915	18955806	Nancy	Smith	3/22/2026	Syracuse	Improper Electronic Device Use/Texting	A00021211	Reggie	DeFrank
4235894496	12345838	Eric	Wilson	2/3/2026	Syracuse	Expired Registration	A00021211	Reggie	DeFrank
4235896919	10004372	Caterina	Malek	3/27/2026	Syracuse	Improper Cell Phone Use	A00057706	Rupal	Jain
4235896903	39998182	Susanna	Orga	3/22/2026	Syracuse	Traffic Control Disregarded	A00021211	Reggie	DeFrank
4235896886	15500786	Brian	Shin	3/21/2026	Syracuse	Alcohol	A00021211	Reggie	DeFrank
4235895280	39989780	Kevin	Nguyen	3/11/2026	Syracuse	Improper Cell Phone Use	A00021211	Reggie	DeFrank
4235894394	39992366	Mark	Watson	1/7/2026	Utica	Unsafe Speed	A00056591	Jackie	Markley
4235879534	12389049	Bonnie	Hirshman	11/22/2025	Utica	Passing/Lane Violation	A00045729	Robert	Chung
4235893968	12348692	Michael	Finch	12/18/2025	Utica	Improper Electronic Device Use/Texting	A00045729	Robert	Chung
4235895082	12394163	Jake	Harvey	3/7/2026	Utica	Unsafe Speed	A00045729	Robert	Chung
4235894386	12348692	Michael	Finch	1/1/2026	Utica	Unsafe Speed	A00045729	Robert	Chung
4235894473	15500914	Michelle	Taylor	2/1/2026	Utica	Improper Electronic Device Use/Texting	A00045729	Robert	Chung
4235894390	18957217	Jessica	Healy	1/3/2026	Utica	Improper Cell Phone Use	A00056591	Jackie	Markley
4235894590	12345678	Emily	Garcia	2/3/2026	Utica	Improper Turn	A00056591	Jackie	Markley
4235894823	15500786	Brian	Shin	2/5/2026	Utica	Failed to Yield R.O.W.	A00045729	Robert	Chung
4235894914	18957217	Jessica	Healy	2/9/2026	Utica	Improper Cell Phone Use	A00056591	Jackie	Markley
4235895197	10001786	Rosie	Hendrick	3/9/2026	Utica	Unsafe Speed	A00056591	Jackie	Markley
4235894388	12348279	Sharon	Altier	1/3/2026	Utica	Improper Electronic Device Use/Texting	A00045729	Robert	Chung
4235895110	39992387	Kiana	Caton	3/9/2026	Utica	Improper Turn	A00045729	Robert	Chung

FIGURE 8-142 Selected ticket details records exported to HTML

g. Close the browser tab.
h. Close the query. If prompted, do not save changes to the query.

10. Close the database.

Independent Project 8-6 SIMnet Project

American River Cycling Club wants to expand its database. To ensure consistency, the starting file is provided for you. Import a CSV delimited file to create a new table to store race details. Then, use mail merge to generate mailing labels to send a

newsletter to the club members.

[Student Learning Outcome 8.1, Student Learning Outcome 8.4, Student Learning Outcome 8.7]

Files Needed: AmericanRiver-08.accdb and RaceInfo-08.csv *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Names: ***[your initials] Access 8-6.accdb***, ***[your initials] MemberLabels Merge.docx***, and ***[your initials] MemberLabels Main.docx***

Skills Covered in This Project

- Prepare a delimited text file for importing.
- Import data from a CSV delimited file to a new table.
- Review and modify a new table created by importing.
- Use *Mail Merge* to create labels.

1. Open the ***AmericanRiver-08*** database from your student data files. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close it. If the message repeats in a later step, click **OK** or the **X** to close the message.
2. Save a new copy of your database as [your initials] Access 8-6.
3. Enable content in the database.
4. Preview the delimited text file before importing.
   a. Open the ***RaceInfo-08.csv*** file in Notepad (Figure 8-143). Note that the first row contains field names.

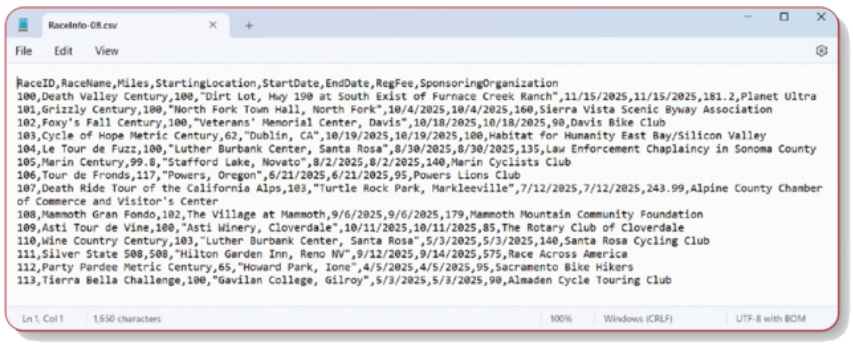


FIGURE 8-143 CSV delimited text file for importing

   b. Close the file.
5. Create a new table by importing a delimited text file.
   a. Click the **New Data Source** button, select **From File**, and then select **Text File**.
   b. Locate, select, and open the ***RaceInfo-08.csv*** file.

c. Click **OK** to launch the import process and choose a **Delimited** format.

d. Make the selections to indicate that the data uses the comma delimiter and that field names are in the first row.

e. Access displays a message indicating that the first row has data that can't be used as a field name. Click **OK** to acknowledge the message. Note in the *StartingLocation* column that many entries have quotation marks, while a few don't.

f. Scroll to the right to see the data in the *Import Text Wizard* dialog box. Note that *Highway 190. . .* is in the *StartDate* column for the first row. In Figure 8-143, note the comma between "Dirt Lot" and "Hwy 190. . ." Continue scrolling to the far right. Notice the extra *Field9* column. The commas included with the text data cause the data to be interpreted wrong.

g. Change the *Text Qualifier* to a **double quotation mark**. The message box does not display again, indicating that the field names are now correct. Notice that the extra field has been removed.

h. Advance to the next page of the wizard (Figure 8-144).

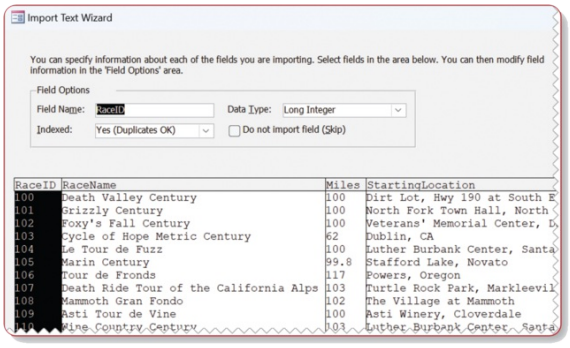


FIGURE 8-144 **Modify field options**

i. Select **Yes (No Duplicates)** in the *Indexed* box because *RaceID* will be the primary key, and change the *Data Type* to **Short Text**.

j. Select the **RegFee** field and change the *Data Type* to **Currency**.

k. Advance to the next page of the wizard.

l. Choose *RaceID* as the primary key and advance to the final page of the wizard.

m. Enter RaceInformation as the name of the new table and finish the wizard. Do not save the import steps.

6. View and modify the new table.

a. Open the *RaceInformation* table in *Datasheet* view. The table should contain 14 records.

b. Change the *Field Width* of each field to **Best Fit**.

c. Switch to *Design* view, make all the fields required and change the sizes of the

following fields:
RaceID: 3
RaceName: 45
StartingLocation: 70
SponsoringOrganization: 70

d. Save the changes. Click **Yes** to acknowledge the warning message that data may be lost due to field size changes. Click **Yes** to acknowledge the warning message that data integrity rules have been changed and to test the existing data against the new rules.

e. Close the table.

7. Use *Mail Merge* to create mailing labels.

a. Select the **Members** table and click **Word Merge**.

b. Choose to **Create a new document and then link the data to it**.

c. Select **Labels**, in the *Mail Merge* pane, and advance to the next step.

d. Click **Labels options**. Select **Avery US Letter** in the *Label vendors* and **5160 Address Labels** in the *Product number*.

e. Choose to view gridlines around the table cells if they are not already displayed. Advance to the next step.

f. Verify that the *Members* table displays as the data source. Advance to the next step.

g. Add an **<<AddressBlock>>** merge field into the first label. Accept the default settings of the merge field.

h. Update all the labels and advance to the next step. The document updates to show how the merged data appears in a label (Figure 8-145).



FIGURE 8-145 **Preview of merged labels**

i. Complete the merge.

j. Edit the individual labels and choose to merge all records.

k. Save the completed merged labels as [your initials] MemberLabels_Merge.docx and close the document.

8. Save a copy of the main document as [your initials] MemberLabels_Main.docx to preserve the merge settings. Close the document.

9. Close the database.

Advanced Project 8-7

Central Sierra Insurance wants you to expand the functionality of its database to store policy information. To ensure consistency, the starting file is provided for you. Create two new tables by importing XML files and establish relationships between the new tables and the existing tables. Then, create a merge into an existing letter.

[Student Learning Outcome 8.1, Student Learning Outcome 8.3, Student Learning Outcome 8.6, Student Learning Outcome 8.7]

Files Needed: ***CentralSierra-08.accdb, Policies-08.xml***, ***Policies-08.xsd (Policies-08), PolicyCo-owners-08.accdb***. and ***PolicyLetter-08.docx*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Names: ***[your initials] Access 8-7.accdb***, ***[your initials] PolicyLetter_Merge.docx***, and ***[your initials] PolicyLetter_Main.docx***

Skills Covered in This Project

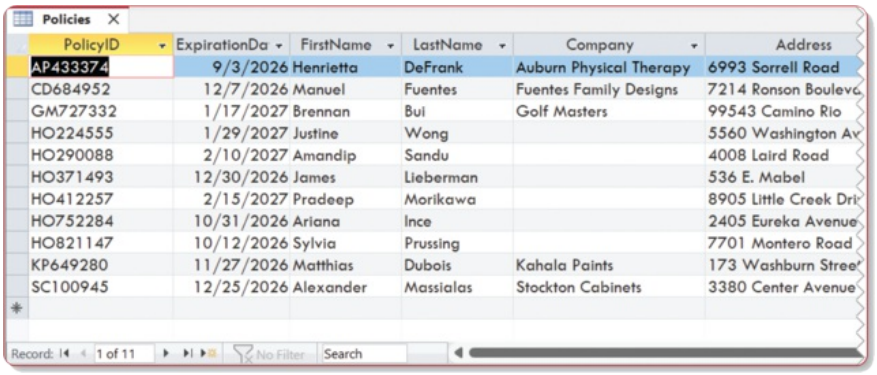
- Import an XML file to create a new table.
- Import a table from an Access database.
- Define a relationship with the *Lookup Wizard*.
- View and edit relationship properties.
- Use *Mail Merge* to create a form letter.
- Save the settings in a mail merge document.

1. Open the ***CentralSierra-08*** database file. If a *Security Risk* message of active content is blocked dialog box displays, click **OK** or the **X** to close it. If the message repeats in a later step, click **OK** or the **X** to close the message. Save a new copy of your database as [your initials] Access 8-7. Enable content in the security warning.
2. Import an XML file to create a *Policies* table. Remember that both the .xml and .xsd files must be in the same folder.
   a. Initiate an import from an **XML File** to import records from the ***Policies-08.xml*** file.
   b. Start the import process after specifying the file name.
   c. Expand the *Policies* table in the *Import XML* dialog box to display the fields in the table.

d. Choose to import both the *Structure and Data.*

e. Complete the import. Don't save the import steps.

3. Open the *Policies* table in *Datasheet* view to verify that the 11 records shown in **Figure 8-146** were imported into the table.



Policies

PolicyID	ExpirationDa	FirstName	LastName	Company	Address
AP433374	9/3/2026	Henrietta	DeFrank	Auburn Physical Therapy	6993 Sorrell Road
CD684952	12/7/2026	Manuel	Fuentes	Fuentes Family Designs	7214 Ronson Boulevd
GM727332	1/17/2027	Brennan	Bui	Golf Masters	99543 Camino Rio
HO224555	1/29/2027	Justine	Wong		5560 Washington Av
HO290088	2/10/2027	Amandip	Sandu		4008 Laird Road
HO371493	12/30/2026	James	Lieberman		536 E. Mabel
HO412257	2/15/2027	Pradeep	Morikawa		8905 Little Creek Dri
HO752284	10/31/2026	Ariana	Ince		2405 Eureka Avenue
HO821147	10/12/2026	Sylvia	Prussing		7701 Montero Road
KP649280	11/27/2026	Matthias	Dubois	Kahala Paints	173 Washburn Stree
SC100945	12/25/2026	Alexander	Massialas	Stockton Cabinets	3380 Center Avenue

Record: 1 of 11 No Filter Search

FIGURE 8-146 ***Datasheet* view of the *Policies* table**

4. View the properties of the table fields.

a. Switch to *Design* view of the table.

b. Select each of the fields and review the properties of that field. The .xsd file contains specifications to set the field type and sizes, but not everything was set as desired.

c. Make all fields, except *Company,* required. *TotalPremium,* a calculated field, does not have a *Required* property.

d. Set the **Default Value** of *State* to CA.

e. Select **Lookup Wizard** in the *AgentID Data Type* property. Follow the wizard steps to look up the values from the *EmpID* field in the *Employees* table. *Enable Data Integrity* when prompted by the wizard. Save the table if prompted. Click **Yes** to acknowledge the data integrity warning message.

f. Close the table.

5. Import a table from an Access database to create a *PolicyCo-owners* table.

a. Initiate an import from **Access** to import a table from the ***PolicyCo-owners-08.accdb*** file.

b. Start the import process after specifying the file name.

c. Choose to import the **PolicyCo-owners** table in the *Import Objects* dialog box. Be sure to import both the table definition and data.

d. Complete the import. Don't save the import steps.

6. Open the *PolicyCo-owners* table in *Datasheet* view to verify that the five records shown in **Figure 8-147** were imported into the table.

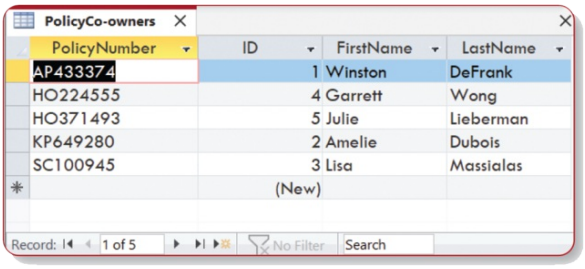


FIGURE 8-147 ***Datasheet* view of the *PolicyCo-owners* table**

7. View the properties of the table fields.
   a. Switch to *Design* view of the table.
   b. Select each of the fields and review the properties of that field. The database file contained specifications to set the field type, sizes, and required properties.
   c. Make the *FirstName* and *LastName* fields required.
   d. Select **Lookup Wizard** in the *PolicyNumber Data Type* property. Follow the wizard steps to look up the values from the *PolicyID* field in the *Policies* table. *Enable Data Integrity* when prompted by the wizard. Save the table if prompted, Click **Yes** when the data integrity warning message appears and click **OK** to acknowledge the index message.
   e. Close the table.
8. Use the *Relationships* window to enforce referential integrity in the table relationships. Refer back to the "*Create Relationships between Tables*" section in ***SLO 2.6: Understanding and Designing Relational Databases*** if you need to review creating relationships.
   a. Add the *Policies* and *PolicyCo-owners* tables to the *Relationships* window if not already shown. Increase the size of the tables if all fields do not display.
   b. Relate the **EmpID** field from the *Employees* table to the **AgentID** field in the *Policies* table if the relationship does not already display.
   c. Select the correct choices between the *Employees* and *Policies* tables relationship to **Enforce Referential Integrity** and **Cascade Update Related Fields**.
   d. Relate the **PolicyID** field from the *Policies* table to the **PolicyNumber** field in the *PolicyCo-owners* table if the relationship does not already display.
   e. Select the correct choices between the *Policies* and *PolicyCo-owners* tables to **Enforce Referential Integrity**, **Cascade Update Related Fields**, and **Cascade Delete Related Records**.
   f. Save your changes and close the *Relationships* window.
9. Perform a mail merge using an existing letter.

a. Initiate a **Word Merge** to merge data from the ***Policies*** table with the ***PolicyLetter-08.docx*** Word file. The mail merge starts at *Step 3 of 6*. Note that this document contains placeholders, so you know where to position the merge fields (Figure 8-148).

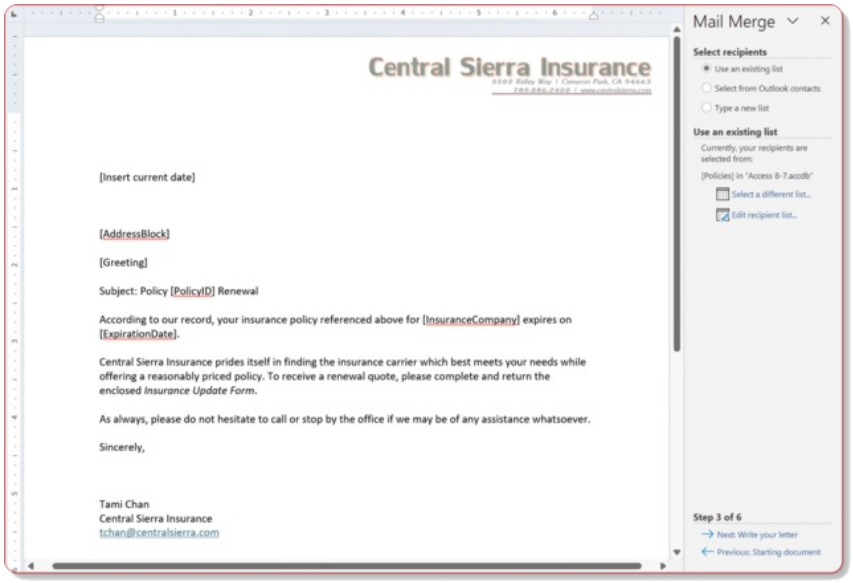


FIGURE 8-148 ***Mail Merge*** **pane, Step 3**

b. Advance to *Step 4 of 6* to write your letter.
c. Replace the *[Insert Current Date]* placeholder in the Word document by typing the current date.
d. Replace the *[AddressBlock]* placeholder with the *<<AddressBlock>>* merge field. Accept the default selections on the *Insert Address Block* dialog box.
e. Replace the *[Greeting]* placeholder with the *<<GreetingLine>>* merge field and select the colon (**:**) as the greeting line punctuation.
f. Use **More items** to open the *Insert Merge Field* dialog box and replace the remaining placeholders.
g. Advance to *Step 5 of 6* to preview your letters. The document updates to show how the merged data appears (Figure 8-149).



FIGURE 8-149 **Preview of merged policy letter**

h. Use **Edit recipient list** to **Filter** the data to only send the letter to recipients whose policy *ExpirationDate* is >= 1/1/2026 and <= 12/31/2026. Verify that the merge works correctly by clicking the navigation arrows to scroll through the 7 letters.

i. Advance to *Step 6 of 6* to complete the merge. Use **Edit individual letters** to merge all the records. The completed document should contain seven pages.

j. Save the completed merged document as [your initials] PolicyLetter_Merge.docx and close the document.

10. Save a copy of the main document as [your initials] PolicyLetter_Main.docx to preserve the merge settings and close the document.
11. Close the database.

Copilot Challenge Project 8-8

Use *Copilot* or other generative AI to help you add records to a file in Excel to store contact information. Then, you create a new database, import data from Excel to

create a new table, and modify properties of the table. Next, you export the data to a fixed-width text file. Finally, use *Copilot* to create a Word document and merge that document with the data from your database table.

[Student Learning Outcome 8.1, Student Learning Outcome 8.2, Student Learning Outcome 8.5, Student Learning Outcome 8.7]

File Needed: ***Contacts-08.xlsx*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Names: ***[your initials] Access 8-8.accdb***, ***[your initials] Contacts-Data.xlsx***, and ***[your initials] Contacts-Export.txt***, ***[your initials] Invitation-Merge.docx***, and ***[your initials] Invitation-Main.docx***

Open the ***Contacts-08.xlsx*** workbook in Excel and save it as [your initials] Contacts-Data.xlsx.

- Open *Copilot* and write a prompt in which you provide *Copilot* the names of the fields in your Excel worksheet and ask it to create seven rows of data for those fields. Ask it to limit the data to people in your home state and a particular set of cities.
- Refine the prompt as necessary. When happy with the results, ask *Copilot* to format the data as a CSV file so you can copy it into Excel. Although there are other format options, because the data most likely has spaces between different values in a field (e.g. 123 Maple Street), the CSV format should work best.
- Copy the data. Use the *Copy* icon if provided in the *Copilot* response or select all the data and press **Ctrl+C** to copy.
- Switch to the Excel file, click in cell A2, click **Paste** [*Home* tab, *Clipboard* group] and select the **Use Text Import Wizard** The Excel *Text Import Wizard* launches. This wizard operates similarly to the Access wizards you have used for importing.
  - Choose a **Delimited** file type, the **My data has headers** check box as appropriate and click **Next**.
  - Choose the appropriate delimiter. This should be a **Comma** and deselect the **Space** check box if preselected. Click **Next**.
  - Click **Finish** because you don't need to apply a data format.
- Delete the extra row of column headers, if one was copied into your workbook. Delete any additional blank rows so that row 1 of the finished worksheet contains the column headers, and rows two through eight contain the data.
- Save and close the workbook.
- Close Excel.

Create a new **blank desktop database** and save it as [your initials] Access 8-8. Modify your database according to the following guidelines:

- Close the existing table that opened when the database was created.
- Import the *[your initials] Contacts-Data.xlsx* Excel file to create a new table in the database.
- Indicate that the first row contains column headings.
- Assign appropriate data types to the fields during the import process.
- Allow Access to add a primary key.
- Name the table Contacts.
- Open the table in *Datasheet* view to ensure the records imported successfully.
- Switch to Design view to ensure the records imported successfully.
- Change the *ZIP* field to a *Short Text* field with a *Field Size* of 5 if necessary.
- Save and close the table.

Export the table to a fixed-width text file:

- Name the file [your initials] Contacts-Export.txt and do not export the formatting and layout.
- Choose a *Fixed Width* format and adjust the field breaks if needed.
- Don't save the export steps.
- Open *[your initials] Contacts-Export.txt* in Notepad to verify that the records exported successfully.
- Close Notepad.

Perform a mail merge:

- Open a new blank document in Word.
- Ask *Copilot* to create a housewarming party invitation you can send to your contacts. Provide details in your prompt with the location, date, and timing of the party. Refine the prompt as necessary until you are satisfied with the draft. It is possible that *Copilot* will create an image type file as the result.
- Download if necessary and then copy and paste that content into a Word document. Make any refinements to the letter content as well as to the formatting.
- Save the document as [your initials] Invitation_Main.docx. Close the document.
- Use the *Contacts* table as the data source for a mail merge. Use the *[your initials] Invitation_Main.docx* as the document.
- Edit the document to include the name and address fields from the *Contacts* table. Don't include the phone number field. Add any additional text needed in the invitation.
- Write a greeting message that includes the first name.
- Preview your letters. Make any adjustments to the content and formatting. Ask *Copilot* for help, if needed.

- Complete the merge. Edit the individual letters and choose to merge all the records.
- Save the merged document as [your initials] Invitation_Merge.docx. Close the document.
- Save the main document. Close the document.
- Close Word.
- Close any open objects and the database.

Challenge Project 8-9

For this project, you modify the database you created in ***Challenge Project 7-9*** for Blue Lake Sporting Goods. Your database contains a table with information about the different departments at Blue Lake Sporting Goods, and a related table with information about interns who are working at Blue Lake, along with the other objects created previously. Export data from the *Intern* table to a CSV delimited text file and export the data and schema of the *Departments* table to XML. Use mail merge to create name badge labels for interns in selected departments.

[Student Learning Outcome 8.5, Student Learning Outcome 8.6, Student Learning Outcome 8.7]

File Needed: ***[your initials] Access 7-9.accdb***

Completed Project File Names: ***[your initials] Access 8-9.accdb, [your initials] Interns.csv, [your initials] Department.xml, [your initials] Department.xsd, [your initials] InternBadges_Merge.docx***, and ***[your initials] InternBadges_Main.docx***

Open the database ***[your initials] Access 7-9*** and save a copy of it as [your initials] Access 8-9.

Use your database to perform the following tasks:

- Export the data to a delimited text file.
  - –Export the data from the *Interns* table to a CSV delimited text file.
  - –Save the file as [your initials] Interns.csv.
  - –View the CSV file in Notepad to ensure all data exported successfully.
  - –Close the CSV file.
- Export to XML.
  - –Export the data and the schema from the *Departments* table to XML.
  - –Save the files as [your initials] Department.xml and [your initials] Department.xsd.
  - –View the XML file in Notepad to ensure all data exports successfully.

–Close the XML file.

- Use *Mail Merge* to create name badge labels.
  –Create a query that includes the *FirstName, LastName,* and *Major* fields from the *Interns* table, and the *DepartmentName* from the *Departments* table.
  –Use the query as the data source for a mail merge to create labels.
  –Select the **Avery 8395 Name Badge Labels**.
  –Include the interns' *FirstName, LastName, Major,* and *DepartmentName* (where they are interning) as merge fields.
  –Bold the *FirstName* and *LastName* merge fields.
  –Create badges only for interns working in the *Sales-Golf, Accounting-Golf,* and *HR-Golf* departments.
  –Save the merged labels as [your initials] InternBadges_Merge.docx, and save the label document with the settings as [your initials] InternBadges_Main.docx.
- Close any open Word documents.
- Close any open objects and the database.

Challenge Project 8-10

For this project, you modify the database you created for a travel agency in ***Challenge Project 7-10***. Your database contains a *Ships* table with information about the different ships. The *Ships* table has a one-to-many relationship with the *Trips* table, which contains specific details about upcoming cruises. The database also contains a *TripInformation* table that contains overview information about the trips and has a one-to-many relationship with the *Trips* table. A worker in the travel agency created a listing of new ships in Excel. Append the data to the *Ships* table. Export the data from the *Trips* table to HTML. Finally, use mail merge to create a flyer to provide information about selected trips.

[Student Learning Outcome 8.1, Student Learning Outcome 8.2, Student Learning Outcome 8.5, Student Learning Outcome 8.7]

Files Needed: ***[your initials] Access 7-10.accdb*** and ***NewShips-08.xlsx*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Name: ***[your initials] Access 8-10.accdb, [your initials] NewShips.xlsx, [your initials] Trips.html,[your initials] TripFlyer Merge.docx***, and ***[your initials] TripFlyer Main.docx***

Open the database ***[your initials] Access 7-10*** and save a copy of it as [your initials]

Access 8-10.

Use your database to perform the following tasks:

- Preview the ***NewShips-08.xlsx*** file for importing.
  - –Enable editing if the file opened in *Protected View*.
  - –Ensure that the column names match those of the *Ships* table in your database.
  - –Add values into the *ShipID* cells that don't conflict with existing ships.
  - –Delete any rows of data where the record is a duplicate of a ship already stored in the table.
  - –Save the changes as [your initials] NewShips.xlsx.
  - –Close the Excel file.
- Append records into the *Ships* table.
  - –Import the ***[your initials] NewShips.xlsx*** file into the database by appending the records to the *Ships* table.
  - –Review the *Ships* table after the import to ensure all records added successfully.
- Export to HTML.
  - –Export the data from the *Trips* table to HTML.
  - –Save the file as [your initials] Trips.html.
  - –View the exported file in your browser.
- Use *Mail Merge* to create a flyer.
  - –Create a query that includes all fields from the *Trips* table.
  - –Include a parameter in the criteria of the *DepartureDate* field. The criteria expression finds records that match the month value entered into the *Enter Parameter Value* dialog box. Your parameter will be similar to the following: ([Enter the number of the month (January = 1) to display tickets issued in that month]) = DatePart("m",[DepartureDate]).
  - –Review ***SLO 6.3: Creating Advanced Queries and Changing Query Properties*** for more information about using date functions in a query.
  - –Save the query as TripsMonthSelection.
  - –Use the query as the data source for a mail merge to create a new document.
  - –Write promotional text in the document about taking a cruise. This text should not be about a specific cruise, because it will appear on each flyer.
  - –Add all of the fields from the table as merge fields.
  - –Format the document so it has a professional look.
  - –Merge the document and enter a month value when prompted.
  - –Save the merged flyers as [your initials] TripFlyer Merge.docx and the label document with the settings as [your initials] TripFlyer Main.docx.

- Close any open Word documents.
- Close any open objects and the database.

Source of screenshots Microsoft Office 365 (2024): Word, Excel, Access, PowerPoint.

CHAPTER 9
Designing and Managing Databases, and Using SQL

CHAPTER OVERVIEW

Throughout the chapters in this text you have learned how to create and use tables, queries, forms, reports, and macros. Having seen how these objects work, you now understand the importance of ensuring that you start with well-designed tables—the heart of any database. In this chapter, you will be exposed to additional techniques you can use to ensure that your tables are well designed. Additionally, you learn how to customize the *Navigation Pane* and how to use several tools in Access to improve the performance of a database and enhance your database security. Finally, you learn more about SQL and how it defines, manipulates, and retrieves data in databases.

STUDENT LEARNING OUTCOMES (SLOs)

After completing this chapter, you will be able to:

- **SLO 9.1** Understand entity-relationship diagrams and normalization, use the *Analyze Table* tool, and create a documentation report (p. A9-712).
- **SLO 9.2** Create and modify a custom *Navigation Pane* (p. A9-727).
- **SLO 9.3** Analyze and optimize the performance of a database (p. A9-737).
- **SLO 9.4** Understand front-end and back-end databases, split a database, and work with a split database (p. A9-741).
- **SLO 9.5** Enhance database security by encrypting and password protecting a database, packaging and signing a database, and locking a database (p. A9-746).
- **SLO 9.6** Understand SQL (Structured Query Language) and create and execute simple *SQL* statements using the *Select, From, Where,* and *Order By* clauses (p. A9-758).

CASE STUDY

For the Pause & Practice projects in this chapter, you continue to work on several different databases. As you progress through the projects, you incorporate new skills to analyze and document table design, customize a Navigation Pane*, analyze database performance, and add security to a database. You also create and execute queries in SQL.*

Pause & Practice 9-1: Analyze and document table design in a database.

Pause & Practice 9-2: Create and modify a *Navigation Pane* by using custom categories and groups.

Pause & Practice 9-3: Analyze database performance, split a database, add a password to

protect a database, and lock a database.

Pause & Practice 9-4: Create and test simple SQL queries.

SLO 9.1

Analyze and Document Database Design

Recall from **SLO 1.1: Understanding Database Concepts** that a relational database organizes the data into a collection of related tables. Each table is a collection of related records, and each record is a collection of related fields. As you worked on the different databases in this book, you have seen the hierarchy of data that is inherent in a relational database. In **SLO 2.6: Understanding and Designing Relational Databases**, you learned the specifications a database must meet in order to be considered relational, as well as the seven steps for creating a well-designed database.

Following those steps puts you on the right path to create a database that meets the needs of the organization. As you analyze the requirements of a business, you start to identify the various fields and the needed tables. However, as the business requirements become more complex, the number of tables and fields in a database tends to increase. This makes it harder to know exactly how many tables you need and in which table the different fields should be placed.

As the complexity of your database increases, you may find it helpful to use a formal technique to help plan the design of your database. You can also use a formal technique to evaluate an existing database to determine if improvements can be made to the design. Part of that evaluation may involve reviewing documents created by a formal technique. In this section of the chapter, we introduce entity-relationship diagrams and normalization, two of the more widely used formal techniques. In the latter part of the section, you learn how to use Access tools to analyze and document the design of your database.

Entity-Relationship Diagrams

An ***Entity-Relationship Diagram (ERD)*** is a type of data model that graphically represents the data needs of an organization. When an ERD is created during the database design process, it can help you organize the information collected about the business needs. An ERD is a useful tool to review with database users. You can use it to verify that you have correctly identified all the data that needs to be stored in the database and that you understand how the different pieces of data are related to each other. This is a critical step to ensure that the database will meet the needs of the organization. While becoming fluent in creating ERDs is beyond the scope of this book, you most likely will encounter these diagrams in your work with Access, and it is important to know how to read and use them.

ERD Building Blocks

An ERD shows the relationships among the different entities in your database. As the name implies, an ERD contains entities and relationships.

- An ***entity*** is a person, place, or thing about which you want to store data. Entities are another term for the objects you identify in step 2 of the seven steps to create a well-designed database in **SLO 2.6: Understanding and Designing Relational Databases**.
- ***Relationships*** are the associations or connections between entities. Recall from ***SLO 2.6*** the three types of relationships: one-to-one, one-to-many, and many-to-many.

When identifying all of the entities, you also determine what details you want to know about each entity. Those details are known as ***attributes***. An attribute of an entity is the same as a field of an object or table.

One of the attributes is used as a primary key to distinguish one instance of an entity from another. An ***instance*** is a single example of an entity. Consider a university database. One of the entities would be *Professor.* When you refer to Professor Gonzalez, for example, you are referencing an instance of the *Professor* entity. Use instances when reviewing the ERD with your users. This helps them to understand the data being represented in the diagram.

Drawing an ERD

Entities are drawn as boxes on the diagram. The relationships are drawn as lines connecting the entities. **Figure 9-1** shows an ERD for a small used-car dealership. The symbols at the end of the relationship line show the type of relationship. A ***single line*** symbol indicates a one, while a ***crow's foot*** symbol indicates a many. This representation of entities and relationships on the ERD is called ***Crow's Foot* notation**, one of the more common ways to represent the entities and relationships.

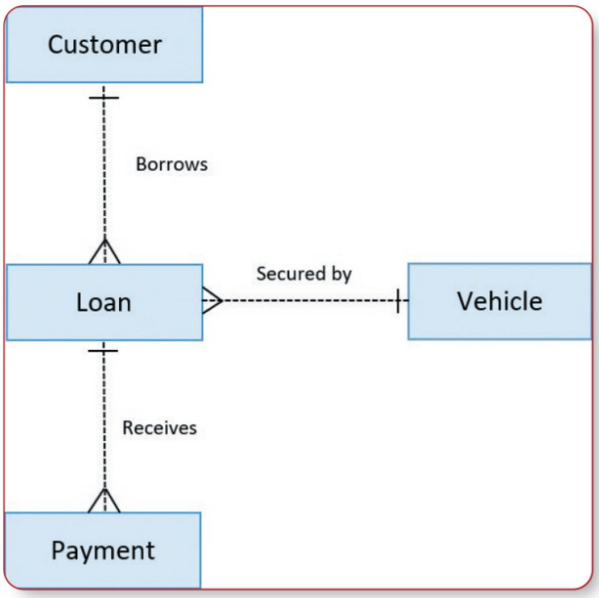


FIGURE 9-1 ERD for a car loan database

An ERD looks similar to the Access diagram used to show the relationships between the tables. One significant difference is when the diagrams are created. The ERD is created during the database design process to ensure that you have understood the business needs, while the relationships diagram is created as you implement the relationships into the database.

Sometimes ERDs also display the attributes. **Figure 9-2** shows an example of the *Loan* entity with attributes included in the diagram. The entity name appears at the top and all attributes are listed below the separator line. The primary key field is underlined. If you have a significant number of attributes, you may choose to include only a few on the diagram. This helps your user understand what kind of data will be stored in the entity without overwhelming them by showing all of the attributes.

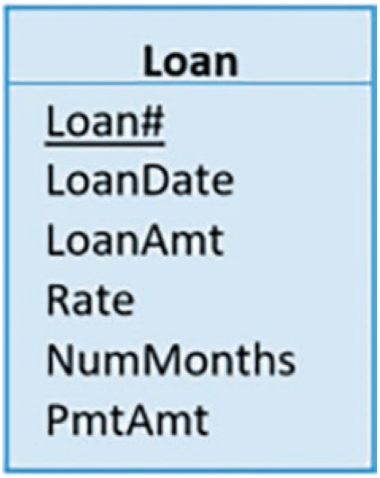


FIGURE 9-2 Attributes included in an entity

Reading and Using an ERD

To understand how an ERD is used, let's review the business situation of the used-car dealership modeled in **Figure 9-1**. The dealership offers in-house financing to customers. Currently, they track all data about their loans, customers, vehicles, and payments in an Excel worksheet. The worksheet only contains information about the car sales that involve an in-house loan. The relationships in **Figure 9-1** are explained in **Table 9-1**.

Table 9-1: Car Loan Entity-Relationship Diagram

Relationship	Type	Explanation
Borrows	One-to-many	A customer can have many different loans, but a particular loan is associated with only one customer.
Receives	One-to-many	A loan receives many different payments (typically one a month), but a payment is applied to only one loan.
Secured by	One-to-many	A loan is for only one vehicle, but a vehicle could be on many different loans. For example, this would happen if the company resold the vehicle in the future. *(Note: In most situations, a vehicle will only be on one loan, but a database must be designed to allow for the "many" situation to occur, even if it doesn't happen very often.)*

ANOTHER WAY

As you view this example, remember that relationships reflect the way a particular business operates. Another business may have different rules and, as a result, different relationships. For example, if a company allowed co-borrowers on a loan, then the *Borrows* relationship would be many-to-many.

In ERD terminology, the type of relationship is often called the ***cardinality***. Most ERDs also include an additional set of symbols on the relationship line to show the modality. The ***modality*** specifies whether an entity must participate in the relationship. A *single line* symbol indicates mandatory or required participation, while a *circle* symbol indicates optional participation. Collectively, the cardinality and modality describe the constraints of the relationship.

Figure 9-3 shows the revised car loan database with modality added into the diagram. The

cardinality symbols appear closest to each entity. The *Borrows* relationship has mandatory participation on each side. This means that each loan must be associated with a customer, and each customer must be associated with a loan.

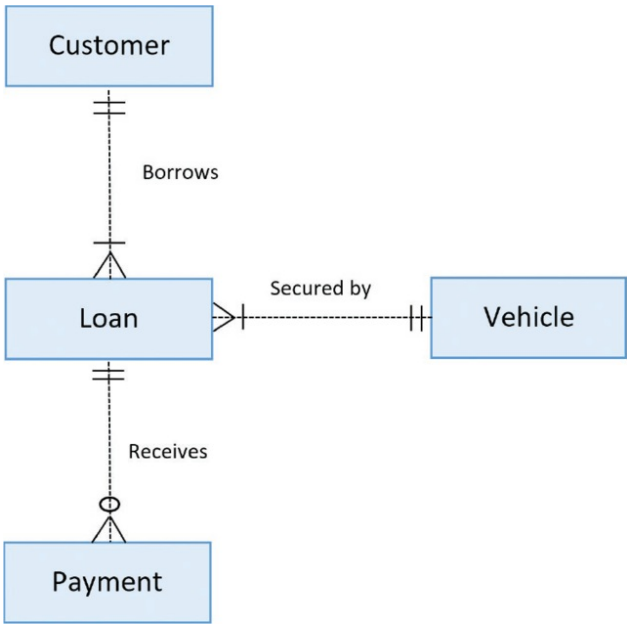


FIGURE 9-3 ERD with modality symbols added

Explaining Relationship Constraints

Typically, you incorporate both the cardinality and modality when you explain the relationship. It is helpful if you think about explaining each direction of the relationship separately. Remember that one use of the ERD is to review it with your users to ensure you have correctly understood the business needs. As a result, you need to learn how to explain the relationship constraints in words that your users understand.

Figure 9-4 and **Figure 9-5** illustrate how to translate and explain the relationship constraints. You read from left to right, and always start with the assumption that you are the "one" of the entity on the left. The color-coded arrows and words help you learn where to focus as you interpret the constraints. The figures only show the symbols closest to the right-side entity, because those are the ones that are important in reading from the left to the right side.

Read the constraint statement in **Figure 9-4**. A mandatory restriction exists in the *Customer to Loan* constraints because the company only stores information about sales that result in a loan. Therefore, every customer in this database must have a loan. Mandatory participation is generally read as "must."

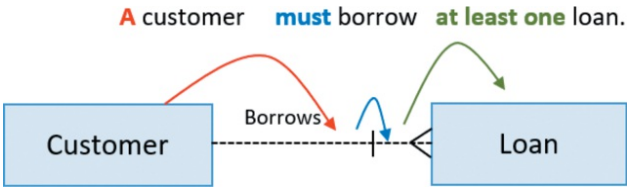


FIGURE 9-4 Translating the *Customer to Loan* relationship constraints

Now you must look at the other direction of the relationship. Because we typically read from left to right, the entities have been reversed in Figure 9-5. Again, you start by being "one," or "a," loan and read in the direction of the customer. Note the "only one" explanation of the cardinality.

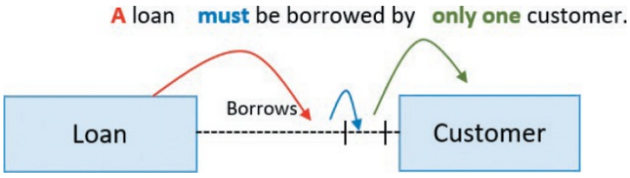


FIGURE 9-5 Translating the *Loan to Customer* relationship constraints

Figure 9-6 and Figure 9-7 provide an example of translating and explaining a relationship with optional participation.

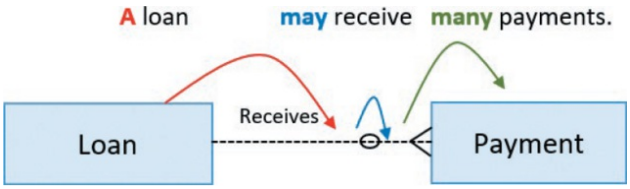


FIGURE 9-6 Translating the *Loan to Payment* relationship constraints

Optional participation exists in the *Loan to Payment* constraints (see Figure 9-6), because when a loan is first made, no payments have been received yet.

Occasionally, you need to modify the relationship verb to ensure the sentences make sense to your user, as you see in Figure 9-7. In this case, when a payment is received, it is applied to only one loan.

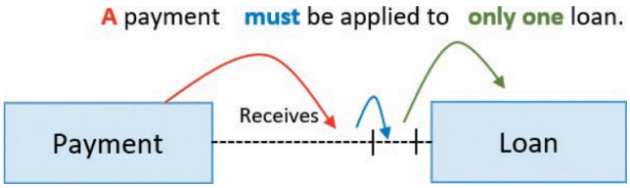


FIGURE 9-7 Translating the *Payment to Loan* relationship constraints

Use the relationship constraints when you actually create the relationships in Access. The constraints help you know whether to enforce referential integrity, as well as whether to cascade updates or deletes.

Once you have reviewed the ERD with your users and are confident the model accurately represents the organization's data, you are ready to start designing the database tables.

COPILOT/GENERATIVE AI BEST PRACTICES

Copilot can help you learn more information about creating and using entity-relationship diagrams. Ask *Copilot* to explain the different components, walk you through an example, or provide more details about relationship constraints like cardinality and modality. You can also ask for more guidance on best practices for designing ERDs. You can even describe the type of database you want to create, such as a database to store information about an animal shelter, and ask *Copilot* to suggest what the ERD should look like.

Normalization

If you followed the steps of database design in **SLO 2.6: Understanding and Designing Relational Databases**, most of your tables won't need much improvement. But you may have been unsure of whether you actually needed a separate table to store a few of the fields, or you may not have been sure where to place all the fields. Additionally, in a few situations, you may inherit a poorly designed database, or you may be given a file to import that is not well structured. As a result, it is important to become familiar with ***normalization***, the process of organizing attributes, or fields, into the correct tables. The goal of normalization is to create a set of tables that minimizes problems in the database.

Tables that are not well designed usually share a few common problems. These problems include having redundant data, having more than one value stored in a field, and not having the ability to store the required data. Recall from ***SLO 2.6*** that in order to create a relational database, the tables in the database must meet a set of specifications. The specifications include:

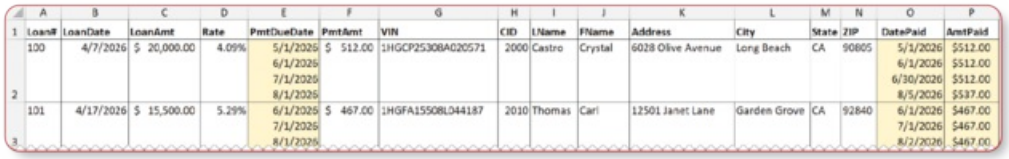
- The data in the database must be stored in tables.
- The rows of the table must represent records.
- The columns of the table must represent fields, and each field can have only one value.
- Each row must have a primary key able to uniquely identify one record from another.
- A table can have a relationship with another table by including a foreign key in its design.

Normalization involves evaluating a table against a series of rules to ensure that all of the fields describe only the entity represented in the table. The rules are known as ***normal forms***. While

higher normal forms exist, this section focuses on learning how to evaluate whether a table is in first, second, or third normal form. As a table achieves each subsequent level of normalization, more problems are removed from the database. Our goal is to have each table reach third normal form. As you will see, the normal forms are often identified by initials. To learn the process of normalization, let's evaluate the data needs in the car dealership example.

First Normal Form (1NF)

To be in ***first normal form***, a table must not have any repeating values. **Figure 9-8** shows an example of the data from the Excel worksheet used to store the loan payment details for the car dealership. Before you can import it into Access, you need to analyze the data to see if it meets the relational specifications, identify and fix any of the common problems, and ensure it meets the normal form rules.



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	Loan#	LoanDate	LoanAmt	Rate	PmtDueDate	PmtAmt	VIN	CID	LName	FName	Address	City	State	ZIP	DatePaid	AmtPaid
	100	4/7/2026	$ 20,000.00	4.09%	5/1/2026	$ 512.00	1HGCP25308A020571	2000	Castro	Crystal	6028 Olive Avenue	Long Beach	CA	90805	5/1/2026	$512.00
					6/1/2026										6/1/2026	$512.00
					7/1/2026										6/30/2026	$512.00
2					8/1/2026										8/5/2026	$537.00
	101	4/17/2026	$ 15,500.00	5.29%	6/1/2026	$ 467.00	1HGFA15508L044187	2010	Thomas	Carl	12501 Janet Lane	Garden Grove	CA	92840	6/1/2026	$467.00
					7/1/2026										7/1/2026	$467.00
3					8/1/2026										8/2/2026	$467.00

FIGURE 9-8 Sample data in Excel worksheet

In reviewing the Excel worksheet, you notice that several of the cells (E2, E3, O2, O3, P2, and P3) contain more than one value, or repeating values. As a result, the data in this table is not in first normal form, 1NF. Notice that a table that is not in 1NF does not meet the third specification for a relational database; each field only has one value. An additional relational specification is that the table has a primary key. While not impossible to do, it may be harder to identify the primary key when a table contains repeating values.

To get this table into 1NF you add the missing information by creating a separate row for each of the individual payments. Once the table is in 1NF, you can identify the primary key. This is also a good time to assign a name to the table, so you can easily refer to it when you start building the actual database. **Figure 9-9** shows the *LoanPayment* table in 1NF with the primary key underlined.



LoanPayment

Loan#	LoanDate	LoanAmt	Rate	PmtDueDate	PmtAmt	VIN	CID	LName	FName	Address	City	State	ZIP	DatePaid	AmtPaid
100	4/7/2026	$ 20,000.00	4.09%	5/1/2026	$ 512.00	1HGCP25308A020571	2000	Castro	Crystal	6028 Olive Avenue	Long Beach	CA	90805	5/1/2026	$512.00
100	4/7/2026	$ 20,000.00	4.09%	6/1/2026	$ 512.00	1HGCP25308A020571	2000	Castro	Crystal	6028 Olive Avenue	Long Beach	CA	90805	6/1/2026	$512.00
100	4/7/2026	$ 20,000.00	4.09%	7/1/2026	$ 512.00	1HGCP25308A020571	2000	Castro	Crystal	6028 Olive Avenue	Long Beach	CA	90805	6/30/2026	$512.00
100	4/7/2026	$ 20,000.00	4.09%	8/1/2026	$ 512.00	1HGCP25308A020571	2000	Castro	Crystal	6028 Olive Avenue	Long Beach	CA	90805	8/5/2026	$537.00
101	4/17/2026	$ 15,500.00	5.29%	6/1/2026	$ 467.00	1HGFA15508L044187	2010	Thomas	Carl	12501 Janet Lane	Garden Grove	CA	92840	6/1/2026	$467.00
101	4/17/2026	$ 15,500.00	5.29%	7/1/2026	$ 467.00	1HGFA15508L044187	2010	Thomas	Carl	12501 Janet Lane	Garden Grove	CA	92840	7/1/2026	$467.00
101	4/17/2026	$ 15,500.00	5.29%	8/1/2026	$ 467.00	1HGFA15508L044187	2010	Thomas	Carl	12501 Janet Lane	Garden Grove	CA	92840	8/2/2026	$467.00

FIGURE 9-9 *LoanPayment* table in first normal form

The table uses a concatenated key that combines the *Loan#* and *PmtDueDate* because one field by itself cannot uniquely identify one row from another.

Unfortunately, this table now has redundant data. For example, notice how many times the

LoanDate and *LoanAmt* repeat for each loan. If the *LoanAmt* needs to be corrected, a user might not make the change on every row. This would result in inconsistent data.

Second Normal Form (2NF)

To be in ***second normal form***, a table must be in 1NF and all of the non-key fields must depend on the entire primary key. Sometimes a table may have more than one field that could be selected as the primary key. For example, if a university tracks your Social Security number and also assigns you a unique student number, then two possible primary keys exist for the student table. Even though only one of them is selected as the primary key, both of them are considered key attributes. Database designers call them ***candidate keys***. The definition of 2NF only applies to the non-key attributes in the table.

If a table is in 1NF and only has one field in the primary key, it automatically is in 2NF. If a table has a concatenated key, you need to look to see if any of the attributes can be identified just by knowing the value of one of the fields in the concatenated key. The arrows in Figure 9-10 help show that a *Loan#* always results in the same values in the *LoanDate, LoanAmt, Rate, PmtAmt, VIN, CID, LName, FName, Address, City, State,* and *ZIP* fields. These attributes can be determined just by knowing one part of the concatenated key. Database designers call this a ***partial dependency***. You may also have times where attributes can be determined by knowing the other field in the concatenated key, but that is not true in this example. The *PmtDueDate* by itself does not give you the same value every time for any other field.

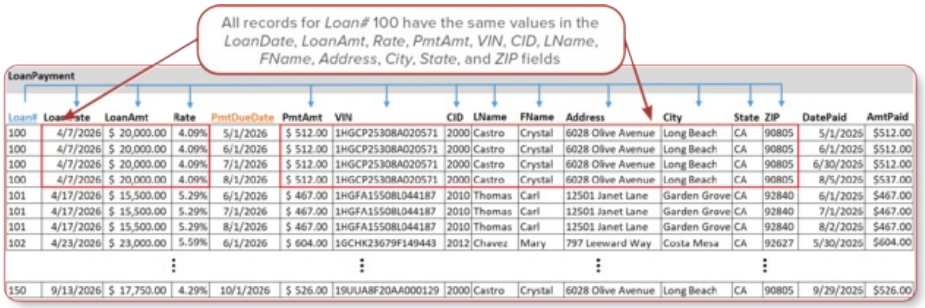


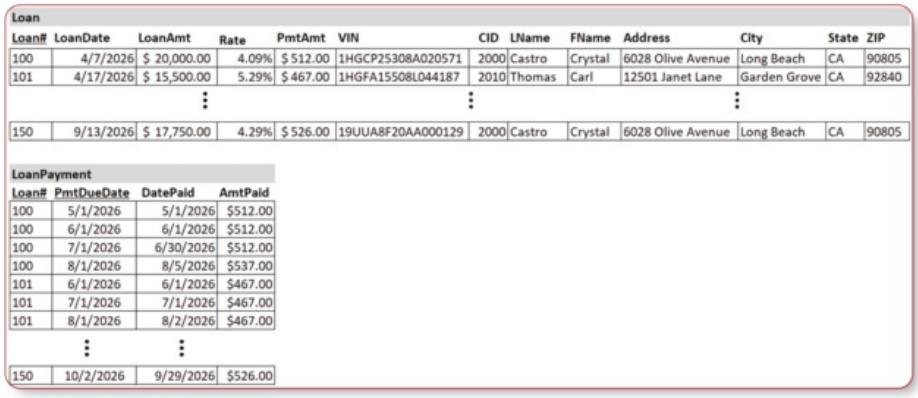
FIGURE 9-10 Identify attributes that depend on only one part of a concatenated key

MORE INFO

In the limited number of records shown in Figure 9-10, it appears that the *State* field is the same for every *PmtDueDate* and even for every *Loan#.* This illustrates the need to apply common sense reasoning to your analysis. Because loans with the same *PmtDueDate* could be made to a customer outside California, the *State* can't be identified just by the *PmtDueDate*

field.

Recall that normalization helps ensure that the fields describe only the entity represented in the table. The *LoanPayment* table in **Figure 9-10** contains information about the loan itself, in addition to the loan payment information. To get the *LoanPayment* table into 2NF, you take the fields that depend on only one part of the key, along with the key field, and put them into a new separate table. The original *LoanPayment* table still keeps the concatenated key, along with the remaining fields that depend on the concatenated key. **Figure 9-11** shows the revised *LoanPayment* table and the new *Loan* table. Both tables are in 2NF.



Loan

Loan#	LoanDate	LoanAmt	Rate	PmtAmt	VIN	CID	LName	FName	Address	City	State	ZIP
100	4/7/2026	$ 20,000.00	4.09%	$ 512.00	1HGCP25308A020571	2000	Castro	Crystal	6028 Olive Avenue	Long Beach	CA	90805
101	4/17/2026	$ 15,500.00	5.29%	$ 467.00	1HGFA15508L044187	2010	Thomas	Carl	12501 Janet Lane	Garden Grove	CA	92840
⋮						⋮				⋮		
150	9/13/2026	$ 17,750.00	4.29%	$ 526.00	19UUA8F20AA000129	2000	Castro	Crystal	6028 Olive Avenue	Long Beach	CA	90805

LoanPayment

Loan#	PmtDueDate	DatePaid	AmtPaid
100	5/1/2026	5/1/2026	$512.00
100	6/1/2026	6/1/2026	$512.00
100	7/1/2026	6/30/2026	$512.00
100	8/1/2026	8/5/2026	$537.00
101	6/1/2026	6/1/2026	$467.00
101	7/1/2026	7/1/2026	$467.00
101	8/1/2026	8/2/2026	$467.00
⋮		⋮	
150	10/2/2026	9/29/2026	$526.00

FIGURE 9-11 Tables in second normal form

In the new *Loan* table, the redundancy is reduced because the loan information is stored only once. However, redundant data still exists in the first table. For example, notice how Crystal Castro's address information is repeated for each of her loans. If Crystal moves and the address needs to be changed, a user might not make the change on every row. This would result in inconsistent data.

Third Normal Form (3NF)

To be in ***third normal form***, a table must be in 2NF and all non-key fields must depend only on the primary key. If a table is in 2NF and has only one non-key field, the table is automatically in 3NF. The issue preventing 3NF has to do with a non-key field being able to identify another non-key field. Because we now have two tables, each must be evaluated for third normal form.

In the *LoanPayment* table, the *DatePaid* and *AmtPaid* fields can't determine each other. As a result, those fields depend only on the primary key and the *LoanPayment* table is in 3NF.

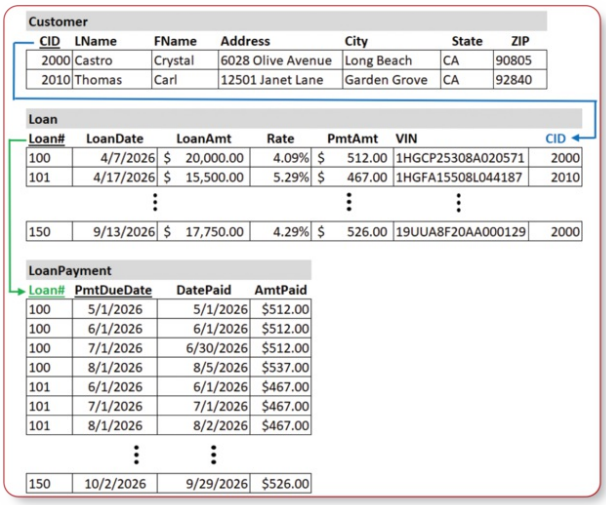
In the *Loan* table, *LoanDate, LoanAmt, Rate,* and the *PmtAmt* can't determine each other. Additionally, although it seems like the Vehicle Identification Number (*VIN*) is a unique identifier, because a vehicle could be resold and appear on a different loan, it turns out this is not

a unique identifier in this table. As a result, those fields depend only on the primary key.

However, the *Loan* table does contain redundant data, indicating we may have a problem. When a customer has more than one loan, as shown in **Figure 9-11**, you see that a *CID* always results in the same values in the *LName, FName, Address, City, State,* and *ZIP* fields. These attributes can be determined just by knowing the non-key field of *CID.* Database designers call this a ***transitive dependency***.

Again, remember that normalization helps ensure that the fields describe only the entity represented in the table. In **Figure 9-11**, the *Loan* table contains information about the customer, in addition to the loan payment information.

To get this table into 3NF, you place the fields that depend on the non-key attribute into a new separate table. The original *Loan* table still remains, including the non-key attributes. **Figure 9-12** shows the new *Customer* table, the revised *Loan* table and the unchanged *LoanPayment* table. All three tables are now in 3NF. In the new *Customer* table, the redundancy is reduced because the customer information is stored only once. The colored fields represent the foreign keys that provide the relationship to the different tables.



Customer

CID	LName	FName	Address	City	State	ZIP
2000	Castro	Crystal	6028 Olive Avenue	Long Beach	CA	90805
2010	Thomas	Carl	12501 Janet Lane	Garden Grove	CA	92840

Loan

Loan#	LoanDate	LoanAmt	Rate	PmtAmt	VIN	CID
100	4/7/2026	$ 20,000.00	4.09%	$ 512.00	1HGCP25308A020571	2000
101	4/17/2026	$ 15,500.00	5.29%	$ 467.00	1HGFA15508L044187	2010
⋮				⋮	⋮	
150	9/13/2026	$ 17,750.00	4.29%	$ 526.00	19UUA8F20AA000129	2000

LoanPayment

Loan#	PmtDueDate	DatePaid	AmtPaid
100	5/1/2026	5/1/2026	$512.00
100	6/1/2026	6/1/2026	$512.00
100	7/1/2026	6/30/2026	$512.00
100	8/1/2026	8/5/2026	$537.00
101	6/1/2026	6/1/2026	$467.00
101	7/1/2026	7/1/2026	$467.00
101	8/1/2026	8/2/2026	$467.00
⋮		⋮	
150	10/2/2026	9/29/2026	$526.00

FIGURE 9-12 Tables in third normal form

As you have seen in this example, normalization helps you to remove redundant data. This helps to increase the consistency and integrity of the data, which minimizes potential problems. Essentially, what normalization does is take larger tables that have problems and divide them into smaller tables that no longer have problems. As you work more with databases, you will become better at intuitively creating tables that avoid the problems. You also reduce the chances of creating an un-normalized table by following the steps to database design.

If you have inherited a poorly designed database, you may need to change the design of the tables as well as the existing table relationships. If these steps are necessary, you have already learned

skills to completely delete a table, delete fields within a table, and edit or delete relationships between tables.

COPILOT/GENERATIVE AI BEST PRACTICES

Ensuring that your underlying database structure uses well-designed tables is critical. Use *Copilot* to learn more about using normalization to organize data in Access. You can ask for more detailed examples and explanations if needed. Use follow-up prompts to get help applying the concepts to a specific scenario. As desired, include an image of a specific database table and ask *Copilot* for help in normalizing it.

Analyze a Table

Access includes a ***Table Analyzer*** tool that helps you determine if a table is well designed. The tool analyzes a table looking for duplicated data or improperly structured tables. It then makes recommendations on how to normalize the table and to fix potentially inconsistent data.

You can accept the tool's suggestions, modify the suggested changes, or reject the suggestions altogether. Because the suggested changes are based on the rules of normalization, it helps to consider those rules when reviewing the analysis results.

If you allow the tool to make any changes, Access creates the new tables. The original table remains unchanged in the database. You can edit and use the new tables just as you do with tables that you created.

If you decide to keep the new tables, you should delete the original tables because you do not need them. Likewise, if you decide to keep the original tables, you should delete the new tables.

It is important to keep in mind that the tool is not perfect. The quality of the recommendations depends on many factors. Relevant factors include the following:

- *The actual data in the table:* If you have very few records in a table, or if the data values don't show the duplicated fields, the tool is likely to miss recommendations or to make incorrect recommendations.
- *Fields associated with too many different entities:* Even with sufficient data, the suggestions may not be optimal. Consider our 1NF *LoanPayment* table in **Figure 9-9**. That table contains fields describing three different entities. The tool is not likely to make all the needed suggestions to convert that table into the correct set of 3NF tables.
- *A concatenated key:* When a table contains a concatenated key, the tool is likely to analyze incorrectly.

HOW TO: Use the Table Analyzer

1. Click the **Analyze Table** button [*Database Tools* tab, *Analyze* group] (Figure 9-13).

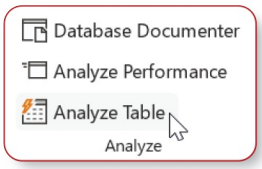


FIGURE 9-13 ***Analyze Table*** **button**

- The *Table Analyzer Wizard* opens (Figure 9-14).

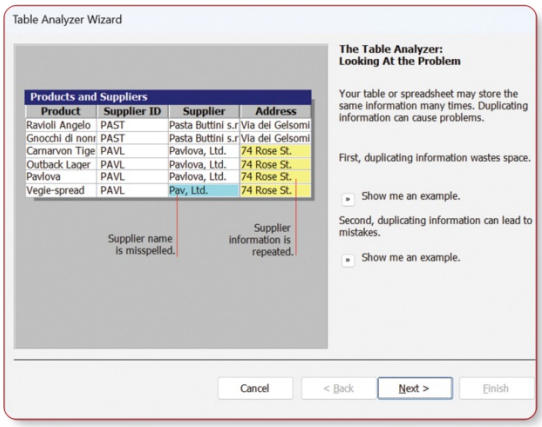


FIGURE 9-14 ***Table Analyzer Wizard,*** **page 1**

- The first screen displays information about the problems that duplicated data causes. Depending on the wizard settings (see step 5), it is possible that the screens in Figure 9-14 and Figure 9-15 will not display.

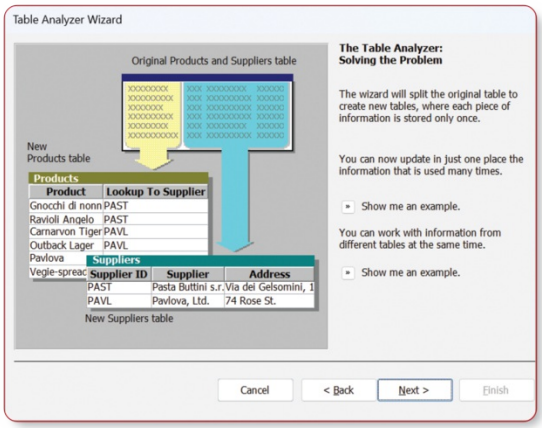


FIGURE 9-15 ***Table Analyzer Wizard,***

2. Click the **Show me an example** buttons, as desired, to read more information about duplicated data. Close the message box when done.
3. Click **Next**. The second screen displays information about how the wizard splits tables to solve the problems (Figure 9-15).
4. Click the **Show me an example** buttons, as desired, to read more information about splitting tables. Close the message box when done.
5. Click **Next**.
   - The wizard displays the list of tables in your database (Figure 9-16). If a table was selected in the *Navigation Pane* before you click the *Analyze Table* button, it is selected. If no table was selected, the first table listed in the *Navigation Pane* is selected.

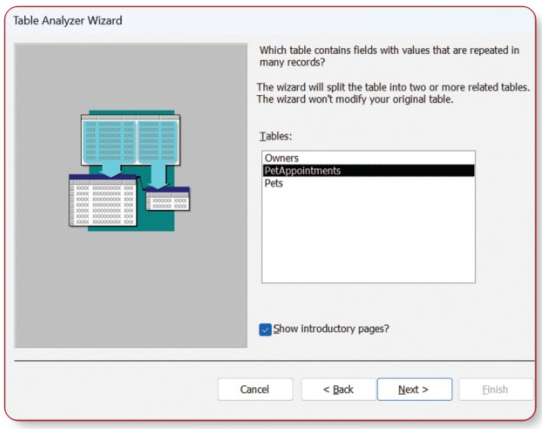


FIGURE 9-16 Select the table to analyze

   - This screen also has a check box which controls whether the wizard displays the introductory pages shown in Figure 9-14 and Figure 9-15 the next time it is run. It is a good idea to leave the box checked until you become a more experienced database designer and you are working on your own computer.
6. Check the **Show introductory pages?** box to change the setting as desired.
7. Select the table to analyze and click **Next**.
   - The wizard asks you to decide whether it will analyze the table, or you will analyze the table (Figure 9-17).

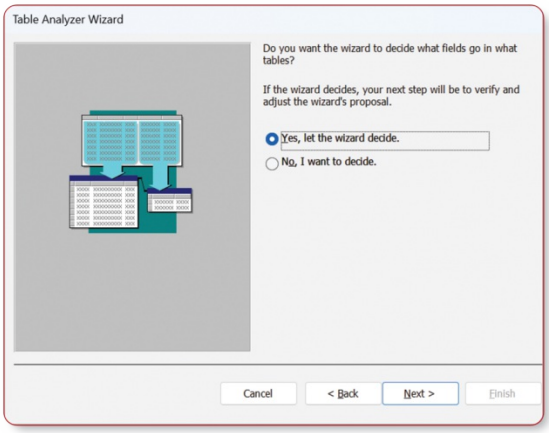


FIGURE 9-17 Decide if the wizard will analyze the table for you

- If you select to have the wizard analyze for you, you are still prompted to accept or modify the recommendations.

8. Select either the **Yes**, **let the wizard decide** or the **No**, **I want to decide** radio button and then click **Next**.
   - If you selected *Yes,* the wizard displays the recommendations (Figure 9-18). The tables may initially be too small to display all fields.

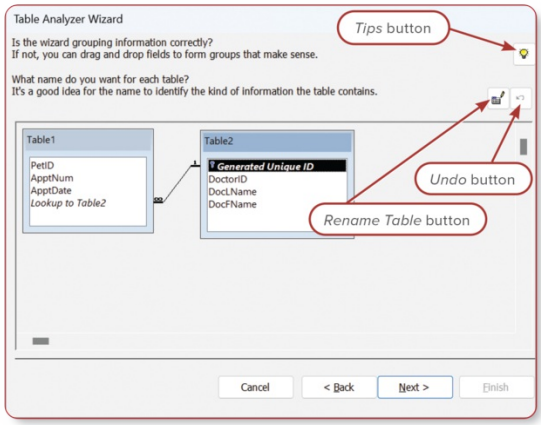


FIGURE 9-18 Recommended changes to the table design

- If you selected *No,* the wizard displays the current table.

9. Increase the size of the tables in the window to see all of the fields if necessary.
10. Click the **Tips** button to open a dialog box containing suggested actions to take at this step of the wizard. Close the dialog box when done.
11. Select a table, click the **Rename Table** button, type the table name in the dialog box, and click **OK** to change a table name.

- If Access displays a message box about the wrong data type for an expression, click **OK** to close the message box before you enter the table name.

MORE INFO

The *Undo* button becomes available after you have performed an action on the wizard page. To undo the most recent change, click the **Undo** button.

12. Drag the fields to a different table or into the open window to create a new table if necessary.
13. Click **Next** when you are satisfied with the structure of the tables. The wizard asks you to verify the selection of a primary key in each table (Figure 9-19).

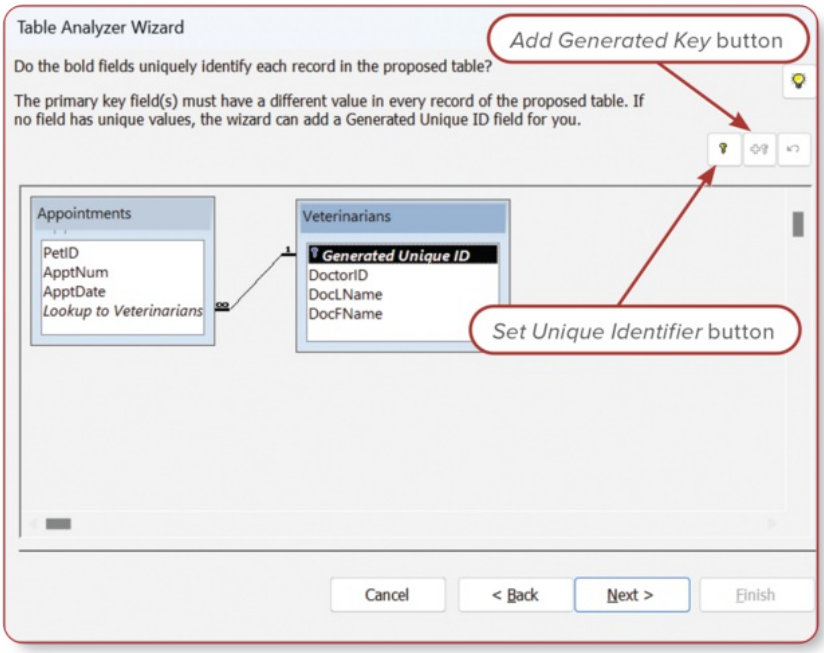


FIGURE 9-19 Select primary keys for each table

- To change the primary key in a table, select a field in the table and click the **Set Unique Identifier** button.
- To have Access add a unique ID field into a table, select the table and click the **Add Generated Key** button. This generated key uses an *AutoNumber* data type.

14. Click **Next** when each table has a primary key selected. The information shown in Figure 9-20 displays if the wizard identified any inconsistent data. Otherwise,

skip to step 16.

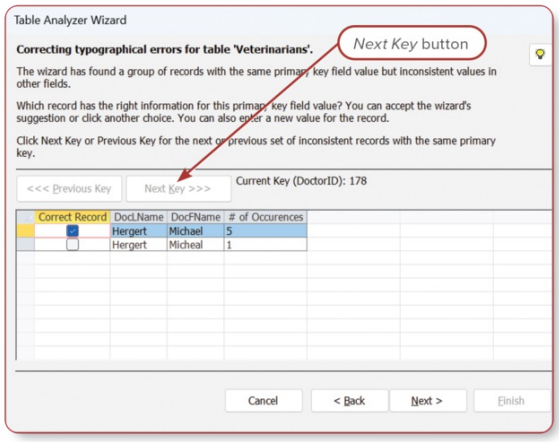


FIGURE 9-20 Correct inconsistent data

15. Review the data, widening any columns to see the complete contents.
    - Select the **Correct Record** column check box to indicate which data values are correct.
    - If the *Next Key* button is not dimmed, the wizard found other fields with inconsistencies. Click **Next Key** to review additional problems.
    - Click **Next** when finished reviewing all inconsistencies. The final step of the wizard (**Figure 9-21**) informs you that Access can create a query to join the new tables together so you can easily see the original relationships in one datasheet.

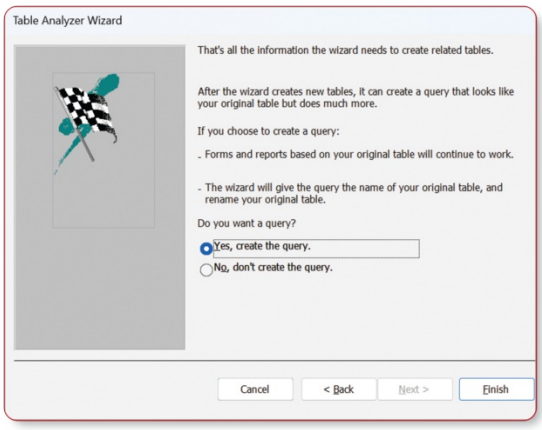


FIGURE 9-21 Complete the *Table Analyzer Wizard*

16. Select either the **Yes, create the query** or the **No, don't create the query** radio button and then click **Finish**.

A9-721

A9-722

Ideally, you should use the *Analyze Table* tool prior to creating any other objects in the database. This minimizes the changes that may need to be performed on your queries, forms, and reports.

If you accepted the recommendation of the wizard to create new tables, the *Analyze Table* tool automatically created the relationship between the new tables and enforced referential integrity. However, you should review the relationship to determine if you need to modify the options for cascading updates or deletes. If necessary, review the *How To* topics in **SLO 2.6: Understanding and Designing Relational Databases** for help on editing, deleting, and creating relationships between tables.

Use the Database Documenter

Access contains a ***Database Documenter*** tool that enables you to view and print general information, as well as detailed data about the characteristics of objects in your database. Each object in your database has its own properties. As a result, the contents of the documentation vary depending on the selected object. The *Database Documenter* tool enables you to select the level of detail displayed about the different objects in your database. You can choose to see information about the property settings of fields and relationships of tables, property settings for controls and macro code attached to a form or report, or SQL code in a query.

The *Database Documenter* creates a report containing the requested data. The report opens in *Print Preview* mode. The level of detail selected, as well as the number of fields and controls in an object, affects the number of pages in the report. Be aware that reports can be quite long.

A9-723

With the report open in *Print Preview* mode, you can choose to print it. As desired, you can also export the report to a PDF file or other format, including Excel, Text File, Email, Word, or HTML.

HOW TO: Use the Database Documenter

1. Click the **Database Documenter** button [*Database Tools* tab, *Analyze* group] (**Figure 9-22**) to open the *Documenter* dialog box (**Figure 9-23**).

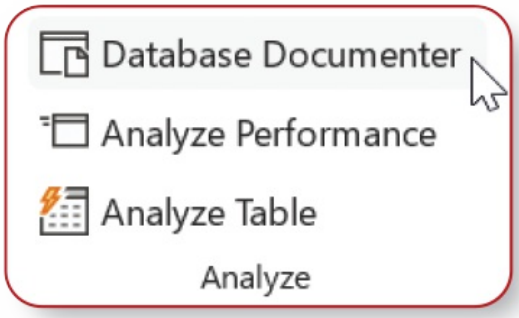


FIGURE 9-22 ***Database Documenter*** **button**

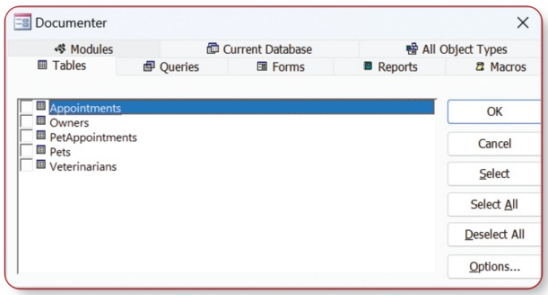


FIGURE 9-23 ***Documenter*** **dialog box**

2. Click the tab corresponding to the type of object you wish to document.
3. Select the check boxes of the objects to include in the report.
   - You can check multiple objects on a tab.
   - Click the **Select All** button to select all of the objects on a tab.
4. Click the **Options** button to modify the level of detail included in the report. The *Print [Object] Definition* dialog box displays (**Figure 9-24**).

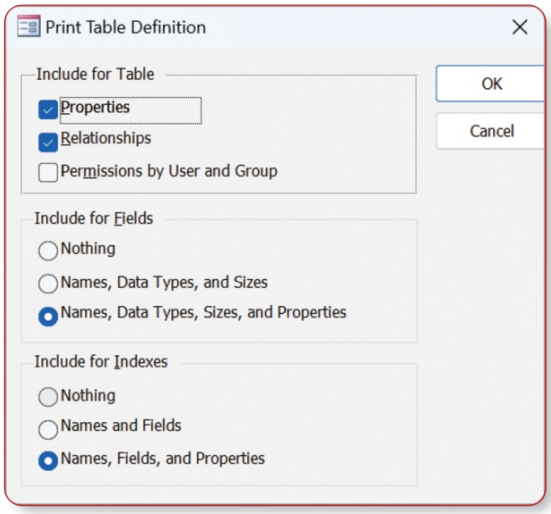


FIGURE 9-24 ***Print [Object] Definition*** **dialog box**

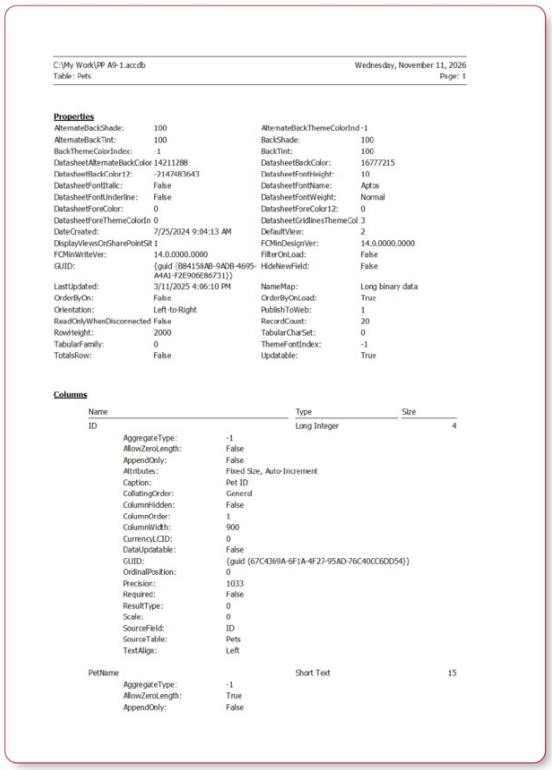
- The *[Object]* portion of the title bar changes depending on the tab selected in step 2.
- The choices in the dialog box vary depending on what object is selected.

5. Select the check boxes and radio buttons corresponding to the level of detail you wish to view about the object properties.
6. Click the **OK** button when done. You are returned to the *Documenter* dialog box.
7. Repeat steps 2–6, as desired, to select objects from a different tab.

ANOTHER WAY

To include all objects in the report, click the **All Object Types** tab and click the **Select All** button.

8. Click the **OK** button to preview the *Database Documenter* report (Figure 9-25).



C:\My Work\PP A9-1.accdb Wednesday, November 11, 2026
Table: Pets Page: 1

Properties

AlternateBackShade:	100	AlternateBackThemeColorInd	-1
AlternateBackTint:	100	BackShade:	100
BackThemeColorIndex:	-1	BackTint:	100
DatasheetAlternateBackColor	14211288	DatasheetBackColor:	16777215
DatasheetBackColor12:	-2147483643	DatasheetFontHeight:	10
DatasheetFontItalic:	False	DatasheetFontName:	Aptos
DatasheetFontUnderline:	False	DatasheetFontWeight:	Normal
DatasheetForeColor:	0	DatasheetForeColor12:	0
DatasheetForeThemeColorIn	0	DatasheetGridlinesThemeCol	3
DateCreated:	7/25/2024 9:04:13 AM	DefaultView:	2
DisplayViewsOnSharePointSit	1	FCMinDesignVer:	14.0.0000.0000
FCMinWriteVer:	14.0.0000.0000	FilterOnLoad:	False
GUID:	{guid {B84158AB-9ADB-4695-A4AL-F2E906E86731}}	HideNewField:	False
LastUpdated:	3/11/2025 4:06:10 PM	NameMap:	Long binary data
OrderByOn:	False	OrderByOnLoad:	True
Orientation:	Left-to-Right	PublishToWeb:	1
ReadOnlyWhenDisconnected	False	RecordCount:	20
RowHeight:	2000	TabularCharSet:	0
TabularFamily:	0	ThemeFontIndex:	-1
TotalsRow:	False	Updatable:	True

Columns

Name	Type	Size
ID	Long Integer	4
AggregateType:	-1	
AllowZeroLength:	False	
AppendOnly:	False	
Attributes:	Fixed Size, Auto-Increment	
Caption:	Pet ID	
CollatingOrder:	General	
ColumnHidden:	False	
ColumnOrder:	1	
ColumnWidth:	900	
CurrencyLCID:	0	
DataUpdatable:	False	
GUID:	{guid {67C4369A-6F1A-4F27-95AD-76C40CC6DD54}}	
OrdinalPosition:	0	
Precision:	1033	
Required:	False	
ResultType:	0	
Scale:	0	
SourceField:	ID	
SourceTable:	Pets	
TextAlign:	Left	
PetName	Short Text	15
AggregateType:	-1	
AllowZeroLength:	True	
AppendOnly:	False	

FIGURE 9-25 ***Print Preview of Database Documenter*** **report**

- The report contents vary depending on the selections made.
- The top portion of the report includes general properties about the object.
- The remainder of the report shows specific properties about different fields or controls used in the object.
- Use the navigation buttons on the *Navigation* bar to move among the different pages of the report.

9. Export the report by clicking a button in the *Data* group corresponding to the desired format. In the dialog box that opens, browse for a location, enter the file name, and save the file.
10. Close the preview by clicking the **Close Print Preview** button [*Print Preview* tab, *Close Preview* group].

PAUSE & PRACTICE: ACCESS 9-1

For this Pause & Practice, you use the *Analyze Table* tool to review a new table in the Life's Animal Shelter database. You use the rules of normalization as you review the recommendations made by the wizard. Finally, you create documentation for the *Pets* table.

File Needed: ***LifesAnimalShelter-09.accdb*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Names: ***[your initials] PP A9-1.accdb*** and ***[your initials] LAS-PetsTable Documentation.pdf***

1. Open the ***LifesAnimalShelter-09*** database from your student data files. If a *Security Risk* message or active content is blocked dialog box displays in any step, click **OK** or the **X** to close it. If the message repeats in a later step, click **OK** or the **X** to close the message.
2. Save a new copy of your database as [your initials] PP A9-1.
3. Enable content in the security warning.
4. Review the structure of the *PetAppointments* table.
    a. Open the *PetAppointments* table in *Design* view (Figure 9-26). Note the primary key of *ApptNum.* Also note that this table contains fields about the different appointments for each pet and information about which veterinary doctor treated each pet.

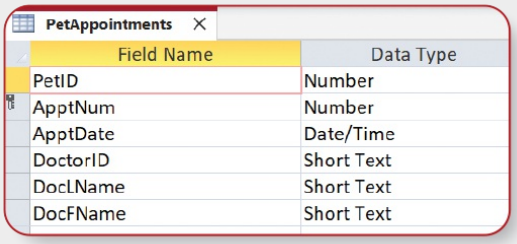


FIGURE 9-26 ***PetAppointments*** **table fields**

b. Switch to *Datasheet* view.

c. Click the **arrow** to the right of the *PetID* field name and select the **Sort Smallest to Largest** button on the drop-down list. Note that several of the pets have had multiple appointments. Also note that the vet information is stored redundantly.

d. Click the **Remove Sort** button [*Home* tab, *Sort & Filter* group].

e. Close the table. Do not save changes when prompted.

5. Review existing table relationships.

a. Click the **Relationships** button [*Database Tools* tab, *Relationships* group] to open the *Relationships* window. Notice that the new *PetAppointments* table is not yet linked to the other tables.

b. Close the *Relationships* window.

6. Analyze the *PetAppointments* table.

a. Click the **Analyze Table** button [*Database Tools* tab, *Analyze* group] to open the *Table Analyzer Wizard.* If a *Microsoft Access Security Notice* box displays, click **Open**.

b. If the *Looking At the Problem* screen displays, click **Next** to move to the next step of the wizard.

c. If the *Solving the Problem* screen displays, click **Next** to move to the next step of the wizard.

d. Select the **PetAppointments** table (Figure 9-27), if not already selected, and click **Next**.

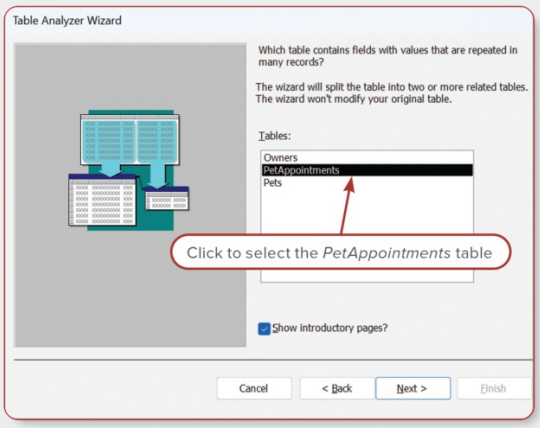


FIGURE 9-27 **Select the desired table to analyze**

e. Select the **Yes, let the wizard decide** radio button if necessary and click **Next**. The wizard displays the

recommendations.

f. Increase the size of the tables in the window to see all of the fields (Figure 9-28). The wizard recommends moving the fields that describe the doctor into a new table and adds a *Lookup to Table2* field into *Table1* to provide the relationship.

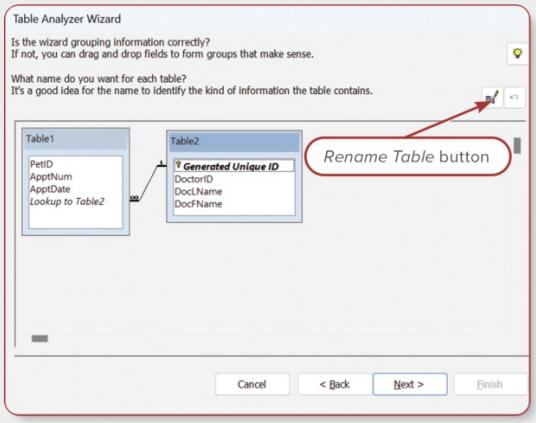


FIGURE 9-28 Recommended changes to the table design

g. Select **Table1**, click the **Rename Table** button, type Appointments in the dialog box, and click **OK** to change the table name. If Access displays a message box about the wrong data type for an expression, click **OK** to close the message box before you enter the table name.

h. Select **Table2**, click the **Rename Table** button, type Veterinarians in the dialog box, and click **OK** to change the table name. If Access displays a message box about the wrong data type for an expression, click **OK** to close the message box before you enter the table name.

i. Click **Next**. The wizard asks you to verify the selection of a primary key in each table (Figure 9-29).

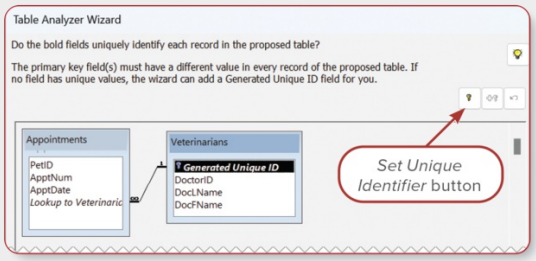


FIGURE 9-29 Select primary keys for each table

j. Select the **DoctorID** field in the *Veterinarians* table and click the **Set Unique Identifier** button.

k. Select the **ApptNum** field in the *Appointments* table and click the **Set Unique Identifier** button.

l. Click **Next**. The wizard identifies inconsistent data in the spelling of Michael (Figure 9-30). Based on the number of times that it is spelled “Michael,” the wizard checks the *Correct Record* box to indicate that this is the correct spelling.

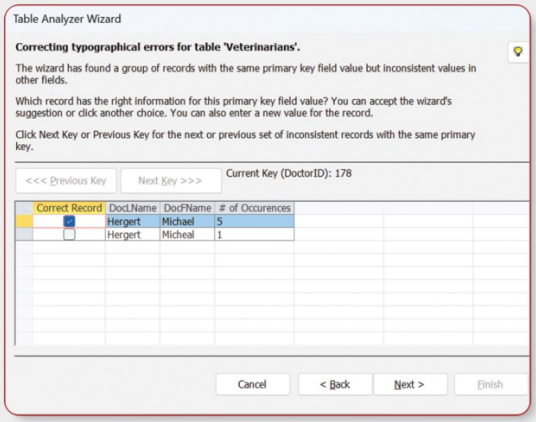


FIGURE 9-30 Correct inconsistent data

m. Click **Next** to accept that correction. Access changes the incorrectly spelled data in the table.

n. Select the **No**, **don't create the query** radio button, if needed, because you don't need to create the query and click **Finish**. If a message box displays about the *TileHorizontally* action not available, click **OK**. Access creates and opens the new tables in *Datasheet* view and closes the *Navigation Pane*.

7. Review the new tables.

   a. Open the *Navigation Pane*. The three original tables display in the *Tables* group, along with the two new tables.

   b. Click the **DoctorID 160** plus sign, in the *Veterinarians* table, to display the related records.

   c. Close the *Veterinarians* table.

   d. Note that the *Lookup to Veterinarians* column, in the *Appointments* table, displays the doctor's ID, last name, and first name.

   e. Close the *Appointments* table.

8. Create database documentation for the *Pets* table.

   a. Click the **Database Documenter** button [*Database Tools* tab, *Analyze* group] to open the *Documenter* dialog box with the *Tables* tab opened.

   b. Select the **Pets** check box.

   c. Click the **Options** button to open the *Print Table Definition* dialog box (Figure 9-31).

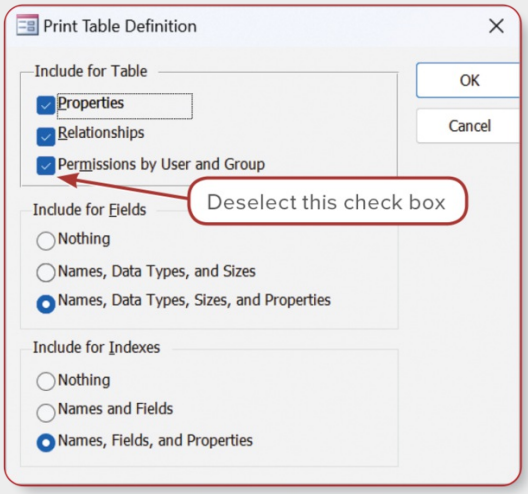


FIGURE 9-31 ***Print Table Definition*** **dialog box**

d. Deselect the **Permissions by User and Group** check box in the *Include for Table* area if necessary.

e. Click **OK**. You are returned to the *Documenter* dialog box.

f. Click the **OK** button to preview the *Database Documenter* report (Figure 9-32).

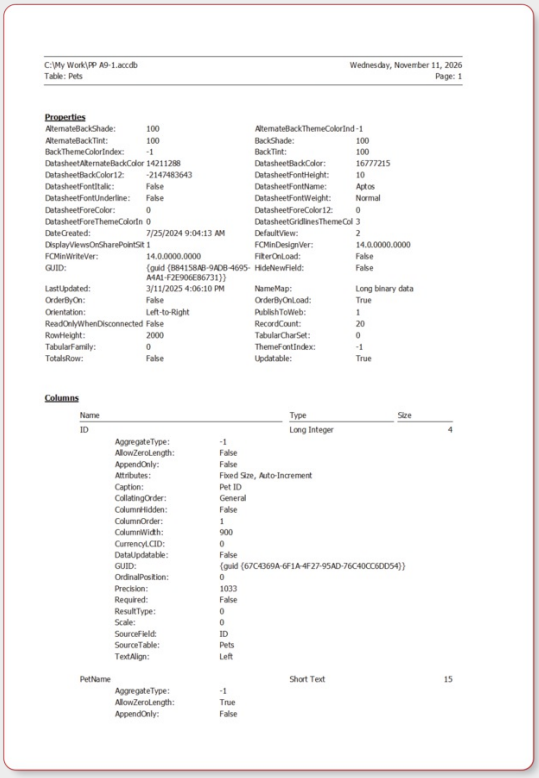


FIGURE 9-32 ***Print Preview*** **of** ***Pets*** **table documentation**

g. Adjust the *Zoom* and use the scroll bars as needed to see the parts of the page that are not visible.

h. Click the **Next Page** navigation button five times to advance through the pages. On page 6, note the relationships section of the report.

i. Click the **PDF or XPS** button [*Print Preview* tab, *Data* group] to open the *Publish as PDF or XPS* dialog box.

j. Locate the folder where you want to save the file, enter [your initials] LAS-PetsTableDocumentation as the file name, select the **Open file after publishing** check box, if necessary, and click the **Publish** button. The PDF file opens in your PDF viewer.

k. Navigate through the pages in the PDF file to ensure it was created successfully. Close the PDF file.

l. Click **Close** in the *Export – PDF* dialog box because you don't need to save the export steps.

m. Click the **Close Print Preview** button [*Print Preview* tab, *Close Preview* group].

9. Close the database.

SLO 9.2

Customizing the Navigation Pane

The ***Navigation Pane*** displays the objects in your database. It is organized into categories and groups. The default settings in Access show all of the objects grouped by the type of object. You can customize the *Navigation Pane* to make a database more efficient for the users. To do this, you first create categories and groups that reflect the needs of the user. Next, you organize the database objects into the groups. You can limit the number of objects a user sees, which helps users find needed objects more quickly.

While not designed as a security mechanism, a customized *Navigation Pane* can also add a degree of security and protection to the database by hiding objects you don't want users to accidentally modify or delete. For example, a user is likely to only need to open the main form in a database that contains both a main form and a subform. In these cases, you can hide the subform object from the user. In this section, you first learn about the built-in categories and groups. Next, you learn how to create custom categories and groups and how to customize the *Navigation Pane.*

Built-in Categories and Groups

In **SLO 1.1: Understanding Database Concepts**, you learned how to change the category selection that affects the way the objects are grouped and how to change the filter selection. **Figure 9-33** shows a *Navigation Pane* with the default settings. **Figure 9-34** shows the new category and filter settings selected in the *Navigation* menu. **Figure 9-35** shows the changes in the *Navigation Pane* after the new settings have been applied.

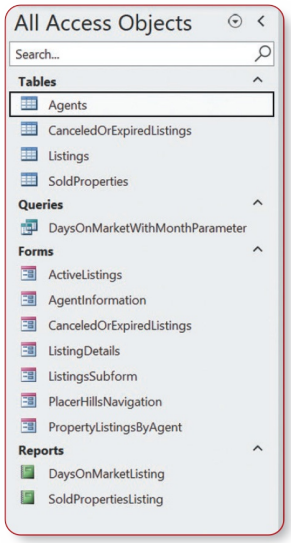


FIGURE 9-33
Navigation Pane **with default settings**

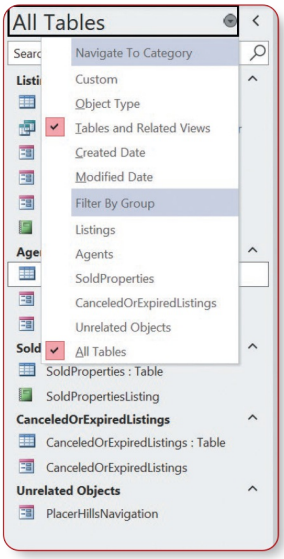


FIGURE 9-34
Changed settings in the *Navigation* menu

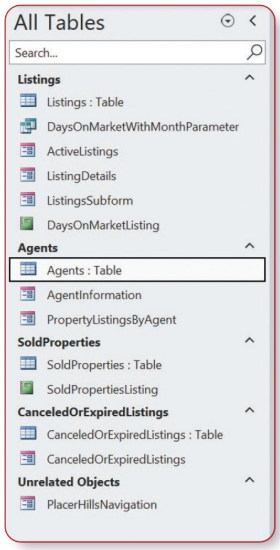


FIGURE 9-35 ***Navigation Pane*** **after settings are changed**

MORE INFO

To change the *Navigation Pane,* recall that you first open the *Navigation* menu and select a new category. The *Navigation* menu closes and the *Navigation Pane* updates. To change the filter selection, you must reopen the *Navigation* menu and select a new filter.

The name in the *Navigation Pane Title* bar reflects the filter selection made in the *Navigation* menu. For example, **Figure 9-33** displays the filter selection of *All Access Objects* within the *Object Type* category. **Figure 9-35** displays the filter selection of *All Tables* within the *Table and Related Views* category.

Use the *Navigation Options* dialog box (**Figure 9-36**) to change the options available in the *Navigation Pane.* You can modify built-in categories and groups or create new categories and groups.

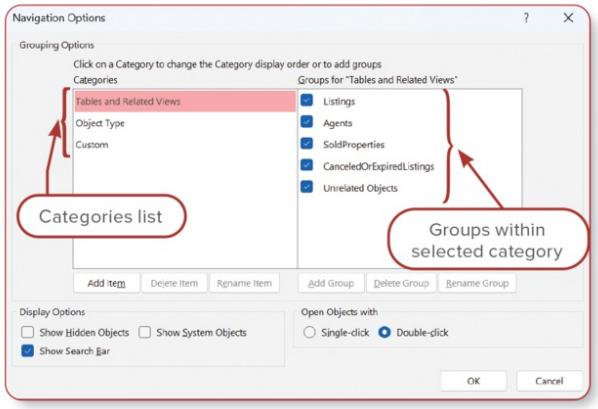


FIGURE 9-36 ***Navigation Options*** **dialog box**

A ***category*** is the highest-level organizational structure of the *Navigation Pane.* A database contains five built-in categories (see **Figure 9-34**): *Custom, Object Type, Tables and Related Views, Created Date,* and *Modified Date.* The *Custom, Object Type,* and *Tables and Related Views* categories each contain a predefined set of groups.

A ***group*** is the second-level organization structure of the *Navigation Pane.* The database objects display in these predefined groups.

The *Tables and Related Views* category contains a group for each table object in the database and an *Unrelated Objects* group. When the *Navigation Pane* is viewed in *Tables and Related Views* (**Figure 9-35**), each group displays as a heading. The table itself, and any other objects that use the table as its data source, displays within the heading. For example, within the *Agents* heading in **Figure 9-35**, you see the *Agents* table and the *PropertyListingsByAgent* form, because this form uses the *Agents* table as its data source. Objects that do not use a table as the data source, such as the *PlacerHillsMain* form, display in the *Unrelated Objects* group.

The *Object Type* category contains a group for each of the Access object types (**Figure 9-37**). When the *Navigation Pane* is viewed by *Object Type* (see **Figure 9-33**), each group displays as a heading. All objects of that type display within that group. If the database does not contain any objects of a certain group, that heading does not display.

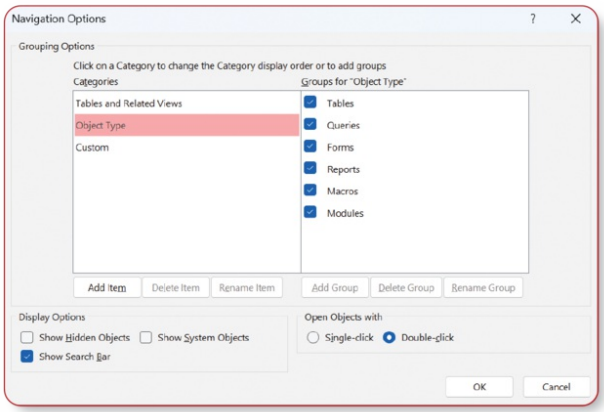


FIGURE 9-37 ***Object Type*** **category and groups**

You cannot rename or delete the built-in *Tables and Related Views* or the *Object Type* categories, or the groups within those categories. However, you can choose not to display a selected group (or groups) by unchecking a group's check box.

A9-729

The third built-in category, *Custom,* contains two groups, *Custom Group 1* and *Unassigned Objects.* More options are available in the *Navigation Options* dialog box when this category is selected (**Figure 9-38**). For example, the *Delete Item* and *Rename Item* buttons enable you to delete or modify this category. Additionally, the *Add Group* button enables you to create additional groups for this category. These options are explained in the next section.

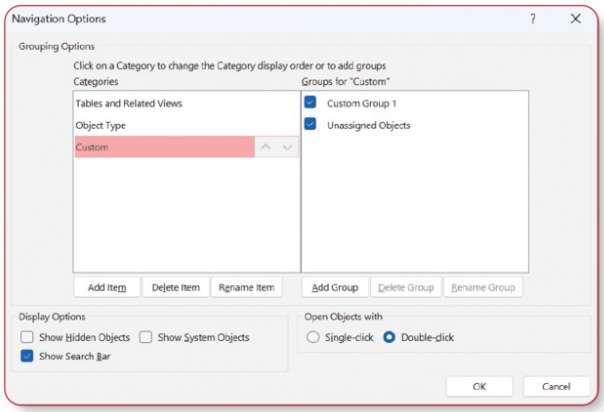


FIGURE 9-38 **Custom category and group**

Custom Categories and Groups

Custom categories and groups in a database improve the usability of the database. A customized *Navigation Pane* can be organized to operate as a menu system for the users. Before creating the

categories and groups, you will want to spend time planning the *Navigation Pane*'s design, focusing on creating categories and groups that help your users perform tasks as efficiently and effectively as possible.

Create as many custom categories as needed. Each custom category automatically contains an *Unassigned Objects* group. Within each category, you create as many custom groups as you need.

If you will only have one custom category, you may wish to rename the existing *Custom* category and then modify the groups in that category. However, there will be times when you will need to create a custom category.

HOW TO: Create a New Custom Category

1. Right-click the **Navigation Pane Title** bar to open the context menu (Figure 9-39) and select **Navigation Options**. The *Navigation Options* dialog box opens.

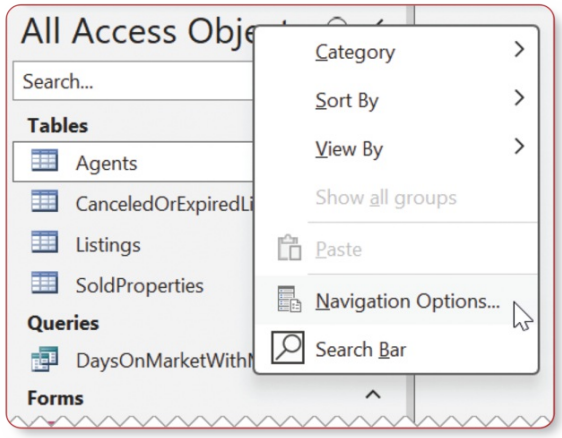


FIGURE 9-39 Select *Navigation Options* on the context menu

ANOTHER WAY

Click **Options** on the *File* tab to open the *Access Options* dialog box and click the **Current Database** button on the left. Click the **Navigation Options** button in the *Navigation* area.

2. Click the **Add Item** button. A new custom category is added into the *Categories* list (Figure 9-40).

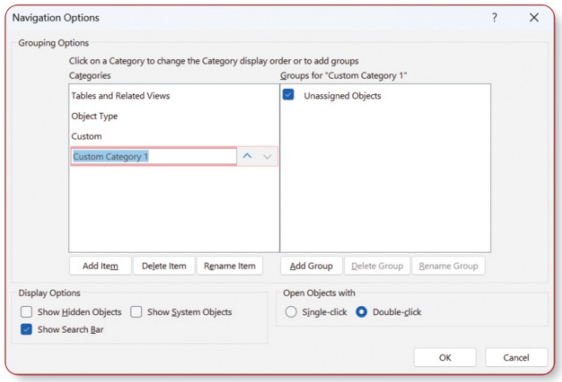


FIGURE 9-40 **Add a new custom category**

3. Type a new name in the category box and press **Enter**.
4. Repeat steps 2 and 3 to add additional categories.
5. Click the **Move Up** or **Move Down** arrows, as desired, to rearrange your custom categories (Figure 9-41).
   - If a category is at the top of the list, the *Move Up* arrow is dimmed. A custom category can't be moved above the *Object Type* category.
   - If a category is at the bottom of the list, the *Move Down* arrow is dimmed.

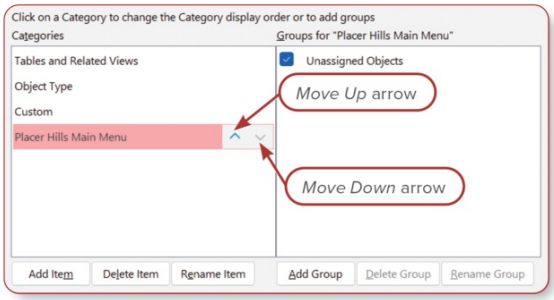


FIGURE 9-41 **Rearrange the order of the categories**

6. Click **OK** when done.

After a category is created, the next step is to create custom groups within that category. Remember that your database objects will be placed into the different groups you create.

HOW TO: Create a Custom Group

1. Open the *Navigation Options* dialog box if necessary. (Right-click the **Navigation Pane Title** bar to open the context menu and select **Navigation Options**.)

2. Select the desired category.
3. Click the **Add Group** button to add a new group in this category (Figure 9-42).

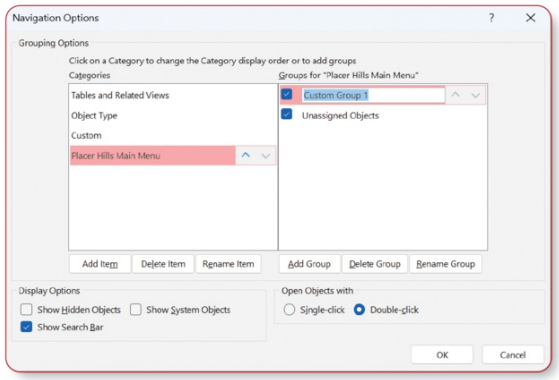


FIGURE 9-42 **Add a new group into a category**

4. Type a new name in the group box and press **Enter**.
5. Repeat steps 3 and 4 to add additional groups.
6. Click the **Move Up** or **Move Down** arrows, as desired, to rearrange the groups within a category (Figure 9-43).

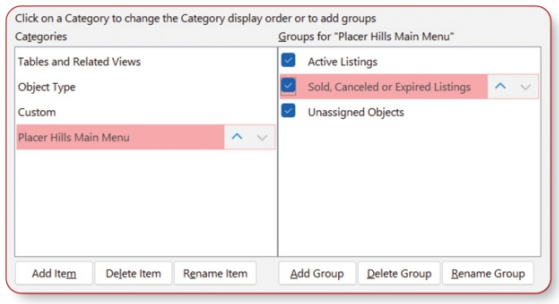


FIGURE 9-43 **Rearrange the order of the groups**

- If a group is at the top of the list, the *Move Up* arrow is dimmed.
- If a group is at the bottom of the list, the *Move Down* arrow is dimmed. A custom group can't be moved below the *Unassigned Objects* group.

7. Click **OK** when done.

After you have created the custom categories and groups, you are ready to assign objects to the different groups.

Assign Objects to Custom Groups

You can assign the objects in your database to the custom groups. When you view a custom

category for the first time, note that all objects have been moved into the *Unassigned Objects* group. You can move objects from the *Unassigned Objects* group into the desired group.

If an object does not need to be accessed by a user, don't assign it to a group. For example, some database designers believe that users should only have access to forms, reports, and queries, because these are the objects that provide an interface to the table data. These database designers do not assign tables to the custom groups. In other cases, you have objects, like macros or a query used as a report's data source, which users do not need to interact with directly. Those objects can be left in the *Unassigned Objects* group.

When an object is assigned to a custom group, Access creates a shortcut to that object. A ***shortcut*** is a pointer to an object in the *Navigation Pane.* A shortcut is identified by a small arrow in the lower-left corner of the object (Figure 9-44).

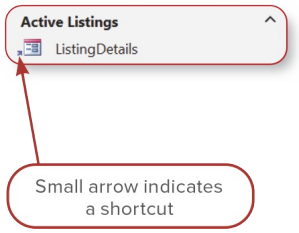


FIGURE 9-44 Shortcut to an object

MORE INFO

The built-in categories and groups and the *Unassigned Objects* group of a custom category display the actual database object instead of a shortcut. If you delete an object, it is removed from the database. If you delete a shortcut, only the pointer to the object is deleted.

HOW TO: Add an Object to a Group

1. Click the **Navigation Pane** arrow to open the *Navigation* menu and select the custom category.
   - The *Navigation* menu closes and the *Navigation Pane* updates to display the objects (Figure 9-45).

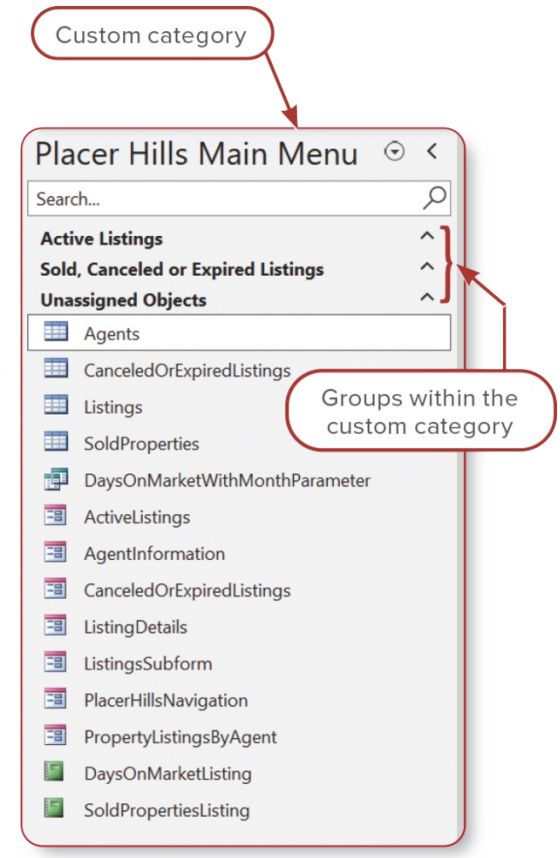


FIGURE 9-45 Custom category in the *Navigation Pane*

- The groups in that category display.
- Initially, all objects are located in the *Unassigned Objects* group.

2. Click, hold, and drag an object from the *Unassigned Objects* group to a different group. A shortcut to that object is created and placed in the group.

You can also right-click an object to open the context menu. Select the **Add to group** option to display the list of available groups (**Figure 9-46**). Select the desired group. A shortcut to that object is created and placed in that group.

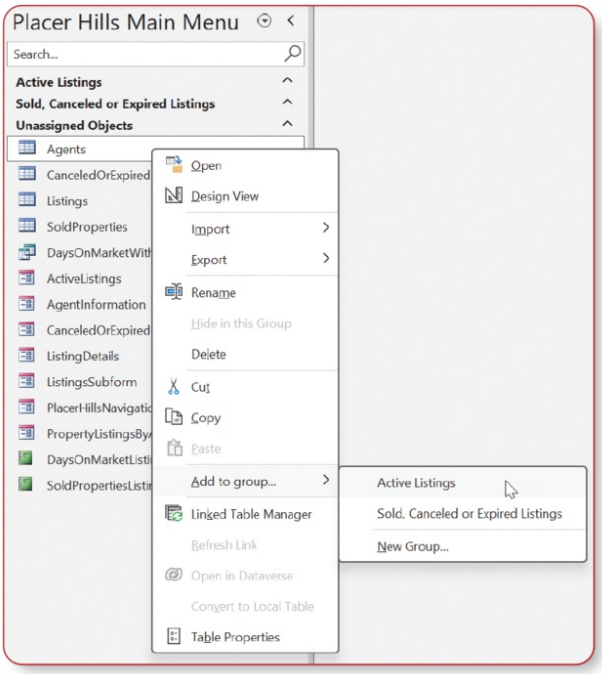


FIGURE 9-46 Use the context menu to add an object to a group

As desired, a shortcut can be assigned to multiple groups. This is useful when the underlying object, like a report, has content that is relevant to more than one group.

HOW TO: Add a Shortcut to Multiple Groups

1. Click the **Navigation Pane** arrow to open the *Navigation* menu and select the custom category.
2. Click, hold, and drag an object from the *Unassigned Objects* group to a different group.
3. Select the **shortcut** icon of the desired object.
4. Right-click the **shortcut**, select the **Add to group** option, and select the additional group in which to add the shortcut.
5. Repeat step 4, as desired, to add the shortcut into additional groups.

Open Shortcuts

You can open ***shortcuts*** directly from the *Navigation Pane.* Shortcuts inherit and use the different view options available to their object type.

- To open a shortcut in its default view (*Datasheet* view for a table or query, *Form* view for a form, and *Report* view for a report), double-click the shortcut in the *Navigation Pane.*
- To open a shortcut in *Design* view, right-click the shortcut in the *Navigation Pane* and select **Design View** from the context menu.
- To open a form or report shortcut in *Layout* view, right-click the shortcut in the *Navigation Pane* and select **Layout View** from the context menu.

Modify Objects, Shortcuts, Custom Categories, and Groups

You can make several additional modifications to the objects or shortcuts. Additionally, you may need to rename or delete custom categories or custom groups in the *Navigation Pane.* These skills are discussed in this section.

Disable Design View

Shortcuts, in contrast to the actual database objects, have a ***Disable Design View shortcuts*** property. Use this property to prevent users from opening or switching to *Design* view for the selected object when it is opened through the shortcut. This prevents users from accidentally modifying an object.

HOW TO: Disable Design View of an Object

1. Right-click the **shortcut** of the desired object and select the **View Properties**, **Object Properties**, or **Table Properties** option. The option name varies based on the type of object.
   - The *[Shortcut] Properties* dialog box opens (**Figure 9-47**).

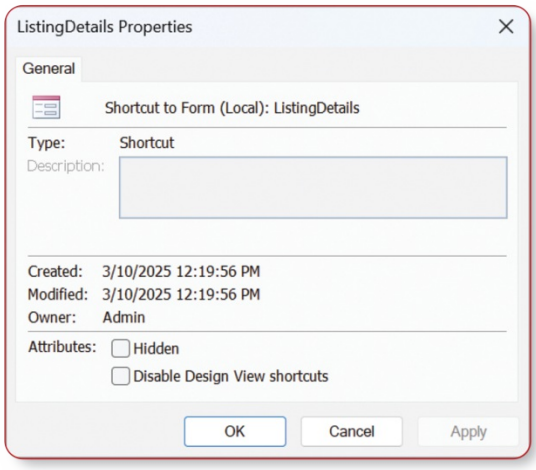


FIGURE 9-47 ***[Shortcut] Properties*** **dialog box**

- The name of the shortcut displays in the dialog box title bar along with the word *Properties*.

ANOTHER WAY

Modify multiple shortcuts together to save time. Select the first **shortcut**, press and hold the **Shift** key, and select the additional shortcuts. Right-click over one of the selected shortcuts and select the **View Properties**, **Object Properties**, or **Table Properties** option.

2. Click the **Disable Design View shortcuts** check box.
3. Click **OK**.

MORE INFO

Design view is only disabled when an object is opened by clicking the shortcut. If a user switches the *Navigation Pane* to display all objects, they are still able to work with the object directly in *Design* view.

Hide or Unhide Objects, Shortcuts, and Groups

You may wish to make selected objects or groups not visible to the user. For example, once you have finished assigning the objects to your custom groups, you can hide the *Unassigned Objects* group if you don't want it to display. Or you may have a few objects within a group that you don't want to display.

HOW TO: Hide or Unhide an Object or Shortcut

1. Right-click the **shortcut** or **object** and select the **View Properties**, **Object Properties**, or **Table Properties** option. The option name varies based on the type of object.
   - The *Properties* dialog box opens (**Figure 9-48**).

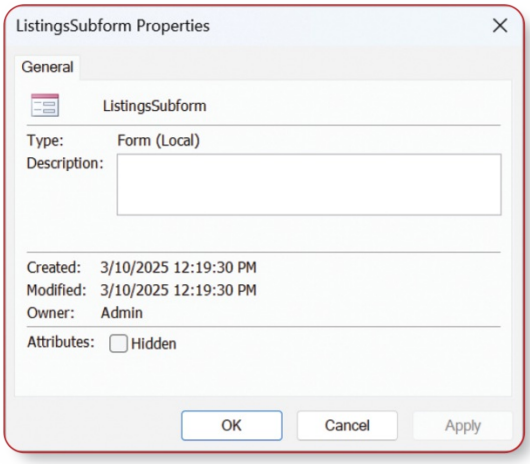


FIGURE 9-48 ***[Object] Properties*** **dialog box**

- The name of the shortcut or object displays in the dialog box title bar, along with the word *Properties*.
- You can tell the object in **Figure 9-48** is not a shortcut, because it does not have the *Disable Design View shortcuts* check box and the *Type* is not a *Shortcut*.

2. Select the **Hidden** check box.
   - A check in the *Hidden* check box hides the item.
   - An empty *Hidden* check box displays the item.
3. Click **Apply**.
4. Click **OK**.

Keep in mind the following tips related to hiding or unhiding objects, shortcuts, and groups:

- To hide or unhide a shortcut or object only within a group, right-click the **shortcut** or **object** in the desired group and select the **Hide in this Group** or **Unhide in this Group** option.
- If you hide an object, all shortcuts that reference that object are automatically hidden.
- To hide or unhide a group, right-click the **group heading** and select the **Hide** or **Unhide** option.
- Groups can also be hidden or unhidden by marking the check box to the left of the group name in the *Navigation Options* dialog box.

As you would expect, objects, shortcuts, and groups that are hidden do not display in the *Navigation Pane.* Occasionally, you may need to unhide an item you previously hid. Before you can select the desired *Unhide* option, you must first be able to see the item.

To display a hidden object, shortcut, or group, select the **Show Hidden Objects** **check box** in the

Navigation Options dialog box (Figure 9-49). This displays the hidden items in the *Navigation Pane* as dimmed items (Figure 9-50). In Figure 9-50, the *Unassigned Objects* group, and any items in that group, are dimmed. When the items display in a dimmed state, you can right-click the item to choose the appropriate *Unhide* option.

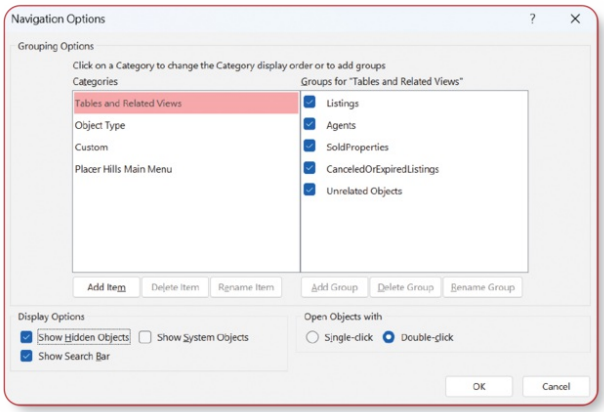


FIGURE 9-49 Select the *Show Hidden Objects* check box

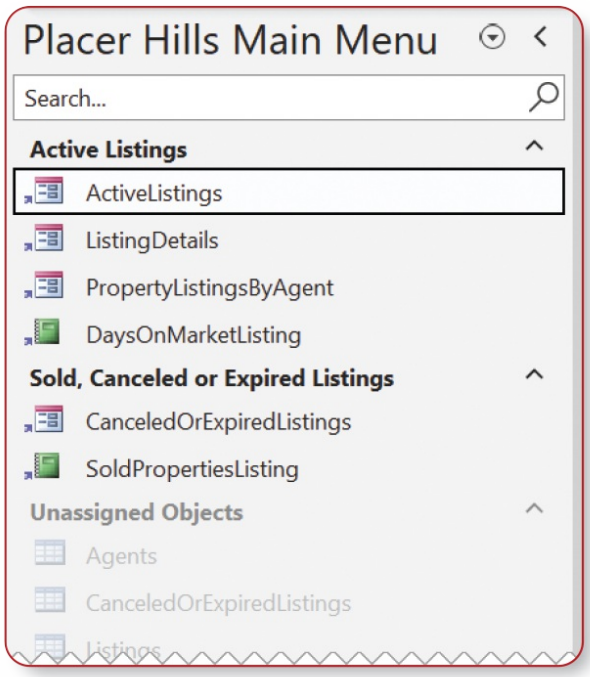


FIGURE 9-50 Dimmed items in the *Navigation Pane*

Rename Objects, Shortcuts, Categories, and Groups

You may want to change the name of a custom category, group, shortcut, or object.

HOW TO: Rename a Custom Category

1. Right-click the **Navigation Pane Title** bar to open the context menu and select **Navigation Options**. The *Navigation Options* dialog box opens.
2. Select the desired custom category.
3. Click the **Rename Item** button, and enter a new name.
4. Click **OK** when done.

HOW TO: Rename a Custom Group

1. Right-click the **Navigation Pane Title** bar to open the context menu and select **Navigation Options**. The *Navigation Options* dialog box opens.
2. Select the desired custom category.
3. Select the desired group.
4. Click the **Rename Group** button and enter a new name.
5. Click **OK** when done.

ANOTHER WAY

Right-click the group heading in the *Navigation Pane* and select the **Rename** option. Enter the new name and press **Enter**.

HOW TO: Rename a Shortcut or Object

1. Right-click the **shortcut** or **object** and select either the **Rename Shortcut** or **Rename** option.
2. Enter a new name and press **Enter**.

Delete Objects, Shortcuts, Categories, and Groups

Occasionally, you may need to delete a custom category, group, shortcut, or object. If you created

a category in error or if you no longer need a category, you can delete it from the *Navigation* menu. Deleting a category deletes all of the groups within that category. Any shortcuts to objects contained within those groups are also deleted.

HOW TO: Delete a Custom Category

1. Right-click the **Navigation Pane Title** bar to open the context menu and select **Navigation Options**. The *Navigation Options* dialog box opens.
2. Select the desired category.
3. Click the **Delete Item** button. Access displays a confirmation message box. Click **OK** to confirm the deletion.
4. Click **OK** when done.

If a group was created in error or is no longer needed, you can delete the group. Deleting a custom group removes the group from the *Navigation Pane* list. It does not delete any objects that have been assigned to that group.

HOW TO: Delete a Custom Group

1. Right-click the **Navigation Pane Title** bar to open the context menu and select **Navigation Options**. The *Navigation Options* dialog box opens.
2. Select the desired custom category.
3. Select the desired group.
4. Click the **Delete Group** button. Access displays a confirmation message box. Click **OK** to confirm the deletion.
5. Click **OK** when done.

ANOTHER WAY

Right-click the **group heading** in the *Navigation Pane* and select the **Delete** option. Be aware that you are not prompted to confirm this deletion.

You can also delete a shortcut or an object.

- To delete a shortcut, right-click the **shortcut** and select the **Remove** option. Deleting a shortcut does not delete the actual object.

- To delete an object, right-click the **object** and select the **Delete** option. Access displays a confirmation message box. Click **OK** to confirm the deletion.

Keep in mind that, even if you have created a custom *Navigation Pane,* users can still use the *Navigation* menu to select one of the pre-built categories. To help prevent accidental changes to the database, you can create a macro that locks the *Navigation Pane.* Use the Access Help system to learn how to create this macro.

COPILOT/GENERATIVE AI BEST PRACTICES

Building a custom *Navigation Pane* is an easy way to make your database more user friendly. Ask *Copilot* to explain the benefits to creating a custom *Navigation Pane*. You can also ask *Copilot* about advanced customizations you can apply or for examples of well-designed *Navigation Pane*. As desired, you can even ask for guidance in creating one for a specific situation.

PAUSE & PRACTICE: ACCESS 9-2

For this Pause & Practice, you create a custom *Navigation Pane* for the Placer Hills Real Estate database. You add a custom category and groups, and assign objects to groups. You also make modifications to several of the items in the *Navigation Pane*.

File Needed: ***PlacerHills-09.accdb*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Name: ***[your initials] PP A9-2.accdb***

1. Open the **PlacerHills-09** database from your student data files. If a *Security Risk* message or active content is blocked dialog box displays in any step, click **OK** or the **X** to close it. If the message repeats in a later step, click **OK** or the **X** to close the message.
2. Save a new copy of your database as [your initials] PP A9-2.
3. Enable content in the security warning.
4. Create a new custom category.
    a. Right-click the **Navigation Pane Title** bar to open the context menu and select **Navigation Options**. The *Navigation Options* dialog box opens.
    b. Click the **Add Item** button. A new custom category is added into the *Categories* list.
    c. Type Placer Hills Main Menu in the category box and press **Enter**.
5. Create custom groups.
    a. Select the **Placer Hills Main Menu** category if not already selected.

b. Click the **Add Group** button to add a new group in this category.

c. Type Active Listings in the group box and press **Enter**.

d. Click the **Add Group** button and type Sold, Canceled, or Expired Listings in the group box and press **Enter**.

e. Select the **Show Hidden Objects** check box in the *Display Options* area, if not already selected. The *Navigation Options* dialog box should look similar to **Figure 9-51**.

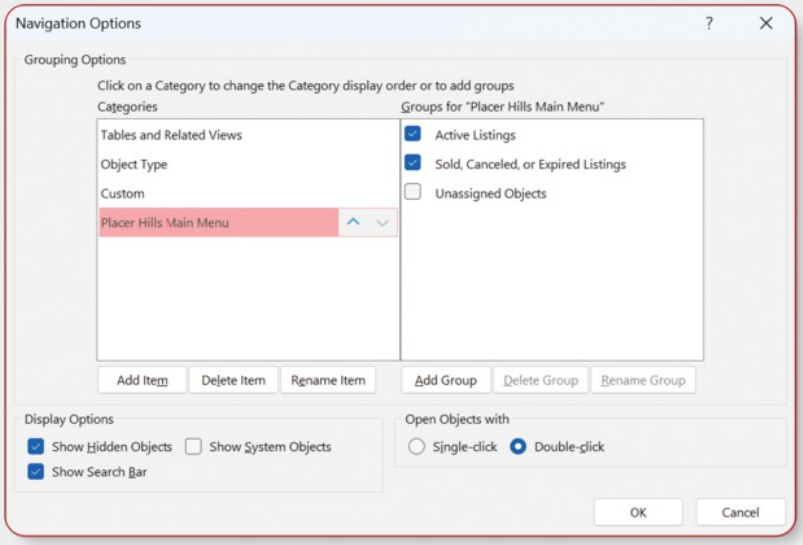


FIGURE 9-51 **New category and groups in the *Navigation Options* dialog box**

f. Click **OK** when done.

6. Assign objects to groups.

a. Click the **Navigation Pane** arrow to open the *Navigation* menu and select the **Placer Hills Main Menu** category.

b. Click, hold, and drag the **ActiveListings** form from the *Unassigned Objects* group to the *Active Listings* group.

c. Click, hold, and drag the **PropertyListingsByAgent** form from the *Unassigned Objects* group to the *Active Listings* group. Recall that this form contains the *ListingsSubform* form, although you don't assign that form to any group.

d. Right-click the **ListingDetails** form, select **Add to group**, and then select the **Active Listings** group.

e. Right-click the **DaysOnMarketListing** report, select **Add to group**, and then select the **Active Listings** group.

f. Right-click the **CanceledOrExpiredListings** form, select **Add to group**, and then select the **Sold, Canceled, or Expired Listings** group.

g. Right-click the **SoldPropertiesListing** report, select **Add to group**, and then select the **Sold, Canceled, or Expired Listings** group.

7. Disable *Design* view of shortcuts.

a. Right-click the **PropertyListingsByAgent** shortcut and select the **View Properties** option.
b. Select the **Disable Design View shortcuts** check box.
c. Click **OK**.
d. Right-click the **CanceledOrExpiredListings** shortcut and select the **View Properties** option.
e. Select the **Disable Design View shortcuts** check box.
f. Click **OK**.

8. Right-click the **Unassigned Objects** heading and select the **Hide** option. The group and objects display in a dimmed state because the *Show Hidden Objects* box is checked (see Figure 9-51).
9. Drag the **divider bar** to widen the *Navigation Pane* if necessary. The completed *Navigation Pane* should look similar to Figure 9-52.

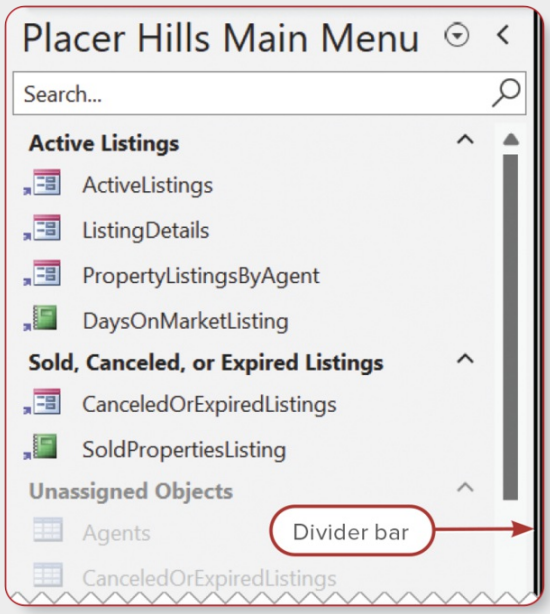


FIGURE 9-52 Completed *Navigation Pane*

10. Test the custom *Navigation Pane*.
    a. Double-click the **PropertyListingsByAgent** shortcut to open the *PropertyListingsByAgent* form. In the lower-right corner of the *Status* bar (Figure 9-53), note that the *Design View* icon is not displayed. Also note that this form still displays the subform, even though that object was not assigned to the group.



FIGURE 9-53 *Status* bar of form

    b. Close the form.

c. Double-click the **ListingDetails** shortcut. In the *Status* bar, note that the *ListingDetails* form enables the user to switch to *Design* view because you did not disable *Design* view for this shortcut.

d. Close the form.

e. Double-click the **CanceledOrExpiredListings** shortcut. Note that the *Design View* icon is not displayed. Because this is a *Datasheet* form, it also does not have a *Form View* icon.

f. Close the form.

11. Close the database.

SLO 9.3

Using the Performance Analyzer Tool

As the number of records increases within a database, it may take longer for tasks to be processed. For example, it may take a while for a form or report to open and display the data, or a query may take longer to return the desired results. The databases used in this book have had a limited number of records, and you may not have noticed any performance issues. Keep in mind, however, that databases used by organizations may have tens of thousands of records. The time it takes for Access to search through that many records to find the ones that meet certain criteria can be significant.

Creating well-designed database tables is an important part of ensuring good performance. As you learned in **SLO 9.1: Analyze and Document Database Design**, the Access *Table Analyzer* tool can help determine if a table is well designed. However, other issues may also affect the performance of a database. This section provides an overview of a few of the more common issues and teaches you how to use an Access tool to analyze performance and how to interpret the analysis results.

Optimize a Database

You can choose from several different ways to optimize a database. A few of them are one-time tasks, while others need to be performed periodically. Additionally, some have tradeoffs that limit the functionality of the database. Others may help certain tasks perform more quickly but make other tasks perform more slowly. As a result, it is important to clearly understand the processing needs of the user in order to make the correct choices. Several of the more common options are introduced in the following list:

- *Data Types:* While it seems obvious to say "choose the right data type for each field," you should take into account many considerations when choosing data types. In general, keep in mind that **number data types** process more quickly than text data types. Within text data types, a *Long Text* field takes longer to search than a *Short Text* field.
  Additionally, no matter the data type, the smaller the size of a data field, the faster it can be processed. For example, if you are working with *Short Text* fields, be sure to change the default size from 255 to a number that better matches the needs of your data. If a field only needs to store 30 characters, don't waste space storing an additional 225 characters of blank space for every record in the table. It decreases performance and increases storage needs. Similarly, for a number field, choose the proper size, keeping in mind that the different field size options range

from 1 byte of storage (for a *Byte* field size) to 16 bytes of storage (for a *Replication ID* field size).
When choosing a data type and associated field size, choose the smallest field size that can accommodate the data.

MORE INFO

Access recommends using a number data type for any field containing numeric data because performance is faster on number data types versus text data types. However, this contradicts the database design recommendation from **SLO 1.2: Creating and Managing a Database** to store numbers not used in calculations as a *Short Text* field. In this book, we follow the recommendations in ***SLO 1.2***.

- *Relationships:* Establishing relationships between tables improves the performance of the database for any objects that use fields from both those tables.
- *Indexes:* An ***index*** is a list used by the database to make it easier to find data. Just like the index at the back of this book points you to a specific page to find a topic, a database index points Access to a record. The default setting of the *Indexed* property for all table fields is *No.* When a field is designated as a primary key, Access changes the *Indexed* property to *Yes (No Duplicates)* and automatically creates an index. It is a good idea to index the fields on both sides of a relationship join. While Access created the index for the primary key, you need to create the index on the foreign key field.
  You can also index fields that are used frequently as criteria in a query, or for sorting, to speed up performance. However, be careful not to create too many indexes or you may negatively impact performance for adding, deleting, or changing records.
  To index a field, open the table in *Design* view, select the desired field, and select the appropriate *Indexed* property choice (**Figure 9-54**). *Yes (Duplicates OK)* is the correct choice for foreign key fields and any fields used as criteria or sorting.

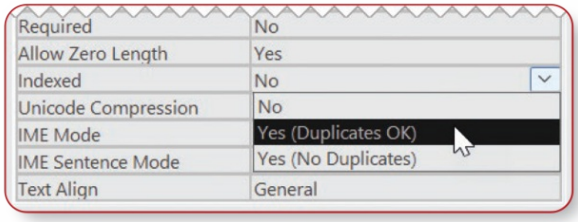


FIGURE 9-54 ***Indexed*** **property of a field**

- *Executable Files:* An ***executable*** **file** prevents users from opening forms and reports in *Design* view, prevents them from creating new forms and reports, and compiles all of the macro code.

This enables the database to execute faster. In older versions of Access, an executable file was identified with the extension of ***.mde***. Newer versions use the extension of ***.accde***. You learn to create an executable file in **SLO 9.5: Using Access Security Tools**.

- *Fewer Controls:* If you include too many fields in a query, form, or report, it takes longer to return the results. Of course, if you really need to display all of the fields, you can't do much to prevent this situation.
- *Graphics:* If multiple images are included on the forms and reports in your database, performance may be impacted. Use the *Image Gallery* (see **SLO 7.5: Enhancing the Look of a Form**) to store images used on multiple forms and reports instead of storing the image separately on each form or report. Additionally, remember to save images as JPG files to save storage space.
- *Compact the database:* In **SLO 2.8: Using the Compact & Repair Database Utility**, you learned to use the ***Compact & Repair Database*** utility. Recall that this utility removes temporary objects that Access automatically creates due to the way it operates. It is important to periodically reclaim this unused space to ensure optimal performance.
- *Denormalize the tables:* As you learned in **SLO 9.1: Analyze and Document Database Design**, normalization takes larger tables that have problems and divides them into smaller tables that no longer have problems. As a result, Access must join the tables back together when you need queries, forms, or reports to show the related data. Joining tables together takes more time than retrieving data from one table. If a database has a significant number of tables that need to be joined, you may want to denormalize a few tables. Denormalization is the process of intentionally returning tables to a lower normal form. This reintroduces problems you were trying to avoid with normalization, such as redundancy. You must carefully weigh the tradeoffs and make the best decision considering the needs of your users.

MORE INFO

These modifications may be quite involved and typically require the assistance of more experienced database personnel. A *Database Administrator* has special training and experience in how to best optimize large databases, in addition to other skills.

The Performance Analyzer Tool

Access includes a ***Performance Analyzer*** tool that analyzes objects in the database and suggests potential solutions to improve performance.

The tool categorizes analysis results as recommendations, suggestions, and ideas, each identified with an icon (**Figure 9-55**).

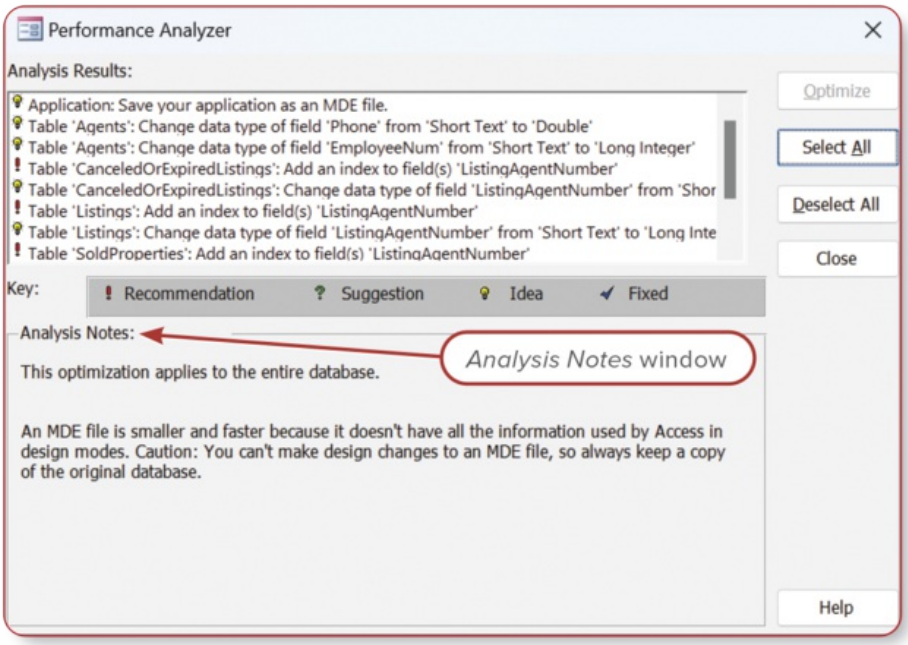


FIGURE 9-55 Potential solutions are suggested by the *Performance Analyzer*

Recommendations are solutions that can be carried out automatically by Access and do not have potential consequences on the database. Adding an index to a field is an example of a recommendation.

A9-740

Suggestions are solutions that can also be carried out automatically by Access. However, suggestions may have consequences or tradeoffs that you must consider. Creating a relationship between tables is an example of a suggestion.

Ideas are also solutions that may have consequences or tradeoffs that you must consider, but Access cannot automatically perform an idea. You must perform these changes in the database by following the necessary steps. Changing a field's data type is an example of an idea.

As you select different solutions from the list in the *Analysis Results* window, the *Analysis Notes* window updates to provide an explanation about the item.

You can have Access automatically perform recommendations and suggestions. In those cases, the icon of each item switches to **Fixed**. To perform ideas, you must close the *Performance Analyzer* tool and complete the necessary steps to implement the idea.

It is important to keep in mind that the *Performance Analyzer* tool is not perfect, nor is it a substitute for understanding how to create a well-designed database. The tool offers limited solutions when a database contains few records. For example, it will not suggest creating an index on a field unless it determines that a sufficient number of objects use the same field as criteria.

Additionally, all potential solutions depend upon the design of existing objects in your database. A variation in how or what you have created could alter the potential solutions.

MORE INFO

It is a good idea to back up your database before optimizing it. This way, you have the original in case the optimization causes any unanticipated problems. See **SLO 1.2: Creating and Managing a Database** to review how to create a backup copy of a database.

HOW TO: Use the Performance Analyzer

1. Click the **Analyze Performance** button [*Database Tools* tab, *Analyze* group] (**Figure 9-56**).

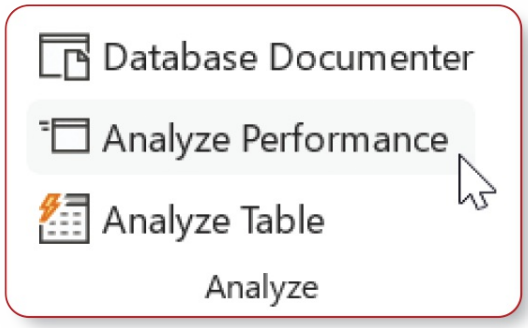


FIGURE 9-56 ***Analyze Performance*** **button**

- The *Performance Analyzer* dialog box opens (**Figure 9-57**).

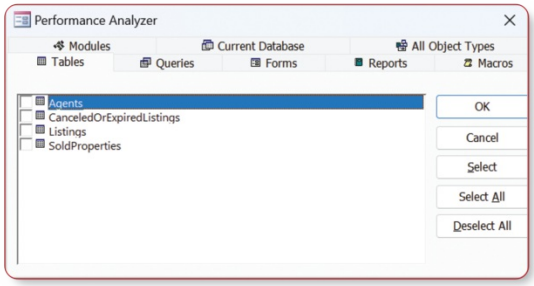


FIGURE 9-57 ***Performance Analyzer*** **dialog box**

- The dialog box shows the tab that corresponds to the selected object in the *Navigation Pane*.

2. Click the tab corresponding to the type of object you wish to analyze.
3. Select the check boxes of the objects you wish to analyze.
   - You can check multiple objects on a tab.
   - Click the **Select All** button to select all of the objects on the tab.
   - As desired, repeat steps 2 and 3 to select objects from a different tab.

ANOTHER WAY

To analyze all objects in the database, click the **All Object Types** tab and click the **Select All** button.

4. Click **OK**. The *Performance Analyzer* dialog box updates to display the results (**Figure 9-58**). The results are categorized into *Recommendations, Suggestions,* and *Ideas.*

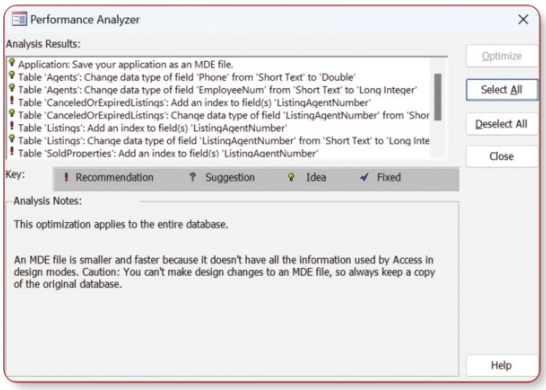


FIGURE 9-58 **Review the *Analysis Results* and *Analysis Notes***

5. Select a potential solution from the *Analysis Results* window to review the *Analysis Notes.* If the solution is a *Recommendation* or *Suggestion,* the *Optimize* button becomes available.
6. Select a **Recommendation** or **Suggestion** and click the **Optimize** button to have Access perform the solution.

ANOTHER WAY

To have Access perform all *Recommendations* and *Suggestions,* click the **Select All** button and then click the **Optimize** button.

7. Click **Close** when you are done reviewing all of the potential solutions.

If you wish to implement any of the potential solutions classified as *Ideas,* you must perform the steps to execute the solution. If you optimized a suggestion to create a new relationship between tables, Access did not enforce referential integrity when the relationship was created. You should open the *Relationships* window to edit the relationship settings to meet the needs of the business.

MORE INFO

A common *Idea* included in the *Analysis Results* is to save the database as an MDE file. Recall that this is the older format of an executable file. You should create an ACCDE file instead.

SLO 9.4

Using the Database Splitter Tool

A database you create may need to be used by multiple users in a company. One option is to put that database on a network drive. This enables multiple users to use the database at the same time. However, as the number of database users grows, this solution can result in significant performance issues and problems if different users try to update the same data at the same time. Another solution is to split the database into two database files: a front-end database and a back-end database. This technique can improve performance and security, and it enables users to create their own customized forms and reports. In this section, you learn about the front-end and back-end parts of a split database and how to create and use a split database.

Front-End and Back-End Databases

Each of the databases you have created and used in this book store all of their separate objects in one ACCDB file. When you open a database, all of the objects are available. If you split a database, you create two different parts.

The ***back-end database*** contains the database tables. The back-end database is stored on a network drive, or other shared location, to enable multiple users to access the data.

The ***front-end database*** contains linked tables that point to the back-end database and all of the forms, reports, and queries needed to use the data. In **SLO 8.2: Importing from an Excel Worksheet** and **SLO 8.4: Importing Text Files**, you learned how to create linked tables to an Excel worksheet or a text file. A linked table to an Access database works similarly. One major difference is that when you link to an Access database, you can add, delete, or modify records in the table. When you open a form, report, or query, the front-end database links to the back-end database to retrieve the data. **Figure 9-59** illustrates the split database concept.

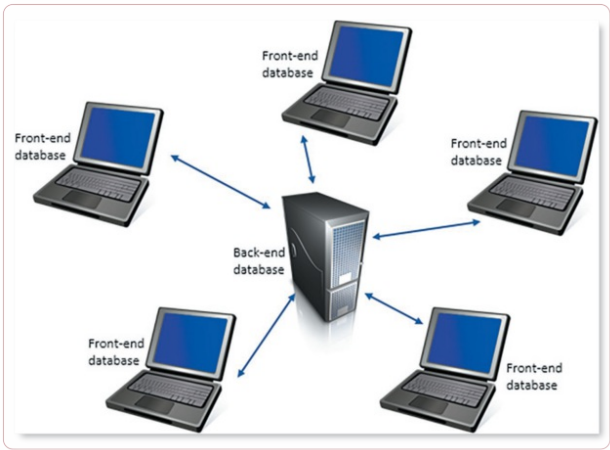


FIGURE 9-59 Back-end and front-end databases

The benefits of splitting a database include improved performance, customized front-ends for different users, and increased security and protection because changes to the table structure can't be made through a front-end database.

Split a Database

The Access ***Database Splitter*** tool creates the back-end database and moves the table objects into the back-end database. The starting database becomes the front-end database. The front-end database contains all of the original objects, except the tables, which have been replaced with linked tables.

MORE INFO

It is a good idea to back up your database before you split it. This way you have a copy in case you want to resume using the original database. See **SLO 1.2: Creating and Managing a Database** to review making a backup copy of a database.

HOW TO: Use the Database Splitter

1. Open the database that will be split and create a backup copy of the database if needed.
2. Click the **Access Database** button [*Database Tools* tab, *Move Data* group] (**Figure 9-60**).

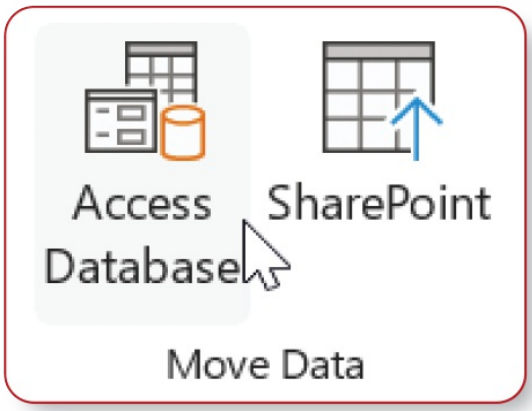


FIGURE 9-60 ***Access Database*** **button**

- The *Database Splitter* dialog box opens (Figure 9-61).

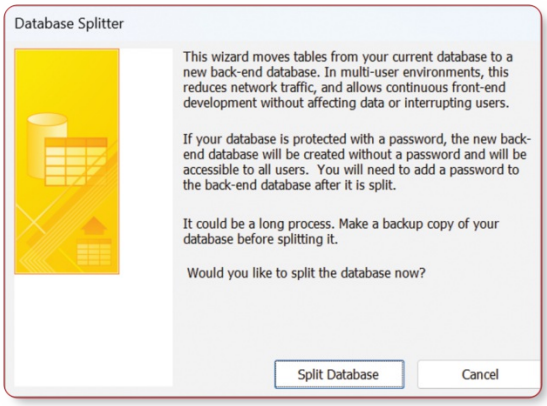


FIGURE 9-61 ***Database Splitter*** **dialog box**

- Review the instructions in the dialog box.

3. Click the **Split Database** button.
   - The *Create Back-end Database* dialog box opens (Figure 9-62).

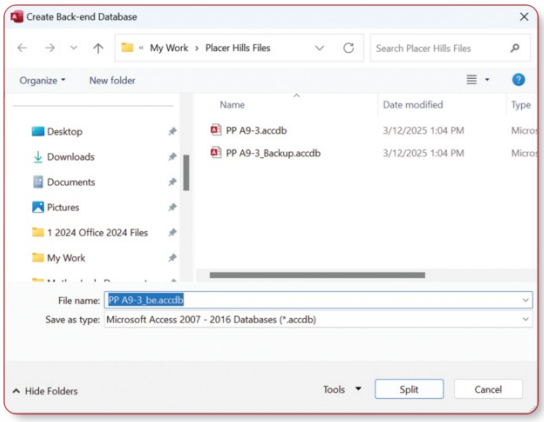


FIGURE 9-62 ***Create Back-end Database*** **dialog box**

- Access suggests a default file name that combines the original database name with the ending *_be*.

4. Locate the folder where you want to save the file, modify the file name as desired, and click the **Split** button.
   - To include a path to the network location of the back-end database, enter your specific information into the *File name* box using the following format: *\\NetworkServerName\\FolderName\\Database_be.accdb*
   - If no errors occurred, Access displays a message box confirming the creation of the back-end database.
5. Click **OK** to acknowledge the message.

MORE INFO

If the location you select to save the file is not the ultimate, shared network location, you must update the table links after you move the back-end database to the shared network location.

- The front-end database remains open.
- The *Navigation Pane* shows the linked tables (Figure 9-63). A linked Access table displays an arrow to the left of the table icon.

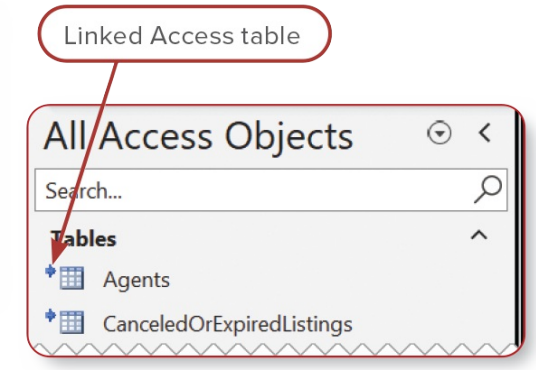


FIGURE 9-63 Linked Access tables in the *Navigation Pane*

Work with a Split Database

After the database has been split, you may need to perform the following tasks:

A9-744

- Even if the original database was password-protected before the split, the new back-end database is not created with a password. You must open the back-end database and add a password. You learn to password protect a database in the next section of this chapter.
- Once the back-end database has been created and located in a shared network location, you must distribute the front-end database to the users. Depending on the needs of the business, the front-end for each user may look the same, or it may differ. Unless you take action to prevent it, users can add new objects or modify existing objects in their front-end database. As desired, you can restrict users from being able to change any of the objects in the database by creating an executable file. You learn to create an executable database in the next section of this chapter.
- You may want to create customized front-end databases for different users or groups of users. You can either save a copy of the existing front-end database and then modify it, or create a new blank desktop database and create the new objects.
- If you create a new database, you must create the link tables before adding any other objects.
- When you have completed all changes in the front-end database, create copies and distribute the front-end database to each user.
- You may need to update the links from the front-end database to the back-end database. This can be due to moving the back-end database to a new location, or another problem that causes your users to receive an Access message indicating the back-end database file cannot be located. If this occurs, use the ***Linked Table Manager*** to perform this task.

HOW TO: Create a Link to a Table in Another Access Database

1. Click the **New Data Source** button [*External Data* tab, *Import & Link* group], select **From Database** and then select **Access** (Figure 9-64). The *Get External Data – Access Database* dialog box launches (Figure 9-65).

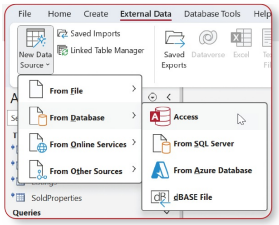


FIGURE 9-64 ***Access* option in the *Import & Link* group**

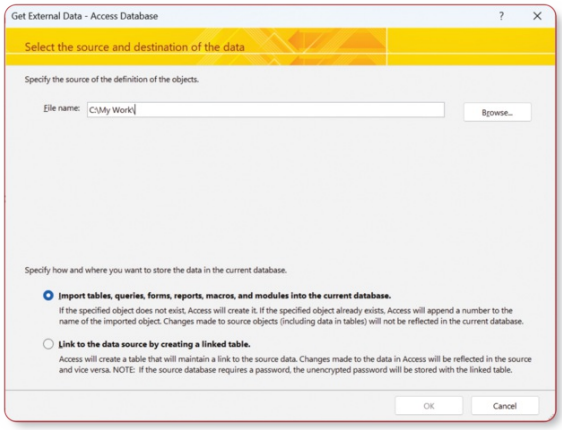


FIGURE 9-65 ***Get External Data – Access Database* dialog box**

2. Click the **Browse** button to launch the *File Open* dialog box.
3. Locate and select the back-end database file that contains the tables you want to link to, and then click the **Open** button. The *File Open* dialog box closes.
4. Select the **Link to the data source by creating a linked table** radio button and click **OK** to launch the *Link Tables* dialog box (Figure 9-66).

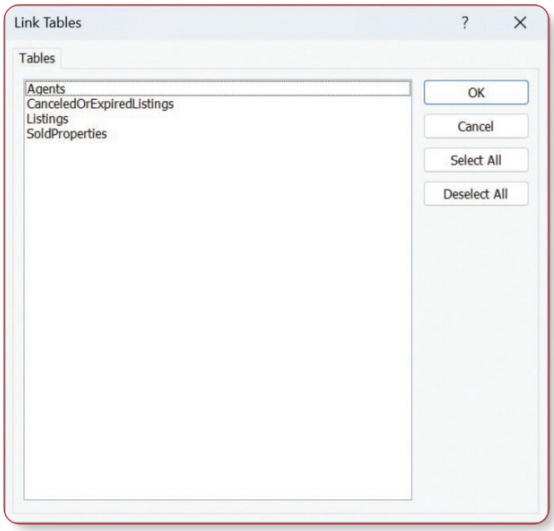


FIGURE 9-66 ***Link Tables*** **dialog box**

5. Select the table name. To select multiple tables, select the first table, press and hold the **Shift** key, and select the additional tables. To select all the tables, click the **Select All** button. Click **OK**.
   - If no errors occurred, Access creates the tables and adds them into the *Tables* group of the *Navigation Pane*.
   - A linked table icon includes an arrow pointing to the table icon.

HOW TO: Update Links to a Table in Another Access Database

1. Click the **Linked Table Manager** button (Figure 9-67) [*External Data* tab, *Import & Link* group]. The *Linked Table Manager* dialog box launches (Figure 9-68). A separate entry displays for each linked external data source.

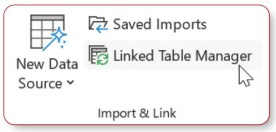


FIGURE 9-67 ***Linked Table Manager*** **button in the** ***Import & Link*** **group**

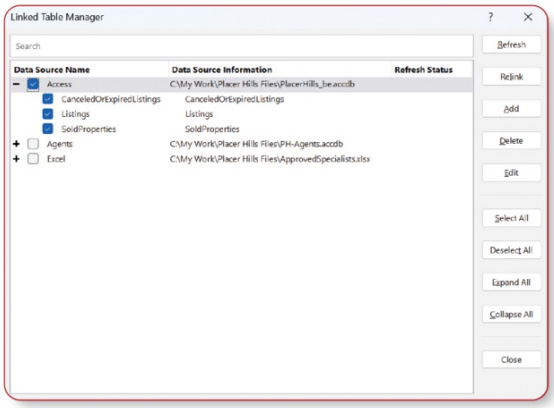


FIGURE 9-68 ***Linked Table Manager*** **dialog box**

2. Click the **plus sign** to expand an option in the *Data Source Name* column.
3. Check the box corresponding to each table that needs to be relinked. If a data source contains multiple tables, check the main data source box to select all tables in that data source. To select all the tables in all of the data sources, click the **Select All** button.
4. Click **Refresh**.
   - If the data source can't be located, Access displays a message box indicating the problem. Click **OK** to acknowledge the message.
   - Re-check the box(es) to select the table(s) and click **Relink**. The *Select New Location of Access* dialog box opens (Figure 9-69).

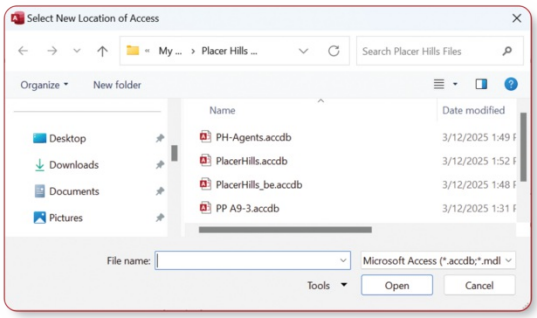


FIGURE 9-69 ***Select New Location of Access*** **dialog box**

   - Locate and select the back-end database file. The *Open* button in the dialog box changes to *OK*. Click the **OK** button.
   - A message box indicates that all selected tables with the same name will be relinked. To relink the tables to tables with different names click **Yes**, otherwise click **No**.

MORE INFO

If the back-end database is password protected, Access displays a *Relink "Table"* dialog box for the first table. The *"Table"* portion is replaced with a table name from your database. Update the table name if necessary and click **OK**. Type the password in the *Password* box when prompted and click **OK**. A *Relink "Table"* dialog box and *Password Required* dialog box display for each table.

- Review the entries in the *Refresh Status* column. If the *Refresh Status* is *Failed,* click **Refresh**.
- Verify the *Refresh Status* entries display *Succeeded.*

5. Click **Close**.

ANOTHER WAY

After selecting the data source, update the links by clicking **Edit** to open the *Edit Link* dialog box. Edit the *File Name* box entry to contain the complete path to the back-end database and click **Save**. The *Edit Link* dialog box closes. Click **Refresh** to update the links.

SLO 9.5

Using Access Security Tools

Safeguarding your database ensures that the database continues to work and provides the needed functionality to an organization. Creating a well-designed database is an important part of this process. As you have worked on the different databases, you have created table structures that minimize redundant data. You have also integrated different features, such as data validation rules and field lookups, to enhance the integrity of the data. In **SLO 9.2: Customizing the Navigation Pane**, you learned to customize the *Navigation Pane,* which enables you to hide objects. All of these techniques are important but even if you have used all of them, your database is still vulnerable to security breaches. In this section, you learn about several tools available in Access that can help improve the security of your database.

Encrypt and Password Protect a Database

Encryption converts data into a coded format that can't be understood unless it is decoded. If you open an encrypted file, it appears as scrambled characters and numbers. Access implements encryption through password protection. When you assign a password to a database, Access encrypts the database, saves the new file, and closes the database. When you reopen the database, you must enter the password in order to have Access decrypt and open the database.

MORE INFO

If you forget the password, you cannot open the database. Access does not have a mechanism to enable you to retrieve a lost password. As a result, it is a good idea to create a backup copy of the database prior to assigning a password. Be sure to store the backup copy in a secure location.

Before you encrypt a database, it must be opened in exclusive mode. Access has four different modes in which a database can be opened:

- *Open:* Allows shared use of the database and full access to all objects. This enables you and other users to read existing data and make changes to the database. Unless settings within Access have been changed, this is the default mode.
- *Open Read-Only:* Allows shared use of the database but limits access to only view data in the

database. However, you and any other users are prevented from making any changes to the database, such as adding, changing, or deleting data. If you have opened a database as *Open Read-Only,* other users can still open the database in *Open* mode, enabling them to make changes as desired.

- ***Open Exclusive:*** Permits only the person opening the database to have the database open. If anyone has it opened exclusively, other users are prevented from opening the database. If anyone has the database already open, you are prevented from opening it exclusively.
- *Open Exclusive Read-Only:* Permits only the person opening the database to have the database open, but he or she is prevented from making any changes to the database.

The default *Open* mode applies when you or a user double-click an Access database file to open it from Windows, or when you click the **Open** button [*File* tab] and then select a file from the *Recent* area (Figure 9-70). The *Open Read-Only, Open Exclusive,* or *Open Exclusive Read-Only* options are only available from the *Open* dialog box. After selecting the database file from the dialog box, you click the arrow next to the *Open* button and select the appropriate choice.

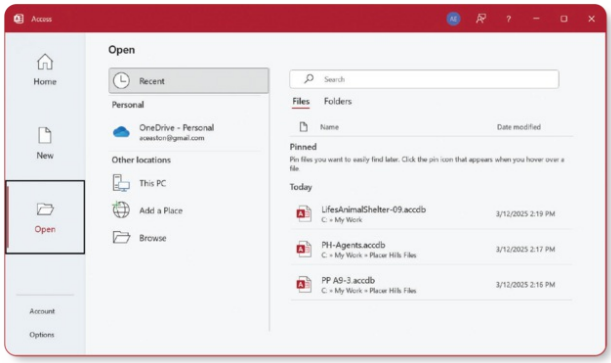


FIGURE 9-70 Select a file from the *Recent* area to open it in *Open* mode

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In most cases, both you and any of your users, will use the default *Open* mode. However, to password protect your database you must first open it using the *Open Exclusive* mode.

HOW TO: Open a Database in Exclusive Mode

1. Click the **Open** button [*File* tab] or press **Ctrl+O** to display the *Open* area in *Backstage* view.
2. Double-click **Recent**, **OneDrive**, **This PC**, or **Browse** to open the *Open* dialog box.
3. Browse to the location of your database and click to select the database. Do not double-click the database file name.
4. Click the **Open** button arrow and select **Open Exclusive** (Figure 9-71).

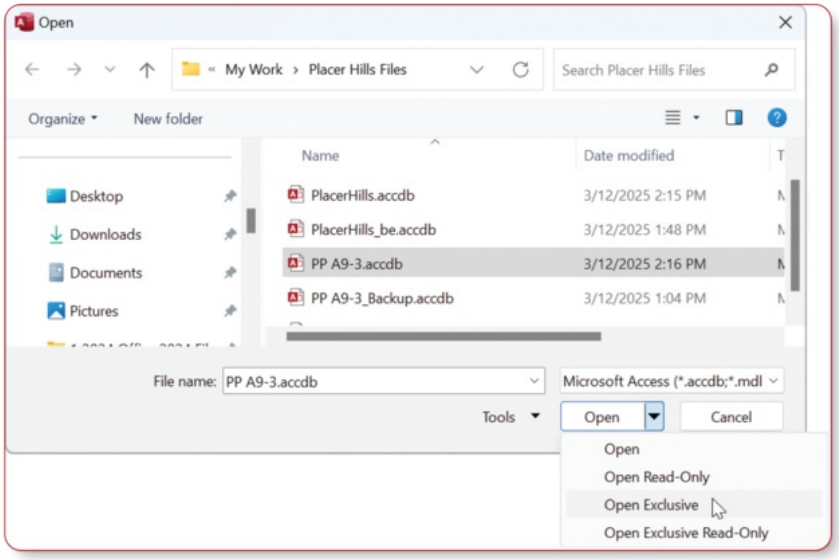


FIGURE 9-71 Select *Open Exclusive*

With the database opened exclusively, you can assign a password. Remember that passwords are case-sensitive. Be sure to enter a strong password, which is more difficult for someone to guess.

MORE INFO

To create a strong password, use at least eight characters and include at least one uppercase letter, one lowercase letter, one number, and one special character. Avoid using common words, names, or numbers that are unique to you. For example, don't use your mom's name, your street address number, or part of your Social Security number.

HOW TO: Encrypt a Database with a Password

1. Open the database using the *Open Exclusive* option, if needed, and click the **Info** button [*File* tab].
2. Click the **Encrypt with Password** button (Figure 9-72). The *Set Database Password* dialog box displays.

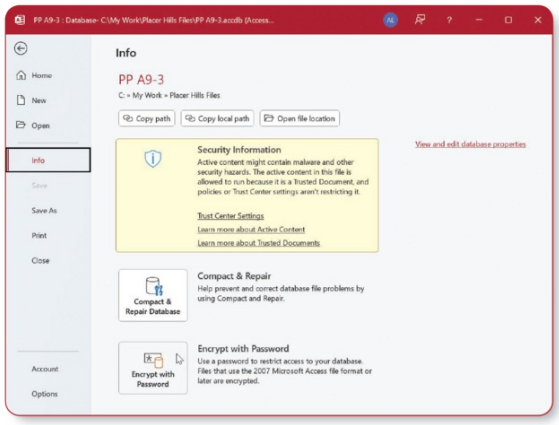


FIGURE 9-72 ***Encrypt with Password*** **button**

3. Type a password in the *Password* box.
4. Type the same password in the *Verify* box. Note that the entries display as asterisks in both boxes (**Figure 9-73**).

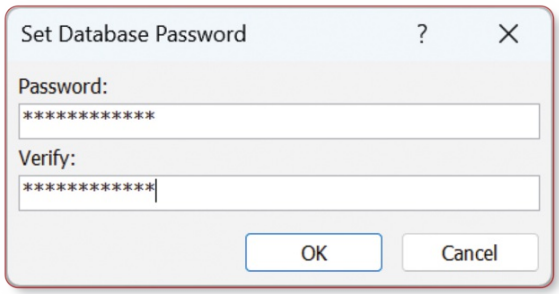


FIGURE 9-73 ***Set Database Password*** **dialog box**

5. Click **OK**.
   - If the passwords do not match, a message box displays. Click **OK** to acknowledge the message and then repeat steps 3–5.
   - If you get a message about encrypting with a block cipher and row level locking, click **OK**.
6. Close the database.

When you open a database that has been encrypted, the *Password Required* dialog box displays (**Figure 9-74**). You must enter the correct password and click **OK** before the database opens completely.

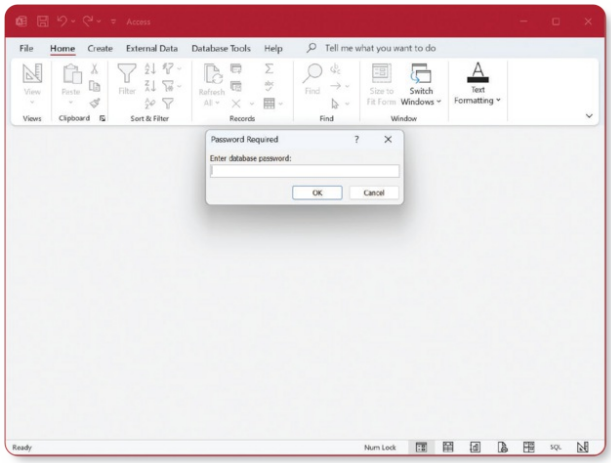


FIGURE 9-74 The *Password Required* dialog box displays before the database opens completely

At some point, you may need to remove the password assigned to a database, or you may need to periodically change the password as part of a good password management process. It is common for companies, for example, to have policies that establish the frequency with which you must change a password.

To change a password, you must first decrypt the database to remove the current password and then follow the previous steps to encrypt the database to create the new password.

HOW TO: Decrypt a Database with a Password

1. Open the database using the *Open Exclusive* option, if needed. Enter the current password when prompted.
2. Click the **Info** button [*File* tab].
3. Click the **Decrypt Database** button (Figure 9-75). The *Unset Database Password* dialog box displays (Figure 9-76).

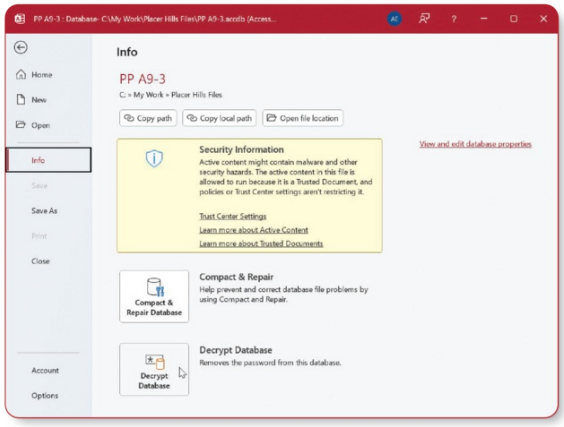


FIGURE 9-75 ***Decrypt Database*** **button**

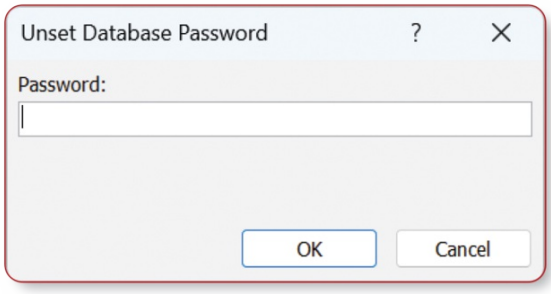


FIGURE 9-76 ***Unset Database Password*** **dialog box**

4. Type the current password in the *Password* box and click **OK**.
   - If the password is not correct, a message box displays. Click **OK** to acknowledge the message and then try again.
   - If the password is correct, Access removes the password. The database remains open in exclusive mode.
5. Apply a new password by following the steps in *How To: Encrypt a Database with a Password.* Otherwise, close the database.

Adding a password to a split database is a little more involved. While you could choose to password protect only the back-end or only the front-end, your database will be more secure if you assign a password to the back-end database and to all copies of the front-end database.

To do this, follow the steps you just learned to assign a password to a database. However, you must encrypt the back-end database first, and you must re-create the linked tables in the front-end databases. The following *How To* provides a guideline for the process.

HOW TO: Encrypt the Back-end and Front-end Databases in a Split Database

1. Encrypt the back-end database first by following the steps in *How To: Encrypt a Database with a Password.*
2. Encrypt the front-end database second.
   - Open the front-end database in exclusive mode.
   - Delete the linked tables. Even though the location of the tables has not changed, you cannot use them due to the new password on the back-end database.
   - Follow the steps in *How To: Create a Link to a Table in Another Access Database* in **SLO 9.4: Using the Database Splitter Tool** to re-create the linked tables. You will be prompted to enter the password of the back-end database during this process.
   - Follow the steps in *How To: Encrypt a Database with a Password* to assign a password to the front-end database.

When working with the front-end database, you must decide whether each copy of the front-end will use the same password or a different password. If the copies will share the same password, you can assign the password before you make copies and distribute them to your users. If they will have unique passwords, you need to make copies of the database first and then assign a unique password to each copy.

Package and Sign a Database

Once you have completed your database, you may wish to package and sign the database before distributing it to others. When you package and sign a database, you tell others that your database can be trusted. Recall that viruses can be transmitted inside the macro code in a database. When you first open a database, a user must decide whether he or she trusts the database. If a user does, he or she clicks the *Enable Content* button. Adding your electronic signature to the database lets others know that the database hasn't been altered.

To package and sign a database, you must have a ***digital certificate***, an authentication mechanism that contains identifying information about the creator, as well as a ***digital signature***, an electronic stamp attached to the digital certificate. You may see the term *security certificate* used instead of digital certificate. You can either purchase a digital certificate from a commercial vendor, or you can create a self-signed certificate. A self-signed certificate can be used on a small scale within your own organization, but if you are going to distribute the database more widely, you must purchase a digital certificate from a commercial vendor. In this section, you learn how to create and use a self-signed certificate.

To create and use a self-signed certificate, you first create the certificate. This process occurs

outside Access. Then, you use the certificate within Access to package and sign a database.

HOW TO: Create a Self-Signed Certificate

1. Open Windows File Explorer and browse to the folder that contains your Microsoft Office program files. The files should be located in the default folder, similar to *Drive:\Program Files\Microsoft Office\root\Office16*.
2. Type Selfcert.exe in the *Search* box and click the arrow button to the right of the *Search* box. The *Search options* button becomes available in the toolbar. File Explorer locates and displays the *SELFCERT.EXE* file (Figure 9-77). It is possible that you have more than one file, depending on your installation.

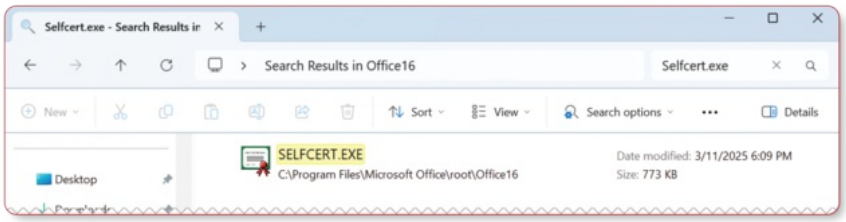


FIGURE 9-77 Locate the ***SELFCERT.EXE*** file

- If the file is not located, click **Search options** and select **System Files**.
- Click the arrow button to search again.

MORE INFO

If you have older versions of Office on your computer, the *SELFCERT.EXE* file may be located in a folder containing the earlier Office program.

3. Double-click **SELFCERT.EXE** to launch the program.
4. Type a name to assign to the certificate in the *Create Digital Certificate* dialog box (Figure 9-78) and click **OK**.

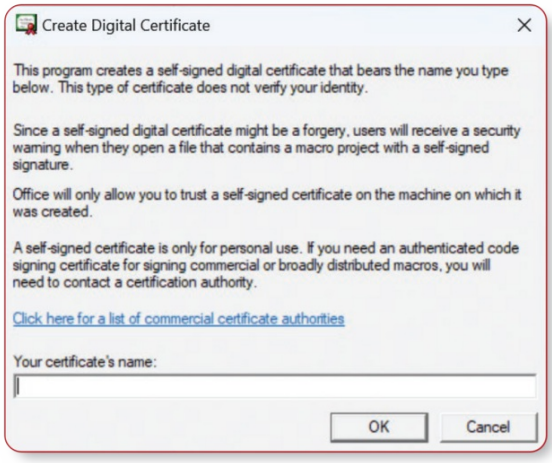


FIGURE 9-78 ***Create Digital Certificate*** **dialog box**

- The *SelfCert Success* dialog box displays (Figure 9-79).

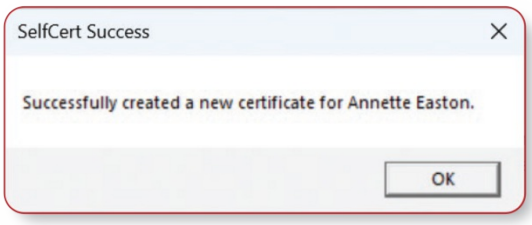


FIGURE 9-79 ***SelfCert Success*** **dialog box**

- The message in the box displays the name of your certificate. (In the example shown here, the certificate name is "Annette Easton.")

5. Click **OK**.

Once you have a digital certificate, you can use the ***Package and Sign*** tool to create a database your users know they can trust. A database that is signed and packaged has a file extension of ***.accdc.***

HOW TO: Package and Sign a Database

1. Click the **File** tab to open the *Backstage* view and click the **Save As** button.
2. Click the **Package and Sign** button in the *Advanced* grouping of the *Save Database As* section and click the **Save As** button (Figure 9-80). The *Windows*

Security dialog box displays one available certificate.

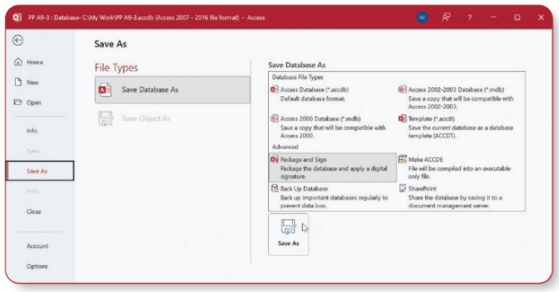


FIGURE 9-80 Click the *Package and Sign* button

3. Click **More choices** to display all available certificates (Figure 9-81).

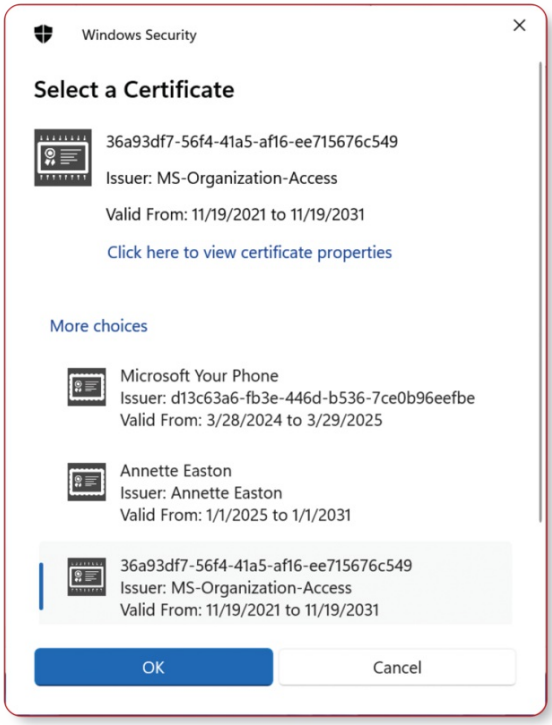


FIGURE 9-81 Choose the certificate to apply in the *Windows Security* dialog box

4. Click **Click here to view certificate properties** to learn more about the certificate.
   - The*Certificate Details* dialog box opens.
   - Click the different tabs to read more about the certificate.
   - Click **OK** to close the dialog box.
   - Select a different certificate to make it the active certificate. Repeat step 4 to learn more about the certificate.
5. Select the certificate to apply to the database and click **OK**. The *Create Microsoft*

Access Signed Package dialog box displays (Figure 9-82).

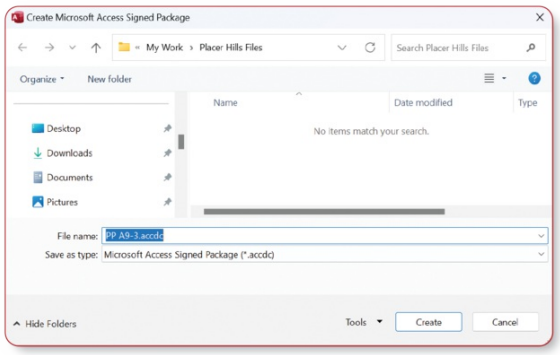


FIGURE 9-82 ***Create Microsoft Access Signed Package*** **dialog box**

6. Select the location where you want to store the file. As desired, you can change the default file name but retain the extension .accdc. Click the **Create** button.
   - A new file is created containing the packaged database.
   - The original database remains open.

A9-752

When viewed in Windows File Explorer, the icon of a packaged database file has a small certificate added to the right side of the normal Access database file icon. Figure 9-83 shows icons for both an .accdb and an .accdc file.

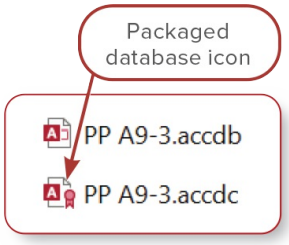


FIGURE 9-83 **Access database file icons**

To use a packaged database, the database must be extracted from the packaged file and saved as a normal .accdb database. Access handles this when you open the packaged file. You are prompted to accept the digital certificate during this process.

A9-753

HOW TO: Open a Packaged Database

1. Click the **Open** button [*File* tab] to display the *Open* area in *Backstage* view.
2. Double-click **This PC** to open the *Open* dialog box.
3. Change the file type by clicking the **File Type** box arrow and selecting **Microsoft Access Signed Packages (*.accdc)** (**Figure 9-84**).

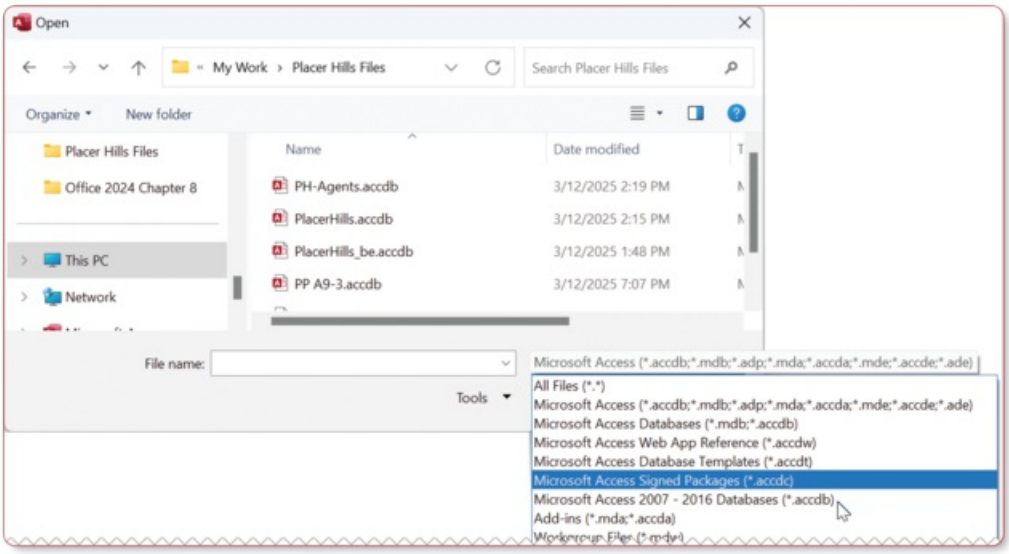


FIGURE 9-84 **Change the file type to display signed packages**

4. Browse to the location of your database, click to select the database, and click **Open**. A *Microsoft Access Security Notice* dialog box displays information about the digital signature (**Figure 9-85**).

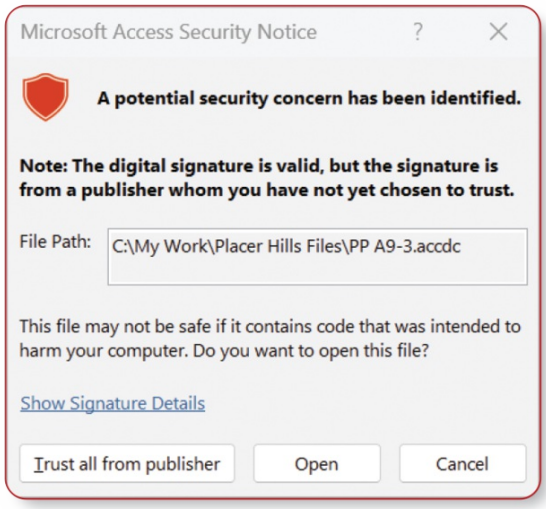


FIGURE 9-85 ***Microsoft Access Security Notice*** **dialog box**

ANOTHER WAY

Double-click the file name in Windows File Explorer instead of performing steps 1–4.

5. Click **Open** if you trust the certificate. The *Extract Database To* dialog box displays.
6. Browse to the location where you want to store the database, and then click **OK** (**Figure 9-86**). The database opens.

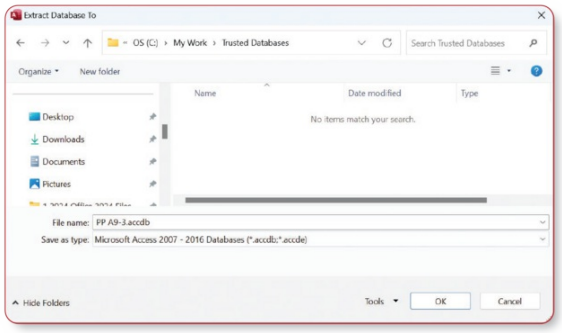


FIGURE 9-86 **Select the location to store the extracted database**

- If a file with that name already exists, you are prompted to replace the file. Click **Yes**.
- If the database is password protected, the *Password Required* dialog box displays.
- Enter the password and click **OK**.

Lock a Database File

Another *Save As* option in Access creates an ***Access Database Executable (ACCDE)* file**. An Access Database Executable file, also called a ***locked* database file** or an *executable* file, prevents users from making any changes to existing forms, reports, and macros, or from creating any form or report objects. This additional level of security can prevent accidental mistakes. The process to create an executable file is very straightforward. Use the ***Make ACCDE*** tool to create an executable file.

HOW TO: Create a Locked Database (ACCDE) File

1. Click the **File** tab to open the *Backstage* view and click the **Save As** button.
2. Click the **Make ACCDE** button in the *Advanced* grouping of *the Save Database As* section and click the **Save As** button (Figure 9-87). The *Save As* dialog box displays.

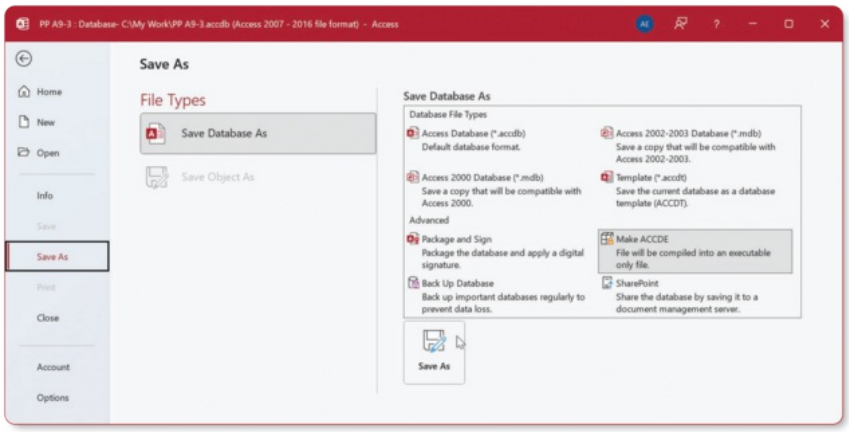


FIGURE 9-87 Click the *Make ACCDE* button

3. Select the location where you want to store the file. As desired, you can change the default file name but retain the.accde extension. Click the **Save** button.
   - A new file is created containing the locked database.
   - The original database remains open.

The icon of a locked database file includes a small lock on the right side of the normal Access database file icon. Figure 9-88 shows icons for .accdb, .accdc, and .accde files.

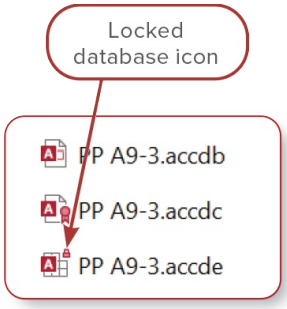


FIGURE 9-88 Access database file icons

When a locked database is opened and used, all objects can be opened and used. However, *Design* view and *Layout* view are not available options for forms and reports. Additionally, the *Create* tab dims all of the icons in the *Forms* and *Reports* groups.

Be sure to keep a copy of your original .accdb file in a secure location. You need this file if you want to add or modify any forms, reports, or macros.

Although Access enables you to lock any database, good database design practices suggest you only lock the front-end of a split database. If you lock a non-split database containing both the tables and all database objects, or if you lock the back-end of a split database, you create a situation that is difficult to manage.

When users work in a locked database, data records are added, modified, and deleted inside that locked database. But, Access prevents you from changing existing forms, reports, or macros, or from creating any new forms or reports in the database once it has been locked. Any changes, such as creating or modifying the forms and reports, must be done in the original .accdb file.

However, the original .accdb file does not contain the most current data. Remember that all of the updates were done in the locked database (.accde file) that your users have been working with. Additionally, it is possible that users may have made other changes in the .accde file, such as creating new queries. If the locked database contained tables as well as objects, it is possible that changes were made to the table structure. Any of these situations result in the original .accdb file having different data, and potentially different objects, from the current .accde file.

These differences create problems. How do you get the most current data into the .accdb file so you can create or modify the forms and reports? While it is possible to try to synchronize the data and objects across both files by copying tables and objects between the .accdb file and the .accde file, it is a complicated task that is prone to mistakes.

A9-755

As a result, the only database you should lock is the front-end of a split database.

COPILOT/GENERATIVE AI BEST PRACTICES

Ask *Copilot* to explain the different tools that can help provide security to your Access database. Follow-up with prompts to help create a strong password or for examples of strong passwords. You can also ask about tradeoffs to consider when locking a database file.

A9-756

A9-757

A9-758

PAUSE & PRACTICE: ACCESS 9-3

For this Pause & Practice, you analyze the performance of the Placer Hills Real Estate database. To enhance performance and improve security, you split the database, add a password to the back-end database, update linked tables in the front-end database, and lock the front-end database.

File Needed: ***[your initials] PP A9-2.accdb***

Completed Project File Names: ***[your initials] PP A9-3.accdb, [your initials] PP A9-3_Backup.accdb, [your initials] PP A9-3_Backup_2.accdb, [your initials] PP A9-3_be.accdb,*** and ***[your initials] PP A9-3.accde***

1. Open the ***[your initials] PP A9-2*** database completed in *Pause & Practice 9-2*. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close the message. If the message repeats in a later step, click **OK** or the **X** to close the message.
2. Save a new copy of your database as [your initials] PP A9-3.
3. Enable content in the security warning.
4. Click the **Navigation Pane** arrow to open the *Navigation* menu and select the **Object Type** category. The *Navigation Pane* updates.
5. Back up the database.
   a. Click the **File** tab to open the *Backstage* view and click the **Save As** button.
   b. Click the **Back Up Database** button in the *Advanced* grouping of *the Save Database As* section and then click the **Save As** button. The *Save As* dialog box displays.
   c. Select the location to store the file, enter [your initials] PP A9-3_Backup as the file name, and click the **Save** button.
6. Analyze the performance of the database.
   a. Click the **Analyze Performance** button [*Database Tools* tab, *Analyze* group].
   b. Click the **All Object Types** tab.
   c. Click the **Select All** button.
   d. Click **OK** to display the *Analysis Results* (**Figure 9-89**).

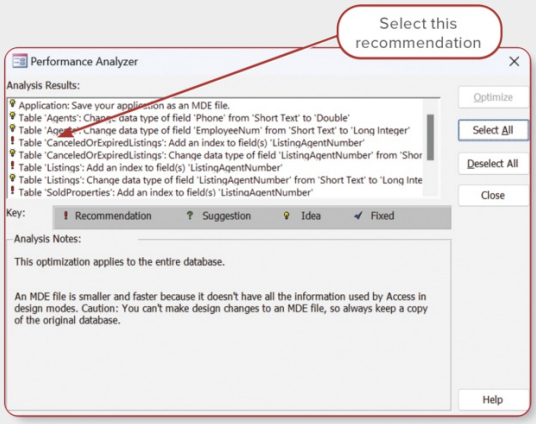


FIGURE 9-89 Review the *Analysis Results* and

Analysis Notes



e. Select the **Table 'CanceledOrExpiredListings': Add an index to field(s) 'ListingAgentNumber'** recommendation in the *Analysis Results* window. Read the *Analysis Notes.*

f. Click the **Optimize** button to have Access perform this recommendation. The icon changes to the *Fixed* check mark.

g. Select the **Table 'CanceledOrExpiredListings': Change data type of field 'ListingAgentNumber…'** idea in the *Analysis Results* window. Read the *Analysis Notes.* Because we are following the database design guidelines to store numbers not used in calculations as a *Short Text* field, do not follow the instructions to implement this idea.

h. Scroll down to and select the **Table 'Listings': Add an index to field(s) 'ListingAgentNumber'** recommendation in the *Analysis Results* window. Read the *Analysis Notes.*

i. Click the **Optimize** button. The icon changes to the *Fixed* check mark.

j. Scroll down to and select the **Table 'SoldProperties': Add an index to field(s) 'ListingAgentNumber'** recommendation in the *Analysis Results* window. Read the *Analysis Notes.*

k. Click the **Optimize** button. The icon changes to the *Fixed* check mark.

l. Review the remaining potential solutions. You decide not to make any of those changes. Click **Close** when done.

7. Verify the relationship constraints.

   a. Click the **Relationships** button [*Database Tools* tab, *Relationships* group]. None of the relationships have enforced referential integrity. The integrity constraints were either changed or not completed when these additional tables were added to the database.

   b. Adjust the size of the table objects and move them if necessary so they are easy to see.

   c. Select the **relationship line** between the *Agents* and *Listings* tables.

   d. Click **Edit Relationships** [*Relationships Design* tab, *Tools* group].

   e. Select the **Enforce Referential Integrity** and the **Cascade Update Related Fields** check boxes and click **OK**.

   f. Select the **relationship line** between the *Agents* and *CanceledOrExpiredListings* tables.

   g. Click **Edit Relationships** [*Relationships Design* tab, *Tools* group].

   h. Select the **Enforce Referential Integrity** and the **Cascade Update Related Fields** check boxes and click **OK**.

   i. Select the **relationship line** between the *Agents* and *SoldProperties* tables.

   j. Click **Edit Relationships** [*Relationships Design* tab, *Tools* group].

   k. Select the **Enforce Referential Integrity** and the **Cascade Update Related Fields** check boxes and click **OK**.

   l. Close the *Relationships* window. Choose to save the changes to the relationships when prompted.

8. Back up the database (because you have made changes since the first backup).

   a. Click the **File** tab to open the *Backstage* view and click the **Save As** button.

   b. Click the **Back Up Database** button in the *Advanced* grouping of *the Save Database As* section and click

the **Save As** button. The *Save As* dialog box displays.

c. Select the location to store the file, enter [your initials] PP A9-3_Backup_2 as the file name, and click the **Save** button.

9. Split the database.

a. Click the **Access Database** button [*Database Tools* tab, *Move Data* group]. The *Database Splitter* dialog box opens.

b. Click the **Split Database** button. The *Create Back-end Database* dialog box opens.

c. Locate the folder where you want to save the file, accept the suggested file name, and click the **Split** button. Access displays a message box confirming the creation of the back-end database.

d. Click **OK** to acknowledge the message. The front-end database remains open and the new linked tables display in the *Navigation Pane* (Figure 9-90).

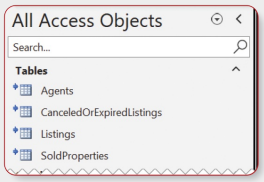


FIGURE 9-90 Linked Access tables in the *Navigation Pane*

e. Click the **Close** button [*File* tab] to close the front-end database. Access remains open.

10. Password protect the back-end database.

a. Click the **Open** button [*File* tab] to display the *Open* area in the *Backstage* view.

b. Double-click **Recent**, **OneDrive**, **This PC**, or **Browse** to open the *Open* dialog box.

c. Browse to the location of your back-end database and click to select ***[your initials] PP A9-3_be.*** Do not double-click the database file name.

d. Click the **Open** button arrow (Figure 9-91) and select **Open Exclusive**. Enable content in the security warning if necessary.

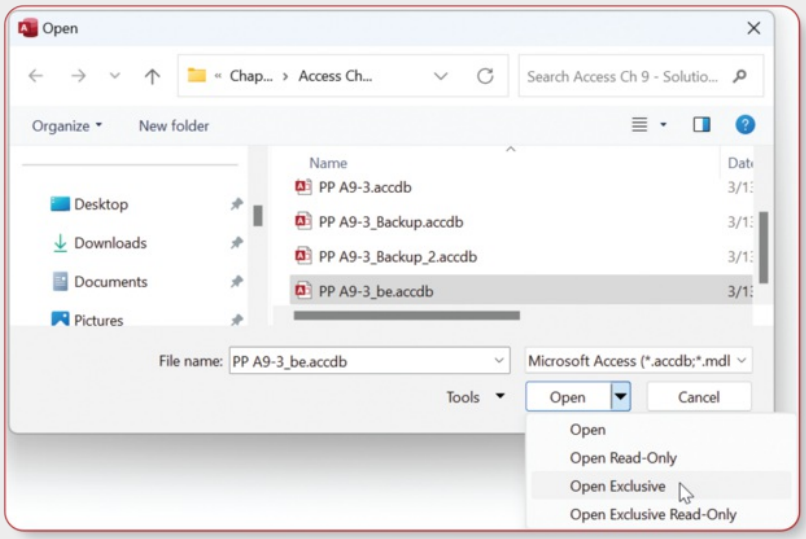


FIGURE 9-91 Select *Open Exclusive*

e. Click the **Info** button [*File* tab].

f. Click the **Encrypt with Password** button to open the *Set Database Password* dialog box.

g. Type #PHR*L1st in the *Password* box.

h. Type #PHR*L1st in the *Verify* box.

i. Click **OK**. If you receive a message about row level locking, click **OK**.

j. Close the database.

11. Update links in the front-end database.

a. Open the ***[your initials] PP A9-3*** database file. Remember that this is now your front-end database.

b. Double-click the **Agents** table. An Access message box displays, informing you that you don't have a valid password. Click **OK** to acknowledge the message.

c. Click the **Linked Table Manager** button [*External Data* tab, *Import & Link* group] to open the *Linked Table Manager* dialog box.

d. Click the **plus sign** to expand *Access* in the *Data Source Name* column.

e. Select the **Access** check box in the *Data Source Name* column. Access automatically selects the check box for each of the four tables.

f. Click **Relink**. The *Select New Location of Access* dialog box opens.

g. Locate and select the ***[your initials] PP A9-3_be*** file, and click **OK**. The *Relink [Table Name]* dialog box displays. The dialog box specifies one of the four table names to link to. Click **OK**.

h. Type #PHR*L1st in the *Password* box when prompted and click **OK**. The *Relink [Table Name]* dialog box displays. The dialog box specifies the second of the four table names to link to. Click **OK**.

i. Type #PHR*L1st in the *Password* box when prompted and click **OK**. The *Relink [Table Name]* dialog box displays. The dialog box specifies the third of the four table names to link to. Click **OK**.

j. Type #PHR*L1st in the *Password* box when prompted and click **OK**. The *Relink [Table Name]* dialog box

displays. The dialog box specifies the fourth table name to link to. Click **OK**.

k. Type #PHR*L1st in the *Password* box when prompted and click **OK**. Verify the *Refresh Status* displays *Succeeded.* Scroll to the right in the *Linked Table Manager* dialog box if necessary to see the *Refresh Status* column.

l. Close the *Linked Table Manager.*

m. Double-click the **Agents** table. The table opens.

n. Change the *Phone* for Millie Bui (EmployeeNum 103) to (530) 648-7777.

o. Close the table.

12. Lock the front-end database.

a. Click the **File** tab to open the *Backstage* view and click the **Save As** button.

b. Click the **Make ACCDE** button in the *Advanced* grouping of *the Save Database As* section, and then click the **Save As** button. The *Save As* dialog box displays.

c. Select the location to store the file, accept the suggested file name, and click the **Save** button. The .accde file is created.

d. Close the database.

13. Open the locked database.

a. Open the ***[your initials] PP A9-3.accde*** locked database file. Remember that this is now your front-end database.

b. Click **Open** if a *Microsoft Access Security Notice* displays.

c. Open the *ListingDetails* form. Notice that the *Design View* icon is not displayed in the *Status* bar.

d. Click the **Create** tab. Notice that the *Forms* and *Reports* groups are dimmed.

e. Close the database.

14. Open the back-end database to verify the change to Millie Bui's data.

a. Open the ***[your initials] PP A9-3_be*** database file.

b. Type #PHR*L1st in the *Password* box when prompted and click **OK**.

c. Open the *Agents* table. Verify that Millie Bui's phone number was updated.

d. Close the table.

15. Close the database.

SLO 9.6

Using SQL

Recall from chapter 5 that *SQL* stands for *Structured Query Language*. It is the underlying language in a relational database system such as Access. SQL defines, manipulates, and retrieves data in a database. It can be pronounced both as spelled out (S-Q-L) or as a word (like "sequel").

When you perform an action in your database, Access converts that action into SQL in order to execute it. Often, the action in Access happens without your ability to actually see the *SQL* statement that executes. For example, when you add a new record into a table in *Datasheet* view, you are not aware of the *Insert Into* statement that actually adds the data values into the table. In another example, in *Pause & Practice 6-1* you created a *DeleteSoldPropertiesFromListingsTable* query. This delete action query removed all of the records from the *Listings* table where the *Result* field value was *S*. In that exercise, you initially built a select query that included both the *ListingID* and the *Result* fields so that you could test the query and ensure that it would find the correct records. Then, you converted the select query into a delete query. Because a delete query deletes entire records and not just selected fields, it was not necessary to include all of the fields in the query.

Figure 9-92 shows the *Design* view of that delete query. Figure 9-93 shows the *SQL* view of that same query in two different SQL editor modes. The mode that displays depends on the version of Access you are using. If you are running Access as part of Microsoft 365, the Monaco SQL editor is enabled. All other Access versions display using the traditional monochrome editor.

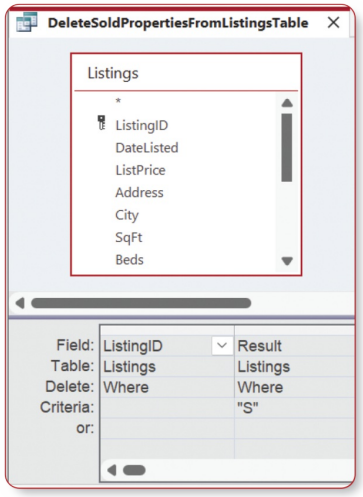


FIGURE 9-92 *Design* view of the *DeleteSoldPropertiesFromListingsTable* query

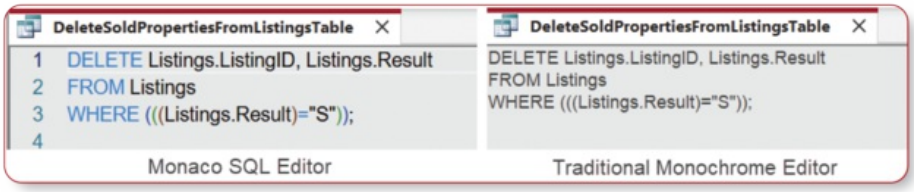


FIGURE 9-93 Two SQL editor views of the *DeleteSoldPropertiesFromListingsTable* query

The Monaco SQL editor, as you can see in Figure 9-93, color codes keywords, operators, etc. Line numbers are also added to make it easy to distinguish the different parts of each *SQL* statement. The underlying SQL does not work differently, it is simply displayed differently in the query window. To change the SQL editor mode, you must first close all open queries.

Office 2024 Note

Office 2024 does not use the Monaco SQL editor. The traditional monochrome editor is used instead.

HOW TO: Change the SQL Editor Mode

1. Click the **File** tab to open the *Backstage* view.
2. Click the **Options** button to open the *Access Options* dialog box.
3. Click **Current Database** category on the left to display the available options on the right (Figure 9-94).

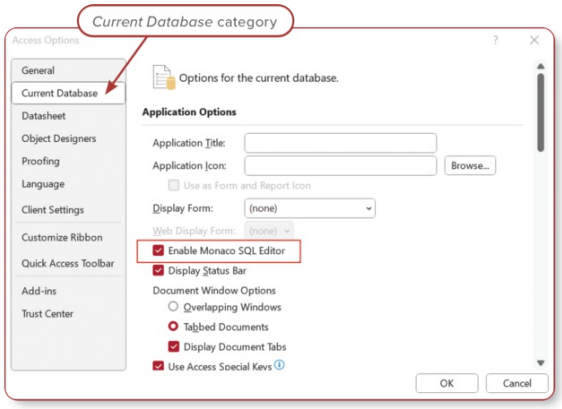


FIGURE 9-94 **Change SQL editor mode in the *Access Options* dialog box**

4. Select or deselect the **Enable Monaco SQL Editor** check box.
   - A selected check box displays SQL using the Monaco SQL editor.
   - A deselected check box displays SQL using the traditional monochrome editor.

> **MORE INFO**
>
> The Monaco SQL editor is not available in an untrusted database. You must first have enabled content in the security warning for this option to display.

5. Click OK to close the *Access Options* dialog box and apply the changes.

Independent of the SQL editor used, when working on queries, you can switch to *SQL* view of the query by clicking the **SQL View** icon in the lower-right corner of the *Status* bar. You can also switch views by clicking the **View** button arrow from either the [*Home* tab, *View* group] or the [*Query Design* tab, *Results* group] and selecting the **SQL View** option. To open a query directly in *SQL* view, right-click the query in the *Navigation Pane* and select **SQL View** from the context menu.

A9-760

It is not required for you to learn about all of the SQL commands. However, a basic understanding of SQL will help you work successfully with queries and the record source property in reports and forms. Additionally, queries in databases for the web are written in SQL, so understanding SQL can help you work with them.

One of the most common uses of SQL is to retrieve data from a database. The ***SQL Select***

statement is used in these cases. An *SQL Select* statement creates a select query, the same type of query you have been building in many of your databases. The basic structure of an *SQL Select* statement is:

SELECT field(s)
FROM table(s)
WHERE condition(s)
ORDER BY;

This statement contains different clauses, or parts, such as the *SELECT, FROM, WHERE,* and *ORDER BY* clauses. The statement ends with a semicolon (**;**). The *SELECT* and *FROM* clauses are the only required clauses. This section first provides a basic overview of these four common clauses in an *SQL Select* statement. Later, you learn to use calculated fields, parameters, and functions in an *SQL* query.

MORE INFO

To improve readability, it is a good practice to write each SQL clause on a separate line and to write the clause names in all caps. However, this does not impact how the query works and is not a requirement.

Understand the Select Clause

The ***Select* clause** lists the fields to display in the query result. It should contain all the fields that would appear in *Design* view of the query with a check in the *Show* box. The *Select* clause is required, and it must appear as the first clause. The rules and guidelines for writing the *Select* clause include:

- You must include at least one field. If you include several fields, you need to separate them with commas.
- If you want to include all of the fields, you can use the * wildcard. If you include the * wildcard, no other fields need to be included.
- If a field name or table name contains spaces, you must enclose the name in square brackets. For example, if the field name is *Date Hired,* you would write *[Date Hired]* in the query.
- You can use *qualified field names* as desired. A ***qualified field name*** includes both the table name and the field name. For example, *Agents.FirstName* specifies the *FirstName* field from the *Agents* table. You must separate the table name and the field name with a period.
- If you use the same field name in several tables, and the query uses more than one of those tables, you must use a *qualified field name.* For example, if both the *Listings* and *SoldProperties* tables have a field named *City,* and your query incudes both tables, you must use a qualified field name to refer to that field.

Review the following examples of the *Select* clause:

Example	Explanation
SELECT FirstName, LastName, [Date Hired]	This clause displays the *FirstName, LastName,* and *Date Hired* fields. *Date Hired* is enclosed in square brackets because the field name contains a space.

Example	Explanation
*SELECT**	This clause displays all the fields.

Example	Explanation
SELECT [Customer Leads].FirstName, [Customer Leads].LastName, [Customer Leads].City	This clause uses qualified field names because the table name is included along with the field name. The table name, *Customer Leads,* is enclosed in square brackets because the table name contains a space.

Understand the From Clause

The ***From* clause** lists the tables needed to find the data. The *From* clause is required, and it follows the *Select* clause. The rules and guidelines for writing the *From* clause include:

- You must include at least one table. If you include multiple tables, you must separate them with commas.
- If you want to combine records from multiple tables, and you have not defined a relationship between the tables, you must specify the join type, and you must also include an *ON* statement that specifies the fields used in the join. You can use either an inner join or an outer join. Recall that an inner join is the most common type of join and returns records that have matching values in both tables. Refer back to **SLO 5.3: Working with Advanced Table Relationships** to review table joins.
- If this is the last clause in the statement, end the clause with a semicolon.

Review the following examples of the *From* clause:

Example	Explanation
FROM [Customer Leads]	This clause indicates that only one table is used in the query. The table name, *Customer Leads,* is enclosed in square brackets because the table name contains a space.

Example	Explanation
FROM Listings, SoldProperties	This clause indicates that two tables are used. Because a join statement is not included, the tables must already have a defined relationship.

Example	Explanation
FROM Agents INNER JOIN Listings ON Agents.EmployeeNum = Listings.ListingAgentNumber	This clause specifies an inner join between the *Agents* and *Listings* tables. The fields that are related are identified.

Understand the Where Clause

The ***Where*** clause lists the expression that specifies the criteria the records must meet. It represents the constraints that would appear in the *Criteria* row in *Design* view of the query. The *Where* clause is optional. The rules and guidelines for writing the *Where* clause include:

- The expressions must follow the rules you have learned regarding how to properly write an expression.
- If necessary, you must use *qualified field names.*
- You can use the *AND* or *OR* operators to create compound conditions. While not required, it is good practice to write AND and OR in all caps. If necessary, include parentheses to ensure the criteria are evaluated in the desired order.
- If this is the last clause in the statement, end the clause with a semicolon.

The following are examples of the ***Where* clause**:

Example	Explanation
WHERE Agents.[Date Hired] > "1/1/2026"	This clause finds records where the *Date Hired* field is greater than 1/1/2026. It also uses a qualified field name, and *Date Hired* is enclosed in square brackets because the field name contains a space.

Example	Explanation
WHERE LastName = "Chung" OR LastName = "De La Garza"	This clause uses the OR operator as a compound condition. Notice that a complete expression (field name, comparison operator, and value) must be written on either side of the OR. Records that meet either condition will be found.

Example	Explanation
WHERE City = "Auburn"	This clause uses the AND operator as a compound

AND LengthOfResidence > 5	condition. Only records that meet both expressions will be found.

Example	Explanation
WHERE (City = "Auburn" AND LengthOfResidence > 5) OR City = "Roseville"	This clause combines both the AND and OR operators. The parentheses ensure that the *LengthOfResidence* criteria only applies to the *City* of Auburn. Only records that meet either Auburn and >5, or the *City* of Roseville will be found.

Use the Order By Clause

The ***Order By* clause** indicates how the results are sorted. *Order By* is an optional clause. The rules and guidelines for writing the *Order By* clause include:

- The default sort order is ascending.
- Include *DESC* after the field name to sort in descending order.
- You can sort on multiple fields. If you sort on multiple fields, list the fields in the order in which you want the records sorted. Recall from **chapter 3** that additional fields affect the sort when more than one record is in the grouping.
- If this is the last clause in the statement, end the clause with a semicolon.

The following are examples of the *Order By* clause:

Example	Explanation
ORDER BY Agents.[Date Hired]	This clause performs an ascending sort on the *Date Hired* field. It also uses a qualified field name and *Date Hired* is enclosed in square brackets because the field name contains a space.

Example	Explanation
ORDER BY Agents.[Date Hired] DESC	This clause performs a descending sort on the *Date Hired* field. It also uses a qualified field name, and *Date Hired* is enclosed in square brackets because the field name contains a space.

Example	Explanation
ORDER BY City, Construction DESC, ListPrice	This clause performs a sort based on the combination of all three fields. The records are sorted first by *City* (in ascending order), within a city the records are sorted next by *Construction* (in descending order), and within construction by *ListPrice* (in ascending order.)

Write a Query in SQL View

In Access, you cannot create a query directly in *SQL* view. Instead, you must begin by creating a query using the *Query Design* button. Once *Design* view opens, you can switch to *SQL* view to write the query. You can switch back and forth between the different query views using the icons on the *Status* bar. Remember that you must include a semicolon at the end of the last clause.

ANOTHER WAY

Select the **View** button arrow [*Query Design* tab, *Results* group] and select either **SQL View** or **Design View** to switch views.

HOW TO: Write a Query in SQL View

1. Click the **Query Design** button [*Create* tab, *Queries* group]. The *Add Tables* task pane opens.
2. Close the *Add Tables* task pane.
3. Click the **SQL View** icon on the *Status* bar.
   - The query changes to *SQL* view (Figure 9-95).

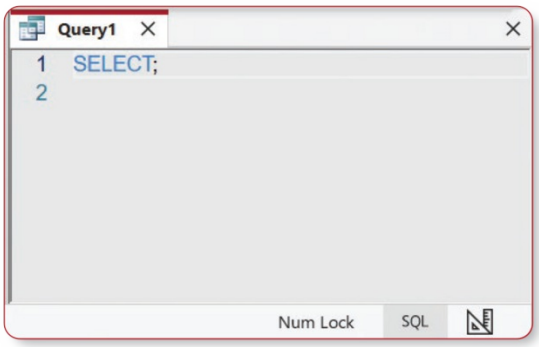


FIGURE 9-95 *SQL* view of a new query

   - The *SELECT* clause and a semicolon (**;**) are entered for you.
   - The lines are numbered and color-coded words are displayed when using the Monaco SQL editor.
4. Delete the semicolon (;). You will add it back at the end.
5. Type the desired field(s) on the *SELECT* clause and press **Enter**.
6. Type FROM and then type the desired table(s) on the *FROM* clause.
7. Enter a *WHERE* clause as desired.

8. Enter an *ORDER BY* clause as desired.
9. Enter the semicolon (;) at the end of the last clause.
10. Save the query.
11. Click the **Run** button [*Query Design* tab, *Results* group] to test the query.

When creating a new query in *Design* view, you can select the table(s) you want to use in the query and add them before you close the *Add Tables* task pane. If you do this, the query will already contain a completed *FROM* clause when you switch to *SQL* view.

The following example illustrates an *SQL* statement that contains the four common clauses. The query displays the *ListingID, ListPrice,* and *SoldPrice* fields for all records in the *SoldProperties* table where the *SoldPrice* is greater than the *ListPrice.* The results are sorted in descending order on the *SoldPrice* field.

Figure 9-96 shows this example query written in SQL. Because none of the field names include spaces, you are not required to enclose the name in square brackets. You can do so if desired. Additionally, because the same field name is not used in multiple tables, you are not required to use qualified field names. The *Datasheet* view showing the query results does not differ if you run the query from *SQL* view or *Design* view.

```
1  SELECT ListingID, ListPrice, SoldPrice
2  FROM SoldProperties
3  WHERE SoldPrice>ListPrice
4  ORDER BY SoldPrice DESC;
5
```

FIGURE 9-96 ***SQL* view of query**

Figure 9-97 shows the query design grid of the same query in *Design* view. Note the *ListPrice* field on the *Criteria* row is inside square brackets. Recall that in *Design* view, when you include a field name in an expression, it must be enclosed in square brackets. Also note that based on the way Access executes queries, it has included two columns for the *SoldPrice* field. One that displays the field and the other for the processing of the comparison to *ListPrice.*

Field:	ListingID	ListPrice	SoldPrice	[SoldPrice]
Table:	SoldProperties	SoldProperties	SoldProperties	SoldProperties
Sort:			Descending	
Show:	☑	☑	☑	☐
Criteria:				>[ListPrice]
or:				

FIGURE 9-97 ***Design* view of query**

If you switch back or later reopen the query in *SQL* view, Access most likely will have modified the *SQL* statement (Figure 9-98). Although not required, Access changes to use qualified field names. Additionally, the *SQL* statement includes the square brackets around *SoldPrice* and *ListPrice* in the *Where* clause. The original *SQL* query and the modified one both execute exactly the same way.

```
1  SELECT SoldProperties.ListingID, SoldProperties.ListPrice, SoldProperties.SoldPrice
2  FROM SoldProperties
3  WHERE (((SoldProperties.[SoldPrice])>[ListPrice]))
4  ORDER BY SoldProperties.SoldPrice DESC;
5
```

FIGURE 9-98 *SQL* view of query with Access modifications

Use SQL with More Advanced Queries

You can also write SQL queries that include the more advanced query components you learned about in chapters 3 and 6. In this section, you learn to include calculated fields, functions, and parameters in an *SQL* query.

Add a Calculated Field

You have used calculated fields in previous projects to display a value that comes from a calculation or to create criteria that limit the results returned by a query. In *Design* view, to display a calculated field in the query results, you added the calculated field into an empty column of the query design grid. The formula for the calculated field used the format of *FieldName: Expression.* An example of a formula used to calculate the potential commission an agent could earn on a property is *Commission: [ListPrice]*0.025.*

In SQL, the structure of the formula is reversed because you write the expression portion first and then define the name of the calculated field. A generic example of a formula uses the format of *Expression AS FieldName.* The potential commission formula would be written as *[ListPrice]*0.025 AS Commission.* If the *FieldName* contains spaces, it must be enclosed in square brackets. You write the formula to display a calculated field on the *Select* clause.

The following two examples illustrate using calculated fields on the *Select* clause:

Example	Explanation
*SELECT FirstName, LastName, [ListPrice]*0.025 AS Commission*	The formula in this clause multiplies the *ListPrice* field by .025. The column will be named *Commission.* While not required, because *ListPrice* does not contain any spaces, it is common to include the field used in an expression inside square brackets.

Example	Explanation
*SELECT FirstName, LastName, [ListPrice]*0.025 AS [Potential Commission]*	The formula in this clause performs the same calculation as above. However, the column name, *Potential Commission,* must be inside square brackets because it contains a space.

If using a calculated field as part of the criteria, the expression appears as part of the *Where* clause. You include the field name from the table, the comparison operator, and the expression.

The following example uses a calculated field on the *Where* clause:

Example	Explanation
*WHERE SoldPrice > [ListPrice]*1.05*	The formula in this clause finds properties where the *SoldPrice* is more than 5% higher than the *ListPrice*. The expression in the calculated field is *[ListPrice]*1.05*.

Include Functions in a Calculated Field

You can also write more complex formulas that include the ***&*** concatenation operator. Additionally, you can use Access functions, such as *Left* or any of the date functions.

The following examples illustrate several different functions that can be used in calculated fields:

Example	Explanation
*WHERE SoldPrice > [ListPrice]*1.05*	The formula in this clause finds properties where the *SoldPrice* is more than 5% higher than the *ListPrice*. The expression in the calculated field is *[ListPrice]*1.05*.

Example	Explanation
SELECT [FirstName] & " " & [LastName] AS [Agent's Name]	The formula in this clause uses concatenation to create a calculated field that combines the first and last names together, separated by a space. Because the name of the new column includes a space, it must be enclosed in square brackets.

Example	Explanation
SELECT Left([FirstName],1) & ". " & [LastName] AS [Agent's Name]	The formula in this clause combines the *Left* function and concatenation to create a calculated field that takes the first character of the *FirstName* field and combines it with a period, a space, and the *LastName*.

Example	Explanation
SELECT DateDiff("d", [DateListed],Date()) AS DaysOnMarket	The formula in this clause uses the *Date()* and *DateDiff()* functions to create a calculated field that displays the number of days a property has been listed. Recall that the *Date()* function gets today's date from your computer. If the value of today's date is less than the value in the *DateListed* field, the answer will be a negative number.

Example	Explanation
WHERE (DatePart("m", [DateListed]) = 8)	The formula in this clause uses the *DatePart()* function as criteria to find records where the month of the *DateListed* field equals 8.

Include a Parameter

In *Design* view, you entered a query parameter inside square brackets in the criteria row. In SQL, the parameter is written the same way. Include the parameter on the *Where* clause. When the query executes, Access displays the *Enter Parameter Value* dialog box. It is not necessary to write the field name inside parentheses, although Access defaults to write the comparison this way.

The following examples illustrate using a parameter on the *Where* clause:

Example	Explanation
WHERE (Listings.SqFt >= [Enter the minimum square footage of the property])	This clause finds records where the *SqFt* field is greater than or equal to the value entered into the parameter dialog box. Parentheses surround the entire clause.

Example	Explanation
WHERE (((Listings.ListPrice) <= [Maximum List Price?]) AND ((Listings.City) = [What city?]))	This clause finds records where the *ListPrice* field is less than or equal to the max price entered into the first parameter dialog box and the *City* field matches the city entered into the second parameter dialog box. Parentheses surround the entire clause, as well as the individual pieces and field names.

Example	Explanation
WHERE (((Listings.City) Like [Enter the City or Leave blank to select	This clause finds records where the *City* field matches the city entered into the parameter dialog box. Because this clause combines *Like* and the * wildcard, if the parameter dialog box

all cities] & ""))*	is empty, all records are returned.

COPILOT/GENERATIVE AI BEST PRACTICES

As you start to work with more sophisticated databases, or those that are web-based, understanding and using SQL becomes more important. Ask *Copilot* for help with writing a query in SQL. You can also ask for an explanation of how to use more advanced query components like calculated fields, functions or parameters. As desired, follow-up with help for a specific query need.

PAUSE & PRACTICE: ACCESS 9-4

For this Pause & Practice, you create and test four SQL queries for the Placer Hills Real Estate database.

File Needed: ***[your initials] PP A9-3_Backup_2.accdb***

Completed Project File Name: ***[your initials] PP A9-4.accdb***

1. Open the ***[your initials] PP A9-3_Backup_2*** database completed in *Pause & Practice 9-3*. You use this backup file, created prior to splitting and locking the database, because you are making changes to the database. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close the message. If the message repeats in a later step, click **OK** or the **X** to close the message.
2. Save a new copy of your database as [your initials] PP A9-4.
3. Enable content in the security warning.
4. Build the first *SQL* query to display all the records in the *Agents* table.
   a. Click the **Query Design** button [*Create* tab, *Queries* group]. The *Add Tables* task pane opens.
   b. Close the *Add Tables* task pane.
   c. Click the **SQL View** icon on the *Status* bar. The query changes to *SQL* view, and the *SELECT* clause and a semicolon (;) are entered for you.
   d. Edit the query so the *SQL* statement reads
      SELECT *
      FROM Agents;
      (Enter the text FROM Agents; on a second line to improve the readability of your query.)
   e. Click the **Run** button [*Query Design* tab, *Results* group] to run the query. Your results should include 15 records and be similar to **Figure 9-99**.

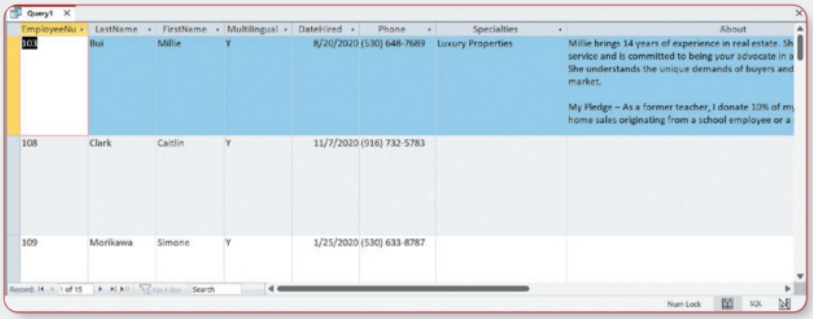


FIGURE 9-99 Query results to show all agents

f. Save the query as ShowAllAgents.

g. Close the query. Save the query if prompted.

5. Build the second *SQL* query to display the *ListingID, DateListed, ListPrice,* and *City* for all properties over $650,000 that are located in Lincoln or Roseville.

   a. Click the **Query Design** button [*Create* tab, *Queries* group]. The *Add Tables* task pane opens.

   b. Select the **Listings** table and click **Add Selected Tables**.

   c. Close the *Add Tables* task pane.

   d. Click the **SQL View** icon on the *Status* bar. The query changes to *SQL* view, and *SELECT FROM Listings;* is entered for you.

   e. Edit the query so the *SQL* statement matches the following:

```
SELECT ListingID, DateListed, ListPrice, City
FROM Listings
WHERE ListPrice > 650000 AND
(City = "Lincoln" OR City = "Roseville");
```

   f. Click the **Datasheet View** icon on the *Status* bar to run the query. The query results should show 28 records and should be similar to Figure 9-100.

Query1

ListingID	Date Listed	List Price	City
10123	1/14/2026	$963,600.00	Roseville
10125	1/14/2026	$1,281,000.00	Roseville
10126	1/14/2026	$1,468,000.00	Roseville
10156	1/24/2026	$711,900.00	Lincoln
10198	2/28/2026	$1,097,300.00	Lincoln
10220	3/10/2026	$711,900.00	Lincoln
10253	3/20/2026	$1,117,500.00	Lincoln
10275	3/28/2026	$725,000.00	Lincoln
10308	4/26/2026	$1,097,300.00	Lincoln
10330	5/3/2026	$711,900.00	Lincoln
10385	5/26/2026	$711,900.00	Lincoln
10395	5/30/2026	$1,025,900.00	Roseville
10410	6/5/2026	$768,600.00	Lincoln
10427	6/13/2026	$686,600.00	Lincoln
10443	6/18/2026	$1,002,000.00	Roseville

Record: 1 of 28 No Filter Search

FIGURE 9-100 Query results for properties in

Roseville or Lincoln

g. Save the query as RosevilleLincolnProperties.

h. Switch to *Design* view to see the format of the query.

i. Close the query. Save the query if prompted.

6. Build the third *SQL* query to display the *FirstName, LastName,* and *ListingID* for all properties listed by Millie Bui.

a. Click the **Query Design** button [*Create* tab, *Queries* group]. The *Add Tables* task pane opens.

b. Close the *Add Tables* task pane.

c. Click the **SQL View** icon on the *Status* bar.

d. Edit the query so the *SQL* statement matches the following:

```
SELECT FirstName, LastName, ListingID, ListPrice
FROM Agents INNER JOIN Listings ON Agents.EmployeeNum = Listings.ListingAgentNumber
WHERE FirstName = "Millie" AND LastName = "Bui"
ORDER BY ListPrice;
```

Note that if your Access window is not very wide, the contents of your *FROM* statement may wrap onto two rows.

e. Click the **Datasheet View** icon on the *Status* bar to run the query. The query results should show 71 records and be similar to Figure 9-101.

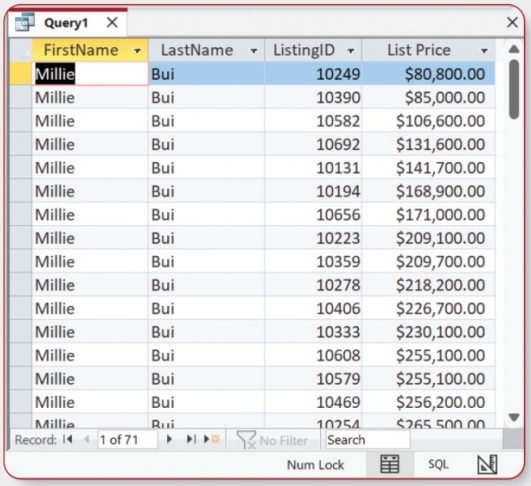


FIGURE 9-101 Listings by Millie Bui

f. Save the query as MillieBuiListings.

g. Close the query.

7. Build the fourth *SQL* query to calculate the potential commission on the listed properties. The query concatenates the agents first and last name, and includes parameters to select a specific agent.

a. Click the **Query Design** button [*Create* tab, *Queries* group]. The *Add Tables* task pane opens.

b. Select the **Agents** and **Listings** tables and click **Add Selected Tables**.

c. Close the *Add Tables* task pane.

d. Click the **SQL View** icon on the *Status* bar. The *SELECT* and *FROM* clauses are entered for you.

e. Edit the query so the *SQL* statement matches the following:

```
SELECT [FirstName] & " "& [LastName] AS [Agent's Name], ListingID, ListPrice, [ListPrice]*0.025 AS
[Potential Commission]
FROM Agents INNER JOIN Listings ON Agents.EmployeeNum = Listings.ListingAgentNumber
WHERE (FirstName = [Enter the Agent's First Name] AND LastName = [Enter the Agent's Last Name]);
```

Note that if your Access window is not very wide, the contents of your *FROM* statement may wrap onto two rows.

f. Click the **Run** button [*Query Design* tab, *Results* group] to run the query.

g. Enter **Flavia** in the *Enter the Agent's First Name* box of the *Enter Parameter Value* dialog box and click **OK**.

h. Enter **Pennetta** in the *Enter the Agent's Last Name* box of the *Enter Parameter Value* dialog box and click **OK**. The query results should show 19 records and be similar to **Figure 9-102**. Note that the Potential Commission field is not formatted.

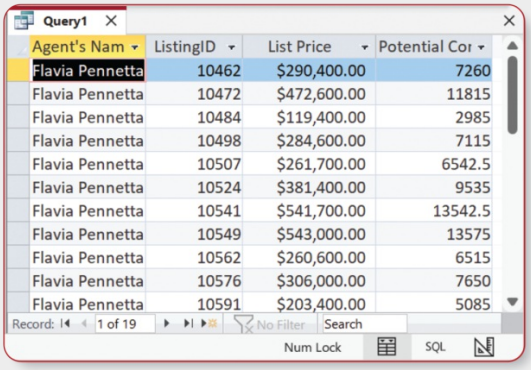


FIGURE 9-102 Parameter query results

i. Save the query as AgentParameterPotentialCommission.

j. Click the **Design View** icon on the *Status* bar to see the format of the query.

k. Open the *Property Sheet* and change the *Format* property of the *Potential Commission* field to **Currency**.

l. Save the query.

m. Run the query again. Enter **Flavia** and **Pennetta** into the dialog boxes when prompted. Verify that the results show the currency formatting on the *Potential Commission* field.

n. Close the query. Save the query if prompted.

8. Close the database.

Chapter Summary

A9-769

A9-770

9.1 Understand entity-relationship diagrams and normalization, use the *Analyze Table* tool, and create a documentation report (p. A9-712).

- An ***Entity-Relationship Diagram (ERD)*** is a data model used to show the data needs of an organization. An ***entity*** is a person, place, or thing about which you want to store data. ***Relationships*** are the associations or connections between entities. ***Attributes*** are the details you want to know about an entity. An ***instance*** is a single example of an entity.
- ***Crow's Foot*** notation is a common way to represent entities and relationships in an ERD. A ***single line*** symbol at the end of the relationship indicates a "one" and a ***crow's foot*** symbol indicates a "many."
- In a relationship, the ***cardinality*** indicates whether the relationship type is one-to-one, one-to-many, or many-to-many, while the ***modality*** specifies whether an entity must participate in the relationship.
- ***Normalization*** is the database design process for organizing fields into the correct table. Normalization minimizes redundant data that causes problems in a database.
- The rules of normalization are ***normal forms.*** Higher normal forms are better and result in fewer problems in the database. A table in ***first normal form*** must not have any repeating values. A table in ***second normal form*** must be in 1NF and all non-key fields must depend on the entire primary key.
- A ***candidate key*** is a field that could be selected as the primary key.
- A ***partial dependency*** exists if attributes can be determined by knowing just one part of a concatenate key.
- A table in ***third normal form*** must be in 2NF and all non-key fields must depend only on the primary key. A ***transitive dependency*** exists if a non-key field can determine another non-key field.
- The ***Table Analyzer*** tool makes recommendations for normalizing tables.
- Create, view, export, and print documentation details about your database with the ***Database Documenter*** tool.

9.2 Create and modify a custom *Navigation Pane* (p. A9-727).

- Customize the ***Navigation Pane*** to organize and display database objects in a way that is more efficient for the user.
- A ***category*** is the highest level organizational structure in the *Navigation Pane.* A ***group*** is the second-level organization structure of the *Navigation Pane.* A group is used to display the different database objects.
- Access creates a ***shortcut*** when you assign an object to a custom group. Check the ***Disable Design View shortcuts*** property on a shortcut to prevent the user from modifying the object.
- Hide objects, shortcuts, and groups as needed to minimize the number of items displayed in the *Navigation Pane* and to prevent users from using selected items.

9.3 Analyze and optimize the performance of a database (p. A9-737).

- A well-designed database ensures optimal performance.
- Choose the data type for a field that uses the smallest field size possible to accommodate the data needs of the system. In general, number data types process more quickly than text data types, and smaller field sizes process more quickly than larger field sizes.
- Objects that use fields from multiple tables process more quickly if relationships are established between tables.
- An ***index*** is a list used by Access to find data more quickly. To speed up performance, create an index on fields used for sorting or as query criteria.
- An ***executable*** file prevents users from opening forms and reports in *Design* view, prevents them from creating new forms and reports, and compiles all of the macro code. This enables the database to execute faster. An executable file has a file extension of ***.accde.*** Executable files created with older versions of Access have a file extension of ***.mde.***
- Limiting the number of controls used on forms and reports and storing images in the *Image Gallery* optimizes performance of these objects.
- Periodic use of the ***Compact & Repair Database*** utility improves performance.
- The ***Performance Analyzer*** tool analyzes database objects and suggests solutions to improve performance. As desired, Access can automatically implement solutions that are classified as *recommendations* or *suggestions.*

9.4 Understand front-end and back-end databases, split a database, and work

with a split database (p. A9-741).

- Split a database into a front-end and a back-end to improve performance and security.
- The ***front-end database*** contains linked tables that point to the back-end database, as well as all of the forms, reports, and queries. You can create customized front-ends for different users.
- The ***back-end database*** contains the tables and associated data.
- Use the ***Database Splitter*** tool to create the back-end database. The starting database becomes the front-end database.
- If you create a new front-end database, use the *Access* button to create the linked tables.
- If the back-end database is moved to a different storage location, use the ***Linked Table Manager*** to update the links in the front-end database.

9.5 Enhance database security by encrypting and password protecting a database, packaging and signing a database, and locking a database (p. A9-746).

- Safeguarding your database helps to ensure that the database continues to work and provides needed functionality.
- ***Encryption*** converts data into a coded format that can't be understood until it is decoded. Encrypt an Access database by using the *Encrypt with Password* button to assign a password to the database. Before you can assign a password to a database, you must open it in exclusive mode. This prevents others from opening the database at the same time.
- Create a strong password that is difficult for someone to guess. Access does not have any ability to provide you with a lost password.
- Use the ***Package and Sign*** tool to create a database that tells others that the database can be trusted. You use a ***digital certificate,*** which is an authentication mechanism, to package the database. The certificate also contains a ***digital signature,*** an electronic stamp attached to the digital certificate. A packaged and signed database has an extension of ***.accdc.***
- Use the ***Make ACCDE*** tool to create an ***Access Database Executable (ACCDE)*** file. An Access Database Executable file, also called a ***locked*** or *executable* database file***,*** prevents users from making any changes to the forms, reports, and macros.

9.6 Understand SQL (Structured Query Language) and create and execute simple *SQL* statements using the *Select, From, Where,* and *Order By* clauses (p. A9-758).

- ***Structured Query Language (SQL)*** is the underlying language in relational database systems. It is used to define, manipulate, and retrieve data in a database.
- The Monaco SQL editor, available in Microsoft 365, uses colors and line numbers to improve readability. The traditional monochrome editor is used in other editions, including Office 2024.
- A ***SQL Select*** statement retrieves data from a database.
- A *Select* statement contains different clauses including ***Select, From, Where,*** and ***Order By.***
- The *Select* clause lists the fields to display in the query; it appears first in a statement and is required. When listing the fields, you may choose to use a ***qualified field name*** which includes both the table name and the field name.
- The *From* clause lists the tables needed to find the data; it is required and follows the *Select* clause.
- The *Where* clause specifies the criteria that the records must meet, while the *Order By* clause indicates how the results will be sorted; these clauses are optional.
- Select the *SQL View* icon to see the *SQL* view of a query.
- You can include advanced query features such as calculated fields, functions, and parameters in an *SQL* query.

Check for Understanding

The SIMbook for this text (within your SIMnet account) provides the following resources for concept review:

- Multiple-choice questions
- Matching exercises
- Short answer questions

USING MICROSOFT ACCESS 365

Guided Project 9-1 SIMnet Project

For this project, you enhance the functionality of a database for a friend's music collection. You analyze the table structure and assess the performance of the database. Next, you create a custom *Navigation Pane* and encrypt the database with a password.

[**Student Learning Outcome 9.1**, **Student Learning Outcome 9.2**, **Student Learning Outcome 9.3**, **Student Learning Outcome 9.5**]

File Needed: ***MusicDatabase-09.accdb*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Names: ***[your initials] Access 9-1.accdb*** and ***[your initials] Access 9-1_Backup.accdb***

Skills Covered in This Project

- Use the *Table Analyzer* tool.
- Back up a database.
- Use the *Performance Analyzer* tool.
- Create a custom *Navigation Pane*.
- Create a custom category and custom groups.
- Assign objects to groups.
- Modify shortcut properties.
- Hide objects and groups.
- Encrypt a database with a password.

1. Open the ***MusicDatabase-09*** database from your student data files. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close the message. If the message repeats in a later step, click **OK** or the **X** to

close the message.

2. Save the database as [your initials] Access 9-1.
3. Enable content in the security warning.
4. Analyze the *Albums* table.
   a. Click the **Analyze Table** button [*Database Tools* tab, *Analyze* group] to open the *Table Analyzer Wizard*. If a *Microsoft Access Security Notice* displays, click **Open**.
   b. If the *Looking At the Problem* information window displays, click **Next** to move to the second information screen.
   c. If the *Solving the Problem* information window displays, click **Next** to move to the next step of the wizard.
   d. Select the **Albums** table, if not already selected, and click **Next**.
   e. Select the **Yes, let the wizard decide** radio button, if not already selected, and click **Next**. The wizard displays the recommendations.
   f. Enlarge the tables so you can read all of the content (Figure 9-103).

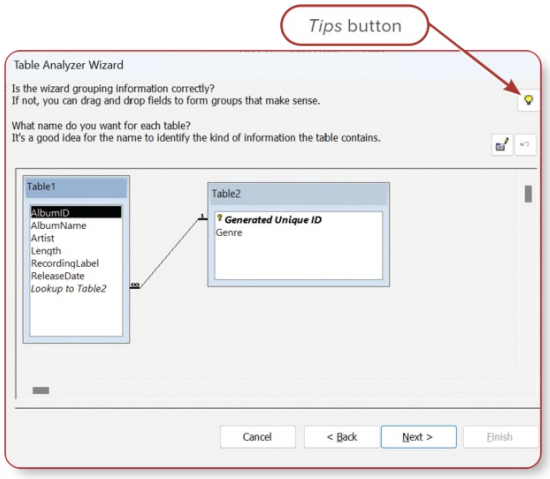


FIGURE 9-103 ***Table Analyzer Wizard*** **recommendations for the *Albums* table**

   g. Click the **Tips** button to open the *Table Analyzer* dialog box. Read the information. Look at the *Table Analyzer Wizard* window. The wizard suggests creating *Table2* that would contain the *Genre* field. Based on the way you use the data, this is not a good idea because storing this field in the separate table wouldn't save space, and the tables would need to be joined to display the actual values.
   h. Close the *Table Analyzer* dialog box.
   i. Click the **Cancel** button in the *Table Analyzer Wizard* dialog box, because the wizard has no other suggestions, and you determine that the *Albums* table is in 3NF.

5. Analyze the *Songs* table.
   a. Click the **Analyze Table** button [*Database Tools* tab, *Analyze* group] to open the *Table Analyzer Wizard.*
   b. If the *Looking At the Problem* information window displays, click **Next** to move to the second information screen.
   c. If the *Solving the Problem* information window displays, click **Next** to move to the next step of the wizard.
   d. Select the **Songs** table and click **Next**.
   e. Select the **Yes**, **let the wizard decide** radio button, if not already selected, and click **Next**. A dialog box displays, informing you that the wizard doesn't recommend splitting the table.
   f. Click the **Cancel** button to close the dialog box and exit the wizard.
6. Back up the database before analyzing the performance.
   a. Click the **File** tab to open the *Backstage* view and click the **Save As** button.
   b. Click the **Back Up Database** button in the *Advanced* grouping of *the Save Database As* section, and then click the **Save As** button. The *Save As* dialog box displays.
   c. Select the location to store the file, enter [your initials] Access 9-1_Backup as the file name, and click the **Save** button.
7. Analyze the performance of the database.
   a. Click the **Analyze Performance** button [*Database Tools* tab, *Analyze* group] to open the *Performance Analyzer.*
   b. Click the **All Object Types** tab and click the **Select All** button (Figure 9-104).

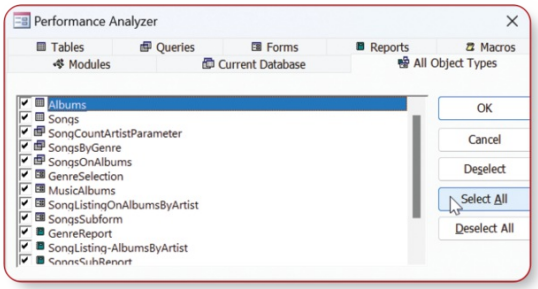


FIGURE 9-104 ***Performance Analyzer*** **dialog box**

   c. Click **OK**. The *Analysis Results* window displays one *Idea* to create an MDE executable file. Because you may add more forms and reports to the database, you will not implement this *Idea.*
   d. Click **Close**.

MORE INFO

The limited solutions in both the *Table Analyzer* and the *Performance Analyzer* suggest that your work on this database has followed good database design practices. However, as more data records are added, it may be a good idea to consider whether creating any indexes would improve performance.

8. Create a category and group for a custom *Navigation Pane*.
   a. Right-click the **Navigation Pane Title** bar to open the context menu and select **Navigation Options**.
   b. Click the **Add Item** button to add a new custom category into the *Categories* list.
   c. Type My Music Main Menu in the category box and press **Enter**.
   d. Click the **Add Group** button to add a new group in this category.
   e. Type Music Collection in the group box and press **Enter**.
   f. Select the **Show Hidden Objects** check box in the *Display Options* area, if not already selected. The *Navigation Options* dialog box should look similar to Figure 9-105.

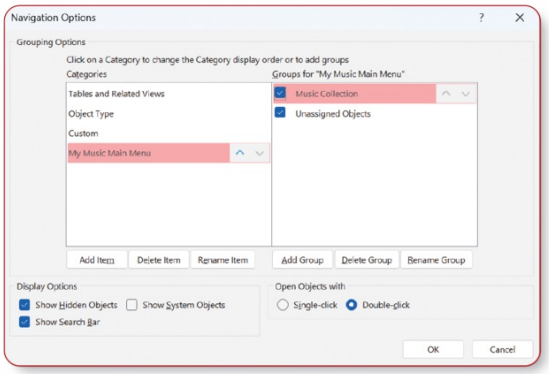


FIGURE 9-105 **New category and group in the *Navigation Options* dialog box**

   g. Click **OK** when done.

9. Assign objects and modify the *Navigation Pane*.
   a. Click the **Navigation Pane** arrow to open the *Navigation* menu and select the **My Music Main Menu** category.
   b. Drag the **divider bar** to widen the *Navigation Pane* if necessary.
   c. Click, hold, and drag the **GenreSelection** form from the *Unassigned Objects* group to the *Music Collection* group.
   d. Click, hold, and drag the **SongListingOnAlbumsByArtist** form from the *Unassigned Objects* group to the *Music Collection* group. Recall that this form

contains the *SongsSubform* form, although you are not assigning that form to any group.

e. Click, hold, and drag the **SongListing-AlbumsByArtist** report from the *Unassigned Objects* group to the *Music Collection* group. Recall that this report contains the *SongsSubreport* report, although you are not assigning that report to any group.

f. Right-click the **GenreSelection** shortcut and select the **Rename Shortcut** option. Type Open Genre Report as the shortcut name and press **Enter**.

g. Right-click the **Open Genre Report** shortcut and select the **View Properties** option.

h. Select the **Disable Design View shortcuts** check box and click **OK**.

i. Right-click the **SongListingOnAlbumsByArtist** form shortcut and select the **View Properties** option.

j. Select the **Disable Design View shortcuts** check box and click **OK**.

k. Right-click the **SongListing-AlbumsByArtist** report shortcut and select the **View Properties** option.

l. Select the **Disable Design View shortcuts** check box and click **OK**.

m. Right-click the **Unassigned Objects** heading and select the **Hide** option. Because the *Navigation Pane* is set to show hidden objects, the *Unassigned Objects* heading and associated objects display in a dimmed state. The completed *Navigation Pane* should look similar to Figure 9-106.

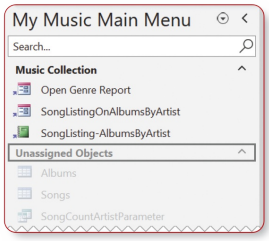


FIGURE 9-106
Completed *Navigation Pane*

10. Test the custom *Navigation Pane*.

a. Double-click the **Open Genre Report** shortcut. The *Genre Selection Form* opens (Figure 9-107). This form collects a parameter and opens the associated report.

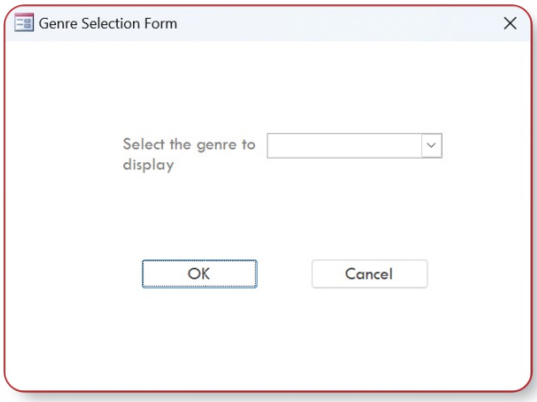


FIGURE 9-107 Select a genre to display in the associated report

b. Click the **combo box** drop-down arrow, select **Pop/Rock**, and then click **OK**. The report opens. Notice that the *Design View* icon displays in the *Status* bar. You disabled *Design* view for *Open Genre Report,* which is the shortcut to the *GenreSelection* form. This form opened the *GenreReport* object. *Design* view is still available for this report. Ultimately, you may decide to address this issue.

c. Close the report and close the database but leave Access open.

11. Password protect the database.

a. Click the **Open** button [*File* tab] to display the *Open* area in the *Backstage* view.

b. Double-click **Recent**, **OneDrive**, **This PC**, or **Browse** to open the *Open* dialog box.

c. Browse to the location of your database and click to select ***[your initials] Access 9-1.*** Do not double-click the database file name.

d. Click the **Open** button arrow and select **Open Exclusive**.

e. Click the **Info** button [*File* tab].

f. Click the **Encrypt with Password** button to open the *Set Database Password* dialog box.

g. Type $ongs!4Me in the *Password* box.

h. Type $ongs!4Me in the *Verify* box.

i. Click **OK**. If you get a message about row level locking, click **OK**.

j. Close the database.

12. Test the password-protected database.

a. Open the ***[your initials] Access 9-1*** database file. The *Password Required* dialog box displays.

b. Type $ongs!4Me in the *Password* box and click **OK**. The database opens.

13. Close the database.

Guided Project 9-2

Courtyard Medical Plaza wants to expand its database. For this project, you use SQL to create a query to find unpaid invoices. Next, you back up and then split the database. You password protect the back-end database, update linked tables, and password protect and lock the front-end database. Finally, you create a PDF file of the back-end database documentation.

[Student Learning Outcome 9.1, Student Learning Outcome 9.4, Student Learning Outcome 9.5, Student Learning Outcome 9.6]

File Needed: ***CourtyardMedicalPlaza-09.accdb*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Names: ***[your initials] Access 9-2.accdb, [your initials] Access 9-2_Backup. accdb, [your initials] Access 9-2_be.accdb, [your initials] Access 9-2.accde,*** and ***[your initials] Access 9-2_be_Documentation.pdf***

Skills Covered in This Project

- Create a query using *SQL* view.
- Edit a query using *SQL* view.
- Back up a database.
- Use the *Database Splitter* tool.
- Update linked tables in a split database.
- Encrypt a database with a password.
- Lock a database.
- Use the *Database Documenter* tool.

1. Open the ***CourtyardMedicalPlaza-09*** database from your student data files. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close the message. If the message repeats in a later step, click **OK** or the **X** to close the message.
2. Save a new copy of your database as [your initials] Access 9-2.
3. Enable content in the security warning.

4. Create an *SQL* query to show the unpaid invoices.
   a. Open a new query using **Query Design**.
   b. Add the **RentInvoices** table into the query and close the *Add Tables* task pane.
   c. Change to *SQL* view. The *SELECT* clause and the *FROM* clause are entered for you.
   d. Edit the *SELECT* clause to add the following field names after the word *SELECT:* InvoiceID, InvoiceDate, DueDate, AmountDue, FKDoctorID, Description
   e. Edit the *FROM* clause to remove the semicolon from the end.
   f. Add the following *WHERE* clause below the *FROM* clause: WHERE Paid = False;.
   g. Save the query as UnpaidInvoices.
   h. Click the **Run** button [*Query Design* tab, *Results* group] to test the query. The results should display 11 records with a *DueDate* of 01-Nov-26.
5. Edit the query to add a calculated field to show the number of days late.
   a. Change back to *SQL* view.
   b. Edit the *SELECT* clause to add DateDiff ("d",[DueDate],Date()) AS DaysLate, between the *DueDate* and *AmountDue* fields. Enter the contents after the comma following *DueDate* and be sure to enter the comma included after *DaysLate* in the instructions. This calculation finds the difference between today's date and the *DueDate* field.
   c. Save the changes to the query.
   d. Run the query to test it. The results should be similar to those shown in Figure 9-108. The value displayed in the *DaysLate* column will vary, and may be negative, depending on the day you run the query.

UnpaidInvoices

InvoiceID	Invoice Date	Due Date	DaysLate	Amount Due	Doctor ID	Description
78	15-Oct-26	01-Nov-26	9	$1,400.00	1	November 2026 Rent (Agarwal & Sharma
79	15-Oct-26	01-Nov-26	9	$1,250.00	2	November 2026 Rent (Scher & Dyer)
80	15-Oct-26	01-Nov-26	9	$1,500.00	4	November 2026 Rent
81	15-Oct-26	01-Nov-26	9	$1,500.00	5	November 2026 Rent (Flores & Alamar)
82	15-Oct-26	01-Nov-26	9	$1,250.00	6	November 2026 Rent (Camacho & Ansar
83	15-Oct-26	01-Nov-26	9	$1,750.00	8	November 2026 Rent
84	15-Oct-26	01-Nov-26	9	$1,550.00	9	November 2026 Rent
85	15-Oct-26	01-Nov-26	9	$1,800.00	11	November 2026 Rent (Singh & Pelayo)
86	15-Oct-26	01-Nov-26	9	$1,750.00	12	November 2026 Rent
87	15-Oct-26	01-Nov-26	9	$1,750.00	15	November 2026 Rent
88	15-Oct-26	01-Nov-26	9	$1,800.00	16	November 2026 Rent
0				$0.00	0	

Record: 14 1 of 11 No Filter Search

FIGURE 9-108 ***UnpaidInvoices* query results**

   e. Close the query.
6. Back up the database before splitting and password protecting the database.
   a. Click the **File** tab to open the *Backstage* view and click the **Save As** button.
   b. Click the **Back Up Database** button in the *Advanced* grouping of the *Save*

Database As section, and then click the **Save As** button. The *Save As* dialog box displays.

c. Select the location to store the file, enter [your initials] Access 9-2_Backup as the file name, and click the **Save** button.

7. Split the database.
   a. Click the **Access Database** button [*Database Tools* tab, *Move Data* group] to open the *Database Splitter* dialog box.
   b. Click the **Split Database** button. The *Create Back-end Database* dialog box opens. Access suggests the default file name ***[your initials] Access 9-2_be.accdb.***
   c. Locate the folder where you want to save the file, accept the default file name, and click the **Split** button. A confirmation message box displays.
   d. Click **OK** to acknowledge the message.
   e. Close the database, but keep Access open.
8. Password protect the back-end database.
   a. Click the **Open** button [*File* tab] to display the *Open* area in *Backstage* view.
   b. Double-click **Recent**, **OneDrive**, **This PC**, or **Browse** to open the *Open* dialog box.
   c. Browse to the location of your back-end database and click to select ***[your initials] Access 9-2_be.*** Do not double-click the database file name.
   d. Click the **Open** button arrow and select **Open Exclusive**.
   e. Enable content in the security warning.
   f. Click the **Info** button [*File* tab].
   g. Click the **Encrypt with Password** button to open the *Set Database Password* dialog box.
   h. Type D*cs@CMPla2a in the *Password* box.
   i. Type D*cs@CMPla2a in the *Verify* box and click **OK**.
   j. Click **OK**. If you get a message about row level locking, click **OK**.
   k. Close the database.
9. Update links in the front-end database.
   a. Open the ***[your initials] Access 9-2*** database file.
   b. Delete both tables, because their links are no longer valid, given that you added a password to the back-end database.
   c. Click the **New Data Source** button [*External Data* tab, *Import & Link* group], select **From Database**, and then select **Access**. The *Get External Data – Access Database* dialog box launches.
   d. Click the **Browse** button to launch the *File Open* dialog box.

e. Locate and select ***[your initials] Access 9-2_be*** and click the **Open** button.

f. Select the **Link to the data source by creating a linked table** radio button and click **OK**. The *Password Required* dialog box displays.

g. Type D*cs@CMPla2a in the *Password* box and click **OK**. The *Link Tables* dialog box displays.

h. Click the **Select All** button and click **OK**. The tables are added into the *Tables* group of the *Navigation Pane* (Figure 9-109).

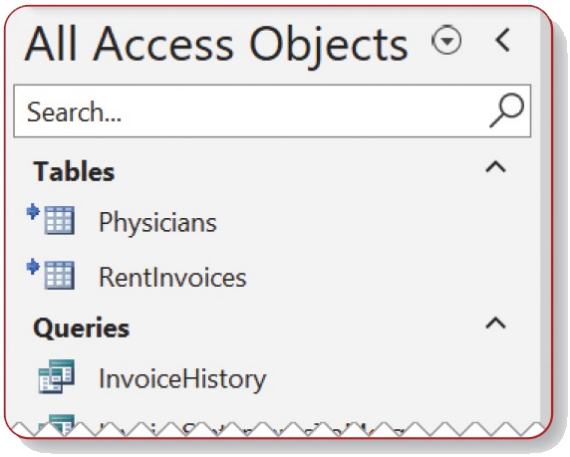


FIGURE 9-109 **Linked tables in the *Navigation Pane***

i. Close the database, but leave Access open.

10. Password protect the front-end database.

a. Click the **Open** button [*File* tab] to display the *Open* area in *Backstage* view.

b. Double-click **Recent**, **OneDrive**, **This PC**, or **Browse** to open the *Open* dialog box.

c. Browse to the location of your front-end database and click to select ***[your initials] Access 9-2***. Do not double-click the database file name.

d. Click the **Open** button arrow and select **Open Exclusive**.

e. Click the **Info** button [*File* tab].

f. Click the **Encrypt with Password** button to open the *Set Database Password* dialog box.

g. Type #cMp2rEnT in the *Password* box.

h. Type #cMp2rEnT in the *Verify* box.

i. Click **OK**. If you get a message about row level locking, click **OK**.

11. Lock the front-end database.

a. Click the **File** tab to open the *Backstage* view and click the **Save As** button.

b. Click the **Make ACCDE** button in the *Advanced* grouping of *the Save Database As* section and click the **Save As** button. The *Save As* dialog box displays.
c. Select the location to store the file, accept the suggested file name, and click the **Save** button. The .accde file is created.
d. Close the database.

12. Open the locked database.
    a. Open the ***[your initials] Access 9-2.accde*** locked database file.
    b. Type #cMp2rEnT in the *Password* box and click **OK**. If a *Microsoft Access Security Notice* displays, click **Open**.
    c. Click the **Create** tab. Notice that the *Forms* and *Reports* groups are dimmed.
    d. Close the database.
13. Create database documentation for the back-end database.
    a. Open the ***[your initials] Access 9-2_be*** database file.
    b. Type D*cs@CMPla2a in the ***Password*** box and click **OK**.
    c. Enable content in the security warning.
    d. Click the **Database Documenter** button [*Database Tools* tab, *Analyze* group] to open the *Documenter* dialog box.
    e. Select the **All Object Types** tab and the **Select All** button.
    f. Click the **Options** button to open the *Print Table Definition* dialog box.
    g. Select the **Properties** and **Relationships** check boxes in the *Include for Table* area if not already selected.
    h. Select the **Names**, **Data Types**, **Sizes**, **and Properties** radio button in the *Include for Fields* area if not already selected.
    i. Select the **Names**, **Fields**, **and Properties** radio button in the *Include for Indexes* area if not already selected. The dialog box selections should match those shown in **Figure 9-110**.

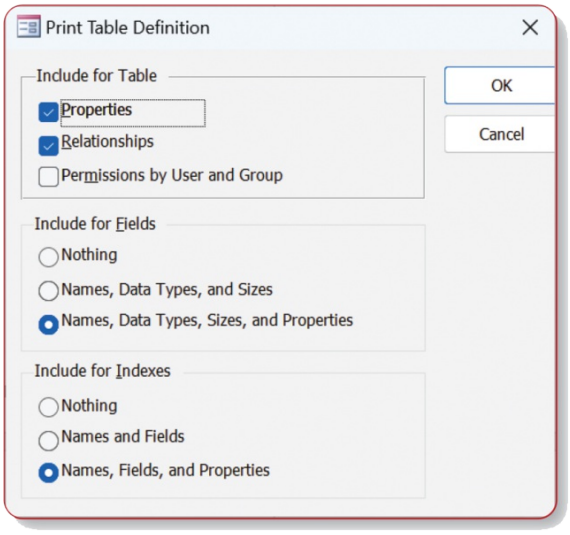


FIGURE 9-110 ***Print Table Definition*** **dialog box**

j. Click the **OK** button. You return to the *Documenter* dialog box.

k. Click the **OK** button to preview the *Database Documenter* report (Figure 9-111).

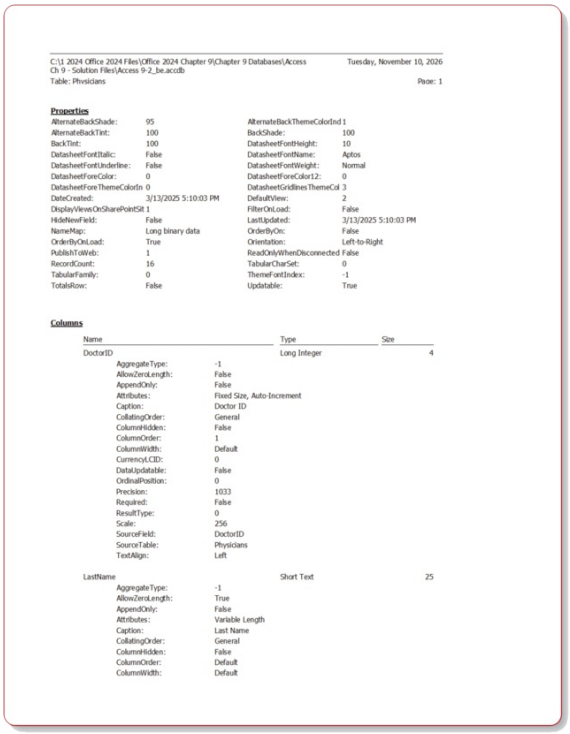


FIGURE 9-111 ***Print Preview*** **of the back-end database documentation**

l. Click the **One Page** button [*Print Preview* tab, *Zoom* group], if necessary, to

adjust the display and use the scroll bars to see parts of the page not visible.

m. Click the **PDF or XPS** button [*Print Preview* tab, *Data* group] to open the *Publish as PDF or XPS* dialog box.

n. Locate the folder where you want to save the file, enter [your initials] Access 9-2_be_Documentation as the file name, select the **Open file after publishing** check box, and click the **Publish** button. The PDF file opens in your PDF viewer.

o. Navigate through the pages in the PDF file to ensure it was created successfully. Most likely, the report contains 12 pages. Don't worry if your page count is different.

p. Close the PDF file.

q. Click **Close** in the *Export – PDF* dialog box because you don't need to save the export steps.

r. Click the **Close Print Preview** button [*Print Preview* tab, *Close Preview* group].

14. Close the database.

Guided Project 9-3

San Diego Sailing wants to ensure its database is well designed. For this project, you apply the rules of normalization to the database and use the *Table Analyzer* tool. Next, you use SQL to create a parameter query to display boat details. Finally, you use the *Analyze Performance* tool and optimize the database.

[Student Learning Outcome 9.1, Student Learning Outcome 9.3, Student Learning Outcome 9.6]

File Needed: ***SanDiegoSailing-09.accdb*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Names: ***[your initials] Access 9-3.accdb*** and ***[your initials] Access 9-3_Backup.accdb***

Skills Covered in This Project

- Evaluate tables using normalization.

- Use the *Table Analyzer* tool.
- Modify a table in *Design* view.
- Use the *Lookup Wizard* to create a relationship.
- Create a query using *SQL* view.
- Add a parameter to a query using *SQL* view.
- Back up a database.
- Use the *Performance Analyzer* tool.
- Create an index to optimize a database.
- Use *Compact & Repair* to optimize a database.

---

1. Open the ***SanDiegoSailing-09*** database from your student data files. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close the message. If the message repeats in a later step, click **OK** or the **X** to close the message.
2. Save a new copy of your database as [your initials] Access 9-3.
3. Enable content in the security warning.
4. Evaluate the *SDRentals* table to determine if it is in 3NF.
   a. Open the *SDRentals* table in *Datasheet* view (**Figure 9-112**). Recall that the *Rental ID* is the primary key.

Rental ID	Boat ID	Rental Date	Four Hour Re	Member Num	RentalCost
08013	1146	5/6/2025	☑	1003	$285.00
08014	1146	5/6/2025	☑	1075	$285.00
08015	1146	5/9/2025	☐	1212	$355.00
08016	1419	5/9/2025	☑	1075	$285.00
08017	1168	5/10/2025	☐	1212	$355.00
08018	1146	5/10/2025	☑	1283	$285.00
08019	1015	5/11/2025	☑	1386	$150.00
08020	1146	5/12/2025	☑	1283	$285.00
08021	1168	5/13/2025	☐	1168	$355.00
08022	1185	5/13/2025	☐	1283	$395.00
08023	1015	5/13/2025	☑	1059	$150.00
08024	1200	5/13/2025	☐	1494	$455.00
08025	1150	5/14/2025	☑	1582	$75.00

FIGURE 9-112 ***Datasheet* view of the *SDRentals* table**

   b. Determine if the table is in 1NF. In any cell, do you see more than one value? The answer is no. Each cell has only one value, so this table is in 1NF.
   c. Determine if the table is in 2NF. Do all the non-key fields depend on the entire primary key? Because this table only has one field in the primary key, it is automatically in 2NF.
   d. Determine if the table is in 3NF. Do all the non-key fields depend only on the primary key? Do you see redundant data? Even though the same *Rental Date* or *Boat ID* appears on multiple records, it is not redundant. None of the non-key

fields can determine any of the other non-key fields. For example, when you look at *Boat ID 1146,* do you always see the same values in the *Rental Date, Four Hour Rental,* or *Member Number* fields? The answer is no. It appears that the combination of the *Boat ID* and *Four Hour Rental?* fields gives you the same *RentalCost.* However, the *RentalCost* is likely to change over time so those fields won't always give you the same *RentalCost.* Because this table doesn't have any transitive dependencies, the table is in 3NF.

e. Close the table.

5. Compare your analysis of the *SDRentals* table with the results of the *Table Analyzer* tool.

   a. Click the **Analyze Table** button [*Database Tools* tab, *Analyze* group] to open the *Table Analyzer Wizard.*

   b. If the *Looking At the Problem* information window displays, click **Next** to move to the second information screen.

   c. If the *Solving the Problem* information window displays, click **Next** to move to the next step of the wizard.

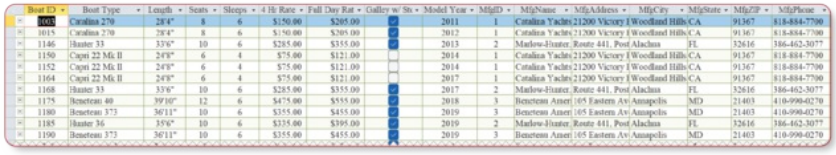
   d. Select the **SDRentals** table, if necessary, and click **Next**.

   e. Select the **Yes**, **let the wizard decide** radio button, if necessary, and click **Next**. A dialog box displays informing you that the wizard doesn't recommend splitting the table.

   f. Click **Cancel** to exit the wizard. The *SDRentals* table is in 3NF.

6. Evaluate the *SailboatFleet* table to determine if it is in 3NF.

   a. Open the *SailboatFleet* table in *Datasheet* view (Figure 9-113). An employee added fields to track the manufacturer of each of the boats in the *SailboatFleet* table. Recall that the *Boat ID* is the primary key.



Boat ID	Boat Type	Length	Seats	Sleeps	4 Hr Rate	Full Day Rat	Galley w/ Sh	Model Year	MfgID	MfgName	MfgAddress	MfgCity	MfgState	MfgZIP	MfgPhone
1003	Catalina 270	28'4"	8	6	$150.00	$205.00	☑	2011	1	Catalina Yachts	21200 Victory I	Woodland Hills	CA	91367	818-884-7700
1015	Catalina 270	28'4"	8	6	$150.00	$205.00	☑	2012	1	Catalina Yachts	21200 Victory I	Woodland Hills	CA	91367	818-884-7700
1146	Hunter 33	33'6"	10	6	$285.00	$355.00	☑	2013	2	Marlow-Hunter	Route 441, Post	Alachua	FL	32616	386-462-3077
1150	Capri 22 Mk II	24'8"	6	4	$75.00	$121.00	☐	2014	1	Catalina Yachts	21200 Victory I	Woodland Hills	CA	91367	818-884-7700
1152	Capri 22 Mk II	24'8"	6	4	$75.00	$121.00	☐	2014	1	Catalina Yachts	21200 Victory I	Woodland Hills	CA	91367	818-884-7700
1164	Capri 22 Mk II	24'8"	6	4	$75.00	$121.00	☐	2017	1	Catalina Yachts	21200 Victory I	Woodland Hills	CA	91367	818-884-7700
1168	Hunter 33	33'6"	10	6	$285.00	$355.00	☑	2017	2	Marlow-Hunter	Route 441, Post	Alachua	FL	32616	386-462-3077
1175	Beneteau 40	39'10"	12	6	$475.00	$555.00	☑	2018	3	Beneteau Amer	105 Eastern Ave	Annapolis	MD	21403	410-990-0270
1180	Beneteau 373	36'11"	10	6	$355.00	$455.00	☑	2019	3	Beneteau Amer	105 Eastern Ave	Annapolis	MD	21403	410-990-0270
1185	Hunter 36	35'6"	10	6	$335.00	$395.00	☑	2019	2	Marlow-Hunter	Route 441, Post	Alachua	FL	32616	386-462-3077
1190	Beneteau 373	36'11"	10	6	$355.00	$455.00	☑	2019	3	Beneteau Amer	105 Eastern Ave	Annapolis	MD	21403	410-990-0270

FIGURE 9-113 ***Datasheet* view of the *SailboatFleet* table**

   b. Determine if the table is in 1NF. In any cell, do you see more than one value? The answer is no. Each cell has only one value, so this table is in 1NF.

   c. Determine if the table is in 2NF. Do all the non-key fields depend on the entire primary key? Because this table only has one field in the primary key, it is automatically in 2NF.

   d. Determine if the table is in 3NF. Do all the non-key fields depend only on the primary key? Do you see redundant data? The answer is yes; you see redundant data.

e. Analyze the redundant manufacturing data. Do you get the same set of manufacturing data values for every record by looking at the *MfgID?* The answer is yes. For example, every record that has a *MfgID* of 1 has the same value for *MfgName, MfgAddress, MfgCity, MfgState, MfgZIP,* and *MfgPhone*. This is a transitive dependency; as a result, this table is not in 3NF. To fix this, you take the fields that depend on the non-key attribute and put them into a new, separate table to store the manufacturer information. You will make these changes later in the project.

f. Analyze the redundant sailboat data. Do you get the same set of sailboat values in the *Length, Seats, Sleeps, 4 Hr Rate, Full Day Rate,* and *Galley w/ Stove* fields by looking at the *Boat Type?* The answer appears to be yes at first. But is this always true?
For example, is it possible you could get a Beneteau 373 with a different sleeping configuration? And is it possible you could charge different rates for the Catalina 270 depending on how old it is?
Because this variability exists, a transitive dependency doesn't exist between *Boat Type* and these other fields.

g. Close the table.

7. Compare your analysis of the *SailboatFleet* table with the results of the *Table Analyzer* tool.

a. Click the **Analyze Table** button [*Database Tools* tab, *Analyze* group] to open the *Table Analyzer Wizard.*

b. If the *Looking At the Problem* information window displays, click **Next** to move to the second information screen.

c. If the *Solving the Problem* information window displays, click **Next** to move to the next step of the wizard.

d. Select the **SailboatFleet** table, if necessary, and click **Next**.

e. Select the **Yes**, **let the wizard decide** radio button, if necessary, and click **Next**. The wizard displays the recommendations.

f. Move and enlarge the tables so you can read all of the content ( **Figure 9-114**).

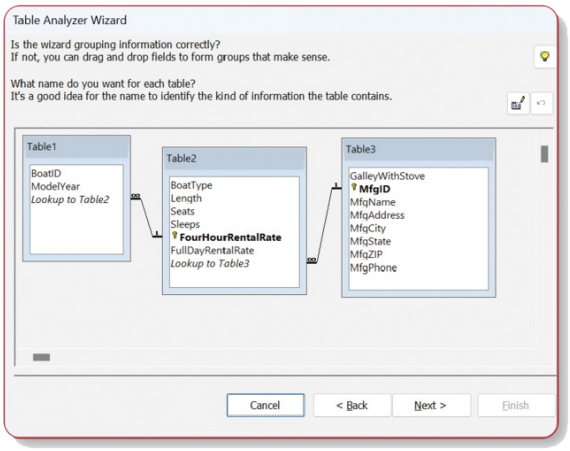


FIGURE 9-114 ***Table Analyzer Wizard*** **recommendations for the *SailboatFleet* table**

g. Click the **Tips** button to read about the suggestions. Close the *Table Analyzer* dialog box.

h. Look at the suggested *Table3*. Note that the wizard suggests moving the manufacturing information to this table. This matches your conclusion in step 6e. It also suggests moving a few of the fields about the boat into a separate *Table2*. Because you usually retrieve these fields together, this would not save any space and is not a good idea. Additionally, the suggested key of *FourHourRentalRate* would not work because many different boat types could have the same rental rates.

i. Click the **Cancel** button. Although you could modify the suggested manufacturer table design in the wizard, due to the overall differences, it is easier for you to modify the table design yourself.

8. Modify the database to create the *Manufacturers* table.

a. Select the **SailboatFleet** table in the *Navigation Pane*.

b. Click the **Copy** button [*Home* tab, *Clipboard* group] and the **Paste** button [*Home* tab, *Clipboard* group] to make a copy of the table. The *Paste Table As* dialog box opens.

c. Type Manufacturers in the *Table Name* box and click **OK**.

d. Open the *Manufacturers* table in *Datasheet* view.

e. Click to select the **MfgID** column and click the **Ascending** button [*Home* tab, *Sort & Filter* group].

f. Delete the records for *Boat ID* values **1015**, **1150**, **1152**, **1164**, **1230**, **1240**, **1401**, and **1425** to remove the redundant Catalina Yachts data. Click **Yes** in the message boxes that ask you to confirm the deletions.

g. Delete the records for *Boat ID* values **1168**, **1185**, **1225**, **1254**, **1342**, and **1419** to

remove the redundant Marlow-Hunter, LLC data. Click **Yes** in the message boxes that ask you to confirm the deletions.

h. Delete the records for *Boat ID* values **1180**, **1190**, **1200**, **1205**, **1310**, and **1410** to remove the redundant Beneteau America data. Click **Yes** in the message boxes that ask you to confirm the deletions and the primary key.

i. Click the **Remove Sort** button [*Home* tab, *Sort & Filter* group].

j. Change to **Design** view.

k. Delete the **BoatID**, **BoatType**, **Length**, **Seats**, **Sleeps**, **FourHourRentalRate**, **FullDayRentalRate**, **GalleyWithStove**, and **ModelYear** fields. Click **Yes** in the message boxes that ask you to confirm the deletions.

l. Make the *MfgID* field the primary key of the table.

m. Save the table and switch to *Datasheet* view.

n. Increase the column widths of the fields to see the entire contents. The table should contain four records and be similar to Figure 9-115.

Manufacturers

MfgID	MfgName	MfgAddress	MfgCity	MfgState	MfgZIP	MfgPhone
1	Catalina Yachts	21200 Victory Boulevard	Woodland Hills	CA	91367	818-884-7700
2	Marlow-Hunter, LLC	Route 441, Post Office Box 1030	Alachua	FL	32616	386-462-3077
3	Beneteau America	105 Eastern Avenue, Suite 201	Annapolis	MD	21403	410-990-0270
4	Hobie Cat Company	4925 Oceanside Boulevard	Oceanside	CA	92056	760-758-9100
0						

Record: 1 of 4 No Filter Search

FIGURE 9-115 ***Datasheet* view of the *Manufacturers* table**

o. Close the table. Save the table if prompted.

9. Modify the database so that the *SailboatFleet* table is in 3NF.

a. Open the *SailboatFleet* table in *Design* view.

b. Delete the **MfgName**, **MfgAddress**, **MfgCity**, **MfgState**, **MfgZIP**, and **MfgPhone** fields. Click **Yes** in the message boxes that ask you to confirm the deletions.

c. Change the name of the *MfgID* field to MfgID-FK.

d. Select **Lookup Wizard** in the *MfgID-FK* field *Data Type* property box to launch the *Lookup Wizard*. If a *Microsoft Access Security Notice* displays, click **Open**.

e. Select the "**I want the lookup field to get the values from another table or query"** radio button, if necessary, and click the **Next** button.

f. Select the **Manufacturers** table, if necessary, and click the **Next** button.

g. Select **MfgID** from the list of *Available Fields* and click the **Move Single Field** button to move the field into the *Selected Fields* window.

h. Move the **MfgName** into the *Selected Fields* window and click the **Next** button.

i. Don't sort on any fields and click the **Next** button.

j. Deselect the **Hide key column** check box and click the **Next** button.

k. Select the **MfgID** field to store in the table and click the **Next** button.

l. Select the **Enable Data Integrity** check box and click the **Finish** button to complete the wizard. A *Lookup Wizard* dialog box displays.

m. Click the **Yes** button to save the changes to the table so that Access can create the relationship.

n. Switch to *Datasheet* view. Verify that the table is now in 3NF.

o. Close the table.

10. Create an *SQL* query to show the boat and manufacturer information.

a. Open a new query using **Query Design**.

b. Add the **Manufacturers** and **SailboatFleet** tables into the query and close the *Add Tables* task pane.

c. Change to *SQL* view. The *SELECT* clause and the *FROM* clause are entered for you. Because you added multiple tables that have an existing relationship, Access automatically specified the join type.

d. Edit the *SELECT* clause to add the following field names after the word *SELECT:* BoatID, BoatType, Length, ModelYear, MfgName, MfgCity, MfgState

e. Save the query as FleetDetails.

f. Run the query to test it. The results should display 24 records.

11. Edit the query to add a parameter.

a. Change back to *SQL* view.

b. Edit the *FROM* clause to remove the semicolon.

c. Enter the following *WHERE* clause below the *FROM* clause: WHERE (ModelYear = [Find boats from what Model Year?]);

d. Save the changes to the query.

e. Run the query to test it. Enter 2025 in the *Enter Parameter Value* dialog box and click **OK**. The query results should show four records and be similar to **Figure 9-116**.

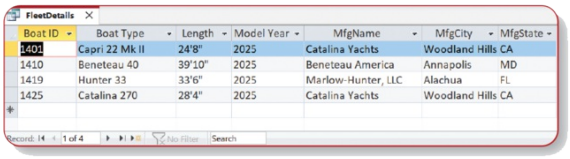


FIGURE 9-116 ***FleetDetails*** **query results**

f. Close the query.

12. Back up the database.

a. Click the **File** tab to open the *Backstage* view and click the **Save As** button.

b. Click the **Back Up Database** button in the *Advanced* grouping of *the Save Database As* section, and then click the **Save As** button. The *Save As* dialog box

displays.

c. Select the location to store the file, enter [your initials] Access 9-3_Backup as the file name, and click the **Save** button.

13. Analyze the performance of the database.

a. Click the **Analyze Performance** button [*Database Tools* tab, *Analyze* group] to open the *Performance Analyzer*.

b. Click the **All Object Types** tab and click the **Select All** button. The dialog box should match Figure 9-117.

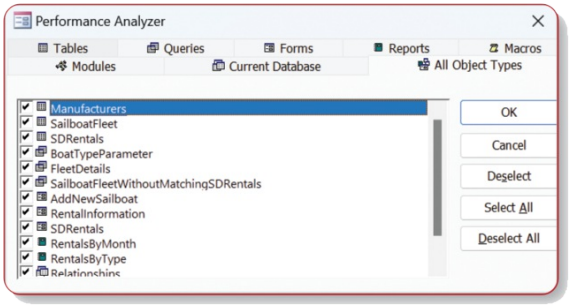


FIGURE 9-117 ***Performance Analyzer*** **dialog box**

c. Click **OK**. The *Analysis Results* window displays one *Idea* to create an MDE executable file and several *Ideas* about changing the data type of different fields. Because you may add more forms and reports to the database and you want to keep the *Short Text* data type, you do not implement these *Ideas*.

d. Click **Close**.

14. Review other optimization options.

a. Open the *RentalsByType* report. Note that the parameter uses the *BoatType* field. Click **OK** in the *Enter Parameter Value* dialog box. The report opens. Even though the *Performance Analyzer* didn't suggest it, you realize it is a good idea to create an index on the *BoatType* field.

b. Close the report. Because you have made a number of changes to the database, you also recognize that you can optimize performance by compacting the database to reclaim unused space and remove temporary objects.

15. Create an index on the *BoatType* field.

a. Open the *SailboatFleet* table in *Design* view.

b. Select the **BoatType** field.

c. Change the *Indexed* property to **Yes (Duplicates OK)**.

d. Save and close the table.

16. Click the **Info** button [*File* tab].

17. Click the **Compact & Repair Database** button.

18. Close the database. Click **Yes** if you receive a message box that asks you to confirm emptying the clipboard.

Independent Project 9-4

Mary's Equipment Rentals wants to improve its database. To ensure consistency, the starting files are provided for you. The database has been split into a front-end and back-end database. You remove a weak password from the front-end database and apply a new password. You also improve the functionality by fixing a *Navigation Pane* that is not designed correctly. Finally, you update linked tables in the front-end that are not working correctly.

[**Student Learning Outcome 9.2**, **Student Learning Outcome 9.4**, **Student Learning Outcome 9.5**]

Files Needed: ***MarysRentals-09.accdb*** and ***MarysRentals-09_be.accdb*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Names: ***[your initials] Access 9-4.accdb*** and ***Access 9-4_be.accdb***

Skills Covered in This Project

- Decrypt a database to remove a password.
- Encrypt a database with a password.
- Update linked tables in a split database.
- Modify a custom *Navigation Pane.*
- Assign objects to groups.
- Modify shortcut properties.
- Unhide objects and groups.
- Hide objects and groups.

1. Save a copy of the front-end database.
   a. Open the ***MarysRentals-09*** database from your student data files. Enter 12345 when prompted for the password and click **OK**. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close the message. If the message repeats in a later step, click **OK** or the **X** to close the message.
   b. Save a new copy of your database as [your initials] Access 9-4. Enter 12345 when

prompted for the current password and click **OK**.

c. Enable content in the database.

d. Close the database.

2. Save a copy of the back-end database.

   a. Open the ***MarysRentals-09_be*** database from your student data files and save a new copy of your database as [your initials] Access 9-4_be.

   b. Enable content in the database.

   c. Close the database but leave Access open.

3. Remove the existing password from the front-end database.

   a. Open the ***[your initials] Access 9-4*** database file using the *Open Exclusive* option. You are prompted to enter the current password. Enter 12345 when prompted and click **OK**.

   b. Click **Info** [*File* tab] and then **Decrypt Database** to remove the current password. Enter 12345 when prompted and click **OK**.

4. Assign a new password to the front-end database.

   a. Encrypt the database with a password. Use $DiY*2*Fix$ as the password.

   b. Click **OK**. If you get a message about row level locking, click **OK**.

   c. Close the database to release the *Open Exclusive* mode.

5. Open the ***[your initials] Access 9-4*** database file. Enter $DiY*2*Fix$ when prompted for the password. Enable content in the database if necessary.

6. Explore the front-end database.

   a. Select the **Mary's Rentals** category in the *Navigation Pane*.

   b. Double-click the **Customers** table in the *Unassigned Objects* group. An error message displays due to an invalid link to the table. Click **OK** to acknowledge the message. You fix the links to the tables in step 8.

   c. Review the *Navigation Pane*. Note that the *AddEmployees* shortcut is in the wrong group. You also have been told that not all shortcuts were created and can see that no objects have been moved into the *Employees* or *Equipment* groups.

7. Fix the *Navigation Pane*.

   a. Open the *Navigation Options* dialog box.

   b. Choose to **Show Hidden Objects**, if not already selected, and click **OK**. The *Navigation Pane* updates to display the items in a dimmed state.

   c. Move the **AddEmployees** shortcut into the *Employees* group.

   d. Move the **RentalsSubform** shortcut into the *Unassigned Objects* group.

   e. Move the **AddCustomers** form into the *Customers* group.

f. Move the **CustomersMain** shortcut from the *Customers* group into the *Rentals* group.
g. Move the **Top5ProductRentals** report into the *Rentals* group.
h. Move the **EquipmentDetails** form and **EquipmentServiceHistory** form into the *Equipment* group.
i. Rename the **AddCustomers** shortcut to read Add New Customer.
j. Rename the **AddEmployees** shortcut to read Add New Employee.
k. Rename the **EquipmentDetails** shortcut to read View Equipment Details.
l. Rename the **EquipmentServiceHistory** shortcut to read View Equipment Service History.
m. Rename the **CustomersMain** shortcut to read View Customer Rentals.
n. Rename the **RentalsListing** shortcut to read View Rental Listing Report.
o. Rename the **Top5ProductRentals** shortcut to read View Top 5 Rentals. The *Navigation Pane* should look similar to **Figure 9-118**.

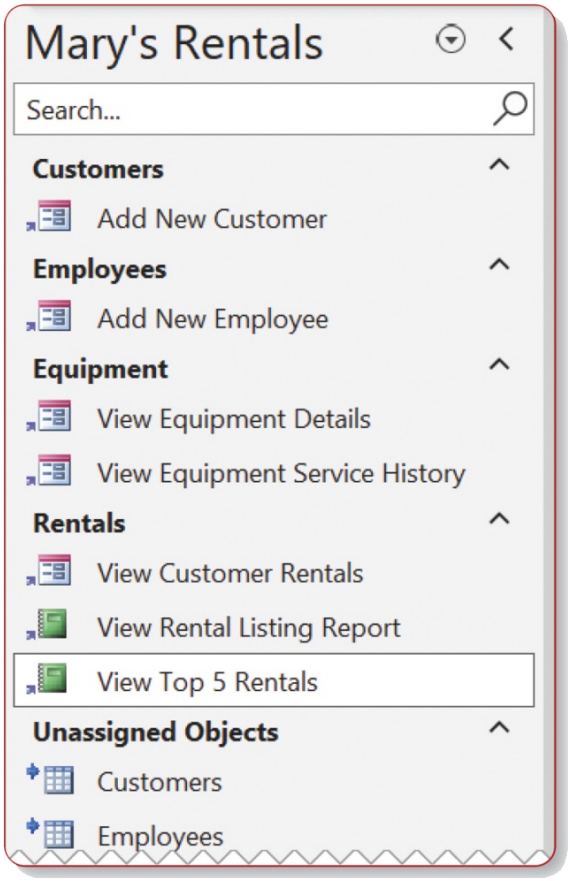


FIGURE 9-118 Completed *Navigation Pane*

8. Update links in the front-end database.

a. Open the *Linked Table Manager* dialog box.
b. Expand the **Access** data source to view the tables it contains and then select the check box for the **Access** data source. Access selects the check box for each of the five tables.
c. Click **Relink**. The *Select New Location of Access* dialog box opens.
d. Locate and select the ***[your initials] Access 9-4_be*** file and click **OK**. A message box indicates that tables with the same name will be relinked and asks whether you want to relink to tables with different names.
e. Click **No**. Verify the *Linked Table Manager* dialog box updates the *Refresh Status* column to display *Succeeded.*
f. Close the *Linked Table Manager*.

9. Verify that the database works correctly.
   a. Open the **Customers** linked table in *Datasheet* view. The table opens and displays the 26 customers. Close the table.
   b. Open the **View Equipment Service History** shortcut in the *Equipment* group. The form opens. Close the form.
10. Hide the **Unassigned Objects** heading. Do not check *Disable Design View shortcuts,* because you still plan to work with the users to fine-tune the different objects.
11. Close the database.

Independent Project 9-5 SIMnet Project

The New York Department of Motor Vehicles wants to improve its database. For this project, you back up and then split the database and password protect the back-end database. In the front-end database, you update linked tables, create a custom *Navigation Pane,* and password protect the database.

[Student Learning Outcome 9.2, Student Learning Outcome 9.4, Student Learning Outcome 9.5]

File Needed: ***NewYorkDMV-09.accdb*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Names: ***[your initials] Access 9-5.accdb, [your initials] Access 9-5_Backup.accdb,*** and ***[your initials] Access 9-5_be.accdb***

Skills Covered in This Project

- Back up a database.
- Use the *Database Splitter* tool.
- Update linked tables in a split database.
- Encrypt a database with a password.
- Create a custom *Navigation Pane*.
- Create a custom category and custom groups.
- Assign objects to groups.
- Modify shortcut properties.
- Hide objects and groups.

---

1. Open the ***NewYorkDMV-09*** database from your student data files. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close the message. If the message repeats in a later step, click **OK** or the **X** to close the message.
2. Save a new copy of your database as [your initials] Access 9-5.
3. Enable content in the security warning.
4. Back up the database before splitting the database. Save the file as [your initials] Access 9-5_Backup.
5. Split the database.
   a. Accept the default file name of ***[your initials] Access 9-5_be***.
   b. Close the database but keep Access open.
6. Password protect the back-end database.
   a. Open ***[your initials] Access 9-5_be*** using the *Open Exclusive* option.
   b. Encrypt the database with a password. Use We@N4s4U as the password.
   c. Click **OK**. If you get a message about row level locking, click **OK**.
   d. Close the database.
7. Update links in the front-end database.
   a. Open the ***[your initials] Access 9-5*** database file. Try to open the *Drivers* table. A message box displays indicating an invalid password. Close the message box.
   b. Open the *Linked Table Manager* dialog box.
   c. Expand the **Access** data source to view the tables it contains and then select the check box for each of the three tables.
   d. Click **Relink**. The *Select New Location of Access* dialog box opens.
   e. Locate and select the ***[your initials] Access 9-5_be*** file, and click **OK**. The *Relink "Table"* dialog box displays. The dialog box specifies one of the three tables

(*Drivers, Tickets,* or *Officers*) as the table name to link to. Click **OK**.

f. Type We@N4s4U in the *Password* box when prompted and click **OK**. The *Relink "Table"* dialog box displays, specifying the next of the three tables. Click **OK**.

g. Type We@N4s4U in the *Password* box when prompted and click **OK**. The *Relink "Table"* dialog box displays, specifying the last of the three tables. Click **OK**.

h. Type We@N4s4U in the *Password* box when prompted. Click **OK**. Verify the *Refresh Status* displays *Succeeded* for each of the three tables.

i. Close the *Linked Table Manager*.

8. Create a category and groups for a custom *Navigation Pane*.

a. Open the *Navigation Options* dialog box.

b. Add a new category named NY DMV Main Menu.

c. Add a new group in the *NY DMV Main Menu* category named Ticket Processing and another new group named License Processing.

d. Select the **Show Hidden Objects** check box if not already selected.

e. Close the *Navigation Options* dialog box.

9. Assign objects and modify the *Navigation Pane*.

a. Select the **NY DMV Main Menu** category.

b. Put the **AddNewDriver** form and the **ViewEditDriverInformation** form in the *License Processing* group.

c. Put the **TicketCountByCityAndFactorMonthParameter** query, **DriverTicketDetails** form, and **OfficerTicketListing** report in the *Ticket Processing* group.

d. Rename the **TicketCountByCityAndFactorMonthParameter** shortcut Ticket Summary by Month.

e. Rename the **DriverTicketDetails** shortcut View Tickets by Driver.

f. Rename the **OfficerTicketListing** shortcut View Tickets by Officer.

g. Rename the **AddNewDriver** shortcut Add New Driver.

h. Rename the **ViewEditDriverInformation** shortcut View and Edit Driver Information.

i. Do not check *Disable Design View shortcuts* because you still plan to work with the users to fine-tune the objects.

j. Hide the **Unassigned Objects** heading.

k. Drag the **divider bar**, if necessary, to adjust the *Navigation Pane* width. The completed *Navigation Pane* for the *NY DMV Main Menu* should look similar to **Figure 9-119**.

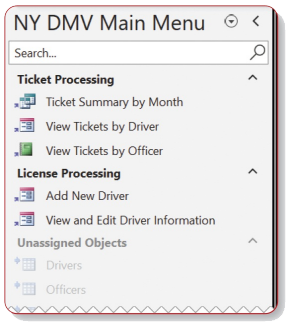


FIGURE 9-119
Completed *Navigation Pane*

10. Test the custom *Navigation Pane*.
    a. Double-click the **View Tickets by Driver** shortcut. The *DriverTicketDetails* form opens.
    b. Close the form.
    c. Close the database but keep Access open.
11. Password protect the front-end database.
    a. Open the ***[your initials] Access 9-5*** database using the *Open Exclusive* option.
    b. Encrypt the database with a password. Use #L!bErTy2U* as the password.
    c. Click **OK**. If you get a message about row level locking, click **OK**.
    d. Close the database.
12. Test and modify the database.
    a. Open the ***[your initials] Access 9-5*** database file.
    b. Type #L!bErTy2U* in the *Password* box and click **OK**. If a *Microsoft Access Security Notice* displays, click **Open**.
    c. Open the *Officers* table in *Datasheet* view. You can still open the object even though the *Unassigned Objects* group is dimmed.
    d. Navigate to the record for *Amanda Freed* and edit her *LastName* to read Freed-Nguyen.
    e. Close the table.
    f. Open the *View Tickets by Officer* shortcut in *Design* view.
    g. Add page numbers to the report. Select the **Page N of M** format, the **Bottom of Page [Footer]** position, and a **Right** alignment.
    h. Change to **Print Preview** to test the report. Scroll down the page to verify that the page numbers display on the report. Navigate to page 4 to view Amanda Freed-Nguyen's information. You confirm the table contents in step 14.
    i. Save and close the report.

13. Close the database.
14. Verify the *Officers* table record was changed in the back-end database.
    a. Open the ***[your initials] Access 9-5_be*** database file.
    b. Type We@N4s4U in the *Password* box and click **OK**. If a *Microsoft Access Security Notice* displays, click **Open**.
    c. Open the *Officers* table in *Datasheet* view.
    d. Verify that the last name for *Amanda Freed-Nguyen* was updated.
    e. Close the table.
15. Close the database.

Independent Project 9-6

American River Cycling Club wants to improve its database. For this project, you analyze the table structure and the performance of the database. You create a query in SQL that uses a concatenated field. Finally, you split the database to create a back-end and front-end.

[Student Learning Outcome 9.1, Student Learning Outcome 9.3, Student Learning Outcome 9.4, Student Learning Outcome 9.6]

File Needed: ***AmericanRiver-09.accdb*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Names: ***[your initials] Access 9-6.accdb, [your initials] Access 9-6_Backup.accdb, [your initials] Access 9-6_Backup2.accdb,*** *and* ***[your initials] Access 9-6_be.accdb***

Skills Covered in This Project

- Use the *Table Analyzer* tool.
- Back up a database.
- Use the *Performance Analyzer* tool.
- Create a query using *SQL* view.
- Use a concatenated field in an *SQL* query.
- Use the *Database Splitter* tool.

1. Open the ***AmericanRiver-09*** database from your student data files. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close the message. If the message repeats in a later step, click **OK** or the **X** to close the message.
2. Save a new copy of your database as [your initials] Access 9-6.
3. Enable content in the security warning.
4. Analyze the *Members* table.
   a. Click the **Analyze Table** button to open the *Table Analyzer Wizard.*
   b. Advance past the information windows if necessary.
   c. Select the **Members** table and the **Yes**, **let the wizard decide** radio button when prompted.
   d. Move and enlarge the tables in the recommendation so you can read all of the content (Figure 9-120). The wizard suggests moving the *City, State,* and *ZIPCode* fields into a separate table. This solution would result in less storage space. However, you do not anticipate having a significant number of member records and you are more concerned about the increased performance time it takes to join the tables back together. Do not accept this recommendation.

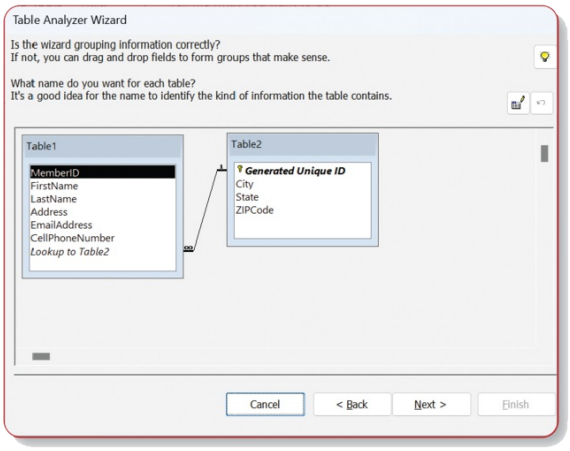


FIGURE 9-120 ***Table Analyzer Wizard*** **recommendations for *Members* table**

   e. Click the **Back** button two times to return to the wizard screen where you can select a table.
5. Analyze the *RaceInformation* table.
   a. Select the **RaceInformation** table and the **Yes**, **let the wizard decide** radio button when prompted. A dialog box displays, informing you that the wizard doesn't recommend any splitting of the table.
   b. Click **Cancel** to exit the wizard.
6. Analyze the *RaceResults* table.

a. Click the **Analyze Table** button to open the *Table Analyzer Wizard*.
b. Advance past the information windows if necessary.
c. Select the **RaceResults** table and the **Yes, let the wizard decide** radio button when prompted.
d. Move and enlarge the tables in the recommendation so you can read all of the content (**Figure 9-121**). The wizard suggests moving the *AgeGroup* field into a separate table. This solution could save space because the *Generated Unique ID* field would be numeric instead of text. However, you are more concerned about the increased performance time it takes to join the tables back together. Do not accept this recommendation.

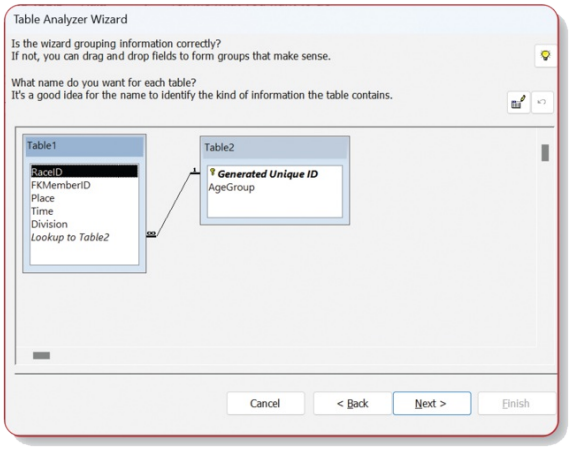


FIGURE 9-121 ***Table Analyzer Wizard*** **recommendations for *RaceResults* table**

e. Cancel the wizard.

7. Back up the database before analyzing the performance. Save the file as [your initials] Access 9-6_Backup.
8. Analyze the performance of the database.
   a. Click the **Analyze Performance** button to open the *Performance Analyzer*.
   b. Analyze all of the objects in the database.
   c. Review the five *Ideas* and one *Suggestion* displayed in the *Analysis Results* window (**Figure 9-122**).

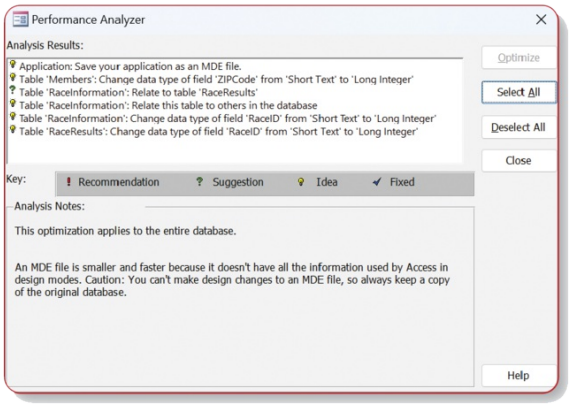


FIGURE 9-122 ***Performance Analyzer*** **potential solutions**

d. Choose to have the *Performance Analyzer* optimize the *Suggestion* to relate the *RaceInformation* table to the *RaceResults* table. Don't implement any of the other potential solutions.

e. Close the *Analyzer.*

9. Edit the new relationship.

a. Open the *Relationships* window.

b. Adjust the size of the table objects and move them if necessary so they are easy to see.

c. Open the *Add Tables* task pane and add the **RaceInformation** table into the window. Move and enlarge the tables if necessary.

d. Edit the relationship between the *RaceResults* and *RaceInformation* tables to select the **Enforce Referential Integrity** and the **Cascade Update Related Fields** check boxes.

e. Review the *RaceResults* table. Note that *RaceID* field in that table doesn't follow the naming recommendation to include the FK designation. You change that below.

f. Save the changes to the relationships and close the *Relationships* window.

10. Modify the RaceResults table.

a. Open the **RaceResults** table in *Design* view.

b. Change the **RaceID** field name to FKRaceID.

c. Save and close the table.

11. Create an *SQL* query to show race results for club members.

a. Open a new query using **Query Design**.

b. Add all three tables into the query and close the *Add Tables* task pane.

c. Add the **MemberID** field into the query.

d. Change to *SQL* view. The SELECT and FROM clauses are started for you. The FROM clause contains the specifics about how the tables are joined.

e. Edit the *SELECT* clause to add a concatenated field. Enter , [FirstName] & " " & [LastName] AS [Member Name], after the word *MemberID*. Be certain to include the comma and space before *[FirstName]*.

f. Edit the *SELECT* clause to add the following field names after the comma following the concatenated field: RaceName, AgeGroup, Place, FinishTime, Division

g. Delete the semicolon (;) at the end of the *FROM* clause.

h. Enter the following *WHERE* clause below the *FROM* clause: WHERE (Division = "M")

i. Enter the following *ORDER BY* clause below the *WHERE* clause: ORDER BY RaceName, AgeGroup, Place;

j. Save the query as MaleRaceResults.

k. Run the query to test it. The results should be similar to those shown in **Figure 9-123**.

MaleRaceResults

Member ID	Member Nar	RaceName	AgeGroup	Place	Time	Division
	Javier Mendoza	Death Ride Tour of the California Alps	>=30 and <40	3	6:47	M
17	Marco Guzman	Death Ride Tour of the California Alps	>=30 and <40	6	7:08	M
3	Ryan Thomas	Death Ride Tour of the California Alps	>=30 and <40	10	7:13	M
18	Dean Teague	Death Ride Tour of the California Alps	>=30 and <40	17	7:25	M
10	Rick Hermenn	Marin Century	>=20 and <30	1	6:40	M
17	Marco Guzman	Party Pardee Metric Century	>=20 and <30	2	4:03	M
14	Randy Clemmir	Party Pardee Metric Century	>=30 and <40	3	4:17	M
3	Ryan Thomas	Party Pardee Metric Century	>=30 and <40	5	4:20	M
5	Margaret Jepso	Tierra Bella Challenge	>=30 and <40	1	6:55	M
4	Roy Baxter	Tierra Bella Challenge	>=30 and <40	3	7:06	M
14	Randy Clemmir	Tierra Bella Challenge	>=30 and <40	4	7:10	M
10	Rick Hermenn	Wine Country Century	>=20 and <30	5	7:09	M
17	Marco Guzman	Wine Country Century	>=20 and <30	9	7:21	M
5	Margaret Jepso	Wine Country Century	>=30 and <40	2	7:07	M
6	Javier Mendoza	Wine Country Century	>=30 and <40	4	7:08	M
(New)						

Record: 1 of 15 No Filter Search

FIGURE 9-123 ***MaleRaceResults*** **query results**

l. Edit the query in *SQL* view to remove the *Division* field from the select statement. Because you are convinced the query works correctly, that field is no longer necessary. Remember to also delete the comma after the *FinishTime* field.

m. Save the changes to the query.

n. Run the query again to ensure you get the same 13 records.

o. Close the query.

12. Back up the database, because the database has changed, before splitting the database. Save the file as [your initials] Access 9-6_Backup2.

13. Split the database. Accept the default file name of ***[your initials] Access 9-6_be***.

14. Close the database.

Advanced Project 9-7 SIMnet Project

Central Sierra Insurance wants you to create a custom *Navigation Pane* to enhance the functionality of its database. For this project, you also encrypt the database with a password and create a PDF file of the database table documentation.

[Student Learning Outcome 9.1, Student Learning Outcome 9.2, Student Learning Outcome 9.3, Student Learning Outcome 9.5]

File Needed: ***CentralSierra-09.accdb*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Names: ***[your initials] Access 9-7.accdb*** and ***[your initials] Access 9-7_Documentation.pdf***

Skills Covered in This Project

- Create an index to optimize a database.
- Create a custom *Navigation Pane*.
- Create a custom category and custom groups.
- Assign objects to groups.
- Modify shortcut properties.
- Hide objects and groups.
- Encrypt a database with a password.
- Use the *Database Documenter* tool.

1. Open the ***CentralSierra-09*** database file and save a new copy of your database as [your initials] Access 9-7. Enable content in the security warning. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close the message. If the message repeats in a later step, click **OK** or the **X** to close the message.
2. Optimize performance by adding an index to the foreign key fields.
   a. Open the *Employees* table in *Design* view.
   b. Change the *Indexed* property of the *FKBranch* field to **Yes (Duplicates OK)**.
   c. Save and close the table.
   d. Open the *Policies* table in *Design* view.

e. Change the *Indexed* property of the *AgentID* field to **Yes (Duplicates OK)**.
f. Save and close the table.

3. Create a category and group for a custom *Navigation Pane*.
   a. Open the *Navigation Options* dialog box.
   b. Add a new category named Employee Relations Main Menu.
   c. Add a new group in this category named Employees.
   d. Add a new group in this category named Branches.
   e. Add a new category named Policies Main Menu.
   f. Add a new group in this category named Policy Information.
   g. Choose to **Show Hidden Objects** if not already selected.
   h. Close the *Navigation Options* dialog box.
4. Assign objects and modify the *Navigation Pane* for the *Employee Relations Main Menu* category.
   a. Change the *Navigation Pane* to display the *Employee Relations Main Menu* category.
   b. Move the **AddNewEmployee** form, **EmployeeInformation** form, **GetBranchParameter** form, **InsuranceAgentsBranchParameter** report, and **NewSalaryCostSummary** report into the *Employees* group.
   c. Move the **Branch** form into the *Branches* group.
   d. Rename the **AddNewEmployee** shortcut Add New Employee.
   e. Rename the **EmployeeInformation** shortcut View and Edit Employee Information.
   f. Rename the **GetBranchParameter** shortcut View Employees by Branch.
   g. Rename the **InsuranceAgentsBranchParameter** shortcut to View Insurance Agents by Branch.
   h. Rename the **NewSalaryCostSummary** shortcut to 3% Salary Increase Cost Summary.
   i. Rename the **Branch** shortcut to View and Edit Branch Details.
   j. Choose to **Disable Design View shortcuts** for each of the shortcuts in the *Employees* and *Branches* groups. Remember that you can select multiple shortcuts before opening the *View Properties* dialog box to make the change.
   k. Hide the **Unassigned Objects** heading.
   l. Widen the *Navigation Pane* if necessary so the entire *Employee Relations Main Menu* text is visible in the title bar. The completed *Navigation Pane* for the *Employee Relations Main Menu* should look similar to **Figure 9-124**.

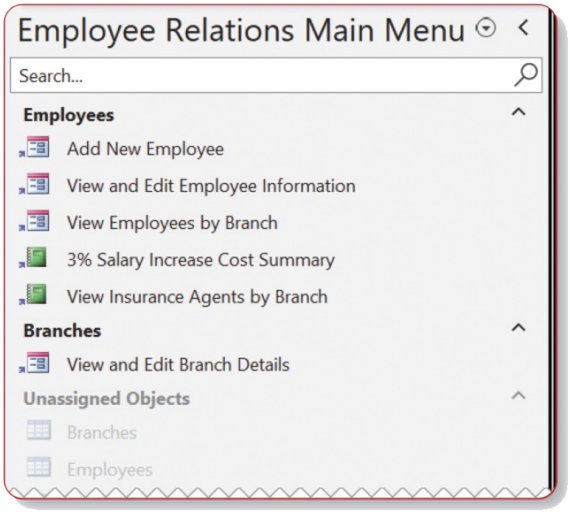


FIGURE 9-124 **Completed *Navigation Pane***

5. Assign objects and modify the *Navigation Pane* for the *Policies Main Menu* category.
   a. Change the *Navigation Pane* to display the *Policies Main Menu* category.
   b. Place the **PolicyQuote** form in the *Policy Information* group.
   c. Rename the **PolicyQuote** shortcut View and Edit Policy Quotes.
   d. Choose to **Disable Design View shortcuts** for the *View and Edit Policy Quotes* shortcut.
   e. Hide the **Unassigned Objects** heading. The completed *Navigation Pane* for the *Policies Main Menu* should look similar to **Figure 9-125**.

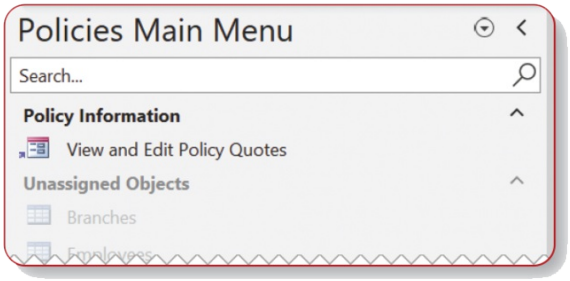


FIGURE 9-125 **Completed *Navigation Pane***

6. Test the custom *Navigation Pane*.
   a. Open the **View and Edit Policy Quotes** shortcut. The *PolicyQuote* form opens in *Form* view.
   b. Close the form.
   c. Select the **Employee Relations Main Menu** category.

d. Open the **View Insurance Agents by Branch** shortcut. The *Enter Parameter Value* dialog box opens. Click **OK**. The *InsuranceAgentsBranchParameter* report opens in *Report* view.
e. Close the report.
f. Close the database but keep Access open.

7. Password protect the database.
   a. Open the ***[your initials] Access 9-7*** database using the *Open Exclusive* option.
   b. Encrypt the database with a password. Use Pr*tect$i*n2 as the password.
   c. Click **OK**. If you get a message about row level locking, click **OK**.
   d. Close the database.
8. Test the password-protected database.
   a. Open the ***[your initials] Access 9-7*** database file.
   b. Enter the password Pr*tect$i*n2 when prompted.
9. Create database documentation for the database tables.
   a. Open the *Documenter* dialog box.
   b. Select all of the tables on the *Tables* tab.
   c. Open the *Print Table Definition* dialog box.
   d. Select the **Properties** and **Relationships** check boxes in the *Include for Table* area if not already selected.
   e. Select the **Names**, **Data Types**, **Sizes**, **and Properties** radio button in the *Include for Fields* area if not already selected.
   f. Select the **Names**, **Fields**, **and Properties** radio button in the *Include for Indexes* area if not already selected. The dialog box selections should match those shown in **Figure 9-126**.

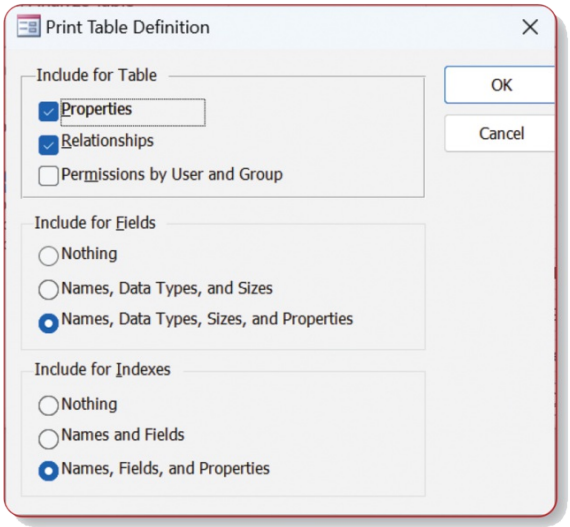
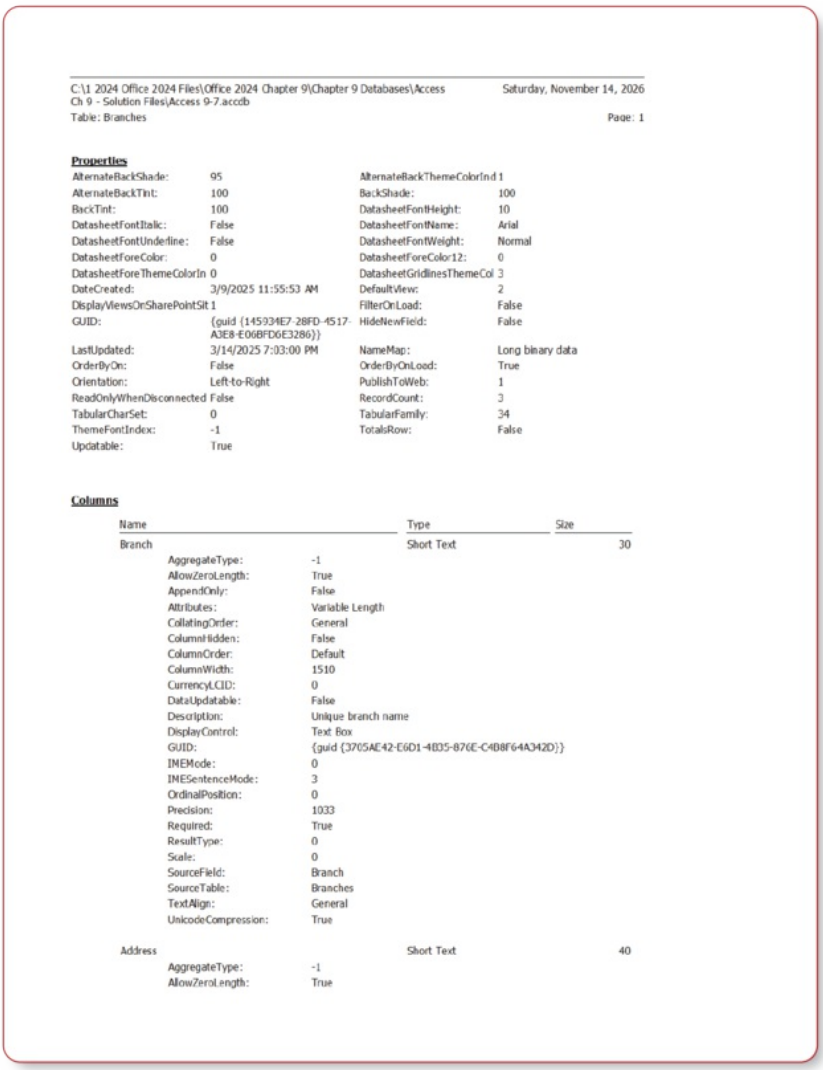


FIGURE 9-126 *Print Table Definition* dialog box

g. Preview the *Database Documenter* report (Figure 9-127).



C:\1 2024 Office 2024 Files\Office 2024 Chapter 9\Chapter 9 Databases\Access Ch 9 - Solution Files\Access 9-7.accdb — Saturday, November 14, 2026

Table: Branches — Page: 1

Properties

AlternateBackShade:	95	AlternateBackThemeColorInd:	1
AlternateBackTint:	100	BackShade:	100
BackTint:	100	DatasheetFontHeight:	10
DatasheetFontItalic:	False	DatasheetFontName:	Arial
DatasheetFontUnderline:	False	DatasheetFontWeight:	Normal
DatasheetForeColor:	0	DatasheetForeColor12:	0
DatasheetForeThemeColorIn	0	DatasheetGridlinesThemeCol	3
DateCreated:	3/9/2025 11:55:53 AM	DefaultView:	2
DisplayViewsOnSharePointSit	1	FilterOnLoad:	False
GUID:	{guid {145934E7-28FD-4517-A3E8-E06BFD6E3286}}	HideNewField:	False
LastUpdated:	3/14/2025 7:03:00 PM	NameMap:	Long binary data
OrderByOn:	False	OrderByOnLoad:	True
Orientation:	Left-to-Right	PublishToWeb:	1
ReadOnlyWhenDisconnected	False	RecordCount:	3
TabularCharSet:	0	TabularFamily:	34
ThemeFontIndex:	-1	TotalsRow:	False
Updatable:	True		

Columns

Name	Type	Size
Branch	Short Text	30
AggregateType:	-1	
AllowZeroLength:	True	
AppendOnly:	False	
Attributes:	Variable Length	
CollatingOrder:	General	
ColumnHidden:	False	
ColumnOrder:	Default	
ColumnWidth:	1510	
CurrencyLCID:	0	
DataUpdatable:	False	
Description:	Unique branch name	
DisplayControl:	Text Box	
GUID:	{guid {3705AE42-E6D1-4B35-876E-C4B8F64A342D}}	
IMEMode:	0	
IMESentenceMode:	3	
OrdinalPosition:	0	
Precision:	1033	
Required:	True	
ResultType:	0	
Scale:	0	
SourceField:	Branch	
SourceTable:	Branches	
TextAlign:	General	
UnicodeCompression:	True	
Address	Short Text	40
AggregateType:	-1	
AllowZeroLength:	True	

FIGURE 9-127 *Print Preview* of the database tables documentation

h. Export the documentation as a PDF file. Locate the folder where you want to save the file, enter [your initials] Access 9-7_Documentation as the file name, and choose to **Open file after publishing**. Click **Publish**. The PDF file opens in your PDF viewer.

i. Navigate through the pages in the PDF file to ensure it was created successfully. The report contains approximately 24 pages. Don't worry if your page count is slightly different.

j. Close the PDF file.

k. Don't save the export steps.
l. Close the **Print Preview**.

10. Close the database.

Copilot Challenge Project 9-8

Use *Copilot* or other generative AI to help you modify the fast-food menu item database used in earlier projects. You analyze the table structure of the database and make any needed improvements. You also create a custom *Navigation Pane*. Next you create an *SQL* query to display data. Finally, you add a password to the database and document the database objects.

[**Student Learning Outcome 9.1**, **Student Learning Outcome 9.2**, **Student Learning Outcome 9.4**, **Student Learning Outcome 9.5**]

File Needed: ***FastFoodNutrition-09.accdb***

Completed Project File Names: ***[your initials] Access 9-8.accdb, [your initials] Access 9-8_Backup.accdb,*** and ***[your initials] Access 9-8_Documentation.pdf***

Open the database ***FastFoodNutrition-09*** and save a copy of it as [your initials] Access 9-8. If a *Security Risk* message or active content is blocked dialog box displays, click **OK** or the **X** to close it. If the message repeats in a later step, click **OK** or the **X** to close the message. Complete the following tasks to modify your database.

Analyze the database design:

- Open the *Relationships* window and review the tables and relationships. Determine whether you think the tables need to be further normalized.
- Open *Copilot* and ask it whether the tables in your database are normalized. In the prompt you may want to include a screenshot of the tables in the *Relationships* window. Review the answer and use follow-up prompts as needed to clarify. Does *Copilot* agree with your assessment?
- Use the *Table Analyzer* in Access to analyze all the tables. Evaluate the recommendations. Do the Access recommendations agree with your assessment and with the *Copilot* assessment?
- Make any refinements you determine are necessary to improve the database design.

Customize the Navigation Pane:

- Ask *Copilot* to help you design a custom *Navigation Pane*. The pane must have at

least one category and at least one group in that category. You may want to include a screenshot of the current *Navigation Pane*. Use follow-up prompts as needed to refine the name(s) of the category and group(s).

- Create the *Navigation Pane* in your database:
  - Create the categories and groups.
  - Assign objects to the appropriate group.
  - Select *Disable Design View shortcuts.*
  - Rename shortcuts to make the shortcut names more helpful to the user.
  - Hide the *Unassigned Objects* heading.
  - Save your changes.

Create a query in *SQL* view that shows the discontinued items:

- Include at least the ID, name, and category for each item along with the company's name. Ask *Copilot* for examples or help as needed.
- Write the *SQL* query which includes the SELECT, FROM and WHERE statements.
- Save and run the query.
- Verify that the query works correctly. Make any needed adjustments.
- Adjust the width of the columns in the query results so that they are sized appropriately.
- Save any changes.

Password protect the database and create database documentation:

- Back up the database prior to adding a password. Save the file as [your initials] Access 9-8_Backup.
- Add a password to the database. Ask *Copilot* for help in completing the task if needed. You may also want to ask *Copilot* for suggestions to create a secure password. Be sure to keep a record of the password you assign to the database.
- Save and close the database.
- Open the database to test that it works correctly. You will need to enter the password you assigned.
- Create a PDF file that contains the documentation of all objects in the database. As needed, ask *Copilot* for help to create the documentation. Save the file as [your initials] Access 9-8_Documentation.
- Close any open objects and the database.

Challenge Project 9-9

For this project, you modify the database you created in ***Challenge Project 8-9*** for Blue Lake Sporting Goods. Your database contains a table with information about the different departments at Blue Lake Sporting Goods and a related table with information about interns, as well as other objects created previously. You back up and then split the database. Next, you password protect the back-end database. In the front-end database, you update linked tables, create a custom *Navigation Pane,* and password protect and lock the database.

[Student Learning Outcome 9.2, Student Learning Outcome 9.4, Student Learning Outcome 9.5]

File Needed: ***[your initials] Access 8-9.accdb***

Completed Project File Names: ***[your initials] Access 9-9.accdb, [your initials] Access 9-9_Backup.accdb, [your initials] Access 9-9_be.accdb,*** and ***[your initials] Access 9-9.accde***

Open the database ***[your initials] Access 8-9*** and save a copy of it as [your initials] Access 9-9.

Modify your database according to the following instructions:

- Back up the database. Save the file as [your initials] Access 9-9_Backup.
- Split the database. Accept the default file name of *[your initials] Access 9-9_be*. Close the database.
- Open the back-end database using the *Open Exclusive* option.
- Password protect the back-end database. Be sure to keep a record of the password you assign to the database. Close the database.
- Open the front-end database.
- Update the linked tables. You will need to enter the password you assigned to the back-end database.
- Customize the *Navigation Pane*. Add at least one category and add at least one group into that category.
- Assign objects to the appropriate group.
- Select *Disable Design View shortcuts*.
- Rename shortcuts to make the shortcut names more helpful to the user.
- Hide the *Unassigned Objects* heading.
- Close the database.
- Open the front-end database using the *Open Exclusive* option.
- Password protect the front-end database. Be sure to keep a record of the

password you assign to the database. Close the database.

- Lock the front-end database by using the *Make ACCDE* option. Accept the default file name of *[your initials] Access 9-9.accde.* Close the database.
- Open the locked database to verify it works correctly. You will need to enter the password you assigned to the front-end database.
- Close any open objects and the database.

Challenge Project 9-10

For this project, you modify the database you created for a travel agency in ***Challenge Project 8-10***. Your database contains a *Ships* table with information about the different ships. The *Ships* table has a one-to-many relationship with the *Trips* table, which contains specific details about upcoming cruises. The database also contains a *TripInformation* table that contains overview information about the trips. The *TripInformation* table has a one-to-many relationship with the *Trips* table. Analyze the table structure in the database. Create a custom *Navigation Pane,* password protect the database, and document the database tables.

[Student Learning Outcome 9.1, Student Learning Outcome 9.2, Student Learning Outcome 9.5]

File Needed: ***[your initials] Access 8-10.accdb***

Completed Project File Names: ***[your initials] Access 9-10.accdb*** and ***[your initials] Access 9-10_Documentation.pdf***

Open the database ***[your initials] Access 8-10*** and save a copy of it as [your initials] Access 9-10.

Modify your database according to the following instructions:

- Use the *Table Analyzer* to analyze all the tables. Evaluate the recommendations and accept the ones that are appropriate.
- Customize the *Navigation Pane.* Add at least one category and at least one group into that category.
- Assign objects to the appropriate group.
- Select *Disable Design View shortcuts.*
- Rename shortcuts to make the shortcut name more helpful to the user.
- Hide the *Unassigned Objects* heading.
- Password protect the database. Be sure to keep a record of the password you assign to the database.

- Create a PDF file that contains the documentation of all tables in the database. Save the file as [your initials] Access 9-10_Documentation.
- Close any open objects and the database.

Source of screenshots Microsoft Office 365 (2024): Word, Excel, Access, PowerPoint.

CHAPTER 10
Customizing Access and Using OneDrive and Office Online

A10-796

CHAPTER OVERVIEW

Throughout this book, you have learned how to create and work with databases using the many features of Access. This chapter explains how you can customize Access settings to personalize your working environment. Microsoft 365 and Office 2024 also integrate with "cloud" technology, which enables you to use your Office files and Office settings to roam with you and enables you to share *OneDrive* files with others. With these online features, you are not limited to using Office on only one computer, and you don't have to save your files on a USB drive or portable hard drive to have access to your files.

STUDENT LEARNING OUTCOMES (SLOs)

After completing this chapter, you will be able to:

- **SLO 10.1** Customize Access options, the *Ribbon,* and the *Quick Access* toolbar to personalize your working environment (p. A10-797).
- **SLO 10.2** View and modify Office account settings (p. A10-812).
- **SLO 10.3** Use *OneDrive* to create, upload, move, copy, delete, and download files and folders (p. A10-818).
- **SLO 10.4** Share *OneDrive* files and folders (p. A10-824).
- **SLO 10.5** Use *Office Online* to edit, create, share, collaborate, and comment on a document (p. A10-827).
- **SLO 10.6** Explore *Copilot* and other *Microsoft 365* apps and productivity tools (p. A10-836).

CASE STUDY

For the Pause & Practice projects in this chapter, you modify Access settings and use Microsoft cloud services to save, edit, and share documents for Placer Hills Real Estate.

Pause & Practice 10-1: Customize the Access working environment and Office account settings.

Pause & Practice 10-2: Use *OneDrive, Word Online,* and *Excel Online* to create, edit, save, and share documents.

Pause & Practice 10-3: Create and share a *Form* using *Office Online.*

SLO 10.1

Customizing Access

In previous chapters, you have used Access features to customize different database objects, such as tables, forms, reports, and queries. The focus of this section is to customize Access settings, which are global settings that apply to all the databases you create and use in Access. Customize Access settings in the ***Access Options*** dialog box, which you open from the *Backstage* view. Once implemented, these options apply to all databases.

Access Options

The *Access Options* dialog box displays settings in 11 categories. Within each category, you change individual settings by selecting or deselecting a check box or selecting from a drop-down list. Buttons in the *Access Options* dialog box open a dialog box to display additional customization settings. The following list includes the different categories in the *Access Options* dialog box. Each category, except *Add-ins,* is discussed further in the sections that follow.

- *General*
- *Current Database*
- *Datasheet*
- *Object Designers*
- *Proofing*
- *Language*
- *Client Settings*
- *Customize Ribbon*
- *Quick Access Toolbar*
- *Add-ins*
- *Trust Center*

MORE INFO

Add-ins are programs that add specialized functionality to your Office programs. Examples of add-in programs include Google Desktop or Acrobat PDFMaker. However, because Access does not recognize many add-ins, this category is not discussed further in this chapter.

HOW TO: Customize Access Options

1. Click the **File** tab to open the *Backstage* view.
2. Click **Options** to open the *Access Options* dialog box (Figure 10-1).

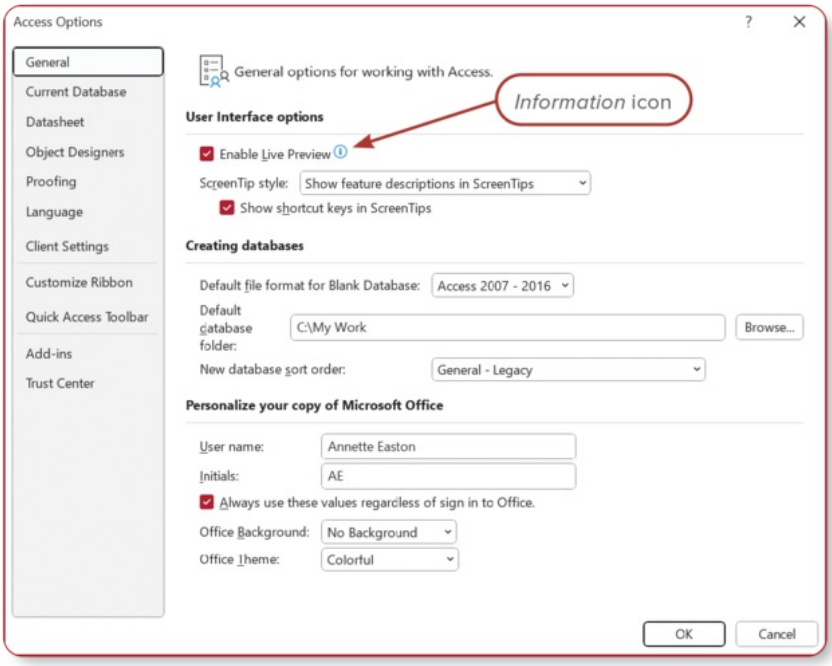


FIGURE 10-1 ***Access Options*** **dialog box**

3. Click a category on the left to display the available options on the right.
4. Change options using check boxes, text boxes, drop-down lists, or buttons.
   - When you click a button, such as *AutoCorrect Options* in the *Proofing* category, a dialog box with additional option settings opens.
5. Click **OK** to close the *Access Options* dialog box and apply the settings.
   - Many of the settings take effect immediately.
   - In other cases, you may need to close and reopen the database for the changes to take effect. Access displays a message box if you need to do this.

MORE INFO

The settings in your database may be different than the settings shown in the figures in this section. These differences may be due to changes you made while working on different

database projects or changes made by the system administrator if you are using Access in a lab environment.

General

The *General* category includes the following areas: *User Interface options, Creating databases,* and *Personalize your copy of Microsoft Office* (see **Figure 10-1**).

In the *User Interface options* area, you can enable or disable *Live Preview* and customize the *ScreenTip* style. Remember that *ScreenTips* are the hints that display when you hover over a button or option.

MORE INFO

Place your pointer on the *Information* icon (see **Figure 10-1**) at the end of a selection to display information about that selection.

In the *Creating databases* area, set the default format for a new database. You can also choose the default folder for saving new databases and files. Click the **Browse** button to select a different default save location, such as *OneDrive.* Finally, you can change the default sort order used by the databases. The sort order options reflect different languages and how sorting is handled in each language.

In the *Personalize your copy of Microsoft Office* area, change your user name and initials, make it so your Access settings are imposed for all users on the current computer, and change the Office background and theme. To use the current user name and initials as the default setting for all users, check the **Always use these values regardless of sign in to Office** check box.

MORE INFO

Changing the options in the *Personalize your copy of Microsoft Office* area affects all Microsoft Office programs installed on your computer.

Current Database

In the *Current Database* options category, modify settings that are applied only to the current database instead of to all databases. This enables you to create an individualized look to a database. The options are divided into seven different groupings (**Figure 10-2**). The first three groups, *Application Options, Navigation,* and *Ribbon and Toolbar Options,* contain the settings you

are most likely to modify.

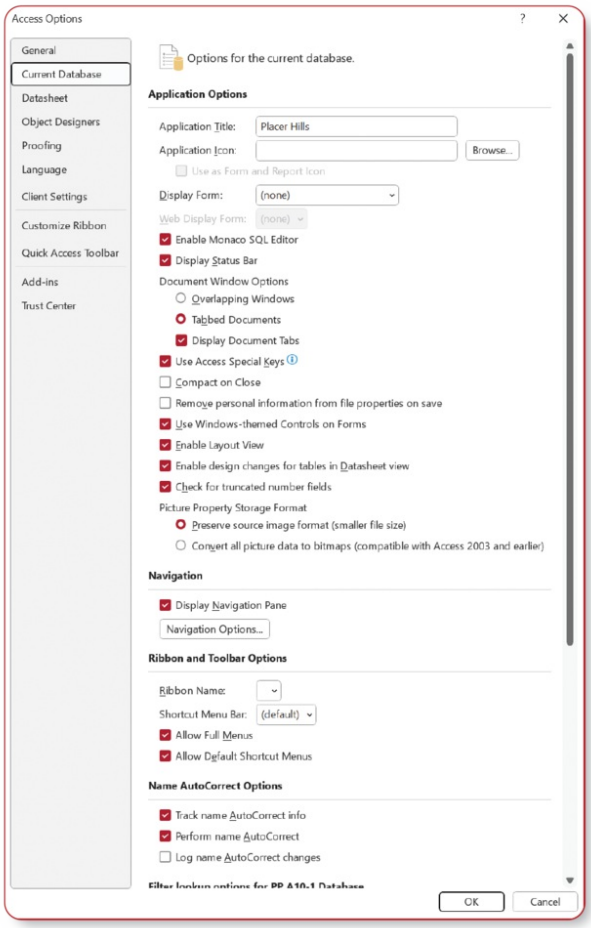


FIGURE 10-2 ***Current Database*** **options in the** ***Access Options*** **dialog box**

A10-799

MORE INFO

The options in the *Current Database* category are dimmed if you do not have a database open.

In the *Applications Options* category, customize how objects and database options display. Enter an *Application Title* to display in the *Title* bar at the top of the database instead of the database file name and path. You can also display a custom icon in the upper-left corner of the *Title* bar instead of displaying the Access icon. **NOTE:** The ability to change the *Application Title* may not be available if you are using *Windows 10.*

The *Display Form* box lets you select a form name which will open automatically when the

database is opened. You learned about the *Enable Monaco SQL Editor* setting in ***SLO 9.6: Using SQL***. Other settings include changing the *Document Window Options* display of open objects from the default *Tabbed Documents* (**Figure 10-3**) to *Overlapping Windows* (**Figure 10-4**).

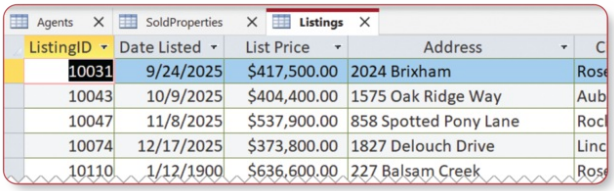


FIGURE 10-3 ***Tabbed Documents*** **option**

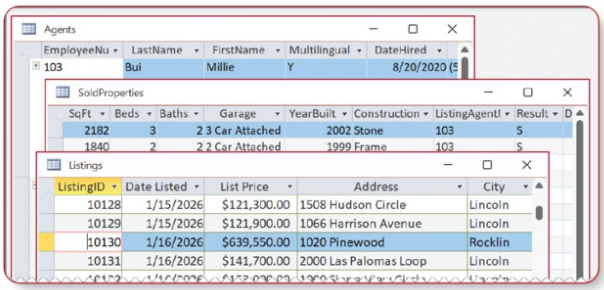


FIGURE 10-4 ***Overlapping Windows*** **option**

You can also choose whether to display the *Status* bar at the bottom of the Access window, automatically compact the database when it is closed, enable or disable *Layout* view as an option for forms and reports, and enable or disable changing the design of a table in *Datasheet* view.

In the *Navigation* category, choose to display or hide the *Navigation Pane* when the database is opened. Deselect the check box if you have created the interface to contain forms that provide all navigation capabilities. You can also click the *Navigation Options* button to open the *Navigation Options* dialog box. Refer to ***SLO 9.2: Customizing the Navigation Pane*** for information about using this dialog box to modify navigation categories and groups.

In the *Ribbon and Toolbar Options* category, select a custom *Ribbon,* change the default menu bar used for shortcut menus, and choose to allow or disallow full menus and the use of shortcut menus. If you deselect the **Allow Full Menus** box, only the *File* and *Home* tabs display on the *Ribbon.* This prevents users from making design changes to the database objects. Additionally, the *Save* and *Save As* options are not available on the *File* tab. If you deselect the **Allow Default Shortcut Menus** box, shortcut menus do not display if a user right-clicks inside a form or report.

MORE INFO

If you deselect the **Allow Full Menus** box, the name of the *Options* button on the *File* tab changes to *Privacy Options.* Click the **Privacy Options** button [*File* tab] to open the *Access Options* dialog box and alter any of these settings.

A10-800

In the *Name AutoCorrect Options* category, change settings related to how Access tracks and modifies object and field name changes. The default settings track and automatically change names. This is useful because, if you rename an object or control, Access automatically updates other objects or controls that refer to the renamed object or control. For example, if you change the name of a field in a table from *CustomerID* to *CustID,* all of the forms, reports, and queries that used the *CustomerID* field are updated to use the *CustID* field.

The last three categories, *Filter lookup options for [Database Name] Database, Caching Web Service and SharePoint tables,* and *Data Type Support Options* enable you to modify how lists display when filtered, modify the settings used for storing temporary files with web databases, and determine whether to support the *Large Number* and *Date Time Extended* data types when linking or importing tables.

Datasheet

In the *Datasheet* options category, change how database content displays in *Datasheet* view of tables and queries (**Figure 10-5**). In the *Gridlines and cell effects* area, show or hide horizontal and vertical gridlines between cells, modify the appearance of a cell, and change the default column width.

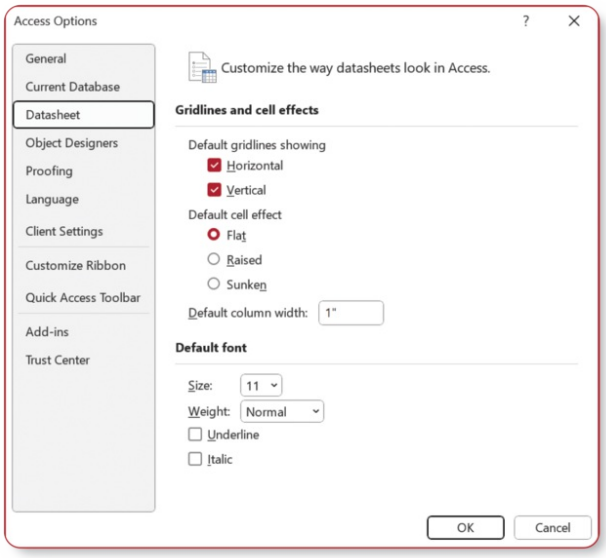


FIGURE 10-5 ***Datasheet* options in the *Access Options* dialog box**

In the *Default font* area, set the size, weight, underline, and italics settings for the font used in *Datasheet* view. Remember that in *Datasheet* view the changes apply to all of the fields, not just selected fields.

MORE INFO

These changes affect new and existing databases. In existing databases, the changes will not replace any settings you had previously made. For example, if you reduced the width of a specific field in a table, that smaller width remains even if you change the *Default column width* setting. To change the format of an existing object, open the object in *Datasheet* view and modify the desired option [*Home* tab, *Text Formatting* group] or change the width of the column.

Object Designers

In the *Object Designers* category, you control the settings and options used in *Design* view of the different database objects (**Figure 10-6**).

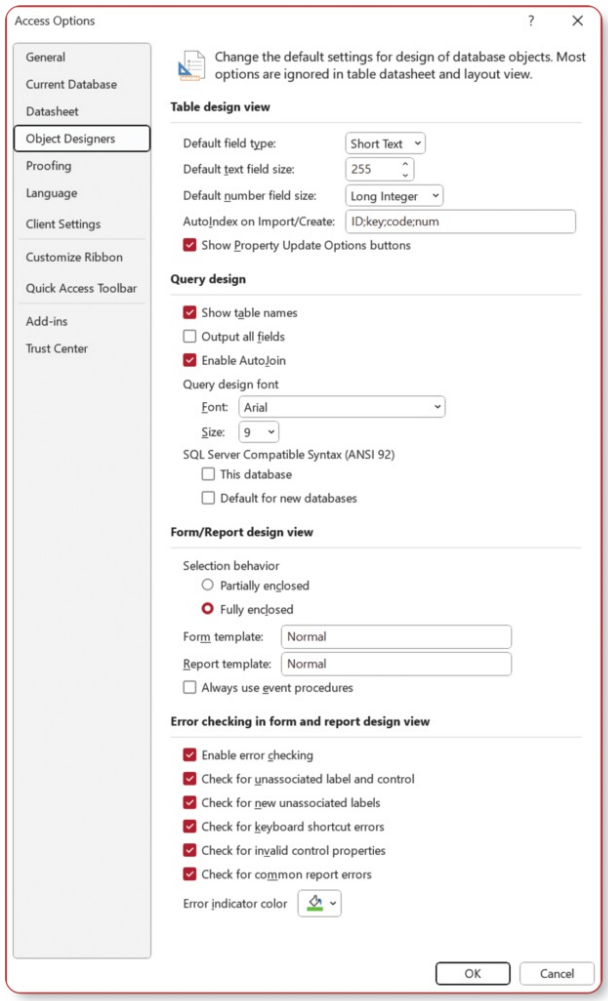


FIGURE 10-6 ***Object Designers*** **options in the** ***Access Options*** **dialog box**

In the *Table design view* area, set the default data type in a new field. You can also set the default size of a short text field and change the default field size assigned to number fields.

The *AutoIndex on Import/Create* option tells Access to automatically create an index for any fields with names that contain the characters entered in the box. Different character sets are separated by a semicolon. For example, for the values in Figure 10-6, any field name that contains the characters *ID, key, code,* or *num* is automatically indexed. Change the values in the box to include commonly used naming conventions that should be indexed.

If the *Show Property Update Options buttons* box is checked, a *Property Update Options* button displays if you change certain properties of a table field. Access gives you the option to automatically make corresponding changes in other objects that use that field.

The *Query design* area pertains to settings and options used in *Design* view of a query. *Show table*

names controls whether Access shows or hides the *Table* row in the query grid. If *Output all fields* is checked, Access automatically adds a *Select* * to the SQL statement of a new query. Recall that *Select* * displays all fields. If checked, *Enable AutoJoin* automatically creates a join in a query between two tables that have fields with the same name and data type. You can also change the font and font size used in the query grid. This selection does not affect how the query results display in *Datasheet* view.

Change settings that control *Design* view for forms and reports in the *Form/Report design view* area. The *Selection behavior* radio buttons determine how Access responds when controls are selected. **Figure 10-7** shows a selection rectangle fully surrounding the *EmployeeNum* label, *EmployeeNum* text box, and *LastName* label, but only partially covering the *LastName* text box. When the pointer is released, if the *Fully enclosed* radio button is selected, the *LastName* text box is not selected (**Figure 10-8**). If the *Partially enclosed* radio button is selected, both labels and both text boxes are selected. Use the *Form template* or *Report template* boxes to designate a different template file as the starting template for new form and report objects.

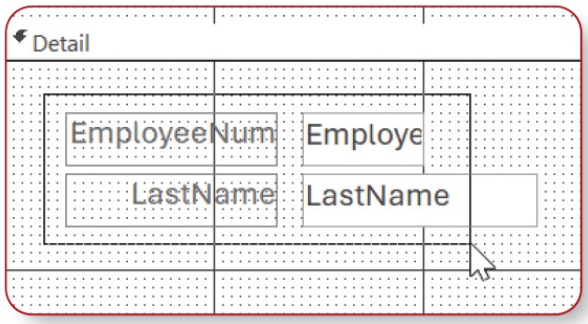


FIGURE 10-7 Selection rectangle dragged over controls

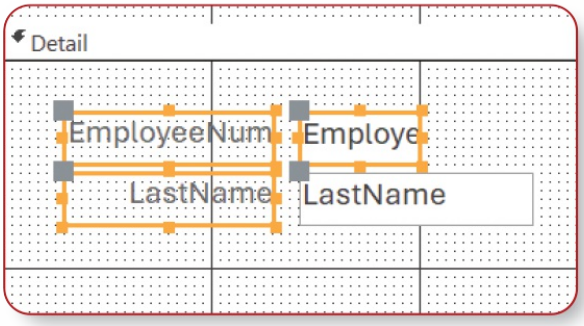


FIGURE 10-8 The *LastName* text box is not selected

The *Error checking in form and report design view* area provides options about how and what you want Access to check related to errors. Uncheck any options you don't want Access to automatically check. You can also change the color that displays in a control to indicate an error.

MORE INFO

Most of the *Object Designers* settings have no impact when viewing an object in *Datasheet* or *Layout* view.

A10-802

Proofing

In the *Proofing* category of the *Access Options* dialog box, you change how Access corrects and formats the content in your databases and how it indicates errors (Figure 10-9). Keep in mind that the spell checker in Access only checks the spelling of the actual data values entered into the table fields. It does not check the spelling of object or control names. To spell check the contents of data records, click the **Spelling** button [*Home* tab, *Records* group] in *Datasheet* view of a table or query, or *Form* view of a form. The settings you change in the *Proofing* category affect the way spell check operates.

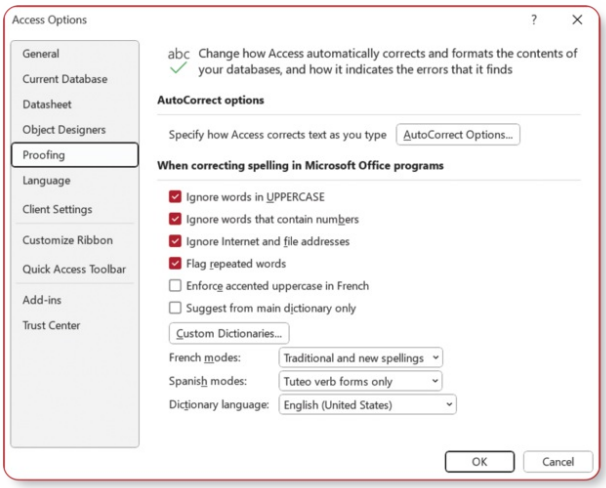


FIGURE 10-9 ***Proofing*** **options in the** ***Access Options*** **dialog box**

AutoCorrect is the feature that works in the background when you type text into a field. To change the way *AutoCorrect* functions, click the **AutoCorrect Options** button to open the *AutoCorrect* dialog box (Figure 10-10). Select or clear the check box of the options you wish to modify. While many of the entries in the *Replace With* area define common misspellings or typos (for example, *Replace* accommodate *With* accommodate), you can also enter values to help you easily enter special characters (for example, you can automatically *Replace* (c) *With* ©). To add a new entry, type the text you want to replace in the *Replace* box and type the new text in the *With* box. The *Add* button becomes active. Click the **Add** button to finish adding the entry to the *Replace With* list. Click **OK** to close the dialog box.

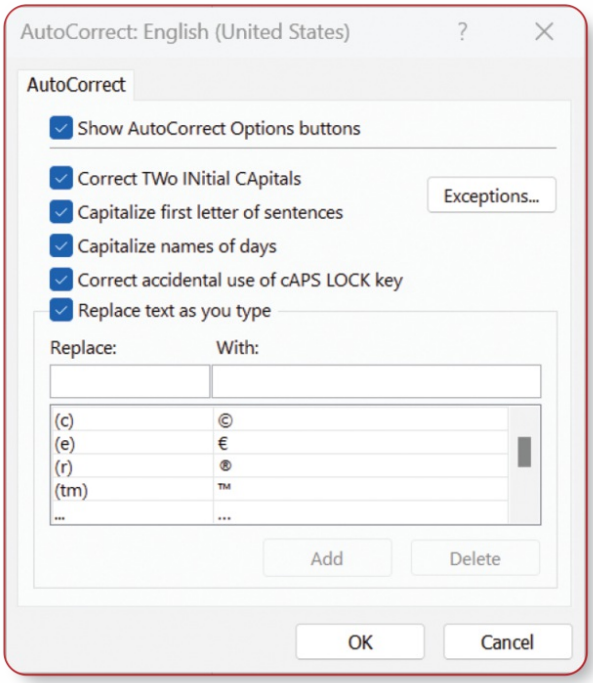


FIGURE 10-10 ***AutoCorrect: English (United States)*** **dialog box**

Change settings related to how the spell checker functions in the *When correcting spelling in Microsoft Office programs* area. Access is, by default, set to ignore words in uppercase, words that contain numbers, and internet and file addresses. Click the **Custom Dictionaries** button to open the *Custom Dictionaries* dialog box to add, edit, or delete words from the custom dictionary.

MORE INFO

Many options in the *Proofing* category apply to all Office applications and files.

MORE INFO

If any options are dimmed, you must open a database to make them available.

A10-803

Language

The *Language* category controls the language preferences in Access and the other Office programs

you use (Figure 10-11).

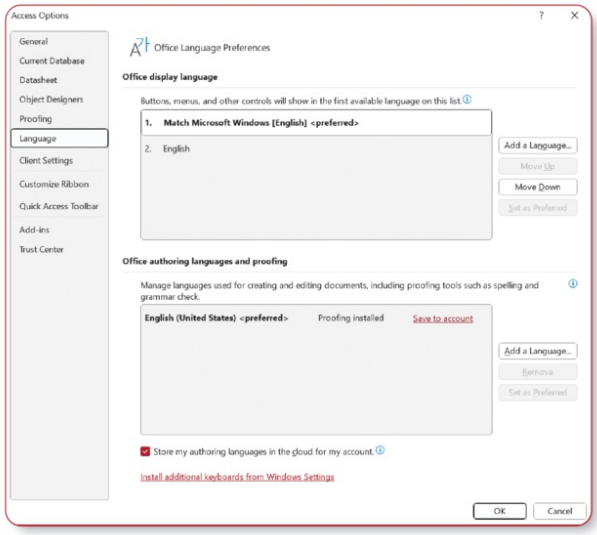


FIGURE 10-11 ***Language*** **options in the** ***Access Options*** **dialog box**

The *Office display language* area enables you to select the language for menus, buttons, and other controls.

In the *Office authoring languages and proofing* area, select the language to use for spelling, grammar, dictionaries, and sorting. Also, add a new language, set a different default language, or remove a language.

MORE INFO

The language settings in Office are determined by the default language you selected when you installed Windows.

Client Settings

The *Client Settings* category provides you with a variety of customization options including those that control how Access behaves, determine what displays on the screen, and set printing defaults (Figure 10-12). For example, modify the *Move after enter* option to change where the focus moves when the user presses the *Enter* key in *Datasheet* view. Or modify the *Show this number of Recent Databases* value to change how many databases display in the *Recent* area on the *Backstage* view. The following is a list of six different areas in the *Client Settings* category. Scroll through each of these areas to familiarize yourself with the different customization options available.

- *Editing*

- *Display*
- *Printing*
- *General*
- *Advanced*
- *Default Theme*

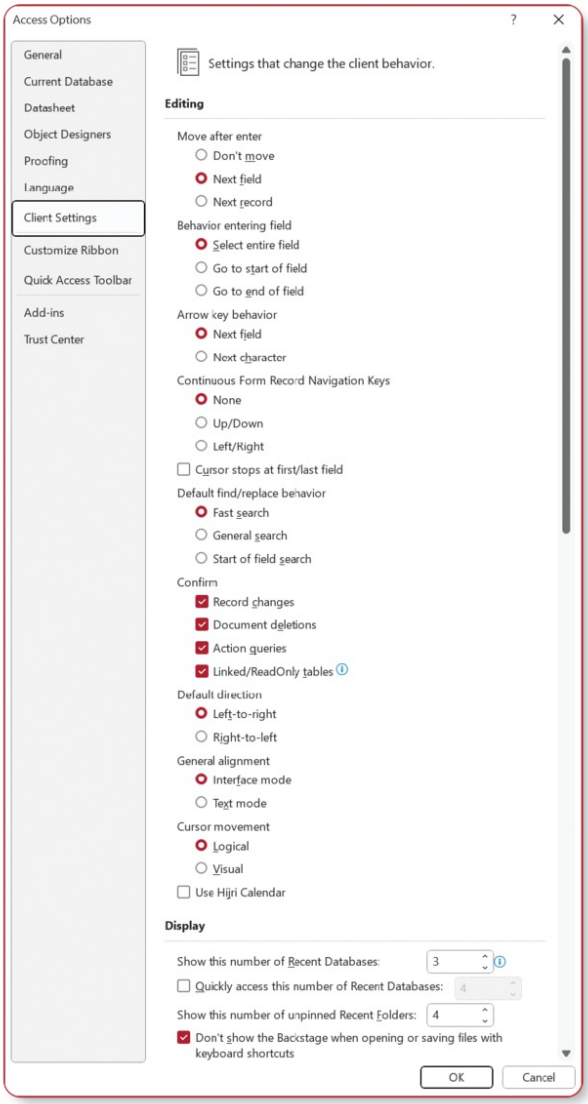


FIGURE 10-12 ***Client Settings*** **options in the** ***Access Options*** **dialog box**

MORE INFO

The *Customize Ribbon* and *Quick Access Toolbar* categories in the *Access Options* dialog box are covered later in this section.

Trust Center

In the *Trust Center* category (**Figure 10-13**), you review and modify settings that help protect your documents and prevent your documents and computer from becoming infected with viruses. Open the *Microsoft Trust Center* web page to read additional information about protecting your privacy and security.

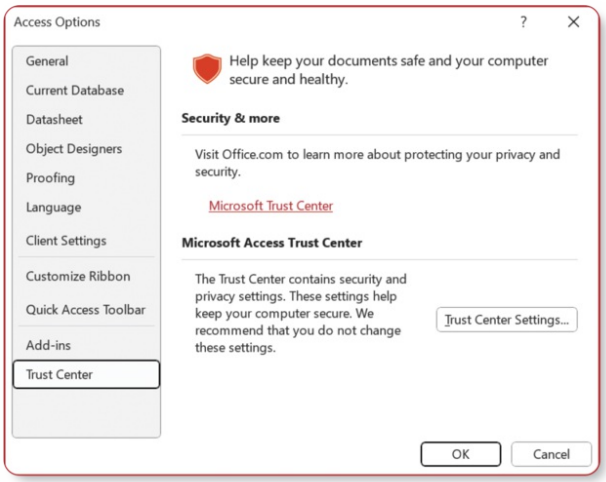


FIGURE 10-13 ***Trust Center*** **options in the** ***Access Options*** **dialog box**

To keep your documents and computer safe, it is generally recommended that you do not change the default settings in the *Trust Center.* Discuss potential changes with your system administrator prior to making any changes.

COPILOT/GENERATIVE AI BEST PRACTICES

The *Trust Center* in the Microsoft 365 apps control what type of files can be opened in the apps and the files that are restricted because of potential viruses or malware. Use *Copilot* or another generative AI product to learn types of restricted files in Microsoft 365 and why they are restricted. Use follow-up prompts to learn about best practices for keeping your computer safe from potential threats.

If you decide to change the default settings, follow the instructions below.

HOW TO: Customize Trust Center Settings

1. Click the **File** tab to open the *Backstage* view.

2. Click **Options** to open the *Access Options* dialog box.
3. Click the **Trust Center** button on the left.
4. Click the **Trust Center Settings** button (see **Figure 10-13**) to open the *Trust Center* dialog box (**Figure 10-14**).

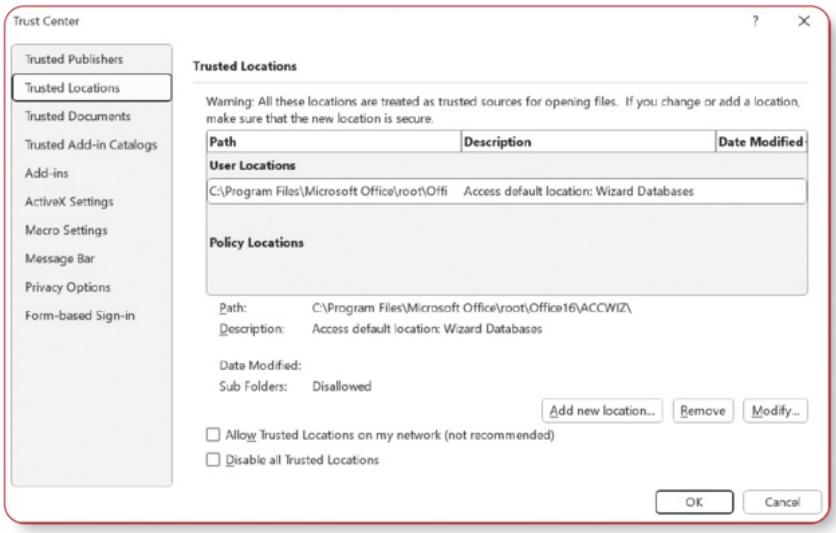


FIGURE 10-14 ***Trust Center*** **dialog box**

5. Click the different categories on the left to view the available options. Make changes only as needed.
6. Click **OK** to close the *Trust Center* dialog box.
7. Click **OK** to close the *Access Options* dialog box.

As you know, when you open a database that is not trusted, Access displays the *Security Warning.* If you trust the database, click the **Enable Content** button to enable the macros and any other potentially dangerous content. This database then becomes a *Trusted Document.* When you open the database again, Access does not display the *Security Warning.*

A10-805

Two *Trust Center* categories you may wish to review with your system administrator are *Trusted Documents* and *Trusted Locations.* Use the *Trusted Documents* category to disable *Trusted Documents* and to clear all *Trusted Documents.* In the *Trusted Locations* category, you can add and modify folders that are considered *Trusted Locations,* and remove folders that no longer should be trusted. When you open a database stored in a *Trusted Location,* Access does not disable macros and other content in that database.

Customize the Ribbon

The Access *Ribbon* includes many of the common commands you use, but not all available commands are included on the *Ribbon.* Customize the *Ribbon* to add a new group to a tab or to add commonly used commands into a group. For example, create a new group on the *Home* tab to include a button to open the *Saved Imports* dialog box and another button to open *Print Preview.* Or create a custom tab with groups and add command buttons you regularly use into groups on that tab. Alternatively, you may want to customize the *Ribbon* by removing tabs, groups, or commands.

A custom *Ribbon* applies to a specific Windows user account. All Access databases that are opened when you are logged into a computer with that Windows user account use the custom *Ribbon.* This means that each database does not have its own custom *Ribbon.* Keep this in mind as you decide which types of customization to implement.

MORE INFO

You can add commands to custom groups, but you cannot add or remove commands in existing groups.

A10-806

HOW TO: Add a Tab, Group, and Commands to the Ribbon

1. Right-click anywhere on the **Ribbon** and select **Customize the Ribbon** from the context menu. The *Access Options* dialog box opens and displays the *Customize Ribbon* area (Figure 10-15).

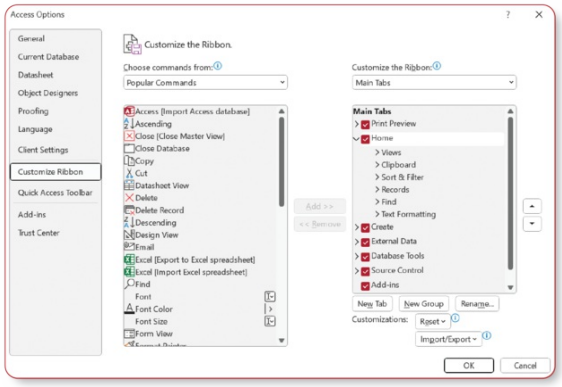


FIGURE 10-15 ***Customize Ribbon*** **area of the** ***Access Options*** **dialog box**

- Alternatively, click the **File** tab to open the *Backstage* view, click **Options** to open the *Access Options* dialog box, and select **Customize Ribbon**.

- The left side lists the available commands and groups, and the right side lists the existing tabs and groups displayed on the *Ribbon*.
- The drop-down lists at the top of each of the lists provide you with other commands and tabs to display in these lists.
- Click the **expand arrow** to the left of a tab or group to see a more detailed listing of the contents.
- Click the **collapse arrow** to the left of a tab or group to collapse the detailed listing.
- The drop-down lists at the top of each of the lists provide you with other commands and tabs to display in these lists.

2. Click a tab on the right that is immediately above the new tab you will insert.
3. Click the **New Tab** button. A new custom tab and group are inserted below the selected tab.
4. Select **New Tab (Custom)** and click **Rename** to open the *Rename* dialog box.
5. Type the name of the new tab and click **OK** (Figure 10-16).

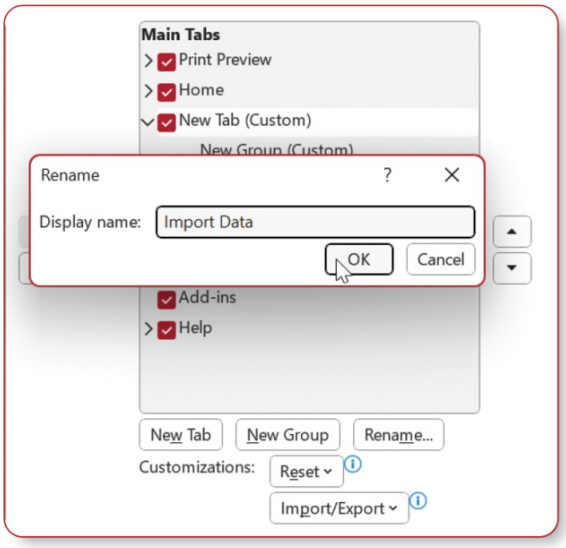


FIGURE 10-16 **Rename a new tab**

- In the list on the right, custom tabs and groups display with "(Custom)" following their name.

6. Select **New Group (Custom)** and click **Rename** to open the *Rename* dialog box.
7. Type the new group name in the *Display name* box, select a symbol (optional), and click **OK** to close the *Rename* dialog box (Figure 10-17).

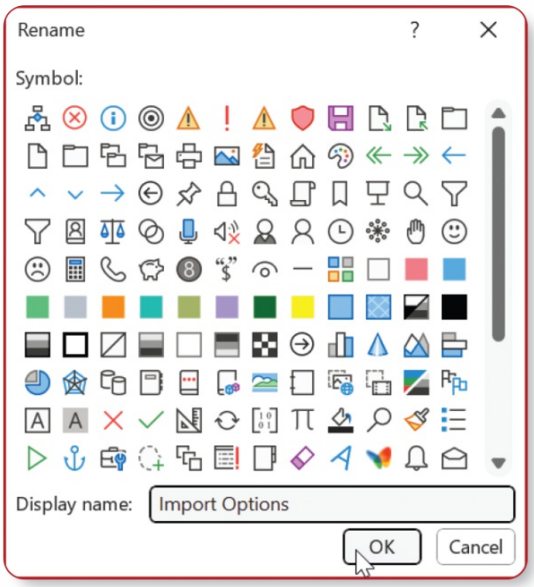


FIGURE 10-17 Rename a new group

- A symbol only displays when the Access window is sized very small and the *Ribbon* does not have enough space to display the commands in that group. In Figure 10-18, a symbol displays for the *Forms, Reports,* and *Macros & Code* groups. Click the **arrow** below the symbol to view the commands in that group.

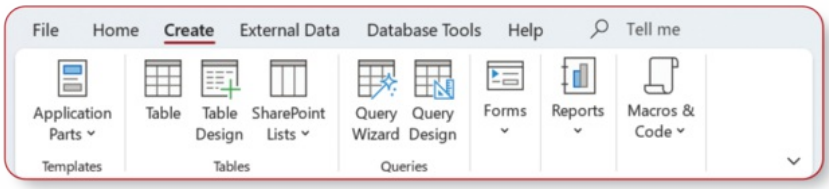


FIGURE 10-18 Symbols display on the *Ribbon*

8. Select the custom group on the right where you want to add a command.
9. Click the **Choose commands from** drop-down list on the left side and select **All Commands** to display all the available commands.
10. Select a command to add to the group and click the **Add** button between the two lists to add the command to the group (Figure 10-19). Continue adding additional commands to the group.

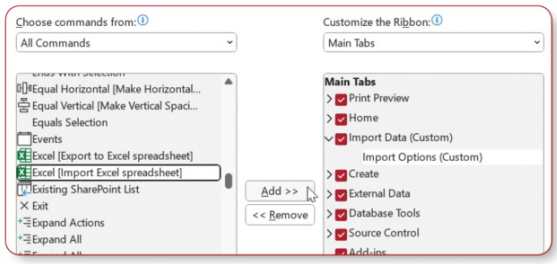


FIGURE 10-19 **Add a command to a custom group**

11. Click **OK** to close the *Access Options* dialog box.
    - The new tab and group display on the *Ribbon* (Figure 10-20).

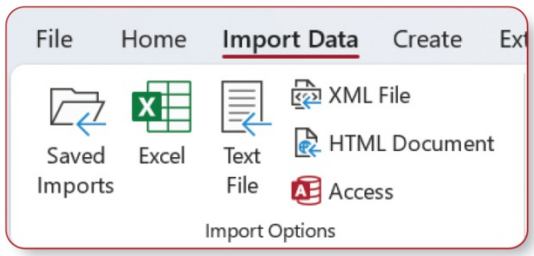


FIGURE 10-20 **Custom tab, group, and commands on the *Ribbon***

    - If you have not added commands into a group, the custom tab will display but the custom group name will not.

You can rearrange the tabs on the *Ribbon,* groups on a tab, and commands in a custom group. Doing so enables you to organize tasks to be more productive. You cannot rearrange existing commands within existing groups.

A10-807

HOW TO: Rearrange Tabs, Groups, and Commands on the Ribbon

1. Right-click anywhere on the **Ribbon** and select **Customize the Ribbon** from the context menu. The *Access Options* dialog box opens and displays the *Customize Ribbon* area.
2. Select the command, group, or tab you want to rearrange. The selected item displays with a white background.
3. Click the **Move Up** or **Move Down** button to rearrange the selected item (Figure 10-21).

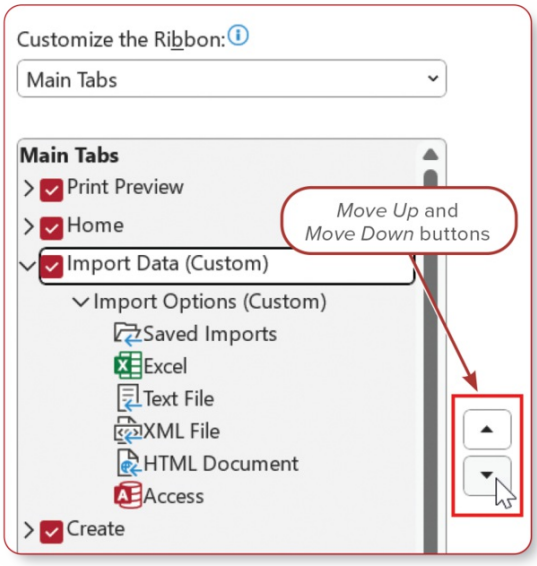


FIGURE 10-21 **Rearrange a tab on the *Ribbon***

- You can also drag and drop the tab or group name to a new position.

4. Click **OK** to close the *Access Options* dialog box.

ANOTHER WAY

In the *Customize Ribbon* area of the *Access Options* dialog box, right-click an item on the right side and select **Add New Tab**, **Add New Group**, **Rename**, **Remove**, **Show Tab**, **Reset Tab**, **Move Up**, or **Move Down** from the context menu. The available options vary based on whether you selected a tab or group.

Customize the Quick Access Toolbar

The ***Quick Access toolbar*** displays frequently used commands. In the latest version of Access and Office 365, the *Quick Access* toolbar is hidden by default. To display the *Quick Access Toolbar,* you first choose to show the *Quick Access* toolbar and then choose to display it above or below the *Ribbon.*

HOW TO: Show the Quick Access Toolbar

1. Click the **Ribbon Display Options** button (bottom-right corner of *Ribbon*), if the *Quick Access Toolbar* is not visible, and select **Show Quick Access Toolbar** or

right-click the *Ribbon* and select **Show Quick Access Toolbar**.

ANOTHER WAY

In the *Quick Access Toolbar* area of the *Access Options* dialog box, select the **Show Quick Access Toolbar** check box.

2. Click the **Customize Quick Access Toolbar** drop-down button and select **Show Above the Ribbon** or **Show Below the Ribbon** to customize placement of the toolbar (**Figure 10-22**).

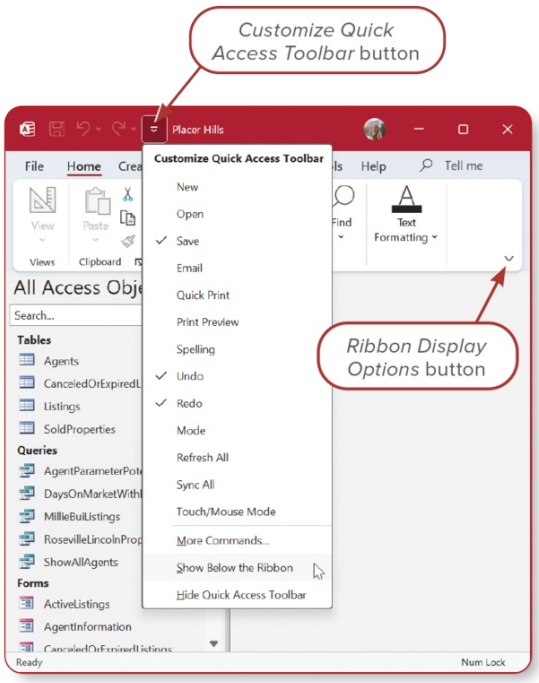


FIGURE 10-22 Select the display location of the *Quick Access* toolbar

- When displayed above the *Ribbon,* only the toolbar buttons display.
- When displayed below the *Ribbon,* toolbar buttons and the button text (such as *Undo*) also displays.

ANOTHER WAY

In the *Quick Access Toolbar* area of the *Access Options* dialog box, select **Above Ribbon** or **Below Ribbon** in the *Toolbar Position* drop-down list (see **Figure 10-23**).

To hide the *Quick Access toolbar,* click the **Ribbon Display Options** button (bottom-right corner of *Ribbon*) or right-click the *Ribbon* and select **Hide Quick Access Toolbar**.

If you choose to display and use the *Quick Access* toolbar, add commands you use frequently from either the *Customize Quick Access Toolbar* drop-down list or the *Quick Access Toolbar* area in the *Access Options* dialog box. The *Save, Undo,* and *Redo* commands are the default commands added to the *Quick Access* toolbar that display in all databases.

When customizing *the Quick Access* toolbar, changes, by default, apply to all documents. You can add and remove commands on the toolbar that displays in all databases. You can also choose to add commands that apply only to the current database. To make changes that apply only to the current database, you must use the *Access Options* dialog box instead of the drop-down list.

HOW TO: Customize the Quick Access Toolbar

1. Click the **Customize Quick Access Toolbar** drop-down button.
   - Items on the *Customize Quick Access Toolbar* drop-down list with a check mark (see **Figure 10-22**) are commands already assigned to display on the *Quick Access* toolbar.
2. Select a command to add to the *Quick Access* toolbar.
   - A default button for the command appears on the *Quick Access* toolbar.
3. Click the **Customize Quick Access Toolbar** drop-down list and select **More Commands** to add a command that is not listed on the *Customize Quick Access Toolbar* drop-down list.
   - The *Access Options* dialog box opens and displays the *Quick Access Toolbar* area (**Figure 10-23**).

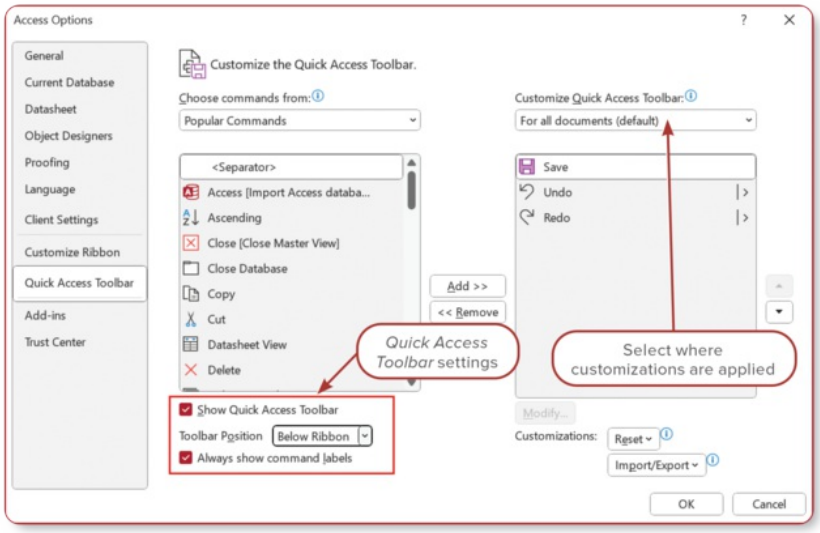


FIGURE 10-23 ***Quick Access Toolbar*** **area in the** ***Access Options*** **dialog box**

- The *Access Options* dialog box defaults to display commands previously added to the *Quick Access Toolbar* for all documents.
- If you keep the *For all documents* default setting, any commands added apply to the *Quick Access* toolbar for all databases you open in Access.

4. Click the **Customize Quick Access Toolbar** drop-down list on the right and select **For *[current document]*** as desired.
   - If you select the current document, any commands added to the *Quick Access* toolbar display in that database only.
   - Additionally, the window on the right will not display the icons of commands displayed on the *Quick Access* toolbar included with all databases (see **Figure 10-23**), although they will display on the *Quick Access* toolbar.
5. Select a command from the list on the left to add and click the **Add** button.
   - If you can't find the command you're looking for, click the **Choose commands from** drop-down list and select **All Commands**.
   - Select the **<Separator>** option to have a vertical line appear between commands. When added to the list on the right, the *<Separator>* option displays as a vertical line (**Figure 10-24**).

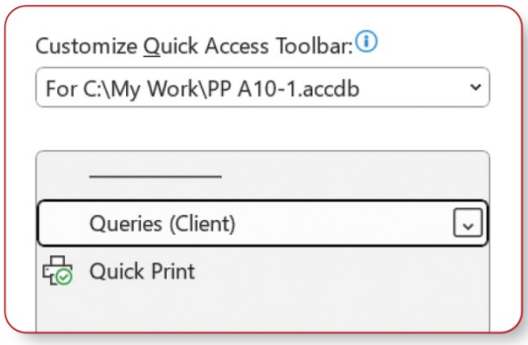


FIGURE 10-24 The drop-down arrow indicates that a command contains a set of options

- Commands that display a drop-down arrow to the right of the command name (*see Queries (Client)* in Figure 10-24) display a set of options when the button is clicked on the *Quick Access* toolbar.

6. Rearrange commands on the *Quick Access* toolbar by selecting the command to move and clicking the **Move Up** or **Move Down** button.
7. Click **OK** to close the *Access Options* dialog box.

Figure 10-25 displays an updated *Quick Access* toolbar that reflects the selections shown in both Figure 10-23 and Figure 10-24, including positioning the toolbar below the *Ribbon*. Note that the first three buttons are from those included on the *Quick Access* toolbar displayed in all databases. Buttons not currently available are dimmed. For example, *Quick Print* is only available when an object is selected or opened.

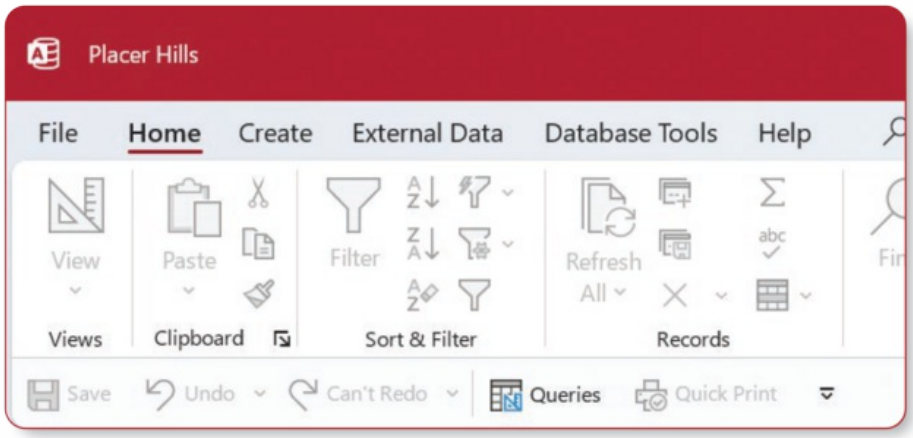


FIGURE 10-25 Customized *Quick Access* toolbar

Recall that some commands added to the *Quick Access* toolbar contain a set of options (see **Figure 10-25**). **Figure 10-26** illustrates how the set of options display when the *Queries* button is clicked.

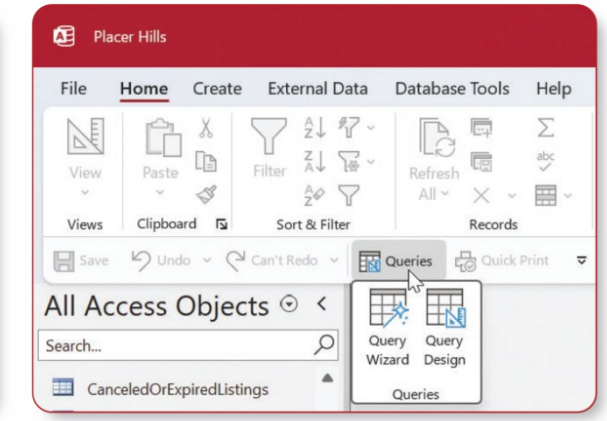


FIGURE 10-26 *Queries* command button with options on the *Quick Access* toolbar

ANOTHER WAY

Right-click a command button on the *Ribbon* and select **Add to Quick Access Toolbar** from the context menu.

Remove Commands from the Ribbon and the Quick Access Toolbar

Access displays many commands that a database user does not need to use, as well as commands that you may want to prevent users from using. For example, you may not want a user to be able to export any of the data from the database. To help protect your database, modify the *Ribbon* on the user's computer so those options are not available.

Microsoft Office does not allow you to remove default tabs displayed in the *Customize the Ribbon* area of the *Access Options* dialog box, but the tab can be hidden so it does not display on the *Ribbon.* While you can remove an existing group, you cannot remove individual commands from an existing group. A work-around to accomplishing this task is to create a custom tab. Add a custom group into that tab, add only the desired commands into that custom group, and then hide the existing group.

HOW TO: Remove or Hide Tabs, Groups, and Commands from the Ribbon

1. Right-click anywhere on the **Ribbon** and select **Customize the Ribbon** from the context menu. The *Access Options* dialog box opens with *Customize Ribbon* displayed.

ANOTHER WAY

Click **Options** (*File* tab) to open the *Access Options* dialog box and select **Customize Ribbon**.

2. Hide a tab by clicking the **check box** to the left of the tab name to deselect the tab. The tab still exists in the list, but it does not display on the *Ribbon*.
3. Remove an existing group, custom tab, custom group, or command in a custom group by selecting the item and clicking the **Remove** button (Figure 10-27).

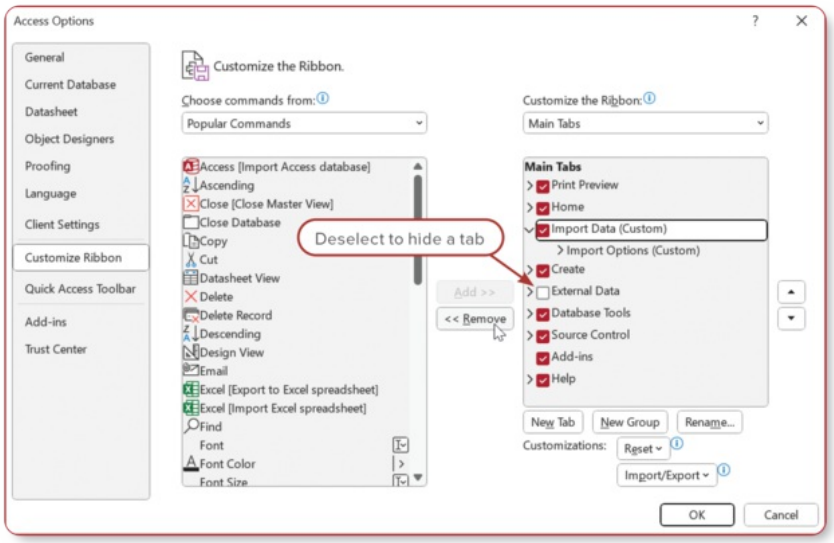


FIGURE 10-27 **Remove a custom tab on the *Ribbon***

4. Click **OK** to close the *Access Options* dialog box.

Be sure to remove commands that have been added in error or are no longer needed from the *Quick Access* toolbar.

HOW TO: Remove Commands from the Quick Access Toolbar

1. Right-click the item you want to remove from the *Quick Access* toolbar to open the context menu.

2. Select **Remove from Quick Access Toolbar** from the context menu (Figure 10-28).

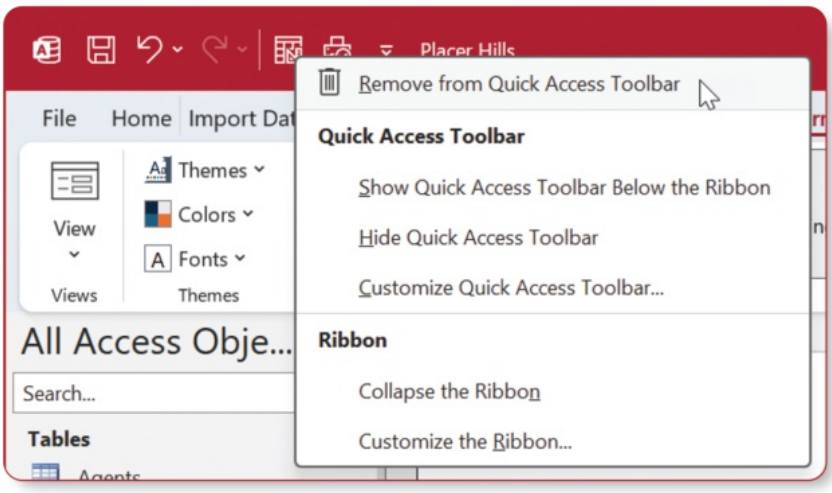


FIGURE 10-28 **Context menu to remove a command from the *Quick Access* toolbar**

- Note that Figure 10-28 shows an example of the *Quick Access* toolbar positioned above the *Ribbon*.
- Alternatively, you can remove commands from the *Quick Access* toolbar in the *Quick Access Toolbar* area of the *Access Options* dialog box by selecting a command and clicking the **Remove** button.

Reset the Ribbon and the Quick Access Toolbar

You can reset both the *Ribbon* and the *Quick Access* toolbar to their original settings. When resetting the *Ribbon,* you can reset a specific tab if you have removed groups from that tab and want to return those groups to the tab. As desired, all *Ribbon* customizations can be reset. Use the *Access Options* dialog box to reset the *Ribbon* or *Quick Access* toolbar.

HOW TO: Reset the Ribbon

1. Open the *Access Options* dialog box and select **Customize Ribbon**.
2. Select a tab, as desired, to reset only that specific tab.
3. Click the **Reset** button at the bottom of the list on the right and select either **Reset only selected Ribbon tab** or **Reset all customizations** (Figure 10-29).

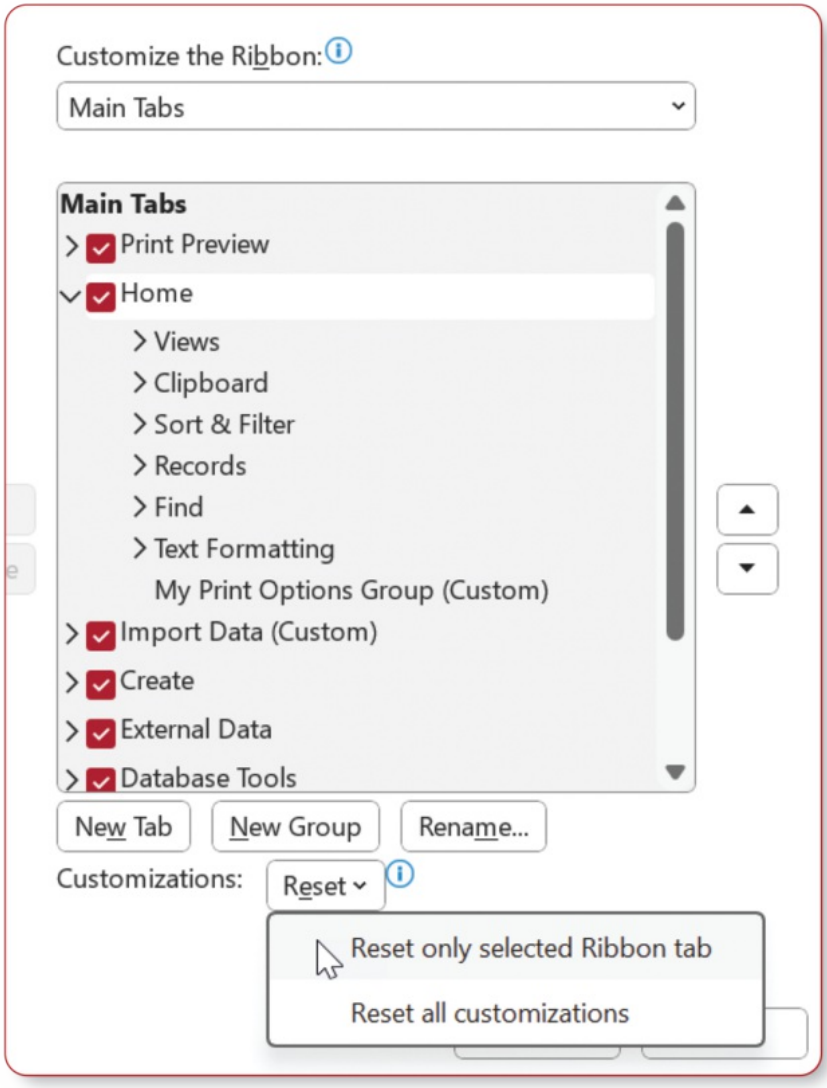


FIGURE 10-29 **Reset the *Ribbon***

- If you select *Reset all customizations,* Access resets both the *Ribbon* and the *Quick Access* toolbar.
- The *Reset only selected Ribbon tab* is only available if you have removed a group from that tab or if you have added a custom group to that tab.

4. Click **Yes** if a dialog box opens to confirm that you want to reset customizations (**Figure 10-30**). The dialog box displays only if you selected *Reset all customizations.*

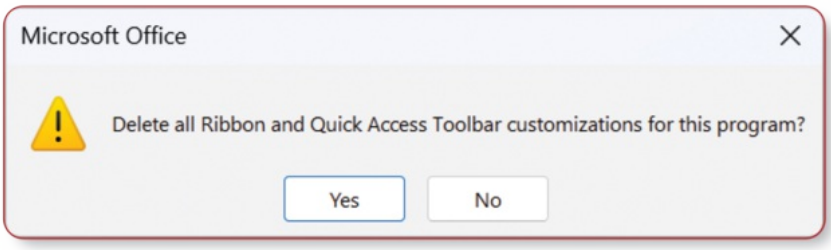


FIGURE 10-30 **Confirm to delete all customizations**

5. Click **OK** to close the *Access Options* dialog box.

HOW TO: Reset the Quick Access Toolbar

1. Open the *Access Options* dialog box and select **Quick Access Toolbar**.
2. Reset the toolbar for a specific database by clicking the **Customize Quick Access Toolbar** drop-down list on the right and selecting the current document.
3. Click the **Reset** button at the bottom of the list on the right and select either **Reset only Quick Access Toolbar** or **Reset all customizations** (Figure 10-31).

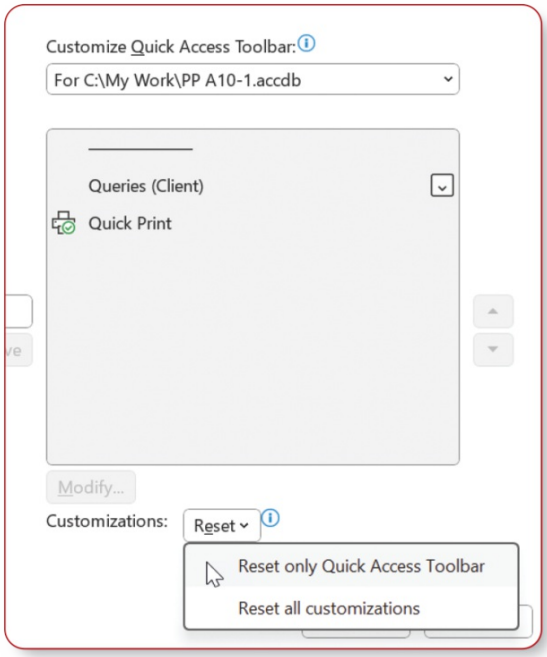


FIGURE 10-31 **Reset the *Quick Access* toolbar**

- If you select *Reset all customizations,* Access resets both the *Ribbon* and the *Quick Access* toolbar.

- If you have customized the toolbar for the current database, and the *Customize Quick Access Toolbar* drop-down list displays *For all documents,* selecting *Reset all customizations* does not reset the part of the toolbar that was customized for this database. Only the commands included in the toolbar portion displayed for all databases is reset.

4. Click **Yes** if a dialog box opens to confirm that you want to reset customizations.
5. Click **OK** to close the *Access Options* dialog box.

SLO 10.2

Customizing Office Account Options

Use your Microsoft account information to log in to both Windows and Office. When upgrading from one version of Office to a new version, many of your settings automatically transfer to the new version. Additionally, Microsoft 365 updates automatically and regularly and your settings in the Office apps automatically update. View and customize Office account settings in the *Backstage* view, and add connected online storage services to Office as well as Office add-ins.

MORE INFO

If you don't have a Microsoft account, you can create a free account at the following website: **https://signup.live.com**.

Microsoft Account Information

One of the many features of Microsoft 365 and Windows is the portability of your documents and account settings. Microsoft 365 settings and files can travel with you, which means that you are not restricted to using just a single computer. For example, log in to Microsoft 365 on a computer at a computer lab on your college campus, at a public library, or at a friend's home, and your settings apply to that computer.

Use your **Microsoft 365 account** (user name and password) when signing in to Windows on your computer. Microsoft 365 uses this information to transfer your settings to the computer you are using. Your account icon displays on the right-side corner of the Access window. Click this icon to display a link to access your account settings (**Figure 10-32**). If you have added a photo it may display next to your name.

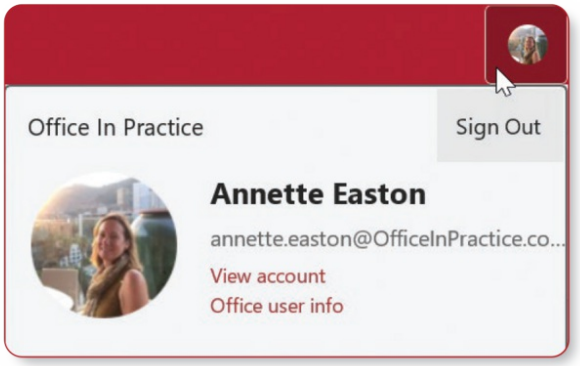


FIGURE 10-32 Microsoft account information

Photo Source: Annette Easton

Your Microsoft account signs you into Windows, Office, and other free Microsoft online services, such as *OneDrive* and *Office Online.* For more information on these online Microsoft 365 apps, see ***SLO 10.3: Using OneDrive, SLO 10.5: Using Office Online,*** and ***SLO 10.6: Exploring Copilot and Other Microsoft 365 Applications.*** Create a free education Microsoft account at **https://www.microsoft.com/en-us/education/products/office** or create a free personal Microsoft account at **https://signup.live.com**.

MORE INFO

Microsoft has personal, education, and business account types. This chapter focuses on educational Microsoft accounts. The *OneDrive* and *Office Online* working environments are slightly different when using an education or business account.

HOW TO: Use Your Microsoft Account in Office

1. Click your name or the log on area in the upper-right corner of the Access window.
2. Click the **Office user info** link (see **Figure 10-32**) to open the *Account* area on the *Backstage* view (**Figure 10-33**).

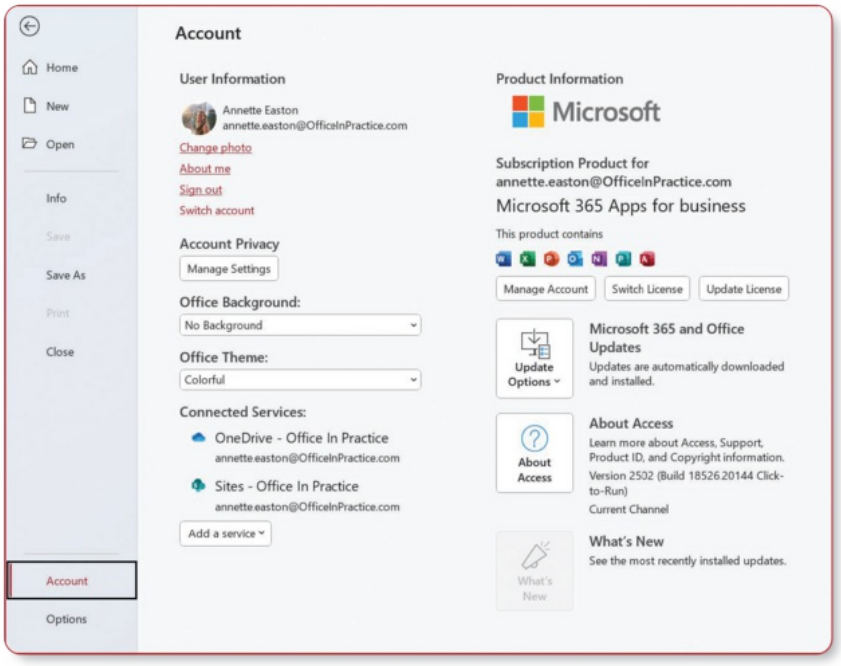


FIGURE 10-33 **Office account information and settings**

Photo Source: Annette Easton

- Alternatively, click the **File** tab and select **Account** on the left.
- Your account information displays in this area.
- If you are not signed in to Office with your Microsoft account, click the **Sign in** link in the upper-right corner of the Access window or on the *Backstage* view to open the *Sign in* dialog box.
- Use your Microsoft 365 email and password to sign in.

MORE INFO

If you are using a public computer, be sure to log out of your Microsoft account when you are finished. Click the **Sign out** link in the *Account* area on the *Backstage* view.

Customize Office Account Settings

Change the ***Office Background*** and ***Office Theme*** in the *Account* area on the *Backstage* view (**Figure 10-34**) or in the *General* category in the *Access Options* dialog box. The background and theme you select apply to all Office applications you use.

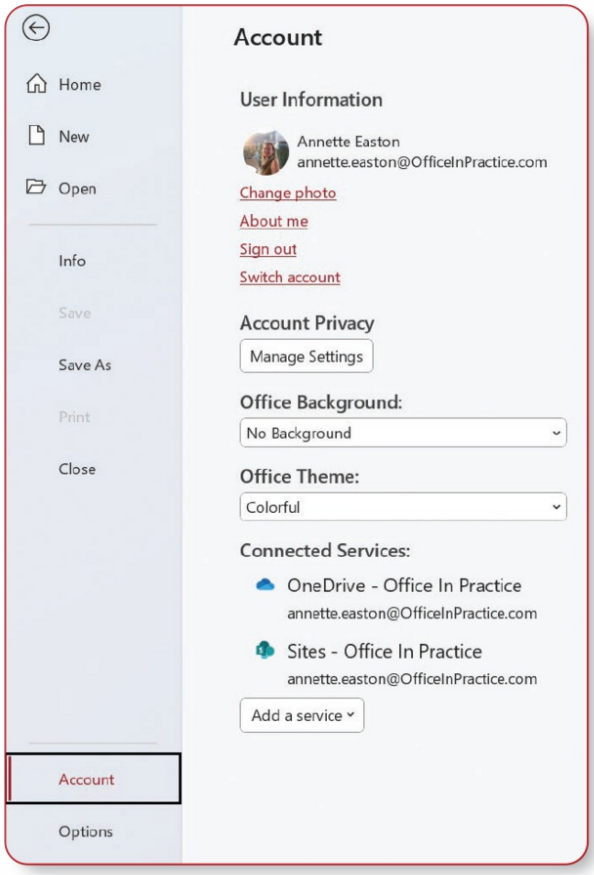


FIGURE 10-34 Customize Office *Account* settings

Photo Source: Annette Easton

The background displays a graphic pattern in the upper-right corner of all Office program windows. Click the **Office Background** drop-down list to select a different background.

The theme controls the colors on the *Ribbon,* the *Backstage* view, and dialog boxes. Click the **Office Theme** drop-down list to select a different theme. The new default *Office Theme* for Office is *Colorful.*

Office also enables you to connect to online services. In the *Account* area on the *Backstage* view, add online services you regularly use by clicking the **Add a service** drop-down list and selecting a service (see **Figure 10-34**). When adding a service, Office prompts you to enter your Microsoft 365 user name and password to connect to the online service. The services you are currently connected to are listed in the ***Connected Services*** area.

PAUSE & PRACTICE: ACCESS 10-1

For this project, you change Access options, add items to the *Ribbon* and the *Quick Access* toolbar, and modify your Office account settings.

Note: Use your education Microsoft 365 account for this project. If you don't have an education Microsoft account, create one at **https://www.microsoft.com/en-us/education/products/office**.

File Needed: ***PlacerHills-10.accdb*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Name: ***[your initials] PP A10-1.accdb***

1. Open the ***PlacerHills-10.accdb*** database from your student data files. If a *Security Risk* message or *active content is blocked* dialog box displays, click **OK** or the **X** to close it. If the message repeats in a later step, click **OK** or the **X** to close the message.
2. Save a new copy of your database as [your initials] PP A10-1.
3. Enable content in the security warning.
4. Log in to Office using your Microsoft 365 account. Skip this step if you are already logged in with your Microsoft account.
   a. Click **Sign in** in the upper-right corner of the Access window.
   b. Log in to Office using your Microsoft 365 account username and password. If you don't have a Microsoft account, go to **https://www.microsoft.com/en-us/education/products/office** and follow the instructions to create a free education Microsoft account.
5. Customize Access options.
   a. Click the **File** tab to open the *Backstage* view and select **Options** to open the *Access Options* dialog box.
   b. Select **General** on the left, if not already selected, and type your name and initials in the *User name* and *Initials* text boxes if they do not already display, and check the **Always use these values regardless of sign in to Office** box.
   c. Select **Current Database** on the left and type Placer Hills in the *Application Title* text box and deselect the **Enable design changes for tables in Datasheet view** check box in the *Application Options* area. **NOTE:** The ability to change the *Application Title* may not be available if you are using *Windows 10*.
   d. Select **Object Designers** on the left, click the **Font** box drop-down list in the *Query design* area, and select **Arial** if not already selected.
   e. Select **Client Settings** on the left and select the **Don't show the Backstage when opening or saving files with keyboard shortcuts** check box in the *Display* area.
   f. Click **OK** to close the *Access Options* dialog box and apply the changes.
6. Add a tab and groups to the *Ribbon*.
   a. Right-click anywhere on the **Ribbon** and select **Customize the Ribbon** from the context menu to open the *Access Options* dialog box and display the *Customize Ribbon* area.
   b. Click to select the **Database Tools** tab on the right (under *Main Tabs*) and click the **New Tab** button. A

new tab and group are inserted below the *Database Tools* tab.

c. Select **New Tab (Custom)** and click the **Rename** button to open the *Rename* dialog box.

d. Type Queries, Reports & Tools and click **OK** to close the *Rename* dialog box.

e. Select **New Group (Custom)** and click the **Rename** button to open the *Rename* dialog box.

f. Type Queries as the group name in the *Display name* area, and click **OK** to close the *Rename* dialog box.

g. Select the **Queries, Reports & Tools (Custom)** tab and click the **New Group** button to add another group into the tab.

h. Select **New Group (Custom)** and click the **Rename** button to open the *Rename* dialog box.

i. Type Reports as the group name in the *Display name* area, and click **OK** to close the *Rename* dialog box.

j. Select the **Queries, Reports & Tools (Custom)** tab and click the **New Group** button to add another group into the tab.

k. Select **New Group (Custom)** and click the **Rename** button to open the *Rename* dialog box.

l. Type Common Tools as the group name in the *Display name* area and select the **toolbox** symbol (Figure 10-35). You may need to scroll down to locate the symbol. Click **OK** to close the *Rename* dialog box.

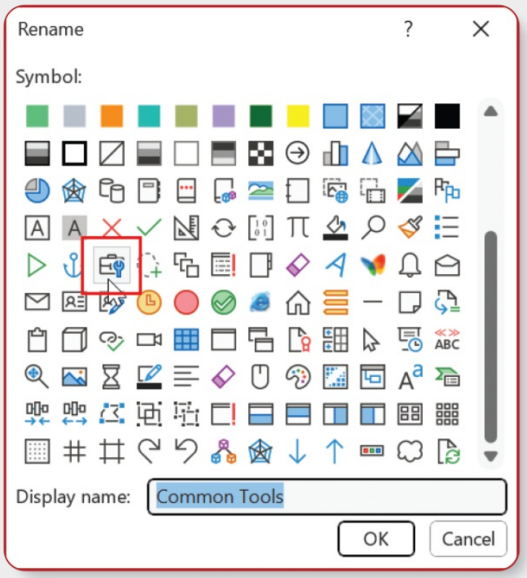


FIGURE 10-35 Rename new custom group

7. Add commands to a custom group on the *Ribbon*.

a. Click the **Home** tab and click the **collapse arrow** to collapse the tab.

b. Select the **Queries (Custom)** group.

c. Click the **Choose commands from** drop-down list on the left side and select **All Commands** to display all the available commands in the list on the left.

d. Scroll down and select the **Query Design** command and click the **Add** button to add the command to the group (Figure 10-36).

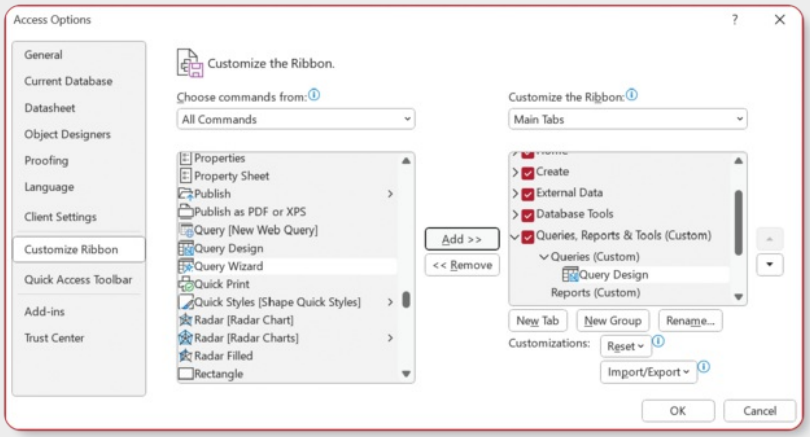


FIGURE 10-36 Add command to custom group

e. Select and add the **Query Wizard** command to the *Queries* group.

f. Select the **Reports (Custom)** group.

g. On the left side, scroll, select, and add the **Report Design**, **Report View**, and **Report Wizard** commands to the *Reports* group.

h. Select the **Common Tools (Custom)** group.

i. On the left side, scroll, select, and add the **Compact & Repair Database**, **Excel [Import Excel spreadsheet]**, and **Text File [Import text file]** commands to the *Common Tools* group. The completed *Queries, Reports & Tools* tab should be similar to Figure 10-37.

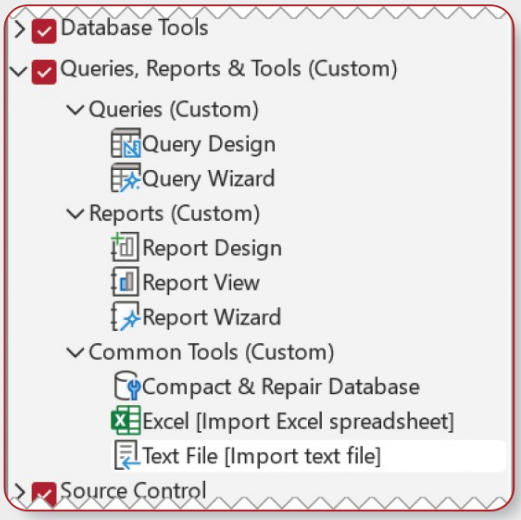


FIGURE 10-37 Completed *Queries, Reports & Tools* tab

8. Remove tabs from the *Ribbon*.

a. Click the **Create** tab check box on the right (under *Main Tabs*) to remove the check.

b. Click the **External Data** tab check box on the right (under *Main Tabs*) to remove the check.

c. Click the **Database Tools** tab check box on the right (under *Main Tabs*) to remove the check.

d. Click **OK** to close the *Access Options* dialog box.

e. Click the **Queries**, **Reports & Tools** tab on the *Ribbon* (Figure 10-38).

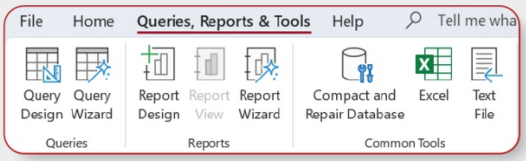


FIGURE 10-38 New tab and groups

f. Adjust the size of the Access window until it is approximately four inches wide. The *Common Tools* group in the *Queries, Reports & Tools* tab displays the toolbox symbol (Figure 10-39).

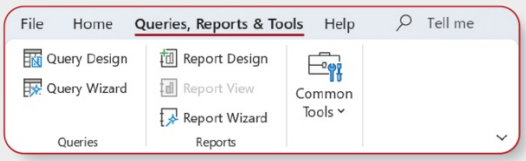


FIGURE 10-39 Symbol displays when the group is too small

g. Adjust the size of the Access window until it is approximately six inches wide.

9. Add commands to the *Quick Access* toolbar.

a. Click the **Ribbon Display Options** button or right-click the *Ribbon* and select **Show Quick Access Toolbar** if the *Quick Access* toolbar is not already displayed.

b. Click the **Customize Quick Access Toolbar** drop-down list and select **Show Above the Ribbon** if the *Quick Access* toolbar currently displays below the *Ribbon*.

c. Click the **Customize Quick Access Toolbar** drop-down list again and select **Quick Print** (Figure 10-40).

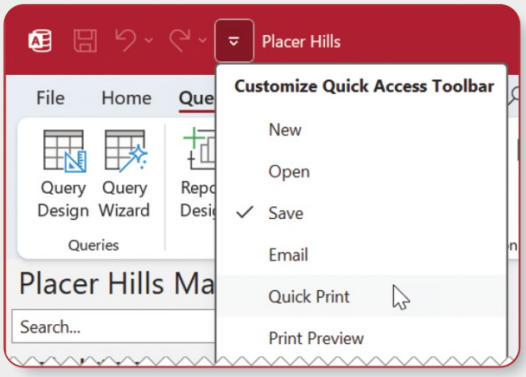


FIGURE 10-40 Add a command to the *Quick Access* toolbar

d. Click the **Customize Quick Access Toolbar** drop-down list and select **More Commands** to open the *Access Options* dialog box with the *Quick Access Toolbar* area displayed.

e. Select **Quick Print** on the right and click the **Move Up** button (Figure 10-41) three times to move *Quick Print* so it appears first in the *Quick Access* toolbar list of commands for all documents.

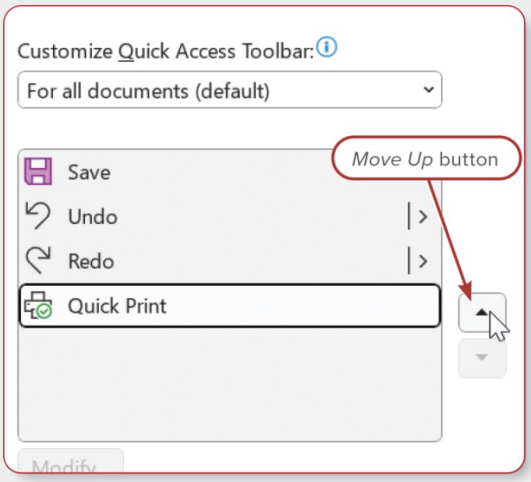


FIGURE 10-41 Move a command on the *Quick Access* toolbar

f. Click the **Customize Quick Access Toolbar** drop-down list on the right and select **For [current document]**. The file name of your current database displays in place of *[current document]*.

g. Click the **Choose commands from** drop-down list on the left side and select **All Commands**.

h. Scroll down the list on the left, select **Find** (choose the *Find* command with the magnifying glass), and click the **Add** button (Figure 10-42).

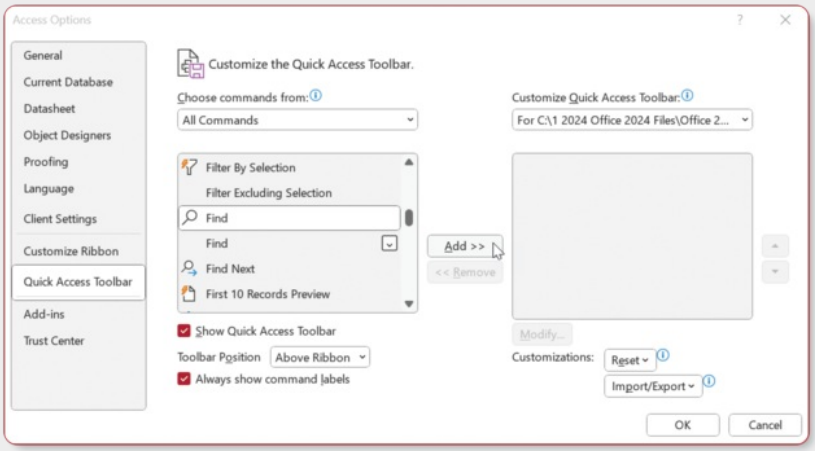


FIGURE 10-42 Add a command to the *Quick Access* toolbar

i. Click **OK** to close the *Access Options* dialog box.

10. Customize your Office account settings.

a. Click the **File** tab and select **Account** to display your account information on the *Backstage* view.

b. Click the **Office Background** drop-down list and select a background of your choice.

c. Click the **Office Theme** drop-down list and select a theme of your choice.

d. Click the **Back** arrow to close the *Backstage* view.

11. Test the *Quick Access* toolbar.

a. Double-click to open the *SoldPropertiesListing* report. The *Quick Print, Save,* and *Find* buttons become active.

b. Adjust the width of the Access window until all columns in the report are visible.

c. Select the **Queries**, **Reports & Tools** tab.

d. Click the **Find** button on the *Quick Access* toolbar. The *Find* dialog box opens.

e. Type **Weimar** in the *Find What* box and click **Find Next**. Your screen should look similar to **Figure 10-43**.

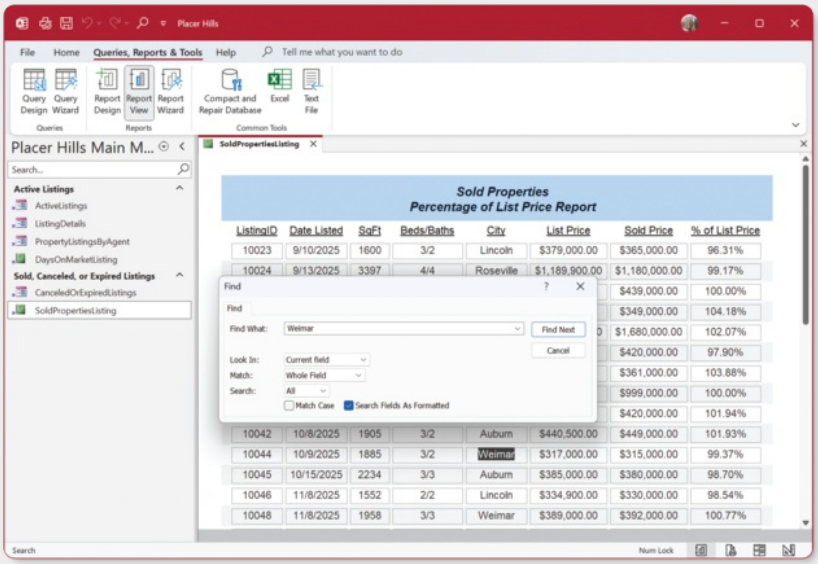


FIGURE 10-43 PP A10-1 completed (*Find* dialog box, customized *Ribbon*, and *Quick Access* toolbar displayed)

f. Close the *Find* dialog box.

g. Close the report.

12. Close the database.

MORE INFO

After completing ***Pause & Practice 10-1***, as desired, open the *Access Options* dialog box to reset the *Quick Access* toolbar and *Ribbon.* Select the **Quick Access Toolbar** button on the left, click the **Reset** button, and then select **Reset all customizations**. Click **Yes** to confirm the deletions.

SLO 10.3

Using OneDrive

Windows and Microsoft 365 Office apps work in conjunction with your Microsoft account and ***OneDrive*** to provide online storage and access to your files from any computer. *OneDrive* is a secure "cloud" storage area. When you create a personal Microsoft account (**Outlook.com**, Live, Hotmail, or other Microsoft service account), you also have a *OneDrive* account.

Use *OneDrive* to store files, create folders to organize stored files, and share files with others. Access your *OneDrive* files from a *File Explorer* window on your computer or access *OneDrive* online from any computer using an internet browser. If you don't have a Microsoft account, create a free education account at **https://www.microsoft.com/en-us/education/products/office** or create a free personal account at **https://signup.live.com**.

OneDrive Note: Figures in this chapter may appear slightly different from how *OneDrive* displays in your internet browser. Some features may not be available, or they may have a slightly different name. The *OneDrive* online environment and available features are affected by the type of Microsoft account (personal or business/education), the internet browser you use (Chrome, Edge, Safari, or Firefox), and periodic updates to *OneDrive.* The figures in this section display *OneDrive* using the Google Chrome web browser and a business/education Microsoft account.

MORE INFO

While *OneDrive* is secure and requires a user name and password to log in, no online accounts are 100 percent secure. Do not store highly sensitive and confidential documents online.

COPILOT/GENERATIVE AI BEST PRACTICES

If you have a personal or family Microsoft 365 account, a *Personal Vault* is available to store sensitive files. The *Personal Vault* provides another layer of security for your files by having users log in to their *Personal Vault*. Use *Copilot* or another generative AI product to learn about the *Personal Vault* in *OneDrive*. Use follow-up prompts to learn about availability of the *Personal Vault* and the authentication methods Microsoft uses to keep your files safe.

Use OneDrive in a File Explorer Window

When using Windows, *OneDrive* is one of your storage location folders, similar to the *Documents* or *Pictures* folders (**Figure 10-44**). A *OneDrive* folder looks and functions similarly to other Windows folders. Save, open, and edit your *OneDrive* files from the *OneDrive* folder. Also, create folders and rename, move, or delete files from your *OneDrive* folder. If you have multiple Microsoft accounts, you may have a separate *OneDrive* folder for each account. In this case, each *OneDrive* folder is assigned a unique name as shown in **Figure 10-44**.

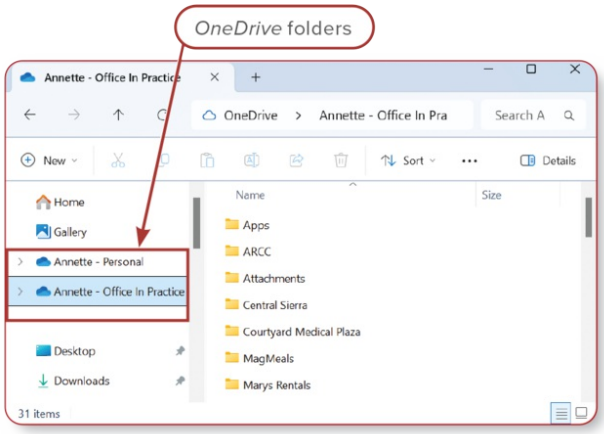


FIGURE 10-44 *OneDrive* folders displayed in a *File Explorer* window

A10-819

The primary difference between a *OneDrive* folder and other Windows folders is the physical location where the files are stored. After saving a file in your *Documents* folder, the file is stored only on the hard drive on your computer, and you have access to this file only when you are working on your computer. When you save a document in your *OneDrive* folder, the file is stored on the computer and the *OneDrive* cloud, and you have access to the file from your computer and any other computer with internet access.

Windows 11 Note: The *File Explorer* in Windows 11 will be slightly different from Windows 10.

MORE INFO

To access a *OneDrive* folder on your computer, you must be logged in using your Microsoft account.

When opening the *Save As* or *Open* dialog box in Access, *OneDrive* is one of the available folders. In *Access Options,* you can set *OneDrive* as the default save location.

COPILOT/GENERATIVE AI BEST PRACTICES

If you have multiple Microsoft 365 accounts, you can connect each one to your computer, so you have *OneDrive* folders in the *File Explorer* for each of your Microsoft accounts (as shown in Figure 12-37). Use *Copilot* or another generative AI product to learn how to set up additional Microsoft 365 accounts on your computer. Use follow-up prompts to learn how to get *OneDrive* folders from different Microsoft 365 accounts on your computer.

Use OneDrive Online

The main benefit of using *OneDrive* to store your files is the ability to access files from any computer with internet access. In addition to accessing your *OneDrive* files from a *File Explorer* folder on your computer, access your *OneDrive* files from a web page using an internet browser. Sign in to your online Microsoft 365 account (**https://microsoft365.com**) using your Microsoft account.

MORE INFO

Depending on the internet browser you use (Chrome, Edge, Safari, or Firefox), the user interface, button options, and dialog boxes might be slightly different. Also, the *OneDrive* online environment changes regularly, so figures in this book might be slightly different from what is currently available.

A10-820

HOW TO: Use OneDrive Online

1. Open an internet browser window and go to the *Microsoft 365* website (**https://microsoft365.com**), and sign in using your Microsoft 365 account user name and password.
   - You can use any internet browser to access *OneDrive* (Microsoft Edge, Google Chrome, Apple Safari, or Mozilla Firefox).
   - If using your own computer, check the **Keep me signed in** box to stay signed in to *OneDrive* when you return to the page.
2. Click the **Apps** button on the left and select **OneDrive** in the *Apps* area (**Figure 10-45**) to take you to the online *OneDrive* area of your Microsoft account.

MORE INFO

If you are using a public computer, do not select the *Keep me signed in* check box. You do not want your *OneDrive* files available to the next person who uses the computer.

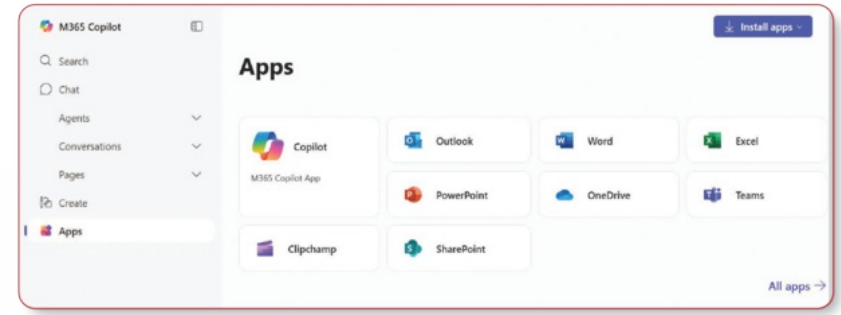


FIGURE 10-45 **Open *OneDrive* from your Microsoft 365 account**

- If *OneDrive* does not display in the *Apps* area, click **All apps** and select **OneDrive** from the list of apps.
- The different areas of *OneDrive* display on the left side (*Home, My files, Shared, Favorites,* and *Recycle bin*).

3. Click the **My files** button on the left to display your folders and files in the *My files* area on the right (Figure 10-46).

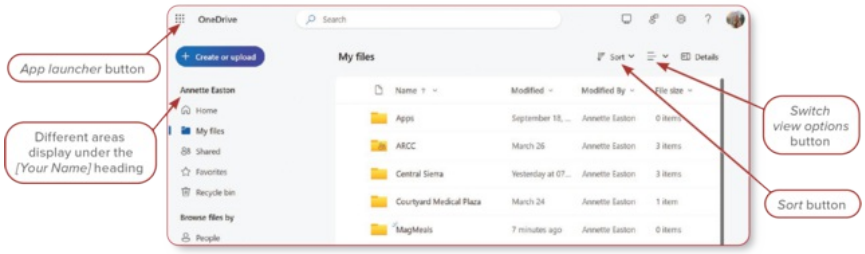


FIGURE 10-46 ***OneDrive* online environment**

Photo Source: Annette Easton

4. Click the **Switch view options** button in the upper-right corner of the window to display a drop-down list of view options: *List, Compact List,* and *Tiles.*
   - Figure 10-46 displays *OneDrive* folders in *List* view.
   - *Compact List* view displays the same information in a slightly smaller size.
   - *Tiles* view displays each folder on a tile with a number that indicates how many documents are in the folder.

5. Click a column heading (**Name**, **Modified**, **Modified By**, and **File Size**) and select a sort option to change the sort order of the folders.

ANOTHER WAY

Click the **Sort** button in the upper-right corner of the window to display a drop-down list of sort types and orders.

6. Hover over a file or folder and check the **circle** to the left of a file or folder to select it (**Figure 10-47**).

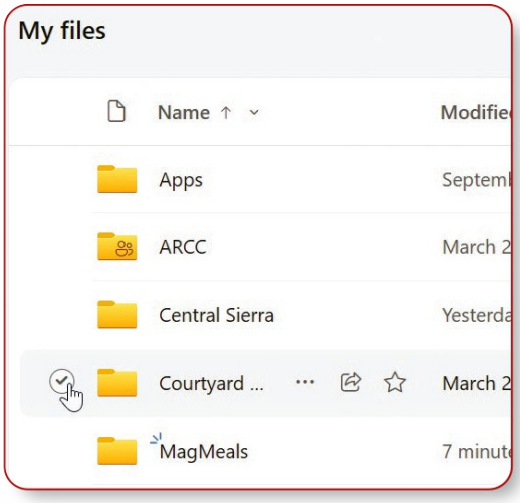


FIGURE 10-47 Select a *OneDrive* folder

MORE INFO

If *Tiles* view is selected, the circle displays in the upper-right corner when you hover over the tile of a file or folder.

- A checked circle indicates a selected file or folder (**Figure 10-48**).

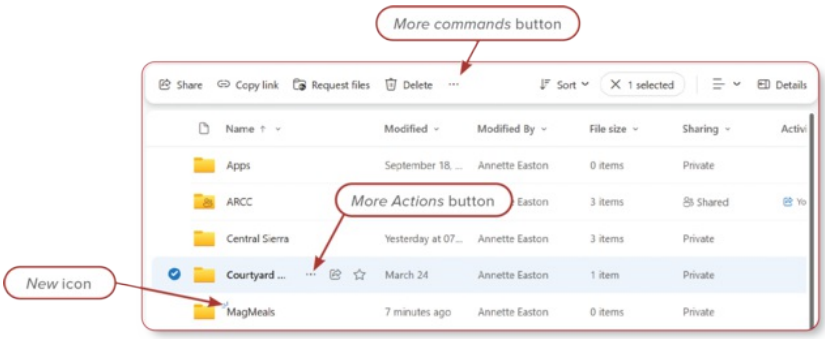


FIGURE 10-48 Selected *OneDrive* folder and updated buttons and menus

- The buttons and drop-down menus at the top update to show available actions on a selected file or folder.
- Use the buttons and drop-down menus at the top, or click the **More Actions** button, to perform actions such as *Copy link, Download,* and *Delete* on the selected file or folder.
- Click the **Details** button in the upper-right corner of the window, or click **More Actions** and select **Details**, to display details about a selected folder or file.
- A newly created folder or file displays the *New* icon in the upper-left corner of the folder or file name.

7. Click a file or folder to open it.
   - Click a Word, Excel, or PowerPoint file to open the file in *Office Online* (see ***SLO 10.5: Using Office Online***).
   - Click an Access file to download it to your computer. If prompted, click **Save** or **Save As** to save a copy of the file on your computer. Click to open the download and the database opens using the Access program installed on your computer. If you change the database, be sure to save a copy in a folder that you can access later. If others need to see your modified database, upload your new copy to the *OneDrive* folder.
   - Click a folder to open the folder and display the folder contents. Click **My files** on the left or at the top to return to all *OneDrive* files.
8. Click your name or picture icon in the upper-right corner and select **Sign out** to sign out of *OneDrive*.

Microsoft 365 Note: The *OneDrive* online environment and features may differ slightly depending on the type of Microsoft 365 account you are using.

Create a OneDrive Folder

Create folders in *OneDrive* online to organize your files. The hierarchy of folders and files in *OneDrive* is similar to *File Explorer*.

HOW TO: Create a OneDrive Folder

1. Sign in to your Microsoft 365 account from an internet browser window (**https://microsoft365.com**), click **Apps** on the left, and select **OneDrive** in the *Apps* area.
2. Click the **My files** button on the left to display the contents of your *OneDrive* folder in the *My files* area on the right.
3. Click the **Create or upload** button and select **Folder** from the drop-down list (**Figure 10-49**). The *Create a folder* dialog box opens.

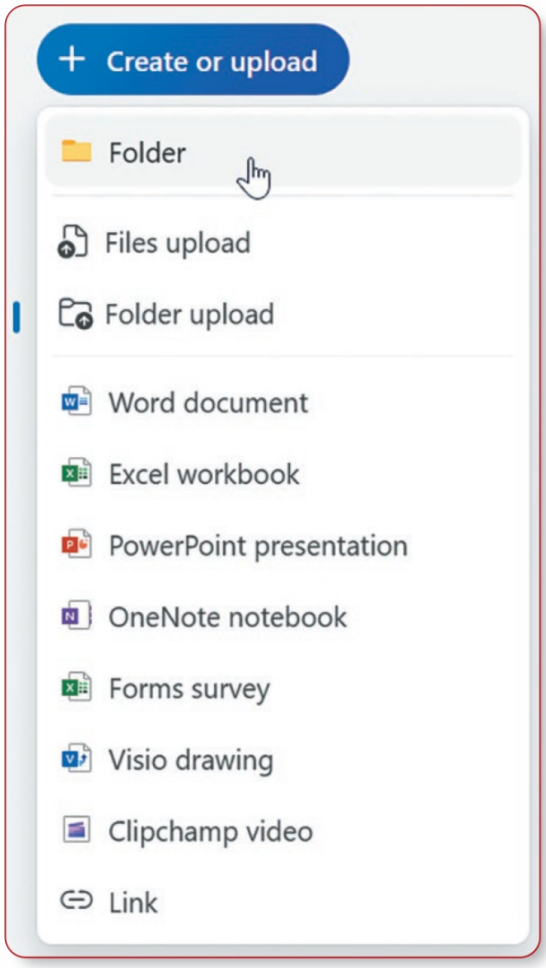


FIGURE 10-49 Create a new *OneDrive* folder

4. Type the name of the new folder and click **Create**. If desired, click a folder color

before clicking *Create*.

- After creating a new folder or file in *OneDrive,* the *New* icon displays in the upper-left corner of the folder or file name to indicate a new *OneDrive* folder or file (see **Figure 10-48**).

5. Click a folder to open it.
   - Create a new folder inside an existing folder or upload files to the folder (see the following section, *Upload a File or Folder*).
6. Click **My files** on the left to return to the main *OneDrive* folder.

MORE INFO

After creating or uploading files or folders online in *OneDrive,* these changes also display in the *OneDrive* folder in *File Explorer* on your computer.

Upload a File or Folder

Upload files or folders to *OneDrive* from your computer or a portable storage device. When uploading a file or folder to *OneDrive,* you are not removing the file or folder from the original location, but rather copying it to *OneDrive.*

HOW TO: Upload a File or Folder to OneDrive

1. Click **My files** on the left to display your files and folders in the *My files* area on the right.
   - If you are uploading a file to a specific folder, click the folder to open it.
2. Click the **Create or upload** button and select **Files upload** or **Folder upload** (**Figure 10-50**).

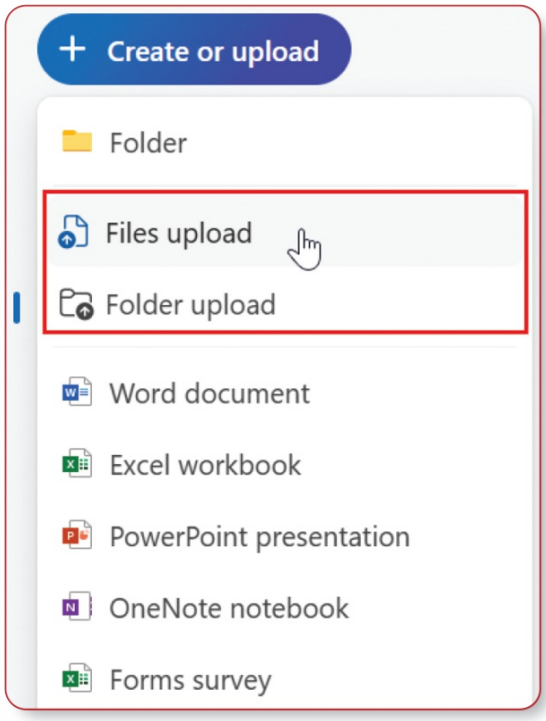


FIGURE 10-50 **Upload a file to *OneDrive***

- The dialog box that opens varies depending on the browser you use and the upload choice you make.

3. Select the file(s) or folder to upload to *OneDrive* (**Figure 10-51**) and click **Open**.

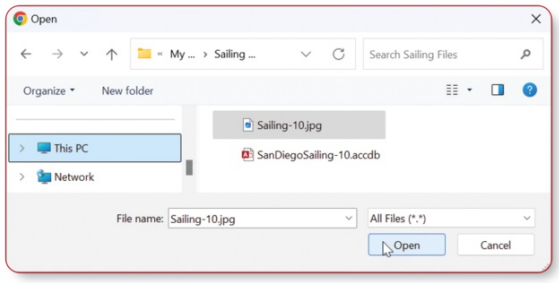


FIGURE 10-51 **Select files to upload to *OneDrive***

- You may have to click **OK** or **Select Folder** depending on the browser you use and whether you are uploading a file or folder.
- You can upload more than one file at a time. Use the **Ctrl** key to select non-adjacent files, the **Shift** key to select a range of files, or **Ctrl+A** to select all files in a folder.
- You can select only one folder.
- An upload status message appears in the upper-right corner when you are

uploading files.

- The files you upload appear in the files and folders area of *OneDrive*.

A10-823

ANOTHER WAY

Upload files and folders to *OneDrive* by selecting them in a *File Explorer* window and dragging and dropping them into the folder and file area in *OneDrive*.

Move, Copy, and Delete Files and Folders

You can also move, copy, and delete files and folders online in *OneDrive*. When moving a file or folder, it is removed from its current location and moved to the new location you select. When copying a file or folder, it is copied to the new location you select, and the file or folder also remains in its original location.

HOW TO: Move and Copy OneDrive Files or Folders

1. Check the **circle** to the left of the file or folder you want to move or copy.
   - Move multiple items by checking the **circle** of all of the items to move.
2. Click the **Move to** or **Copy to** button at the top.
   - If you don't see the *Move to* or *Copy to* buttons, click the **More commands** button (ellipsis) (**Figure 10-52**) to open the menu of additional commands and then click the button.

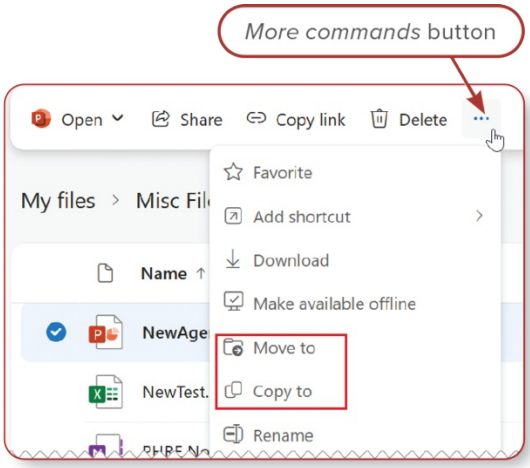


FIGURE 10-52 Copy a *OneDrive* file

- A *Move to* or *Copy to* window opens.

3. Select **My files** to display a list of *OneDrive* folders.
4. Select the destination folder where you want to move or copy the selected item(s).
   - You can place selected items in an existing folder or click **New folder** to create a new folder.
   - Press **Esc** or click the **X** in the upper-right corner of the window to cancel the move or copy process and close the window.
5. Click the **Move here** or **Copy here** button (Figure 10-53) to move or copy the selected items and close the window.

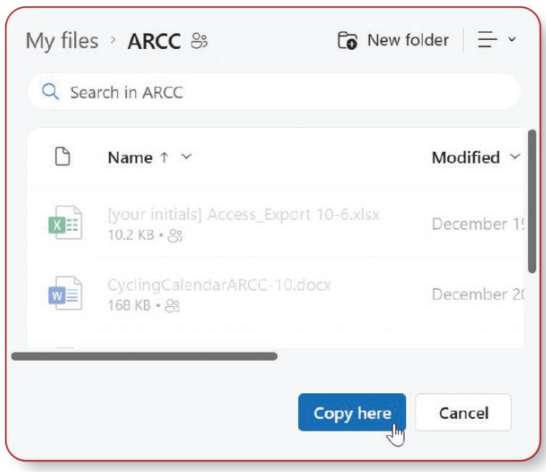


FIGURE 10-53 Copy selected item(s)

- A message appears in the window while the files are copied or moved.
- Click the **Close** button in the window to cancel the move or copy action.

Microsoft 365 Note: If you are using a personal Microsoft account, the *Move to* and *Copy to* options may differ slightly.

You can also delete files or folders for which you are the owner.

HOW TO: Delete OneDrive Files or Folders

1. Check the **circle** to the left of the file or folder you want to delete.

- Delete multiple items by checking the **circle** of all of the items to delete.

2. Click the **Delete** button.
   - A *Delete* message box asks you to confirm the deletion. Click **Delete** or **Cancel**.
   - A *Delete* message appears at the top-right corner when you are deleting files.

A10-824

Download a File or Folder

When you download a file or folder from *OneDrive,* it is not removed from *OneDrive.* A copy of the file or folder is downloaded. If you modify the document, you must upload it to your *OneDrive* folder to have the most recent version of your document available on *OneDrive.*

HOW TO: Download a File or Folder from OneDrive

1. Check the **circle** to the left of the file or folder you want to download.
   - If you select more than one file or a folder to download, a compressed (zipped) folder downloads.
   - If you select a single file, *OneDrive* downloads the file.
2. Click the **More commands** button (ellipsis) and then click **Download**. The file or zipped folder is copied to the *Downloads* folder on your computer. Depending on the internet browser you use, the download actions differ slightly.
3. Select the location where you want to save the downloaded items.
4. Type a file name in the *File name* area if you want to rename the file.
5. Click the **Save** button to close the *Save As* dialog box and download the selected items.

SLO 10.4

Sharing OneDrive Files and Folders

In addition to being able to access all your *OneDrive* files from any computer or mobile device, you can also share files and folders. Sharing provides the ability to collaborate with others on individual files, or you can share a folder where others can view, download, upload, and edit files. When sharing files and folders, you control how others can use your work by selecting a permission level to allow users to view files or edit files, or by removing the sharing permission.

Microsoft Excel, PowerPoint, and Word each provide a *Share* button directly inside the application. This feature is not available in Access, due to the way the Access files are created and stored. To share an Access file, you must use *OneDrive.*

OneDrive Note: Figures in this chapter may appear slightly different from how *OneDrive* displays in your internet browser. Some features may not be available, or they may have a slightly different name. The *OneDrive* online environment and available features are affected by the type of Microsoft 365 account (personal or business/education), the internet browser you use (Chrome, Edge, Safari, or Firefox), and periodic updates to *OneDrive.* The figures in this section display *OneDrive* using the Google Chrome web browser and a business/education Microsoft 365 account.

Share a File or Folder in OneDrive

OneDrive enables you to share files or folders with others. When you share files or folders with others, you choose whether other users can only view files or view and edit files. When you share a file or folder in your *OneDrive,* you have the option to send an email with a link to the shared item or generate a link to share with others.

A10-825

HOW TO: Share a OneDrive File or Folder

1. Open an internet browser and log in to your Microsoft 365 account (**https://microsoft365.com**), click **Apps** on the left, and select **OneDrive** in the *Apps* area.
2. Check the **circle** of the file or folder you want to share.
   - To share multiple files or folders, check the **circle** of all of the files or folders.
   - If you share a folder, shared users have access to all the files in the folder.

3. Click the **Share** button at the top of the *OneDrive* window to open the *Share* window (**Figure 10-54**). If you are using a personal Microsoft account, the *Share* window opens and the sharing options differ slightly.

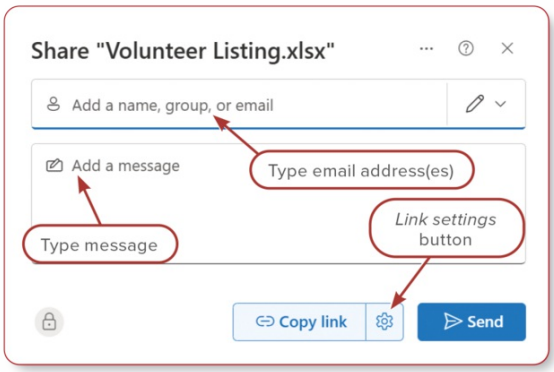


FIGURE 10-54 **Share a file or folder in *OneDrive***

4. Click the **Link settings** button to open the *Link settings* window (**Figure 10-55**).

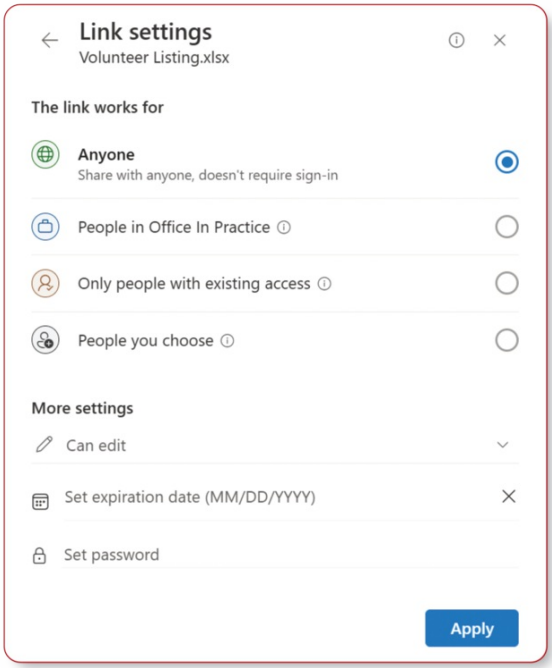


FIGURE 10-55 ***Link settings* window**

- Select who can use the sharing link in the "*The link works for*" area.
- By default, recipients can edit shared files.

5. Select the **Can edit** drop-down list, as desired, to change the sharing permission. Select from **Can edit**, **Can review**, **Can view**, or **Can't download**. The available options vary based on the file type.

6. Click the **Set expiration date** box and enter a date as desired.
7. Set a password as desired.
8. Click **Apply** to return to the *Share* window.
9. Send a sharing link by typing recipient(s) email address(es), typing a brief message, and clicking the **Send** button (see **Figure 10-54**). Close the confirmation window. The people you selected will receive an email containing a link to the shared file or folder.
10. Alternatively, create a sharing link by clicking the **Copy link** button in the *Share* window (see **Figure 10-54**). The Share window will update to include a *Link Copied* message and the link is placed on the Windows *Clipboard.* Close the *Share* window. Paste (**Ctrl+V**) the link into an email or other location you will use to share the link.

Change OneDrive Sharing Permission

You can change the sharing permission or remove sharing on a file or folder from within *OneDrive.* The ***Details pane*** on the right displays properties of the selected file or folder.

A10-826

HOW TO: Change or Remove OneDrive Sharing

1. Open an internet browser and log in to your Microsoft 365 account (**https://microsoft365.com**), click **Apps** on the left, and select **OneDrive** in the *Apps* area.
2. Check the **circle** of the shared file or folder to select it.
3. Click the **Details** button in the upper-right corner to open the *Details* pane on the right (**Figure 10-56**).

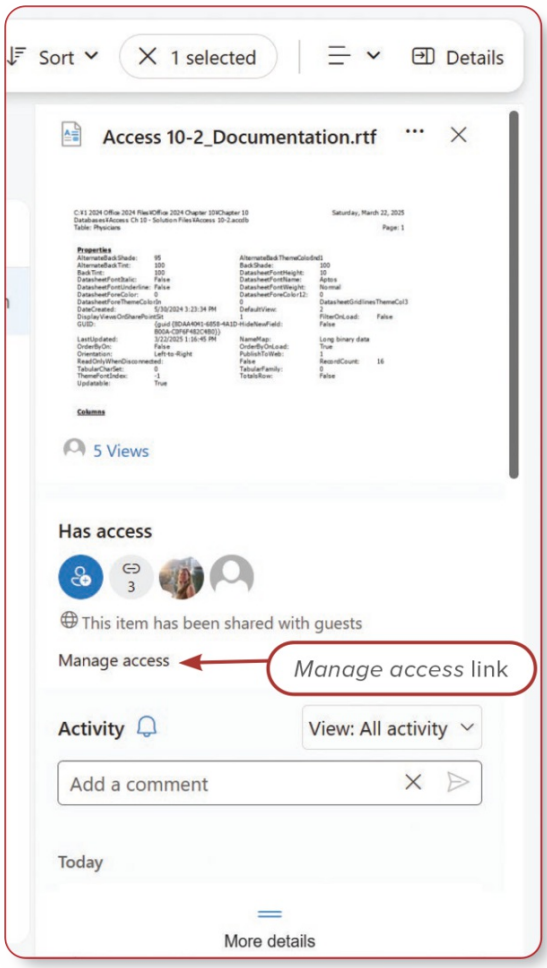


FIGURE 10-56 ***Details*** **pane in** ***OneDrive***

Photo Source: Annette Easton

- The *Details* pane provides summary information about how many times the file has been viewed and the sharing permissions that exist.
- The link icon, in the *Has access* area, indicates a sharing link was created. If more than one link was created, the number of links displays in the icon, below the link symbol.
- The *Activity* area shows details about the sharing activity that has occurred.

4. Click the **Manage access** link in the *Has Access* area to open the *Manage Access* window (**Figure 10-57**). The *Manage Access* window lists sharing permissions for the selected file or folder.

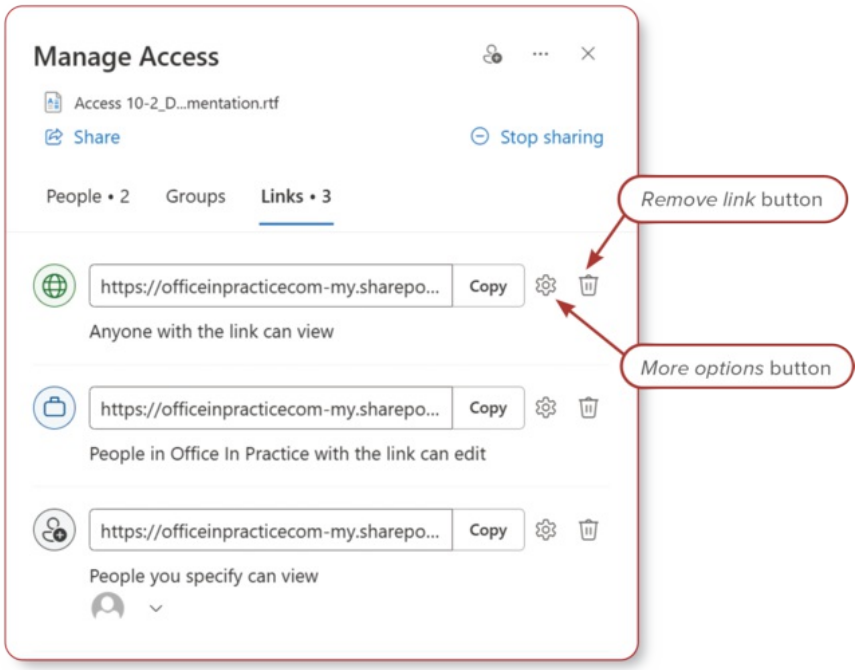


FIGURE 10-57 ***Manage Access* window for sharing**

5. Click **People**, **Groups**, or **Links** to view details about each type of access. The chosen view displays with a blue underline.
6. Click **Share** to add new, additional sharing links.
7. Click the **Copy** button to the right of a specific sharing link to copy a sharing link.
8. Click the **More options** button to the right of a specific sharing link to view and edit additional sharing permissions.
   - Make any desired changes.
   - Click **Apply** to update the sharing options.
   - Click **Change** in the dialog box to change the settings.
9. Click the **Remove link** button to the right of a specific sharing link to delete the sharing link. A dialog box opens to confirm the deletion. Click **Remove** in the dialog box to remove the sharing link.
10. Click **Stop sharing** to remove all sharing access to the file or folder. Click **Stop sharing** in the dialog box to confirm this choice.
11. Click the **X** in the upper-right corner of the *Manage Access* pane to close it and return to the *Details* pane.
12. Click the **Details** button or the **X** in the upper-right corner of the *Details* pane to close the *Details* pane.

SLO 10.5

Using Office Online

Microsoft ***Office Online*** is a free online suite of apps that work in conjunction with your Microsoft 365 account and your online *OneDrive* account. *Office Online* enables you to work with Office files online *without* installing the desktop version of Microsoft 365 or Office 2024. While Access is not available in *Office Online,* you may still find a need to use *Office Online.* For example, you might use ***Excel Online*** to prepare a file to import into Access, or you might use ***Word Online*** to review a letter used in a mail merge operation. Or you might export data to include in a PowerPoint presentation that will be edited in ***PowerPoint Online***.

Office Online apps are available from your *OneDrive* account or Microsoft 365 account web page (**https://microsoft365.com**). Click the **App launcher** button in the upper-left corner of the *OneDrive* window to display the available applications (**Figure 10-58**). The available options may display differently whether you access this menu from *Office Online* or *OneDrive.* Click **More apps** to locate additional apps that do not display in this list.

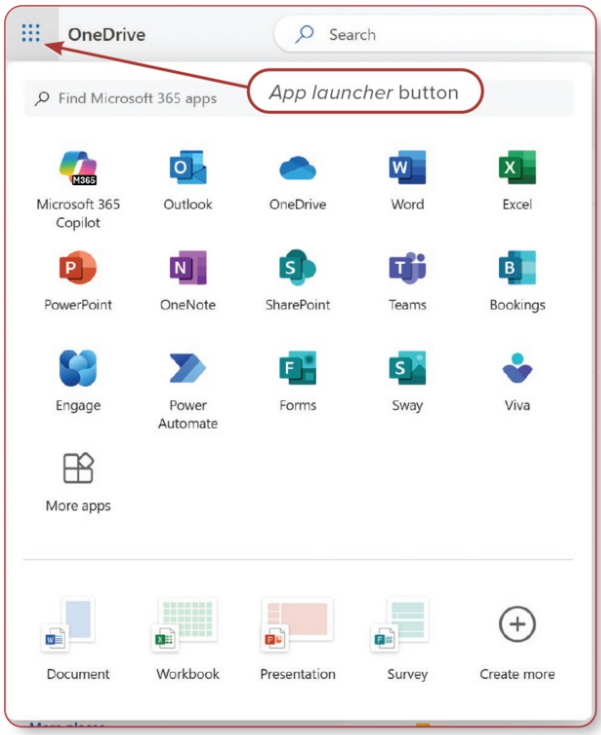


FIGURE 10-58 ***Office Online*** **apps**

Office Online is an online (internet browser-based) version of the desktop version of Microsoft 365. It is not as robust in terms of features, but you can create, edit, print, share, and insert comments in files. If you need more advanced features, open *Office Online* documents in the desktop version of the Office application.

Office Online Note: Figures in this chapter may appear slightly different from how *Office Online* displays in your internet browser. Some features may not be available, or they may have a slightly different name. The *Office Online* environment and available features are affected by the type of Microsoft 365 account (personal or business/education), the internet browser you use (Chrome, Edge, Safari, or Firefox), and periodic updates to *Office Online.* The figures in this section display *Office Online* using the Google Chrome web browser and a business/education Microsoft account.

MORE INFO

Microsoft regularly updates the *Office Online* products and online environment. Figures in this chapter may appear slightly different from how *Office Online* displays in your internet browser. Also, Microsoft Access is not available in *Office Online.*

Edit an Office Online File

Use *Office Online* to open and edit the Office files you have stored in *OneDrive.* The working environment in *Office Online* is very similar to Microsoft Office and has the familiar *Ribbon,* tabs, and groups. However, not as many tabs and features are available in *Office Online.* If necessary, from within the *Office Online* apps, you can open and edit a file in the desktop application.

HOW TO: Edit an Office Online File

1. Log in to your Microsoft 365 account (**https://microsoft365.com**), click **Apps** on the left, and select **OneDrive** in the *Apps* area.
2. Click **My files**, click a folder name as desired, and click an Office file (the file name, not the circle on the left) to open from *OneDrive* (Figure 10-59).

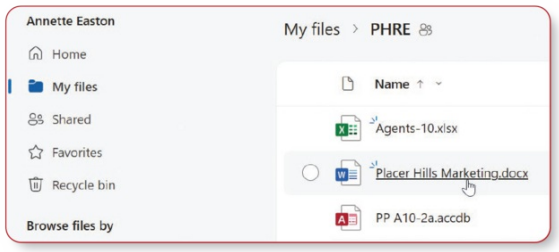


FIGURE 10-59 Open a document in *Office Online*

- Alternatively, select a file (check the **circle**), click the **Open** drop-down list, and select **Open in browser**.
- When opening a file in *Office Online*, the file opens in a new tab and *OneDrive* remains open in the previous browser tab.

3. Click the **Ribbon Display Options** drop-down list to change the *Ribbon Layout* to **Classic Ribbon** or **Single Line Ribbon** (Figure 10-60).

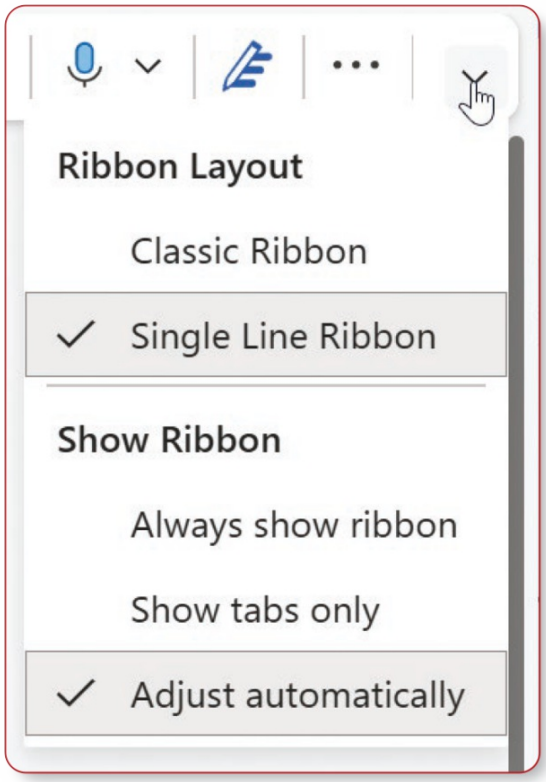


FIGURE 10-60 ***Ribbon Display Options***

- The *Ribbon* tabs display in the *Office Online* application. The tabs vary depending on the specific *Office Online* application.
- The *File, Home, Insert, Layout, References, Review, View,* and *Help* tabs are on the Word *Ribbon.*
- The *File, Home, Insert, Draw, Design, Transitions, Animations, Slide Show, Review, View,* and *Help* tabs are on the PowerPoint *Ribbon.*
- The *File, Home, Insert, Share, Page Layout, Formulas, Data, Review, View, Automate, Help,* and *Draw* tabs are on the Excel *Ribbon.*
- The *Single Line Ribbon* displays fewer options on the *Ribbon.* The *Classic Ribbon* displays more options on the *Ribbon,* and the *Ribbon* appears similar to that on the desktop applications.

- Additionally, select **Always show ribbon**, **Show tabs only**, or **Adjust automatically** from the *Show Ribbon* area. *Adjust automatically* is the default setting.

4. Edit and apply formatting changes in *Office Online* (**Figure 10-61**).

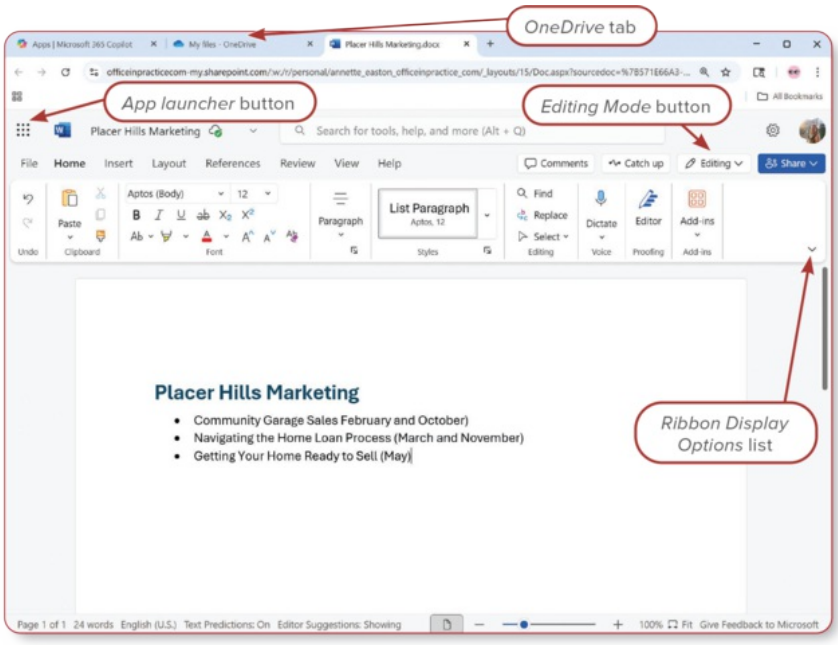


FIGURE 10-61 **Document open in *Word Online***

Photo Source: Annette Easton

- You can edit and format text; apply styles; and cut, copy, and paste selected text.
- When using *Office Online,* advanced formatting such as text boxes, pictures, charts, and *SmartArt* might not display as they do when you open the document in the desktop version of the Microsoft 365 apps.
- *Office Online* automatically saves changes to the file.
- **Figure 10-61** shows the *Classic Ribbon* display option.
- If necessary, you can switch modes to edit the *Office Online* file in Microsoft Office. To do this, you must have Microsoft Office installed on the computer you are using. Click the **Editing Mode** button drop-down list and select **Open in Desktop App**.

5. Close the browser tab to close the *Office Online* document.
   - Alternatively, click the **OneDrive** tab (see **Figure 10-61**) to return to your *OneDrive* folders and files. This option does not close the open document.

MORE INFO

The *Single Line Ribbon* may not be available on all *Office* Online apps. The *Ribbon* in *Office Online* apps may vary slightly depending on the type of Microsoft account you are using.

Create an Office Online File

You are not limited to editing existing documents in *Office Online;* you can also create new Word documents, Excel workbooks, PowerPoint presentations, *OneNote* notebooks, or *Forms survey.*

When you create an *Office Online* file, the file automatically saves in your *OneDrive* account using a default name, such as *Book* (Excel), *Document* (Word), or *Presentation* (PowerPoint). To use a more descriptive file name, click the default name in the *Title* bar and type a new name.

MORE INFO

OneNote and *Forms* are discussed later in ***SLO 10.6: Exploring Copilot and Other Microsoft 365 Applications***.

HOW TO: Create an Office Online File

1. Click to select a folder in *OneDrive* where you want to create a new file. If you don't select a folder, the file will be created in the *My files* listing.
2. Click the **Create or upload** button and select the type of file you want to create (**Word document**, **Excel workbook**, **PowerPoint presentation**, **OneNote notebook**, or **Forms survey**) (**Figure 10-62**).

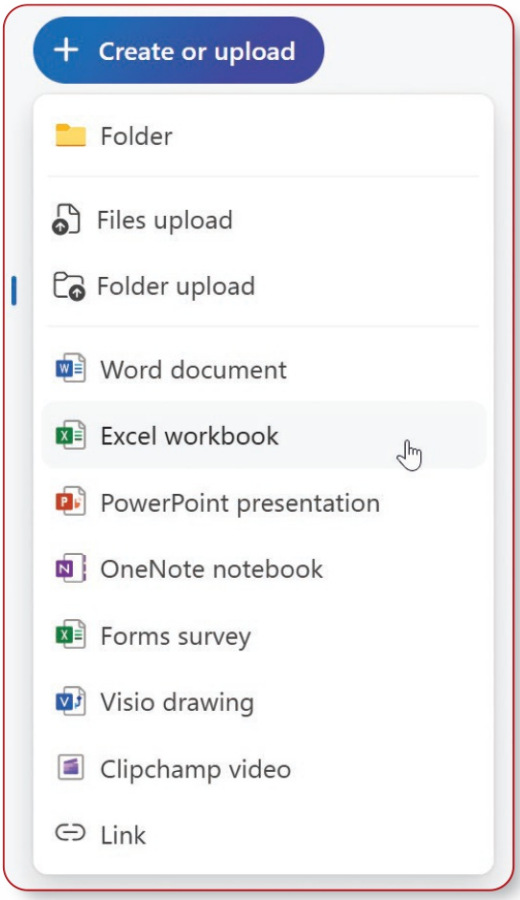


FIGURE 10-62 Create an *Excel Online* document

- A new file opens in the selected *Office Online* application in *edit* mode in a new browser tab.
- The default file name displays in the *Title* bar and the browser tab.

3. Type content in the application and apply formatting as desired.
   - *Office Online* automatically saves changes to the file.
4. Rename the file, as desired, by clicking the default file name in the *Title* bar (**Figure 10-63**), typing a new file name in the *File Name* box in the drop-down window, and pressing **Enter**.

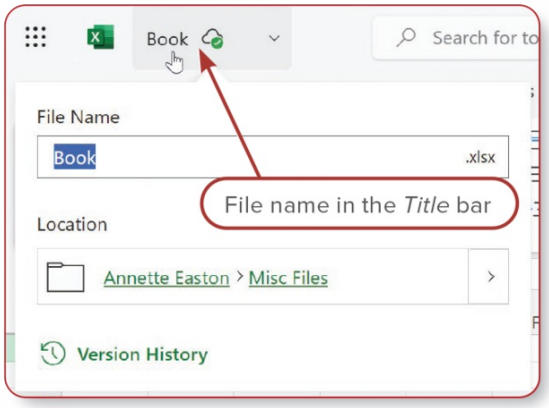


FIGURE 10-63 **Rename a file in *Office Online***

- Alternatively, click the **File** tab in the *Ribbon* and select **Rename** or **Create a Copy** for other saving options.

5. Close the browser tab to close the *Office Online* file.
   - Alternatively, click the **OneDrive** tab in your browser to return to your *OneDrive* folders and files. This option does not close the open document.

A10-830

COPILOT/GENERATIVE AI BEST PRACTICES

The *Office Online* apps in Microsoft 365 are very convenient and useful, but they are not as robust in functionality as the desktop Office apps. Use *Copilot* or another generative AI product to learn about differences in features between the online and desktop version of the different Microsoft 365 Office apps. Use follow-up prompts to learn about how to use the Microsoft 365 Office apps on your mobile device.

Print an Office Online File

Print files from *Office Online* similarly to how you print files in Office.

HOW TO: Print an Office Online File

1. Open an *Office Online* file.
2. Click the **File** tab and select **Print** to display the print options (**Figure 10-64**). The print options vary by the *Office Online* application.

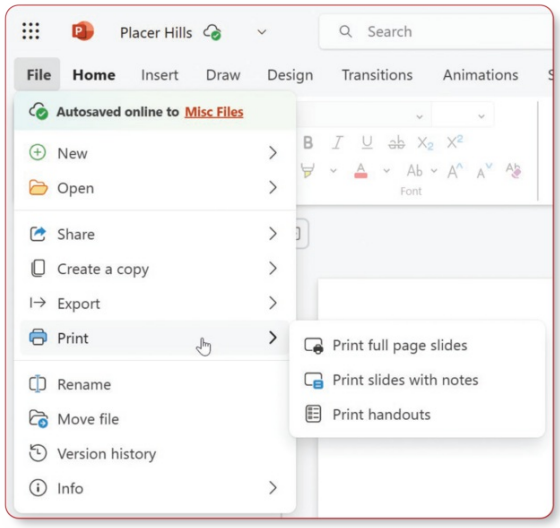


FIGURE 10-64 ***Print*** **button options in PowerPoint**

3. Select the desired **Print** option. A preview screen or *Print Settings* dialog box displays.
4. Select any desired print options and click the **Print** button. Depending on the *Office Online* application, an additional window of print options may display.
5. Confirm any additional print settings and click **Print**, if necessary.
   - If a message box displays that printing is done, close it.
6. Close the browser tab to close the *Office Online* file.

Share an Office Online File

In addition to sharing a file from *OneDrive,* you can also share an *Office Online* file. The process for sharing a file in *Office Online* is similar to sharing a file or folder in *OneDrive.*

A10-831

HOW TO: Share an Office Online File

1. Open an *Office Online* file.
2. Click the **Share** button drop-down list in the upper-right corner of the *Office Online* window and select **Share**.
   - The *Share* window opens with different options (**Figure 10-65**).

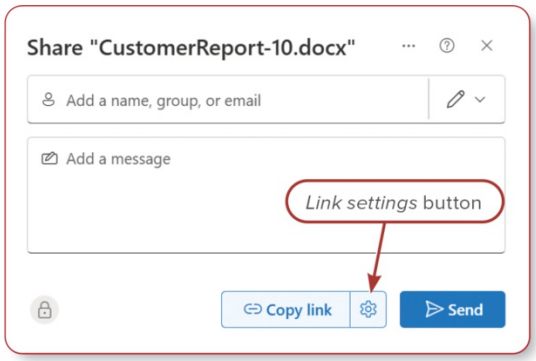


FIGURE 10-65 Share an *Office Online* file

- If you're using a personal Microsoft account, the sharing options differ slightly in the *Share* window.

3. Click the **Link settings** button to open the *Link settings* window (Figure 10-66).

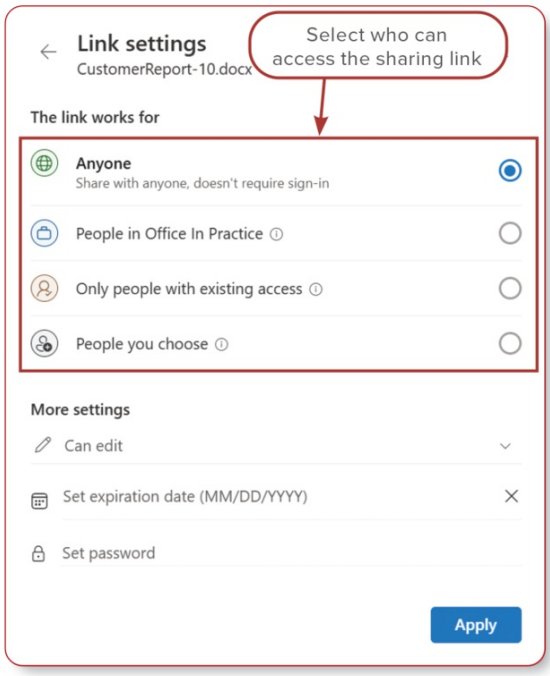


FIGURE 10-66 *Link settings* window

- Select who can use the sharing link in the "*The link works for*" area.
- Change the editing and sharing preferences as desired.

4. Select the **Can edit** drop-down list, as desired, to change the sharing permission. Select from **Can edit**, **Can review**, **Can view**, or **Can't download**. The available options vary based on the file type.

5. Set an expiration date and/or password as desired.
6. Click **Apply** to return to the *Share* window.
7. Send a sharing link by typing recipient(s) email address(es), typing a brief message, and clicking the **Send** button (see Figure 10-65). Close the confirmation window. The people you selected will receive an email containing a link to the shared file or folder.
8. Alternatively, create a sharing link by clicking the **Copy link** button in the *Share* window (see Figure 10-65). The *Share* window will update to include a *Link Copied* message and the link is placed on the Windows *Clipboard.* Close the *Share* window. Paste (**Ctrl+V**) the link into an email or other location you will use to share the link.

Collaborate in Office Online

Office Online enables you to collaborate on an Office file synchronously or asynchronously with others who have access to the shared file. If two or more users are working on the same file in *Office Online,* collaboration information displays as a tag in the *Office Online* file. Hover over the tag (Figure 10-67) to display the user's name. Updates made by another user are reflected immediately in the document.

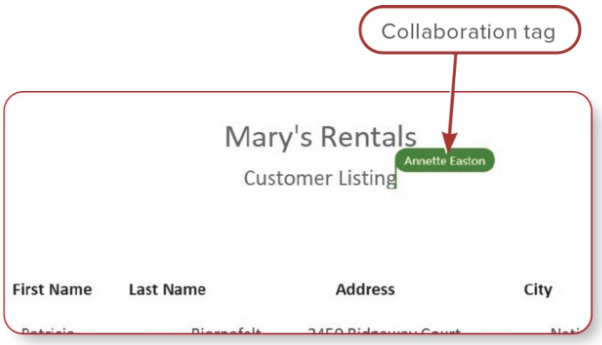


FIGURE 10-67 Collaboration tag on a shared file

COPILOT/GENERATIVE AI BEST PRACTICES

The collaboration feature in the Microsoft 365 apps work while using both the desktop and online versions. Use *Copilot* or another generative AI product to learn about how to collaborate on Office files when some users are using the desktop version and some are using the online version of the Office app.

Use Comments in Office Online

In *Office Online,* you can add comments to a file, review comments from others, reply to comments, resolve comments, and delete comments. The process varies slightly depending on the *Office Online* application you use. Enter comments in the *Comments* pane, which appears at the right of the *Office Online* application window. Actions related to comments are located on the *Review* tab.

A10-832

HOW TO: Add a Comment in Office Online

1. Open an *Office Online* file.
2. Select an area of the file to insert a comment.
   - In *Word Online,* select the text where you want to add a comment.
   - In *PowerPoint Online,* select the slide where you want to add a comment.
   - In *Excel Online,* select the cell where you want to add a comment.
3. Click the **New Comment** button [*Review* tab, *Comments* group] (**Figure 10-68**) to open a new comment.

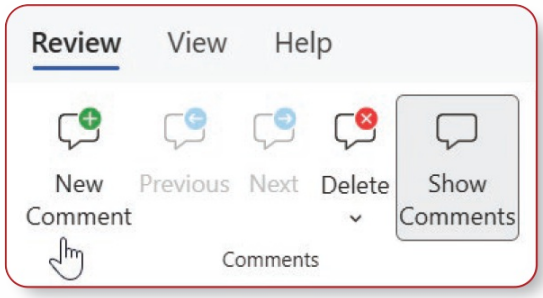


FIGURE 10-68 **Add a new comment**

   - Alternatively, click the **Comments** button near the upper-right corner of the *Office Online* window to open the *Comments* pane on the right. Click the **New** button in the *Comments* pane.
   - The appearance of the *Comments* pane varies depending on whether it is opened from the *Show Comments* or the *Comments* button.
4. Type a comment in the new comment area in the *Comments* pane and click the **Post comment** button to post the comment (**Figure 10-69**).



FIGURE 10-69 Post a new comment

- In *Word Online,* a comment balloon displays to the right of the area you selected in the document.
- In *PowerPoint Online,* a comment balloon displays in the upper-left corner of the slide.
- In *Excel Online,* a small comment flag appears in the upper-right corner of the cell. If you hover over the flag, a comment balloon displays to the right of the cell.

5. Click the **X** in the upper-right corner of the *Comments* pane or click the **Show Comments** button [*Review* tab, *Comments* group] to close the pane.

Review Comments in Office Online

To review your own comments or comments from others, click a comment balloon in the file. In *PowerPoint Online,* you must first select the slide to display the comment balloon. In *Excel Online,* you must first click the cell to display the comment balloon. You can also click the **Show Comments** button [*Review* tab, *Comments* group] or the **Comments** button near the upper-right of the Office Online window to open the *Comments* pane on the right. Click the **More thread actions** button (ellipsis) in the upper-right corner of a comment to display comment actions (**Figure 10-70**). **Figure 10-70** shows the *Comments* pane opened by clicking the *Comments* button.



FIGURE 10-70 Comment actions

You can perform the following actions on existing comments:

- Click the **@mention or reply** text box, type a comment, and then click the **Post reply** button.
- Click the **More thread actions** button and select **Link to comment** to create a sharing link to the comment.
- Click the **More thread actions** button and select **Edit comment** to edit a comment you made.
- Click the **More thread actions** button and select **Resolve thread** to mark a comment as done after you have acted on the comment or when it is no longer relevant. This action is only available in *Word Online.*
- Click the **More thread actions** button and select **Delete thread** to delete a comment.
- Click the **Like** button to mark a comment as liked.

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A10-835

PAUSE & PRACTICE: ACCESS 10-2

For this project, create a folder in *OneDrive,* upload files to *OneDrive,* edit a document in *Word Online,* create an *Excel Online* document, and share a *OneDrive* folder.

Note to Instructor and Students:

Use your education Microsoft account, OneDrive, Word Online, *and* Excel Online. *If you don't have an education Microsoft account, create one at* **https://www.microsoft.com/en-us/education/products/office**.

Microsoft regularly updates the Office Online *products and* OneDrive *online environment. Instructions and figures in this project may differ slightly from how* Office Online *and* OneDrive *display in your internet browser. The Google Chrome web browser is used for instructions and figures in this project.*

Files Needed: ***[your initials] PP A10-1.accdb*** and ***NewAgents-10.xlsx*** *(Student data files are available in the*

Library *of your SIMnet account.)*

Completed Project Folder and File Names: ***PHRE*** *OneDrive* folder containing the following three files: ***[your initials] PP A10-2a.accdb***, ***[your initials] PP A10-2b.xlsx***, and ***[your initials] PP A10-2c.docx***

1. Open an internet browser window, go to the Microsoft 365 website (**https://microsoft365.com**), and sign into your Microsoft 365 account.
   a. You can use any internet browser to access *OneDrive* (Microsoft Edge, Google Chrome, Apple Safari, or Mozilla Firefox).
   b. If using your own computer, check the **Keep me signed in** box to stay signed in to *OneDrive* when you return to the page.
2. Click the **Apps** button on the left and select **OneDrive** in the *Apps* area (**Figure 10-71**) to take you to the online *OneDrive* area of your Microsoft account.

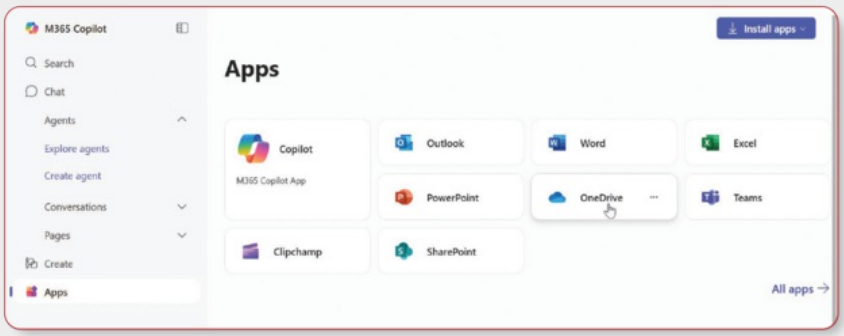


FIGURE 10-71 Open *OneDrive* from your Microsoft 365 account

   a. If *OneDrive* does not display in the *Apps* area, click **All apps** to display all the apps and select **OneDrive**.
   b. The different areas of *OneDrive* display on the left side (*Home, My files, Shared, Favorites,* and *Recycle bin*).
3. Create a new folder, upload files, and rename a file.
   a. Click **My files** on the left to display the contents of your *OneDrive* folder.
   b. Click the **Switch view options** button in the upper-right corner and select **List** to display your folders and files in *List* view if they do not already display as a list (**Figure 10-72**).

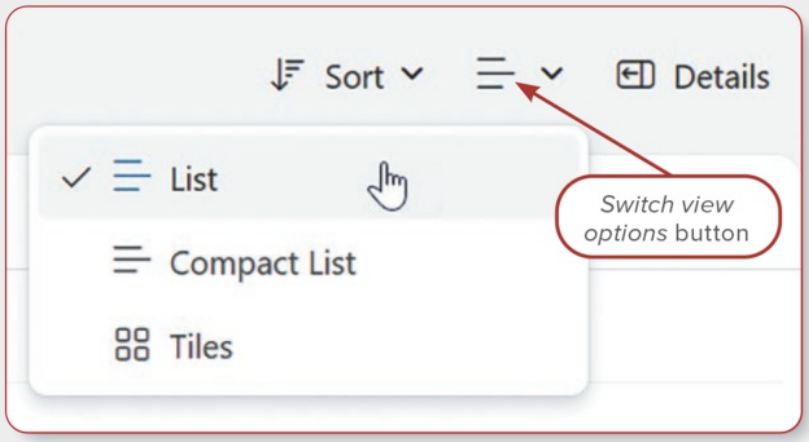


FIGURE 10-72 ***Switch view options*** **button in** ***OneDrive***

c. Click the **Create or upload** button at the top and select **Folder** from the drop-down list (Figure 10-73).

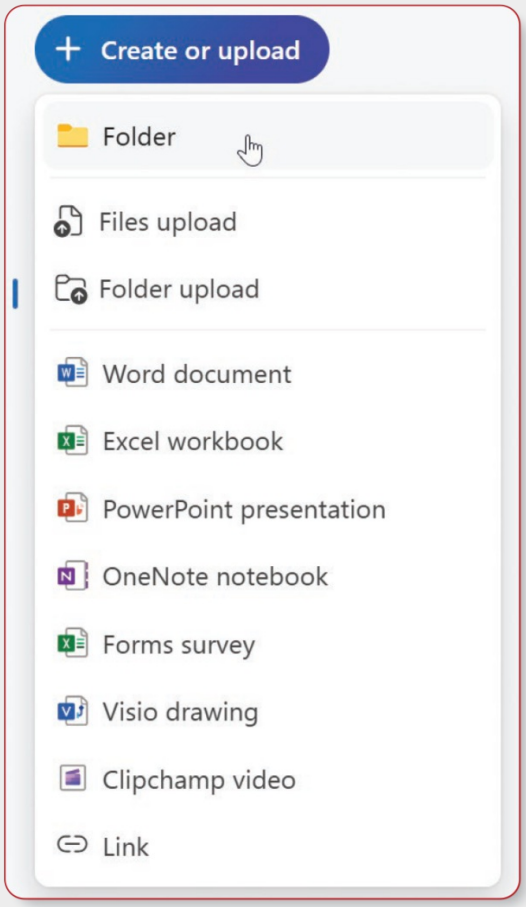


FIGURE 10-73 **Create a new folder in** ***OneDrive***

d. Type PHRE as the name for the new folder and click **Create**.

e. Click the **PHRE** folder (not the circle to the left) to open it.

f. Click the **Create or upload** button at the top and select **Files upload** to open an upload dialog box. Remember, the name of this dialog box varies depending on the internet browser you are using.

g. Select the ***NewAgents-10*** Excel file from your student data files and click **Open**. The file is added to the *PHRE* folder.

h. Repeat the upload process to upload the ***[your initials] PP A10-1*** database you created in *Pause & Practice 10-1*.

i. Check the **circle** to the left of ***[your initials] PP A10-1*** and click the **Rename** button at the top to open the *Rename* dialog box. If you don't see the *Rename* button, click the **More commands** button (ellipsis) to open the menu of additional commands.

j. Change the file name to [your initials] PP A10-2a and click **Update**.

k. Deselect the ***[your initials] PP A10-2a*** file.

l. Check the **circle** to the left of ***NewAgents-10*** Excel file, click the **Rename** button, change the file name to [your initials] PP A10-2b, and click **Update**.

4. Edit a file in *Excel Online*.

a. Click the ***[your initials] PP A10-2b*** file in the *PHRE* folder to open it in *Excel Online*. The file opens in a new browser tab.

b. In row 5, type the following data into the appropriate cells:

EmpID: 181

LastName: Schluter

FirstName: Leo

DateHired: 6/20/2025

Phone: 5355905787

In *Excel Online,* the file is saved automatically so you don't need to save your changes.

c. Click the **X** on the ***[your initials] PP A10-2b*** tab of the browser (**Figure 10-74**) to close the file and return to your *OneDrive* folders. Don't click the **X** in the upper-right corner of the internet browser window, which closes the internet browser window.

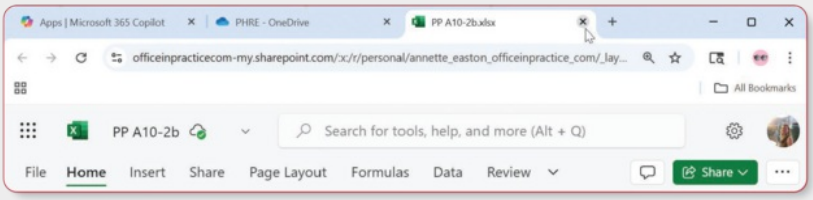


FIGURE 10-74 Close an *Excel Online* document

Photo Source: Annette Easton

5. Create a new Word document in *Word Online*.

a. Confirm the ***PHRE*** folder is open in *OneDrive* in the browser window. If not, open it.

b. Deselect the ***[your initials] PP A10-2b*** file if it is selected (checked).

c. Click the **Create or upload** button and select **Word document**. A new document opens in *Word Online*.

d. Click the **File** tab in the *Ribbon* and select **Rename**. Type [your initials] PP A10-2c in the *File Name* box in the drop-down window and press **Enter**.

e. Place your insertion point in the document, type Placer Hills Marketing on the first line of the document, and press **Enter**.

f. Select "**Placer Hills Marketing**," apply the **Heading 1** style [*Home* tab, *Styles* group], and **bold** formatting.

g. Click below *Placer Hills Marketing* to deselect the text.

h. Click the **Bullets** button [*Home* tab, *Paragraph* group] to turn on bullets and type the following three bulleted items:
Community Garage Sales (February and October)
Navigating the Home Loan Process (March and November)
Getting Your Home Ready to Sell (May)
The document should be similar to **Figure 10-75**.



FIGURE 10-75 ***Placer Hills Marketing* document in *Word Online***

6. Add a comment to the document.

a. Select the bulleted list.

b. Click the **Comments** button in the upper-right corner of the *Office Online* window to open the *Comments* pane.

c. Click the **New** button in the *Comments* pane to open a new comment.

d. Type Confirm these dates with Leo in the new comment area and click **Post comment** (**Figure 10-76**).

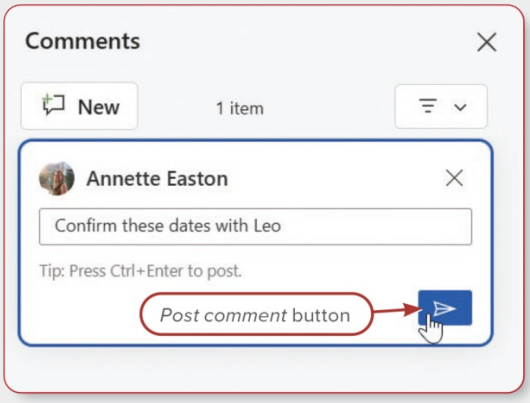


FIGURE 10-76 **Add comment**

Photo Source: Annette Easton

e. Click the **X** in the upper-right corner of the *Comments* pane to close the pane.

f. Click the **X** on the ***[your initials] PP A10-2c*** tab of the browser to close the ***[your initials] PP A10-2c*** document. You return to the ***PHRE*** folder in *OneDrive*. You should now have three files in your ***PHRE*** folder in *OneDrive*. You may need to refresh the browser tab to see all files.

7. Share the ***PHRE*** folder with your instructor.

a. Click **My files** to return to your list of folders.

b. Check the **circle** to select the *PHRE* folder.

c. Click **Share** at the top to open the *Share* window (Figure 10-77).

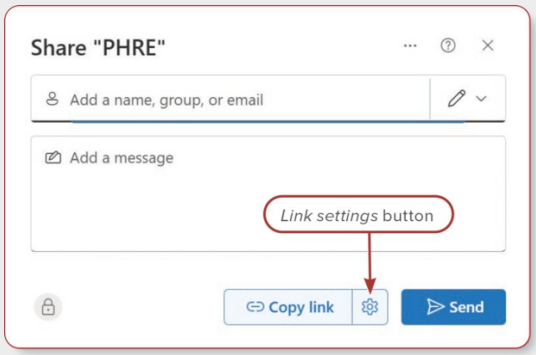


FIGURE 10-77 ***Share*** **window**

d. Click the **Link settings** button to open the *Link settings* window (Figure 10-78).

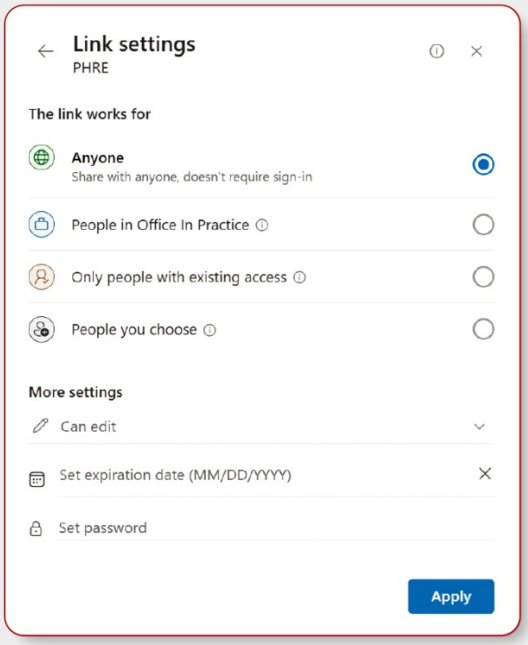


FIGURE 10-78 ***Link settings*** **window**

e. Select the **Anyone** option, if not already selected.

f. Select the **Can edit** drop-down list and select **Can view**.

g. Click **Apply** to return to the *Share* window.

h. Type your instructor's email address in the *Add a name, group or email* area.

i. Type the following in in the *Add a message* area:

[Your Name] | [Course code] | PP A10-2

Professor,

Here is a link to my PHRE folder.

Kind regards,

[Enter your name here]

j. Click **Send** to send your instructor the sharing link. Close the confirmation window.

8. Return to *OneDrive* and sign out of your account.

SLO 10.6

Exploring *Copilot* and Other Microsoft 365 Applications

A Microsoft 365 account provides access to many Microsoft 365 online applications (apps) in addition to *OneDrive* and *Office Online.* In *Office Online,* you have access to the main applications in Microsoft 365 and Office 2024 (except Access) and additional online applications not available in the desktop version of Office, such as *Copilot, Forms* and *Sway.* You also have *OneNote* to provide note-taking capabilities.

Log in to your Microsoft 365 account (**https://microsoft365.com**) to use the Microsoft 365 online apps. Click the **Apps** button in the left pane of your Microsoft 365 account web page to display the list of apps (**Figure 10-79**). The available options may display differently depending on whether you access this menu from *Office Online* or *OneDrive.*

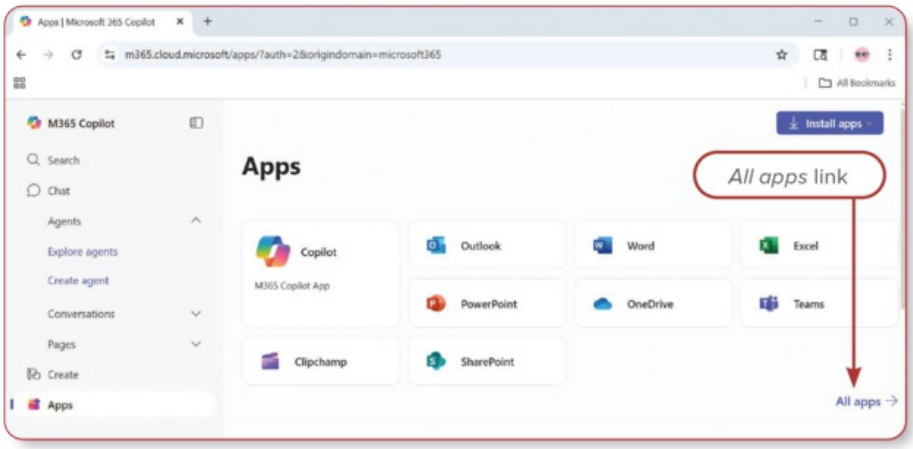


FIGURE 10-79 List of Microsoft 365 Online apps

Click an app button in the *Apps* area to open the corresponding application. If your desired app does not display in the list, click **All apps** to expand the list and display all available apps.

Microsoft 365 Note: Figures in this chapter may appear slightly different from how Microsoft 365 apps display in your internet browser. Some features may not be available, or they may have a slightly different name. The Microsoft 365 apps and available features are affected by the type of Microsoft account (personal or business/education), the internet browser you use (Chrome, Edge, Safari, or Firefox), and periodic updates to Microsoft 365. The figures in this section display

Microsoft 365 apps using the Google Chrome web browser and a business/education Microsoft account.

COPILOT/GENERATIVE AI BEST PRACTICES

This section introduces a few Microsoft 365 apps that can enhance personal and professional productivity. Many other Microsoft 365 apps are available, and new apps are introduced regularly. Use *Copilot* or another generative AI product to learn about some of the other Microsoft 365 apps, such as Bookings, Insights, Lists, Loop, Power Automate, Power Pages, To Do, Viva, and others. Use follow-up prompts to get suggestions to increase personal or professional productivity using one or more of the Microsoft 365 apps you don't currently use.

Copilot

Copilot is Microsoft's generative artificial intelligence (Generative AI, GenAI, or AI) product. **Generative AI** refers to a branch of artificial intelligence that focuses on creating or producing new content rather than making predictions based on existing data. *Copilot* and other AI products are amazing tools for generating ideas, creating content, and summarizing information.

The content generated by AI should be considered your starting point, not your finished product. Use the creative capabilities of *Copilot* to help get you started on projects or tasks to make you more productive and efficient. Consider how you might use *Copilot* to enhance your productivity to perform the following tasks:

- Research topics for a paper or project
- Produce content for a PowerPoint presentation
- Learn about a new technology or product
- Build an outline for a meeting agenda
- Write a list of questions to ask at an interview
- Generate a large data set for Excel
- Analyze a large data set in Excel
- Summarize an email or information on a web page
- Create a cover letter
- Generate an email response
- Build a work and study schedule
- Create a task list for an upcoming project

Microsoft 365 Note: *Copilot* is available in Microsoft 365 to users with a Microsoft 365 account. Additionally, *Copilot* can be integrated in the Microsoft 365 Office apps, both the desktop and online versions. *Copilot* integration in the Microsoft 365 Office apps is dependent on the type of

Microsoft 365 account you have. For education and business Microsoft 365 accounts, *Copilot* is available with a paid additional *Copilot in Microsoft 365* subscription. Also, *Copilot* is a new and dynamic product. The *Copilot* environment and features will change regularly.

Write Effective Prompts in Copilot

Users enter a prompt in *Copilot,* which is called a ***chat.*** *Copilot* generates a response to the prompt using natural language. Follow-up prompts allow users to refine or elaborate on *Copilot's* initial response. Better prompts lead to better responses from *Copilot.* The art of creating good prompts is called ***prompt engineering.*** The following are eight best practices for writing prompts in *Copilot:*

- Be clear and specific
- Use simple, conversational language
- Provide context
- Set a persona
- Specify a response output
- Specify language and style
- Combine techniques
- Use follow-up prompts

A10-838

HOW TO: Use Copilot in Microsoft 365

1. Log in to your Microsoft 365 account (**https://microsoft365.com**) and click **Chat** or **M365 Copilot** on the left. The *Copilot* page displays on the right.
2. Type a prompt in the *Message Copilot* text box (Figure 10-80).

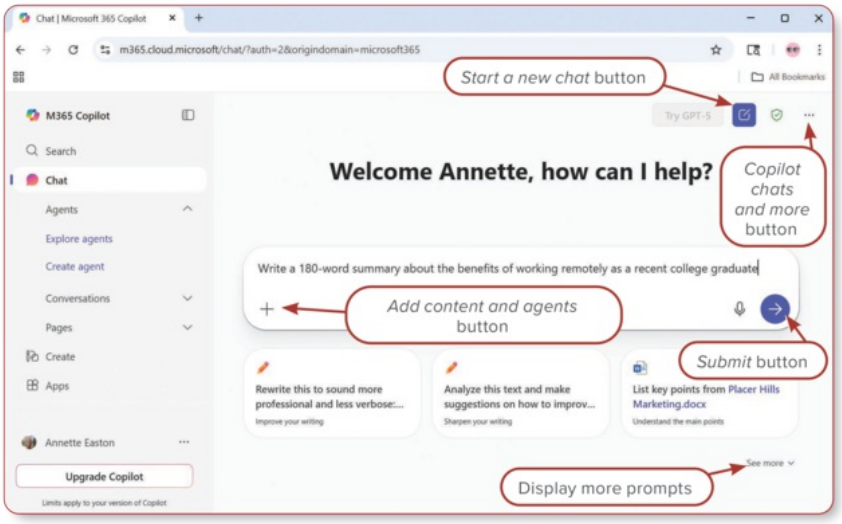


FIGURE 10-80 Copilot area in Microsoft 365

- Alternatively, click one of the suggested prompts or click the **See more** button to view additional suggested prompts. The *Prompt Gallery* button also displays.
- Click the **Prompt Gallery** button to open the *Copilot Prompt Gallery* where you can view suggested prompts in different categories or view your past prompts. Click one of those prompts or the **X** to close the *Copilot Prompt Gallery*.
- Click the **Add content and agents** button and select **Add content** to upload a file. This can be used if you want *Copilot* to generate a response based on a data file. For example, you may ask *Copilot* to generate a PowerPoint presentation based on content in a Word document or create an email response to summarize the content in an Excel spreadsheet.

3. Press **Enter** or click the **Submit** button to begin the chat with *Copilot*.
   - *Copilot* displays your prompt near the top and then generates a response below (**Figure 10-81**).

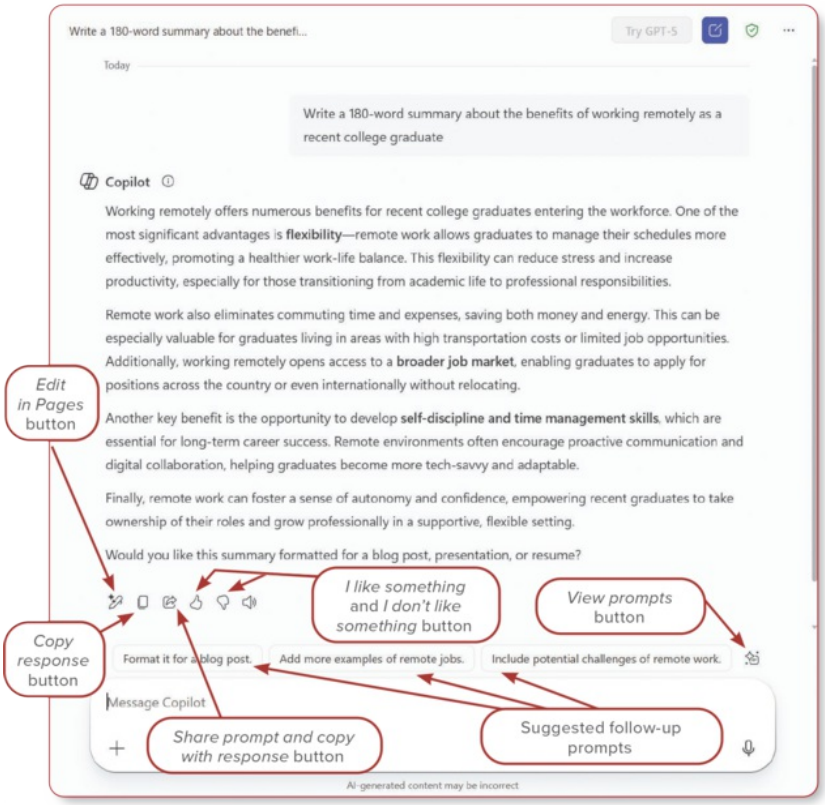


FIGURE 10-81 Copilot response and options

- Sample follow-up prompts display below the response. You may need to scroll to the bottom of your chat to see the prompts. Click a follow-up prompt as desired. Alternatively, click the **View prompts** button to open the *Copilot Prompt Gallery*.

- Click the **Edit in Pages** button to edit the response on a separate page.
- Click the **Copy response** button to copy the response to use in another file or location.
- Click the **Share prompt and copy with response** button to create a link to share with others that contains the prompt and the response.
- Click the **I like something** or **I don't like something** button to open a feedback window where you can submit feedback to Microsoft about a *Copilot* response to your prompt.

4. Edit the content generated in *Copilot* in *Pages* or another Office app.
5. Click the **Conversations** button on the left to display a list of previous chats.
   - Click one of the chats to reload the prompt and response.
   - Click the **More** button (ellipsis) on the right of a chat to **Rename** or **Delete** it (Figure 10-82).

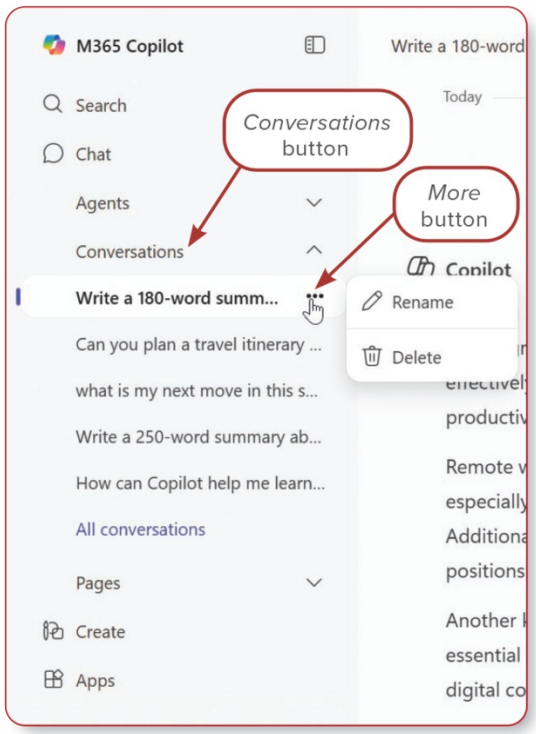


FIGURE 10-82 Recent chats in the *Copilot Panel*

6. Click the **Start a new chat** button in the upper-right corner (see Figure 10-80) or **Chat** on the left to start a new *Copilot* chat.
7. Close the *Copilot* browser tab when finished.

Edit and Customize Copilot Output

Copilot is an excellent assistant for gathering information, summarizing content, and generating ideas. Remember that the output from *Copilot* or other generative AI tools is your starting point rather than your finished product. It is important to review the AI output to ensure the information is accurate, safe, and private. Next, edit and customize the output to meet your specific needs. *The goal of editing and personalizing AI-generated content is to make it uniquely your own.* Use the following guidelines when editing and customizing content generated by *Copilot:*

- **Determine Output:** How will you ultimately use this information? In an email, presentation, report, spreadsheet, or meeting?
- **Copy and Edit Output:** Modify *Copilot's* output to customize the content. This may include copying and pasting into an Office app. Use *Track Changes* so you can keep track of the original AI output and your modifications.
- **View Sources:** Output generated from AI will typically include source information. Use these sources to verify the accuracy of the information and to gather additional details.
- **Personalize Information:** Output from *Copilot* can be somewhat sterile, and most people can now recognize content generated by AI. Always edit AI output to inject your personality and humanize the content. Add context and culture to personalize, summarize and paraphrase content to express your own voice.

COPILOT/GENERATIVE AI BEST PRACTICES

Copilot and other AI products are powerful productivity and learning tools, but we need to use these tools responsibly to ensure ethical, accurate, and meaningful output. Using *Copilot* and other generative AI tools responsibly takes both time and intention. *Remember, you must use AI output as a starting point, not as your finished product.*

Forms

Microsoft 365 gives users the ability to create ***Forms*** to gather data. A form is essentially a survey or questionnaire. It is created in the *Forms* area in Microsoft 365 (**Figure 10-83**) and is shared via email or posted in an online environment. Respondents complete the online *Form* in an internet browser window and submit their answers. The responses to the *Form* are automatically added to the *Form* file in the *Forms* area of Microsoft 365. The creator of the *Form* can easily and quickly view survey results in *Forms* or open and view the response data in the Excel desktop application.

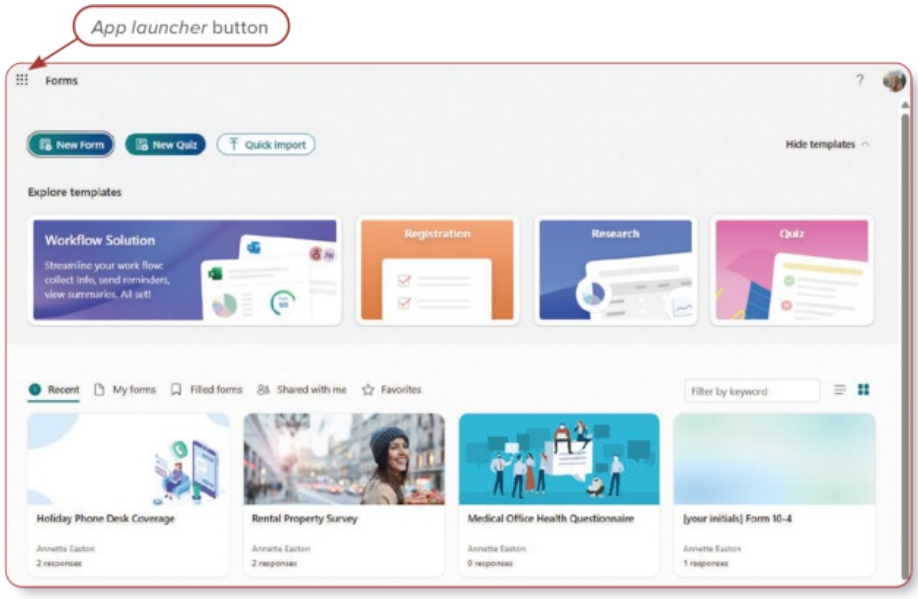


FIGURE 10-83 ***Forms* area in *Microsoft 365***

Photo Sources: Annette Easton, Microsoft Access, Irina Strelnikova/Shutterstock, PureSolution/Shutterstock

MORE INFO

Forms is now available in education, business, and personal Microsoft accounts. Previously, *Excel Survey* was available in personal Microsoft accounts.

Create and Share a Form

Forms provides a variety of question types, themes, and customization options for you to create a professional-looking survey. Before creating a *Form,* plan the questions to be asked and the types of question to be used. Some question types, like a choice or rating question, require you to determine the answers from which the user can select. After creating a form, create a sharing link to email to recipients.

A10-841

HOW TO: Create and Share a Form

1. Log in to your Microsoft 365 account (**https://microsoft365.com**).
2. Click **Apps** on the left, click **All apps**, and select **Forms** to open the *Forms* page (see **Figure 10-83**).

3. Click **New Form** to create a new *Form*.
   - The form is untitled.
   - The form may display a list of *Quick start* questions.
   - *Forms* automatically saves the form as you make changes.
   - Remember that the available features, and their names, may vary based on the type of Microsoft 365 account you have as well as updates made to the app.
4. Click **Untitled form** to open the edit mode and type a name for the form.
5. Click the **Insert**, **paste**, **or drag media** button at the right-side of the title box, as desired, to add an image or video to the question.
6. Click **Form description** and type a description, as desired. The description appears below the main label in the survey.
7. Click the **Quick start with** button to display a list of question types (**Figure 10-84**).

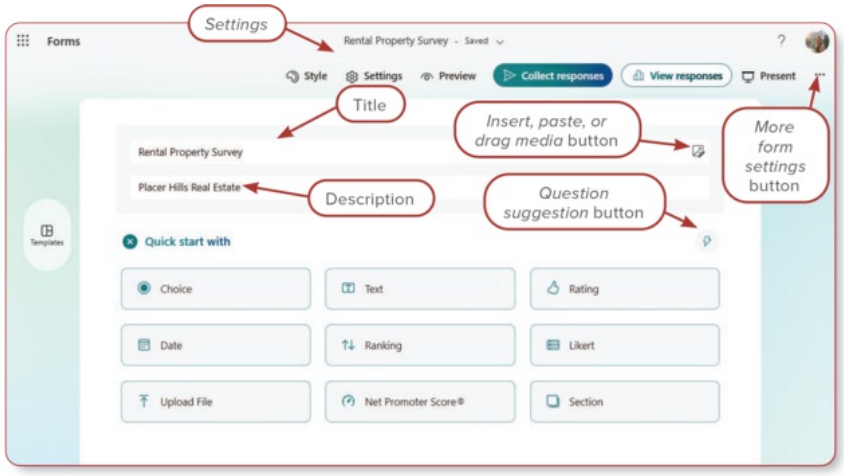


FIGURE 10-84 **Quick start question options**

Photo Source: Annette Easton

   - The *Question suggestion* button may display to the right of the question types. *Forms* displays this button if it has any questions to suggest based on analyzing key words in the form.
   - Click the **Question suggestion** button to display the list of suggested questions. Click a suggested question and click **Add selected** to add it to the form, or click **Add all** to add all the suggested questions to the form, or click **X** to close the suggested questions.
   - Click the **Quick start with** button, if necessary, to display the question list again.
8. Select a **question type** to add a question to the form.
   - The type of question affects options in the *Questions* dialog box.

- Type the question text.
- Click the **More settings for question** button (ellipsis) (Figure 10-85) to add a subtitle and customize response options. The options vary based on the question type.

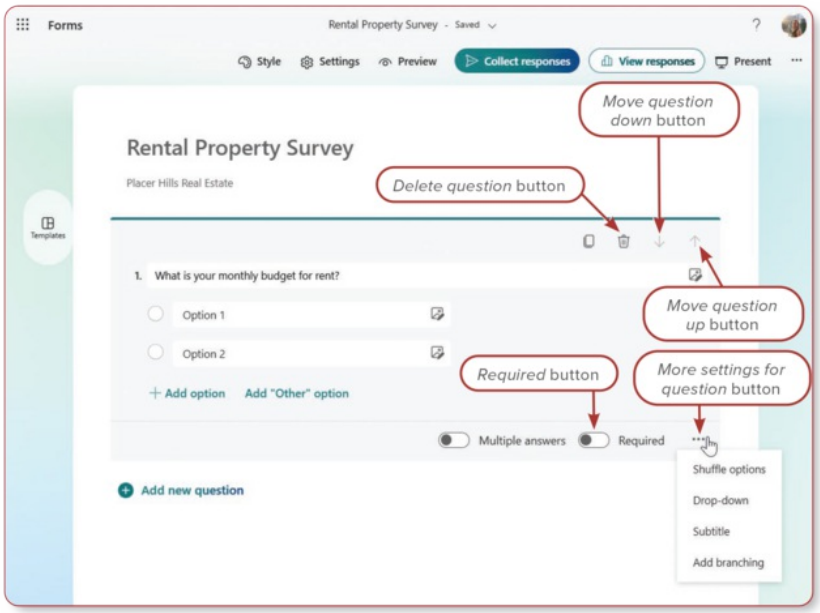


FIGURE 10-85 Type question text and customize options

Photo Source: Annette Easton

- Enter response option text as necessary.
- Select any additional settings to customize the response content.

9. Click the **Required** button if the respondent must answer the question.
10. Click **Add new question** to continue adding questions to the form.
11. Click an existing question to edit, delete, or move the question.
    - To edit the question, enter any desired changes and click outside the question box to save the changes.
    - To delete the question, click the **Delete question** button.
    - To move the question, click the **Move question up** or **Move question down** arrows.
12. Click the **Style** button to customize the layout and apply a preset style, color, or picture.
    - Click an available style from the *Suggested* listing or click the **Customized** button to view additional options.
    - Some of the styles include a live background. Those are noted by the *Play* button on the style preview icon. Hover over the preview icon to see the live

background.

- Click **X** to close the *Styles* pane and return to the form editing area.

13. Click the **Preview** button to view how your form will display to recipients (Figure 10-86).

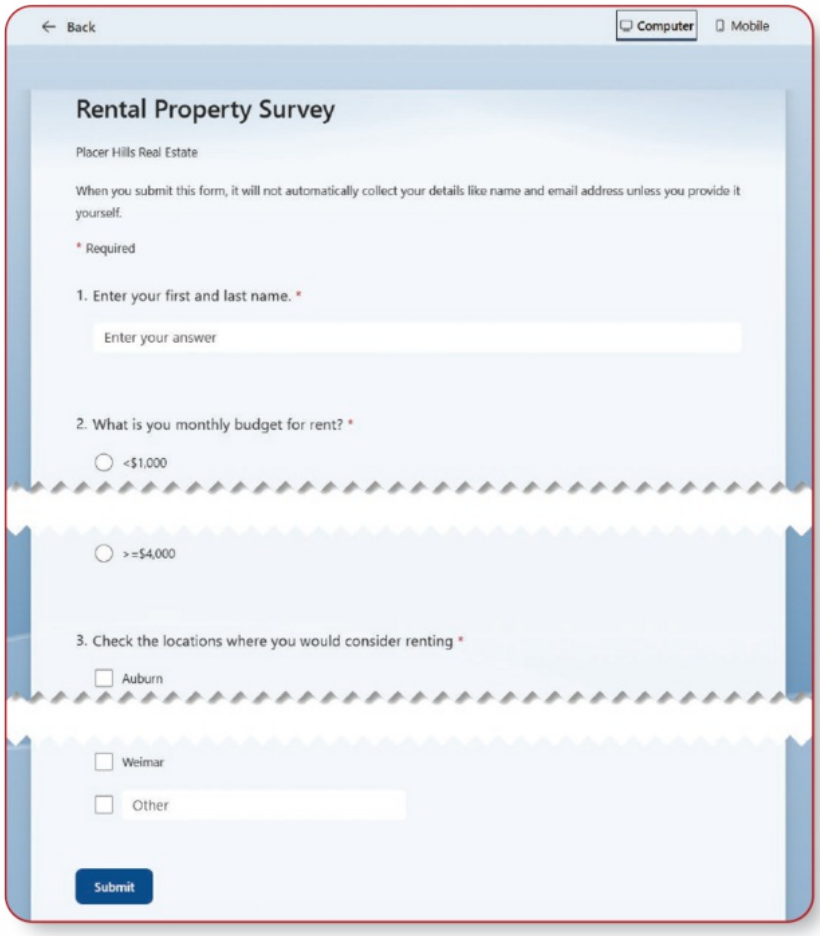


FIGURE 10-86 ***Preview*** **form window**

- Depending on the layout you chose, you may have to click a **Start now** button to view the questions.
- Click the **Mobile** button to view how your form will display on a mobile device.
- Click the **Back** button to return to the form editing area.

14. Click the **Settings** button to change additional options related to form responses, multiple languages, and printing.
15. Click the **Collect responses** button to display the *Send and collect responses* window (Figure 10-87).

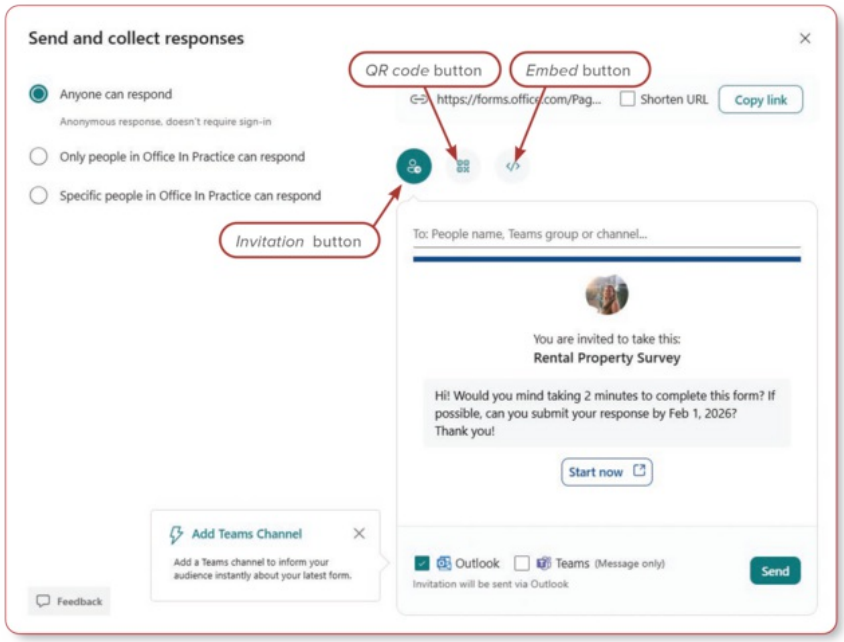


FIGURE 10-87 ***Send and collect responses*** **window**

Photo Source: Annette Easton

- Click the radio button to select who can respond to the form.
- In addition to creating a sharing link, you can also generate a QR code, generate code to embed in a web page, or open an email with the sharing link (requires Microsoft Outlook).
- Click the **Shorten URL** check box as desired.

16. Click the **Copy link** button to copy the sharing link to the Windows *Clipboard.*
    - Open your email program to email the sharing link to recipients.
    - Paste the sharing link (**Ctrl+V**) into an email and send the email.
17. Close the *Send and collect responses* window.
18. Close the browser tab when finished to close the current form. You return to the *Forms* tab.
19. Click the **App launcher** button (see Figure 10-83) and select **Microsoft 365** or **OneDrive** to return to *Microsoft 365* or *OneDrive,* as desired.

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ANOTHER WAY

Create a *Form* from *OneDrive* by clicking the **Create or upload** button and selecting **Forms Survey**. The steps to create a new form vary slightly using this approach.

Respond to a Form

After emailing a *Form* sharing link to recipients, they can click the sharing link (or QR or embed code) to open the form on a computer, tablet, or mobile device. The completed form looks very similar to the form preview (**Figure 10-86**). Recipients respond to the form questions and click the **Submit** button to record responses. Required questions are marked with a red asterisk and must be answered in order to submit the form. The responses are automatically stored in *Forms* rather than emailed to the creator of the form.

View Form Responses

The *Forms* app collects and consolidates responses from recipients. The results are stored within each *Form* and can be viewed by opening the desired *Form* in the *Forms* area in *Office Online.* The *Responses* area in a *Form* by default displays a summary of responses, but you can view individual responses or details about each question. When you view the responses in a *Form* you can choose to save a copy of the form as an Excel file.

HOW TO: View Form Responses

1. Log in to your Microsoft 365 account *Office Online* (**https://microsoft365.com**), click the **Apps** button on the left, click **All apps**, and select **Forms**.
2. Click the **Form** name to open it.
3. Click the **View responses** button to view the results (**Figure 10-88**).

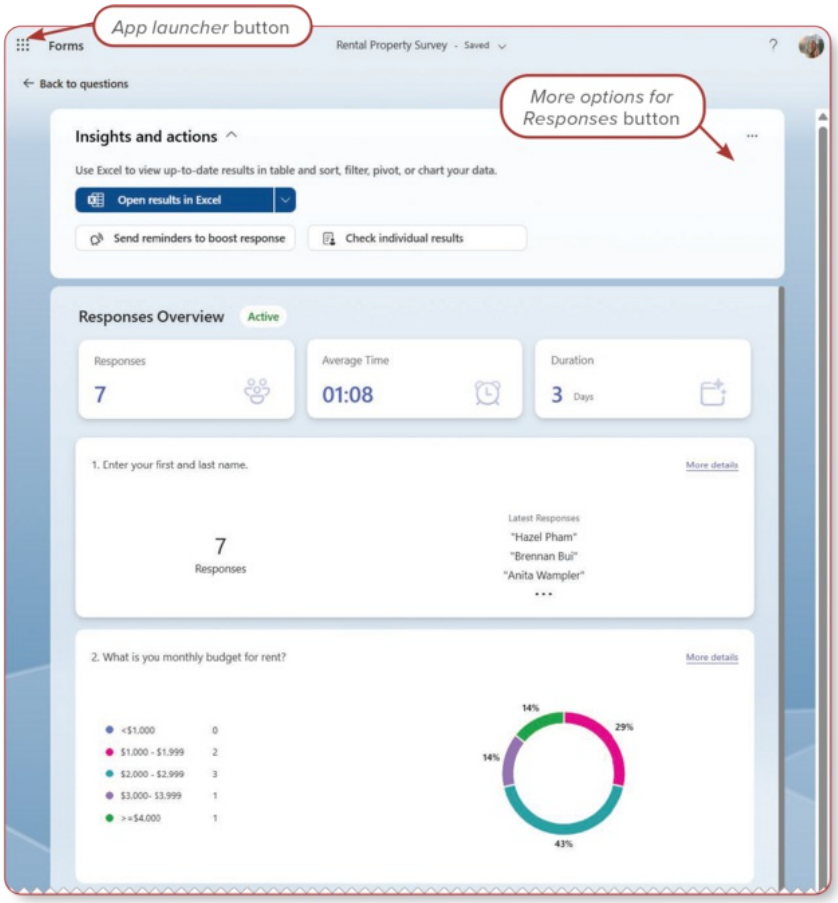


FIGURE 10-88 ***Form*** **response summary**

Photo Source: Annette Easton

- A summary of the responses displays in the *Responses Overview* area, including whether the survey is still active.
- The *Insights and actions* area provides links to further analyze the results. The location of this area varies depending on the size of your browser window.
- Click the **More options for Responses** button to display additional options to *Delete all responses, Print summary,* and *Share a summary link.*

4. Click the **Check individual results** button to display each individual response.
   - Scroll through the individual results by clicking the **left** or **right** arrows near the *Respondent* box.
   - Click the **Back** button to return to the summary of responses.
5. Click a **More details** link in the upper-right corner of a question to view additional details about that question.
   - Click the **X** in the upper-right corner to close the question details window and return to the summary of responses.

6. Click the **Open results in Excel** button to view the responses in *Excel Online*.
   - The results open in Excel in a new browser tab.
   - Close the browser tab when finished.
7. Click the **More options** button (arrow to the right of *Open results in Excel*) as desired, choose to either **Open in Excel Desktop** or to **Download a copy** of the results.
8. Click **Back to questions** to close the results and return to the *Form*.

Sway

Sway is an online digital presentation application that is similar to PowerPoint and Prezi and is only available online through your Microsoft account. In *Sway,* you create an interactive presentation, training materials, reports or newsletters that include text, pictures, videos, charts, tweets, or embedded links to other online sources. You can also import another file (Word, PowerPoint, or PDF) into your presentation. The main working area of *Sway* is the *Storyline.* Each object in a *Sway* is called a *card,* and cards can be combined into a *group.* The cards and groups display in the *Storyline.* Share your *Sways* with others the same way you share a *OneDrive* file.

Launch *Sway* from your Microsoft 365 account. Click the **Apps** button on the left, click **All apps**, and select **Sway**.

The *Sway* application includes tutorials, templates, and featured *Sways* that you can view to learn how to build your own presentations, newsletters, or stories (**Figure 10-89**). *Sways* can be displayed on a PC, a tablet, or a mobile device.

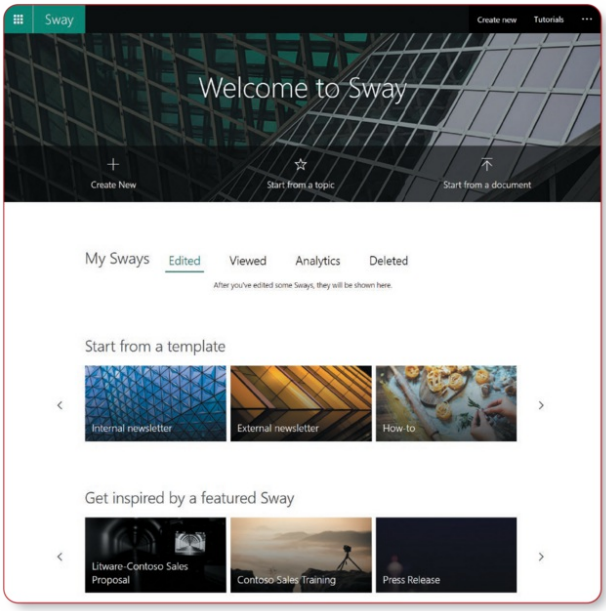


FIGURE 10-89 *Sway* application window

Photo Source: Microsoft Access

MORE INFO

Click the **Discover more available options** button (ellipsis) in the upper-right corner of *Sway* and select **Help** to view online resources and tutorial videos about *Sway*. *Sway* is also available as a free app for Windows 11 from the Windows Store.

OneNote

OneNote is a productivity application for taking notes and recording audio. *OneNote* is organized into *Notebooks, Sections,* and *Pages* (**Figure 10-90**). You can insert text, pictures, links, and tables. *OneNote* uses text formatting features similar to those in Word. *OneNote* is available as a Windows desktop application, *Office Online* app, and an app for phones and tablets. *OneNote* syncs across all your devices when connected to your Microsoft 365 account.

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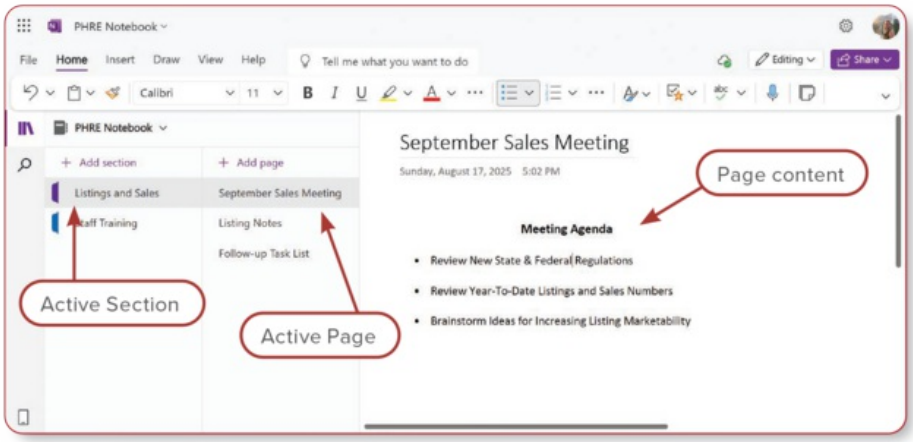


FIGURE 10-90 *OneNote Online* notebook

Photo Source: Annette Easton

Launch *OneNote* from your Microsoft 365 account. Click the **Apps** button on the left, click **All apps**, and select **OneNote**. You can also open the *OneNote* app on your computer.

When opening *OneNote Online* for the first time, you are prompted to create a new notebook. Each subsequent time you log in, you are prompted to select the notebook to open or create a new notebook. Click the **Add section** button to add a section to your notebook. Click the **Add page** button to add a page to a section in your notebook. Share your notebook to collaborate with

others.

A10-846

A10-847

A10-848

PAUSE & PRACTICE: ACCESS 10-3

For this project, you create a *Form,* share it, and analyze the results in the worksheet. You need an email address for your instructor. You also save a copy of the survey responses to your computer.

Note to Instructor and Students:

Use your education Microsoft account and Excel *for this project. If you don't have a Microsoft account, create one at* **https://www.microsoft.com/en-us/education/products/office**.

File Needed: None

Completed Project File Names: ***Rental Property Survey*** and ***[your initials] PP A10-3 Responses.xlsx***

1. Log in to your Microsoft 365 account (**https://microsoft365.com**).
2. Create a *Form* and add a question.
   a. Click the **Apps** button on the left, click **All apps**, and select **Forms**.
   b. Click **New Form**.
   c. Click **Untitled form** and type Rental Property Survey as the title.
   d. Click **Form description** and type Placer Hills Real Estate in the description box to replace the placeholder text.
   e. Click the **Quick start with** button and select **Text**.
   f. Type Your Name in the *Question* text box.
   g. Click the **More settings for question** button (ellipsis) and select **Subtitle** (Figure 10-91). An *Enter a subtitle* box is added to the question.

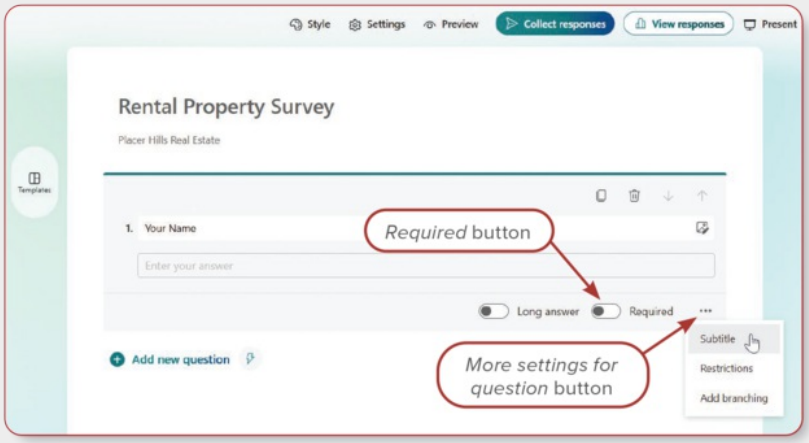


FIGURE 10-91 Add a *Text* question to a *Form*



h. Type Enter your first and last name. in the *Enter a subtitle* box.

i. Click the **Required** button to make this a required question.

3. Add a *Choice* response question.

   a. Click the **Add new question** button and select **Choice**.

   b. Type What is your monthly budget for rent? in the *question* area. Do not type anything in the subtitle box.

   c. Confirm that *Required* is on. If it is not, click the **Required** button.

   d. Type < $1,000 in the *Option 1* box.

   e. Type $1,000 – $1,999 in the *Option 2* box.

   f. Click the **Add option** button three times to add *Options 3-5*.

   g. Type the following as *Options 3, 4,* and *5:*
   $2,000 – $2,999
   $3,000 – $3,999
   > = $4,000

4. Add another *Choice* question.

   a. Click **Add new question** and select **Choice**.

   b. Type Check the locations where you would consider renting. in the *question* area.

   c. Type Check all options that apply. in the *Enter a subtitle* area.

   d. Type Auburn in the *Option 1* box.

   e. Type El Dorado Hills in the *Option 2* box and press **Enter**. *Option 3* is automatically added.

   f. Type Grass Valley in the *Option 3* box and press **Enter**. *Option 4* is automatically added.

   g. Type Lincoln in the *Option 4* box and press **Enter**. *Option 5* is automatically added.

   h. Type Newcastle in the *Option 5* box and press **Enter**. *Option 6* is automatically added.

   i. Type Rocklin in the *Option 6* box and press **Enter**. *Option 7* is automatically added.

   j. Type Roseville in the *Option 7* box and press **Enter**. *Option 8* is automatically added.

   k. Type Weimar in the *Option 8* box. Do not press *Enter*.

   l. Click the **Add "Other" option** button.

   m. Confirm that *Required* is on. If it is not, click the **Required** button.

   n. Click the **Multiple answers** button. The completed question should be similar to Figure 10-92.

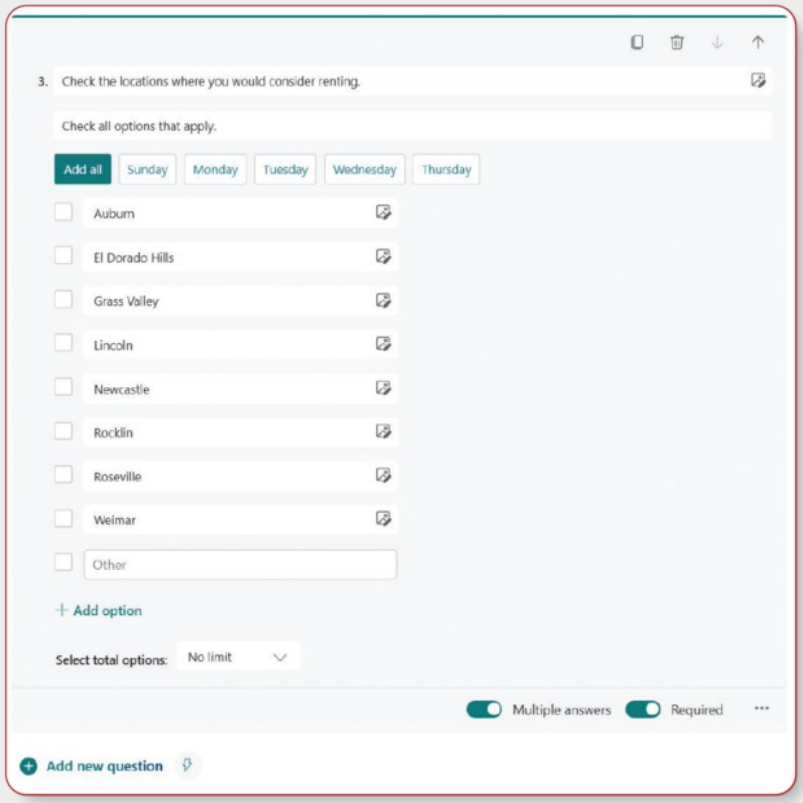


FIGURE 10-92 Add a *Choice* question to a *Form*

5. Apply a *Style* to the *Form*.
   a. Click the **Style** button to open the *Styles* pane.
   b. Click **Customized** and then click **View all**.
   c. Select **Dark blue**.
   d. Click **X** to close the *Styles* pane.
6. Preview the *Form*.
   a. Click the **Preview** button to view how the form will display on a computer.
   b. Click the **Mobile** button to view how your form will display on a mobile device (**Figure 10-93**).

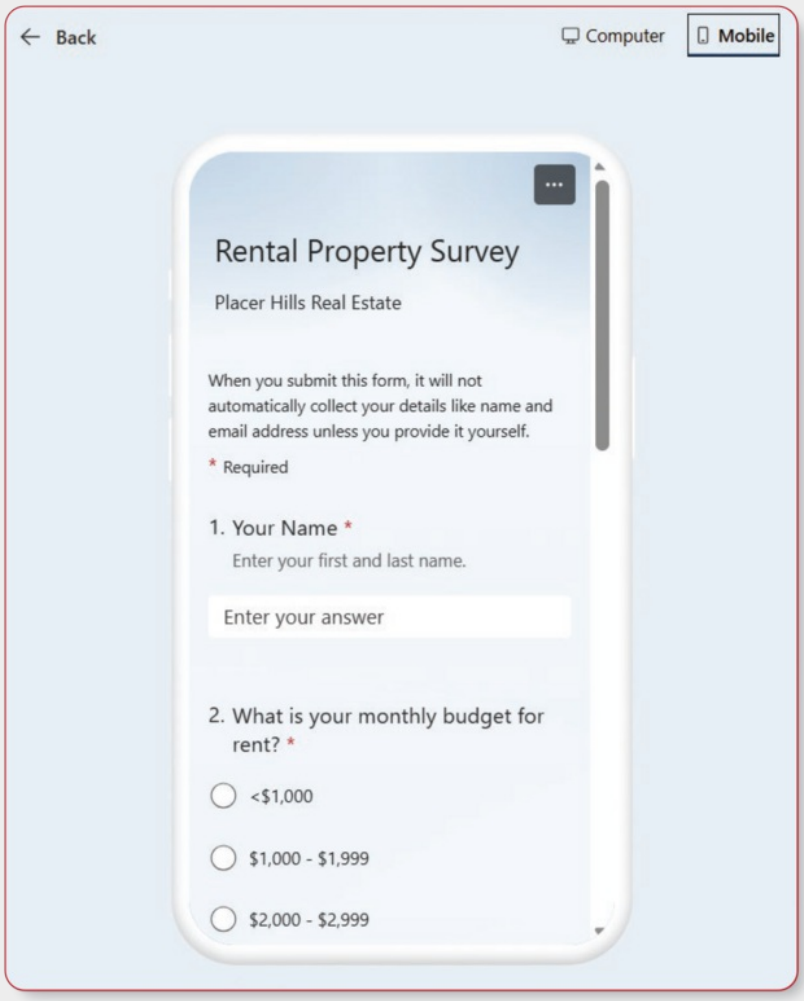


FIGURE 10-93 Preview the *Form* on a mobile device

c. Click the **Back** button to return to the form.

7. Create and copy a sharing link for the *Form*.

a. Click the **Collect responses** button to display the *Send and collect responses* area.

b. Click the **Anyone can respond** radio button, if necessary.

c. Check the **Shorten URL** check box.

d. Click the **Copy link** button (Figure 10-94) to copy the sharing link to the Windows *Clipboard*. Note that the message and the date shown in the message box may vary.

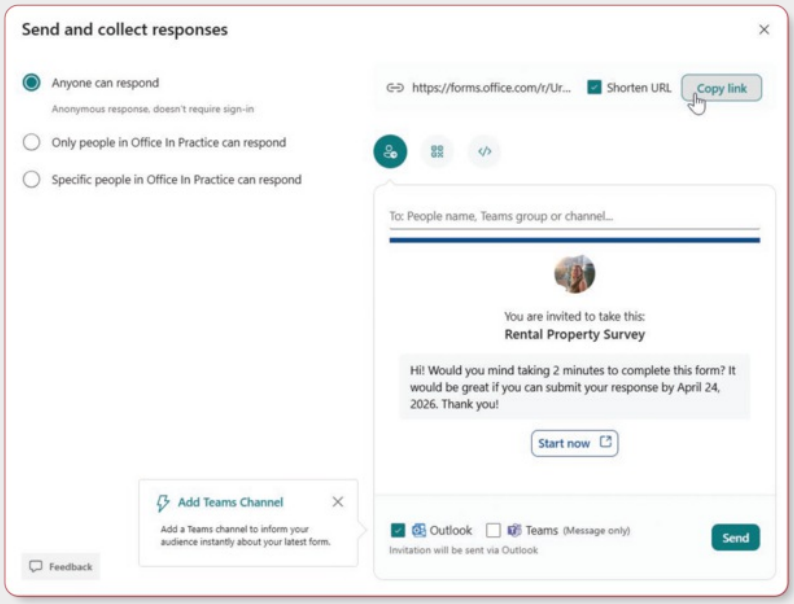


FIGURE 10-94 Select sharing options

Photo Source: Annette Easton

e. Close the *Send and collect responses* area.

8. Click the **Forms** button to close the form and return to the *Forms* area. A *Dark Blue* header displays on the form because you applied that theme.
9. Email the *Forms* link to yourself and your professor.
    a. Open your email program and create a new message.
    b. Add your email address and your instructor's email address to the recipient list.
    c. Type [your name] Form PP A10-3 as the subject.
    d. Type Please complete the survey and submit your answers. in the message area, and press **Enter**.
    e. Press **Ctrl+V** to paste the link below the message in the body of the email and press **Enter**.
    f. Type your name below the form sharing link.
    g. Send the email message.
10. Read your email message and complete the form.
11. Review survey results after recipients have replied.
    a. Log in to your Microsoft 365 account (**https://microsoft365.com**).
    b. Click the **Apps** button on the left, click **All apps**, and select **Forms** to open the *Forms* area.
    c. Click the ***Rental Property Survey*** form to open it.
    d. Click the **View responses** button to view a summary of the responses.
12. Download a copy of the responses. Depending on the internet browser you use, the download actions may differ slightly from these steps.
    a. Click the **More options** arrow to the right of *Open results in Excel* and select **Download a copy**. The file is

copied to the *Downloads* folder on your computer. Depending on the internet browser you use, the download actions differ slightly.

b. Open the **Downloads** storage location on your computer.

c. Change the *File name* to [your initials] PP A10-3 Responses.

d. Move the file to the location where you save your student project files.

13. Close the **Forms** tab in your browser.

14. Sign out of *Office Online* and close the browser.

Chapter Summary

A10-849

A10-850

10.1 Customize Access options, the *Ribbon,* and the *Quick Access* toolbar to personalize your working environment (p. A10-797).

- The ***Access Options*** dialog box enables you to customize global settings in Access. Certain settings apply to all Office programs.
- The *Access Options* dialog box features the following categories: *General, Current Database, Datasheet, Object Designer, Proofing, Language, Client Settings, Customize Ribbon, Quick Access Toolbar, Add-Ins,* and *Trust Center.*
- Use the *Access Options* dialog box to customize the *Ribbon***.** Create a new tab or group, add commands to custom groups, rearrange existing tabs and groups, and rename existing and custom tabs and groups.
- Quickly customize and add commands to the ***Quick Access toolbar*** from the *Customize Quick Access Toolbar* drop-down list or add other commands using the *Access Options* dialog box.
- Reset the *Ribbon* or the *Quick Access* toolbar individually or reset all customizations, which resets both the *Ribbon* and the *Quick Access* toolbar to their original settings.

10.2 View and modify Office account settings (p. A10-812).

- The *Account* area on the *Backstage* view provides information and account customization options.
- Office account information and settings are available whenever you log in to Access (or any Office application) using your Microsoft account. Create your own free Microsoft account (**https://signup.live.com**).
- Change the ***Office Background*** and ***Office Theme*** in the *Account* area on the *Backstage* view.
- Add ***Connected Services*** to your account to access various online services.

10.3 Use *OneDrive* to create, upload, move, copy, delete, and download files and folders (p. A10-818).

- ***OneDrive*** is a cloud storage area that provides online storage space for your files. If you have a Microsoft account (**Outlook.com**, Live, Hotmail, or other

Microsoft service account), you have access to *OneDrive.*

- Access your *OneDrive* files from any computer that has internet access.
- Log in to *OneDrive* using your Microsoft account.
- Use *OneDrive* to add files, create folders, and move, copy, delete, and download files.

10.4 Share *OneDrive* files and folders (p. A10-824).

- Share *OneDrive* files with others. Determine the access other users have to view and/or edit your *OneDrive* files.
- Email a sharing request to others or create a sharing link that can be emailed, shared in a document, or posted to an online location.
- Change sharing permission to view or edit a *OneDrive* file or folder or remove sharing permission.

10.5 Use *Office Online* to edit, create, share, collaborate, and comment on a document (p. A10-827).

- ***Office Online*** is free online software that works in conjunction with your Microsoft 365 account and is available from your *OneDrive* web page. The primary *Office Online* applications are ***Word Online***, ***Excel Online***, and ***PowerPoint Online***.
- Access is not available as an *Office Online* application. While you can share Access databases through *OneDrive,* you must edit and use your database files with the Access program installed on your computer.
- *Office Online* is similar to Microsoft 365 and Office 2024 but is less robust in available features.
- You can use *Office Online* without having Microsoft 365 or Office 2024 installed on your computer.
- Edit existing files from your *OneDrive* account in *Office Online* and create new Office files using *Office Online.*
- Share *Office Online* files with others.
- More than one user can edit an *Office Online* file at the same time, which enables real-time collaboration on documents.
- Add comments, reply to comments, resolve the comment thread, or delete the comment thread on *Office Online* files.

10.6 Explore *Copilot* and other Microsoft 365 apps and productivity tools (p. A10-836).

- ***Copilot*** is Microsoft's generative artificial intelligence (Generative AI, Gen AI, or AI) product.
- ***Generative AI*** refers to a branch of artificial intelligence that focuses on creating new data rather than making predication based on existing data.
- ***Forms*** enables users to create a survey or questionnaire to share with others. *Forms* collects data and stores it in *Office Online.*
- ***Sway*** is an online presentation application available in *Office Online* and is connected to your Microsoft account.
- ***OneNote Online*** is a note-taking program that is available as a Windows desktop application, *Office Online* app, and an app for phones and tablets.

Check for Understanding

The SIMbook for this text (within your SIMnet account) provides the following resources for concept review:

- Multiple-choice questions
- Matching exercises
- Short answer questions

A10-851

A10-852

A10-853

USING MICROSOFT ACCESS 365

Guided Project 10-1

For this project, you customize the *Quick Access* toolbar in Access, create and use *OneDrive* folders, use *Excel Online,* and share a *OneDrive* file.

[**Student Learning Outcome 10.1, Student Learning Outcome 10.3, Student Learning Outcome 10.4, Student Learning Outcome 10.5**]

Note to Instructor and Students:

Use your education Microsoft 365 account for this project. If you don't have an education Microsoft account, create one at **https://www.microsoft.com/en-us/education/products/office**. *See the "Microsoft Account Information" section in* SLO 10.2: Customizing Office Account Options.

Microsoft regularly updates the Microsoft 365 *products and* OneDrive *online environment. Instructions and figures in this project may differ slightly from how* Microsoft 365 *and* OneDrive *display in your internet browser. The Google Chrome web browser and a business/education Microsoft 365 account are used for instructions and figures in this project.*

Files Needed: ***MusicDatabase-10.accdb*** and ***NewAlbums-10.xlsx*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Names: ***[your initials] Access 10-1.accdb*** and ***Music*** (*OneDrive* folder) containing the following files: ***[your initials] Access 10-1.accdb*** and ***[your initials] NewAlbums-10.xlsx***

Skills Covered in This Project

- Reset customizations to the *Ribbon* and the *Quick Access* toolbar.
- Customize the *Quick Access* toolbar for the current document.
- Log in to *OneDrive.*
- Create a *OneDrive* folder.
- Upload a file to a *OneDrive* folder.

- Rename a file in *OneDrive*.
- Add a comment to an *Excel Online* document.
- Share a *OneDrive* file.

---

1. Open the ***MusicDatabase-10.accdb*** database from your student data files. If a *Security Risk* message or *active content is blocked* dialog box displays, click **OK** or the **X** to close it. If the message repeats in a later step, click **OK** or the **X** to close the message.
2. Save a new copy of your database as [your initials] Access 10-1.
3. Enable content in the database.
4. Reset the *Ribbon* and *Quick Access* toolbar.
   a. Click the **Customize Quick Access Toolbar** drop-down list and select **More Commands** to open the *Access Options* dialog box with the *Quick Access Toolbar* area displayed.
   b. Click the **Reset** button and select **Reset all customizations** (Figure 10-95). A confirmation dialog box opens.

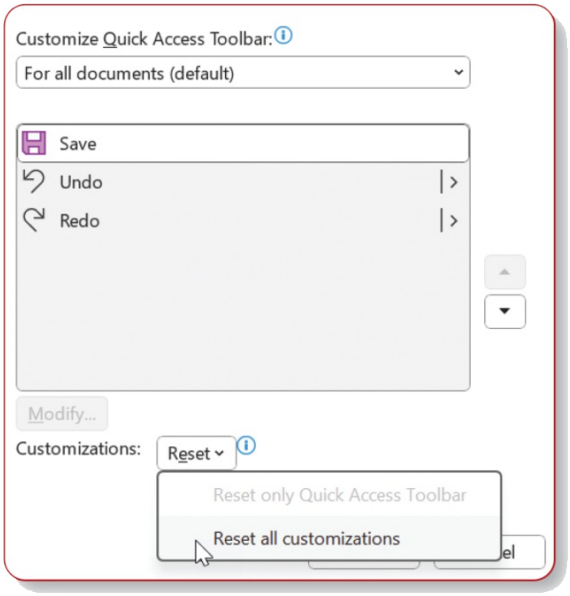


FIGURE 10-95 **Reset *Ribbon* and *Quick Access* toolbar customizations**

   c. Click **Yes** to delete all *Ribbon* and *Quick Access* toolbar customizations.
5. Add commands to the *Quick Access Toolbar* for this database only.
   a. Click the **Customize Quick Access Toolbar** drop-down list on the right and select **For [your initials] Access 10-1** (Figure 10-96). The path shown in the drop-down list will vary from that shown in Figure 10-96.

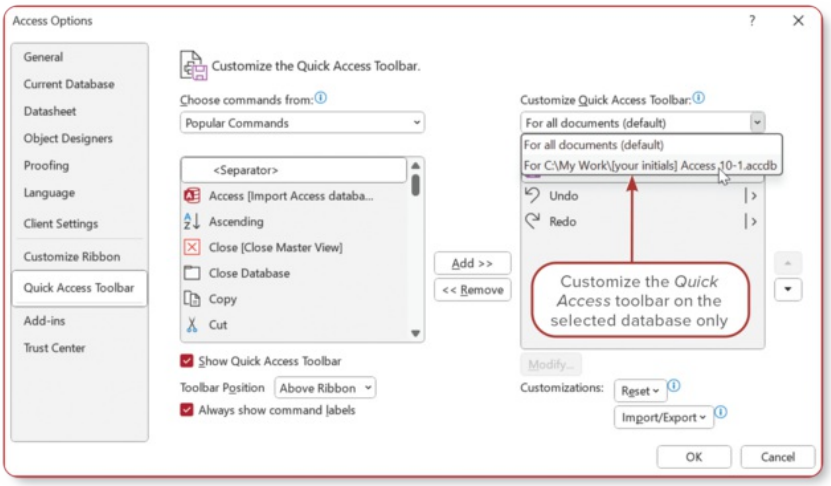


FIGURE 10-96 **Add commands to the *Quick Access* toolbar on this database only**

b. Select **Quick Print** from the list of commands on the left and click the **Add** button.

c. Click the **Choose commands from** drop-down list on the left and select **All Commands**.

d. Add **Excel [Export to Excel spreadsheet]** to the *Quick Access* toolbar.

e. Add **Filter** to the *Quick Access* toolbar.

f. Click **OK** to close the *Access Options* dialog box. Close Access.

6. Log in to your Microsoft 365 account and go to *OneDrive*.

a. Log in to Microsoft 365 (**https://microsoft365.com**), using your Microsoft user name and password.

b. Click the **Apps** button on the left and select **OneDrive** to take you to the online *OneDrive* area of your Microsoft account. If *OneDrive* does not display in the *Apps* area, click **All apps** to display all the Microsoft 365 apps.

7. Create a folder and upload files to your *OneDrive*.

a. Click the **My files** button on the left to display your *OneDrive* folders and files.

b. Click the **Switch view options** button in the upper-right corner and select **List** if files and folders are not already displayed as a list.

c. Click the **Create or upload** button and select **Folder** from the drop-down list.

d. Type Music as the name of the new folder and click **Create**.

e. Click the **Music** folder to open it.

f. Click the **Create or upload** button and select **Files upload** to open an upload dialog box. The name of the dialog box may vary.

g. Locate and select ***[your initials] Access 10-1.accdb*** from your solutions files and

click **Open** to add this file to the *Music* folder.

h. Upload the ***NewAlbums-10.xlsx*** file to the *Music* folder from your student data files. The folder should look similar to Figure 10-97.

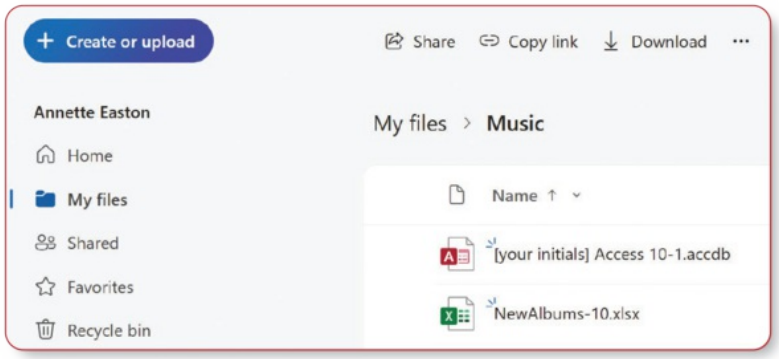


FIGURE 10-97 Completed *Music* folder in *OneDrive*

8. Rename a *OneDrive* file.
   a. Check the **circle** of the ***NewAlbums-10.xlsx*** file to select it.
   b. Click the **Rename** button to open the *Rename* dialog box. If you don't see the *Rename* button, click the **ellipsis** to open the menu of additional commands.
   c. Change the file name to [your initials] NewAlbums-10 and click **Update**.
   d. Deselect the ***[your initials] New Albums-10*** file.
9. Add a comment to a file in *Excel Online*.
   a. Click the ***[your initials] New Albums-10*** file to open it in *Excel Online*. Note that the albums in this file have IDs from 67 to 74.
   b. Open the ***[your initials] Access 10-1.accdb*** database from your solutions files. Remember that Access is not available in *Office Online,* so you must open the file stored on your computer.
   c. Open the **SongListingOnAlbumsByArtist** form in your Access database. You need to verify if the records in the Excel file have already been added into the database.
   d. Type 67 in the *record number* box of the *Navigation* bar and press **Enter**. The form advances to Ariana Grande's album.
   e. Click the **Next record** button to advance to BTS' album.
   f. Click the **Next record** button to advance to Usher's album.
   g. Click the **Next record** button five more times to advance to Meghan Trainor's, Shakira's, Justin Timberlake's, Lil Baby's, and Beyonce's albums.
   h. Switch back to your *Excel Online* workbook and select cell **A1** in the Excel file.
   i. Click the **Comments** button on the right side of the *Ribbon* to open the *Comments* pane and click **New**.

j. Type Records for albums 67-74 already exist in the Access database. in the comment box and click **Post comment**.

k. Click **X** in the upper-right corner of the *Comments* pane to close it.

10. Close the browser tab to save and close the ***[your initials] NewAlbums-10*** workbook and return to the *Music* folder in your *OneDrive* account.

11. Close the *SongListingOnAlbumsByArtist* form in Access and close the database.

12. Share a file on *OneDrive* with your instructor.

a. Deselect the ***[your initials] NewAlbums-10*** file if needed.

b. Check the **circle** to select the ***[your initials] Access 10-1*** file in the *Music* folder.

c. Click **Share** at the top to open the *Share* window.

d. Click the **Link settings** button, select the **Anyone** option, click the **Can edit** drop-down list and select **Can view**, and click **Apply** to return to the *Share* window.

e. Type your instructor's email address in the *Enter a name or email address* area.

f. Type the following in the *Add a message* area (Figure 10-98):
Hello Professor,
I shared the [your initials] Access 10-1 database file with you.
[Your Name]

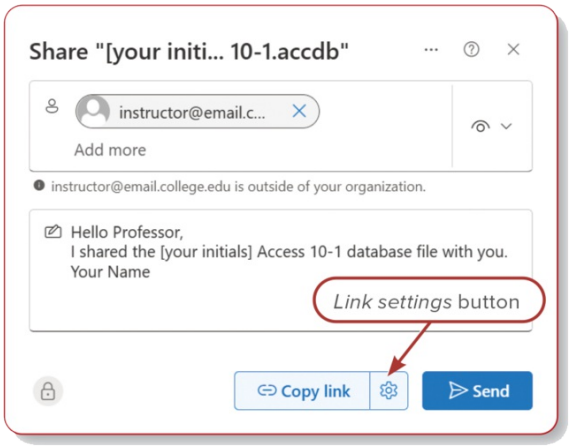


FIGURE 10-98 Share a document

n Microsoft 365 account are used fo

g. Click **Send** to send your instructor the sharing link. Close the confirmation window.

13. Sign out of *OneDrive* and close the browser.

Guided Project 10-2

For this project, you create database documentation, customize the *Ribbon* in Access, and use *OneDrive* and *Word Online* to customize a Word file for Courtyard Medical Plaza.

[**Student Learning Outcome 10.1**, **Student Learning Outcome 10.3**, **Student Learning Outcome 10.4**, **Student Learning Outcome 10.5**]

Note to Instructor and Students:

Use your education Microsoft 365 account for this project. If you don't have an education Microsoft account, create one at **https://www.microsoft.com/en-us/education/products/office**. *See the "Microsoft Account Information" section in* SLO 10.2: Customizing Office Account Options.

Microsoft regularly updates the Microsoft 365 *products and* OneDrive *online environment. Instructions and figures in this project may differ slightly from how* Microsoft 365 *and* OneDrive *display in your internet browser. The Google Chrome web browser and a business/education Microsoft 365 account are used for instructions and figures in this project.*

File Needed: ***CourtyardMedicalPlaza-10.accdb*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Names: ***[your initials] Access 10-2.accdb***, ***[your initials] Access 10-2_Documentation.rtf***, and ***Courtyard Medical Plaza*** (*OneDrive* folder) containing the following file: ***[your initials] Access 10-2_Documentation.docx***

Skills Covered in This Project

- Reset customizations to the *Ribbon* and the *Quick Access* toolbar.
- Use the *Database Documenter* tool.
- Create a new group on the *Home* tab.
- Add and arrange commands in the custom group.
- Arrange a group on a tab.
- Log in to *OneDrive*.
- Create a *OneDrive* folder.
- Save a file to a *OneDrive* folder.
- Copy a file to a *OneDrive* folder.
- Edit a document in *Word Online*.

- Add a comment to a document in *Word Online*.
- Share a *Word Online* document.

1. Open the ***CourtyardMedicalPlaza-10.accdb*** database from your student data files. If a *Security Risk* message or *active content is blocked* dialog box displays, click **OK** or the **X** to close it. If the message repeats in a later step, click **OK** or the **X** to close the message.
2. Save a new copy of your database as [your initials] Access 10-2.
3. Enable content in the database.
4. Reset the *Ribbon* and *Quick Access* toolbar.
   a. Click the **Customize Quick Access Toolbar** drop-down list and select **More Commands** to open the *Access Options* dialog box with the *Quick Access Toolbar* area displayed.
   b. Click the **Reset** button and select **Reset all customizations**. In the confirmation dialog box, click **Yes** to delete all *Ribbon* and *Quick Access* toolbar customizations.
   c. Click **OK** to close the *Access Option*s dialog box.
5. Create database documentation for the database.
   a. Click the **Database Documenter** button [*Database Tools* tab, *Analyze* group] to open the *Documenter* dialog box. If a *Microsoft Access Security Notice* box displays, click **Open**.
   b. Select the **Tables** tab, if not already selected, and click the **Select All** button.
   c. Click **Options** to open the *Print Table Definition* dialog box.
   d. Verify that the **Properties** check box and **Relationships** check box are selected and that the **Permissions by User and Group** check box is not selected in the *Include for Table* area.
   e. Verify that the **Names**, **Data Types**, **Sizes**, **and Properties** radio button is selected in the *Include for Fields* area.
   f. Verify that the **Names**, **Fields**, **and Properties** radio button is selected in the *Include for Indexes* area.
   g. Click **OK**. You are returned to the *Documenter* dialog box.
   h. Click the **OK** button to preview the *Database Documenter* report.
   i. Click the **One Page** button [*Print Preview* tab, *Zoom* group], if necessary, to adjust the display and use the scroll bars to see parts of the page not visible.
   j. Click the **More** button [*Print Preview* tab, *Data* group] and select **Word** to open the *Export – RTF File* dialog box.
   k. Click **Browse** to locate the folder where you want to save the file, enter [your initials] Access 10-2_Documentation as the file name, click the **Save** button, select the **Open the destination file after the export operation is complete** check box,

and click **OK**. The RTF file opens in Word.

l. Navigate through the pages in the RTF file to ensure it was created successfully. The report contains approximately 10 pages.

6. Save the documentation report to your *OneDrive* folders.
   a. Open the *Save As* dialog box in Word, and select **OneDrive** on the left.
   b. Click the **Save as type** drop-down arrow, select **Word Document**, and click **Save**.
   c. Close Word.
7. Complete the *Database Documenter* in Access.
   a. Click in the Access program window to switch to Access.
   b. Click the **Close** button in the *Export – RTF File* dialog box in Access because you don't need to save the export steps.
   c. Click the **Close Print Preview** button [*Print Preview* tab, *Close Preview* group].
8. Customize the Ribbon in Access to add a group and commands.
   a. Right-click anywhere on the **Ribbon** and select **Customize the Ribbon** from the context menu to open the *Access Options* dialog box with the *Customize Ribbon* area displayed.
   b. Click the **Home** tab on the right (under *Main Tabs*), click the **expand arrow** to expand the tab, and click the **New Group** button. A new group is inserted below the existing groups on the *Home* tab.
   c. Select **New Group (Custom)** and click **Rename** to open the *Rename* dialog box.
   d. Select the **smiley face** symbol, type your first name as the group name in the *Display name* area, and click **OK** to close the *Rename* dialog box.
   e. Select the **[your first name] (Custom)** group.
   f. Click the **Choose commands from** drop-down list on the left side and select **All Commands** to display all the available commands in the list on the left ( **Figure 10-99**).

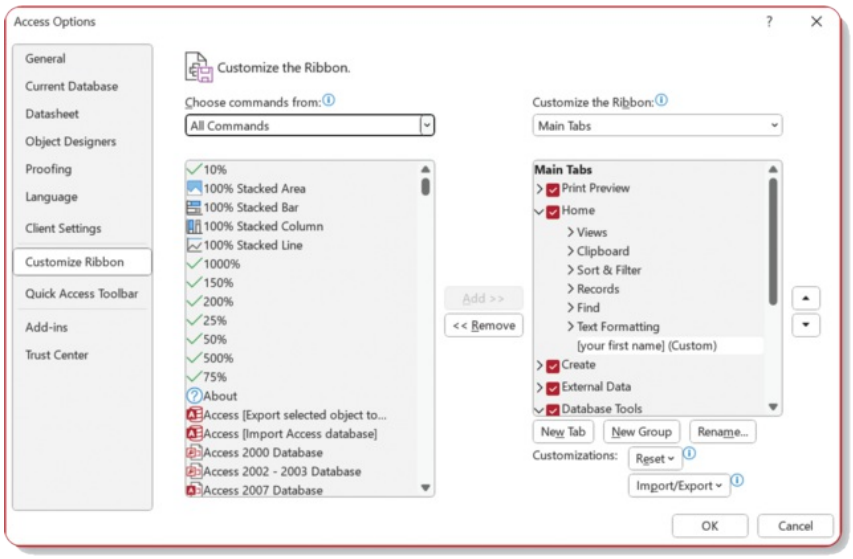


FIGURE 10-99 **Add a custom group and commands to the *Home* tab**

g. Select the **Database Documenter** command and click the **Add** button between the two lists to add the command to the group.

h. Add the **Excel [Export to Excel spreadsheet]**, **Excel [Import Excel spreadsheet]**, and the **Query Wizard** command to the *[your first name] (Custom)* group.

i. Use the **Move Up** button to move the *Query Wizard* command to appear after the *Database Documenter*.

j. Select the **[your first name] (Custom)** group and click the **Move Up** button so it appears above the *Text Formatting* group.

k. Click **OK** to close the *Access Options* dialog box.

l. Click the **Home** tab to view your custom group (**Figure 10-100**). Widen the Access window so the commands in your custom group display. Depending on the maximum width of your screen, the commands in some groups may not include the words next to or below the buttons.

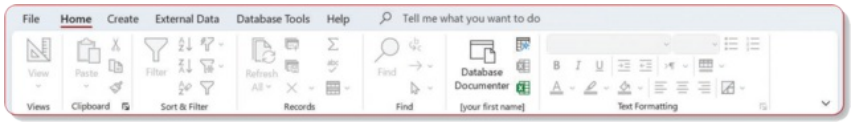


FIGURE 10-100 **Custom group displayed on the *Home* tab**

m. Decrease the width of the Access window so the rightmost groups on the *Ribbon* collapse. The smiley face symbol displays (**Figure 10-101**).

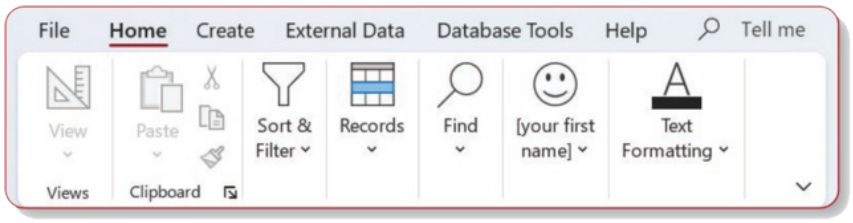


FIGURE 10-101 **The custom group symbol displays when the *Ribbon* is not wide enough to show all the groups and commands**

9. Close the database and exit Access.
10. Log in to your Microsoft 365 account and go to *OneDrive*.
    a. Log in to Microsoft 365 (**https://microsoft365.com**), using your Microsoft account user name and password.
    b. Click **Apps** on the left and select **OneDrive** to take you to the online *OneDrive* area of your Microsoft account. If *OneDrive* does not display in the *Apps* area, click **All apps** to display all the Microsoft 365 apps.
11. Create a *OneDrive* folder and copy a file.
    a. Select **My files** on the left if it is not already selected.
    b. Click the **Create or upload** button and select **Folder** from the drop-down list.
    c. Type Courtyard Medical Plaza as the name of the new folder and click **Create**.
    d. Locate the *[your initials] Access 10-2_Documentation* file you saved in step 6. It should be saved at the root of your *OneDrive* folder.
    e. Check the **circle** to the left of ***[your initials] Access 10-2_Documentation*** to select this file.
    f. Click the **Copy to** button to open the *Copy to* window. If you don't see the *Copy to* button, click the **ellipsis** to open the menu of additional commands and then click the **Copy to** button.
    g. Click the **Courtyard Medical Plaza** folder and click the **Copy here** button to copy the file to the selected folder.
12. Edit a document in *Word Online*.
    a. Click the **Courtyard Medical Plaza** folder to open it. This folder contains the ***[your initials] Access 10-2_Documentation*** Word document you just copied.
    b. Click the ***[your initials] Access 10-2_Documentation*** file to open it in *Word Online*. Don't worry if the pagination and tabbing of some text in this document does not display correctly in *Word Online*. **Figure 10-102** shows two examples of how your document may appear. Example One does not have room to show the table name below the path because the file path is very long. Example Two shows how a shorter file path allows Access to include the name of the table.

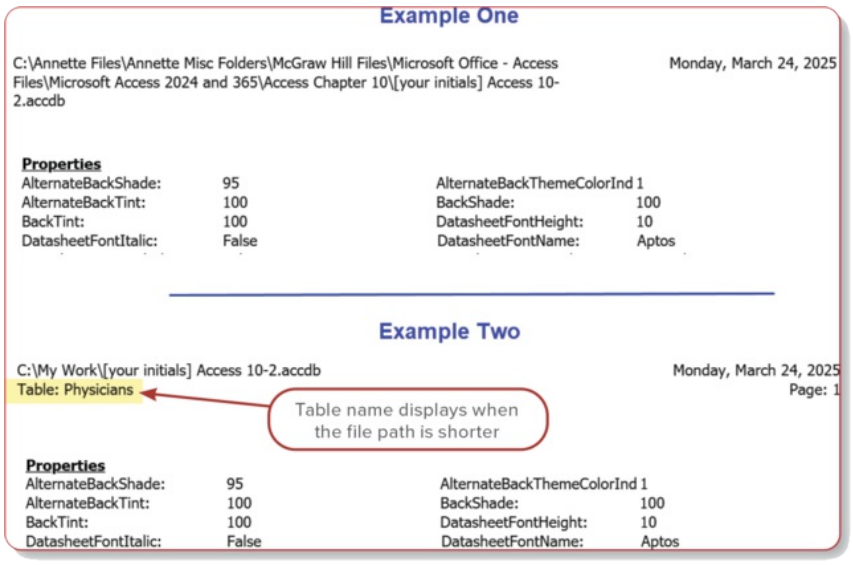


FIGURE 10-102 Examples of the *Access 10-2_Documentation* file

c. Select and delete the entire **Table: Physicians...** row on page 1 if it exists in your document.

d. Place your insertion point before the "*P*" on the line containing *Properties*.

e. Press **Enter** once.

f. Place your insert point in the blank row above *Properties* and click **Bold** [*Home* tab, *Font* group] and **Underline** [*Home* tab, *Font* group], if they are currently selected, to turn off those styles.

g. Type Physicians Table Information.

h. Select that text, click the **Highlight** button [*Home* tab, *Font* group], and select **Yellow** to highlight that text (**Figure 10-103**).

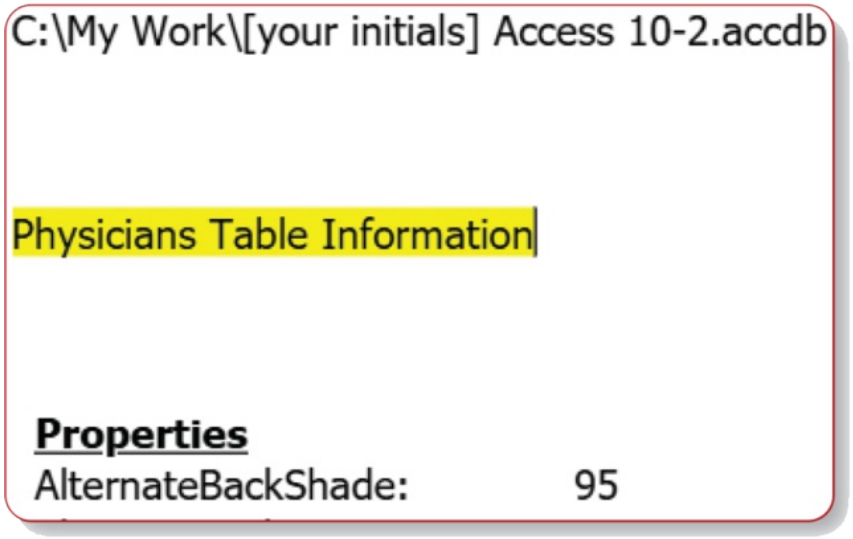


FIGURE 10-103 Highlight text in document using *Word Online*

i. Scroll down in the document to page 5, where the *Properties* display for the second table.

j. Select and delete the entire **Table: RentInvoices...** row on page 5, if it exists in your document.

k. Place your insertion point before the "*P*" on the line containing *Properties*.

l. Press **Enter** once.

m. Place your insert point in the blank row above *Properties* and click **Bold** [*Home* tab, *Font* group] and **Underline** [*Home* tab, *Font* group], if they are currently selected, to turn off those styles.

n. Type Rent Invoices Table Information.

o. Select that text, click the **Highlight** button [*Home* tab, *Font* group], and select **Yellow** to highlight that text (**Figure 10-104**).

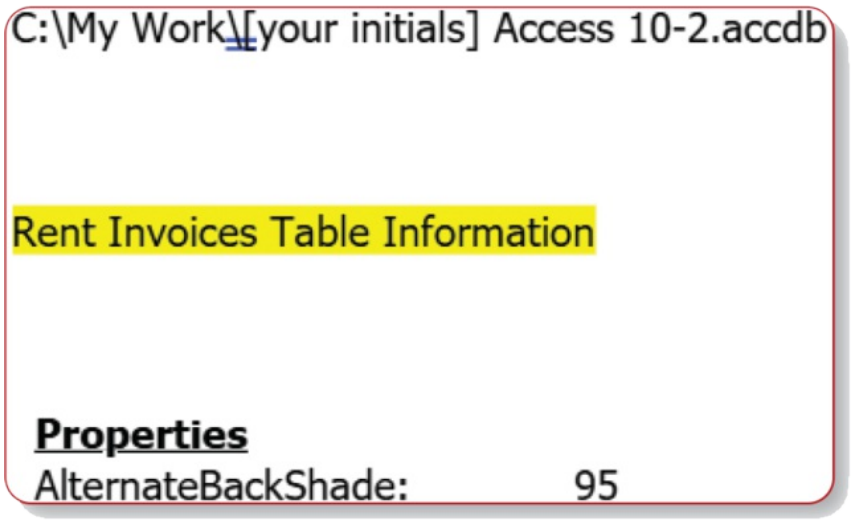


FIGURE 10-104 **Highlight text in document using *Word Online***

13. Add a comment to a document in *Word Online*.

a. Scroll to the top of the document and place your insert point at the beginning of the first line.

b. Click the **Comments** button on the right side of the *Ribbon* to open the *Comments* pane and click **New**.

c. Type Nasrin, please review the details of these tables. Let me know if further changes are required. in the new comment area and click **Post comment** (**Figure 10-105**).

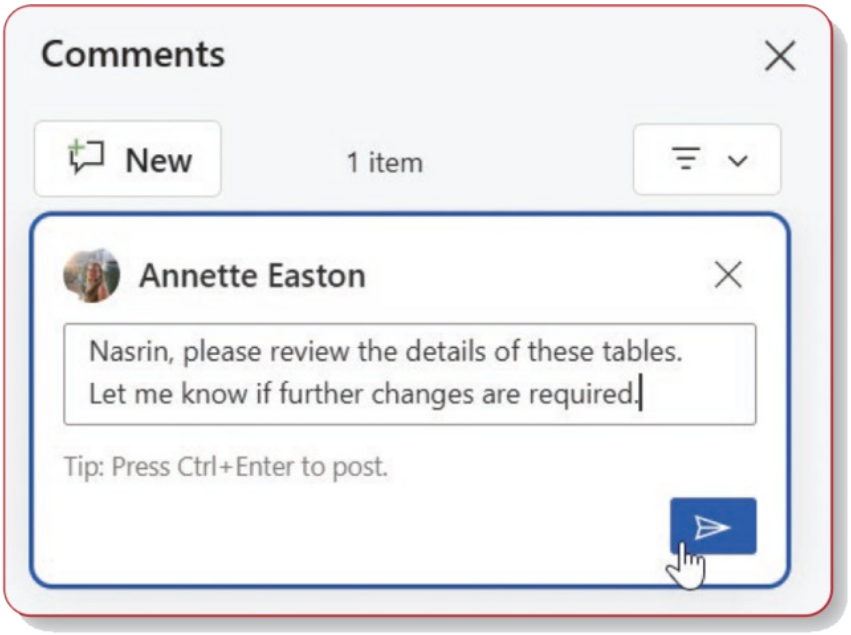


FIGURE 10-105 **Create and post a new comment in *Word Online***

Photo Source: Annette Easton

d. Close the *Comments* pane.

14. Share a *Word Online* file with your instructor.
    a. Click the **Share** button drop-down list in the upper-right corner above the document and select **Share** to open the *Share* window.
    b. Click the **Link settings** button, select the **Anyone** option, click the **Can edit** drop-down list and select **Can view**, and click **Apply** to return to the *Share* window.
    c. Click the **Copy link** button in the *Share* window. A *Link Copied* message displays and the link is placed on the Windows *Clipboard*.
    d. Close the *Share* window.
    e. Open your email program. You will paste (**Ctrl+V**) the link into an email.
    f. Type your instructor's email address in the *To* area and type the following in the message area:
    Professor,
    Please use this link to review the Courtyard Medical Plaza database documentation:
    [Use Ctrl+V to paste the link here]
    [Your Name]
    g. Send the email to your instructor and close your email program.
    h. Close the Word browser tab to save and close the document and return to your *OneDrive* account.
15. Sign out of *OneDrive* and close the browser.

16. Open a document in Word.
    a. Open Word on your computer and display the *Open* dialog box.
    b. Select **OneDrive** on the left, double-click the **Courtyard Medical Plaza** folder to open it, and open the ***[your initials] Access 10-2_Documentation.docx*** document in the desktop version of Word.
    c. Click **Comments** if the comment text you created in *Word Online* does not automatically display on the right (Figure 10-106).



FIGURE 10-106 Edited document viewed in Word

Photo Source: Annette Easton

17. Save this document where you store your completed project files and close the document. If you are prompted to replace an existing file with the same name, select **Yes**.
18. Close Word.

A10-859

A10-860

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Guided Project 10-3

For this project, you customize your working environment in Access, export data to Excel, and use *OneDrive* and *Excel Online* to create and modify files for San Diego Sailing.

[Student Learning Outcome 10.1, Student Learning Outcome 10.3, Student Learning Outcome 10.5]

Note to Instructor and Students:

Use your education Microsoft 365 account for this project. If you don't have an education Microsoft account, create one at **https://www.microsoft.com/en-us/education/products/office**. *See the "Microsoft Account Information" section in* SLO 10.2: Customizing Office Account Options.

Microsoft regularly updates the Microsoft 365 *products and* OneDrive *online environment. Instructions and figures in this project may differ slightly from how*

Microsoft 365 *and* OneDrive *display in your internet browser. The Google Chrome web browser and a business/education Microsoft 365 account are used for instructions and figures in this project.*

File Needed: ***SanDiegoSailing-10.accdb*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Names: ***[your initials] Access 10-3.accdb***, and ***San Diego Sailing*** (*OneDrive* folder) containing the ***Exported Data*** folder with the following file: ***[your initials] Access_Export 10-3.xlsx***

Skills Covered in This Project

- Reset customizations to the *Ribbon* and the *Quick Access* toolbar.
- Change application title in Access.
- Add and rearrange commands on the *Quick Access* toolbar.
- Export data to an Excel file.
- Log in to your *OneDrive* account.
- Create a *OneDrive* folder.
- Save a file to a *OneDrive* folder.
- Edit a document in *Excel Online.*
- Rename a *OneDrive* file.

1. Open the ***SanDiegoSailing-10.accdb*** database from your student data files. If a *Security Risk* message or *active content is blocked* dialog box displays, click **OK** or the **X** to close it. If the message repeats in a later step, click **OK** or the **X** to close the message.
2. Save a new copy of your database as [your initials] Access 10-3.
3. Enable content in the database.
4. Reset the *Ribbon* and *Quick Access* toolbar.
   a. Click the **Customize Quick Access Toolbar** drop-down list and select **More Commands** to open the *Access Options* dialog box with the *Quick Access Toolbar* area displayed.
   b. Click the **Reset** button and select **Reset all customizations**. In the confirmation dialog box, click **Yes** to delete all *Ribbon* and *Quick Access* toolbar customizations.
5. Change the application title for the current database.
   a. Select **Current Database** in the left pane of the *Access Options* dialog box.
   b. Type San Diego Sailing in the *Application Title* box in the *Application Options* area. Do not press *Enter* after typing this to avoid closing the *Access Options* dialog box. **NOTE:** The ability to change the *Application Title* may not be

available if you are using *Windows 10*.

6. Modify the *Quick Access* toolbar for this database only.
   a. Click **Quick Access Toolbar** in the left pane of the *Access Options* dialog box.
   b. Click the **Customize Quick Access Toolbar** drop-down list on the right and select the current database file.
   c. Select **Excel [Export to Excel spreadsheet]** from the list of commands on the left and click the **Add** button to add it to the *Quick Access* toolbar (Figure 10-107).

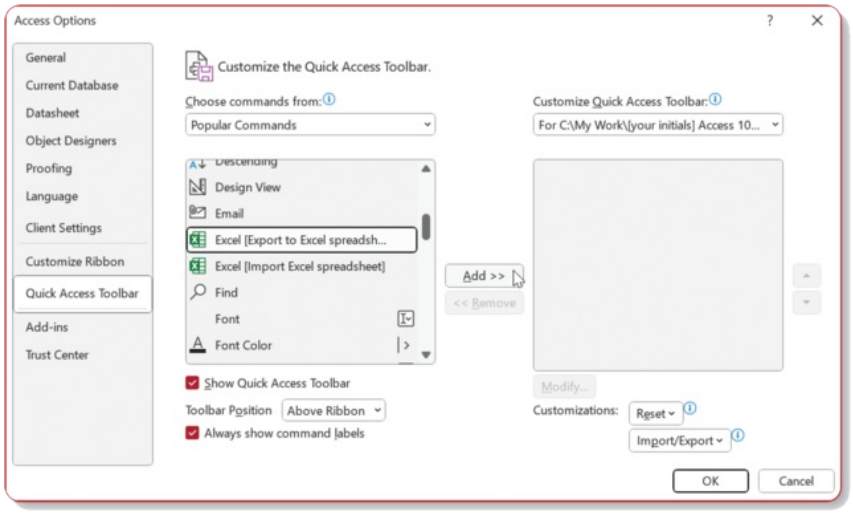


FIGURE 10-107 **Add commands to the *Quick Access* toolbar**

   d. Add **Quick Print** to the *Quick Access* toolbar.
   e. Click **OK** to close the *Access Options* dialog box.
   f. Open the **Manufacturers** table in *Datasheet* view to activate the *Quick Access* toolbar icons. The application title and customized *Quick Access* toolbar display at the top of the Access window (Figure 10-108).

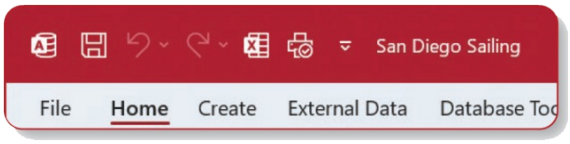


FIGURE 10-108 **Customized changes display at the top of the Access window**

   g. Close the *Manufacturers* table.

7. Export data to Excel.
   a. Click to select the **SDRentals** table in the *Navigation Pane*.
   b. Click the **Export to Excel spreadsheet** icon on the *Quick Access* toolbar. The *Export – Excel Spreadsheet* dialog box opens.
   c. Click the **Browse** button to launch the *File Save* dialog box.

d. Select your **OneDrive** folder (the main folder and not a subfolder) as the location to save the file, edit the file name to be SDRentals_Export, and click the **Save** button.
e. Select the **Export data with formatting and layout** check box.
f. Click **OK** to export the file. The wizard displays the *Save Export Steps* screen.
g. Click the **Close** button; you do not need to save the export steps.

8. Close Access.
9. Log in to your Microsoft 365 account and go to *OneDrive*.
   a. Log in to Microsoft 365 (**https://microsoft365.com**), using your Microsoft account user name and password.
   b. Click **Apps** on the left and select **OneDrive** to take you to the online *OneDrive* area of your Microsoft account. If *OneDrive* does not display in the *Apps* area, click **All apps** to display all the Microsoft 365 apps.
10. Create *OneDrive* folders and move a file.
    a. Click **My files** on the left if it is not already selected.
    b. Click the **Create or upload** button and select **Folder** from the drop-down list.
    c. Type San Diego Sailing as the name of the new folder and click **Create**.
    d. Click the **San Diego Sailing** folder to open it.
    e. Click the **Create or upload** button and select **Folder** from the drop-down list to add a folder within *San Diego Sailing*.
    f. Type Exported Data as the name of the new folder and click **Create**.
    g. Click the **My files** button on the left to display your *OneDrive* folders and files.
    h. Check the **SDRentals_Export** workbook to select this file.
    i. Click the **Move to** button to open the *Move to* window. If you don't see the *Move to* button, click **More commands** (ellipsis) near the top to open the menu of additional commands.
    j. Click the **San Diego Sailing** folder to open that folder, click the **Exported Data** folder, and click the **Move here** button to move the file to the selected folder.
11. Edit a document in *Excel Online*.
    a. Click the **My files** button on the left to display your *OneDrive* folders and files, if necessary.
    b. Click the **San Diego Sailing** folder and then click the **Exported Data** folder to open it.
    c. Click the ***SDRentals_Export*** file to open it in *Excel Online*.
    d. Type =average(F2:F79) in cell **F81**.
    e. Type =sum(F2:F79) in cell **F82**.

f. Type Average Rental Revenue in cell **G81**.

g. Type Total Rental Revenue in cell **G82**. The completed Excel file should look similar to Figure 10-109.

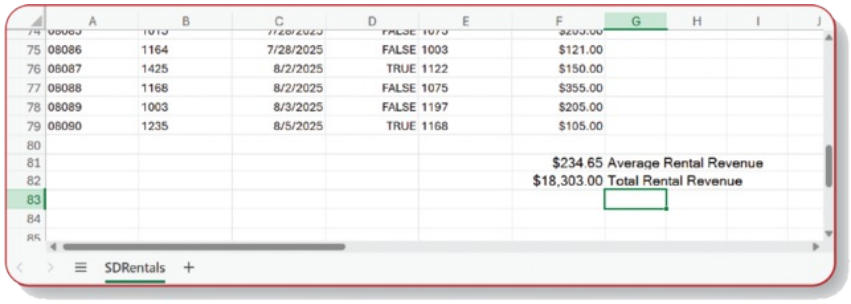


FIGURE 10-109 **Completed file in *Excel Online***

h. Close the browser tab to close the workbook and return to your *OneDrive* account. Recall that changes are saved automatically in *Excel Online* so you do not need to save the file.

12. Rename a file in *OneDrive*.

a. Check the **circle** to the left of the ***SDRentals_Export*** file to select it, if not already selected.

b. Click the **Rename** button to open the *Rename* dialog box. If you don't see the *Rename* button, click **More commands** (ellipsis) near the top to open the menu of additional commands.

c. Change the file name to [your initials] Access_Export 10-3 and click **Update**.

13. Sign out of *OneDrive* and close the browser.

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Independent Project 10-4

For this project, you customize the working environment in Access and use *OneDrive, Word Online,* and *Forms* to customize, store, edit, and share documents for Central Sierra Insurance.

[Student Learning Outcome 10.1, Student Learning Outcome 10.2, Student Learning Outcome 10.3, Student Learning Outcome 10.4, Student Learning Outcome 10.5, Student Learning Outcome 10.6]

Note to Instructor and Students:

Use your education Microsoft 365 account for this project. If you don't have an

education Microsoft account, create one at **https://www.microsoft.com/en-us/education/products/office**. *See the "Microsoft Account Information" section in* SLO 10.2: Customizing Office Account Options.

Microsoft regularly updates the Microsoft 365 *products and* OneDrive *online environment. Instructions and figures in this project may differ slightly from how* Microsoft 365 *and* OneDrive *display in your internet browser. The Google Chrome web browser and a business/education Microsoft 365 account are used for instructions and figures in this project.*

Files Needed: ***CentralSierra-10.accdb*** and ***PolicyLetter_Merge-10.docx*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Names: ***Central Sierra*** (*OneDrive* folder) containing the following files: ***[your initials] Access 10-4.accdb***, ***PolicyLetter_Merge-10.docx***, and ***[your initials] HRFlyer 10-4.docx***. Also, ***[your initials] Form 10-4*** (Form).

Skills Covered in This Project

- Create a *OneDrive* folder.
- Reset customizations to the *Ribbon* and the *Quick Access* toolbar.
- Create a new tab and group on the *Ribbon*.
- Add and arrange commands in a custom group.
- Remove groups from the *Ribbon*.
- Customize account settings.
- Log in to *OneDrive*.
- Upload a file to a *OneDrive* folder.
- Create a document in *Word Online* and apply formatting.
- Share a document in *Word Online*.
- Create and share a *Form*.

1. Create a *OneDrive* folder and open and save a document.
   a. Open an internet browser page, log in to your Microsoft 365 account (**https://microsoft365.com**), and go to *OneDrive*.
   b. Create a new folder named Central Sierra in the *My files* area.
   c. Open the ***CentralSierra-10.accdb*** database from your student data files. If a *Security Risk* message or *active content is blocked* dialog box displays, click **OK** or the **X** to close it. If the message repeats in a later step, click **OK** or the **X** to close the message.
   d. Save a new copy of your database as [your initials] Access 10-4 in the *Central Sierra* folder inside your *OneDrive* folder.
   e. Enable content in the database.

2. Reset and customize the *Ribbon* and the *Quick Access* toolbar.
   a. Reset all customizations to the *Ribbon* and the *Quick Access* toolbar.
   b. Create a new tab on the *Ribbon* after the *Home* tab.
   c. Rename the new tab CS.
   d. Rename the new custom group Frequent Commands and select a symbol of your choice.
   e. Add the following commands (in *All Commands*) to the *Frequent Commands* group: **Query Design**, **Query Wizard**, **Compact & Repair Database**, and **Excel [Import Excel spreadsheet]**.
   f. Arrange these commands in alphabetical order.
   g. Hide the **Create** and **External Data** tabs so they don't display on the *Ribbon.*
   h. Click **OK** to save the customizations and close the *Access Options* dialog box.
   i. Click the **CS** tab on the *Ribbon* to view the custom tab and *Frequent Commands* group. You should see the four commands added into the group.
3. Customize Office account settings.
   a. Open the *Account* area on the *Backstage* view.
   b. Select an *Office Background* and *Office Theme* of your choice.
4. Exit Access.
5. Upload files to your *OneDrive* folder.
   a. Open the **Central Sierra** folder in *OneDrive* and upload the ***PolicyLetter_Merge-10.docx*** file from your student data files. The ***[your initials] Access 10-4.accdb*** database is already in this folder. If it is not, add it.
   b. Deselect the ***PolicyLetter_Merge-10*** and the ***[your initials] Access 10-4.accdb*** files if they are selected.
6. Create a new document in *Word Online*.
   a. Create a new **Word document**, in the *Central Sierra* folder, using *Word Online* and name it [your initials] HRFlyer 10-4.
   b. Type Central Sierra Insurance on the first line of the document, apply the **Heading 1** style to that line, and press **Enter**.
   c. Type Roadmap to Retirement on the second line of the document, apply the **Heading 1** style to that line, and press **Enter**.
   d. Type Presented by the Human Resources Department on the third line of the document, apply the **Heading 2** style to that line, and press **Enter** twice.
   e. **Center** the first three lines and also apply **italics** to the third line.
   f. Type Get ahead of the curve or create a plan to catch up. This lunch and learn workshop will discuss: on the fifth line of the document and press **Enter**.

Remember that the fourth line is blank.

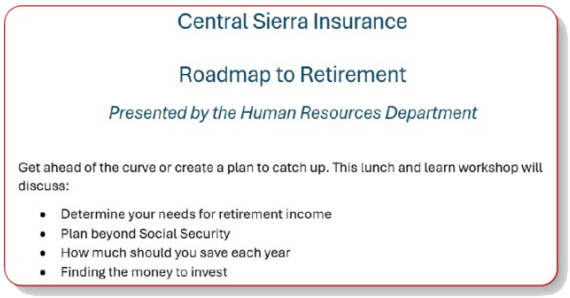
g. Type Determine your needs for retirement income on the sixth line of the document and press **Enter**.

h. Type Plan beyond Social Security on the seventh line of the document and press **Enter**.

i. Type How much should you save each year on the eighth line of the document and press **Enter**.

j. Type Finding the money to invest on the ninth line of the document and press **Enter**.

k. Select lines six through nine and apply **Bullets** to the selected lines. Click anywhere in the document to deselect the bulleted lines. The document should look similar to **Figure 10-110**.


Central Sierra Insurance

Roadmap to Retirement

Presented by the Human Resources Department

Get ahead of the curve or create a plan to catch up. This lunch and learn workshop will discuss:

- Determine your needs for retirement income
- Plan beyond Social Security
- How much should you save each year
- Finding the money to invest

FIGURE 10-110 Completed document in *Word Online*

l. Close the Word document browser tab to return to your *Central Sierra* folder in *OneDrive*.

7. Share *[your initials] HRFlyer 10-4* with your instructor.

a. Select the **[your initials] HRFlyer 10-4** file and **Share** the file.

b. Allow **Anyone** to edit the document.

c. Type your instructor's email address in the recipient area and a type a brief message in the body area.

d. Send the file sharing link to your instructor and close the confirmation message.

8. Create a *Form* and add questions.

a. Click the **App launcher** button, to the left of *OneDrive,* and select **Forms**.

b. Click **New Form**, click **Untitled form**, and type [your initials] Form 10-4 as the title and Central Sierra Insurance Checkup as the description.

c. Add a **Text** question, type Your name as the question text, and make the question required.

d. Add a **Choice** question, type I would like to schedule an appointment to review my insurance policy. as the question text.

e. Add a **Subtitle** (under the *More settings for question* button) and type Select Yes or No. as the question subtitle, and make the question required.

f. Type Yes in the *Option 1* box, No in the *Option 2* box, and make the options a **Drop-down** list (under the *More settings for question* button).

g. Add another **Choice** question, type Best time to contact you as the question text, do not enter anything in the subtitle box, and do not require an answer to the question.

h. Add Weekday mornings, Weekday evenings, and Weekends as the three options and make the options a **Drop-down** list.

9. Preview and share a *Form*.

a. **Preview** the form (Figure 10-111).

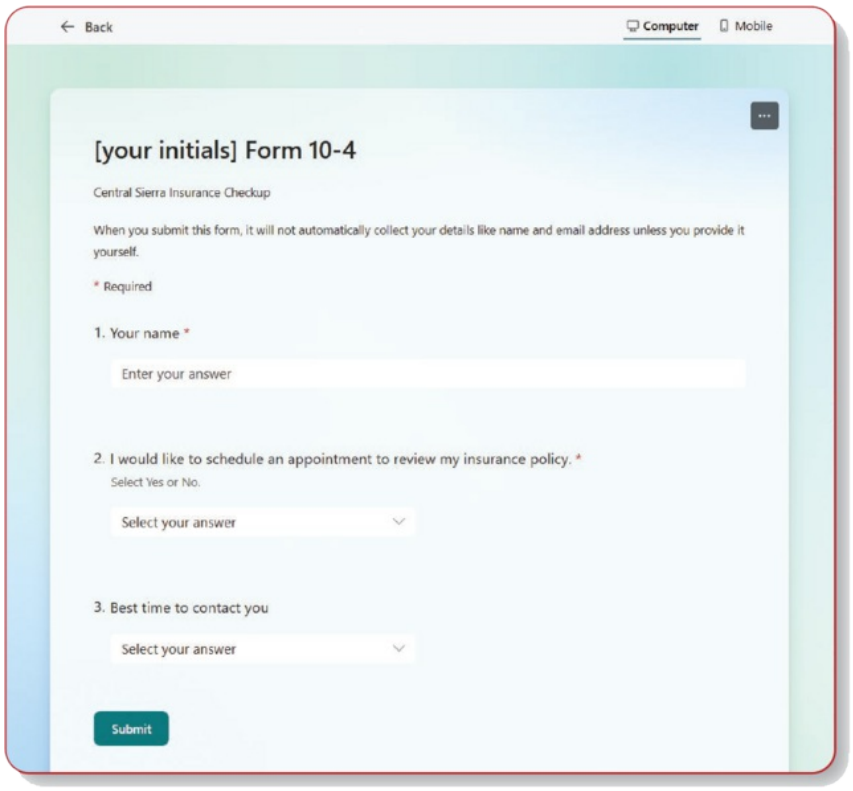


FIGURE 10-111 **Preview the *Form***

b. Type in or select answers to the questions on the form in *Preview* mode and click **Submit**.

c. Go **Back** to the form. Notice that the *View responses* button indicates 1 response has been submitted.

d. Click **Collect responses** to share the form.

e. Select **Anyone can respond**, check **Shorten URL**, and click **Copy link**.

f. Close the *Send and collect responses* window.

g. Open your email program, create a new message to your instructor and use [your initials] Access 10-4 Form as the subject line.

h. Use Please complete the survey and submit your answers. as the message, paste (**Ctrl+V**) the survey link in the message, and send the message.

i. Close your email program.

j. Close the *[your initials] Access 10-4 Form* browser tab, close any additional *Forms* tabs that are open, and return to *OneDrive* online.

10. Sign out of *OneDrive* and close the browser.

Independent Project 10-5

For this project, you use *OneDrive, Word Online,* and *Excel Online* to customize, store, edit, and share documents for the New York Department of Motor Vehicles.

[**Student Learning Outcome 10.3, Student Learning Outcome 10.4, Student Learning Outcome 10.5**]

Note to Instructor and Students:

Use your education Microsoft 365 account for this project. If you don't have an education Microsoft account, create one at **https://www.microsoft.com/en-us/education/products/office**. *See the "Microsoft Account Information" section in* SLO 10.2: Customizing Office Account Options.

Microsoft regularly updates the Microsoft 365 *products and* OneDrive *online environment. Instructions and figures in this project may differ slightly from how* Microsoft 365 *and* OneDrive *display in your internet browser. The Google Chrome web browser and a business/education Microsoft 365 account are used for instructions and figures in this project.*

Files Needed: ***NewYorkDMV-10.accdb***, ***TicketReport-10.docx***, and ***NewOfficers-10.xlsx*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Names: ***[your initials] Access 10-5.accdb***, ***[your initials] TicketReport-edited-10.docx***, ***[your initials] NewOfficers-edited-10.xlsx***, and ***NY DMV*** (*OneDrive* folder) containing the following files: ***[your initials] TicketReport-edited-10.docx***, and ***[your initials] NewOfficers-edited-10.xlsx***

Skills Covered in This Project

- Log in to *OneDrive*.

- Create a *OneDrive* folder.
- Upload a file to a *OneDrive* folder.
- Edit a document in *Excel Online*.
- Edit a document in *Word Online* and apply formatting.
- Share a *OneDrive* folder.
- Download *OneDrive* files to your computer.
- Import data from Excel into Access.

---

1. Create a *OneDrive* folder and upload files to the *OneDrive* folder.
   a. Open an internet browser page, log in to your Microsoft 365 account (**https://microsoft365.com**), and go to your *OneDrive*.
   b. Create a new folder named NY DMV in the *My files* area.
   c. Upload the following files from your student data files to the *NY DMV* folder: ***TicketReport-10.docx*** and ***NewOfficers-10.xlsx***.
2. Add a comment to a document in *Word Online*.
   a. Open the ***TicketReport-10*** document in *Word Online*. Don't worry if the text is not aligned in the document or if an "unable to load the textbox" message displays at the top of the report.
   b. Scroll down and find the tickets for Improper Electronic Device Use/Texting.
   c. Select the row that contains the **$15.00** fine in the *Primary Factor* grouping of Improper Electronic Device Use/Texting. (This should be the third row of data.)
   d. Add a new comment, type Please review. This fine is too low for an electronic device/texting related ticket. in the comment area, and post the comment.
   e. Close the *Comments* pane.
3. Edit a document in *Word Online*.
   a. Select the three rows that contain the column headers at the top of Page 1 and change the *Font Color* to **Dark Blue** (the ninth column in *Standard Colors*).
   b. Close the browser tab to return to your *NY DMV* folder in *OneDrive*.
4. Rename the Word document.
   a. Select the ***TicketReport-10*** document in *OneDrive*.
   b. **Rename** the document and type [your initials] TicketReport-edited-10 as the file name.
5. Edit a document in *Excel Online*.
   a. Open the ***NewOfficers-10*** file, located in the *NY DMV* folder, in *Excel Online*.
   b. Type A00093182 in cell **A3**, Sappho in cell **B3**, Coban in cell **C3**, and 11/10/2025 in cell **D3**.

c. Type A00093245 in cell **A4**, Kazu in cell **B4**, Nakamura in cell **C4**, and 1/15/2026 in cell **D4**.

d. Type A00093297 in cell **A5**, Sanjukta in cell **B5**, Chatterjee in cell **C5**, and 4/20/2026 in cell **D5**.

e. Close the browser tab and return to your *NY DMV* folder.

6. **Rename** the Excel workbook and type [your initials] NewOfficers-edited-10 as the file name. Deselect the file if it is checked.
7. Download files from *OneDrive* to your computer.
   a. Check the **circle** to the left of the ***[your initials] TicketReport-edited-10*** Word document and then **Download** the file. The download interface varies based on your browser. Save the file in the folder where you save your student work.
   b. Uncheck the ***[your initials] TicketReport-edited-10*** file.
   c. Check the **circle** to the left of the ***[your initials] NewOfficers-edited-10*** Excel file and then **Download** the file. Save the file in the folder where you save your student work.
8. Click the **My files** button to display your *OneDrive* folders.
9. Share the *NY DMV* folder in *OneDrive* with your instructor.
   a. Select the ***NY DMV*** folder and **Share** the folder.
   b. Allow **Anyone** to edit the folder.
   c. Type your instructor's email address in the recipient area and type a brief message in the body area.
   d. **Send** the sharing link and close the confirmation message.
10. Sign out of *OneDrive* and close the browser.
11. Open an Access database.
    a. Open the ***NewYorkDMV-10.accdb*** database from your student data files. If a *Security Risk* message or *active content is blocked* dialog box displays, click **OK** or the **X** to close it. If the message repeats in a later step, click **OK** or the **X** to close the message.
    b. Save a new copy of your database as [your initials] Access 10-5.
    c. Enable content in the database.
12. Reset the *Ribbon* and the *Quick Access* toolbar.
13. Import data to append to a table in an Access database.
    a. Click the **New Data Source** button, select **From File**, and then select **Excel** to import a file.
    b. Locate, select, and open the ***[your initials] NewOfficers-edited-10.xlsx*** file.
    c. Choose to append the records into the *Officers* table and click **OK** to start the import process. If a *Microsoft Access Security Notice* box displays, click **Open**.

d. Click **Next** on the first screen of the *Import Spreadsheet Wizard* dialog box. On the second screen, click **Finish**.
e. Don't save the import steps.
f. Open the *Officers* table to verify that the records were added to the table.

14. Close the table and close Access.

Independent Project 10-6

For this project, you customize the *Ribbon* in Access, export data to Excel, and use *OneDrive* and *Word Online* to customize, store, edit, and share documents for the American River Cycling Club.

[Student Learning Outcome 10.1, Student Learning Outcome 10.3, Student Learning Outcome 10.4, Student Learning Outcome 10.5]

Note to Instructor and Students:

> *Use your education Microsoft 365 account for this project. If you don't have an education Microsoft account, create one at* **https://www.microsoft.com/en-us/education/products/office**. *See the "Microsoft Account Information" section in* **SLO 10.2: Customizing Office Account Options**.
>
> *Microsoft regularly updates the* Microsoft 365 *products and* OneDrive *online environment. Instructions and figures in this project may differ slightly from how* Microsoft 365 *and* OneDrive *display in your internet browser. The Google Chrome web browser and a business/education Microsoft 365 account are used for instructions and figures in this project.*

Files Needed: ***AmericanRiver-10.accdb***, ***CyclingCalendarARCC-10.docx***, and ***TrainingLog-10.docx*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Names: ***[your initials] Access 10-6.accdb***, ***[your initials] Access_Export 10-6.xlsx***, and ***ARCC*** (*OneDrive* folder) containing the following files: ***[your initials] Access_Export 10-6.xlsx***, ***CyclingCalendarARCC-10.docx***, and ***TrainingLog-10.docx***

Skills Covered in This Project

- Reset customizations to the *Ribbon* and the *Quick Access* toolbar.
- Export data to Excel.

- Log in to *OneDrive*.
- Create a *OneDrive* folder.
- Upload a file to a *OneDrive* folder.
- Add a comment to a document in *Word Online*.
- Share a *OneDrive* folder.

---

1. Open the ***AmericanRiver-10.accdb*** database from your student data files. If a *Security Risk* message or *active content is blocked* dialog box displays, click **OK** or the **X** to close it. If the message repeats in a later step, click **OK** or the **X** to close the message.
2. Save a new copy of your database as [your initials] Access 10-6.
3. Enable content in the database.
4. Reset and customize the *Ribbon* and *Quick Access* toolbar.
   a. Reset all *Ribbon* and *Quick Access* toolbar customizations.
   b. Add **Open**, **Quick Print**, and **Excel [Export to Excel spreadsheet]**, in that order, to the *Quick Access Toolbar* that displays for this database only.
   c. Close the **Access Options** dialog box.
5. Export data to Excel.
   a. Select the **RaceInformation** table and click **Export to Excel spreadsheet** from the *Quick Access* toolbar. The *Export – Excel Spreadsheet* dialog box opens.
   b. Save the file as [your initials] Access_Export 10-6 in the folder where you save your student work.
   c. Select the **Export data with formatting and layout** check box and start the export process.
   d. Close the wizard without saving the export steps.
6. Exit Access.
7. Create a *OneDrive* folder and upload files to your *OneDrive*.
   a. Open an internet browser page, log in to your Microsoft 365 account (**https://microsoft365.com**), and go to your *OneDrive*.
   b. Create a new folder named ARCC in the *My files* area.
   c. Open the **ARCC** folder and upload the ***[your initials] Access_Export 10-6.xlsx*** from your solution files. Upload ***CyclingCalendarARCC-10.docx*** and ***TrainingLog-10.docx*** from your student data files. The completed folder should be similar to Figure 10-112.

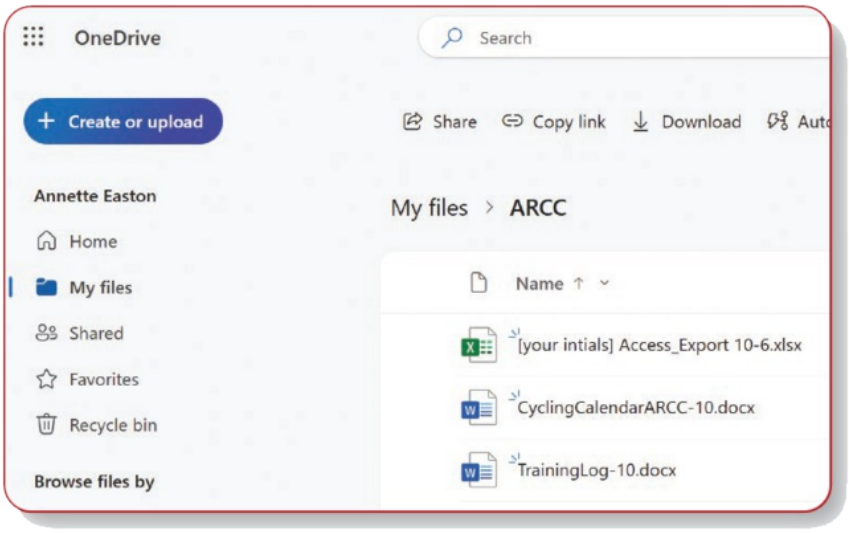


FIGURE 10-112 **Completed *ARCC* folder in *OneDrive***

8. Add a comment to a document.
   a. Open the ***CyclingCalendarARCC-10*** file from your *ARCC* folder in *Word Online*. Don't worry if the text is not aligned in the document.
   b. Attach the following comment to "Sunday": Please email this calendar document to all ARCC members. and post the comment.
   c. Close the browser tab and return to your *ARCC* folder.
9. Click the **My files** button to display your *OneDrive* folders.
10. Share the ***ARCC*** folder in *OneDrive* with your instructor.
    a. Select the ***ARCC*** folder and **Share** the folder.
    b. Allow **Anyone** to access the folder.
    c. Change the sharing permission to only view the folder contents.
    d. Type your instructor's email address in the recipient area and type a brief message in the body area.
    e. **Send** the sharing link and close the confirmation message.
11. Sign out of *OneDrive* and close the browser.

A10-868

A10-869

Advanced Project 10-7

For this project, you customize the working environment in Access and use *OneDrive, Word Online,* and *OneNote Online* to customize, store, edit, and share

documents for Mary's Equipment Rentals.

[**Student Learning Outcome 10.1**, **Student Learning Outcome 10.3**, **Student Learning Outcome 10.4**, **Student Learning Outcome 10.5**, **Student Learning Outcome 10.6**]

Note to Instructor and Students:

Use your education Microsoft 365 account for this project. If you don't have an education Microsoft account, create one at **https://www.microsoft.com/en-us/education/products/office**. *See the "Microsoft Account Information" section in* SLO 10.2: Customizing Office Account Options.

Microsoft regularly updates the Microsoft 365 *products and* OneDrive *online environment. Instructions and figures in this project may differ slightly from how* Microsoft 365 *and* OneDrive *display in your internet browser. The Google Chrome web browser and a business/education Microsoft 365 account are used for instructions and figures in this project.*

Files Needed: ***MarysRentals-10.accdb*** and ***CustomerReport-10.docx*** *(Student data files are available in the* Library *of your SIMnet account.)*

Completed Project File Names: ***Marys Rentals*** (*OneDrive* folder) containing the following files: ***[your initials] Access 10-7.accdb***, ***CustomerReport-10.docx***, and ***[your initials] Notebook Access 10-7***

Skills Covered in This Project

- Create a *OneDrive* folder.
- Edit the *Quick Access* toolbar.
- Log in to *OneDrive*.
- Upload a *OneDrive* file.
- Reply to a comment in *Word Online*.
- Use *OneNote Online*.
- Share a *OneNote* notebook.

1. Create a *OneDrive* folder and open and save a document.
   a. Open an internet browser page, log in to your Microsoft 365 account (**https://microsoft365.com**), and go to your *OneDrive*.
   b. Create a new folder named Marys Rentals in the *My files* area.
   c. Open the ***MarysRentals-10.accdb*** database from your student data files. If a *Security Risk* message or *active content is blocked* dialog box displays, click **OK** or the **X** to close it. If the message repeats in a later step, click **OK** or the **X** to close the message.

d. Save a copy of this file as [your initials] Access 10-7 in the *Marys Rentals* folder in your *OneDrive* folder.

e. Enable content in the database.

2. Fix the *Quick Access* toolbar.

a. Reset all customizations on the *Ribbon* and *Quick Access* toolbar.

b. Choose to customize the *Quick Access Toolbar* for the *Access 10-7* database.

c. Add the **Close Database**, **Property Sheet**, and **Use Control Wizards** commands to the *Quick Access* toolbar.

d. Move the **Property Sheet** command to appear first and the **Close Database** command to appear last.

e. Position the toolbar above the *Ribbon.* Click OK to save the changes and close the **Access Options** dialog box.

f. Open the **EquipmentServiceHistory** form in *Design* view. This enables you to see all the commands on the *Quick Access* toolbar (Figure 10-113).

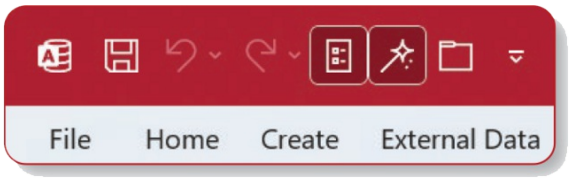


FIGURE 10-113 ***Quick Access* toolbar**

3. Close the form and exit Access.

4. Upload a file to your *OneDrive*.

a. Click to select your *OneDrive* browser tab.

b. Open the **Marys Rentals** folder and upload the ***CustomerReport-10.docx*** file from your student data files. The ***[your initials] Access 10-7*** database is already in this folder. If it is not, add it.

5. Edit comments in *Word Online*.

a. Open the ***CustomerReport-10*** document in *Word Online*.

b. Reply to the existing comment and post the following comment: The customer records are correct.

c. Close your *Word Online* document and return to your *Marys Rentals* folder in *OneDrive*.

6. Create a *OneNote* notebook.

a. Create a new **OneNote notebook** named [your initials] Notebook Access 10-7.

b. Type Mary's Rentals Quarterly Update as the page title.

c. Type Customer Records - Document attached. as the first line of text and press

Enter.

d. Click **File** [*Insert* tab], and choose **Insert File Attachment**. Navigate to the *Marys Rentals* folder in your *OneDrive* folder, select ***CustomerReport-10***, and click **Open**. Click **Insert as Attchement** in the *How do you want to insert this file?* dialog box, if prompted.

e. Right-click **Untitled Section** in the *Section* pane and rename the section Quarterly Review Meeting. Note: The section might be named something else instead of *Untitled Section.* The notebook should look similar to **Figure 10-114**.

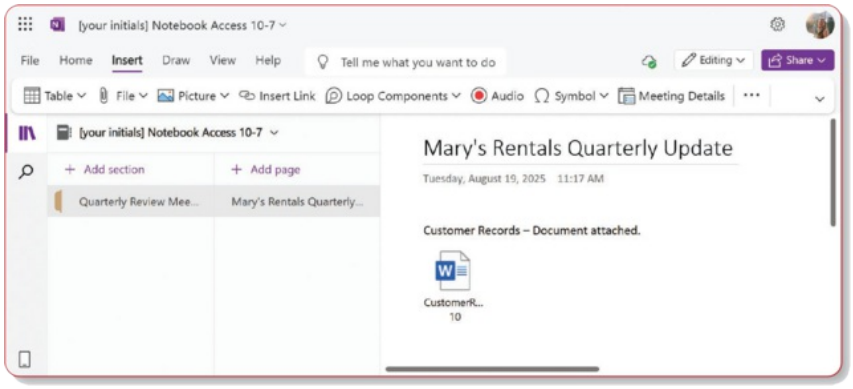


FIGURE 10-114 **New notebook in *OneNote Online***

Photo Source: Annette Easton

7. Share a *OneNote Online* notebook with your instructor.
   a. Click **Share** and select **Share Entire Notebook**.
   b. Allow **Anyone** to view, not edit, the notebook. Apply the settings.
   c. Copy the link and close the sharing window.
   d. Email the sharing link to your instructor from your email program. Use [your initials] Notebook Access 10-7 as the subject line and Here are the customer notes. as the message.
   e. Close your email program as desired.
8. Close the *OneNote* browser tab and return to the *Marys Rentals* folder.
9. Sign out of *OneDrive* and close the browser.

Copilot Challenge Project 10-8

Use *Copilot* or other generative AI, *OneNote,* Access and *OneDrive* to help you plan and organize a group project for a class. You need to determine/specify the nature of the project. For example, develop a marketing plan for a youth sports organization,

develop an event management plan for a mock event, or design a prototype of a product or system. Use *OneNote* to help you organize project information. Design and create a database to track and manage project details. Research and generate content regarding the project in *Copilot.* Additionally, you use *OneDrive* to share information and collaborate with team members.

[Student Learning Outcome 10.3, Student Learning Outcome 10.4, Student Learning Outcome 10.6]

Note to Instructor and Students:

> *Use your education Microsoft 365 account for this project. If you don't have an education Microsoft account, create one at* **https://www.microsoft.com/en-us/education/products/office**. *See the "Microsoft Account Information" section in* SLO 10.2: Customizing Office Account Options.

File Needed: None

Completed Project File Names: New *OneDrive* folder ***[your initials] Class Project Files*** and files, new *OneNote* notebook ***[your initials] Class Project***, and ***[your initials] Access 10-8.accdb***

Use *OneNote* to organize and store project information. You can use either the Microsoft 365 online version or the *OneNote* desktop app. Complete the following tasks:

- Determine the focus of your group project. If necessary, use *Copilot* to suggest possible projects.
- Create a new *OneNote* notebook and name it [your initials] Class Project.
- Create the following four sections in your notebook. Ask *Copilot* for help if you are unsure how to complete any of the tasks in *OneNote.* The four sections, including a brief description about the purpose of each, are:
  - Project Overview: Write a brief description of the project goals.
  - Meeting Notes: Document team discussions and decisions.
  - Task Tracker: Outline tasks, deadlines, and responsibilities.
  - Research and Resources: Store links, summaries, and uploaded documents or files of relevant research.
- Use *Copilot* to help you draft the content in the Project Overview section. Edit the draft and enter your version into the Project Overview section.
- Use *Copilot* to suggest tasks. Refine the suggestions. Follow-up with prompts to get a suggested task breakdown with deadlines, based on the project scope. Refine the suggestions and enter your version into the Task Tracker section.
- Use *Copilot* to provide some links to relevant research related to your project. Select several of the most promising links and enter them in the Research and

Resources section.
- Share the *OneNote* notebook with all team members. Allow team members to access and edit the contents.

Use *Copilot* to research and help you design a database to store project details regarding Team members, Tasks, and Resources. Your database should contain at least three tables. Complete the following tasks:

- Use *Copilot* to help you determine the specific fields you should include in each of the tables. Use a specific prompt to brainstorm suggested fields to store about the Team members, Tasks and Project Resources.
- Use follow-up prompts to clarify the suggestions and to understand the relationships between the tables.
- To ensure that you have the correct fields, tables and relationships identified, ask *Copilot* to help you create queries to list tasks assigned to each team member and to identify tasks that are overdue. Make any refinements to the table designs, as needed.

Use Access to build the database.

- Create a new database in Access and save it as [your initials] Access 10-8.
- Create the necessary tables. Assign appropriate field names and data types. Change the default field size for any Short Text fields to better meet the actual size needed for each field.
- Save the tables. You don't need to enter any data records at this point.
- Establish relationships between the tables. Enforce referential integrity and make the appropriate choices regarding cascading updates and deletes. Save any changes.
- Close any open objects and the database.

Close any open *OneNote* browser tabs.

Create a *OneDrive* folder to store all files related to your class project. Modify your *OneDrive* folder according to the following guidelines:

- Create a OneDrive folder and name it [your initials] Class Project Files.
- Move your **[your initials] Class Project** notebook into your **[your initials] Class Project Files** *OneDrive* folder.
- Upload your **[your initials] Access 10-8** database file.
- Share the *OneDrive* folder with all team members. Allow team members to access and edit the contents.
- Sign out of *OneDrive* and close the browser.

Challenge Project 10-9

Now that you are familiar with many of the features and the working environment in Access, you can customize the working environment to meet your needs. For this project, you create a new database, create and customize a table in the database, customize the *Ribbon,* the *Quick Access* toolbar, and Access options to personalize your working environment in Access.

[Student Learning Outcome 10.1, Student Learning Outcome 10.2]

File Needed: None

Completed Project File Name: ***[your initials] Access 10-9.accdb***

Create a new database and save it as [your initials] Access 10-9. The database should contain one table that is an inventory list of different items at your home or apartment. This inventory list can be used for insurance purposes to file a claim in case any items are lost, stolen, or damaged. Modify your database according to the following guidelines:

- Reset the *Ribbon* and the *Quick Access* toolbar customizations.
- Create a table using *Design* view to store information about your items. Add the following fields into the table: ItemID, Description, YearPurchased, Quantity, ItemCost, Brand, and Category.
- Use an *AutoNumber* data type for the *ItemID* field and designate it as the primary key.
- Select appropriate data types and field sizes for the other fields.
- Use the *Lookup Wizard* to create a drop-down list for the *Category* field and add the following choices to the list: Appliances, Clothing, Electronics, Furniture, Jewelry, and Other.
- Save the table as Inventory.
- Enter at least six rows of data.
- Modify Access options to meet your needs.
- Create new tabs and/or groups and rename them.
- Add and arrange commands in the group.
- Add commands to your *Quick Access* toolbar.
- Close any open objects and the database.

Challenge Project 10-10

Microsoft 365 has many other applications you can use online to increase your personal productivity. For this project, create a *Form*.

[**Student Learning Outcome 10.3**, **Student Learning Outcome 10.4**, **Student Learning Outcome 10.5**, **Student Learning Outcome 10.6**]

Note to Instructor and Students:

Use your education Microsoft account for this project. If you don't have an education Microsoft account, create one at **https://www.microsoft.com/en-us/education/products/office**. *See the "Microsoft Account Information" section in* SLO 10.2: Customizing Office Account Options.

File Needed: None

Completed Project File Name: ***[your initials] Access 10-10 Excel Form***

Create a new *Form* for a club, organization, work team, or student group. Modify your *Form* according to the following guidelines:

- Log in to your Microsoft 365 account.
- Create a new *Form* and type [your initials] Access 10-10 Excel Form as the title.
- Customize the content. Include at least three different questions and use at least two different question types.
- Preview the results.
- Share the *Form* with your instructor and classmates.
- Sign out of *OneDrive* and close the browser.

Source of screenshots Microsoft Office 365 (2024): Word, Excel, Access, PowerPoint.

appendices

APPENDIX A: Microsoft Office 365 Shortcuts A-1
APPENDIX B: Business Document Formats (Online only)

APPENDIX A

Microsoft Office 365 Shortcuts

Using Function Keys on a Laptop

When using a laptop computer, function keys perform specific Windows actions on your laptop, such as increase or decrease speaker volume, open Windows *Settings,* or adjust the screen brightness. So when using a numbered function key in an Office application, such as **F12** as a shortcut to open the *Save As* dialog box, you may need to press the ***function key*** (**Fn** or **fn**) on your keyboard in conjunction with a numbered function key to activate the Office command (**Figure Appendix A-1**). The *function key* is typically located near the bottom left of your laptop keyboard next to the *Ctrl* key.



FIGURE APPENDIX A-1 Function key

Common Microsoft Office Keyboard Shortcuts

Action	Keyboard Shortcut
Save	**Ctrl**+**S**
Copy	**Ctrl**+**C**
Cut	**Ctrl**+**X**
Paste	**Ctrl**+**V**
Select All	**Ctrl**+**A**
Bold	**Ctrl**+**B**
Italic	**Ctrl**+**I**
Underline	**Ctrl**+**U**
Close *Start* page or *Backstage* view	**Esc**
Open *Help* pane	**F1**

Activate *Tell Me* feature	**Alt**+**Q**
Switch windows	**Alt**+**Tab**

Access 365 Keyboard Shortcuts

Action	Keyboard Shortcut
Database File Management	
Open a new blank database	**Ctrl**+**N**
Open an existing database	**Ctrl**+**O**
Editing	
Cut	**Ctrl**+**X**
Copy	**Ctrl**+**C**
Paste	**Ctrl**+**V**
Working with Objects	
Close the selected object	**Ctrl**+**W** or **Ctrl**+**F4**
Open or close *Navigation Pane*	**F11**
Open selected object in the default view	**Enter**
Open selected object in *Design* view	**Ctrl**+**Enter**
Save a database object; if first time saving the object, opens the *Save As* dialog box	**Ctrl**+**S**
Open the *Save As* dialog box	**F12**
Open shortcut menu for the selected object	**Shift**+**F10**
Working with Text and Data	
Insert current date into field	**Ctrl**+**semicolon (;)**
Insert current time into field	**Ctrl**+**Shift**+**colon (:)**
Insert value from same field in previous record	**Ctrl**+**apostrophe (')**
Insert default value into field	**Ctrl**+**Alt**+**spacebar**
Move to next field in a table, query, or form	**Tab**
Move to preceding cell in a table, query, or form	**Shift**+**Tab**
Insert line break when entering data in a *Short Text* or *Long Text* field	**Ctrl**+**Enter**
Undo changes to current field. Undoes all changes if more than one field on current record has been changed.	**ESC** or **Ctrl**+**Z**
Switch between *Edit* mode (insertion point displayed) and *Navigation* mode	**F2**
Select current column (works in *Navigation* mode only)	**Ctrl**+**Spacebar**

Increase selection to add adjacent column to the right	**Shift**+**right arrow**
Increase selection to add adjacent column to the left	**Shift**+**left arrow**
Delete current record (in a datasheet)	**Ctrl**+**minus sign (–)**
Open *Find and Replace* dialog box	**Ctrl**+**F**
Open *Find and Replace* dialog box with the *Replace* tab selected	**Ctrl**+**H**
Find next	**Shift**+**F4**
Open the *Edit List Items* dialog box	**Ctrl**+**E**
Working in Design View	
Open *Expression Builder* dialog box	**Ctrl**+**F2**
Open *Zoom* window	**Shift**+**F2**
Open or close the *Properties* window for the selected control	**F4** or **Alt**+**Enter**
Show or hide *Field* list	**Alt**+**F8**
Switch to *Form* view from *Design* view	**F5**
Print Preview Shortcuts	
Open *Page Setup* dialog box from *Print Preview* view	**S**
Open *Print* dialog box from *Print Preview* view	**P** or **Ctrl**+**P**

APPENDIX B

Business Document Formats

Common Types of Business Documents

Three main types of business documents are commonly used, and each has a specific use for professional communication. The following table lists the different types of business documents and their uses:

Types of Business Documents

Business Document	Purpose
Memorandum (memo)	Used for intra-office or intra-organization communication. Most communication within an organization is done using email, but memos are still regularly used for formal business communication.
Business letter	Used by businesses and organizations to communicate with those outside of their organization. Business letters are sent to other companies or individuals and are typically printed on company letterhead stationery.
Personal business letter	Used for communication from an individual to a business or another individual. A job application letter (cover letter) is the most common type of personal business letter.

Parts of Business Documents

Most business documents have similar parts. The following sections describe the common parts of memorandums, business letters, and personal business letters.

Memorandums

The following table lists and describes the standard parts of a memorandum:

Parts of a Memorandum

Part	Description
Title	The title “MEMORANDUM” or “MEMO” is typically centered at the top of the page. Sometimes the title is omitted on memos.
Memo heading	Memo heading guidewords begin at the left and are typed in all caps followed by a colon. The following are the memo heading guidewords and a description of each: **TO:** Recipient(s) of the memo **FROM:** Writer of the memo **DATE:** Date of the memo **SUBJECT:** Brief description of the content of the memo Information after each guideword is typically lined up at 1″ using a left tab stop.
Body	The body of a memo is single spaced. Include a double space (press **Enter** twice) after each body paragraph. Each paragraph begins at the left margin, no tab or indent is used.
Reference initials	Used when someone else types the letter for the writer of the letter. Reference initials are typed in lowercase letters with no spaces or punctuation between (for example, rn) and a double space (press **Enter** twice) after the last body paragraph. Reference initials are omitted if the writer of the memo also types the memo.
Enclosure or attachment notation(if needed)	Used when something is enclosed with or attached to the memo. The attachment can be an itinerary, meeting agenda, or any supplemental information. If you include an attachment or enclosure, type the words “Enclosure” or “Attachment” below the reference initials or last body paragraph. If there is more than one enclosure or attachment, the number of enclosures or attachments can be included in parentheses (for example, Enclosures (3)).

Business Letters

The following table lists and describes the standard parts of a business letter:

Parts of a Business Letter

Part	Description
Date line	Type the date of the letter in the following format. January 1, 2027
Inside address	This typically includes the letter recipient’s full mailing address, including name, company name (if applicable), street address, and city, state, and ZIP code. Typically, use a courtesy title (for example,

	Mr., Mrs., Ms., Dr.), first name, and last name. Use a standard USPS address. Mrs. Cammie Speckler Hartford Specialty 4788 Market Street, Suite A205 San Francisco, CA 95644
Salutation	This is the formal greeting to the recipient of the letter. The salutation typically includes “Dear”, a courtesy title (for example, Mr., Mrs., Ms., Dr.), and the recipient’s last name. Dear Mrs. Speckler The punctuation that follows the salutation is determined by the type of punctuation style used in the letter: *mixed* or *open*. The different types of punctuation are discussed in the *Types of Business Letter Punctuation* section of this appendix.
Subject line (optional)	A brief description of the content of the letter. The subject line is optional. The subject line typically begins with “SUBJECT:”, “Subject:”, or “RE:” followed by a brief description of the subject of the letter.
Body	The body of a letter is single spaced. Include a double space (press **Enter** twice) after each paragraph.
Complimentary close	Used to conclude the letter. The complimentary close is typically “Sincerely,” “Sincerely yours,” “Best regards,” “Cordially,” or “Cordially yours.” The punctuation that follows the complimentary close is determined by the type of punctuation style used in the letter: *mixed* or *open*. The different types of punctuation are discussed in the *Types of Business Letter Punctuation* section of this appendix.
Writer’s name and title	The writer of the letter and his or her title. The writer’s name and title can be typed on the same line as the close or on a separate line. Sometimes the writer’s company name is included below the writer’s name and title.
Reference initials	Used when someone else types the letter for the writer of the letter. Reference initials are typed in lowercase letters with no spaces or punctuation between (for example, rn) and a double space (press **Enter** twice) after the last body paragraph. Reference initials are omitted if the writer of the memo also types the letter.
Enclosure notation (if needed)	This notation is included when something is enclosed with or attached to the memo. An attachment can be an itinerary, meeting agenda, or any supplemental information. If you include an attachment or enclosure, type the words “Enclosure” or “Attachment” a single line space below the reference initials. If there is more than one enclosure

	or attachment, the number of enclosures or attachments can be included in parentheses (for example, Enclosures (3)).
Copy notation(if needed)	Use as a notation to list others who are receiving a copy of the letter. Type a lowercase "c" and type the name(s) of those receiving a copy of the letter. c Taylor Mathos
Postscript(if needed)	Used to include a note at the end of the letter. Type "P.S." and the information to be included. P.S. An updated itinerary will be emailed to you later this week.

MORE INFO

The punctuation after the salutation and complimentary close can vary depending on the type of business letter punctuation used. Types of business letter punctuation are covered later in this appendix.

Personal Business Letters

In a personal business letter, the writer's address is included below the writer's name (rather than the writer's title, as it is in a business letter) and reference initial are omitted because the writer of a personal business letter is also the one who types the letter. The following table lists and describes the standard parts of a personal business letter:

Parts of a Personal Business Letter

Part	Description
Date line	The date of the letter is typed in the following format: January 1, 2027
Inside address	This typically includes the recipient's name, company name (if applicable), street address, and city, state, and ZIP code. Typically, use a courtesy title (for example, Mr., Mrs., Ms., Dr.), first name, and last name. Use a standard USPS address. Mrs. Cammie Speckler Hartford Specialty 4788 Market Street, Suite A205 San Francisco, CA 95644
Salutation	This is the formal greeting in the letter. The salutation typically

	includes “Dear”, a courtesy title (for example, Mr., Mrs., Ms., Dr.), and last name. Dear Mrs. Speckler The punctuation that follows the salutation is determined by the type of punctuation style used in the letter: *mixed* or *open*. The different types of punctuation are discussed in the *Types of Business Letter Punctuation* section of this appendix.
Subject line (optional)	A brief description of the content of the letter. The subject line is optional. The subject line typically begins with “SUBJECT:”, “Subject:”, or “RE:” followed by a brief description of the subject of the letter.
Body	The body of a letter is single spaced. Include a double space (press **Enter** twice) after each paragraph.
Complimentary close	Concludes the letter. The complimentary close is typically “Sincerely,” “Sincerely yours,” “Best regards,” “Cordially,” or “Cordially yours.” The punctuation that follows the complimentary close is determined by the type of punctuation style used in the letter: *mixed* or *open*. The different types of punctuation are discussed in the *Types of Business Letter Punctuation* section of this appendix.
Writer’s name and address	The writer of the letter and his or her address. Use a standard USPS address.
Enclosure notation (if needed)	This notation indicates that something is enclosed with or attached to the memo. The enclosure can be a resume, job application, or any supplemental information. If you are including an enclosure, press **Enter** twice (double space) after the writer’s name and address and type “Enclosure” or “Attachment.” If there is more than one enclosure or attachment, the number of enclosures or attachments can be included in parentheses (for example, Enclosures (3)).
Copy notation (if needed)	This notation lists any others who are receiving a copy of the letter. Type a lowercase “c” and type the name(s) of those receiving a copy of the letter. c Taylor Mathos
Postscript (if needed)	Used to include a note at the end of the letter. Type “P.S.” and the information to include. P.S. I completed the job application online.

Business Letter Formats

There are two commonly used formats for business letters: ***block*** and ***modified block***. You can use either block or modified block format on business and personal business letters.

- ***Block format***: All parts of the letter begin at the left margin.
- ***Modified block format***: The date line, complimentary close, and writer's name and title (or return address on a personal business letter) begin at the horizontal midpoint (text is not centered but begins at the center). Set a left tab stop at the horizontal midpoint and press tab to begin these lines at the horizontal midpoint.

Types of Business Letter Punctuation

There are two types of business letter punctuation that you can use on business and personal business letters: ***mixed punctuation*** and ***open punctuation***. Mixed or open punctuation can be used on either block or modified block formats. This punctuation only applies to the punctuation after the salutation and complimentary close.

- ***Mixed punctuation***: Use a colon after the salutation and a comma after the complimentary close.
- ***Open punctuation***: Omit the colon after the salutation and the comma after the complimentary close.

Margins on Business Documents

Memos are usually typed using the default margins (1″ top, bottom, left, and right). For average-length business letters, place the date line approximately 2″ from the top of the page and use the default left and right margins. The objective is to balance the letter vertically on the page. Longer letters have less space above the date line, while shorter letters have more space above the date line. You can change the amount of space before the date line using the following methods:

- *Press* **Enter** *before the date line*: For an average-length letter, press **Enter** five times before typing the date line.
- *Change the* Before *paragraph spacing on the date line*: For an average length letter, use **72 pt**. *Before* paragraph spacing on the date line.

Examples of Business Documents

The examples provided here illustrate the standard format for each of the different types and formats of business documents. Realize that a given company might use a format that varies slightly from those shown on the following pages.

The spacing provided after each part on the following examples is based upon a document with single line spacing (1.08 line spacing is the default in Word) and 0 pt. *After* paragraph spacing.

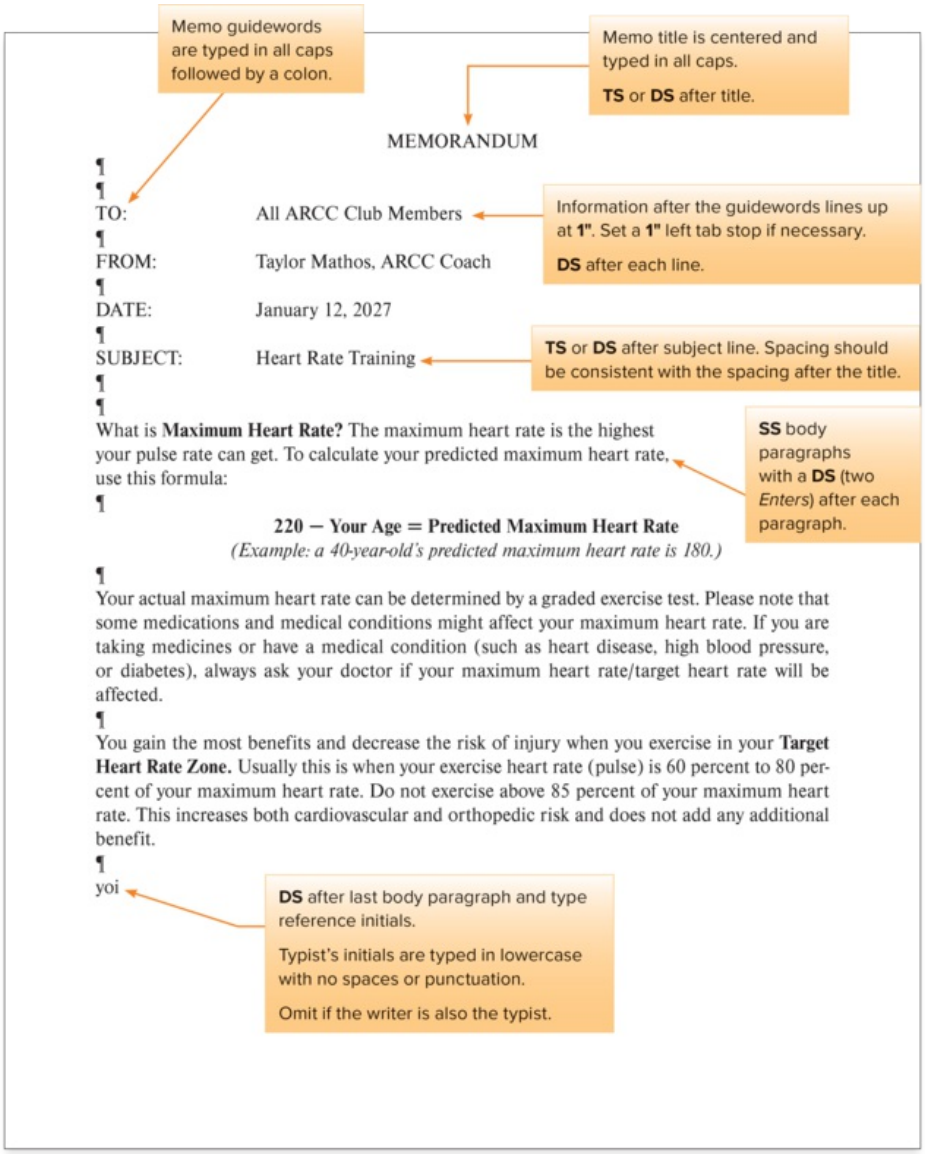
Alternatively, you can use paragraph spacing to provide a similarly spaced business document. For example, you might use 10 or 12 pt. *After* paragraph spacing to provide space after each body paragraph rather than pressing **Enter** twice (double space; DS) after each body paragraph. If you use paragraph spacing in your document, you can insert line breaks (**Shift**+**Enter**) to omit the *After* paragraph spacing in the inside address and writer's name and title (or address on a personal business letter).

The following table lists abbreviations that are used to describe spacing after parts of business documents. Also included is the equivalent *After* paragraph spacing that can be used in lieu of pressing **Enter** between parts.

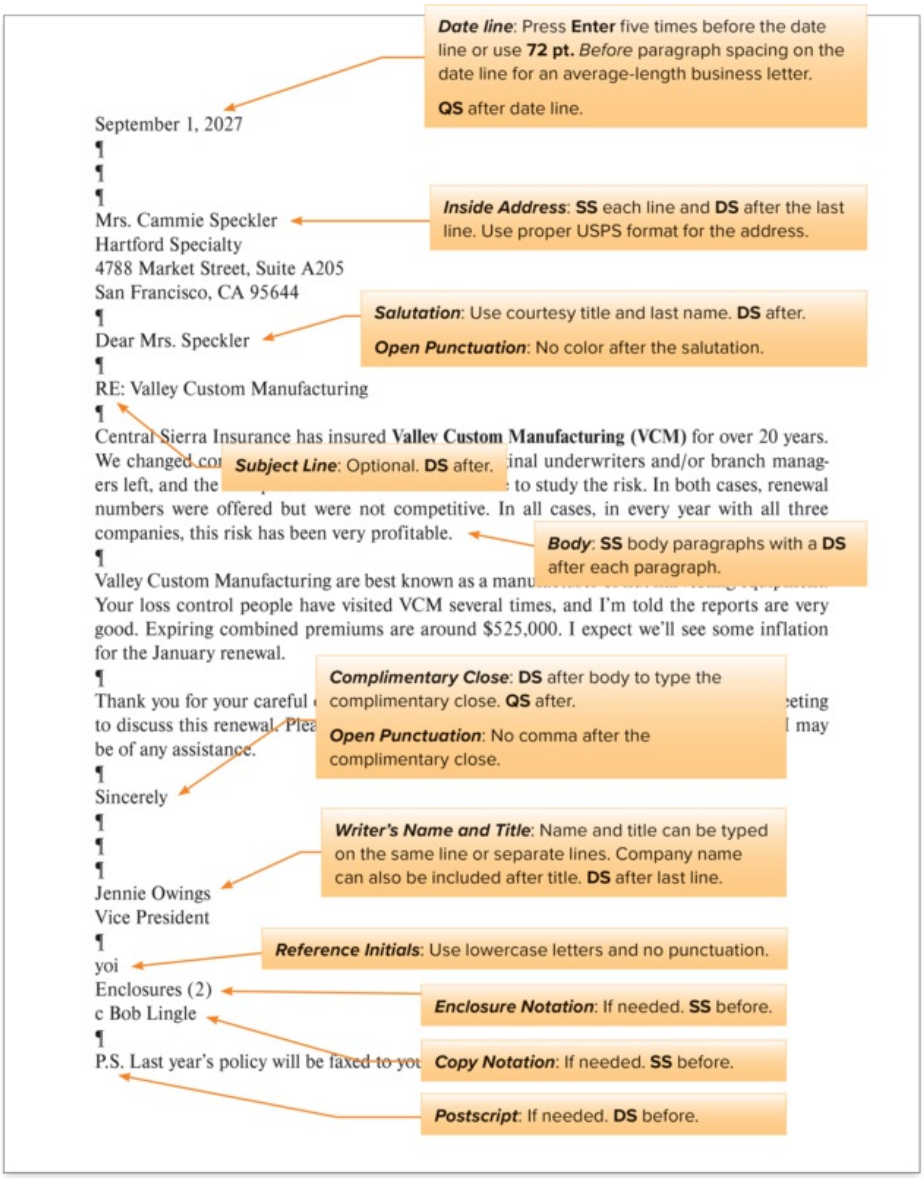
Spacing after Parts of Business Documents

Abbreviation	Spacing	Number of Times to Press Enter	Blank Lines between Typed Lines	Equivalent *After* Paragraph Spacing
SS	Single	One	None	0 pt.
DS	Double	Two	One	12 pt.
TS	Triple	Three	Two	24 pt.
QS	Quadruple	Four	Three	36 pt.

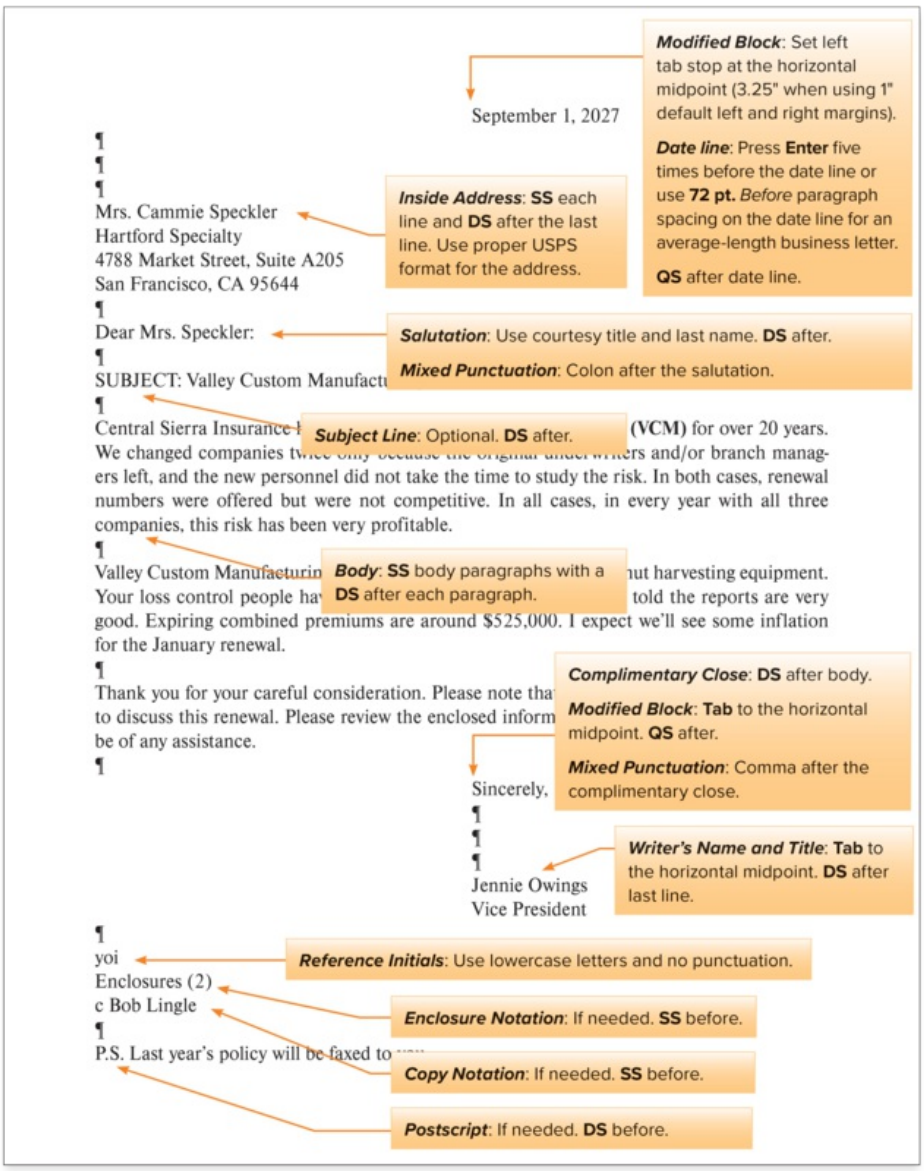
Memorandum



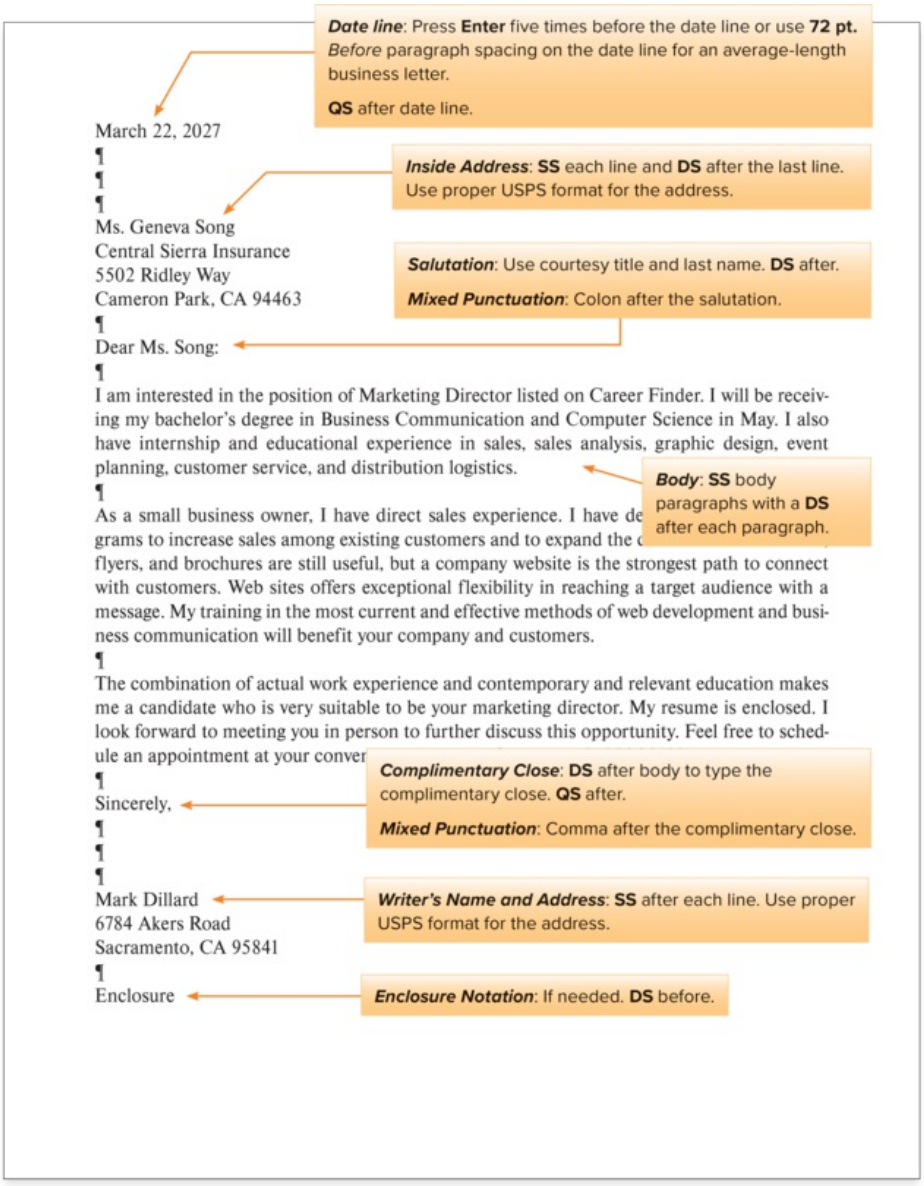
Block Format Business Letter with Open Punctuation



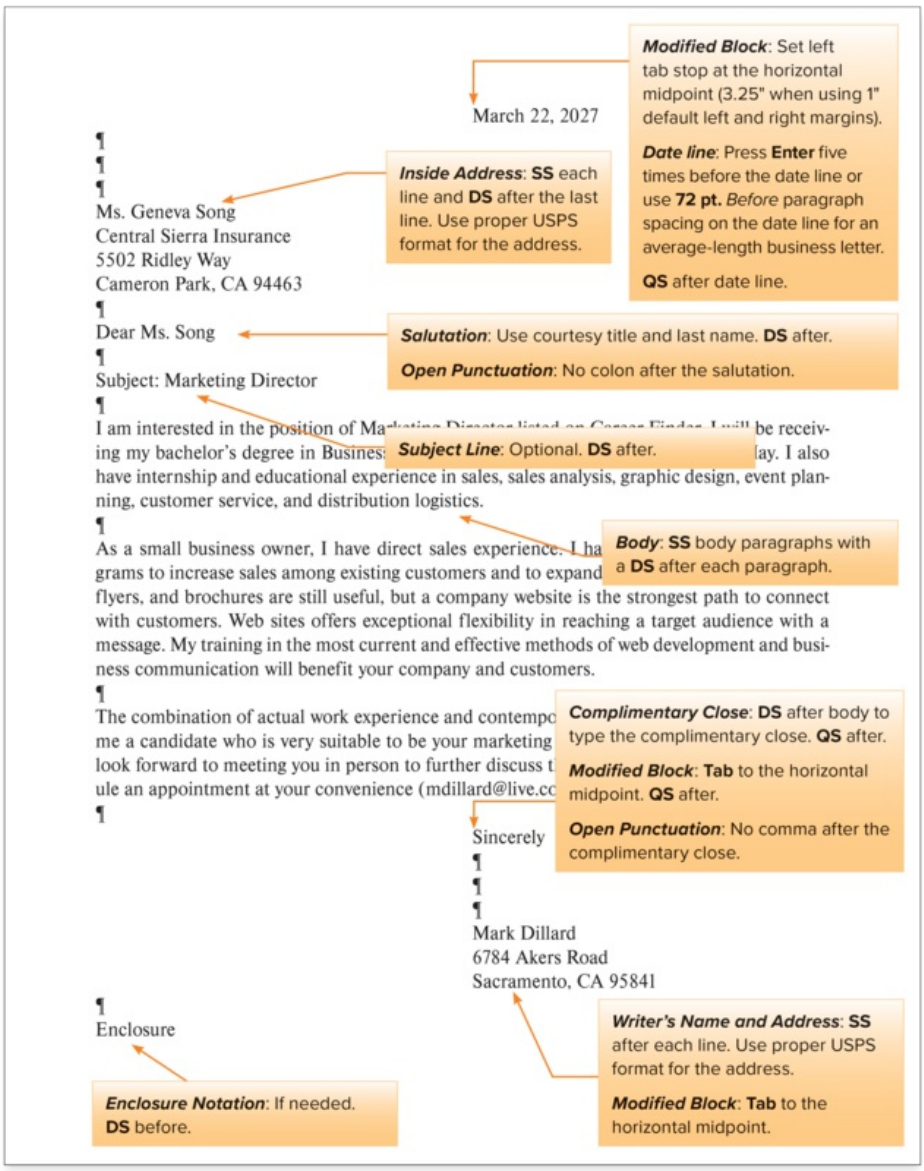
Modified Block Format Business Letter with Mixed Punctuation



Block Format Personal Business Letter with Mixed Punctuation



Modified Block Format Personal Business Letter with Open Punctuation


March 22, 2027
¶
¶
¶
Ms. Geneva Song
Central Sierra Insurance
5502 Ridley Way
Cameron Park, CA 94463
¶
Dear Ms. Song
¶
Subject: Marketing Director
¶
I am interested in the position of Ma
ing my bachelor's degree in Busines
have internship and educational experience in sales, sales analysis, graphic design, event planning, customer service, and distribution logistics.
¶
As a small business owner, I have direct sales experience. I ha
grams to increase sales among existing customers and to expand
flyers, and brochures are still useful, but a company website is the strongest path to connect with customers. Web sites offers exceptional flexibility in reaching a target audience with a message. My training in the most current and effective methods of web development and business communication will benefit your company and customers.
¶
The combination of actual work experience and contempo
me a candidate who is very suitable to be your marketing
look forward to meeting you in person to further discuss t
ule an appointment at your convenience (mdillard@live.co
¶
Sincerely
¶
¶
¶
Mark Dillard
6784 Akers Road
Sacramento, CA 95841
¶
Enclosure
Modified Block: Set left tab stop at the horizontal midpoint (3.25" when using 1" default left and right margins).
Date line: Press Enter five times before the date line or use 72 pt. Before paragraph spacing on the date line for an average-length business letter.
QS after date line.
Inside Address: SS each line and DS after the last line. Use proper USPS format for the address.
Salutation: Use courtesy title and last name. DS after.
Open Punctuation: No colon after the salutation.
Subject Line: Optional. DS after.
Body: SS body paragraphs with a DS after each paragraph.
Complimentary Close: DS after body to type the complimentary close. QS after.
Modified Block: Tab to the horizontal midpoint. QS after.
Open Punctuation: No comma after the complimentary close.
Writer's Name and Address: SS after each line. Use proper USPS format for the address.
Modified Block: Tab to the horizontal midpoint.
Enclosure Notation: If needed. DS before.

glossary

A

.accdb The file format of an Access database.

Access Executable Database (ACCDE) file Database file type that prevents users from creating new forms or reports, or from using *Design* view to change existing forms and reports; compiles all of the macro code; uses an extension of .accde; also called a locked database or an executable file.

Access Options Dialog box that allows users to customize global Access settings.

accessible form Ensures that all users, including those with disabilities, are able to understand and use the form.

action Individual command inside of a macro.

action query Query that makes changes to the data records in a database.

add-ins Programs that add specialized functionality to your Office programs.

aggregate function Function that performs calculations on a group of records such as *Avg, Count,* and *Sum.*

***Allow Additions* property** Form property that controls whether the user is allowed to enter data into the database.

***Allow Deletions* property** Form property that controls whether the user is allowed to delete a record from the database.

***Allow Edits* property** Form property that controls whether the user is allowed to change data in the database.

***Allow Value List Edits* property** Lookup field property that determines if a user can edit the choices in the drop-down list.

***Anchoring* button** Tool used to select options to keep a control in a certain position on a form.

***AND* logical operator** Operator that requires that a record meet all of the individual conditions to be included in the results.

app Short for application software program or Windows application or accessory.

append query Action query that copies records from one or more tables and adds the records into another table.

append row Last row in a table, indicated by an asterisk; you enter data values into the fields in the append row to add a new record into the table.

Application Log Table that displays details about errors encountered when data macros execute.

Application Parts Pre-built database parts that can be added into an existing database.

argument Piece of information required by a macro action.

ascending order Sort order that arranges data from lowest to highest for a numeric field or from A to Z for a text field.

attribute Details about an entity; similar to a field of an object or table.

***AutoExec* macro** Macro that runs automatically when a database is first opened.

***AutoNumber* data type** Data type used to store a unique number; automatically assigned by Access.

Axis (Category) field Field that maps to the horizontal axis (X-axis) in a chart; used to show the categories of the data.

B

back-end database Part of a split database that contains the database tables.

background image Graphic image displayed as the background of a form.

***Backstage* view** Area of an Office application where you perform common actions (such as *Save, Open, Print,* and *Share*) and change application options document properties are displayed here.

Blank desktop database Command used to create a new database from scratch.

block layout Report layout option available when grouping records that displays the fields in a row and column format with the field names displayed as column heads; the grouped field displays in the left-most column, but on the same row as the first record of the grouping.

bound control Control that gets its value from a field in a table.

bound form Form that is directly connected to a table or query as the data source.

button Use to apply a command or open a dialog box in Office applications.

***Button* control** Control on a form or report that performs an action when clicked; also known as a *Command Button* control.

C

calculated control Control that gets its value from an expression.

calculated field Field that gets its value from a calculation instead of a value that is entered into the field.

candidate keys Fields that could have been selected as the primary key.

***Caption* property** Field property used to create a caption that displays in the column header in *Datasheet* view of a table and in the labels on forms and reports; captions often include spaces and multiple words and are more readable than field names.

cardinality Type of relationship; either one-to-one, one-to-many, or many-to-many.

Cascade Delete Related Records Referential integrity option that allows you to delete a record from a table even if there are matching records in related tables; also deletes all matching records from related tables.

Cascade Update Related Fields Referential integrity option that allows a primary key value to be changed in a record in one table and automatically updates the foreign key values in matching records in related tables.

category Highest organizational level in the *Navigation Pane.*

chart Visual representation of numeric data that can be added to a report.

check box Box that allows you to choose one or more from a group of options.

***Check box* control** Control on a form or report used to display data for a field with a *Yes/No* data type; when used on a form, it can also accept data when a user enters a value.

column heading field Field that contains the different values that display in the top row of a crosstab query.

columnar layout Form or report layout that displays the fields in one column with the field names displayed to the left of the field.

Comma Separated Value (CSV) file Delimited text file where each field is separate by a comma.

***Command Button* control** Control on a form or report used to perform an action such as *Close Report* or *Open Form.*

Command Button Wizard Tool that guides you through the steps of creating a command button control and assigning an action to the button.

comment Note in a macro used to document the design or usage of the macro; most common program flow statement.

Compact & Repair Database Database utility that removes unused space from a database to help improve performance; can be used to repair a database in which some objects have become corrupted.

comparison operator A symbol, such as = or >, used to compare two values in an expression.

completeness rule Data integrity rule that ensures a value is entered if required.

compound criteria Criteria used in filters or expressions that combine more than one value using the *AND* and *OR* logical operators.

concatenate Combine multiple parts of an equation together into one piece; often used in an expression to combine several fields together.

concatenated primary key Primary key made up of more than one field; also known as a composite key.

conditional formatting Format settings that are automatically applied to data values based on rules, rankings, or other criteria.

Conditional Formatting Rules Manager Tool used to create, edit, and delete conditional

formatting rules.

Connected Service Third-party services users can add to Office application programs, such as Facebook, LinkedIn, and YouTube.

consistency rule Data integrity rule that ensures a value in one field is consistent with a value in another field.

constant A typed or hardcoded value in a formula.

context menu Menu of commands that appears when you right-click text or an object.

context-sensitive Describes menu options that change depending on what you have selected.

contextual tabs *Ribbon* tabs that become available when working on different tasks.

control Item on a form or report such as a text box, label, or command button; used to enter, edit, or display data, or perform tasks in the database.

control layout Structure that helps to align the different controls on a form or report.

Control Margins **property** Property used to control the amount of margin space around the text inside a control on a form or report.

Control Padding **property** Property used to control the amount of space between controls on a form or report.

Control Source **property** Property that identifies the source of data for the control.

Control Wizards Tool that directs Access to launch an available wizard when adding controls to an object in the database; for example, the *Control Wizards* tool must be turned on for the *Command Button Wizard* to activate.

Copilot Microsoft's generative artificial intelligence product; used to improve productivity and efficiency when performing tasks.

criterion (pl. criteria) Expression entered into a query to limit and focus results.

crosstab query Query that summarizes data in a row/column format.

Crow's Foot **notation** Common way to represent entities and relationships in an ERD; a single line indicates a "one," and a crow's foot indicates a "many."

D

Data Entry **property** Form property that determines whether existing data in the database is displayed on the form.

data format rule Data integrity rule that ensures a value entered into a field matches the data type of the field.

data integrity rules A set of rules that ensures data in a database is accurate and consistent.

data macro Macro used to automate tasks related to database tables.

Data Source **property** Property in a chart that controls which data fields are available to use in the chart.

***Data Type* property** Field property that determines the type of data that can be entered in a field, what properties can be manipulated, and how that field is used.

data validation Process of verifying the accuracy of data entered into a table.

database An organized collection of integrated and related tables.

Database Documenter Tool used to view and print details about the objects in a database.

database management system (DBMS) Software that allows a user to create a database; the data in the database is managed by adding, deleting, and updating records; sorting and retrieving data; and creating queries and reports relating to that data.

Database Properties Details and information about the database.

Database Splitter Tool used to create the back-end and front-end databases.

datasheet layout Form layout that displays the fields in *Datasheet* view.

***Datasheet* view** View option that allows you to enter, modify, view, or delete data; available in a table, query, or form.

***Date()* function** Function that obtains the current date from your computer.

***Default Value* property** Field property that sets a value to automatically be entered into a field.

delete query Action query that deletes records from a table.

delimited text file Text file where each field is separated by a character or tab.

descending order Sort order that arranges data from highest to lowest for a numeric field or from Z to A for a text field.

***Design* view** View option that allows you to build or modify the basic structure or functionality of a database object.

***Detail* section** Section of a report or form that displays the fields from each record.

dialog box Window that opens and displays additional features.

digital certificate Authentication mechanism that contains identification details about the creator and a digital signature.

digital signature An electronic stamp attached to a digital certificate.

***Display Control* property** Lookup field property that determines whether the control displays as a text box, combo box, or list box.

drop-down list List of options that displays when you click a button.

duplicate records Two or more records in a table share the same values.

E

***Edge Browser* control** Control on a form that displays web content.

edit mode *Office Online* view where users can edit and save a file.

embedded macro Macro attached to an event associated with a specific object or control.

***Enabled* property** Property that determines whether a control can have the focus.

encryption Technique that converts data into a coded format that can't be understood unless it is decoded.

entity A person, place, or thing about which you want to store data.

Entity-Relationship Diagram (ERD) Diagram used to plan database design.

***#Error* error** Error that indicates that Access can't evaluate the expression; usually caused by a misspelling in a control name used in the expression.

event Occurs when an action happens to an object or control.

event-driven data macro Macro in which the actions are unique to a specific event in a table.

***executable* file** Database file type that prevents users from creating new forms or reports, or from using *Design* view to change existing forms and reports; compiles all of the macro code; uses an extension of .accde; also called a locked database file.

exporting Saving or copying data for use in another program or application.

expression Formula used to write validation rules, perform calculations, create query criteria, control macros, and group and sort data in a report.

***Expression Builder* dialog box** Window that provides easy access to tools used to create expressions.

Extensible Markup Language (XML) Industry standard language used to describe, store, and transfer data between programs or applications.

extract Create a regular folder from a zipped folder.

F

field Collection of characters that describes one aspect of a business object or activity (a single unit of data).

***Field Name* property** Field property that assigns a unique name to the field.

field properties Description of the specific details of each field in a table; basic field properties include the *Field Name, Data Type,* and *Field Size.*

File Explorer Window where you browse for, open, and manage files and folders (formerly called Windows Explorer).

file name extension A series of letters automatically added to a file name that identifies the type of file.

filter Feature that limits the data records that display in a datasheet.

Filter by Selection Filter option that displays only the records that match the value in specific fields you have selected.

find duplicates query Query used to locate duplicate data values in a table.

first normal form (1NF) Table that does not have any repeating values.

fixed-width file Text file where data is stored in predefined positions.

focus The status of a control or object. A control or object becomes active when a cursor stops at the control or object. The active control or object is said to "have the focus."

footer Display content at the bottom of a document page or object.

foreign key Field in one table that is also the primary key in another table; used to create relationships between tables.

form Database object used to enter, modify, view, or delete data from a table.

***Form* button** Tool that allows you to quickly create a form; no options are provided during the initial creation process.

***Form Footer* section** Form section used to display totals at the bottom of the form.

***Form Header* section** Form section used to display a title, logo, or date that shows once at the top of the form.

***Form* view** View option used to enter and view data.

Form Wizard Tool that guides you through the steps to create a form.

***Format* property** Property that indicates the way a field displays in a table.

Forms Office Online application used to create, distribute, and analyze surveys and questionnaires.

***From* clause** Required part of an *SQL* statement that lists the tables used in the query.

front-end database Part of a split database that contains linked tables, and all forms, reports, and queries that use the data.

function Predefined formula that performs a specific task.

function keys The numbered command keys (i.e., **F1, F2,** etc.) located near the top of the keyboard. Function keys can perform both Windows and Office application commands. Some laptops require the user to press the function key (**Fn** or **fn**) on the keyboard in conjunction with a numbered function key to activate an Office command.

G

gallery Group of options on a tab.

generative AI Branch of artificial intelligence that focuses on creating new content rather than making predictions based on existing data.

gridlines Lines that visually frame rows and columns.

group Area on a tab that contains related commands and options; option used to organize data in a report so that similar records appear together; second organizational level in the *Navigation Pane.*

***Group Footer* section** Report section that displays aggregate calculations and prints at the bottom of each group.

***Group Header* section** Report section that displays a group title or values and prints at the top of each group.

H

header Displays content at the top of a document or object.

Hypertext Markup Language (HTML) Primary language used to build web pages.

I

Import Spreadsheet Wizard Tool that guides you through the steps to import a spreadsheet.

Import Text Wizard Tool that guides you through the steps to import a text file.

importing The process of getting data from an outside source into an Access database.

index Internal list used by a database to find data more quickly.

inner join Returns only records that have matching values in both tables; the most common type of join.

***Input Mask* property** Property used to specify the format for data entered into a field.

Input Mask Wizard Tool that guides you through the steps to define an input mask; available only on *Short Text* or *Date* fields.

instance A single example of an entity.

IntelliSense Tool that suggests a list of possible values when you enter an expression.

J

***Join Type* property** Relationship property that determines how to match the data in two related tables.

junction table Table created to link the two tables in a many-to-many relationship; also known as an intersection table.

justified layout Form or report layout option that displays the fields in a horizontal justified layout with field names displayed above each field.

K

keyboard shortcut Key or combination of keys that you press to apply a command.

L

***Label* control** Control on a form or report that displays the content of the caption property of a

field.

***layout* selector** Small icon in the upper-left corner of a layout that displays when a control in the layout is selected.

***Layout* view** Form or report view option used to make design changes to the object and see the effects of the changes in real time.

left outer join Returns all records from the table on the left side of a join and only records that have a matching value from the table on the right side of the join.

legend Text that describes the data represented in a chart.

***Len()* function** Function that returns the number of characters in a field.

***Limit to List* property** Lookup field property that indicates if a user is restricted to selecting a choice from the drop-down list.

linked table Access table that does not contain any records but allows you to see and use the data by linking to the data source.

Linked Table Manager Tool used to update and maintain the links from a front-end database to the back-end database.

***List Rows* property** Lookup field property that determines how many choices display in the list.

***List Width* property** Lookup field property that sets the width of the drop-down list.

***locked* database file** Database file type that prevents users from creating new forms or reports, or from using *Design* view to change existing forms and reports; compiles all of the macro code; uses an extension of .accde; also called an executable database.

***Long Text* data type** Data type used to store alphanumeric data longer than 255 characters or text containing rich text formatting.

lookup field Field used to display a list of data values that users can select to store in the field.

Lookup Wizard Tool that guides you through the steps to create a lookup field.

M

macro Database object used to attach code to objects and controls in a database.

Macro Builder Tool used to write and edit macros.

Mail Merge Feature that merges a main document, such as a letter or labels, with data from a database.

main form Form that shows the data from the “one” side of a one-to-many relationship.

main report Report that shows the data from the “one” side of a one-to-many relationship.

make table query Action query that creates a new table and copies records from one or more tables into the new table.

many-to-many relationship Relationship between tables in a database where many rows of data in one table can be associated with many rows of data in a related table.

maximize Increase the size of the window of an open Office file so it fills the entire computer monitor.

merge field An individual piece of information from the data source, such as first name or company name; used in a mail merge.

metadata All properties that describe what data fields in a table represent.

Microsoft 365 account User profile used to log in to Windows and Microsoft Office; this free account also provides access to *OneDrive* and *Office Online.*

Microsoft Word Mail Merge Wizard Tool that guides you through the mail merge process.

minimize Place an open Office file on the *Taskbar* so it is not displayed on the desktop.

modality Constraint that specifies whether an entity must participate in the relationship.

module Database object that contains VBA code used to automate tasks and add functionality to a database.

Monaco SQL editor Editor in Microsoft Access 365 used to write and display SQL queries; includes line numbers and adds color-coded keywords and operators.

N

***#Name?* error** Error that indicates you have used an invalid name for a field, control, object, or function.

named data macro Macro associated with a specific table but called by an event-driven or stand-alone macro.

***Navigation* bar** Area at the bottom left corner of a table or form that contains buttons used to move among table records in *Datasheet* view.

***Navigation Buttons* property** Property that controls whether the *Navigation* bar appears at the bottom of a form.

***Navigation* form** Type of form that contains tabs that each display a different form or report.

Navigation Pane Displays all objects contained in a database.

***New Values* property** Property to select sequential or random values in an *AutoNumber* field.

normal forms Rules of normalization.

normalization Database design process that creates well-structured database tables.

Notepad Windows program used to edit text files.

***Now()* function** Function that obtains the current date and time from your computer.

null Value in a field that indicates that nothing was ever entered in that field.

#Num! error Error that indicates the cell contents violate the numeric data type rule; can occur when importing data.

***Number* data type** Data type used to store numbers in fields used in mathematical calculations.

O

object Major component in an Access database.

Office Background Graphic image displayed in the upper- right corner of all Office program windows.

Office desktop apps The version of Microsoft Office that users download and install on a PC or Apple computer.

Office Online The online version of Microsoft Office that is available through a web browser.

Office Theme Color of the working environment in all Office programs.

Office universal apps The version of Microsoft Office that users download and install on tablets or mobile phone devices.

OneDrive Online (cloud) storage area that is a part of your Microsoft account where you can store and access documents from any computer with an internet connection.

***OneDrive* folder** Windows folder that displays folders and files stored on a user's *OneDrive* account; synchronizes folders and files stored in the *OneDrive* folder with *OneDrive* cloud storage.

OneNote Online Note-taking program that is available in both *Office Online* and the desktop version of Office 2019.

one-to-many relationship Relationship between tables in a database where a row of data in one table can be associated with many rows of data in a related table.

one-to-one relationship Relationship between tables in a database where a row of data in one table can be associated with only one row of data in a related table.

Open Exclusive Access mode used to open a database which prevents others from opening the database; used to encrypt a database.

operating system Software that makes a computer function and controls the working environment.

***OR* logical operator** Operator that requires that a record meet at least one individual condition to be included in the results.

***Order By* clause** Optional part of an *SQL* statement that indicates how the results are sorted.

outline layout A report layout available when grouping records. Displays the grouped field and its label on a separate row at the start of each grouping. The field names are displayed as column heads above the first row of data in each grouping.

P

Package and Sign Tool used to create a database with a digital certificate which lets others know the database can be trusted; uses extension of .accdc.

page A layered area in a tab control.

***Page Footer* section** Report section used for page numbers or data that prints at the bottom of

each page. If used in a form, contents display only when printed.

***Page Header* section** Report section used for column headings, page numbers, or dates that prints at the top of every page. If used in a form, contents display only when printed.

parameter Value or object reference passed into a macro; specific phrase (entered in the *Criteria* box of a query field) that displays in the *Enter Parameter Value* dialog box, receives a value from the user, and passes it to the query when a parameter query is run.

parameter query Query that asks a user to enter a specific criterion value each time the query is run.

parameter report Report that asks a user to enter a specific criterion value each time the report is run.

partial dependency Dependency that exists when an attribute can be determined by knowing just one part of a concatenated key.

PDF (portable document format) File format used to convert a file into a static image.

Performance Analyzer Tool that analyzes database objects and makes recommendations on how to improve performance.

primary key Field that contains a unique value for each record in a table; allows one record to be distinguished from another.

Print Preview Print option that allows you to see how a document, spreadsheet, or database object will look when printed and lets you make changes to the printing options.

program flow statement Macro statement used to provide organizational structure.

program options Area in each Office application where you can make changes to the program settings.

Q

qualified field name Field name that includes both the table name and the field name, separated by a period.

query Database object used to find data in a database.

***Query Design* button** Tool used to open *Design* view to build a query.

Query Wizard Tool that guides you through the steps to create a query.

***Quick Access* toolbar** Area located above the *Ribbon* with buttons you use to perform commonly used commands.

R

radio button Round button you click to choose one option from a list.

range rule Data integrity rule that ensures a value in a field falls within an established range of acceptable values.

read-only mode *Office Online* view where users can view and add comments to a file.

record Collection of related data fields.

***Record Selectors* property** Property that controls whether a record selector displays on a form.

***Record Source* property** Property of a form or report that determines which database fields are available to use in the form or report.

record validation rule Validation rule that compares fields in the same table; is entered into the *Validation Rule* property of a table.

Recycle Bin Location where deleted files and folders are stored.

referential integrity Quality of consistency in data entered into related tables; enforcing referential integrity prevents a record in one table from referencing a record that does not exist in a related table.

relational database Database in which data is organized into a collection of related tables.

relationship Association or connection between entities.

report Database object used to view and print data in a database.

***Report Footer* section** Report section used to display totals, prints once at the bottom of the last page.

***Report Header* section** Report section used to display a title or logo; prints once at the top of the first page.

***Report* view** View option that shows all of the data contained in the report; displays in a continuous layout, which does not separate the data into separate pages.

Report Wizard Tool that guides you through the steps to create a report.

***Required* property** Field property that indicates whether a value must be entered into a field or if it can be skipped and left blank.

reserved word A word or symbol that has a specific meaning in Access, such as *Date, Form,* and *Name.*

restore down Decrease the size of the window of an open Office file so it does not fill the entire computer monitor.

Ribbon Bar that appears at the top of an Office file window and displays available commands.

Rich Text Format (RTF) file A file format the preserves the formatting of the data.

right outer join Returns all records from a table on the right side of a join and only records that have a matching value from the table on the left side of the join.

row heading field Field that displays in the left-most column(s) of a crosstab query; can include up to three fields as row headings.

***Row Source* property** Property of a *Combo Box* or *List Box* that identifies the source of data for the field.

***Row Source Type* property** Property of a *Combo Box* or *List Box* that designates whether the data comes from a *Table/Query, Value List,* or *Field List.*

***Running Sum* property** Text box property used to create a running total.

running total Field that shows the results of accumulating a total over a set of records.

S

Saved Exports Command used to run a saved export action.

Saved Imports Command used to run a saved import action.

ScreenTip Descriptive information about a button, drop-down list, launcher, or gallery selection that appears when you place your pointer on the item.

***Scroll Bars* property** Property that controls whether vertical, horizontal, or no scroll bars display on a form.

second normal form (2NF) Table that is in 1NF and all of its non-key fields depend on the entire primary key.

***Select* clause** Required part of an *SQL* statement that lists the fields to display in the query results.

select query Query that locates, or selects, data in a database.

SharePoint A web application platform used to store, track, and manage information.

***Short Text* data type** Data type used to store alphanumeric data; the maximum length is 255 characters.

shortcut Pointer to an object in the *Navigation Pane;* created when an object is assigned to a *Navigation Pane* group.

***Show* check box** Box in *Design* view of a query that indicates whether a field used in a query displays in the results.

Simple Query Wizard Tool that guides you through the steps to create a query.

Single Step Tool in the *Macro Builder* that executes a macro one step (action) at a time.

sort Feature used to organize data in ascending or descending order.

Split Form Option that allows you to view data two different ways at the same time; the top section of the form displays a columnar layout, and the bottom section of the form displays a datasheet layout.

***SQL* (Structured Query Language)** Underlying language used in a relational database system.

stacked layout Control layout that organizes data vertically.

stand-alone macro Macro that is independent of any other object; displays in the *Navigation Pane.*

stepped layout Report layout option available when grouping records; displays the fields in a row and column format with the field names displayed as column heads; the grouped field displays in the left-most column.

subform Form inserted within another form; often used to show records from the “many” side

of a one-to-many relationship.

SubForm Wizard Tool that guides you through the steps to add a subform onto a main form.

submacro Named, executable set of actions to perform a specific task.

subquery Query used inside of another query.

subreport Report inserted within another report; often used to show records from the "many" side of a one-to-many relationship.

SubReport Wizard Tool that guides you through the steps to add a subreport onto a main report.

summary query Query that analyzes a set of records and displays summarized results.

Sway Online digital presentation application similar to PowerPoint and Prezi that is available through your Microsoft account.

T

tab Area on the *Ribbon* that lists groups of related commands and options.

***Tab* control** Control used to create a layered area on a form; helps to create an organized form.

***Tab Index* property** Property that determines the order that Access moves from one control to another on a form when **Tab** or **Enter** is pressed.

***Tab Stop* property** Property that determines whether the cursor stops at a control on a form when **Tab** or **Enter** is pressed.

table Database object that stores a collection of related records.

Table Analyzer Tool that looks for duplicated data or poorly structured tables and makes recommendations on how to normalize.

tabular layout Form or report layout option that displays the fields in a row and column format with the field names displayed as column heads.

task pane Area at the left or right of an Office application window where you can perform tasks.

Taskbar Horizontal area at the bottom of the Windows desktop where you can launch programs or open folders.

template Predesigned database that contains various prebuilt objects, and provides you with a complete, ready-to-use database application.

test data Set of data created to test a database application and ensure that the system performs as desired.

text box Area where you type text.

***Text box* control** Control on a form or report used to display data; when used on a form, it can also accept data when a user enters a value.

text file A file format used to transfer data between programs; contains only letters, numbers, and punctuation.

third normal form (3NF) Table that is in 2NF and all of its non-key fields depend only on the

primary key.

Toggle Field Codes Tool used to format numbers in a merge field.

***Top Values* property** Query property used to restrict the number of records that display in the query results.

***Total* row** Row added into *Design* view of a query that specifies the aggregate function to perform, or a row added in *Datasheet* view of a table that aggregates values in a table column.

transitive dependency Dependency that exists when an attribute can be determined by knowing the non-key field.

Trust Center Contains security and privacy settings that help keep your database safe and prevent your computer from becoming infected with viruses.

U

unbound control Control that is not linked to a data source.

unbound form Form that does not have a connection to a data source.

***Unique Records* property** Query property that directs Access to display only records that do not include duplicated values; checks all fields in the table, whether or not they have been included in the query.

***Unique Values* property** Query property that directs Access to display only records that do not include duplicated values in the fields included in the query.

unmatched records query Query that compares records in two tables and identifies the records in one table that don't have any matching records in the related table.

update query Action query that changes the data of one or more fields in all records that match the specified criteria.

user interface macro Macro attached to objects and controls that are part of the user interface.

V

***Validation Rule* property** Property used to set limits on acceptable values that can be entered into a field.

***Validation Text* property** Property used to enter a custom message that displays when a validation rule is violated.

Values (Y Axis) field Field that maps to the vertical axis (Y-axis) in a chart; represents the data series or field to be measured and plotted on the chart.

Visual Basic for Applications (VBA) Programming language used to add functionality to Office applications.

W

***Where* clause** Optional part of an *SQL* statement that lists the criterion that records must meet in the query.

wildcard character Symbol used in an expression in a query to find records that match, or used in a validation rule to require data being entered to match a specific character, number, or pattern.

Windows desktop Working area in Windows.

Windows *Start* page Opening area of Windows where you select and open programs or apps.

X

XML Schema Definition (XSD) File that defines the structure of the database by specifying table and field details.

Z

zipped (compressed) folder Folder that has a reduced file size and can be attached to an email.

zoom Change file display size.

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Unnumbered Figure 1 Extended Description (Frontmatter)

Return to Unnumbered Figure 1

A chart related to student learning outcomes for creating and managing presentations. The heading at the top reads Student Learning Outcomes with 2 sections. Left: It is titled “Creating, Opening, and Saving Presentations” and includes description text about using PowerPoint presentations. Right: It is titled Student Learning Outcomes(SLOs) with the steps SLO 1.1 to 1.9 detailing the process of opening, saving, renaming, navigation of slides, adding and editing text, inserting pictures, and presenting with notes and zooming the presentation.

Return to Unnumbered Figure 1

Unnumbered Figure 2 Extended Description (Frontmatter)

Return to Unnumbered Figure 2

The box is titled Case Study and displays the following text under it:

Placer Hills Real Estate (P H R E) is a real estate company with regional offices throughout central California. P H R E encourages agents to use standard formats for their business documents. This ensures consistency in document appearance while also enabling agents to personalize their correspondence to customers and colleagues. In the Pause and Practice projects for this chapter, you create a business document related to the real estate business.

Pause and Practice 1-1: Create a business letter in block format with mixed punctuation.

Pause and Practice 1-2: Edit the business letter using copy, paste, and Format Painter. Modify the font, font size, color, style, and effects of selected text.

Pause and Practice 1-3: Finalize the business letter by modifying line spacing and paragraph spacing, changing paragraph alignment, translating text, using search and proofing tools, and adding document properties.

Return to Unnumbered Figure 2

Unnumbered Figure 4 Extended Description (Frontmatter)

Return to Unnumbered Figure 4

The box is titled Student Learning Outcome 1.4. Below it is the chapter heading Moving and Copying Text. This is followed by the text:

Editing is an important phase in document creation. Editing involves not only proofreading and correcting grammar and spelling mistakes but also arranging text within a document, which includes cutting, copying, and pasting. Word provides tools to easily move and copy information within a document or between multiple documents.

Under this text is the Move Text subheading, accompanied by the text: Moving text removes it from one location (cut) and places it in another location (paste). Two methods used to move text are drag and drop or cut and paste.

A box for ANOTHER WAY is shown to the right as follows:

Press Control plus C to copy.

Press Control plus X to cut.

Press Control plus V to paste.

Under this is the How-To section with the heading HOW TO: Move Text Using Drag and Drop. This is followed by the steps:

1. Select the text you want to move.
   Refer to the “Select Text” section in S L O 1.2: Entering and Selecting Text for methods of selecting text.
2. Click and hold the selected text with your pointer.
3. Drag the text to the desired new location and release the pointer (Figure 1-22).

Return to Unnumbered Figure 4

Unnumbered Figure 5 Extended Description (Frontmatter)

Return to Unnumbered Figure 5

The following text is shown in the box:

The following are ways to move text using Cut and Paste:

Cut and Paste buttons: Click the Cut and Paste buttons in the Clipboard group on the Home tab.

Shortcut commands: Press Control plus X to cut and Control plus V to paste.

Context menu: Right-click the selected text to display this menu.

Beneath this text is the How-To section with the heading HOW TO: Move Text Using Cut and Paste. This is followed by the steps:

1. Select the text you want to move.
2. Click the Cut button [Home tab, Clipboard group].

You can also press Control plus X or right-click the selected text and choose Cut from the context menu.

3. Place your insertion point in the desired location.
4. Click the Paste button [Home tab, Clipboard group].

Alternatively, press Control plus V or right-click and choose one of the Paste Options from the context menu. Note: See the “Paste Text and Paste Options” section below for the different paste options available.

Buttons for show me, guide me, and let me try are given under this.

Return to Unnumbered Figure 5

Unnumbered Figure 10 Extended Description (Frontmatter)

Return to Unnumbered Figure 10

The document has a decorative torn-paper edge at the bottom and displays a list of exercises. The text is arranged in two columns. The first column reads: “Pause & Practice 1-1: Explore the tabs of the Access Ribbon and Navigation Pane in an existing database, and use Datasheet and Design views of a table.” “Pause & Practice 1-2”

Return to Unnumbered Figure 10

Unnumbered Figure 6 Extended Description (Frontmatter)

Return to Unnumbered Figure 6

The section named More Info displays the following information:

The launcher (also referred to as the dialog box launcher) is referred to throughout this text. Click the launcher in the bottom-right corner of a group to open a dialog box or pane for additional options.

Return to Unnumbered Figure 6

Unnumbered Figure 7 Extended Description (Frontmatter)

Return to Unnumbered Figure 7

The box named Another Way shows the following information:

Control plus 1 applies single-space (1 line).

Control plus 5 applies 1.5 line spacing.

Control plus 2 applies double-space (2 lines).

Return to Unnumbered Figure 7

Unnumbered Figure 8 Extended Description (Frontmatter)

Return to Unnumbered Figure 8

The section named Copilot or Generative A I Best Practices displays the following information under it:

Use Copilot to conduct more exhaustive research about topics on which you are writing. The output from Copilot is a starting point. Always verify the Copilot output, edit and customize the content, and cite sources when appropriate.

Return to Unnumbered Figure 8

Unnumbered Figure 9 Extended Description (Frontmatter)

Return to Unnumbered Figure 9

The screenshots are arranged in a two-by-two format. The cover in the top left is titled Microsoft Excel 365. In Practice, 2021 Edition. The cover features a black and white photo of a cyclist wearing a green jersey. Authors Kathleen Stewart and Randy Nordell are displayed in a band at the bottom end of the cover. A McGraw Hill red cube logo is shown below, at the bottom right.

The top right cover is titled Microsoft Office 365. In Practice, 2021 Edition. The cover has a black and white photo of four cyclists, with their jerseys in blue, orange, red, and green colors. Authors: Randy Nordell, Kathleen Stewart, Annette Easton, Pat Graves, and Arnie Mayhall are displayed in a band at the bottom end of the cover. A McGraw Hill red cube logo is shown below, at the bottom right.

The bottom left cover is titled Microsoft Word 365. In Practice, 2021 Edition. The cover shows a black and white photo of a cyclist wearing a blue jersey. Author: Randy Nordell is displayed in a band at the bottom end of the cover. A McGraw Hill red cube logo is shown below, at the bottom right.

The bottom right cover is titled Introduction to Generative A I and Copilot. The cover shows the text A I in a hand, surrounded by digital icons. Author: Randy Nordell is displayed at the bottom right corner of the cover. A McGraw Hill red cube logo is shown at the bottom right.

Return to Unnumbered Figure 9

Figure Intro-1 Extended Description (Introduction)

Return to Figure Intro-1

Microsoft logo is displayed at the top of the section. Below it, the Create account heading appears. The main section contains an email input field with the placeholder text someone@example.com. Below the input field, two alternative options are displayed: Use a phone number instead and Get a new email address. At the bottom right, the Next button is present.

Return to Figure Intro-1

Figure Intro-2 Extended Description (Introduction)

Return to Figure Intro-2

A taskbar is displayed horizontally at the bottom of the desktop. On the left side, the Start button is present. The system tray on the right displays Wi-Fi, volume, and battery icons, along with the time and date (12:44 P M, 8/16/2021). The taskbar icons are centered and grouped together which includes Search icon, File manager, Zoom, Chrome, and Outlook among others. The background features Windows 11's signature blue abstract wallpaper. The Recycle Bin is positioned in the bottom-right corner of the screen.

Return to Figure Intro-2

Figure Intro-3 Extended Description (Introduction)

Return to Figure Intro-3

At the top, a search text box is displayed. Below, a field titled Pinned displays a grid of applications including apps like Word, Excel, Access, PowerPoint, Outlook, Office, OneNote, To Do, File Explorer, Settings, Microsoft Store, Photos, Netflix, Spotify, News, Twitter, Instagram, and Microsoft Edge. These apps are collectively labeled Apps pinned to the Start menu. A button labeled All apps is displayed in the top-right corner. The Recommended section is displayed below and lists recently accessed files and applications such as Microsoft Teams (Preview), Word documents, and Voice Recorder files, with a More button to the top right. The files are together labeled Recommended files and apps. At the bottom left a User name button is present along with the Power button to the bottom right. The Start button is shown on the bottom along with other pinned icons on the taskbar.

Return to Figure Intro-3

Figure Intro-4 Extended Description (Introduction)

Return to Figure Intro-4

A Search bar is displayed at the top and has the text Type here to search. Below, the Pinned section displays app icons for Word, Excel, Access, PowerPoint, Outlook, Office, OneNote, To Do, File Explorer, Settings, Microsoft Store, and Photos. The Microsoft Store app is selected and labeled. In the top right corner is an All Apps button.

Return to Figure Intro-4

Figure Intro-5 Extended Description (Introduction)

Return to Figure Intro-5

At the top, there is a Search text box with the placeholder text Search apps, games, movies, and more. On the left, a vertical navigation pane displays icons for Home, Apps, Gaming, and Arcade. The Apps button is selected and labeled. To the right of the navigation pane, the LinkedIn app page is displayed, showing the LinkedIn logo and name. Below, the app information is presented, including the average star rating, overall rating, and other details, along with a description: Your next opportunity could be one click away. Find your [in] on LinkedIn. In the top right corner, a Get button is visible with the text Offers in-app purchases below it.

Return to Figure Intro-5

Figure Intro-6 Extended Description (Introduction)

Return to Figure Intro-6

The Pinned section displays icons for Excel, Microsoft 365, To Do, LinkedIn, and Microsoft Clipchamp. A context menu appears next to the LinkedIn icon. Both the context menu and the LinkedIn icon are labeled Right-click app to display context menu. The context menu for LinkedIn provides several options: Move to front, Unpin from Start, Run as administrator, Pin to taskbar, App settings, and Uninstall. The Unpin from Start option is selected.

Return to Figure Intro-6

Figure Intro-7 Extended Description (Introduction)

Return to Figure Intro-7

App icons and names are listed alphabetically which are Access, Adobe Acrobat, and Adobe Creative Cloud. A context menu is open for the Access app with options to Pin to Start, More, and Uninstall. The Pin to Start option is selected.

Return to Figure Intro-7

Figure Intro-8 Extended Description (Introduction)

Return to Figure Intro-8

The Pinned section displays the app icons and names for Word, Excel, Access, OneNote, To Do, Settings, Netflix, Spotify, and Twitter. The Settings button is highlighted.

Return to Figure Intro-8

Figure Intro-9 Extended Description (Introduction)

Return to Figure Intro-9

A title bar is displayed at the top and consists of the minimize, maximize, and close buttons at the top right. A vertical navigation pane is displayed on the left, showing the user's details, Randy Nordell, drnordell@live.com, at the top, followed by a search box with the placeholder text Find a setting. Below, a list of tabs is displayed, including Home, System, Bluetooth & devices, Network & internet, Personalization, Apps, Accounts, Time & language, Gaming, Accessibility, Privacy & security, and Windows Update. The Personalization button is selected and displayed on the right.

The right section shows the Personalize Start settings page, with three layout options at the top: More pins, Default, and More recommendations. The Default option is selected. Below, toggle switches are present for various settings:

Show recently added apps (On)

Show most used apps (Off)

Show recently opened items in Start, Jump Lists, and File Explorer (On)

Show recommendations for tips, app promotions, and more (On)

Show account-related notifications occasionally in Start (On)

At the bottom, the Folders option is displayed.

Return to Figure Intro-9

Figure Intro-10 Extended Description (Introduction)

Return to Figure Intro-10

The Pinned section displays icons for Excel, Microsoft 365, To Do, LinkedIn, and Microsoft Clipchamp. A context menu appears next to the LinkedIn icon. The context menu for LinkedIn provides several options: Move to front, Unpin from Start, Run as administrator, Pin to taskbar, App settings, and Uninstall. Pin to taskbar is selected.

Return to Figure Intro-10

Figure Intro-11 Extended Description (Introduction)

Return to Figure Intro-11

The Windows taskbar is visible at the bottom, displaying pinned applications including File Explorer, Settings, Google Chrome, LinkedIn, Microsoft Outlook, and To Do. The LinkedIn application is selected. Above the taskbar, a context menu is open with two options: LinkedIn and Unpin from taskbar. The Unpin from taskbar option is selected.

Return to Figure Intro-11

Figure Intro-12 Extended Description (Introduction)

Return to Figure Intro-12

The Title bar is displayed at the top, with the Minimize, Maximize, and Close buttons on the far right. Below the Title bar, at the top left, four navigation buttons are arranged horizontally: a left arrow for back, a right arrow for forward, an up arrow, and a circular refresh button. Next to these buttons, a Name box is present, along with a Search area within the same box. At the bottom, a horizontal toolbar spans the width of the window, featuring the following icons: A new drop-down button marked with a plus sign, labeled Add new tab button Cut, copy, paste, and delete buttons. A sort dropdown, a view dropdown, and three horizontal dots labeled See more button. On the left side, a vertical navigation pane displays a list of folders and locations arranged in a column with icons. It includes Home, Gallery, Randy - Personal, Randy - apps.losrios.edu, Randy - Office In Practice, Desktop, Downloads, Documents, Pictures, Music, and Videos. The main section displays multiple yellow folders neatly arranged in rows, each labeled with names such as Copilot, Documents, Misc, Notebooks, Office 365 in Practice, Office 2021 in Practice, Office 2024 in Practice, Other Apps, Outreach, Previous Editions, Randy’s Office, and Website.

Return to Figure Intro-12

Figure Intro-13 Extended Description (Introduction)

Return to Figure Intro-13

The Windows File Explorer consists of a Title bar at the top, followed by a Toolbar. Below the Title bar, at the top left, four navigation buttons are arranged horizontally: a left arrow for back, a right arrow for forward, an up arrow, and a circular refresh button. Next to these buttons, a Name box is present, along with a Search area within the same box. The Toolbar contains buttons such as New, Cut, Copy, Paste, Delete, Sort, and View. Below the Toolbar, a vertical Navigation Pane is displayed on the left, showing folders and locations like Home, Gallery, Randy - Personal, Randy - apps.losrios.edu, and Randy - Office In Practice. Additional locations such as Desktop, Downloads, Documents, Pictures, Music, and Videos are pinned below. The main section on the right displays multiple yellow folders, including Copilot, Documents, Misc, Notebooks, Office 365 in Practice, Office 2021 in Practice, Office 2024 in Practice, Other Apps, Outreach, Previous editions, Randy's Office, and Website. The folder Office 2024 in Practice is selected. At the top, the address bar shows the current path, OneDrive and Randy - Office In Practice.

Return to Figure Intro-13

Figure Intro-14 Extended Description (Introduction)

Return to Figure Intro-14

The title of the page read as Sync your files to this PC, followed by an instruction read as Choose what you want to download to your OneDrive - Office In Practice folder. You can get these items even when you're offline. A checkbox labeled Sync all files and folders in OneDrive - Office In Practice is selected. Below it, an expandable list displays individual folders available for sync, each with a checkbox. All folders are selected, including Files not in a folder (159.9 K B), Copilot (100.5 M B), Documents (40.2 K B), Misc (9.1 M B), Notebooks (0.2 K B), Office 2021 In Practice (10.7 G B), Office 2024 In Practice (385.4 M B), Office 365 In Practice (12.5 G B), Other Apps (1.3 M B), and Outreach (6.1 G B). At the bottom, a status line shows the local storage path as C colon slash Users slash d r n o r slash OneDrive - Office In Practice. Selected 47.3 G B. Remaining space 615.5 G B. Two buttons, Cancel and OK, are at the bottom right, with OK selected.

Return to Figure Intro-14

Figure Intro-15 Extended Description (Introduction)

Return to Figure Intro-15

At the top left, the Microsoft logo is displayed, followed by the bold heading Sign in. Below, there is a text input field labeled Email, phone, or Skype. Below the input field, there is a link labeled Create one exclamatory mark. At the bottom right corner, there is a Next button.

Return to Figure Intro-15

Figure Intro-16 Extended Description (Introduction)

Return to Figure Intro-16

A Search bar is located at the top right corner followed by a toolbar with options like Share, Copy link, Request files, Delete, Favorite, Download, and more. An Add New button is present to the left of the toolbar. A vertical navigation pane is displayed to the left with the User name Randy Nordell at the top followed by options such as Home, My files, Shared, Favorites, and Recycle bin. The My files option is selected. In the main panel to the right, a list of folders is displayed with their names, modification dates, and the user who modified them. The folders include:

Copilot (modified on January 17).

Office 2024 In Practice (modified on February 1).

Office 365 In Practice (modified on April 16, 2019).

Other Apps (modified on January 27, 2022).

Outreach (modified on February 19, 2021).

The first file Copilot is selected.

Return to Figure Intro-16

Figure Intro-17 Extended Description (Introduction)

Return to Figure Intro-17

The start button is present to the left. The Search text box is positioned next to the Start button. To the right of the search box, a briefcase icon is displayed.

Return to Figure Intro-17

Figure Intro-18 Extended Description (Introduction)

Return to Figure Intro-18

A Taskbar present at the bottom of the Window includes several applications like Start, Search bar, Microsoft Edge, File Explorer, LinkedIn, Outlook, Word, Excel, and Spotify. The Search bar displays a text Madrid in it. Above it, a Search Window is displayed. At the top, of the window multiple category buttons are displayed, including All, Work, Apps, Documents, Web, Settings, and People, with All selected. To the left a Best match section shows Madrid - Capital city of Spain along with a small photograph preview and labeled Search area. Below, a Related section displays suggestions such as Time, Things to do, and Weather are listed. This section is followed by the Search work and web section provides additional suggestions like Madrid open 2024, Madrid Barcelona, and Madrid Spain. On the right, the main content area displays search results for Madrid, including a photograph of the city, a brief description, and options such as Overview, Travel guide, Time, and Things to do. At the bottom of this section, there is a Wikipedia link and additional photos related to Madrid. At the bottom of this section, there is a blue button labeled Open results in browser.

Return to Figure Intro-18

Figure Intro-19 Extended Description (Introduction)

Return to Figure Intro-19

The Start button is present to the left. The search box is positioned next to the Start button. To the right of the search box, there are pinned application icons, including a Task View button, a folder icon, and a gear icon. The Task View button is highlighted.

Return to Figure Intro-19

Figure Intro-20 Extended Description (Introduction)

Return to Figure Intro-20

At the top, multiple open applications are visible on the desktop, including Microsoft Word, Outlook, OneNote, Spotify, and File Explorer. These are labeled Open windows on the desktop. At the bottom, the Virtual Desktops section shows three desktops: Randy - work, Randy - personal, and New desktop. The taskbar at the bottom includes icons for applications like Microsoft Edge, File Explorer, LinkedIn, Outlook, Word, Excel, Teams, Spotify, and OneNote.

Return to Figure Intro-20

Figure Intro-21 Extended Description (Introduction)

Return to Figure Intro-21

Three virtual desktops named Randy - work, Randy - personal, and New desktop are shown. The Randy - personal virtual desktop is labeled Right-click to display the context menu, and displays a context menu over it with options such as: Rename, Move left, Choose background, and Close. On the right, the New desktop option has a plus symbol in its center and is labeled Add new virtual desktop. The taskbar at the bottom contains several applications.

Return to Figure Intro-21

Figure Intro-22 Extended Description (Introduction)

Return to Figure Intro-22

The pinned applications displayed include Microsoft 365, To Do, File Explorer, Outlook (new), Settings, OneNote, Adobe Acrobat, Spotify, and Netflix. The Settings button is highlighted.

Return to Figure Intro-22

Figure Intro-23 Extended Description (Introduction)

Return to Figure Intro-23

A vertical navigation pane is displayed on the left, showing the user's details, Randy Nordel, at the top, followed by a search box with the placeholder text Find a setting labeled Search area. Below, a list of tabs is displayed, including Home, System, Bluetooth & devices, Network & internet, Personalization, Apps, Accounts, Time & language, Gaming, Accessibility, Privacy & security, and Windows Update. The Home tab is selected.

On the right side, the title Home is displayed at the top followed by the content area displays the device name Randy-X P S (X P S 14 9440) along with a preview photo of the desktop wallpaper. Below, a Wi-Fi icon is displayed along with the description M o Cab 5 g Connected, secured to the left, and the Windows Update section with the description Last checked: 6 hours ago, displayed to the right.

Further down, a Recommended settings section with a description Recent and commonly used settings, lists the following options:

Wi-Fi (which is toggled on), Installed apps, and Taskbar settings.

Return to Figure Intro-23

Figure Intro-24 Extended Description (Introduction)

Return to Figure Intro-24

The text Microsoft 365 apps is displayed at the top. Below 6 app icons are displayed, with four in the first row and two in the second row. The apps are Word, Excel, Access, PowerPoint, Outlook, and Microsoft 365 (Office).

Return to Figure Intro-24

Figure Intro-25 Extended Description (Introduction)

Return to Figure Intro-25

At the top, the Microsoft logo is present, followed by a link, Show additional licensing information. Below the text Subscription Product, Microsoft 365 Apps for enterprise is displayed and is labeled Microsoft Office product. Below, icons for various Microsoft Office applications are shown, followed by buttons for Manage Account, Switch License, and Update License. Below three buttons labeled Update options, About Word, and Whats New are shown with descriptions. To the right of the About Word button, the following description is shown:

Learn more about Word, Support, Product I D, and Copyright information. Version 2406 (build 17726.20160 Click-to-Run)

Current Channel.

The text Version 2406 (build 17726.20160 Click-to-Run) is labeled Office 365 version and Build.

Return to Figure Intro-25

Figure Intro-26 Extended Description (Introduction)

Return to Figure Intro-26

At the top right, a drop-down button labeled Install and more is displayed. Below the Install Microsoft 365 apps button is shown with a description stating Install Word, Excel, PowerPoint, and more, which is labeled Install Microsoft 365 apps to get the desktop version of the Office apps. Below this, two additional options are displayed: Explore your Apps, with a description stating Access your favorite apps and do more on the web, and Install the Microsoft 365 mobile app, with a description stating Take your productivity on the go with our free i O S and Android app.

Return to Figure Intro-26

Figure Intro-27 Extended Description (Introduction)

Return to Figure Intro-27

At the top left, an icon is displayed, labeled as App launcher. Next to it, the Microsoft 365 name is shown. Below, a search bar with the text Find Microsoft 365 apps is present. A grid of application icons follows, including Microsoft 365, Outlook, OneDrive, Word, Excel, PowerPoint, OneNote, SharePoint, Teams, Bookings, Engage, Power Automate, Admin, Forms, Lists, To Do, Sway, Viva, and More apps. At the bottom, icons for creating new files are displayed, including Document, Workbook, Presentation, Survey, and Create more.

Return to Figure Intro-27

Figure Intro-28 Extended Description (Introduction)

Return to Figure Intro-28

On the left, a vertical navigation pane shows icons for App launcher, Home, Create, My Content, Word, Excel, and Outlook are visible. The right section displays the title Excel at the top. Below, a section labeled Create new contains a highlighted Blank workbook option. The Excel icon on the navigation pane and the title on the right are together labeled Select the Office Online application.

Return to Figure Intro-28

Figure Intro-29 Extended Description (Introduction)

Return to Figure Intro-29

The Title bar at the top displays the current file name P P Intro-1 b labeled Click to change file name. Below, a dialog box displays the File Name AND Location fields. The File Name is displayed as P P Intro-1 b, which is selected, and the location field is shown as Randy Nordell right arrow Documents. Below, the Save status as Last saved: Just now, and a Version History option are displayed.

Return to Figure Intro-29

Figure Intro-30 Extended Description (Introduction)

Return to Figure Intro-30

The applications include Word, Excel, Access, and PowerPoint, each represented by their respective icons. The Excel application is selected.

Return to Figure Intro-30

Figure Intro-31 Extended Description (Introduction)

Return to Figure Intro-31

The search bar is shown at the top with the text excel. The search interface has multiple category filters below, including All, Work, Apps, Documents, and Web. The All button is selected. Below a field titled Best match, shows the Excel app icon followed by the Search work and web section displaying additional search options such as excel and excel online.

Return to Figure Intro-31

Figure Intro-32 Extended Description (Introduction)

Return to Figure Intro-32

A vertical navigation pane is displayed on the left with options for Home, New, and Open. The home option is selected. To the right, a text Good afternoon is displayed followed by a New field with a downward arrow. The New field displays a Blank workbook labeled Open a Blank Workbook.

Return to Figure Intro-32

Figure Intro-33 Extended Description (Introduction)

Return to Figure Intro-33

The navigation pane is displayed on the left with options for Home, New, Open, Get Add-ins, Info, Save, Save As, Print, Share, Export, Publish, Close, Account, and Options. The Home option is selected. To the right, the Good afternoon message is displayed at the top. Below it, the New section contains two templates: Blank workbook and Welcome to Excel. A Search bar is displayed below followed by a Recommended for You section that shows recently edited files, including PP Intro 1-1 with a note that it was edited 14 minutes ago.

Return to Figure Intro-33

Figure Intro-34 Extended Description (Introduction)

Return to Figure Intro-34

The Microsoft Excel consists of a Title bar at the top followed by a Ribbon area below. The search box is located in the title bar and labeled Microsoft Search box. Below the search box, a screen tip appears with the heading Microsoft Search (Alt plus Q), followed by the text Just start typing here to bring features to your fingertips and get help. The tooltip also includes a Tell me more link at the bottom. The ribbon below contains multiple tabs, including Formulas, Data, Review, View, and Automate, with the View tab selected.

Return to Figure Intro-34

Figure Intro-35 Extended Description (Introduction)

Return to Figure Intro-35

The dropdown is divided into sections, including Actions, Find in Worksheet, and Get Help.

The Actions field lists three options: PivotChart, PivotTable (highlighted), and Summarize with PivotTable.

The Find in Worksheet section shows a search result for the word pivot in the worksheet.

The Get Help section provides three help options: Create a PivotTable to analyze worksheet data, Consolidate multiple worksheets into one PivotTable, and Get Help on pivot.

At the bottom, there is a clickable option labeled More search results for pivot.

Return to Figure Intro-35

Figure Intro-36 Extended Description (Introduction)

Return to Figure Intro-36

The Microsoft Excel consists of a Title bar at the top, followed by the Ribbon below. The Title bar contains the AutoSave toggle button, Save button, Undo button, Redo button, and Touch or Mouse Mode. The button area together labeled Quick Access tool bar. The Touch or Mouse Mode drop-down button is selected displaying two options with a description

Mouse: Standard ribbon and commands. Optimized for use with mouse.

Touch: More space between commands. Optimized for use with touch.

Return to Figure Intro-36

Figure Intro-37 Extended Description (Introduction)

Return to Figure Intro-37

The Backstage view consists of a vertical Navigation pane on the left. The Navigation pane shows tabs for Home, New, and Open. The Home tab is selected. A text reads Good afternoon to the right of the Navigation pane on the top, with various templates displayed below. Below the text, a drop-down arrow labeled New is present. Below, the templates are displayed such as Blank workbook and Welcome to Excel. The Blank workbook template is selected and labeled Open a Blank workbook. Below a Search bar is present.

Return to Figure Intro-37

Figure Intro-38 Extended Description (Introduction)

Return to Figure Intro-38

The Backstage view consists of a vertical Navigation pane on the left. The Navigation pane shows tabs for Home, New, Open, Get Add-ins, Info, Save, and Save As. A back arrow is present above the Home tab. The Home tab is selected. A text reads Good afternoon to the right of the Navigation pane, with various templates displayed below. Below the text, a drop-down arrow labeled New is present. Below, the templates are displayed such as Blank workbook and Welcome to Excel. The Blank workbook template is selected and labeled Open a Blank workbook. Below, a Search bar is present.

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Figure Intro-39 Extended Description (Introduction)

Return to Figure Intro-39

The Backstage view consists of a vertical Navigation pane on the left. The Navigation pane shows tabs for Home, New, Open, Get Add-ins, Info, Save, Save As, Save as Adobe P D F, Print, Share, Share as Adobe P D F link, and Export. A back arrow is present above the Home tab. The Save As tab is selected, shown on the right of the Navigation pane. Below the title Save As, the Recent feature is present, followed by the Office In Practice, Personal, and Other locations features.

The Office In Practice feature shows the One Drive - Office In Practice option, which shows the e-mail I D of the user, and Sites - Office In Practice option, which shows the e-mail I D of the user.

The Personal feature shows the One Drive - Personal option. The Other locations feature shows the This P C, Add a Place, and Browse options. The Browse option is labeled Click Browse to open the Save As dialog box. The One Drive - Office in Practice option is selected. The region to the right of this shows a text box labeled Enter file name, with a drop-down box set to Excel Workbook (asterisk dot x l s x). The Save button is shown below. This is followed by the More options link, and a New Folder button, below. The More options link is labeled Select More options to open the Save As dialog box. Below this, two columns titled Name and Date modified are displayed with the following files and their modified date: Apps, Attachments, and Copilot.

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Figure Intro-40 Extended Description (Introduction)

Return to Figure Intro-40

The dialog box is titled Save As. Below the title bar are the following features: Back arrow, Forward arrow, Recent Locations box, Up arrow, File Location box, and Search box. A vertical Navigation pane on the left shows the folders named Randy - Office In Practice, Apps, Attachments, Copilot, Documents, Intro Chapter, and Misc. The Intro Chapter folder is selected and labeled Select the location to save the file. A pane on the right shows the text No items match your search. Below, two drop-down boxes labeled File name and Save as type are displayed. The File name box displays P P Intro - 1 b that is labeled Type the file name. The Save as type box displays the text Excel Workbook. The Save and Cancel buttons are present on the bottom right. The Save button is selected.

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Figure Intro-41 Extended Description (Introduction)

Return to Figure Intro-41

The Save this file dialog box consists of two fields: File name and Choose a Location. The File name box displays the text P P Intro - 1 b. The Choose a Location drop-down box shows the location as One Drive - Office In Practice. The bottom left corner shows the More options feature, which is labeled Click More options to open the Save As area on the Backstage view. The Save and Cancel buttons are present on the bottom right.

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Figure Intro-42 Extended Description (Introduction)

Return to Figure Intro-42

The Excel sheet consists of a Title bar at the top followed by a Ribbon below. The Title bar has the AutoSave toggle button and the Save button on the Quick Access Toolbar on the far left. The AutoSave Toggle button is On. The Ribbon has tabs for File, Home, Insert, Draw, Page Layout, and Formulas. The Home tab is selected and consists of Command groups such as Clipboard and Font.

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Figure Intro-43 Extended Description (Introduction)

Return to Figure Intro-43

The dialog box consists of the following features: Back arrow, Forward arrow, Recent Locations box, Up arrow, File Location box, and Search box. A New folder button is present below, which is selected and labeled New Folder button. A vertical Navigation pane on the left shows folders named Home, Gallery, Randy - Personal, Randy - apps dot losrios dot e d u, and Randy - Office In Practice. The Randy - Office In Practice folder is selected and labeled Select a location to create a folder. A pane on the right shows a list of folders such as Apps, Attachments, Copilot, Documents, Misc, New folder (selected), Notebooks, Office 365 In Practice, Other Apps, Outreach, Previous editions, and Randy's Office. The New folder file is selected such that the file name is shown within a box and highlighted in blue. Below, two drop-down boxes labeled File name and Save as type are displayed. The Open and Cancel buttons are present on the bottom right.

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Figure Intro-44 Extended Description (Introduction)

Return to Figure Intro-44

The box displays text that reads, Want to save your changes to P P Intro - 1 b dot x l s x?

The Save, Don’t Save, and Cancel buttons are displayed at the bottom.

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Figure Intro-45 Extended Description (Introduction)

Return to Figure Intro-45

The Save this file dialog box consists of two fields: File name and Choose a Location. The File name box displays the text P P Intro - 1 b. The Choose a Location drop-down box shows the text One Drive - Office In Practice. The bottom left corner shows the More options feature, which is labeled Click More options to open the Save As area on the Backstage view. The Save and Cancel buttons are present at the bottom right.

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Figure Intro-46 Extended Description (Introduction)

Return to Figure Intro-46

The Backstage view consists of a vertical Navigation pane on the left. The Navigation pane shows tabs for Home, New, and Open. The Home tab is selected. The Open tab is labeled Click Open to display the Open area on the Backstage view. A text reads Good afternoon to the right of the Navigation pane, with various templates displayed below. Below the text, the New section shows various templates like Blank Presentation and Colorful abstract pitch deck. Below the templates, a Search box is displayed. Beneath which three tabs for Recent, Pinned, and Shared with Me are present. The Recent tab is active, which displays a recently opened PowerPoint file titled A R C C Italy Tour with the location as One Drive - Office In Practice. The File A R C C Italy Tour is labeled Select a file to open from the Recent area.

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Figure Intro-47 Extended Description (Introduction)

Return to Figure Intro-47

A vertical Navigation pane on the left shows the folders named Randy - Office In Practice, Apps, Attachments, Copilot, Documents, Intro Chapter, and Misc. The Intro Chapter folder is selected. A pane on the right shows a file named A R C C Italy Tour. Below, a drop-down box labeled File name is displayed. The file name is A R C C Italy Tour. A drop-down box next to the file name is set to All PowerPoint Presentations. The Open and Cancel buttons are present on the bottom right.

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Figure Intro-48 Extended Description (Introduction)

Return to Figure Intro-48

The Backstage view consists of a vertical Navigation pane on the left. The Navigation pane shows tabs for Home, New, Open, Get Add-ins, Info, Save a Copy, Save as Adobe P D F, Print, Share, Share as Adobe P D F link, Export, and Close. A back arrow is present above the Home tab. The Open tab is selected, shown on the right of the Navigation pane. Below the title Open, the Recent and Shared with Me features are present, followed by the Office In Practice, Personal, and Other locations features. The Office In Practice feature shows the One Drive - Office In Practice option, which shows the e-mail I D of the user, and Sites - Office In Practice option, which shows the e-mail I D of the user. The Personal feature shows the One Drive - Personal option. The Other locations feature shows the This P C, Add a Place, and Browse options. The Browse option is selected and labeled Click Browse to open the Open dialog box. The region to the right of this shows a Search box at the top followed by two tabs labeled Presentations and Folders, below. The Presentations tab is selected and displays the following files:

Pinned: Copilot Productivity Nord, and Copilot, Productivity Nord.

Today: A R C C Italy Tour.

Last Week: Word C h 2 - Mac Difference and Word C h 1 - Mac Difference.

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Figure Intro-49 Extended Description (Introduction)

Return to Figure Intro-49

The Start menu shows a Search box labeled Search for apps, settings, and documents. Below, All Apps are labeled in alphabetical order starting from Access, Accessibility, and Adobe. Right-clicking on an app shows a list of options, which includes Pin to Start, More, and Uninstall.

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Figure Intro-50 Extended Description (Introduction)

Return to Figure Intro-50

The Start menu consists of a Search bar at the top. Below, All, Work, Apps, and Documents tabs are displayed. The list of apps is shown below the tabs. The Search bar consists of the text access and the search results show the Access App displayed below under the title Best match. Right-clicking on the app shows a list of options next to the Access app such as Run as administrator, Open file location, Unpin from Start, Pin to taskbar, and Uninstall. The Pin to the taskbar option is selected.

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Figure Intro-51 Extended Description (Introduction)

Return to Figure Intro-51

The Backstage view consists of a vertical Navigation pane on the left. The Navigation pane shows tabs for Home, New, Open, Get Add-ins, Info, Save, Save As, Save as Adobe P D F, Print, Share, and Share as Adobe P D F link. A back arrow is present above the Home tab. The Save As tab is selected, shown on the right of the Navigation pane. Below the title Save As, the Recent feature is present, followed by the feature Office In Practice, Personal, and Other locations. The Office In Practice feature shows the One Drive - Office In Practice option, which shows the e-mail I D of the user, and the Sites - Office In Practice option, which shows the e-mail I D of the user. The Personal feature shows the One Drive - Personal option. The Other locations feature shows the This P C, Add a Place, and Browse options. The Browse option is selected and labeled Click Browse to open the Save As dialog box.

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Figure Intro-52 Extended Description (Introduction)

Return to Figure Intro-52

Below the title bar, a New folder button is present on the left, which is selected. A vertical Navigation pane on the left shows the folders named Randy - Office In Practice, American River Cycling, Apps, Attachments, Copilot, Documents, and Misc. The Randy - Office In Practice folder is selected and labeled Select a location to create a folder. The right pane shows a list of folders such as American River Cycling Club, Apps, Attachments, Copilot, Documents, and Misc. The American River Cycling Club folder is selected such that the folder name is shown within a box and highlighted in blue. Below, two drop-down boxes labeled File name and Save as type are displayed. The File name is shown as P P Intro-1 a. The Open and Cancel buttons are present on the bottom right.

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Figure Intro-53 Extended Description (Introduction)

Return to Figure Intro-53

The Backstage view consists of a vertical Navigation pane on the left. The Navigation pane shows tabs for Home, New, and Open. The Open tab is selected, shown on the right of the Navigation pane. Below the title Open, the Recent and Share with Me features are present, followed by the Office In Practice, Personal, and Other locations features. The Office In Practice feature shows the One Drive - Office In Practice option, which shows the e-mail I D of the user, and the Sites - Office In Practice option, which shows the e-mail I D of the user. The Personal feature shows the One Drive - Personal option. The Other locations feature shows the This P C, Add a Place, and Browse options. The One Drive - Office In Practice option is selected.

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Figure Intro-54 Extended Description (Introduction)

Return to Figure Intro-54

The Microsoft Search box on the top is selected and consists of the text pivot, which is being searched. The Search result is displayed below. The list includes the following options:

Actions field: Pivot Chart, Pivot Table, and Summarize with Pivot Table.

Find in Worksheet: Pivot.

Get Help: Create a Pivot Table to analyze worksheet data, Consolidate multiple worksheets into one Pivot Table, and Get Help on “pivot.”

The More search results for “pivot” option is shown at the bottom. The Pivot Table option is selected.

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Figure Intro-55 Extended Description (Introduction)

Return to Figure Intro-55

The screenshot shows the following buttons: A small horizontal dash labeled Minimize button, a small square icon for Maximize, and a cross symbol for Close.

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Figure Intro-56 Extended Description (Introduction)

Return to Figure Intro-56

The Pinned Apps includes: Microsoft 365, To Do, File Explorer, Outlook (new), Settings, One Note, Adobe Acrobat, Spotify, and Netflix. The Setting button is highlighted.

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Figure Intro-57 Extended Description (Introduction)

Return to Figure Intro-57

The Task bar shows the following apps and Windows: Start Menu, Search bar, Task View button, File Explorer, and Settings. The Task View button is highlighted.

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Figure Intro-58 Extended Description (Introduction)

Return to Figure Intro-58

The Workbook Views Command group consists of the following buttons: Normal, Page Break Preview, Page Layout, and Custom Views.

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Figure Intro-59 Extended Description (Introduction)

Return to Figure Intro-59

The Status bar consists of the following buttons: Notes, Normal, Slide Sorter, Reading View, Slide Show, Zoom Control, Zoom level, and a Fit slide to current window.

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Figure Intro-60 Extended Description (Introduction)

Return to Figure Intro-60

The Zoom controls have a horizontal line with a small vertical bar in it. A minus sign labeled Zoom Out is present on the left end and a plus sign labeled Zoom In is present on the right end of the horizontal line. The value 84 percent labeled Zoom level is shown on the right of Zoom In. An icon on the far right is labeled Fit slide to current window button.

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Figure Intro-61 Extended Description (Introduction)

Return to Figure Intro-61

The Zoom group consists of the following options: Zoom, 100 percent, and Zoom to Selection.

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Figure Intro-62 Extended Description (Introduction)

Return to Figure Intro-62

The Zoom dialog box consists of a list of checkboxes titled Zoom to. The list consists of the following options: 200 percent, 100 percent, 75 percent, Page width, Text width, Whole page, and Many pages. Below, a box labeled Percent with an up and down arrow is present to adjust the zoom value. The OK and Cancel buttons are present below.

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Figure Intro-63 Extended Description (Introduction)

Return to Figure Intro-63

The Title bar consists of three icons, a small horizontal line labeled Minimize button, two overlapped squares labeled Restore Down or Maximize button, and a cross symbol labeled Close button.

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Figure Intro-64 Extended Description (Introduction)

Return to Figure Intro-64

The Taskbar consists of the following icons: Word, Excel, Spotify, and One Note. The mouse pointer is placed on the Excel icon displaying the thumbnail P P Intro- 1 b - Excel above it.

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Figure Intro-65 Extended Description (Introduction)

Return to Figure Intro-65

The screen is divided into a left and a right side. An Excel spreadsheet is displayed on the left with the Title bar highlighted. The right side is further divided into top and bottom sections. The top section displays the thumbnails of Windows applications such as Word, PowerPoint, Outlook, and File Manager. The bottom section is blank. The Taskbar at the bottom displays the following icons: Windows, Search, File Manager, Settings, Chrome, Outlook, Microsoft To-Do, Microsoft Word, Microsoft Excel, Microsoft One Note, and Microsoft PowerPoint, among others.

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Figure Intro-66 Extended Description (Introduction)

Return to Figure Intro-66

The Title bar shows the Minimize, Restore Down or Maximize, and Close buttons. The Restore Down or Maximize button is highlighted. A Snap Assist options box is displayed below, which shows six layout options such as side-by-side, stacked, or in a grid.

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Figure Intro-67 Extended Description (Introduction)

Return to Figure Intro-67

The Backstage view consists of a vertical Navigation pane on the left. The Navigation pane shows tabs for Home, New, Open, Get Add-ins, Info, Save a Copy, Save as Adobe P D F, Print, Share, Share as Adobe P D F Link, Export, Publish, Close, Account, and Options. A back arrow is present above the Home tab. The Print tab is selected that displays various features of the Print screen to the right of the Navigation pane, including the Print button. On the right of the Print button is an option to choose the number of Copies, followed by the Printer option below and then the Settings option. The Copies field is set to 1 and is labeled Number of copies to print. The Settings option includes Print Active Sheets, Print One Sided, Collated, Portrait Orientation, Letter, Normal Margins, and No Scaling, each with a drop-down arrow. A Page Setup option is shown below the Settings option. A preview of the printout is displayed on the right and shows how the worksheet will look when printed. The bottom of the Print screen shows the number of pages present in the worksheet to be printed along with the Next (right) and Previous (left) navigation arrows. A Margin icon labeled Show Margins button, and a square with arrows on the four sides labeled Zoom to Page button are shown on the bottom right.

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Figure Intro-68 Extended Description (Introduction)

Return to Figure Intro-68

The Backstage view consists of a vertical Navigation pane on the left. The Navigation pane shows tabs for Home, New, Open, Get Add-ins, Info, Save, Save as, Print, Share, and Export. A back arrow is present above the Home tab. The Export tab is selected, shown on the right of the Navigation pane. Below the title Export, are options to Create Adobe P D F, Create P D F or X P S Document, Change File Type, and Send documents to Kindle. The Create P D F or X P S Document option is selected. The region to the right of this has the title Create a P D F or X P S Document at the top. Below, the following texts are displayed as bulleted points:

Preserves layout, formatting, fonts, and images.

Content can’t be easily changed.

Free viewers are available on the web.

A Create P D F or X P S button is shown below.

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Figure Intro-69 Extended Description (Introduction)

Return to Figure Intro-69

The Properties list includes the following features: Size, Pages, Words, Total Editing Time, Title, Tags, Comments, Template, Status, Categories, Subject, Hyperlink Base, Company, Related Dates including Last Modified, Created, and Last Printed, Related People including Manager, Author, and Last Modified By, and Related Documents. A Show Fewer Properties option at the bottom is labeled Show All or Fewer Properties link.

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Figure Intro-70 Extended Description (Introduction)

Return to Figure Intro-70

The window titled Share “P P Intro-2 a dot doc x” consists of two boxes labeled Add a name, group, or email and Add a message. The Add a name, group, or email box is labeled Type email address or addresses. The Add a message box is labeled Type message. At the bottom right, a Copy link button with a settings icon next to it shows a screen tip Link settings. The Link settings button is highlighted. A Send button is present at the bottom right.

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Figure Intro-71 Extended Description (Introduction)

Return to Figure Intro-71

The Title bar shows the Minimize, Maximize, and Close buttons. Below these, the Comment, Editing, and Share buttons are present. The Share drop-down button is selected and shows a list, which includes, Share, Copy Link, and Manage Access options.

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Figure Intro-72 Extended Description (Introduction)

Return to Figure Intro-72

The title Link Settings shows two fields Share the link with and More settings. The Share the link with field consists of four radio buttons:

Radio button 1: Anyone (selected).

Radio button 2: People in Office In Practice.

Radio button 3: People with existing access.

Radio button 4: People you choose.

The More settings field includes the following options: Can edit, Set expiration date (M M forward slash D D forward slash Y Y Y Y), and Set password.

The Apply and Cancel buttons are present at the bottom. The Apply button is selected.

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Figure Intro-73 Extended Description (Introduction)

Return to Figure Intro-73

The window titled Share “P P Intro-2 a dot doc x” consists of two boxes labeled Add a name, group, or email and Add a message. At the bottom right is a Copy link button with a settings icon next to it. Hovering the mouse over the Copy link button shows the screen tip Anyone with the link can edit. A Send button is present at the bottom right. A checkmark is shown with the text that reads, “Link copied. Anyone with the link can edit.” The checkmark along with the text is labeled Sharing permissions.

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Figure Intro-74 Extended Description (Introduction)

Return to Figure Intro-74

The Excel Options dialog box consists of a vertical Navigation pane on the left. The Navigation pane shows tabs for General, Formulas, Data, Proofing, Save, Language, Accessibility, Advanced, Customize Ribbon, Quick Access Toolbar, Add-ins, and Trust Center. The General Tab is selected. The Properties of the General tab are shown on the right of these options, titled General options for working with Excel. It consist of three fields, User Interface options, When creating new workbooks, and Personalize your copy of Microsoft Office. The User Interface options field consist of the following features: Two radio buttons and seven checkboxes with the title When using multiple displays.

Radio button 1: Optimize for best appearance (selected).

Radio button 2: Optimize for compatibility (application restart required).

Checkbox 1: Show Mini Toolbar on selection (checked).

Checkbox 2: Show Quick Analysis options on selection (checked).

Checkbox 3: Show Convert to Data Types when typing (checked).

Checkbox 4: Enable Live Preview (checked).

Checkbox 5: Collapse the ribbon automatically.

Checkbox 6: Collapse the Microsoft Search box by default.

Checkbox 7: Show save commands in the application header (checked).

The When creating new workbooks field shows the following features with a drop-down box:

Use this as default font, Font size, Default view for new sheets, and Include this many sheets. The Personalize your copy of Microsoft Office field includes a box labeled User name. The OK and Cancel buttons are present below. A drop-down box labeled Screen Tip style is set to Show feature descriptions in ScreenTips under the User Interface options field.

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Figure Intro-75 Extended Description (Introduction)

Return to Figure Intro-75

The Word consists of a Title bar at the top and a Ribbon below. The Title bar has the AutoSave toggle button and the Save button on the Quick Access Toolbar on the far left. The Ribbon has tabs for File, Home, Insert, Draw, Design, Layout, References, Mailings, Review, View, Developer, Help, Table Design, and Layout. The Table Design tab is selected and highlighted with a label Table Design tab. This tab includes Command groups such as Table Style Options, Table Styles, and Borders. The Border command group consists of Border Styles, Pen Color, Borders, and Border Painter buttons. The buttons are together labeled Group.

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Figure Intro-76 Extended Description (Introduction)

Return to Figure Intro-76

The Word window consists of a Title bar at the top, displaying the user profile picture and name Randy Nordell on the left. On the right side of the Title bar, there are Minimize, Maximize, and Close buttons. Below the Title bar, there are buttons labeled Comments, Editing, and Share. A button with a downward-facing arrow on the far right is labeled Collapse the Ribbon button. This button is selected revealing a dropdown menu titled Show Ribbon with four options: Full-screen mode, Show tabs only, Always show Ribbon which is selected, and Hide Quick Access Toolbar.

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Figure Intro-77 Extended Description (Introduction)

Return to Figure Intro-77

The Excel sheet consists of a Title bar at the top followed by a Ribbon below. The Title bar has the AutoSave toggle button and the Save button on the Quick Access Toolbar on the far left. The Ribbon has tabs for File, Home, Insert, Draw, Page Layout, Formulas, and Data. The Home tab is selected and consists of Command groups such as Clipboard, and Font. A Formula Bar is present below the Ribbon. The Spreadsheet Area is present below the Formula Bar.

The Font group consists of the following buttons:

The Font drop-down box, Font size drop-down box, Increase Font Size, Decrease Font Size, Bold, Italic, Underline, Border, Fill Color, and Font Color. The Bold button is selected.

A Worksheet Area consists of the text American River Cycling Club and a subtext Annual Budget, in bold..

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Figure Intro-78 Extended Description (Introduction)

Return to Figure Intro-78

The Orientation drop-down menu displays two options: Portrait and Landscape.

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Figure Intro-79 Extended Description (Introduction)

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The Merge and Center drop-down arrow is labeled Click the arrow on a split button to display the drop-down list. The Merge & Center drop-down menu is open, displaying four options: Merge & Center, Merge Across, Merge Cells, and Unmerge Cells.

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Figure Intro-80 Extended Description (Introduction)

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The section contains various text styles, including Normal, No Spacing, Heading 1, and Heading 2. On the right side, there are Up and Down arrows labeled Up and Down buttons. Below these buttons, there is a downward arrow labeled Styles gallery expand button.

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Figure Intro-81 Extended Description (Introduction)

Return to Figure Intro-81

The dialog box consists of a Title bar at the top, title Format Cells. Below the Title bar, there are several tabs, including Number, Alignment, Font, Border, Fill, and Protection. The Alignment tab is selected, showing various text alignment and control options. At the bottom, there are two buttons: OK and Cancel.

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Figure Intro-82 Extended Description (Introduction)

Return to Figure Intro-82

The Word consists of a Ribbon at the top. Ribbon has tabs for File, Home, Insert, Draw, and Design. The Home tab is selected and consists of Command groups such as Clipboard, and Font. The Clipboard group consists of a small diagonal arrow button in the lower-right corner of the Clipboard group which is labeled Clipboard launcher. The Clipboard launcher is selected, which opens the Clipboard pane below. At the top of the pane, there are Paste All and Clear All buttons followed by a text Click an Item to Paste displaying two Word documents below.

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Figure Intro-83 Extended Description (Introduction)

Return to Figure Intro-83

The screenshot displays the Paragraph group with the different text alignment options with the Left align button selected and displaying a description Align Left (Control Left plus L)

Align your content with the left margin.

Left alignment is commonly used for the body text and make the document easier to read.

The descriptions labeled ScreenTip.

An arrow points to a button labeled ScreenTip, which displays a pop-up box when hovered over. The pop-up box contains the text: Align Left open bracket Ctrl + L close bracket. Align your content with the left margin. Left alignment is commonly used for body text and makes the document easier to read.

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Figure Intro-84 Extended Description (Introduction)

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The Page Setup dialog box consists of four tabs at the top: Page, Margins, Header or Footer, and Sheet, with the Sheet tab currently active. Below, there are multiple sections and input fields such as

The print area section contains a box with the value A $ 1 to $ B $ 16, and the box labeled Text box.

Below the Print section include four small boxes for Gridlines, Black and white, Draft quality, and Row and column headings.

The small boxes to the left of the text are labeled Check boxes and the first box is selected represented by a tick mark.

To the right there are two boxes with a downward arrow, one labeled Comments and notes, set to - None, and another labeled Cell errors as, set to displayed. The box is labeled Drop-down lists.

The Page order section below contains two circular buttons: Down, then over and Over, then down. The circular button is labeled Radio button and the first option is selected represented by a white dot on a blue background.

At the bottom, three buttons labeled Print, Print Preview, and Options are present, with a Print button labeled Button to open the dialog box. In the bottom right corner, the OK and Cancel buttons are visible, with the OK button selected.

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Figure Intro-85 Extended Description (Introduction)

Return to Figure Intro-85

The Word consists of a Ribbon at the top. Ribbon has tabs for File, Home, Insert, Draw, and Design. The Home tab is selected and consists of Command groups such as Undo, Clipboard, and Font. At the bottom several tools are present, including Undo, Redo, Save, Open File, Spell Check, Print, and a Touch or Mouse Mode icon. The tools are together labeled Quick Access Toolbar.

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Figure Intro-86 Extended Description (Introduction)

Return to Figure Intro-86

The Word consists of a Title bar at the top followed by a Ribbon below. The Title bar has the AutoSave toggle button, the Save button, Undo, Redo, and a drop-down arrow on the Quick Access toolbar. The drop-down arrow is labeled the Customize Quick Access Toolbar button. A dropdown menu labeled Customize Quick Access Toolbar is open, displaying a list of command options. Some commands have checkmarks next to them, indicating they are currently enabled. The options listed include Automatically Save, New, Open - highlighted with a cursor pointing to it, Save, Email, Quick Print, Print Preview and Print, Editor F7, Read Aloud, Undo, Redo, Draw Table, and Touch or Mouse Mode. At the bottom of the menu, additional options are displayed: More Commands, Show Below the Ribbon, and Hide Quick Access Toolbar. The Open option is labeled Click to add more commands.

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Figure Intro-87 Extended Description (Introduction)

Return to Figure Intro-87

The Word Options window is open, displaying the Customize Quick Access Toolbar settings. On the left, a vertical navigation pane lists various categories, including General, Display, Proofing, Save, Language, Accessibility, Advanced, Customize Ribbon, Quick Access Toolbar, Add-ins, and Trust Center. The Quick Access Toolbar section is selected.

In the main section, at the top, there is a Customize the Quick Access Toolbar heading. Below it, a dropdown menu labeled Choose commands from: is set to Popular Commands. A list of commands is displayed, including Font Size, Footnote, Format Painter, Grow Font (Increase Font Size), Insert Comment, Insert Page & Section Breaks, Insert Picture, and Insert Text Box. The Insert Comment option is highlighted.

To the right, there is a section labeled Customize Quick Access Toolbar, set to For all documents (default). A list of currently added commands is displayed, including Turn AutoSave On or Off, Save, Undo, Redo, Open, Editor, and Insert Comment. A Add and Remove buttons are present between the two lists. The Insert Comment option has been added from the left list using the Add button, which is highlighted.

At the bottom, checkboxes for Show Quick Access Toolbar and Always show command labels are selected. A dropdown menu for Toolbar Position is set to Above Ribbon. Below, customization options include Modify (grayed out), Reset, and Import or Export. The OK and Cancel buttons are at the bottom right.

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Figure Intro-88 Extended Description (Introduction)

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The Excel Spreadsheet is titled American River Cycling Annual Budget. At the top, a box labeled the Mini toolbar appears with text formatting options like font selection drop-down, font size drop-down, bold, italic, underline, font color, fill color, and other tools. Below, a box with a list of options is displayed labeled Context menu, displaying options like Cut, Copy, Paste Options, Paste Special, Smart Lookup, Insert, Delete, Clear Contents, Translate, Filter, Sort, Get Data from Table or Range, New Comment, New Note, Format Cells, Pick From Drop-down List, Define Name, Link, Open Hyperlink, Link to this is a Range, and Show Changes.

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Figure Intro-89 Function key

Return to Figure Intro-89

The dialog box has two tabs at the top: Font - selected and Advanced. In the Font section, a list displays available fonts, with plus Body highlighted. Next to it, the Font style section shows options like Regular , Italic, Bold, and Bold Italic, with Bold selected. The Size section lists font sizes, with 12 highlighted. Below, there are drop-down menus for Font color, Underline style, and Underline color, with Font color set to Dark Blue and Underline style set to Double underline.

In the Effects section, check-boxes for Strike through, Double strike through, Superscript, Subscript, Small caps, All caps and Hidden, with the Small caps checked.

The Preview section displays a sample text: WHAT IS MAXIMUM HEART RATE?, formatted based on the selected options. Below, a note states: This is the body theme font. The current document theme defines which font will be used. At the bottom, there are buttons labeled Set As Default, Text Effects, OK, and Cancel.

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Figure Intro-90 Extended Description (Introduction)

Return to Figure Intro-90

The Word consists of a Title bar at the top followed by a Ribbon below. The Title bar has the Auto Save toggle button set to On and the Save button on the Quick Access Toolbar on the far left. The Ribbon has tabs for File, Home, Insert, Draw, Design, and Layout. The Home tab is selected. This tab includes Command groups such as Clipboard, Font, and Paragraph.

The Font group displays Font formatting tools, including a font selection drop-down set to Aptos Body, a Font Size drop-down set to 11, and Bold, Italic, and Underline buttons. The Underline button represented by a Capital U with a underline below, has a drop-down arrow for label Underline drop-down arrow. The drop-down list displays different underline types such as single underline, Double underline, and Dotted underline.

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Figure Intro-91 Extended Description (Introduction)

Return to Figure Intro-91

The dialog box has two tabs at the top: Font - selected and Advanced. In the Font section, a list displays available fonts, with plus Body highlighted. Next to it, the Font style section shows options like Regular , Italic, Bold, and Bold Italic, with Bold selected. The Size section lists font sizes, with 12 highlighted. Below, there are drop-down menus for Font color, Underline style, and Underline color, with Font color set to Dark Blue and Underline style set to Double underline.

In the Effects section, check-boxes for Strike through, Double strike through, Superscript, Subscript, Small caps, All caps and Hidden, with the Small caps checked.

The Preview section displays a sample text: WHAT IS MAXIMUM HEART RATE?, formatted based on the selected options. Below, a note states: This is the body theme font. The current document theme defines which font will be used. At the bottom, there are buttons labeled Set As Default, Text Effects, OK, and Cancel.

Return to Figure Intro-91

Figure Intro-92 Extended Description (Introduction)

Return to Figure Intro-92

The Properties of the document are shown on the right of these options. Document property field names are listed on the left, and the information in these fields is displayed on the right. The field names and information are as follows:

Size: 973 K B

Pages: 1

Words: 354

Total Editing Time: 5 Minutes

Title: A R C C Training, labeled Title document property field

Tags: Add a tag

Comments: Add comments

Related Dates

Last Modified: Today, 10:41 A M

Created: Today, 10:37 A M

Last Printed: Blank

Related People

Author: Randy Nordell (with a small profile icon at left)

Last Modified By: Randy Nordell (with a small profile icon at left)

Related Documents:

Open File Location (a folder icon to the left)

Show All Properties link displayed at the bottom, labeled Click to display more document properties.

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Figure Intro-93 Extended Description (Introduction)

Return to Figure Intro-93

The Word consists of a Title bar at the top followed by a Ribbon below. The Title bar has the Auto Save toggle button, the Save button, Undo, Redo, and a drop-down arrow on the Quick Access toolbar. The drop-down arrow is labeled the Customize Quick Access Toolbar button. A drop-down menu labeled Customize Quick Access Toolbar is open, displaying a list of command options. Some commands have check-marks next to them, indicating they are currently enabled. The options listed include Automatically Save, New, Open - highlighted with a cursor pointing to it, Save, Email, Quick Print, Print Preview and Print, Editor F7, Read Aloud, Undo, Redo, Draw Table, and Touch or Mouse Mode. At the bottom of the menu, additional options are displayed: More Commands, Show Below the Ribbon, and Hide Quick Access Toolbar.

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Figure Intro-94 Extended Description (Introduction)

Return to Figure Intro-94

The Word Options window is open, displaying the Customize Quick Access Toolbar settings. On the left, a vertical navigation pane lists various categories, including General, Display, Proofing, Save, Language, Accessibility, Advanced, Customize Ribbon, Quick Access Toolbar, Add-ins, and Trust Center. The Quick Access Toolbar section is selected.

In the main section, at the top, there is a Customize the Quick Access Toolbar heading. Below it, a drop-down menu labeled Choose commands from: is set to Popular Commands. A list of commands is displayed, including Font Size, Footnote, Format Painter, Grow Font (Increase Font Size), Insert Comment, Insert Page & Section Breaks, Insert Picture, and Insert Text Box. The Insert Comment option is highlighted.

To the right, there is a section labeled Customize Quick Access Toolbar, set to For all documents (default). A list of currently added commands is displayed, including Turn Auto Save On or Off, Save, Undo, Redo, Open, Editor, and Insert Comment. A Add and Remove buttons are present between the two lists. The Insert Comment option has been added from the left list using the Add button, which is highlighted.

At the bottom, check-boxes for Show Quick Access Toolbar and Always show command labels are selected. A drop-down menu for Toolbar Position is set to Above Ribbon. Below, customization options include Modify (grayed out), Reset, and Import or Export. The OK and Cancel buttons are at the bottom right.

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Figure Intro-95 Extended Description (Introduction)

Return to Figure Intro-95

The window is open to the American River Cycling Club folder within Randy - Office In Practice. The left vertical pane shows a list of folders, including Randy - Office In Practice, American River Cycling Club, Apps, Attachments, and Copilot. The American River Cycling Club folder selected. The section to the right displays a text No items match your search. Below this section displays two boxes labeled File name and Save as type. The File name field set to P P Intro-2 b and a Save as type drop-down set to P D F. Below this, there is an unchecked checkbox labeled Open file after publishing. To the left the Optimize for section has two radio buttons: Standard - publishing online and printing - selected and Minimum size publishing online. There is an Options button beneath these selections. At the bottom of the window, there is a Tools drop-down menu, a highlighted Publish button with a cursor pointing to it, and a Cancel button. The Hide Folders option is visible at the lower left of the window.

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Figure Intro-96 Extended Description (Introduction)

Return to Figure Intro-96

There are two boxes with a Text holder Add a name, group, or email and Add a message. Below these fields, there is a button with a lock icon to the left. At the bottom of the dialog box, there are two buttons: Copy link, and Send. A gear icon button next to Copy link is selected and with a screen tip Link settings, which is highlighted.

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Figure Intro-97 Extended Description (Introduction)

Return to Figure Intro-97

At the top, there is a section titled Share the link with, which contains four options:

Anyone, which is selected and highlighted with a green globe icon to the left, and description Share with anyone, doesn't require sign-in.

People in Office In Practice

People with existing access

People you choose.

Below this section, there is a More settings section that includes three options: Can edit, which is highlighted with a red box and has a pencil icon; Set expiration date, which has a calendar icon; and Set password, which has a lock icon.

At the bottom of the dialog, there are two buttons Apply and Cancel. The Apply button selected.

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Figure Intro-98 Extended Description (Introduction)

Return to Figure Intro-98

There are two input fields with a Text holder Add a name, group, or email and Add a message. Below these fields, there is a button with a lock icon to the left. Below these fields, there is a row with a circular profile picture on the left, followed by two buttons: Copy link, and Send. A tool tip above the Copy link button contains a green globe icon and text that reads Anyone with the link can edit. At the bottom of the dialog, a green notification with a check mark icon displays the message Link copied. Anyone with the link can edit.

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Figure Intro-99 Extended Description (Introduction)

Return to Figure Intro-99

The title is written in a stylized blue font with the tagline Cycling a way of life. The document consists of two sections WHAT IS MAXIMUM HEART RATE? AND WHAT IS TARGET HEART RATE? Both the titles are double underlined and has three paragraphs each. A photograph of and arrow with three boxes are displayed at the top right followed by a photo of a women cycling below. A table titled Max and Target Heart Rates, which is displayed vertically to the left of the table consist of three columns and eleven rows. The column headers are Age, Predicted Max Heart Rate, and Target Heart Rate (60 to 85 percent of max).

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Figure Intro-100 Extended Description (Introduction)

Return to Figure Intro-100

The File Explorer window consists of a Title bar at the top, with the American River Cycling Club tab on the far left, followed by a New tab button represented by a plus sign. Below the Title bar is the Address bar, which displays the subfolders: One Drive and American River Cycling Club. To the left of the Address bar, there is a set of navigation tools.

Below the Address bar is the Command bar, containing the following buttons: New, Cut, Copy, Paste, Rename, Share, Delete, Sort, and View. Three horizontal dots present next to the View button are labeled See more button.

On the left side of the window, there is a vertical Navigation pane displaying a list of folders, including Randy - Office In Practice, American River Cycling Club, Apps, Attachments, Copilot, Documents, Misc, Notebooks, and Office 365 in Practice. The American River Cycling Club folder is selected.

To the right of the Navigation pane is the Content pane, which contains the following files: P P Intro- 1 a, P P Intro- 1 b, P P Intro- 2 a, P P Intro- 2 b, and P P Intro- 3.

From the Command bar, the Sort drop-down button is selected displaying a list of options such as Name, Date modified, Type, More, Ascending, Descending, and Group by. The Name and Ascending options are selected.

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Figure Intro-101 Extended Description (Introduction)

Return to Figure Intro-101

The File Explorer window consists of a Title bar at the top, with the American River Cycling Club tab on the far left, followed by a New tab button represented by a plus sign. Below the Title bar is the Address bar, which displays the subfolders: One Drive and American River Cycling Club. To the left of the Address bar, there is a set of navigation tools.

Below the Address bar is the Command bar, containing the following buttons: New, Cut, Copy, Paste, Rename, Share, Delete, Sort, View, and See more button.

On the left side of the window, there is a vertical Navigation pane displaying a list of folders, including Randy - Office In Practice, American River Cycling Club, Apps, Attachments, Copilot, Documents, Misc, Notebooks, and Office 365 in Practice. The American River Cycling Club folder is selected.

To the right of the Navigation pane is the Content pane, which contains the following files: P P Intro- 1 a, P P Intro- 1 b, P P Intro- 2 a, P P Intro- 2 b, and P P Intro- 3.

The View drop-down menu is open, showing options such as Extra large icons, Large icons, Medium icons, Small icons, List, Details, Tiles, Content, Details pane, Preview pane, and Show. The Show options is highlighted.

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Figure Intro-102 Extended Description (Introduction)

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The File Explorer window consists of a Title bar at the top, with the American River Cycling Club tab on the far left, followed by a New tab button represented by a plus sign. Below the Title bar is the Address bar, which displays the subfolders: One Drive and American River Cycling Club. To the left of the Address bar, there is a set of navigation tools.

Below the Address bar is the Command bar, containing the following buttons: New, Cut, Copy, Paste, Rename, Share, Delete, Sort, View, and See more button represented by three horizontal dots.

On the left side of the window, there is a vertical Navigation pane displaying a list of folders, including Randy - Personal, Randy - apps dot losrios dot e d u, Randy - Office In Practice, Desktop, Downloads, Documents, Pictures, Music, American River Cycling Club, Creative Cloud Files, and This P C. The Desktop, Downloads, Documents, Pictures, Music, American River Cycling Club are pinned and together labeled Quick Access area in the Navigation pane.

To the right of the Navigation pane is the Content pane, which contains the following files: A R C C Italy Tour, P P Intro- 1 a, P P Intro- 1 b, P P Intro- 2 a, P P Intro- 2 b, and P P Intro- 3.

The three-dot menu in the Command bar is open, showing options Undo, Compress to Z I P file, Pin to Quick access, Copy path, Select all, Select none, Invert selection, Properties, and Options.

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Figure Intro-103 Extended Description (Introduction)

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The File Explorer window consists of a Title bar at the top, with the American River Cycling Club tab on the far left, followed by a New tab button represented by a plus sign. Below the Title bar is the Address bar, which displays the subfolders: One Drive and American River Cycling Club. To the left of the Address bar, there is a set of navigation tools.

Below the Address bar is the Command bar, containing the following buttons: New, Cut, Copy, Paste, Rename, Share, Delete, Sort, View, and See more button. The New button is selected.

On the left side of the window, there is a vertical Navigation pane displaying a list of folders, including Randy - Office In Practice, American River Cycling Club, Apps, Attachments, Copilot, Documents, Misc, Notebooks, Office 365 In Practice.

To the right of the Navigation pane is the Content pane, which contains the following files: New folder, P P Intro- 1 a, P P Intro- 1 b, P P Intro- 2 a, P P Intro- 2 b, and P P Intro- 3.

A new folder named New folder is being created, with its name highlighted in selected.

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Figure Intro-104 Extended Description (Introduction)

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The File Explorer window consists of a Title bar at the top, with the American River Cycling Club tab on the far left. Below the Title bar is the Address bar, which displays the subfolders: One Drive and American River Cycling Club. To the left of the Address bar, there is a set of navigation tools.

Below the Address bar is the Command bar, containing the following buttons: New, Cut, Copy, Paste, Rename, Share, Delete, Sort, View, and See more button. The Cut, Copy, Paste, and Rename buttons are highlighted.

On the left side of the window, there is a vertical Navigation pane displaying a list of folders, including Randy - Office In Practice, American River Cycling Club, Apps, Attachments, Copilot, Documents, and Misc.

To the right of the Navigation pane is the Content pane, which contains the following files: A R C C Italy Tour, P P Intro- 1 a, P P Intro- 1 b, P P Intro- 2 a, P P Intro- 2 b, and P P Intro- 3.

The P P Intro- 1 a, P P Intro- 1 b, P P Intro- 2 a, P P Intro- 2 b, and P P Intro- 3 are selected.

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Figure Intro-105 Extended Description (Introduction)

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The File Explorer window consists of a Title bar at the top, with the American River Cycling Club tab on the far left. Below the Title bar is the Address bar, which displays the subfolders: One Drive and American River Cycling Club. To the left of the Address bar, there is a set of navigation tools.

Below the Address bar is the Command bar, containing the following buttons: New, Cut, Copy, Paste, Rename, Share, Delete, Sort, View, and See more button. The Delete button is highlighted.

On the left side of the window, there is a vertical Navigation pane displaying a list of folders, including Randy - Office In Practice, American River Cycling Club, Apps, Attachments, Copilot, Documents, and Misc.

To the right of the Navigation pane is the Content pane, which contains the following files: A R C C Italy Tour, New folder, P P Intro- 1 a, P P Intro- 1 b, P P Intro- 2 a, P P Intro- 2 b, and P P Intro- 3. The New folder is selected.

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Figure Intro-106 Extended Description (Introduction)

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The File Explorer window consists of a Title bar at the top, with the American River Cycling Club tab on the far left, followed by a New tab button represented by a plus sign. Below the Title bar is the Address bar, which displays the subfolders: One Drive and American River Cycling Club. To the left of the Address bar, there is a set of navigation tools.

Below the Address bar is the Command bar, containing the following buttons: New, Cut, Copy, Paste, Rename, Share, Delete, Sort, View, and See more button represented by three horizontal dots.

On the left side of the window, there is a vertical Navigation pane displaying a list of folders, including Randy - Office In Practice, American River Cycling Club, Apps, Attachments, Copilot, Documents, Misc, Notebooks, Office 365 In Practice.

To the right of the Navigation pane is the Content pane, which contains the following files: P P Intro- 1 a, P P Intro- 1 b, P P Intro- 2 a, P P Intro- 2 b, and P P Intro- 3.

The See more button in the Command bar is open, showing options Undo, Compress to Z I P file, Add to Favorites, Copy path, Select all, Select none, and Invert selection. The Compress to Z I P file is selected.

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Figure Intro-107 Extended Description (Introduction)

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The File Explorer window consists of a Title bar at the top, with the American River Cycling Club tab on the far left, followed by a New tab button represented by a plus sign. Below the Title bar is the Address bar, which displays the subfolders: One Drive and American River Cycling Club. To the left of the Address bar, there is a set of navigation tools.

Below the Address bar is the Command bar, containing the following buttons: New, Cut, Copy, Paste, Rename, Share, Delete, Sort, View, and See more button represented by three horizontal dots.

On the left side of the window, there is a vertical Navigation pane displaying a list of folders, including Randy - Office In Practice, American River Cycling Club, Apps, Attachments, Copilot, Documents, Misc, Notebooks, Office 365 In Practice.

To the right of the Navigation pane is the Content pane, which contains the following files: A R C C Italy Tour, P P Intro- 1 a, P P Intro- 1 b, P P Intro- 2 a, P P Intro- 2 b, and P P Intro- 3. The A R C C Italy Tour file is labeled Zipped or compresses folder.

The See more button in the Command bar is open, showing options Extract all, Undo, Compress to Z I P file, Add to Favorites, Copy path, Select all, and Select none. The Extract all option is selected.

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Figure Intro-108 Extended Description (Introduction)

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The dialog titled Extract Compressed (Zipped) Folders consists of a bold blue text Select a Destination and Extract Files below it.

Below this heading, there is a label stating, Files will be extracted to this folder, followed by a text field containing the folder path Office In Practice slash American River Cycling Club. To the right of the text field, there is a Browse button, with a mouse cursor hovering over it.

Below the text field, a checkbox labeled Show extracted files when complete is checked. At the bottom of the dialog box, there are two buttons: Extract, and Cancel.

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Figure Intro-109 Extended Description (Introduction)

Return to Figure Intro-109

The File Explorer window consists of a Title bar at the top, with the Intro Chapter 2024 - Student tab on the far left. Below the Title bar is the Address bar, which displays the subfolders: One Drive and Intro Chapter. To the left of the Address bar, there is a set of navigation tools.

Below the Address bar is the Command bar, containing the following buttons: New, Cut, Copy, Paste, Rename, Share, Delete, Sort, View, and See more button. The Copy button is selected.

On the left side of the window, there is a vertical Navigation pane displaying a list of folders, including Randy - Office In Practice, American River Cycling Club, Apps, Attachments, Copilot, Documents, Misc, Notebooks, and Office 365 In Practice.

To the right of the Navigation pane is the Content pane, which contains the following files: A R C C Membership - Intro, A R C C Budget - Intro, A R C C Training - Intro, Cavalli Files - Intro, C M P Files - Intro, H C C Yoga - Intro, and L A S Support Letter - Intro. The A R C C Membership - Intro file is selected.

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Figure Intro-110 Extended Description (Introduction)

Return to Figure Intro-110

The File Explorer window consists of a Title bar at the top, with the American River Cycling Club tab on the far left. Below the Title bar is the Address bar, which displays the subfolders: One Drive and American River Cycling Club. To the left of the Address bar, there is a set of navigation tools.

Below the Address bar is the Command bar, containing the following buttons: New, Cut, Copy, Paste, Rename, Share, Delete, Sort, View, and See more button. The Delete button highlighted. The New and Rename buttons are selected.

On the left side of the window, there is a vertical Navigation pane displaying a list of folders, including Randy - Office In Practice, American River Cycling Club, Apps, Attachments, Copilot, Documents, and Misc.

The American River Cycling Club folder is selected. To the right of the Navigation pane, there is a Content pane with a list of files. The list of files includes: P P Intro-3, P P Intro-1 a, P P Intro-1 b, P P Intro-2 a, and P P Intro- 2 b. The P P Intro-3 file name is selected.

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Figure Intro-111 Extended Description (Introduction)

Return to Figure Intro-111

The File Explorer window consists of a Title bar at the top with the American River Cycling Club tab at the far left, along with a New tab button that is represented by a plus sign.

This Title bar is followed by an Address bar. This Address bar displays the subfolders: OneDrive and American River Cycling Club. To the left of the Address bar, there are the Back, Forward, and Up arrows. The Back arrow and Up arrow are highlighted.

A Command bar is present below the Address bar with the following buttons: New, Cut, Copy, Paste, Rename, Share, Delete, and Sort. The Cut and Paste buttons are highlighted.

The Command bar is followed by a Navigation pane at the left, with the Folder list such as Randy - Office In Practice, American River Cycling Club, Apps, Attachments, Copilot, Documents, and Misc. The American River Cycling Club folder is selected.

To the right of the Navigation pane, there is a Content pane with an A R C C Italy Tour folder and a list of files. The list of files includes: P P Intro-1 a, P P Intro-1 b, P P Intro-2 a, P P Intro- 2 b, and P P Intro- 3. All the files in the Content pane, except the A R C C Italy Tour folder, are selected.

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Figure Intro-112 Extended Description (Introduction)

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The File Explorer window consists of a Title bar at the top with the American River Cycling Club tab at the far left. This Title bar is followed by an Address bar. This Address bar displays the subfolders: OneDrive and American River Cycling Club. To the left of the Address bar, there are the Back, Forward, and Up arrows.

A Command bar is present below the Address bar with the following buttons: New, Cut, Copy, Paste, Rename, Share, Delete, and Sort.

The Command bar is followed by a vertical Navigation pane at the left, with the Folder list such as Randy - Office In Practice, American River, Cycling Club, Apps, Attachments, Copilot, and Documents. The American River Cycling Club folder is selected.

To the right of the Navigation pane, there is a Content pane with two folders: A R C C Italy Tour and A R C C Italy Tour - zip. The A R C C Italy Tour - zip folder is labeled Zipped folder.

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Figure Intro-113 Extended Description (Introduction)

Return to Figure Intro-113

The File Explorer window consists of a Toolbar at the top with a P H R E tab at the far left, along with a New tab button that is represented by a plus sign. This Toolbar is followed by an Address bar. This Address bar displays the subfolders: One Drive and P H R E. To the left of the Address bar, there are the Back, Forward, and Up arrows. A Command bar is present below the Address bar with the following buttons: New, Cut, Copy, Paste, Rename, Share, Delete, and Sort. The Delete button is highlighted. A View button with a drop-down arrow is located to the right of the Sort button. At the far right of the Command bar, there is a three-dot icon. This icon is labeled See more button. The See more button is clicked, and a menu is opened with options such as Extract all, Undo, Compress to ZIP file, Add to Favorites, and Copy path. The Extract all option is clicked. The Command bar is followed by a Navigation pane at the left, with the Folder list such as Home, Gallery, Randy - Personal, Randy - apps dot losrios dot e d u, Randy - Office In Practice, Desktop, and Downloads. The Desktop and Downloads folders are pinned. The Randy - Office In Practice folder is selected. To the right of the Navigation pane, there is a Content pane with the file: Cavalli Files - Intro. This file is selected.

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Figure Intro-114 Extended Description (Introduction)

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The File Explorer window consists of a Toolbar at the top with the P H R E tab at the far left, along with a New tab button that is represented by a plus sign. This Toolbar is followed by an Address bar. This Address bar displays the subfolders: One Drive, Intro Chapter, and P H R E. To the left of the Address bar, there are the Back, Forward, and Up arrows. The Up arrow is highlighted. A Command bar is present below the Address bar with the following buttons: New, Cut, Copy, Paste, Rename, Share, Delete, Sort, and View. The Cut, Paste, Rename, Sort, and View buttons are highlighted. The Command bar is followed by a Navigation pane at the left, with the Folder list such as Home, Gallery, Randy - Personal, Randy - apps dot losrios dot e d u, Randy - Office In Practice, Desktop, and Downloads. The Desktop and Downloads folders are pinned. To the right of the Navigation pane, there is a Content pane. This pane contains the following files: Buyer Escrow Checklist - Intro, Cavalli P H R E - Intro, Cavalli Prospecting Letter - Intro, and Fixed Mortgage Rates - Intro. All the files in the Content pane are selected.

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Figure Intro-115 Extended Description (Introduction)

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The Taskbar consists of a Start button, which is represented by a blue Windows icon. To the right of this icon, there is a Search box. A brown suitcase icon is present at the far right of the Search box. A Task view button is present at the immediate right of the Search box. The far right of the Taskbar is occupied by icons of apps such as File Explorer, Settings, and Chrome. A line is present under the File Explorer and Chrome icons, which indicates that they are running in the background.

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Figure Intro-116 Extended Description (Introduction)

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The Zoom Control Slider is represented by a horizontal line. This features a minus sign on the left end and a plus sign on the right end. A small vertical bar is present in the middle of the slider. The mouse pointer is placed on the plus sign. The zoom level is displayed on the right of the Zoom Control, which is 120 percent. To the left of the Zoom Control Slider, there are buttons such as Read Mode, Print Layout, and Web Layout. The Print Layout button is activated.

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Figure Intro-117 Extended Description (Introduction)

Return to Figure Intro-117

The Word document consists of a letter to Mister and Missus Samuels. The following text in the document is selected: Placer Hills Real Estate. A mini toolbar is present above this selected text. This toolbar consists of a Font Style drop-down box at the top left. The Aptos (Body) font style is selected inside this box. The Font Size drop-down box is located to the right of the Font Style box. The font size is set to 11. At the top right corner of the toolbar, there are buttons such as Increase Font Size, Decrease Font Size, and Format Painter. Below the Font drop-down box, there are formatting buttons such as Bold, Italic, Underline, Text Highlight Color, Font Color, Bullets, and Numbering. The Bold button is activated. The Text Highlight Color is set as yellow, while the Font Color is selected as red.

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Figure Intro-118 Extended Description (Introduction)

Return to Figure Intro-118

The Save area consists of an up arrow at the far left. There is an open file icon next to the up arrow. The address sequence of the document is present to the right of the open file icon: One Drive, Office In Practice, and P H R E. Below this address sequence, there is a horizontal box with the document name: Intro - 1 d. This box is followed by a drop-down box. The Word Document (asterisk dot doc x) option is selected inside this drop-down box. A Save button is present at the bottom right corner. The Save button is clicked.

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Figure Intro-119 Extended Description (Introduction)

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The Backstage view consists of a vertical Navigation pane on the left. The Navigation pane shows tabs for Home, New, Open, Get Add-ins, Info, and Save a Copy. A back arrow is present above the Home tab. An Export area is opened to the right of the Navigation pane. The Export area consists of four options: Create Adobe P D F, Create P D F or X P S Document, Change File Type, and Send documents to Kindle. The Create P D F or X P S Document option is selected. A section opened on the right of the Export area is titled Create a P D F or X P S Document. This section consists of three bulleted points: Preserves layout, formatting, fonts, and images; Content can’t be easily changed; and Free viewers are available on the web. These points are followed by a Create P D F or X P S button. This button is clicked.

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Figure Intro-120 Extended Description (Introduction)

Return to Figure Intro-120

The File Explorer window consists of a Toolbar at the top with the P H R E tab at the far left, along with a New tab button that is represented by a plus sign on the right. This Toolbar is followed by an Address bar. This Address bar displays the subfolders: One Drive, Intro Chapter, and P H R E. To the left of the Address bar, there are the Back, Forward, and Up arrows. The Up arrow is highlighted. A Command bar is present below the Address bar with the following buttons: New, Cut, Copy, Paste, Rename, Share, Delete, Sort, and View. All buttons, except for New, Sort, and View are grayed out. The Command bar is followed by a Navigation pane at the left, with the Folder list such as Randy - Office In Practice, American River Cycling Club, Apps, Attachments, Capilot, Documents, P H R E, and Misc. The P H R E folder is selected. To the right of the Navigation pane, there is a Content pane. This pane contains the following files: Buyer Escrow Checklist - Intro, Cavalli Prospecting Letter - Intro, Intro-1 a, Intro-1 b, Intro-1 c, Intro-1 d, and Intro-1 e.

Return to Figure Intro-120

Figure Intro-121 Extended Description (Introduction)

Return to Figure Intro-121

The Save As dialog box consists of a File Explorer window. The File Explorer window consists of an Address bar at the top. This Address bar displays the subfolder: Randy - Office In Practice. A Search bar is present to the right of the Address bar. To the left of the Address bar, there are the Back, Forward, and Up arrows. A Command bar is present below the Address bar with the following buttons: Organize, New Folder, View, and Help. The Command bar is followed by a Navigation pane at the left, with the Folder list such as Randy - Office In Practice, American River Cycling Club, Apps, Attachments, Copilot, and Documents. The Randy - Office In Practice folder is selected. To the right of the Navigation pane, there is a Content pane with the following folders: American River Cycling Club, Apps, Attachments, Copilot, Documents, H C C, and Intro Chapter. The H C C file is selected such that the file name is shown within a small box and highlighted in blue. A horizontal scroll bar is present at the bottom of the Content pane. Below the Content pane, there is a File name drop-down box. This box contains the file name: H C C Yoga - Intro. This box is followed by a Save as type drop-down box. The Excel Workbook option is selected inside this box. The Authors and Tags features are located below the Save as type box, which consists Randy Nordell and the text Add a tag, respectively. A Browser View Options button is present below the Authors feature. An unchecked Save Thumbnail check box is located below the Tag feature. A Hide Folders feature is present at the bottom left corner. The Tools, Open, and Cancel buttons are present at the bottom right corner of the dialog box. The Open button is clicked.

Return to Figure Intro-121

Figure Intro-122 Extended Description (Introduction)

Return to Figure Intro-122

The Properties area consists of the workbook details at the top. The details and their corresponding entries are as follows: Size: 42.7 K B, Title: Yoga Classes, Tags: Add a tag, and Categories: Add a category. Below the workbook details, there is a Related Dates section with details such as Last Modified: Today, 11:51 A M and Created: 6/28/2012 9:00 A M. This section has a Last Printed feature that has no entries. A Related People section is present below the Last Printed option. This section consists of two features, such as Author and Last Modified By. In both the features, Randy Nordell's profile is present. An Add an author feature is present between the Author and Last Modified By features. At the bottom of the Properties area, there is an Open File Location button, which is followed by a Show All Properties link. This link is clicked.

Return to Figure Intro-122

Figure Intro-123 Extended Description (Introduction)

Return to Figure Intro-123

The Excel consists of a Search box in the Title bar. This Search box is labeled Microsoft Search box. The cell format text is typed inside this search box. A list of areas with options is displayed below this Search box. At the bottom of the list is a More search results for “cell format” option. This option is clicked. The areas and their corresponding options in the list are as follows:

Best Action: Format Cells.

Actions: Row Height, Column Width.

Find in Worksheet: “cell format.”

Files: Nordell-2016 project list complete dot x l s x and Word_C h.7 T E s_R N_06-22-16 dot x l s x.

Get Help: Change the format of a cell - Microsoft Support, Apply, create, or remove cell style - Microsoft Support, and Get Help on “cell format.”

Return to Figure Intro-123

Figure Intro-124 Extended Description (Introduction)

Return to Figure Intro-124

The Share window consists of the sharing workbook details at the top: Share “Intro-2 a dot x l s x.” Below this, there is a box with a contact icon. This box is labeled Type instructor’s email. At the right of this box, a pen icon with a drop-down arrow is located. An Add a message box is shown below. This box is labeled Type a message. The Copy Link and Send buttons are located at the bottom right corner. A cogwheel icon on the right of the Copy link button is labeled Link settings button. Hovering the mouse over the cogwheel icon shows the text Link settings. A lock icon is present at the bottom left corner.

Return to Figure Intro-124

Figure Intro-125 Extended Description (Introduction)

Return to Figure Intro-125

The Link settings window consists of a Share the link with feature at the top. This feature contains the following radio buttons: Anyone, People in Office In Practice, People with existing access, and People you choose. The Anyone button with the description, Share with anyone, doesn't require sign-in, is selected. These radio buttons are followed by a More settings feature with options such as Can edit, Set expiration date (M M/D D/Y Y), and Set password. The Can edit option is selected. The Apply and Cancel buttons are present at the bottom right corner. The Apply button is clicked.

Return to Figure Intro-125

Figure Intro-126 Extended Description (Introduction)

Return to Figure Intro-126

The Backstage view consists of a vertical Navigation pane on the left. The Navigation pane shows tabs for Home, New, Open, Info, Save a copy, Print, Share, and Export. A back arrow is present above the Home tab. The Export tab is selected. An Export area is opened to the right of the Navigation pane. This Export area consists of four options: Create Adobe P D F, Create P D F or X P S Document, and Change File Type. The Create P D F or X P S Document option is selected. A section opened on the right of the Export area is titled Create a P D F or X P S Document. This section consists of three bulleted points: Preserves layout, formatting, fonts, and images; Content can’t be easily changed; and Free viewers are available on the web. These points are followed by a Create P D F or X P S button. This button is clicked.

Return to Figure Intro-126

Figure Intro-127 Extended Description (Introduction)

Return to Figure Intro-127

The File Explorer window consists of a Toolbar at the top, with the Courtyard Medical Plaza tab on the far left, followed by a New tab button represented by a plus sign. Below the Toolbar is the Address bar, which displays the sub folders: One Drive and Courtyard Medical Plaza. To the left of the Address bar, there is a set of navigation tools.

Below the Address bar is the Command bar, containing the following buttons: New, Cut, Copy, Paste, Rename, Share, Delete, Sort, and View. All buttons, except New, Sort, and View, are grayed out. On the left side of the window, there is a vertical Navigation pane displaying a list of folders, including Randy - Office In Practice, American River Cycling Club, Apps, Attachments, Copilot, Courtyard Medical Plaza, Documents, and HCC. The Courtyard Medical Plaza folder is selected. To the right of the Navigation pane is the Content pane, which contains the following files: Intro-3a, Intro-3a.p d f, Intro-3b, Intro-3c, and Intro-3d.

Return to Figure Intro-127

Figure Intro-128 Extended Description (Introduction)

Return to Figure Intro-128

The File Explorer window consists of a Toolbar at the top, with the L A S tab on the far left, followed by a New tab button represented by a plus sign. Below the Toolbar is the Address bar, which displays the sub folders: One Drive and L A S. To the left of the Address bar, there are navigation tools. Below the Address bar is the Command bar, which contains the following buttons: New, Cut, Copy, Paste, Rename, Share, and Delete. All buttons, except New and Paste, are grayed out. The Navigation pane is located on the left side of the window and displays a list of folders, including Randy - Office In Practice, American River Cycling Club, Apps, Attachments, Copilot, Courtyard Medical Plaza, H C C, and L A S. The L A S folder is selected. To the right of the Navigation pane is the Content pane, which contains the following files: Intro-4a and Intro-4b. Additionally, a zipped L A S folder is also present in the Content pane

Return to Figure Intro-128

Unnumbered Figure 1.1 Extended Description (Chapter 1)

Return to Unnumbered Figure 1-1

The entire image is in black and white with one exception. There are two men and two women among the four individuals. The last individual, a woman, whose entire attire including shoes is highlighted in orange. Tall buildings are visible in the backdrop on the other side of the road.

Return to Unnumbered Figure 1-1

Figure 1.1 Extended Description (Chapter 1)

Return to Figure 1-1

A screenshot of a Microsoft Access database interface with callouts identifying key layout elements. On the left, the Navigation Pane lists All Access Objects, including Tables named Classes, Departments, and Instructors, Queries named ClassesByTermAndYear, Forms named InstructorInfo, and Reports named ClassReportByDepartment. At the top, the Ribbon displays various command groups under the Home tab, with a callout pointing to the entire Ribbon area. Above the Ribbon, Contextual tabs labeled Table Fields and Table are highlighted. Below the Ribbon, Object tabs show open items, with a callout pointing to the tabs for Classes and InstructorInfo, and another callout specifically identifying Classes as the Active object tab. The central Work area displays the contents of the Classes table in Datasheet View. A callout at the bottom left identifies the Status bar, which reads Datasheet View. The Classes table contains ten columns: ClassID, Class Name, Dept. ID, Section, Instructor ID, Term, Units, Year, Location, and Days. The table contains eight populated rows and one empty row for a new record. Row 1 contains 1, General Biology, 1, 1, 1, Spring, 3, 2026, NH-100, MWF. Row 2 contains 2, Comparative Animal Physiology, 1, 1, 2, Spring, 3, 2026, LSN-122, TTH. Row 3 contains 3, General Biology, 1, 2, 2, Spring, 3, 2026, AL-201, TTH. Row 4, which is currently highlighted, contains 4, General Biology, 2, 3, 1, Spring, 3, 2026, ENS-280, MWF. Row 5 contains 5, Organic Chemistry, 2, 1, 4, Spring, 4, 2026, ENS-280, MTWTH. Row 6 contains 6, Organic Chemistry, 2, 2, 4, Spring, 4, 2026, GMCS-333, MTWTH. Row 7 contains 7, Worlds of Animals, 1, 2, 2, Spring, 3, 2026, LSN-122, T. Row 8 contains 8, Data Science for Biology, 1, 1, 3, Spring, 3, 2026, AL-201, MWF. The final row shows an asterisk and the word New in parentheses in the ClassID column, with zeros in the Dept. ID, Section, Instructor ID, Units, and Year columns, and the remaining columns blank. The record navigation bar at the bottom of the work area indicates record 4 of 8 is selected.

Return to Figure 1-1

Figure 1.2 Extended Description (Chapter 1)

Return to Figure 1-2

In the top left and right corners of the screenshot, a small rectangular box is present with a right and left arrow, respectively. The boxes are labeled Shutter Bar Open or Close Button. A narrow vertical pane on the left labeled Navigation Pane is the Closed pane. A wider vertical pane on the right titled All Access Objects is the Open pane. Below All Access Objects is a Search bar. This is followed by the options: Tables, Queries, Forms, and Reports, each with an Expand or Collapse arrow to the right. The Tables option has the arrow pointing up, which is labeled Expand or Collapse arrow is open. The Queries option has the arrow pointing down, which is labeled Expand or Collapse arrow is closed.

Return to Figure 1-2

Figure 1.3 Extended Description (Chapter 1)

Return to Figure 1-3

The menu shows two options such as Navigate To Category and Filter By Group. The Navigate To Category option has five categories such as Custom, Object Type, Tables and Related Views, Created Date, and Modified Date. The Filter By Group option has five groups such as Tables, Queries, Forms, Reports, and All Access Objects. The category Object Type and the group All Access Objects are selected.

Return to Figure 1-3

Figure 1.4 Extended Description (Chapter 1)

Return to Figure 1-4

The Navigation Pane is titled All Access Objects with a drop-down arrow on the right labeled Click the Navigation Pane to open the Navigation menu. The Navigation menu shows two options such as Navigate To Category and Filter By Group. The Navigate To Category option has five categories such as Custom, Object Type, Tables and Related Views, Created Date, and Modified Date. The Filter By Group option has five groups such as Tables, Queries, Forms, Reports, and All Access Objects. The category Object Type and the group All Access Objects are selected.

Return to Figure 1-4

Figure 1.5 Extended Description (Chapter 1)

Return to Figure 1-5

The Navigation Pane is titled All Access Objects. Below the title is a Search bar. This is followed by the options Tables, Queries, Forms, and Reports, each with an Expand or Collapse arrow to the right. On the right edge of the Navigation Pane, a horizontal double-headed arrow is present labeled Resize Pointer.

Return to Figure 1-5

Figure 1.6 Extended Description (Chapter 1)

Return to Figure 1-6

The screenshot displays the File, Home, and Create tabs. The Home tab is selected that shows the Views and Clipboard Command groups. The View button with a drop-down arrow is selected and labeled Click to open the View menu. Clicking the drop-down arrow shows the options Datasheet View and Design View.

Return to Figure 1-6

Figure 1.7 Extended Description (Chapter 1)

Return to Figure 1-7

The datasheet shows a table with the title Classes in the Table Name tab at the top left corner. The table has the column headings Class I D, Class Name, Department I D, Section, Instructor I D, Term, Units, Year, and Location, each with a drop-down arrow on the right. A small rectangular box at the left end of each row is labeled Record selector. The cell to the right of the Record selector, in the first column, is highlighted and labeled Active cell. The Record Selector of the fifth row contains an asterisk labeled Append row. At the right end of the datasheet is a Vertical scroll slider. The Horizontal scroll slider is present at the bottom of the datasheet.

Return to Figure 1-7

Figure 1.8 Extended Description (Chapter 1)

Return to Figure 1-8

The Microsoft Access consists of a Title bar at the top followed by a Ribbon below. The Title bar has the Save button on the Quick Access Toolbar on the far left. The Minimize, Maximize, and Close buttons are on the far right of the Title bar. The Ribbon has tabs for File, Home, Create, External Data, Database Tools, and Help. The Home tab is selected and consists of Command groups such as Views, Clipboard, Sort and Filter, Records, Find, and Text Formatting. A vertical Navigation Pane is displayed on the left below the Ribbon titled All Access Objects. The Navigation Pane consists of a Search bar, followed by four options with sub-sections as follows:

Tables: Classes, Departments, Instructors.

Queries: Classes By Term And Year.

Forms: Instructor Info.

Reports: Class Report By Department.

Below the Navigation Pane is the Status bar. An orange horizontal strip below the Ribbon has the text Security Warning: Some active content has been disabled. Click for more details. An Enable Content button is shown on the right. The Work area is grey.

Return to Figure 1-8

Figure 1.9 Extended Description (Chapter 1)

Return to Figure 1-9

The Backstage view consists of a vertical Navigation pane on the left. The Navigation pane shows tabs for Home, New, Open, Info, Save, Save As, Print, Close, Account, and Options. A back arrow is present above the Home tab, which is labeled Click the arrow to return to the Access Ribbon. The Home tab is selected and displays a Good afternoon text to the right of the Navigation pane. This is followed by several templates such as Blank database and Vehicle maintenance. A Search bar is present below the templates and the Recent files are displayed below.

Return to Figure 1-9

Figure 1.10 Extended Description (Chapter 1)

Return to Figure 1-10

The Ribbon has tabs for File, Home, Create, External Data, Database Tools, and Help. The Home tab is selected and consists of Command groups such as Views, Clipboard, Sort and Filter, Records, Find, and Text Formatting.

Return to Figure 1-10

Figure 1.11 Extended Description (Chapter 1)

Return to Figure 1-11

The Ribbon has tabs for File, Home, Create, External Data, Database Tools, and Help. The Create tab is selected and consists of Command groups such as Templates, Tables, Queries, Forms, Reports, and Macros and Code.

Return to Figure 1-11

Figure 1.12 Extended Description (Chapter 1)

Return to Figure 1-12

The Ribbon has tabs for File, Home, Create, External Data, Database Tools, and Help. The External Data tab is selected and consists of Command groups such as Import and Link and Export.

Return to Figure 1-12

Figure 1.13 Extended Description (Chapter 1)

Return to Figure 1-13

The Ribbon has tabs for File, Home, Create, External Data, Database Tools, and Help. The Database Tools tab is selected and consists of Command groups such as Tools, Macro, Relationships, Analyze, Move Data, and Add-ins.

Return to Figure 1-13

Figure 1.14 Extended Description (Chapter 1)

Return to Figure 1-14

The Navigation Pane is titled All Access Objects with a drop-down arrow on the right labeled Click to open the Navigation menu. The Navigation menu shows two options such as Navigate To Category and Filter By Group. The Navigate To Category option has five categories such as Custom, Object Type, Tables and Related Views, Created Date, and Modified Date. The Filter By Group option has five groups such as Tables, Queries, Forms, Reports, and All Access Objects. The category Object Type and the group All Access Objects are selected.

Return to Figure 1-14

Figure 1.15 Extended Description (Chapter 1)

Return to Figure 1-15

The Navigation Pane is titled All Access Objects with a drop-down arrow on the right. Below the title is a Search bar. This is followed by the group name Tables with an upward arrowhead on the right labeled Expand or Collapse arrow.

Return to Figure 1-15

Figure 1.16 Extended Description (Chapter 1)

Return to Figure 1-16

The Navigation Pane contains a Search bar below the title, followed by three options and their sub-options as follows:

Departments: Departments Table, Classes By Term And Year, and Class Report By Department.

Instructors: Instructors Table, Classes By Term and Year, Instructor Info, and Class Report By Department.

Classes: Classes Table, Classes By Term And Year, and Class Report By Department.

The sub-option Class Report By Department in all three options is highlighted and labeled Class Report By Department report. The sub-option Instructor Info in the Instructors option is selected and labeled Instructor Info form.

Return to Figure 1-16

Figure 1.17 Extended Description (Chapter 1)

Return to Figure 1-17

The Work area shows the Object tab titled Classes. The Classes tab contains multiple rows and columns. The column headings are Class I D, Class Name, Department I D, Section, Instructor I D, Term, Units, Year, Location, Days, and Time, each with a drop-down arrow and entries below. A small rectangular box at the left end of each row is labeled Record selector. The Record selector in the ninth row contains an asterisk.

Return to Figure 1-17

Figure 1.18 Extended Description (Chapter 1)

Return to Figure 1-18

The screenshot displays the File, Home, and Create tabs. The Home tab is selected that shows the Views and Clipboard Command groups. The View button with a drop-down arrow is selected. Clicking the drop-down arrow shows the options Datasheet View and Design View.

Return to Figure 1-18

Figure 1.19 Extended Description (Chapter 1)

Return to Figure 1-19

The Work area shows the Object tab titled Classes. The Classes tab contains multiple rows and columns. The column headings are Field Name, Data Type, and Description (optional). The first row in the Field Name column has the entry Class I D, which is selected. Below the table is the heading Field Properties, followed by tabs for General and Lookup. The General tab is selected. The General tab shows a table with the following data:

Field Size: Long Integer.

New Values: Increment.

Format: Blank.

Caption: Blank.

Indexed: Yes (No Duplicates).

Text Align: General.

The following text is shown on the right: A field name can be up to 64 characters long, including spaces. Press F 1 for help on field names.

Return to Figure 1-19

Figure 1.20 Extended Description (Chapter 1)

Return to Figure 1-20

The Backstage view consists of a vertical Navigation pane on the left. The Navigation pane shows tabs for Home, New, Open, Info, Save, Save As, Print, Close, Account, and Options. A back arrow is present above the Home tab. The New tab is selected that displays eight icons representing database templates such as Blank database, Vehicle maintenance, Desktop how to synchronize, Sales pipeline, Real estate, Faculty, Contacts, and Asset tracking. A Show More button is shown on the bottom right. Below these are tabs for Office and Personal. The Office tab is selected that has a Search bar.

Return to Figure 1-20

Figure 1.21 Extended Description (Chapter 1)

Return to Figure 1-21

The window contains the preview of the database on the left. On the right is the title Event management. Below is a text box titled File Name in which Database 1 is labeled Enter the file name. To the right of the text box is an icon labeled Browse for a location to put your database button. Below this is the Create button.

Return to Figure 1-21

Figure 1.22 Extended Description (Chapter 1)

Return to Figure 1-22

The Backstage view consists of a vertical Navigation pane on the left. The Navigation pane shows tabs for Home, New, Open, Info, Save, Save As, Print, Close, Account, and Options. A back arrow is present above the Home tab. The Info tab is selected that displays the file title College Of Science Classes - 01. Below the title are the Copy path, Copy local path, and Open file location buttons. At the right, a View and edit database properties link is present. A box containing the Security Information is shown below, followed by the buttons for Compact and Repair and Encrypt with Password.

Return to Figure 1-22

Figure 1.23 Extended Description (Chapter 1)

Return to Figure 1-23

The dialog box is titled College Of Science Classes - 01 and contains tabs for General, Summary, Statistics, Contents, and Custom. The Summary tab is selected and has features such as Title, Subject, Author, Manager, Company, Category, Keywords, Comments, and Hyperlink base. The Title text box is filled with the entry College Of Science Classes, and the Author text box is filled with the entry Doctor Annette Easton.

Return to Figure 1-23

Figure 1.24 Extended Description (Chapter 1)

Return to Figure 1-24

The Backstage view consists of a vertical Navigation pane on the left. The Navigation pane shows tabs for Home, New, Open, Info, Save, Save As, Print, Close, Account, and Options. A back arrow is present above the Home tab. The Home tab is selected and displays a Good afternoon text to the right of the Navigation pane. This is followed by several templates such as Blank database, Event management, Vehicle maintenance, and More templates. The Blank database template is selected. A Search bar is present below the templates and the Recent files are displayed below.

Return to Figure 1-24

Figure 1.25 Extended Description (Chapter 1)

Return to Figure 1-25

The dialog box shows the Form Name feature with the entry Add New Employee. The OK and Cancel buttons are shown on the bottom right.

Return to Figure 1-25

Figure 1.26 Extended Description (Chapter 1)

Return to Figure 1-26

The Backstage view consists of a vertical Navigation pane on the left. The Navigation pane shows tabs for Home, New, Open, Info, Save, Save As, Print, Close, Account, and Options. A back arrow is present above the Home tab. The Save As tab is selected that displays two File Types options such as Save Database As and Save Object As. The Save Object As option is selected. To the right is a box titled Save the current database object with two Database File Types options such as Save Object As and P D F or X P S, and an Advanced option below with the option Save as Client Object. A Save As button is displayed at the bottom.

Return to Figure 1-26

Figure 1.27 Extended Description (Chapter 1)

Return to Figure 1-27

The dialog box shows the Save ‘Employees’ to feature with the entry Copy of Employee, and the As feature with the entry Table. The OK and Cancel buttons are shown on the bottom right.

Return to Figure 1-27

Figure 1.28 Extended Description (Chapter 1)

Return to Figure 1-28

The context menu shows a list of options such as Open, Layout View, Design View, Export, Rename, Hide in this Group, and Delete. The Open, Layout View, and Design View options are together labeled Open options.

Return to Figure 1-28

Figure 1.29 Extended Description (Chapter 1)

Return to Figure 1-29

The Microsoft Access consists of a Title bar at the top followed by a Ribbon below. The Title bar has the Save button on the Quick Access Toolbar on the far left. The Minimize, Maximize, and Close buttons are on the far right of the Title bar. The Ribbon has tabs for File, Home, Create, External Data, Database Tools, and Help. The Create tab is selected and consists of Command groups such as Templates, Tables, Queries, Forms, Reports, and Macros and Code. Below the Ribbon is a blank work area.

Return to Figure 1-29

Figure 1.30 Extended Description (Chapter 1)

Return to Figure 1-30

The Backstage view consists of a vertical Navigation pane on the left. The Navigation pane shows tabs for Home, New, Open, Info, Save, Save As, Print, Close, Account, and Options. A back arrow is present above the Home tab. The Save As tab is selected that displays two File Types options such as Save Database As and Save Object As. The Save Database As option is selected. To the right is a box titled Save Database As with a list of Database File Types such as Access Database, Access 2002 to 2003 Database, Access 2000 Database, and Template, followed by the Advanced option with a list such as Package and Sign, Make A C C D E, Back Up Database, and Share Point. The Save As button is displayed below.

Return to Figure 1-30

Figure 1.31 Extended Description (Chapter 1)

Return to Figure 1-31

The Ribbon has tabs for File, Home, Create, External Data, Database Tools, and Help. The External Data tab is selected and consists of Command groups such as Import and Link, and Export. In the Import and Link group, the New Data Source button with a drop-down arrow is selected. The drop-down arrow shows four options such as From File, From Database, From Online Services, and From Other Sources. The From Database option is selected, which shows a list of options such as Access, From S Q L Server, From Azure Database, and d BASE File.

Return to Figure 1-31

Figure 1.32 Extended Description (Chapter 1)

Return to Figure 1-32

The dialog box shows the text Select the source and destination of the data below the title. This is followed by the text Specify the source of the destination of the objects. The File name feature is shown below with the source file specified as C colon backward slash My Work with a Browse button next to it. Below this is the text as follows:

Specify how and where you want to store the data in the current database.

There are two options displayed beneath it, each with a radio button:

Import tables, queries, forms, reports, macros, and modules into the current database. This option is selected.

Link to the data source by creating a linked table.

Return to Figure 1-32

Figure 1.33 Extended Description (Chapter 1)

Return to Figure 1-33

The dialog box contains tabs for Tables, Queries, Forms, Reports, Macros, and Modules. The Tables tab is selected, which displays the options Classes, Departments, and Instructors. To the right of the list are the OK, Cancel, Select All, Deselect ALL, and Options buttons arranged vertically.

Return to Figure 1-33

Figure 1.34 Extended Description (Chapter 1)

Return to Figure 1-34

The Create tab consists of the Tables Command group with three buttons such as Table, Table Design, and Share Point Lists.

Return to Figure 1-34

Figure 1.35 Extended Description (Chapter 1)

Return to Figure 1-35

The Microsoft Access consists of a Title bar at the top followed by a Ribbon below. The Title bar shows tabs for File, Home, Create, External Data, Database Tools, Help, Table Fields, and Table. The Table Fields tab is selected and consists of Command groups such as Views, Add and Delete, Properties, Formatting, and Field Validation. Below the Ribbon, a Work area is displayed with a tab for Table 1. Table 1 shows a column with the heading I D. The second column shows the text Click to Add. The first row in column one is labeled (New).

Return to Figure 1-35

Figure 1.36 Extended Description (Chapter 1)

Return to Figure 1-36

Table 1 shows a column with the heading I D. The second column shows the text Click to Add with a drop-down arrow. The first row in column one is labeled (New).

Return to Figure 1-36

Figure 1.37 Extended Description (Chapter 1)

Return to Figure 1-37

The list shows the option Auto Number with a drop-down arrow. The drop-down arrow is labeled The Data Type list opens when the drop-down arrow is clicked. The list shows options such as Short Text, Long Text, Number, Large Number, Date or Time, Date or Time Extended, Currency, Yes or No, and Hyperlink.

Return to Figure 1-37

Figure 1.38 Extended Description (Chapter 1)

Return to Figure 1-38

The Work area shows an Object tab with the first column heading Emp I D. The second column shows the text Click to Add with a drop-down arrow. The first row in column one is labeled New. The drop-down arrow displays a list of options such as Short Text, Number, Large Number, Currency, Date and Time, Date and Time Extended, Yes or No, Lookup and Relationship, Rich Text, Long Text, Attachment, Hyperlink, Calculated Field, and Paste as Fields.

Return to Figure 1-38

Figure 1.39 Extended Description (Chapter 1)

Return to Figure 1-39

The Object tab shows two columns with the headings Emp I D and Field 1. The third column shows the text Click to Add with a drop-down arrow. The first row in column one is labeled (New).

Return to Figure 1-39

Figure 1.40 Extended Description (Chapter 1)

Return to Figure 1-40

The screenshot displays the tabs for Home, Create, External Data, Database Tools, Help, and Table Fields. The Table Fields tab is selected. The Add and Delete Command group is shown with buttons for Short Text, Number, Currency, Date and Time, Yes or No, Delete, and More Fields. The Properties Command group shows the buttons for Name and Caption and Default Value (selected).

Return to Figure 1-40

Figure 1.41 Extended Description (Chapter 1)

Return to Figure 1-41

The drop-down arrow of More Fields displays options such as Basic Types, Number, Large Number, Date and Time, and Date and Time Extended. Each option has sub-options as follows:

Basic Types: Rich Text, Attachment, Hyperlink, Long Text, and Lookup and Relationship.

Number: General, Currency, Euro, Fixed, Standard, and Scientific.

Large Number: General, Fixed, Standard, and Scientific.

Date and Time: Short Date, Medium Date, Long Date, Time a m or p m, Medium Time, and Time 24 hour.

The list also shows options such as Calculated Field and Save Selection as New Data Type.

Return to Figure 1-41

Figure 1.42 Extended Description (Chapter 1)

Return to Figure 1-42

The screenshot shows a column with the heading I D. The second column shows the text Click to Add with a drop-down arrow. The first row in column one is labeled (New). The left of row one has an asterisk labeled Append row.

Return to Figure 1-42

Figure 1.43 Extended Description (Chapter 1)

Return to Figure 1-43

The screenshot shows a column with the heading I D. The second column shows the text Click to Add with a drop-down arrow. The first row in column one is blank. The left of row one has an asterisk. The first row in column two has a mouse cursor.

Return to Figure 1-43

Figure 1.44 Extended Description (Chapter 1)

Return to Figure 1-44

The screenshot shows a column with the heading I D. The second column shows the text Click to Add with a drop-down arrow. The first row in column one is labeled (New). The left of row one has an asterisk. The first row in column two has the text, Lanita.

Return to Figure 1-44

Figure 1.45 Extended Description (Chapter 1)

Return to Figure 1-45

The Work area shows the Object tab titled Employees. The Employees tab contains multiple rows and columns. The column headings are Employee I D, First Name, and Last Name, each with a drop-down arrow and entries below. A black thick downward arrow that appears on the column heading Last Name is labeled Selection pointer.

Return to Figure 1-45

Figure 1.46 Extended Description (Chapter 1)

Return to Figure 1-46

The context menu shows a list of options such as Unfreeze All Fields, Find, Insert Field, Modify Lookups, Modify Expression, Rename Field, and Delete Field. Insert Field option is selected.

Return to Figure 1-46

Figure 1.47 Extended Description (Chapter 1)

Return to Figure 1-47

The Work area shows the Object tab titled Employees. The Employees tab contains multiple rows and columns. The column headings are Employee I D, First Name, and Last Name, each with a drop-down arrow and entries below. A column with the heading Field 1 is inserted between First Name and Last Names columns.

Return to Figure 1-47

Figure 1.48 Extended Description (Chapter 1)

Return to Figure 1-48

Th dialog box shows three text boxes labeled Name, Caption, and Description. The Name text box contains the entry Emp I D, while the other two text boxes are blank. The OK and Cancel buttons are displayed in the bottom right corner.

Return to Figure 1-48

Figure 1.49 Extended Description (Chapter 1)

Return to Figure 1-49

The screenshot displays tabs for Help, Table Fields, and Table. The Table Fields tab is selected, which shows the Properties Command group that contains buttons for Name and Caption, Default Value, Field Size, Modify Lookups, Modify Expression, and Memo Settings. The Field Size option contains a text box with the entry 255.

Return to Figure 1-49

Figure 1.50 Extended Description (Chapter 1)

Return to Figure 1-50

The dialog box shows a tab for General. The General tab shows the Type feature with the entry Table (Local). The Description feature is shown below with an empty text box. Below this are the following details:

Created: 28 May 2025, 7:53:18 P M.

Modified: 28 May 2025, 7:53:24 P M.

Owner: Admin.

An Attributes feature shows a check box for Hidden below. The OK, Cancel, and Apply buttons are displayed in the bottom right.

Return to Figure 1-50

Figure 1.51 Extended Description (Chapter 1)

Return to Figure 1-51

The Work area shows an Object tab that contains multiple rows and columns. The column headings are Employee I D, First Name, and Last Name, each with a drop-down arrow. The Entry under Employee I D in the first row is 101. An icon to the left of this cell is labeled Pencil icon. Below this, the Append row is displayed.

Return to Figure 1-51

Figure 1.52 Extended Description (Chapter 1)

Return to Figure 1-52

The Work area shows an Object tab that contains multiple rows and columns. The column headings are Employee I D, First Name, and Last Name, each with a drop-down arrow. The entries in the first row are 101, Matteo, and Mancini. The entries in the second row are 101, Lanita, and McCartney. To the left of the second row is the Pencil icon.

Return to Figure 1-52

Figure 1.53 Extended Description (Chapter 1)

Return to Figure 1-53

The error message is as follows: The changes you requested to the table were not successful because they would create duplicate values in the index, primary key, or relationship. Change the data in the field or fields that contain duplicate data, remove the index, or redefine the index to permit duplicate entries and try again. The OK and Help buttons are shown below.

Return to Figure 1-53

Figure 1.54 Extended Description (Chapter 1)

Return to Figure 1-54

The Work area shows an Object tab that contains multiple rows and columns. The column headings are Employee I D, First Name, Last Name, Branch, Title, Department, and Start Date, each with a drop-down arrow. The entries in the Start Date column are: 1/5/2024, 1/5/2024, and 10022024. The cell containing the entry 10020024 displays a Warning Symbol on the left. Clicking the Warning symbol shows a list of options: The value you entered does not match the Date or Time data type in this column, Enter new value, Convert the data in this column to the Text data type, and Help with data type and formats.

Return to Figure 1-54

Figure 1.55 Extended Description (Chapter 1)

Return to Figure 1-55

The Work area shows an Object tab that contains multiple rows and columns. The column headings are Employee I D, First Name, Last Name, and Branch, each with a drop-down arrow. At the left end of the third row is a black thick rightward arrow. The entire third row is selected.

Return to Figure 1-55

Figure 1.56 Extended Description (Chapter 1)

Return to Figure 1-56

The Microsoft Access consists of a Title bar at the top followed by a Ribbon below. The Title bar has the Save button on the Quick Access Toolbar on the far left. The Minimize, Maximize, and Close buttons are on the far right of the Title bar. The Ribbon has tabs for File, Home, Create, External Data, Database Tools, Help, Table Fields, and Table. The Table Fields tab is selected and consists of Command groups such as Views, Add and Delete, Properties, Formatting, and Field Validation. A vertical Navigation Pane is displayed on the left below the Ribbon titled All Access Objects. The Navigation Pane consists of a Search bar, followed by the heading Tables with a sub-heading Table 1. Below the Navigation Pane, the Status bar is labeled Datasheet View. To the right of the Navigation Pane, the Work area is displayed with the Object tab titled Table 1. Table 1 shows a column with the heading I D. The second column shows the text Click to Add with a drop-down arrow. The first row in column one is labeled (New).

Return to Figure 1-56

Figure 1.57 Extended Description (Chapter 1)

Return to Figure 1-57

The dialog box contains the following features with the entries given below:

Name: Employee I D.

Caption: Employee I D.

Description: Unique Employee Identification Number.

The OK and Cancel buttons are present at the bottom right corner.

Return to Figure 1-57

Figure 1.58 Extended Description (Chapter 1)

Return to Figure 1-58

The selection box for Data Type with a drop-down shows the entry Auto Number. Clicking the drop-down arrow shows a list of options such as Short Text, Long Text, Number, and Large Number.

Return to Figure 1-58

Figure 1.59 Extended Description (Chapter 1)

Return to Figure 1-59

The Work area shows the Object tab titled Employees. A cross symbol on the right of the Employees tab is labeled Click to close the table. The Employees tab contains multiple columns. The column headings are Employee I D, First Name, Last Name, and Branch, each with a drop-down arrow.

Return to Figure 1-59

Figure 1.60 Extended Description (Chapter 1)

Return to Figure 1-60

The Work area shows the Object tab titled Employees. The Employees tab contains multiple rows and columns. The column headings are Employee I D, First Name, Last Name, Branch, Title, Department, Start Date, and Base Month Salary, each with a drop-down arrow. The entries in each row are as follows:

Row 1: 101, Matteo, Mancini, Cameron Park, Chief Executive Officer, Administration, 1/5/2024, $ 16,000.00.

Row 2: 102, Lanita, McCartney, Cameron Park, Chief Operating Officer, Administration, 1/5/2024, and $ 13,000.00.

Row 3: 103, Eleesha, Santos, Cameron Park, Insurance Agent, Health and Benefits, 2/10/2024, and $ 6,250.00.

Row 4: Roy, Baxter, Granite Bay, Insurance Agent, Property and Causality, 2/11/2024, and $ 4,700.00.

Row 5: 115, Tami, Chan, Cameron Park, Administrative Assistant, Health and Benefits, 5/8/2024, and $ 3,300.00.

Return to Figure 1-60

Figure 1.61 Extended Description (Chapter 1)

Return to Figure 1-61

The Ribbon has tabs for File, Home, Create, External Data, Database Tools, and Help. The External Data tab is selected and consists of Command groups such as Import and Link, and Export. In the Import and Link group, the New Data Source button with a drop-down arrow is selected. The drop-down arrow shows four options such as From File, From Database, From Online Services, and From Other Sources. The From File option is selected, which shows a list of options such as Excel, H T M L Document, X M L File, and Text File.

Return to Figure 1-61

Figure 1.62 Extended Description (Chapter 1)

Return to Figure 1-62

The dialog box shows the text Select the source and destination of the data. This is followed by the text Specify the source of the destination of the objects. The File name feature is shown below with the source file specified as C colon backward slash My Work back slash with a Browse button next to it. Below this is the text as follows:

Specify how and where you want to store the data in the current database.

We will not import table relationships, calculated columns, validation rules, default values, and columns of certain legacy data types such as O L E Object.

Search for “Import” in Microsoft Access Help for more information.

Three options are presented for importing the data, each with a radio button:

Import the source data into a new table in the current database. This option is selected.

Append a copy of the records to the table. The radio button is labeled Append radio button. To the left of this option is a bar labeled Table name box.

Link to the data source by creating a linked table.

Return to Figure 1-62

Figure 1.63 Extended Description (Chapter 1)

Return to Figure 1-63

The dialog box shows the text Microsoft Access can use your column headings as field names for your table. Does the first row specified contain column headings? Below this, the text First Row Contains Column Headings is shown. A table below has six columns and twelve rows. The column headings are Emp I D, First Name, Last Name, Branch, Title, and Department, with the entries below. The Cancel, Back, Next, and Finish Buttons are shown below.

Return to Figure 1-63

Figure 1.64 Extended Description (Chapter 1)

Return to Figure 1-64

The bar displays the Record and the Navigation buttons with left and right arrow controls. Followed by this is the Filter status message reading No Filter and a Search box on the right end.

Return to Figure 1-64

Figure 1.65 Extended Description (Chapter 1)

Return to Figure 1-65

The Work area shows the Object tab titled Employees. The Employees tab contains multiple rows and columns. The column headings are Employee I D, First Name, and Last Name, each with a drop-down arrow and entries below. A black thick downward arrow that appears on the column heading Last Name is labeled Selection pointer.

Return to Figure 1-65

Figure 1.66 Extended Description (Chapter 1)

Return to Figure 1-66

The Work area shows the Object tab titled Employees. The Employees tab contains multiple rows and columns. The column headings are Employee I D, First Name, and Last Name, each with a drop-down arrow and entries below. A thick black vertical line between the columns Employee I D and First Name is labeled Column movement indicator.

Return to Figure 1-66

Figure 1.67 Extended Description (Chapter 1)

Return to Figure 1-67

The Work area shows the Object tab titled Employees. The Employees tab contains multiple rows and columns. The column headings are Employee I D, Last Name, and First Name, each with a drop-down arrow and entries below. The Last Name column is selected.

Return to Figure 1-67

Figure 1.68 Extended Description (Chapter 1)

Return to Figure 1-68

The Command group displays a rectangular bar with the text Aptos (Detail). This bar is labeled Font face. To the right of the Font face bar is a small box with the value 11. This small box is labeled Font size. Below this a dark and thick uppercase B is labeled Bold button, a tilted to the right uppercase I is labeled Italics button, and an uppercase U with an underline is labeled Underline button.

Return to Figure 1-68

Figure 1.69 Extended Description (Chapter 1)

Return to Figure 1-69

The Work area shows the Object tab titled Employees. The Employees tab contains multiple rows and columns. The column headings are Employee I D, First Name, and Last Name, each with a drop-down arrow and entries below. A thick black short horizontal line with a vertical double-headed arrow at its center is displayed on the left end of the row, which is labeled Resize arrow.

Return to Figure 1-69

Figure 1.70 Extended Description (Chapter 1)

Return to Figure 1-70

The Work area shows the Object tab titled Employees. The Employees tab contains multiple rows and columns. The column headings are Employee I D, First Name, and Last Name, each with a drop-down arrow and entries below. A thick black short horizontal line with a vertical double-headed arrow at its center is displayed on the left end of the second row. A horizontal line extends from the Resize arrow across the second row.

Return to Figure 1-70

Figure 1.71 Extended Description (Chapter 1)

Return to Figure 1-71

The Work area shows the Object tab titled Employees. The Employees tab contains multiple rows and columns. The column headings are Employee I D, First Name, and Last Name, each with a drop-down arrow and entries below. The row height seems larger.

Return to Figure 1-71

Figure 1.72 Extended Description (Chapter 1)

Return to Figure 1-72

The Work area shows the Object tab titled Employees. The Employees tab contains multiple rows and columns. The column headings are Employee I D and First Name. The second row is selected and shows a menu with a list of options such as New Record, Delete Record, Cut, Copy, Paste, and Row Height.

Return to Figure 1-72

Figure 1.73 Extended Description (Chapter 1)

Return to Figure 1-73

The Work area shows an Object tab that contains multiple rows and columns. The column headings are Branch, Title, Department, and Start Date, each with a drop-down arrow and entries below. A thick black short vertical line with a horizontal double-headed arrow at its center is displayed between the Title and Department columns, which is labeled Resize arrow.

Return to Figure 1-73

Figure 1.74 Extended Description (Chapter 1)

Return to Figure 1-74

The Work area shows an Object tab that contains multiple rows and columns. The column headings are Branch, Title, Department, and Start Date, each with a drop-down arrow and entries below. A thick black short vertical line with a horizontal double-headed arrow at its center is displayed between the Title and Department columns, which is labeled Resize arrow.

Return to Figure 1-74

Figure 1.75 Extended Description (Chapter 1)

Return to Figure 1-75

The Work area shows the Object tab titled Employees. The Employees tab contains multiple rows and columns. The column headings are Employee I D, First Name, and Last Name, each with a drop-down arrow and entries below. A small box to the left of the first column heading is labeled Select All button.

Return to Figure 1-75

Figure 1.76 Extended Description (Chapter 1)

Return to Figure 1-76

The Work area shows the Object tab titled Employees. The Employees tab contains multiple rows and columns. The column headings are Employee I D, First Name, and Last Name, each with a drop-down arrow and entries below. All the columns are selected. A thick black short vertical line with a horizontal double-headed arrow at its center is displayed between the First Name and Last Name columns.

Return to Figure 1-76

Figure 1.77 Extended Description (Chapter 1)

Return to Figure 1-77

The Command group shows two rows. The Left Centre Right Alignment buttons are highlighted in the second row. The Alignment buttons are arranged side-by-side. To the right of the Alignment buttons, the Gridlines button is highlighted. To the right of the Gridlines button, a small table-like icon is labeled Alternate Row Color button. On the bottom right corner of the Command group, a downward arrow is labeled Launcher.

Return to Figure 1-77

Figure 1.78 Extended Description (Chapter 1)

Return to Figure 1-78

A drop-down arrow in the Gridlines button shows a list of options such as Gridlines: Both, Gridlines: Horizontal, Gridlines: Vertical, and Gridlines: None.

Return to Figure 1-78

Figure 1.79 Extended Description (Chapter 1)

Return to Figure 1-79

The dialog box contains the Cell Effect feature with three radio buttons for Flat, Raised, and Sunken. The radio button for Flat is selected. To the right of this is the Gridlines Shown feature with two check boxes for Horizontal and Vertical. To the right of this are the OK and Cancel buttons. Below these features are three options for Background Color, Alternate Background Color, and Gridline Color. Each option contains a drop-down arrow. Below this is a box labeled Sample with three rows and three columns. The Border and Line Styles feature below shows two bars with entries Datasheet Border and Solid. At the bottom of the dialog box, the Direction feature shows radio buttons for Left-to-right and Right-to-left. The Left-to-right radio button is selected.

Return to Figure 1-79

Figure 1.80 Extended Description (Chapter 1)

Return to Figure 1-80

The dialog box shows a list of check boxes below the heading Column. The check boxes are labeled Employee I D, First Name, Last Name, Branch, Title, Department, Start Date, Best Monthly Salary, and Click to Add. Except for Branch, all the options are selected. The Close button is shown at the bottom right corner.

Return to Figure 1-80

Figure 1.81 Extended Description (Chapter 1)

Return to Figure 1-81

The Microsoft Access consists of a Title bar at the top followed by a Ribbon below. The Title bar shows tabs for File, Home, Create, External Data, Database Tools, Help, Table Fields, and Table. The Home tab is selected and consists of Command groups such as Views, Clipboard, Sort and Filter, Records, and Find. The Work area shows the Object tab titled Employees. The Employees tab contains multiple rows and columns. The column headings are Employee I D, First Name, Last Name, Branch, Title, Department, Start Date, and Base Month Salary, each with entries below. The last row contains the text Total and a drop-down arrow in the cell under the Base Month Salary column. The drop-down arrow displays a list of options such as None, Sum, Average, Count, Maximum, Minimum, Standard Deviation, and Variance.

Return to Figure 1-81

Figure 1.82 Extended Description (Chapter 1)

Return to Figure 1-82

The dialog box shows the text Microsoft Access can use your column headings as field names for your table. Does the first row specified contain column headings? Below this, the text First Row Contains Column Headings is shown. A table below has six columns and twelve rows. The column headings are Employee I D, First Name, Last Name, Branch, Title, and Department, with the entries below. The entries in the Employee I D column are 119, 120, 125, 130 135, 138, 147, 150, 157, 159, 161, and 162. The Cancel, Back, Next, and Finish Buttons are shown below.

Return to Figure 1-82

Figure 1.83 Extended Description (Chapter 1)

Return to Figure 1-83

The Work area shows the Object tab titled Employees. The Employees tab contains multiple rows and columns. The column headings are Employee I D, First Name, Last Name, Branch, Title, Department, Start Date, and Base Monthly Salary, each with a drop-down arrow. The entries in the Employee I D column are 101, 102, 103, 104, 115, 119, 120, 125, 130 135, 138, 147, 150, 157, 159, 161, and 162.

Return to Figure 1-83

Figure 1.84 Extended Description (Chapter 1)

Return to Figure 1-84

The Work area shows the Object tab titled Employees. The Employees tab contains multiple rows and columns. The column headings are First Name, Last Name, Title, Branch, Department, Base Monthly Salary, and Start Date, each with a drop-down arrow. The Base Monthly Salary column is selected. The Base Monthly Salary column is narrower as compared to other columns. Some entries in the Base Monthly Salary column are shown as hash symbols. To the right of the Work area is a vertical bar labeled Vertical scroll slider. A horizontal bar at the bottom is labeled Horizontal scroll slider.

Return to Figure 1-84

Figure 1.85 Extended Description (Chapter 1)

Return to Figure 1-85

The dialog box contains the Cell Effect feature with three radio buttons for Flat, Raised, and Sunken. The radio button for Flat is selected. To the right of this is the Gridlines Shown feature with two check boxes for Horizontal and Vertical. To the right of this are the OK and Cancel buttons. Below these features are three options for Background Color, Alternate Background Color, and Gridline Color. Each option contains a drop-down arrow. Below this is a box labeled Sample with three rows and three columns. The Border and Line Styles feature below shows two bars with entries Datasheet Border and Solid. At the bottom of the dialog box, the Direction feature shows radio buttons for Left-to-right and Right-to-left. The Left-to-right radio button is selected.

Return to Figure 1-85

Figure 1.86 Extended Description (Chapter 1)

Return to Figure 1-86

The Work area shows the Object tab titled Employees. The Employees tab contains multiple rows and columns. The column headings are Employee I D, First Name, Last Name, Title, Department, Base Monthly Salary, and Start Date, each with a drop-down arrow. The entries in the Employee I D column are 101, 102, 103, 104, 115, 119, 120, 125, 130 135, 138, 147, 150, 157, 159, 161, and 162. The entries in the Employee I D column are aligned in the center of the cell. The Base Monthly Salary column is wider as compared to other columns. The Total Base Monthly Salary is $109,650.00. The second row with the entry for Employee I D 102 is selected and is shaded in a dark blue color.

Return to Figure 1-86

Figure 1.87 Extended Description (Chapter 1)

Return to Figure 1-87

The Work area shows the Object tab titled Employees. The Employees tab contains multiple rows and columns. The column headings are Employee I D, First Name, Last Name, Title, Branch, Department, and Base Monthly Salary, each with a drop-down arrow and entries below. The Search box at the bottom of the Work area, next to the Filter status, shows the text “H e.” The entry Health and Benefits under the Department column in the third row is highlighted.

Return to Figure 1-87

Figure 1.89 Extended Description (Chapter 1)

Return to Figure 1-89

The dialog box has tabs for Find and Replace. The Find tab is selected that contains the Find What feature, with a drop-down arrow. To the right are the Find Next and Cancel buttons. Below are the Look In, Match, and Search features, with the entries Current document, Any Part of Field, and All, respectively. Check boxes for Match Case and Search Fields As Formatted are present at the bottom.

Return to Figure 1-89

Figure 1.90 Extended Description (Chapter 1)

Return to Figure 1-90

The Command group contains buttons for Filter, Ascending, Descending, Remove Sort, Selection, Advanced, and Toggle Filter. The Descending button is labeled Descending sort button, and the Ascending button is labeled Ascending sort button.

Return to Figure 1-90

Figure 3-89 Crosstab query results showing listings by city with each construction type, including row sums

Return to Figure 3-89

The table is titled Listings City Construction Crosstab and has five columns and six rows. The column headings are City, Total Of List Price, Brick, Frame, and Stone. The Total Of List Price column is labeled Summary data results from including row sums. The first row shows the entries: Auburn, 7, 3 Brick, 3 Frame, and 1 Stone. The second row shows the entries: Lincoln, 13, 4 Brick, 7 Frame, and 2 Stone. The third row shows the entries: Newcastle, 7, 2 Brick, 4 Frame, and 1 Stone. The fourth row shows the entries: Rocklin, 15, 0 Brick, 13 Frame, and 2 Stone. The fifth row shows the entries: Roseville, 11, 2 Brick, 6 Frame, and 3 Stone. The sixth row shows the entries: Weimer, 4, 1 Brick, 2 Frame, and 1 Stone.

Return to Figure 3-89

Figure 3-90 Edit a crosstab query in *Design* view

Return to Figure 3-90

The query is titled Listings City Construction Crosstab. A box titled Listings displays a list of fields such as Listing I D, Date Listed, List Price, Address, City, and Square footage. A query design grid shows a table below with four columns and seven rows. The table has rows for various query parameters, such as Field, Table, Total, Crosstab, Sort, Criteria, and Or. The Field row shows the entries City, Construction, List Price, and Total of List Price: List Price. The Table row shows the entry Listings in all columns. The Crosstab row shows the entries Row Heading for the City Field, Column Heading for the Construction Field, Value for the List Price field, and Row Heading for the Total of List Price: List Price field. The Crosstab row is labeled Crosstab row displays selections. The Sort, Criteria, and Or rows are empty.

Return to Figure 3-90

Figure 1.91 Extended Description (Chapter 1)

Return to Figure 1-91

The Work area shows the Object tab titled Employees. The Employees tab contains multiple rows and columns. The column headings are Employee I D, First Name, Last Name, Title, Branch, and Department, each with a drop-down arrow and entries below. The drop-down arrow for the Branch column has a thin downward arrow on the right labeled Sort indicator arrow. The entire column is selected.

Return to Figure 1-91

Figure 1.92 Extended Description (Chapter 1)

Return to Figure 1-92

The Work area shows an Object tab that contains multiple rows and columns. The column headings are Branch and Department, each with a drop-down arrow and entries below. Clicking the drop-down arrow for the Branch column shows a list of options such as Sort A to Z, Sort Z to A, Clear filter from Branch, and Text Filters. The Text Filters option contains five check boxes for Select All, Blanks, Cameron Park, Folsom, and Granite Bay. All the check boxes are selected.

Return to Figure 1-92

Figure 1.93 Extended Description (Chapter 1)

Return to Figure 1-93

The Work area shows an Object tab that contains multiple rows and columns. The column headings are First Name, Last Name, Title, Branch, and Department, each with a drop-down arrow and entries below. The drop-down arrow for the Branch column has a thin downward arrow on the right labeled Branch sort indicator. The drop-down arrow for the Department column has a thin downward arrow on the right labeled Department sort indicator. Both columns are selected.

Return to Figure 1-93

Figure 1.94 Extended Description (Chapter 1)

Return to Figure 1-94

The Work area shows an Object tab that contains multiple rows and columns. The column headings are Last Name, Title, and Branch, each with a drop-down arrow and entries below. The cell with the entry Insurance Agent is selected. The Sort and Filter Command group is displayed. In the Sort and Filter group, the Selection button with a drop-down arrow is selected. Clicking the drop-down arrow reveals a list of options such as Equals “Insurance Agent,” Does Not Equal “Insurance Agent”, Contains “Insurance Agent,” and Does Not Contain “Insurance Agent.”

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Figure 1.95 Extended Description (Chapter 1)

Return to Figure 1-95

The Work area shows the Object tab titled Employees. The Employees tab contains multiple rows and columns. The column headings are Employee I D, First Name, Last Name, Title, and Branch, each with a drop-down arrow and entries below. The Title column contains a funnel-shaped icon on the right labeled Filter indicator. At the bottom of the Work area, the text Filtered is labeled Filter status message.

Return to Figure 1-95

Figure 1.96 Extended Description (Chapter 1)

Return to Figure 1-96

The Command group contains buttons for Filter, Ascending, Descending, Remove Sort, Selection, Advanced, and Toggle Filter. The Toggle Filter button is selected. The bar at the bottom of the Work area displays the Filter status message as Unfiltered.

Return to Figure 1-96

Figure 1.97 Extended Description (Chapter 1)

Return to Figure 1-97

The Work area shows an Object tab that contains multiple rows and columns. The column headings are Last Name, Title, Branch, Department, and Base Monthly Salary, each with a drop-down arrow and entries below. Clicking the drop-down arrow for the Title column shows a list of options such as Sort A to Z, Sort Z to A, Clear filter from Title, and Text Filters. The Text Filters option contains nine check boxes for Select All, Blanks, Administrative Assistant, Chief Executive Officer, Chief Information Officer, Chief Operating Officer, Executive Assistant, Insurance Agent, and Large Group Specialist. All the check boxes are selected. The Text Filters option shows a list of options such as Equals, Does Not Equal, Begins With, Does Not Begin With, Contains, Does Not Contain, Ends With, and Does Not End With.

Return to Figure 1-97

Figure 1.98 Extended Description (Chapter 1)

Return to Figure 1-98

The dialog box has the feature Title is equal to, with a box on the right. The OK and Cancel buttons are present on the bottom right.

Return to Figure 1-98

Figure 1.99 Extended Description (Chapter 1)

Return to Figure 1-99

The Work area shows an Object tab that contains multiple rows and columns. The column headings are Title, Branch, and Department, each with a drop-down arrow and entries below. Clicking the drop-down arrow for the Title column shows a list of options such as Sort A to Z, Sort Z to A, Clear filter from Title, and Text Filters. The Text Filters option contains nine check boxes for Select All, Blanks, Administrative Assistant, Chief Executive Officer, Chief Information Officer, Chief Operating Officer, Executive Assistant, Insurance Agent, and Large Group Specialist. The check boxes for Administrative Assistant and Insurance Agent are selected.

Return to Figure 1-99

Figure 1.100 Extended Description (Chapter 1)

Return to Figure 1-100

The Work area shows an Object tab that contains multiple rows and columns. The column headings are Title, Branch, Department, and Start Date, each with a drop-down arrow and entries below. The column heading Title has a funnel-shaped icon on the right. Clicking the drop-down arrow for the Branch column shows a list of options such as Sort A to Z, Sort Z to A, Clear filter from Branch, and Text Filters. The Text Filters option contains five check boxes for Select All, Blanks, Cameron Park, Folsom, and Granite Bay. The check box for Cameron Park is selected.

Return to Figure 1-100

Figure 1.101 Extended Description (Chapter 1)

Return to Figure 1-101

The Work area shows the Object tab titled Employees. The Employees tab contains multiple rows and columns. The column headings are Employee I D, First Name, Last Name, Title, Department, Base Monthly Salary, and Start Date, each with a drop-down arrow. The entries in the Employee I D column are 101, 102, 103, 104, 115, 119, 120, 125, 130 135, 138, 147, 150, 157, 159, 161, and 162. The entries in the Employee I D column are aligned in the center of the cell. The Base Monthly Salary column is wider as compared to other columns. The Total Base Monthly Salary is $109,650.00.

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Figure 1.102 Extended Description (Chapter 1)

Return to Figure 1-102

The title bar displays the database file name in the top left. The Minimize, Maximize, and Close buttons are on the far right of the Title Bar. The Backstage View shows a vertical navigation pane on the left, which contains tabs for Home, New, Open, Info, Save, Save As, Print, Close, Account, and Options. A Back Arrow is present above the Home tab. The New tab is selected, displaying six large icons representing database templates:

Blank Database (with a paper and cylinder icon).

Sales Pipeline (with a colorful funnel icon).

Real Estate (with houses over a spreadsheet icon).

Faculty (with a certificate icon).

Event Management (with a printer over a spreadsheet icon).

Vehicle Maintenance (with a toolbox over a spreadsheet).

The Event Management template is selected. The Show More link is displayed at the bottom right of the page.

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Figure 1.103 Extended Description (Chapter 1)

Return to Figure 1-103

The Access document consists of a title bar at the top, followed by a Ribbon below. The title bar has the Save button on the Quick Access Toolbar on the far left. The Minimize, Maximize, and Close buttons are on the far right. The Ribbon contains tabs for File, Home, Create, External Data, Database Tools, and Help. The Home tab is selected and consists of command groups such as Views, Clipboard, Sort and Filter, Records, Find, and Text Formatting. A Security Warning pop-up is displayed under the Ribbon, with the following text: Security Warning: Some active content has been disabled. Click for more details.

To the right of this text, a button is labeled Enable Content.

Below the Ribbon, a vertical Navigation Pane is present. To its right, a datasheet is displayed. At the top of the datasheet, the object tab is titled Event List, with a Form icon displayed to the left of this title. The datasheet shows empty rows with column headings for I D, Title, Start Time, End Time, Description, and Location. At the bottom of the database, the Status Bar displays the Page number, Filter button, and a Search box.

Return to Figure 1-103

Figure 1.104 Extended Description (Chapter 1)

Return to Figure 1-104

The title bar at the top displays the title Welcome on the top left. The Minimize, Maximize, and Close buttons are on the far right of the Title bar. Below the Title bar is a banner with the text Welcome to the Events Database. Beneath the banner, the main content area is divided into two sections: The left section contains the introductory text: Use this Access template to help you manage upcoming events. Powerful built-in filtering lets you track events by time (for example, Current Events, Events by Week, and Today's Events) as well as by event type.

Feel free to explore the links below to learn more about cool features, or click Get Started to begin.

Below this text are two links for Need help? named Connect with the Access Community and Want more? named Send us your feedback. The right section is titled Using the Events Database and contains a large box with a play button icon in the center. At the bottom left of the dialog box, a checkbox labeled Show Welcome, when this database is opened, is checked. A Get Started button is displayed in the bottom right corner.

Return to Figure 1-104

Figure 1.105 Extended Description (Chapter 1)

Return to Figure 1-105

In the top right corner of the screenshot, a left arrow is displayed and labeled Shutter Bar Open or Close Button. The pane is titled All Access Objects with a down arrow to its right labeled Navigation Pane arrow. Below All Access Objects is a Search bar. This is followed by the options: Tables, Queries, Forms, and Reports, each with an Expand or Collapse arrow to the right. To the right of the Navigation pane, a menu is displayed. The menu shows two options such as Navigate To Category and Filter By Group. The Navigate To Category option has five categories such as Events Navigation, Object Type, Tables and Related Views, Created Date, and Modified Date. The Filter By Group option has groups as Tables, Queries, Forms, Reports, Macros, and All Access Objects. The category Object Type and the group All Access Objects are selected.

Return to Figure 1-105

Figure 1.106 Extended Description (Chapter 1)

Return to Figure 1-106

The datasheet consists of eight columns and one append row. The column headings are I D, Title, Start Time, End Time, Location, Description, Attachment icon (shown as a paper clip), and Click to Add. The column heading I D is labeled Double-click in a column header cell to change the field name. The append row is highlighted. The Record button, Page number, No Filter button and Search box are displayed on the bottom left of the datasheet.

Return to Figure 1-106

Figure 1.107 Extended Description (Chapter 1)

Return to Figure 1-107

The dialog box is titled Microsoft Access and has a Close button in the top right corner. It contains a warning symbol and the message: Value must be greater than 1/1/1900. The OK and Help buttons are located at the bottom of the dialog box. The OK button is selected.

Return to Figure 1-107

Figure 1.108 Extended Description (Chapter 1)

Return to Figure 1-108

The datasheet consists of eight columns and two rows. The column headings are Event, Event Title, Location, Start Time, End Time, Description, Attachment icon (shown as a paper clip), and Click to Add. The small rectangular box to the far left of column headings is labeled Select All button. A pointer is placed on the border between Event Title and Location and is labeled Resize arrow.

Return to Figure 1-108

Figure 1.109 Extended Description (Chapter 1)

Return to Figure 1-109

The screenshot shows a datasheet titled Event List. Below the title tab is a banner labeled Active Event List. The Save Filter option is located inside the banner on the far right. Below the banner, the New Event icon, the E-mail List icon, a feature box named Reports, and a Question Mark icon are displayed side by side. This entire section is labeled The Menu bar provides links to other objects. Beneath this, the datasheet displays seven columns and two rows. The column headings are Event I D, Title, Start Time, End Time, Description, Location, and Attachment icon (shown as a paper clip). The Record button, Page Number, No Filter button, and Search box are displayed in the bottom left of the datasheet.

Return to Figure 1-109

Figure 1.110 Extended Description (Chapter 1)

Return to Figure 1-110

The Title bar at the top shows the title Event Details on the top left and the Close button on the top right. Below the Title bar is a banner titled Event Details. Beneath the banner, the Save and New, E-mail, Print, and Close buttons are displayed side by side. Below, a text box is labeled Title. Further down, a Details tab displays multiple feature boxes labeled Title, Location, Start Time, End Time, and Description. To the right of these feature boxes, a rectangular box with the text Attachment Preview is displayed. Below this box, there is an Add or Remove Attachments button. The Record button, Page Number, No Filter button, and Search box is displayed in the bottom left of the dialog box.

Return to Figure 1-110

Figure 1.111 Extended Description (Chapter 1)

Return to Figure 1-111

The table consists of nine columns and fifteen rows. The column headings are Member I D, First Name, Last Name, Address, City, State, ZIP, Email, and Cell Phone. The first-row entry is as follows: 1, Geneva, Lingle, 1850 Stoneridge, Cameron Park, C A, 95682, g lingle at gmail dot com, and 780-886-6625.

At the bottom of the database, the Status Bar displays the Page number, Filter button, and a Search box.

Return to Figure 1-111

Figure 1.112 Extended Description (Chapter 1)

Return to Figure 1-112

The table consists of five columns and six rows. The column headings are Member I D, First Name, ZIP, Last Name, and Address. The ZIP and Last Name columns are selected. A Sort indicator arrow lies on the right side of the ZIP and Last Name column headings.

Return to Figure 1-112

Figure 1.113 Extended Description (Chapter 1)

Return to Figure 1-113

The screenshot shows the Ribbon at the top. The command groups Sort and Filter, Records, and Find are displayed in the Ribbon. The Sort and Filter command group includes buttons for Ascending, Descending, Remove Sort, and Selection. Within this group, the Selection button is selected and labeled Click the Selection button. The drop-down arrow on the button displays a menu with four options: Begins With “916”, Does Not Begin With “916”, Contains “916”, and Does Not Contain “916”. The Begins With “916” option is highlighted and labeled Select the Begins With “916” option. Below the Ribbon, the datasheet consists of five columns and four rows. The column headings are Member I D, First Name, City, ZIP, Email, and Cell Phone. The second row is selected, and its entry is as follows: 2, Megan, Walters, 7105 High Street, Folsom, 95630, m walters at mcc dot com, and 916-451-8325.

Return to Figure 1-113

Figure 1.114 Extended Description (Chapter 1)

Return to Figure 1-114

The datasheet displays five columns and fourteen rows. The column headings are City, ZIP, Email, Cell Phone, and Click to Add, each with a drop-down arrow. The Email column is selected, with the filter drop-down menu open. The menu consists of the following options: Sort A to Z, Sort Z to A, Clear Filter from Email, and Text Filters. The Text Filters option displays checkboxes with all entries in the Email column, along with Select All and Blank options. The expand arrow next to Text Filters opens a submenu with the following options: Equals, Does Not Equal, Begins With, Does Not Begin With, Contains, Does Not Contain, Ends With, and Does Not End With.

The OK and Cancel buttons are located at the bottom of the main menu.

Return to Figure 1-114

Figure 1.115 Extended Description (Chapter 1)

Return to Figure 1-115

The table consists of eight columns and fifteen rows. The column headings are Member I D, First Name, Last Name, Address, City, ZIP, Email, and Cell Phone. The first-row entry is as follows: 1, Geneva, Lingle, 1850 Stoneridge, Cameron Park, C A, 95682, g lingle at gmail dot com, and 780-886-6625. At the bottom of the database, the Status Bar displays the Page number, Filter button, and a Search box.

Return to Figure 1-115

Figure 1.116 Extended Description (Chapter 1)

Return to Figure 1-116

The datasheet consists of nine columns and twenty-one rows. The column headings are Boat I D, Boat Type, Length, Seats, Sleeps, 4 Hour Rate, Full Day Rate, Galley With Stove, and Model Year. The row entries are as follows:

Row 1: 1003, Catalina 270, 28 feet 4 inches, 8, 6, $145.00, $205.00, (checked), and 2011.

Row 2: 1015, Catalina 270, 28 feet 4 inches, 8, 6, $145.00, $205.00, (checked), and 2012.

Row 3: 1146, Hunter 33, 33 feet 6 inches, 10, 6, $285.00, $355.00, (checked), and 2013.

Row 4: 1150, Capri 22 Mk 2, 24 feet 8 inches, 6, 4, $75.00, $121.00, (unchecked), and 2014.

Row 5: 1152, Capri 22 Mk 2, 24 feet 8 inches, 6, 4, $75.00, $121.00, (unchecked), and 2014.

Row 6: 1164, Capri 22 Mk 2, 24 feet 8 inches, 6, 4, $75.00, $121.00, (unchecked), and 2017.

Row 7: 1168, Hunter 33, 33 feet 6 inches, 10, 6, $285.00, $355.00, (checked), and 2017.

Row 8: 1175, Beneteau 40, 39 feet 10 inches, 12, 6, $475.00, $555.00, (checked), and 2018.

Row 9: 1180, Beneteau 373, 36 feet 11 inches, 10, 6, $355.00, $455.00, (checked), and 2019.

Row 10: 1185, Hunter 36, 35 feet 6 inches, 10, 6, $335.00, $395.00, (checked), and 2019.

Row 11: 1190, Beneteau 373, 36 feet 11 inches, 10, 6, $355.00, $455.00, (checked), and 2019.

Row 12: 1200, Beneteau 373, 36 feet 11 inches, 10, 6, $355.00, $455.00, (checked), and 2020.

Row 13: 1205, Beneteau 40, 39 feet 10 inches, 12, 6, $475.00, $555.00, (checked), and 2021.

Row 14: 1225, Hunter 36, 35 feet 6 inches, 10, 6, $335.00, $395.00, (checked), and 2021.

Row 15: 1254, Hunter 36, 35 feet 6 inches, 10, 6, $335.00, $395.00, (checked), and 2022.

Row 16: 1310, Beneteau 373, 36 feet 11 inches, 10, 6, $355.00, $455.00, (checked), and 2023.

Row 17: 1342, Hunter 33, 33 feet 6 inches, 10, 6, $285.00, $355.00, (checked), and 2024.

Row 18: 1401, Capri 22 Mk 2, 24 feet 8 inches, 6, 4, $75.00, $121.00, (unchecked), and 2025.

Row 19: 1410, Beneteau 40, 39 feet 10 inches, 12, 6, $475.00, $555.00, (checked), and 2025.

Row 20: 1419, Hunter 33, 33 feet 6 inches, 10, 6, $285.00, $355.00, (checked), and 2025.

Row 21: Blank, Blank, Blank, 0, 0, $0.00, $0.00, (unchecked), and Blank.

Return to Figure 1-116

Figure 1.117 Extended Description (Chapter 1)

Return to Figure 1-117

The dialog box consists of the following options:

Cell Effect with three radio buttons: Flat (selected), Raised, and Sunken. Gridlines Shown with two checkboxes: Horizontal and Vertical (both selected). Below, there are three feature boxes labeled Background Color, Alternate Background Color, and Gridline Color. All boxes are empty. Next is a rectangular box titled Sample, which contains three blank columns and three blank rows. Below this, a text label Border and Line Styles is displayed, followed by two feature boxes with the entries Datasheet Border and Solid, respectively. At the bottom, the Direction section consists of two radio buttons: Left-to-right (selected) and Right-to-left.

Return to Figure 1-117

Figure 1.118 Extended Description (Chapter 1)

Return to Figure 1-118

The datasheet consists of nine columns and twenty two rows. The column headings are Boat I D, Boat Type, Length, Seats, Sleeps, 4 Hour Rate, Full Day Rate, Galley With Stove, and Model Year. The row entries are as follows:

Row 1: 1003, Catalina 270, 28 feet 4 inches, 8, 6, $145.00, $205.00, (checked), and 2011.

Row 2: 1015, Catalina 270, 28 feet 4 inches, 8, 6, $145.00, $205.00, (checked), and 2012.

Row 3: 1146, Hunter 33, 33 feet 6 inches, 10, 6, $285.00, $355.00, (checked), and 2013.

Row 4: 1150, Capri 22 Mk 2, 24 feet 8 inches, 6, 4, $75.00, $121.00, (unchecked), and 2014.

Row 5: 1152, Capri 22 Mk 2, 24 feet 8 inches, 6, 4, $75.00, $121.00, (unchecked), and 2014.

Row 6: 1164, Capri 22 Mk 2, 24 feet 8 inches, 6, 4, $75.00, $121.00, (unchecked), and 2017.

Row 7: 1168, Hunter 33, 33 feet 6 inches, 10, 6, $285.00, $355.00, (checked), and 2017.

Row 8: 1175, Beneteau 40, 39 feet 10 inches, 12, 6, $475.00, $555.00, (checked), and 2018.

Row 9: 1180, Beneteau 373, 36 feet 11 inches, 10, 6, $355.00, $455.00, (checked), and 2019.

Row 10: 1185, Hunter 36, 35 feet 6 inches, 10, 6, $335.00, $395.00, (checked), and 2019.

Row 11: 1190, Beneteau 373, 36 feet 11 inches, 10, 6, $355.00, $455.00, (checked), and 2019.

Row 12: 1200, Beneteau 373, 36 feet 11 inches, 10, 6, $355.00, $455.00, (checked), and 2020.

Row 13: 1205, Beneteau 40, 39 feet 10 inches, 12, 6, $475.00, $555.00, (checked), and 2021.

Row 14: 1225, Hunter 36, 35 feet 6 inches, 10, 6, $335.00, $395.00, (checked), and 2021.

Row 15: 1254, Hunter 36, 35 feet 6 inches, 10, 6, $335.00, $395.00, (checked), and 2022.

Row 16: 1310, Beneteau 373, 36 feet 11 inches, 10, 6, $355.00, $455.00, (checked), and 2023.

Row 17: 1342, Hunter 33, 33 feet 6 inches, 10, 6, $285.00, $355.00, (checked), and 2024.

Row 18: 1401, Capri 22 Mk 2, 24 feet 8 inches, 6, 4, $75.00, $121.00, (unchecked), and 2025.

Row 19: 1410, Beneteau 40, 39 feet 10 inches, 12, 6, $475.00, $555.00, (checked), and 2025.

Row 20: 1419, Hunter 33, 33 feet 6 inches, 10, 6, $285.00, $355.00, (checked), and 2025.

Row 21: Blank, Blank, Blank, 0, 0, $0.00, $0.00, (unchecked), and Blank.

Row 22: Total, (blank), (blank), (blank), $279.00, $349.20, (blank), and (blank).

Return to Figure 1-118

Figure 1.119 Extended Description (Chapter 1)

Return to Figure 1-119

The screenshot shows a portion of a Microsoft Access table with a filter menu open for the Seats column. At the top, there are options to Sort Smallest to Largest and Sort Largest to Smallest. Below that, there is a Clear Filter From Seats option. The next section, titled Number Filters, has a submenu open to the right. The submenu lists the following options: Equals, Does Not Equal, Less Than, Greater Than (highlighted), and Between.

Below the Number Filters section is a list of checkboxes with seat numbers: (Select All), (Blanks), 6, 8, 10, and 12. All checkboxes are checked. The OK and Cancel buttons are located at the bottom of the menu.

Return to Figure 1-119

Figure 1.120 Extended Description (Chapter 1)

Return to Figure 1-120

The screenshot shows a portion of a Microsoft Access window displaying a table titled Sailboat Fleet. The table has columns for Boat I D, Boat Type, Length, Seats, Sleeps, 4 Hour Rate, Full Day Rate, Galley with Stove, and Model Year. It contains seven rows with the following entries:

Row 1: 1015, Catalina 270, Length 28 feet 4 inches, 8, 6, $145.00, $205.00, (checked), and 2012.

Row 2: 1003, Catalina 270, Length 28 feet 4 inches, 8, 6, $145.00, $205.00, (checked), and 2011.

Row 3: 1419, Hunter 33, Length 33 feet 6 inches, 10, 6, $285.00, $355.00, (checked), and 2025.

Row 4: 1342, Hunter 33, Length 33 feet 6 inches, 10, 6, $285.00, $355.00, (checked), and 2024.

Row 5: 1168, Hunter 33, Length 33 feet 6 inches, 10, 6, $285.00, $355.00, (checked), and 2017.

Row 6: 1146, Hunter 33, Length 33 feet 6 inches, 10, 6, $285.00, $355.00, (checked), and 2013.

Row 7: Blank, Blank, Blank, Blank, 0, 0, $0.00, $0.00, (unchecked), and Blank.

Row 8: Total, Blank, Blank, Blank, Blank, $238.33, $305.00, Blank, and Blank.

An arrow symbol on the right of the Length column header is labeled Sort Indicator. Filter symbols next to the Seats and 4 Hour Rate column headings are labeled Filter Indicator.

The Record Number is displayed at the bottom left, alongside the Filtered and Search buttons to the right.

Return to Figure 1-120

Figure 1.121 Extended Description (Chapter 1)

Return to Figure 1-121

The screenshot shows an object tab titled Physicians. The datasheet below has six columns and five rows. The column headings are Doctor I D, Last Name, First Name, Office, Specialty, and Tenant Since. To the right of the Specialty and Tenant Since column headings, a funnel-shaped icon is displayed labeled Filter indicator.

Return to Figure 1-121

Figure 1.122 Extended Description (Chapter 1)

Return to Figure 1-122

The screenshot shows an object tab titled Pets. The datasheet has eight columns and five rows. The column headings are Pet I D, Pet Name, Type, Breed, Age, Gender, Color, and Why I'd Make a Great Companion. The cells for the Type and Color column headings, each have a funnel-like icon to the right labeled Filter indicator. The first row entry is highlighted. The entry is as follows:

Row 1: 1, Rita, Dog, Terrier cross Chihuahua, 2 years, F, Brown, I like to take my time approaching new situations. While I am a bit shy with new faces and places, I warm up as I become more familiar with my environment. While I don't always like to be petted and held, I have a big heart and can't wait to share all of my love with a special family of my own. I'm a lovable companion seeking a special home where I'll be a cherished member of the family. With bright eyes and a precious face, I have a beautiful personality to match.

Return to Figure 1-122

Figure 1.123 Extended Description (Chapter 1)

Return to Figure 1-123

The screenshot shows an object tab titled Fleet. The datasheet has seven columns and eighteen rows. The column headings are Aircraft I D, Model, Manufacturer, Length, First Class, Economy, and In-Service. The In-Service column heading has an icon labeled Sort Indicator to the right of its cell.

The first row entry is as follows: 15, A 319, Air bus, 111 feet 0 inches, 8, 116, 3/7/2026.

Return to Figure 1-123

Figure 1.124 Extended Description (Chapter 1)

Return to Figure 1-124

The screenshot shows an object tab titled Listings - Sort And Filter. The datasheet has 12 columns and 17 rows. The column headings are Listing I D, Date Listed, Construction, City, List Price, Address, Square Feet, Beds, Baths, Garage, Built, and Agent. The Construction, City, and List Price columns are selected.

The first row entry is as follows:

Row 1: 10045, 10/15/2025, Brick, Auburn, $385,000.00, 12355 Krista Lane, 2234, 3, 3, 2 Car Attached, 1984, Kallyn Duarte.

The entries under the Construction, City, and List Price columns seem to be arranged in ascending order.

Return to Figure 1-124

Figure 1.125 Extended Description (Chapter 1)

Return to Figure 1-125

The table contains five columns and three rows. The column headings are Player I D, First Name, Last Name, Position, and Team. The row entries are as follows:

Row 1: 1001, Derek Jeter, Shortstop, New York Yankees.

Row 2: 1002, Mike Trout, Outfielder, Los Angeles Angels.

Row 3: 1003, Clayton Kershaw, Pitcher, Los Angeles Dodgers.

In the top right corner of the table, there is an icon labeled Excel icon.

Return to Figure 1-125

Figure 2.1 Extended Description (Chapter 2)

Return to Figure 2-1

The Tables group consists of three buttons: Table, Table Design, and SharePoint Lists. The Table Design button is selected.

Return to Figure 2-1

Figure 2.2 Extended Description (Chapter 2)

Return to Figure 2-2

The Access consists of a Title Bar at the top, followed by a Ribbon below. The Title Bar has the Save button on the Quick Access Toolbar on the far left. The Minimize, Maximize, and Close buttons are located on the far right of the Title Bar. The Ribbon displays tabs for File, Home, Create, External Data, Database Tools, Help, and Table Design. The Table Design tab is selected, showing the Command Groups: Views, Tools, Show or Hide, Field, Record and Table Events, and Relationships. Within the Show or Hide command group, the Property Sheet button is highlighted.

Below the Ribbon, a vertical Navigation Pane titled All Access Objects is displayed. It contains a Search Bar. To the right of the Navigation Pane, an object tab titled Table 1 is visible. It displays a table with three columns and eight rows. The entire table is labeled Field List Area. Below the table, two tabs for General and Lookup are displayed. The General tab is active, showing two sections. The first section is blank. The second section, on the right, contains the text: A field name can be up to 64 characters long, including spaces. Press F 1 for help on Field Name. This entire portion is labeled Field Properties Area. To the right of the Field Properties Area, a vertical line is shown and labeled Drag left border to change Property Sheet width. On the far right side of the screen, another vertical Navigation Pane is displayed with the title Property Sheet, showing a table of details under the General tab.

Return to Figure 2-2

Figure 2.3 Extended Description (Chapter 2)

Return to Figure 2-3

On the left is a key icon named Primary Key. In the center is a sparkling wand icon named Builder. On the right is a rectangular icon with a checkmark named Test Validation Rules. To the right of these icons, the icons for Insert Rows, Delete Rows, and Modify Lookups are displayed one below the other.

Return to Figure 2-3

Figure 2.5 Extended Description (Chapter 2)

Return to Figure 2-5

An Object tab is titled Table 1. Below this, there are two columns and five rows. The column headings are Field Name and Data Type. The rows are blank except the first row. The first row entries are Equipment I D and Short Text. A drop-down arrow is displayed to the right of cell with entry Short Text. The menu contains a list of options: Short Text, Long Text, Number, Large Number, Date and Time, Date and Time Extended, Currency, Auto Number, Yes or No, O L E Object, Hyperlink, Attachment, Calculated, and Lookup Wizard. Below the table, there are two tabs for General and Lookup. The General tab is currently active. The entries in the table under General tab are as follows:

Field Size: 255.

Format: (blank).

Input Mask: (blank).

Caption: (blank).

Default Value: (blank).

Validation Rule: (blank).

Validation Text: (blank).

Required: No.

Allow Zero Length: Yes.

Return to Figure 2-5

Figure 2.7 Extended Description (Chapter 2)

Return to Figure 2-7

The datasheet consists of two columns and four rows. The column headings are Field Name and Data Type. The entries in each row are as follows:

Row 1: Equipment I D and Short Text.

Row 2: Product Name and Short Text.

Row 3 is blank. A small box at the far left of row 3 is labeled Row selector box. Row 3 is selected.

Row 4: Daily Rental Rate and Currency.

Return to Figure 2-7

Figure 2.8 Extended Description (Chapter 2)

Return to Figure 2-8

The datasheet consists of one column and three rows, with the column heading Field Name. The entries in the rows are Equipment I D, Product Name, and Category. The cell for Equipment I D is selected. A key icon is displayed vertically in the selector box of the first row.

Return to Figure 2-8

Figure 2.9 Extended Description (Chapter 2)

Return to Figure 2-9

The dialog box contains a text with a warning symbol. The text is: Do you want to permanently delete the selected field(s) and all the data in the field(s)? To permanently delete the field(s), click Yes. The Yes and No buttons are displayed at the bottom of the dialog box.

Return to Figure 2-9

Figure 2.10 Extended Description (Chapter 2)

Return to Figure 2-10

The Object tab is titled Equipment. The table below consists of three columns and five rows. The column headings are Field Name, Data Type, and Description (Optional). Row one entry is as follows: Equipment I D, Short Text, and Unique I D assigned to each piece of equipment. An icon is displayed below the first row cell of column three with a drop-down arrow. The drop-down arrow shows a dialog box. The dialog box contains the options: Update Status Bar Text everywhere Equipment I D is used and Help on propagating field properties.

Return to Figure 2-10

Figure 2.11 Extended Description (Chapter 2)

Return to Figure 2-11

The View button within the Command group is selected. There is a drop-down arrow in the button, which displays a menu with two options. The options are Datasheet View and Design View.

Return to Figure 2-11

Figure 2.14 Extended Description (Chapter 2)

Return to Figure 2-14

The screenshot shows tabs for General and Lookup. The General tab is currently active. The table below consists of two columns and two rows. The row entries are as follows:

Row 1: Field Size, 255.

Row 2: Format, (blank).

Return to Figure 2-14

Figure 2.15 Extended Description (Chapter 2)

Return to Figure 2-15

The screenshot shows tabs for General and Lookup. The General tab is currently active. The table consists of two columns and nine rows. The row entries are as follows:

Row 1: Field Size, Long Integer.

Row 2: Format.

Row 3: Decimal Places.

Row 4: Input Mask.

Row 5: Caption.

Row 6: Default Value.

Row 7: Validation Rule.

Row 8: Validation Text.

Row 9: Required, No.

The cell in the first row of the second column has a drop-down arrow that shows a list of options: Byte, Integer, Long Integer, Single, Double, Replication I D, and Decimal.

Return to Figure 2-15

Figure 2.16 Extended Description (Chapter 2)

Return to Figure 2-16

The screenshot shows tabs for General and Lookup. The General tab is currently active. The table below consists of two columns and ten rows. The first row entry is as follows: Field Size, Long Integer. The cell in the second row of the second column has a drop-down arrow that shows a list of options: General Number, 3456.789; Currency, $3,456.7; Euro, €3,456.79; Fixed, 3456.79; Standard, 3,456.79; Percent, 123.00 percent; and Scientific, 3.46 E plus 03.

Return to Figure 2-16

Figure 2.17 Extended Description (Chapter 2)

Return to Figure 2-17

The screenshot shows tabs for General and Lookup. The General tab is currently active. The table below consists of two columns and eight rows. The cell in the first row of the second column has a drop-down arrow that shows a list of options: General Date, 11/12/2015 5:34:23 P M; Long Date, Thursday, November 12, 2015; Medium Date, 12-November-15; Short Date, 11/12/2015; Long Time, 5:34:23 P M; Medium Time, 5:34 P M; and Short Time, 17:34.

Return to Figure 2-17

Figure 2.18 Extended Description (Chapter 2)

Return to Figure 2-18

The screenshot shows tabs for General and Lookup. The General tab is selected. The table below consists of two columns and eight rows. The cell in the first row of the second column has a drop-down arrow that shows a list of options: True or False: True, Yes or No: Yes, and On or Off: On.

Return to Figure 2-18

Figure 2.19 Extended Description (Chapter 2)

Return to Figure 2-19

The screenshot shows tabs for General and Lookup. The General tab is currently active. The table below consists of two columns and six rows. Row one entry is as follows: Field Size, Long Integer. The cell in the second row of the second column has a drop-down arrow that shows a list of options: Increment and Random.

Return to Figure 2-19

Figure 2.20 Extended Description (Chapter 2)

Return to Figure 2-20

The screenshot shows an object tab titled Equipment. The datasheet below consists of three columns and two rows. The column headings are Field Name, Data Type, and Description (Optional).

The row entries are as follows:

Row 1: Equipment I D, Short Text, Unique I D assigned to each piece of equipment.

The first cell in the second row is highlighted. The third cell in the second row contains a Property Update Options smart tag.

Return to Figure 2-20

Figure 2.21 Extended Description (Chapter 2)

Return to Figure 2-21

The screenshot shows an object tab titled Equipment. Below, there are three columns and eight rows. The column headings are Field Name, Data Type, and Description (Optional).

The first row entry is as follows: Equipment I D, Short Text, Unique I D assigned to each piece of equipment.

Below the table, there are two tabs: General and Lookup. The General tab is currently active. The entries in the table under the General tab are as follows:

Format: Medium Date.

Input Mask: (blank).

Caption: (blank).

Default Value: (blank).

Validation Rule: (blank).

Validation Text: (blank).

Required: No.

Indexed: No.

I M E Mode: No Control.

I M E Sentence Mode: None.

Text Align: General.

Show Date Picker: For dates.

To the right, a text is visible that says: The display layout for the field. Select a predefined format or enter a custom format. Press F 1 for help on formats.

Return to Figure 2-21

Figure 2.22 Extended Description (Chapter 2)

Return to Figure 2-22

The screenshot shows an object tab titled Equipment. Below, there are eight columns and five rows. The column headings are Equipment I D, Product Name, Category, Daily Rental Rate, Weekly Rental Rate, Monthly Rental Rate, Date Purchased, and Comments.

The row entries are as follows:

Row 1: 09925, Mini Tractor Loader - Yanmar S A 424 Y B S, (blank), $0.00, $0.00, $0.00, (blank), Lift Capacity: 1199 pounds, Bucket Width: 53 inches.

Row 2: 10015, Generator Portable Makita 1000 W, (blank), $0.00, $0.00, $0.00, (blank), Size: nineteen and one-half inches long by eleven and three-quarters inches wide by seventeen and one-half inches high, Weight: 55 pounds.

Row 3: 10047, Skip Loader four by four, (blank), $0.00, $0.00, $0.00, (blank), Subject to Environmental Fee.

Row 4: 10103, Generator Towable Power Pro 25 K W, (blank), $0.00, $0.00, $0.00, (blank), Overall dimensions: sixty-seven inches long by twenty-eight inches wide by three inches high.

Row 5: 10129, Level Size Laser, (blank), $0.00, $0.00, $0.00, (blank), (blank).

The fourth row is highlighted.

Return to Figure 2-22

Figure 2.23 Extended Description (Chapter 2)

Return to Figure 2-23

The screenshot shows a datasheet titled Assets. The datasheet consists of 3 columns and 10 rows. The column headings are Field Name, Data Type, and Description (Optional). The sixth row is selected. The entries in the sixth row are Acquired Date, Date and Time, and (blank).

Below the datasheet, the Field Properties pane is displayed. It consists of two tabs: General and Lookup. The General tab is selected. This tab displays the properties such as Format, Input Mask, Caption, Default Value, Validation Rule, Validation Text, Required, Indexed, I M E Mode, I M E Sentence Mode, Smart Tags, Text Align, and Show Date Picker, with their respective entries on the right. These properties are labeled Field properties of the Acquired Date field.

To the right of this pane, there is a text that reads: A field name can be up to 64 characters long, including spaces. Press F 1 for help on field names.

On the right of these, a vertical pane titled Property Sheet is displayed. Below the title, the text Selection type: Table Properties appears. The pane contains a table under the General tab with two columns and fifteen rows. The entry in the seventh row is labeled Table Validation Rule.

Return to Figure 2-23

Figure 2.24 Extended Description (Chapter 2)

Return to Figure 2-24

The screenshot displays a datasheet with two columns and four rows. The row entries are as follows:

Row 1: Default Value, (blank).

Row 2: Validation Rule, (blank), with a Build button present on the far right of the second column.

Row 3: Validation Text, (blank).

Row 4: Required, Yes.

Return to Figure 2-24

Figure 2.25 Extended Description (Chapter 2)

Return to Figure 2-25

At the top left, a text reads: Enter an Expression to validate the data in this field:

(Examples of expressions include [Field 1] in square brackets plus [Field 2] in square brackets and [Field 1] in square brackets less than 5). Below this text is a rectangular box labeled Expression Box, which contains the text: Generators or Hand Tools or Plumbing. To the right of the Expression Box are four buttons: OK, Cancel, Help, and Less (double less-than symbol). Below the Expression Box, there are three menu boxes labeled:

Expression Elements.

Expression Categories.

Expression Values.

The Expression Elements menu displays a list containing Functions, Constants, and Operators. Operators is highlighted, with a click to expand button to its left.

The Expression Categories menu displays a list containing All, Arithmetic, Comparison, Logical, and String. Logical is highlighted.

The Expression Values menu displays a list containing And, E q v, I m p, Not, Or, and X or. Or is highlighted.

Return to Figure 2-25

Figure 2.26 Extended Description (Chapter 2)

Return to Figure 2-26

The Command group shows two buttons named Property Sheet and Indexes.

Return to Figure 2-26

Figure 2.27 Extended Description (Chapter 2)

Return to Figure 2-27

The screenshot displays the Microsoft Access Property Sheet with a text at the top left: Selection type: Table Properties. A tab named General is located beneath the text, followed by a table with 15 rows and 2 columns. The row entries are as follows:

Row 1: Read Only When Disconnected, No.

Row 2: Subdatasheet Expanded, No.

Row 3: Subdatasheet Height, 0 inches.

Row 4: Orientation, Left-to-Right.

Row 5: Description, (blank).

Row 6: Default View, Datasheet.

Row 7: Validation Rule, (blank).

Row 8: Validation Text, (blank).

Row 9: Filter, (blank).

Row 10: Order By, (blank).

Row 11: Subdatasheet Name, Auto in square brackets.

Row 12: Link Child Fields, (blank).

Row 13: Link Master Fields, (blank).

Row 14: Filter On Load, No.

Row 15: Order By On Load, Yes.

A drop-down arrow is located at the right end of the second cell in row 1.

Return to Figure 2-27

Figure 2.29 Extended Description (Chapter 2)

Return to Figure 2-29

The Command group displays various buttons. On the left is a key-shaped button labeled Primary Key. In the center is a sparkling wand button labeled Builder. On the right is a rectangular button with a checkmark labeled Test Validation Rules, which is selected. To the right of these buttons, the labels Insert Rows, Delete Rows, and Modify Lookups are displayed one below the other.

Return to Figure 2-29

Figure 2.30 Extended Description (Chapter 2)

Return to Figure 2-30

The warning dialog box displays the message: Existing data violates the new record validation rule. A warning icon with an exclamation mark is shown to the left. Below the message, the following text is displayed:

Do you want to continue testing data with this new rule?

This is followed by three points:

To continue testing for other new rule violations, click Yes.

To continue testing only the old validation rules, click No.

To stop testing, click Cancel.

At the bottom of the dialog box, the Yes, No, and Cancel buttons are displayed.

Return to Figure 2-30

Figure 2.31 Extended Description (Chapter 2)

Return to Figure 2-31

The dialog box displays the message: The existing data violates the Validation Rule property for the field Category. A warning icon with an exclamation mark is shown to the left, followed by the text: If you continue testing, Microsoft Access will inform you if any data violates other property settings in the table. Would you like to continue testing? The Yes and No buttons are present at the bottom of the dialog box.

Return to Figure 2-31

Figure 2.32 Extended Description (Chapter 2)

Return to Figure 2-32

The screenshot shows an Object tab titled Equipment with a datasheet below. A dialog box with a warning is superimposed over the datasheet. The datasheet includes columns for Equipment I D, Product Name, Category, Daily Rental, Weekly Rental, Monthly Rental, Date Purchased, and Comments. There are three rows. The row entries are as follows:

Row 1: 10283, GRINDER ANGLE 7 inches W or VACUUM, (blank), $0.00, $0.00, $0.00, (blank), Remove thin coatings on concrete and surface grinding Concrete, Screed, Tile Adhesives.

Row 2: 10368, METAL DETECTOR-GARRETT ACE 250, (blank), $0.00, $0.00, $0.00, (blank), (blank).

Row 3: A 1212, (blank), (blank), $0.00, $0.00, $0.00, (blank), (blank).

The third row is highlighted. The dialog box displays a warning icon and a message. The message is as follows: One or more values are prohibited by the validation rule like hash hash hash hash set for Equipment Equipment I D. Enter a value that the expression for this field can accept. The OK and Help buttons are present at the bottom of the dialog box.

Return to Figure 2-32

Figure 2.33 Extended Description (Chapter 2)

Return to Figure 2-33

The screenshot shows a table with two columns and two rows. The row entries are as follows:

Row 1: Validation Rule, Like “five hash symbols.”

Row 2: Validation Text, The Equipment I D must contain 5 numbers.

Return to Figure 2-33

Figure 2.34 Extended Description (Chapter 2)

Return to Figure 2-34

The dialog box displays the text: The Equipment I D must contain 5 numbers.

The Font, OK, and Cancel buttons are displayed at the bottom of the dialog box.

Return to Figure 2-34

Figure 2.35 Extended Description (Chapter 2)

Return to Figure 2-35

The screenshot shows a portion of a drop-down menu with 3 options. The options are Generators, Hand Tools, and Plumbing. The Plumbing option is highlighted, and superimposed by an Edit List Items button.

Return to Figure 2-35

Figure 2.36 Extended Description (Chapter 2)

Return to Figure 2-36

The dialog box contains a text box with the title Type each item on a separate line. The text box contains five entries, listed one below the other: Generators, Hand Tools, Plumbing, Sawing, Cutting and Grinding, and Tractors. Below the text box is a feature box named Default Value, which includes an empty input area and a drop-down arrow. The OK and Cancel buttons are located at the bottom of the dialog box.

Return to Figure 2-36

Figure 2.37 Extended Description (Chapter 2)

Return to Figure 2-37

The screenshot shows tabs for General and Lookup. The General tab is selected. The datasheet below consists of two rows and two columns. The row entries are as follows:

Row 1: Field Size, 30.

Row 2: Format, (blank).

The mouse cursor is placed on the Lookup tab.

Return to Figure 2-37

Figure 2.38 Extended Description (Chapter 2)

Return to Figure 2-38

The screenshot shows tabs for General and Lookup. The Lookup tab is selected. Below the tab is a table consisting of two columns and fourteen rows. The row entries are as follows:

Row 1: Display Control, Combo Box.

Row 2: Row Source Type, Table or Query.

Row 3: Row Source, Blank.

Row 4: Bound Column, 1.

Row 5: Column Count, 1.

Row 6: Column Heads, No.

Row 7: Column Widths, Blank.

Row 8: List Rows, 16.

Row 9: List Width, Auto.

Row 10: Limit To List, No.

Row 11: Allow Multiple Values, No.

Row 12: Allow Value List Edits, No.

Row 13: List Items Edit Form, Blank.

Row 14: Show Only Row Source Values, No.

Return to Figure 2-38

Figure 2.39 Extended Description (Chapter 2)

Return to Figure 2-39

The screenshot shows an Object tab titled Equipment. The datasheet below contains two columns and eight rows. The column headings are Field Name and Data Type. A drop-down arrow at the right end of the cell in the third row and the second column is selected, revealing a drop-down list with various options, including Short Text, Long Text, Number, Date and Time, Date and Time Extended, Currency, Auto Number, Yes or No, O L E Object, Hyperlink, Attachment, Calculated, and Lookup Wizard (highlighted).

Return to Figure 2-39

Figure 2.40 Extended Description (Chapter 2)

Return to Figure 2-40

The dialog box is named Lookup Wizard. At the top left, there is a table icon. To the right of the icon, the following text is displayed: This wizard creates a lookup field, which displays a list of values you can choose from. How do you want your lookup field to get its values? Below this text, two radio button options are shown: Radio button 1: I want the lookup field to get the values from another table or query. Radio button 2: I will type in the values that I want. Radio button 2 is selected. At the bottom of the dialog box, the Cancel, Back, Next, and Finish buttons are present.

Return to Figure 2-40

Figure 2.41 Extended Description (Chapter 2)

Return to Figure 2-41

The text at the top left of the dialog box reads: What values do you want to see in your lookup field? Enter the number of columns you want in the list, and then type the values you want in each cell. To adjust the width of a column, drag its right edge to the desired width or double-click the right edge of the column heading for the best fit. This is followed by a feature box labeled Number of columns, which is set to 1. Below the field, a datasheet with one column and three rows is present. The row entries are as follows:

Row 1: Generators.

Row 2: Hand Tools.

Row 3: (blank and highlighted) and labeled Enter one list item per cell. At the bottom of the dialog box, the Cancel, Back, Next, and Finish buttons are present.

Return to Figure 2-41

Figure 2.42 Extended Description (Chapter 2)

Return to Figure 2-42

The text at the top right of the dialog box reads: What label would you like for your lookup field? Beneath this text, a text box displays the entry Category.

Following the text box is a feature box titled Do you want to limit entries to the choices? Inside this box, a checkbox labeled Limit To List is unchecked. Below this, is the text, Do you want to store multiple values for this lookup? A checkbox labeled Allow Multiple Values is also unchecked. At the bottom, the text “Those are all the answers the wizard needs to create your lookup field” is shown. The Cancel, Back, Next, and Finish buttons are present at the bottom of the dialog box.

Return to Figure 2-42

Figure 2.46 Extended Description (Chapter 2)

Return to Figure 2-46

The text at the top of the dialog box reads: Which input mask matches how you want data to look? To see how a selected mask works, use the Try It box. To modify the Input Mask list, click the Edit List button. Beneath this text, there are two columns titled Input Mask and Data Look, with six rows. The row entries are as follows:

Row 1: Phone Number, (206) 555-1212.

Row 2: Social Security Number, 831-86-7180.

Row 3: Zip Code, 98052-6399.

Row 4: Extension, 63215.

Row 5: Password, 7 asterisks.

Row 6: Long Time, 1:12:00 P M.

Below these columns is a feature box labeled Try It. At the bottom of the dialog box, the Edit List, Cancel, Back, Next, and Finish buttons are present.

Return to Figure 2-46

Figure 2.47 Extended Description (Chapter 2)

Return to Figure 2-47

The text at the top of the dialog box reads: Do you want to change the input mask? This is followed by two feature boxes: Input Mask Name set to Phone Number. Input Mask set to (999) 000-0000. Below this, the text reads: What placeholder character do you want the field to display? Placeholders are replaced as you enter data into the field. This is followed by a feature box labeled Placeholder character: with a dropdown arrow. A text box labeled Try It is displayed below. At the bottom of the dialog box, the Cancel, Back, Next, and Finish buttons are present.

Return to Figure 2-47

Figure 2.48 Extended Description (Chapter 2)

Return to Figure 2-48

At the top of the dialog box, the text reads: How do you want to store the data?

Below this, two radio button options are shown: Radio button 1: With the symbols in the mask, like this: (976) 472-3491. Radio button 2: Without the symbols in the mask, like this: 63121454 (selected). Below these options, the Cancel, Back, Next, and Finish buttons are present.

Return to Figure 2-48

Figure 2.49 Extended Description (Chapter 2)

Return to Figure 2-49

The dialog box displays the following text: The size of one or more fields has been changed to a shorter size. If data is lost, a validation rule may be violated as a result. Do you want to continue anyway? The Yes and No buttons are displayed at the bottom of the dialog box.

Return to Figure 2-49

Figure 2.50 Extended Description (Chapter 2)

Return to Figure 2-50

The dialog box is titled Data integrity rules have been changed; existing data may not be valid for the new rules. It displays the following text: This process may take a long time. Do you want the existing data to be tested with the new rules? The Yes, No, and Cancel buttons are displayed at the bottom of the dialog box.

Return to Figure 2-50

Figure 2.51 Extended Description (Chapter 2)

Return to Figure 2-51

The dialog box is titled Existing data violates the new setting for the ‘Required’ property for field ‘Category.’ It displays the following text: Do you want to keep testing with the new setting? To keep the new setting and continue testing, click Yes. To revert to the old setting and continue testing, click No. To stop testing, click Cancel. The Yes, No, and Cancel buttons are displayed at the bottom of the dialog box.

Return to Figure 2-51

Figure 2.52 Extended Description (Chapter 2)

Return to Figure 2-52

The Database consists of two tabs for General and lookup. General is selected and it shows a list of options:

Field Size: 5.

Format: (blank).

Input Mask: (blank).

Caption: (blank).

Default Value: (blank).

Validation Rule: Like in double quotes hash symbol hash symbol hash symbol hash symbol.

Validation Text: The Equipment I D must contain 5 numbers.

Required: Yes.

Allow Zero Length: Yes.

Indexed: Yes (No Duplicates).

Unicode Compression: No.

I M E Mode: No Control.

I M E Sentence Mode: None.

Text Align: General.

Return to Figure 2-52

Figure 2.53 Extended Description (Chapter 2)

Return to Figure 2-53

The datasheet displays three columns and two rows. The second row is selected. A Warning dialog box is displayed over the datasheet. It contains a text: Equipment I D must contain 5 numbers. OK and Help buttons are displayed at the bottom of the dialog box. OK button is selected.

Return to Figure 2-53

Figure 2.54 Extended Description (Chapter 2)

Return to Figure 2-54

The dialog box has a title bar titled Microsoft Access. The message contains a yellow warning icon followed by the text: The Weekly Rate must be greater than the Daily Rate and the Monthly Rate must be greater than the Weekly Rate. OK and Help buttons are displayed at the bottom of the dialog box. The OK button is selected.

Return to Figure 2-54

Figure 2.55 Extended Description (Chapter 2)

Return to Figure 2-55

The dialog box is titled Input Mask Wizard. At the top of the dialog box, there is a text: Which input mask matches how you want data to look? To see how a selected mask works, use the Try it box. To change the Input Mask list, click the Edit List button. Below the text, it displays a list of input masks and data look as, Long Time 1:12:00 P M, Short Date 9/27/1969, Short Time 13:12, Medium Time 01:12 P M, and Medium Date 27-September-69, with the Medium Date option highlighted. Below this, an empty feature box is displayed titled Try it. Edit List, Cancel, Next, and Finish buttons are present at the bottom of the dialog box. The Next button is selected.

Return to Figure 2-55

Figure 2.56 Extended Description (Chapter 2)

Return to Figure 2-56

The dialog box has a question at the top: Do you want to change the input mask? Below it contains two options with input as follows:

Input Mask Name: Medium Date.

Input Mask: 00 - greater than symbol L less than symbol L L - 00.

It is followed by the question: What placeholder character do you want the field to display? Placeholders are replaced as you enter data into the field. A Placeholder Character dropdown box is displayed below the text. Cancel, Back, Next and Finish buttons are present at the bottom of the dialog box. The Next button is selected.

Return to Figure 2-56

Figure 2.57 Extended Description (Chapter 2)

Return to Figure 2-57

The datasheet consists of 8 columns and 11 rows. The column headings are Equipment, Product Name, Category, Daily Rental, Weekly Rental, Monthly Rental, Date Purchased, and Comments. The first-row entry is as follows:

09925, Mini Tractor Loader - Yanmar S A 424 Y B S, Tractors, $160.00, $640.00, $1920.00, 10-Oct-24, and Lift Capacity: 1199 l b s Bucket Width: 53 inches.

The tenth row is selected. The cell under the category column in the tenth row shows a drop-down menu with the following list of options: Generators, Hand Tools, Plumbing, Sawing, Cutting and Grinding, and Tractors. The option Hand Tools is selected.

Return to Figure 2-57

Figure 2.58 Extended Description (Chapter 2)

Return to Figure 2-58

The Relationships window shows the relationships between different tables. The screenshot includes the following tables:

Customer: Contains fields such as Customer I D, Company Name, Customer Last Name, Customer First Name, Address, City, State, and Zip Code.

Employee: Contains Employee I D, Employee Last Name, Employee First Name, Date Hired, Current Location, Title, and Pay Rate.

Order: Includes Order I D, Order Date, Customer I D, Employee I D, Pickup Date, and Return Date.

Order Line Details: Contains a concatenated primary key consisting of Order I D and Equipment I D, along with fields Quantity and O L Price.

Equipment: Contains Equipment I D, Product Name, Category, Daily Rental Rate, Weekly Rental Rate, Monthly Rental Rate, Date Purchased, and Comments.

Service History: Includes Service I D, Service Date, Service Type, Description, Performed By, Equipment I D, Odometer Reading, Hours, and Total Cost.

The Customer and Employee tables are connected to the Order table with a relationship line. In the Order table, Customer I D is highlighted and labeled Foreign key is connected via the relationship line to a primary key in another table. The Order table is connected to the Order Line Details table with a relationship line. In the Order Line Details table, Order I D and Equipment I D are highlighted and labeled concatenated primary key. The Order Line Details table is connected to the Equipment table with a relationship line. In the Equipment table, Equipment I D is labeled primary key. The Equipment table is connected to the Service History table with a relationship line. In the Service History table, Service I D is selected.

Return to Figure 2-58

Figure 2.59 Extended Description (Chapter 2)

Return to Figure 2-59

The screenshot contains two tables titled Passport and Employee. The Passport table includes the following fields: Passport Number, Date Issued, Date Expires, and Issued At. The Employee table includes the fields: Employee I D, Employee Last Name, Employee First Name, Date Hired, Title, and Passport Number. A Primary key icon is present next to Passport Number in both tables. The Passport and Employee tables are connected at Passport Number by number 1 at both ends of the relationship line.

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Figure 2.60 Extended Description (Chapter 2)

Return to Figure 2-60

The two tables, Customer and Order, contain the following data: Customer: Customer I D, Company Name, Customer Last Name, Customer First Name, Address, City, State, and ZIP Code. Order: Order I D, Order Date, Customer I D, Employee I D, Pickup Date, and Return Date. A Primary key icon is present next to Customer I D in the Customer table and Order I D in the Order table. The two tables are connected at Customer I D. The relationship line starts at the Customer table with number 1 and ends at the Order table with an infinity symbol.

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Figure 2.61 Extended Description (Chapter 2)

Return to Figure 2-61

The three tables, Order, Order Line Details, and Equipment, contain the following data: Order Table: Order I D, Order Date, Customer I D, Employee I D, Pickup Date, and Return Date. Order Line Details Table: Order I D, Equipment I D, Quantity, and O L Price. Equipment Table: Equipment I D, Product Name, Category, Daily Rental Rate, Weekly Rental Rate, Monthly Rental Rate, Date Purchased, Comments, and Date Last Serviced. A Primary key icon is present next to Order I D in the Order table and Order Line Details table, as well as next to Equipment I D in the Order Line Details and Equipment tables. The Order table is connected to the Order Line Details table at Order I D, with number 1 at the Order table and an infinity symbol at the Order Line Details table. The Order Line Details table is connected to the Equipment table at Equipment I D, with an infinity symbol at the Order Line Details table and number 1 at the Equipment table.

Return to Figure 2-61

Figure 2.62 Extended Description (Chapter 2)

Return to Figure 2-62

The table labeled Owner contains the following data: Owner I D, Owner Last Name, Owner First Name, Address, City, State, ZIP, and Phone. The table labeled Pets contains the following data: I D, Pet Name, Type, Breed, Age in Years, Gender, Color, and Details. A Primary key icon is present next to Owner I D in the Owner table and I D in the Pets table.

Return to Figure 2-62

Figure 2.63 Extended Description (Chapter 2)

Return to Figure 2-63

The table labeled Owner contain following data: Owner l D, Owner Last Name, Owner, First Name, Address, City, State, Z I P, and Phone. The table labeled Pets contain following data: I D, Pet Name, Type, Breed, Age in Years, Gender, Color, Details, and F K Owner I D. A Primary Key is present to the left of Owner I D and I D. F K Owner I D is labeled Foreign key.

Return to Figure 2-63

Figure 2.64 Extended Description (Chapter 2)

Return to Figure 2-64

The Ribbon contains tabs for File, Home, Create, External Data, Database Tools, Help, Relationships, and Design. The Relationships Design tab is selected and consists of Command groups such as Tools and Relationships. A vertical All Access Objects Navigation Pane is present on the left, listing tables such as Equipment and Order Line Details. The Relationship Window is displayed to the right of the Navigation Pane. A Status Bar is present at the bottom. An Add Tables task pane is located to the right of the Relationship Window. It consists of tabs for Tables, Links, Queries, and All. The Table tab is active. It displays a Search bar at the top and a list of available tables, including Equipment and Order Line Details. An Add Selected Tables button is present at the bottom of the Add Tables task pane.

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Figure 2.65 Extended Description (Chapter 2)

Return to Figure 2-65

The table labeled Equipment contains the following data: Equipment I D, Product Name, Category, Daily Rental Rate, Weekly Rental Rate, and Monthly Rental Rate. The Equipment table is labeled 1 table. Equipment I D is selected, and a Primary key icon is present to its left. The table labeled Order Line Details contains the following data: Order I D, Equipment I D, Quantity, and O L Price. The Order Line Details table is labeled M table. A Primary key icon is present to the left of both Order I D and Equipment I D. A cursor with a plus sign and a dotted box is present to the right of the Quantity data field and is labeled Pointer with the plus sign box.

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Figure 2.66 Extended Description (Chapter 2)

Return to Figure 2-66

The Edit Relationships dialog box displays two sections labeled Table or Query and Related Table or Query, showing Equipment and Order Line Details, respectively.

Below these sections, there are two columns listing Equipment I D for both tables.

There are three checkboxes for Enforce Referential Integrity, Cascade Update Related Fields, and Cascade Delete Related Records. On the right side, there are buttons labeled Create, Cancel, Join Type, and Create New, with Create highlighted. At the bottom, the Relationship Type box is set to One-To-Many.

Return to Figure 2-66

Figure 2.67 Extended Description (Chapter 2)

Return to Figure 2-67

The table labeled Equipment contains the following data: Equipment I D, Product Name, Category, Daily Rental Rate, Weekly Rental Rate, Monthly Rental Rate, Date Purchased, and Comments. Equipment I D is selected, and a Primary key is present to its left. The table labeled Order Line Details contains the following data: Order I D, Equipment I D, Quantity, and O L Price. A Primary key is present to the left of both Order I D and Equipment I D. The tables are connected at Equipment I D, with 1 at the starting point of the line and an infinity symbol at the endpoint.

Return to Figure 2-67

Figure 2.68 Extended Description (Chapter 2)

Return to Figure 2-68

The datasheet consists of different columns labeled Equipment I D, Product, Category, and Daily Rate. The first row contains a plus sign at the top left, while the second row contains a minus sign at the top left. The second row is highlighted in blue, displaying a sub-table below it. The subtable includes columns labeled Order I D, Quantity, and O L Price.

Return to Figure 2-68

Figure 2.69 Extended Description (Chapter 2)

Return to Figure 2-69

The table labeled Equipment contains the following data: Equipment I D, Product Name, Category, Daily Rental Rate, and Weekly Rental Rate. A Primary key is present to the left of Equipment I D. The table labeled Order Line Details contains the following data: Order I D, Equipment I D, Quantity, and O L Price. A Primary key is present to the left of Order I D and Equipment I D. The tables are connected at Equipment I D, with 1 at the start of the line and an infinity symbol at the end. A cursor is present at the center of the line.

Return to Figure 2-69

Figure 2.70 Extended Description (Chapter 2)

Return to Figure 2-70

The tables labeled Equipment and Order Line Details are displayed. A context menu is present, showing the options Edit Relationship and Delete, with Delete selected.

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Figure 2.71 Extended Description (Chapter 2)

Return to Figure 2-71

The Tools group consists of the buttons Edit Relationships, Clear Layout, and Relationship Report. The Edit Relationships button is selected.

Return to Figure 2-71

Figure 2.72 Extended Description (Chapter 2)

Return to Figure 2-72

The Edit Relationships dialog box displays two sections labeled Table or Query and Related Table or Query, showing Equipment and Order Line Details. Below these sections, there are two columns listing Equipment I D for both tables. There are three checkboxes: Enforce Referential Integrity, Cascade Update Related Fields, and Cascade Delete Related Records. The Enforce Referential Integrity checkbox is selected. On the right side, there are buttons labeled Create, Cancel, Join Type, and Create New, with Create highlighted. At the bottom, the Relationship Type box is set to One-To-Many.

Return to Figure 2-72

Figure 2.73 Extended Description (Chapter 2)

Return to Figure 2-73

The Microsoft Access consists of a Title bar at the top, followed by a Ribbon below. The Title bar has the Save button on the Quick Access Toolbar on the far left, while the Minimize, Maximize, and Close buttons are on the far right. The Ribbon contains tabs such as File and Print Preview. The Print Preview tab is selected and includes Command groups such as Print, Page Size, Page Layout, Zoom, Data, and Close Preview. Within the Page Size command group, the Size and Margins buttons are highlighted. A vertical Navigation Pane, titled All Access Objects, is present below the Ribbon. To the right of the Navigation Pane, the Work area shows a table titled Equipment. At the bottom of the table, a bar labeled Navigation bar is visible. The Navigation bar contains the Page number, a Filter button, and a horizontal scroll bar. The Page number includes left and right arrow buttons labeled Next Page button indicates additional pages.

Return to Figure 2-73

Figure 2.74 Extended Description (Chapter 2)

Return to Figure 2-74

The dialog box consists of two tabs for Print Options and Page. The Print Options tab is selected. It displays a title, Margin (Inches), with input fields for top, bottom, left, and right, all set to 1. Below this, there is a checkbox named Print Headings, which is selected. Further down, there are two radio buttons under the title Split Form for Print Form Only and Print Datasheet Only, both of which are disabled.

On the right side, there is a small preview area titled Sample, which displays a preview of the margins based on the selected settings. The OK and Cancel buttons are at the bottom of the dialog box.

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Figure 2.75 Extended Description (Chapter 2)

Return to Figure 2-75

The Backstage view consists of a vertical Navigation pane on the left. The Navigation pane displays tabs for Home, New, Open, Info, Save, Save As, Print, Close, Account, and Options. A back arrow is present above the Home tab.

The Info tab is selected, displaying the Info options to the right of the Navigation pane. The title of the database, P P A 2-3, is shown at the top. Below the title, there are three options: Copy Path, Copy Local Path, and Open File Location.

A yellow box titled Security Information is displayed below. To the right of this box, there is a link named View and Edit Database Properties. Further below, the options Compact and Repair Database and Encrypt with Password, each accompanied by an icon and a brief description, are present.

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Figure 2.76 Extended Description (Chapter 2)

Return to Figure 2-76

The Relationship tab consists of two tables titled Equipment and Service History. The Equipment table consists of a list of options: Equipment I D, Product Name, Category, Daily Rental Rate, Weekly Rental Rate, Monthly Rental Rate, Date Purchased, and Comments. A Primary Key is present to the left of the Equipment I D option. The Service History table consists of a list of options: Service I D, Service Date, Service Type, Description, Performed By, F K Equipment I D, Odometer Reading, Hours, and Total Cost. A cursor with a plus sign is present on the Service History Table. A Primary Key is present to the left of the Service I D option.

Return to Figure 2-76

Figure 2.77 Extended Description (Chapter 2)

Return to Figure 2-77

The Edit Relationships dialog box displays two drop-down menus labeled Table or Query and Related Table or Query, showing Equipment and Service History, respectively. Below these drop-down menus, there are two columns listing Equipment I D for both columns. Three checkboxes are displayed below for Enforce Referential Integrity, Cascade Update Related Fields, and Cascade Delete Related Records. All three are selected. The Create, Cancel, Join Type, and Create New buttons are displayed vertically on the right side of the dialog box. At the bottom, the Relationship Type feature box is set to One-To-Many.

Return to Figure 2-77

Figure 2.78 Extended Description (Chapter 2)

Return to Figure 2-78

The Equipment table consists of a list of options: Equipment I D, Product Name, Category, Daily Rental Rate, Weekly Rental Rate, Monthly Rental Rate, Date Purchased, and Comments. A Primary Key is present to the left of the Equipment I D option. The Service History table consists of a list of options: Service I D, Service Date, Service Type, Description, Performed By, F K Equipment I D, Odometer Reading, Hours, and Total Cost. A Primary Key is present to the left of Service I D. Both the tables are connected with a Relationship Line at Equipment I D and F K Equipment I D. The number 1 is present on the line starting from the Equipment table and an infinity symbol on the line ending at the Service History Table.

Return to Figure 2-78

Figure 2.79 Extended Description (Chapter 2)

Return to Figure 2-79

The Datasheet consists of seven columns and two rows. The column headings are Equipment I D, Product Name, Category, Daily Rental, Weekly Rental, Monthly Rental, and Date Purchased. The first row includes data for a Mini Tractor Loader - Yanmar S A 424 Y B S, which is selected and a plus sign is present to the left of the row. The plus sign displays another table, which has nine columns and four rows. The column headings are Service I D, Service Date, Service Type, Description, Performed By, Odometer Reading, Hours, Total Cost, and Click to Add.

Return to Figure 2-79

Figure 2.80 Extended Description (Chapter 2)

Return to Figure 2-80

The Print Preview tab is active. The Margin button is selected. The drop-down arrow displays a list of margin options: Last Custom Setting, Normal, Wide, Narrow, and Custom Margins.

Return to Figure 2-80

Figure 2.81 Extended Description (Chapter 2)

Return to Figure 2-81

The preview is titled Equipment, at the top center and dated 10/9/2025 on the top right. The table consists of seven columns and seven rows. The column headings are Equipment I D, Product Name, Category, Daily Rental, Weekly Rental, Monthly Rental, and Date Purchased. The table shows the preview for the Normal margin option. The text Page 1 is present at bottom.

Return to Figure 2-81

Figure 2.82 Extended Description (Chapter 2)

Return to Figure 2-82

The table is titled Branches with the date 6/15/2025, shown in the top right corner. The table has seven columns and three rows. The column headings are Branch, Address, City, State, ZIP, Phone, and Date Opened. The row entries are as follows:

Row 1: Cameron Park, 3360 Coach Lane, Cameron Park, C A, 95682-8454, (530) 672-3232, 05-Jan-24.

Row 2: Folsom, 72 Natoma Street, Number B 1, Folsom, C A, 95630-2640, (916) 485-8555, 01-Jun-25.

Row 3: Granite Bay, 6132 Del Oro Road, Granite Bay, C A, 95746-9007, (916) 791-8787, 11-Feb-24.

Below the table, the text Page 1 is displayed at the center.

Return to Figure 2-82

Figure 2.83 Extended Description (Chapter 2)

Return to Figure 2-83

The Sailboat Fleet box consists of nine fields: Boat I D, Boat Type, Length, Seats, Sleeps, Four Hour Rental Rate, Full Day Rental Rate, Galley With Stove, and Model Year, with Boat I D highlighted. The S D Rentals box consists of five fields: Rental I D, F K Boat I D, Rental Date, Four Hour Rental?, and Member I D.

Return to Figure 2-83

Figure 2.84 Extended Description (Chapter 2)

Return to Figure 2-84

The screenshot shows the status bar with a Num Lock button, a table icon, and a Design View icon located side-by-side. The Design View icon is selected.

Return to Figure 2-84

Figure 2.85 Extended Description (Chapter 2)

Return to Figure 2-85

The table consists of three columns and two rows. The column headings are Field Name, Data Type, and Description (Optional). The row entries are as follows:

Row 1: Race I D, Short Text, Unique race I D number.

Row 2: F K Member I D, Number, Must match a Member I D in the Members table.

The primary key is displayed to the left of both the Race I D and F K Member I D fields, as a small key icon.

Return to Figure 2-85

Figure 2.86 Extended Description (Chapter 2)

Return to Figure 2-86

The Members box consists of nine fields: Member I D, First Name, Last Name, Address, City, State, ZIP Code, Email Address, and Cell Phone Number, with Member I D highlighted. The Race Results box consists of six fields: Race I D, F K Member I D, Place, Time, Division, and Age Group. The mouse pointer hovers over the F K Member I D field.

Return to Figure 2-86

Figure 2.87 Extended Description (Chapter 2)

Return to Figure 2-87

The Datasheet is titled Race Results and consists of six columns and twenty-five rows. The column headings are Race I D, Member I D, Place, Time, Division, and Age Group. The first row entry is selected and is as follows: 1, 1, 2, 2:17, F, greater than or equal to twenty and less than thirty.

Return to Figure 2-87

Figure 2.88 Extended Description (Chapter 2)

Return to Figure 2-88

The Datasheet is titled Members. It consists of column headings for Member I D, First Name, Last Name, Address, City, State, ZIP, Email, and Cell Phone. The table contains details of 14 members in each column. A plus sign is present to the left of the Member I D field for each row. The plus signs in the second and third rows are selected. Below these rows, there are sub-tables displaying the race results with the column headings Race I D, Place, Time, Division, and Age Group.

Return to Figure 2-88

Figure 2.89 Extended Description (Chapter 2)

Return to Figure 2-89

The datasheet is titled Rent Invoices and contains the columns Invoice I D, Invoice Date, Due Date, and Amount Due. The row entry is as follows: 1, 01-Jan-26, 05-Jan-26, and $0.00. The Due Date column entry is selected. The warning dialog box is displayed over the datasheet with the message: The Due Date must be at least 10 days after the Invoice Date. The OK and Help buttons are displayed at the bottom of the dialog box.

Return to Figure 2-89

Figure 2.90 Extended Description (Chapter 2)

Return to Figure 2-90

The Physicians box includes six fields. These are Doctor I D, Last Name, First Name, Office Number, Primary Specialty, and Move In Date, with Doctor I D highlighted. The Rent Invoices box includes six fields. These are Invoice I D, Invoice Date, Due Date, Amount Due, F K Doctor I D, and Description. A mouse pointer hovers over the field F K Doctor I D.

Return to Figure 2-90

Figure 2.91 Extended Description (Chapter 2)

Return to Figure 2-91

The Datasheet is titled Physicians. It consists of six columns and five rows. The column headings are Doctor I D, Last Name, First Name, Office, Specialty, and Tenant Since. The table contains details of 5 doctors in each column. A plus sign is present to the left of the Doctor I D field for each row. The plus signs in the first and third rows are selected. Below these rows, there are sub-tables displaying Rent Invoices with column headings for Invoice I D, Invoice Date, Due Date, Amount Due, and Description.

Return to Figure 2-91

Figure 2.92 Extended Description (Chapter 2)

Return to Figure 2-92

The datasheet has the entry 11 in the first row of the Owner I D column. The dialog box is shown over the datasheet with a yellow warning sign, followed by the text: You must enter a 4-digit Owner I D. The OK and Help buttons are present at the bottom of the dialog box.

Return to Figure 2-92

Figure 2.93 Extended Description (Chapter 2)

Return to Figure 2-93

The Drivers table consists of field names such as License Number, Birth Date, Last Name, First Name, Address, City, State, Zip, and Gender. The Tickets table consists of field names such as Ticket Number, D L Number, Ticket Date, City, Primary Factor, and Officer Badge Number. The field Ticket Number is highlighted. A line extends from License Number in the Drivers table to D L Number in the Tickets table.

Return to Figure 2-93

Figure 2.94 Extended Description (Chapter 2)

Return to Figure 2-94

The dialog box displays a yellow warning sign on the left, followed by the text: You cannot add or change a record because a related record is required in the Drivers table. The OK and Help buttons are displayed at the bottom.

Return to Figure 2-94

Figure 2.95 Extended Description (Chapter 2)

Return to Figure 2-95

The table consists of five columns and seven rows. The column headings are Employee Number, Last Name, First Name, Date Hired, and Phone. The row entries are as follows:

Row 1: 103, Bui, Millie, Thursday, August 20, 2020, 5306487689.

Row 2: 127, Weatherby, Kelly, Monday, February 22, 2021, 9196873756.

Row 3: 133, Burgess, John, Monday, October 3, 2022, 5203278499.

Row 4: 151, Chung, Rick, Monday, January 22, 2024, 9168263849.

Row 5: 160, Walters, Calvin, Wednesday, May 1, 2024, 9165551679.

Row 6: 160, Duarte, Kalyn, Thursday, May 30, 2024, 9167441614.

Row 7: 169, Montoya, Gerardo, Thursday, July 11, 2024, 9165345991.

Return to Figure 2-95

Figure 2.96 Extended Description (Chapter 2)

Return to Figure 2-96

The Agents table consists of five fields: Employee Number, Last Name, First Name, Date Hired, and Phone, with Employee Number highlighted. The Listings table consists of twelve fields: Listing I D, Date Listed, List Price, Address, City, Square footage, Beds, Baths, Garage, Year Built, Construction, and Listing Agent Number, with a cursor pointing to Listing Agent Number.

Return to Figure 2-96

Figure 3.1 Extended Description (Chapter 3)

Return to Figure 3-1

The Queries Command group consists of the Query Wizard and Query Design buttons. The Query Wizard button is selected.

Return to Figure 3-1

Figure 3.2 Extended Description (Chapter 3)

Return to Figure 3-2

The dialog box is titled New Queries. A yellow box with two tables, one over the other, is displayed below. It contains the text: This wizard creates a select query from the fields you pick. To the right, there are four options: Simple Query Wizard, Crosstab Query Wizard, Find Duplicates Query Wizard, and Find Unmatched Query Wizard. The Simple Query Wizard is selected. The OK and Cancel buttons are displayed at the bottom of the dialog box.

Return to Figure 3-2

Figure 3.3 Extended Description (Chapter 3)

Return to Figure 3-3

The dialog box is titled Simple Query Wizard. A yellow box containing two tables, one above the other, and a grid is displayed. To the right of the box, there is text that reads: Which field do you want in your query? You can choose from more than one table or query. Below this text, a box titled Tables or Queries is present, with a feature box set to Table: Albums labeled Click to display available Tables or Queries. Below this, a box titled Available Fields is displayed. The Available Fields box consists of a list of options: Album I D, Album Name, Artist, Genre, Length, Recording Label, and Release Date. To the right of the Available Fields box, there is another box labeled Selected Fields, which is empty. Between these boxes, there are four buttons:

A right-pointing arrow, Two right-pointing arrows, A left-pointing arrow, and Two left-pointing arrows. At the bottom of the dialog box, the Cancel, Back, Next, and Finish buttons are displayed.

Return to Figure 3-3

Figure 2-16 Predefined formats for *Number* and *Currency* data types

Return to Figure 2-16

The screenshot shows tabs for General and Lookup. The General tab is currently active. The table below consists of two columns and ten rows. The first row entry is as follows: Field Size, Long Integer. The cell in the second row of the second column has a drop-down arrow that shows a list of options: General Number, 3456.789; Currency, $3,456.7; Euro, €3,456.79; Fixed, 3456.79; Standard, 3,456.79; Percent, 123.00 percent; and Scientific, 3.46 E plus 03.

Return to Figure 4-16

Figure 3.4 Extended Description (Chapter 3)

Return to Figure 3-4

A box titled Available Fields is displayed. The Available Fields box consists of a list of options: Album I D, Album Name, Artist (selected), Genre, Length, Recording Label, and Release Date. To the right of the Available Fields box, there is another box labeled Selected Fields, which is empty. Between these boxes, there are four buttons: A right-pointing arrow labeled Move Single Field button. Two right-pointing arrows labeled Move All Fields button. A left-pointing arrow labeled Remove Single Field button. Two left-pointing arrows labeled Remove All Fields button.

Return to Figure 3-4

Figure 3.5 Extended Description (Chapter 3)

Return to Figure 3-5

The dialog box contains a vertically oriented yellow rectangular box with a table icon and a checkmark on the left. To the right, a text prompt is displayed: What title do you want for your query? Below this, is a text box with an entry Albums Query.

Further below, the text states: That's all the information the wizard needs to create your query. Do you want to open the query or modify the query's design?

Two radio buttons are displayed below:

Open the query to view information (selected).

Modify the query design.

At the bottom right of the dialog box, the Cancel, Back, Next, and Finish buttons are displayed.

Return to Figure 3-5

Figure 3.6 Extended Description (Chapter 3)

Return to Figure 3-6

The datasheet has four columns and twelve rows. The column headings are Album Name, Artist, Genre, and Release Date. The first row is selected, and its entries are as follows: The Thrill of It All, Sam Smith, Pop, 03-Nov-17.

The status bar at the bottom displays a record button, a page number, and a small search box.

Return to Figure 3-6

Figure 3.7 Extended Description (Chapter 3)

Return to Figure 3-7

The Queries group consists of the Query Wizard and Query Design Buttons. The Query Design Button is selected.

Return to Figure 3-7

Figure 3.8 Extended Description (Chapter 3)

Return to Figure 3-8

The Microsoft Access consists of a Title bar at the top followed by a Ribbon below. The Title bar has the Save button on the Quick Access Toolbar on the far left. The Minimize, Maximize, and Close buttons are on the far right of the Title bar. The Ribbon has tabs for File, Home, Create, External Data, Database Tools, Help, and Query Design. The Query Design tab is labeled and selected. It consists of Command groups such as Results, Query Type, Query Setup, and Show or Hide. The Select button from the Query Type group and the Add Tables button from the Query Setup group are labeled. A vertical Navigation Pane is displayed at the left below the Ribbon titled All Access Objects. To the right of the Navigation Pane, a Work area is displayed with an Object tab titled Query 1. A Query design grid is present below the Work area. To the right of the Work area, an Add Tables task pane titled Add Tables is displayed. It consists of four tabs titled Tables, Links, Queries, and All. The Tables and Queries tabs are labeled.

Return to Figure 3-8

Figure 3.9 Extended Description (Chapter 3)

Return to Figure 3-9

The Query Design window is titled Query 1. The top half of the window displays a Table, included in the query. The table contains fields such as Listing I D, Date Listed, List Price, Address, and City. The bottom half shows a Query design grid, which contains Field, Table, Sort, Show Criteria, and or fields. A Divider bar is present between the top and bottom half.

Return to Figure 3-9

Figure 3.10 Extended Description (Chapter 3)

Return to Figure 3-10

A Query Design window is titled Query 1. The top half of the window displays, a Table titled Listings. The table contains fields such as Listing I D, Date Listed, List Price, Address, City, Square feet, and Rank. Below that, a Query Design Grid is shown with row headings Field, Table, Sort, and Show. The first cell of the row Field contains Listing I D, which is labeled Field added to query. A drop-down menu is present on the second cell of the Field row with options Listings, Listing I D, Date Listed, List Price, Address, and City. The Address option is labeled Select a field name from the drop-down list. A drop-down menu is present below the title of the table shown on the top part and the second cell of the second row titled table is labeled Select either option to include all fields in the query.

Return to Figure 3-10

Figure 3.11 Extended Description (Chapter 3)

Return to Figure 3-11

The Results Group consists of the View and Run buttons. The Run button is selected.

Return to Figure 3-11

Figure 3.12 Extended Description (Chapter 3)

Return to Figure 3-12

The datasheet shows a table with the title Query 1 at the top left corner. The table has the column headings Listing I D, Address, City, List Price, Square feet, Beds, Baths, and Garage. The first row contains Listing I D 10021, Address 525 Riverdale, City Lincoln, List Price $ 374,900.00, Square feet 2755, Beds 3, Baths 2, and Garage 2 Car Detached is selected. At the right end of the datasheet, a vertical scroll slider is present.

Return to Figure 3-12

Figure 3.13 Extended Description (Chapter 3)

Return to Figure 3-13

The dialog box is titled Save As. The Help and Close buttons are on the right of the title. It consists of a Query Name tab, in which Query 1 is selected. The OK and Cancel Button are present at the bottom of the dialog box.

Return to Figure 3-13

Figure 3.14 Extended Description (Chapter 3)

Return to Figure 3-14

The Navigation Pane consists of a Search bar at the top followed by the two options with sub-sections as follows:

Tables: Agents and Listings.

Queries: Show All Listings.

Return to Figure 3-14

Figure 3.15 Extended Description (Chapter 3)

Return to Figure 3-15

A Navigation Pane consists of a Search bar at the top followed by the two options with sub-sections as follows:

Tables: Agents and Listings.

Queries: Show All Listings.

The Show All Listings option is selected. A context menu opens with the options: Open, Design View, S Q L View, Export, and Rename. The Design View option is selected.

Return to Figure 3-15

Figure 3.16 Extended Description (Chapter 3)

Return to Figure 3-16

A Query Design Window titled Query 1 displays two tables, on the top half of the window. The first table is titled Agents. It contains five fields: Employee Number, Last Name, First Name, Date Hired, and Phone. The second table is titled Listings. It contains twelve fields: Listing I D, Date Listed, List Price, Address, City, Square footage, Beds, Baths, Garage, Year Built, Commission, and Listing Agent Number. The relationship between the two tables is indicated by a line connecting them. The bottom half shows, a Query design grid, which contains Field, Table, Sort, Show Criteria, and or fields. A Divider bar is present between the top and bottom half.

Return to Figure 3-16

Figure 3.17 Extended Description (Chapter 3)

Return to Figure 3-17

The Query Setup group consists of the following buttons: Add Tables, Insert Rows, Delete Rows, Builder, Insert Columns, Delete Columns, and Return. The Insert Columns button and the Delete Columns button are highlighted.

Return to Figure 3-17

Figure 3.18 Extended Description (Chapter 3)

Return to Figure 3-18

The Query Design Grid consists of various query parameters, such as Field, Table, Sort, Show, Criteria, and Or. The Field row lists: Listing I D and City. The Table row lists Listings. The Sort row is empty. The Show row has checkboxes for both fields, both of them are checked. A selection pointer is present in the second cell of the first row.

Return to Figure 3-18

Figure 3.19 Extended Description (Chapter 3)

Return to Figure 3-19

The Query Design Grid consists of various query parameters, such as Field, Table, Sort, Show, Criteria, and Or. The Field row lists: Listing I D and City. The Table row lists Listings for both fields. The Sort row is empty. The Show row has checkboxes for both fields, both of them are checked. The New column is inserted between Listings I D and City Field.

Return to Figure 3-19

Figure 3.20 Extended Description (Chapter 3)

Return to Figure 3-20

The screenshot depicts a query table with four columns and six rows. The table has rows for various query parameters, such as Field, Table, Sort, Show, Criteria, and Or. The Field row shows the entries Listing I D, Address, City, and List Price. The Table row shows the entries Listings in all four columns. The Sort row is empty. The Show row has check boxes in each column, all of which are checked. The Criteria row shows the Criterion expression applied to the City field, with the value “Roseville.”

Return to Figure 3-20

Figure 3.21 Extended Description (Chapter 3)

Return to Figure 3-21

The screenshot depicts a query table with four columns and six rows. The table has rows for various query parameters, such as Field, Table, Sort, Show, Criteria, and Or. Right-clicking on the Criteria row opens a context menu. The menu shows a list of options such as Totals, Table Names, Cut, Copy, Paste, Build, Zoom, and Properties. The Build option is selected.

Return to Figure 3-21

Figure 3.22 Extended Description (Chapter 3)

Return to Figure 3-22

The screenshot depicts a portion of a query table with five columns and five rows. The entries for row one are City, List Price, Square Feet, Beds, and Baths. The entries for row two are Listings in each column. Row three is empty. Row four has check boxes in each column, all of which are checked. The entry in column one for row five is being filled. As the letter R is typed, a list of suggestions appears below with options such as Rate, Replace, Reports, R G B, and Right. The Rate option is selected and the description is shown as Returns a Double specifying the interest rate per period for an annuity.

Return to Figure 3-22

Figure 3.23 Extended Description (Chapter 3)

Return to Figure 3-23

The screenshot shows a box titled Phone. Below the title is a list of phone numbers such as (530) 648-7689, () 987-3756, (530) 278-4699, (916) 823-6940, (916) 555-1679, (916) 744-1614, and (916) 534-5991.

Return to Figure 3-23

Figure 3.24 Extended Description (Chapter 3)

Return to Figure 3-24

The query is titled Query 1. Two boxes placed side-by-side are titled Agents and Listings. The Agents box lists fields such as Employee Number, Last Name, First Name, Date Hired, and Phone. A short horizontal line on the right, corresponding to Employee Number, has the number 1. The Listings box lists fields such as Listing I D, Date Listed, List Price, Address, City, Square footage, Beds, Baths Garage, Year Built, Construction, and Listing Agent Number. A short horizontal line on the left, corresponding to Listing Agent Number, has the infinity symbol. A line from the 1 line extends down to the infinity line. A query design grid shows a table below with eleven columns and six rows. The table has rows for various query parameters, such as Field, Table, Sort, Show, Criteria, and Or. The Field row shows the entries Listing I D, Address, City, List Price, Square footage, Beds, Baths, Garage, First Name, Last Name, and Phone. The Table row shows the entry Listings for Listing I D, Address, City, List Price, Square footage, Beds, Baths, and Garage fields, and the entry Agents for First Name, Last Name, and Agents fields. The Sort row is blank. The Show row has check boxes in each column, with each checkbox checked. The Criteria and Or rows are empty.

Return to Figure 3-24

Figure 3.25 Extended Description (Chapter 3)

Return to Figure 3-25

The query table has one column and five rows. The first row displays the field name City, followed by Listings. The third row is empty. A check box is shown in the fourth row. The fifth row has the entry “Roseville.”

Return to Figure 3-25

Figure 3.26 Extended Description (Chapter 3)

Return to Figure 3-26

The table is titled Show All Listings and consists of ten columns and eleven rows. The column headings are Listing I D, Address, City, List Price, Square footage, Beds, Baths, Garage, Last Name, and Phone, each with a drop-down arrow. The table lists various properties, all in the city of Roseville, with details such as their addresses, prices, square footage, number of bedrooms and bathrooms, garage details, and the listing agent's information. The details are shown for the Listing I Ds 10024, 10027, 10030, 10031, 10049, 10055, 10060, 10080, 10081, 10110, and 10117. The first row shows the entries for the Listing I D 10024 as 1917 Oak Crest Drive, with a list price of $1,189,900.00, has 3397 square feet, 4 bedrooms, 3 bathrooms, a 3-car attached garage, and the last name of the listing agent is Walters.

Return to Figure 3-26

Figure 3.27 Extended Description (Chapter 3)

Return to Figure 3-27

A window titled Album Query consists of a table with columns for Album Name, Artist, Genre, and Release Date, each with a drop-down arrow. Clicking the drop-down arrow for the Genre column shows a list of options such as Sort A to Z, Sort Z to A, Clear filter from Title, and Text Filters. The Text Filters option contains nine check boxes for Select All, Blanks, Alternative, Country, Dance-pop, Hip Hop, Hip-Hop or Rap, and International. All the check boxes are selected. The Text Filters option lists options such as Equals, Does Not Equal, Begins With, Does Not Begin With, Contains, Does Not Contain, Ends With, and Does Not End With.

Return to Figure 3-27

Figure 3.28 Extended Description (Chapter 3)

Return to Figure 3-28

The window contains two boxes titled Albums and Songs. The Albums box consists of a list with items such as Album I D, Album Name, Artist, Genre, Length, Recording Label, and Release Date. A short horizontal line on the right, corresponding to Album I D, has the number 1. The Sound box consists of a list with items such as Song I D, Song Title, F K Album I D, and Length. A short horizontal line on the left, corresponding to F K Album I D, has the infinity symbol. A line from the 1 line extends down to the infinity line.

Return to Figure 3-28

Figure 3.29 Extended Description (Chapter 3)

Return to Figure 3-29

The Show or Hide Command group has buttons for Totals, Parameters, Property Sheet, and Table Names.

Return to Figure 3-29

Figure 3.30 Extended Description (Chapter 3)

Return to Figure 3-30

The Property Sheet has the text Selection type: Query Properties, which is labeled Selection type. The sheet has a General tab that lists properties such as Description, Default view, Output All Fields, Top Values, Unique Values, Unique Records, Source Database, Source Connect S t r, and Record Locks. Unique Values is labeled Unique Values property.

Return to Figure 3-30

Figure 3.31 Extended Description (Chapter 3)

Return to Figure 3-31

The screenshot depicts a query table with three columns and six rows. The table has rows for various query parameters, such as Field, Table, Sort, Show, Criteria, and Or. The Field row shows the entries Album Name, Song Title, and Artist. The Table row shows the entries Albums, Songs, and Albums. The Sort row is empty. The Show row has check boxes in each column, all of which are checked. The Criteria and Or rows are empty.

Return to Figure 3-31

Figure 3.32 Extended Description (Chapter 3)

Return to Figure 3-32

The query table has two columns and six rows. The table has rows for various query parameters, such as Field, Table, Sort, Show, Criteria, and Or. The Field row shows the entries Song Title and Artist. The Table row shows the entries Songs and Albums. The Sort row is empty. The Show row has check boxes in each column, all of which are checked. The Criteria and Or rows are empty.

Return to Figure 3-32

Figure 3.33 Extended Description (Chapter 3)

Return to Figure 3-33

The query table has two columns and six rows. The table has rows for various query parameters, such as Field, Table, Sort, Show, Criteria, and Or. The Field row shows the entries Song Title and Artist. The Table row shows the entries Songs and Albums. The Sort row is empty. The Show row has check boxes in each column, all of which are checked. The Criteria row shows the entry “The Beatles” for the Artist field. The Or row is empty.

Return to Figure 3-33

Figure 3.34 Extended Description (Chapter 3)

Return to Figure 3-34

The datasheet consists of two columns with the headings Song Title and Artist, each with a drop-down arrow. The Song Title column lists the following songs: Come Together, Something, Maxwell's Silver Hammer, Oh! Darling, Octopus's Garden, I Want You (She's So Heavy), Here Comes the Sun, Because, You Never Give Me Your Money, and Sun King. The Artist column lists The Beatles for every song.

Return to Figure 3-34

Figure 3.35 Extended Description (Chapter 3)

Return to Figure 3-35

The query table has two columns and six rows. The table has rows for various query parameters, such as Field, Table, Sort, Show, Criteria, and Or. The Field row shows the entries Song Title and Artist. The Table row shows the entries Songs and Albums. The Sort row is empty. The Show row has check boxes in each column of which the check box for Song Title is checked. The Artist check box is unchecked and labeled Deselect Show check box. The Criteria row shows the entry “The Beatles” for the Artist field. The Or row is empty.

Return to Figure 3-35

Figure 3.36 Extended Description (Chapter 3)

Return to Figure 3-36

The query table has three columns and six rows. The table has rows for various query parameters, such as Field, Table, Sort, Show, Criteria, and Or. The Field row shows the entries Listing I D, Address, and City. The Table row shows the entries Listings in all three columns. The Sort row cell of the City field contains a drop-down arrow with the Ascending, Descending, and (not sorted) options. The Show row has check boxes in each column, all of which are checked. The Criteria and Or rows are empty.

Return to Figure 3-36

Figure 3.37 Extended Description (Chapter 3)

Return to Figure 3-37

The table consists of five columns and thirteen rows. The column headings are Listing I D, Address, City, Construction, and Square footage, each with a drop-down arrow. The Listing I D column provides a unique numerical identifier for each property. The Address column lists the street address. The City column shows the city where the property is located, with the visible data representing listings in Auburn and Lincoln. The entry Auburn is highlighted in yellow and is shown for the Listing I D's 10042, 10045, 10177, 10040, 10069, 10144, and 10043. The Construction column indicates the primary building material, such as Brick, Frame, or Stone. The entry Brick is highlighted in yellow and is shown for the Listing I D's 10042, 10045, and 10177. The Square footage column displays the square footage of each property. The entry 1905 square feet for the Listing I D 10042 is highlighted in yellow.

Return to Figure 3-37

Figure 3.38 Extended Description (Chapter 3)

Return to Figure 3-38

The table consists of five columns and sixteen rows. The column headings are Listing I D, Address, Construction, City, and Square footage, each with a drop-down arrow. The Listing I D column provides a unique numerical identifier for each property. The Address column lists the street address. The Construction column indicates the primary building material, such as Brick and Frame. The entry Brick is highlighted in yellow and is shown for the Listing I D's 10042, 10045, 10177, 10150, 10046, 10052, 10074, 10073, 10166, 10031, 10024, and 10044. The City column shows the city where the property is located, with the visible data representing listings in Auburn, Lincoln, Newcastle, Roseville, and Weimer. The entry Auburn is highlighted in yellow and is shown for the Listing I D's 10042, 10045, and 10177. The Square footage column displays the square footage of each property. The entry 1905 square feet for the Listing I D 10042 is highlighted in yellow.

Return to Figure 3-38

Figure 3.39 Extended Description (Chapter 3)

Return to Figure 3-39

The query table has five columns and six rows. The table has rows for various query parameters, such as Field, Table, Sort, Show, Criteria, and Or. The Field row shows the entries Listing I D, Address, City, Construction, and Square footage. The Table row shows the entries Listings in all five columns. Sorting is applied to the City, Construction, and Square footage fields, set to Ascending order. The Show row has check boxes in each column, all of which are checked. The Criteria and Or rows are empty. The column with the Construction field is selected and highlighted in black. A thick black vertical line is shown between the Address and City fields.

Return to Figure 3-39

Figure 3.40 Extended Description (Chapter 3)

Return to Figure 3-40

The dialog box has the text Selection type: Field Properties. The sheet has tabs for General and Lookup. The General tab is selected and shows a list of properties such as Description, Format, Decimal Places, Input Mask, and Caption.

Return to Figure 3-40

Figure 3.41 Extended Description (Chapter 3)

Return to Figure 3-41

The query table has five columns and six rows. The table has rows for various query parameters, such as Field, Table, Sort, Show, Criteria, and Or. The Field row shows the entries Listing I D, Address, City, List Price, and Square footage. The Table row shows the entries Listings in all five columns. The Sort row is empty. The Show row has check boxes in each column, all of which are checked. The Criteria row shows the entry “Auburn” for the City field, less than 350000 for the List Price field, and greater than 2000 for the Square footage field. These entries are together labeled Multiple criteria on the same row. The Or row is empty.

Return to Figure 3-41

Figure 3.42 Extended Description (Chapter 3)

Return to Figure 3-42

The query table has five columns and six rows. The table has rows for various query parameters, such as Field, Table, Sort, Show, Criteria, and Or. The Field row shows the entries Listing I D, Address, City, List Price, and Square footage. The Table row shows the entries Listings in all five columns. The Sort row is empty. The Show row has check boxes in each column, all of which are checked. The Criteria row shows the entry greater than or equal to 2000 And less than or equal to 3000 for the Square footage field. This entry is labeled Multiple criteria in one field. The Or row is empty.

Return to Figure 3-42

Figure 3.43 Extended Description (Chapter 3)

Return to Figure 3-43

The query table has one column and five rows. The first row displays the field name Square footage, followed by Listings. The third row is empty. A check box is shown in the fourth row. The fifth row has the entry Between 2000 And 3000.

Return to Figure 3-43

Figure 3.44 Extended Description (Chapter 3)

Return to Figure 3-44

The query table has five columns and seven rows. The table has rows for various query parameters, such as Field, Table, Sort, Show, Criteria, and Or. The Field row shows the entries Listing I D, Address, City, List Price, and Square footage. The Table row shows the entries Listings in all five columns. The Sort row is empty. The Show row has check boxes in each column, all of which are checked. The Criteria parameter has the criteria shown in different rows: Auburn for the City field in the fifth row, less than 350000 for the List Price field in the sixth row, and greater than 2000 for the Square footage field in the seventh row. These criteria are labeled Multiple criteria on different rows.

Return to Figure 3-44

Figure 3.45 Extended Description (Chapter 3)

Return to Figure 3-45

The query table has five columns and six rows. The table has rows for various query parameters, such as Field, Table, Sort, Show, Criteria, and Or. The Field row shows the entries Listing I D, Address, City, List Price, and Square footage. The Table row shows the entries Listings in all five columns. The Sort row is empty. The Show row has check boxes in each column, all of which are checked. The Criteria row shows the entry “Auburn” for the City field in the fifth row and the entry “Roseville” for the City field in the sixth row.

Return to Figure 3-45

Figure 3.46 Extended Description (Chapter 3)

Return to Figure 3-46

The query table has five columns and six rows. The table has rows for various query parameters, such as Field, Table, Sort, Show, Criteria, and Or. The Field row shows the entries Listing I D, Address, City, List Price, and Square footage. The Table row shows the entries Listings in all five columns. The Sort row is empty. The Show row has check boxes in each column, all of which are checked. The Criteria row shows the entry “Auburn” for the City field, less than 350000 for the List Price field, and greater than 2000 for the Square footage field. These entries are together labeled AND condition on the same row. The Or row shows the entry “Roseville” for the City field, which is labeled OR condition on different row.

Return to Figure 3-46

Figure 3.47 Extended Description (Chapter 3)

Return to Figure 3-47

The query table has five columns and six rows. The table has rows for various query parameters, such as Field, Table, Sort, Show, Criteria, and Or. The Field row shows the entries Listing I D, Address, City, List Price, and Square footage. The Table row shows the entries Listings in all five columns. The Sort row is empty. The Show row has check boxes in each column, all of which are checked. The Criteria row shows the entry “Auburn” for the City field, less than 350000 for the List Price field, and greater than 2000 for the Square footage field. These entries are together labeled AND condition on the same row. The Or row shows the entry “Roseville” for the City field, less than 350000 for the List Price field, and greater than 2000 for the Square footage field. These entries are together labeled AND condition on the same row. The entries for Criteria and Or rows are together labeled OR condition uses both AND conditions.

Return to Figure 3-47

Figure 3.48 Extended Description (Chapter 3)

Return to Figure 3-48

The query table has five columns and seven rows. The table has rows for various query parameters, such as Field, Table, Sort, Show, Criteria, and Or. The Field row shows the entries Listing I D, Address, City, List Price, and Square footage. The Table row shows the entries Listings in all five columns. The Sort row is empty. The Show row has check boxes in each column, all of which are checked. The Criteria row shows the entry “Auburn” for the City field and less than 350000 for the List Price field. These entries are together labeled AND condition on the same row. The Or row shows the entry “Roseville” for the City field. The seventh row shows the entry “Lincoln” for the City field and Between 2000 And 3000 for the Square footage field. These entries are together labeled AND condition on the same row. The entries for Criteria, Or, and the seventh rows are together labeled OR condition uses all three criteria rows.

Return to Figure 3-48

Figure 3.49 Extended Description (Chapter 3)

Return to Figure 3-49

The table has seven columns and six rows. The table has rows for various query parameters, such as Field, Table, Sort, Show, Criteria, and Or. The Field row shows the entries First Name, Last Name, Listing I D, Square footage, Address, City, and List Price. The Table row shows the entry Listings for Listing I D, Square footage, Address, City, and List Price fields, and the entry Agents for First Name and Last Name fields. The Sort row shows the entry Ascending for City and List Price fields. The Show row has check boxes in each column, with the check boxes for Listing I D, Square footage, Address, City, and List Price checked. The Criteria row shows the Criterion “Millie” for the First Name field and the Criterion “Bui” for the Last Name field. The Or row is empty.

Return to Figure 3-49

Figure 3.50 Extended Description (Chapter 3)

Return to Figure 3-50

The table consists of five columns and ten rows. The column headings are Listing I D, Square footage, Address, City, and List Price, each with a drop-down arrow. The table lists various properties, all in the city of Auburn, Lincoln, Rocklin, and Roseville. For example, the property with the Listing I D 10177 is at 9030 Upper Valley Road with a list price of $ 363,000 and is 2635 Square feet in size.

Return to Figure 3-50

Figure 3.51 Extended Description (Chapter 3)

Return to Figure 3-51

The table has eight columns and six rows. The table has rows for various query parameters, such as Field, Table, Sort, Show, Criteria, and Or. The Field row shows the entries Listing I D, Address, City, List Price, Square footage, Beds, Baths, and Garage. The Table row shows the entry Listings for all fields. The Sort row shows the entry Ascending for the City field and the entry Descending for the List Price field. The Show row has check boxes in each column, with each check box checked. The Criteria row shows “Rocklin” for the City field, less than or equal to 600000 for the List Price field, greater than or equal to 1800 for the Square footage field, greater than or equal to 3 for the Beds field, greater than or equal to 2 for the Baths field, and Like “?? (two question marks) Car” for the Garage field. The Or row shows “Roseville” for the City field, less than or equal to 550000 for the List Price field, greater than or equal to 1800 for the Square footage field, greater than or equal to 3 for the Beds field, greater than or equal to 2 for the Baths field, and Like in “?? (two question marks) Car” for the Garage field.

Return to Figure 3-51

Figure 3.52 Extended Description (Chapter 3)

Return to Figure 3-52

The table is titled Listings For Brandon Buchanan and consists of eight columns and nine rows. The column headings are Listing I D, Address, City, List Price, Square footage, Beds, Baths, and Garage, each with a drop-down arrow. The table lists various properties, all in the city of Rocklin and Roseville. The details are shown for the Listing I Ds 10145, 10176, 10165, 10047, 10025, 10079, 10030, 10031, and 10081. For example, the property with the Listing I D 10145 is at 5309 Clipper Road with a list price of $ 556,800.00, is 3187 square feet in size, has 4 bedrooms, 3 bathrooms, and a 3-car attached garage.

Return to Figure 3-52

Figure 3.53 Extended Description (Chapter 3)

Return to Figure 3-53

The dialog box consists of the Enter the City feature, with a blank bar below. The OK and Cancel buttons are present below.

Return to Figure 3-53

Figure 3.54 Extended Description (Chapter 3)

Return to Figure 3-54

The query table has four columns and six rows. The table has rows for various query parameters, such as Field, Table, Sort, Show, Criteria, and Or. The Field row shows the entries Listing I D, Address, City, and List Price. The Table row shows the entries Listings in all four columns. The Sort row is empty. The Show row has check boxes in each column, all of which are checked. The Criteria row shows the entry [Enter the City] for the City field and is labeled Parameter. The Or row is empty.

Return to Figure 3-54

Figure 3.55 Extended Description (Chapter 3)

Return to Figure 3-55

The dialog box consists of a box that displays the prompt “Between [Enter the smallest Square Footage] And [Enter the largest Square Footage].” The Font, OK, and Cancel buttons are present at the bottom.

Return to Figure 3-55

Figure 3.56 Extended Description (Chapter 3)

Return to Figure 3-56

The dialog box consists of the Enter the smallest Square Footage feature, with a blank bar below. The OK and Cancel buttons are present below.

Return to Figure 3-56

Figure 3.57 Extended Description (Chapter 3)

Return to Figure 3-57

The dialog box consists of the Enter the largest Square Footage feature, with a blank bar below. The OK and Cancel buttons are present below.

Return to Figure 3-57

Figure 3.58 Extended Description (Chapter 3)

Return to Figure 3-58

The query table has five columns and six rows. The table has rows for various query parameters, such as Field, Table, Sort, Show, Criteria, and Or. The Field row shows the entries Listing I D, Address, City, List Price, and Square footage. The Table row shows the entries Listings in all five columns. The Sort row is empty. The Show row has check boxes in each column, all of which are checked. The Criteria row shows the entry [What City?] for the City field and less than or equal to [Maximum List Price?] for the List Price field. The Or row is empty.

Return to Figure 3-58

Figure 3.59 Extended Description (Chapter 3)

Return to Figure 3-59

The dialog box shows the following error message: The value you entered isn’t valid for this field. For example, you may have entered text in a numeric field or a number that is larger than the Field Size setting permits.” The OK button is present at the bottom.

Return to Figure 3-59

Figure 3.60 Extended Description (Chapter 3)

Return to Figure 3-60

The Show or Hide Command group has buttons for Totals, Parameters, Property Sheet, and Table Names.

Return to Figure 3-60

Figure 3.61 Extended Description (Chapter 3)

Return to Figure 3-61

The dialog is divided into left and right sides. The left side shows a list of Parameter names. The right side shows the Data Type with a drop-down menu. The Parameter section shows the Maximum List Price? Parameter, which is highlighted. The Data Type section displays a drop-down menu with options such as Short Text, Yes or No, Byte, Integer, Long Integer, Currency, Single, Double, Decimal, and Value. The Currency option is highlighted in black.

Return to Figure 3-61

Figure 3.62 Extended Description (Chapter 3)

Return to Figure 3-62

The dialog box shows the prompt “Like [Enter the first word of the song] ampersand symbol “space asterisk.”

Return to Figure 3-62

Figure 3.63 Extended Description (Chapter 3)

Return to Figure 3-63

The dialog box consists of a box that displays the text “Commission: Open square bracket List Price close square bracket asterisk 0.025.” Commission is labeled Name of calculated field. Open square bracket List Price close square bracket is labeled Brackets surround table field names. 0.025 is labeled Constant. The Font, OK, and Cancel buttons are present at the bottom.

Return to Figure 3-63

Figure 3.64 Extended Description (Chapter 3)

Return to Figure 3-64

The dialog box has the text Selection type: Field Properties. The sheet has tabs for General and Lookup. The General tab is selected and shows a list of properties such as Description, Format, Input Mask, Caption, and Text Format. The Format property shows a drop-down menu with the following Format options: General Date, Long Date, Medium Date, Short Date, Long Time, Medium Time, Short Time, General Number, Currency, Euro, and Fixed. The Currency option is labeled Select the desired Format property option.

Return to Figure 3-64

Figure 3.65 Extended Description (Chapter 3)

Return to Figure 3-65

The dialog box consists of the List Price feature, with a blank bar below. The OK and Cancel buttons are present below.

Return to Figure 3-65

Figure 3.66 Extended Description (Chapter 3)

Return to Figure 3-66

The dialog box consists of a box that displays the text “Commission: Open square bracket List space Price close square bracket asterisk 0.025.” Open square bracket List space Price close square bracket is labeled Space between “List” and “Price.” The Font, OK, and Cancel buttons are present at the bottom.

Return to Figure 3-66

Figure 3.67 Extended Description (Chapter 3)

Return to Figure 3-67

The query table has three columns and five rows. The table has rows for various query parameters, such as Field, Table, Sort, Show, and Criteria. The Field row shows the entries Listing I D, List Price, and E x p r 1: [List Price] asterisk 0.025. E x p r 1 is labeled Generic field name. The Table row shows the entries Listings in the Listing I D and List Price columns. The Sort row is empty. The Show row has check boxes in each column, all of which are checked. The Criteria row is empty.

Return to Figure 3-67

Figure 3.68 Extended Description (Chapter 3)

Return to Figure 3-68

The table consists of three columns and four rows. The column headings are Listing I D, List Price, and E x p r 1. The Listing I D column displays the unique identification values such as 10022, 10023, 10024, and 10025. The List Price column displays the list price for each listing with the values $374,900.00, $379,000.00, $1,189,900.00, and $439,000.00. The E x p r 1 column displays values, such as $9,372.50, $9,475.00, $29,747.50, and $10,975.00.

Return to Figure 3-68

Figure 3.69 Extended Description (Chapter 3)

Return to Figure 3-69

The dialog box consists of a box that displays the text “Agent’s Name: Left ([First Name],1) ampersand “period space” ampersand [Last Name].”

Return to Figure 3-69

Figure 3.70 Extended Description (Chapter 3)

Return to Figure 3-70

The table has three columns and six rows. The table has rows for various query parameters, such as Field, Table, Sort, Show, Criteria, and Or. The Field row shows the entries Agent's Name: Left ([First Name], 1) ampersand "period space" ampersand [Last Name], Listing I D, and List Price. The Table row shows the entry Listings for Listing I D and List Price fields. The Sort row is blank. The Show row has check boxes in each column, with each check box checked. The Criteria and Or rows are empty.

Return to Figure 3-70

Figure 3.71 Extended Description (Chapter 3)

Return to Figure 3-71

The table is titled Potential Commission By Property and consists of three columns and fifty-seven rows, out of which fourteen rows are visible. The column headings are Agent's Name, Listing I D, and List Price, each with a drop-down arrow. The table lists the Listing I Ds and List Price for the properties by M. Bui, K. Weatherby, and R. Chung.

Return to Figure 3-71

Figure 3.72 Extended Description (Chapter 3)

Return to Figure 3-72

The table consists of four columns and five rows. The column headings are Agent's Name, Listing I D, List Price, and Potential Commission, each with a drop-down arrow. The table lists the Listing I Ds, List Prices, and Potential Commissions for the properties by M. Bui. The values of the Potential Commissions are $ 9,372.50, $ 10,725.00, $ 8,687.50, $ 10,300.00, and $ 8,237.50.

Return to Figure 3-72

Figure 3.73 Extended Description (Chapter 3)

Return to Figure 3-73

The table consists of four columns and five rows. The column headings are Agent's Name, Listing I D, List Price, and Potential Commission, each with a drop-down arrow. The table lists the Listing I Ds, List Prices, and Potential Commissions for the properties by G. Montoya.

Return to Figure 3-73

Figure 3.74 Extended Description (Chapter 3)

Return to Figure 3-74

The query table has three columns and seven rows. The table has rows for various query parameters, such as Field, Table, Total, Sort, Show, Criteria, and Or. The Field row shows the entries City, Construction, and List Price. The Table row shows the entries Listings in all three columns. The Total row shows the entry Group By in all the columns labeled Group By value. The Total row is highlighted. The Group By entry for the List Price field has a drop-down menu showing the Common aggregate function options such as Sum, A v g, Min, Max, and Count. The Sort row is empty. The Show row has check boxes in each column, all of which are checked. The Criteria and Or rows are empty.

Return to Figure 3-74

Figure 3.75 Extended Description (Chapter 3)

Return to Figure 3-75

The table consists of three columns and twelve rows. The column headings are City, Construction, and List Price, each with a drop-down arrow. The City column shows the entry Auburn in rows one to seven, and the entry Lincoln in rows eight to twelve. The Construction column indicates the primary building material, such as Brick and Frame. The List Price column shows the listed price of each property.

Return to Figure 3-75

Figure 3.76 Extended Description (Chapter 3)

Return to Figure 3-76

The table consists of three columns and seventeen rows. The column headings are City, Construction, and Average Of List Price, each with a drop-down arrow. The Average Of List Price column shows the average of the listed price for each city and the construction material used. Row one to row three shows the following entries: Auburn, Brick, and $396,166.67. Auburn, Frame, and $403,000.00. Auburn, Stone, and $397,000.00.

Return to Figure 3-76

Figure 3.77 Extended Description (Chapter 3)

Return to Figure 3-77

The Show or Hide Command group has buttons for Totals, Parameters, Property Sheet, and Table Names.

Return to Figure 3-77

Figure 3.78 Extended Description (Chapter 3)

Return to Figure 3-78

The query table has three columns and seven rows. The table has rows for various query parameters, such as Field, Table, Total, Sort, Show, Criteria, and Or. The Field row shows the entries City, Construction, and List Price. The Table row shows the entries Listings in all three columns. The Total row shows the entry Group By in all the columns. The Group By entry for the List Price field has a drop-down menu showing the Common aggregate function options such as Sum, A v g, Min, Max, Count, S t Dev, and V a r. The Count option is selected. The Sort row is empty. The Show row has check boxes in each column, all of which are checked. The Criteria and Or rows are empty.

Return to Figure 3-78

Figure 3.79 Extended Description (Chapter 3)

Return to Figure 3-79

The query table has three columns and seven rows. The table has rows for various query parameters, such as Field, Table, Total, Sort, Show, Criteria, and Or. The Field row shows the entry List Price in all columns. The Table row shows the entry Listings in all columns. The Total row shows the entries A v g, Max, and Min. The Sort row is empty. The Show row has check boxes in each column, all of which are checked. The Criteria and Or rows are empty.

Return to Figure 3-79

Figure 3.80 Extended Description (Chapter 3)

Return to Figure 3-80

The query table has three columns and one row. The column headings are Average Of List Price, Max Of List Price, and Minimum List Price. The Average Of List Price column displays the entry $476,024.33. The Max Of List Price column displays the entry $3,011,500.00. The Minimum List Price column displays the entry 109,900.00.

Return to Figure 3-80

Figure 3.81 Extended Description (Chapter 3)

Return to Figure 3-81

The query table has two columns and seven rows. The table has rows for various query parameters, such as Field, Table, Total, Sort, Show, Criteria, and Or. The Field row shows the entries List Price and Date Listed. The Table row shows the entry Listings in both columns. The Total row shows the entry A v g for the List Price field and the entry Where for the Date Listed field. The entry Where is labeled Select the Where option. The Sort row is empty. The Show row has check boxes in each column of which the check box for List Price is checked. The Criteria row shows the entry for Date Listed as greater than or equal to 3/1/2026 hash symbol, which is labeled Enter criteria.

Return to Figure 3-81

Figure 3.82 Extended Description (Chapter 3)

Return to Figure 3-82

The table consists of three columns and seventeen rows. The column headings are City, Construction, and Count Of List Price, each with a drop-down arrow. The Count Of List Price column shows the count of the listed price for each city and the construction material used. Row one to row three shows the following entries: Auburn, Brick, and 3. Auburn, Frame, and 3. Auburn, Stone, and 1.

Return to Figure 3-82

Figure 3.83 Extended Description (Chapter 3)

Return to Figure 3-83

The table has four columns and six rows. The column headings are City, Brick, Frame, and Stone. The City column is labeled Row Heading in a crosstab query, and the three column headings are labeled Column Heading displays one column for each value in the table. The first row shows the entries: Auburn, 3 Brick, 3 Frame, and 1 Stone. The second row shows the entries: Lincoln, 4 Brick, 7 Frame, and 2 Stone. The third row shows the entries: Newcastle, 2 Brick, 4 Frame, and 1 Stone. The fourth row shows the entries: Rocklin, 0 Brick, 13 Frame, and 2 Stone. The fifth row shows the entries: Roseville, 2 Brick, 6 Frame, and 3 Stone. The sixth row shows the entries: Weimer, 1 Brick, 2 Frame, and 1 Stone.

Return to Figure 3-83

Figure 3.84 Extended Description (Chapter 3)

Return to Figure 3-84

The dialog box shows the question “Which table or query contains the fields you want for the crosstab query results?” The question is followed by the text “To include fields from more than one table, create a query containing all the fields you need and then use this query to make the crosstab query.” On the right, a box lists two options: Table: Agents and Table: Listings. Below the box is the View feature with three radio buttons for Tables, Queries, and Both. The Table radio button is selected. Below the radio buttons is the text Sample. The Sample shows a table with four columns and four rows. The column headings for columns two to four are Header 1, Header 2, and Header 3. The cell below Header 1 in the first row has the text TOTAL. The Cancel, Back, Next, and Finish buttons are present below. The Next button is selected.

Return to Figure 3-84

Figure 3.85 Extended Description (Chapter 3)

Return to Figure 3-85

The dialog box shows the question “Which fields’ values do you want as row headings?” The question is followed by the text “You can select up to three fields. Select fields in the order you want information sorted. For example, you could sort and group values by Country and then Region.” On the right, a box labeled Available Fields lists various fields such as Listing I D, Date Listed, List Price, Address, Square footage, Beds, Baths, Garage, Year Built, Construction, and Listing Agent Number. The Square footage field is selected. To the right of this is another box labeled Selected Fields that shows the text City. Between the boxes are buttons to move the fields between the lists. Below this is the text Sample. The Sample shows a table with four columns and four rows. The column headings are City, Header 1, Header 2, and Header 3. The entries in the City column are City 1, City 2, City 3, and City 4. The cell below Header 1 in the first row has the text TOTAL. The Cancel, Back, Next, and Finish buttons are present below. The Next button is selected.

Return to Figure 3-85

Figure 3.86 Extended Description (Chapter 3)

Return to Figure 3-86

The dialog box shows the question “Which field’s values do you want as column headings?” The question is followed by the text “For example, you would select Employee Name to see each employee’s name as a column heading.” On the right, a box shows a list of fields such as Listing I D, Date Listed, List Price, Address, Square footage, Beds, Baths, Garage, Year Built, Construction, and Listing Agent Number. Below the box is the text Sample. The Sample shows a table with four columns and four rows. The column headings are City, Construction 1, Construction 2, and Construction 3. The entries in the City column are City 1, City 2, City 3, and City 4. The cell below Construction 1 in the first row has the text TOTAL. The Cancel, Back, Next, and Finish buttons are present below. The Next button is selected.

Return to Figure 3-86

Figure 3.87 Extended Description (Chapter 3)

Return to Figure 3-87

The dialog box shows the question “By which interval do you want to group your Date and Time column information?” The question is followed by the text “For example, you could summarize Order Amount by month for each country and region.” On the right, a box shows a list of intervals such as Year, Quarter, Month, Date, and Date and Time. Below the box is the text Sample. The Sample shows a table with four columns and four rows. The column headings are City, Quarter 1, Quarter 2, and Quarter 3. The entries in the City column are City 1, City 2, City 3, and City 4. The cell below Quarter 1 in the first row has the text A v g (Listing I D). The Cancel, Back, Next, and Finish buttons are present below. The Next button is selected.

Return to Figure 3-87

Figure 3.88 Extended Description (Chapter 3)

Return to Figure 3-88

The dialog box shows the question “What number do you want calculated for each column and row intersection?” The question is followed by the text “For example, you could calculate the sum of the field Order Amount for each employee (column) by country and region (row). Do you want to summarize each row?” This is followed by a check box with the text “Yes, include row sums.” The check box is checked. On the right, a box labeled Fields lists various fields such as Listing I D, Date Listed, List Price, Address, Square footage, Beds, Baths, Garage, Year Built, and Listing Agent Number. The List Price field is selected. To the right of this is another box labeled Functions that shows a list of functions such as A v g, Count, First, Last, Max, Min, S t Dev, Sum, and V a r. Below this is the text Sample. The Sample shows a table with four columns and four rows. The column headings are City, Construction 1, Construction 2, and Construction 3. The entries in the City column are City 1, City 2, City 3, and City 4. The cell below Construction 1 in the first row has the text Count (List Price). The Cancel, Back, Next, and Finish buttons are present below. The Next button is selected.

Return to Figure 3-88

Figure 3.89 Extended Description (Chapter 3)

Return to Figure 3-89

The table is titled Listings City Construction Crosstab and has five columns and six rows. The column headings are City, Total Of List Price, Brick, Frame, and Stone. The Total Of List Price column is labeled Summary data results from including row sums. The first row shows the entries: Auburn, 7, 3 Brick, 3 Frame, and 1 Stone. The second row shows the entries: Lincoln, 13, 4 Brick, 7 Frame, and 2 Stone. The third row shows the entries: Newcastle, 7, 2 Brick, 4 Frame, and 1 Stone. The fourth row shows the entries: Rocklin, 15, 0 Brick, 13 Frame, and 2 Stone. The fifth row shows the entries: Roseville, 11, 2 Brick, 6 Frame, and 3 Stone. The sixth row shows the entries: Weimer, 4, 1 Brick, 2 Frame, and 1 Stone.

Return to Figure 3-89

Figure 3.90 Extended Description (Chapter 3)

Return to Figure 3-90

The query is titled Listings City Construction Crosstab. A box titled Listings displays a list of fields such as Listing I D, Date Listed, List Price, Address, City, and Square footage. A query design grid shows a table below with four columns and seven rows. The table has rows for various query parameters, such as Field, Table, Total, Crosstab, Sort, Criteria, and Or. The Field row shows the entries City, Construction, List Price, and Total of List Price: List Price. The Table row shows the entry Listings in all columns. The Crosstab row shows the entries Row Heading for the City Field, Column Heading for the Construction Field, Value for the List Price field, and Row Heading for the Total of List Price: List Price field. The Crosstab row is labeled Crosstab row displays selections. The Sort, Criteria, and Or rows are empty.

Return to Figure 3-90

Figure 3.91 Extended Description (Chapter 3)

Return to Figure 3-91

The table has four columns and seven rows. The table has rows for various query parameters, such as Field, Table, Total, Sort, Show, Criteria, and Or. The Field row shows the entries First Name, Last Name, List Price, and List Price. The Table row shows the entry Listings for the two List Price fields, and the entry Agents for First Name and Last Name fields. The Total row shows the entry Group By for the First Name and Last Name fields and the entry Count and Average for the two List Price fields. The Sort row is blank. The Show row has check boxes in each column, with each check box checked. The Criteria and Or rows are empty.

Return to Figure 3-91

Figure 3.92 Extended Description (Chapter 3)

Return to Figure 3-92

A screenshot of a Microsoft Access query result titled Listing Count And Avg List Price By Agent. The results are displayed in a datasheet view with four columns: First Name, Last Name, Count Of List Price, and Avg Of List Price. The entire Avg Of List Price column is selected. The table shows seven records, sorted alphabetically by first name. The first record is for Calvin Walters, with a count of 9 and an average list price of $658,411.11. The second is Gerardo Montoya, with a count of 5 and an average of $459,300.00. The third is John Burgess, with a count of 5 and an average of $429,580.00. The fourth is Kallyn Duarte, with a count of 8 and an average of $474,324.88. The fifth is Kelly Weatherby, with a count of 12 and an average of $682,058.25. The sixth is Millie Bui, with a count of 10 and an average of $392,430.00. The final record is for Rick Chung, with a count of 8 and an average of $503,337.50. At the bottom of the window is a record navigation bar, indicating 1 of 7 records are displayed, along with a No Filter status and a search box.

Return to Figure 3-92

Figure 3.93 Extended Description (Chapter 3)

Return to Figure 3-93

The table is titled Listings City Construction Crosstab and has five columns and six rows. The column headings are City, Total Of List Price, Brick, Frame, and Stone. The first row shows the entries: Auburn, 7, 3 Brick, 3 Frame, and 1 Stone. The second row shows the entries: Lincoln, 13, 4 Brick, 7 Frame, and 2 Stone. The third row shows the entries: Newcastle, 7, 2 Brick, 4 Frame, and 1 Stone. The fourth row shows the entries: Rocklin, 15, 0 Brick, 13 Frame, and 2 Stone. The fifth row shows the entries: Roseville, 11, 2 Brick, 6 Frame, and 3 Stone. The sixth row shows the entries: Weimer, 4, 1 Brick, 2 Frame, and 1 Stone.

Return to Figure 3-93

Figure 3.94 Extended Description (Chapter 3)

Return to Figure 3-94

The dialog box shows the question “Which fields do you want in your query? This is followed by the text “You can choose from more than one table or query.” Below this is the Tables or Queries feature with a drop-down menu set to Table: Albums. Below this, on the left, there is a panel titled Available Fields, containing a list of options like Album I D, Album Name, Artist, Genre, Length, Recording Label, and Release Date, with Album I D, selected. On the right, another pane is titled Selected Fields, which is blank. Between the panes, there are four buttons to move fields back and forth. The Move Single Field button is at the top. The Cancel, Back, Next, and Finish buttons are present below. The Next button is selected.

Return to Figure 3-94

Figure 3.95 Extended Description (Chapter 3)

Return to Figure 3-95

The window shows a list of data fields such as Album Name, Artist, Genre, Release Date, and Song Title. The Song Title field is selected.

Return to Figure 3-95

Figure 3.96 Extended Description (Chapter 3)

Return to Figure 3-96

The query is titled Songs On Albums and consists of five columns and nine rows. The column headings are Album Name, Artist, Genre, Release Date, and Song Title, each with a drop-down arrow. The row entries are as follows:

Row 1: The Thrill of It All, Sam Smith, Pop, 03-Nov-17, Too Good at Goodbyes.

Row 2: The Thrill of It All, Sam Smith, Pop, 03-Nov-17, Say It First.

Row 3: The Thrill of It All, Sam Smith, Pop, 03-Nov-17, One Last Song.

Row 4: The Thrill of It All, Sam Smith, Pop, 03-Nov-17, Midnight Train.

Row 5: Greatest Hits (Volume One), Queen, Rock, 26-Oct-81, We Will Rock You.

Row 6: Greatest Hits (Volume One), Queen, Rock, 26-Oct-81, We Are the Champions.

Row 7: The Tortured Poets Department, Taylor Swift, Pop, 19-Apr-24, Fortnight (featuring Post Malone).

Row 8: The Tortured Poets Department, Taylor Swift, Pop, 19-Apr-24, The Tortured Poets Department.

Row 9: The Tortured Poets Department, Taylor Swift, Pop, 19-Apr-24, My Boy Only Breaks His Favorite Toys.

Return to Figure 3-96

Figure 3.97 Extended Description (Chapter 3)

Return to Figure 3-97

The dialog box consists of the question Show songs by which Artist? A bar is shown below with the entry Taylor Swift. The OK and Cancel buttons are present below.

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Figure 3.98 Extended Description (Chapter 3)

Return to Figure 3-98

The table consists of five columns and five rows. The column headings are Album Name, Artist, Genre, Release Date, and Number of Songs, each with a drop-down arrow. The table shows the Album Names by Taylor Swift along with the Genre, the Release Date, and the Number of Songs in each album. The row entries are as follows:

Row 1: The Tortured Poets Department, Taylor Swift, Pop, 19-Apr-24, 16.

Row 2: Midnights, Taylor Swift, Pop, 21-Oct-22, 13.

Row 3: Evermore, Taylor Swift, Pop and Rock, 11-Dec-20, 17.

Row 4: Reputation, Taylor Swift, Pop, 10-Nov-17, 15.

Row 5: 1989, Taylor Swift, Pop, 27-Oct-14, 13.

Return to Figure 3-98

Figure 3.99 Extended Description (Chapter 3)

Return to Figure 3-99

The table has four columns and thirteen rows. The column headings are Boat I D, Boat Type, Full Day Rate, and Four Hour Rental. The Boat I D column shows I Ds such as 1003, 1015, 1146, 1152, 1185, 1225, 1310, 1401, and 1419. The Boat I Ds 1003, 1015, 1152, and 1225 are displayed twice. The Boat Type column shows the model or type of sailboat, which includes Catalina 270, Hunter 33, Capri 22 M k 2, Hunter 36, and Beneteau 373. The Full Day Rate column shows rates such as $ 205.00, $ 355.00, $ 121.00, $ 395.00, and $ 455.00. The Four Hour Rental column consists of check boxes. The check boxes are checked for the Boat I Ds 1003, 1015, 1152, 1225, 1401, and 1419.

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Figure 3.100 Extended Description (Chapter 3)

Return to Figure 3-100

The query table has four columns and seven rows. The table has rows for various query parameters, such as Field, Table, Total, Sort, Show, Criteria, and Or. The Field row shows the entries F K Boat I D, Boat Type, Full Day Rental Rate, and Four Hour Rental? The Table row shows the entry S D Rentals for the F K Boat I D and Four Hour Rental fields, and the entry Sailboat Fleet for the Boat Type and Full Day Rental Rate fields. The Total row shows the entry Group By for F K Boat I D and Boat Type fields, and the entries Sum and Where for Full Day Rental Rate and Four Hour Rental? fields, respectively. The Sort row is empty. The Show row has check boxes in each column of which the checkboxes for F K Boat I D, Boat Type, and Full Day Rental Rate fields are checked. The Criteria row shows the entry No for the Four Hour Rental field.

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Figure 3.101 Extended Description (Chapter 3)

Return to Figure 3-101

The table has three columns and seven rows. The column headings are Boat I D, Boat Type, and Sum Of Full Day Rental Rate. The Boat I D column shows I Ds such as 1003, 1015, 1146, 1152, 1185, 1225, and 1310. The Boat Type column shows the model or type of sailboat, which includes Catalina 270, Hunter 33, Capri 22 M k 2, Hunter 36, and Beneteau 373. The Sum Of Full Day Rental Rate column shows the sum of the full day rental rates.

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Figure 3.102 Extended Description (Chapter 3)

Return to Figure 3-102

The query table has six columns and seven rows. The table has rows for various query parameters, such as Field, Table, Total, Sort, Show, Criteria, and Or. The Field row shows the entries F K Boat I D, Boat Type, Full Day Rental Rate, Four Hour Rental, Full Day Rental Rate, and Rental Date. The Table row shows the entry S D Rentals for the F K Boat I D, Four Hour Rental, and Rental Date fields, and the entry Sailboat Fleet for the Boat Type, Full Day Rental Rate, and Full Day Rental Rate fields. The Total row shows the entry Group By for F K Boat I D and Boat Type fields, the entry Sum for the Full Day Rental Rate field, the entry Where for Four Hour Rental and Rental Date fields, and the entry Count for the Full Day Rental Rate field. The Sort row is empty. The Show row has check boxes in each column of which the checkboxes for F K Boat I D, Boat Type, and Full Day Rental Rate fields are checked. The Criteria row shows the entry No for the Four Hour Rental field, and the entry Between [Enter the Start Date] And [Enter the End Date] in the Rental Date field.

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Figure 3.103 Extended Description (Chapter 3)

Return to Figure 3-103

The table has four columns and four rows. The column headings are Boat I D, Boat Type, Sum Of Full Day Rental Rate, and Count of Full Day Rentals. The Boat I D column shows I Ds such as 1146, 1152, 1225, and 1310. The Boat Type column shows the model or type of sailboat, which includes Hunter 33, Capri 22 M k 2, Hunter 36, and Beneteau 373. The Sum Of Full Day Rental Rate column shows the sum of the full day rental rates. The Count of Full Day Rentals column shows the entries 1, 1, 3, and 1.

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Figure 3.104 Extended Description (Chapter 3)

Return to Figure 3-104

The table has two columns and twenty-eight rows. The column headings are Boat I D and Boat Type. The Boat I D column shows I Ds such as 1003, 1015, 1146, 1152, 1185, 1225, 1310, 1401, and 1419. The Boat I D 1003 is repeated 8 times, 1015 is repeated 2 times, 1146 is repeated 3 times, 1152 is repeated 6 times, and 1225 is repeated 5 times are repeated. The Boat Type column shows the model or type of sailboat, which includes Catalina 270, Hunter 33, Capri 22 M k 2, Hunter 36, and Beneteau 373. For example, Boat I D 1003 (Catalina 270) appears multiple times consecutively.

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Figure 3.105 Extended Description (Chapter 3)

Return to Figure 3-105

The query is titled Query 1. Two boxes placed side-by-side are titled S D Rentals and Sailboat Fleet. The S D Rentals box lists fields such as Rental I D, F K Boat I D, Rental Date, Four Hour Rental, and Member I D. A short horizontal line on the right, corresponding to F K Boat I D, has the infinity symbol. The Sailboat Fleet box lists fields such as Boat I D, Boat Type, Length, Seats, Sleeps, Four Hour Rental Rate, Full Day Rental Rate, Gallery With Stove, and Model Year. A short horizontal line on the left, corresponding to Boat I D, has the number 1. A line from the infinity line extends up to the 1 line. A query design grid shows a table below with two columns and six rows. The table has rows for various query parameters, such as Field, Table, Sort, Show, Criteria, and Or. The Field row shows the entries F K Boat I D and the Boat Type. The Table row shows the entries S D Rentals and Sailboat Fleet. The Sort row indicates that the results will be sorted in Ascending order based on the F K Boat I D field. The Show row has check boxes in each column, with each checkbox checked. The Criteria and Or rows are empty. On the right of the query and the query design grid is the Property Sheet. The text Selection type: Query Properties is shown below. The sheet has a tab for General. The General tab shows a list of properties such as:

Description: Blank.

Default View: Datasheet.

Output All Fields: No.

Top Values: All.

Unique Values: Yes (Highlighted in black).

Unique Records: No.

Record Locks: No Locks.

Recordset Type: Dynaset.

Order By: Blank.

Max Records: Blank.

Orientation: Left-to-Right.

Subdatasheet Name: Blank.

Link Child Fields: Blank.

Link Master Fields: Blank.

Subdatasheet Height: 0 inches.

Subdatasheet Expanded: No.

Filter On Load: No.

Order By On Load: Yes.

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Figure 3.106 Extended Description (Chapter 3)

Return to Figure 3-106

The table has two columns and nine rows. The column headings are Boat I D and Boat Type. The Boat I D column shows I Ds such as 1003, 1015, 1146, 1152, 1185, 1225, 1310, 1401, and 1419. The Boat Type column shows the model or type of sailboat, which includes Catalina 270, Hunter 33, Capri 22 M k 2, Hunter 36, and Beneteau 373. The Boat Types are repeated.

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Figure 3.107 Extended Description (Chapter 3)

Return to Figure 3-107

The table has one column and five rows. The column heading is Boat Type. The Boat Type column shows the model or type of sailboat, which includes Beneteau 373, Capri 22 M k 2, Catalina 270, Hunter 33, and Hunter 36.

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Figure 3.108 Extended Description (Chapter 3)

Return to Figure 3-108

The Microsoft Access query design window is titled Query 1. Two database tables, Members and Race Results, are displayed in the upper section and connected by a one-to-many relationship through the Member I D field. The Members table has fields for personal details such as Member I D, First Name, Last Name, Address, City, State, ZIP Code, Email Address, and Cell Phone Number. The Race Results table contains Race I D, F K Member I D, Place, Time, Division, and Age Group fields. The lower section of the window shows the query design grid, which includes three selected fields. They are Member Name, Race I D, and Place from the Race Results table. All three fields have the Show option enabled. No sorting or filtering criteria are applied.

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Figure 3.109 Extended Description (Chapter 3)

Return to Figure 3-109

The Microsoft Access query result window is in the form of a table. The table contains three columns. The column headings are Member Name, Race I D, and Place. The dataset lists members with abbreviated names, their Race I Ds ranging from 1 to 6, and their placement in those races. The records are grouped by member names, showing their multiple-race participation and varying placements. Some members, such as M. Walters and S. Schooler, appear multiple times with different Race I D values. The table has 26 records, and the Place values range from 1 to 10.

Return to Figure 3-109

Figure 3.110 Extended Description (Chapter 3)

Return to Figure 3-110

The Microsoft Access query result shows a table with three columns and five rows. The column headings are Member Name, Race I D, and Place. The Member Name column displays abbreviated names. The Race I D column contains values from 1 to 5. The Place column has a value of 1 for all records. Row one to row five shows the following entries: M. Jepson, 1, and 1. M. Walters, 2, and 1. M. Walters, 3, and 1. R. Hermenn, 4, and 1. G. Lingle, 5, and 1.

Return to Figure 3-110

Figure 3.111 Extended Description (Chapter 3)

Return to Figure 3-111

The dialog box has a yellow animation at the top-left corner that depicts three tables and an arrow that points to a large datasheet. On the right side, shows the question, Which fields do you want in your query? This is followed by the text, You can choose from more than one table or query. Below the animation, is the Tables or Queries feature with a drop-down menu set to Table: Race results. Below this, on the left, there is a panel titled Available Fields, containing a list of options like Race I D, F K Member I D, Place, and Time. The Time option is selected. On the right, another pane is titled Selected Fields, containing a list of options like Member I D, First Name, Last Name, Division, and Age Group. Between the panes, there are four buttons to move fields back and forth. The Move Single Field button is at the top. The Cancel, Back, Next, and Finish buttons are present below. The Next button is selected.

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Figure 3.112 Extended Description (Chapter 3)

Return to Figure 3-112

The table contains five columns: Member ID, First Name, Last Name, Division, and AgeGroup. The first record, for Geneva Lingle, is highlighted. The data in the table is as follows: Row 1: Member ID 1, First Name Geneva, Last Name Lingle, Division F, AgeGroup greater than or equal to 20 and less than 30. Row 2: Member ID 2, First Name Megan, Last Name Walters, Division F, AgeGroup greater than or equal to 30 and less than 40. Row 3: Member ID 3, First Name Ryan, Last Name Thomas, Division M, AgeGroup greater than or equal to 30 and less than 40. Row 4: Member ID 4, First Name Roy, Last Name Baxter, Division M, AgeGroup greater than or equal to 30 and less than 40. Row 5: Member ID 5, First Name Margaret, Last Name Jepson, Division M, AgeGroup greater than or equal to 30 and less than 40. Row 6: Member ID 6, First Name Javier, Last Name Mendoza, Division M, AgeGroup greater than or equal to 30 and less than 40. Row 7: Member ID 7, First Name Melanie, Last Name Figueroa, Division F, AgeGroup greater than or equal to 20 and less than 30. Row 8: Member ID 8, First Name Sue, Last Name Schooler, Division F, AgeGroup greater than or equal to 30 and less than 40. Row 9: Member ID 9, First Name Kelsey, Last Name Kroll, Division F, AgeGroup less than 20. Row 10: Member ID 10, First Name Rick, Last Name Hermenn, Division M, AgeGroup greater than or equal to 20 and less than 30. Row 11: Member ID 11, First Name Karen, Last Name Graves, Division F, AgeGroup greater than or equal to 30 and less than 40. Row 12: Member ID 12, First Name Robyn, Last Name Constantini, Division F, AgeGroup less than 20. Row 13: Member ID 14, First Name Randy, Last Name Clemmins, Division M, AgeGroup greater than or equal to 30 and less than 40. Row 14: Member ID 15, First Name Amber, Last Name Harrison, Division F, AgeGroup greater than or equal to 20 and less than 30. Row 15: Member ID 17, First Name Marco, Last Name Guzman, Division M, AgeGroup greater than or equal to 20 and less than 30. Row 16: Member ID 17, First Name Marco, Last Name Guzman, Division M, AgeGroup greater than or equal to 30 and less than 40. Row 17: Member ID 18, First Name Dean, Last Name Teague, Division M, AgeGroup greater than or equal to 30 and less than 40. At the bottom of the window, a navigation bar indicates “Record: 1 of 17” and includes navigation arrows, a “No Filter” button, and a search box.

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Figure 3.113 Extended Description (Chapter 3)

Return to Figure 3-113

The query table has five columns and six rows. The table has rows for various query parameters, such as Field, Table, Sort, Show, Criteria, and Or. The Field row shows the following entries: Album Name, Artist, Song Title, and Length. The table row shows the entry Albums for the Album Name and Artist, and Songs for the Song Title and Length. The Sort row is blank except for the Length field shows Ascending. The Show row has check boxes in each column, all of which are checked. The Criteria row shows [Enter the Album Name] for the Album Name field and Between hash symbol 12:03:00 A M hash symbol And hash symbol 12:04:00 A M hash symbol for the Length field. The Or row shows the entry [Enter the Artist Name] for the Artist field and Between hash symbol 12:03:00 A M hash symbol And hash symbol 12:04:00 A M hash symbol for the Length field.

Return to Figure 3-113

Figure 3.114 Extended Description (Chapter 3)

Return to Figure 3-114

The Microsoft Access query result window shows a table with four columns and four rows. The column headings are Album Name, Artist, Song Title, and Length. Each row contains details of a song. All songs belong to the album The Off-Season by Artist J. Cole. The song titles listed are 95 South with a duration of 3:16, Pride is the Devil (with Lil Baby) with a duration of 3:38, My Life (with 21 Savage and Morray) with a duration of 3:38, and Hunger on Hillside (with Bas) with a duration of 3:58.

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Figure 3.115 Extended Description (Chapter 3)

Return to Figure 3-115

The Microsoft Access query result window shows a database table titled 3 to 4 Minute Songs-Artist-or-Album-Choice, which displays metadata for eleven songs by J. Cole that are between 3 and 4 minutes in length. The table has four columns and eleven rows. The column headings are Album Name, Artist, Song Title, and Length. The Album Name column alternates between K O D and The Off-Season, with J. Cole listed as the artist for all rows. Row one to row three shows the following entries: K O D, J. Cole, 1985 (Intro to The Fall Off), and 3:10. K O D, J. Cole, K O D, and 3:11. The Off-Season, J. Cole, 95 South, and 3:16.

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Figure 3.116 Extended Description (Chapter 3)

Return to Figure 3-116

The table consists of three columns and twenty-five rows. The column headings are City, Primary Factor, and Number of Tickets. The City column lists: Albany, Buffalo, New York, Syracuse, Utica, and Yonkers. The Primary Factor column lists Common traffic violations such as Alcohol, Unsafe Speed, Improper Turn, Passing or Lane Violation, and Improper Cell Phone Use. The number of tickets issued per violation ranges from 1 to 5. Row one to row three shows the following entries: Albany, Alcohol, and 1. Albany, Improper Turn, and 2. Albany, Unsafe Speed, and 1.

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Figure 3.117 Extended Description (Chapter 3)

Return to Figure 3-117

The table consists of two columns and nine rows. The column headings are Primary Factor and Number of Tickets. The first column lists different traffic violations, while the second column shows the number of tickets issued for each cause. The first row shows the entries: Unsafe Speed and 11. The second row shows the entries: Alcohol and 9. The third row shows the entries: Improper Turn and 5. The fourth row shows the entries: Improper Electronic Device Use Slash Texting and 5. The fifth row shows the entries: Improper Cell Phone Use and 4. The sixth row shows the entries: Passing or Lane Violation and 3. The seventh row shows the entries: Traffic Control Disregarded and 2. The eighth row shows the entries: Failed to Yield R.O.W and 1. The ninth row shows the entries: Expired Registration and 1.

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Figure 3.118 Extended Description (Chapter 3)

Return to Figure 3-118

The table consists of two columns and twenty-four rows. The column headings are License Number, First Name, Last Name, Sum Of Fine, and Count Of Tickets. Row one to row three shows the following entries: 15500786, Brain, Shin, $1,130.00, and 4. 10004387, Miranda, Jones, $840.00, and 2. 15503625, Corey, Norman, $840.00, and 2.

Return to Figure 3-118

Figure 3.119 Extended Description (Chapter 3)

Return to Figure 3-119

The table consists of eight columns and nine rows. The column headings are Primary Factor, Total Of Tickets, Albany, Buffalo, New York, Syracuse, Utica, and Yonkers. The Primary factor column shows the common traffic violations. Row one to row three shows the following entries: Alcohol, 9, 1, 1, 1, 1, and 5. Expired Registration, 1, Blank, Blank, Blank, 1, Blank, and Blank. Failed to Yield R.O.W, 1, Blank, Blank, Blank, Blank, 1, and Blank.

Return to Figure 3-119

Figure 3.120 Extended Description (Chapter 3)

Return to Figure 3-120

The Microsoft Access query result window shows a table. The table consists of eight columns and seven rows. The column headings are Doctor, Invoice I D, Due Date, Date Received, Amount Due, Days Paid Early, Discount, and Net Rent. The Doctor column shows the entry, Ashish Agarwal in rows one to six, and the entry Elizabeth in row seven. The Invoice I D column shows I D for each doctor. The Due Date column shows the Rent due date. The Date Received column shows the dates when the rent was received. The Days Paid Early column shows the number of days early the rent was paid. The Discount column shows the discount amount for the early paid rents. The Net Rent column shows the amount paid after the discount.

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Figure 3.121 Extended Description (Chapter 3)

Return to Figure 3-121

The Microsoft Access query result window shows a table. The table consists of eight columns and six rows. The column headings are Doctor, Invoice I D, Due Date, Date Received, Amount Due, Days Paid Early, Discount, and Net Rent. The table shows six records. The records show invoices for Dr. Robyn Singh from April 2026 to September 2026, each with a due amount of $1,800.00. Most payments were made on the due date, except for the July 2026 invoice, which was paid 4 days early and received a $36.00 discount, reducing the net rent to $1,764.00. The September 2026 entry has no payment recorded.

Return to Figure 3-121

Figure 3.122 Extended Description (Chapter 3)

Return to Figure 3-122

The table consists of eight columns and eighteen rows. The column headings are Doctor, Invoice I D, Due Date, Date Received, Amount Due, Days Paid Early, Discount, and Net Rent, each with a drop-down arrow. Row one to row three shows the following entries: Ashish Agarwal, 28, 7/1/2026, 7/1/2026, $1,400.00, and 0. Ashish Agarwal, 37, 8/1/2026, 8/1/2026, $1,400.00, and 0. Juan Camacho 32, 8/1/2026, 6/29/2026, $1,250.00, 2, $25.00, and $1,225.00.

Return to Figure 3-122

Figure 3.123 Extended Description (Chapter 3)

Return to Figure 3-123

The screenshot depicts a query table with five columns and six rows. The rows show the following entries, in the first row, Days Paid Early, Discount, Net Rent, Last Name, and DueDate. The second row shows, Rent Invoices in the second cell, Physicians in the fourth cell, and Rent Invoices fifth cell. The third row shows, Ascending in the fourth and fifth cell. The fourth row shows check boxes in each cell, in which fourth and fifth cells are not checked.

Return to Figure 3-123

Figure 3.124 Extended Description (Chapter 3)

Return to Figure 3-124

The Microsoft Access query result window shows a table. The table contains six columns. The column headings are First Name, Last Name, Title, Department, Sum Of Bas, and Expr 1, each with a drop-down arrow. The First Name column shows the first name of the employees. The Last Name column shows the last name of the employees. The Title column shows the Job titles of the employees. The Department column shows in which department they are working. The Sum Of Bas column total base salary. The Expr 1 column shows the amount increased.

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Figure 3.125 Extended Description (Chapter 3)

Return to Figure 3-125

The Microsoft Access query result window shows a table. The table contains four columns and six rows. The column headings are Title, Department, Total Base, and Total New, each with a drop-down arrow. The Title column shows the entry Administration Assistant in rows one to four, the entry Chief Executive Officer in row five, and the entry Chief Information Officer in row six. The Department column shows the department of each job. The Total Base column shows the Total Base Salaries. The Total New column shows the new total salaries.

Return to Figure 3-125

Figure 3.126 Extended Description (Chapter 3)

Return to Figure 3-126

The table consists of four columns and eight rows. The column headings are Department, Title, Total Base, and Total New, each with a drop-down arrow. The Department column shows the entry Administration in rows one to six, and the entry Health and Benefits in rows five and six. The Title column shows the Job titles. The Total Base column shows the total base Salaries. The Total New column shows the new total salaries.

Return to Figure 3-126

Figure 3.127 Extended Description (Chapter 3)

Return to Figure 3-127

The Work area shows the Object tab titled New Salary Cost Summary. The tab contains multiple rows and columns. The column headings are Department, Title, Number of Employees, Total Base Salary, Total New Salary, Average Base Salary, and Average New Salary, each with a drop-down arrow. The first column lists various departments such as Administration, Health and Benefits, Insurance Sales, and Property and Casualty. The Title column shows the job roles like Administrative Assistant, Chief Executive Officer, Chief Information Officer, Chief Operating Officer, Executive Assistant, Senior Vice President, Insurance Agent, Large group Specialist, and Supervisor. The Number of Employees column shows numbers ranging from 1 to 7. The Total Base Salary column shows the total amount of base salary for each job role. The Total New Salary column shows the new salary amount for each job role. The Average Base Salary column shows the average of the base salary for each job role. The Average New Salary shows the average of the new salary for each job role.

Return to Figure 3-127

Figure 3.128 Extended Description (Chapter 3)

Return to Figure 3-128

The table consists of three columns and fourteen rows. The column headings are Employee, Title, and Department, each with a drop-down arrow. The Employee column lists the names of employees such as Eesha Santos, Roy Baxter, Juan Taylor, Wayne Reza, Lazaro Neto, Theresa Nguy, George Tipton, Margaret Jeps, Shoukat Ali, Chris Robles, Jesus Delao, Larry Adamse, Mayela Rome, Timothy Hans. The Title column shows the title Insurance Agent for all the employees. The Department column shows various departments such as Health and Benefits, Property and Casualty, and Insurance Sales. Row one to row three shows the following entries: Eesha Santos, Insurance Agent, and Health Benefits. Roy Baxter, Insurance Agent, and Property Casualty. Juan Taylor, Insurance Agent, and Insurance Sales.

Return to Figure 3-128

Figure 3.129 Extended Description (Chapter 3)

Return to Figure 3-129

The table consists of three columns and five rows. The column headings are Employee, Title, and Branch, each with a drop-down arrow. The Employee column lists the names of employees such as Roy Baxter, Juan Taylor, Lazaro Neto, Theresa Nguyen, and Mayela Romero. The Title column shows the title Insurance Agent for all the employees. The Branch column shows the Granite Bay branch for all the employees.

Return to Figure 3-129

Figure 4.1 Extended Description (Chapter 4)

Return to Figure 4-1

The Forms group contains several buttons for creating forms, including Form, Form Design, Blank Form, Form Wizard, Navigation, and More Forms. The Form button and the Form Wizard button are highlighted. The More Forms button with a drop-down arrow is labeled Split Form option is available in More Forms.

Return to Figure 4-1

Figure 4.2 Extended Description (Chapter 4)

Return to Figure 4-2

The layout form is titled Listings - Columnar Layout. The form shows field labels on the left and the corresponding data entries on the right. The field labels contain details for Listing I D 10022, Date Listed 9/10/2025, List Price $374,900.00, Address 525 Riverdale, City Lincoln, Square Footage 2755, 3 Beds, 2 Baths, 2 Car Detached Garage, Built Year 2001, Construction Frame, and Agent 103. The Listing I D field entry is highlighted in black.

Return to Figure 4-2

Figure 4.3 Extended Description (Chapter 4)

Return to Figure 4-3

The layout is titled Listings - Tabular Layout. The form presents the real estate listings, with each row representing a different property. The table contains nine columns with headings Listing I D, Date Listed, List Price, Address, City, Square Footage, Beds, Baths, and Garage. The first row shows the Listing I D as 10022 and is highlighted, showing the following details: Date Listed 9/10/2025, List Price $374,900.00, Address 525 Riverdale, City, Lincoln, Square Footage 2755, 3 Beds, 2 Baths, and 2 Car Detached garage.

Return to Figure 4-3

Figure 4.4 Extended Description (Chapter 4)

Return to Figure 4-4

The layout form is titled Listings - Datasheet Layout. The form presents the real estate listings in a tabular format. The table contains nine columns with the headings Listing I D, Date Listed, List Price, Address, City, Square Footage, Beds, Baths, and Garage, each column heading with a drop-down arrow. The entry in the first row for Listing I D is 10022, which is selected. The first row is highlighted in blue, showing the following details: Date Listed 9/10/2025, List Price $374,900.00, Address 525 Riverdale, City, Lincoln, Square Footage 2755, 3 Beds, 2 Baths, and a 2 Car Detached garage.

Return to Figure 4-4

Figure 4-5 Justified form layout

Return to Figure 4-5

The Microsoft Access form is titled Listings - Justified Layout. The form presents real estate listing details in a structured format, with fields aligned across multiple rows and corresponding data can be entered under each field. The selected record Listing I D: 10022 is highlighted in black. The record includes the following details: Date Listed 9/10/2025, List Price $374,900.00, Address 525 Riverdale, City Lincoln, Square Footage 2755, 3 Beds, 2 Car Detached Garage, Built Year 2001, Construction Frame, and Agent 103.

Return to Figure 4-5

Figure 4.6 Extended Description (Chapter 4)

Return to Figure 4-6

The dialog box shows the question “Which fields do you want on your form?”, followed by the text “You can choose from more than one table or query.”

Below this is the Tables or Queries feature with a drop-down menu set to Table: Listings. Below this, on the left, there is a panel titled Available Fields, containing a list of options like Date Listed, List Price, Address, City, Square Footage, Beds, Baths, Garage, and Year Built, with the Date Listed selected. On the right, another pane is titled Selected Fields that shows Listing I D. Between the panes, there are four buttons to move fields back and forth. The Move Single Field button is at the top. The Move All Fields button is present below. Below this is the Remove Single Field button, followed by the Remove All Fields button. The Cancel, Back, Next, and Finish buttons are present below. The Next button is selected.

Return to Figure 4-6

Figure 4.7 Extended Description (Chapter 4)

Return to Figure 4-7

The dialog box shows a question at the top “What layout would you like for your form?” The window is divided into two sections. On the left, there are orange and yellow boxes, illustrating different form layouts. On the right, four layout options are displayed with radio buttons: Columnar, Tabular, Datasheet, and Justified with Columnar selected. The Cancel, Back, Next, and Finish buttons are present below. The Next button is selected.

Return to Figure 4-7

Figure 4.8 Extended Description (Chapter 4)

Return to Figure 4-8

The Form Wizard window shows the following question at the top “What layout would you like for your form?” A text box is present under this with text Listings. The following text is displayed below: That’s all the information the wizard needs to create your form, followed by the question, “Do you want to open the form or modify the form’s design?” Two radio buttons are shown below: Open the form to view or enter information and Modify the forms design with first button selected. On the left, a yellow-orange checkmark graphic is shown. The Cancel, Back, Next, and Finish buttons are present below. The Finish button is selected.

Return to Figure 4-8

Figure 4.9 Extended Description (Chapter 4)

Return to Figure 4-9

The form consists of labeled fields with text boxes showing specific property data. The form follows a columnar layout, where field labels are on the left and corresponding data entries are on the right. The details are as follows: Listing I D 10022 (highlighted in black), List Price $374,900.00, Square Footage 2755, 3 Beds, 2 Baths, City Lincoln, and a 2 Car Detached Garage.

Return to Figure 4-9

Figure 4.10 Extended Description (Chapter 4)

Return to Figure 4-10

The form follows a columnar layout, where field labels are on the left and the corresponding data entries are on the right. The details for a real estate listing are as follows: Listing I D 10022, Date Listed 9/10/2025, List Price $374,900.00, Address 525 Riverdale, City Lincoln, Square Footage 2755, 3 Beds, 2 Baths, 2 Car Detached Garage, Built Year 2001, Construction Frame, and Agent 103. The Listing I D field data is highlighted. At the bottom of the form, a navigation bar shows that the user is viewing record 1 of 57 total records. The bar contains navigation buttons, a search box, and icons for different views. The Layout View icon is shown in the bottom right corner.

Return to Figure 4-10

Figure 4.11 Extended Description (Chapter 4)

Return to Figure 4-11

The form follows a structured format with labeled fields and corresponding text boxes containing information about a property. The form is laid out in two columns. In the left column, the fields are as follows: Listing I D 10022, Date Listed 9/10/2025, List Price $374,900.00, Address 525 Riverdale, City Lincoln, and Square Footage 2755. The right column lists the additional details: 3 Beds, 2 Baths, 2 Car Detached Garage, Built 2001, Construction Frame, and Agent 103.

Return to Figure 4-11

Figure 4.12 Extended Description (Chapter 4)

Return to Figure 4-12

The Access shows the More Forms drop-down menu, which includes Multiple Items, Datasheet, Split Form, and Modal Dialog. Split Form is selected. Other form-related options like Blank Form, Form Wizard, Navigation Forms, and Reports are displayed at the top.

Return to Figure 4-12

Figure 4.13 Extended Description (Chapter 4)

Return to Figure 4-13

The form has two sections. The upper section displays detailed information about a single real estate listing and the lower section shows a datasheet view with multiple listings in a table format. The upper section contains fields with the details as follows: Listing I D (10022), Date Listed (9/10/2025), List Price ($374,900.00), Address (525 Riverdale), City (Lincoln), Square Footage (2755), Beds (3), Baths (2), Garage (2 Car Detached), Built (2001), Construction (Frame), and Agent (103). The lower section shows the same data in a table format, with the row corresponding to a selected listing with Listing I D 10022 highlighted. A red callout labeled Divider bar points to a movable split line that separates the two sections.

Return to Figure 4-13

Figure 4.14 Extended Description (Chapter 4)

Return to Figure 4-14

The Access database consists of a Title bar at the top followed by a Ribbon below. The Title bar has the Save button on the Quick Access Toolbar on the far left. The Minimize, Maximize, and Close buttons are on the far right of the Title bar. The Ribbon has tabs for File, Home, Create, External Data, Database Tools, Help, Form Design, Arrange, Format, and a Search box. The Form Design tab is selected and displays Command groups such as Views, Themes, Controls, Header or Footer, and Tools. The Form Design, Arrange, and Format tabs are together labeled Contextual tabs. A vertical Objects Navigation Pane is present on the left. The Object Display Area is present to the right of the Navigation Pane. A Status Bar is present at the bottom. The Object Display Area displays the Listings form, structured with a Form Header, Detail Section, and Form Footer. The form contains fields such as Listing I D, List Price, Square Footage, Beds, Baths, City, and Garage, each paired with text boxes for data entry. The Design View icon in the bottom-right corner is labeled Design View icon.

Return to Figure 4-14

Figure 4.15 Extended Description (Chapter 4)

Return to Figure 4-15

The Access database consists of a Title bar at the top followed by a Ribbon below. The Title bar has the Save button on the Quick Access Toolbar on the far left. The Minimize, Maximize, and Close buttons are on the far right. The Ribbon has tabs for File, Home, Create, External Data, Database Tools, Help, Form Layout Design, Arrange, Format, and a Search box. The Format tab is selected and displays Command groups such as Selection, Font, Number, Background, and General Formatting. The Form Design, Arrange, and Format tabs are highlighted. A vertical Objects Navigation Pane is present on the left. The Object Display Area is present to the right of the Navigation Pane. A Status Bar is present at the bottom. The Object Display Area displays the Listings form, structured with a Form Header, Detail Section, and Form Footer. The form contains fields with the following details: Listing I D 10022 (highlighted), List Price $374,900.00, Square Footage 2755, 3 Beds, 2 Baths, City Lincoln, and a 2 Car Detached Garage. The Layout View icon is shown in the bottom-right corner.

Return to Figure 4-15

Figure 4.16 Extended Description (Chapter 4)

Return to Figure 4-16

The Home tab is selected, with parts of the File and Create tabs visible. The view button is selected. A drop-down arrow is expanded displaying three view options: Form View – represented by an icon showing a basic form layout with multiple rows, Layout View – represented by an icon with a grid layout, and Design View – represented by an icon with a ruler and triangular scale.

Return to Figure 4-16

Figure 4.17 Extended Description (Chapter 4)

Return to Figure 4-17

The box displays an input field labeled Save Listings to: Copy of Listings. Below is a drop-down menu labeled As with Form selected as the object type. The OK and Cancel buttons are shown on the bottom right. The OK button is selected. The title bar shows the title Save As with the help and close icons in the top right corner.

Return to Figure 4-17

Figure 4.18 Extended Description (Chapter 4)

Return to Figure 4-18

The Microsoft Access shows the All Access Objects pane. The database objects are grouped under categories: Tables, Queries, Forms, and Reports. Each category has entries, such as Agents and Listings under Tables, and Show All Listings under Queries. The Forms section is highlighted in a red box labeled Forms group and contains two forms: Agents and Listings. At the bottom, the Reports category contains one entry named Listings. The pane also includes a search bar at the top.

Return to Figure 4-18

Figure 4.19 Extended Description (Chapter 4)

Return to Figure 4-19

The Access shows the Navigation Pane with forms and reports listed. In the Forms section, the form Agents is selected, and a context menu appears. The menu contains options: Open, Layout View, Design View, Export, Rename, Hide in this Group, and Delete. Design View is selected. Below the forms list, the Reports section shows report entries Listings and Stone Construction.

Return to Figure 4-19

Figure 4.20 Extended Description (Chapter 4)

Return to Figure 4-20

The dialog box shows the question “Which fields do you want on your form?” This is followed by the text “You can choose from more than one table or query.”

Below this is the Tables or Queries feature with a drop-down menu set to Table: Listings. Below this, on the left, there is a panel titled Available Fields. On the right, another pane is titled Selected Fields, containing a list of options like City, Square Footage, Beds, Baths, Garage, Year Built, Construction, and Listing Agent Number with the Listing Agent Number selected. Between the panes, there are four buttons to move fields back and forth. The Move Single Field button is at the top. The Move All Fields button is present below. Below this is the Remove Single Field button, followed by the Remove All Fields button. The Cancel, Back, Next, and Finish buttons are present below. The Next button is selected.

Return to Figure 4-20

Figure 4.21 Extended Description (Chapter 4)

Return to Figure 4-21

The form is titled Listings - Form Wizard. The form displays real estate listing details, including fields such as Listing I D (10022) (highlighted), Date Listed (9/10/2025), List Price ($374,900.00), Address (525 Riverdale), City (Lincoln), Square Footage (2755), Beds (3), Baths (2), Garage (2 Car Detached), Built (2001), Construction (Frame), and Agent (103). At the bottom left, the navigation controls are present and are labeled Navigation buttons. It shows 1 of 57 records. A Search Box is present beside the navigation buttons. The Num Lock indicator is visible at the bottom right.

Return to Figure 4-21

Figure 4.22 Extended Description (Chapter 4)

Return to Figure 4-22

The form is titled Listings labeled Listings label. The form contains several labeled fields with corresponding property details, including Listing I D (10022), Date Listed (9/10/2025), List Price ($374,900.00), Address (525 Riverdale), City (Lincoln), Square Footage (2755), Beds (3), Baths (2), Garage (2 Car Detached), Built (2001), Construction (Frame), and Agent (103).

Return to Figure 4-22

Figure 4.23 Extended Description (Chapter 4)

Return to Figure 4-23

The Microsoft Access Listings form is created using a Split Form layout with two sections. The top section displays detailed information about a selected real estate listing with labeled fields and corresponding values: Listing I D (10022) (highlighted), Date Listed (9/10/2025), List Price ($374,900.00), Address (525 Riverdale), City (Lincoln), Square Footage (2755), Beds (3), Baths (2), Garage (2 Car Detached), Built (2001), Construction (Frame), Agent (103).

The Lower Section displays a table with multiple rows and columns displaying real estate listings. It lists additional real estate properties with various prices, locations, and sizes, including addresses in Lincoln, Rocklin, and Roseville. The table contains nine columns with the headings Listing I D, Date Listed, List Price, Address, City, Square Footage, Beds, Baths, and Garage, each column heading with a drop-down arrow. The entry in the first row for Listing I D is 10022, which is selected. The first row is highlighted in blue, showing the following details: Date Listed 9/10/2025, List Price $374,900.00, Address 525 Riverdale, City, Lincoln, Square Footage 2755, 3 Beds, 2 Baths, and a 2 Car Detached garage.

Return to Figure 4-23

Figure 4.24 Extended Description (Chapter 4)

Return to Figure 4-24

On the right, a panel titled Field List shows the text, “No fields available to be added to the current view.” A link labeled Show all tables is shown below. The main form section on the left is empty.

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Figure 4.25 Extended Description (Chapter 4)

Return to Figure 4-25

A link for Show only fields in the current record source is shown at the top. Below this, a heading states Fields available in other tables. Two tables are listed for Branches and Employees, each with an Edit Table link. The Branches table is expanded to display fields such as Branch, Address, City, State, ZIP, Phone, and Date Opened.

Return to Figure 4-25

Figure 4.26 Extended Description (Chapter 4)

Return to Figure 4-26

The Controls group within the Form Layout Design tab of the Microsoft Access Ribbon contains various Icons. Several icons in this group are highlighted and labeled Text Box, Label, Button, Combo Box, and Check Box. On the far right an Insert Image button with a drop-down arrow is shown. The Ribbon also shows other tabs, such as External Data, Database Tools, Help, Arrange, and Format.

Return to Figure 4-26

Figure 4.27 Extended Description (Chapter 4)

Return to Figure 4-27

The table-like form has three column headers: Employee I D, First Name, and Last Name. Below the headers is a single record with the values 101 for Employee I D, Matteo for First Name, and Mancini for Last Name. Each field is highlighted.

Return to Figure 4-27

Figure 4.28 Extended Description (Chapter 4)

Return to Figure 4-28

A layout selector is shown in the top left corner labeled Layout selector. The form displays the following fields for a single record: Employee I D (101), First Name (Matteo), Last Name (Mancini), Branch (Cameron Park), Title (Chief Executive Officer), and Department (Administration). The Department field is highlighted.

Return to Figure 4-28

Figure 4.29 Extended Description (Chapter 4)

Return to Figure 4-29

The Tools group contains buttons for Add Existing Fields, Property Sheet, and Chart Settings. The Add Existing Fields button is selected.

Return to Figure 4-29

Figure 4.30 Extended Description (Chapter 4)

Return to Figure 4-30

The form has only one field labeled Employee I D with a text box containing the value 101 and is highlighted. A small icon labeled Smart tag button is shown below the text box. On the right, the Field List pane is present. A link for Show only fields in the current record source is shown below. The following text is shown below: Fields available for this view. A list of fields under the Employees table such as Employee I D, First Name, Last Name, are shown. An Edit Table option is shown on the right.

Return to Figure 4-30

Figure 4.31 Extended Description (Chapter 4)

Return to Figure 4-31

A layout selector is shown in the top left corner. The form has three fields with the corresponding data for each field as follows: Employee I D 101, First Name as Matteo, and Branch as Cameron Park. Between First Name and Branch is a highlighted row labeled Insertion location of the new field. On the right side, the Field List pane is present. A link for Show only fields in the current record source is shown below. A list of fields under the Employees table such as Employee I D, First Name, Last Name, and Branch are shown. The Last Name field is selected and highlighted. An Edit Table option is displayed on the side of this list.

Return to Figure 4-31

Figure 4.32 Extended Description (Chapter 4)

Return to Figure 4-32

A layout selector is shown in the top left corner. The layout displays the following fields with the data: Employee I D (101), First Name (Matteo), Last Name (Mancini), Branch (Cameron Park), and Title (Chief Executive Officer). The data in the Branch field is highlighted. A context menu labeled Delete options displays the options such as Delete, Delete Row, Delete Column, and Change To.

Return to Figure 4-32

Figure 4.33 Extended Description (Chapter 4)

Return to Figure 4-33

The Table group contains Gridlines with a drop-down arrow, Stacked, and Tabular buttons. The Rows and Columns group contains Insert Above, Insert Below, Insert Left, Insert Right, Select Layout, Select Column, and Select Row buttons.

Return to Figure 4-33

Figure 4.34 Extended Description (Chapter 4)

Return to Figure 4-34

A layout selector is shown in the top left corner. The stacked form shows five fields and a corresponding text box for each field. The details are as follows: Employee I D (101), First Name (Matteo), Last Name (Mancini), Branch (Cameron Park), and Title (Chief Executive Officer). The Branch field is highlighted and labeled Drag the resize arrow to adjust column widths.

Return to Figure 4-34

Figure 4.35 Extended Description (Chapter 4)

Return to Figure 4-35

The form contains three columns labeled Employee I D, First Name, and Last Name. Below the headers, a single row of data is displayed, with 101 under Employee I D, Matteo under First Name, and Mancini under Last Name. The Employee I D cell is selected, 101, and a cell next to it is highlighted and a double-headed arrow is shown between them.

Return to Figure 4-35

Figure 4.36 Extended Description (Chapter 4)

Return to Figure 4-36

The Microsoft Access form named Form 1 is displayed on the left, showing fields labeled Employee I D, First Name, Last Name, Branch, and Title. The fields are filled with sample data on their corresponding text boxes: 101, Matteo, Mancini, Cameron Park, and Chief Executive Officer, respectively. Cameron Park is highlighted. On the right, the Property Sheet panel is shown. On the left, the text Selection type: Text Box is shown below. A sort button is shown on the right, represented by an A to Z icon, labeled Sort button. Tabs labeled Format, Data, Event, Other, and All, are shown below. Format tab is selected. The Property Sheet Format tab shows the lists that includes Width (labeled Width property) and Height (labeled Height property), with values 2.6458 inches and 0.2083 inches, respectively. The list also includes Decimal places, Visible, Show Data Picker, Top, and Left.

Return to Figure 4-36

Figure 4.37 Extended Description (Chapter 4)

Return to Figure 4-37

The form displays five labeled fields, each with a corresponding text box. The fields are as follows: Employee I D, First Name, Last Name, Branch, and Title. The data for the fields is shown as follows: 101, Matteo, Mancini, Cameron Park, and Chief Executive Officer, respectively. The data in the boxes are highlighted, and a dotted border surrounds each cell in the form.

Return to Figure 4-37

Figure 4.38 Extended Description (Chapter 4)

Return to Figure 4-38

The form displays five labeled fields, each with a corresponding text box. The fields are as follows: Employee I D, First Name, Last Name, Branch, and Title. The data for the fields is shown as follows: 101, Matteo, Mancini, Cameron Park, and Chief Executive Officer, respectively. The Branch field and Cameron Park text box are highlighted. A new blank row is present below this, and a dotted border surrounds each cell in the form.

Return to Figure 4-38

Figure 4.39 Extended Description (Chapter 4)

Return to Figure 4-39

The form shows a layout with the following fields and their corresponding data: Employee I D, 101; First Name, Matteo; Last Name, Mancini; Title, Chief Executive Officer; Branch, Blank; and Blank, Cameron Park. A faint dotted border surrounds each cell in the form, which is also present around the form. The Branch field is highlighted. The field for Cameron Park is blank, shaded in pink, and selected.

Return to Figure 4-39

Figure 4.40 Extended Description (Chapter 4)

Return to Figure 4-40

The Microsoft Access ribbon shows the Position group with buttons for Control Margins, Control Padding, and Anchoring with a drop-down arrow. The Anchoring menu is expanded, displaying the nine layout options: Top Left, Stretch Across Top, Top Right, Stretch Down, Stretch Down and Across, Stretch Down and Right, Bottom Left, Stretch Across Bottom, and Bottom Right. The Top Left layout is selected.

Return to Figure 4-40

Figure 4.41 Extended Description (Chapter 4)

Return to Figure 4-41

The form displays fields: Employee I D (101) on the top left labeled Top Left anchor, First Name (Matteo) on the bottom left labeled Medium control margins, Last Name (Mancini) below the First Name field labeled Bottom Left anchor, Branch (Cameron Park) on top right labeled Top Right anchor, and Start Date (1/5/2024) on bottom right labeled Bottom Right anchor. The space between the First Name and Last Name fields is labeled Narrow control margin.

Return to Figure 4-41

Figure 4.42 Extended Description (Chapter 4)

Return to Figure 4-42

The Property Sheet window displays the following text “Selection Type: Form” on the left. A Sort button is represented by an A to Z icon on the right. A field with the text Form with a drop-down arrow is shown below it. The field is labeled Selection box. Tabs such as Format, Data, Event, Other, and All, are shown below. The Data tab is selected. The property list for this tab includes configurations such as Record Source, Filter, Filter On Load, Order By (labeled Order By property), Order By On Load (labeled Order By On Load property), and many others.

Return to Figure 4-42

Figure 4.43 Extended Description (Chapter 4)

Return to Figure 4-43

The Header and Footer group contains the Logo, Title, and Date and Time buttons.

Return to Figure 4-43

Figure 4.44 Extended Description (Chapter 4)

Return to Figure 4-44

The top section of the dialog box shows a checked Include Date box and radio buttons for different date formats, with Wednesday, July 22, 2026, selected. The lower section has a checked Include Time box and radio buttons for various time formats, with 4:42:33 P M selected. A sample at the bottom displays Wednesday, July 22, 2026, 4:42:33 P M. The OK and Cancel buttons are present at the bottom right. The OK button is selected.

Return to Figure 4-44

Figure 4.45 Extended Description (Chapter 4)

Return to Figure 4-45

The Microsoft Access form has a title Employee Form and shows a header area with four labeled controls: A logo on the left labeled Auto Logo control. Central Sierra Insurance labeled Auto Header control. Two boxes on the right with the texts, Wednesday, July 22, 2026, labeled Auto Date control and 4:51:15 P M labeled Auto Time control, respectively. Below the header are form fields for Employee I D, First Name, Last Name, Title, and Branch, displaying data 101, Matteo, Mancini, Chief Executive Officer, and Cameron Park, respectively.

Return to Figure 4-45

Figure 4.46 Extended Description (Chapter 4)

Return to Figure 4-46

The Microsoft Access window shows the Form Layout Design tab selected on the Ribbon. The Controls group shows the Label button. Below this, the form titled Employee Form is present. It includes a header that reads, Central Sierra Insurance. In the form design area, a rose-colored cell is shown containing a plus symbol and uppercase A. Text boxes for Employee I D, First Name, and Last Name, are displayed below.

Return to Figure 4-46

Figure 4.47 Extended Description (Chapter 4)

Return to Figure 4-47

The Microsoft Access window shows tabs such as File, Home, Create, External Data, Database Tools, and Help. The Create tab is selected. The Application Parts button with a drop-down arrow is expanded and contains sections Blank Forms, Quick Start, and User Templates. Under Blank Forms, several form layout templates are shown such as 1 Right, 1 Top, 2 Right, 2 Top, Details, Dialog, List, Msg box, and Tabs. A label for 2 Right reads, Single record 2 column form with labels on the right of the fields. Below this, The Quick Start section displays options such as Comments, Contacts, Issues, Tasks, and Users. The User Templates section has the Customer option.

Return to Figure 4-47

Figure 4.48 Extended Description (Chapter 4)

Return to Figure 4-48

The form header shows the text Form Title and two buttons labeled Save and Save and Close. Below the header, a text box labeled Field 1 contains the text, Cameron Park. The form grid displays dotted placeholders for additional fields labeled Field 2, Field 3, and Field 4. On the right, a link for Show only fields in the current record source is shown. On the right side, the Field List pane is present. A link for Show only fields in the current record source is shown below. Below this, a heading states Fields available in other tables. Two tables are listed for Branches and Employees, each with an Edit Table link. The Branches table is expanded to display fields such as, Branch, Address, City, State, ZIP, Phone, and Date Opened.

Return to Figure 4-48

Figure 4.49 Extended Description (Chapter 4)

Return to Figure 4-49

The Property Sheet window displays the following text “Selection Type: Form” on the left. Form is labeled Current selection. A Sort button is represented by an A to Z icon on the right. A field labeled Form with a drop-down arrow is shown below it. The drop-down arrow is labeled Selection type drop-down list. Tabs such as Format, Data, Event, Other, and All, are shown below. The Data tab is selected. The property list includes configurations such as Data Entry (labeled Data entry property) set to No, Allow Additions (labeled Allow Additions property) set to Yes, Allow Deletions (labeled Allow Deletions property) set to Yes, and Allow Edits (labeled Allow Edits property) set to Yes.

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Figure 4.50 Extended Description (Chapter 4)

Return to Figure 4-50

The Control group includes buttons for a pointer tool, text-related tools, a button control labeled Button, and other buttons like tab controls, hyperlinks, combo boxes, and checkboxes. A More arrow button is located on the bottom right. On the far right, an Insert Image button with a drop-down arrow is shown.

Return to Figure 4-50

Figure 4.51 Extended Description (Chapter 4)

Return to Figure 4-51

The following three options are displayed with the icons: Set Control Defaults, Use Control Wizards, and Active X Controls. The icon for Use Control Wizards is labeled Use Control Wizards.

Return to Figure 4-51

Figure 4.52 Extended Description (Chapter 4)

Return to Figure 4-52

The form includes labeled input fields for Employee I D, First Name, Last Name, Title, and Branch. The details displayed are as follows: Employee I D (101), First Name (Matteo), Title (Chief Executive Officer). A red rectangular box is shown below with a white plus symbol in the center.

Return to Figure 4-52

Figure 4.53 Extended Description (Chapter 4)

Return to Figure 4-53

The Command Button Wizard dialog box shows a question, “What action do you want to happen when the button is pressed?” A sample button with a magnifying glass icon is shown on the left. In the middle panel, a Categories section lists options like Record Navigation, Record Operations, Form Operations, Report Operations, Application, and Miscellaneous. The list is labeled Select a category from the list. The Record Navigation is selected and highlighted. On the right, an Actions section lists actions specific to the selected category, such as Find Next, Find Record, Go To First Record, Go To Last Record, Go To Next Record, and Go To Previous Record. The list of options is labeled Select an action from the list. The Find Next option is selected and highlighted. The bottom of the dialog box includes the Cancel, Back, Next, and Finish buttons. The Next button is selected.

Return to Figure 4-53

Figure 4.54 Extended Description (Chapter 4)

Return to Figure 4-54

The Command Button Wizard dialog box shows a question, “Do you want text or a picture on the button?,” followed by the text “If you choose Text, you can type the text to display. If you choose Picture, you can click Browse to find a picture to display.” On the left is a sample button showing an icon resembling a doorway. In the center, two radio button options are displayed: Text, with a text box displaying Close Form, and Picture, with a drop-down list containing Exit Doorway and Stop. The Exit Doorway option is selected and highlighted. An arrow points to this with a label, Enter desired button text or choose desired picture. A Browse button is present beside the Picture radio button option. A Show All Pictures checkbox is shown below. The Cancel, Back, Next, and Finish buttons are present below. The Next button is selected.

Return to Figure 4-54

Figure 4.55 Extended Description (Chapter 4)

Return to Figure 4-55

The text “Central Sierra Insurance” is shown at the top. The form includes input fields for Employee I D, First Name, Last Name, Title, and Branch. The details displayed are as follows: Employee I D (101), First Name (Matteo), Title (Chief Executive Officer). A button labeled Close Form is selected.

Return to Figure 4-55

Figure 4.56 Extended Description (Chapter 4)

Return to Figure 4-56

The form shows a layout selector in the top left corner labeled Layout selector. The form follows a simple grid layout, where labels are on the left and the corresponding data fields are on the right. The form displays the following fields for a single record: Employee I D (101), First Name (Matteo), Last Name (Mancini), Branch (Cameron Park), Title (Chief Executive Officer), Department (Administration), Start Date (1/5/2024), and Base Monthly ($16,000.00). The Base Monthly Salary field is highlighted.

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Figure 4.57 Extended Description (Chapter 4)

Return to Figure 4-57

The form shows a layout selector in the top left corner. The form follows a simple grid layout, where labels are on the left and the corresponding data fields are on the right. The form displays the following fields for a single record: Employee I D (101), First Name (Matteo), Last Name (Mancini), Branch (Cameron Park), Title (Chief Executive Officer), Department (Administration), Start Date (1/5/2024), and Base Monthly ($16,000.00). All the fields in the form are highlighted in orange and a faint dotted border surrounds each cell in the form. It is also present around the form. A four-arrow cursor is present on top of the form and the cells are being dragged to different location within the form.

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Figure 4.58 Extended Description (Chapter 4)

Return to Figure 4-58

The form shows a layout selector in the top left corner. The form follows a simple grid layout, where labels are on the left and the corresponding data fields are on the right. The fields and their data are as follows: Employee I D (125), First Name (Cheryl), Last Name (Nevens), Branch (Cameron Park), Title (Chief Information Officer), Department (Administration), Start Date (12/12/2024), and Base Monthly Salary ($13,000.00). The form includes a dotted layout grid, with a highlighted rectangular box at the top.

Return to Figure 4-58

Figure 4.59 Extended Description (Chapter 4)

Return to Figure 4-59

The portion of the form contains the label Base Monthly Salary with the value $16,000.00 displayed next to it. Below this field, a button labeled Save Employee Record is shaded in blue and selected. The form also includes a dotted layout grid.

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Figure 4.60 Extended Description (Chapter 4)

Return to Figure 4-60

The form is titled Form 1 with a layout selector in the top left corner. The text “Central Sierra Insurance” is displayed below it. The form follows a simple grid layout, where labels are on the left and the corresponding data fields are on the right. A rectangular box labeled New Employee Form is highlighted. The form displays the following fields for a single record below: Employee I D (101), First Name (Matteo), Last Name (Mancini), Branch (Cameron Park), Title (Chief Executive Officer), Department (Administration), Start Date (1/5/2024), and Base Monthly ($16,000.00). Three buttons shaded in blue are shown below labeled Save Employee Record, Add New Employee, and Close Form, respectively.

Return to Figure 4-60

Figure 4.61 Extended Description (Chapter 4)

Return to Figure 4-61

The form follows a simple grid layout, where labels are on the left and the corresponding data fields are on the right. The form displays the following fields for a single record: Employee I D (165), First Name (Susan), Last Name (Stone), Branch (Granite Bay), Title (Insurance Agent), Department (Health and Benefits), Start Date (5/1/2026), Base Monthly Salary ($4,200.00).

Return to Figure 4-61

Figure 4.62 Extended Description (Chapter 4)

Return to Figure 4-62

The Reports group contains various buttons such as Report, Report Design, Blank Report, Report Wizard, and Labels.

Return to Figure 4-62

Figure 4.63 Extended Description (Chapter 4)

Return to Figure 4-63

The report is titled Listings - Columnar Report Layout. It displays the real estate data for two listings. The form follows a layout, where labels are on the left and the corresponding data fields are on the right. The first listing includes the details: Listing I D as 10022, List Price as $374,900.00, Square Footage as 2755, Beds as 3, Baths as 2, Address as 525 Riverdale, and City as Lincoln. The second listing includes: Listing I D as 10023, List Price as $379,000.00, Square Footage as 1600, Beds as 3, Baths as 2, and others. Each listing is separated by a light and gray background and shown one below the other.

Return to Figure 4-63

Figure 4.64 Extended Description (Chapter 4)

Return to Figure 4-64

The report is titled Listings - Tabular Report Layout, showing a table. The table consists of 6 columns and 5 rows. The column headings are Listing I D, List Price, Square Footage, Beds, Baths, Address, and City. The row entries are as follows:

Row 1: Listing I D: 10022. List Price: $374,900.00. Square Footage: 2755. Beds: 3. Baths: 2. Address: 525 Riverdale. City: Lincoln.

Row 2: Listing I D: 10023. List Price: $379,000.00. Square Footage: 1600. Beds: 3. Baths: 2. Address: 615 Silver Hill Court. City: Lincoln.

Row 3: Listing I D: 10024. List Price: $1,189,900.00. Square Footage: 3397. Beds: 4. Baths: 4. Address: 1917 Oak Crest Drive. City: Roseville.

Row 4: Listing I D: 10025. List Price: $439,000.00. Square Footage: 1900. Beds: 4. Baths: 3. Address: 3420 Milburn Street. City: Rocklin.

Row 5: Listing I D: 10027. List Price: $335,000.00. Square Footage: 1184. Beds: 3. Baths: 2. Address: 2128 Wedgewood. City: Roseville.

Return to Figure 4-64

Figure 4.65 Extended Description (Chapter 4)

Return to Figure 4-65

The report is titled Listings - Justified Report Layout, organized in a justified format. The table displays three property listings separated by horizontal lines. In each listing, the row headings are right justified, and the corresponding entries are left justified. The first row shows the following details: Listing I D 10022, List Price $374,900.00, Square Footage 2755, Beds 3, Baths 3, Address 2525 Riverdale, City Lincoln. The second row shows the following details: Listing I D 10023, List Price $379,000.00, Square Footage 1600, Beds 3, Baths 3, Address 2615 Silver Hill Court, City Lincoln. The third row shows the following details: Listing I D 10024, List Price $1,189,900.00, Square Footage 3397, Beds 4, Baths 4, Address 1917 Oak Crest Drive, City Roseville.

Return to Figure 4-65

Figure 4.66 Extended Description (Chapter 4)

Return to Figure 4-66

The report is titled Listings - Grouped Report with Stepped Layout. A table is shown. The table consists of 6 columns with the following headings: City, Listing I D, List Price, Square Footage, Beds, Baths, and Address. For the city Auburn, 7 listings are shown with the following Listing I Ds, starting from the row below: 10045, 10040, 10042, 10177, 10043, 10069, and 10144. Auburn is labeled Grouped data value displays in its own row. For the city Lincoln, 2 listings are shown with the following Listing I Ds, starting from the row below: 10072 and 10022.

Return to Figure 4-66

Figure 4.67 Extended Description (Chapter 4)

Return to Figure 4-67

The report is titled Listings - Grouped Report with Block Layout. A table is shown. The table consists of 6 columns with the following headings: City, Listing I D, List Price, Square Footage, Beds, Baths, and Address. For the city Auburn, 7 listings are shown with the following Listing I Ds, starting from the same row: 10045, 10040, 10042, 10177, 10043, 10069, and 10144. Auburn is labeled Grouped data value displays in row with other fields. For the city Lincoln, 2 listings are shown with the following Listing I Ds, starting from the same row: 10072 and 10022.

Return to Figure 4-67

Figure 4.68 Extended Description (Chapter 4)

Return to Figure 4-68

The report is titled Listings - Grouped Report with Outline Layout. Two tables are shown. Both tables consist of 6 columns with the following headings: City, Listing I D, List Price, Square Footage, Beds, Baths, and Address. The first table is titled City Auburn. The following 7 listings are shown with the Listing I Ds, starting from the row below: 10045, 10040, 10042, 10177, 10043, 10069, and 10144. The second table is titled City Lincoln. The following 2 listings are shown with the Listing I Ds, starting from the row below: 10072 and 10022. The cities Auburn and Lincoln are together labeled Grouped data label and value display in separate rows.

Return to Figure 4-68

Figure 4.69 Extended Description (Chapter 4)

Return to Figure 4-69

The header row includes the column labels for City, Listing I D, List Price, Square Footage, Beds, Baths, and Address. Underneath, the data is grouped by city, Auburn with 7 detail records and Lincoln with 13 detail records. For each city, the average and maximum list prices are provided under the List Price column. Auburn average price is $399,214.29, and the maximum is $440,500.00. Lincoln average price is $500,207.69, and the maximum is $1,379,000.00. Other columns remain empty in this layout. The block layout design separates the groups with blank rows.

Return to Figure 4-69

Figure 4.70 Extended Description (Chapter 4)

Return to Figure 4-70

The report is titled Listings - Grouped Report with Detail and Summary, Block Layout. A table is shown. The table consists of 6 columns with the following headings: City, Listing I D, List Price, Square Footage, Beds, Baths, and Address. For the city Auburn, 7 listings are shown with the following Listing I Ds and List Prices: 10045, $385,000.00; 10040, $412,000.00; 10042, $440,500.00; 10177, $363,000.00; 10043, $397,000.00; 10069, $387,000.00; and 10144, $410,000.00. Below this, a Summary for ‘City’ equals Auburn (7 detail records) provides the average and maximum property prices. The summary shows an average price of $399,214.29 and a maximum price of $440,500.00, based on seven records. Below this, the following 2 listings are shown for the city Lincoln, with the Listing I Ds and List Prices: 10072, $312,000.00 and 10022, $374,900.00.

Return to Figure 4-70

Figure 4.71 Extended Description (Chapter 4)

Return to Figure 4-71

At the top, a question is displayed, Which fields do you want on your report? A text is present below this, You can choose from more than one table or query. Below, a drop-down labeled Tables or Queries is set to Table: Listings. Two panels labeled Available Fields and Selected Fields are displayed. The Available Fields panel lists options such as Listing I D, Date Listed, List Price, Address, City, Square Footage, Beds, Baths, and Garage. Listing I D is highlighted. The Selected Fields panel is empty. Between the panels, arrow buttons, representing Add single field, Add all fields, Remove single field, and Remove all fields are shown. The Cancel, Back, Next, and Finish buttons are present below. The Next button is selected.

Return to Figure 4-71

Figure 4.72 Extended Description (Chapter 4)

Return to Figure 4-72

The Report Wizard window is shown, highlighting the Available Fields and Selected Fields panels with the buttons to move fields between them. On the left, the Available Fields panel lists options such as Listing Agent Number, which is highlighted. On the right, the Selected Fields panel contains fields, including Address, City, Square Footage, Beds, Baths, Garage, Year Built, and Construction. Construction is highlighted. Between the panels are four buttons. The Move Single Field button is at the top labeled Move Single Field button. The Move All Fields button is present below and labeled Move All Fields button. The Remove Single Field button below the Move All Fields button labeled Remove Single Field button and the Remove All Fields button at the bottom labeled Remove All Fields button.

Return to Figure 4-72

Figure 4.73 Extended Description (Chapter 4)

Return to Figure 4-73

A question is shown on the left: Do you want to add any grouping levels? Below this is a list of available fields such as Listing I D, Date Listed, List Price, Address, City, Square Footage, Beds, Baths, Garage, Year Built, and Construction. The Listing I D field is highlighted. To the right of the field list, buttons to add a field to the grouping, remove a field from the grouping, and adjust the priority of grouping fields using up and down arrows are present. The right panel, surrounded by a yellow border, displays the selected grouping fields, including Listing I D, Date Listed, List Price, Address, City, Square Footage, Beds, Baths, Garage, Year Built, and Construction. The Cancel, Back, Next, and Finish buttons are present at the bottom. The Next button is selected.

Return to Figure 4-73

Figure 4.74 Extended Description (Chapter 4)

Return to Figure 4-74

The Report Wizard window is shown for defining the sort order of report records. At the top, a question is displayed, What sort order do you want for your records? A text is shown below this, You can sort records by up to four fields, in either ascending or descending order. Four numbered drop-down fields 1 to 4 are present. Each field has a corresponding drop-down arrow to choose either Ascending or Descending order. All drop-downs are empty. On the left, there is an illustration of a stylized yellow report with rows and columns, accompanied by a vertical arrow. The Cancel, Back, Next, and Finish buttons are present at the bottom. The Next button is selected.

Return to Figure 4-74

Figure 4.75 Extended Description (Chapter 4)

Return to Figure 4-75

The Report Wizard window is shown. At the top, a question is shown, How would you like to lay out your report? On the right, the Layout options include three radio buttons: Columnar, Tabular, and Justified. The Tabular button is selected. Next to these options, the Orientation options are displayed, which include two radio buttons: Portrait and Landscape. The Portrait button is selected. At the bottom, a checkbox labeled Adjust the field width so all fields fit on a page is selected. On the left, an illustration of a yellow report, with rows and columns, visually represents the selected Tabular layout. The Cancel, Back, Next, and Finish buttons are present at the bottom. The Next button is selected.

Return to Figure 4-75

Figure 4.76 Extended Description (Chapter 4)

Return to Figure 4-76

At the top, a question is displayed, What title do you want for your report? A text input field below is pre-filled with Listings. Beneath this, a text reads, That's all the information the wizard needs to create your report. This is followed by a question, Do you want to preview the report or modify the report's design? The following two options with radio buttons are shown below: Preview the report and Modify the report's design. The Preview the report option is selected. On the left, a yellow graphic features a completed report with a check mark. The Cancel, Back, (disabled) Next, and Finish buttons are present at the bottom. The Finish button is selected.

Return to Figure 4-76

Figure 4.77 Extended Description (Chapter 4)

Return to Figure 4-77

The report is titled Listings - Tabular Report Layout. A table is shown. The table has six columns with the headings: Listing I D, List Price, Square Footage, Beds, Baths, Address, and City. Rows of data under these headers represent property listings, such as Listing I D 10022 with a List Price of $374,900.00, 2755 Square Footage, 3 Beds, 2 Baths, Address 525 Riverdale, and City Lincoln. A split screen effect is shown in the middle of the report. A vertical scrollbar is shown on the right and a navigation bar is present at the bottom.

Return to Figure 4-77

Figure 4.78 Extended Description (Chapter 4)

Return to Figure 4-78

The report is titled Listings - Tabular Report Layout. A table is shown. The table has six columns with the headings: Listing I D, List Price, Square Footage, Beds, Baths, Address, and City. Rows contain property data such as Listing I D 10022, List Price $374,900.00, Square Footage 2755, Beds 3, Baths 2, Address 525 Riverdale, and City Lincoln. A split screen effect divides the table into upper and lower sections. The footer shows a timestamp, Thursday, July 23, 2026, on the left and Page 1 of 2 on the right. A vertical scrollbar is shown on the right and a navigation bar is present at the bottom.

Return to Figure 4-78

Figure 4.79 Extended Description (Chapter 4)

Return to Figure 4-79

The report is divided into three main sections. The Report Header Section, located at the top, contains the title Listings - Tabular Report Layout. Below this is a Page Header labeled Page Header section, which displays the following headers: Listing I D, List Price, Square Footage, Beds, Baths, Address, and City. The Detail section beneath the page header includes placeholders for data fields such as Listing I D, List Price, Square Footage, Beds, Baths, Address, and City. The Page Footer section at the bottom includes expressions such as equals Now parentheses, and a formula to display pagination.

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Figure 4.80 Extended Description (Chapter 4)

Return to Figure 4-80

The report titled Listings - Tabular Report Layout features property listing data, organized in rows and columns. The column headings are as follows: Listing I D, List Price, Square Footage, Beds, Baths, Address, and City. Data rows include details such as Listing I D 10022, List Price $374,900.00, Square Footage 2755, Beds 3, Baths 2, Address 525 Riverdale, and City Lincoln. All the entries in the Listing I D column are highlighted. A split screen effect divides the table into upper and lower sections.

Return to Figure 4-80

Figure 4.81 Extended Description (Chapter 4)

Return to Figure 4-81

Tabs such as File, Home, and Create are shown. The Home tab is selected. The View button is shown. A mouse cursor is pointing to this button and the button is selected. A drop-down arrow is expanded, displaying three view options: Report View, Print View, Layout View, and Design View.

Return to Figure 4-81

Figure 4.82 Extended Description (Chapter 4)

Return to Figure 4-82

The following text is displayed, Save “Listings - Tabular Report Layout” to: with an editable text field pre-filled with Copy of Listings - Tabular Report Layout. Below this, a grayed-out drop-down text box labeled As displays the entry Report. At the bottom, two buttons labeled OK and Cancel are present. The OK button is selected.

Return to Figure 4-82

Figure 4.83 Extended Description (Chapter 4)

Return to Figure 4-83

The blank report is titled Report 1. The datasheet area is empty with a Close button at the top right corner. To the right of the database area, a vertical pane is displayed with the heading Field List labeled Field List pane. It consists of a Close button at the top-right corner of the pane. A text is present below as follows: No fields available to be added to the current view. A link for Show all tables is shown below labeled Show all tables link. The Number lock button, Datasheet view buttons, and the Design view button are present at the bottom right corner.

Return to Figure 4-83

Figure 4.84 Extended Description (Chapter 4)

Return to Figure 4-84

The Access consists of a Ribbon with tabs such as Help, Report Layout Design, Arrange, Format, and Page Setup. A Search icon is present at the far right of the Ribbon. The Report Layout Design tab is selected and consists Controls Command group. The Controls Command group shows a row of icons. The icons from left to right depict a mouse pointer, a rectangle with the text a b, uppercase A lowercase a, a blank horizontal rectangle, a folder, a chain link, a globe with a lightning bolt, a document with two arrows pointing up and down, a grid with two arrows pointing up and down, a checkmark inside a square, a paper pin, and a picture with a monitor. The icon with the text a b inside a rectangle is labeled Text Box, while the icon, represented as uppercase A lowercase a, is labeled Label. The icon near the Label representing a horizontal rectangle is labeled Button. The checkmark icon inside a square is labeled Check Box.

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Figure 4.85 Extended Description (Chapter 4)

Return to Figure 4-85

The Access consists of an opened report titled Report 1 in the layout view. A list of data arranged in a tabular layout is present at the datasheet area. The table is organized into four columns and six rows. The column headings are Listing I D, List Price, Square Footage, and Beds. The row entries are as follows:

Row 1: Listing I D: 10022. List Price: $374,900.00. Square Footage: 2755. Beds: 3.

Row 2: Listing I D: 10023. List Price: $379,000.00. Square Footage: 1600. Beds: 3.

Row 3: Listing I D: 10024. List Price: $1,189,900.00. Square Footage: 3397. Beds: 4.

Row 4: Listing I D: 10025. List Price: $439,000.00. Square Footage: 1900. Beds: 4.

Row 5: Listing I D: 10027. List Price: $335,000.00. Square Footage: 1184. Beds: 3.

Row 6: Listing I D: 10029. List Price: $1,645,900.00. Square Footage: 6685. Beds: 7.

All the entries in Listing I D column are highlighted.

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Figure 4.86 Extended Description (Chapter 4)

Return to Figure 4-86

The Access consists of an opened report titled Report 1 in the layout view. A vertically stacked list of data is present in the datasheet area. The labels are arranged to the left of the field, which are ten in number. While the corresponding entry of the label is on the right side of the field. The labels and their respective entries from top to bottom are as follows: Listing I D (highlighted): 10022, List Price: $374,900.00, Square Footage: 2755, Beds: 3, Listing I D (highlighted): 10023, List Price: $379,00.00, Square Footage: 1600, Beds: 3, Listing I D (highlighted): 10024, and List Price: $1,189,900.00.

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Figure 4.87 Extended Description (Chapter 4)

Return to Figure 4-87

The Access consists of a datasheet with the title Report 1. A stacked layout data list is present in the datasheet area. It consists of six rows. The data from row 1 to row 6 is as follows: Listing I D, 10022, 10023, 10024, 10025, and 10027. All the rows are highlighted. An icon of a horizontal rectangle with a lightning bolt is present at the bottom left of the second row and labeled Smart tag. To the far right of the datasheet area, a vertical Field List pane is opened. A link for Show only fields in the current record source is shown below. Below this, a scroll-down list of Fields available for this view is present. A table named Listings with an icon labeled Plus or minus sign toggles the table field display. An Edit Table link is shown on the right. The fields under the Listings table are: Listing I D, Date Listed, List Price, Address, and City.

Return to Figure 4-87

Figure 4.88 Extended Description (Chapter 4)

Return to Figure 4-88

The datasheet shows the tabular layout of data organized into three columns and five rows. The column headings are Listing I D, List Price, and Square Footage. The row entries are as follows:

Row 1: Listing I D: 10022. List Price: $374,900.00. Square Footage: 2755.

Row 2: Listing I D: 10023. List Price: $379,000.00. Square Footage: 1600.

Row 3: Listing I D: 10024. List Price: $1,189,900.00. Square Footage: 3397.

Row 4: Listing I D: 10025. List Price: $439,000.00. Square Footage: 1900.

Row 5: Listing I D: 10027. List Price: $335,000.00. Square Footage: 1184.

The mouse pointer is placed at the right boundary of the second cell of column two, which is labeled Insertion location of new field. A Field List pane is displayed at the right of the datasheet. A link for Show only fields in the current record source is shown below. The text, Fields available for this view is present below. A list of fields under the Listings table such as Listing I D, Date Listed, List Price, Address, and City are shown. The Address field is highlighted. An Edit Table link is displayed on the side of this list.

Return to Figure 4-88

Figure 4.89 Extended Description (Chapter 4)

Return to Figure 4-89

The datasheet shows the tabular layout of data. The table consists of three columns and five rows. The columns headings are as follows: Listing I D, List Price, and Square Footage. The row entries are as follows:

Row 1: Listing I D: 10022. List Price: $374,900.00. Square Footage: 2755.

Row 2: Listing I D: 10023. List Price: $379,000.00. Square Footage: 1600.

Row 3: Listing I D: 10024. List Price: $1,189,900.00. Square Footage: 3397.

Row 4: Listing I D: 10025. List Price: $439,000.00. Square Footage: 1900.

Row 5: Listing I D: 10027. List Price: $335,000.00. Square Footage: 1184.

A new field is added to the area below the second cell of column two and highlighted with a rose-colored line.

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Figure 4.90 Extended Description (Chapter 4)

Return to Figure 4-90

The datasheet shows the tabular layout of data. The table consists of three columns and three rows. The column headings are as follows: Listing I D, List Price, and Square Footage. The row entries are as follows:

Row 1: Listing I D: 10022. List Price: $374,900.00. Square Footage: 2755.

Row 2: Listing I D: 10023. List Price: $379,000.00. Square Footage: 1600.

Row 3: Listing I D: 10024. List Price: $1,189,900.00. Square Footage: 3397.

The Access datasheet consists of newly added Address fields in between the existing rows. The Address fields are added in row 1, row 3, and row 5 as follows: 525 Riverdale, 615 Silver Hill Court, and 1917 Oak Crest Drive, respectively. No change is present in the existing Listing I D, List Price, and Square Footage data.

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Figure 4.91 Extended Description (Chapter 4)

Return to Figure 4-91

The Access displays the two command groups of the Arrange tab such as Table, and Rows and Columns. The Table command group consists of three navigation buttons for different layouts such as Gridlines, Stacked, and Tabular. The Gridlines button has a drop-down arrow. The Rows and Columns command group consists of four icons of table with arrows pointing upward, downward, left, and right. The buttons of Rows and columns command groups are as follows: Insert Above, Insert Below, Insert Left, and Insert Right. Three vertically aligned buttons in the Rows and Columns command group are shown as follows: Select Layout, Select Column, and Select Row.

Return to Figure 4-91

Figure 4.92 Extended Description (Chapter 4)

Return to Figure 4-92

The report shows the tabular layout. The table consists of three columns and six rows. The column headings are Listing I D, List Price, and Square Footage. All the cells of the tabular layout have data entries. All the entries under List Price are highlighted. A Property Sheet pane is displayed on the right of the datasheet. A selection Text Box is present at the top-left with the selected field List Price. At the top-right corner of the pane, an icon with letters A and Z written in vertical alignment along with a downward arrow is present, which is labeled Sort button. Below the Text Box, different tabs are present such as Format, Data, Event, Other, and All. The Format tab is selected. A scroll-down table appears below the Format tab and consists of Property options and their corresponding values, such as Format, Decimal Places, Visible, Width, Height, Top, and Left. The Width value is highlighted.

Return to Figure 4-92

Figure 4.93 Extended Description (Chapter 4)

Return to Figure 4-93

The report displays a tabular layout. The table consists of 3 columns and 3 rows. The column headings are Listing I D, List Price, and Square Footage. Column three is selected as the control layout. A new column represented by dotted borders is inserted between existing columns two and three. All the cells in the existing column three are highlighted.

Return to Figure 4-93

Figure 4.94 Extended Description (Chapter 4)

Return to Figure 4-94

The report is displayed in a tabular layout. The table consists of 3 columns and 3 rows. The column headings are Listing I D, List Price, and Square Footage. Row one is selected as the control layout. Two new rows represented by dotted borders are inserted between existing row one and row two, and row two and row three, respectively. All the cells in the existing row one are highlighted with orange borders, while the cells in existing rows two and three are highlighted with yellow borders.

Return to Figure 4-94

Figure 4.95 Extended Description (Chapter 4)

Return to Figure 4-95

The report displays a tabular layout with four columns. The column headings are Listing I D, List Price, Beds, and Square Footage. Column four is selected as control and all the cells in column four are highlighted. A rose-colored line is present at the right boundary of column two, which is labeled Rose-colored line indicates the new location of the field.

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Figure 4.96 Extended Description (Chapter 4)

Return to Figure 4-96

The Header and Footer Command group consists of four buttons and each is represented by different icons. A page icon with a hash in the middle is present at the far left of the command group, which represents the Page Number button. Three vertical icons are present to the right of the Page Number button, such as picture, a folded page, and a calendar with a clock in the bottom right corner. These icons represent the Logo, Title, and Date and Time buttons, respectively.

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Figure 4.97 Extended Description (Chapter 4)

Return to Figure 4-97

The dialog box consists of the Include Date feature with a check box at the top left. The checkbox is checked. Below this check box, three radio buttons with three date formats are present such as Thursday, March 5, 2026, 05-March-26, and 3/5/2026. The radio button with the date format as Thursday, March 5, 2026, is selected. Include Time check box with a check mark is present below the Include Date options and consists of three radio buttons with three time formats such as 2:10:31 P M, 2:10 P M, and 14:10. The radio button with the Time format 2:10:31 P M. A Sample Date and Time format is present below the Include Time feature with formatted Date and Time as Thursday, March 5, 2026, 2:10:31 P M. The OK and Cancel buttons are at the bottom right of the dialog box. The OK button is selected.

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Figure 4.98 Extended Description (Chapter 4)

Return to Figure 4-98

The Page Numbers dialog box consists of Help and Close buttons at the top-right corner. Below these buttons, there are OK and Cancel buttons present. The text Format is displayed and labeled Format options. It consists of two radio buttons such as Page N and Page N of M. The Page N radio button is selected. Below this, the text Position is labeled Position options and consists of two radio buttons such as Top of Page [Header] and Bottom of Page [Footer]. The Top of Page [Header] option is selected. The text Alignment labeled Alignment options is present below the Position options and consists of a selection box. The Center Alignment is selected inside the box. A Show Number on the First Page check box is present at the bottom-left corner, which is checked.

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Figure 4.99 Extended Description (Chapter 4)

Return to Figure 4-99

The report shows a tabular layout with data arranged into columns and rows. The column headings are Listing I D, Address, City, Square Footage, and Beds. The title of the datasheet; Placer Hills Real Estate is present at the top-left corner of the Header section. The Date and Time are shown on the top-right corner of the Header section as follows: Thursday, March 25, 2026, 2:33:16 P M. The page number is added to the center of the footer section.

Return to Figure 4-99

Figure 4.100 Extended Description (Chapter 4)

Return to Figure 4-100

The Access shows the Controls Command group with various navigation buttons. The Label button represented by a horizontal rectangle in the Controls group is selected. A tabular layout is present in the datasheet area with the heading Placer Hills Real Estate and is organized into four columns and two rows with the column headings: Listing I D, List Price, Address, and City. The cell above column three is selected and highlighted in rose color. A label button icon and a plus sign are present inside the rose-colored cell.

Return to Figure 4-100

Figure 4.101 Extended Description (Chapter 4)

Return to Figure 4-101

The Report Wizard dialog box has a yellow illustration at the top-left corner that depicts three tables and an arrow that points to a large datasheet. To the right of this, shows the question, Which fields do you want in your query? This is followed by the text You can choose from more than one table or query. Below the animation, is the Tables or Queries feature with a drop-down menu set to Table: Listings. Below this, on the left, there is a panel titled Available Fields, containing a list of options like Dated Listed, Garage, Year Built, Construction, and Listing Agent Number. The Dated Listed option is selected. On the right, another pane is titled Selected Fields, containing a list of options like Listing I D, List Price, Address, City, Square Feet, Beds, and Baths. The List Price option is selected. Between the panes, there are four buttons to move fields back and forth. The Move Single Field button is at the top. The Cancel, Back, Next, and Finish buttons are present below. The Next button is selected.

Return to Figure 4-101

Figure 4.102 Extended Description (Chapter 4)

Return to Figure 4-102

The Print Preview view of the report is titled Listings - Report Wizard at the top-left corner. It has a tabular layout of the database, which is organized into six columns and four rows. The column headings are List Price, Listing I D, City, Square Feet, Beds, and Baths. The heading List Price is labeled List Price moved to the left-most column.

Return to Figure 4-102

Figure 4.103 Extended Description (Chapter 4)

Return to Figure 4-103

The Work area shows the Object tab titled Report 1. The tab contains multiple rows and columns. The column headings are Listing I D, List Price, Square Feet, Beds, Baths, Address, City, and Garage.

Return to Figure 4-103

Figure 4.104 Extended Description (Chapter 4)

Return to Figure 4-104

The Print Preview view of the Listings report shows a table titled Placer Hills Real Estate. The table consists of eight columns and three rows. The column headings are Listing I D, List Price, Square Feet, Beds, Baths, Address, City, and Garage. The row shows the following entries: 10022, $ 374,900.00, 2755, 3, 2, 525 Riverdale, Lincoln, and 2 Car Detached. 10023, $ 379,000.00, 1600, 3, 2, 615 Silver Hill Court, Lincoln, and 2 Car Attached. 10024, $ 1,189,900.00, 3397, 4, 4, 1917 Oak Crest Drive, Roseville, and 3 Car Attached. The page number is displayed at the bottom-left corner.

Return to Figure 4-104

Figure 4.105 Extended Description (Chapter 4)

Return to Figure 4-105

The Grouping and Totals Command group consists of buttons such as Group and Sort, Totals, and Hide Details. The Group and Sort button and Totals buttons are labeled. The buttons are arranged vertically.

Return to Figure 4-105

Figure 4.106 Extended Description (Chapter 4)

Return to Figure 4-106

The report consists of a tabular layout of the database, which is organized into rows and columns. The report is shown in the upper part. The Group, Sort, and Total pane is displayed below the report. The pane consists of a Ribbon with the Sort by drop-down button. A drop-down list of fields is opened. The list of fields includes Employee I D, First Name, Last Name, Title, and Branch. The Last Name field is selected.

Return to Figure 4-106

Figure 4.107 Extended Description (Chapter 4)

Return to Figure 4-107

The report consists of a tabular layout of the database, which is organized into rows and columns. The report is shown in the upper part. The Group, Sort, and Total pane is displayed below the report. It consists of a cross icon on the right of the title bar and is labeled Close the pane. A Ribbon is present below the title bar. Two drop-down buttons are present such as Sort by and with A on top. In the Sort by drop-down button, the Last Name field is selected and labeled Sort field. The A on top button is labeled Sort order. A Delete symbol is labeled on the far right of the Ribbon. Below the Ribbon, two buttons are present such as Add a group and Add a sort, in which the Add a sort button is highlighted.

Return to Figure 4-107

Figure 4.108 Extended Description (Chapter 4)

Return to Figure 4-108

The report consists of a tabular layout of the database, which is organized into rows and columns. The report is shown in the upper part. The Group, Sort, and Total pane is displayed below the report. The pane consists of a Ribbon with the Group on drop-down button. The drop-down button consists of fields such as Employee I D, First Name, Last Name, Title, and Branch. The Branch field is selected.

Return to Figure 4-108

Figure 4.109 Extended Description (Chapter 4)

Return to Figure 4-109

The screenshot depicts a report in a stepped layout. It consists of three columns and four rows. The column headings are Branch, Employee I D, and First Name. Row one has only one entry under the Branch column, Cameron Park, and is highlighted. Rows two to four have entries only in the Employee I D and First Name columns. It shows the following entries: 135 and Elsa, 102 and Lanita, and 103 and Eleesha.

Return to Figure 4-109

Figure 4.110 Extended Description (Chapter 4)

Return to Figure 4-110

The Group, Sort, and Total pane consists of a cross icon on the top right corner of the Title bar labeled Close the pane. A Ribbon is present below the Title bar. Two drop-down options are present on the Ribbon such as Group on and with A on top. In the Group on option, the Branch field is selected and labeled Group field. The with A on top option is labeled Sort order for grouped field. The More button with a right-menu arrow is present near the Sort order button. A Delete symbol is present and labeled at the far right of the Ribbon. Below the Ribbon, two options are present such as Add a group and Add a sort, in which the Add a group option is highlighted.

Return to Figure 4-110

Figure 4.111 Extended Description (Chapter 4)

Return to Figure 4-111

The Group, Sort, and Total pane consists of a cross icon in the top right corner of the Title bar. A Ribbon is present below the Title bar. The Ribbon consists of multiple drop-down options such as Group on, with A on top, by entire value, with no totals, with title Branch, with a header section, with a footer section, do not keep group together on one page, and Less. The Less button with a left-headed arrow is labeled.

Return to Figure 4-111

Figure 4.112 Extended Description (Chapter 4)

Return to Figure 4-112

The Group, Sort, and Total pane consists of a cross icon in the top right corner of the Title bar. A Ribbon is present below the Title bar. The Ribbon consists of multiple drop-down options such as Group on, with A on top, by entire value, with no totals, with title Branch, with a header section, without a footer section, and do not keep group together on one page. The by entire value drop-down option is selected, which shows options with radio buttons such as by entire value, by first character, and by first two characters. The by entire value radio button is selected. A Custom option for characters is present at the bottom of the drop-down with a Characters text box. The Characters text box consists of the number one.

Return to Figure 4-112

Figure 4.113 Extended Description (Chapter 4)

Return to Figure 4-113

The Access consists of a Ribbon with tabs such as Formal Data, Database Tools, Help, Report Layout Design, Arrange, and Format. The Report Layout Design tab is selected and consists of Command groups such as Grouping and Totals and Controls. The Total button from the Groupings and Totals Command group is selected, which has a drop-down menu. It consists of several options such as Sum, Average, Count Records, Count Values, Max, Min, Standard Deviation, and Variance. A report is present in the datasheet area in the tabular Layout view.

Return to Figure 4-113

Figure 4.114 Extended Description (Chapter 4)

Return to Figure 4-114

The Group, Sort, and Total pane consists of a cross icon in the top right corner of the Title bar. A Ribbon is present below the Title bar. The Ribbon consists of multiple drop-down options such as Group on, with A on top, by entire value, with no totals, with title Branch, with a header section, without a footer section, do not keep group together on one page, and less. The with no totals drop-down option is selected and a Totals menu is opened. A Total On selection box is present at the top of the menu with the selected file, Base Monthly Salary. Followed by a Type drop-down arrow box. The drop-down arrow of the Type box is clicked and consists of options such as Sum, Average, Count Records, Count Values, Minimum, Maximum, Standard Deviation, and Variance.

Return to Figure 4-114

Figure 4.115 Extended Description (Chapter 4)

Return to Figure 4-115

The New Formatting dialog box consists of a Select a rule type feature at the top. This feature has two options Check values in the current record or use an expression and Compare to other records. These two options are labeled Select rule type. In these options, the Check values in the current record or use an expression option is selected. Below these options, an Edit the rule description feature is present with four boxes for Field Value is, Between, and two blank boxes with a minus sign. These boxes are labeled Enter rule details. The Field value and between boxes contain a drop-down arrow to select options. A Preview feature is present below the Enter rule details. It contains a set, No format set. At the right of the No Format set, formatting options are present such as Bold, Italic, Underline, Auto-Fill, Font Color, and Alignment. These options are highlighted and labeled. The OK and Cancel buttons are present at the bottom right corner.

Return to Figure 4-115

Figure 4.116 Extended Description (Chapter 4)

Return to Figure 4-116

The Edit the rule description dialog box consists of the Format only cells where the feature is on the top left. It contains two fields with a drop-down arrow for each field. In the first field, the Field value option is selected. In the second field, the less than option is selected. A text box is present near these fields and contains the value 5500. Below that, a Preview feature is present. It consists of a formatted text, uppercase A lowercase a uppercase B lowercase b uppercase C lowercase c uppercase Y lowercase y uppercase Z lowercase z. The Formatting options such as Bold, Italic, Underline, Auto-Fill, Font color, and Alignment are present on the right side of the preview feature. The Bold and Underline options are selected. The Font Color is set as green.

Return to Figure 4-116

Figure 4.117 Extended Description (Chapter 4)

Return to Figure 4-117

The Edit the rule description dialog box consists of the Format only cells where the feature is at the top-left. It contains two fields with a drop-down arrow each. In the first field, the Field value option is selected. In the second field, the between option is selected. A text box is present near these fields. It contains the value 7000. Below that, a Preview feature is present. It consists of a formatted text, uppercase A lowercase a uppercase B lowercase b uppercase C lowercase c uppercase Y lowercase y uppercase Z lowercase z. The Formatting options such as Bold, Italic, Underline, Auto-Fill, Font color, and Alignment are present on the right side of the preview feature. The Bold and Underline options are selected. The Font Color is set as red.

Return to Figure 4-117

Figure 4.118 Extended Description (Chapter 4)

Return to Figure 4-118

The dialog box consists of the Show formatting rules for option present at the top left. Next to this, a selection field with Base Monthly Salary is selected. Below that, the New Rule, Edit Rule, and Delete Rule buttons are present. To the right of these buttons, two arrows pointing up and down are present. The arrow pointing up is labeled the Move Up arrow and the one pointing down is labeled the Move Down arrow. Two features are present below the buttons. Rule (applied in the order shown) on the right side and Format on the left side. Three options are listed below these features. The OK, Cancel, and Apply buttons are present at the bottom of the dialog box.

Return to Figure 4-118

Figure 4.119 Extended Description (Chapter 4)

Return to Figure 4-119

The Control Formatting Command group consists of buttons such as Quick Styles, Change Shape, Conditional Formatting, Shape Fill, Shape Outline, and Shape Effects.

Return to Figure 4-119

Figure 4.120 Extended Description (Chapter 4)

Return to Figure 4-120

The dialog box consists of the Show formatting rules for feature along with a selection box at the top-left. The Base Monthly Salary field is selected in the box and labeled Select the field to format. Below that, the New Rule, Edit Rule, and Delete Rule buttons are present. The New Rule button is highlighted. The OK, Cancel, and Apply buttons are present at the bottom-right corner of the dialog box.

Return to Figure 4-120

Figure 4.121 Extended Description (Chapter 4)

Return to Figure 4-121

The dialog box consists of the Show formatting rules for feature along with a selection box at the top-left. The Base Monthly Salary field is selected in the box. Below that, the New Rule, Edit Rule, and Delete Rule buttons are present. The Edit Rule and Delete buttons are labeled. Two options, Rule (applied in the order shown) and Format are present below these buttons.

Return to Figure 4-121

Figure 4.122 Extended Description (Chapter 4)

Return to Figure 4-122

The Access consists of a Ribbon with tabs such as File and Print Preview. A Search icon is present near the Print Preview tab. The Print Preview tab is selected and consists of Command groups such as Print, Page Size, Page Layout, Zoom, Data, and Close Preview. The Margins button from the Page Size Command group is selected, which has a drop-down box and consists of options for adjusting the margins. The options are Last Custom Setting, Normal, Wide, and Narrow. The Datasheet area shows a Page preview of a report, which shows two pages. The page number is present at the bottom center of each page. The Datasheet View button, the Design View button, and the Zoom controls are present at the bottom-right corner.

Return to Figure 4-122

Figure 4.123 Extended Description (Chapter 4)

Return to Figure 4-123

The Access consists of a Ribbon with tabs such as File and Print Preview. A Search icon is present near the Print Preview tab. The Print Preview tab is selected and consists of Command groups such as Page Size, Page Layout, and Zoom. The Column button from the Page Layout Command group is selected, which has a dialog box titled Page Setup. The dialog box has three tabs Print Options, Page, and Columns. The Column tab is selected. It consists of three sections with options for Grid Settings, Column Size, and Column Layout. The bottom of the dialog box shows the OK and Cancel buttons.

Return to Figure 4-123

Figure 4.124 Extended Description (Chapter 4)

Return to Figure 4-124

The preview is titled Employee List by Development. It consists of three separate tables. The tables consist of two columns. The column headings for all tables are Department, Last Name, and First Name. The first table shows the details of the Department of Health and Benefits. The second table shows the details of the Department Property and Casualty. The third table shows the details for Health and Benefits.

Return to Figure 4-124

Figure 4.125 Extended Description (Chapter 4)

Return to Figure 4-125

The table consists of four columns and five rows. The column headings are Employee, Title, Branch, and Base Monthly Salary, each with a drop-down arrow. Rows one to five shows the following entries, respectively:

Larry Adamsen, Insurance Agent, Folsom, and $ 4,200.00.

Jennifer Alaro, Administrative Assistant, Cameron Park, and $ 3,350.00.

Shoukat Ali, Insurance Agent, Cameron Park, and $ 4,200.00.

Tanisha Allen, Senior Vice President, Folsom, and $ 11,750.00.

Charlene Althouse, Large Group Specialist, Granite Bay, and $ 4,900.00.

Return to Figure 4-125

Figure 4.126 Extended Description (Chapter 4)

Return to Figure 4-126

The Group, Sort, and Total pane consists of a Ribbon with a Group on feature along with a select field drop-down arrow. The drop-down arrow consists of options such as Employee, Title, Branch, and Base Monthly Salary. The Branch option is selected.

Return to Figure 4-126

Figure 4.127 Extended Description (Chapter 4)

Return to Figure 4-127

The Edit Formatting Rule dialog box consists of the “Select a rule type:” option with two sub-options, Check values in the current record or use an expression, and Compare to other records. Below these options, the Edit the rule description feature is present with options for formatting the cells. The “Format only cells where the” option is present below and consists of two fields. In the first field, the Field Value is option is selected. In the second field, the greater than or equal to option is selected. An adjacent text bar is present at the right of these fields with the value 11000. A Preview section is present with text; uppercase A lowercase a uppercase B lowercase b uppercase C lowercase c uppercase Y lowercase y uppercase Z lowercase z. The Formatting options such as Bold, Italic, Underline, Auto-Fill, and Font Color are present in the Preview section. The OK and Cancel buttons are present at the bottom-right corner of the dialog box.

Return to Figure 4-127

Figure 4.128 Extended Description (Chapter 4)

Return to Figure 4-128

The dialog box consists of the option Show formatting rules for, with a selection field, on the top left side. Base Monthly Salary is set to the selection field. Below that, the New Rule, Edit Rule, and Delete Rule buttons are present. To the right of these buttons, two arrows pointing up and down are present. Two options are displayed below these buttons. The options are Rule (to be applied in the specified order), on the left side, and Format, on the right side. The value under the Rule option is set to be greater than or equal to 10,000. The text uppercase A lowercase a uppercase B lowercase b uppercase C lowercase c uppercase Y lowercase y uppercase Z lowercase z is under the Format option. The OK, Cancel, and Apply buttons are present at the bottom right of the dialog box.

Return to Figure 4-128

Figure 4.129 Extended Description (Chapter 4)

Return to Figure 4-129

The Employees by Branch database contains a table. The table consists of four columns. The column headings are Branch, Employee, Title, and Base Monthly Salary. The Branch column shows the name of the branch. The Employee column shows the names of the employees. The Title column shows the Job role of each employee. The Base Monthly Salary column shows the monthly salary of each employee.

Return to Figure 4-129

Figure 4.130 Extended Description (Chapter 4)

Return to Figure 4-130

The Work area shows the Object tab titled Music Albums. It contains the Music Albums form. The form consists of seven fields. Each field contains a text box towards the right of the field along with the data inside. The fields and the data in the corresponding text boxes are as follows: Album I D: 66, Album Name: The Record, Artist: Boy Genius, Genre: Alternative, Length: 0:42:13, Recording Label: Interscope, and Release Date: 31-March-23. A Record button, the Page number, a Filter, and a Search button are displayed on the bottom left of the Work area.

Return to Figure 4-130

Figure 4.131 Extended Description (Chapter 4)

Return to Figure 4-131

The Report Wizard consists of a question at the top-left corner which states, Do you want to add any grouping levels? Below that, a box is present with options for Album Name and Genre. The Album Name field is selected. The Move Single Field button is present to the right of the options. On the right side, three text boxes are present with Fields such as Artist, Album Name, Genre, and Song Title.

Return to Figure 4-131

Figure 4.132 Extended Description (Chapter 4)

Return to Figure 4-132

The Songs On Albums report contains data in a table. The table consists of four columns. The column headings are Artist, Album Name, Genre, and Song Title. The date, Monday, August 24, 2026, is displayed at the far left of the Footer section. The page number is present at the far right corner of the Footer section.

Return to Figure 4-132

Figure 4.133 Extended Description (Chapter 4)

Return to Figure 4-133

The report consists of the fields Artist, Album Name, Genre, and Song Title. The Song Title field is aligned vertically towards the right. It contains the Chieftains album with the longest titles.

Return to Figure 4-133

Figure 4.134 Extended Description (Chapter 4)

Return to Figure 4-134

The Group, Sort, and Total pane consists of a Ribbon below the Title bar. In the Group on property, the Artist field is selected. The Ribbon consists of multiple drop-down buttons such as Group on, with A on top, by entire value, with no totals, with title, with a header section, without a footer section, and do not keep group together on one page. The option with no totals drop-down button is selected. It shows a menu titled Totals. The menu consists of a Total on selection field. The Song Title is selected in the field. Below that, a Type selection field is present. The Count Values option is selected in the field. Below that, four check boxes with options for Show Grand Total, Show group subtotal as percent of Grand Total, Show subtotal in group header, and Show subtotal in group Footer are shown.

Return to Figure 4-134

Figure 4.135 Extended Description (Chapter 4)

Return to Figure 4-135

The data in the report is shown in a table. The table consists of four columns. The column headings are Artist, Album Name, Genre, and Song Title. The Artist column shows the name of the artist of the song. The Album Name column shows the names of the albums. The Genre column shows the genre of each album. The song title shows the titles of songs by each artist.

Return to Figure 4-135

Figure 4.136 Extended Description (Chapter 4)

Return to Figure 4-136

The left side of the Work area contains the Object tab titled Form 1. It consists of data as follows: Boat I D: 1003, Boat Type: Catalina 270, Length: 28 feet and 4 inches, Seats: 8, Sleeps: 6, 4 Hour Rate: $ 145.00, Full Day: $ 205.00, Galley with stove: Yes, and Model Year: 2011. A Field List pane is opened to the right of the Work area. It consists of the Show only fields in the current record source text present at the top of the pane. Below that, the Fields available for this view feature is present and consists of a list of fields of the Sailboat Fleet table. The list of fields contains: Boat I D, Boat Type, Length, Seats, Sleeps, Four Hour Rental Rate, Full Day Rental Rate, Galley With Stove, and Model Year. The Model Year Field is selected. Below that, the Fields available in the related tables feature is present. A Record button, the Page number, a Filter, and a Search button are displayed on the bottom left of the Work area.

Return to Figure 4-136

Figure 4.137 Extended Description (Chapter 4)

Return to Figure 4-137

The Work area contains the Object tab titled Form 1. It consists of a datasheet, which contains the data as follows: Boat I D: 1003, Boat Type: Catalina 270, Length: 28 feet and 4 inches, Seats: 8, Sleeps: 6, 4-Hour Rate: $ 145.00, Full Day: $ 205.00, Galley with stove: Yes, and Model Year: 2011.

Return to Figure 4-137

Figure 4.138 Extended Description (Chapter 4)

Return to Figure 4-138

The Work area contains the Object tab titled Form 1. It consists of a datasheet. The datasheet contains the View Sailboat Fleet Data. An updated version of the form is present with modified fields. The updated fields are as follows: Boat I D: 1150, Boat Type: Capri 22 M k 2, Length: 28 feet and 4 inches, Seats: 6, Sleeps: 4, 4 Hour Rate: $75.00, Full Day Rate: $121.00, Galley with stove: No, and Model Year: 2014. A Record button, the Page number, a Filter, and a Search button are displayed on the bottom left of the Work area.

Return to Figure 4-138

Figure 4.139 Extended Description (Chapter 4)

Return to Figure 4-139

The datasheet consists of a Form with fields as follows: Boat I D: 1401, Boat Type: Capri 22 M k 2, Length: 28 feet and 4 inches, Seats: 6, Sleeps: 4, 4-Hour Rate: $75.00, Full Day Rate: $121.00, Galley with stove: No, and Model Year: 2025.

Return to Figure 4-139

Figure 4.140 Extended Description (Chapter 4)

Return to Figure 4-140

The Work area contains the Object tab titled Form 1. It consists of a datasheet. The datasheet contains the Add New Sailboat. The form consists of fields such as Boat I D: 1401, Boat Type: Capri 22 M k 2, Length: 28 feet and 4 inches, Seats: 6, Sleeps: 4, 4-Hour Rate: $75.00, Full Day Rate: $121.00, Galley with stove: No, and Model Year: 2025. Below the data, three buttons are present such as Save Sailboat Record, Add New Sailboat, and Close Form. The Close Form button is selected. A Record button, the Page number, a Filter, and a Search button are displayed on the bottom left of the Work area.

Return to Figure 4-140

Figure 4.141 Extended Description (Chapter 4)

Return to Figure 4-141

The form consists of various fields and their respective data. The fields and their corresponding data from top to bottom are as follows: Boat I D: 1425, Boat Type: Catalina 270, Length: 28 feet and 4 inches, Seats: 8, Sleeps: 6, 4-Hour Rate: $145.00, Full Day Rate: $205.00, Galley with stove: Yes, and Model Year: 2025.

Return to Figure 4-141

Figure 4.142 Extended Description (Chapter 4)

Return to Figure 4-142

The Report Wizard consists of a question at the top-left corner which states, Do you want to add any grouping levels? Below that, is a box with options for Boat Type and Sum Full Day Rental Rate. On the right side, a field presents with text such as F K Boat I D, Boat Type, and Sum of Full Day Rental Rate. In between the field and the box, a Move Single Field button is present.

Return to Figure 4-142

Figure 4.143 Extended Description (Chapter 4)

Return to Figure 4-143

The report is titled Full Day Rentals By Boat Summary. The tabular layout consists of three columns and three rows. The column headings are F K Boat I D, Boat Type, and Sum of Full Day Rental Rate. Row one to row three shows the following entries: 1003, Catalina 270, and $ 1,025.00. 1015, Catalina 270, and $ 205.00. 1146, Hunter 33, and $ 1,065.00.

Return to Figure 4-143

Figure 4.144 Extended Description (Chapter 4)

Return to Figure 4-144

The report contains a tabular layout, which consists of three columns and seven rows. The column headings are Boat I D, Boat Type, and Total Income from Full Day Rentals. Row one to row three shows the following entries: 1003, Catalina 270, and $ 1,025.00. 1015, Catalina 270, and $ 205.00. 1146, Hunter 33, and $ 1,065.00.

Return to Figure 4-144

Figure 4.145 Extended Description (Chapter 4)

Return to Figure 4-145

The report titled Pets Without Matching Owner, the date, Friday, September 25, 2026, is displayed at the right corner of the Header section. The data is organized into eight columns and two rows. The column headings are Pet I D, Pet Name, Type, Breed, Age, Gender, Color, and Why I'd make a great companion.

Return to Figure 4-145

Figure 4.146 Extended Description (Chapter 4)

Return to Figure 4-146

The Group, Sort, and Total pane consists of a Ribbon, present below the Title bar. The Ribbon shows multiple options with a drop-down arrow for each option. The options start from the left end of the Ribbon, such as Group on, with A on top, by entire value, with no totals, with title, with a header section, without a footer section, do not keep group together on one page, and less. The do not keep group together on one page is selected. It consists of several options such as do not keep group together on one page, keep whole group together on one page, and keep header and first record together on one page. The keep header and first record together on one page option is selected.

Return to Figure 4-146

Figure 4.147 Extended Description (Chapter 4)

Return to Figure 4-147

The Conditional Formatting Rules Manager dialog box consists of the option “Show formatting rules for” at the top left along with a selection field. The Gender option is selected in the field. Below that, the New Rule, Edit Rule, and Delete Rule buttons are present. To the right of these buttons, Move Up and Move Down buttons are present. Below the buttons, show two options, Rule (applied in the order shown), on the left side, and Format, on the right side. Under the Rule option Value equals M is written. Under the Format feature, the text; uppercase A lowercase a uppercase B lowercase b uppercase C lowercase c uppercase Y lowercase y uppercase Z lowercase z, is written in blue color.

Return to Figure 4-147

Figure 4.148 Extended Description (Chapter 4)

Return to Figure 4-148

The report titled, Pets Available for Adoption, the date, Friday, September 25, 2026, is displayed on the right end of the header section. The data in the report is displayed in a tabular column. It consists of eight columns and three rows. The column headings are Pet I D, Pet Name, Type, Breed, Age, Gender, Color, and Why I would make a great companion.

Return to Figure 4-148

Figure 4.149 Extended Description (Chapter 4)

Return to Figure 4-149

On the top part of the Work area, shows an Object tab titled Owners. It consists of the Owners form. The form consists of eight fields. The fields and the entries are as follows: Owner I D: 0100. Owner or Last Name: Washington. Owner or First Name: Tyrone. Address: 11 Lakewood Drive. City: Abilene. State, ZIP, and Phone is present at the bottom of the datasheet area. The first row containing the database of a pet is converted into a split form. The split form is present in the upper half of the datasheet area. The form has a Header section with the label Owners. Below the label, multiple fields and their data are present. The fields and their corresponding data are as follows: Owner I D: 0100, Owner or Last Name: Washington, Owner or First Name: Tyrone, Address: 11 Lakewood Drive, City: Abilene. State: T X. ZIP: 79601. Phone: (325) 614-9333. Below the form, a table is shown. It consists of eight columns and five rows. A Record button, the Page number, a Filter, and a Search button are displayed on the bottom left of the Work area.

Return to Figure 4-149

Figure 4.150 Extended Description (Chapter 4)

Return to Figure 4-150

The Work area shows the Object tab titled Race Results. It contains the Race Results form. The form consists of six fields. Each field contains a text box towards the right of the field along with the data inside. The fields and the data in the corresponding text boxes are as follows: Race I D: 1, Member I D: 1, Place: 2, Time: 2:17, Division: F, and Age Group: greater than or equal to 20 and less than 30. The Division field box contains a drop-down arrow. A Record button, the Page number, a Filter, and a Search button are displayed on the bottom left of the Work area.

Return to Figure 4-150

Figure 4.151 Extended Description (Chapter 4)

Return to Figure 4-151

The Work area shows the Object tab titled View Race Results. It contains the Member Race Results form. The Date; 25-Sepetember-26 is displayed at the right of the Header section. The alignment of form features is arranged towards the center of the datasheet. The width of the text boxes is modified into small size. The form consists of six fields. Each field consists of a text box towards the right of the field along with the data inside. The fields and the data in the corresponding text boxes are as follows: Race I D: 1, Member I D: 1, Place: 2, Time: 2:17, Division: F, and Age Group: greater than or equal to 20 and less than 30. The Division field box contains a drop-down arrow. A Close Form operation button is present below the form. A Record button, the Page number, a Filter, and a Search button are displayed on the bottom left of the Work area.

Return to Figure 4-151

Figure 4.152 Extended Description (Chapter 4)

Return to Figure 4-152

The Work area shows the Object tab titled Report 1. The report consists of a tabular layout of the Member's database. It consists of nine fields such as Member I D, First Name, Last Name, Address, City, State, Zip, Email, and Cell Phone. The entire Cell Phone column is highlighted.

Return to Figure 4-152

Figure 4.153 Extended Description (Chapter 4)

Return to Figure 4-153

The List of Club Members report consists of nine columns. The column headings are City, Member I D, First Name, Last Name, Address, State, ZIP, Email, and Cell Phone. The report contains the details of the members. The Page Number is displayed at the bottom of the Work area.

Return to Figure 4-153

Figure 4.154 Extended Description (Chapter 4)

Return to Figure 4-154

The Work area shows the Object tab titled Drivers. It consists of the Drivers form. The form consists of nine fields, with four fields on the right side and five fields on the left side. Each field contains a text box towards the right of the field along with the data. The fields and the data in the corresponding text boxes are as follows: License Number: 10001422.

Birth Date: 9/26/1951.

Last Name: Juarez.

First Name: Ricardo.

Address: 274 W 145th Street.

City: New York.

State: N Y.

ZIP: 10039.

Gender: M.

Below the form, a table is shown. It consists of nine columns and six rows. The column headings are License Number, Birth Date, Last Name, First Name, Address, City, State, ZIP, and Gender, each with a drop down-arrow. The Gender text box contains a drop-down arrow. A Record button, the Page number, a Filter, and a Search button are displayed on the bottom left of the Work area. In between the form and the table, a Divider bar is present, which separate the form and the table.

Return to Figure 4-154

Figure 4.155 Extended Description (Chapter 4)

Return to Figure 4-155

The Work area shows the Object tab titled Drivers. It contains the “Drivers” form. The form consists of nine fields. The fields are arranged in four rows. Three fields in the first row, two fields in the second row, one field in the third row, and three fields in the fourth row. Each field contains a text box, along with the data. The fields and the data in the corresponding text boxes are as follows: License Number: 10001422.

Birth Date: 9/26/1951.

Last Name: Juarez.

First Name: Ricardo.

Address: 274 W 145th Street.

City: New York.

State: N Y.

ZIP: 10039.

Gender: M.

Below the form, a table is shown. It consists of nine columns and six rows. The column headings are License Number, Birth Date, Last Name, First Name, Address, City, State, ZIP, and Gender, each with a drop down-arrow. The Gender text box contains a drop-down arrow. A Record button, the Page number, a Filter, and a Search button are displayed on the bottom left of the Work area.

Return to Figure 4-155

Figure 4.156 Extended Description (Chapter 4)

Return to Figure 4-156

The Work area shows the Object tab titled Report 1. It contains a table. The table consists of seven columns and four rows. The column headings are Ticket Number, D L Number, Ticket Date City, Primary Factor, Officer hash, and Fine. Each column has a different column width to fit the data inside.

Return to Figure 4-156

Figure 4.157 Extended Description (Chapter 4)

Return to Figure 4-157

The report is titled Ticket Report by City, which contains a table. The table consists of seven columns. The column headings are City, Ticket Number, D L Number, Ticket Date, Primary Factor, Officer hash, and Fine. Each City's subtotal of Fine is displayed in the Fine column of the respective City.

Return to Figure 4-157

Figure 4.158 Extended Description (Chapter 4)

Return to Figure 4-158

The Work area shows the Object tab titled Add New Physician. It contains the “Add New Physician” form. The date, 18-August-26, is displayed on the right side of the Header section. The form consists of six fields. Each field contains a horizontal text box to the right for entering the data. The fields and their corresponding data from top to bottom in the form are as follows:

Doctor I D: 1.

First Name: Ashish.

Last Name: Agarwal.

Specialty: Pediatrics.

Office: 101.

Tenant Since: 1/15/2022.

There are three buttons such as Save Physician Record, Add New Physician, and Close Form at the bottom of the form. A Record button, the Page number, a Filter, and a Search button are displayed on the bottom left of the Work area.

Return to Figure 4-158

Figure 4.159 Extended Description (Chapter 4)

Return to Figure 4-159

The Summary Options dialog box consists of a question on the left side of the dialog box. It states, What summary values would you like calculated? Below that, is a tabular layout with four columns and two rows. The column headings are Field, Sum, Average, Minimum, and Maximum. The first row contains the entries Amount due, with four check boxes for each column. The second row contains the entries Discount and four checkboxes for each column. At the right side of the dialog box, the OK and Cancel buttons are present. Below these, the Show feature is present with two radio buttons with options such as Detail and Summary, and Summary Only. The Detail and Summary radio button is selected. A Calculate percent of total for sums check box is present below the Show feature option.

Return to Figure 4-159

Figure 4.160 Extended Description (Chapter 4)

Return to Figure 4-160

The report is titled Rent Invoices. The report contains the rent details, which are shown in a table. The table consists of seven columns. The column headings are F K Doctor I D, Invoice I D, Date, Description, Due Date, Date Received, and Amount Due. The Sum of the Amount Due field for each Doctor I D is displayed below the corresponding field.

Return to Figure 4-160

Figure 4.161 Extended Description (Chapter 4)

Return to Figure 4-161

The report is titled Rent Invoices. The report contains the rent details, which are shown in a table. The table consists of eight columns. The column headings are F K Doctor I D, Invoice I D, Date, Description, Due Date, Date Received, Amount Due, and Discount. The Sum of the Amount Due field for each Doctor I D is displayed below the corresponding field.

Return to Figure 4-161

Figure 4.162 Extended Description (Chapter 4)

Return to Figure 4-162

The report is titled Rent Invoices. The report contains the rent details, which are shown in a table. The table consists of eight columns. The column headings are F K Doctor I D, Invoice I D, Date, Description, Due Date, Date Received, Amount Due, and Discount. The Sum of the Amount Due field for each Doctor I D is displayed below the corresponding field. The date, Thursday, August 18, 2026, is displayed on the bottom left corner of the page. The Page number is displayed at the bottom right corner of the page.

Return to Figure 4-162

Figure 4.163 Extended Description (Chapter 4)

Return to Figure 4-163

The Work area shows the Object tab titled View Equipment. It contains the View Equipment form. The form consists of eight fields. Each field contains a text box along with the data. The fields and their corresponding data from top to bottom in the form are as follows:

Equipment I D: 09925.

Product Name: MINI TRACTOR LOADER - YANMAR S A 424 Y B S.

Category: Tractors.

Daily Rental Rate: $ 160.00.

Weekly Rental Rate: $ 640.00.

Monthly Rental Rate: $ 1,920.00.

Date Purchased: 10-October-24.

Comments: Lift Capacity: 1199 pounds, and Bucket Width: 53 inches. A Close Form operation button is present below the form. A Record button, the Page number, a Filter, and a Search button are displayed on the bottom left of the Work area.

Return to Figure 4-163

Figure 4.164 Extended Description (Chapter 4)

Return to Figure 4-164

The report is titled Service History. The report contains the database of the Service History of MINI TRACTOR LOADER - YANMAR S A 424 B S. The report consists of fields such as Equipment I D, Service I D, Service Date, Service Type, Description, Performed By, Product Name, Odometer Reading, Hours, and Total Cost. The date of the report, Thursday, April 16, 2026, is displayed at the bottom left corner. The Page number is displayed at the bottom right corner.

Return to Figure 4-164

Figure 5.1 Extended Description (Chapter 5)

Return to Figure 5-1

The Backstage view shows a vertical Navigation Pane on the left. The Navigation Pane shows tabs for Home, New, Open, Info, Save, Save As, Print, Close, Account, and Options. The New tab is selected. The Back button is present above the Home tab. The right of the Navigation Pane shows the window for the New tab. The window shows different templates such as Blank database, Nutrition tracking, Faculty, Asset tracking, Northwind starter edition, Event management, Sales pipeline, and Real estate. Below the templates is the Show More option on the far right. Below are tabs for Office and Personal. The Office tab is selected. Below is a Search bar with the text Search for online templates. Below the bar is the Suggested searches list: Database, Business, Logs, Industry, Lists, Personal, and Contacts. The search list is labeled Suggested searches row. Below the search list are more templates, such as Northwind dev edition, Students, Charitable contributions, and Call tracker.

Return to Figure 5-1

Figure 5.2 Extended Description (Chapter 5)

Return to Figure 5-2

The dialog box shows an Access database window on the left with some entries. The right of the window shows the title Asset tracking, Provided by: Microsoft Corporation. Below the title is the text “Create and maintain a robust database to manage your organization’s assets using this popular Access template. Keep up-to-date information on asset details including ownership, condition, location, purchase price and current value, as well as take advantage of the powerful query and data collection functionality to generate comprehensive reports.” Below is the File Name feature with a text box showing the text Database 1 dot a c c d b. To the right of the text box is the Open File icon. Below the text box is the address of the new file: C colon slash My Work slash. Below the address is the Create button.

Return to Figure 5-2

Figure 5.3 Extended Description (Chapter 5)

Return to Figure 5-3

The Access Database consists of a Title bar at the top, followed by a Ribbon below. The Title bar has the Save button on the Quick Access Toolbar on the far left. The Minimize, Maximize, and Close buttons are on the far right of the Title bar. The Ribbon has tabs for File, Home, Create, External Data, Database Tools, and Help. The Home tab is selected and consists of Command groups such as Views, Clipboard, Sort and Filter, Records, Find, and Text Formatting. A vertical Navigation Pane is displayed on the left below the Ribbon titled All Access Objects. The Navigation Pane consists of a Search bar, followed by four options with sub-sections as follows:

Tables: Assets, Contacts, Filters, Settings.

Queries: Assets Extended, Assets Retired, Contacts Extended.

Forms: Asset Details, Asset List, Contact Asset Data, Contact Details, Contact List, Filter Details, Welcome.

Reports: All Assets, Asset Details.

To the right of the Navigation Pane, a Work area is displayed with the tab Asset List. Below the Asset List tab is a rectangular block with the title Asset List on the left, and a search bar, a Filter Icon, and a Save Filter option on the right. Below the rectangular block are the buttons such as New Asset, E-mail List, Contact List, Show or Hide Fields, and Show Retired. The New Asset Button is highlighted. On the far right is a question mark labeled Click to launch the Welcome form. Below is a table with column headings Open, Item, Category, Condition, Location, Purchase Price, Current Value, Owner, Acquired Date, and a clipping symbol. The entries for Open, Item, Category, Condition, Purchase Price, Current value, and the clipping symbol columns are filled. The Page number, Filter, and a Search button are displayed on the bottom left of the Work area.

Return to Figure 5-3

Figure 5.4 Extended Description (Chapter 5)

Return to Figure 5-4

The form is titled Welcome to the Assets Database! Below the title is the text, This Access template helps you keep track of all your physical assets - simply start entering your items under the item column, and share your database with your team. Feel free to explore the links below to learn more cool features, or click Get Started to begin. Below the text are two sections for Need help and Like this or Want more. The Need help section has a link for Connect with the Access Community. The Like this or Want more section has a link for Send us your feedback. On the right is the video for Using the Assets Database. At the bottom left of the window is a checkbox for Show Welcome when this database is opened with a check mark. The Get Started button is present on the far right.

Return to Figure 5-4

Figure 5.5 Extended Description (Chapter 5)

Return to Figure 5-5

The form has the Save and New, E-mail, and Print buttons. On the far right is the Close button. Below is the Item feature with a blank text box on the right. Below the Item feature is a rectangular section with tabs for Asset Details and Comments. The Asset Details tab is selected and has options such as Category, Manufacturer, Model, Acquired Date, Purchase Price, Current Value, Condition, Location, Owner, Retired Date, and Description, each with a text box on the right. The Category, Condition, Location, and Owner text boxes have a drop-down arrow on the right. The Category, Purchase Price, Current Value, and Condition text boxes have entries. On the right is a block with text (attachment preview). Below the block is the Add or Remove Attachments button.

Return to Figure 5-5

Figure 5.6 Extended Description (Chapter 5)

Return to Figure 5-6

The Pane is titled All Access Objects. On the far right of the title is a left arrow symbol labeled Shutter Bar Open or Close Button. Below the title is the Search bar. Below the Search bar are five sections with sub-sections as follows:

Tables: Assets, Contacts, Filters, Settings.

Queries: Assets Extended, Assets Retired, Contacts Extended.

Forms: Asset Details, Asset List, Contact Asset Datasheet Subform, Contact Details, Contact List, Filter Details, Welcome.

Reports: All Assets, Asset Details, Assets By Category, Assets By Location, Assets By Owner, Assets Retired, Contact Address Book, and Contact Phone Book.

Macros: AutoExec.

Return to Figure 5-6

Figure 5.7 Extended Description (Chapter 5)

Return to Figure 5-7

The Navigation Pane is titled All Access Objects with a drop-down arrow. The icon is labeled Navigation Pane arrow. Clicking on the icon displays a list of options such as Navigate to Category, Custom, Assets Navigation, Object Type, Table and Related Views, Created Date, Modified Date, Filter By Group, Tables, Queries, Forms, Reports, Macros, Modules, and All Access Objects. The Object Type and All Access Objects options have a check mark on their left.

Return to Figure 5-7

Figure 5.8 Extended Description (Chapter 5)

Return to Figure 5-8

The Navigation Pane is titled Assets Navigation with a drop-down arrow. Below the title is the Search bar. Below the Search bar are four sections with an extended or contracted list of sub-sections as follows:

Assets: Assets, Assets Extended, Asset Details, All Assets, Assets By Category, Assets By Location, Assets By Owner, Assets Retired.

Contacts: Contacts, Contacts Extended, Contact Details, Contact List, Contact Address Book, Contact Phone Book.

Supporting Objects.

Unassigned Objects.

Return to Figure 5-8

Figure 5.9 Extended Description (Chapter 5)

Return to Figure 5-9

The Access Database consists of a Title bar at the top, followed by a Ribbon below. The Title bar has the Save button on the Quick Access Toolbar on the far left. The Ribbon has tabs for File, Home, Create, External Data, Database Tools, and Help. The Create tab is selected and shows the Templates Command group. From the Templates group, the Application Parts option with a drop-down arrow is selected. Clicking the drop-down arrow displays a list of categories of templates with sub-categories as follows:

Blank Forms: 1 Right, 1 Top, 2 Right, 2 Top, Details, Dialog, List, Media, M s g box, Tabs.

Quick Start: Comments, Contacts, Issues, Tasks, Users. Hovering the cursor on the Contacts sub-category displays a block labeled Screen Tip. The block shows the title Contacts. Below the title is the text Contacts table with forms and reports.

User Templates: Customer. The User Templates category is labeled User Templates Grouping.

User Templates: Customer. The User Templates category is labeled User Templates Grouping.

Return to Figure 5-9

Figure 5.10 Extended Description (Chapter 5)

Return to Figure 5-10

The Backstage view shows the vertical Navigation Pane on the left. The Navigation Pane shows tabs for Home, New, Open, Info, Save, Save As, Print, Close, Account, and Options. The Sava As tab is selected. The Back button is present above the Home tab. The right of the Navigation Pane shows the window for the Save As tab. The window shows two options for File Types: Save Database As and Save Object As. The Save Database As option is selected. On the right is the Save Database As block. The block shows two categories of templates with sub-categories as follows:

Database File Types:

Access Database (asterisk dot a c c d b): Default database format.

Access 2002-2003 Database (asetrisk dot m d b): Save a copy that will be compatible with Access 2002-2003.

Access 2000 Database (asetrisk dot m d b): Save a copy that will be compatible with Access 2000.

Template (asterisk dot a c c d t): Save the current database as a database template (A C C D T).

Advanced:

Package and Sign: Package the database and apply the digital signature.

Make A C C D E: File will be compiled into an executable only file.

Back Up Database: Back up important databases regularly to prevent data loss.

SharePoint: Share the database by saving it to a document management server.

The Access Database (asterisk dot a c c d b) sub-category is selected. Below the block is the Save As button.

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Figure 5.11 Extended Description (Chapter 5)

Return to Figure 5-11

The dialog box shows features such as Name, Description, Category, Icon: Displayed as 64 times 32 pixels, Preview, Primary Table, and Instantiation Form, each with a text box below. The Category text box has text User Templates. The Icon: Displayed as 64 times 32 pixels, and the Preview text boxes have a folder icon on the right, followed by an application window in compact sizes. Below the features are the options for Application Part and Include All Data in Package, each with a check box. Below are the links for Learn more about advanced template properties and Share your template with a community. The bottom right of the dialog box shows the OK and Cancel buttons.

Return to Figure 5-11

Figure 5.12 Extended Description (Chapter 5)

Return to Figure 5-12

The form is titled Welcome to the Contacts Database exclamation mark. Below the title is the text “Use this Access template to help track information about your personal and business contacts. Keep track of their company, phone numbers, e-mails, and more. Feel free to explore the links below to learn more cool features, or click Get Started to begin.” Below the text are two sections for Need help? and Like this or Want more? The Need help section has a link for Connect with the Access Community. The Like this or Want more section has a link for Send us your feedback. To the right is the video for Using the Contacts Database. The block for video shows a Play Button at the center. At the bottom left of the window shows the option for Show Welcome when this database is opened with a marked checkbox. The Get Started button is present on the far right.

Return to Figure 5-12

Figure 5.13 Extended Description (Chapter 5)

Return to Figure 5-13

The form is titled Simone Owens. Below the title are the options for Go to, Save and Now, E-mail, and Save as Outlook Contact. The Go to option has a text box on the right. To the far right is the Close button. Below the options is the General tab with a rectangular block below. The block shows a profile photograph box on the far left, with an Edit Picture button below. To the right of the photograph box are the options for individual details, such as First Name, Last Name, Company, Job Title, E-mail, Web Page, Category, Street, City, State or Province, Zip or Postal Code, Country or Region. These options are followed by other options on the right, such as Business Phone, Home Phone, Mobile Phone, Fax Number, and Notes. Each option has a text box on the right. The First Name text box shows the text Simone. The Last Name text box shows the text Owens. The Company text box shows the text Applied Materials and a drop-down arrow on the right. The E-mail text box shows the text Biles Owens S at the rate of Applied Materials. The Category text box shows the text Business and a drop-down arrow on the right. A Click to Map button is below the Category text box. The Street text box shows the text 9700 Highway 290 East. The City text box shows the option Austin. The State or Province text box shows the text T X. The Zip or Postal Code shows the text 78724. The Country or Region text box shows the text United States. The Business Phone text box shows the value 555-272-1234.

Return to Figure 5-13

Figure 5.14 Extended Description (Chapter 5)

Return to Figure 5-14

The window shows the tabs for Contact List and Phone Book by Group on the title bar. The Phone Book by Group tab is selected and labeled Report tab. The Phone Book by Group block shows the date 11/1/2026 on the left labeled Current date field. The page number is shown on the far right. The Phone Book text is shown below in a bigger font size. Below is the table titled Business. The table has four columns and one row. The column headings are Contact Name, Home, Business, and Mobile. The Contact Name and Business headings have entries Simone Owens and 555-272-1234, respectively. Below the block is another block titled Group, Sort, and Total. Below the title are Group on Category, with A on top, and More options, each with a drop-down arrow. Below these options is the Sort by File As option. Below are the Add a Group and Add a Sort buttons. On the far right is the Property Sheet Pane. The pane shows the feature of Selection Type as Report at the top. Below is the rectangular block with the text Report and the drop-down on the right. Below the block are the tabs for Format, Data, Event, Other, and All. The Format tab is selected. Below the tabs are various properties with their entries.

Return to Figure 5-14

Figure 5.15 Extended Description (Chapter 5)

Return to Figure 5-15

The table is titled Child Guardian and consists of two columns. The column headings are Field Name and Data Type. The first two rows are filled. Below the Data Type heading is a text box with the entry Number and a drop-down arrow on the right. Clicking the drop-down arrow displays the list of data types, such as Short Text, Long Text, Number, Large Number, Date or Time, Date or Time Extended, Currency, Auto Number, Yes or No, O L E Object, Hyperlink, Attachment, Calculated, and Lookup Wizard. The Lookup Wizard data type is selected.

Return to Figure 5-15

Figure 5.16 Extended Description (Chapter 5)

Return to Figure 5-16

The dialog box shows the Split Form icon on the left, followed by the text Which fields of Child contain the values you want included in your lookup field? The fields you select become columns in your lookup field. Below are two boxes for Available Fields and Selected Fields. The Available Fields box shows the entries First Name, Last Name, Gender, and D O B. The Selected Fields box shows the entry Child I D. Between the lists are four buttons represented as right arrow, double right arrow, left arrow, and double left arrow. The Cancel, Back, Next, and Finish buttons are present on the bottom right of the dialog box. The Back button is selected.

Return to Figure 5-16

Figure 5.17 Extended Description (Chapter 5)

Return to Figure 5-17

The dialog box shows the text “How wide would you like the columns in your lookup field? To adjust the width of a column, drag its right edge to the width you want, or double-click the right edge of the column heading to get the best fit.” Below the text is a table with one column and eight rows. The column heading is Child I D. The row entries are 1, 2, 3, 4, 5, 6, 7, and 8. The Cancel, Back, Next, and Finish buttons are present on the bottom right of the dialog box. The Next button is selected.

Return to Figure 5-17

Figure 5.18 Extended Description (Chapter 5)

Return to Figure 5-18

The dialog box shows the Form Wizard icon on the left, followed by various features. The feature asks, “What label would you like for your lookup field?” A text box below shows the entry Child I D-F K. Below is the next feature, which asks, “Do you want to enable data integrity features between these tables?” with an Enable Data Integrity option below. The Enable Integrity option has a check box that is marked, which enables two sub-options: Cascade Delete and Restrict Delete, each with a radio button. The Restrict Delete radio button is selected. Below is the next feature, which asks, “Do you want to store multiple values for this lookup?” with an Allow Multiple Values option below, with a check box. Below is the text “Those are all the answers the wizard needs to create your lookup field.” The Cancel, Next, Back, and Finish buttons are present on the bottom right of the dialog box.

Return to Figure 5-18

Figure 5.19 Extended Description (Chapter 5)

Return to Figure 5-19

The window shows two blocks. On the left is a rectangular block titled Child. The block shows the entries Child I D, First Name, Last Name, Gender, and D O B. The entry Child I D has a primary key icon on the left. On the right is a square block titled Child Guardian. The block shows the entries Child I D-F K, highlighted, and Guardian I D-F K. Both entries have a primary icon on their left. Between the two blocks is a relationship line joining the blocks with the number 1, next to Child I D and infinity, next to Child I D-F K.

Return to Figure 5-19

Figure 5.20 Extended Description (Chapter 5)

Return to Figure 5-20

The dialog box shows the Table or Query feature with a text box below. The text box shows the entry Child. To the right is the Related Table or Query feature with a text box below. The text box shows the entry Child Guardian. Below the Table or Query text box is the table with a single column. The column heading is Child I D. Below the Related Table or Query text box is the table with a single column. The column heading is Child I D-F K. Below is a block for Enforce Referential Integrity, with a check box on the left, which is marked. The block shows the options Cascade Update Related Fields and Cascade Delete Related Records, each with a check box. Below is the feature for Relationship Type with a text box on the right. The text box shows the text One-To-Many. The OK, Cancel, Join Type, and Create New buttons are present on the far right. The OK button is selected.

Return to Figure 5-20

Figure 5.21 Extended Description (Chapter 5)

Return to Figure 5-21

The window shows a table with two columns. The column headings are Field Name and Data Type. The row entries are as follows:

Row 1: Child I D-F K and Number.

Row 2: Guardian I D-F K and Number.

Below the tables is the Field Properties section with tabs for General and Lookup. The Lookup tab is selected. The tab shows the properties as follows:

Display Control: Combo Box.

Row Source Type: Table or Query.

Row Source: SELECT [Child].[Child I D] FROM Child.

Bound Column: 1.

Column Count: 1.

Column Heads: No.

Column Widths: 0.7 inches.

List Rows: 16.

List Width: 0.6528 inches.

Limit To List: No.

Allow Multiple Values: No.

Allow Value List Edits: Yes.

List Items Edit Form: Blank.

Show Only Raw Source Value: No.

Return to Figure 5-21

Figure 5.22 Extended Description (Chapter 5)

Return to Figure 5-22

The window shows two blocks. On the left is a rectangular block titled Child. The block shows the entries Child I D, First Name, Last Name, Gender, and D O B. The entry Child I D has a primary key icon on the left. On the right is a square block titled Child Guardian. Between the two blocks is a relationship line joining the blocks with the number 1, next to Child I D, and infinity on the other end. Clicking on the line shows the options Edit Relationship and Delete.

Return to Figure 5-22

Figure 5.23 Extended Description (Chapter 5)

Return to Figure 5-23

The window shows a table with 2 columns and 5 rows. The column headings are Child I D-F K and Guardian I D, each with a drop-down arrow. The cell below the Child I D-F K column has a drop-down arrow that shows the options 1, 2, 3, 4, and 5. Option 1 is selected. The Guardian I D column entries are as 1, 2, 7, 8, 9, and 10.

Return to Figure 5-23

Figure 5.24 Extended Description (Chapter 5)

Return to Figure 5-24

The window shows a table with 2 columns. The column headings are Child I D-F K and Guardian I D, each with a drop-down arrow. The cell below the Child I D-F K column shows the value 1, followed by the values Matias DeRoche, Jayla Anderson, Zachary Brown, Rachael Lunghi, and Sophia Oyama. The cell below the Guardian I D column shows the value 1.

Return to Figure 5-24

Figure 5.25 Extended Description (Chapter 5)

Return to Figure 5-25

The dialog box shows the Split Form icon on the left, followed by the text Which fields of Child contain the values you want included in your lookup field? The fields you select become columns in your lookup field. Below are two boxes for Available Fields and Selected Fields. The Available Fields box shows the entries Gender and D O B. The Selected Fields box shows the entry Child I D, First Name, and Last Name. Between the lists are four buttons, showing a right arrow, a double right arrow, a left arrow, and a double left arrow. The Cancel, Back, Next, and Finish buttons are present on the bottom right of the dialog box. The Next button is selected.

Return to Figure 5-25

Figure 5.26 Extended Description (Chapter 5)

Return to Figure 5-26

The dialog box shows the text “How wide would you like the columns in your lookup field? To adjust the width of a column, drag its right edge to the width you want, or double-click the right edge of the column heading to get the best fit.” Below the text is the Hide key column (recommended) check box. The check box is labeled Hide key column check box. Below the Hide key column feature is a table with three columns and eight rows. The column headings are Child I D, First Name, and Last Name. The row entries are as follows:

Row 1: 1, Matias, and DeRotche.

Row 2: 2, Jayla, and Anderson.

Row 3: 3, Zachary and Brown.

Row 4: 4, Rachael and Lunghi.

Row 5: 5, Sophia and Oyama.

Row 6: 6, Andreas, and Sanchez.

Row 7: 7, Megan, and Gross.

Row 8: 8, Paul, and Chamberlain.

The Cancel, Back, Next, and Finish buttons are present on the bottom right of the dialog box. The Next button is selected.

Return to Figure 5-26

Figure 5.27 Extended Description (Chapter 5)

Return to Figure 5-27

The dialog box shows the Split Form icon on the left, followed by the text, When you select a row in the lookup field, you can store a value from that row in your database, or you can use the value later to perform an action. Choose a field that uniquely identifies the row. Which column in your lookup field contains the value you want to store or use in your database? Below is a box for Available Fields, which shows the entries Child I D, First Name, and Last Name. The entry Child I D entry is highlighted in black. The Cancel, Back, Next, and Finish buttons are present on the bottom right of the dialog box. The Next button is selected.

Return to Figure 5-27

Figure 5.28 Extended Description (Chapter 5)

Return to Figure 5-28

The window shows a table with 2 columns. The column headings are Child I D-F K and Guardian I D, each with a drop-down arrow. The cell below the Child I D-F K column shows the options Matias DeRoche, Jayla Anderson, Zachary Brown, Rachael Lunghi, and Sophia Oyama. The cell below the Guardian I D column shows the entries 1, 2, 7, 8, 9, and 10.

Return to Figure 5-28

Figure 5.29 Extended Description (Chapter 5)

Return to Figure 5-29

The Author Table has entries I D (Primary key), Last Name, First Name, Initial, and Affiliation. The Book Table has entries I S B N (Primary key), Title, Edition, Copyright Year, Pages, and Subject.

Return to Figure 5-29

Figure 5.30 Extended Description (Chapter 5)

Return to Figure 5-30

Three side-by-side blocks are titled Author Table, Junction Table, and Book Table. The Author Table has entries I D (Primary key), Last Name, First Name, Initial, and Affiliation. The Junction Table has the entries Author I D-F K and Book I S B N-F K. The Book Table has entries I S B N (Primary key), Title, Edition, Copyright Year, Pages, and Subject. The entries I D (Primary key) from the Author Table and Author I D-F K from the Junction Table are linked with a double-headed arrow. The entries Book I S B N-F K from the Junction Table and I S B N (Primary key) from the Book Table are linked with a double-headed arrow.

Return to Figure 5-30

Figure 5.31 Extended Description (Chapter 5)

Return to Figure 5-31

The Author Book Table shows the entries Author I D-F K (Primary key) and Book I S B N-F K (Primary key).

Return to Figure 5-31

Figure 5.32 Extended Description (Chapter 5)

Return to Figure 5-32

The three tables are titled Author, Author Book, and Book. The Author table consists of 3 columns and 10 rows. The column headings are I D, Last Name, and First Name. The row entries are as follows:

Row 1: 1, Baldwin, Timothy.

Row 2: 2, Bommer, Bill.

Row 3: 3, Rubin, Robert.

Row 4: 4, Colquitt, Jason.

Row 5: 5, LePine, Jeffrey.

Row 6: 6, Wesson, Michael.

Row 7: 7, Baltzan, Paige.

Row 8: 8, Nordell, Randy.

Row 9: 9, Kerin, Roger.

Row 10: 10, Phillips, Amy.

The Author Book table consists of 2 columns and 11 rows. The column headings are Author I D-F K and Book I S B N-F K. The row entries are as follows:

Row 1: 1, 978-0-07-353040-6.

Row 2: 1, 978-0-78-797187-8.

Row 3: 2, 978-0-07-353040-6.

Row 4: 3, 978-0-07-353040-6.

Row 5: 4, 978-1-26-026155-4.

Row 6: 5, 978-1-26-026155-4.

Row 7: 6, 978-1-26-026155-4.

Row 8: 7, 978-1-26-026248-3.

Row 9: 10, 978-1-26-026248-3.

Row 10: 7, 978-1-26-072782-1.

Row 11: 8, 978-1-26-677315-0.

The Book table consists of 2 columns and 7 rows. The column headings are I S B N and Title. The row entries are as follows:

Row 1: 978-0-07-353040-6, Managing Organizational Behavior: What Great Managers Know and Do.

Row 2: 978-0-07-171402-0, The Hyper-Social Organization: Eclipse Your Competition by Leveraging Social Media.

Row 3: 978-0-78-797187-8, Improving Learning Transfer in Organization.

Row 4: 978-1-26-026155-4, Organizational Behaviour: Improving Performance and Commitment in the Workplace.

Row 5: 978-1-26-026248-3, Business Driven Information Systems.

Row 6: 978-1-26-072782-1, M: Information Systems.

Row 7: 978-1-26-677315-0, Microsoft Office 365 Complete: In Practice 2021 Edition.

A blue double-headed arrow extends between Timothy of the Author table and Author I D-F K, 1 of the Author Book table, row 1. A blue double-headed arrow extends between Timothy of the Author table and Author I D-F K, 1 of the Author Book table, row 2. An orange double-headed arrow extends between Bill of the Author table and Author I D-F K, 2 of the Author Book table. A purple double-headed arrow extends between Robert of the Author table and Author I D-F K, 3 of the Author Book table. A green double-headed arrow extends between Jason of the Author table and Author I D-F K, 4 of the Author Book table. A maroon double-headed arrow extends between Jeffrey of the Author table and Author I D-F K, 5 of the Author Book table. A purple double-headed arrow extends between Michael of the Author table and Author I D-F K, 6 of the Author Book table. A black double-headed arrow extends between Paige of the Author table and Author I D-F K, 7 of the Author Book table, row 8. A black double-headed arrow extends between Paige of the Author table and Author I D-F K, 7 of the Author Book table, row 10. A brown double-headed arrow extends between Randy of the Author table and Author I D-F K, 8 of the Author Book table. A violet double-headed arrow extends between Amy of the Author table and Author I D-F K, 10 of the Author Book table. A blue double-headed arrow extends between Book I S B N-F K, 978-0-07-353040-6, row 1 of the Author Book table and I S B N, 978-0-07-353040-6 of the Book table. A blue double-headed arrow extends between Book I S B N-F K, 978-0-07-353040-6, row 3 of the Author Book table and I S B N, 978-0-07-353040-6 of the Book table. A blue double-headed arrow extends between Book I S B N-F K, 978-0-07-353040-6, row 4 of the Author Book table and I S B N, 978-0-07-353040-6 of the Book table. A dark blue double-headed arrow extends between Book I S B N-F K, 978-0-78-797187-8 of the Author Book table and I S B N, 978-0-78-797187-8 of the Book table. Three green double-headed arrows extend between Book I S B N-F K, 978-1-26-026155-4, rows 5 to 7 of the Author Book table, and I S B N, 978-1-26-026155-4 of the Book table. Two maroon double-headed arrows extend between Book I S B N-F K, 978-1-26-026248-3, rows 8 and 9 of the Author Book table, and I S B N, 978-1-26-026248-3 of the Book table. A violet

double-headed arrow extends between Book I S B N-F K, 978-1-26-072782-1 of the Author Book table and I S B N, 978-1-26-072782-1 of the Book table. An orange double-headed arrow extends between Book I S B N-F K, 978-1-26-677315-0 of the Author Book table and I S B N, 978-1-26-677315-0 of the Book table.

Return to Figure 5-32

Figure 5.33 Extended Description (Chapter 5)

Return to Figure 5-33

The table consists of two columns and two rows. The column headings are Field Name and Data Type. The row entries are as follows:

Row 1: Author I D-F K and Number.

Row 2: Book I S B N-F K and Short Text.

The Author I D-F K and Book I S B N-F K have a primary key icon on the left.

Return to Figure 5-33

Figure 5.34 Extended Description (Chapter 5)

Return to Figure 5-34

The tables are titled Author, Author Book, and Book. The Author table has entries I D, with a primary key icon, Last Name, First Name, Initial, and Affiliation. The Author Book table has the entries Author I D-F K and Book I S B N-F K, each with a primary key icon. The Book table has the entries I S B N (Primary key), Title, Edition, Copyright Year, Pages, and Subject. The entries I D, from the Author table, and Author I D-F K, from the Author Book table, are linked with a relationship line showing the number 1, next to I D, and infinity, next to Author I D-F K. The entries, Book I S B N-F K, from the Author Book table, and I S B N, from the Book table, are linked with a zig-zag arrow showing the number 1, next to I S B N, and infinity, next to Book I S B N-F K.

Return to Figure 5-34

Figure 5.35 Extended Description (Chapter 5)

Return to Figure 5-35

The tables are titled Author and Author Book. The Author table has entries I D, with a primary key icon, Last Name, First Name, Initial, and Affiliation. The Author Book table has the entries Author I D-F K and Book I S B N-F K, each with a primary key icon. The entries I D, from the Author table, and Author I D-F K, from the Author Book table, are linked with a relationship line showing the number 1, next to I D, and infinity, next to Author I D-F K.

Return to Figure 5-35

Figure 5.36 Extended Description (Chapter 5)

Return to Figure 5-36

The window shows a table consisting of four columns and eleven rows. The column headings are I D, Last Name, First Name, and Book I S B N-F K, each with a drop-down arrow. The row entries are as follows:

Row 1: 1, Baldwin, Timothy, 9780073530406.

Row 2: 1, Baldwin, Timothy, 9780787971878.

Row 3: 2, Bommer, Bill, 9780073530406.

Row 4: 3, Rubin, Robert, 9780073530406.

Row 5: 4, Colquitt, Jason, 9781260261554.

Row 6: 5, LePine, Jeffrey, 9781260261554.

Row 7: 6, Wesson, Michael, 9781260261554.

Row 8: 7, Baltzan, Paige, 9781260262483.

Row 9: 7, Baltzan, Paige, 9781260727821.

Row 10: 8, Nordell, Randy, 9781266773150.

Row 11: 10, Phillips, Amy, 9781260262483.

Below these entries is the text (New) in the I D column. A Record button, the Page number, a Filter, and a Search button are displayed on the bottom left of the window.

Return to Figure 5-36

Figure 5.37 Extended Description (Chapter 5)

Return to Figure 5-37

The tables are titled Author and Author Book. The Author table has entries I D, with a primary key icon, Last Name, First Name, Initial, and Affiliation. The Author Book table has the entries Author I D-F K and Book I S B N-F K, each with a primary key icon. The entries I D, from the Author table, and Author I D-F K, from the Author Book table, are linked with a relationship line showing the number 1, next to I D, and infinity, next to Author I D-F K. Infinity is shown on a right arrow. The value infinity and the arrow on which the value is placed are magnified, shown inside a circle.

Return to Figure 5-37

Figure 5.38 Extended Description (Chapter 5)

Return to Figure 5-38

The window shows a table consisting of four columns and twelve rows. The column headings are I D, Last Name, First Name, and Book I S B N-F K, each with a drop-down arrow. The row entries are as follows:

Row 1: 1, Baldwin, Timothy, 9780073530406.

Row 2: 1, Baldwin, Timothy, 9780787971878.

Row 3: 2, Bommer, Bill, 9780073530406.

Row 4: 3, Rubin, Robert, 9780073530406.

Row 5: 4, Colquitt, Jason, 9781260261554.

Row 6: 5, LePine, Jeffrey, 9781260261554.

Row 7: 6, Wesson, Michael, 9781260261554.

Row 8: 7, Baltzan, Paige, 9781260262483.

Row 9: 7, Baltzan, Paige, 9781260727821.

Row 10: 8, Nordell, Randy, 9781266773150.

Row 11: 9, Kerin, Roger, Blank.

Row 12: 10, Phillips, Amy, 9781260262483.

Below these entries is the text (New) in the I D column. Row 11 entries are placed inside a red block labeled Record with no matching value in related table. A Record button, the Page number, a Filter, and a Search button are displayed on the bottom left of the window.

Return to Figure 5-38

Figure 5.39 Extended Description (Chapter 5)

Return to Figure 5-39

The tables are titled Author and Author Book. The Author table has entries I D, with a primary key icon, Last Name, First Name, Initial, and Affiliation. The Author Book table has the entries Author I D-F K and Book I S B N-F K, each with a primary key icon. The entries I D, from the Author table, and Author I D-F K, from the Author Book table, are linked with a relationship line showing the number 1, next to I D, and infinity, next to Author I D-F K. The value 1 is shown on a left arrow. The value 1 and the arrow on which the value is placed are magnified, shown inside a circle.

Return to Figure 5-39

Figure 5.40 Extended Description (Chapter 5)

Return to Figure 5-40

The window shows a table, which consists of four columns and twelve rows. The column headings are I D, Last Name, First Name, and Book I S B N-F K, each with a drop-down arrow. The row entries are as follows:

Row 1: 1, Baldwin, Timothy, 9780073530406.

Row 2: 1, Baldwin, Timothy, 9780787971878.

Row 3: 2, Bommer, Bill, 9780073530406.

Row 4: 3, Rubin, Robert, 9780073530406.

Row 5: 4, Colquitt, Jason, 9781260261554.

Row 6: 5, LePine, Jeffrey, 9781260261554.

Row 7: 6, Wesson, Michael, 9781260261554.

Row 8: 7, Baltzan, Paige, 9781260262483.

Row 9: 7, Baltzan, Paige, 9781260727821.

Row 10: 8, Nordell, Randy, 9781266773150.

Row 11: 10, Phillips, Amy, 9781260262483.

Below these entries is the text (New) in the I D column. A Record button, the Page number, a Filter, and a Search button are displayed on the bottom left of the window.

Return to Figure 5-40

Figure 5.41 Extended Description (Chapter 5)

Return to Figure 5-41

The dialog box shows three radio buttons:

1: Only include rows where the join fields from both tables are equal.
2: Include ALL records from ‘Author’ and only those records from ‘Author Book’ where the joined fields are equal.
3: Include ALL records from ‘Author Book’ and only those records from ‘Author’ where the joined fields are equal.

Radio button 1 is selected. The OK and Cancel buttons are present below. The OK button is selected.

Return to Figure 5-41

Figure 5.42 Extended Description (Chapter 5)

Return to Figure 5-42

The table consists of two columns and two rows. The column headings are Field Name and Data Type. The row entries are as follows:

Row 1: Child I D-F K and Number.

Row 2: Guardian I D-F K and Number.

The entries Child I D-F K and Guardian I D-F K have a primary key icon on the left.

Return to Figure 5-42

Figure 5.43 Extended Description (Chapter 5)

Return to Figure 5-43

The Available Fields block shows entries such as Gender and D O B. The Selected Fields block shows entries such as Child I D, First Name, and Last Name. Between the two blocks are four buttons, represented as a right arrow, a double right arrow, a left arrow, and a double left arrow.

Return to Figure 5-43

Figure 5.44 Extended Description (Chapter 5)

Return to Figure 5-44

Three blocks are titled Child, Child Guardian, and Guardian. The Child block has entries Child I D, with a primary key icon, First Name, Last Name, Gender, and D O B. The Child Guardian block has the entries Child I D-F K and Guardian I D-F K, each with a primary key icon. The Guardian block has entries Guardian I D (Primary key), First Name, Last Name, Gender, Address, City, State, ZIP, Phone, and Relationship. The entries Child I D, from the Child block, and Child I D-F K, from the Child Guardian block, are linked with a relationship line showing the number 1 at the top, next to Child I D, and infinity at the bottom, next to Child I D-F K. The entries Guardian I D-F K, from the Child Guardian block, and Guardian I D, from the Guardian block, are linked with a relationship line showing the number 1 at the top, next to Guardian I D-F K, and infinity at the bottom, Guardian I D.

Return to Figure 5-44

Figure 5.45 Extended Description (Chapter 5)

Return to Figure 5-45

The Access Database consists of a Title bar at the top, followed by a Ribbon below. The Title bar has the Save button on the Quick Access Toolbar on the far left. The Minimize, Maximize, and Close buttons are on the far right of the Title bar. The Ribbon has tabs for File, Home, Create, External Data, Database Tools, Help, and Macro Design. The Macro Design tab is selected and consists of Command groups such as Tools, Collapse or Expand, and Show or Hide. A collapsed Navigation Pane is displayed on the left below the Ribbon. To the right of the Navigation Pane, a Work area is displayed with the tab for No Report Data labeled Macro. The Work Area shows the text “forward slash asterisk This action displays the message box asterisk forward slash.” This text is highlighted in green and labeled Comment. Below the text is the command Message Box labeled Action. The Message Box contains the Message: The requested report contains no data. Below the message is the text Beep, No. Type, Information. Title, No Report Data. This text is labeled Argument. Below is the text “forward slash asterisk This action cancels the report from opening to avoid displaying an empty report asterisk forward slash”, highlighted in green. Below is the command Cancel Event, followed by a text box, which contains the text Add New Action and a drop-down arrow on the right. A plus symbol is present on the left of the text box. To the right of the Work Area is the Action Catalog pane, which shows a Search bar at the top. Below the Search bar is the Program Flow folder with a drop-down arrow on the left. The Program Flow folder displays the files such as Comment, Group, If, and Submacro. Below these files is the Actions folder with a drop-down arrow on the left. The Actions folder displays the files such as Data Entry Operations, Data Import or Export, Database Objects, Filter or Query or Search, Macro Commands, System Commands, User Interface Commands, and Window Management. Below these files is the In this Database folder. Below is the Comments section, which contains the text Displays information that does not get executed when the macro is run.

Return to Figure 5-45

Figure 5.46 Extended Description (Chapter 5)

Return to Figure 5-46

The window shows tabs for Reservations and Reservations: Before Change. The Reservations: Before Change tab is selected. Below the tabs is the text box with a drop-down arrow on the left. A plus symbol is present on the left of the text box. Below the text box is the block that contains the actions such as Comment, Group, If, Clear Macro Error, Lookup Record, On Error, Raise Error, Set Field, Set Local Var, and Stop Macro.

Return to Figure 5-46

Figure 5.47 Extended Description (Chapter 5)

Return to Figure 5-47

The window shows tabs for Reservations and Reservations: Before Change. The Reservations: Before Change tab is selected. Below the tabs is the block titled Set Field. A minus sign is present on the left of the title. On the far right of the title is the Delete Relationship icon. The block shows two features, Name and Value, each with a text box on the right. There is an equals sign on the left of the Value text box. The text boxes contain the text Required. The text boxes are labeled Argument boxes. The Relationship Design View icon is present on the far right of the Value text box, labeled Click to invoke Expression Builder. Below the block is the text box with a drop-down arrow on the left. The text box contains the text Add New Action. A plus symbol is present on the left of the text box.

Return to Figure 5-47

Figure 5.48 Extended Description (Chapter 5)

Return to Figure 5-48

The window shows tabs for Reservations and Reservations: Before Change. The Reservations: Before Change tab is selected. Below the tabs is the command If [Is Insert] equals True Then. Below the command is the block, which shows a text box with the text Use the Set Field action to set the value of the Active box in the table. The text box is followed by an up arrow, a down arrow, and a Delete Relationship icon. Below the block is the command Set Field. Below the command is the text:

Name, Active.

Value equals “Y.”

Below the text is the text box with a drop-down arrow on the right. The text box shows the text Add New Action. A plus symbol is present on the left of the text box. The Add Else and Add Else If buttons are present on the right of the text box. Below the text box is the command End If. Below is the text box with a drop-down arrow on the right. The text box shows the text Add New Action. A plus symbol is present on the left of the text box.

Return to Figure 5-48

Figure 5.49 Extended Description (Chapter 5)

Return to Figure 5-49

The window shows tabs for Reservations and Reservations: Before Change. The Reservations: Before Change tab is selected. Below the tabs is the command If [Is Insert] equals True Then. Below the command is the text “forward slash asterisk Use the Set Field action to set the value of the Active box in the table asterisk forward slash”, highlighted in green. Below the text is the block titled Set Field. A minus sign is present on the left of the title. On the far right of the title is an up arrow, a down arrow, and a Delete Relationship icon. The block shows two features, Name and Value, each with a text box on the right. There is an equals sign on the left of the Value text box. The Name text box is labeled Edit the arguments and contains the text Active. The Value text box contains the text “Y.” Below the block is the text box with a drop-down arrow on the right. The text box shows the text Add New Action. A plus symbol is present on the left of the text box. The Add Else and Add Else If buttons are present on the right of the text box. Below the text box is the command End If. Below is the text box with a drop-down arrow on the right. The text box shows the text Add New Action. A plus symbol is present on the left of the text box.

Return to Figure 5-49

Figure 5.50 Extended Description (Chapter 5)

Return to Figure 5-50

The window has two tabs at the top; the active tab is labeled Reservations : Before Change : X. The editor displays a conditional If block. The condition is If [Is Insert]=True. To the right of this is the word Then followed by a small ‘x’ icon. A red arrow points to this ‘x’ icon, with an attached label in a red oval that reads Delete button. Inside the If block, there is a comment: /* Use the Set Field action to set the value of the Active box in the table. */. Below the comment is a Set Field action with two arguments: Name is set to Active , and Value is set to = Y. Below the Set Field action is a line with a green plus icon and a dropdown menu labeled Add New Action. To the right are two text links: Add Else and Add Else If. The block concludes with End If. Below the End If statement, there is another line with a green plus icon and a dropdown menu labeled Add New Action.

Return to Figure 5-50

Figure 5.51 Extended Description (Chapter 5)

Return to Figure 5-51

The left screenshot shows the Property Sheet Pane for the Selection type feature as Command Button. Below the Selection Type feature is a text box with the text Command 1 and a drop-down on the right. Below the text box are tabs for Format, Data, Event, Other, and All. The Event tab is selected. Below the tabs are the following properties:

On Click. A drop-down arrow and a minus sign on the far right.

On Got Focus.

On Lost Focus.

On D b l Click.

On Mouse Down.

On Mouse Up.

On Mouse Move.

On Key Up.

On Key Press.

On Enter.

On Exit.

The right screenshot shows the Property Sheet Pane for the Selection type feature as Form. Below the Selection Type feature is the text box with the text From and a drop-down on the right. Below the text box are tabs for Format, Data, Event, Other, and All. The Event tab is selected. Below the tabs are the following properties:

On Current.

On Load.

On Click.

After Update.

Before Update.

Before Insert.

After Insert.

Before Del Confirm.

On Delete.

After Del Confirm.

On Dirty.

On Got Focus.

Return to Figure 5-51

Figure 5.52 Extended Description (Chapter 5)

Return to Figure 5-52

The window shows the title Active Reservations By Equipment I D. Below is a table with six columns with headings Equipment I D, Description, Reservation I D, Reservation Date, Reservation Time, and Employee I D. The row below is enclosed within a red box labeled Empty detail section. This is followed by the date, Saturday, October 3, 2026, on the left. The Page number is mentioned on the far right.

Return to Figure 5-52

Figure 5.53 Extended Description (Chapter 5)

Return to Figure 5-53

The Work Area of the Access Database shows the tab No Report Data. The Work Area shows the text “forward slash asterisk This action displays the message box asterisk forward slash.” This text is highlighted in green. Below the text is the command Message Box. The Message Box contains the Message: The requested report contains no data. Below the message is the text:

Beep, No.

Type, Information.

Title, No Report Data.

Below is the text “forward slash asterisk This action cancels the report from opening to avoid displaying an empty report asterisk forward slash,” highlighted in green. Below is the command Cancel Event, followed by a text box, which contains the text Add New Action and a drop-down arrow on the right. A plus symbol is present on the left of the text box.

Return to Figure 5-53

Figure 5.54 Extended Description (Chapter 5)

Return to Figure 5-54

The Navigation Pane shows a drop-down arrow on the right. Below the title is the Search bar. Below the Search bar are the five sections with an expanded or collapsed drop-down arrow. The sections have sub-sections such as:

Tables: Equipment and Reservations.

Queries.

Forms.

Reports: Active Equip Reservations By Month, Active Reservations By Equipment, All Reservations By Equipment, and Equipment Listing.

Macros: No Report Data.

The sub-section No Report Data is selected.

Return to Figure 5-54

Figure 5.55 Extended Description (Chapter 5)

Return to Figure 5-55

The Property Sheet Pane shows the Selection Type feature as Report. Below the Selection Type feature is a text box with the text Report and a drop-down arrow on the right. Below the text box are tabs for Format, Data, Event, Other, and All. The Event tab is selected. Below are the following properties: On Current.

On Load.

On No Data, No Report Data.

On Click.

On Got Focus.

On Lost Focus.

On D b l Click.

On Mouse Down.

Return to Figure 5-55

Figure 5.56 Extended Description (Chapter 5)

Return to Figure 5-56

The Message box shows the title No Report Data. Below the title is an icon of a lowercase letter I inside a blue circle, on the left, labeled Type. The icon is followed by the text The requested report contains no data. The text is labeled Message. The bottom center of the box shows the OK button.

Return to Figure 5-56

Figure 5.57 Extended Description (Chapter 5)

Return to Figure 5-57

The screenshot shows the Macros and Code Command group and consists of buttons such as Macro, Module, Class Module, and Visual Basic.

Return to Figure 5-57

Figure 5.58 Extended Description (Chapter 5)

Return to Figure 5-58

The Property Sheet Pane shows the Selection Type feature as Command Button. Below the Selection Type feature is a text box with the text Command 1 and a drop-down arrow on the right. Below the text box are tabs for Format, Data, Event, Other, and All. The Event tab is selected. Below are the following properties:

On Click. A drop-down arrow is shown on the right, followed by a minus sign.

On Got Focus.

On Lost Focus.

On D b l Click.

On Mouse Down.

Return to Figure 5-58

Figure 5.59 Extended Description (Chapter 5)

Return to Figure 5-59

The screenshot shows tabs for Format, Data, Event, Other, and All. The Event tab is selected. Below are the following properties:

On Click. [Embedded Macro] with a drop-down arrow and a minus sign.

On Got Focus.

On Lost Focus.

Return to Figure 5-59

Figure 5.60 Extended Description (Chapter 5)

Return to Figure 5-60

The Work Area shows the tab Macro 1. Below the tab is the text box with the text Add New Action and a drop-down arrow on the right. A plus symbol is present on the left of the text box.

Return to Figure 5-60

Figure 5.61 Extended Description (Chapter 5)

Return to Figure 5-61

The Work Area shows two tabs for Execute Reports and Execute Reports: Command 5: On Click. The Execute Reports: Command 5: On Click tab is selected. Below the tabs is the command Open Report, followed by the code as follows:

Report Name, Active Reservations By Equipments.

View, Report.

Filter, Name.

Where Condition.

Window Mode, Normal.

Below the code is a text box with the text Add New Action and a drop-down arrow on the right. A plus symbol is present on the left of the text box.

Return to Figure 5-61

Figure 5.62 Extended Description (Chapter 5)

Return to Figure 5-62

The Work Area shows two tabs for Execute Reports and Execute Reports: Command 8: On Click. The Execute Reports: Command 5: On Click tab is selected. Below the tabs is the text “forward slash asterisk The following commands open the database reports in Print Preview mode asterisk forward slash,” highlighted in green. Below the text is the command Open Report, followed by the code as follows:

Report Name, Active Equip Reservations By Month.

View, Print Preview.

Filter, Name.

Where Condition.

Window Mode, Normal.

Below this code is another command Open Report followed by the code as follows:

Report Name, Active Reservations By Equipment.

View, Print Preview.

Filter, Name.

Where Condition.

Window Mode, Normal.

Below this code is another command Open Report followed by the code as follows:

Report Name, All Reservations By Equipment.

View, Print Preview.

Filter, Name.

Where Condition.

Window Mode, Normal.

Below this code is another command Open Report followed by the code as follows:

Report Name, Equipment Listing.

View, Print Preview.

Filter, Name.

Where Condition.

Window Mode, Normal.

Below the code is a text box with the text Add New Action and a drop-down arrow on the right. A plus symbol is present on the left of the text box.

Return to Figure 5-62

Figure 5.63 Extended Description (Chapter 5)

Return to Figure 5-63

The Work Area shows two tabs for Members and Members: Before Change. The Members: Before Change tab is selected. Below the tabs is the text “forward slash asterisk This macro code adds a date or time stamp into the Last Updated field in the Members table. The equals Now open parenthesis close parenthesis function is used to get the current date or time from the system asterisk forward slash,” highlighted in green. Below the text is the Set Field event, followed by the code as follows:

Name, Last Updated.

Value equals Now open parenthesis close parenthesis.

Below the code is a text box with the text Add New Action and a drop-down arrow on the right. A plus symbol is present on the left of the text box.

Return to Figure 5-63

Figure 5.64 Extended Description (Chapter 5)

Return to Figure 5-64

The Ribbon has tabs for File, Home, Create, External Data, Database Tools, Help, Table Fields, and Table. The Table tab is selected and consists of Command groups such as Properties, Before Events, After Events, Named Macros, and Relationships. The Before Change and Before Delete buttons are shown in the Before Events group. The After Insert, After Update, and After Delete are shown in the After Events group.

Return to Figure 5-64

Figure 5.65 Extended Description (Chapter 5)

Return to Figure 5-65

The Command groups shown are Before Events and After Events. The Before Change and Before Delete buttons are shown in the Before Events group. The After Insert, After Update, and After Delete buttons are shown in the After Events group. The Before Change button is selected.

Return to Figure 5-65

Figure 5.66 Extended Description (Chapter 5)

Return to Figure 5-66

The window shows two tabs for Members and Members: Data Macro 1. The Members: Data Macro 1 is selected. Below the tabs is the Parameters section with details for Name and Description. A Create Parameter button is shown on the right. Below this is a text box with the text Add New Action and a drop-down arrow on the right. A plus symbol is present on the left of the text box.

Return to Figure 5-66

Figure 5.67 Extended Description (Chapter 5)

Return to Figure 5-67

The Access database consists of a Ribbon that has tabs for External Data, Database Tools, Help, Table Fields, and Table. The Table tab is selected and consists of Command groups such as After Events, Named Macros, and Relationships. The Named Macro button with a drop-down arrow is shown in the Named Macros group. Clicking the drop-down arrow displays a list of options such as Create Named Macro, Edit Named Macro, and Rename or Delete Macro. The Create Named Macro option is selected.

Return to Figure 5-67

Figure 5.68 Extended Description (Chapter 5)

Return to Figure 5-68

The Work Area shows two tabs for Members and Members: After Update. The Members: After Update tab is selected. Below the tabs is the text “forward slash asterisk This command executes the E mail Updated Members macro asterisk forward slash,” highlighted in green. Below the text is a rectangular block titled Run Data Macro. A minus sign is shown on the left of the title. An up arrow and a Delete Relationship icon are present on the far right. Below the title is the Macro Name feature with a text box on the right. The text box shows the text Members dot E mail Updated Member and a drop-down arrow on the right. Below the text box is the Update Parameters option on the far right. Below is a text box with the text Add New Action and a drop-down arrow on the right. A plus symbol is present on the left of the text box.

Return to Figure 5-68

Figure 5.69 Extended Description (Chapter 5)

Return to Figure 5-69

The Access database consists of a Ribbon that has tabs for Database Tools, Help, Table Fields, and Table. The Table tab is selected and consists of Command groups such as Named Macros and Relationships. The Named Macro button with a drop-down arrow is shown in the Named Macros group. Clicking the drop-down arrow displays a list of options such as Create Named Macro, Edit Named Macro, and Rename or Delete Macro. The Edit Named Macro option is selected, which displays a list of available macros such as E mail Updated Member. The E mail Updated Member is labeled Available macros. Below the Ribbon is the Work area, which shows a table.

Return to Figure 5-69

Figure 5.70 Extended Description (Chapter 5)

Return to Figure 5-70

The dialog box shows a rectangular block with the text All Tables containing Data Macros are listed below shown above the block. The block shows two sections. Under each section are the macros with their categories listed as follows:

Members:

After Update, Event Data Macro.

Before Change, Event Data Macro.

E mail Updated Member, Named Data Macro.

Race Results:

After Insert, Event Data Macro.

A Delete option is present on the right of the After Update, Before Change, and After Insert Data Macros. The Rename and Delete options are present on the right of the E mail Updated Member Data Macro. The bottom right of the dialog box shows the Close button.

Return to Figure 5-70

Figure 5.71 Extended Description (Chapter 5)

Return to Figure 5-71

The Work Area shows two tabs for Employees and Employees: Before Change. The Employees: Before Change: tab is selected. Below the tabs is the text “forward slash asterisk This macro checks to see if the employee is eligible for a performance review. The comparison uses the Date open parenthesis close parenthesis function, which captures the current date from the computer. This value is compared to the Last Review Date field in the table asterisk forward slash,” highlighted in green. Below the text is the condition If Date open parenthesis close parenthesis minus [Last Review Date] greater than equals 180 Then. A minus sign is present on the left of the condition. Below the condition is the Set Field event, followed by the code as follows:

Name, Eligible For Review.

Value equals “Y.”

Below the code is the End If event, followed by a text box with the text Add New Action and a drop-down arrow on the right. A plus symbol is present on the left of the text box.

Return to Figure 5-71

Figure 5.72 Extended Description (Chapter 5)

Return to Figure 5-72

A window shows a rectangular block with the condition If followed by a text box with the text Conditional expression. A minus sign is present on the left of the If condition. To the right of the text box is the Then condition, followed by an up arrow and a Delete relationship icon. Below is a text box with the text Add New Action and a drop-down arrow on the right. A plus symbol is present on the left of the text box. The Add Else and Add Else If options are present on the far right. Below the block is the End If condition, followed by a text box with the text Add New Action and a drop-down arrow on the right. A plus symbol is present on the left of the text box.

Return to Figure 5-72

Figure 5.73 Extended Description (Chapter 5)

Return to Figure 5-73

A window shows an If condition with the expression [Is Insert] equals True, followed by the Then condition. The expression is labeled First test. A minus sign is present on the left of the If condition. Below the conditions is a green block with the code as follows:

Look Up A Record In, Sail boat Fleet.

Where condition equals [S D Rentals] dot [F K Boat I D] equals [Sail Boat Fleet] dot [Boat I D].

A minus sign is present on the left of this code. Below the text is the If condition with the expression [S D Rentals] dot [Four Hour Rental question mark] equals negative 1, followed by the Then condition. The expression is labeled Second test. A minus sign is present on the left of the If condition. Below the conditions is a blue block, which shows the Set Field event followed by the code as follows:

Name, S D Rentals dot Rental Cost.

Value equals [Sail Boat Fleet] dot [Four Hour Rental Rate].

Below the code is the Else condition on the left. A minus sign is present on the left of the Else condition. Below the condition shows the Set Field event followed by the code as follows:

Name, S D Rentals dot Rental Cost.

Value equals [Sail Boat Fleet] dot [Full Day Rental Rate].

The End If condition is shown on the bottom left of the blue block. The End If condition is shown on the bottom left of the green block. Below the green block is a text box with the text Add New Action and a drop-down arrow on the right. A plus symbol is present on the left of the text box.

Return to Figure 5-73

Figure 5.74 Extended Description (Chapter 5)

Return to Figure 5-74

The window shows a report design titled Macro 1 on the left. The report design shows a rectangular block with a Submacro feature followed by a text box. A minus sign is present on the left of the feature. The text box shows the text Sub 1. The Delete relationship icon is present on the far right of the text box. Below the Submacro feature is another text box with the text Add New Action and a drop-down arrow on the right. A plus symbol is present on the left of the text box. Below the text box is the End Submacro command. Below the block is the text box with the text Add New Action and a drop-down arrow on the right. A plus symbol is present on the left of the text box. To the right of the report design view is the Action Catalog Pane, which shows the Search bar. Below the Search bar are the folders: Program Flow and Actions, each with a drop-down arrow on the left. Below the Program Flow folder is a list of files such as Comment, Group, If, and Submacro. The Submacro file is selected.

Return to Figure 5-74

Figure 5.75 Extended Description (Chapter 5)

Return to Figure 5-75

The window shows the Submacro feature with the text Show All Pets on the right. A minus sign is present on the left of the feature. Below the feature is the text “forward slash asterisk The Show All Pets submacro removes any filter that is applied so that all the pets display asterisk forward slash,” highlighted in green. Below is the command Run Menu Command with the code below, as follows:

Command, Remove Filter Sort.

Below is the End Submacro command. Below this command is another Submacro feature with the text Show Available on the right. A minus sign is present on the left of the feature. Below the feature is the text “forward slash asterisk The Show Available submacro filters the records to only show pets where the Available question mark field contains “Y” asterisk forward slash,” highlighted in green. Below the text is the command Apply Filter with the code below, as follows:

Filter Name.

Where Condition equals [Pets] dot [Available question mark?] equals “Y.”

Control Name.

Below the code is the End Submacro command.

Return to Figure 5-75

Figure 5.76 Extended Description (Chapter 5)

Return to Figure 5-76

A window shows the action title Run Macro with a minus sign on the left. The far right shows the Delete relationship icon. Below the title are three arguments: Macro Name, Repeat Count, and Repeat Expression, each with a text box on the right. The Macro Name text box shows the text Which Pets To Show dot Show Available and a drop-down arrow on the far right. An equals sign is present on the left of the Repeat Expression text box. An Edit Relationships tool is present on the far right of the Repeat Expression text box.

Return to Figure 5-76

Figure 5.77 Extended Description (Chapter 5)

Return to Figure 5-77

A window shows the action title On Error with a minus sign on the left. The far right shows the Delete relationship icon. Below the title are two arguments: Go To and Macro Name, each with a text box on the right. The Go To text box shows the text Macro Name and a drop-down arrow on the far right. The Macro Name text box shows the text Which Pets To Show dot Show Available.

Return to Figure 5-77

Figure 5.78 Extended Description (Chapter 5)

Return to Figure 5-78

The Property Sheet Pane shows the Selection Type feature as a Command Button. Below the Selection Type feature is the text box with the text c m d Show All and a drop-down arrow on the right. Below the text box are tabs for Format, Data, Event, Other, and All. The Event tab is selected. Below are the following properties:

On Click. Which Pets To Show dot Show All Pets, with a drop-down arrow and a minus sign.

On Got Focus.

On Lost Focus.

On D b l Click.

Return to Figure 5-78

Figure 5.79 Extended Description (Chapter 5)

Return to Figure 5-79

The window shows a rectangular block, which shows a section for Parameters, with details to be filled for Name and Description. A Create Parameter option is present on the far right. A text box is provided for Name and Description. A Delete relationship icon is present on the far right.

Return to Figure 5-79

Figure 5.80 Extended Description (Chapter 5)

Return to Figure 5-80

The window shows a rectangular block, which shows a section for the Parameters Name and Description. A Create Parameter option is present on the far right. Two text boxes are shown below for Name, with the text Param Beg Date and Param End Date. Two text boxes are shown below for Description, with the text Begin date for the update range and End date for the update range. A Delete relationship icon is present on the far right.

Return to Figure 5-80

Figure 5.81 Extended Description (Chapter 5)

Return to Figure 5-81

The window shows the text “forward slash asterisk This macro updates the Active field to set the value to indicate Not Active. The macro uses the data values that are passed in from the form asterisk forward slash,” highlighted in green. Below the text is the block, which shows For Each Record In action, followed by the text box with the text Reservations and a drop-down arrow on the far right. A minus sign is present on the left of the action. To the right of the text box is an up arrow and a Delete relationship icon. Below the action is the command, Where Condition, followed by a text box. An equals sign is present to the left of the text box. The text box shows the condition [Reservations] dot [Res Date] greater than or equals [Param Beg Date] and [Reservations] dot [Res Date] less than or equals [Param End Date]. An Edit relationship icon is present on the right of the text box. The Update Parameters and Add Alias options are present on the right, below the text box. Below is a text box with the text Add New Action and a drop-down arrow on the far right. A plus symbol is present on the left of the text box. Below the block is a text box with the text Add New Action and a drop-down arrow on the far right. A plus symbol is present on the left of the text box.

Return to Figure 5-81

Figure 5.82 Extended Description (Chapter 5)

Return to Figure 5-82

A window shows the block with the sections Parameters Name and Description. The Description section shows the text as follows:

Param Beg date, Begin date for the update range.

Param End Date, End date for the update range.

Below the block is the text “forward slash asterisk This macro updates the Active field to set the value to indicate Not Active. The macro uses the data values that are passed in from the form asterisk forward slash,” highlighted in green. Below the text is the For Each Record In action, followed by the text Reservations. A minus sign is present on the left of the action. Below the action is the command, Where Condition, followed by the condition equals [Reservations] dot [Res Date] greater than or equals [Param Beg Date] and [Reservations] dot [Res Date] less than or equals [Param End Date]. Below the condition is the Edit Record command. A minus sign is present on the left of the command. Below the command is the Set Field action, followed by the code below as follows:

Name, Active.

Value equals “N.”

Below the code is the End Edit Record command. Below the command is the text box with the text Add New Action with a drop-down arrow on the right. A plus symbol is present on the left of the text box.

Return to Figure 5-82

Figure 5.83 Extended Description (Chapter 5)

Return to Figure 5-83

A window shows the Run Data Macro command. A minus sign is present on the left of the command. A Delete relationship icon is present on the top right of the window. Below the command is the Macro Name feature with a text box on the right. The text box shows the text Reservations dot Deactivate Reservation Macro and a drop-down arrow on the right. Below the feature is a section named Parameters, which shows two parameters: Param Beg Date and Param End Date, each with a text box on the right. An equals sign is present on the left of each text box. An Edit relationship tool is present on the far right of each text box. The Update Parameters option is present on the bottom right of the window.

Return to Figure 5-83

Figure 5.84 Extended Description (Chapter 5)

Return to Figure 5-84

A window shows the Run Data Macro command. A minus sign is present on the left of the command. A Delete relationship icon is present on the top right of the window. Below the command is the Macro Name feature with a text box on the right. The text box shows the text Reservations dot Deactivate Reservation Macro and a drop-down arrow on the right. Below the feature is the section named Parameters, which shows two parameters: Param Beg Date and Param End Date, each with a text box on the right. The Param Beg Date text box shows the text [t x t Beg Date], and the Param End Date text box shows the text [t x t End Date]. An equals sign is present on the left of each text box. An Edit relationship tool is present on the far right of each text box. The Update Parameters option is present on the bottom right of the window.

Return to Figure 5-84

Figure 5.85 Extended Description (Chapter 5)

Return to Figure 5-85

A window shows the On Error command with the features as follows:

Go To, Macro Name.

Macro Name, Process Error.

Below the features is the text “forward slash asterisk This action displays the message box asterisk forward slash,” highlighted in green. Below the text is the Message box, which contains the message, The requested report contains no data, followed by the code as follows:

Beep, No.

Type, Information.

Title, No Report Data.

Below the code is the text “forward slash asterisk This action cancels the report from opening to avoid displaying an empty report asterisk forward slash,” highlighted in green. Below the text is the Cancel Event command. Below the command is the Submacro feature with the text Process Error on the right. Below the text is the Message box, which contains the message, [Macro Error] dot [Description], followed by the code as follows:

Beep, Yes.

Type, Warning question mark.

Title, Macro Error.

Below the code is the Stop Macro command, followed by the End Submacro command. Below the command is the text box with the text Add New Action and a drop-down arrow on the right. A plus sign is present on the left of the text box.

Return to Figure 5-85

Figure 5.86 Extended Description (Chapter 5)

Return to Figure 5-86

A window shows the On Error action at the top. A minus sign is present on the left of the action. An up arrow and a Delete relationship icon are present on the far right. Below the On Error action is the Go To feature with a text box on the right. The text box shows a drop-down arrow on the far right. Clicking on the drop-down arrow displays the options such as Next and Fail. Below the feature is the text box with the text Add New Action and a drop-down arrow on the right. A plus sign is present on the left of the text box.

Return to Figure 5-86

Figure 5.87 Extended Description (Chapter 5)

Return to Figure 5-87

The dialog box shows the Macro Name feature with a text box below. The text box shows the text Execute Reports colon Command 7 colon On Click colon Embedded Macro. Below the text box is the Condition feature with a rectangular block below. Below the block is the Action Name feature with a text box below. The text box shows the text Open Report. Below the text box is the Arguments feature with a text box below. The text box shows the text All Reservations By Equipment, 5 comma comma comma Normal. On the right side of these features are the Step, Stop All Macros, and Continue buttons. Below these buttons is the Error Number feature with a text box below. The text box shows the entry 0.

Return to Figure 5-87

Figure 5.88 Extended Description (Chapter 5)

Return to Figure 5-88

The Ribbon shows the tabs for File, Home, and Macro Design. The Macro Design tab is selected and consists of the Tools Command group. In the Tools group, the Single Step button is selected. Along with the Single Step button is the Convert Macros to Visual Basic button below, and the Run button on the left.

Return to Figure 5-88

Figure 5.89 Extended Description (Chapter 5)

Return to Figure 5-89

The Work Area shows the tabs for Main Menu and U S y s Application Log. The U S y s Application Log tab is selected. Below the tabs is a table with 10 columns and 2 rows. The column headings are I D, Source Object, Data Macro, Error Number, Category, Object Type, Description, Context, Created, and Click to Add. The row entries are as follows:

Row 1: 1, Service History, {37 C 1 B 5 B 1 - 1 F 9, negative 8239, Execution, Macro, Data Type mismatched, For Each Record, hash symbols.

Row 2: New, Blank, Blank, Blank, Blank, Blank, Blank, Blank, Blank.

Row 1 is selected. A Record button, the Page number, a Filter, and a Search button are displayed on the bottom left of the Work area.

Return to Figure 5-89

Figure 5.90 Extended Description (Chapter 5)

Return to Figure 5-90

The Access Database consists of a Title bar at the top, followed by a Ribbon below. The Minimize, Maximize, and Close buttons are on the far right of the Title bar. The Ribbon has tabs for File, Edit, View, Insert, Debug, Run, Tools, Add-ins, Window, and Help. Below the tabs are various icons for New Model, Open File, Save, (Grayed Out) Cut, (Grayed Out) Copy, (Grayed Out) Paste, (Grayed Out) Undo, (Grayed Out) Redo, Zoom In or Out, Fit To View, Start Simulation, Pause Simulation, Stop Simulation, and so on. Below the icons is the Work Area, which is divided into two sections vertically. The left section shows the title Project -Lifes Animal Shelter - 04. Below the title are the icons for Create Model, Create Blank Library, and Open Existing Model or Library. To the far right is a drop-down arrow. Below the icons are shown two folders named a c w z tool (A C W Z TOOL) and Lifes Animal Shelter - 04 (Access 5-4). Below the Lifes Animal Shelter - 04 (Access 5-4) folder is the subfolder Modules. Below the Modules subfolder is the file Converted Macro - Which Pets To Show. Below these folders and files is the title Properties, followed by a text box. Below the text box are the tabs for Alphabetic and Categorized. The Alphabetic tab is selected. Below the tabs is a rectangular empty block. The right section is grey.

Return to Figure 5-90

Figure 5.91 Extended Description (Chapter 5)

Return to Figure 5-91

The Work Area shows two tabs for Reservations and Reservations: Before Change. The Reservations: Before Change tab is selected. Below the tabs is the text “forward slash asterisk This macro automatically sets the value of the Active field to “Y” when a new reservation record is added. The first action checks whether the Before Change event is the result of adding a new record (the Is Insert function would be true) versus a change to an existing record asterisk forward slash,” highlighted in green. Below the text is the condition If [Is Insert] equals True Then. A minus sign is present on the left of the condition. Below the condition is the text “forward slash asterisk Use the Set Field action to set the value of the Active field in the table asterisk forward slash,” highlighted in green. Below the text is the Set Field event, followed by the code as follows:

Name, Active.

Value equals “Y.”

Below the code is the End If event, followed by a text box with the text Add New Action and a drop-down arrow on the right. A plus symbol is present on the left of the text box.

Return to Figure 5-91

Figure 5.92 Extended Description (Chapter 5)

Return to Figure 5-92

The window shows the title Add New Reservation. Below the title, a vertical block is shown on the left, with an Annotation tool at the top. To the right is the Work Area, which shows the feature Res I D with a text box on the right. The text box shows the entry 26. To the right is the Employee Number feature, followed by a text box which shows the entry 2. Below the Res I D feature is the Equipment I D feature with a text box on the right. The text box shows the entry 1 and a drop-down on the right. Below is the Pick Up Date and Pick Up Time features, each with a text box on the right. The Pick Up Date feature shows the entry 5/7/2026, and the Pick Up Time feature shows the entry 9:00. The Save Reservation, Add New Reservation, and Close Form buttons are present below. A Record button, the Page number, a Filter, and a Search button are displayed on the bottom left of the Work area.

Return to Figure 5-92

Figure 5.93 Extended Description (Chapter 5)

Return to Figure 5-93

The window shows tabs for Reservations and Reservations: Data Macro 1. The Reservations: Data Macro 1 tab is selected, which shows the Parameters sections to fill in details for Name and Description. The Description feature shows the text as follows:

Param Beg date, Begin date for the update range.

Param End Date, End date for the update range.

Below the block is the text “forward slash asterisk This macro updates the Active field to set the value to indicate Not Active. The macro uses the data values that are passed in from the form asterisk forward slash,” highlighted in green. Below the text is the For Each Record In action, followed by the text Reservations. A minus sign is present on the left of the action. Below the action is the command, Where Condition, followed by the condition equals [Reservations] dot [Res Date] greater than or equals [Param Beg Date] and [Reservations] dot [Res Date] less than or equals [Param End Date]. Below the condition is the Edit Record command. A minus sign is present on the left of the command. Below the command is the Set Field action, followed by the code below as follows:

Name, Active.

Value equals “N.”

Below the code is the End Edit Record command. Below the command is the text box with the text Add New Action with a drop-down arrow on the right. A plus symbol is present on the left of the text box.

Return to Figure 5-93

Figure 5.94 Extended Description (Chapter 5)

Return to Figure 5-94

The window shows the form design view, which is divided into two sections: Form Header and Detail. The Form Header section is present at the top of the page. The Form Header section displays the title Deactivate Expired Reservations. Below is the Detail section, which contains two vertically aligned text boxes at the center. The first text box contains the text Enter the Beginning Date of the range, and the second text box contains the text Enter the Ending Date of the range. To the right of each text box is another text box, with the text Unbound. The first text box is placed in a placeholder box, represented as a yellow outline. The bottom center of the design view shows the text box with the text Deactivate Reservations.

Return to Figure 5-94

Figure 5.95 Extended Description (Chapter 5)

Return to Figure 5-95

The window shows tabs for Deactivate Reservation and Deactivate Reservation: Command 8: On Click. The Deactivate Reservation: Command 8: On Click tab is selected. Below the tabs is the text “forward slash asterisk This macro executes the Deactivate Reservation Macro, a named data macro attached to the Reservations table. It uses two parameters that get their values from the text boxes on the form asterisk forward slash,” highlighted in green. Below the text is the Run Data Macro action, which displays the Macro Name feature as Reservations dot Deactivate Reservation Macro. Below the feature is the Parameters section, which shows the commands as follows:

Param Beg Date equals [t x t Beg Date].

Param End Date equals [t x t End Date].

Below the section is the text “forward slash asterisk The next action executes after all the updates have occurred. A message box displays asterisk forward slash,” highlighted in green. Below the text is the message box, which shows the Message: Reservations have been updated, followed by the code as follows:

Beep, No.

Type, Information.

Title.

Below is the text box with a drop-down arrow on the right. The text box shows the text Add New Action. A plus symbol is present on the left of the text box.

Return to Figure 5-95

Figure 5.96 Extended Description (Chapter 5)

Return to Figure 5-96

The Backstage view shows a vertical Navigation Pane on the left. The Navigation Pane shows tabs for Home, New, and Open. The New tab is selected. The New tab window is shown on the right of the Navigation Pane. The window shows a Back arrow followed by a text box. The text box shows the text faculty. Below the text box displays a template named Faculty.

Return to Figure 5-96

Figure 5.97 Extended Description (Chapter 5)

Return to Figure 5-97

The Navigation Pane shows a drop-down arrow on the right of the title. Below the title is a Search bar. Below the Search bar are four sections with an expanded or collapsed drop-down arrow. The sections have sub-sections such as:

Tables: Faculty.

Queries: Faculty Extended.

Forms: Faculty Details and Faculty List.

Reports: All Faculty, Emergency Contact Information, Faculty Address Book, Faculty by Department, Faculty by Type, and Faculty Phone List.

Return to Figure 5-97

Figure 5.98 Extended Description (Chapter 5)

Return to Figure 5-98

The Design view window shows a table for a query. A list of options is displayed over the table, such as Totals, Table Names, Cut, Copy, Paste, Build, Zoom, and Properties. The Zoom option is selected.

Return to Figure 5-98

Figure 5.99 Extended Description (Chapter 5)

Return to Figure 5-99

The two blocks are titled Available Fields and Selected Fields. The Available Fields block shows entries such as E mail Address, Date of Birth, Faculty I D, Department, Faculty Type, Office, Highest Degree, Focus Area, and School or Program Name. The Selected Fields block shows entries such as I D, First Name, and Last Name. Between the two blocks are four buttons, represented as a right arrow, a double right arrow, a left arrow, and a double left arrow.

Return to Figure 5-99

Figure 5.100 Extended Description (Chapter 5)

Return to Figure 5-100

The table shows 4 columns and 1 row. The column headings are Degree I D, I D-F K, Degree, and Degree Year. The row entries are as follows:

Row 1: New, Blank with a drop-down arrow, Blank, and 0.

Clicking the drop-down arrow displays another table with 3 columns and 2 rows. The row entries are as follows:

Row 1: 1, Bruce, and Elkins.

Row 2: 2, Charlotte, and Liu.

Return to Figure 5-100

Figure 5.101 Extended Description (Chapter 5)

Return to Figure 5-101

The window shows two tabs for Main Menu and Equipment With No Repairs. The Equipment With No Repairs tab is selected. Below the tabs is a form titled Equipment with No Repair History. A Close Form button is present on the far right. Below the title are the headings for the form as follows: Equipment I D, Product, Category, Daily Rate, Weekly Rate, Monthly Rate, Date Purchased, Comments, and Lifetime Maintenance Cost. Below the headings is a blank form area. A Record button, the Page number, a Filter, and a Search button are displayed on the bottom left of the Work area.

Return to Figure 5-101

Figure 5.102 Extended Description (Chapter 5)

Return to Figure 5-102

The dialog box shows the Macro Name feature with a text box below. The text box shows the text Main Menu colon c m d View Equip No Repair Button colon On Click colon Embedded Macro. Below the text box is the Condition feature with a rectangular block below. Below the block is the Action Name feature with a text box below. The text box shows the text Open Form. Below the text box is the Arguments feature with a text box below. The text box shows the text Equip With No Repairs, Form, Normal. On the right side of these features are the Step, Stop All Macros, and Continue buttons. Below these buttons is the Error Number feature with a text box below. The text box shows the entry 0. The Step button is selected.

Return to Figure 5-102

Figure 5.103 Extended Description (Chapter 5)

Return to Figure 5-103

A window shows the tabs for Main Menu, Equipment, and Equipment: Update Total Maintenance Cost. The Equipment: Update Total Maintenance Cost tab is selected. Below the tabs is the Parameters section to fill in details for Name and Description. The Create Parameter option is present on the far right. The Name feature shows two text boxes below. The first text box shows the text Param E I D, and the second text box shows the text Param Cost. The Description feature shows two text boxes below. The first text box shows the text Parameter for the Equipment to update, and the second text box shows the text Parameter for the Cost of the repair to be added to the total cost. Below the block is the text “forward slash asterisk This macro gets values for the Param E I D and Param Cost passed from the After Insert, After Update, and After Delete macros in the Service History table. After finding the matching equipment record in the Equipment table, the Lifetime Maintenance Cost is updated asterisk forward slash,” highlighted in green. Below the text is the For Each Record In action, followed by the text Equipment. A minus sign is present on the left of the action. Below the action is the command, Where Condition followed by the condition equals [Equipment] dot [Equipment I D] equals [Param E I D]. Below the condition is the Edit Record command. A minus sign is present on the left of the command. Below the command is the Set Field action, followed by the code below as follows:

Name, Equipment dot Lifetime Maintenance Cost.

Value equals [Equipment] dot [Lifetime Maintenance Cost] plus [Param Cost].

Below the code is the End Edit Record command. Below the command is the text box with the text Add New Action with a drop-down arrow on the right. A plus symbol is present on the left of the text box.

Return to Figure 5-103

Figure 5.104 Extended Description (Chapter 5)

Return to Figure 5-104

The form shows a text box with the entry $ 95.00. Below the text box is the Close Form button. Below the form is the status bar, which displays the message New Application Errors.

Return to Figure 5-104

Figure 5.105 Extended Description (Chapter 5)

Return to Figure 5-105

The Work Area shows the tabs for Main Menu and U S y s Application Log. The U S y s Application Log tab is selected. Below the tabs is a table with 10 columns and 2 rows. The column headings are I D, Source Object, Data Macro, Error Number, Category, Object Type, Description, Context, Created, and Click to Add. The row entries are as follows:

Row 1: 1, Service History, {37 C 1 B 5 B 1 - 1 F 9, negative 8239, Execution, Macro, Data Type mismatched, For Each Record, hash symbols.

Row 2: New, Blank, Blank, Blank, Blank, Blank, Blank, Blank, Blank.

Row 1 is selected. A Record button, the Page number, a Filter, and a Search button are displayed on the bottom left of the Work area.

Return to Figure 5-105

Figure 5.106 Extended Description (Chapter 5)

Return to Figure 5-106

The Work Area shows two tabs for S D Rentals and S D Rentals: Before Change. The S D Rentals: Before Change tab is selected. Below the tabs is the text “forward slash asterisk This macro automatically sets the value of the Rental Cost field asterisk forward slash,” highlighted in green. Below is another text “forward slash asterisk Since the value used to set the Rental Cost field is in the Sail boat Fleet table, the first action finds the matching boat record in that table asterisk forward slash,” highlighted in green. Below the text is the code as follows:

Look Up A Record In Sail boat Fleet.

Where condition equals [S D Rentals] dot [F K Boat I D] equals [Sail Boat Fleet] dot [Boat I D].

A minus sign is present on the left of this code. Below the code is the text “forward slash asterisk The next action checks the value of the Four Hour Rental field. This is a Yes or No data type field. The value of negative 1 means the box is checked (which means it is a four-hour rental) asterisk forward slash,” highlighted in green. Below the text is the If condition with the expression [S D Rentals] dot [Four Hour Rental question mark] equals negative 1, followed by the Then condition. A minus sign is present on the left of the If condition. Below the conditions is the text “ forward slash asterisk Use the Set field action to set the value of the Rental Cost field to the Four Hour Rental Rate from the Sail boat Fleet table asterisk forward slash,” highlighted in green. Below the text is the Set Field event, followed by the code as follows:

Name, S D Rentals dot Rental Cost.

Value equals [Sail Boat Fleet] dot [Four Hour Rental Rate].

Below the code is the Else condition on the left. A minus sign is present on the left of the Else condition. Below the conditions is the text “forward slash asterisk Use the Set field action to set the value of the Rental Cost field to the Full Day Rental Rate from the Sail boat Fleet table asterisk forward slash,” highlighted in green. Below the text is the Set Field, followed by the code as follows:

Name, S D Rentals dot Rental Cost.

Value equals [Sail Boat Fleet] dot [Full Day Rental Rate].

The End If condition is shown on the bottom left. Below the condition is a text box with the text Add New Action and a drop-down arrow on the right. A plus symbol is present on the left of the text box.

Return to Figure 5-106

Figure 5.107 Extended Description (Chapter 5)

Return to Figure 5-107

The Access database consists of a Ribbon that has tabs for Database Tools, Help, Table Fields, and Table. On the right is a Search tool, followed by the text Tell me what you want to do. The Table tab is selected and consists of Command groups such as After Events, Named Macros, and Relationships. The Named Macro button with a drop-down arrow is shown in the Named Macros group. Clicking the drop-down arrow displays a list of options such as Create Named Macro, Edit Named Macro, and Rename or Delete Macro. The Edit Named Macro option is selected, which displays the available macros such as Update Fleet Rates. Below the Ribbon is the Work area, which shows a table with entries.

Return to Figure 5-107

Figure 5.108 Extended Description (Chapter 5)

Return to Figure 5-108

The window shows an Edit Record command with a minus sign on the left. Below the command is a block, which shows the If condition, followed by a text box. A minus sign is present on the left of the If condition. The text box shows the text, Not Is Null open parenthesis [Param 4 H r Rate] close parenthesis. On the right of the text box is the Then condition, followed by an up arrow, a down arrow, and a Delete relationship icon. Below is the text “forward slash asterisk Only change the field if a value was entered into the text box on the form asterisk forward slash,” highlighted in green. Below the text is the Set Field event, followed by the code as follows:

Name, Four Hour Rental Rate.

Value equals [Param 4 H r Rate].

Below the code is a text box with the text, Add New Action and a drop-down arrow on the right. A plus symbol is present on the left of the text box. The Add Else and Add Else If options are present on the far right. Below the block is the End If event, followed by a text box with the text Add New Action and a drop-down arrow on the right. A plus symbol is present on the left of the text box. Below is the End Edit Record command.

Return to Figure 5-108

Figure 5.109 Extended Description (Chapter 5)

Return to Figure 5-109

A window shows the tabs for Sail boat Fleet and Sail Boat Fleet: Update Fleet Rates. The Sail Boat Fleet: Update Fleet Rates tab is selected. Below the tabs is Parameters sections to fill in details for Name and Description. The Description section shows the text as follows:

Param 4 H r Rate, This value is used to set the New Four Hour Rental Rate.

Param Daily Rate, This value is used to set the new Full Day Rental Rate.

Param Boat I D, The Boat I D to update.

Below the block is the text “forward slash asterisk This macro updates the Four Hour Rental Rate and Full Day Rental Rate fields in the Sail boat Fleet table. The macro uses data values passed in from the Update Rental Rates form asterisk forward slash,” highlighted in green. Below is another text “forward slash asterisk Find the matching record in Sail boat Fleet table, based on the Boat I D picked on the form asterisk forward slash,” highlighted in green.

Below the text is the For Each Record In action, followed by text Sail boat Fleet. A minus sign is present on the left of the action. Below the action is the command, Where Condition followed by the condition equals [Sail boat Fleet] dot [Boat I D] equals [Param Boat I D]. Below the condition is the text “forward slash asterisk Perform the actions in the Edit Record block when a match has been found asterisk forward slash,” highlighted in green. Below the text is the Edit Record command. A minus sign is present on the left of the command. Below the text is the If condition with the expression Not Is Null open parenthesis [Param 4 H r Rate] close parenthesis, followed by the Then condition. A minus sign is present on the left of the If condition. Below the conditions is the text “forward slash asterisk Only change the field if a value was entered into the text box on the form asterisk forward slash,” highlighted in green. Below the text is the Set Field event, followed by the code as follows:

Name, Four Hour Rental Rate.

Value equals [Param 4 H r Rate].

Below the code is the End If condition on the left. Below the text is the If condition with the expression Not Is Null open parenthesis [Param Daily Rate] close parenthesis, followed by the Then condition. A minus sign is present on the left of the If condition. Below the conditions is the text “forward slash asterisk Only change the field if a value was entered into the text box on the form asterisk forward slash,” highlighted in green. Below the text is the Set Field event, followed by the code as follows:

Name, Full Day Rental Rate.

Value equals [Param Daily Rate].

The End If condition is shown on the bottom left. Below is the End Edit Record command. Below the command is a text box with the text Add New Action and a drop-down arrow on the right. A plus symbol is present on the left of the text box.

Return to Figure 5-109

Figure 5.110 Extended Description (Chapter 5)

Return to Figure 5-110

The window shows the form design view, which is divided into two sections: Form Header and Detail. The Form Header section is present at the top of the page, highlighted in blue. The Form Header section displays the title Update Sail boat Fleet Rental Rates. Below is the Detail section, which contains three text boxes. The first text box contains the text Select the Boat to Update, the second text box contains the text Enter the New 4 H r Rate, and the third text box shows the text Enter the New Daily Rate. To the right of each text box is another text box, with the text Unbound. The bottom center of the design view shows the two options for Update Rates and Close Form.

Return to Figure 5-110

Figure 5.111 Extended Description (Chapter 5)

Return to Figure 5-111

The window shows tabs for Update Rental Rates and Update Rental Rates c m d Update Rates On Click. The Update Rental Rates c m d Update Rates On Click tab is selected. Below the tabs is the text “forward slash asterisk This macro executes the Sail boat Fleet dot Update Fleet Rates Macro, a named data macro attached to the Sail boat Fleet table. It uses three parameters that get their values from the text boxes on the form asterisk forward slash,” highlighted in green. Below the text is the Run Data Macro action, which displays the Macro Name feature as Sail boat Fleet dot Update Fleet Rates. Below the feature is the Parameters section, which shows the commands as follows:

Param 4 H r Rate equals [t x t New 4 H r Rate].

Param Daily Rate equals [t x t New Daily Rate].

Param Boat I D equals [L s t Boat I D].

Below the section is the text “forward slash asterisk Check to see what message box to display. If nothing was entered (the fields are null), then display a message that no updates were performed. Otherwise display a message that the rates were updated and use the Set Property action to clear out the value property of the control asterisk forward slash,” highlighted in green. Below the text is the If condition with the expression, Is Null open parenthesis [t x t New 4 H r Rate] close parenthesis And Is Null open parenthesis [t x t New Daily Rate] close parenthesis Or Is Null open parenthesis [L s t Boat I D] close parenthesis, followed by the Then condition. A minus sign is present on the left of the If condition. Below the text is the message box, which shows the Message: Update not performed. Verify that rental rates have been entered and a boat selected, followed by the code as follows:

Beep, Yes.

Type, None.

Title.

Below the code is the Else condition with a minus sign on the left. Below the Else condition is a message box, which shows the Message: Rental Rates have been updated, followed by the code as follows:

Beep, Yes.

Type, None.

Title.

Below is the Set Property command with the code as follows:

Control Name, t x t New 4 H r Rate.

Property, Value.

Value.

Below is the Set Property command with the code as follows:

Control Name, t x t New Daily Rate.

Property, Value.

Value.

Below is the Set Property command with the code as follows:

Control Name, L s t Boat I D.

Property, Value.

Value.

Below is the End If condition with a text box below. The text box shows the text Add New Action and a drop-down arrow on the left. A plus symbol is present on the left of the text box.

Return to Figure 5-111

Figure 5.112 Extended Description (Chapter 5)

Return to Figure 5-112

The Work Area shows two tabs for Pets and Pets: Before Change. The Pets: Before Change tab is selected. Below the tabs is the text “forward slash asterisk The Is Insert function checks to see if this a record being added versus a change asterisk forward slash,” highlighted in green. Below the text is the If condition with the expression [Is Insert] equals True, followed by a Then condition. A minus sign is present on the left of the If condition. Below is the text “forward slash asterisk The following Set Field actions are executed only when a pet is added. The Available question mark field is set to yes. The Date Adopted and F K Owner I D fields are set to null. These fields do not display on the Add New Pet form and are set as a result of this macro asterisk forward slash,” highlighted in green. Below the text is the Set Field event, followed by the code as follows:

Name, Available question mark.

Value equals “Y.”

Below is another Set Field event, followed by the code as follows:

Name, Date Adopted.

Value equals Null.

Below is another Set Field event, followed by the code as follows:

Name, F K Owner I D.

Value equals Null.

The End If condition is shown on the bottom left. Below the condition is a text box with the text Add New Action and a drop-down arrow on the right. A plus symbol is present on the left of the text box.

Return to Figure 5-112

Figure 5.113 Extended Description (Chapter 5)

Return to Figure 5-113

The window shows the text “forward slash asterisk This macro contains four submacros. These submacros are called from different buttons on the View Pets form asterisk forward slash,” highlighted in green. Below the text is the Submacro feature with the text Show All Pets on the right. A minus sign is present on the left of the feature. Below the feature is the text “forward slash asterisk The Show All Pets submacro removes any filter that is applied so that all the pets display asterisk forward slash,” highlighted in green. Below is the command Run Menu Command with the code below, as follows:

Command, Remove Filter Sort.

Below is the End Submacro command. Below this command is another Submacro feature with the text Show Available on the right. A minus sign is present on the left of the feature. Below the feature is the text “forward slash asterisk The Show Available submacro filters the records to only show pets where the Available question mark field contains “Y” asterisk forward slash,” highlighted in green. Below the text is the command Apply Filter with the code below, as follows:

Filter, Name.

Where Condition equals [Pets] dot [Available question mark?] equals “Y.”

Control Name.

Below the code is the End Submacro command. Below this command shows another Submacro feature with the text Show Available Cats on the right. A minus sign is present on the left of the feature. Below the feature is the text “forward slash asterisk The Show Available Cats submacro filters the records to only show pets where the Available question mark field contains “Y” and the Type field contains “cat” asterisk forward slash,” highlighted in green. Below the text is the command Apply Filter with the code below, as follows:

Filter, Name.

Where Condition equals [Pets] dot [Available question mark] equals “Y” And [Pets] dot [[Type] equals “cat.”

Control Name.

Below this command shows another Submacro feature with the text Show Available Dogs on the right. A minus sign is present on the left of the feature. Below the feature is the text “forward slash asterisk The Show Available Dogs submacro filters the records to only show pets where the Available question mark field contains “Y” and the Type field contains “dog” asterisk forward

slash," highlighted in green. Below the text is the command Apply Filter with the code below, as follows:

Filter, Name.

Where Condition equals [Pets] dot [Available question mark] equals "Y" And [Pets] dot [Type] equals "dog."

Control Name.

Below is the End Submacro command, followed by a text box with the text Add New action and a drop-down arrow on the right. A plus symbol is present on the left of the text box.

Return to Figure 5-113

Figure 5.114 Extended Description (Chapter 5)

Return to Figure 5-114

The Work Area shows a tab for Drivers. Below the tab is a table that consists of 9 columns and 3 rows. The column headings are Licence Number, Birth Date, Last Name, First Name, Address, City, State, ZIP, and Gender, each with a drop-down arrow on the right. The row entries are as follows:

Row 1: 10004122, 9/26/1951, Juarez, Ricardo, 274 W 145th Street, New York, N Y, 10039, and M.

A minus sign is present on the left of row 1. Clicking the icon displays another table below with 7 columns and 4 rows. The column headings are Ticket Number, Ticket Date, City, Primary Factory, Officer Badge, Fine, and Click to Add. The row entries are as follows:

Row 1: 4235893852, 12/3/2025, New York, Unsafe Speed, A 00061444, $60.00, and Blank.

Row 2: 4235894352, 12/28/2025, Albany, Unsafe Speed, A 00092385, $100.00, and Blank.

Row 3: 4235895648, 3/18/2026, Buffalo, Improper Electronic Device Use or Texting, A 00032567, $150.00, and Blank.

The last row is empty. The data from the previous table is continued as follows:

Row 2: 10001786, 1/29/1953, Hendrick, Rosie, 321 Deforest Road, Syracuse, N Y, 13214, and F.

Row 3: 10003086, 4/26/1965, Moreno, Wayne, 345 E 73rd Street, New York, N Y, 10021, and M.

Return to Figure 5-114

Figure 5.115 Extended Description (Chapter 5)

Return to Figure 5-115

The three tables are titled Drivers, Tickets, and Officers. The Drivers table has entries License Number, with a primary key icon, Birth Date, Last Name, First Name, Address, City, ZIP, and Gender. The Tickets table has the entries Ticket Number, with a primary key icon, D L Number, Ticket Date, City, Primary Factor, Officer Badge Number, and Fine. The Officers table has entries Officer I D, with a primary key icon, First Name, Last Name, and Date Hired. The entries License Number, from the Drivers table, and D L Number, from the Tickets table, are linked with a relationship line, showing the number 1 at the top, next to License Number, and infinity at the bottom, next to D L number. The entries Officer Badge Number, from the Tickets table, and Officer I D, from the Officers table, are linked with a relationship line, showing infinity at the bottom, next to Officer Badge Number, and the number 1 at the top, next to Officer I D.

Return to Figure 5-115

Figure 5.116 Extended Description (Chapter 5)

Return to Figure 5-116

The Work Area shows two tabs for Tickets and Tickets: Before Change. The Tickets: Before Change tab is selected. Below the tabs is the text “forward slash asterisk This macro adds a date or time stamp into the Record Added Time Stamp field in the Tickets table asterisk forward slash,” highlighted in green. Below is another text “forward slash asterisk The Is Insert function checks to see if this is a record being added versus a change. The time stamp should only be set at the time the record is first added into the table asterisk forward slash,” highlighted in green. Below the text is the If condition with the expression [Is Insert] equals True, followed by the Then condition. A minus sign is present on the left of the If condition. Below the If condition is the text “forward slash asterisk Set the value of the Record Added Time Stamp field to the current date or time. The equals open bracket Now close bracket function is used to get the current date or time from the system asterisk forward slash,” highlighted in green. Below the text is the Set Field command with the code below as follows:

Name, Record Added Time Stamp.

Value equals Now open bracket close bracket.

Below is the End If condition with a text box below. The text box shows the text Add New action and a drop-down arrow on the right. A plus symbol is present on the left of the text box.

Return to Figure 5-116

Figure 5.117 Extended Description (Chapter 5)

Return to Figure 5-117

The Work Area shows two tabs for Rent Invoices and Rent Invoices: Before Change. The Rent Invoices: Before Change tab is selected. Below the tab is the If condition with the expression [Is Insert] equals False, followed by a Then condition. A minus sign is present on the left of the If condition. Below the conditions is the text “forward slash asterisk Process an invoice payment when the event is called as a result of a change asterisk forward slash,” highlighted in green. Below is the If condition with the expression, Not Is Null open parenthesis [Date Received] close parenthesis, followed by a Then condition. A minus sign is present on the left of the If condition. Below the conditions is the text “forward slash asterisk The following actions are done only if there is a value in the Date Received field, ensuring that the updates are done only if the payment is being processed (not when the invoice was added) asterisk forward slash,” highlighted in green. Below is another If condition with the expression, [Due Date] minus [Date Received] greater than or equals 3, followed by a Then condition. A minus sign is present on the left of the If condition. Below the conditions is the text “forward slash asterisk Process a 2 percent discount if payment received at least 3 days early asterisk forward slash,” highlighted in green. Below is the Set Field event with the code as follows:

Name, Discount.

Value equals [Amount Due] times 0.02.

Below is the Else If condition with the expression, [Due Date] minus [Date Received] equals 2, followed by a Then condition. A minus sign is present on the left of the If condition. Below the condition is the text “forward slash asterisk Process a 1 percent discount if payment received 2 days early asterisk forward slash,” highlighted in green. Below is the Set Field event with the code as follows:

Name, Discount

Value equals [Amount Due] times 0.01.

Below is the End If condition followed by the text “forward slash asterisk Update Paid field to True asterisk forward slash,” highlighted in green. Below is the Set Field event with the code as follows:

Name, Paid.

Value equals True.

Below is the End If condition followed by another End If condition. Below the conditions is a text box with the text Add New Action and a drop-down arrow on the right. A plus sign is present on

the left of the text box.

Return to Figure 5-117

Figure 5.118 Extended Description (Chapter 5)

Return to Figure 5-118

The Work Area shows two tabs for Record Invoice Payment and Record Invoice Payment: Form: On Activate. The Record Invoice Payment: Form: On Activate tab is selected. Below the tab is the text “forward slash asterisk When the form becomes active, this macro executes asterisk forward slash,” highlighted in green. Below is another text “forward slash asterisk The first action filters the records to display only those that have not been paid. If a checkbox field contains 0, the box is not checked. In this case, an unchecked box indicates an unpaid invoice asterisk forward slash,” highlighted in green. Below is the Apply Filter command with the code as follows:

Filter Name.

Where Condition equals [Paid] equals 0.

Control Name.

Below is the text “forward slash asterisk This action causes the form to appear before the message box displays asterisk forward slash,” highlighted in green. Below is the Repaint Object command with the code as follows:

Object Type, Form.

Object Name, Record Invoice Payment.

Below is the text “forward slash asterisk Display a message box informing the user about what to do asterisk forward slash,” highlighted in green. Below is the Message box, which displays the Message, Enter the date the payment was received and then click the Record Payment button, with the code as follows:

Beep, No.

Type, Information.

Title.

Below the code is the text box with the text Add New Action and a drop-down arrow on the right. A plus symbol is present on the left of the text box.

Return to Figure 5-118

Figure 5.119 Extended Description (Chapter 5)

Return to Figure 5-119

The Work Area shows two tabs for Record Invoice Payment and Record Invoice Payment: Form: c m d R e c Payment Button: On Click. The Record Invoice Payment: Form: c m d R e c Payment Button: On Click tab is selected. Below the tab is the text “forward slash asterisk The following actions save the record, display a confirmation message, advance to the next record, and move the focus to the t x t Date Received text box asterisk forward slash,” highlighted in green. Below is the Run Menu Command with the code as follows:

Command, Save Record.

Below is the Message box with the Message, Invoice Processed, with a code as follows:

Beep, Yes.

Type, None.

Title.

Below the code is the Go To Record command with a code as follows:

Object Type.

Object Name.

Record, Next

Offset.

Below the code is the Go To Control command with a code as follows:

Control Name, t x t Date Received.

Below the code is a text box with the text Add New Action and a drop-down arrow on the right. A plus symbol is present on the left of the text box.

Return to Figure 5-119

Figure 5.120 Extended Description (Chapter 5)

Return to Figure 5-120

The Work Area shows two tabs for Record Invoice Payment and Record Invoice Payment: Form: c m d R e c Payment Button: On Click. The Record Invoice Payment: Form: c m d R e c Payment Button: On Click tab is selected. Below the tab is the text “forward slash asterisk The If block works to avoid errors by checking if a value is in the Date Received text box asterisk forward slash,” highlighted in green. Below is the If condition with the expression, Is Null open parenthesis [Date Received] close parenthesis, followed by the Then condition. Below the condition is the text “forward slash asterisk If nothing is in the text box, display a message and stop the macro from continuing asterisk forward slash,” highlighted in green. Below is a Message box with the Message, You must enter the date the payment was received, followed by the code below as follows:

Beep, Yes.

Type, Warning exclamation mark.

Title.

Below the code is the Go To Control command with the code as follows:

Control Name, t x t Date Received.

Below the code is the Stop Macro command, followed by the End If condition. Below the condition is the text “forward slash asterisk The following actions save the record, display a confirmation message, advance to the next record, and move the focus to the t x t Date Received text box asterisk forward slash,” highlighted in green. Below is the Run Menu Command with the code as follows:

Command, Save Record.

Below is a Message box.

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Figure 5.121 Extended Description (Chapter 5)

Return to Figure 5-121

The table consists of two columns and two rows. The column headings are Field Name and Data Type. The row entries are as follows:

Row 1: Author I D-F K and Number.

Row 2: I S B N-F K and Short Text.

The Author I D-F K and I S B N-F K, each has a primary key icon on the left.

Return to Figure 5-121

Figure 5.122 Extended Description (Chapter 5)

Return to Figure 5-122

The dialog box shows the text, “How wide would you like the columns in your lookup field? To adjust the width of a column, drag its right edge to the width you want, or double-click the right edge of the column heading to get the best fit.” Below the text is the Hide key column (recommended) option with a check box on the left. Below the option is a table with three columns and eight rows. The column headings are I D, First Name, and Last Name. The row entries are as follows:

Row 1: 4, Timothy, and Baldwin.

Row 2: 10, Paige, and Baltzan.

Row 3: 3, Bill, and Bommer.

Row 4: 19, Raymond, and Chang.

Row 5: 7, Jason, and Colquitt.

Row 6: 22, Annette, and Easton.

Row 7: 20, Kenneth, and Goldsby.

Row 8: 25, Pat, and Graves.

The Cancel, Back, Next, and Finish buttons are present on the bottom right of the dialog box. The Next button is selected.

Return to Figure 5-122

Figure 5.123 Extended Description (Chapter 5)

Return to Figure 5-123

The three tables are titled Author, Author Book, and Book. The Author table has entries I D, with a primary key icon, Last Name, First Name, Initial, and Affiliation. The Author Book table has the entries Author I D -F K and I S B N-F K, each with a primary key icon. The Book table has entries I S B N (Primary key), Title, Edition, Copyright Year, Pages, and Subject. The entries I D, from the Author table, and Author I D-F K, from the Author Book table, are linked with a relationship line, showing the number 1 at the top, next to I D, and infinity at the bottom, next to Author I D-F K. The entries I S B N-F K, from the Author Book table, and I S B N, from the Book table, are linked with a relationship line, showing the number 1 at the top, next to I S B N, and infinity at the bottom, next to I S B N-F K.

Return to Figure 5-123

Figure 5.124 Extended Description (Chapter 5)

Return to Figure 5-124

The window shows an icon of a lowercase letter I on the left. On the right is the title Microsoft Access can’t find the object ‘Book’. Below the title is the text as bullet points: You misspelled the object name. Check for missing underscores open parenthesis underscore close parenthesis or other punctuation, and make sure you didn’t enter leading spaces. You tried to open a linked table, but the file containing the table isn’t on the path you specified. Use the Linked Table Manager to update the link and point to the correct path. The OK button is present below.

Return to Figure 5-124

Figure 5.125 Extended Description (Chapter 5)

Return to Figure 5-125

The window shows the On Error command with the code below as follows:

Go To, Macro Name.

Macro Name, Process Error.

Below the code is the text “forward slash asterisk This action opens the Author table asterisk forward slash,” highlighted in green. Below the text is the Open Table command with the code below as follows:

Table Name, Author.

View, Datasheet.

Data Mode, Edit.

Below the code is the text “forward slash asterisk This action opens the Book table asterisk forward slash,” highlighted in green. Below the text is the Open Table command with the code below as follows:

Table Name, Book.

View, Datasheet.

Data Mode, Edit.

Below the code is the Submacro command with the code Process Error on the right. A minus sign is present on the left of the Submacro command. Below the command is the If condition with the expression [Macro Error] dot [Number] equals 7874, followed by the Then condition. A minus sign is present on the left of the If condition. Below the conditions is the Message box with the Message, Cannot find the specified table, with the code below as follows:

Beep, No.

Type, Warning exclamation mark.

Title.

Below is the Stop Macro command, followed by the Else condition. Below the condition is the Message box with the Message, [Macro Error] dot [Description], with the code below as follows:

Beep, No.

Type, Warning exclamation mark.

Title.

Below is the End If condition followed by the End Submacro command. Below the command is a text box with the text Add New Action and a drop-down arrow on the right. A plus symbol is present on the left of the text box.

Return to Figure 5-125

Figure 6.1 Extended Description (Chapter 6)

Return to Figure 6-1

The window shows an exclamation mark inside a yellow triangle on the left. On the right of the icon is the heading, You are about to delete 31 row or rows from the specified table. Below the heading is the text “Once you click Yes, you can’t use the Undo command to reverse the changes. Are you sure you want to delete the selected records?” Below the text are the Yes and No buttons. The Yes button is selected.

Return to Figure 6-1

Figure 6.3 Extended Description (Chapter 6)

Return to Figure 6-3

The block shows the Warning symbol followed by the heading Security Warning. To the right of the heading is the underlined text, Some active content has been disabled. Click for more details. On the right is the Enable Content option, followed by the close option.

Return to Figure 6-3

Figure 6.4 Extended Description (Chapter 6)

Return to Figure 6-4

The screenshot shows the heading Queries with an up arrow on the far right. Below the heading are options, such as Append Query Sample, Crosstab Query Sample, Delete Query Sample, Make Table Query Sample, Select Query Sample, and Update Query Sample.

Return to Figure 6-4

Figure 6.5 Extended Description (Chapter 6)

Return to Figure 6-5

The query table has one column and five rows. The following parameters are shown in the five rows with the corresponding entries: Field, Base Monthly Salary. Table, Employees. Update To, [Base Monthly Salary] times 1.04. Criteria, Blank. Or, Blank. The [Base Monthly Salary] times 1.04 is selected and labeled Enter the new value or formula in the Update To cell.

Return to Figure 6-5

Figure 6.6 Extended Description (Chapter 6)

Return to Figure 6-6

The query table has three columns and five rows. The table has rows for various query parameters, such as Field, Table, Update To, Criteria, and Or. The Field row shows the entries Base Month Salary, Title, and Branch. The Table row shows the entries Employees, Employees, and Employees. The Update To row shows the entries [Base Monthly Salary] times 1.04, Blank, and Blank. The Criteria row shows the entry Blank, “Insurance Agent”, and “Cameron Park.” The Or row is empty.

Return to Figure 6-6

Figure 6.7 Extended Description (Chapter 6)

Return to Figure 6-7

The Ribbon shows the Query Type group under the Queries tab. The group consists of buttons for Select, Make Table, Append, Update, Crosstab, Delete, Union, Pass-Through, and Data Definition. The Update button is selected.

Return to Figure 6-7

Figure 6.8 Extended Description (Chapter 6)

Return to Figure 6-8

The query table has four columns and six rows. The table has rows for various query parameters, such as Field, Table, Sort, Append To, Criteria, and Or. The Field row shows the entries E m p I D, First Name, Last Name, and Branch. The Table row shows the entries Employees, Employees, Employees, and Employees. The Sort row is blank. The Append To row shows the entries E m p I D, First Name, Last Name, and Branch. The Criteria row shows the entry Blank, Blank, Blank, and “Folsom.” The Or row is empty.

Return to Figure 6-8

Figure 6.9 Extended Description (Chapter 6)

Return to Figure 6-9

The query table has four columns and six rows. The table has rows for various query parameters, such as Field, Table, Sort, Append To, Criteria, and Or. The Field row shows the entries E m p I D, First Name, Last Name, and Branch. The Table row shows the entries Employees, Employees, Employees, and Employees. The Sort row is blank. The Append To row shows the entries Employee I D, First Name, Last Name, and Branch. A drop-down arrow is present for the entry Employee I D. Clicking the drop-down arrow displays a list of options, such as Employee History, Employee I D, First Name, and Last Name. The Employee I D option is highlighted and labeled Select the matching field if the names are not the same in both tables. The Criteria row shows the entry Blank, Blank, Blank, and “Folsom.” The Or row is empty.

Return to Figure 6-9

Figure 6.10 Extended Description (Chapter 6)

Return to Figure 6-10

The Ribbon shows the Query Type group under the Queries tab. The group consists of buttons for Select, Make Table, Append, Update, Crosstab, Delete, Union, Pass-Through, and Data Definition. The Append button is selected.

Return to Figure 6-10

Figure 6.11 Extended Description (Chapter 6)

Return to Figure 6-11

The dialog box has an Append To section with the Table Name feature and a text box on the right. Below the feature are the Current Database and Another Database options, each with a radio button on the left. The Current Database option is selected. Below the options is the File Name feature with a text box on the right. The Browse button is present on the bottom right. To the right are the OK and Cancel buttons. The OK button is selected.

Return to Figure 6-11

Figure 6.12 Extended Description (Chapter 6)

Return to Figure 6-12

The query table has one column and five rows. The following parameters are shown in the five rows with the corresponding entries: Field, Listings. Table, Listings. Delete, From. Criteria, Blank. Or, Blank.

Return to Figure 6-12

Figure 6.13 Extended Description (Chapter 6)

Return to Figure 6-13

The query table has two columns and five rows. The following parameters are shown in the five rows with the corresponding entries: Field, Listings, and Results. Table, Listings, and Listings. Delete, From, and Where. Criteria, Blank, and “S”. Or, Blank.

Return to Figure 6-13

Figure 6.14 Extended Description (Chapter 6)

Return to Figure 6-14

The query table has three columns and five rows. The table has rows for various query parameters, such as Field, Table, Delete, Criteria, and or. The Field row shows the entries Listing I D, Address, and Result. The Table row shows the entries Listings, Listings, and Listings. The Delete row shows the entries Where, Where, and Where. The Criteria row shows the entry Blank, Blank, and “S.” The Or row is empty.

Return to Figure 6-14

Figure 6.15 Extended Description (Chapter 6)

Return to Figure 6-15

The Ribbon shows the Query Type group under the Queries tab. The group consists of buttons for Select, Make Table, Append, Update, Crosstab, Delete, Union, Pass-Through, and Data Definition. The Delete button is selected.

Return to Figure 6-15

Figure 6.16 Extended Description (Chapter 6)

Return to Figure 6-16

The Ribbon shows the Query Type group under the Queries tab. The group consists of buttons for Select, Make Table, Append, Update, Crosstab, Delete, Union, Pass-Through, and Data Definition. The Make Table button is selected.

Return to Figure 6-16

Figure 6.17 Extended Description (Chapter 6)

Return to Figure 6-17

The dialog box has a Make New Table section with the Table Name feature and a text box on the right. Below the feature are the Current Database and Another Database options, each with a radio button on the left. The Current Database option is selected. Below the options is the File Name feature with a text box on the right. The Browse button is present on the bottom right. To the right are the OK and Cancel buttons. The OK button is selected.

Return to Figure 6-17

Figure 6.18 Extended Description (Chapter 6)

Return to Figure 6-18

The dialog box shows a yellow rectangular block on the left, with an icon on the top. Below the icon is the text This wizard creates a select query from the fields you pick. To the right of the block is another rectangular block that shows the list of options, such as Simple Query Wizard, Crosstab Query Wizard, Find Duplicates Query Wizard, and Find Unmatched Query Wizard. The OK and Cancel buttons are present below the right block, with the OK button selected.

Return to Figure 6-18

Figure 6.19 Extended Description (Chapter 6)

Return to Figure 6-19

The dialog box shows a white rectangular block on the left, with a yellow icon on the top left. To the right of the block is the text “Which table or query do you want to search for duplicate field values? For example, to find cities with more than one customer you would choose a Customer table below.” Below the text is a block that displays the names of the tables, such as Table: Author, Table: Author Book, and Table: Book. Below is the View feature, which shows three radio buttons for Tables, Queries, and Both. The Tables radio button is selected. The Cancel, Back, Next, and Finish buttons are present on the bottom right of the dialog box. The Next button is selected.

Return to Figure 6-19

Figure 6.20 Extended Description (Chapter 6)

Return to Figure 6-20

The dialog box shows a white rectangular block on the left, with a yellow icon on the top left. To the right of the block is the text “Which fields might contain duplicate information? For example, if you are looking for cities with more than one customer, you would choose City and Region fields here.” Below the text are two blocks titled Available fields and Duplicate-value fields. The Available fields block shows the fields, such as I D, Initial, and Affiliation. The Duplicate-value fields block shows the fields Last Name and First Name. Between these blocks are four buttons represented as a right arrow, a double right arrow, a left arrow, and a double left arrow. The Cancel, Back, Next, and Finish buttons are present on the bottom right of the dialog box. The Next button is selected.

Return to Figure 6-20

Figure 6.21 Extended Description (Chapter 6)

Return to Figure 6-21

The dialog box shows a white rectangular block on the left, with a yellow icon on the top left. To the right of the block is the text “Do you want the query to show fields in addition to those with duplicate values? For example, if you chose to look for duplicate City values, you could choose Customer Name and Address here.” Below the text are two blocks titled Available fields and Additional query fields. The Available fields block is empty. The Additional query fields block shows the fields Initial, I D, and Affiliation. Between these blocks are four buttons represented as a right arrow, a double right arrow, a left arrow, and a double left arrow. The Cancel, Back, Next, and Finish buttons are present on the bottom right of the dialog box. The Next button is selected.

Return to Figure 6-21

Figure 6.22 Extended Description (Chapter 6)

Return to Figure 6-22

Below the tab is a table that consists of 5 columns and 5 rows. The column headings are Last Name, First Name, Initial, I D, and Affiliation. The row entries are as follows:

Row 1: Baldwin, Timothy, Blank, 26, and Blank.

Row 2: Baldwin, Timothy, Blank, 4, and Indiana University - Bloomington.

Row 3: Whittington, Ray, Blank, 25, and San Diego State University.

Row 4: Whittington, Ray, Blank, 1, and De Paul University.

Row 5: Blank, Blank, Blank, (New), and Blank.

Return to Figure 6-22

Figure 6.23 Extended Description (Chapter 6)

Return to Figure 6-23

The dialog box shows a white rectangular block on the left, with a yellow icon on the top left. To the right of the block is the text “The query you create will list records in the table you select below that have no related records in the table you select on the next screen. For example, you can find customers that have no orders. Which table or query contains records you want in the query results?” Below the text is a block that displays the names of the tables, such as Table: Sail boat Fleet and Table: S D Rentals. Below is the View feature, which shows three radio buttons for Tables, Queries, and Both. The Tables radio button is selected. The Cancel, Back, Next, and Finish buttons are present on the bottom right of the dialog box. The Next button is selected.

Return to Figure 6-23

Figure 6.24 Extended Description (Chapter 6)

Return to Figure 6-24

The dialog box shows a white rectangular block on the left, with a yellow icon on the top left. To the right of the block is the text “Which table or query contains the related records? For example, if you’ve already selected customers and you’re looking for customers without orders, you would choose orders here.” Below the text is a block that displays the names of the tables, such as Table: S D Rentals. Below is the View feature, which shows three radio buttons for Tables, Queries, and Both. The Cancel, Back, Next, and Finish buttons are present on the bottom right of the dialog box. The Next button is selected.

Return to Figure 6-24

Figure 6.25 Extended Description (Chapter 6)

Return to Figure 6-25

The dialog box shows a white rectangular block on the left, with a yellow icon on the top left. To the right of the block is the text “What piece of information is in both tables? For example, a Customers and an Orders table may both have a Customer I D field. Matching fields may have different names. Select the matching field in each table and then click the button.” The button is shown as the equals sign shown between the angle brackets. Below the text are two blocks titled Fields in ‘Sail boat Fleet’ and Fields in ‘S D Rentals.’ The Fields in ‘Sail boat Fleet’ block shows fields, such as Boat I D, Boat Type, Length, Seats, Sleeps, Four Hour Rental Rate, Full Day Rental Rate, Galley With Stove, and Model Year. The Fields in ‘S D Rentals’ block shows fields, such as Rental I D, F K Boat I D, Rental Date, Four Hour Rental question mark, Member I D, and Rental Cost. Between these blocks is the button (the equals sign shown between the angle brackets), which is selected. Below the block is the Matching fields feature with a text box on the right. The text box shows the text Boat I D, the equals sign shown between the angle brackets button, F K Boat I D. The Cancel, Back, Next, and Finish buttons are present on the bottom right of the dialog box. The Cancel button is selected.

Return to Figure 6-25

Figure 6.26 Extended Description (Chapter 6)

Return to Figure 6-26

The dialog box shows a white rectangular block on the left, with a yellow icon on the top left. To the right of the block is the text “What fields do you want to see in the query results?” Below the text are the blocks titled Available fields and Selected fields. The Available fields block shows fields, such as Boat I D, Boat Type, Length, Seats, Sleeps, Four Hour Rental Rate, Full Day Rental Rate, Galley With Stove, and Model Year. The Selected fields block is empty. Between these blocks are four buttons represented as a right arrow, a double right arrow, a left arrow, and a double left arrow. The Cancel, Back, Next, and Finish buttons are present on the bottom right of the dialog box. The Next button is selected.

Return to Figure 6-26

Figure 6.27 Extended Description (Chapter 6)

Return to Figure 6-27

Below the tab is a table that consists of 9 columns and 13 rows. The column headings are Boat I D, Boat Type, Length, Seats, Sleeps, 4 H r Rate, Full Day Rate, Galley With Stove, and Model Year, each with a drop-down arrow on the right. The row entries are as follows:

Row 1: 1150, Capri 22 M K 2, 24 feet 8 inches, 6, 4, $75.00, $121.00, a check box, and 2014.

Row 2: 1164, Capri 22 M K 2, 24 feet 8 inches, 6, 4, $75.00, $121.00, a check box, and 2017.

Row 3: 1168, Hunter 33, 33 feet 6 inches, 10, 6, $285.00, $355.00, a checked check box, and 2017.

Row 4: 1175, Beneteau 40, 39 feet 10 inches, 12, 6, $475.00, $555.00, a checked check box, and 2018.

Row 5: 1180, Beneteau 373, 36 feet 11 inches, 10, 6, $355.00, $455.00, a checked check box, and 2019.

Row 6: 1190, Beneteau 373, 36 feet 11 inches, 10, 6, $355.00, $455.00, a checked check box, and 2019.

Row 7: 1200, Beneteau 373, 36 feet 11 inches, 10, 6, $355.00, $455.00, a checked check box, and 2020.

Row 8: 1205, Beneteau 40, 39 feet 10 inches, 12, 6, $475.00, $555.00, a checked check box, and 2021.

Row 9: 1254, Hunter 36, 35 feet 6 inches, 10, 6, $335.00, $395.00, a checked check box, and 2022.

Row 10: 1342, Hunter 33, 33 feet 6 inches, 10, 6, $285.00, $355.00, a checked check box, and 2024.

Row 11: 1410, Beneteau 40, 39 feet 10 inches, 12, 6, $475.00, $555.00, a checked check box, and 2025.

Row 12: 1425, Catalina 270, 28 feet 4 inches, 8, 6, $145.00, $205.00, a checked check box, and 2025.

Row 13: Blank, Blank, Blank, Blank, Blank, Blank, Blank, a minus sign inside a check box, and Blank.

Return to Figure 6-27

Figure 6.28 Extended Description (Chapter 6)

Return to Figure 6-28

The Property Sheet Pane shows the Selection type feature as Query Properties. Below the feature is the General tab, showing the following properties:

Description: Blank.

Default View: Datasheet.

Output All Fields: No.

Top Values: 5. This row is enclosed within a red box.

Unique Values: No.

Unique Records: No.

Source Database: (current).

Return to Figure 6-28

Figure 6.29 Extended Description (Chapter 6)

Return to Figure 6-29

The screenshot shows the Query Setup Command group under the Query Design tab. The Return button with a text box is shown in the Query Setup group. The text box shows a drop-down arrow on the right. Clicking the drop-down arrow displays a list of options, such as 5, 25, 100, 5 percent, 25 percent and All.

Return to Figure 6-29

Figure 6.30 Extended Description (Chapter 6)

Return to Figure 6-30

Below the tab are the two blocks for Agents and Listings. The Agents block shows fields, such as Employee Number, with a primary key icon, Last Name, First Name, Date Hired, and Phone. The Listings block shows fields, such as Listing I D, with a primary key icon, Date Listed, List Price, Address, City, Square footage, Beds, Baths, Garage, Year Built, Construction, and Listing Agent Number. The blocks are connected with a relationship line with the entry 1 at the top, next to Employee Number, and infinity at the bottom, next to Listing Agent Number. Below these blocks is a table with 3 columns and 6 rows. The table has rows for various query parameters, such as Field, Table, Sort, Show, Criteria, and Or. The Field row shows the entries Last Name, First Name, and List price. The Table row shows the entries Agents, Agents, and Listings. The Sort row shows the entries Blank, Blank, and Descending. The Show row shows the entries as a checked check box in all three columns. The Criteria and Or rows are empty.

Return to Figure 6-30

Figure 6.31 Extended Description (Chapter 6)

Return to Figure 6-31

The Zoom dialog box shows a block with the text Days On Market: Date Diff (“d”, [Date Listed], Date ( )). Below the block is the Font button in the bottom left. The OK and Cancel buttons are present on the bottom right.

Return to Figure 6-31

Figure 6.32 Extended Description (Chapter 6)

Return to Figure 6-32

Below the object tab is a block that shows the Listings, such as Garage, Year Built, Construction, Listing Agent Number, Result, Date Removed, and Sold Price. Below the block is a table with 5 columns and 6 rows. The rows show various query parameters, such as Field, Table, Sort, Show, Criteria, and Or. The Field row shows the entries Listing I D, Date Listed, List Price, Result, and Days On Market: Date Diff. The Table row shows the entries Listings, Listings, Listings, Listings, and Blank. The Sort row is empty. The Show row has a check box in all five columns, each of which is checked. The Criteria row shows the entries Blank, Blank, Blank, Is Null, and Blank. The Or row is empty.

Return to Figure 6-32

Figure 6.33 Extended Description (Chapter 6)

Return to Figure 6-33

The query table has four columns and six rows. The table has rows for various query parameters, such as Field, Table, Sort, Show, Criteria, and or. The Field row shows the entries First Name, Last Name, Listing I D, and List Price. The Table row shows the entries Agents, Agents, Listings, and Listings. The Sort row is empty. The Show row has a check box in all four columns, each of which is checked. The Criteria row shows the entries Blank, Blank, Blank, Blank, and greater than symbol A v g [List Price]. The Or row is empty.

Return to Figure 6-33

Figure 6.34 Extended Description (Chapter 6)

Return to Figure 6-34

The query table has one column and seven rows. The following parameters are shown in the seven rows with the corresponding entries: Field, List Price. Table, Listings. Total, A v g. Sort, Blank. Show, a checked check box. Criteria, Blank. Or, Blank.

Return to Figure 6-34

Figure 6.35 Extended Description (Chapter 6)

Return to Figure 6-35

The Work Area shows the tab titled A v g Listing Price. Below the tab is the table with a single column and one row. The column heading is A v g Of List Price with a drop-down arrow. The row entry is $531,585.93.

Return to Figure 6-35

Figure 6.36 Extended Description (Chapter 6)

Return to Figure 6-36

The Work Area shows the object tab titled Agents With Listings Great Than A v g. Below the tab are the three blocks for Agents, Listings, and A v g Listing Price. The Agents block shows fields, such as Employee Number, with a primary key icon, Last Name, First Name, Date Hired, and Phone. The Listings block shows the fields, such as Listing I D, with a primary key icon, Date Listed, List Price, Address, City, Square footage, and Beds. The A v g Listing Price block shows the field A v g Of List Price. The Agents and Listings blocks are connected with a relationship line with the entry 1 at the top, next to Employee Number, and infinity at the bottom. The A v g Listing Price block is labeled A v g Listing Price query is included as a subquery. Below these blocks is a table with 4 columns and 6 rows. The table has rows for various query parameters, such as Field, Table, Sort, Show, Criteria, and Or. The Field row shows the entries First Name, Last Name, Listing I D, and List Price. The Table row shows the entries Agents, Agents, Listings, and Listings. The Sort row is empty. The Show row has a check box in all four columns, each of which are checked. The Criteria row shows the entries Blank, Blank, Blank, and greater than symbol [A v g Of List Price]. The Ori row is empty.

Return to Figure 6-36

Figure 6.37 Extended Description (Chapter 6)

Return to Figure 6-37

The table consists of 6 columns and 11 rows. The column headings are Listing I D, Date Listed, List Price, Result, Date Removed, and Sold Price. A portion of the table between List Price and Result is not shown. The row entries are as follows:

Row 1: 10025, 9/14/2025, $439,000.00, S, 9/29/2025, and $439,000.00.

Row 2: 10027, 9/20/2025, $335,000.00, S, 10/14/2025, and $349,000.00.

Row 3: 10033, 9/28/2025, $347,500.00, S, 12/22/2025, and $361,000.00.

Row 4: 10042, 10/8/2025, $440,500.00, S, 11/17/2025, and $449,000.00.

Row 5: 10045, 10/15/2025, $385,000.00, S, 11/19/2025, and $380,000.00.

Row 6: 10052, 11/10/2025, $329,500.00, S, 11/10/2025, and $330,000.00.

Row 7: 10054, 11/23/2025, $328,500.00, S, 12/14/2025, and $325,000.00.

Row 8: 10069, 12/12/2025, $387,000.00, S, 1/5/2026, and $395,000.00.

Row 9: 10095, 12/26/2025, $319,900.00, S, 1/9/2026, and $325,000.00.

Row 10: 10172, 2/8/2026, $387,500.00, S, 2/25/2026, and $405,000.00.

Row 11: 0, Blank, $0.00, Blank, Blank, and $0.00.

Return to Figure 6-37

Figure 6.38 Extended Description (Chapter 6)

Return to Figure 6-38

The table consists of 8 columns and 8 rows. The column headings are Listing I D, Date Listed, List Price, Square Footage, Address, City, Agent, and Days On Market. The row entries are as follows:

Row 1: 10022, 9/10/2025, $374,900, 2755, 525 Riverdale, Lincoln, 103, and 34.

Row 2: 10023, 9/10/2025, $379,000, 1600, 615 Silver Hill Court, Lincoln, 127, and 34.

Row 3: 10024, 9/13/2025, $1,189,900, 3397, 1917 Oak Crest Drive, Roseville, 160, and 31.

Row 4: 10029, 9/22/2025, $1,645,900, 6685, 3998 Rawhide Road, Rocklin, 151, and 22.

Row 5: 10030, 9/23/2025, $429,000, 2182, 1720 Grey Owl Circle, Roseville, 103, and 21.

Row 6: 10031, 9/23/2025, $419,900, 2385, 2024 Brixham, Roseville, 168, and 21.

Row 7: 10032, 9/24/2025, $865,000, 3821, 4018 Legend Drive, Rocklin, 160, and 20.

Row 8: 0, Blank, $0.00, 0, Blank, Blank, and Blank.

Return to Figure 6-38

Figure 6.39 Extended Description (Chapter 6)

Return to Figure 6-39

The Design view shows 9 sections. The first section, at the top, is the Report Header, which is highlighted in blue. The section contains a block with the text Placers Hills Real Estate. Below is the Page Header section, which shows 5 text boxes with the following text: Property Listing Report, Listing Number, Date Listed, List Price, and Property Address. Below is the City Header section, which shows a City feature with a text box on the right. The text box shows the text City. Below is the Construction Header section, which shows a Construction type feature with a text box on the right. The text box shows the text Construction and a drop-down arrow on the right. Below is the Detail section, which shows four text boxes with the following text: Listing I D, Date Listed, List Price, and Address. Below is the Construction Footer section, which shows a Subtotal Count of Type feature with a text box on the right. The text box shows the text: equals Count ([Listing I D]). Below is the City Footer section, which shows the feature: equals “Total” ampersand [City] ampersand “Properties Listed” with a text box on the right. The text box shows the text: equals Count ([Listing I D]). Below is the Page Footer section, which shows a text box with the text: equals “Page” ampersand [Page] ampersand “of” ampersand [Pages]. Below is the Report Footer section, which shows a Total Properties Listed feature with a text box on the right. The text box shows the text: equals Count ([Listing I D]). The City Header and Construction Header sections are labeled Group header sections. The Construction Footer and City Footer sections are labeled Group footer sections.

Return to Figure 6-39

Figure 6.40 Extended Description (Chapter 6)

Return to Figure 6-40

The Print Preview view shows a light blue block at the top with the title Placer Hills Real Estate labeled Report header. Below is the Page header section. In the Page header section is a table consisting of 5 columns with the headings Property Listing Report, Listing Number, Date Listed, List Price, and Property Address. Below is the City section with the city entry as Auburn, labeled City group header. The City section shows the Construction type feature as Brick and the Subtotal Count of Type feature as 3. To the right of these features are three rows of entries as follows:

Row 1: Listing Number, 10042. Date Listed, 10/8/2025. List Price, $440,500.00. Property Address, 131 Aeolia Drive.

Row 2: Listing Number, 10177. Date Listed, 2/10/2026. List Price, $363,000.00. Property Address, 9030 Upper Valley Road.

Row 3: Listing Number, 10045. Date Listed, 10/15/2025. List Price, $385,000.00. Property Address, 12355 Krista Lane.

A portion of the report below this is not shown.

Below is the Construction type feature as Stone and the Subtotal Count of Type feature as 1 under the City Auburn section. To the right of these features is one row of entries as follows: Listing Number, 10043. Date Listed, 10/9/2025. List Price, $397,000.00. Property Address, 1575 Oak Ridge Way.

A portion of the report below this is not shown.

Below is the Total Auburn Properties Listed feature as 7, which is labeled City group footer. The Construction type features as Brick and Stone, are together labeled Construction group header and footer.

Below is the City section with the city entry as Lincoln. The City section shows the Construction type feature as Frame and the Subtotal Count of Type feature as 7. To the right of these features are seven rows of entries as follows:

Row 1: Listing Number, 10077. Date Listed, 12/21/2025. List Price, $649,900.00. Property Address, 2286 Kingfisher Lane.

Row 2: Listing Number, 10034. Date Listed, 10/1/2025. List Price, $999,000.00. Property Address, 3535 Camino Cielo.

Row 3: Listing Number, 10022. Date Listed, 9/10/2025. List Price, $374,900.00. Property Address, 525 Riverdale.

Row 4: Listing Number, 10072. Date Listed, 12/12/2025. List Price, $312,000.00. Property Address, 406 E Street.

Row 5: Listing Number, 10062. Date Listed, 12/7/2025. List Price, $338,500.00. Property Address, 2811 Cardinal Drive.

Row 6: Listing Number, 10116. Date Listed, 1/8/2026. List Price, $1,379,000.00. Property Address, 611 Ledgestone Court.

Row 7: Listing Number, 10180. Date Listed, 2/16/2026. List Price, $382,700.00. Property Address, 1287 Green Ravine Drive.

The Construction type feature, as Frame, and the Subtotal Count of Type feature, as 7, are together labeled Construction group header and footer. At the center bottom of the page is the Page Number given as Page 1 of 4, labeled Page footer.

Return to Figure 6-40

Figure 6.41 Extended Description (Chapter 6)

Return to Figure 6-41

The Print Preview view shows the five headings at the top labeled Page header. The headings are Property Listing Report, Listing Number, Date Listed, List Price, and Property Address. Below the headings is the Construction type feature as Stone, and the Subtotal Count Of Type feature as 2. To the right of these features are two rows of entries as follows:

Row 1: Listing Number, 10054. Date Listed, 11/23/2025. List Price, $328,500.00. Property Address, 272 Lariat Loop.

Row 2: Listing Number, 10023. Date Listed, 9/10/2025. List Price, $379,000.00. Property Address, 615 Silver Hill Court.

Return to Figure 6-41

Figure 6.42 Extended Description (Chapter 6)

Return to Figure 6-42

A portion of the Print Preview view shows the entry in one row as follows: Listing Number, 10099. Date Listed, 12/28/2025. List Price, $377,750.00. Property Address, 4115 Redwood.

Below is the Subtotal Count of Type feature as 1. Below is the section that shows the Total Weimer Properties Listed feature as 4. This is followed by the Total Properties Listed feature as 57. The Total Properties Listed feature is labeled Report footer. A portion of the report below this is not shown. At the center bottom of the page is the Page Number given as Page 4 of 4 labeled Page footer.

Return to Figure 6-42

Figure 6.43 Extended Description (Chapter 6)

Return to Figure 6-43

The screenshot shows the Context menu that displays the options, such as Alternate Fill or Back Color, Ruler, Grid, Toolbox, Page Header or Footer, Report Header or Footer, Report Properties, and Properties. The Page Header or Footer and Report Header or Footer options are together labeled Header options.

Return to Figure 6-43

Figure 6.44 Extended Description (Chapter 6)

Return to Figure 6-44

The Group, Sort, and Total pane shows a Close button on the top right. Below is a rectangular block with the list of options, such as Group on City, with A on top, by entire value, with no totals, with title click to add, with a header section, with a footer section, do not keep group together on one page, each with a drop-down arrow, and a Less button, which is highlighted. The top right of the block shows the Delete button. The block is shaded in orange. Below the block are the Add a group and Add a sort options.

Return to Figure 6-44

Figure 6.45 Extended Description (Chapter 6)

Return to Figure 6-45

The Group, Sort, and Total pane shows a Close button on the top right. Below is the Group on City option on the left. Below this option is an orange rectangular block with a list of options, such as Group on Construction, with A on top, each with a drop-down arrow, and a More button. The right of the block shows the Delete button. The block is labeled Selected Group on row. Below the block are the Add a group and Add a sort options.

Return to Figure 6-45

Figure 6.46 Extended Description (Chapter 6)

Return to Figure 6-46

The Ribbon shows the Reports Command group under the Create tab. The Reports group shows buttons for Report, Report Design, Blank Report, Report Wizard, and Labels. The Report Design button is selected.

Return to Figure 6-46

Figure 6.47 Extended Description (Chapter 6)

Return to Figure 6-47

The Property Sheet pane shows the Selection type feature as Report at the top. Below the feature is a text box with the text Report and a drop-down arrow on the right. Below the text box are tabs for Format, Data, Event, Other, and All. The Data tab is selected. Below the tab are the following properties: Record Source, Filter, Filter On Load, Order By, Order By On Load, and Allow Filters. Record Source has a drop-down arrow on the right. Clicking the drop-down arrow displays a list of options, such as Agents, Agents With Listings Great Than A v g, Days On Market, Listings, and Top 5 Most Expensive Properties. The Listings option is selected.

Return to Figure 6-47

Figure 6.48 Extended Description (Chapter 6)

Return to Figure 6-48

The Property Sheet pane shows the Selection type feature as Report at the top. Below the feature is a text box with the text Report and a drop-down arrow on the right. Below the text box are tabs for Format, Data, Event, Other, and All. The Data tab is selected. Below are the following properties:

Record Source: SELECT Agents dot Last Name, Agents, with a drop-down arrow. An icon with a minus sign inside a square is shown on the right, which is labeled Build button.

Filter: Blank.

Filter On Load: No.

Order By: Blank.

Return to Figure 6-48

Figure 6.49 Extended Description (Chapter 6)

Return to Figure 6-49

The Work Area shows two tabs titled Report 1 and Report 1: Query Builder. The Report 1: Query Builder tab is selected. Below the tabs are the two blocks for Agents and Listings. The Agents block shows the fields, such as Employee Number, with a primary key icon, Last Name, First Name, Date Hired, and Phone. The Listings block shows the fields, such as Listing I D, with a primary key icon, Date Listed, List Price, Address, and City. The blocks are connected with a relationship line with the entry 1 at the top, next to Employee Number, and infinity at the bottom, next to an entry below City, which is not visible. Below these blocks is a table with 3 columns and 6 rows. The table has rows for various query parameters, such as Field, Table, Sort, Show, Criteria, and Or. The Field row shows the entries Last Name, First Name, and Listing I D. The Table row shows the entries Agents, Agents, and Listings. The Sort row is empty. The Show row has a check box in all three columns, each of which is checked. The Criteria and Or rows are empty.

Return to Figure 6-49

Figure 6.50 Extended Description (Chapter 6)

Return to Figure 6-50

The report is titled Report 1. The report is divided into two sections: Page Header and Detail. The Page Header section is present at the top. Below is the Detail section, which contains two vertically aligned text boxes on the left. The text boxes are labeled Label control. The first text box contains the text Last Name, and the second text box contains the text First Name. Each text box is dragged to the center of the report. The First Name text box at the center has an orange outline, which is labeled Text box control bound to table field. A Pointer Indicator is present below the text box and is labeled Pointer shows field location when using click and drag. To the right of the report is the Field List pane, which shows the text: Show only fields in the current record source. Below the text is the Fields available for this view feature, with a block below. The block is titled Agents. A minus sign is present on the left of the title. To the right is the Edit Table button. Below the title are fields such as Employee Number, Last Name, First Name, Date Hired, and Phone. The Date Hired field is selected. Below the block is the Fields available in related tables feature, with an Edit table option on the far right.

Return to Figure 6-50

Figure 6.51 Extended Description (Chapter 6)

Return to Figure 6-51

The report is divided into two sections: Page Header and Detail. The Page Header section is present at the top. The Page Header section shows three text boxes with the following text: Employee Number, First Name, and Last Name. A plus symbol in the top left corner of the Page Header section is labeled Layout selector. Below, the Detail section shows three text boxes with the same text as in the Page header section, shown side-by-side. The Last Name text box has an orange outline that shows the resize handles in the center of the top and bottom edges of the text box. The resize handles are labeled Sizing handle to change height. Below these text boxes is the text box with the text Tabular Layout Example, shaded in yellow. Below this text box are two text boxes, each for Employee Number, First Name, and Last Name, arranged randomly. One of the Last Name text boxes has an orange outline with small orange squares on the corners. These squares are labeled Move handle. Below is a text box with the text No Layout Example, shaded in yellow. To the right of these text boxes are the three vertically aligned text boxes for Employee Number, First Name, and Last Name. Each text box has a text box to its right showing the same text. The text box to the right of the Last Name text box has an orange outline with resize handles in the center of the left and right edges, which are labeled Sizing handle to change width. Below is a text box with the text Stacked Layout Example, shaded in yellow.

Return to Figure 6-51

Figure 6.52 Extended Description (Chapter 6)

Return to Figure 6-52

Two text boxes are shown on the right with the text Sample Label 1 and Sample Label 2. The text box for Sample Label 1 has an orange outline and shows a warning symbol with a drop-down arrow on the left. The Warning symbol is labeled Trace Error button. Clicking the drop-down arrow displays a list of options, such as New Unassociated Label, Associate Label with a Control, Help on This Error, Ignore Error, and Error Checking Options. The text box for Sample Label 2 shows a small green triangle in the top left corner labeled Green Triangle.

Return to Figure 6-52

Figure 6.53 Extended Description (Chapter 6)

Return to Figure 6-53

The Design view shows two sections: Page Header and Detail. The Page Header section shows two text boxes with the text Listing and Date Listed. The text box for Date Listed has an orange outline. A double-headed arrow on the bottom right corner of the text box is labeled Resize arrow. Below is the Detail section that shows two text boxes with the text Listing I D and Date Listed.

Return to Figure 6-53

Figure 6.54 Extended Description (Chapter 6)

Return to Figure 6-54

The screenshot shows the Font Command group. The Font Command group shows options such as Font Style set to Aptos (Detail), Font Size set to 11, and Format Painter in the top row. Below are the text formatting buttons, such as Bold, Italic, Underline, Font Color, Fill Color, Align Left, Center, and Align Right.

Return to Figure 6-54

Figure 6.55 Extended Description (Chapter 6)

Return to Figure 6-55

The top section shows the Design view of the report, with three sections: Page Header, Detail, and Page Footer. The Page Header section contains four text boxes with the text Listing, Date Listed, List Price, and Sold Price. Below is the Detail section that shows four text boxes with the text Listing I D, Date Listed, List Price, and Sold Price. Below the Detail section is the Page Footer section. Below the Design view section is the Print Preview section. The Print Preview section shows a table with four columns and six rows. The column headings are Listing, Date Listed, List Price, and Sold Price. The row entries are as follows:

Row 1: 10025, 9/14/2025, $439,000.00, and $439,000.00.

Row 2: 10027, 9/20/2025, $335,000.00, and $349,000.00.

Row 3: 10033, 9/28/2025, $347,500.00, and $361,000.00.

Row 4: 10042, 10/8/2025, $440,500.00, and $449,000.00.

Row 5: 10045, 10/15/2025, $385,000.00, and $380,000.00.

Row 6: 10052, 11/10/2025, $329,500.00, and $330,000.00.

Return to Figure 6-55

Figure 6.56 Extended Description (Chapter 6)

Return to Figure 6-56

The top section shows the Design view of the report, with three sections: Page Header, Detail, and Page Footer. The Page Header section contains four text boxes with the text Listing, Date Listed, List Price, and Sold Price. Below is the Detail section that shows four text boxes with the text Listing I D, Date Listed, List Price, and Sold Price. Below the Detail section is the Page Footer section. The gap between the Detail section and the Page Footer sections is labeled Taller Detail section takes more space when viewing. Below the Design view section is the Print Preview section. The Print Preview section shows a table with four columns and three rows. The column headings are Listing, Date Listed, List Price, and Sold Price. The row entries are as follows:

Row 1: 10025, 9/14/2025, $439,000.00, and $439,000.00.

Row 2: 10027, 9/20/2025, $335,000.00, and $349,000.00.

Row 3: 10033, 9/28/2025, $347,500.00, and $361,000.00.

Return to Figure 6-56

Figure 6.57 Extended Description (Chapter 6)

Return to Figure 6-57

The Design view shows five sections. The top section is the Report Header, which is shaded grey. The section contains a block with the text Sold Properties Report. Below is the Page Header section that contains four text boxes with the text Listing, Date Listed, List Price, and Sold Price. Below is the Detail section that shows four text boxes with the text Listing I D, Date Listed, List Price, and Sold Price. Below is the Page Footer section. The top edge of the Page Footer section has the cursor shown as a short vertical double-headed arrow with a short horizontal line across its center. The cursor is labeled Resize arrow. The last section is the Report Footer section.

Return to Figure 6-57

Figure 6.58 Extended Description (Chapter 6)

Return to Figure 6-58

The Design view shows five sections. The top section is the Report Header, which is shaded grey. The section contains a block with the text Sold Properties Report. Below is the Page Header section that contains four text boxes with the text Listing, Date Listed, List Price, and Sold Price. Below is the Detail section that shows four text boxes with the text Listing I D, Date Listed, List Price, and Sold Price. Below is the Page Footer section, and immediately below it is the Report Footer section. There is no space between the Page Footer and Report Footer sections.

Return to Figure 6-58

Figure 6.59 Extended Description (Chapter 6)

Return to Figure 6-59

The Design view shows five sections. The top section is the Page Header, which shows four text boxes with the text City, Listing, Date Listed, and List Price. Below is the City Header section, which shows a text box with the text City. Below is the Detail section, which shows three text boxes with the text Listing I D, Date Listed, and List Price. All three text boxes have an orange outline. A thick black right arrow on the left of the Detail section is labeled Selection pointer. Below is the City Footer section, and immediately below it is the Page Footer section, which shows a text box with the text equals “Page” ampersand [Page].

Return to Figure 6-59

Figure 6.60 Extended Description (Chapter 6)

Return to Figure 6-60

The Sizing and Ordering Command group is shown and consists of buttons for Size or Space, Align, Bring To Front, and Send to Back. The Size or Space button is selected.

Return to Figure 6-60

Figure 6.61 Extended Description (Chapter 6)

Return to Figure 6-61

The menu shows the two sections. The top section is Size. Under the Size section are options, such as To Fit, To Tallest, To Shortest, To Grid, To Widest, and To Narrowest. Below is the Spacing section with options, such as Equal Horizontal, Increase Horizontal, Decrease Horizontal, Equal Vertical, Increase Vertical, and Decrease Vertical.

Return to Figure 6-61

Figure 6.62 Extended Description (Chapter 6)

Return to Figure 6-62

The Sizing and Ordering Command group is shown, with buttons for Size or Space, Align, Bring To Front, and Send to Back. The Align button is selected.

Return to Figure 6-62

Figure 6.64 Extended Description (Chapter 6)

Return to Figure 6-64

The screenshot is divided into two sections. The left section shows the Design view with two vertically aligned text boxes. The first text box shows the text “percent of List Price.” The second text box shows the text “equals [Sold Price] forward slash. The right section shows the Property Sheet Pane with tabs for Format, Data, Event, Other, and All. The Data tab is selected. Below are the following properties:

Control Source: equals [Sold Price] forward slash [List Price].

Text Format: Plain Text.

Running Sum: No.

Input Mask: Blank.

Enabled: Yes.

Return to Figure 6-64

Figure 6.65 Extended Description (Chapter 6)

Return to Figure 6-65

The report shows a table that consists of 6 columns and 6 rows. The column headings are Equip I D, Product Name, Service Date, Service Type, Repair Cost, and Cumulative Repair Cost. The row entries are as follows:

Row 1: 09925, MINI TRACTOR LOADER - YANMAR S A 424 Y B S, 5/9/2026, Inspection, $300.00, and $300.00.

Row 2: 09925, MINI TRACTOR LOADER - YANMAR S A 424 Y B S, 2/15/2026, Repair, $382.74, and $682.74.

Row 3: 09925, MINI TRACTOR LOADER - YANMAR S A 424 Y B S, 3/20/2026, Maintenance, $150.00, and $832.74.

Row 4: 09925, MINI TRACTOR LOADER - YANMAR S A 424 Y B S, 9/17/2025, Maintenance, $150.00, and $982.74.

Row 5: 10015, GENERATOR PORTABLE MAKITA 1000 W, 11/3/2025, Repair, $129.50, and $129.50.

Row 6: 10015, GENERATOR PORTABLE MAKITA 1000 W, 10/19/2025, Maintenance, $87.00, and $216.50.

The entry $129.50 is labeled Over Group selection in Running Sum property restarts with new group.

Return to Figure 6-65

Figure 6.66 Extended Description (Chapter 6)

Return to Figure 6-66

The Property Sheet pane shows the Selection type feature as Text Box. Below the feature is the text box with the text Text 15 and a drop-down arrow on the right. Below the text box are the tabs for Format, Data, Event, Other, and All. The Data tab is selected. Below the tab are the following properties:

Control Source: Repair Cost.

Text Format: Plain Text.

Running Sum: Over Group with a drop-down arrow on the right. Clicking the drop-down arrow displays a list of options, such as No, Over Group, and Over All.

Input Mask: Blank.

Enabled: Blank.

Return to Figure 6-66

Figure 6.67 Extended Description (Chapter 6)

Return to Figure 6-67

The report shows the title Property Listings. Below is the table with 4 columns and 4 rows. The column headings are Blank, Listing I D, Date Listed, and List Price. The row entries are as follows:

Row 1: 1, 10022, 9/10/2025, and $374,900.00.

Row 2: 2, 10023, 9/10/2025, and $379,000.00.

Row 3: 3, 10024, 9/13/2025, and $1,189,900.00.

Row 4: 4, 10029, 9/22/2025, and $1,645,900.00.

Return to Figure 6-67

Figure 6.68 Extended Description (Chapter 6)

Return to Figure 6-68

The report shows the title Agent Details Report. Below is the table with 4 columns and 5 rows. The column headings are Employee Number, First Name, Last Name, and Agent Name. The row entries are as follows:

Row 1: 103, Millie, Bui, and Millie Bui.

Row 2: 127, Kelly, Weatherby, and Kelly Weatherby.

Row 3: 133, John, Burgess, and John Burgess.

Row 4: 151, Rick, Chung, and Rick Chung.

Row 5: 160, Calvin, Walters, and Calvin Walters.

Return to Figure 6-68

Figure 6.69 Extended Description (Chapter 6)

Return to Figure 6-69

The dialog box shows the Fist Name feature labeled Name of parameter. The feature shows a text box below. The OK and Cancel buttons are present on the bottom right of the dialog box.

Return to Figure 6-69

Figure 6.70 Extended Description (Chapter 6)

Return to Figure 6-70

The report shows the title Sold Properties Sorted by City. Below is the table with 4 columns and 6 rows. The column headings are City, Listing I D, Date Listed, and Sold Price. The row entries are as follows:

Row 1: Auburn, 10069, 12/12/2025, and $395,000.00.

Row 2: Auburn, 10045, 10/15/2025, and $380,000.00.

Row 3: Auburn, 10042, 10/8/2025, and $449,000.00.

Row 4: Lincoln, 10054, 11/23/2025, and $325,000.00.

Row 5: Lincoln, 10052, 11/10/2025, and $330,000.00.

Row 6: Newcastle, 10172, 2/8/2026, and $405,000.00.

Return to Figure 6-70

Figure 6.71 Extended Description (Chapter 6)

Return to Figure 6-71

The report shows the title Sold Properties Sorted by City. Below is the table with 4 columns and 6 rows. The column headings are City, Listing I D, Date Listed, and Sold Price. The row entries are as follows:

Row 1: Auburn, 10069, 12/12/2025, and $395,000.00.

Row 2: Blank, 10045, 10/15/2025, and $380,000.00.

Row 3: Blank, 10042, 10/8/2025, and $449,000.00.

Row 4: Lincoln, 10054, 11/23/2025, and $325,000.00.

Row 5: Blank, 10052, 11/10/2025, and $330,000.00.

Row 6: Newcastle, 10172, 2/8/2026, and $405,000.00.

Return to Figure 6-71

Figure 6.72 Extended Description (Chapter 6)

Return to Figure 6-72

The Design view shows two sections: Page Header and Detail. The Page Header section is at the top, which is blank. Below is the Detail section with five vertically aligned features in text boxes, on the left. The features are as follows: Listing I D, Date Listed, List Price, City, and Days On Market. On the right of each feature is a text box with the text as follows: Listing I D, Date Listed, List Price, City, and Days On Market. The Listing I D text box is highlighted. The Days On Market text box has an orange outline.

Return to Figure 6-72

Figure 6.73 Extended Description (Chapter 6)

Return to Figure 6-73

The Design view shows two sections: Page Header and Detail. The Page Header section is at the top, which shows five horizontally aligned features in text boxes. The features are as follows: Listing I D, Date Listed, List Price, City, and Days On Market. Each text box has an orange outline. Below is the Detail section with five horizontally aligned text boxes. The text boxes show the text as follows: Listing I D, Date Listed, List Price, City, and Days On Market. The Listing I D text box is highlighted. Each text box has an orange outline.

Return to Figure 6-73

Figure 6.74 Extended Description (Chapter 6)

Return to Figure 6-74

The Design view shows 5 sections. The top section is the Report Header, which is shaded orange. The section contains a block with the text Days On Market Report. Below is the Page Header section that contains five features, each in a text box arranged side-by-side. The features are as follows: Listing I D, Date Listed, List Price, City, and Days On Market. Below is the Detail section that shows five text boxes, arranged side-by-side, with the text as follows: Listing I D, Date Listed, List Price, City, and Days On Market. Below is the Page Footer section, which shows a formula in a text box as equals “Page” ampersand [Page] ampersand “of” ampersand [Pages]. The last is the Report Footer section, which is blank.

Return to Figure 6-74

Figure 6.75 Extended Description (Chapter 6)

Return to Figure 6-75

A table consists of 5 columns and 4 rows. The column headings are Listing I D, Date Listed, List Price, City, and Days On Market. The row entries are as follows:

Row 1: 10022, 9/10/2025, $374,900.00, Lincoln, and 34.

Row 2: 10023, 9/10/2025, $379,000.00, Lincoln, and 34.

Row 3: 10024, 9/13/2025, $1,189,900.00, Roseville, and 31.

Row 4: 10029, 9/22/2025, $1,645,900.00, Rocklin, and 22.

Return to Figure 6-75

Figure 6.76 Extended Description (Chapter 6)

Return to Figure 6-76

The Design view shows 5 sections. The top section is the Report Header, which is shaded blue. The section contains a block with the text Sold Properties, Percentage of List Price Report. Below is the Page Header section that contains eight features, each in a text box arranged side-by-side. The features are as follows: Listing I D, Date Listed, Square Footage, Beds or Baths, City, List Price, Sold Price, and percent of List Price. Below is the Detail section that shows eight text boxes, arranged side-by-side, with the text as follows: Listing I D, Date Listed, Square Footage, [Beds] ampersand “forward slash” ampersand [Baths], City, List Price, Sold Price, and [Sold Price] forward slash [List Price]. Below is the Page Footer section, which shows a formula in a text box as equals “Page” ampersand [Page] ampersand “of” ampersand [Pages]. The last is the Report Footer section, which is blank.

Return to Figure 6-76

Figure 6.77 Extended Description (Chapter 6)

Return to Figure 6-77

The report is titled Sold Properties, Percentage of List Price Report. Below is a table that consists of 8 columns and 5 rows. The column headings are Listing I D, Date Listed, Square Footage, Beds or Baths, City, List Price, Sold Price, and percent of List Price. The row entries are as follows:

Row 1: 10025, 9/14/2025, 1900, 4 or 3, Rocklin, $439,000.00, $439,000.00, and 100.00 percent.

Row 2: 10027, 9/20/2025, 1184, 3 or 2, Roseville, $335,000.00, $349,000.00, and 104.18 percent.

Row 3: 10033, 9/28/2025, 1840, 2 or 2, Rocklin, $347,500.00, $361,000.00, and 103.88 percent.

Row 4: 10042, 10/8/2025, 1905, 3 or 2, Auburn, $440,500.00, $449,000.00, and 101.93 percent.

Row 5: 10045, 10/15/2025, 2234, 3 or 3, Auburn, $385,000.00, $380,000.00, and 98.70 percent.

Return to Figure 6-77

Figure 6.78 Extended Description (Chapter 6)

Return to Figure 6-78

The report is titled Placer Hills Real Estate, Agents and Current Listings. Below are two subreports. The first subreport shows a section with three horizontally aligned features. The features are as follows: Employee I D as 103, Agent as Millie Bui, and Phone as (530) 648- 7689. Below the section is a block that shows a table. The table consists of 6 columns and 7 rows. The column headings are Listing I D, Date Listed, List Price, Address, City, and Built. The row entries are as follows:

Row 1: 10022, 9/10/2025, $374,900.00, 525 Riverdale, Lincoln, and 2001.

Row 2: 10030, 9/23/2025, $429,000.000, 1720 Grey Owl Circle, Roseville, and 2002.

Row 3: 10040, 10/8/2025, $412,000.000, 3935 Cedar Mist Lane, Auburn, and 1993.

Row 4: 10077, 12/21/2025, $649,900.000, 2286 Kingfisher Lane, Lincoln, and 2003.

Row 5: 10080, 12/23/2025, $315,900.000, 1089 Marseille Lane, Roseville, and 2007.

Row 6: 10177, 2/10/2026, $363,000.000, 9030 Upper Valley Road, Auburn, and 1981.

Row 7: 10180, 2/16/2026, $382,700.000, 1287 Green Ravine Drive, Lincoln, and 2004.

Below the table is the Average List Price feature show as $418,200.00. Below is the second subreport that shows a section with three horizontally aligned features. The features are as follows: Employee I D as 127, Agent as Kelly Weatherby, and Phone as (916) 987 - 3756. Below the section is a block that shows a table. The table consists of 6 columns and 1 row. The column headings are Listing I D, Date Listed, List Price, Address, City, and Built. The row entry is as follows: 10023, 9/10/2025, $379,000.00, 615 Silver Hill Court, Lincoln, and 2000.

Return to Figure 6-78

Figure 6.79 Extended Description (Chapter 6)

Return to Figure 6-79

The Design view shows 5 sections. The top section is the Report Header, which is shaded grey. The section contains a block with the text Placer Hills Real Estate, Agents and Current Listings. Below is the Page Header section with no space before the next section. Below is the Detail section that shows three features, each with a text box on the right. The Employee I D feature shows the text Employee in the text box. The Agent feature shows the text equals [First Name] ampersand double quotation double quotation ampersand [Last Name]. The Phone feature shows the text Phone in the text box. Below is the Page Footer section, which shows a formula in a text box: equals “Page” ampersand [Page] ampersand “of” ampersand [Pages]. The last section is the Report Footer section with an empty space.

Return to Figure 6-79

Figure 6.80 Extended Description (Chapter 6)

Return to Figure 6-80

The Design view shows 3 sections. The top section is the Report Header, which is shaded grey. The section contains six horizontally aligned features, each in a text box. The features are as follows: Listing I D, Date Listed, List Price, Address, City, and Built. Below is the Detail section that shows six text boxes with the text as follows arranged horizontally: Listing I D, Date Listed, List Price, Address, City, and Year Built. The last section is the Report Footer section with an empty space.

Return to Figure 6-80

Figure 6.81 Extended Description (Chapter 6)

Return to Figure 6-81

The Ribbon shows tabs for Database Tools, Help, Report Design, Arrange, and Format. The Report Design tab is selected, which shows the Controls group. The Controls group shows the list of buttons as icons. The icons are as follows: Select Object, Text Formatting, Background Fill, Page Layout, Insert or Edit Hyperlink, Text Pane Toggle, Subreport, Insert Media or Slide, among others. The Subreport button is selected. Below these icons are the Set Control Defaults, Use Control Wizards, and Active X Controls buttons.

Return to Figure 6-81

Figure 6.82 Extended Description (Chapter 6)

Return to Figure 6-82

The dialog box shows a grey block on the left, which shows a Query Design view icon at the top. To the right of the block is the text “You can use an existing form to create your subform or subreport, or create your own using tables and or queries. What data would you like to use for your subform or subreport?” Below the text are two options such as Use existing Tables and Queries and Use an existing report or form, each with a radio button. The Use an existing report or form radio button is selected. Below the options is a block that shows a table with 2 columns and 3 rows. The row entries are as follows:

Row 1: Days On Market Listing and Report.

Row 2: Listings Subreport and Report.

Row 3: Sold Properties Listing and Report.

The Cancel, Back, Next, and Finish buttons are present on the bottom right of the dialog box. The Next button is selected.

Return to Figure 6-82

Figure 6.83 Extended Description (Chapter 6)

Return to Figure 6-83

The dialog box shows a grey block on the left, which shows an icon at the top. To the right of the block is the text “Would you like to define which fields link your main form to this subform yourself, or choose from the list below?” Below the text are two options such as Choose from a list and Define my own, each with a radio button. The Choose from a list radio button is selected. Below the options is a block that shows two options, such as Show Listings for each record in Agents using Employee Num and None. Below is another block which shows the text Show Listings for each record in Agents using Employee Num. The Cancel, Back, Next, and Finish buttons are present on the bottom right of the dialog box. The Next button is selected.

Return to Figure 6-83

Figure 6.84 Extended Description (Chapter 6)

Return to Figure 6-84

The Design view shows 4 sections. The top section is the Page Header, which has no space before the next section. Below is the Detail section that shows three features, each with a text box on the right. The Employee I D feature shows the text Employee in the text box. The Agent feature shows the text equals [First Name] ampersand double quotation double quotation ampersand [Last name] in the text box. The Phone feature shows the text Phone in the text box. These features are labeled Controls in main report. Below these features is the subreport titled Copy Of Listings Subreport. The subreport block shows a Report Header section. The section shows six features, each in a text box. The features are as follows: Listing I D, Date Listed, List Price, Address, City, and Built. These features are labeled Controls in subreport. The subreport block has an orange outline. Below is the Page Footer section, which shows a formula in a text box: equals “Page” ampersand [Page] ampersand “of” ampersand [Pages]. The last section is the Report Footer section.

Return to Figure 6-84

Figure 6.85 Extended Description (Chapter 6)

Return to Figure 6-85

The report is titled Placer Hills Real Estate, Agents and Current Listings. Below are two subreports. The first subreport shows a section with three features. The features are as follows: Employee I D as 103, Agent as Millie Bui, and Phone as (530) 648-7689. Below the section is a block labeled Listings Subreport. The block shows a table that consists of 6 columns and 7 rows. The column headings are Listing I D, Date Listed, List Price, Address, City, and Built. The row entries are as follows:

Row 1: 10022, 9/10/2025, $374,900.00, 525 Riverdale, Lincoln, and 2001.

Row 2: 10030, 9/23/2025, $429,000.000, 1720 Grey Owl Circle, Roseville, and 2002.

Row 3: 10040, 10/8/2025, $412,000.000, 3935 Cedar Mist Lane, Auburn, and 1993.

Row 4: 10077, 12/21/2025, $649,900.000, 2286 Kingfisher Lane, Lincoln, and 2003.

Row 5: 10080, 12/23/2025, $315,900.000, 1089 Marseille Lane, Roseville, and 2007.

Row 6: 10177, 2/10/2026, $363,000.000, 9030 Upper Valley Road, Auburn, and 1981.

Row 7: 10180, 2/16/2026, $382,700.000, 1287 Green Ravine Drive, Lincoln, and 2004.

Below is the second subreport that shows a section with three features. The features are as follows: Employee I D as 127, Agent as Kelly Weatherby, and Phone as (916) 987-3756. Below the section is a block labeled Listings Subreport. The block shows a table that consists of 6 columns and 2 rows. The column headings are Listing I D, Date Listed, List Price, Address, City, and Built. The row entries are as follows:

Row 1: 10023, 9/10/2025, $379,000.00, 615 Silver Hill Court, Lincoln, and 2000.

Row 2: 10048, 11/8/2025, $389,000.00, 900 Coyote Mountain Drive, Weimer, and 1963.

Return to Figure 6-85

Figure 6.86 Extended Description (Chapter 6)

Return to Figure 6-86

The dialog box shows the text “Which fields would you like to include on the subform or subreport? You can choose fields from more than one table and or query.” Below the text is the Tables or Queries feature with a text box showing the text Table: Listings. Below the text box are blocks for Available Fields and Selected Fields. The Available Fields block shows the fields as Square Footage, Beds, Baths, Garage, Construction, Listing Agent Number, Result, Date Removed, and Sold Price. The Construction field is selected. The Selected Fields block shows the fields as Listing I D, Date Listed, List Price, Address, City, and Year Built. The Year Built field is selected. The Cancel, Back, Next, and Finish buttons are present on the bottom right of the dialog box. The Next button is selected.

Return to Figure 6-86

Figure 6.87 Extended Description (Chapter 6)

Return to Figure 6-87

The Property Sheet pane shows the Selection type feature as Subform or Subreport at the top. Below the feature is a text box with the text Listings Subreport and a drop-down arrow on the right. Below the text box are tabs for Format, Data, Event, Other, and All. The Data tab is selected. Below the tabs are the following properties: Source Object: Report dot Listings Subreport.

Link Master Fields: Blank.

Link Child Fields: Blank.

Filter On Empty Master: Yes

Enabled: Yes.

Return to Figure 6-87

Figure 6.88 Extended Description (Chapter 6)

Return to Figure 6-88

The dialog box shows the Master Fields feature on the left with two text boxes below, each with a drop-down arrow on the far right. The first text box shows the text Employee Number. To the right is the Child Fields feature with two text boxes below, each with a drop-down arrow on the far right. The first text box shows the text Listing Agent Number. To the right are the OK, Cancel, and Suggest buttons. At the bottom of the dialog box is the Result feature with a text box on the right. The text box shows the text Show Listings for each record in Agents using Employee Number.

Return to Figure 6-88

Figure 6.89 Extended Description (Chapter 6)

Return to Figure 6-89

The Design view shows 5 sections. The top section is the Report Header, which is shaded blue. The section contains a block with the text Placer Hills Real Estate, Agents and Current. Below is the Page Header section with no visible data. Below is the Detail section that shows three features, each with a text box on the right. The Employee I D feature shows the text Employee I D in the text box. The Agent feature shows the text equals [First Name] ampersand double quotation double quotation ampersand [Last Name]. The Phone feature shows the text Phone in the text box. Below is the Page Footer section, which shows a formula in a text box: equals “Page” ampersand [Page] ampersand “of” ampersand [Pages]. The last section is the Report Footer section with no visible data.

Return to Figure 6-89

Figure 6.90 Extended Description (Chapter 6)

Return to Figure 6-90

The Design view shows 3 sections. The top section is the Report Header, which is shaded blue. The section contains six horizontally aligned features, each in a text box. The features are as follows: Listing I D, Date Listed, List Price, Address, City, and Built. Below is the Detail section that shows six text boxes arranged horizontally with the text as follows: Listing I D, Date Listed, List Price, Address, City, and Year Built. The last section is the Report Footer section.

Return to Figure 6-90

Figure 6.91 Extended Description (Chapter 6)

Return to Figure 6-91

The Design view shows two sections. The top section is Page Header. Below is the Detail section with two features, each with a text box on the right. The features are Employee I D and Agent. The subform or subreport icon with a plus sign on the top right is shown at the bottom center of the Detail section.

Return to Figure 6-91

Figure 6.92 Extended Description (Chapter 6)

Return to Figure 6-92

The report is titled Placer Hills Real Estate, Agents and Current. Below are two subreports. The first subreport shows a section with three features. The features are as follows: Employee I D, with an orange outline, as 103, Agent as Millie Bui, and Phone as (530) 648-7689. Below the section is a block labeled Listings Subreport. The block shows a table that consists of 6 columns and 7 rows. The column headings are Listing I D, Date Listed, List Price, Address, City, and Built. The row entries are as follows:

Row 1: 10022, 9/10/2025, $374,900.00, 525 Riverdale, Lincoln, and 2001.

Row 2: 10030, 9/23/2025, $429,000.000, 1720 Grey Owl Circle, Roseville, and 2002.

Row 3: 10040, 10/8/2025, $412,000.000, 3935 Cedar Mist Lane, Auburn, and 1993.

Row 4: 10077, 12/21/2025, $649,900.000, 2286 Kingfisher Lane, Lincoln, and 2003.

Row 5: 10080, 12/23/2025, $315,900.000, 1089 Marseille Lane, Roseville, and 2007.

Row 6: 10177, 2/10/2026, $363,000.000, 9030 Upper Valley Road, Auburn, and 1981.

Row 7: 10180, 2/16/2026, $382,700.000, 1287 Green Ravine Drive, Lincoln, and 2004.

Below is the second subreport that shows a section with three features. The features are as follows: Employee I D as 127, Agent as Kelly Weatherby, and Phone as (916) 987-3756. Below the section is a block labeled Listings Subreport. The block shows a table that consists of 6 columns and 2 rows. The column headings are Listing I D, Date Listed, List Price, Address, City, and Built. The row entries are as follows:

Row 1: 10023, 9/10/2025, $379,000.00, 615 Silver Hill Court, Lincoln, and 2000.

Row 2: 10048, 11/8/2025, $389,000.00, 900 Coyote Mountain Drive, Weimer, and 1963.

Return to Figure 6-92

Figure 6.93 Extended Description (Chapter 6)

Return to Figure 6-93

The Layout view shows nine text boxes at the top. Four text boxes show the texts Newcastle, 1963, Rocklin, and 1999. Below the text boxes is the Total number of Listings feature with a text box on the right. The text box shows the entry 47.

Return to Figure 6-93

Figure 6.94 Extended Description (Chapter 6)

Return to Figure 6-94

The report is titled Placer Hills Real Estate, Agents and Current. Below are two subreports. The first subreport shows a section with three features. The features are as follows: Employee I D as 103, Agent as Millie Bui, and Phone as (530) 648-7689. Below the section is a table that consists of 6 columns and 7 rows. The column headings are Listing I D, Date Listed, List Price, Address, City, and Built. The row entries are as follows:

Row 1: 10022, 9/10/2025, $374,900.00, 525 Riverdale, Lincoln, and 2001.

Row 2: 10030, 9/23/2025, $429,000.000, 1720 Grey Owl Circle, Roseville, and 2002.

Row 3: 10040, 10/8/2025, $412,000.000, 3935 Cedar Mist Lane, Auburn, and 1993.

Row 4: 10077, 12/21/2025, $649,900.000, 2286 Kingfisher Lane, Lincoln, and 2003.

Row 5: 10080, 12/23/2025, $315,900.000, 1089 Marseille Lane, Roseville, and 2007.

Row 6: 10177, 2/10/2026, $363,000.000, 9030 Upper Valley Road, Auburn, and 1981.

Row 7: 10180, 2/16/2026, $382,700.000, 1287 Green Ravine Drive, Lincoln, and 2004.

Below the table is the Total number of listings feature with a text box on the right. The text box shows the entry 7. Below is the second subreport that shows a section with three features. The features are as follows: Employee I D as 127, Agent as Kelly Weatherby, and Phone as (916) 987-3756. Below the section is a table that consists of 6 columns and 3 rows. The column headings are Listing I D, Date Listed, List Price, Address, City, and Built. The row entries are as follows:

Row 1: 10023, 9/10/2025, $379,000.00, 615 Silver Hill Court, Lincoln, and 2000.

Row 2: 10048, 11/8/2025, $389,000.00, 900 Coyote Mountain Drive, Weimer, and 1963.

Row 3: 10049, 11/9/2025, $643,900.00, 1773 Melanzane Drive, Roseville, and 2001.

Return to Figure 6-94

Figure 6.95 Extended Description (Chapter 6)

Return to Figure 6-95

The Ribbon shows the Insert Modern button with a drop down arrow. Clicking the drop-down arrow displays a list of options such as Column, Bar, Line, Pie, and Combo.

Return to Figure 6-95

Figure 6.96 Extended Description (Chapter 6)

Return to Figure 6-96

The window shows two sections. The first section shows the Design view of Report 1 on the left. The Design view is divided into two sections. The first section is Page Header, which is blank. Below is the Detail section, which shows a block with an orange outline. The block is titled Chart Title at the top center. Below the title are the legends. Blue represents the First Quarter, red represents the second quarter, grey represents the third quarter, and yellow represents the fourth quarter. Below the legends is a vertical bar chart with the Y-axis showing the values 0, 50, and 100, and the X-axis showing the markings East, West, and North. The chart shows four vertical bars for each marking on the X-axis. To the right of the Design view is the Chart Settings Pane, which shows the Data tab at the top left. Below is the Data Source feature with three options such as Tables, Queries, and Both, each with a radio button. The radio button for Both is selected. Below the options is a blank text box. Below the text box are three vertically aligned options such as Axis (Category), Legend (Series), and Values (Y axis), each with an arrow.

Return to Figure 6-96

Figure 6.97 Extended Description (Chapter 6)

Return to Figure 6-97

The first type is the Clustered Bar Chart. The X-axis shows the values 0, 5, 10, 15, 20, 25, 30, and 35, and the Y-axis shows the markings Brick, Frame, and Stone. Each marking has a horizontal blue bar representing the Count Of Listing I D. The legend is shown below the title. The second type is the Clustered Column Chart. The X-axis shows the markings Brick, Frame, and Stone, and the Y-axis shows the values 0, 5, 10, 15, 20, 25, 30, and 35. Each marking has a vertical blue bar representing the Count Of Listing I D. The legend is shown below the title. The third type is the Pie Chart. Below the title is the legend. Blue represents brick, orange represents frame, and grey represents stone. A circle is divided into three colored sections of different sizes. The fourth type is the Line Chart. The Y-axis shows the values 0, 5, 10, 15, 20, 25, 30, and 35, and the X-axis shows the markings Brick, Frame, and Stone. A legend below the title shows a line represents Count Of Listing I D. The chart shows a line that starts from the value 10 for Brick, rises sharply to the value 30 for Frame, and then drops back to the value around 10 for Stone.

Return to Figure 6-97

Figure 6.98 Extended Description (Chapter 6)

Return to Figure 6-98

The first type is the Clustered Column Chart. Below is the legend showing blue for Auburn, orange for Lincoln, grey for Newcastle, yellow for Rocklin, dark blue for Roseville, and green for Weimer. Below is the grouped vertical bar chart with the Y-axis showing the values 0, 2, 4, 6, 8, 10, and 12, and the X-axis showing the markings Brick, Frame, and Stone. The chart shows vertical bars of each color as shown in the legend for each marking on the X-axis. The second type is the Line Chart. Below is legend showing blue for blue for Auburn, orange for Lincoln, grey for Newcastle, yellow for Rocklin, dark blue for Roseville, and green for Weimer. Below is the line chart with the Y-axis showing the values 0, 2, 4, 6, 8, 10, and 12, and the X-axis showing the markings Brick, Frame, and Stone. The chart shows the different colored lines forming a peak at Frame. The third type is the Clustered Bar Chart 1. Below is legend showing green for Weimer, dark blue for Roseville, yellow for Rocklin, grey for Newcastle, orange for Lincoln, and blue for Auburn. Below is the bar chart with the Y-axis showing the markings Brick, Frame, and Stone, and the Y-axis showing the values 0, 2, 4, 6, 8, 10, and 12. The chart shows the horizontal bars of each color as shown in the legend for each marking on the Y-axis. The fourth type is the Clustered Bar Chart 2. Below is the legend showing grey for Stone, orange for Frame, and blue for Brick. Below is the bar chart with the Y-axis showing the markings Auburn, Lincoln, Newcastle, Rocklin, Roseville, and Weimer, and the Y-axis showing the values 0, 2, 4, 6, 8, 10, and 12. The chart shows the horizontal bars of each color as shown in the legend for each marking on the Y-axis.

Return to Figure 6-98

Figure 6.99 Extended Description (Chapter 6)

Return to Figure 6-99

The pane shows two tabs for Data and Format. The Data tab is selected. Below the tabs are four sections. The Data Source section shows three options: Tables, Queries, and Both, each with a radio button. The radio button for Both is selected. Below the options is a text box with the text Lincoln Listings. Below is the Axis (Category) section with four options: Date Listed (Month), List Price, Listing I D, and City, each with a check box. The Date Listed (Month) checkbox is selected. Below is the Legend (Series) section with five options: None, Date Listed, List Price, Listing I D, and City. The last section is the Values (Y axis) section, with four options: Date Listed, List Price, Listing I D, and City, each with a check box.

Return to Figure 6-99

Figure 6.100 Extended Description (Chapter 6)

Return to Figure 6-100

A block shows five vertically aligned options: None, Year, Quarter, Month, and Day. The Month option is selected.

Return to Figure 6-100

Figure 6.101 Extended Description (Chapter 6)

Return to Figure 6-101

A block shows six vertically aligned options: None, Sum, Average, Minimum, Maximum, and Count. The Sum option is selected.

Return to Figure 6-101

Figure 6.102 Extended Description (Chapter 6)

Return to Figure 6-102

A legend shows blue for Sum Of List Price below the title. Below the legend is the bar chart with the Y-axis showing the values 0, 50000, 100000, 150000, and 200000, and the X-axis showing the markings September 2025, October 2025, November 2025, December 2025, January 2026, and February 2026. The chart shows six vertical blue bars for each marking on the X-axis.

Return to Figure 6-102

Figure 6.103 Extended Description (Chapter 6)

Return to Figure 6-103

The window shows two sections. The first section shows the Design view on the left. The Design view shows two blocks. The first block shows the text Chart Title at the top. Below the title is the legend, showing that blue represents the Sum Of List Price. Below the legend is the bar chart with the X-axis showing the markings September 2025, October 2025, November 2025, December 2025, January 2026, and February 2026, and the Y-axis showing the values 0, 200000, 400000, 600000, 800000, 1000000, 1200000, 1400000, 1600000, and 1800000. The chart shows six vertical blue bars for each marking on the X-axis. To the right is the second block showing a vertical bar chart titled Listings in Lincoln at the top. Listings in Lincoln is labeled Chart Title. Below the title is the text Modified Format Settings, which is labeled Chart Subtitle. Below the subtitle is the bar chart with the X-axis labeled Month, which is labeled Category Axis Title. The X-axis shows the values September 2025, October 2025, November 2025, December 2025, January 2026, and February 2026. The Y-axis is labeled List Price, which is labeled Primary Values Axis Title. The Y-axis shows the values 0, 200000, 400000, 600000, 800000, 1000000, and 1200000. Below the bar chart is the legend showing a green box representing A v g List Price and a dotted line representing Moving Average (A v g List Price). The legend is labeled Display Name. The chart shows six green vertical bars for each marking on the X-axis. A value shown at the top of each bar is labeled Data Label. The dotted line starts from October 2025 to December 2025, and then to January 2026, and is labeled Trendline. The outline of the bars is labeled Series Border Color. The green color of the bar is labeled Series Fill Color.

To the right of the Design view is the Chart Settings Pane, which shows two tabs for Data and Format. The Format tab is selected. Below the tabs is the Data Series feature with a text box below. The text box shows the text A v g Of List Price. Below the text box is the heading Format Data Series: A v g Of List Price. Below the heading are seven features, each with a text box on the right. The Display Name feature shows the text A v g List Price in the text box. The Plot Series On feature shows the text Primary in the text box. The Series Fill Color feature shows green color. The Series Border Color feature shows black color. The Display Data Label feature shows a checkmark. The Trendline Options feature shows the text Moving Average in the text box. The Trendline Name feature shows a blank text box.

Return to Figure 6-103

Figure 6.104 Extended Description (Chapter 6)

Return to Figure 6-104

The window shows two sections. The first section shows the Design view of Listings Data Charts on the left. The Design view shows the Detail section, which has a block with an orange outline. The block is titled Chart Title at the top center. Below the title is the legend. Blue represents the First Quarter, red represents the second quarter, grey represents the third quarter, and yellow represents the fourth quarter. Below the legends is a horizontal bar chart with the X-axis showing the values 0, 10, 20, 30, 40, 50, 60, 70, 80, 90, and 100. The chart shows horizontal bars for the markings on the Y-axis. To the right of the Design view is the Chart Settings Pane, which shows the Data tab at the top left. Below is the Data Source feature with three options below as Tables, Queries, and Both, each with a radio button. The radio button for Both is selected. Below the options is a blank text box. Below the text box are three vertically aligned options such as Axis (Category), Legend (Series), and Values (Y axis), each with an arrow.

Return to Figure 6-104

Figure 6.105 Extended Description (Chapter 6)

Return to Figure 6-105

The Design view of the report shows the Detail section. The Detail section consists of a block with an orange outline. The block shows the title Count of Listings by City at the top center. Below the title is the subtitle Grouped by Construction. Below the subtitle is the bar chart on the left. The X-axis is labeled Number of Listings and shows the values 0, 2, 4, 6, 8, 10, and 12. The Y-axis is labeled Construction Type and shows the markings Brick, Frame, and Stone. To the right of the bar chart is the legend. Green represents Weimer, dark blue represents Roseville, yellow represents Rocklin, grey represents Newcastle, orange represents Lincoln, and blue represents Auburn. The chart shows horizontal bars for each marking on the Y-axis.

Return to Figure 6-105

Figure 6.106 Extended Description (Chapter 6)

Return to Figure 6-106

The vertical bar chart is titled Listings in Lincoln at the top. The X-axis is labeled Month Listed and shows the values September 2025, October 2025, November 2025, December 2025, January 2026, and February 2026. The Y-axis is labeled List Price and shows the values 0, 200000, 400000, 600000, 800000, 1000000, and 1200000. Below the bar chart is the legend showing a green box representing Average List Price and a dotted line representing Moving Average (Average List Price). The chart shows six green vertical bars for the markings on the X-axis. A value is shown at the top of each bar. The dotted line starts from October 2025 to December 2025, and then to January 2026 and ends above the bar for February 2026.

Return to Figure 6-106

Figure 6.107 Extended Description (Chapter 6)

Return to Figure 6-107

The Group, Sort, and Total pane shows a Close button on the top right. Below is an orange rectangular block with a list of options, such as Group on Artist, with A on top, by entire value, with no totals, with title click to add, with a header section, without a footer section, do not keep group together on one page, each with an arrow, and a Less button with an arrow. The top right of the block shows the Delete button. Below the block are the Add a group and Add a sort options.

Return to Figure 6-107

Figure 6.108 Extended Description (Chapter 6)

Return to Figure 6-108

The Design view shows 7 sections. The top section is the Report Header, which is shaded blue. The section contains a block with the text Songs On My Albums. Below is the Page Header section, with no visible data. Below is the Artist Header section, which shows a Recording Artist feature with a text box on the right. The text box shows the text Artist. Below is the Detail section, which shows an Album feature with a text box on the right. The text box shows the text Album Name. Below is the Artist Footer section, which shows a blank space. Below is the Page Footer section, which shows a text box with the text: equals “Page” ampersand [Page] ampersand “of” ampersand [Pages]. Below is the Report Footer section, which shows a blank space.

Return to Figure 6-108

Figure 6.109 Extended Description (Chapter 6)

Return to Figure 6-109

The Design view shows three sections. The Report Header section is at the top, which shows two features: Song Title and Length, both in text boxes arranged side-by-side. Below is the Detail section with two text boxes that show the text Song Title and Length, arranged side-by-side. Below is the Report Footer section, which shows a blank space.

Return to Figure 6-109

Figure 6.110 Extended Description (Chapter 6)

Return to Figure 6-110

The report is titled Songs on My Albums. Below the title is the Recording Artist feature, which shows the name Adele. Below this feature is the Album feature, which shows the entry 19. Below is a block titled Songs SubReport. The block shows a table with 2 columns and 2 rows. The column headings are Song Title and Length. The row entries are as follows:

Row 1: Daydreamer and 3:40.

Row 2: Best for Last and 4:18.

Return to Figure 6-110

Figure 6.111 Extended Description (Chapter 6)

Return to Figure 6-111

The Print Preview view shows the title Songs on My Albums. Below the title is the Recording Artist feature, which shows the entry Adele. Below the feature, the report is divided into two sections. The first section shows an Album feature, which shows the entry 19. Below the feature is a block that shows a table. The table consists of 2 columns and 12 rows. Each row entry is shown in a text box. The row entries are as follows:

Row 1: Daydreamer and 3:40.

Row 2: Best for Last and 4:18.

Row 3: Chasing Pavements and 3:30.

Row 4: Cold Shoulder and 3:11.

Row 5: Crazy For You and 3:28.

Row 6: Melt My Heart to Stone and 3:23.

Row 7: First Love and 3:10.

Row 8: Right as Rain and 3:17.

Row 9: Make You Feel My Love and 3:32.

Row 10: My Same and 3:15.

Row 11: Tired and 4:18.

Row 12: Hometown Glory and 4:31.

Below the table is the Total number of songs feature with entry 12. Below is the second section, which shows the Album feature, with the entry 21. Below this feature is a block that shows a table. The table consists of 2 columns and 11 rows. Each row entry is shown in a text box. The row entries are as follows: Row 1: Rolling in the Deep and 3:49.

Row 2: Rumour Has It and 3:43.

Row 3: Turning Tables and 4:10.

Row 4: Don’t You Remember? and 4:03.

Row 5: Set Fire to the Rain and 4:01.

Row 6: He Won’t Go and 4:37.

Row 7: Take it All and 3:48.

Row 8: I'll be Waiting and 4:01.

Row 9: One and Only and 5:48.

Row 10: Lovesong and 5:16.

Row 11: Someone Like You and 4:47.

Below the table is the Total number of songs feature with entry 11. Below this feature on the bottom left is the Total number of albums by Adele feature with the entry 2. The bottom center of the page shows the page number: Page 1 of 38.

Return to Figure 6-111

Figure 6.112 Extended Description (Chapter 6)

Return to Figure 6-112

The horizontal bar chart is titled Albums by Genre. Below the title is the bar chart. The X-axis is labeled Number of Albums and shows the values 0, 2, 4, 6, 8, 10, 12, 14, 16, 18, and 20. The Y-axis shows the markings Alternative, Country, Dance-pop, Hip Hop, Hip Hop or Rap, International, Jazz, Pop, Pop Latino, Pop or Rock, Post-rock, R and B, Reggaeton y Hip-Hop, Religious, Rock, and Soft Rock. A blue horizontal bar is shown for each marking on the Y-axis.

Return to Figure 6-112

Figure 6.113 Extended Description (Chapter 6)

Return to Figure 6-113

The window shows a tab titled Author Without Matching Author Book. Below the tab is a table, which consists of 5 columns and 16 rows. The column headings are I D, Last Name, First Name, Initial, and Affiliation. The row entries are as follows:

Row 1: 7, Colquitt, Jason, A, and University of Georgia.

Row 2: 8, LePine, Jeffrey, A, and Arizona State University.

Row 3: 9, Wesson, Michael, J, and Texas A and M University.

Row 4: 11, Kerin, Roger, A, and Southern Methodist University.

Row 5: 12, Hartley, Steven, W, and University of Denver.

Row 6: 14, Rudelius, William, Blank, and University of Minnesota - Minneapolis.

Row 7: 15, Schiller, Bradley, R, and University of Nevada Reno.

Row 8: 16, Hill, Cynthia, Blank, and Idaho State University.

Row 9: 17, Wall, Sherri, Blank, and University of Alaska - Fairbanks.

Row 10: 19, Chang, Raymond, Blank, and Williams College.

Row 11: 20, Goldsby, Kenneth, Blank, and University of Florida.

Row 12: 22, Easton, Annette, Blank, and San Diego State University.

Row 13: 24, Overby, Jason, Blank, and College of Charleston.

Row 14: 25, Graves, Pat, Blank, and Eastern Illinois University.

Row 15: 26, Stewart, Kathleen, Blank, and Moraine Valley Community College.

Row 16: (New), Blank, Blank, Blank, and Blank.

A Record button, the Page number, a Filter, and a Search button are displayed on the bottom left of the window.

Return to Figure 6-113

Figure 6.114 Extended Description (Chapter 6)

Return to Figure 6-114

The table consists of 5 columns and 15 rows. The column headings are I S B N, Title, First Name, Last Name, and Subject. The row entries are as follows: Row 1: 978-1-26-024795-4, Principles of Auditing and Other Assurance Services, Ray, Whittington, and Auditing.

Row 2: 978-1-26-677315-0, Microsoft Office 365 Complete: In Practice (2021 Edition), Randy, Nordell, and Application Software.

Row 3: 978-0-07-811278-2, Organizational Behavior: Real Solutions to Real Problems, Bill, Bommer, and Organizational Behavior.

Row 4: 978-0-07-811278-2, Organizational Behavior: Real Solutions to Real Problems, Timothy, Baldwin, and Organizational Behavior.

Row 5: 978-1-26-026035-9, M: Marketing, Dhruv, Grewal, and Marketing Principles.

Row 6: 978-1-26-669143-0, Marketing, Dhruv, Grewal, and Marketing Principles.

Row 7: 978-0-07-811278-2, Organizational Behavior: Real Solutions to Real Problems, Robert, Rubin, and Organizational Behavior.

Row 8: 978-1-26-072782-1, M: Information Systems, Paige, Baltzan, and Management Information Systems.

Row 9: 978-1-26-654647-1, Business Driven Information Systems, Paige, Baltzan, and Management Information Systems.

Row 10: 978-1-26-026035-9, M: Marketing, Michael, Levy, and Marketing Principles.

Row 11: 978-1-26-669143-0, Marketing, Michael Levy, and Marketing Principles.

Row 12: 978-1-26-024795-4, Principles of Auditing and Other Assurance Services, Kurt, Pany, and Auditing.

Row 13: 978-1-26-654647-1, Business Driven Information Systems, Amy, Phillips, and Management Information Systems.

Row 14: 978-1-26-070963-6, Biology: The Essentials, Marielle, Hoefnagels, and Biology.

A Record button, the Page number, a Filter, and a Search button are displayed on the bottom left of the window.

Return to Figure 6-114

Figure 6.115 Extended Description (Chapter 6)

Return to Figure 6-115

The Design view shows two sections. The first section is the Subject Header, which shows two features: I S B N and Title, each in a text box. A plus symbol present at the top left of the I S B N text box is labeled Layout selector. Below is the Detail section, which shows two text boxes with the text I S B N and Title.

Return to Figure 6-115

Figure 6.116 Extended Description (Chapter 6)

Return to Figure 6-116

The Design view shows two sections. The first section is the Subject Header, which shows a feature Subject with a text box on the right. The text box shows the text Subject. Below are four more features as follows: I S B N, Title, First Name, and Last Name. All features in the Subject Header section are in a text box. The Subject text box has an orange outline. Below is the Detail section, which shows four text boxes with the text I S B N, Title, First Name, and Last Name.

Return to Figure 6-116

Figure 6.117 Extended Description (Chapter 6)

Return to Figure 6-117

The Layout view shows three sections for three Subjects. The first section is for Subject, Application Software, which shows a table. The table consists of 4 columns and 1 row. The column headings are I S B N, Title, First Name, and Last Name. The row entry is as follows: 978-1-26-677315-0, enclosed in an orange outline, Microsoft Office 365 Complete: In Practice (2021 Edition), Randy, and Nordell.

Below is the second section for the Subject, Auditing, which shows a table. The table consists of 4 columns and 2 rows. The column headings are I S B N, Title, First Name, and Last Name. The row entries are as follows:

Row 1: 978-1-26-024795-4, enclosed in an orange outline, Principles of Auditing and Other Assurance Services, Kurt, and Pany.

Row 2: 978-1-26-024795-4, enclosed in an orange outline, Principles of Auditing and Other Assurance Services, Ray, and Whittington.

Below is the third section for the Subject, Biology, which shows a table. The table consists of 4 columns and 1 row. The column headings are I S B N, Title, First Name, and Last Name. The row entry is as follows: 978-1-26-070963-6, enclosed in an orange outline, Biology: The Essentials, Marielle, and Hoefnagels.

Return to Figure 6-117

Figure 6.118 Extended Description (Chapter 6)

Return to Figure 6-118

The report shows a block at the top. The block shows the Subject feature with a text box on the right. The text box shows the entry Marketing Principles. The column headings are I S B N, Title, First Name, and Last Name. Below is a table that consists of four columns and four rows. The row entries are as follows:

Row 1: 978-1-26-669143-0, Marketing, Michael, and Levy.

Row 2: 978-1-26-669143-0, Marketing, Dhruv, and Grewal.

Row 3: 978-1-26-026035-9, M: Marketing, Michael, and Levy.

Row 4: 978-1-26-026035-9, M: Marketing, Dhruv, and Grewal.

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Figure 6.119 Extended Description (Chapter 6)

Return to Figure 6-119

Below the tab is a table that consists of 9 columns and 13 rows. The column headings are Boat I D, Boat Type, Length, Seats, Sleeps, 4 H r Rate, Full Day Rate, Galley With Stove, and Model Year, each with a drop-down arrow on the right. The row entries are as follows:

Row 1: 1150, Capri 22 M K 2, 24 feet 8 inches, 6, 4, $75.00, $121.00, a check box, and 2014.

Row 2: 1164, Capri 22 M K 2, 24 feet 8 inches, 6, 4, $75.00, $121.00, a check box, and 2017.

Row 3: 1168, Hunter 33, 33 feet 6 inches, 10, 6, $285.00, $355.00, a checked check box, and 2017.

Row 4: 1175, Beneteau 40, 39 feet 10 inches, 12, 6, $475.00, $555.00, a checked check box, and 2018.

Row 5: 1180, Beneteau 373, 36 feet 11 inches, 10, 6, $355.00, $455.00, a checked check box, and 2019.

Row 6: 1190, Beneteau 373, 36 feet 11 inches, 10, 6, $355.00, $455.00, a checked check box, and 2019.

Row 7: 1200, Beneteau 373, 36 feet 11 inches, 10, 6, $355.00, $455.00, a checked check box, and 2020.

Row 8: 1205, Beneteau 40, 39 feet 10 inches, 12, 6, $475.00, $555.00, a checked check box, and 2021.

Row 9: 1254, Hunter 36, 35 feet 6 inches, 10, 6, $335.00, $395.00, a checked check box, and 2022.

Row 10: 1342, Hunter 33, 33 feet 6 inches, 10, 6, $285.00, $355.00, a checked check box, and 2024.

Row 11: 1410, Beneteau 40, 39 feet 10 inches, 12, 6, $475.00, $555.00, a checked check box, and 2025.

Row 12: 1425, Catalina 270, 28 feet 4 inches, 8, 6, $145.00, $205.00, a checked check box, and 2025.

Row 13: Blank, Blank, Blank, Blank, Blank, Blank, Blank, a minus sign inside a check box, and Blank.

Return to Figure 6-119

Figure 6.120 Extended Description (Chapter 6)

Return to Figure 6-120

The Design view shows three sections of the report. The first section is Page Header, which shows the features: Boat I D, Boat Type, Length, Seats, Sleeps, 4 H r Rate, Full Day Rate, Galley with Stove, and Model Year, each in a text box side-by-side. Below is a Detail section, which shows the text boxes with the text as follows: Boat I D, Boat Type, Length, Seats, Sleeps, Four Hour Rate, Full Day Rate, a check-marked check box, and Model Year. Below is the Page Footer section, which is empty.

Return to Figure 6-120

Figure 6.121 Extended Description (Chapter 6)

Return to Figure 6-121

The Print Preview view shows a block at the top. The block shows the title Listing of Boats that have not been Rented. Below the block is a table that consists of 9 columns and 6 rows. The column headings are Boat I D, Boat Type, Length, Seats, Sleeps, 4 H r Rate, Full Day Rate, Galley with Stove, and Model Year. The row entries are as follows:

Row 1: 1150, Capri 22 M k 2, 24 feet 8 inches, 6, 4, $75.00, $121.00, a check box, and 2014.

Row 2: 1164, Capri 22 M k 2, 24 feet 8 inches, 6, 4, $75.00, $121.00, a check box, and 2017.

Row 3: 1168, Hunter 33, 33 feet 6 inches, 10, 6, $285.00, $355.00, a checked check box, and 2017.

Row 4: 1175, Beneteau 40, 39 feet 10 inches, 12, 6, $475.00, $555.00, a checked check box, and 2018.

Row 5: 1180, Beneteau 373, 36 feet 11 inches, 10, 6, $355.00, $455.00, a checked check box, and 2019.

Row 6: 1190, Beneteau 373, 36 feet 11 inches, 10, 6, $355.00, $455.00, a checked check box, and 2019.

Return to Figure 6-121

Figure 6.122 Extended Description (Chapter 6)

Return to Figure 6-122

The Work Area shows the Rentals Without Matching Equipment tab. Below the tab are the two blocks for Rentals and Equipment. The Rentals block shows the fields, such as Rental I D, with a primary key icon, Equip I D F K, with a primary key icon, Cust I D F K, Date Out, Rent Type, Rent Units, Date Due, Rent Rate, and Rental Cost. The Equipment block shows the fields, such as Equipment I D, with a primary key icon, Product Name, Category, Daily Rental Rate, Weekly Rental Rate, Monthly Rental Rate, Date Purchased, Comments, and Lifetime Maintenance Cost. A zig-zag arrow from Equip I D F K points to Equipment I D. Below these blocks is the query table with 2 columns and 6 rows. The table has rows for various query parameters, such as Field, Table, Sort, Show, Criteria, and or. The Field row shows the entries Rentals and Equipment I D. The Table row shows the entries Rentals and Equipment. The Sort row is empty. The Show row shows the entries: a checked check box and an unchecked check box. The Criteria row shows the entries Blank, Is Null, and Blank. The or row is empty.

Return to Figure 6-122

Figure 6.123 Extended Description (Chapter 6)

Return to Figure 6-123

The Work Area shows the Equipment Without Matching Rentals object tab. Below the tab is a table that consists of three columns and three rows. The column headings are Equipment I D, Product Name, and Category. The row entries are as follows:

Row 1: 10129, LEVEL SITE LASER, and Hand Tools.

Row 2: 10375, SAW CIRCULAR 16 inches, and Sawing, Cutting.

Row 3: 10400, WHEEL MEASURING, and Hand Tools.

A Record button, the Page number, a Filter, and a Search button are displayed on the bottom left of the window.

Return to Figure 6-123

Figure 6.124 Extended Description (Chapter 6)

Return to Figure 6-124

Two blocks are shown for Rentals and Equipment. The Rentals block shows the fields, such as Rental I D, with a primary key icon, Equip I D F K, with a primary key icon, Cust I D F K, Date Out, Rent Type, Rent Units, Date Due, Rent Rate, and Rental Cost. The Equipment block shows the fields, such as Equipment I D, with a primary key icon, Product Name, Category, Daily Rental Rate, Weekly Rental Rate, Monthly Rental Rate, Date Purchased, Comments, and Lifetime Maintenance Cost. The blocks are connected with a relationship line with infinity at the bottom, next to Equip I D F K, and the number 1 at the top, next to Equipment I D. Below these blocks is a query table with 2 columns and 7 rows. The table has rows for various query parameters, such as Field, Table, Total, Sort, Show, Criteria, and or. The Field row shows the entries Equip I D F K and Product Name. The Table row shows the entries Rentals and Equipment. The Table row shows the entries Count and Group By. The Sort row shows the entries Descending and Blank. The Show row shows the entries: a checked check box and a checked check box. The Criteria and or rows are empty.

Return to Figure 6-124

Figure 6.125 Extended Description (Chapter 6)

Return to Figure 6-125

The Work Area shows the Top 5 Product Rentals object tab. Below the tab is a table that consists of two columns and five rows. The column headings are number of Rentals and Product Name. The row entries are as follows:

Row 1: 7 and SNAKE DRAIN one half inches ELECTRIC.

Row 2: 6 and GRINDER ANGLE 7 inches WITH VACUUM.

Row 3: 6 and GENERATOR PORTABLE MAKITA 1000 W.

Row 4: 5 and WHEELBARROW.

Row 5: 6 and MINI TRACTOR LOADER - YANMAR S A 424 Y B S.

Return to Figure 6-125

Figure 6.126 Extended Description (Chapter 6)

Return to Figure 6-126

The report shows a block at the top shaded blue, which shows the title Rentals. Below the title are the controls and their values shown in two nested boxes. The first control is Equip I D with the value 09925 nested below. Below is the list of horizontally aligned controls as follows: Rental I D with the value 2512, Cust I D F K with the value 27, Rental Period with the value 1 Day Rental, Date Due with the value 1/26/2026, Date Out with the value 1/25/2026, Rent Rate with the value $160.00, and Rental Cost with the value $160.00. The bottom of the report shows a block with a list of horizontally aligned controls as follows: Rental I D with the value 2518, Cust I D F K with the value 102, Rental Period with the value 1 Week Rental, Date Due with the value 2/4/2026, Date Out with the value 1/28/2026, Rent Rate with the value $640.00, and Rental Cost with the value $640.00.

Return to Figure 6-126

Figure 6.127 Extended Description (Chapter 6)

Return to Figure 6-127

The report shows a block at the top shaded blue, which shows the title Listing of All Rentals. Below the title are two sections for Equipment I D. The first section shows the feature Equipment I D as 09925. Below the feature is a table that consists of 7 columns and 3 rows. The row entries are as follows:

Row 1: Rental I D, 2512. Customer I D, 27. Rental Period, 1 Day Rental. Date Due, 1/26/2026. Date Out, 1/25/2026. Rent Rate, $160.00. Rental Cost, $160.00.

Row 2: Rental I D, 2518. Customer I D, 102. Rental Period, 1 Week Rental. Date Due, 2/4/2026. Date Out, 1/28/2026. Rent Rate, $640.00. Rental Cost, $640.00.

Row 3: Rental I D, 2543. Customer I D, 44. Rental Period, 1 Week Rental. Date Due, 2/16/2026. Date Out, 2/9/2026. Rent Rate, $640.00. Rental Cost, $640.00.

The second section shows the feature Equipment I D as 10047. Below the feature is a table that consists of 7 columns and 3 rows. The row entries are as follows:

Row 1: Rental I D, 2536. Customer I D, 46. Rental Period, 1 Week Rental. Date Due, 2/14/2026. Date Out, 2/7/2026. Rent Rate, $900.00. Rental Cost, $900.00.

Row 2: Rental I D, 2527. Customer I D, 30. Rental Period, 3 Day Rental. Date Due, 2/5/2026. Date Out, 2/2/2026. Rent Rate, $225.00. Rental Cost, $675.00.

Row 3: Rental I D, 2516. Customer I D, 15. Rental Period, 4 Day Rental. Date Due, 1/31/2026. Date Out, 1/27/2026. Rent Rate, $225.00.

Rental Cost, $900.00.

Below the sections at the bottom center is the Page number: Page 1 of 5.

Return to Figure 6-127

Figure 6.128 Extended Description (Chapter 6)

Return to Figure 6-128

On the top left is a Top Two Ticket Count By Factor object tab. A cross sign is located on the right of the tab. Below, there is an orange bar, which shows the heading Primary Factor. The heading is followed by the entries Unsafe Speed and Alcohol in the rows below.

Return to Figure 6-128

Figure 6.129 Extended Description (Chapter 6)

Return to Figure 6-129

Above the report, there are three fields: Officer I D, Officer Name, and Date Hired. Each field shows its respective data on the right, which are A 00021211, Reggie DeFrank, and 10/1/2003, respectively. Below the fields, there is a report titled Tickets Subreport. The report is in a table form. The table has six columns and six rows. The column headings are Ticket Number, D L Number, Ticket Date, City, Primary Factor, and Fine. The row entries are as follows:

Row 1: 4235944496; 12345838; 2/3/2026; Syracuse; Expired Registration; $100.00.

Row 2: 4235895280; 39989780; 3/11/2026; Syracuse; Improper Cell Phone Use; $150.00.

Row 3: 4235896886; 15500786; 3/21/2026; Syracuse; Alcohol; $420.00.

Row 4: 4235896888; 12344537; 3/21/2026; Syracuse; Improper Turn; $90.00.

Row 5: 4235896903; 39998182; 3/22/2026; Syracuse; Traffic Control Disregarded; $130.00.

Row 6: 4235896915; 18955806; 3/22/2026; Syracuse; Improper Electronic Device; $150.00.

Return to Figure 6-129

Figure 6.130 Extended Description (Chapter 6)

Return to Figure 6-130

The Design view consists of a Report Header section at the top, which consists of a blue bar. At the center of the bar, the title, Listings of Tickets by Officer, is shown. Below, there is a Detail section. The Detail section has three fields, each represented in text boxes: Officer I D, Date Hired, and Officer Name. To the right of each field, there is a text box to enter the corresponding data. The Detail section is followed by a bar, which shows the Report Header section of another report. The bar shows the column headings of the report, such as Ticket Number, D L Number, Ticket Date, City, Primary Factor, and Fine. A horizontal scroll bar is located below the bar. At the bottom of the Design view is the Report Footer section, which shows a text box with the text Report created by Student Name. The borders of the text box are orange.

Return to Figure 6-130

Figure 6.131 Extended Description (Chapter 6)

Return to Figure 6-131

The report is titled Listings of Tickets by Officer. The title is shown against a blue bar. The Report view shows two tables. Above the top table, there are three fields: Officer I D, Officer Name, and Date Hired. Each field shows its respective data on the right, which are A 00021211, Reggie DeFrank, and 10/1/2003, respectively. The report is in a table form. The table has six columns and six rows. The column headings are Ticket Number, D L Number, Ticket Date, City, Primary Factor, and Fine. The row entries are as follows:

Row 1: 4235944496; 12345838; 2/3/2026; Syracuse; Expired Registration; $100.00.

Row 2: 4235895280; 39989780; 3/11/2026; Syracuse; Improper Cell Phone Use; $150.00.

Row 3: 4235896888; 15500786; 3/21/2026; Syracuse; Alcohol; $420.00.

Row 4: 4235896888; 12344537; 3/21/2026; Syracuse; Improper Turn; $90.00.

Row 5: 4235896903; 39998182; 3/22/2026; Syracuse; Traffic Control Disregarded; $130.00.

Row 6: 4235896915; 18955806; 3/22/2026; Syracuse; Improper Electronic Device Use or Texting; $150.00

The bottom table shows three fields at the top. The fields and their respective data are as follows:

Officer I D: A 00032567.

Officer Name: Alex Rodriguez.

Date Hired: 6/2/2006.

The table has six columns and two rows. The column headings are Ticket Number, D L Number, Ticket Date, City, Primary Factor, and Fine. The row entries are as follows:

Row 1: 4235879527; 12348279; 11/13/2025; Buffalo; Improper Cell Phone Use; $150.00.

Row 2: 4235889527; 155503625; 11/30/2025; Buffalo; Alcohol; 420.00.

Return to Figure 6-131

Figure 6.132 Extended Description (Chapter 6)

Return to Figure 6-132

The chart is titled Tickets by Factor and City. The horizontal axis is labeled Number of Tickets and ranges from 0 to 14 in increments of 2 units. The vertical axis is labeled Tickets Factor. The vertical axis shows the following markings: Alcohol, Expired Registration, Failed to Yield R.O.W., Improper Cell Phone Use, Improper Electronic Device Use or Texting, Improper Turn, Passing or Lane Violation, Traffic Control Disregarded, and Unsafe Speed. Each marking on the vertical axis consists of a horizontally stacked bar, representing Albany, Buffalo, New York, Syracuse, Utica, and Yonkers, each in a distinct color.

Return to Figure 6-132

Figure 6.133 Extended Description (Chapter 6)

Return to Figure 6-133

The table has eight columns and ten rows. The column headings are Member I D, Member Name, City, Race I D, Place, Time, Division, and Age Group. A portion of the table is not shown between row six and row seven. In the bottom left corner, there is a toolbar with buttons such as Previous Record, Current Record, Next, and No Filter. A search bar follows the No Filter button. The table shows 39 records.

Return to Figure 6-133

Figure 6.134 Extended Description (Chapter 6)

Return to Figure 6-134

The report has three sections: Page Header, Detail, and Page Footer. The Page Header section shows eight text boxes for fields such as Member I D, Member Name, City, Race I D, Place, Time, Division, and Age Group. The Detail section also shows text boxes for fields such as Member I D, Member Name, City, Race I D, Place, Time, Division, and Age Group.

Return to Figure 6-134

Figure 6.135 Extended Description (Chapter 6)

Return to Figure 6-135

The report has five sections: Report Header, Page Header, Detail, Page Footer, and Report Footer. The Report Header section has a light green area, which shows the title, Race Results by Member. The Page Header and Detail sections have text boxes for the following fields: Member I D, Member Name, City, Race I D, Place, Time, Division, and Age Group. The Page Footer section shows the following text: equals “Page” ampersand [Page] ampersand “of” ampersand [Pages].

Return to Figure 6-135

Figure 6.136 Extended Description (Chapter 6)

Return to Figure 6-136

The report is titled Race Results by Member. The title is shown against a light green bar. Below the title is a table. The table has eight columns and four rows. The column headings are Member I D, Member Name, City, Race I D, Place, Time, Division, and Age Group. Each row has multiple sub-rows. A portion of the table is not shown between row two and row three. The page number is shown below the table as Page 1 of 2.

Return to Figure 6-136

Figure 6.137 Extended Description (Chapter 6)

Return to Figure 6-137

The title is shown at the top against a blue bar. The report has two sections: Cats Available for Adoption and Dogs Available for Adoption. Each section shows six columns with headings Pet Name, Pet I D, Breed, Age, Gender, and Color. The Cats Available for Adoption section has one row. The row entry is as follows: Tate; 8, Domestic Short Hair cross; 3 years; M; Black and White. Below the row, there is a Why I'd make a great companion feature, which shows the following text: I'm a lovable companion seeking a special home where I'll be a cherished member of the family. With bright eyes and a precious face, I have a beautiful personality to match. I like to take my time approaching new situations. While I am a bit shy with new faces and places, I warm up as I become more familiar with my environment. Type of home I'm looking for: I would do best in a quiet household with older children please.

The Dogs Available for Adoption section has two rows. The row entries are as follows:

Row 1: Bessie; 11; American Pit Bull Terrier; 5 years; F; Black and White.

The Why I'd make a great companion feature is shown below. The following description is shown: I like to take my time approaching new situations. While I am a bit shy with new faces and places, I warm up as I become more familiar with my environment. With lots of energy and charisma, I absolutely love to play ad]and get my exercise. I would be thrilled to accompany my new pet-parents on their athletic pursuits and outdoor adventures. Type of home I'm looking for: I would prefer a quiet home with older children, please.

Row 2: Charlie; 5; Miniature Goldendoodle; 2 years; M; Tan.

The Why I'd make a great companion feature is shown below. The following description is shown: Friendly, affectionate, and social. I'm easy to love and a joy to be around. I have a curious nature which keeps me excited about the world around me all day long! I approach life with lots of enthusiasm. I am very inventive. I can turn any ordinary day into an adventure. Type of home I'm looking for: I want a home where my people will love me and let me sleep with them. The page number is shown at the bottom right corner, which is 1.

Return to Figure 6-137

Figure 7.1 Extended Description (Chapter 7)

Return to Figure 7-1

The Forms group consists of the following buttons: Form, Form Design, Blank Form, Form Wizard, Navigation, and More Forms. The Form Design button is selected.

Return to Figure 7-1

Figure 7.2 Extended Description (Chapter 7)

Return to Figure 7-2

The form has an object tab at the top left corner titled Sample Form Sections. The form consists of five sections: Form Header, Page Header, Detail, Page Footer, and Form Footer. The Form Footer section shows a text box with the text Form Header. The Page Header section displays a text box with the text Page Header. The Detail section shows eight text boxes for fields such as Employee Number, Last Name, First Name, Multilingual, Date Hired, Phone, Specialties, and About. The Page Footer and Form Footer sections have a text box each with the text Page Footer and Form Footer, respectively.

Return to Figure 7-2

Figure 7.3 Extended Description (Chapter 7)

Return to Figure 7-3

The form has an object tab at the top left titled Sample Form Sections. At the top, in the middle, is the text Form Header, which is labeled Form Header section. The Form Header section is followed by eight fields. On the right of each field, there is a text box to enter the respective data. The fields and their corresponding data are as follows:

Employee Number: 103.

Last Name: Bui.

First Name: Millie.

Multilingual: Y.

Date Hired: 5/8/2017.

Phone: (530) 648-7689.

Specialties: Luxury Properties.

About: Millie brings 14 years of experience in real estate. She excels at customer service and is committed to being your advocate in all real estate transactions. She understands the unique demands of buyers and sellers in the.

All fields are collectively labeled Detail section. Below the Detail section, at the center, is the text Form Footer, which is labeled Form Footer section.

Return to Figure 7-3

Figure 7.4 Extended Description (Chapter 7)

Return to Figure 7-4

The three forms are arranged one below the other. At the top, there are two texts, arranged one above the other: Form Header and Page Header. The first form shows eight fields. On the right of each field, there is a text box to enter the respective data. The fields and their corresponding data are as follows:

Employee Number: 103.

Last Name: Bui.

First Name: Millie.

Multilingual: Y.

Date Hired: 5/8/2017.

Phone: (530) 648-7689.

Specialties: Luxury Properties.

About: Millie brings 14 years of experience in real estate. She excels at customer service and is committed to being your advocate in all real estate transactions. She understands the unique demands of buyers and sellers in the luxury.

The second form also has eight fields similar to the first form. The fields and their respective data are as follows:

Employee Number: 127.

Last Name: Weatherby.

First Name: Kelly.

Multilingual: Y.

Date Hired: 11/10/2017.

Phone: (916) 987-3756.

Specialties: Land purchases and Building Custom Homes.

About: Kelly epitomizes integrity, energy, hard work, and creative service in every detail of your real estate transactions. She is a Sacramento native who was born and raised in a construction family. She first began her real estate career in.

The third form has five fields. The fields and their corresponding data are as follows:

Employee Number: 133.

Last Name: Burgess.

First Name: John.

Multilingual: N.

Date Hired: 6/12/2019.

Below the third form is the following text: Page Footer. The Page Header at the top and the Page Footer at the bottom are collectively labeled Page Header and Page Footer sections display only when printed.

Return to Figure 7-4

Figure 7.5 Extended Description (Chapter 7)

Return to Figure 7-5

The Print Preview view has two forms arranged one below the other. At the top is the text Page Header. Each form has eight fields, such as Employee Number, Last Name, First Name, Multilingual, Date Hired, Phone, Specialties, and About. The data entries of each field in the first form are as follows:

Employee Number: 168.

Last Name: Duarte.

First Name: Kallyn.

Multilingual: N.

Date Hired: 2/15/2021.

Phone: (916) 744-1614.

Specialties: Relocation Specialist, Senior Real Estate Specialist.

About: Strong Work Ethic and Will Get The Job Done. Honesty and Integrity in all Transactions. Outstanding Organizational Skills. Strong Negotiating Skills. Innovative Marketing and Advertising. The data entries of the fields in the second form are as follows:

Employee Number: 169.

Last Name: Montoya.

First Name: Gerardo.

Multilingual: Y.

Date Hired: 3/29/2021.

Phone: (916) 534-5991.

Specialties: Relocation Certified, U S A A Movers Advantage Team Member, Designated S F R.

About: I have the technology and resources to generate demand for your property, provide buyers with the detailed information they desire, and have the ability to respond instantly to online inquiries.

At the bottom center is the text Form Footer is labeled Form Footer section. Below is the text Page Footer.

Return to Figure 7-5

Figure 7.6 Extended Description (Chapter 7)

Return to Figure 7-6

The context menu shows the following options: Ruler, Grid, Page Header or Footer, Form Header or Footer, Form Properties, and Properties. The Page Header or Footer and Form Header or Footer options are collectively labeled Header and Footer options.

Return to Figure 7-6

Figure 7.7 Extended Description (Chapter 7)

Return to Figure 7-7

The form has the Form 1 object tab at the top left corner. The form has three sections: Form Header, Detail, and Form Footer. The Detail section shows three fields: Employee Number, Last Name, and First Name. On the top edge of this section is an icon, shown as a short vertical double-headed arrow with a short horizontal line at its center. The icon is labeled Resize arrow.

Return to Figure 7-7

Figure 7.8 Extended Description (Chapter 7)

Return to Figure 7-8

The Detail section is shown immediately below the Form Header section. The Detail section shows three fields: Employee Number, Last Name, and First Name.

Return to Figure 7-8

Figure 7.9 Extended Description (Chapter 7)

Return to Figure 7-9

The screenshots are arranged horizontally. All three windows have a Title bar at the top, followed by a Ribbon below. The Title bar has the Save button and Quick Access toolbar on the far left. The Minimize, Maximize, and Close buttons are present at the far right. The first window has the following tabs in the Ribbon: File, Home, Create, External Data, Database Tools, Help, and Form Design. The Form Design tab is selected, which shows Command groups such as Views, Themes, Controls, and Header or Footer. Below the Ribbon, in the Datasheet area, on the left, there is a vertical Navigation pane, which is collapsed. On the right of the Navigation pane, there is a form titled Sample Form Width. The form has three sections: Form Header, Detail, and Form Footer. The Form Header section shows the following text: Sample Form with a 3-inch Width. The Detail section shows fields such as Employee Number, Last Name, First Name, Multilingual, Date Hired, and Phone. The second window has tabs such as File, Home, Create, External Data, Database Tools, and Help. The form in the Datasheet area shows fields such as Employee Number, Last Name, First Name, Multilingual, Date Hired, and Phone. At the bottom of the form, there is a box with the text Tabbed Documents Example. The third window has tabs such as File, Home, Create, External Data, Database Tools, and Help. The form in the Datasheet area shows fields such as Employee Number, Last Name, First Name, Multilingual, Date Hired, and Phone. At the bottom of the form, there is a box with the text Overlapping Windows Example.

Return to Figure 7-9

Figure 7.10 Extended Description (Chapter 7)

Return to Figure 7-10

The Tools Command group consists of buttons such as Add Existing Fields, Property Sheet, Tab Order, and Chart Settings. The Tab Order button is selected.

Return to Figure 7-10

Figure 7.11 Extended Description (Chapter 7)

Return to Figure 7-11

The Tab Order dialog box has two boxes: Section and Custom Order. The Section box shows three options: Form Header, Detail, and Form Footer. The Detail option is selected. The Custom Order box lists the following options: Employee Number, Last Name, First Name, Multilingual, Date Hired, Phone, Specialties, About, C m d Delete Employee, and C m d Close Form. The Multilingual option is labeled Selector. Below the Section box, the following text is shown: Click to select a row, or click and drag to select multiple rows. Drag selected row(s) to move them to desired tab order. At the bottom of the dialog box, the OK, Cancel, and Auto Order buttons are located. The Auto Order button is highlighted.

Return to Figure 7-11

Figure 7.12 Extended Description (Chapter 7)

Return to Figure 7-12

The Custom Order section shows the following options: Employee Number, Last Name, First Name, Multilingual, Date Hired, Phone, Specialties, About, c m d Delete Employee, and c m d Close Form. The Multilingual row is highlighted in black. A black horizontal line is shown below the Employee Number row and is labeled Black line indicates new position.

Return to Figure 7-12

Figure 7.13 Extended Description (Chapter 7)

Return to Figure 7-13

The title is shown at the top, against a blue bar. The form has fields such as Employee I D, First Name, Last Name, Multilingual, Date Hired, Phone, I specialize in, and About Me. Each field has a data entry box on the right. The fields and their respective data entries are as follows:

Employee I D: 103.

First Name: Millie.

Last Name: Bui.

Multilingual: Y.

Date Hired: 5/8/2017.

Phone: (530) 648-7689.

I specialize in: Luxury Properties.

About Me: Millie brings 14 years of experience in real estate. She excels at customer service and is committed to being your advocate in all real estate transactions. She understand the unique demands of buyers and sellers in the.

The Employee I D field and its data entry box are grey.

Return to Figure 7-13

Figure 7.14 Extended Description (Chapter 7)

Return to Figure 7-14

The form is titled Agent Information Form. The title is shown at the top, against a blue bar. The form has fields such as Employee I D, First Name, Last Name, Multilingual, Date Hired, Phone, I specialize in, and About Me. Each field has a data entry box on the right. The fields and their respective data entries are as follows:

Employee I D: 103.

First Name: Millie.

Last Name: Bui.

Multilingual: Y.

Date Hired: 5/8/2017.

Phone: (530) 648-7689.

I specialize in: Luxury Properties.

About Me: Millie brings 14 years of experience in real estate. She excels at customer service and is committed to being your advocate in all real estate transactions. She understand the unique demands of buyers and sellers in the.

On the left edge of the form is a vertical bar with a right arrowhead at the top, and is labeled Record selector. On the right and below the form are horizontal and vertical scroll bars, respectively. The scroll bars are highlighted.

Return to Figure 7-14

Figure 7.15 Extended Description (Chapter 7)

Return to Figure 7-15

The form is titled Agent Information Form. The title is shown at the top, against a blue bar. The form has fields such as Employee I D, First Name, Last Name, Multilingual, Date Hired, Phone, I specialize in, and About Me. Each field has a data entry box on the right. The fields and their respective data entries are as follows:

Employee I D: 103.

First Name: Millie.

Last Name: Bui.

Multilingual: Y.

Date Hired: 5/8/2017.

Phone: (530) 648-7689.

I specialize in: Luxury Properties.

About Me: Millie brings 14 years of experience in real estate. She excels at customer service and is committed to being your advocate in all real estate transactions. She understands the unique demands of buyers and sellers in. On the right and below, on the right, of the form, there are two scroll bars: one vertical and another horizontal. On the right and below the form are horizontal and vertical scroll bars, respectively.

Return to Figure 7-15

Figure 7.16 Extended Description (Chapter 7)

Return to Figure 7-16

The form has two sections: Form Header and Detail. The Form Header section shows the title Agent Information Form, against a blue bar. The Detail section shows fields such as Employee I D, First Name, Last Name, Multilingual, Date Hired, Phone, I specialize in, and About Me. At the bottom of the form, there is a Form Footer section. The Detail section has a larger height, and the bottom half of the section is Blank.

Return to Figure 7-16

Figure 7.17 Extended Description (Chapter 7)

Return to Figure 7-17

The Detail section shows the following fields: Employee Number, Last Name, First Name, Multilingual, Date Hired, Phone, Specialties, and About. The fields are arranged vertically. Each field has a data entry box on the right. The data entry box of the About field is selected, which shows orange borders.

Return to Figure 7-17

Figure 7.18 Extended Description (Chapter 7)

Return to Figure 7-18

The Detail section shows the following fields: Employee I D, First Name, Last Name, Multilingual, Date Hired, Phone, I specialize in, and About. Each field has a data entry box on the right. The control of the About Me field is selected, which shows orange borders. The Multilingual field is aligned to the top right of the section. The Last Name field is located to the right of the First Name field. The Specialties field follows this. The About Me field is positioned at the bottom of the section.

Return to Figure 7-18

Figure 7.19 Extended Description (Chapter 7)

Return to Figure 7-19

The Form Header section is at the top, which shows the title Agent Information Form. The title is shown against a blue bar. The Detail section shows the following fields: Employee I D, First Name, Last Name, Multilingual, Date Hired, Phone, I specialize in, and About Me. At the bottom of the form is the Form Footer section.

Return to Figure 7-19

Figure 7.20 Extended Description (Chapter 7)

Return to Figure 7-20

The form has the object tab titled Agent Information. The title Agent Information Form is shown against a blue bar at the top. Below the title, there are the fields of the form. Each field has a data entry box on the right, which shows the corresponding data. The fields and their respective data are as follows:

Employee I D: 103.

First Name: Millie.

Last Name: Bui.

Multilingual: Y.

Date Hired: 5/8/2017.

Phone: (530) 648-7689.

I specialize in: Luxury Properties.

About Me: Millie brings 14 years of experience in real estate. She excels at customer service and is committed to being your advocate in all real estate transactions. She understands the unique demands of buyers and sellers in the luxury home market.

Return to Figure 7-20

Figure 7.21 Extended Description (Chapter 7)

Return to Figure 7-21

At the top left is a Property Listings by Agent object tab, along with a close button. The form has a blue bar at the top, which shows the title Placer Hills Real Estate, Property Listings by Agent. Below the title, there are three fields. Each field has a data entry box on the right. The fields are their corresponding data are as follows:

Employee I D: 177.

First Name: Kelly.

Last Name: Weatherby.

Below is a table labeled Subform. The table has eight columns and nine rows. The column headings are Listing I D, Date Listed, List Price, Address, City, Square Footage, Beds, and Baths. Below the table, on the left, there is a Total Number of Listings feature, which shows the number 11.

Return to Figure 7-21

Figure 7.22 Extended Description (Chapter 7)

Return to Figure 7-22

At the top left is a Property Listings By Agent object tab, along with a close button. The form has two sections: Form Header and Detail. The Form Header section has a blue bar, which shows the title Placer Hills Real Estate, Property Listings by Agent. The Detail section shows three fields: Employee I D, First Name, and Last Name. Each field has a data entry box on the right.

Return to Figure 7-22

Figure 7.23 Extended Description (Chapter 7)

Return to Figure 7-23

The Forms Command group has buttons such as Form, Form Design, Blank Form, Form Wizard, Navigation, and More Forms. The More Forms button is clicked, which shows a drop-down list with options such as Multiple Items, Datasheet, Split Form, and Modal Dialog. The Datasheet option is clicked.

Return to Figure 7-23

Figure 7.24 Extended Description (Chapter 7)

Return to Figure 7-24

At the top left is a Listings Subform object tab, along with a close button. The Datasheet area shows a table. The table has eight columns and six rows. The column headings are Listing I D, Date Listed, List Price, Address, City, Square Footage, Beds, and Baths. Each row has entries for each column.

Return to Figure 7-24

Figure 7.25 Extended Description (Chapter 7)

Return to Figure 7-25

A Ribbon has tabs such as External Data, Database Tools, Help, and Form Design. The Form Design tab is selected. Below the Ribbon, there is a gallery, which shows different icons for action buttons. The icons include a mouse cursor, a rectangle with lowercase letters a and b, a rectangle, two interlocking ovals, a square with a tick mark inside, a paper pin, a column chart, among others. At the bottom of the gallery, there are three options: Set Control Defaults, Use Control Wizards, and Active X Controls.

Return to Figure 7-25

Figure 7.26 Extended Description (Chapter 7)

Return to Figure 7-26

On the left of the dialog box, there is a vertical gray area, which shows a datasheet icon. On the right, at the top, the following text is shown: You can see an existing form to create your subform or subreport, or create your own using tables and or queries. Below the text, there is a “What data would you like to use for your subform or subreport?” feature with two radio buttons for Use existing Tables and Queries and Use an existing form. The Use existing Tables and Queries radio button is selected. The radio buttons are followed by a box, which shows three options: Agent Information, Listing Details, and Listings Subform. The Cancel, Back, Next, and Finish buttons are located at the bottom of the dialog box.

Return to Figure 7-26

Figure 7.27 Extended Description (Chapter 7)

Return to Figure 7-27

On the left of the page, there is a vertical gray area with a Datasheet icon. On the right, at the top, the following text is shown: Would you like to define which fields link your main form to this subform yourself, or choose from the list below? Below the text, there are two radio buttons for Choose from a list and Define my own. The Choose from a list radio button is selected. Below, there is a box with two options: Show Listings for each record in <S Q L Statement> using Employee Number and None. This is followed by a box, which shows the text, Show Listings for each record in <S Q L Statement> using Employee Number. The Cancel, Back, Next, and Finish buttons are located at the bottom right of the dialog box.

Return to Figure 7-27

Figure 7.28 Extended Description (Chapter 7)

Return to Figure 7-28

At the top left is a Property Listings By Agent object tab, along with a close button. The main form has two sections: Form Header and Detail. The Form Header section has a blue bar, which shows the title Placer Hills Real Estate, Property Listings by Agent. Below the title, in the Details section, there are three fields: Employee I D, First Name, and Last Name. Each field has a data entry box on the right. The fields are labeled Fields in main form. Below the main form is the Listings Subform. The Subform has a Details section, which has six fields such as Listing I D, Date Listed, List Price, Address, City, and Square Footage. The fields are labeled Fields in subform.

Return to Figure 7-28

Figure 7.29 Extended Description (Chapter 7)

Return to Figure 7-29

At the top left is a Property Listings By Agent object tab, along with a close button. The form has a blue bar at the top, which shows the title Placer Hills Real Estate, Property Listings by Agent. Below the title, there are three fields. Each field has a data entry box on the right. The fields are their corresponding data are as follows:

Employee I D: 103.

First Name: Millie.

Last Name: Bui.

Below is a table. The table has eight columns and six rows. The column headings are Listing I D, Date Listed, List Price, Address, City, Square Footage, Beds, and Baths. Below the table, there is a toolbar, which is labeled Subform Navigation bar. The bar has buttons such as Record, Previous, Next, and No Filter. The current record is displayed in the Navigation bar as 1 of 6. At the bottom, there is another toolbar, which is labeled Main form Navigation bar. The current record on the Main form Navigation bar is shown as 1 of 7.

Return to Figure 7-29

Figure 7.30 Extended Description (Chapter 7)

Return to Figure 7-30

The dialog box shows the following text at the top: Which fields would you like to include on the subform or subreport? Below the text, there is a feature “You can choose fields from more than one table and or query.” The feature is followed by a Tables or Queries drop-down box, which is set to Table: Listings. This is followed by two boxes for Available Fields and Selected Fields. The Available Field box shows fields such as Square Footage, Beds, Baths, Garage, Year Built, Construction, Listing Agent Number, Result, and Date Removed. The Selected Fields box lists fields such as Listing I D, Date Listed, List Price, Address, and City. Between the Available Fields and Selected Fields boxes are the Move Single Field, Move All Fields, Remove Single Field, and Remove All Fields buttons. The Cancel, Back, Next, and Finish buttons are located at the bottom right of the dialog box.

Return to Figure 7-30

Figure 7.31 Extended Description (Chapter 7)

Return to Figure 7-31

The Property Sheet pane shows a Selection type feature at the top, which shows the option Subform or Subreport. Below is a drop-down box, which is set to Listings Subform. The following tabs are located below the drop-down box: Format, Data, Event, Other, and All. The Data tab is selected, which shows the following property boxes below: Source Object, Link Master Fields, Link Child Fields, Filter On Empty Master, Enabled, and Locked. Each property has a box on the right. The drop-down arrow icon at the far right of the Link Master Fields box is clicked.

Return to Figure 7-31

Figure 7.32 Extended Description (Chapter 7)

Return to Figure 7-32

The dialog box shows two options: Master Fields and Child Fields. Each option has two drop-down boxes below. The first drop-down box of the Master Fields option is set to Employee Number, and the drop-down box under the Child Fields option is set to Listing Agent Number. The OK, Cancel, and Suggest buttons are located on the right. At the bottom of the dialog box, there is a Result box, which shows the text, Show Listings for each record in <S Q L Statement> using Employee Number.

Return to Figure 7-32

Figure 7.33 Extended Description (Chapter 7)

Return to Figure 7-33

The Property Sheet pane shows a Selection type feature at the top. The feature shows the option Subform or Subreport, which is labeled Selection type is Subform or Subreport. Below is a drop-down box, which is set to Listings Subform. The following tabs are located below the drop-down box: Format, Data, Event, Other, and All. The Format tab is selected, which shows the following property boxes below: Visible, Width, Height, Top, Left, Border Style, Border Width, Border Color, and Special Effect. Each property has a box on the right. The box to the right of the Border Style box shows the option Solid. At the far right of the box, there is a drop-down arrow icon, which is labeled Click to change the border style.

Return to Figure 7-33

Figure 7.34 Extended Description (Chapter 7)

Return to Figure 7-34

The form is titled Listings Subform. It has two sections: Form Header and Detail. Above the Form Header section, on the left, there is a white square, which is labeled Select All box.

Return to Figure 7-34

Figure 7.35 Extended Description (Chapter 7)

Return to Figure 7-35

At the top left is a Property Listings By Agent object tab, along with a close button. The form has a blue bar at the top, which shows the title Placer Hills Real Estate, Property Listings by Agent. Below the title are three fields. Each field has a data entry box on the right. The fields are their corresponding data are as follows:

Employee I D: 103.

First Name: Millie.

Last Name: Bui.

Below is a table. The table is titled Listings Subform. The table has eight columns and seven rows. The column headings are Listing I D, Date Listed, List Price, Address, City, Square Footage, Beds, and Baths.

Return to Figure 7-35

Figure 7.36 Extended Description (Chapter 7)

Return to Figure 7-36

The form has the object tab titled Listings Subform at the top left corner. The form consists of five fields such as City, Square Footage, Beds, Baths, and Days on Market. Each field has a data entry box on the right. The data entry box of the Days on Market field shows the following formula: equals Date Diff open parenthesis “d”, [Date Listed], Date open parenthesis close parenthesis close parenthesis. On the right of the form, there is the Property Sheet pane. The pane has a Selection type feature at the top, which shows the option Text Box. Below, there is a drop-down box, which is set to Days On Market. The drop-down box is followed by tabs such as Format, Data, Event, Other, and All. The Data tab is selected. Below are the following property boxes: Control Source, Text Format, Input Mask, Default Value, Validation Rule, Validation Text, Filter Lookup, Enabled, and Locked. The Control Source box shows the following formula: equals Date Diff open parenthesis “d”, [Date Listed], Date open parenthesis close parenthesis close parenthesis. The row for the Control Source property is enclosed within a box.

Return to Figure 7-36

Figure 7.37 Extended Description (Chapter 7)

Return to Figure 7-37

The form has two fields: Beds and Baths. Below the fields, there is a Form Footer section. The Form Footer section consists of a text box with the following formula: equals Count open parenthesis open square bracket Listing I D close square bracket close parenthesis. The borders of the text box are orange.

Return to Figure 7-37

Figure 7.38 Extended Description (Chapter 7)

Return to Figure 7-38

The pane has a Selection type feature at the top, which shows the option Text Box. Below, there is a drop-down box, which is set to S F Listing I D Count. The drop-down box is followed by tabs such as Format, Data, Event, Other, and All. The Other tab is selected. Below are the following property boxes: Name, Label Name, Datasheet Caption, and Enter Key Behavior. The Name box shows the following text: S F Listing I D Count.

Return to Figure 7-38

Figure 7.39 Extended Description (Chapter 7)

Return to Figure 7-39

The pane has a Selection type feature at the top, which shows the option Text Box. Below, there is a drop-down box, which is set to S F Listing I D Count. The drop-down box is followed by tabs such as Format, Data, Event, Other, and All. The Data tab is selected. Below are the following property boxes: Control Source, Text Format, Input Mask, and Default Value. The Control Source box displays the following formula: equals Count open parenthesis open square bracket Listing I D close square bracket close parenthesis.

Return to Figure 7-39

Figure 7.40 Extended Description (Chapter 7)

Return to Figure 7-40

The Expression Builder has the following text at the top: Enter an Expression to create a calculated control: (Examples of expressions include [field] plus [field 2] and [field 1] less than 5). At the bottom, there is a box, which shows the following equation: equals open square bracket Listings Subform close square bracket dot open square bracket Form close square bracket exclamation mark open square bracket S F Listing I D Count close square bracket.

Return to Figure 7-40

Figure 7.41 Extended Description (Chapter 7)

Return to Figure 7-41

The main form at the top shows two fields: Employee I D and First Name. Below, there is a Listings Subform. It has three sections: Form Header, Detail, and Form Footer. The Detail section has three fields: Listing I D, Date Listed, and Total Number of Listings. On the right of the Total Number of Listings field, there is a text box with orange borders.

Return to Figure 7-41

Figure 7.42 Extended Description (Chapter 7)

Return to Figure 7-42

The form has two fields at the top: Employee I D and First Name. Below, there is a Listings Subform. The subform shows a table. The table has three columns and six rows. The column headings are Listing I D, Date Listed, and List Price. Below the form, there is a Total Number of Listings field with a text box on the right. The text box shows the number 6.

Return to Figure 7-42

Figure 7.43 Extended Description (Chapter 7)

Return to Figure 7-43

The screenshot has an object tab with the name Property Listings By Agent at the top left. The form has three sections: Form Header, Detail, and Form Footer. The Form Header section shows the title Placer Hills Real Estate, Property Listings by Agent. The title is shown against a blue bar. The Detail section shows three fields: Employee I D, First Name, and Last Name. The Detail section has a larger height. The First Name and Last Name fields are shown below Employee I D side-by-side.

Return to Figure 7-43

Figure 7.44 Extended Description (Chapter 7)

Return to Figure 7-44

At the top left, the object tab is titled Listings Subform. The subform is in a tabular format. The table has eight columns and six rows. The column headings are Listing I D, Date Listed, List Price, Address, City, Square Footage, Beds, and Baths. All the entries in the subsequent rows are filled.

Return to Figure 7-44

Figure 7.45 Extended Description (Chapter 7)

Return to Figure 7-45

The form has a Detail section. The Detail section shows two fields: Employee I D and First Name. Below the fields on the left, there is a small rectangle icon with a plus sign on the top left. The icon is labeled Subform or Subreport icon.

Return to Figure 7-45

Figure 7.46 Extended Description (Chapter 7)

Return to Figure 7-46

At the top left, the object tab is titled Property Listings By Agent. Below, there is a blue bar, which shows the title Placer Hills Real Estate, Property Listings by Agent. The title is followed by the main form. The main form has three fields such as Employee I D, First Name, and Last Name. Below the fields, there is a table titled Listings Subform. It has eight columns and eleven rows. The column headings are Listing I D, Date Listed, List Price, Address, City, Square Footage, Beds, and Baths. Below the form is a horizontal toolbar, which shows buttons such as Record, Previous, Current Record, Next, and No Filter.

Return to Figure 7-46

Figure 7.47 Extended Description (Chapter 7)

Return to Figure 7-47

The form shows two fields: Employee I D and First Name. Below, there is a Listings Subform. In the top left corner of the Listings Subform is a square. A Detail section shows a Listing I D field.

Return to Figure 7-47

Figure 7.48 Extended Description (Chapter 7)

Return to Figure 7-48

At the top left, the object tab is titled Property Listings By Agent. Below, there is a blue bar, which shows the title Placer Hills Real Estate, Property Listings by Agent. The title is followed by the main form. The main form has three fields such as Employee I D, First Name, and Last Name. Below the fields, there is a table with eight columns and eleven rows. The column headings are Listing I D, Date Listed, List Price, Address, City, Square Footage, Beds, and Baths. Below the table, the Total number of listings feature is shown, which is 11. Below the form, there is a horizontal toolbar, which shows buttons such as Record, Previous, Current Record, Next, and No Filter.

Return to Figure 7-48

Figure 7.49 Extended Description (Chapter 7)

Return to Figure 7-49

A portion of the Ribbon shows tabs for Database Tools, Help, and Form Design. The Form Design tab is selected. An expanded gallery below shows multiple icons arranged in three rows. The icons include an arrow, a rectangle, overlapping ovals, a white circle with a smaller black circle within, a column chart, among others. A slanting line icon is labeled Line button. A rectangle icon is labeled Rectangle button. Another icon is labeled Image button. The Image button is shown as two overlapping screens, one with a landscape and a smaller monitor in front. At the bottom of the gallery are three options: Set Control Defaults, Use Control Wizards, and Active X Controls.

Return to Figure 7-49

Figure 7.50 Extended Description (Chapter 7)

Return to Figure 7-50

A portion of the Ribbon shows tabs for Form Design, Arrange, and Format. The Form Design tab is selected, which shows two buttons: Insert Image with a drop-down arrow and Insert Modern Chart. Clicking the drop-down arrow of the Insert Image button shows the Browse option.

Return to Figure 7-50

Figure 7.51 Extended Description (Chapter 7)

Return to Figure 7-51

A portion of the Ribbon shows tabs for Form Design, Arrange, and Format. The Form Design tab is selected, which shows a Header or Footer Command group. The tab also shows buttons such as Insert Image, Insert Modern chart, Logo, Title, and Date and Time. The Insert Image button is clicked, which shows an Image Gallery below with the thumbnail of a photograph. Right-clicking on the photograph shows a context menu with options such as Delete, Update, Rename, and Add Gallery to Quick Access Toolbar. The Update button is selected.

Return to Figure 7-51

Figure 7.52 Extended Description (Chapter 7)

Return to Figure 7-52

A portion of the Ribbon shows the Format tab, which is selected. It shows two buttons: Background Image and Alternate Row Color. Clicking on the Background Image button shows the Browse option.

Return to Figure 7-52

Figure 7.53 Extended Description (Chapter 7)

Return to Figure 7-53

At the top, there are three buttons: Themes, Colors, and Fonts. The Themes button is selected, which shows a Themes gallery below. The gallery has two sections: In this Database and Office. Each section shows different theme options. The In this Database section has one option. The Office section shows ten options, which are arranged in three rows. At the bottom of the gallery, there are two options: Browse for Themes and Save Current Theme.

Return to Figure 7-53

Figure 7.54 Extended Description (Chapter 7)

Return to Figure 7-54

The dialog box has a Show formatting rules for feature at the top, along with a drop-down box, which shows the option Multilingual. The drop-down box is labeled Select the field to format. Below, there is a bar with buttons such as New Rule, Edit Rule, Delete Rule, Up, and Down. The New Rule button is highlighted. This is followed by an area with two columns: Rule (applied in order shown) and Format. The OK, Cancel, and Apply buttons are located at the bottom right of the dialog box.

Return to Figure 7-54

Figure 7.55 Extended Description (Chapter 7)

Return to Figure 7-55

The dialog box has a Show formatting rules for feature at the top, along with a drop-down box, which shows the option Multilingual. Below, there is a bar with buttons such as New Rule, Edit Rule, Delete Rule, Up, and Down. This is followed by an area with two columns: Rule (applied in order shown) and Format. Under the Rule (applied in order shown) column, the text, Value equals Y, is shown. Below the Format column, a sample text is shown in bold black against a green bar: A a B b C c Y y Z z. The OK, Cancel, and Apply buttons are located at the bottom right of the dialog box.

Return to Figure 7-55

Figure 7.56 Extended Description (Chapter 7)

Return to Figure 7-56

The form has six fields. Each field has a data entry box to enter the data. The fields and their respective data are as follows:

Employee I D: 103.

First Name: Millie.

Last Name: Bui.

Date Hired: 5/8/2017.

Phone: (530) 648-7689.

I specialize in: Luxury Properties.

Return to Figure 7-56

Figure 7.57 Extended Description (Chapter 7)

Return to Figure 7-57

The dialog box has a Select a rule type feature with two options: Check values in the current record or use an expression and Compare to other records. Below, there is an Edit the rule description feature, which shows the option Format only cells where the. It has two drop-down boxes. The first drop-down box shows three options: Field Value Is, Expression Is, and Field Has Focus. The Field Has Focus option is selected. The second drop-down is set to ‘between.’

Return to Figure 7-57

Figure 7.60 Extended Description (Chapter 7)

Return to Figure 7-60

Two text boxes are shown on the right with the text Employee I D and Employee Number. The text box for Employee I D has an orange outline and shows a warning symbol with a drop-down arrow on the left. Clicking the drop-down arrow displays a list of options, such as New Unassociated Label, Associate Label with a Control, Help on This Error, Ignore Error, and Error Checking Options.

Return to Figure 7-60

Figure 7.61 Extended Description (Chapter 7)

Return to Figure 7-61

The message box shows the following message: The value you entered does not meet the validation rule defined for the field or control. To see the validation rule, switch to Design view or Layout view, click the appropriate field, and then, if the property sheet is not open, press F 4. Then, click the Data tab in the property sheet. Enter a value that meets the validation rule, or press E S C to undo your changes. At the bottom of the message box, there is the OK button.

Return to Figure 7-61

Figure 7.62 Extended Description (Chapter 7)

Return to Figure 7-62

A portion of the Ribbon shows tabs for External Data, Database Tools, Help, and Form Design. The gallery shows different icons, which are arranged in three rows. The icons include an arrow, a rectangle, two interlocking ovals, a paper pin, and a column chart, among others. At the bottom of the gallery, there are three options: Set Control Defaults, Use Control Wizards, and Active X Controls.

Return to Figure 7-62

Figure 7.63 Extended Description (Chapter 7)

Return to Figure 7-63

The dialog box has a yellow rectangle on the top left. To the right, the following text is shown: This wizard creates a combo box, which displays a list of values you can choose from. How do you want your combo box to get its values? Below the text, there are three radio buttons: I want the combo box to get the values from another table or query, I will type in the values that I want, and Find a record on my form based on the value I selected in my combo box. The Find a record on my form based on the value I selected in my combo box radio button is selected. The Cancel, Back, Next, and Finish buttons are located at the bottom right of the wizard.

Return to Figure 7-63

Figure 7.64 Extended Description (Chapter 7)

Return to Figure 7-64

The dialog box shows a yellow rectangle at the top left. On the right, the following text is shown: Which fields of Agents contain the values you want included in your combo box? The fields you select become columns in your combo box. At the bottom, there are two boxes for Available Fields and Selected Fields. The Available Fields box shows fields such as Multilingual, Date Hired, and Phone. The Multilingual field is selected. The Selected Fields box has fields such as Employee Number, First Name, and Last Name. The Last Name field is selected. Between the Available Fields and Selected Fields boxes, there are the Move Single Field, Move Multiple Fields, Remove Single Field, and Remove Multiple Fields buttons. The Cancel, Back, Next, and Finish buttons are located at the bottom right corner of the wizard.

Return to Figure 7-64

Figure 7.65 Extended Description (Chapter 7)

Return to Figure 7-65

At the top, the following text is displayed: How wide would you like the columns in your combo box? To adjust the width of a column, drag its right edge to the width you want, or double-click the right edge of the column heading to get the best fit. The text is followed by a Hide key column (recommended) checkbox, which is unchecked. Below the checkbox is a table. The table has three columns and seven rows. The column headings are Employee Number, First Name, and Last Name. On the right edge of the column heading cell of the First Name column, there is an icon shown as a short horizontal double-headed arrow with a short vertical line across its center. The icon is labeled Drag the resize arrow to adjust column widths. The Cancel, Back, Next, and Finish buttons are located at the bottom right corner of the wizard.

Return to Figure 7-65

Figure 7.66 Extended Description (Chapter 7)

Return to Figure 7-66

The form has a Go To Agent field, which has a drop-down box on the right. The drop-down box is expanded, which shows options such as Millie Bui, Kelly Weatherby, John Burgess, and Rick Chung. The Millie Bui option is selected.

Return to Figure 7-66

Figure 7.67 Extended Description (Chapter 7)

Return to Figure 7-67

The upper half of the view shows two object tabs at the top: Agent Information and Agent Information: Query Builder. The Agent Information: Query Builder tab is active. Below, there is a box titled Agents. It shows the following fields: Employee Number, Last Name, First Name, Multilingual, Date Hired, Phone, Specialties, and About. The bottom half of the view shows a query table with three columns and six rows. The table has rows for various query parameters, such as Field, Table, Sort, Show, Criteria, and Or. The Field row shows the entries Employee Number, First Name, and Last Name. The Table row shows the entries Agents, Agents, and Agents. The Sort row shows the entries Blank, Blank, and Ascending. The Show row has a check box in all three columns, each of which is checked. The Criteria and Or rows are empty.

Return to Figure 7-67

Figure 7.68 Extended Description (Chapter 7)

Return to Figure 7-68

The upper half of the screenshot shows the query table. The table has four columns and six rows. The table has rows for various query parameters, such as Field, Table, Sort, Show, Criteria, and Or. The Field row shows the entries Employee Number, Agent Name: [Last Name] ampersand open double quotation mark, comma close double quotation mark ampersand [First Name], and Last Name. The Table row shows the entries Agents, Blank, and Agents. The Sort row shows the entries Blank, Blank, and Ascending. The Show row has a check box in all three columns, of which the checkboxes in the first and second columns are checked. The Criteria and Or rows are empty. The bottom half of the screenshot shows a Go To Agent combo box, associated with a drop-down box. The drop-down box is clicked, which shows a list with options such as Bui, Millie; Burgess, John; Chung, Rick; and Duarte, Kallyn.

Return to Figure 7-68

Figure 7.69 Extended Description (Chapter 7)

Return to Figure 7-69

The form has two sections: Form Header and Detail. The Form Header section shows the title in the center: Agent Information Form. On the right of the title, there is a photograph displaying the hand of a person holding a key. The Detail section shows fields such as Employee I D, First Name, Last Name, Date Hired, Phone, I specialize in, and Multilingual.

Return to Figure 7-69

Figure 7.70 Extended Description (Chapter 7)

Return to Figure 7-70

The dialog box has a Show formatting rules for feature with a drop-down box. The option Multilingual is selected inside the box. Below, there is a blue horizontal bar with buttons such as New Rule, Edit Rule, Delete Rule, Up, and Down. Below, there is a box, which shows two columns: Rule (applied in order shown) and Format. The Rule (applied in order shown) column shows two texts: Value equals Y and Value minus N. The Format column shows a sample text in two formats: A a B b C c Y y Z z. The text in the first row is in black bold against a green bar. The text in the second row is in black bold against a grey bar.

Return to Figure 7-70

Figure 7.71 Extended Description (Chapter 7)

Return to Figure 7-71

The table has four columns and six rows. The table has rows for various query parameters, such as Field, Table, Sort, Show, Criteria, and Or. The Field row has entries such as Employee Number, Agent Name: [Last Name] ampersand open double quotation mark, comma, close double quotation mark, and Last Name. The Table row shows the entries Agents, Blank, and Agents. The Sort row shows the entries Blank, Blank, and Ascending. The Show row has a check box in all three columns, of which the checkboxes in the first and second columns are checked. The Criteria and Or rows are empty.

Return to Figure 7-71

Figure 7.72 Extended Description (Chapter 7)

Return to Figure 7-72

The form is titled Agent Information Form. On the right of the title, there is a photograph displaying the hand of a person holding a key. The form consists of fields such as Employee I D, First Name, Last Name, Date Hired, Phone, Specialties, and Multilingual. On the left of the title, there is a Select an Employee combo box with a drop-down box. The drop-down box is expanded, which shows options such as Bui, Millie; Burgess, John; Chung, Rick; Duarte, Kallyn; Johnstone, Jack; Montoya, Gerardo; and Weathersby, Kelly. The Duarte, Kallyn option is clicked.

Return to Figure 7-72

Figure 7.73 Extended Description (Chapter 7)

Return to Figure 7-73

The object tab titled Listing Details is shown at the top left corner. The form is titled Property Listing Details, which is shown at the top. The form shows fields such as Listing I D and List Price. Below the fields are tabs for Location and Details. The Location tab is selected and shows fields such as Address and City. The Location and Details are together labeled Two pages on a tab control.

Return to Figure 7-73

Figure 7.74 Extended Description (Chapter 7)

Return to Figure 7-74

A portion of the Ribbon shows tabs for External Data, Database Tools, Help, Form Design, Arrange, and Format. The Form Design tab is selected, which shows a Controls Command group. The Controls Command group shows different icons such as an arrow, a rectangle, two overlapping ovals, a notepad, among others. On the right of the icons, there are two buttons: Insert Image and Insert Modern Chart.

Return to Figure 7-74

Figure 7.75 Extended Description (Chapter 7)

Return to Figure 7-75

The form is titled Property Listing Details. The form has two sections: Form Header and Detail. The Form Header section displays the title. The Detail section shows two fields: Listing I D and List Price. Below the fields is a box with tabs for Page 7 and Page 8. The box has an orange outline.

Return to Figure 7-75

Figure 7.76 Extended Description (Chapter 7)

Return to Figure 7-76

The form shows a rectangular box, with tabs for Page 7 and Page 8. The Page 7 tab is labeled Click a Page tab to select the page.

Return to Figure 7-76

Figure 7.77 Extended Description (Chapter 7)

Return to Figure 7-77

The form shows two fields: Listing I D and List Price. Below, there is a box, with tabs for Page 7 and Page 8. The region below the tabs is black.

Return to Figure 7-77

Figure 7.78 Extended Description (Chapter 7)

Return to Figure 7-78

The form shows two fields: Listing I D and List Price. Below, there is a box, with tabs for Page 7 and Page 8. The Page 7 tab is selected. Below the tabs is the Address field.

Return to Figure 7-78

Figure 7.79 Extended Description (Chapter 7)

Return to Figure 7-79

The gallery shows different icons, which are arranged in three rows. The icons include an arrow, a rectangle, two interlocking ovals, a paper pin, and a column chart, among others. At the bottom of the gallery, there are three options: Set Control Defaults, Use Control Wizards, and Active X Controls.

Return to Figure 7-79

Figure 7.80 Extended Description (Chapter 7)

Return to Figure 7-80

The form has a rectangular box, with tabs for Page 7, Page 8, and Page 10. The Page 10 tab is selected and shows a box with an orange outline.

Return to Figure 7-80

Figure 7.81 Extended Description (Chapter 7)

Return to Figure 7-81

The form has a rectangular box, with tabs for Page 7, Page 8, and Page 10. The Page 10 tab is selected and shows a box with an orange outline. Right-clicking the box shows the context menu, with the following options: Build Event, Cut, Copy, Paste, Insert Page, Delete Page, Page Order, and Tab Order.

Return to Figure 7-81

Figure 7.82 Extended Description (Chapter 7)

Return to Figure 7-82

The form is titled Sample Navigation Form. Below, there is a horizontal blue bar, which is labeled Top level of hierarchy. The bar shows three tabs for Contact Information, Task Information, and Reports. The Contact Information tab is selected. This is followed by another blue bar, which is labeled Sub-levels. The bar has tabs for Contacts and Contact Details. A table is shown below. The Contacts tab is selected. The table has nine columns and five rows. The column headings are I D, Company, Last Name, First Name, E-mail Address, Job Title, Business Phone, Home Phone, and Mobile Phone.

Return to Figure 7-82

Figure 7.83 Extended Description (Chapter 7)

Return to Figure 7-83

The form is titled Sample Navigation Form. Below the title, there is a horizontal blue bar, which shows three tabs for Contact Information, Task Information, and Reports. The Reports tab is selected. This is followed by another blue bar, which shows the following tabs: Contact Address Book, Contact Phone List, Tasks Due Today, and Completed Tasks by Date. The Contact Phone List tab is selected. A table is shown below. The table has four columns and three rows. The column headings are Contact Name, Business Phone, Home Phone, and Mobile Phone. The data in each row is arranged in alphabetical order.

Return to Figure 7-83

Figure 7.84 Extended Description (Chapter 7)

Return to Figure 7-84

The Navigation button is clicked, which shows a drop-down list showing options such as Horizontal Tabs, Vertical Tabs, Left, Vertical Tabs, Right, Horizontal Tabs, 2 Levels, Horizontal Tabs and Vertical Tabs, Left, and Horizontal Tabs and Vertical Tabs, Right.

Return to Figure 7-84

Figure 7.85 Extended Description (Chapter 7)

Return to Figure 7-85

The tab on the left shows the All Access Objects pane. The pane has a Search bar at the top, which is followed by three sections: Tables, Queries, and Forms. The Tables section has three options: Agents, Listings, and Sold Properties. The Queries section has a Square Footage Parameter Query option. The Forms section has two options: Agent Information and Listing Details. The middle tab shows a form titled Navigation Form. The third tab displays a Field List pane. The pane shows the following text at the top: No fields available to be added to the current view. Below, there is a Show all tables button.

Return to Figure 7-85

Figure 7.86 Extended Description (Chapter 7)

Return to Figure 7-86

The screenshot shows two sections. The section on the left shows the All Access Objects pane. The pane has a Search bar at the top, which is followed by three sections: Tables, Queries, and Forms. The Tables section has three options: Agents, Listings, and Sold Properties. The Queries section has a Square Footage Parameter Query option. The Forms section has two options: Agent Information and Listing Details. The Agent Information option is selected. The section on the right displays a form titled Navigation Form. Below the title, there is an [Add New] button, which is labeled Form dragged to [Add New] button.

Return to Figure 7-86

Figure 7.87 Extended Description (Chapter 7)

Return to Figure 7-87

The screenshot shows two sections. The section on the left shows the All Access Objects pane. The pane has a Search bar at the top, which is followed by three sections: Tables, Queries, and Forms. The Tables section has three options: Agents, Listings, and Sold Properties. The Queries section has a Square Footage Parameter Query option. The Forms section has four options: Agent Information, Listing Details, Listings Subform, and Property Listings By Agent. The Agent Information option is selected. The section on the right displays a form titled Navigation Form. Below the title, there is an Agent Information tab. Next to it, the [Add New] button is located. The form has multiple fields such as Employee I D, First Name, and Last Name.

Return to Figure 7-87

Figure 7.88 Extended Description (Chapter 7)

Return to Figure 7-88

The Control Formatting Command group has buttons such as Quick Styles, Change Shape, Conditional Formatting, Shape Fill, Shape Outline, and Shape Effects. The Conditional Formatting button is inactive.

Return to Figure 7-88

Figure 7.89 Extended Description (Chapter 7)

Return to Figure 7-89

The screenshot shows an object tab titled Navigation Form. The form is titled Navigation Form. Below the title, on the left, there is a blue oval shape with the text Agent Information Form. Next to it, there is a light blue box with the text Listing Details Form. The form has a Select an Employee feature with a drop-down box.

Return to Figure 7-89

Figure 7.90 Extended Description (Chapter 7)

Return to Figure 7-90

The form has two sections: Form Header and Detail. The Detail section shows a Listing I D field. Below the field, on the left, there is a rectangle with a folded upper right corner. The icon is labeled Tab control icon.

Return to Figure 7-90

Figure 7.91 Extended Description (Chapter 7)

Return to Figure 7-91

The form is titled Property Listing Details. The form has two sections: Form Header and Detail. The Form Header section displays the title. The Detail section shows two fields: Listing I D and List Price. Below the fields is a box with tabs for Page 7 and Page 8. The box has an orange outline.

Return to Figure 7-91

Figure 7.92 Extended Description (Chapter 7)

Return to Figure 7-92

The tab control is represented by a rectangular box, with tabs for Page 7 and Page 8. The Page 7 tab is selected. Below the tabs are two fields: Address and City. Each field has a data entry box on the right to enter the data. The data entry box for City has an orange outline.

Return to Figure 7-92

Figure 7.93 Extended Description (Chapter 7)

Return to Figure 7-93

At the top left of the tab control are tabs for Location and Details. The Details tab is selected. The box below the tabs has an orange outline. The following fields are shown in the box: Square Footage, Beds, Garage, Built, Baths, and Construction. On the right of each field, there is a data entry box. At the top left corner of every data entry box, a small gray square is present.

Return to Figure 7-93

Figure 7.94 Extended Description (Chapter 7)

Return to Figure 7-94

At the top of the screenshot, a blue bar is shown with the text Navigation Form. Below the text, four tabs are arranged horizontally: Agent Information Form, Listing Details Form, Property Listings By Agent Form, and Sold Properties Listing Report. The Agent Information Form tab is selected. Below, a form titled Agent Information Form is displayed. On the right of the title, there is a photograph displaying the hand of a person holding a key. On the left of the title, there is a Select an Employee combo box with a drop-down arrow. Below, the form consists of fields such as Employee I D, First Name, Last Name, Date Hired, Phone, I specialize in, Multilingual, and About Me.

Return to Figure 7-94

Figure 7.95 Extended Description (Chapter 7)

Return to Figure 7-95

The Controls Command group shows different icons such as an arrow, a rectangle, two overlapping ovals, and a notepad, among others.

Return to Figure 7-95

Figure 7.96 Extended Description (Chapter 7)

Return to Figure 7-96

Below the object tab is the form. The form has two fields such as Enter the minimum square footage desired and Enter the maximum square footage desired. Both fields have a data entry box on the right. The OK and Cancel buttons are located at the bottom of the form.

Return to Figure 7-96

Figure 7.97 Extended Description (Chapter 7)

Return to Figure 7-97

The dialog box shows two fields such as Enter the minimum square footage desired and Enter the maximum square footage desired. Both fields have a data entry box on the right. The OK and Cancel buttons are located at the bottom.

Return to Figure 7-97

Figure 7.98 Extended Description (Chapter 7)

Return to Figure 7-98

The Expression Builder window shows the following feature at the top: Enter an Expression to use in the query criteria. Below, the following text is shown: (Examples of expressions include [field 1] plus [field 2] and [field 3] less than 5). The text is followed by a box showing the following expression: Between open square bracket Forms close square bracket exclamation mark open square bracket Get Square Footage Parameters close square bracket exclamation mark open square bracket Min Square Footage close square bracket And open square bracket Forms close square bracket exclamation mark open square bracket Get Square Footage Parameters close square bracket exclamation mark open square bracket Max Square Footage close square bracket. On the right are the OK and Cancel buttons.

Return to Figure 7-98

Figure 7.99 Extended Description (Chapter 7)

Return to Figure 7-99

The top of the screenshot shows the following text: If Is Null open parenthesis open square bracket Control Name close square bracket close parenthesis Then. The code has three sections: Message Box, Stop Macro, and End If. The Message Box section shows properties such as Message, Beep, Type, and Title. The properties and their respective data are as follows:

Message: Enter Message Here.

Beep: No.

Type: None.

Title: Enter Title Here.

Return to Figure 7-99

Figure 7.100 Extended Description (Chapter 7)

Return to Figure 7-100

The Set Property feature shows three properties below: Control Name, Property, and Value. The Property is shown as Visible. The Value is displayed as False.

Return to Figure 7-100

Figure 7.101 Extended Description (Chapter 7)

Return to Figure 7-101

The Open Query feature has three options. The options and their corresponding details are as follows:

Query Name: Enter Query Name Here.

View: Datasheet.

Data Mode: Edit.

Return to Figure 7-101

Figure 7.102 Extended Description (Chapter 7)

Return to Figure 7-102

A yellow triangle with an exclamation mark inside is shown at the top left of the screenshot, along with the text Close Window. The Close Window feature has three properties. The properties and their details are as follows:

Object Type: Form.

Object Name: Enter Form Name Here.

Save: No.

Return to Figure 7-102

Figure 7.103 Extended Description (Chapter 7)

Return to Figure 7-103

Two tabs are shown at the top of the screenshot: Get Square Footage Parameters and Get Square Footage Parameters: c m d OK: On Click. The Get Square Footage Parameters: c m d OK: On Click tab is active. Below is a drop-down box, which is expanded and shows options such as Comment, Group, If, Submacro, Add Contact Form Outlook, Add Menu, Apply Filter, and Beep. The If option is selected.

Return to Figure 7-103

Figure 7.104 Extended Description (Chapter 7)

Return to Figure 7-104

The object tab is shown at the top left of the screenshot, which is titled Get Square footage Parameters. The form has a Detail section. The section has two fields shown in boxes: Enter the minimum square footage desired and Enter the maximum square footage desired. On the right of each field, there is a text box with the text Unbound. The OK and Cancel buttons are located at the bottom of the Detail section. The Cancel button has an orange outline.

Return to Figure 7-104

Figure 7.105 Extended Description (Chapter 7)

Return to Figure 7-105

The form has two fields such as Enter the minimum square footage desired and Enter the maximum square footage desired. Both fields have a data entry box on the right. The OK and Cancel buttons are located at the bottom of the form.

Return to Figure 7-105

Figure 7.106 Extended Description (Chapter 7)

Return to Figure 7-106

Two tabs are shown at the top of the screenshot: Get Square Footage Parameters and Get Square Footage Parameters: c m d OK: On Click. The Get Square Footage Parameters: c m d OK: On Click tab is active. Below is a text shown in green, which is as follows: Verify that both text boxes contain a value. If not, display a message and stop the macro. The text is followed by the macro code: If Is Null ([Min Square Footage]) Or Is Null ([Max Square Footage]) Then. This is followed by a Message Box that shows the following codes:

Message, You must enter a value in both text boxes.

Beep, No.

Type, Warning! Title.

Below is the text Stop Macro, followed by End If.

The following text is shown: Perform the following steps only if both text boxes contain a value.

Below is the Set Property command with the code as follows:

Control Name.

Property, Visible.

Value, False.

Below is the Open Query command with the code as follows:

Query Name, Square Footage Parameter Query.

View, Datasheet.

Data Mode, Edit.

Below is the Close Window command with the code as follows:

Object Type, Form.

Object Name, Get Square Footage Parameters.

Save, No.

A text box below shows the text Add New Action and a drop-down arrow on the left. A plus symbol is present on the left of the text box.

Return to Figure 7-106

Figure 7.107 Extended Description (Chapter 7)

Return to Figure 7-107

The form has an Object tab titled Song Listing On Albums By Artist. The form has two sections: Form Header and Detail. The Form Header section displays the title against a blue bar, which is Songs On My Albums. The Detail section has fields such as Album I D, Album Name, and Recording Artist. The text boxes for Album Name and Recording Artist has an orange outline.

Return to Figure 7-107

Figure 7.108 Extended Description (Chapter 7)

Return to Figure 7-108

The form has an Object tab titled Songs Subform. The Subform is presented in a tabular format. The table has two columns and eight rows. The column headings are Song Title and Length.

Return to Figure 7-108

Figure 7.109 Extended Description (Chapter 7)

Return to Figure 7-109

The upper portion of the screenshot shows the main form. The form has fields such as Album Name and Recording Artist. Below, there is another form titled Songs Subform. The form has a Detail section with a Song Title field.

Return to Figure 7-109

Figure 7.110 Extended Description (Chapter 7)

Return to Figure 7-110

The screenshot shows the following buttons at the top: Themes, Colors, and Fonts. The Themes button is clicked, which shows a Themes gallery below. The gallery has two sections: In this Database and Office. Each section consists of thumbnails of slides with different themes. At the bottom of the gallery, there are two options: Browse for Themes and Save Current Theme.

Return to Figure 7-110

Figure 7.111 Extended Description (Chapter 7)

Return to Figure 7-111

The form is titled Songs on My Albums. The title is shown at the top, against a blue bar. On the right of the title, there is a Select an Album to view feature with a drop-down arrow. Below, three fields are shown: Album, Recording Artist, and Total number of songs. The subform is shown below in a tabular format. The table has two columns and twelve rows. The column headings are Song Title and Length.

Return to Figure 7-111

Figure 7.112 Extended Description (Chapter 7)

Return to Figure 7-112

The form has an object tab titled Get Invoice Parameters. The form has a Detail section, which shows three fields: Select the doctor's name, Enter the start date of the time period, and Enter the end date of the time period. On the right of each field is a data entry box with the text Unbound. At the bottom of the menu, the OK and Cancel buttons are located. The Cancel button has an orange outline.

Return to Figure 7-112

Figure 7.113 Extended Description (Chapter 7)

Return to Figure 7-113

The form is titled Courtyard Medical Plaza Invoice History. The form has three fields: Select the doctor's name, Enter the start date of the time period, and Enter the end date of the time period. On the right of the Select the doctor's name field is a drop-down box, which is expanded and shows options such as Ansari Randy, Bolden Victor, Camacho Juan, Dyer Daniel, and Flores Ricardo. Between the Select the doctor's name and Enter the start date of the time period fields, there is a line with the text OR in the middle. The text AND is shown between the Enter the start date of the time period and Enter the end date of the time period fields. The OK and Cancel buttons are located at the bottom of the menu.

Return to Figure 7-113

Figure 7.114 Extended Description (Chapter 7)

Return to Figure 7-114

Two tabs are shown at the top of the screenshot: Get Invoice Parameters and Get Invoice Parameters: c m d OK: On Click. The Get Invoice Parameters: c m d OK: On Click tab is active. Below is a text shown in green, which is as follows: Verify that the correct text boxes have been completed. If not, display a message and stop the macro. The text is followed by the macro code: If Is Null ([Last Name]) And (Is Null ([Start Date]) Or Is Null ([End Date]]) Then. This is followed by a Message Box that shows the following codes:

Message, You must either select a doctor or enter both the start and end dates in the text boxes.

Beep, No.

Type, Warning!

Title.

Below is the text Stop Macro, followed by End If.

The following text is shown: Perform the following steps only if the correct text boxes contain a value.

Below is the Set Property command with the code as follows:

Control Name.

Property, Visible.

Value, False.

Below is the Open Query command with the code as follows:

Query Name, Invoice History.

View, Datasheet.

Data Mode, Edit.

Below is the Close Window command with the code as follows:

Object Type, Form.

Object Name, Get Invoice Parameters.

Save, No.

A text box below shows the text Add New Action and a drop-down arrow on the left. A plus

symbol is present on the left of the text box.

Return to Figure 7-114

Figure 7.115 Extended Description (Chapter 7)

Return to Figure 7-115

At the top is a horizontal blue bar, which shows the text Navigation Form. The bar is followed by four vertically arranged blue boxes on the left for Physicians, Add New Physician, Record Invoice Payment, and Recent Invoices. On the right, there is a form titled Physician Information. The form has fields such as Doctor I D, First Name, Last Name, Office, Specialty, and Tenant Since.

Return to Figure 7-115

Figure 7.116 Extended Description (Chapter 7)

Return to Figure 7-116

The dialog box has two parts: Section and Custom Order. The Section part on the left shows three options: For Header, Detail, and Form Footer. The Custom Order part shows the following options: Boat I D, Boat Type, Length, Sleeps, Seats, Four Hour Rental Rate, Full Day Rental Rate, Galley With Stove, Model Year, and Add Boat Form Save Button.

Return to Figure 7-116

Figure 7.117 Extended Description (Chapter 7)

Return to Figure 7-117

The form has an object tab titled Add New Sailboat. At the top of the form, the title Add New Sailboat is displayed against a blue bar. On either side of the title, there is a photograph showing a silhouette of a boat against a sunset shown in the background. The form has fields such as Boat I D, Boat Type, Model Year, Length, Seats, Sleeps, Galley with Stove, 4 Hour Rate, and Full Day Rate. At the bottom of the menu are the Save Sailboat Record, Add New Sailboat, and Close Form buttons.

Return to Figure 7-117

Figure 7.118 Extended Description (Chapter 7)

Return to Figure 7-118

The Detail section shows fields such as Rental I D, F K Boat I D, Boat Type, Rental Date, and Member I D. A check box for Four Hour Rental is shown below Rental Date. The check box is checked. Each field has a data entry box. The data entry box for Member I D has an orange outline.

Return to Figure 7-118

Figure 7.119 Extended Description (Chapter 7)

Return to Figure 7-119

The form has an object tab titled Rental Information. At the top of the form, the title Boat Rental Information is displayed against a blue bar. The Detail section shows fields such as Rental I D, Boat I D, Boat Type, Rental Date, Four Hour Rental, and Member Number. Each field has a data entry box. On the right of the Four Hour Rental field, there is a checkbox, which is checked.

Return to Figure 7-119

Figure 7.120 Extended Description (Chapter 7)

Return to Figure 7-120

The form has an object tab titled Rental Information. At the top of the form is the title of the form, which is Boat Rental Information. The form has six fields. The fields and their respective data are as follows:

Rental I D: 08013.

Boat I D: 1146.

Boat Type: Hunter 36.

Rental Date: 5/6/2022.

Four Hour Rental.

Member Number: 1003.

On the right of the Four Hour Rental field is a checkbox, which is checked.

Return to Figure 7-120

Figure 7.121 Extended Description (Chapter 7)

Return to Figure 7-121

The Detail section shows fields such as Employee I D, First Name, and Last Name. A rectangular box is shown below, with tabs for Job Location and Hire Details. The Hire Details tab is selected. The tab control shows fields such as Start Date and Base Monthly Salary. The box for Base Monthly Salary has an orange outline.

Return to Figure 7-121

Figure 7.122 Extended Description (Chapter 7)

Return to Figure 7-122

The Detail section shows fields such as Employee I D, First Name, and Last Name. A rectangular box is shown below, with tabs for Job Location and Hire Details. The Job Location tab is selected. The tab control shows fields such as Branch, Title, and Department. The text box for each field has an orange outline.

Return to Figure 7-122

Figure 7.123 Extended Description (Chapter 7)

Return to Figure 7-123

The form has an object tab titled Employee Information. The main form has three fields: Employee I D, First Name, and Last Name. Below, there is a rectangular box with tabs for Job Location and Hire Details. The tab for Job Location is selected. The box shows three fields. The fields and their respective data are as follows:

Branch: Cameron Park.

Title: Chief Executive Officer.

Department: Administration.

Return to Figure 7-123

Figure 7.124 Extended Description (Chapter 7)

Return to Figure 7-124

The form has an object tab titled Get Branch Parameter. The form has a Detail section. The Detail section shows a text box with the text Click the arrow to select the desired branch and click OK, or simply click OK to display employees at all branches. On the right, there is a drop-down box with the text Unbound. At the bottom, the OK and Cancel buttons are located. The Cancel button has an orange outline.

Return to Figure 7-124

Figure 7.125 Extended Description (Chapter 7)

Return to Figure 7-125

The form is titled Central Sierra Employee Listing. The form shows a text box with the text Click the arrow to select the desired branch and click OK, or simply click OK to display employees at all branches. On the right, there is a drop-down box, which is expanded to show options such as Cameron Park, Folsom, and Granite Bay. At the bottom, the OK and Cancel buttons are located.

Return to Figure 7-125

Figure 7.126 Extended Description (Chapter 7)

Return to Figure 7-126

Two tabs are shown at the top of the screenshot: Get Branch Parameter and Get Branch Parameter: c m d OK: On Click. The Get Branch Parameters: c m d OK: On Click tab is active. Below is a text shown in green, which is as follows: This macro passes the value from the combo box to the query. It is permissible for the combo box to be empty, in which case the query returns all records. Below is the Set Property command with the code as follows:

Control Name.

Property, Visible.

Value, False.

Below is the Open Query command with the code as follows:

Query Name, Employees Branch Parameter.

View, Datasheet.

Data Mode, Edit.

Below is the Close Window command with the code as follows:

Object Type, Form.

Object Name, Get Branch Parameter.

Save, No.

A text box below shows the text Add New Action and a drop-down arrow on the left. A plus symbol is present on the left of the text box.

Return to Figure 7-126

Figure 7.127 Extended Description (Chapter 7)

Return to Figure 7-127

The form has an object tab titled Equipment Service History. The main form is titled Equipment Service History. The title is shown against a blue bar. The title is followed by fields such as Equipment I D, Product Name, Comments, Date Purchased, Category, and Lifetime Maintenance Cost. The data entry box for Equipment I D shows the value 09925 and has an orange outline. The main form is followed by a subform titled Service History Subform. The fields in the subform are arranged in seven columns such as Service I D, Service Date, Service Type, Description, Odometer Reading, Hours, and Total Cost. The subform shows one row. A horizontal toolbar with buttons such as Record, Previous, Current Record, Next, and No Filter is shown at the bottom.

Return to Figure 7-127

Figure 7.128 Extended Description (Chapter 7)

Return to Figure 7-128

The form has an object tab titled Equipment Service History. The main form is titled Equipment Service History. The title is shown against a blue bar. The title is followed by fields such as Equipment I D, Product Name, Comments, Date Purchased, Category, and Lifetime Maintenance Cost. The main form is followed by a subform. The fields in the subform are arranged in seven columns such as Service I D, Service Date, Service Type, Description, Odometer Reading, Hours, and Total Cost. The subform shows three rows. The data entry boxes of each field are arranged below the respective fields. A horizontal toolbar with buttons such as Record, Previous, Current Record, Next, and No Filter is shown at the bottom.

Return to Figure 7-128

Figure 7.129 Extended Description (Chapter 7)

Return to Figure 7-129

The form has an object tab titled Marys Rentals Navigation. Below the object tab, there is a blue bar with the title Navigation Form. On the left are tabs for Equipment Service History, Rentals Listing, and Top 5 Product Rentals. A portion of a form is shown on the right. The form has fields such as Equipment I D, Product Name, and Comments. Below a subform is shown with columns for Service I D, Service Date, and Service Type.

Return to Figure 7-129

Figure 7.130 Extended Description (Chapter 7)

Return to Figure 7-130

The form is in a tabular format. The table has five columns and four rows. The column headings are Race I D, Place, Time, Division, and Age Group. The row entries are as follows:

Row 1: 1; 2; 2:15; F; greater than or equal to 20 and less than 30.

Row 2: 1; 3; 2:20; F; greater than or equal to 30 and less than 40.

Row 3: 1; 3; 2:16; M; greater than or equal to 30 and less than 40.

Row 4: 1; 1; 2:12; M; greater than or equal to 30 and less than 40.

Return to Figure 7-130

Figure 7.131 Extended Description (Chapter 7)

Return to Figure 7-131

The form has an object tab titled Member Race Details. The form is titled Member Race Results. The main form shows fields such as Member I D, Member Name, Address, City, State, and ZIP. The subform is added to the right of the main form. The subform is titled Race Results Subform. The subform is arranged in a tabular format. The table has five columns and three rows. The column headings are Race I D, Place, Time, Division, and Age Group. At the bottom of the main form, there is a bar with three buttons: Previous Member, Next Member, and Close Form.

Return to Figure 7-131

Figure 7.132 Extended Description (Chapter 7)

Return to Figure 7-132

The form has an object tab titled Member Race Details. The form is titled Member Race Results. The main form shows fields such as Member I D, Member Name, Address, City, State, and ZIP. The fields are followed by a photograph below displaying a group of people cycling. The subform is added to the right of the main form. The subform is arranged in a tabular format. The table has five columns and three rows. The column headings are Race I D, Place, Time, Division, and Age Group. Below, the total number of races is shown, which is 3. At the bottom of the main form, there is a bar with three buttons: Previous Member, Next Member, and Close Form. Next to the Next Member button is the Go To Member drop-down box, which is expanded. It shows options such as Baxter, Roy; Burgess, John; Clemmins, Randy; Constantini, Robyn; and Figueroa, Melanie.

Return to Figure 7-132

Figure 7.133 Extended Description (Chapter 7)

Return to Figure 7-133

The form has an object tab titled Driver Ticket Details. The form has three sections: Form Header, Detail, and Form Footer. The Form Header section shows the title Ticket Details by Driver, against a green background. The Detail section shows fields such as License Number, Name, Birth Date, Address, City, Gender, and State. The Detail section is followed by a blue bar, which shows four tabs for Ticket, Ticket, Officer, and Officer. The Form Footer section has a green shaded area.

Return to Figure 7-133

Figure 7.134 Extended Description (Chapter 7)

Return to Figure 7-134

The main form is shown at the top, which displays fields such as License Number, Name, Birth Date, Address, City, Gender, State, and ZIP. The main form is followed by a blue bar, which shows four tabs for Ticket, Ticket, Officer, and Officer. A subform titled Tickets Subform is shown below and shows a table with three columns and three rows. The column headings are Ticket Number, Ticket Date, and City.

Return to Figure 7-134

Figure 7.135 Extended Description (Chapter 7)

Return to Figure 7-135

The subform is shown in a tabular format. The title is shown above the table, which is Tickets Subform. The table has seven columns and three rows. The column headings are Number, Date, City, Primary Factor, Fine, First Name, and Last Name. The width of every column fits the content.

Return to Figure 7-135

Figure 7.136 Extended Description (Chapter 7)

Return to Figure 7-136

The title is shown at the top, which is Ticket Details by Driver. The form has multiple fields. Each field has a data entry box. The fields and their respective entries are as follows:

License Number: 10001422.

Name: Ricardo Juarez.

Birth Date: 6/13/1948.

Address: 274 W 145th Street.

City: New York.

Gender: M.

State: N Y.

ZIP: 10039.

All the boxes have an orange outline.

Return to Figure 7-136

Figure 8.1 Extended Description (Chapter 8)

Return to Figure 8-1

The dialog box titled Get External Data - Excel Spreadsheet has the help and close buttons at the top right corner. Below that, a rectangular block at the top is highlighted with an orange-yellowish background. The block shows the text Save Import Steps. Under the block is the text, Finished importing file ‘C colon forward slash My Work forward slash Marys Rentals Customers dot x l s x’ to table ‘Customers’.

Do you want to save these import steps? This will allow you to quickly repeat the operation without using the wizard. Beneath the text, the Save import steps option with a marked checkbox is displayed. The checkbox is labeled Check box if you perform this task frequently. Below this option is a rectangular block labeled Additional options display after you check box to save steps. The block shows the Save as feature with a text box on the right. The text box shows the input Import - Marys Rentals Customers. Under it, the Description field has a text box on the right, which shows the following text: This appends the data in the Marys Rentals Customers Excel file into the Customers table. Below the features is the heading Create an Outlook task. Under which is the text, If you regularly repeat this saved operation, you can create an Outlook task that reminds you when it is time to repeat this operation. The Outlook task will include a Run Import button that runs the import operation in Access. Below the text is a checkbox with the option Create Outlook Task.

Beneath the option, the text, Hint: To create a recurring task, open the task in Outlook and click the Recurrence button on the Task tab, is shown. The bottom left of the dialog box shows the Manage Data Tasks button. On the far right are the Save Import and Cancel buttons.

Return to Figure 8-1

Figure 8.2 Extended Description (Chapter 8)

Return to Figure 8-2

The dialog box titled Manage Data Tasks has the help and close buttons at the top right corner. It shows two tabs for Saved Imports and Saved Exports. The Saved Imports tab is selected. Below the tabs is the rectangular block, which shows the text Click to select the saved import to manage. Under the text is another rectangular block highlighted in red, which shows the file Import - Marys Rentals Customers. To the right of the file name is the address C colon backward slash My Work backward slash Marys Rentals Customers dot x l s x. This is followed by the text 'This appends the data in the Marys Rentals Customers Excel file into the Customers table.' Under the rectangular block, the text 'To edit the name or description of the saved operation, select the operation and then click the text you want to edit' is shown. The bottom left of the dialog box shows the Run, Create Outlook Task, and Delete buttons. To the far right is the Close button.

Return to Figure 8-2

Figure 8.3 Extended Description (Chapter 8)

Return to Figure 8-3

The Excel Worksheet shows the Ribbon that contains tabs for File, Home, Create, External Data, and Database Tools. The External Data tab is selected and consists of the Command group, Import and Link. The Import and Link group shows the New Data Source button, which, when selected, displays a list of options such as From File, From Database, From Online Services, and From Other Sources, each with an extended arrow. The From File option is selected, which further displays a drop-down menu with options such as Excel, H T M L Document, X M L file, and Text File. The Excel option is selected.

Return to Figure 8-3

Figure 8.4 Extended Description (Chapter 8)

Return to Figure 8-4

The dialog box titled Get External Data - Excel Spreadsheet has the help and close buttons at the top right corner. Below that, a rectangular block at the top is highlighted with an orange-yellowish background. The block shows the text Select the source and destination of the Data. Under the block, the text, Specify the source of the definition of the objects, is shown. Beneath that is the File name field with a text box on its right. The text box shows the input C colon backslash My Work backslash. To the right of the text box is the Browse button. Below this, the text “Specify how and where you want to store the data in the current database.

We will not import table relationships, calculated columns, validation rules, default values, and columns of certain legacy data types such as O L E Object.

Search for “Import” in Microsoft Access Help for more information.” The radio options listed below are as follows:

Option 1: Import the source data into a new table in the current database: If the specified table does not exist, Access will create it. If the specified table already exists, Access might overwrite its contents with the imported data. Changes made to the source data will not be reflected in the database.

Option 2: Append a copy of the records to the table: If the specified table exists, Access will add the records to the table. If the table does not exist, Access will create it. Changes made to the source data will not be reflected in the database. The Append a copy of the records to the table option shows a text box on the right. The text box contains the text Agents.

Option 3: Link to the data source by creating a linked table: Access will create a table that will maintain a link to the source data in Excel. Changes made to the source data in Excel will be reflected in the linked table. However, the source data cannot be changed from within Access.

The Import the source data into a new table in the current database option is selected. The OK and Cancel buttons are present on the bottom right of the dialog box.

Return to Figure 8-4

Figure 8.5 Extended Description (Chapter 8)

Return to Figure 8-5

The dialog box titled Import Spreadsheet Wizard has the close button at the top right corner. The dialog box shows the text Your spreadsheet file contains more than one worksheet or range. Which worksheet or range would you like? Below, the text, two radio options as follows, is shown: Show Worksheets and Show Named Ranges. The Show Worksheets option is selected. To the right of the options is the rectangular block, which displays the options: Specialists and Customers. The Specialist option is selected and labeled Select the desired. Below the block is the table titled Sample data for worksheet ‘Specialists’. The table contains 5 columns and 15 rows and has various entries listed under it. The Cancel, Back, Next, and Finish buttons are present on the bottom right of the dialog box.

Return to Figure 8-5

Figure 8.6 Extended Description (Chapter 8)

Return to Figure 8-6

The dialog box titled Import Spreadsheet Wizard has the close button at the top right corner. The dialog box shows the text Microsoft Access can use your column headings as field names for your table. Does the first row specified contain column headings? Below the text is an option with a ticked checkbox named First Row Contains Column Headings. A table with 5 columns and 14 rows, having various entries, is listed below. The Cancel, Back, Next, and Finish buttons are present on the bottom right of the dialog box.

Return to Figure 8-6

Figure 8.7 Extended Description (Chapter 8)

Return to Figure 8-7

The dialog box shows the text You can specify information about each of the fields you are importing. Select fields in the area below. You can then modify field information in the 'Field Options' area. Below the text is the rectangular block titled Field Options. The block is labeled Change the desired options. The block shows the Field Name field with a text box on the right. The text box shows the input Company Name, highlighted with a black background. To the right of this text box is the Data Type field with a text box on the right. The text box shows the input Short Text. Below this is the Indexed field with a text box on the right that shows the input No. To the right of this text box is the Do not import field (Skip) option with a check box. Under this block, a table having 4 columns and 5 rows, and various entries is shown. The column headings are Company Name, Address, City, and State. The Company Name column is highlighted with a black background.

Return to Figure 8-7

Figure 8.8 Extended Description (Chapter 8)

Return to Figure 8-8

The dialog box titled Import Spreadsheet Wizard has the close button at the top right corner. The dialog box shows an icon of a database table on the left. To the right of the icon is the text 'Microsoft Access recommends that you define a primary key for your new table. A primary key is used to uniquely identify each record in your table. It allows you to retrieve data more quickly.' Below the text, radio options such as Let Access add primary key, Choose my own primary key, and No primary key are displayed. The Let Access add primary key option is selected. Under this block, a table having 5 columns and 5 rows, and various entries is shown. The column headings are I D, Company Name, Address, City, and State. The I D column is highlighted with a black background.

Return to Figure 8-8

Figure 8.9 Extended Description (Chapter 8)

Return to Figure 8-9

The dialog box titled Link Spreadsheet Wizard has the close button at the top right corner. The dialog box shows the text Microsoft Access can use your column headings as field names for your table. Does the first row specified contain column headings? Below the text is an option with a checkbox named First Row Contains Column Headings. The check box is labeled Check box if the first row of the data contains field names. A table with 5 columns and 7 rows, having various entries, is listed below. The Cancel, Back, Next, and Finish buttons are present on the bottom right of the dialog box.

Return to Figure 8-9

Figure 8.10 Extended Description (Chapter 8)

Return to Figure 8-10

The pane shows the title Tables, followed by the table names such as Sailboat Fleet, S D Rentals, and Manufacturers. The Sailboat Fleet and S D Rentals show regular table icons on the left, which are labeled, and the Manufacturer shows a Linked Excel table icon on the left, which is also labeled.

Return to Figure 8-10

Figure 8.11 Extended Description (Chapter 8)

Return to Figure 8-11

The message box titled File in Use has the help and close buttons at the top right corner. The box shows the text “Boat Manufacturers - 08 dot x l s x is locked for editing by ‘another user’. Open ‘Read-Only’ or click ‘Notify’ to open read-only and receive notification when the document is no longer in use.” Three vertically aligned buttons for Read Only, Notify, and Cancel are present to the far right of the text.

Return to Figure 8-11

Figure 8.12 Extended Description (Chapter 8)

Return to Figure 8-12

The dialog box titled Import Spreadsheet Wizard has the close button at the top right corner. The dialog box shows the text Microsoft Access can use your column headings as field names for your table. Does the first row specified contain column headings? Below the text is an option with a checkbox named First Row Contains Column Headings. A table with 5 columns and 15 rows, having various entries, is listed below. The Cancel, Back, Next, and Finish buttons are present on the bottom right of the dialog box.

Return to Figure 8-12

Figure 8.13 Extended Description (Chapter 8)

Return to Figure 8-13

The dialog box titled Import Spreadsheet Wizard has the close button at the top right corner. It shows the text You can specify information about each of the fields you are importing. Select fields in the area below. You can then modify field information in the 'Field Options' area. Below the text is the rectangular block titled Field Options. The block shows the Field Name field with a text box on the right. The text box shows the input ZIP, highlighted with a black background. To the right of this text box is the Data Type field with a text box on the right. The text box shows the input Double. Below this is the Indexed field with a text box on the right that shows the input No. To the right of this text box is the Do not import field (Skip) option with a check box. Under this block, a table having 6 columns and 14 rows, and various entries is shown. Company Name, Address, City, State, ZIP, and Line of Business. The ZIP column is highlighted with a black background. The Cancel, Back, Next, and Finish buttons are present on the bottom right of the dialog box.

Return to Figure 8-13

Figure 8.14 Extended Description (Chapter 8)

Return to Figure 8-14

The Access Database shows a tab for Approved Specialists. Below the tab is the table, which contains 9 columns and 15 rows. The column headings are as follows: I D, Company Name, Address, City, State, ZIP, Line of Business, Contact Name, and Phone. The row entries are as follows:

Row 1: I D, 1. Company Name, North American. Address, 2998 Douglas B l. City, Roseville. State, C A. ZIP, 95661. Line of Business, Title Company. Contact Name, Amanda Eklund. Phone, 916-771-0176.

Row 2: I D, 2. Company Name, Placer Title Company. Address, 1508 Eureka Road. City, Roseville. State, C A. ZIP, 95661. Line of Business, Title Company. Contact Name, Michael Brown. Phone, 916-782-3711.

Row 3: I D, 3. Company Name, First American T. Address, 2200 Douglas B I. City, Roseville. State, C A. ZIP, 95661. Line of Business, Title Company. Contact Name, Aniyah Walters. Phone, 916-786-5300.

Row 4: I D, 4. Company Name, Placer Title Com. Address, 354 F St.. City, Lincoln. State, C A. ZIP, 94658. Line of Business, Title Company. Contact Name, Marcus Espinoza. Phone, 916-645-8944. Row 5: I D, 5. Company Name, Old Republic Tit. Address, 1420 Rocky Rid. City, Roseville. State, C A. ZIP, 95611. Line of Business, Title Company. Contact Name, Cole Linarez. Phone, 916-760-9011.

Row 6: I D, 6. Company Name, Sierra Valley Tit. Address, 1200 Auburn Fol. City, Auburn. State, C A. ZIP, 95603. Line of Business, Title Company. Contact Name, Summer Bruhn. Phone, 530-885-7770.

Row 7: I D, 7. Company Name, Clark Pest Control. Address, 12300 Locksley. City, Auburn. State, C A. ZIP, 95602. Line of Business, Pest Control. Contact Name, Stover Harringt. Phone, 888-891-9651. Row 8: I D, 8. Company Name, Rocklin Pest Control. Address, 5431 Paragon C. City, Rocklin. State, C A. ZIP, 95677. Line of Business, Pest Control. Contact Name, Paul Jones. Phone, 916-630-1212.

Row 9: I D, 9. Company Name, Critter Control. Address, S5347 Rattlesnak. City, Pilot Hill. State, C A. ZIP, 95664. Line of Business, Pest Control. Contact Name, Mark Halvorson. Phone, 530-889-8406. Row 10: I D, 10. Company Name, Accurate Appraisal. Address, P.O. Box 2109. City, Rocklin. State, C A. ZIP, 95677. Line of Business, Appraisal Service. Contact Name, Julia Yogerst. Phone, 530-367-3091.

Row 11: I D, 11. Company Name, Valtech Appraisal. Address, 6721 Five Star B. City, Rocklin. State, C A. ZIP, 95747. Line of Business, Appraisal Service. Contact Name, Anthony Vaccaro.

Phone, 916-624-2455.

Row 12: I D, 12. Company Name, South Placer Ap. Address, 4010 Foothills B. City, Roseville. State, C A. ZIP, 95747. Line of Business, Appraisal Service. Contact Name, Tiffany Wendt. Phone, 916-788-7098.

Row 13: I D, 13. Company Name, Rocklin Mortgage. Address, 535 Menlo Drive. City, Rocklin. State, CA. ZIP, 95765. Line of Business, Mortgage Broke. Contact Name, Gordon Schneid. Phone, 916-261-2381.

Row 14: I D, 14. Company Name, Spic and Span C. Address, 6721 Five Star B. City, Rocklin. State, C A. ZIP, 95677. Line of Business, Cleaning. Contact Name, Rosaria Gonzale. Phone, 916-555-2505. Row 15: I D, (New). Company Name, Blank. Address, Blank. City, Blank. State, Blank. ZIP, Blank. Line of Business, Blank. Contact Name, Blank. Phone, Blank.

A Record button, the Page number, a Filter, and a Search button are displayed on the bottom left of the window.

Return to Figure 8-14

Figure 8.15 Extended Description (Chapter 8)

Return to Figure 8-15

The Access Database shows the Ribbon that contains tabs for File, Home, Create, External Data, Database Tools, and Help. The External Data tab is selected and consists of the Command group, Import and Link. The Import and Link group shows the New Data Source button, which, when selected, displays a list of options such as From File, From Database, From Online Services, and From Other Sources, each with an extended arrow. The From Database option is selected, which further displays a drop-down menu with options such as Access, From S Q L Server, From Azure Database, and d Base file. The Access option is selected.

Return to Figure 8-15

Figure 8.16 Extended Description (Chapter 8)

Return to Figure 8-16

The dialog box titled Get External Data - Excel Spreadsheet has the help and close buttons at the top right corner. Below that, a rectangular block at the top is highlighted with an orange-yellowish background. The block shows the text Select the source and destination of the data. Under the block, the text, Specify the source of the definition of the objects, is shown. Beneath that is the File name field with a text box on its right. The text box shows the input C colon backslash My Work backslash. To the right of the text box is the Browse button. Below this, the text “Specify how and where you want to store the data in the current database. We will not import table relationships, calculated columns, validation rules, default values, and columns of certain legacy data types such as O L E Object. Search for “Import” in Microsoft Access Help for more information.” This is followed by three radio options listed below:

Option 1: Import tables, queries, forms, reports, macros, and modules into the current database: If the specified object does not exist, Access will create it. If the specified object already exists, Access will append a number to the name of the imported object. Changes made to source objects (including data in tables) will not be reflected in the current database. Option 2: Link to the data source by creating a linked table: Access will create a table that will maintain a link to the source data. Changes made to the data in Access will be reflected in the source and vice versa. NOTE: If the source database requires a password, the unencrypted password will be stored with the linked table.

The Import tables, queries, forms, reports, macros, and modules into the current database option is selected. The OK and Cancel buttons are present on the bottom right of the dialog box.

Return to Figure 8-16

Figure 8.17 Extended Description (Chapter 8)

Return to Figure 8-17

The dialog box titled Import Objects has the help and close buttons at the top right corner. It shows tabs for Tables, Queries, Forms, Reports, Macros, and Modules. The Tables tab is selected. Below the tabs, a rectangular block displays a list of options such as Agents, Listings, and Sold Properties. The OK, Cancel, Select All, Deselect All, and Options buttons are present on the right of this block. Below the block, three blocks placed side by side are displayed. The blocks are titled Import, Import Tables, and Import Queries, respectively. The Import block shows options accompanied by checkboxes, such as Relationships, Menus and Toolbars, Import or Export Specs, Nav Pane Groups, and All Images and Themes. The Relationships option is selected. To the right, the Import Tables block includes radio options such as Definition and Data, and Definition Only. The Definition and Data option is selected. To the right of this block, the Import Queries block shows radio options such as As Queries and As Tables. The As Queries option is selected.

Return to Figure 8-17

Figure 8.18 Extended Description (Chapter 8)

Return to Figure 8-18

The Access Database shows the Ribbon that contains tabs for File, Home, Create, External Data, and Database Tools. The External Data tab is selected and consists of the Command group, Import and Link. The Import and Link group shows the New Data Source button, which, when selected, displays a list of options such as From File, From Database, From Online Services, and From Other Sources, each with an extended arrow. The From File option is selected, which further displays a drop-down menu with options such as Excel, H T M L Document, X M L file, and Text File. The Text File option is selected.

Return to Figure 8-18

Figure 8.19 Extended Description (Chapter 8)

Return to Figure 8-19

The dialog box titled Get External Data - Text File has the help and close buttons at the top right corner. Below that, a rectangular block at the top is highlighted with an orange-yellowish background. The block shows the text Select the source and destination of the data. Under the block, the text, Specify the source of the definition of the objects, is shown. Beneath that is the File name field with a text box on its right. The text box shows the input C colon backslash My Work backslash. To the right of the text box is the Browse button. Below this is the text “Specify how and where you want to store the data in the current database. We will not import table relationships, calculated columns, validation rules, default values, and columns of certain legacy data types such as O L E Object. Search for “Import” in Microsoft Access Help for more information.” This is followed by three radio options listed below:

Option 1: Import the source data into a new table in the current database: If the specified table does not exist, Access will create it. If the specified table already exists, Access might overwrite its contents with the imported data. Changes made to the source data will not be reflected in the database.

Option 2: Append a copy of the records to the table: If the specified table exists, Access will add the records to the table. If the table does not exist, Access will create it. Changes made to the source data will not be reflected in the database. The Append a copy of the records to the table option shows a text box on the right. The text box contains the text Agents.

Option 3: Link to the data source by creating a linked table: Access will create a table that will create a table that will maintain a link to the source data. You cannot change or delete data that is linked to a text file. However, you can add new records.

The Import the source data into a new table in the current database option is selected. The OK and Cancel buttons are present on the bottom right of the dialog box.

Return to Figure 8-19

Figure 8.20 Extended Description (Chapter 8)

Return to Figure 8-20

The Notepad file titled Agents - 08 dot c s v has the minimize, maximize, and close buttons at the top right corner. It shows tabs for File, Edit, Format, View, and Help. Below the tabs, a table with entries separated by commas is displayed. The table headers are as follows: Emp I D, Last Name, First Name, Multilingual, Date Hired, Phone, Specialties, About.

The entries are as follows:

109, Rapinoe, Simone, Y, 10/06/2017, 5306338787, ,

115, Kozlowski, Kawhi, Y, 10/15/2017, 9164813840, ,

156, Yarak, Katie, N, 11/12/2020, 9164291205, ,

157, Palamidessi, Christopher, N, 01/13/2021, 9167883302, ,

170, Chatlaong, Boon, Y, 11/01/2021, 5302554848, ,

171, Ung, Tri, Y, 01/10/2022, 5303320480, ,

177, Crespillo, Marguerite, N, 02/01/2022, 9168491059, ,

Return to Figure 8-20

Figure 8.21 Extended Description (Chapter 8)

Return to Figure 8-21

The Notepad file titled Agents - 08 dot c s v has the minimize, maximize, and close buttons at the top right corner. It shows tabs for File, Edit, Format, View, and Help. Below the tabs, a table with entries having four columns is shown. The entries having predefined positions are as follows:

109 Rapinoe, Simone, Y 10/06/2017, 5306338787.

115 Kozlowski, Kawhi, Y 10/15/2017, 9164813840.

156 Yarak, Katie, N 11/12/2020, 9164291205.

157 Palamidessi, Christopher, N 01/13/2021, 9167883302.

170 Chatlaong, Boon, Y 11/01/2021, 5302554848.

171 Ung, Tri, Y 01/10/2022, 5303320480.

177 Crespillo, Marguerite, N 02/01/2022, 9168491059.

Return to Figure 8-21

Figure 8.22 Extended Description (Chapter 8)

Return to Figure 8-22

The dialog box titled Import Text Wizard has the close button at the top right corner. The dialog box shows the text, Your data seems to be in a ‘Delimited’ format. If it isn’t, choose the format that more correctly describes your data. Below the text is a rectangular block that shows two radio options as follows:

Delimited - Characters such as comma or tab separate each field.

Fixed Width - Fields are aligned in columns with spaces between each field.

The Delimited option is selected. Under this is another block titled Sample data from file C colon backslash MY WORK backslash AGENTS-08 dot C S V. The block shows a table with entries separated by commas. The entries are as follows:

Emp I D, Last Name, First Name, Multilingual, Date Hired, Phone, Specialties, About.

109, Rapinoe, Simone, Y, 10/06/2017, 5306338787, ,

115, Kozlowski, Kawhi, Y, 10/15/2017, 9164813840, ,

156, Yarak, Katie, N, 11/12/2020, 9164291205, ,

157, Palamidessi, Christopher, N, 01/13/2021, 9167883302, ,

170, Chatlaong, Boon, Y, 11/01/2021, 5302554848, ,

171, Ung, Tri, Y, 01/10/2022, 5303320480, ,

177, Crespillo, Marguerite, N, 02/01/2022, 9168491059, ,

The Advanced button is present on the bottom left of the dialog box. To the far right are the Cancel, Back, Next, and Finish buttons.

Return to Figure 8-22

Figure 8.23 Extended Description (Chapter 8)

Return to Figure 8-23

The dialog box titled Import Text Wizard has the close button at the top right corner. The dialog box shows the text, What delimiter separates your fields? Select the appropriate delimiter and see how your text is affected in the preview below. Below the text is the Choose the delimiter that separates your fields, followed by five radio options named Tab, Semicolon, Comma, Space, and Other. The Comma option is selected. A text box is present on the right of the Other option.

Under these options, there is a checkbox for the First Row Contains Field Names option. To the right of the option is the Text Qualifier field, with a text box that shows the text (none). Beneath these options, a rectangular block shows a table with 8 columns and 7 rows. The column headings are Emp I D, Last Name, First Name, Multilingual, Date Hired, Phone, Specialties, and About. The columns are separated by vertical black lines. The row entries are as follows:

109, Rapinoe, Simone, Y, 10/06/2017, 5306338787, Blank, and Blank.

115, Kozlowski, Kawhi, Y, 10/15/2017, 9164813840, Blank, and Blank.

156, Yarak, Katie, N, 11/12/2020, 9164291205, Blank, and Blank.

157, Palamidessi, Christopher, N, 01/13/2021, 9167883302, Blank, and Blank.

170, Chatlaong, Boon, Y, 11/01/2021, 5302554848, Blank, and Blank.

171, Ung, Tri, Y, 01/10/2022, 5303320480, Blank, and Blank.

177, Crespillo, Marguerite, N, 02/01/2022, 9168491059, Blank, and Blank.

The Advanced button is present on the bottom left of the dialog box. To the far right are the Cancel, Back, Next, and Finish buttons.

Return to Figure 8-23

Figure 8.24 Extended Description (Chapter 8)

Return to Figure 8-24

The screenshot shows the Text Qualifier field with a text box on the right. The text box shows the text (none) and a drop-down arrow on the right. Clicking the drop-down arrow shows the options, such as a double quotation mark, a single quotation mark, and (none). The double quotation mark is highlighted in a black background.

Return to Figure 8-24

Figure 8.25 Extended Description (Chapter 8)

Return to Figure 8-25

The dialog box shows the text You can specify information about each of the fields you are importing. Select fields in the area below. You can then modify field information in the 'Field Options' area. Below the text is the rectangular block titled Field Options. The block shows the Field Name field with a text box on the right. The text box shows the input Emp I D, highlighted with a black background. To the right of this text box is the Data Type field with a text box on the right. The text box shows the input Long Integer. Below this is the Indexed field with a text box on the right that shows the input Yes (Duplicates OK). To the right of this text box is the Do not import field (Skip) option with a check box. Under this block, a table having 7 columns and 4 rows, and various entries is shown. The column headings are Emp I D, Last Name, First Name, Multilingual, Date Hired, Phone, and Specialties. The Emp I D column is highlighted with a black background.

Return to Figure 8-25

Figure 8.26 Extended Description (Chapter 8)

Return to Figure 8-26

The dialog box shows an icon of a database table on the left. To the right of the icon is the text ‘Microsoft Access recommends that you define a primary key for your new table. A primary key is used to uniquely identify each record in your table. It allows you to retrieve data more quickly.’ Below the text, radio options such as Let Access add primary key, Choose my own primary key, and No primary key are displayed. The Let Access add primary key option is selected. Under this block, a table having 8 columns and 4 rows, and various entries is shown. The column headings are I D, Emp I D, Last Name, First Name, Multilingual, Date Hired, Phone, and Specialties. The I D column is highlighted with a black background.

Return to Figure 8-26

Figure 8.27 Extended Description (Chapter 8)

Return to Figure 8-27

The dialog box titled Import Text Wizard has the close button at the top right corner. The dialog box shows the text, What delimiter separates your fields? Select the appropriate delimiter and see how your text is affected in the preview below. Below the text is the Choose the delimiter that separates your fields, followed by five radio options named Tab, Semicolon, Comma, Space, and Other. The Comma option is selected. A text box is present on the right of the Other option.

Under these options, there is a checkbox for the First Row Contains Field Names option. To the right of the option is the Text Qualifier field, with a text box that shows the text (none). Beneath these options, a rectangular block shows a table with 8 columns and 7 rows. The column headings are Emp I D, Last Name, First Name, Multilingual, Date Hired, Phone, Specialties, and About. The columns are separated by vertical black lines. The row entries are as follows:

109, Rapinoe, Simone, Y, 10/06/2017, 5306338787, Blank, and Blank.

115, Kozlowski, Kawhi, Y, 10/15/2017, 9164813840, Blank, and Blank.

156, Yarak, Katie, N, 11/12/2020, 9164291205, Blank, and Blank.

157, Palamidessi, Christopher, N, 01/13/2021, 9167883302, Blank, and Blank. 170, Chatlaong, Boon, Y, 11/01/2021, 5302554848, Blank, and Blank.

171, Ung, Tri, Y, 01/10/2022, 5303320480, Blank, and Blank.

177, Crespillo, Marguerite, N, 02/01/2022, 9168491059, Blank, and Blank.

The Advanced button is present on the bottom left of the dialog box. To the far right are the Cancel, Back, Next, and Finish buttons.

Return to Figure 8-27

Figure 8.28 Extended Description (Chapter 8)

Return to Figure 8-28

The dialog box titled Import Text Wizard has the close button at the top right corner. The dialog box shows the text, What delimiter separates your fields? Select the appropriate delimiter and see how your text is affected in the preview below. Below the text is the Choose the delimiter that separates your fields, followed by five radio options named Tab, Semicolon, Comma, Space, and Other. The Comma option is selected. A text box is present on the right of the Other option.

Under these options, there is a checkbox for the First Row Contains Field Names option. To the right of the option is the Text Qualifier field, with a text box on the right. The text box shows the text (none) and a drop-down arrow on the right. Clicking the drop-down arrow shows the options, such as a double quotation mark, a single quotation mark, and (none). The double quotation mark is highlighted in a black background. Beneath these options, a rectangular block shows a table with 8 columns and 7 rows. The column headings are Emp I D, Last Name, First Name, Multilingual, Date Hired, Phone, Specialties, and About. The columns are separated by vertical black lines. The row entries are as follows:

109, Rapinoe, Simone, Y, 10/06/2017, 5306338787, Blank, and Blank.

115, Kozlowski, Kawhi, Y, 10/15/2017, 9164813840, Blank, and Blank.

156, Yarak, Katie, N, 11/12/2020, 9164291205, Blank, and Blank.

157, Palamidessi, Christopher, N, 01/13/2021, 9167883302, Blank, and Blank.

170, Chatlaong, Boon, Y, 11/01/2021, 5302554848, Blank, and Blank.

171, Ung, Tri, Y, 01/10/2022, 5303320480, Blank, and Blank.

177, Crespillo, Marguerite, N, 02/01/2022, 9168491059, Blank, and Blank.

The Advanced button is present on the bottom left of the dialog box. To the far right are the Cancel, Back, Next, and Finish buttons.

Return to Figure 8-28

Figure 8.29 Extended Description (Chapter 8)

Return to Figure 8-29

The dialog box shows the text You can specify information about each of the fields you are importing. Select fields in the area below. You can then modify field information in the 'Field Options' area. Below the text is the rectangular block titled Field Options. The block shows the Field Name field with a text box on the right. The text box shows the input Emp I D, highlighted with a black background. To the right of this text box is the Data Type field with a text box on the right. The text box shows the input Long Integer. Below this is the Indexed field with a text box on the right that shows the input No. To the right of this text box is the Do not import field (Skip) option with a check box. Under this block, a table with 7 columns and 3 rows and various entries is shown. The column headings are Emp I D, Last Name, First Name, Multilingual, Date Hired, Phone, and Specialties. The Emp I D column is highlighted with a black background.

Return to Figure 8-29

Figure 8.30 Extended Description (Chapter 8)

Return to Figure 8-30

The pane shows the title Tables, followed by the table names such as Listings with an icon on the left labeled Regular Table icon, Sold Properties with an icon on the left labeled Linked Excel table icon, and Agents with an icon on the left labeled Linked text file table icon.

Return to Figure 8-30

Figure 8.31 Extended Description (Chapter 8)

Return to Figure 8-31

The dialog box titled Import Text Wizard has the close button at the top right corner. The dialog box shows the text, Your data seems to be in a ‘Fixed-Width’ format. If it isn’t, choose the format that more correctly describes your data. Below the text is a rectangular block that shows two radio options as follows:

Delimited - Characters such as comma or tab separate each field.

Fixed Width - Fields are aligned in columns with spaces between each field.

The Fixed Width option is selected. Under this is another block titled Sample data from file C colon backslash MY WORK backslash AGENTS-08 dot T X T. The block shows the table entries listed under distinct columns with spaces between them. The entries at predefined positions are as follows:

109 Rapinoe, Simone, Y 10/06/2017, 5306338787.

115 Kozlowski, Kawhi, Y 10/15/2017, 9164813840.

156 Yarak, Katie, N 11/12/2020, 9164291205.

157 Palamidessi, Christopher, N 01/13/2021, 9167883302.

170 Chatlaong, Boon, Y 11/01/2021, 5302554848.

171 Ung, Tri, Y 01/10/2022, 5303320480.

177 Crespillo, Marguerite, N 02/01/2022, 9168491059.

The Advanced button is present on the bottom left of the dialog box. To the far right are the Cancel, Back, Next, and Finish buttons.

Return to Figure 8-31

Figure 8.32 Extended Description (Chapter 8)

Return to Figure 8-32

The dialog box titled Import Text Wizard has the close button at the top right corner. The dialog box shows the text: The wizard has made some guesses about where your field breaks occur. Are they correct? If not, you can make adjustments now. Below this text is a rectangular block with the heading, Lines with arrows signify field breaks is shown. This is followed by the text:

To CREATE a break line, click at the desired position.

To DELETE a break line, double click on the line.

To MOVE a break line, click and drag it.

Below this is another block, which shows a horizontal scale at the top with increments of 10 units. The block shows a table with 4 columns and 7 rows, and various entries. The row entries are as follows:

109 Rapinoe, Simone, Y 10/06/2017, 5306338787.

115 Kozlowski, Kawhi, Y 10/15/2017, 9164813840.

156 Yarak, Katie, N 11/12/2020, 9164291205.

157 Palamidessi, Christopher, N 01/13/2021, 9167883302.

170 Chatlaong, Boon, Y 11/01/2021, 5302554848.

171 Ung, Tri, Y 01/10/2022, 5303320480.

177 Crespillo, Marguerite, N 02/01/2022, 9168491059.

The columns are separated by vertical black lines, which are present at 15, 25, and 40 marks on the scale labeled Preselected field breaks. The Advanced button is present on the bottom left of the dialog box. To the far right are the Cancel, Back, Next, and Finish buttons.

Return to Figure 8-32

Figure 8.33 Extended Description (Chapter 8)

Return to Figure 8-33

The screenshot shows a partial view of a table with a horizontal scale at the top. The scale shows the marked values as follows: 10, 20, 30, 40, and 50. The value marked 5 on the horizontal scale is labeled Click at the position of a new field break. The table with 4 columns and 3 rows has the following entries:

109 Rapinoe, Simone, Y 10/06/2017, 5306338787.

115 Kozlowski, Kawhi, Y 10/15/2017, 9164813840.

156 Yarak, Katie, N 11/12/2020, 9164291205.

The columns are separated by vertical black lines, which are present at 15, 25, and 40 marks on the scale.

Return to Figure 8-33

Figure 8.34 Extended Description (Chapter 8)

Return to Figure 8-34

The screenshot shows a partial view of a table with a horizontal scale at the top. The scale shows the marked values as follows: 10, 20, 30, 40, and 50. The table with 4 columns and 3 rows has the following entries:

109, Rapinoe, Simone, Y 10/06/2017, 5306338787.

115, Kozlowski, Kawhi, Y 10/15/2017, 9164813840.

156, Yarak, Katie, N 11/12/2020, 9164291205.

The columns are separated by vertical black lines, which are present at 5, 15, 25, and 40 marks on the scale. These four vertical lines with arrows at the top represent the field breaks, placed at specific points on the ruler to separate the data into different fields.

Return to Figure 8-34

Figure 8.35 Extended Description (Chapter 8)

Return to Figure 8-35

The dialog box shows the text You can specify information about each of the fields you are importing. Select fields in the area below. You can then modify field information in the 'Field Options' area. Below the text is the rectangular block titled Field Options. The block shows the Field Name field with a text box on the right. The text box shows the input Emp I D, highlighted with a black background. To the right of this text box is the Data Type field with a text box on the right. The text box shows the input Long Integer. Below this is the Indexed field with a text box on the right that shows the input No. To the right of this text box is the Do not import field (Skip) option with a check box. Under this block, a table with 6 columns and 3 rows and various entries is shown. The column headings are Field 1, Field 2, Field 3, Field 4, Field 5, and Field 6. The Field 1 column is highlighted with a black background.

Return to Figure 8-35

Figure 8.36 Extended Description (Chapter 8)

Return to Figure 8-36

The dialog box titled Agents - 08 Import Specifications has the close button at the top right corner. Below this, it shows the File Format feature with two radio options, such as Delimited and Fixed Width. The Fixed Width option is selected. To the right of the Delimited option, the Field Delimiter field has a text box that shows the entry comma. To the right of the Fixed Width option, the Text Qualifier field has a text box that shows the entry text (none). Below the File Format feature is the Language field with a text box on the right that shows the text as English. Under it is the Code Page feature with a text box on the right that shows the entry O E M United States. To the far right of these fields, the OK, Cancel, Save As, and Specs buttons are present. The Cancel button is selected. Below this is a rectangular block titled Dates, Times, and Numbers. The block shows the Date Order field with a text box on the right having the entry M D Y. To the right is the option Four Digit Years with a ticked check box. Under this is the Date Delimiter field with a text box on the right having the entry forward slash. To the right is the Leading Zeros in Dates option with a check box. Beneath this, the Time Delimiter field has a text box on the right that shows the entry colon. To the right is the Decimal Symbol field with a text box on the right. The text box shows the entry full stop. Below this block is a Field Information section with a rectangular block. The block shows a table with 6 columns and 5 rows. The column headings are Field Name, Data Type, Start, Width, Indexed, and Skip. The row entries are as follows:

Row 1: Field Name, Field 1. Date Type, Short Text. Start, 1. Width, 15. Indented, No. Skip, checkbox.

Row 2: Field Name, Field 2. Date Type, Short Text. Start, 16. Width, 12. Indented, No. Skip, checkbox.

Row 3: Field Name, Field 3. Date Type, Short Text. Start, 28. Width, 12. Indented, No. Skip, checkbox.

Row 4: Field Name, Field 4. Date Type, Long Integer. Start, 40. Width, 10. Indented, No. Skip, checkbox.

Row 5: Field Name, Blank. Date Type, Blank. Start, Blank. Width, Blank. Indented, Blank. Skip, checkbox with a minus sign in it.

Return to Figure 8-36

Figure 8.37 Extended Description (Chapter 8)

Return to Figure 8-37

The dialog box shows a block titled Field Information. The block shows a table with 6 columns and 6 rows. The column headings are Field Name, Data Type, Start, Width, Indexed, and Skip. The Start column is labeled Enter Start position and Width for each field. The row entries are as follows:

Row 1: Field Name, Agent I D. Date Type, Short Text. Start, 1. Width, 3. Indented, No. Skip, checkbox.

Row 2: Field Name, Field 2. Date Type, Short Text. Start, 16. Width, 12. Indented, No. Skip, checkbox.

Row 3: Field Name, Field 3. Date Type, Date With Time. Start, 28. Width, 12. Indented, No. Skip, checkbox.

Row 4: Field Name, Field 4. Date Type, Long Integer. Start, 40. Width, 10. Indented, No. Skip, checkbox.

Row 5: Field Name, Last Name. Date Type, Short Text. Start, 4. Width, 12. Indented, No. Skip, checkbox.

Row 6: Field Name, Blank. Date Type, Blank. Start, Blank. Width, Blank. Indented, Blank. Skip, checkbox with a minus sign in it.

Return to Figure 8-37

Figure 8.38 Extended Description (Chapter 8)

Return to Figure 8-38

The screenshot shows the tab for Marys Rentals Employees _ Import Errors. Below the tab is a table with 3 columns and 3 rows. The column headings are Error, Field, and Row. The row entries are as follows:

Row 1: Error, Type Conversation Failure. Field, Date Hired. Row, 1.

Row 2: Error, Type Conversation Failure. Field, E I D. Row, 4.

Row 3: Error, Type Conversation Failure. Field, Date Hired. Row, 4.

Return to Figure 8-38

Figure 8.39 Extended Description (Chapter 8)

Return to Figure 8-39

The dialog box titled Import Text Wizard has the close button at the top right corner. The dialog box shows the text, What delimiter separates your fields? Select the appropriate delimiter and see how your text is affected in the preview below. Below the text is the Choose the delimiter that separates your fields, followed by five radio options named Tab, Semicolon, Comma, Space, and Other. The Comma option is selected. A text box is present on the right of the Other option.

Under these options, there is a marked checkbox for the First Row Contains Field Names option. The checkbox is labeled Check box because the first row contains the field names. To the right of the option is the Text Qualifier field, with a text box that shows the input double quotation mark and is labeled Select the " Text Qualifier. Beneath these options, a rectangular block shows a table with 8 columns and 7 rows. The column headings are Emp I D, Last Name, First Name, Multilingual, Date Hired, Phone, Specialties, and About. The columns are separated by vertical black lines. The row entries are as follows:

109, Rapinoe, Simone, Y, 10/06/2017, 5306338787, Blank, and Blank.

115, Kozlowski, Kawhi, Y, 10/15/2017, 9164813840, Blank, and Blank.

156, Yarak, Katie, N, 11/12/2020, 9164291205, Blank, and Blank.

157, Palamidessi, Christopher, N, 01/13/2021, 9167883302, Blank, and Blank.

170, Chatlaong, Boon, Y, 11/01/2021, 5302554848, Blank, and Blank.

171, Ung, Tri, Y, 01/10/2022, 5303320480, Blank, and Blank.

177, Crespillo, Marguerite, N, 02/01/2022, 9168491059, Blank, and Blank.

The Advanced button is present on the bottom left of the dialog box. To the far right are the Cancel, Back, Next, and Finish buttons.

Return to Figure 8-39

Figure 8.40 Extended Description (Chapter 8)

Return to Figure 8-40

The dialog box titled Get External Data - Excel Spreadsheet has the help and close buttons at the top right corner. Below that, a rectangular block at the top is highlighted with an orange-yellowish background. The block shows the text Save Import Steps. Under the block is the text, Finished importing file ‘C colon backslash My Work backslash Agents dot c s v’ to table ‘Agents’.

Do you want to save these import steps? This will allow you to quickly repeat the operation without using the wizard. Beneath the text, the Save import steps option with a marked checkbox is displayed. Below this, a block shows the Save as feature with a text box on the right. The text box shows the input Import - Agents. Under it, the Description field has a text box on the right, which is blank. Below the fields is the text Create an Outlook task. Under which the text: If you regularly repeat this saved operation, you can create an Outlook task that reminds you when it is time to repeat this operation. The Outlook task will include a Run Import button that runs the import operation in Access, is displayed. Below the text is a checkbox with the option Create Outlook Task.

Beneath the option, the text, Hint: To create a recurring task, open the task in Outlook and click the Recurrence button on the Task tab, is shown. The bottom left of the dialog box shows the Manage Data Tasks button. On the far right are the Save Import and Cancel buttons.

Return to Figure 8-40

Figure 8.41 Extended Description (Chapter 8)

Return to Figure 8-41

The Access Database shows a tab for Agents. Below the tab is the table, which contains 8 columns and 5 rows. The column headings are as follows: Employee Num, Last Name, First Name, Multilingual, Date Hired, Phone, and Specialties. The first 4 row entries are as follows:

Row 1: Employee Num, 103. Last Name, Bui. First Name, Millie. Multilingual, Y. Date Hired, 5/8/2017. Phone, (530) 648-7689. Specialties, Luxury Properties.

A Record button, the Page number, a Filter, and a Search button are displayed on the bottom left of the window.

Row 2: Employee Num, 109. Last Name, Rapinoe. First Name, Simone. Multilingual, Y. Date Hired, 10/6/2017. Phone, (530) 633-8787. Specialties, Blank.

Row 3: Employee Num, 115. Last Name, Kozlowski. First Name, Kawhi. Multilingual, Y. Date Hired, 10/15/2017. Phone, (916) 481-3840. Specialties, Blank.

Row 4: Employee Num, 127. Last Name, Weatherby. First Name, Kelly. Multilingual, Y. 11/10/2017, Phone, (916) 987-3756. Specialties, Land Purchases and Building Custom Homes.

The Record, Page number, and search option are shown on the bottom left of the document.

Return to Figure 8-41

Figure 8.42 Extended Description (Chapter 8)

Return to Figure 8-42

The Ribbon shows the Export Command group under the External Data tab. The Export group shows options from left to right as follows: Saved Exports, Dataverse, Excel, Text File, P D F or X P S, Email, Access, Word Merge, and More.

Return to Figure 8-42

Figure 8.43 Extended Description (Chapter 8)

Return to Figure 8-43

The Access database features a tab titled Listings. Below the tab is the table with 9 columns and 8 rows. The column headings are as follows: Listing I D, Date Listed, List Price, Address, City, Square Foot, Beds, Baths, and Garage. The row entries are as follows:

Row 1: Listing I D, 10022. Date Listed, 8/2/2022. List Price, $349,000.00. Address, 525 Riverdale. City, Lincoln. Square Foot, 2755. Beds, 3. Baths, 2. Garage, 2 Car Detached.

Row 2: Listing I D, 10023. Date Listed, 8/2/2022. List Price, $353,000.00. Address, 615 Silver Hill Court. City, Lincoln. Square Foot, 1600. Beds, 3. Baths, 2. Garage, 2 Car Attached.

Row 3: Listing I D, 10024. Date Listed, 8/5/2022. List Price, $702,000.00. Address, 1917 Oak Crest Drive. City, Roseville. Square Foot, 3397. Beds, 4. Baths, 4. Garage, 3 Car Attached.

Row 4: Listing I D, 10029. Date Listed, 8/14/2022. List Price, $1,345,900.00. Address, 3998 Rawhide Road. City, Rocklin. Square Foot, 6685. Beds, 7. Baths, 6. Garage, 4 Car Attached.

Row 5: Listing I D, 10030. Date Listed, 8/15/2022. List Price, $406,000.00. Address, 1720 Grey Owl Circle. City, Roseville. Square Foot, 2182. Beds, 3. Baths, 2. Garage, 3 Car Attached.

Row 6: Listing I D, 10031. Date Listed, 8/15/2022. List Price, $383,000.00. Address, 2024 Brixham. City, Roseville. Square Foot, 2385. Beds, 3. Baths, 3. Garage, 2 Car Attached.

Row 7: Listing I D, 10032. Date Listed, 8/16/2022. List Price, $859,000.00. Address, 4018 Legend Drive. City, Rocklin. Square Foot, 3821. Beds, 4. Baths, 4. Garage, 3 Car Attached.

Row 8: Listing I D, 10034. Date Listed, 8/23/2022. List Price, $999,000.00. Address, 3535 Camino Cielo. City, Lincoln. Square Foot, 5159. Beds, 5. Baths, 5. Garage, 4 Car Attached.

Return to Figure 8-43

Figure 8.44 Extended Description (Chapter 8)

Return to Figure 8-44

The Excel sheet has columns ranging from A to I, and rows ranging from 1 to 9. The table consists of 9 columns and 8 rows. The column headings are as follows: Listing I D, Date Listed, List Price, Address, City, Square Foot, Beds, Baths, Garage. The row entries are as follows:

Row 1: Listing I D, 10022. Date Listed, 8/2/2022. List Price, 349,000.00. Address, 525 Riverdale. City, Lincoln. Square Foot, 2755. Beds, 3. Baths, 2. Garage, 2 Car Detached.

Row 2: Listing I D, 10023. Date Listed, 8/2/2022. List Price, 353,000.00. Address, 615 Silver Hill Court. City, Lincoln. Square Foot, 1600. Beds, 3. Baths, 2. Garage, 2 Car Attached.

Row 3: Listing I D, 10024. Date Listed, 8/5/2022. List Price, 702,000.00. Address, 1917 Oak Crest Drive. City, Roseville. Square Foot, 3397. Beds, 4. Baths, 4. Garage, 3 Car Attached.

Row 4: Listing I D, 10029. Date Listed, 8/14/2022. List Price, 1,345,900.00. Address, 3998 Rawhide Road. City, Rocklin. Square Foot, 6685. Beds, 7. Baths, 6. Garage, 4 Car Attached.

Row 5: Listing I D, 10030. Date Listed, 8/15/2022. List Price, 406,000.00. Address, 1720 Grey Owl Circle. City, Roseville. Square Foot, 2182. Beds, 3. Baths, 2. Garage, 3 Car Attached.

Row 6: Listing I D, 10031. Date Listed, 8/15/2022. List Price, 383,000.00. Address, 2024 Brixham. City, Roseville. Square Foot, 2385. Beds, 3. Baths, 3. Garage, 2 Car Attached.

Row 7: Listing I D, 10032. Date Listed, 8/16/2022. List Price, 859,000.00. Address, 4018 Legend Drive. City, Rocklin. Square Foot, 3821. Beds, 4. Baths, 4. Garage, 3 Car Attached.

Row 8: Listing I D, 10034. Date Listed, 8/23/2022. List Price, 999,000.00. Address, 3535 Camino Cielo. City, Lincoln. Square Foot, 5159. Beds, 5. Baths, 5. Garage, 4 Car Attached.

Return to Figure 8-44

Figure 8.45 Extended Description (Chapter 8)

Return to Figure 8-45

The Excel sheet has columns ranging from A to I, and rows ranging from 1 to 9. The table consists of 9 columns and 8 rows. The column headings are as follows: Listing I D, Date Listed, List Price, Address, City, Square Foot, Beds, Baths, Garage. The column headings are formatted in bold. The row entries are as follows:

Row 1: Listing I D, 10022. Date Listed, 02 - August - 22. List Price, $349,000.00. Address, 525 Riverdale. City, Lincoln. Square Foot, 2755. Beds, 3. Baths, 2. Garage, 2 Car Detached.

Row 2: Listing I D, 10023. Date Listed, 02 - August - 22. List Price, $353,000.00. Address, 615 Silver Hill Court. City, Lincoln. Square Foot, 1600. Beds, 3. Baths, 2. Garage, 2 Car Attached.

Row 3: Listing I D, 10024. Date Listed, 05 - August - 22. List Price, $702,000.00. Address, 1917 Oak Crest Drive. City, Roseville.

Square Foot, 3397. Beds, 4. Baths, 4. Garage, 3 Car Attached.

Row 4: Listing I D, 10029. Date Listed, 14 - August - 22. List Price, $1,345,900.00. Address, 3998 Rawhide Road. City, Rocklin. Square Foot, 6685. Beds, 7. Baths, 6. Garage, 4 Car Attached.

Row 5: Listing I D, 10030. Date Listed, 15 - August - 22. List Price, $406,000.00. Address, 1720 Grey Owl Circle. City, Roseville.

Square Foot, 2182. Beds, 3. Baths, 2. Garage, 3 Car Attached.

Row 6: Listing I D, 10031. Date Listed, 15 - August - 22. List Price, $383,000.00. Address, 2024 Brixham. City, Roseville. Square Foot, 2385. Beds, 3. Baths, 3. Garage, 2 Car Attached.

Row 7: Listing I D, 10032. Date Listed, 16 - August - 22. List Price, $859,000.00. Address, 4018 Legend Drive. City, Rocklin. Square Foot, 3821. Beds, 4. Baths, 4. Garage, 3 Car Attached.

Row 8: Listing I D, 10034. Date Listed, 23 - August - 22. List Price, $999,000.00. Address, 3535 Camino Cielo. City, Lincoln. Square Foot, 5159. Beds, 5. Baths, 5. Garage, 4 Car Attached.

Return to Figure 8-45

Figure 8.46 Extended Description (Chapter 8)

Return to Figure 8-46

The dialog box titled Export - Excel Spreadsheet has the help and close buttons at the top right corner. Below that, a rectangular block at the top is highlighted with an orange-yellowish background. The block shows the text Select the destination for the data you want to export. Under the block, the text, Specify the destination file name and format, is shown. Beneath that is the File name field with a text box on its right. The text box shows the input C colon backslash My Work backslash Listings dot x l s x. To the right of the text box is the Browse button. Under this is the File format field with a text box on the right. The text box shows the input Excel Workbook (asterisk dot x l s x). Below this is the text “Specify export options,” which is labeled Choose export options after completing the file information. Under that is another text “We will not import table relationships, calculated columns, validation rules, default values, and columns of certain legacy data types such as O L E Object.

Search for “Import” in Microsoft Access Help for more information.” This is followed by three options with checkboxes on their left, which are listed below:

Option 1: Export data with formatting and layout: Select this option to preserve most formatting and layout information when exporting a table, query, form, or report.

Option 2: Open the destination file after the export operation is complete: Select this option to view the results of the export operation. This option is available only when you export formatted data.

Option 3: Export only the selected records: Select this option to export only the selected records. This option is only available when you export formatted data and have records selected.

The OK and Cancel buttons are present on the bottom right of the dialog box.

Return to Figure 8-46

Figure 8.47 Extended Description (Chapter 8)

Return to Figure 8-47

The Access database features a tab titled Listings. Below the tab is the table with 8 columns and 5 rows. The column headings are as follows: Listing I D, Date Listed, List Price, Address, City, Square Foot, Beds, and Baths. The row entries are as follows:

Row 1: Listing I D, 10040. Date Listed, 8/30/2022. List Price, $312,000.00. Address, 3935 Cedar Mist Lane. City, Auburn. Square Foot, 1056. Beds, 3. Baths, 2.

Row 2: Listing I D, 10043. Date Listed, 1/31/2022. List Price, $371,000.00. Address, 1575 Oak Ridge Way. City, Auburn. Square Foot, 2266. Beds, 4. Baths, 3.

Row 3: Listing I D, 10144. Date Listed, 12/10/2022. List Price, $239,000.00. Address, 863 Holly Hill Drive. City, Auburn. Square Foot, 2876. Beds, 3. Baths, 2.

Row 4: Listing I D, 10177. Date Listed, 1/27/2023. List Price, $343,000.00. Address, 9030 Upper Valley Road. City, Auburn. Square Foot, 2635. Beds, 3. Baths, 2.

Row 5: Listing I D, 0. Date Listed, Blank. List Price, $0.00. Address, Blank. City, Blank. Square Foot, 0. Beds, 0. Baths, 0.

All the rows are selected. The vertical space before the row entries is highlighted in grey and labeled Click, hold, and drag in the record selector area to select the desired records.

Return to Figure 8-47

Figure 8.48 Extended Description (Chapter 8)

Return to Figure 8-48

The dialog box titled Export - Excel Spreadsheet has the help and close buttons at the top right corner. Below that, a rectangular block at the top is highlighted with an orange-yellowish background. The block shows the text Select the destination for the data you want to export. Under the block, the text, Specify the destination file name and format, is shown. Beneath that is the File name field with a text box on its right. The text box shows the input C colon backslash My Work backslash Listings - Auburn dot x l s x. To the right of the text box is the Browse button. Under this is the File format field with a text box on the right. The text box shows the input Excel Workbook (asterisk dot x l s x). Below this is the text “Specify export options. We will not import table relationships, calculated columns, validation rules, default values, and columns of certain legacy data types such as O L E Object. Search for “Import” in Microsoft Access Help for more information.” This is followed by three options with checkboxes on their left, which are listed below:

Option 1: Export data with formatting and layout: Select this option to preserve most formatting and layout information when exporting a table, query, form, or report.

Option 2: Open the destination file after the export operation is complete: Select this option to view the results of the export operation. This option is available only when you export formatted data.

Option 3: Export only the selected records: Select this option to export only the selected records. This option is only available when you export formatted data and have records selected.

The Export data with formatting and layout, and Export only the selected records options are selected. The OK and Cancel buttons are present on the bottom right of the dialog box.

Return to Figure 8-48

Figure 8.49 Extended Description (Chapter 8)

Return to Figure 8-49

The Notepad file titled Query Export-Data And Formatting dot t x t has the minimize, maximize, and close buttons at the top right corner. It shows tabs for File, Edit, Format, View, and Help. Below the tabs, a table with 4 columns and 7 rows is displayed. The column headings are as follows: First Name, Last Name, Average of List Price, and Count of List Price. The row entries are as follows:

Row 1: First Name, Gerardo. Last Name, Montoya. Average of List Price, $482,720.00. Count of List Price, 5.

Row 2: First Name, Jack. Last Name, Johnstone. Average of List Price, $471,684.29. Count of List Price, 7.

Row 3: First Name, John. Last Name, Burgess. Average of List Price, $397,488.00. Count of List Price, 5.

Row 4: First Name, Kallyn. Last Name, Duarte. Average of List Price, $479,299.00. Count of List Price, 5.

Row 5: First Name, Kelly. Last Name, Weatherby. Average of List Price, $481,413.55. Count of List Price, 11.

Row 6: First Name, Millie. Last Name, Bui. Average of List Price, $375,383.33. Count of List Price, 6.

Row 7: First Name, Rick. Last Name, Chung. Average of List Price, $438,606.25. Count of List Price, 8.

The table and cell borders are shown in dotted lines and dashes.

Return to Figure 8-49

Figure 8.50 Extended Description (Chapter 8)

Return to Figure 8-50

The Notepad file titled Query Export-Delimited dot c s v has the minimize, maximize, and close buttons at the top right corner. It shows tabs for File, Edit, Format, View, and Help. Below the tabs, a table with entries separated by commas is shown as follows:

“First Name”, “Last Name”, “Avg Of List Price”, “Count Of List Price”.

“Gerardo”,"Montoya”, $482720.00, 5.

“Jack”, “Johnstone”, $471684.29, 7.

“John”, “Burgess”, $397488.00, 5.

“Kallyn”, “Duarte”, $479299.00, 5.

“Kelly”, “Weatherby”, $481413.55, 11.

“Millie”, “Bui”, $375383.33, 6.

“Rick”, “Chung”, $438606.25, 8.

Return to Figure 8-50

Figure 8.51 Extended Description (Chapter 8)

Return to Figure 8-51

The Notepad file titled Query Export-Fixed Width dot t x t has the minimize, maximize, and close buttons at the top right corner. It shows tabs for File, Edit, Format, View, and Help. Below the tabs, a table with 4 columns and 7 rows is displayed. The row entries are as follows:

Row 1: First Name, Gerardo. Last Name, Montoya. Average of List Price, $482,720.00. Count of List Price, 5.

Row 2: First Name, Jack. Last Name, Johnstone. Average of List Price, $471,684.29. Count of List Price, 7.

Row 3: First Name, John. Last Name, Burgess. Average of List Price, $397,488.00. Count of List Price, 5.

Row 4: First Name, Kallyn. Last Name, Duarte. Average of List Price, $479,299.00. Count of List Price, 5.

Row 5: First Name, Kelly. Last Name, Weatherby. Average of List Price, $481,413.55. Count of List Price, 11.

Row 6: First Name, Millie. Last Name, Bui. Average of List Price, $375,383.33. Count of List Price, 6.

Row 7: First Name, Rick. Last Name, Chung. Average of List Price, $438,606.25. Count of List Price, 8.

Each column’s width is fixed. The values in each row align vertically with the values from the other rows, under them, creating a columnar layout.

Return to Figure 8-51

Figure 8.52 Extended Description (Chapter 8)

Return to Figure 8-52

The dialog box titled Export - Text File has the help and close buttons at the top right corner. Below that, a rectangular block at the top is highlighted with an orange-yellowish background. The block shows the text Select the destination for the data you want to export. Under the block, the text, Specify the destination file name and format, is shown. Beneath that is the File name field with a text box on its right. The text box shows the input C colon backslash My Work backslash Avg List Prices And Listing Count By Agent dot t x t. The file name mentioned in the text box is labeled The default file name includes a dot t x t extension. To the right of the text box is the Browse button. Below this is the text “Specify export options. We will not import table relationships, calculated columns, validation rules, default values, and columns of certain legacy data types such as O L E Object. Search for “Import” in Microsoft Access Help for more information.” This is followed by three options with checkboxes on their left, which are listed below:

Option 1: Export data with formatting and layout: Select this option to preserve most formatting and layout information when exporting a table, query, form, or report.

Option 2: Open the destination file after the export operation is complete: Select this option to view the results of the export operation. This option is available only when you export formatted data.

Option 3: Export only the selected records: Select this option to export only the selected records. This option is only available when you export formatted data and have records selected.

The OK and Cancel buttons are present on the bottom right of the dialog box.

Return to Figure 8-52

Figure 8.53 Extended Description (Chapter 8)

Return to Figure 8-53

The dialog box titled Export Text Wizard has the close button at the top right corner. The dialog box shows the text, This wizard allows you to specify details on how Microsoft Access should export your data. Which export format would you like? Below the text is a rectangular block that shows two radio options as follows:

Delimited - Characters such as comma or tab separate each field.

Fixed Width - Fields are aligned in columns with spaces between each field.

The Delimited option is selected. Under this is another block titled Sample export format. The block shows a table with entries separated by commas. The entries are as follows:

“Gerardo”, “Montoya”, $482,720.0000, 5.

“Jack”, “Johnstone”, $471,684.2857, 7.

“John”, “Burgess”, $397,490.0000, 5.

“Kallyn”, “Duarte”, $479,299.8000, 5.

“Kelly”, “Weatherby”, $481,413.5455, 11.

“Millie”, “Bui”, $375,383.3333, 6.

“Rick”, “Chung”, $430,606.2500, 8.

The Advanced button is present on the bottom left of the dialog box. On the far right are the Cancel, Back, Next, and Finish buttons.

Return to Figure 8-53

Figure 8.54 Extended Description (Chapter 8)

Return to Figure 8-54

The dialog box titled Export Text Wizard has the close button at the top right corner. The dialog box shows the text, What delimiter separates your fields? Select the appropriate delimiter and see how your text is affected in the preview below. Below the text is the Choose the delimiter that separates your fields, option, followed by five radio options named Tab, Semicolon, Comma, Space, and Other. The Comma option is selected. A text box is present on the right of the Other option.

Under these options, there is a checkbox for the Include Field Names on First Row option. To the right of the option is the Text Qualifier field, with a text box that shows the entry of a double quotation mark. Beneath these options, a rectangular block shows a table with values separated by commas. The row entries are as follows:

“Gerardo”, “Montoya”, $402,720.0000, 5.

“Jack”, “Johnstone”, $471,684.2857, 7.

“John”, “Burgess”, $397,490.0000, 5.

“Kallyn”, “Duarte”, $479,299.8000, 5.

“Kelly”, “Weatherby”, $401,413.5455, 11.

“Millie”, “Bui”, $375,383.3333, 6.

“Rick”, “Chung”, $430,606.2500, 8.

The Advanced button is present on the bottom left of the dialog box. To the far right are the Cancel, Back, Next, and Finish buttons.

Return to Figure 8-54

Figure 8.55 Extended Description (Chapter 8)

Return to Figure 8-55

The dialog box titled Export - Text File has the help and close buttons at the top right corner. Below that, a rectangular block at the top is highlighted with an orange-yellowish background. The block shows the text Select the destination for the data you want to export. Under the block, the text, Specify the destination file name and format, is shown. Beneath that is the File name field with a text box on its right. The text box shows the input C colon backslash My Work backslash Avg List Prices And Listing Count By Agent dot t x t. To the right of the text box is the Browse button. Below this is the text “Specify export options. We will not import table relationships, calculated columns, validation rules, default values, and columns of certain legacy data types such as O L E Object. Search for “Import” in Microsoft Access Help for more information.” This is followed by three options with checkboxes on their left, which are listed below:

Option 1: Export data with formatting and layout: Select this option to preserve most formatting and layout information when exporting a table, query, form, or report.

Option 2: Open the destination file after the export operation is complete: Select this option to view the results of the export operation. This option is available only when you export formatted data.

Option 3: Export only the selected records: Select this option to export only the selected records. This option is only available when you export formatted data and have records selected.

The OK and Cancel buttons are present on the bottom right of the dialog box.

Return to Figure 8-55

Figure 8.56 Extended Description (Chapter 8)

Return to Figure 8-56

The dialog box titled Export Text Wizard has the close button at the top right corner. The dialog box shows the text, This wizard allows you to specify details on how Microsoft Access should export your data. Which export format would you like? Below the text is a rectangular block that shows two radio options as follows:

Delimited - Characters such as comma or tab separate each field.

Fixed Width - Fields are aligned in columns with spaces between each field.

The Fixed Width option is selected. Under this is another block titled Sample export format. The block shows the table entries listed under distinct columns with spaces between them. The entries at predefined positions are as follows:

Row 1: Gerardo, Montoya, $402,720.0000, 5.

Row 2: Jack, Johnstone, $471,684.2867, 7.

Row 3: John, Burgess, $397,490.0000, 5.

Row 4: Kallyn, Duarte, $479,299.8000, 5.

Row 5: Kelly, Weatherby, $401,413.5455, 11.

Row 6: Millie, Bui, $375,383.3333, 6.

Row 7: Rick, Chung, $430,606.2500, 8.

Each column’s width is fixed. The values in each row align vertically with the values from the other rows, under them, creating a columnar layout. The Advanced button is present on the bottom left of the dialog box. On the far right are the Cancel, Back, Next, and Finish buttons.

Return to Figure 8-56

Figure 8.57 Extended Description (Chapter 8)

Return to Figure 8-57

The dialog box titled Export Text Wizard has the close button at the top right corner. The dialog box shows the text: The wizard has made some guesses about where your field breaks occur. Are they correct? If not, you can make adjustments now. Below this text is a rectangular block with the heading, Lines with arrows signify field breaks is shown. This is followed by the text:

To MOVE a break line, click and drag it.

Below this is another block, which shows a horizontal scale at the top with increments of 10 units. The block shows a table with 4 columns and 7 rows, and various entries. The row entries are as follows:

Row 1: Gerardo, Montoya, $402,720.0000, 5.

Row 2: Jack, Johnstone, $471,684.2867, 7.

Row 3: John, Burgess, $397,490.0000, 5.

Row 4: Kallyn, Duarte, $479,299.8000, 5.

Row 5: Kelly, Weatherby, $401,413.5455, 11.

Row 6: Millie, Bui, $375,383.3333, 6.

Row 7: Rick, Chung, $430,606.2500, 8.

The columns are separated by vertical black lines, which are present at 20, 40, and 60 marks on the scale. These lines separate the data into different fields or columns. The Advanced button is present on the bottom left of the dialog box. To the far right are the Cancel, Back, Next, and Finish buttons.

Return to Figure 8-57

Figure 8.58 Extended Description (Chapter 8)

Return to Figure 8-58

The dialog box titled Avg List Prices And Listing Count By Agent Export Specifications has the close button at the top right corner. Below this, it shows the File Format feature with two radio options, such as Delimited and Fixed Width. The Fixed Width option is selected. To the right of the Delimited option, the Field Delimiter field has a text box that shows the entry comma. To the right of the Fixed Width option, the Text Qualifier field has a text box that shows the entry (none). Below the File Format field is the Language field with a text box on the right that shows the text as English. Under it is the Code Page field with a text box on the right that shows the entry Western European (Windows). To the far right of these fields, the OK, Cancel, Save As, and Specs buttons are present. The OK button is selected. Below this, on the left, is a rectangular block titled Dates, Times, and Numbers. The block shows the Date Order field with a text box on the right having the entry M D Y. To the right is the option Four Digit Years with a ticked checkbox. Under this is the Date Delimiter field with a text box on the right having the entry forward slash. To the right is the Leading Zeros in Dates option with a check box. Beneath this, the Time Delimiter field has a text box on the right that shows the entry colon. To the right is the Decimal Symbol field with a text box on the right. The text box shows the entry full stop. Below this block is a Field Information section with a rectangular block. The block shows a table with 3 columns and 4 rows. The column headings are Field Name, Start, and Width. The row entries are as follows:

Row 1: Field Name, First Name. Start, 1. Width, 20.

Row 2: Field Name, Last Name. Start, 21. Width, 20.

Row 3: Field Name, Average Of List Price. Start, 41. Width, 21.

Row 4: Field Name, Count Of List Price. Start, 62. Width, 11.

Return to Figure 8-58

Figure 8.59 Extended Description (Chapter 8)

Return to Figure 8-59

The dialog box titled Export - Text File has the help and close buttons at the top right corner. Below that, a rectangular block at the top is highlighted with an orange-yellowish background. The block shows the text Select the destination for the data you want to export. Under the block, the text, Specify the destination file name and format, is shown. Beneath that is the File name field with a text box on its right. The text box shows the input C colon backslash My Work backslash Avg List Prices And Listing Count By Agent dot t x t. To the right of the text box is the Browse button. Below this is the text “Specify export options. We will not import table relationships, calculated columns, validation rules, default values, and columns of certain legacy data types such as O L E Object. Search for “Import” in Microsoft Access Help for more information.” This is followed by three options with checkboxes on their left, which are listed below:

Option 1: Export data with formatting and layout: Select this option to preserve most formatting and layout information when exporting a table, query, form, or report.

Option 2: Open the destination file after the export operation is complete: Select this option to view the results of the export operation. This option is available only when you export formatted data.

Option 3: Export only the selected records: Select this option to export only the selected records. This option is only available when you export formatted data and have records selected.

The Export data with formatting and layout option is selected. The OK and Cancel buttons are present on the bottom right of the dialog box.

Return to Figure 8-59

Figure 8.60 Extended Description (Chapter 8)

Return to Figure 8-60

The dialog box titled Encode Avg List Prices And Listing Count By Agent As has the help and close buttons at the top right corner. It shows the text Choose the encoding to use for saving this file field with four radio options below it. The options are as follows: Windows (Default), M S - D O S, Unicode, and Unicode (U T F - 8). The Windows (Default) option is selected. The OK and Cancel buttons are present on the far right of the options in the dialog box.

Return to Figure 8-60

Figure 8.61 Extended Description (Chapter 8)

Return to Figure 8-61

The Ribbon shows the Export Command group with options such as P D F or X P S, Email, Access, Word Merge, and More. The More button with a drop-down arrow is selected. Clicking the drop-down arrow displays a list of options as follows:

Word: Export the selected object to Rich Text.

SharePoint List: Export the selected object to SharePoint as a list.

O D B C Database: Export selected object to an O D B C Database, such as S Q L Server.

X M L File: Export selected object to an X M L file.

H T M L Document: Export selected object to an H T M L document.

d BASE File: Export selected object to a d BASE file.

The Word option is selected.

Return to Figure 8-61

Figure 8.62 Extended Description (Chapter 8)

Return to Figure 8-62

The dialog box titled Export - R T F File has the help and close buttons at the top right corner. Below that, a rectangular block at the top is highlighted with an orange-yellowish background. The block shows the text Select the destination for the data you want to export. Under the block, the text, Specify the destination file name and format, is shown. Beneath that is the File name field with a text box on its right. The text box shows the input C colon backslash My Work backslash Agents dot r t f. To the right of the text box is the Browse button. Below this is the text “Specify export options. We will not import table relationships, calculated columns, validation rules, default values, and columns of certain legacy data types such as O L E Object. Search for “Import” in Microsoft Access Help for more information.” This is followed by three options with checkboxes on their left, which are listed below:

Option 1: Export data with formatting and layout: Select this option to preserve most formatting and layout information when exporting a table, query, form, or report.

Option 2: Open the destination file after the export operation is complete: Select this option to view the results of the export operation. This option is available only when you export formatted data.

Option 3: Export only the selected records: Select this option to export only the selected records. This option is only available when you export formatted data and have records selected.

The OK and Cancel buttons are present on the bottom right of the dialog box.

Return to Figure 8-62

Figure 8.63 Extended Description (Chapter 8)

Return to Figure 8-63

The Word Document consists of a Title bar at the top, followed by a Ribbon below. The Title bar has the AutoSave toggle button and the Save button on the Quick Access Toolbar on the far left. The Minimize, Maximize, and Close buttons are on the far right of the Title bar. The Ribbon has tabs for File, Home, Insert, Draw, Design, Layout, References, Mailings, Review, View, Help, Acrobat, Table Design, and Layout. The Comments button is shown on the far right of the Ribbon. The Layout tab is selected and consists of Command groups such as Table, Draw, Rows and Columns, Merge, Cell size, and Alignment. Below this, in the document area, a table with 8 columns and 4 rows is shown. The column headings are as follows: Employee Num, Last Name, First Name, Multilingual, Date Hired, Phone, Specialties, and About. The row entries are as follows:

Row 1: Employee Num, 103. Last Name, Bui. First Name, Millie. Multilingual, Y. Date Hired, 5/8/2017. Phone, (530) 648-7689. Specialties, Luxury Properties. About, Millie brings 14 years of experience in real estate. She excels at customer service and is committed to being your advocate in all real estate transactions. She understands the unique demands of buyers and sellers in the luxury home market.

My Pledge – As a former teacher, I donate 10% of my net commission on all home sales originating from a school employee or a referral to your school.

Row 2: Employee Num, 109. Last Name, Rapinoe. First Name, Simone. Multilingual, Y. Date Hired, 10/6/2017. Phone, (530) 633-8787. Specialties, Blank. About, Blank.

Row 3: Employee Num, 115. Last Name, Kozlowski. First Name, Kawhi. Multilingual, Y. Date Hired, 10/15/2017. Phone, (916) 481-3840. Specialties, Blank. About, Blank.

Row 4: Employee Num, 127. Last Name, Weatherby. First Name, Kelly. Multilingual, Y. 11/10/2017, Phone, (916) 987-3756. Specialties, Land Purchases. About, Kelly epitomizes integrity, energy, hard work, & creative service in every detail of your real estate transaction. She is a Sacramento native who was... The Page number and Language option are shown on the bottom left of the document. To the far right are the Read Mode, Print Layout, and Web Layout icons, along with the Zoom slider.

Return to Figure 8-63

Figure 8.64 Extended Description (Chapter 8)

Return to Figure 8-64

The document shows the tag open angle bracket title close angle bracket labeled Start tag, followed by the text “The McGraw-Hill Companies”, labeled Content, followed by the tag open angle bracket forward slash title close angle bracket, labeled End tag.

In the next line, the tag open angle bracket p close angle bracket is labeled Start tag, followed by the text “Our products and services are available in more than 60 languages.” labeled Content, followed by the tag open angle bracket forward slash p close angle bracket, labeled End tag.

Return to Figure 8-64

Figure 8.65 Extended Description (Chapter 8)

Return to Figure 8-65

The table consists of 15 columns and 10 rows. No column headers are shown. The row entries are as follows:

Row 1: 10025, 8/7/2022, $225000.00, 3420 Milburn Street, Rocklin, 1900, 4, 3, 3 Car Attached, 1988, Frame, 160, S, 9/15/2022, $225000.00.

Row 2: 10027, 8/12/2022, $135000.00, 2128 Wedgewood, Roseville, 1184, 3, 2, 1 Car Detached, 1998, Stone, 127, S, 9/30/2022, $150000.00.

Row 3: 10033, 8/17/2022, $347500.00, 4336 Newland Heights Drive, Rocklin, 1840, 2, 2, 2 Car Attached, 1999, Frame, 103, S, 12/10/2022, $349000.00.

Row 4: 10042, 8/30/2022, $410000.00, 131 Aeolia Drive, Auburn, 1905, 3, 2, 2 Car Detached, 1940, Brick, 168, S, 11/3/2022, $410000.00.

Row 5: 10045, 9/6/2022, $285000.00, 12335 Krista Lane, Auburn, 2234, 3, 2, 2 Car Attached, 1984, Brick, 168, S, 11/5/2022, $280000.00.

Row 6: 10052, 10/2/2022, $299500.00, 1096 Kinnerly Lane, Lincoln, 1948, 3, 3, 3 Car Attached, 1995, Brick, 103, S, 10/2/2022, $305000.00. Row 7: 10054, 10/15/2022, $308500.00, 272 Lariat Loop, Lincoln, 1571, 2, 1, 2 Car Attached, 2002, Stone, 168, S, 11/29/2022, $304000.00.

Row 8: 10069, 11/3/2022, $249499.00, 1255 Copperdale, Auburn, 1456, 3, 2, 2 Car Detached, 1995, Frame, 151, S, 12/22/2022, $255000.00.

Row 9: 10095, 11/16/2022, $319900.00, 3115 Capistrano Way, Rocklin, 2104, 3, 3, Carport, 1979, Frame, 103, S, 11/29/2022, $325000.00.

Row 10: 10172, 12/31/2022, $234500.00, 324 Center Point, Newcastle, 1480, 2, 2, 3 Car Detached, 1991, Frame, 103, S, 2/10/2023, $249000.00. The table's rows and columns do not share a single border line. Instead, every cell is enclosed in its own rectangle with independent boundaries.

Return to Figure 8-65

Figure 8.66 Extended Description (Chapter 8)

Return to Figure 8-66

The table consists of 15 columns and 10 rows. The column headings are as follows: Listing I D, Date Listed, List Price, Address, City, Square Foot, Beds, Baths, Garage, Year Built, Construction, Listing Agent Number, Result, Date Removed, and Sold Price. The column headings are formatted in bold. The row entries are as follows:

Row 1: Listing I D, 10025. Date Listed, 8/7/2022, List Price, $225,000.00. Address, 3420 Milburn Street. City, Rocklin. Square Foot, 1900. Beds, 4. Baths, 3. Garage, 3 Car Attached. Year Built, 1988. Construction, Frame. Listing Agent Number, 160. Result, S. Date Removed, 9/15/2022. Sold Price, $225,000.00.

Row 2: Listing I D, 10027. Date Listed, 8/12/2022. List Price, $135,000.00. Address, 2128 Wedgewood. City, Roseville. Square Foot, 1184. Beds, 3. Baths, 2. Garage, 1 Car Detached. Year Built, 1998. Construction, Stone. Listing Agent Number, 127. Result, S. Date Removed, 9/30/2022. Sold Price, $150,000.00.

Row 3: Listing I D, 10033. Date Listed, 8/17/2022. List Price, $347,500.00. Address, 4336 Newland Heights Drive. City, Rocklin. Square Foot, 1840. Beds, 2. Baths, 2. Garage, 2 Car Attached. Year Built, 1999. Construction, Frame. Listing Agent Number, 103. Result, S. Date Removed, 12/10/2022. Sold Price, $349,000.00. Row 4: Listing I D, 10042. Date Listed, 8/30/2022. List Price, $410,000.00. Address, 131 Aeolia Drive. City, Auburn. Square Foot, 1905. Beds, 3. Baths, 2. Garage, 2 Car Detached. Year Built, 1940. Construction, Brick. Listing Agent Number, 168. Result, S. Date Removed, 11/3/2022. Sold Price, $410,000.00. Row 5: Listing I D, 10045. Date Listed, 9/6/2022. List Price, $285,000.00. Address, 12335 Krista Lane. City, Auburn. Square Foot, 2234. Beds, 3. Baths, 2. Garage, 2 Car Attached. Year Built, 1984. Construction, Brick. Listing Agent Number, 168. Result, S. Date Removed, 11/5/2022. Sold Price, $280,000.00. Row 6: Listing I D, 10052. Date Listed, 10/2/2022. List Price, $299,500.00. Address, 1096 Kinnerly Lane. City, Lincoln. Square Foot, 1948. Beds, 3. Baths, 3. Garage, 3 Car Attached. Year Built, 1995. Construction, Brick. Listing Agent Number, 103. Result, S. Date Removed, 10/2/2022. Sold Price, $305,000.00.

Row 7: Listing I D, 10054. Date Listed, 10/15/2022. List Price, $308,500.00. Address, 272 Lariat Loop. City, Lincoln. Square Foot, 1571. Beds, 2. Baths, 1. Garage, 2 Car Attached. Year Built, 2002. Construction, Stone. Listing Agent Number, 168. Result, S. Date Removed, 11/29/2022. Sold Price, $304,000.00.

Row 8: Listing I D, 10069. Date Listed, 11/3/2022. List Price, $249,499.00. Address, 1255 Copperdale. City, Auburn. Square Foot, 1456. Beds, 3. Baths, 2. Garage, 2 Car Detached. Year Built, 1995. Construction, Frame. Listing Agent Number, 151. Result, S. Date Removed,

12/22/2022. Sold Price, $255,000.00.

Row 9: Listing I D, 10095. Date Listed, 11/16/2022. List Price, $319,900.00. Address, 3115 Capistrano Way. City, Rocklin. Square Foot, 2104. Beds, 3. Baths, 3. Garage, Carport. Year Built, 1979. Construction, Frame. Listing Agent Number, 103. Result, S. Date Removed, 11/29/2022. Sold Price, $325,000.00.

Row 10: Listing I D, 10172. Date Listed, 12/31/2022. List Price, $234,500.00. Address, 324 Center Point. City, Newcastle. Square Foot, 1480. Beds, 2. Baths, 2. Garage, 3 Car Detached. Year Built, 1991. Construction, Frame. Listing Agent Number, 103. Result, S. Date Removed, 2/10/2023. Sold Price, $249,000.00.

Return to Figure 8-66

Figure 8.67 Extended Description (Chapter 8)

Return to Figure 8-67

The Ribbon shows the Export Command group with options such as P D F or X P S, Email, Access, Word Merge, and More. The More button with a drop-down arrow is selected. Clicking the drop-down arrow displays a list of options as follows:

Word: Export the selected object to Rich Text.

SharePoint List: Export the selected object to SharePoint as a list.

O D B C Database: Export selected object to an O D B C Database, such as S Q L Server.

X M L File: Export selected object to an X M L file.

H T M L Document: Export selected object to an H T M L document.

d BASE File: Export selected object to a d BASE file.

The H T M L Document option is selected.

Return to Figure 8-67

Figure 8.68 Extended Description (Chapter 8)

Return to Figure 8-68

The dialog box titled Export - H T M L Document has the help and close buttons at the top right corner. Below that, a rectangular block at the top is highlighted with an orange-yellowish background. The block shows the text Select the destination for the data you want to export. Under the block, the text, Specify the destination file name and format, is shown. Beneath that is the File name field with a text box on its right. The text box shows the input C colon backslash My Work backslash Sold Properties dot h t m l. To the right of the text box is the Browse button. Below this is the text “Specify export options. We will not import table relationships, calculated columns, validation rules, default values, and columns of certain legacy data types such as O L E Object. Search for “Import” in Microsoft Access Help for more information.” This is followed by three options with checkboxes on their left, which are listed below:

Option 1: Export data with formatting and layout: Select this option to preserve most formatting and layout information when exporting a table, query, form, or report.

Option 2: Open the destination file after the export operation is complete: Select this option to view the results of the export operation. This option is available only when you export formatted data.

Option 3: Export only the selected records: Select this option to export only the selected records. This option is only available when you export formatted data and have records selected.

The OK and Cancel buttons are present on the bottom right of the dialog box.

Return to Figure 8-68

Figure 8.69 Extended Description (Chapter 8)

Return to Figure 8-69

The dialog box titled H T M L Output Options has the help and close buttons at the top right corner. It shows a checkbox with the text Select a H T M L Template feature with a blank text box below. The Browse button is present on the right of the text box. Under it, the text Choose the encoding to use for saving this file is shown, followed by three radio options. The radio options are as follows: Default encoding, Unicode, and Unicode (U T F - 8). The Default encoding option is selected. The OK and Cancel buttons are present on the bottom right of the dialog box.

Return to Figure 8-69

Figure 8.70 Extended Description (Chapter 8)

Return to Figure 8-70

The Excel Worksheet consists of a Title bar at the top, followed by a Ribbon below. The Title bar has the AutoSave toggle button and the Save button on the Quick Access Toolbar on the far left. The Ribbon has tabs for File, Home, Insert, Draw, Page Layout, Formulas, Data, Review, View, Help, and Acrobat. The Home tab is selected and consists of Command groups such as Undo, Clipboard, Font, Alignment, Number, and Styles. Below the groups is the Name box and the Formula bar. Under that is the Work area, which shows a table with 11 columns and 6 rows. The column headings are as follows: Listing I D, Date Listed, List Price, Address, City, Square Foot, Beds, Baths, Garage, Year Built, and Construction. The row entries are as follows:

Row 1: Listing I D, 10022. Date Listed, 02 - August - 22. List Price, $349,000.00. Address, 525 Riverdale. City, Lincoln. Square Foot, 2755. Beds, 3. Baths, 2. Garage, 2 Car Detached. Year Built, 2001. Construction, Frame.

Row 2: Listing I D, 10023. Date Listed, 02 - August - 22. List Price, $353,000.00. Address, 615 Silver Hill Court. City, Lincoln. Square Foot, 1600. Beds, 3. Baths, 2. Garage, 2 Car Attached. Year Built, 2000. Construction, Stone.

Row 3: Listing I D, 10024. Date Listed, 05 - August - 22. List Price, $702,000.00. Address, 1917 Oak Crest Drive. City, Roseville. Square Foot, 3397. Beds, 4. Baths, 4. Garage, 3 Car Attached. Year Built, 2006. Construction, Brick.

Row 4: Listing I D, 10029. Date Listed, 14 - August - 22. List Price, $1,345,900.00. Address, 3998 Rawhide Road. City, Rocklin. Square Foot, 6685. Beds, 7. Baths, 6. Garage, 4 Car Attached. Year Built, 1980. Construction, Frame.

Row 5: Listing I D, 10030. Date Listed, 15 - August - 22. List Price, $406,000.00. Address, 1720 Grey Owl Circle. City, Roseville. Square Foot, 2182. Beds, 3. Baths, 2. Garage, 3 Car Attached. Year Built, 2002. Construction, Stone.

Row 6: Listing I D, 10031. Date Listed, 15 - August - 22. List Price, $383,000.00. Address, 2024 Brixham. City, Roseville. Square Foot, 2385. Beds, 3. Baths, 3. Garage, 2 Car Attached. Year Built, 1999. Construction, Brick.

Return to Figure 8-70

Figure 8.71 Extended Description (Chapter 8)

Return to Figure 8-71

The dialog box titled Export Text Wizard has the close button at the top right corner. The dialog box shows the text, What delimiter separates your fields? Select the appropriate delimiter and see how your text is affected in the preview below. Below the text is the Choose the delimiter that separates your fields, option, followed by five radio options named Tab, Semicolon, Comma, Space, and Other. The Comma option is selected. A text box is present on the right of the Other option.

Under these options, there is a marked checkbox for the Include Field Names on First Row option. To the right of the option is the Text Qualifier field, with a text box that shows the entry (none). Beneath these options, a rectangular block shows a table with values separated by commas. The row entries are as follows:

First Name, Last Name, Avg Of List Price, Count Of List Price.

Gerardo, Montoya, $402,720.0000, 5.

Jack, Johnstone, $471,684.2857, 7.

John, Burgess, $397,490.0000, 5.

Kallyn, Duarte, $479,299.8000, 5.

Kelly, Weatherby, $401,413.5455, 11.

Millie, Bui, $375,383.3333, 6.

Rick, Chung, $430,606.2500, 8.

The Advanced button is present on the bottom left of the dialog box. To the far right are the Cancel, Back, Next, and Finish buttons.

Return to Figure 8-71

Figure 8.72 Extended Description (Chapter 8)

Return to Figure 8-72

The Notepad file titled Avg List Price And Listing Count By Agent Export dot c s v has the minimize, maximize, and close buttons at the top right corner. It shows tabs for File, Edit, Format, View, and Help. Below the tabs, a table with entries separated by commas is shown as follows: First Name, Last Name, Avg Of List Price, Count Of List Price.

Gerardo, Montoya, $402720.00, 5.

Jack, Johnstone, $471684.29, 7.

John, Burgess, $397480.00, 5.

Kallyn, Duarte, $479299.80, 5.

Kelly, Weatherby, $401413.55, 11.

Millie, Bui, $375383.33, 6.

Rick, Chung, $430606.25, 8.

Return to Figure 8-72

Figure 8.73 Extended Description (Chapter 8)

Return to Figure 8-73

The Access Database shows a table that contains 7 columns and 6 rows. The column headings are as follows: Employee Num, Last Name, First Name, Multilingual, Date Hired, Phone, and Specialties. The column Specialities is displayed partially. The row entries excluding the column Specialities are as follows:

Row 1: Employee Num,156. Last Name, Yarak. First Name, Katie. Multilingual, N. Date Hired, 11/12/2020. Phone, (916) 429-1205.

Row 2: Employee Num, 157. Last Name, Palamidessi. First Name, Christopher. Multilingual, N. Date Hired, 1/13/2021. Phone, (916) 788-3302.

Row 3: Employee Num, 160. Last Name, Johnstone. First Name, Jack. Multilingual, Y. Date Hired, 1/20/2021. Phone, (916) 555-1679.

Row 4: Employee Num, 168. Last Name, Duarte. First Name, Kallyn. Multilingual, N. Date Hired, 2/15/2021. Phone, (916) 744-1614. Row 5: Employee Num, 169. Last Name, Montoya. First Name, Gerardo. Multilingual, Y. Date Hired, 3/29/2021. Phone, (916) 534-5991.

Row 6: Employee Num, 170. Last Name, Chatlaong. First Name, Boon, Multilingual, Y. Date Hired, 11/1/2021. Phone, (530) 255-4848.

Row 7: Employee Num, 171. Last Name, Ung. First Name, Tri, Multilingual, Y. Date Hired, 1/10/2022. Phone, (530) 332-0400.

Return to Figure 8-73

Figure 8.74 Extended Description (Chapter 8)

Return to Figure 8-74

The Word Document consists of a Title bar at the top, followed by a Ribbon below. The Title bar has the AutoSave toggle button and the Save button on the Quick Access Toolbar on the far left. The Minimize, Maximize, and Close buttons are on the far right of the Title bar. The Ribbon has tabs for File, Home, Insert, Draw, Design, Layout, References, Mailings, Review, View, Help, Acrobat, Table Design, and Layout. The Comments button is shown on the far right of the Ribbon. The Home tab is selected and consists of Command groups such as Undo, Clipboard, Font, Styles, Voice, Editor, and Reuse Files. Below it is the document area, which shows a table with 7 columns and 3 rows. The 7th column is displayed partially. The column headings are as follows: Employee Num, Last Name, First Name, Multilingual, Date Hired, Phone. The row entries are as follows:

Row 1: Employee Num, 157. Last Name, Palamidessi. First Name, Christopher. Multilingual, N. Date Hired, 1/13/2021. Phone, (916) 788-3302.

Row 2: Employee Num, 160. Last Name, Johnstone. First Name, Jack. Multilingual, Y. Date Hired, 1/20/2021. Phone, (916) 555-1679.

Row 3: Employee Num, 168. Last Name, Duarte. First Name, Kallyn. Multilingual, N. Date Hired, 2/15/2021. Phone, (916) 744-1614.

The Page number and Language option are shown on the bottom left of the document. To the far right are the Read Mode, Print Layout, and Web Layout icons, along with the Zoom slider.

Return to Figure 8-74

Figure 8.75 Extended Description (Chapter 8)

Return to Figure 8-75

The Notepad file titled Selected Agents dot x m l has the minimize, maximize, and close buttons at the top right corner. It shows tabs for File, Edit, Format, View, and Help. Below the tabs, the content, along with the tags, are displayed as follows:

open angle bracket question mark x m l version equals “1 point 0” encoding equals “U T F - 8"? close angle bracket, labeled as X M L tag.

open angle bracket data root.

x m l n s colon o d equals “urn colon schemas-microsoft-com colon office data”.

x m l n s colon x s i equals “http colon double forward slash w w w dot w 3 dot o r g forward slash 2001 forward slash X M L Schema-instance”.

x s i colon no Name space Schema Location equals “Agents dot x s d”. generated equals “2022 - 07 - 30 T 11:59:11” close angle bracket, labeled as Data root tag.

open angle bracket Agents close angle bracket labeled as Start of table. open angle bracket Employee Num close angle bracket 103 open angle bracket forward slash Employee Num close angle bracket, labeled as Field name, content, and end field name.

open angle bracket Last Name close angle bracket Bui open angle bracket forward slash Last Name close angle bracket.

open angle bracket First Name close angle bracket Millie open angle bracket forward slash First Name close angle bracket.

open angle bracket Multilingual close angle bracket Y open angle bracket forward slash Multilingual close angle bracket.

open angle bracket Date Hired close angle bracket 2017-05-08 T 00:00:00 open angle bracket forward slash Date Hired close angle bracket.

open angle bracket Phone close angle bracket 5306487689 open angle bracket forward slash Phone close angle bracket.

open angle bracket Specialties close angle bracket Luxury Properties open angle bracket forward slash Specialties close angle bracket.

open angle bracket About close angle bracket Millie brings 14 years of experience in real estate. She excels at customer service and is committed to being your advocate in all real estate transactions. She understands the unique demands of buyers and sellers in the luxury home

market.

My Pledge - As a former teacher, I donate 10% of my net commission on all home sales originating from a school employee or a referral to your school.open angle bracket forward slash About close angle bracket.

open angle bracket forward slash Agents close angle bracket labeled as End of table. The contents between the Agents, opening and closing tags, are highlighted in a red block and labeled Block repeats for each record in the table.

open angle bracket Agents close angle bracket.

open angle bracket Employee Num close angle bracket 109 open angle bracket forward slash Employee Num close angle bracket.

open angle bracket Last Name close angle bracket Rapinoe open angle bracket forward slash Last Name close angle bracket.

open angle bracket First Name close angle bracket Simone open angle bracket forward slash First Name close angle bracket.

open angle bracket Multilingual close angle bracket Y open angle bracket forward slash Multilingual close angle bracket.

open angle bracket Date Hired close angle bracket 2017-10-06 T 00:00:00 open angle bracket forward slash Date Hired close angle bracket.

open angle bracket Phone close angle bracket 5306338787 open angle bracket forward slash Phone close angle bracket.

open angle bracket forward slash Agents close angle bracket.

open angle bracket forward slash data root close angle bracket.

Return to Figure 8-75

Figure 8.76 Extended Description (Chapter 8)

Return to Figure 8-76

The Access Database shows the Ribbon that contains tabs for File, Home, Create, External Data, and Database Tools. The External Data tab is selected and consists of the Command group, Import and Link. The Import and Link group shows the New Data Source button, which, when selected, displays a list of options such as From File, From Database, From Online Services, and From Other Sources, each with an extended arrow. The From File option is selected, which further displays a drop-down menu with options such as Excel, H T M L Document, X M L file, and Text File. The X M L File option is selected.

Return to Figure 8-76

Figure 8.77 Extended Description (Chapter 8)

Return to Figure 8-77

The dialog box titled Get External Data - X M L File has the help and close buttons at the top right corner. Below that, a rectangular block at the top is highlighted with an orange-yellowish background. The block shows the text Select the source and destination of the data. Under the block, the text, Specify the source of the data, is shown. Beneath that is the File name field with a text box on its right. The text box shows the input C colon backslash My Work backslash. To the right of the text box is the Browse button. Below this is the text “The source data will be imported into a new table in the current database. We will not import table relationships, calculated columns, validation rules, default values, and columns of certain legacy data types such as O L E Object. Search for “Import” in Microsoft Access Help for more information.” The OK and Cancel buttons are present on the bottom right of the dialog box.

Return to Figure 8-77

Figure 8.78 Extended Description (Chapter 8)

Return to Figure 8-78

The dialog box titled Import X M L has the help and close buttons at the top right corner. The dialog box shows a block on the left, which contains the option Tables with an icon to collapse the list on the left. The Tables option is expanded to display the items listed under it. The Agents option listed below has an expanded icon on the left. The icon is labeled Click to expand the contents. To the right of the block are the OK, Cancel, Help, and Transform buttons. Below the block is the Import Options field with three radio options that are Structure Only, Structure and Data, and Append Data to Existing Table(s). The Structure and Data option is selected.

Return to Figure 8-78

Figure 8.79 Extended Description (Chapter 8)

Return to Figure 8-79

The dialog box titled Import X M L shows a block, which contains the option Tables with an icon to collapse the list on the left. The Tables option is expanded to display the items listed under it. The Agents option listed below is further expanded to show fields such as Employee Num, Last Name, First Name, Multilingual, Date Hired, Phone, Specialties, and About.

Return to Figure 8-79

Figure 8.80 Extended Description (Chapter 8)

Return to Figure 8-80

The dialog box titled Export - X M L File has the help and close buttons at the top right corner. Below that, a rectangular block at the top is highlighted with an orange-yellowish background. The block shows the text Select the destination for the data you want to export. Under the block, the text, Specify the destination file name and format, is shown. Beneath that is the File name field with a text box on its right. The text box shows the input C colon backslash My Work backslash Agents dot x m l. To the right of the text box is the Browse button. The OK and Cancel buttons are present on the bottom right of the dialog box.

Return to Figure 8-80

Figure 8.81 Extended Description (Chapter 8)

Return to Figure 8-81

The Ribbon shows the Export Command group with options such as P D F or X P S, Email, Access, Word Merge, and More. The More button with a drop-down arrow is selected. Clicking the drop-down arrow displays a list of options as follows:

Word: Export the selected object to Rich Text.

SharePoint List: Export the selected object to SharePoint as a list.

O D B C Database: Export selected object to an O D B C Database, such as S Q L Server.

X M L File: Export selected object to an X M L file.

H T M L Document: Export selected object to an H T M L document.

d BASE File: Export selected object to a d BASE file.

The X M L File option is selected.

Return to Figure 8-81

Figure 8.82 Extended Description (Chapter 8)

Return to Figure 8-82

The dialog box titled Export X M L has the help and close buttons at the top right corner. It shows the text Select what information will be exported, followed by three radio options such as Data X M L, Schema of the data (X S D), and Presentation of your data (X S L). The Data X M L and Schema of the data (X S D) options are selected. The More Options button is present on the bottom right of the dialog box. To the far right are the OK and Cancel buttons.

Return to Figure 8-82

Figure 8.83 Extended Description (Chapter 8)

Return to Figure 8-83

The dialog box titled Export X M L has the close button at the top right corner. It shows tabs for Data, Schema, and Presentation. The Data tab is selected. Below the tabs is the block titled Export Data with a Data Transfer icon on the left. The block shows the Data to Export field with a block below it. The block shows the option Agents with a Data Transfer and Collapse list icon on the left. The option is expanded to show a table titled Listings with a blank text box on the left. The text box is labeled Select related tables to also export those records. To the right of the block is the Records to Export field with three radio options: All Records, Apply existing filter, and Current record. The All Records option is selected. Below these options is the Apply Existing Sort option checkbox. Under this option is the Transforms button. Beneath the button is the Encoding field with a text box on the right. The text box shows the entry U T F - 8. Below the Data to Export block is the Export Location field with a text box under it. The text box shows the text C colon backslash My Work backslash Agents dot x m l. To the right of the text box is the Browse button. The Help, OK, and Cancel buttons are present on the bottom right of the dialog box.

Return to Figure 8-83

Figure 8.84 Extended Description (Chapter 8)

Return to Figure 8-84

The dialog box titled Export X M L has the close button at the top right corner. It shows tabs for Data, Schema, and Presentation. The Schema tab is selected. Below the tabs is the block titled Export Schema with a Data Transfer icon on the left. The block shows two options: Include primary key and index information, and Export all table and field properties, both with a marked checkbox to their left. Under these options, the Export Location field with two radio options, such as Embed schema in exported X M L data document and Create separate schema document, is shown. The Create separate schema document option is selected. Below this selected option is a text box with the input Agents dot x s d. To the right of the text box is the Browse button. The Help, OK, and Cancel buttons are present on the bottom right of the dialog box.

Return to Figure 8-84

Figure 8.85 Extended Description (Chapter 8)

Return to Figure 8-85

The dialog box titled Import X M L has the help and close buttons at the top right corner. The dialog box shows a block on the left, which contains the option Tables with an icon to collapse the list on the left. The Tables option is expanded to display the items listed under it. The Customer Leads option listed below has a collapse icon on the left, which is further expanded to show fields such as I D, First Name, Last Name, Title, Address, City, State, ZIP, and Length Of Residence. To the right of the block are the OK, Cancel, Help, and Transform buttons. Below the block is the Import Options field with three radio options: Structure Only, Structure and Data, and Append Data to Existing Table or Tables. The Structure and Data option is selected.

Return to Figure 8-85

Figure 8.86 Extended Description (Chapter 8)

Return to Figure 8-86

The Access Database shows a tab for Customer Leads. Below the tab is the table, which contains 9 columns and 13 rows. The column headings are as follows: I D, First Name, Last Name, Title, Address, City, State, ZIP, and Length Of Residence. An example of row entries listed is as follows:

Row 1: I D, 1. First Name, Abdi. Last Name, Abdirahman. Title, Mr. Address, 412 Finley Street. City, Auburn. State, C A. ZIP, 95603. Length Of Residence, 16.

Row 2: I D, 2. First Name, Eddy. Last Name, Alvarez. Title, Mr. Address, 3210 Midas Avenue. City, Rocklin. State, C A. ZIP, 95677. Length Of Residence, 1.

Row 3: I D, 3. First Name, Yoshi. Last Name, Barton. Title, Mr. Address, 9158 Del Rio. City, Auburn. State, C A. ZIP, 95602. Length Of Residence, 8.

A Record button, the Page number, a Filter, and a Search button are displayed on the bottom left of the window.

Return to Figure 8-86

Figure 8.87 Extended Description (Chapter 8)

Return to Figure 8-87

The Ribbon shows the Export Command group, which shows buttons from left to right as follows: Saved Exports, Dataverse, Excel, Text File, P D F or X P S, Email, Access, Word Merge, and More. The Word Merge button is selected.

Return to Figure 8-87

Figure 8.88 Extended Description (Chapter 8)

Return to Figure 8-88

The dialog box titled Microsoft Word Mail Merge Wizard has a close button at the top right corner. It shows an illustration of a partial document with an envelope at its bottom right in a yellow background enclosed in a white rectangular-shaped box located at the far left of the dialog box. Beside this box, the text This wizard links your data to a Microsoft Word document, so that you can print form letters or address envelopes. To the right of the text are the OK and Cancel buttons. Below the text, the field, What do you want the wizard to do? is shown. This is followed by two radio options as follows: Link your data to an existing Microsoft Word document, and Create a new document and then link the data to it. The Link your data to an existing Microsoft Word document option is selected.

Return to Figure 8-88

Figure 8.89 Extended Description (Chapter 8)

Return to Figure 8-89

The Word Document consists of a Title bar at the top, followed by a Ribbon below. The Title bar has the AutoSave toggle button and the Save button on the Quick Access Toolbar on the far left. The Minimize, Maximize, and Close buttons are on the far right of the Title bar. The Ribbon has tabs for File, Home, Insert, Draw, Design, Layout, References, Mailings, Review, View, Help, and Acrobat. The Comments and Share buttons are shown on the far right of the Ribbon. The Mailings tab is selected and consists of Command groups such as Create, Start Mail Merge, Write and Insert Fields, Preview Results, Finish, and Acrobat. Below it, in the document area, a document with the title P H R E, Placer Hills Real Estate, on the far right is shown. Under the title on the far left, the date, October 1, 2022, is mentioned. Beneath that is a rectangular block with two sections. The left section shows some content, and the right section shows a photograph of a person using a mobile phone. To the right of the document area, the Mail Merge pane is shown. Under this pane, the Select recipients section is displayed with three radio options as follows: Use an existing list, Select from Outlook contacts, and Type a new list. The Use an existing list option is selected. Below the options is the Use an existing list section with the text, Currently your recipients are selected from [Customer List] in “D D A 8 - 4 a c d b”, with two options listed below it. The options are as follows: Select a different list and Edit recipient list. The Edit recipient list option is labeled Click to change the recipients. At the bottom of the Mail Merge pane, a section titled Step 3 of 6, with two links: Next: Write your letter, with a right arrow on the left, and Previous: Starting document, with a left arrow on the left, is shown. The Previous: Starting document option is labeled Click to return to the previous step. The Page number and language options are displayed at the bottom left of the document. To the far right are the Read Mode, Print Layout, and Web Layout icons, along with the Zoom slider.

Return to Figure 8-89

Figure 8.92 Extended Description (Chapter 8)

Return to Figure 8-92

The dialog box titled Insert Address Block has the help and close buttons at the top right corner. It is divided into two vertical sections. The section on the left, titled Specify address elements shows marked checkboxes under it. The first checkbox is accompanied by the text, Insert recipient's name in this format. Below this is a block which shows a list of formats for a name, such as Joshua, Joshua Randall J r., Joshua Q Randall J r., Mr. Josh Randall J r., Mr. Josh Q Randall J r., and Mr. Joshua Randall J r. Under this, the second checkbox with the text, Insert company name is displayed. This option is faded. Beneath that is the Insert postal address checkbox, followed by a list of three radio options. The options are Never include the country or region in the address, Always include the country or region in the address, and Only include the country or region if different than. The Only include the country or region if different than, option shows a text box under it with the text United States, and a drop-down arrow on the far right. Below the text box is the fourth checkbox with the text, Format address according to the destination country or region. The section on the right is titled Preview, and shows the text, Here is a preview from your recipient list. Under this text, a text box with the entry 1 is present. The text box is accompanied by a back arrow and a forward arrow, respectively. Beneath this is a block which shows the text Mr. Abdi Abdirahman, 412 Finley Street, Auburn, C A 95603. Below the block is the Correct Problems section, which shows the text: If items in your address block are missing or out of order, use Match Fields to identify the correct address elements from your mailing list. Under this, on the far right, is the Match Fields button. The OK and Cancel buttons are shown on the bottom right of the dialog box.

Return to Figure 8-92

Figure 8.90-Figure 8.91 Extended Description (Chapter 8)

Return to Figure 8-90

The Word Document consists of a Title bar at the top, followed by a Ribbon below. The Title bar has the AutoSave toggle button and the Save button on the Quick Access Toolbar on the far left. The Minimize, Maximize, and Close buttons are on the far right of the Title bar. The Ribbon has tabs for File, Home, Insert, Draw, Design, Layout, References, Mailings, Review, View, Help, and Acrobat. The Comments and Share buttons are shown on the far right of the Ribbon. The Mailings tab is selected and consists of Command groups such as Create, Start Mail Merge, Write and Insert Fields, Preview Results, Finish, and Acrobat. Below it, in the document area, a document with the title P H R E, Placer Hills Real Estate, on the far right is shown. Under the title on the far left, the date, October 1, 2022, is mentioned. Beneath that is a rectangular block with two sections. The left section shows some content, and the right section shows a photograph of a person using a mobile phone. To the right of the document area, the Mail Merge pane is shown. Under this pane, the Select recipients section is displayed with three radio options as follows: Use an existing list, Select from Outlook contacts, and Type a new list. The Use an existing list option is selected. Below the options is the Use an existing list section with the text, Currently your recipients are selected from [Customer List] in “D D A 8 - 4 a c d b”, with two options listed below it. The options are as follows: Select a different list and Edit recipient list. The Edit recipient list option is labeled Click to change the recipients. At the bottom of the Mail Merge pane, a section titled Step 3 of 6, with two links: Next: Write your letter, with a right arrow on the left, and Previous: Starting document, with a left arrow on the left, is shown. The Previous: Starting document option is labeled Click to return to the previous step. The Page number and language options are displayed at the bottom left of the document. To the far right are the Read Mode, Print Layout, and Web Layout icons, along with the Zoom slider.

Return to Figure 8-90-Figure 8.91

Figure 8.93 Extended Description (Chapter 8)

Return to Figure 8-93

The dialog box titled Match Fields has the help and close buttons at the top right corner. The dialog box shows the text “In order to use special features, Mail Merge needs to know which fields in your recipient list match to the required fields. Use the drop-down list to select the appropriate recipient list field for each address field component.” Below this is a block with the heading Required for Address Block. Under this heading is the list of field names with text boxes on the right. The field names, along with the text in the text box, are as follows:

Courtesy Title: Title.

First Name: First Name.

Last Name: Last Name.

Suffix: (not matched).

Company: (not matched).

Address 1: Address.

Address 2: (not matched).

City: City.

State: State.

Postal Code: ZIP.

Country or Region: (not matched).

Below this is another heading, Optional information. The heading lists field names with text boxes on the right. The field names, along with the text in the text boxes, are as follows:

Unique Identifier: I D.

Middle Name: (not matched).

Under the block is the text Use the drop-down lists to choose the field from your database that corresponds to the address information Mail Merge expects (listed on the left). Below the text is a checkbox with the text Remember this matching for this set of data sources on this computer. The OK and Cancel buttons are present on the far right of the dialog box.

Return to Figure 8-93

Figure 8.94 Extended Description (Chapter 8)

Return to Figure 8-94

The dialog box titled Insert Greeting Line has the help and close buttons at the top right corner. It shows the Greeting line format feature with three horizontally aligned text boxes, each with a drop-down arrow. The text boxes show the text Dear, labeled Salutation, Mr. Randall, labeled Name format, a comma, labeled Punctuation. Clicking the drop-down arrow of the third text box displays a list of options such as comma, colon, and (none). The colon option is selected. Under the text boxes is the Greeting line for invalid recipient names field with a text box below. The text box shows the text Dear Sir or Madam, and a drop-down arrow on the right. Beneath that is the Preview section, which shows the text, Here is a preview from your recipient list. Under this text, a text box with the entry 1 is present. The text box is accompanied by a back arrow and a forward arrow that are together labeled Previous and Next arrows. Beneath these boxes is a block which shows the text Dear Mr. Abdirahman. Below the block is the Correct Problems section, which shows the text: If items in your greeting line are missing or out of order, use Match Fields to identify the correct address elements from your mailing list. Under that, on the far right, is the Match Fields button. The OK and Cancel buttons are shown on the bottom right of the dialog box.

Return to Figure 8-94

Figure 8.95 Extended Description (Chapter 8)

Return to Figure 8-95

The document shows the date October 1, 2022, on the left. Below the date is the Address block field, followed by the Greeting line field, both together labeled Merge fields are replaced with content during the merge. Below the field is a rectangular block with some text.

Return to Figure 8-95

Figure 8.96 Extended Description (Chapter 8)

Return to Figure 8-96

The Word document shows the Document Area on the left. The document shows the title P H R E, Placers Hills Real Estate, on the far right. Below it, the date October 1, 2022, is shown on the left. Under the date is the address M Mr. Abdi Abdirahman, 412 Finley Street, Auburn, C A 95603, followed by the greeting line field, Dear Mr. Abdirahman. Beneath that is the greeting line followed by a rectangular block with two sections. The left section shows some content, and the right section shows a photograph of a person using a mobile phone. To the right of the Document Area is the Mail Merge pane. The dialog box shows three sections. The first section is Preview your letters which shows the text “One of the merged letters is previewed here. To preview another letter, click one of the following”. Below this, the text “Recipient: 1” is sandwiched between a left arrow on the left and a right arrow on the right. Under this is the Find a recipient option. The second section, titled Make changes is shown below it. It is followed by the text “You can also change your recipient list”, with an Edit recipient list option below. Under this is the text box with the input Exclude this recipient. This is accompanied by the text “When you have finished previewing your letters, click Next. Then you can print the merged letters or edit individual letters to add personal comments.” At the bottom of the Mail Merge pane, a section titled Step 5 of 6, with two links: Next: Write your letter, with a right arrow on the left, and Previous: Starting document, with a left arrow on the left, is shown.

Return to Figure 8-96

Figure 8.97 Extended Description (Chapter 8)

Return to Figure 8-97

The dialog box titled Merge to New Document has the help and close buttons at the top right corner. It shows the Merge records field with three radio options. The options are as follows: All, Current record, and From and To. The All radio button is selected. The options, From and To, each have a text box on the right. The OK and Cancel buttons are present on the bottom right of the dialog box.

Return to Figure 8-97

Figure 8.98 Extended Description (Chapter 8)

Return to Figure 8-98

The dialog box titled Label Options has the help and close buttons at the top right corner. It shows the Printer information section at the top. The section shows two options: Continuous-feed printers and Page printers, each with a radio button. The Page printers option is selected. To the right of the Page printers' options is the Tray feature with a text block on the right. The text block shows the text Default tray (Automatically Select). Below these options is the Label information section, which shows Label vendors field with a text box on the right. The text box shows the text Avery U S Letter. Below the field is the Find updates on Office dot com option. Below the option is the Product number feature with a rectangular block below. The block shows a list of labels such as 5155 Easy Peel Return Address Labels, 5159 Address Labels, 5160 Address Labels, 5161 Address Labels, 5162 Address Labels, and 5163 Shipping Labels. The 5160 Address Labels option is selected. To the right of the Product number section is the Label information section, which shows the information such as Type: Address labels, Height: 1 inch, Width: 2.63 inches, and Page size: 8.5 inches times 11 inches. The bottom left of the section shows the Details, New Label, and Delete buttons. The OK and Cancel buttons are present on the far right.

Return to Figure 8-98

Figure 8.99 Extended Description (Chapter 8)

Return to Figure 8-99

The screenshot shows a portion of the Document Area, which contains 4 sections, with two sections in two rows. The top left section shows the field <<Address>>, and all other sections show the fields <<Next Record>> <<Address>>.

Return to Figure 8-99

Figure 8.100 Extended Description (Chapter 8)

Return to Figure 8-100

The screenshot shows the Document Area, which contains 4 sections. The sections are placed in two rows, with each row having 2 sections. The top left section shows the fields <<First Name>> <<Last Name >>, <<Address>>, <<City>>, <<State>> <<ZIP>>, and all other sections show the fields <<Next Record>> <<First Name>> <<Last Name >>, <<Address data>>, <<City>>, <<State>> <<ZIP>>.

Return to Figure 8-100

Figure 8.101 Extended Description (Chapter 8)

Return to Figure 8-101

The pane shows three sections. The first section is Select document type, which shows the text What type of document are you working on? Below the text are the five radio options: Letters, E-mail messages, Envelopes, Labels, and Directory. The Letters radio button is selected. Below the options is the Letters section, which shows the text Send letters to a group of people. You can personalize the letter that each person receives. Click Next to continue. At the bottom of the Mail Merge pane, a section titled Step 1 of 6, with a link for Next: Starting document. A right arrow is present on the left of the link.

Return to Figure 8-101

Figure 8.102 Extended Description (Chapter 8)

Return to Figure 8-102

The pane shows three sections. The first section is Select starting document, which shows the text How do you want to set up your mailing labels? Below the text are three radio options: Use the current document, Change document layout, and Start from existing document. The Change document layout option is selected. Below is the Change document layout section, which shows the text Click Label options to choose a label size. Under the text is the Label options link. At the bottom of the Mail Merge pane, a section titled Step 2 of 6, with two links: Next: Write your letter, with a right arrow on the left, and Previous: Starting document, with a left arrow on the left, is shown.

Return to Figure 8-102

Figure 8.103 Extended Description (Chapter 8)

Return to Figure 8-103

The pane shows three sections. The first section is Arrange your labels, which shows the text “If you have not already done so, lay out your label using the first label on the sheet.

To add recipient information to your label, click a location in the first label, and then click one of the items below.” Below the text are four linked options: Address block, Greeting line, Electronic postage, and More items. Below these options is the text “When you have finished arranging your label, click Next. Then you can preview each recipient’s label and make any individual changes”. Under this is the Replicate labels section, which shows the text “You can copy the layout of the first label to the other labels on the page by clicking the button below”. Below the text is the Update all labels button, which is labeled Click to copy the layout and merge fields from the first label into the remaining labels. At the bottom of the Mail Merge pane, a section titled Step 4 of 6, with two links: Next: Write your letter, with a right arrow on the left, and Previous: Starting document, with a left arrow on the left, is shown.

Return to Figure 8-103

Figure 8.104 Extended Description (Chapter 8)

Return to Figure 8-104

The dialog box titled Insert Address Block has the help and close buttons at the top right corner. It is divided into two vertical sections. The section on the left, titled Specify address elements shows marked checkboxes under it. The first checkbox is accompanied by the text, Insert recipient's name in this format. Below this is a block which shows a list of formats for a name, such as Joshua, Joshua Randall J r., Joshua Q Randall J r., Mr. Josh Randall J r., Mr. Josh Q Randall J r., and Mr. Joshua Randall J r. Under this, the second checkbox with the text, Insert company name is displayed. This option is faded. Beneath that is the Insert postal address checkbox, followed by a list of three radio options. The options are Never include the country or region in the address, Always include the country or region in the address, and Only include the country or region if different than. The Only include the country or region if different than, option shows a text box under it with the text United States, and a drop-down arrow on the far right. Below the text box is the fourth checkbox with the text, Format address according to the destination country or region. The section on the right is titled Preview, and shows the text, Here is a preview from your recipient list. Under this text, a text box with the entry 1 is present. The text box is accompanied by a back arrow and a forward arrow, respectively. Beneath this is a block which shows the text Mr. Abdi Abdirahman, 412 Finley Street, Auburn, C A 95603. Below the block is the Correct Problems section, which shows the text: If items in your address block are missing or out of order, use Match Fields to identify the correct address elements from your mailing list. Under this, on the far right, is the Match Fields button. The OK and Cancel buttons are shown on the bottom right of the dialog box.

Return to Figure 8-104

Figure 8.105 Extended Description (Chapter 8)

Return to Figure 8-105

The screenshot shows the Word Document Area on the left. The Document Area contains 9 sections arranged in a 3 by 3 matrix format. All the sections show the addresses of the recipients. To the right of the Document Area is the Mail Merge pane. The pane has three sections. The first section is Preview your labels, which shows the text “Some of the merged labels are previewed here. To preview another label, click one of the following”. Below this, the text “Recipient: 1” is sandwiched between a left arrow on the left and a right arrow on the right. Under this is the Find a recipient option. The second section, titled Make changes is shown below it. It is followed by the text “You can also change your recipient list”, with an Edit recipient list option below. Under this is the text box with the input Exclude this recipient. This is accompanied by the text “When you have finished previewing your letters, click Next. Then you can print the merged letters or edit individual letters to add personal comments.” At the bottom of the Mail Merge pane, a section titled Step 5 of 6, with two links: Next: Write your letter, with a right arrow on the left, and Previous: Starting document, with a left arrow on the left, is shown.

Return to Figure 8-105

Figure 8.106 Extended Description (Chapter 8)

Return to Figure 8-106

The dialog box titled Paragraph has the help and close buttons at the top right corner. It shows tabs for Indents and Spacing, and Line and Page Breaks. The Indents and Spacing tab is selected. Below the tabs is the General section, which shows the Alignment field with a text box on the right. The text box shows the text Left. Below is the Outline level field with a text box on the right. The text box shows the text Body Text. To the right of the text box is the Collapsed by default option with a check box. Under these fields is the Indentation section, which shows the Left field with a text box on the right. The text box shows the entry 0 inches. Below is the Right field with a text box on the right. The text box shows the entry 0.07 inches. To the right is the Special field with a text box below. The text box shows the text (none). To the right is the By field with a blank text box below. Below these fields is the Spacing section, which shows the Before field with a text box on the right. The text box shows the entry 0 p t. Below is the After field with a text box on the right. The text box shows the entry 0 p t. To the right of these fields is the Line Spacing field with a text box below. The text box shows the text Single. To the right is the At field with a blank text box below. Below these fields is the Don’t add space between paragraphs of the same style option, with a check box. Below the option is the Preview section, which shows a document with some text. The bottom left of the dialog box is the Tabs button. To the right is the Set as Default button. Towards the far right are the OK and Cancel buttons.

Return to Figure 8-106

Figure 8.107 Extended Description (Chapter 8)

Return to Figure 8-107

The dialog box titled Merge to New Document has the help and close buttons at the top right corner. It shows the Merge records field with three radio options. The options are as follows: All, Current record, and From and To. The All radio button is selected. The options, From and To, each have a text box on the right. The OK and Cancel buttons are present on the bottom right of the dialog box.

Return to Figure 8-107

Figure 8.108 Extended Description (Chapter 8)

Return to Figure 8-108

The pane shows two sections. The first section is Write your letters, which shows the text “If you have not already done so, write your letter now.

To add recipient information to your letter, click a location in the document, and then click one of the items below.” Below the text are four linked options: Address block, Greeting line, Electronic postage, and More items. Below these options is the text “When you have finished writing your letter, click Next. Then you can preview and personalize each recipient’s letter.” At the bottom of the Mail Merge pane, the second section titled Step 4 of 6, with two links: Next: Write your letter, with a right arrow on the left, and Previous: Starting document, with a left arrow on the left, is shown.

Return to Figure 8-108

Figure 8.109 Extended Description (Chapter 8)

Return to Figure 8-109

The Word document shows two paragraph marks at the top, indicated by the pilcrow symbol. Below it, the date October 1, 2022, is shown. Under that, there are eight paragraph marks indicated by the pilcrow symbol. On the fourth pilcrow symbol, the blinking cursor is shown and labeled Insertion point. Below the paragraph marks is a rectangular block that shows some text.

Return to Figure 8-109

Figure 8.110 Extended Description (Chapter 8)

Return to Figure 8-110

The Word document shows two paragraph marks at the top, indicated by the pilcrow symbol. Below it, the date October 1, 2022, is shown. Under that, there are three paragraph marks indicated by the pilcrow symbol. Below the paragraph marks is the Address Block field. Beneath that, there are four pilcrow symbols, out of which a blinking cursor is present on the second one. Below the paragraph marks is a rectangular block that shows some text.

Return to Figure 8-110

Figure 8.111 Extended Description (Chapter 8)

Return to Figure 8-111

The dialog box titled Insert Greeting Line has the help and close buttons at the top right corner. It shows the Greeting line format feature with three horizontally aligned text boxes, each with a drop-down arrow. The text boxes show the text Dear, Mr. Randall, and a colon, respectively. Under the text boxes is the Greeting line for invalid recipient names field with a text box below. The text box shows the text Dear Sir or Madam, and a drop-down arrow on the right. Beneath that is the Preview section, which shows the text, Here is a preview from your recipient list. Under this text, a text box with the entry 2 is present. The text box is accompanied by two back arrows and two forward arrows. Beneath these boxes is a block that shows the text Dear Mr. Alvarez. Below the block is the Correct Problems section, which shows the text: If items in your greeting line are missing or out of order, use Match Fields to identify the correct address elements from your mailing list. Under that, on the far right, is the Match Fields button. The OK and Cancel buttons are shown on the bottom right of the dialog box.

Return to Figure 8-111

Figure 8.112 Extended Description (Chapter 8)

Return to Figure 8-112

The Word document shows the Document Area on the left. The document shows the title P H R E, Placers Hills Real Estate, on the far right. Below it, are two paragraph marks on the left indicated by two pilcrow symbols. Under that, the date October 1, 2022, is shown on the left. Beneath that are three paragraph marks followed by the address, Mr. Eddy Alvarez, 3210 Midas Avenue, Rocklin, C A 95677. Below the address is a paragraph mark, followed by the greeting Dear Mr. Alvarez. Under the greeting, there are two more paragraph marks. This is followed by a rectangular block with two sections. The left section shows some content, and the right section shows a photograph of a person using a mobile phone. To the right of the Document Area is the Mail Merge pane. The dialog box shows three sections. The first section is Preview your letters which shows the text “One of the merged letters is previewed here. To preview another letter, click one of the following”. Below this, the text “Recipient: 2” is sandwiched between a left arrow on the left and a right arrow on the right. Under this is the Find a recipient option. The second section, titled Make changes is shown below it. It is followed by the text “You can also change your recipient list”, with a linked Edit recipient list option below. Under this is the text box with the input Exclude this recipient. This is accompanied by the text “When you have finished previewing your letters, click Next. Then you can print the merged letters or edit individual letters to add personal comments.” At the bottom of the Mail Merge pane, a section titled Step 5 of 6, with two links: Next: Complete the merge, with a right arrow on the left, and Previous: Write your letter, with a left arrow on the left, is shown.

Return to Figure 8-112

Figure 8.113 Extended Description (Chapter 8)

Return to Figure 8-113

The dialog box titled Import Spreadsheet Wizard has the close button at the top right corner. It shows the text Microsoft Access can use your column headings as field names for your table. Does the first row specified contain column headings? Below the text is an option with a marked checkbox named First Row Contains Column Headings. A table with 6 columns and 6 rows, having various entries, is listed below. The Cancel, Back, Next, and Finish buttons are present on the bottom right of the dialog box.

Return to Figure 8-113

Figure 8.114 Extended Description (Chapter 8)

Return to Figure 8-114

The Access Database shows a tab for Albums. Below the tab is the table, which contains 3 columns and 9 rows. The column headings are as follows: Album I D, Album Name, and Artist. The row entries are as follows:

Row 1: Album I D, 59. Album Name, Anomaly. Artist, Lecrae.

Row 2: Album I D, 60. Album Name, Room for Squares. Artist, John Mayer.

Row 3: Album I D, 61. Album Name, Map of the Soul. Artist, B T S.

Row 4: Album I D, 62. Album Name, Looking 4 Myself. Artist, Usher.

Row 5: Album I D, 63. Album Name, Thank You. Artist, Meghan Trainor.

Row 6: Album I D, 64. Album Name, Sale El Sol. Artist, Shakira.

Row 7: Album I D, 65. Album Name, The 20 on 20 Experience. Artist, Justin Timberlake.

Row 8: Album I D, 66. Album Name, My Turn. Artist, Lil Baby.

Row 9: Album I D, (New). Album Name, Blank. Artist, Blank.

A Record button, the Page number, a Filter, and a Search button are displayed on the bottom left of the window.

Return to Figure 8-114

Figure 8.115 Extended Description (Chapter 8)

Return to Figure 8-115

The Notepad file titled New Songs - 08 dot t x t has the minimize, maximize, and close buttons at the top right corner. It shows tabs for File, Edit, Format, View, and Help. Below the tabs, a table with entries is shown as follows:

Intro: Persona (performed by R M), 610:02:54.

Boy with Luv (featuring Halsey), 610:03:49.

Make it Right, 610:03:42.

Jamais V u (performed by Jin, J-Hope, and Jungkook), 610:03:46.

Dionysus, 610:04:00.

Interlude: Shadow (performed by Suga), 610:04:20.

Black Swan, 610:03:18.

Filter (performed by Jimin), 610:03:00.

My Time (performed by Jungkook), 610:03:54.

Louder Than Bombs, 610:03:37.

The vertical blank space on the left of the entries is labeled Blank space for Song I D field.

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Figure 8.116 Extended Description (Chapter 8)

Return to Figure 8-116

The dialog box titled Import Text Wizard has the close button at the top right corner. It shows the text, Your data seems to be in a ‘Fixed-Width’ format. If it isn’t, choose the format that more correctly describes your data. Below the text is a rectangular block that shows two radio options as follows:

Delimited - Characters such as comma or tab separate each field.

Fixed Width - Fields are aligned in columns with spaces between each field.

The Fixed Width option is selected. Under this is another block titled Sample data from file C colon backslash MY WORK backslash NEW SONGS - -08 dot T X T. The block shows the table entries listed under distinct columns with spaces between them. The entries at predefined positions are as follows:

Row 1: Intro: Persona (performed by R M), 610:02:54

Row 2: Boy with Luv (featuring Halsey), 610:03:49.

Row 3: Make it Right, 610:03:42.

Row 4: Jamais V u (performed by Jin, J-Hope, and Jungkook), 610:03:46.

Row 5: Dionysus, 610:04:08.

Row 6: Interlude: Shadow (performed by Suga), 610:04:20.

Row 7: Black Swan, 610:03:18.

Row 8: Filter (performed by Jimin), 610:03:00.

Row 9: My Time (performed by Jungkook), 610:03:54.

Row 10: Louder Than Bombs, 610:03:37.

Row 11: On, 610:04:06.

Row 12: Ugh! (performed by R M, J-Hope, and Suga), 610:03:45.

Row 13: 00:00 (Zero O’Clock) (performed by Jin, V, Jimin, and Jungkook), 610:04:10.

Row 14: Inner Child (performed by V), 610:03:53.

Row 15: Friends (performed by V and Jimin), 610:03:19.

Row 16: Moon (performed by Jin), 610:03:29.

The Advanced button is present on the bottom left of the dialog box. To the far right are the Cancel, Back, Next, and Finish buttons.

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Figure 8.117 Extended Description (Chapter 8)

Return to Figure 8-117

The dialog box titled New Songs - 08 Import Specifications has the close button at the top right corner. Below this, it shows the File Format feature with two radio options, such as Delimited and Fixed Width. The Fixed Width option is selected. To the right of the Delimited option, the Field Delimiter field has a text box that shows the entry comma. To the right of the Fixed Width option, the Text Qualifier field has a text box that shows the entry text (none). Below the File Format field is the Language field, which includes a text box on the right that displays the text English. Under it is the Code Page field with a text box on the right that shows the entry O E M United States. To the far right of these fields, the OK, Cancel, Save As, and Specs buttons are present. The OK button is selected. Below this is a rectangular block titled Dates, Times, and Numbers. The block shows the Date Order field with a text box on the right having the entry M D Y. To the right is the option Four Digit Years with a ticked check box. Under this is the Date Delimiter field with a text box on the right having the entry forward slash. To the right is the Leading Zeros in Dates option with a check box. Beneath this, the Time Delimiter field has a text box on the right that shows the entry colon. To the right is the Decimal Symbol field with a text box on the right. The text box shows the entry full stop. Below this block is a Field Information section with a rectangular block. The block shows a table with 4 columns and 4 rows. The column headings are Field Name, Start, Width, and Skip. The row entries are as follows:

Row 1: Field Name, Song I D. Start, 1. Width, 15. Skip, checkbox.

Row 2: Field Name, Song Title. Start, 56. Width, 10. Skip, checkbox.

Row 3: Field Name, F K Album I D. Start, 66. Width, 9. Skip, checkbox.

Row 4: Field Name, Blank. Start, Blank. Width, Blank. Skip, blue checkbox with a minus sign.

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Figure 8.118 Extended Description (Chapter 8)

Return to Figure 8-118

The dialog box shows the Field Information section with a rectangular block. The block shows a table with 4 columns and 5 rows. The column headings are Field Name, Start, Width, and Skip. The row entries are as follows:

Row 1: Field Name, Song I D. Start, 1. Width, 1. Skip, a blue colored marked checkbox.

Row 2: Field Name, Song Title. Start, 2. Width, 64. Skip, checkbox.

Row 3: Field Name, F K Album I D. Start, 66. Width, 2. Skip, checkbox.

Row 4: Field Name, Length. Start, 68. Width, 7. Skip, checkbox.

Row 5: Field Name, Blank. Start, Blank. Width, Blank. Skip, blue checkbox with a minus sign.

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Figure 8.119 Extended Description (Chapter 8)

Return to Figure 8-119

The dialog box titled Import Text Wizard has the close button at the top right corner. The dialog box shows the text: The wizard has made some guesses about where your field breaks occur. Are they correct? If not, you can make adjustments now. Below this text is a rectangular block with the heading, Lines with arrows signify field breaks is shown. This is followed by the text:

To CREATE a break line, click at the desired position.

To DELETE a break line, double click on the line.

To MOVE a break line, click and drag it.

Below this is another block, which shows a horizontal scale at the top with increments of 10 units. The block shows a table with 4 columns and 16 rows, and various entries. The row entries are as follows:

Row 1: Blank, Intro: Persona (performed by R M), Blank, 610:02:54.

Row 2: Blank, Boy with Luv (featuring Halsey), Blank, 610:03:49.

Row 3: Blank, Make it Right, Blank, 610:03:42.

Row 4: Blank, Jamais V u (performed by Jin, J-Hope, and Jungkook), Blank, 610:03:46.

Row 5: Blank, Dionysus, Blank, 610:04:08.

Row 6: Blank, Interlude: Shadow (performed by Suga), Blank, 610:04:20.

Row 7: Blank, Black Swan, Blank, 610:03:18.

Row 8: Blank, Filter (performed by Jimin), Blank, 610:03:00.

Row 9: Blank, My Time (performed by Jungkook), Blank, 610:03:54.

Row 10: Blank, Louder Than Bombs, Blank, 610:03:37.

Row 11: Blank, On, Blank, 610:04:06.

Row 12: Blank, Ugh! (performed by R M, J-Hope, and Suga), Blank, 610:03:45.

Row 13: Blank, 00:00 (Zero O'Clock) (performed by Jin, V, Jimin, and Jungkook), Blank, 610:04:10.

Row 14: Blank, Inner Child (performed by V), Blank, 610:03:53.

Row 15: Blank, Friends (performed by V and Jimin), Blank, 610:03:19.

Row 16: Blank, Moon (performed by Jin), Blank, 610:03:29.

The columns are separated by vertical black lines, which are present at 2, 65, and 67 marks on the scale labeled Field breaks. The Advanced button is present on the bottom left of the dialog box. To the far right are the Cancel, Back, Next, and Finish buttons.

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Figure 8.120 Extended Description (Chapter 8)

Return to Figure 8-120

The Access Database shows a tab for Albums. Below the tab is the table, which contains 3 columns and 2 rows. The column headings are as follows: Album I D, Album Name, and Artist. The row entries are as follows: Row 1: Album I D, 60. Album Name, Room for Squares. Artist, John Mayor.

Row 2: Album I D, 61. Album Name, Map of the Soul. Artist, B T S.

An expand icon is present at the left of Row 1 and a collapse icon at the left of Row 2.

Below Row 2, another table is shown, which consists of 3 columns and 21 rows. The column headings are as follows: Song I D, Song Title, and Length. The row entries are as follows:

Row 1: Song I D, 762. Song Title, Intro: Persona (performed by R M). Length, 2:54.

Row 2: Song I D,763. Song Title, Boy with Luv (featuring Halsey). Length, 3:49.

Row 3: Song I D, 764. Song Title, Make It Right. Length, 3:42.

Row 4: Song I D, 765. Song Title, Jamais Vu (performed by Jin, J-Hope, and Jungkook). Length, 3:46.

Row 5: Song I D, 766. Song Title, Dionysus. Length, 4:08.

Row 6: Song I D, 767. Song Title, Interlude: Shadow (performed by Suga). Length, 4:20.

Row 7: Song I D, 768. Song Title, Black Swan. Length, 3:18.

Row 8: Song I D, 769. Song Title, Filter (performed by Jimin). Length, 3:00.

Row 9: Song I D, 770. Song Title, My Time (performed by Jungkook). Length, 3:54.

Row 10: Song I D, 771. Song Title, Louder Than Bombs. Length, 3:37.

Row 11: Song I D, 772. Song Title, On. Length, 4:06.

Row 12: Song I D, 773. Song Title, Ugh! (performed by R M, J-Hope, and Suga). Length, 3:45.

Row 13: Song I D, 774. Song Title, 00:00 (Zero O'Clock) (performed by Jin. V. Jimin. and Jungkook). Length, 4:10.

Row 14: Song I D, 775. Song Title, Inner Child (performed by V). Length, 3:53.

Row 15: Song I D, 776. Song Title, Friends (performed by V and Jimin). Length, 3:19.

Row 16: Song I D, 777. Song Title, Moon (performed by Jin). Length, 3:29. Row 17: Song I D,

778. Song Title, Respect (performed by R M and Suga). Length, 3:58.

Row 18: Song I D, 779. Song Title, We Are Bulletproof: The Eternal. Length, 4:22.

Row 19: Song I D, 780. Song Title, Outro: Ego (performed by J-Hope). Length, 3:16.

Row 20: Song I D, 781. Song Title, On: (featuring Sia). Length, 4:06.

Row 21: Song I D, (New). Song Title, Blank. Length, Blank.

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Figure 8.121 Extended Description (Chapter 8)

Return to Figure 8-121

The Notepad file titled C M P Rent Invoices-08 dot c s v has the minimize, maximize, and close buttons at the top right corner. It shows tabs for File, Edit, Format, View, and Help. Below the tabs show the table entries separated by commas as follows:

Invoice I D, Invoice Date, Due Date, Amount Due, F K Doctor I D, Description, Date Received, Discount, Paid.

67, 10/16/2022, 11/1/2022, “1,250.00”, 1, November 2022 Rent (Agarwal and Sharma), , ,

68, 10/16/2022, 11/1/2022, “1,100.00”, 2, November 2022 Rent (Scher and Dyer), , ,

69, 10/16/2022, 11/1/2022, “1,350.00”, 4, November 2022 Rent, , ,

70, 10/16/2022, 11/1/2022, “1,350.00”, 5, November 2022 Rent (Flores and Alanar), , ,

71, 10/16/2022, 11/1/2022, “1,100.00”, 6, November 2022 Rent (Camacho and Ansari), , ,

72, 10/16/2022, 11/1/2022, “1,600.00”, 8, November 2022 Rent, , ,

73, 10/16/2022, 11/1/2022, “1,400.00”, 9, November 2022 Rent, , ,

74, 10/16/2022, 11/1/2022, “1,650.00”, 11, November 2022 Rent (Singh and Pelayo), , ,

75, 10/16/2022, 11/1/2022, “1,600.00”, 12, November 2022 Rent, , ,

76, 10/16/2022, 11/1/2022, “1,600.00”, 15, November 2022 Rent, , ,

77, 10/16/2022, 11/1/2022, “1,600.00”, 16, November 2022 Rent, , ,

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Figure 8.122 Extended Description (Chapter 8)

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The dialog box titled Import Text Wizard has the close button at the top right corner. The dialog box displays the text, What delimiter separates your fields? Select the appropriate delimiter and see how your text is affected in the preview below. Below the text is the Choose the delimiter that separates your fields, followed by five radio options named Tab, Semicolon, Comma, Space, and Other. The Comma option is selected. A text box is present on the right of the Other option. Under these options, there is a checkbox for the First Row Contains Field Names option. To the right of the option is the Text Qualifier field, with a text box that shows the text (none). Beneath these options, a rectangular block shows a table with 7 columns and 10 rows. The column headings are Invoice I D, Invoice Date, Due Date, Amount Due, F K Doctor I D, Description, and Date Received. The columns are separated by vertical black lines. The row entries for the first 4 rows are as follows:

Row 1: Invoice I D, 67. Invoice Date, 10/16/2022. Due Date, 11/1/2022. Amount Due, “1 F K Doctor I D, 250.00”. Description, 1. Date Received, November 2022 Rent (Agarwal and Sharma).

Row 2: Invoice I D, 68. Invoice Date, 10/16/2022. Due Date, 11/1/2022. Amount Due, “1. F K Doctor I D, 100.00”. Description, 2. Date Received, November 2022 Rent (Scher and Dyer).

Row 3: Invoice I D, 69. Invoice Date, 10/16/2022. Due Date, 11/1/2022. Amount Due, “1. F K Doctor I D, 350.00”. Description, 4. Date Received, November 2022 Rent.

Row 4: Invoice I D, 70. Invoice Date, 10/16/2022. Due Date, 11/1/2022. Amount Due, “1. F K Doctor I D, 350.00”. Description, 5. Date Received, November 2022 Rent (Flores and Alanar).

The Advanced button is present on the bottom left of the window. To the far right are the Cancel, Back, Next, and Finish buttons.

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Figure 8.123 Extended Description (Chapter 8)

Return to Figure 8-123

The Access Database shows a tab for Rent Invoices. Below the tab is the table, which contains 9 columns and 14 rows. The column headings are as follows: Invoice I D, Invoice Date, Due Date, Amount Due, Doctor I D, Description, Date Received, Discount, and Paid. The row entries for the first 6 rows are as follows:

Row 1: Invoice I D, 65. Invoice Date, 16-September-22. Due Date, 01- October -22. Amount Due, $1.600.00. Doctor I D, 15. Description, October 2022 Rent. Date Received, 9/30/2022. $0.00. Paid, Marked checkbox.

Row 2: Invoice I D, 66. Invoice Date, 16- September -22. Due Date, 01- October -22. Amount Due, $1.600.00. Doctor I D, 16. Description, October 2022 Rent. Date Received, 10/1/2022. Discount, $0.00. Paid, Marked checkbox.

Row 3: Invoice I D, 67. Invoice Date, 16- October -22. Due Date, 01- November -22. Amount Due, $1.250.00. Doctor I D, 1. Description, November 2022 Rent (Agarwal and Sharma). Date Received, Blank. Discount, Blank. Paid, Unmarked checkbox.

Row 4: Invoice I D, 68. Invoice Date, 16- October -22. Due Date, 01- November -22. Amount Due, $1.100.00. Doctor I D, 2. Description, November 2022 Rent (Scher & Dyer). Date Received, Blank. Discount, Blank. Paid, Unmarked checkbox.

Row 5: Invoice I D, 69. Invoice Date, 16- October -22. 01- November -22. Amount Due, $1.350.00. Doctor I D, 4. Description, November 2022 Rent. Date Received, Blank. Discount, Blank. Paid, Unmarked checkbox.

Row 6: Invoice I D, 70. Invoice Date, 16- October -22. 01- November -22. Amount Due, $1.350.00. Doctor I D, 5. Description, November 2022 Rent (Flores and Alanar). Date Received, Blank. Discount, Blank. Paid, Unmarked checkbox.

A Record button, the Page number, a Filter, and a Search button are displayed on the bottom left of the window.

Return to Figure 8-123

Figure 8.124 Extended Description (Chapter 8)

Return to Figure 8-124

The Document area, on the left, shows a document with the title Courtyard Medical Plaza, on the far right. Below that, on the far left, is the date, Tuesday, October 11, 2022. Under the date is a rectangular block titled BILL TO. Below the block is a nested table. To the right of the document area, the Mail Merge pane is shown. Under this pane, the Select recipients section is displayed with three radio options as follows: Use an existing list, Select from Outlook contacts, and Type a new list. The Use an existing list option is selected. Below the options is the Use an existing list section with the text, Currently your recipients are selected from [Invoice Statements To Merge] in “Action, with two options listed below it. The options are as follows: Select a different list and Edit recipient list. At the bottom of the Mail Merge pane, a section titled Step 3 of 6, with two links: Next: Write your letter, with a right arrow on the left, and Previous: Starting document, with a left arrow on the left, is shown. The Page number and language options are displayed at the bottom left of the document. To the far right are the Read Mode, Print Layout, and Web Layout icons, along with the Zoom slider.

Return to Figure 8-124

Figure 8.125 Extended Description (Chapter 8)

Return to Figure 8-125

The dialog box titled Msil Merge Recipients has the help and close buttons on the top right corner. It shows the text “This is the list of recipients that will be used in your merge. Use the options below to add to or change your list. Use the checkboxes to add or remove recipients from the merge. When your list is ready, click OK.” Below it is a rectangular block that shows a partial table. The table consists of 6 columns and multiple rows. The column headings are Data Source, a marked check box option, Last Name, First Name, Invoice I D, and Invoice Date. The row entries for the first 5 rows are as follows:

Row 1: Data Source, Access 8-2 dot a c c d b. a marked checkbox. Last Name, Agarwal. First Name, Ashish. Invoice I D, 1. Invoice Date, 4/15/20.

Row 2: Data Source, Access 8-2 dot a c c d b. a marked checkbox. Last Name, Agarwal. First Name, Ashish. Invoice I D, 12. Invoice Date, 5/17/20.

Row 3: Data Source, Access 8-2 dot a c c d b. a marked checkbox. Last Name, Agarwal. First Name, Ashish. Invoice I D, 23. Invoice Date, 6/16/20.

Row 4: Data Source, Access 8-2 dot a c c d b. a marked checkbox. Last Name, Agarwal. First Name, Ashish. Invoice I D, 34. Invoice Date, 7/15/20.

Row 5: Data Source, Access 8-2 dot a c c d b. a marked checkbox. Last Name, Agarwal. First Name, Ashish. Invoice I D, 45. Invoice Date, 8/17/20.

Row 1 is selected. Below the block is a Data Source field on the left with a text box under it. The text box shows the text Access 8-2-a c c d b. Beneath the block are the Edit and Refresh buttons are shown. To the right of the Data Source field is the Refine Recipient List field. This field list options that are linked, such as Sort, Filter, Find Duplicates, Find recipient, and Validate addresses. The Filter option is labeled Filter link. The bottom right of the dialog box shows the OK button.

Return to Figure 8-125

Figure 8.126 Extended Description (Chapter 8)

Return to Figure 8-126

The dialog box titled Filter and Sort has the help and close buttons on the top right corner. It shows tabs for Filter Records and Sort Records. The Filter Records tab is selected. Below the tabs are five vertically aligned text boxes with drop-down arrows on the far left. The first text box shows the option And, and the remaining four text boxes are blank. To the right is the Field option with six vertically aligned text boxes with drop-down arrows under it. The first text box shows the option Paid. The text box is labeled Select field name. To the right is the Comparison field with six vertically aligned text boxes with drop-down arrows below it. The first text box shows the option Equal to. The text box is labeled Change comparison if needed. To the right is the Compare to field with six vertically aligned text boxes under it. The first text box shows the text False. The text box is labeled Enter value. The bottom left of the dialog box shows the Clear All button. To the far right are the OK and Cancel buttons.

Return to Figure 8-126

Figure 8.127 Extended Description (Chapter 8)

Return to Figure 8-127

The screenshot shows the Mail Merge Pane with a close button at the top right corner. It shows the section, Write your letter. Below this section, the text “If you have not already done so, write your letter now. To add recipient information to your letter, click a location in the document, and then click one of the items below.” Under this text, four linked options are listed. The options are as follows: Address block, Greeting line, Electronic postage, and More items. Beneath these options is the text “When you have finished writing your letter, click Next. Then you can preview and personalize each recipient’s letter”. At the bottom of the Mail Merge pane, a section titled Step 4 of 6, with two links: Next: Preview your letter, with a right arrow on the left, and Previous: Select recipients, with a left arrow on the left, is shown.

Return to Figure 8-127

Figure 8.128 Extended Description (Chapter 8)

Return to Figure 8-128

The Word document shows the Document Area on the left. The document shows the title Courtyard Medical Plaza, on the far right. Below that, on the far left, is the date, Tuesday, October 11, 2022. Under the date is a rectangular block titled BILL TO. Below the block is a nested table. To the right of the Document Area is the Mail Merge pane. The dialog box shows three sections. The first section is Preview your letters which shows the text “One of the merged letters is previewed here. To preview another letter, click one of the following”. Below this, the text “Recipient: 1” is sandwiched between a left arrow on the left and a right arrow on the right. Under this is the Find a recipient option. The second section, titled Make changes is shown below it. It is followed by the text “You can also change your recipient list”, with an Edit recipient list option below. Under this is the text box with the input Exclude this recipient. This is accompanied by the text “When you have finished previewing your letters, click Next. Then you can print the merged letters or edit individual letters to add personal comments.” At the bottom of the Mail Merge pane, a section titled Step 5 of 6, with two links: Next: Complete the merge, with a right arrow on the left, and Previous: Write your letter, with a left arrow on the left, is shown.

Return to Figure 8-128

Figure 8.129 Extended Description (Chapter 8)

Return to Figure 8-129

The Word Document consists of a Title bar at the top, followed by a Ribbon below. The Title bar has the AutoSave toggle button and the Save button on the Quick Access Toolbar on the far left. The Minimize, Maximize, and Close buttons are on the far right of the Title bar. The Ribbon has tabs for File, Home, Insert, Draw, Design, Layout, References, Mailings, Review, View, Help, Acrobat, Table Design, and Layout. The Comments and Share buttons are shown on the far right of the Ribbon. The Home tab is selected and consists of Command groups such as Undo, Clipboard, Font, Styles, Voice, Editor, and Reuse Files. Below it is the document area, which shows a table with 6 columns and 9 rows. The column headings are Boat I D, Boat Type, Length, 4 Hour Rate, Full Day Rate, and Model Year. The table is filled with row entries. The top left corner of the table shows a symbol of a plus sign inside a square, which is labeled Drag the table selector to move table. Below the table is a blank block which shows a symbol of a plus, also known as the Move cursor, which is labeled New location of table.

Return to Figure 8-129

Figure 8.130 Extended Description (Chapter 8)

Return to Figure 8-130

The document shows the text as follows:

TO: Lia Harvey.

FROM: Your Name.

DATE: Today’s Date.

SUBJECT: Boats without any rentals.

Below the text are two paragraphs followed by a table. The text contains the content of the document. The table consists of 6 columns and 3 rows. The column headings are Boat I D, Boat Type, Length, 4 Hour Rate, Full Day Rate, and Model Year. The table is filled with row entries.

Return to Figure 8-130

Figure 8.131 Extended Description (Chapter 8)

Return to Figure 8-131

The dialog box has the close button in the top right corner. Below that, it shows arrows on the left. The left arrow for Go Back, the right arrow for Go Forward, the drop-down arrow, and the up arrow for Go One Folder Back. To the right of the arrows is the Address bar, which shows the path My Work right-pointing arrow SIM net Documents. To the right of the address bar is the Search bar. Under this is the toolbar, which shows the options for Organize and New Folder, on the left. Below the toolbar is the vertical pane on the left. The pane shows file options such as Office 2021 and T D C - F t g Log, followed by the options such as Microsoft Word, One Drive - Personal, and This P C. To the right is the rectangular block, which shows a table with 3 columns and no rows. The column headers are Name, Date modified, and Type. The text No items match your search is shown under the table. Under this block is the File name field with a text box having a drop-down arrow on the right. The text box shows the file name Fleet Rentals dot r t f. Below it is the Save as type field with a text box having a drop-down arrow on the right. The text box shows the option Rich Text Format (asterisk dot r t f). Under it is the Author field with the text Annette Easton. To the right is the Tags field with the text Add a tag. Both these fields, along with their inputs, are greyed out. The bottom left of the dialog box shows a Hide Folders option. To the far right are the Tools option, Save, and Cancel buttons.

Return to Figure 8-131

Figure 8.132 Extended Description (Chapter 8)

Return to Figure 8-132

The pane shows three sections. The first section is Select starting document, which shows the text How do you want to set up your mailing labels? Below the text are three radio options: Use the current document, Change document layout, and Start from existing document. The Change document layout option is selected. Under it is the Change document layout section, which shows the text Click Label options to choose a label size. Under the text is the Label options link. At the bottom of the Mail Merge pane, a section titled Step 2 of 6, with two links: Next: Select recipient, with a right arrow on the left, and Previous: Select document type, with a left arrow on the left, is shown.

Return to Figure 8-132

Figure 8.133 Extended Description (Chapter 8)

Return to Figure 8-133

The document shows the Boat I D feature with a field <<Boat I D >> next to it. Below it is the Model Year feature with the field <<Model Year>>, followed by the merged fields <<Length>> <<Boat Type>>.

Return to Figure 8-133

Figure 8.134 Extended Description (Chapter 8)

Return to Figure 8-134

The document shows six sections, arranged in a matrix format with three sections each in two rows. All the sections show various entries for the fields such as Boat I D, Model Year, Length, and Boat Type.

Return to Figure 8-134

Figure 8.135 Extended Description (Chapter 8)

Return to Figure 8-135

The message box titled Microsoft Access has a close button in the top right corner. Below that, it shows an icon of lowercase “I” inside a circle on the left. To the right is the heading Microsoft Access was unable to append all the data to the table. Below the heading is the text “The contents of fields in 0 record or records were deleted, and 1 record or records were lost due to key violations.

Asterisk - If data was deleted, the data you pasted or imported doesn’t match the Field data types or the Field Size property in the destination table.

Asterisk - If records were lost, either the records you pasted contain primary key values that already exist in the destination table, or they violate referential integrity rules for a relationship defined between tables.

Do you want to proceed anyway?”. The bottom of the message box shows the Yes, No, and Help buttons.

Return to Figure 8-135

Figure 8.136 Extended Description (Chapter 8)

Return to Figure 8-136

The dialog box titled Get External Data - Text File has the help and close buttons at the top right corner. Below that, to the left, it shows a rectangular block at the top, highlighted with an orange-yellowish background. The block displays the text Save Import Steps. Below the block is the text “Finished importing file C colon backslash My Work backslash Marys Rentals backslash employees 06 dot c s v’ to table ‘Employees’. Not all of your data was successfully imported. Error descriptions with associated row numbers of bad records can be found in the Microsoft Access table ‘Marys Rentals Employees 06_Import Errors’.

Do you want to save these import steps? This will allow you to quickly repeat the operation without using the wizard.”

Return to Figure 8-136

Figure 8.137 Extended Description (Chapter 8)

Return to Figure 8-137

The Notepad file titled Marys Rental Employees - 08 dot c s v has the minimize, maximize, and close buttons at the top right corner. Below that, it shows tabs for File, Edit, Format, View, and Help. Under the tabs, a table with entries separated by commas is displayed. The entries are as follows:

Emp I D, First Name, Last Name, Date Hired, Gender.

1, Brad, , 2/15/2017, M. The space between the two commas is labeled Missing value for Last Name.

58, Xander, Schauffele, 9/10/2018, M.

124, Jose, Sanchez, 2/15/2019, M.

124, Keenan, Booker, 43845, M.

151, Carlos, Ortiz, 43892, M.

177, Lydia, Ko, 44007, F.

The number 124 has been highlighted in a red block for both entries, starting with it, and is labeled Duplicated Emp I D values. The entries with the numbers 43845, 43892, and 44007 are all individually highlighted in a red block and are labeled Date serial number.

Return to Figure 8-137

Figure 8.138 Extended Description (Chapter 8)

Return to Figure 8-138

The Excel Worksheet consists of a Title bar at the top, followed by a Ribbon below. The Title bar has the AutoSave toggle button and the Save button on the Quick Access Toolbar on the far left. The Minimize, Maximize, and Close buttons are on the far right of the Title bar. The Ribbon has tabs for File, Home, Insert, Draw, Page Layout, Formulas, Data, Review, View, Help, and Acrobat. The Comments and Share buttons are shown on the far right of the Ribbon. The Home tab is selected and consists of Command groups such as Undo, Clipboard, Font, Alignment, Number, Styles, Cells, and Analysis. Below the groups is the Name box, followed by the Formula bar. Below that is the Work area, which shows a table with 9 columns and 10 rows. The column headings are Service I D, Service Date, Service Type, Description, Performed By, F K Equipment I D, Odometer Reading, Hours, and Total Cost. The first 4 row entries are as follows:

Row 1: Service I D, A 13428. Service Date, 9/17/2021 0:00. Service Type, Maintenance. Description, 6-month service. Performed By, 151. F K Equipment I D, 09925. Odometer Reading, 1789. Hours, Blank. Total Cost, $150.00.

Row 2: Service I D, A 13620. Service Date, eleven hash symbols. Service Type, Maintenance. Description, 12-month service. Performed By, 058. F K Equipment I D, 10015. Odometer Reading, Blank. Hours, 563. Total Cost, $87.00.

Row 3: Service I D, A 13719. Service Date, 1/17/2022 0:00. Service Type, Maintenance. Description, 6-month service. Performed By, 124. F K Equipment I D, 10047. Odometer Reading, 1294. Hours, Blank. Total Cost, $175.00.

Row 4: Service I D, A 13853. Service Date, 3/20/2022 0:00. Service Type, Maintenance. Description, 6-month service. Performed By, 151. F K Equipment I D, 09925. Odometer Reading, 3772. Hours, Blank. Total Cost, $150.00.

Return to Figure 8-138

Figure 8.139 Extended Description (Chapter 8)

Return to Figure 8-139

The window shows the Document Area, with six sections, arranged in a matrix format with three sections each in two rows. The top left section shows the fields <<First Name>> <<Last Name >>, <<Address>>, <<City>>, <<State>>, and all other sections show the fields <<Next Record>> <<First Name>> <<Last Name >>, <<Address>>, <<City>>, <<State>>.

Return to Figure 8-139

Figure 8.140 Extended Description (Chapter 8)

Return to Figure 8-140

The Notepad file titled Tickets_Drivers_Officers dot x m l has the minimize, maximize, and close buttons at the top right corner. It shows tabs for File, Edit, Format, View, and Help. Below the tabs is the opening x m l tag, followed by the opening root tag. Below it is the opening tag for x s d, that is, open angle bracket x s d colon schema close angle bracket. This is labeled X S D definitions start here. Below are the opening and closing tags for x s d and o d. The bottom of the window shows the update for Line 1 and Column 1, labeled Status bar.

Return to Figure 8-140

Figure 8.141 Extended Description (Chapter 8)

Return to Figure 8-141

The Excel Worksheet consists of a Title bar at the top, followed by a Ribbon below. The Title bar has the AutoSave toggle button and the Save button on the Quick Access Toolbar on the far left. The Minimize, Maximize, and Close buttons are on the far right of the Title bar. The Ribbon has tabs for File, Home, Insert, Draw, Page Layout, Formulas, Data, Review, View, Help, and Acrobat. The Comments and Share buttons are shown on the far right of the Ribbon. The Home tab is selected and consists of Command groups such as Undo, Clipboard, Font, Alignment, Number, Styles, and Cells. Below the groups is the Name box, followed by the Formula bar. Under that is the Work area, which shows a table with 3 columns and 10 rows. The column headings are City, Primary Factor, and Count of Ticket Number. The row entries are as follows:

Row 1: City, Albany. Primary Factor, Alcohol. Count of Ticket Number, 1.

Row 2: City, Albany. Primary Factor, Passing or Lane Violations. Count of Ticket Number, 1.

Row 3: City, Albany. Primary Factor, Unsafe Speed. Count of Ticket Number, 2.

Row 4: City, Buffalo. Primary Factor, Unsafe Speed. Count of Ticket Number, 1.

Row 5: City, New York. Primary Factor, Alcohol. Count of Ticket Number, 1. Row 6: City, New York. Primary Factor, Unsafe Speed. Count of Ticket Number, 2.

Row 7: City, Utica. Primary Factor, Improper Equipment. Count of Ticket Number, 1.

Row 8: City, Utica. Primary Factor, Unsafe Speed. Count of Ticket Number, 4.

Row 9: City, Yonkers. Primary Factor, Alcohol. Count of Ticket Number, 1. Row 10: City, Yonkers. Primary Factor, Traffic Control Disregarded. Count of Ticket Number, 1.

Return to Figure 8-141

Figure 8.142 Extended Description (Chapter 8)

Return to Figure 8-142

The browser shows a tab named Ticket Details on the left and minimize, maximize, and close buttons at the top right corner. Below that is the address bar, which shows the text C colon forward slash My percent 20 Work forward slash Albany_Buffalo_Ticket_Details dot h t m l. Under it is the table titled Ticket Details. The table shows 10 columns and 14 rows. The column headings are as follows: Ticket Number, D L Number, Drivers First Name, Drivers Last Name, Ticket Date, City, Primary Factor, Officer Badge Number, Officers First Name, and Officers Last Name. The first 4 row entries are as follows:

Row 1: Ticket Number, 4235894427. D L Number, 12388795. Drivers First Name, Caroline. Drivers Last Name, Doiron. Ticket Date, 1/20/2022. City, Albany. Primary Factor, Turning Improperly. Officer Badge Number, A00061403. Officers First Name, Carlos. Officers Last Name, Villanueva.

Row 2: Ticket Number, 4235894281. D L Number, 15503625. Drivers First Name, Corey. Drivers Last Name, Norman. Ticket Date, 12/11/2021. City, Albany. Primary Factor, Alcohol. Officer Badge Number, A00092385. Officers First Name, Javier. Officers Last Name, Torres. Row 3: Ticket Number, 4235894307. D L Number, 39998780. Drivers First Name, Kevin. Drivers Last Name, Nguyen. Ticket Date, 12/12/2021. City, Albany. Primary Factor, Unsafe Speed. Officer Badge Number, A00092385. Officers First Name, Javier. Officers Last Name, Torres. Row 4: Ticket Number, 4235894352. D L Number, 10001422. Drivers First Name, Ricardo. Drivers Last Name, Juarez. Ticket Date, 12/14/2021. City, Albany. Primary Factor, Unsafe Speed. Officer Badge Number, A00092385. Officers First Name, Javier. Officers Last Name, Torres.

Return to Figure 8-142

Figure 8.143 Extended Description (Chapter 8)

Return to Figure 8-143

The Notepad file titled Race Info - 08 dot c s v has the minimize, maximize, and close buttons at the top right corner. Below that, on the left, it shows tabs for File, Edit, Format, View, and Help. Under the tabs are the partially displayed entries for the table as follows:

Race I D, Race Name, Miles, Starting Location, Start Date, End Date, Reg Fee, Sponsoring Organization.

100, Marin Century, 96, “Stafford Lake, Novato”, 10/1/2022 0:00:00, 10/1/2022 0:00:00, 120,

101, Death Ride Tour of the California Alps, 103, “Turtle Rock Park, Markleeville”, 7/16/2022,

102, Mr. Frogs Wild Ride, 62, “Feeney Park, Murphys”, 4/16/2022 0:00:00, 4/16/2022 0:00:00, 79,

103, Ride The Parkway, 36, William B. Pond Recreation Area, 9/24/2022 0:00:00, 9/24/2022 0:00:00,

104, Asti Tour de Vine, 100, “Asti Winery, Cloverdale”, 10/8/2022 0:00:00, 10/8/2022 0:00:00, 85,

105, Giro d’Wine Country, 100, “O’reilly Media 1005 Gravenstein Hwy N, Sebastopol”, 9/17/2022

106, Foxy’s Fall Century, 100, “Veterans’ Memorial Center, Davis”, 10/15/2022 0:00:00, 10/15/2022

107, Le Tour de Fuzz, 100, “90 Ursiline Road, Santa Rosa”, 9/16/2022 0:00:00, 9/16/2022 0:00:00,

108, Mammoth Gran Fondo, 102, “The Village at Mammoth”, 9/10/2022 0:00:00, 9/10/2022 0:00:00, 129,

109, Silver State 508, 508, “Hilton Garden Inn, Reno N V”, 9/16/2022 0:00:00, 9/18/2022 0:00:00,

110, Party Pardee Metric Century, 65, “Howard Park, Ione”, 4/2/2022 0:00:00, 4/2/2022 0:00:00, 65,

111, Sierra to the Sea, 420, South Lake Tahoe, 6/18/2022 0:00:00, 6/25/2022 0:00:00, 925,

112, Tierra Bella Century 2022, 100, “Gavilan College, Gilroy”, 4/23/2022 0:00:00, 4/23/2022

Return to Figure 8-143

Figure 8.144 Extended Description (Chapter 8)

Return to Figure 8-144

The dialog box titled Import Spreadsheet Wizard has the close button at the top right corner. It shows the text You can specify information about each of the fields you are importing. Select fields in the area below. You can then modify field information in the 'Field Options' area. Below the text is the rectangular block titled Field Options. The block shows the Field Name field with a text box on the right. The text box shows the input Race I D, highlighted with a black background. To the right of this text box is the Data Type field with a text box on the right. The text box shows the input Long Integer. Below this is the Indexed field with a text box on the right that shows the input Yes (Duplicates OK). To the right of this text box is the Do not import field (Skip) option with a check box. Under this block, a table having 4 columns and 9 rows, and various entries is shown. The column headings are Race I D, Race Name, Miles, and Starting Location. The Race I D column is highlighted with a black background.

Return to Figure 8-144

Figure 8.146 Extended Description (Chapter 8)

Return to Figure 8-146

The Access Database shows a tab for Policies. Below the tab is the table, which consists of 6 columns and 10 rows. The column headings are Policy I D, Expiration Date, First Name, Last Name, Company, and Address. The first two row entries are as follows:

Row 1: Policy I D, A P 342374. Expiration Date, 8/20/2022. First Name, Napheesa. Last Name, Collier. Company, Auburn Physical Therapy. Address, 6993 Sorrell Road.

Row 2: Policy I D, H O 224555. Expiration Date, 1/15/2023. First Name, Justine. Last Name, Wang. Company, Blank. Address, 560 Washington Avenue.

A Record button, the Page number, a Filter, and a Search button are displayed on the bottom left of the window.

Return to Figure 8-146

Figure 8.147 Extended Description (Chapter 8)

Return to Figure 8-147

The Access Database shows a tab for Policies. Below the tab is a partial view of a table displaying 4 columns and 6 rows. The column headings are Policy Number, I D, First Name, and Last Name. The row entries are as follows:

Row 1: Policy Number, A P 342374. I D, 1. First Name, Andrew. Last Name, Collier.

Row 2: Policy Number, H O 224555. I D, 4. First Name, Garrett. Last Name, Wong.

Row 3: Policy Number, H O 371493. I D, 5. First Name, Julie. Last Name, Pei.

Row 4: Policy Number, K P 649280. I D, 2. First Name, Jayne. Last Name, Dalhausser.

Row 5: Policy Number, S C 100945. I D, 3. First Name, Lisa. Last Name, Massialas.

Row 6: Policy Number, Blank. I D, (New). First Name, Blank. Last Name Blank.

A Record button, the Page number, a Filter, and a Search button are displayed on the bottom left of the window.

Return to Figure 8-147

Figure 8.148 Extended Description (Chapter 8)

Return to Figure 8-148

The Document area, on the left, shows a document with the title Central Sierra Insurance, along with the contact details on the far right. Below that, on the far left, is the field for Insert current date. Under the date is the field for Address Block, followed by the field for Greeting. Beneath that is the text Subject: Policy, a field for Policy I D, Renewal. Below the Subject is a paragraph that shows fields such as Insurance Company and Expiration Date. Under this are two paragraphs that constitute the contents of the letter draft, followed by the salutation, Sincerely. This is accompanied by the text Tami Chan, Central Sierra Insurance, tchan at the rate central sierra dot com. To the right of the document area, the Mail Merge pane is shown. Under this pane, the Select recipients section is displayed with three radio options as follows: Use an existing list, Select from Outlook contacts, and Type a new list. The Use an existing list option is selected. Below the options is the Use an existing list section with the text, Currently your recipients are selected from [Policies] in “Access B -7 dot a c c d b”, with two options listed below it. The options are as follows: Select a different list and Edit recipient list. At the bottom of the Mail Merge pane, a section titled Step 3 of 6, with two links: Next: Write your letter, with a right arrow on the left, and Previous: Starting document, with a left arrow on the left, is shown.

Return to Figure 8-148

Figure 8.149 Extended Description (Chapter 8)

Return to Figure 8-149

The Word Document shows the title Central Sierra Insurance, along with the contact details on the far right. Below it is the date August 10, 2022. Under that is the address Naphessa Collier, Auburn Physical Therapy, 6993 Sorrell Road, Auburn C A 95882. Below the address is the greeting line Dear Naphessa Collier, followed by the text Subject: Policy A P 342374 Renewal. Beneath the Subject are three paragraphs that constitute the contents of the letter draft, followed by the salutation, Sincerely. This is accompanied by the text Tami Chan, Central Sierra Insurance, tchan at the rate central sierra dot com.

Return to Figure 8-149

Figure 9.2 Extended Description (Chapter 9)

Return to Figure 9-2

The table titled Loan has a list of six attributes: Loan#, which is underlined to denote it as the primary key, followed by Loan Date, Loan Amt, Rate, Num Months, and Pmt Amt.

Return to Figure 9-2

Figure 9.1 Extended Description (Chapter 9)

Return to Figure 9-1

The Customer node is positioned at the top and connects downwards to the Loan node via a vertical dashed line labeled Borrows; this line features a perpendicular crossbar near the Customer node and a crow's foot symbol at the Loan node. The Loan node connects downwards to the Payment node via another vertical dashed line labeled Receives, which has a perpendicular crossbar near the Loan node and a crow's foot symbol at the Payment node. Additionally, the Loan node connects to the right to the Vehicle node via a horizontal dashed line labeled Secured by; this connecting line has a crow's foot symbol near the Loan node, and a solid perpendicular crossbar near the Vehicle node.

Return to Figure 9-1

Figure 9.3 Extended Description (Chapter 9)

Return to Figure 9-3

An entity-relationship diagram displays four rectangular nodes labeled Customer, Loan, Vehicle, and Payment connected by dashed lines indicating their relationships and cardinalities using crow foot notation. A vertical dashed line labeled Borrows connects the Customer node at the top to the Loan node below it; the symbols, consisting of two horizontal lines at the Customer end and a horizontal line with a crow foot at the Loan end, indicate that exactly one Customer is associated with one or many Loans. A horizontal dashed line labeled Secured by connects the Loan node to the Vehicle node on the right; the symbols, consisting of a vertical line with a crow foot at the Loan end and two vertical lines at the Vehicle end, indicate that one or many Loans are secured by exactly one Vehicle. A vertical dashed line labeled Receives connects the bottom of the Loan node to the Payment node; the symbols, consisting of two horizontal lines at the Loan end and a circle with a crow foot at the Payment end, indicate that exactly one Loan receives zero or many Payments.

Return to Figure 9-3

Figure 9.4 Extended Description (Chapter 9)

Return to Figure 9-4

The diagram features two rectangles, one labeled Customer and the other labeled Loan. A dashed line labeled Borrow connects the Customer entity to the Loan entity. Cardinality symbols are placed on the relationship line. Near the Loan entity, a crow's foot symbol indicates that each Customer must borrow at least one, and potentially many, Loans. A vertical line is slightly to the left of the crow’s foot symbol. Above the diagram, the text A customer must borrow at least one loan is displayed. An arrow from the text A customer points from the Customer entity to the dashed line labeled Borrow. An arrow from the text must borrow points to the single vertical line cardinality symbol near the Loan entity. An arrow from the text at least one loan points to the Loan entity.

Return to Figure 9-4

Figure 9.5 Extended Description (Chapter 9)

Return to Figure 9-5

The diagram shows two blocks: Loan and Customer, arranged next to each other. A horizontal dotted line is shown between the blocks, and is named, Borrows. To the left of the Loan block, at the end of the dotted line, a vertical line is present. Another vertical line is placed on the dotted line to the left of this vertical line. A red curved arrow starting from the Customer block to the dotted line, ending before the first vertical line, is displayed. This is followed by the blue curved arrow starting from the end of the previous red arrow and ending over the first vertical line at the dotted line. This is further followed by the green curved arrow starting from the end of the previous blue arrow on the dotted line, over the second vertical line, and ending on the Loan block. Above the diagram shows the text: A loan must be borrowed by only one customer. The words A is highlighted in red, must in blue, and only one in green.

Return to Figure 9-5

Figure 9.6 Extended Description (Chapter 9)

Return to Figure 9-6

The diagram shows two blocks: Loan and Payment, arranged next to each other. A horizontal dotted line is shown between the blocks, and is named Receives. To the left of the Loan block, at the end of the dotted line, is the crow's foot symbol. An oval is placed on the dotted line to the left of the crow's foot symbol. A red curved arrow starting from the Loan block to the dotted line, ending before the oval, is displayed. This is followed by the blue curved arrow starting from the end of the previous red arrow and ending over the oval, ending at the dotted line. This is further followed by the green curved arrow starting from the end of the previous blue arrow on the dotted line, over the crow's foot symbol, and ending on the Payment block. Above the diagram shows the text: A loan may receive many payments. The words A is highlighted in red, may in blue, and many in green.

Return to Figure 9-6

Figure 9.7 Extended Description (Chapter 9)

Return to Figure 9-7

The diagram shows two blocks: Payment and Loan, arranged next to each other. A horizontal dotted line is shown between the blocks, and is named Receives. To the left of the Loan block, at the end of the dotted line, a vertical line is present. Another vertical line is placed on the dotted line to the left of this vertical line. A red curved arrow starting from the Payment block to the dotted line, ending before the first vertical line, is displayed. This is followed by the blue curved arrow starting from the end of the previous red arrow and ending over the first vertical line at the dotted line. This is further followed by the green curved arrow starting from the end of the previous blue arrow on the dotted line, over the second vertical line, and ending on the Loan block. Above the diagram shows the text: A payment must be applied to only one loan. The words A is highlighted in red, must in blue, and only one in green.

Return to Figure 9-7

Figure 9.8 Extended Description (Chapter 9)

Return to Figure 9-8

The worksheet shows columns ranging from A to P and rows ranging from 1 to 3. The worksheet shows a table that consists of 16 columns and 2 rows. The column headings are as follows: Loan hash, Loan Date, Loan Amount, Rate, Payment Due Date, Payment Amount, V I N, C I D, L name, F Name, Address, City, State, ZIP, Date paid, and Amount Paid. The row entries are as follows:

Row 1: Loan hash, 100. Loan Date, 10/5/2022. Loan Amount, $ 15,000.00. Rate, 3.79 percent. Payment Due Date, 11/1/2022, 12/1/2022, 1/1/2023, 2/1/2023. Payment Amount, $ 441.00. V I N, 1 H G C 2539 B A 02571, C I D, 2000. L name, Palmer. F name, Jasmine. Address, 218 Pineview. City, Irvine. State, C A. ZIP, 92620. Date paid, 11/1/2022, 12/1/2022, 12/30/2022, 2/6/2023. Amount paid, $441.00, $441.00, $441.00, $461.00.

Row 2: Loan hash, 101. Loan Date, 10/12/2022. Loan Amount, $ 13,750.00. Rate, 3.45 percent. Payment Due Date, 11/1/2022, 12/1/2022, 1/1/2023. Payment Amount, $ 403.00. V I N, 1 H G F A 1550 B L 0 A 4187, C I D, 2010. L name, Thomas. F name, Carl. Address, 12501 Janet Lane. City, Garden Grove. State, C A. ZIP, 92840. Date paid, 11/1/2022, 12/1/2022, 1/2/2023. Amount paid, $403.00, $403.00, $403.00.

Return to Figure 9-8

Figure 9.9 Extended Description (Chapter 9)

Return to Figure 9-9

The table consists of 16 columns and 7 rows. The column headings are as follows: Loan hash, Loan Date, Loan Amount, Rate, Payment Due Date, Payment Amount, V I N, C I D, L name, F Name, Address, City, State, ZIP, Date paid, and Amount Paid. The row entries are as follows:

Row 1: Loan hash, 100. Loan Date, 10/5/2022. Loan Amount, $ 15,000.00. Rate, 3.79 percent. Payment Due Date, 11/1/2022. Payment Amount, $ 441.00. V I N, 1 H G C 2539 B A 02571, C I D, 2000. L name, Palmer. F name, Jasmine. Address, 218 Pineview. City, Irvine. State, C A. ZIP, 92620. Date paid, 11/1/2022. Amount paid, $441.00.

Row 2: Loan hash, 100. Loan Date, 10/5/2022. Loan Amount, $ 15,000.00. Rate, 3.79 percent. Payment Due Date, 12/1/2022. Payment Amount, $ 441.00. V I N, 1 H G C 2539 B A 02571, C I D, 2000. L name, Palmer. F name, Jasmine. Address, 218 Pineview. City, Irvine. State, C A. ZIP, 92620. Date paid, 12/1/2022. Amount paid, $441.00.

Row 3: Loan hash, 100. Loan Date, 10/5/2022. Loan Amount, $ 15,000.00. Rate, 3.79 percent. Payment Due Date, 1/1/2023. Payment Amount, $ 441.00. V I N, 1 H G C 2539 B A 02571, C I D, 2000. L name, Palmer. F name, Jasmine. Address, 218 Pineview. City, Irvine. State, C A. ZIP, 92620. Date paid, 12/30/2022. Amount paid, $441.00.

Row 4: Loan hash, 100. Loan Date, 10/5/2022. Loan Amount, $ 15,000.00. Rate, 3.79 percent. Payment Due Date, 2/1/2023. Payment Amount, $ 441.00. V I N, 1 H G C 2539 B A 02571, C I D, 2000. L name, Palmer. F name, Jasmine. Address, 218 Pineview. City, Irvine. State, C A. ZIP, 92620. Date paid, 2/6/2023. Amount paid, $461.00.

Row 5: Loan hash, 101. Loan Date, 10/12/2022. Loan Amount, $ 13,750.00. Rate, 3.45 percent. Payment Due Date, 11/1/2022. Payment Amount, $ 403.00. V I N, 1 H G F A 1550 B L 0 A 4187, C I D, 2010. L name, Thomas. F name, Carl. Address, 12501 Janet Lane. City, Garden Grove. State, C A. ZIP, 92840. Date paid, 11/1/2022. Amount paid, $403.00.

Row 6: Loan hash, 101. Loan Date, 10/12/2022. Loan Amount, $ 13,750.00. Rate, 3.45 percent. Payment Due Date, 12/1/2022. Payment Amount, $ 403.00. V I N, 1 H G F A 1550 B L 0 A 4187, C I D, 2010. L name, Thomas. F name, Carl. Address, 12501 Janet Lane. City, Garden Grove. State, C A. ZIP, 92840. Date paid, 12/1/2022. Amount paid, $403.00.

Row 7: Loan hash, 101. Loan Date, 10/12/2022. Loan Amount, $ 13,750.00. Rate, 3.45 percent. Payment Due Date, 1/1/2023. Payment Amount, $ 403.00. V I N, 1 H G F A 1550 B L 0 A 4187, C I D, 2010. L name, Thomas. F name, Carl. Address, 12501 Janet Lane. City, Garden Grove. State, C A. ZIP, 92840. Date paid, 1/2/2023. Amount paid, $403.00.

Return to Figure 9-9

Figure 9.10 Extended Description (Chapter 9)

Return to Figure 9-10

The table consists of 16 columns and multiple rows. Loan hash, Loan Date, Loan Amount, Rate, Payment Due Date, Payment Amount, V I N, C I D, L name, F Name, Address, City, State, ZIP, Date paid, and Amount Paid. A horizontal blue line having blue arrows pointing towards the following column headers is shown: Loan hash, Loan Date, Loan Amount, Rate, Payment Amount, V I N, C I D, L name, F Name, Address, City, State, and ZIP. The row entries for the first 8 rows are as follows:

Row 1: Loan hash, 100. Loan Date, 10/5/2022. Loan Amount, $ 15,000.00. Rate, 3.79 percent. Payment Due Date, 11/1/2022. Payment Amount, $ 441.00. V I N, 1 H G C 2539 B A 02571, C I D, 2000. L name, Palmer. F name, Jasmine. Address, 218 Pineview. City, Irvine. State, C A. ZIP, 92620. Date paid, 11/1/2022. Amount paid, $441.00.

Row 2: Loan hash, 100. Loan Date, 10/5/2022. Loan Amount, $ 15,000.00. Rate, 3.79 percent. Payment Due Date, 12/1/2022. Payment Amount, $ 441.00. V I N, 1 H G C 2539 B A 02571, C I D, 2000. L name, Palmer. F name, Jasmine. Address, 218 Pineview. City, Irvine. State, C A. ZIP, 92620. Date paid, 12/1/2022. Amount paid, $441.00.

Row 3: Loan hash, 100. Loan Date, 10/5/2022. Loan Amount, $ 15,000.00. Rate, 3.79 percent. Payment Due Date, 1/1/2023. Payment Amount, $ 441.00. V I N, 1 H G C 2539 B A 02571, C I D, 2000. L name, Palmer. F name, Jasmine. Address, 218 Pineview. City, Irvine. State, C A. ZIP, 92620. Date paid, 12/30/2022. Amount paid, $441.00. Row 4: Loan hash, 100. Loan Date, 10/5/2022. Loan Amount, $ 15,000.00. Rate, 3.79 percent. Payment Due Date, 2/1/2023. Payment Amount, $ 441.00. V I N, 1 H G C 2539 B A 02571, C I D, 2000. L name, Palmer. F name, Jasmine. Address, 218 Pineview. City, Irvine. State, C A. ZIP, 92620. Date paid, 2/6/2023. Amount paid, $461.00.

Row 5: Loan hash, 101. Loan Date, 10/12/2022. Loan Amount, $ 13,750.00. Rate, 3.45 percent. Payment Due Date, 11/1/2022. Payment Amount, $ 403.00. V I N, 1 H G F A 1550 B L 0 A 4187, C I D, 2010. L name, Thomas. F name, Carl. Address, 12501 Janet Lane. City, Garden Grove. State, C A. ZIP, 92840. Date paid, 11/1/2022. Amount paid, $403.00.

Row 6: Loan hash, 101. Loan Date, 10/12/2022. Loan Amount, $ 13,750.00. Rate, 3.45 percent. Payment Due Date, 12/1/2022. Payment Amount, $ 403.00. V I N, 1 H G F A 1550 B L 0 A 4187, C I D, 2010. L name, Thomas. F name, Carl. Address, 12501 Janet Lane. City, Garden Grove. State, C A. ZIP, 92840. Date paid, 12/1/2022. Amount paid, $403.00.

Row 7: Loan hash, 101. Loan Date, 10/12/2022. Loan Amount, $ 13,750.00. Rate, 3.45 percent. Payment Due Date, 1/1/2023. Payment Amount, $ 403.00. V I N, 1 H G F A 1550 B L 0 A 4187,

C I D, 2010. L name, Thomas. F name, Carl. Address, 12501 Janet Lane. City, Garden Grove. State, C A. ZIP, 92840. Date paid, 1/2/2023. Amount paid, $403.00.

Row 8: Loan hash, 102. Loan Date, 10/19/2022. Loan Amount, $ 21,000.00. Rate, 4.19 percent. Payment Due Date, 12/1/2022. Payment Amount, $ 330.00. V I N, 1 G C H K 23679 F 149443. C I D, 2012. L Name, Chavez. F Name, Mary. Address, 797 Leeward Way. City, Costa Mesa. State, C A. ZIP, 92627. Date paid, 11/30/2022. Amount paid, $330.00.

The entries under rows 1 to 4 are highlighted in a red block and labeled All records for Loan hash 1001 have the same values in the Loan Date, Loan Amount, Payment Amount, V I N, C I D, L name, F Name, Address, City, State, and ZIP fields.

Return to Figure 9-10

Figure 9.11 Extended Description (Chapter 9)

Return to Figure 9-11

The first table, titled Loan consists of 13 columns and multiple rows. The column headings are Loan hash, Loan Date, Loan Amount, Rate, Payment Amount, V I N, C I D, L name, F Name, Address, City, State, and ZIP. The row entries for the first 2 rows are as follows:

Row 1: Loan hash, 100. Loan Date, 10/5/2022. Loan Amount, $ 15,000.00. Rate, 3.79 percent. Payment Amount, $ 441.00. V I N, 1 H G C 2539 B A 02571, C I D, 2000. L name, Palmer. F name, Jasmine. Address, 218 Pineview. City, Irvine. State, C A. ZIP, 92620.

Row 2: Loan hash, 101. Loan Date, 10/12/2022. Loan Amount, $ 13,750.00. Rate, 3.45 percent. Payment Amount, $ 403.00. V I N, 1 H G F A 1550 B L 0 A 4187, C I D, 2010. L name, Thomas. F name, Carl. Address, 12501 Janet Lane. City, Garden Grove. State, C A. ZIP, 92840.

Below this table, the second table, titled Loan Payment, consists of 4 columns and multiple rows. The column headings are as follows: Loan hash, Payment Due Date, Date Paid, and Amount Paid. The row entries for the first 7 rows are as follows:

Row 1: Loan hash, 100. Payment Due Date, 11/1/2022. Date Paid, 11/1/2022. Amount Paid, $441.00.

Row 2: Loan hash, 100. Payment Due Date, 12/1/2022. Date Paid, 12/1/2022. Amount Paid, $441.00.

Row 3: Loan hash, 100. Payment Due Date, 1/1/2023. Date Paid, 12/30/2022. Amount Paid, $441.00.

Row 4: Loan hash, 100. Payment Due Date, 2/1/2023. Date Paid, 2/5/2023. Amount Paid, $461.00.

Row 5: Loan hash, 101. Payment Due Date, 11/1/2022. Date Paid, 11/1/2022. Amount Paid, $403.00.

Row 6: Loan hash, 101. Payment Due Date, 12/1/2022. Date Paid, 12/1/2022. Amount Paid, $403.00.

Row 7: Loan hash, 101. Payment Due Date, 1/1/2023. Date Paid, 1/2/2023. Amount Paid, $403.00.

Return to Figure 9-11

Figure 9.12 Extended Description (Chapter 9)

Return to Figure 9-12

The first table, titled Customer, consists of 7 columns and 2 rows. The column headings are as follows: C I D, L name, F Name, Address, City, State, and ZIP. The row entries are as follows:

Row 1: C I D, 2000. L name, Palmer. F name, Jasmine. Address, 218 Pineview. City, Irvine. State, C A. ZIP, 92620.

Row 2: C I D, 2010. L name, Thomas. F name, Carl. Address, 12501 Janet Lane. City, Garden Grove. State, C A. ZIP, 92840.

Below that, the second table, titled Loan, consists of 7 columns and multiple rows. The column headings are Loan hash, Loan Date, Loan Amount, Rate, Payment Amount, V I N, and C I D. The row entries for the first 2 rows are as follows:

Row 1: Loan hash, 100. Loan Date, 10/5/2022. Loan Amount, $ 15,000.00. Rate, 3.79 percent. Payment Amount, $ 441.00. V I N, 1 H G C 2539 B A 02571, C I D, 2000.

Row 2: Loan hash, 101. Loan Date, 10/12/2022. Loan Amount, $ 13,750.00. Rate, 3.45 percent. Payment Amount, $ 403.00. V I N, 1 H G F A 1550 B L 0 A 4187, C I D, 2010.

Below this table, the third table, titled Loan Payment, consists of 4 columns and multiple rows. Loan hash, Payment Due Date, Date Paid, and Amount Paid. The row entries for the first 7 rows are as follows:

Row 1: Loan hash, 100. Payment Due Date, 11/1/2022. Date Paid, 11/1/2022. Amount Paid, $441.00. Row 2: Loan hash, 100. Payment Due Date, 12/1/2022. Date Paid, 12/1/2022. Amount Paid, $441.00.

Row 3: Loan hash, 100. Payment Due Date, 1/1/2023. Date Paid, 12/30/2022. Amount Paid, $441.00. Row 4: Loan hash, 100. Payment Due Date, 2/1/2023. Date Paid, 2/5/2023. Amount Paid, $461.00.

Row 5: Loan hash, 101. Payment Due Date, 11/1/2022. Date Paid, 11/1/2022. Amount Paid, $403.00. Row 6: Loan hash, 101. Payment Due Date, 12/1/2022. Date Paid, 12/1/2022. Amount Paid, $403.00.

Row 7: Loan hash, 101. Payment Due Date, 1/1/2023. Date Paid, 1/2/2023. Amount Paid, $403.00. The blue arrow is shown starting from C I D column of the Customer table to the C I D column of the Loan table. Similarly, a green arrow is shown starting from the Loan hash column of the Loan table to the Loan hash column of the Loan Payment table.

Return to Figure 9-12

Figure 9.13 Extended Description (Chapter 9)

Return to Figure 9-13

The Ribbon shows the Analyze Command group, which features buttons for Database Documenter, Analyze Performance, and Analyze Table. The Analyze Table button is selected.

Return to Figure 9-13

Figure 9.14 Extended Description (Chapter 9)

Return to Figure 9-14

The Table Analyzer Wizard shows a rectangular block on the left. The block shows a table titled Product and Suppliers. The table consists of 4 columns and 6 rows. The column headings are Product, Supplier I D, Supplier, and Address. The entry for the column Supplier in row 6 is labeled Supplier name is misspelled, and the entry for the column Address from Rows 3 to 6 is labeled Supplier information is repeated. To the right of the block is the title The Table Analyzer: Looking At The Problem. Below the title is the text Your table or spreadsheet may store the same information many times. Duplicating information can cause problems. Below it, another text reads, “First, duplicating information wastes space”, followed by a checkbox with a bullet point in it and the text, Show me an example. Under this is another text which reads, “Second, duplicating information can lead to mistakes”, followed by a checkbox with a bullet point in it and the text, Show me an example. The Cancel, Next, Back, and Finish buttons are present on the bottom right of the wizard.

Return to Figure 9-14

Figure 9.15 Extended Description (Chapter 9)

Return to Figure 9-15

The Table Analyzer Wizard shows a rectangular block on the left. The block shows three tables. The first table on the right is titled the Original Products and Suppliers table. The table consists of 4 columns. The first column is highlighted in yellow, and the other three columns are highlighted in blue. The second table on the left has the heading New Products table. This table is titled Products and consists of 2 columns and 6 rows. The column headings are Product and Lookup To Supplier. A yellow arrow points from the first column of the first table titled Original Products and Suppliers table to the second column, that is, Lookup To Supplier of the second table. Overlapping the Products table at the bottom right corner is the third table titled Supplier. The table consists of 3 columns and 2 rows. The column headings are Supplier I D, Supplier, and Address. Below this table is the heading, New Suppliers table. A blue arrow points from the columns highlighted in blue three from the first table, titled Original Products and Suppliers table, to the second and third columns, which are Suppliers and Address of the third table.

To the right of the block is the title The Table Analyzer: Solving the Problem. Below the title is the text The wizard will split the original table to create new tables, where each piece of information is stored only once. Under this, another text reads “You can now update in just one place the information that is used many times.”, followed by a checkbox with a bullet point in it and the text, Show me an example. Beneath that, another text reads, “You can work with information from different tables at the same time.”, followed by a checkbox with a bullet point in it and the text, Show me an example. The Cancel, Next, Back, and Finish buttons are present on the bottom right of the wizard.

Return to Figure 9-15

Figure 9.16 Extended Description (Chapter 9)

Return to Figure 9-16

The Table Analyzer Wizard shows a rectangular block on the left. The block shows an illustration that appears to represent the process of splitting a single large table into multiple smaller, related tables. To the right of the block is the text “Which table contains fields with values that are repeated in many records? The wizard will split the table into two or more related tables. The wizard won’t modify your original table.” Below this is the Tables field with a block under it. The block shows a list of table options, such as Owners, Pet Appointments, and Pets. Beneath the block is the Show introductory pages? option with a marked checkbox to its left. The Cancel, Back Next, and Finish buttons are present on the bottom right of the dialog box.

Return to Figure 9-16

Figure 9.17 Extended Description (Chapter 9)

Return to Figure 9-17

The Table Analyzer Wizard shows a rectangular block on the left. The block shows an illustration that appears to represent the process of splitting a single large table into multiple smaller, related tables. To the right of the block is the text “Do you want the wizard to decide what fields go in what tables?

If the wizard decides, your next step will be to verify and adjust the wizard’s proposal.” Below the text are two radio options as follows: Yes, let the wizard decide, and No, I want to decide. The Yes, let the wizard decide option is selected. The Cancel, Back, Next, and Finish buttons are present on the bottom right of the dialog box.

Return to Figure 9-17

Figure 9.18 Extended Description (Chapter 9)

Return to Figure 9-18

The Table Analyzer Wizard shows the text: Is the wizard grouping information correctly? If not, you can drag and drop fields to form groups that make sense. To the far right of the text is a light bulb icon labeled Tips button. Below it, another text reads What name do you want for each table?

It's a good idea for the name to identify the kind of information the table contains. To the far right of this text are the two icons displayed by a table with a pencil at its top right corner and a curved arrow pointing to the left. The table with a pencil icon is labeled Rename Table, and the curved arrow icon is labeled Undo button. Under the text is a rectangular block which shows two tables, titled Table 1 and Table 2. Table 1 shows fields such as Pet I D, Appointment Number, Appointment Date, and Lookup to Table 2. Table 2 shows fields such as Generated Unique I D, which is highlighted, Doctor I D, Doctor L Name, and Doctor F Name. A zig-zag line is shown between the tables, which connects the Lookup to Table 2 field from Table 1 to the Generated Unique I D field of Table 2. The Cancel, Back, Next, and Finish buttons are present on the bottom right of the dialog box.

Return to Figure 9-18

Figure 9.19 Extended Description (Chapter 9)

Return to Figure 9-19

The Table Analyzer Wizard shows the text: Do the bold fields uniquely identify each record in the proposed table? To the far right of the text is the Tips button. Below it, another text reads The primary key field of fields must have a different value in every record of the proposed table. If no field has unique values, the wizard can add a Generated Unique I D field for you. To the far right of this text are the three icons displayed by a key, a gear followed by a key, and a curved arrow pointing to the left. The key icon is labeled Set Unique Identifier button, a gear followed by a key is labeled Add Generated Key button, and the curved arrow icon is labeled Undo button. Under the text is a rectangular block which shows two tables, titled Appointments and Veterinarians. The Appointments table shows fields such as Pet I D, Appointment Number, Appointment Date, and Lookup to Veterinarians. The Veterinarians table shows fields such as Generated Unique I D, which is highlighted, Doctor I D, Doctor L Name, and Doctor F Name. A zig-zag line is shown between the tables, which connects the Lookup to Veterinarians field from the Appointments table to the Generated Unique I D field of the Veterinarians table. The Cancel, Back, Next, and Finish buttons are present on the bottom right of the dialog box.

Return to Figure 9-19

Figure 9.20 Extended Description (Chapter 9)

Return to Figure 9-20

The Table Analyzer Wizard shows the heading Correcting typographical errors for table 'Veterinarians'. To the far right is the Tips button. Below the heading is the text, The wizard has found a group of records with the same primary key field value but inconsistent values in other fields. Which record has the right information for this primary key field value? You can accept the wizard's suggestion or click another choice. You can also enter a new value for the record. Click Next Key or Previous Key for the next or previous set of inconsistent records with the same primary key. Below the text are the Previous Key and Next Key buttons. The Next Key button is labeled. To the right of the buttons is the text Current Key (Doctor I D) featuring the entry 178. Under this is a rectangular block that shows a table. The table consists of 4 columns and 2 rows. The column headings are Current Record, Doctor L Name, Doctor F Name, and Number of Occurrences. The row entries are as follows:

Row 1: Current Record, a marked checkbox. Doctor L Name, Hergert. Doctor F Name, Michael. Number of Occurrences, 3.

Row 2: Current Record, a checkbox. Doctor L Name, Hergert. Doctor F Name, Michael. Number of Occurrences, 1.

The Cancel, Back, Next, and Finish buttons are present on the bottom right of the dialog box.

Return to Figure 9-20

Figure 9.21 Extended Description (Chapter 9)

Return to Figure 9-21

The Table Analyzer Wizard shows a rectangular block on the left. The block shows an illustration of a checkered flag with a green zig-zag brush stroke under it. To the right of the block is the text, That's all the information the wizard needs to create related tables. After the wizard creates new tables, it can create a query that looks like your original table but does much more. This is followed by the text, If you choose to create a query, accompanied by two options listed below that are Forms and reports based on your original table will continue to work, and the wizard will give the query the name of your original table and rename your original table.

Under this, the text Do you want a query? followed by two radio options is shown. The options are: Yes, create the query, and No, don't create the query. Yes, create the query option is selected. The Cancel, Back, Next, and Finish buttons are present on the bottom right of the dialog box.

Return to Figure 9-21

Figure 9.22 Extended Description (Chapter 9)

Return to Figure 9-22

The Ribbon shows the Analyze Command group, which features buttons for Database Documenter, Analyze Performance, and Analyze Table. The Database Documenter button is selected.

Return to Figure 9-22

Figure 9.23 Extended Description (Chapter 9)

Return to Figure 9-23

The Documenter dialog box has a close button on the top right corner of the box. This dialog box shows tabs for Modules, Current Database, All Object Types, Tables, Queries, Forms, Reports, and Macros. The Tables tab is selected. Below the tabs is a rectangular block that shows table options such as Appointments, Owners, Pet Appointments, Pets, and Veterinarians. These tables are preceded by a checkbox followed by a Primary key icon. The Appointments table is selected. To the right of the block are the OK, Cancel, Select, Select All, Deselect All, and Options buttons.

Return to Figure 9-23

Figure 9.24 Extended Description (Chapter 9)

Return to Figure 9-24

The Print Table Definition dialog box has a close button on the top right corner of the box. This dialog box shows three blocks named Include for Table, Include for Fields, and Include for Indexes under it. The first block, named Include for Table, displays three radio options such as Properties, Relationships, and Permissions by User and Group. The checkboxes for all three options are marked. Below this, the second block named Include for Fields displays three radio options such as Nothing, Names, Data Types, and Sizes, and Names, Data Types, Sizes, and Properties. The Names, Data Types, Sizes, and Properties option is selected. Under that, the third block named Include for Indexes displays three radio options such as Nothing, Names and Fields, and Names, Fields, and Properties. The Names, Fields, and Properties option is selected. To the top right of the dialog box, beside the first block, are the OK and Cancel buttons.

Return to Figure 9-24

Figure 9.25 Extended Description (Chapter 9)

Return to Figure 9-25

The document shows a block that displays the document address C colon backslash My Work backslash j backslash f o s backslash Animal Shelter - 06 dot a c c d b, on the left. Below the address is the table name that is Table: Pets. To the right is the date Sunday, November 27, 2022. Below the date is the page number, Page: 1. Under this block is a section named Properties, followed by various properties with their values. Below the Properties section is the section named Columns. Beneath the Column section, a table with 3 columns and 2 rows is displayed. The column headings are Name, Type, and Size. The row entries are as follows:

Row 1: Name, I D. Type, Long Integer. Size, 4.

Row 2: Name, Pet Name. Type, Short Text. Size, 15.

A list of features is shown for each entry under the column heading Name.

Return to Figure 9-25

Figure 9.26 Extended Description (Chapter 9)

Return to Figure 9-26

The table consists of 2 columns and 6 rows. The column headings are Field Name and Data Type. The row entries are as follows:

Row 1: Pet I D and Number.

Row 2: A p p t Num and Number.

Row 3: A p p t Date and Date or Time.

Row 4: Doctor I D and Short Text.

Row 5: Doc L Name and Short Text.

Row 6: Doc F Name and Short Text.

Return to Figure 9-26

Figure 9.27 Extended Description (Chapter 9)

Return to Figure 9-27

The Table Analyzer Wizard shows a rectangular block on the left. The block shows an illustration that appears to represent the process of splitting a single large table into multiple smaller, related tables. To the right of the block is the text “Which table contains fields with values that are repeated in many records? The wizard will split the table into two or more related tables. The wizard won’t modify your original table.” Below this is the Tables field with a block under it. The block shows a list of table options, such as Owners, Pet Appointments, and Pets. The Pet Appointments option is selected and labeled Click to select the Pet Appointments table. Beneath the block is the Show introductory pages? option with a marked checkbox to its left. The Cancel, Back Next, and Finish buttons are present on the bottom right of the dialog box.

Return to Figure 9-27

Figure 9.28 Extended Description (Chapter 9)

Return to Figure 9-28

The Table Analyzer Wizard shows the text: Is the wizard grouping information correctly? If not, you can drag and drop fields to form groups that make sense. To the far right of the text is a light bulb icon labeled Tips button. Below it, another text reads What name do you want for each table?

It's a good idea for the name to identify the kind of information the table contains. To the far right of this text are the two icons displayed by a table with a pencil at its top right corner and a curved arrow pointing to the left. The table with a pencil icon is labeled Rename Table. Under the text is a rectangular block which shows two tables, titled Table 1 and Table 2. Table 1 shows fields such as Pet I D, Appointment Number, Appointment Date, and Lookup to Table 2. Table 2 shows fields such as Generated Unique I D, which is highlighted, Doctor I D, Doctor L Name, and Doctor F Name. A zig-zag line is shown between the tables, which connects the Lookup to Table 2 field from Table 1 to the Generated Unique I D field of Table 2. The Cancel, Back, Next, and Finish buttons are present on the bottom right of the dialog box.

Return to Figure 9-28

Figure 9.29 Extended Description (Chapter 9)

Return to Figure 9-29

The Table Analyzer Wizard shows the text: Do the bold fields uniquely identify each record in the proposed table? To the far right of the text is the Tips button. Below it, another text reads The primary key field of fields must have a different value in every record of the proposed table. If no field has unique values, the wizard can add a Generated Unique I D field for you. To the far right of this text are the three icons displayed by a key, a gear followed by a key, and a curved arrow pointing to the left. The key icon is labeled Set Unique Identifier button. Under the text is a rectangular block which shows two tables, titled Appointments and Veterinarians. The Appointments table shows fields such as Pet I D, Appointment Number, Appointment Date, and Lookup to Veterinarians. The Veterinarians table shows fields such as Generated Unique I D, which is highlighted, Doctor I D, Doctor L Name, and Doctor F Name. A zig-zag line is shown between the tables, which connects the Lookup to Veterinarians field from the Appointments table to the Generated Unique I D field of the Veterinarians table. The Cancel, Back, Next, and Finish buttons are present on the bottom right of the dialog box.

Return to Figure 9-29

Figure 9.30 Extended Description (Chapter 9)

Return to Figure 9-30

The Table Analyzer Wizard shows the heading Correcting typographical errors for table ‘Veterinarians’. To the far right is the Tips button. Below the heading is the text, The wizard has found a group of records with the same primary key field value but inconsistent values in other fields. Which record has the right information for this primary key field value? You can accept the wizard’s suggestion or click another choice. You can also enter a new value for the record. Click Next Key or Previous Key for the next or previous set of inconsistent records with the same primary key. Below the text are the Previous Key and Next Key buttons. To the right of the buttons is the text Current Key (Doctor I D) featuring the entry 178. Under this is a rectangular block that shows a table. The table consists of 4 columns and 2 rows. The column headings are Current Record, Doctor L Name, Doctor F Name, and Number of Occurrences. The row entries are as follows:

Row 1: a marked checkbox, Hergert, Michael, and 5.

Row 2: a checkbox, Hergert, Michael, and 1.

The Cancel, Back, Next, and Finish buttons are present on the bottom right of the dialog box.

Return to Figure 9-30

Figure 9.31 Extended Description (Chapter 9)

Return to Figure 9-31

The Print Table Definition dialog box has a close button on the top right corner of the box. This dialog box shows three blocks named Include for Table, Include for Fields, and Include for Indexes under it. The first block, named Include for Table, displays three radio options such as Properties, Relationships, and Permissions by User and Group. The checkboxes for all three options are marked. The Permissions by User and Group checkbox is labeled Deselect this check box. Below this, the second block named Include for Fields displays three radio options such as Nothing, Names, Data Types, and Sizes, and Names, Data Types, Sizes, and Properties. The Names, Data Types, Sizes, and Properties option is selected. Under that, the third block named Include for Indexes displays three radio options such as Nothing, Names and Fields, and Names, Fields, and Properties. The Names, Fields, and Properties option is selected. To the top right of the dialog box, beside the first block, are the OK and Cancel buttons.

Return to Figure 9-31

Figure 9.32 Extended Description (Chapter 9)

Return to Figure 9-32

The document shows a block that displays the document address C colon backslash My Work backslash P P A 9-1 dot a c c d b, on the left. Below the address is the table name that is Table: Pets. To the right is the date Sunday, November 27, 2022. Below the date is the page number, Page: 1. Under this block is a section named Properties, followed by various properties with their values. Below the Properties section is the section named Columns. Beneath the Column section, a table with 3 columns and 2 rows is displayed. The column headings are Name, Type, and Size. The row entries are as follows:

Row 1: Name, I D. Type, Long Integer. Size, 4.

Row 2: Name, Pet Name. Type, Short Text. Size, 15.

A list of features is shown for each entry under the column heading Name.

Return to Figure 9-32

Figure 9.33 Extended Description (Chapter 9)

Return to Figure 9-33

The pane shows an icon of a small gray gear to the right of the title, All Access Objects. Below the title is the Search bar. Under the Search bar are there are 4 categories, each with a list of file options. The list is as follows:

Tables: Agents, Canceled Or Expired Listings, Listings, and Sold Properties.

Queries: Days On Market With Month Parameter.

Forms: Active Listings, Canceled Or Expired Listings, Listing Details, Listings Subform, Placer Hills Main, and Property Listings By Agent.

Reports: Days On Market and Sold Properties.

Return to Figure 9-33

Figure 9.34 Extended Description (Chapter 9)

Return to Figure 9-34

The pane shows an icon of a small gray gear to the right of the title, All Tables. Clicking the icon displays a list of options such as Navigate To Category, Custom, Object Type, Tables and Related Views, Created Date, Modified Date, Filter By Group, Agents, Listings, Canceled Or Expired Listings, Sold Properties, Unrelated Objects, and All Tables. The Navigate To Category and Filter By Group options are selected.

Return to Figure 9-34

Figure 9.35 Extended Description (Chapter 9)

Return to Figure 9-35

The pane shows an icon of a small gray gear to the right of the title, All Tables. Below the title is the Search bar. Under the Search bar are the categories, each with a list of table options, as follows:

Agents: Agents: Table and Property Listings By Agent.

Listings: Listings: Table, Days On Market With Month Parameter, Active Listings, Listing Details, Listings Subform, and Days On Market.

Canceled Or Expired Listings: Canceled Or Expired Listings: Table.

Sold Properties: Sold Properties: Table.

Unrelated Objects: Canceled Or Expired Listings, Placer Hills Main, and Sold Properties.

Return to Figure 9-35

Figure 9.36 Extended Description (Chapter 9)

Return to Figure 9-36

The dialog box titled Navigation Options has the Help and Close buttons at the top right corner. The dialog box displays a rectangular block titled Grouping Options The block shows the text Click on a Category to change the Category display order or to add groups. Below the text are two blocks next to each other. The block on the left is titled Categories, which displays the options: Tables and Related Views, Object Type, and Custom. The options are together labeled Categories list. Below the block shows the Add Item, Delete Item, and Rename Item buttons. To the right is another block titled Groups for “Tables and Related Views”, which displays the options such as Agents, Listings, Canceled or Expired Listings, Sold Properties, and Unrelated Objects, each with a marked checkbox beside them. The options are together labeled Groups within selected category. Under the block are the Add Group, Delete Group, and Rename Group buttons. Beneath these blocks are two blocks placed side by side. The block on the left is titled Display Options, which shows the options accompanied by a checkbox. The options are Show Hidden Objects, Show System Objects, and Show Search Bar. The Show Search Bar option is selected. The block on the right is titled Open Objects with, which displays radio options such as Single-click and Double-click. The Double-click option is selected. The bottom right of the dialog box shows the OK and Cancel buttons.

Return to Figure 9-36

Figure 9.37 Extended Description (Chapter 9)

Return to Figure 9-37

The dialog box titled Navigation Options has the Help and Close buttons at the top right corner. The dialog box displays a rectangular block titled Grouping Options The block shows the text Click on a Category to change the Category display order or to add groups. Below the text are two blocks next to each other. The block on the left is titled Categories, which displays the options: Tables and Related Views, Object Type, and Custom. The Object Type option is selected. Below the block shows the Add Item, Delete Item, and Rename Item buttons. To the right is another block titled Groups for “Object Type”, which displays the options such as Tables, Queries, Forms, Reports, Macros, and Modules, each with a marked checkbox beside them. Under the block are the Add Group, Delete Group, and Rename Group buttons. Beneath these blocks are two blocks placed side by side. The block on the left is titled Display Options, which shows the options accompanied by a checkbox. The options are Show Hidden Objects, Show System Objects, and Show Search Bar. The Show Search Bar option is selected. The block on the right is titled Open Objects with, which displays radio options such as Single-click and Double-click. The Double-click option is selected. The bottom right of the dialog box shows the OK and Cancel buttons.

Return to Figure 9-37

Figure 9.38 Extended Description (Chapter 9)

Return to Figure 9-38

The dialog box titled Navigation Options has the Help and Close buttons at the top right corner. The dialog box displays a rectangular block titled Grouping Options. The block shows the text Click on a Category to change the Category display order or to add groups. Below the text are two blocks next to each other. The block on the left is titled Categories, which displays the options: Tables and Related Views, Object Type, and Custom. The Custom option is selected. Below the block shows the Add Item, Delete Item, and Rename Item buttons. To the right is another block titled Groups for “Custom”, which displays the options such as Custom Group 1 and Unassigned Objects, each with a marked checkbox beside them. Below the block shows the Add Group, Delete Group, and Rename Group buttons. Beneath these blocks are two blocks placed side by side. The block on the left is titled Display Options, which shows the options accompanied by a checkbox. The options are Show Hidden Objects, Show System Objects, and Show Search Bar. The Show Search Bar option is selected. The block on the right is titled Open Objects with, which displays radio options such as Single-click and Double-click. The Double-click option is selected. The bottom right of the dialog box shows the OK and Cancel buttons.

Return to Figure 9-38

Figure 9.39 Extended Description (Chapter 9)

Return to Figure 9-39

The pane shows an icon of a small gray gear to the right of the title, All Access Objects. A right-click on the title bar opens the context menu, which displays options such as Category, Sort By, View By, Show all groups, Paste, Navigation Options, and Search Bar. The Navigation Options option is selected. Behind this drop-down menu, under the title, the Search bar is displayed. Below the Search bar are the categories, each with a list of file options, as follows: Tables: Agents, Canceled Or Expired Listings, Listings, and Sold Properties.

Queries: Days On Market With Month Parameter.

Return to Figure 9-39

Figure 9.40 Extended Description (Chapter 9)

Return to Figure 9-40

The dialog box titled Navigation Options has the Help and Close buttons at the top right corner. The dialog box displays a rectangular block titled Grouping Options. The block shows the text Click on a Category to change the Category display order or to add groups. Below the text are two blocks next to each other. The block on the left is titled Categories, which displays the options: Tables and Related Views, Object Type, Custom, and Custom Category 1. The Custom Category 1 option is highlighted in a red block and is selected. Below the block shows the Add Item, Delete Item, and Rename Item buttons. To the right is another block titled Groups for “Custom Category 1”, which displays the Unassigned Objects option with a marked checkbox. Under the block are the Add Group, Delete Group, and Rename Group buttons. Beneath these blocks are two blocks placed side by side. The block on the left is titled Display Options, which shows the options accompanied by a checkbox. The options are Show Hidden Objects, Show System Objects, and Show Search Bar. The Show Search Bar option is selected. The block on the right is titled Open Objects with, which displays radio options such as Single-click and Double-click. The Double-click option is selected. The bottom right of the dialog box shows the OK and Cancel buttons.

Queries: Days On Market With Month Parameter.

Return to Figure 9-40

Figure 9.41 Extended Description (Chapter 9)

Return to Figure 9-41

The dialog box shows a rectangular block, with the text Click on a Category to change the Category display order or to add groups. Below the text are two blocks next to each other. The block on the left is titled Categories, which displays the options: Tables and Related Views, Object Type, Custom, and Placer Hills Main Menu. The Placer Hills Main Menu option is selected, and it displays an up arrow and a down arrow on the right. The up arrow is labeled Move Up arrow, and the down arrow is labeled Move Down arrow. Below the block shows the Add Item, Delete Item, and Rename Item buttons. To the right is another block titled Groups for “Placer Hills Main Menu”, which displays the Unassigned Objects option with a marked checkbox. Under the block are the Add Group, Delete Group, and Rename Group buttons.

Return to Figure 9-41

Figure 9.42 Extended Description (Chapter 9)

Return to Figure 9-42

The dialog box titled Navigation Options has the Help and Close buttons at the top right corner. The dialog box displays a rectangular block titled Grouping Options. The block shows the text Click on a Category to change the Category display order or to add groups. Below the text are two blocks next to each other. The block on the left is titled Categories, which displays the options: Tables and Related Views, Object Type, Custom, and Placer Hills Main Menu. The Placer Hills Main Menu option is selected. Below the block shows the Add Item, Delete Item, and Rename Item buttons. To the right is another block titled Groups for “Placer Hills Main Menu”, which displays the options such as Custom Group 1 and Unassigned Objects, each with a marked checkbox beside them. The Custom Group 1 option is highlighted in a red block, with an up arrow and a down arrow on the right. Under the block are the Add Group, Delete Group, and Rename Group buttons. Beneath these blocks are two blocks placed side by side. The block on the left is titled Display Options, which shows the options accompanied by a checkbox. The options are Show Hidden Objects, Show System Objects, and Show Search Bar. The Show Search Bar option is selected. The block on the right is titled Open Objects with, which displays radio options such as Single-click and Double-click. The Double-click option is selected. The bottom right of the dialog box shows the OK and Cancel buttons.

Return to Figure 9-42

Figure 9.43 Extended Description (Chapter 9)

Return to Figure 9-43

The dialog box shows a rectangular block, with the text Click on a Category to change the Category display order or to add groups. Below the text are two blocks next to each other. The block on the left is titled Categories, which displays the options: Tables and Related Views, Object Type, Custom, and Placer Hills Main Menu. The Placer Hills Main Menu option is selected, and it displays an up arrow and a down arrow on the right. The Placer Hills Main Menu option is selected. Below the block shows the Add Item, Delete Item, and Rename Item buttons. To the right is another block titled Groups for “Placer Hills Main Menu”, which displays the options such as Active Listings, Sold, Canceled or Expired Listings, and Unassigned Objects option with marked checkboxes beside them. The Sold, Canceled, Or Expired Listings option is selected, which shows an up arrow and a down arrow on the right. Below the block shows the Add Group, Delete Group, and Rename Group buttons.

Return to Figure 9-43

Figure 9.44 Extended Description (Chapter 9)

Return to Figure 9-44

The pane shows the Active Listings category with a Listing Details option below. The option shows an icon of a table on the left. A small arrow is present on the bottom left of the icon, labeled Small arrow indicates a shortcut.

Return to Figure 9-44

Figure 9.45 Extended Description (Chapter 9)

Return to Figure 9-45

The pane is titled Placer Hills Main Menu with a drop-down arrow on the right. Below the title is the Search bar. Under the Search bar are the options such as Active Listings, Sold, Canceled or Expired Listings, and Unassigned Objects, each with an extended arrow on the far right. The options are together labeled Groups within the custom category. Below these options are other table options, such as Agents, Canceled Or Expired Listings, Listings, Sold Properties, Days On Market With Month Parameter, Active Listings, Canceled Or Expired Listings, Listing Details, Listings Subform, Placer Hills Main, Property Listings By Agent, Days On Market, and Sold Properties.

Return to Figure 9-45

Figure 9.46 Extended Description (Chapter 9)

Return to Figure 9-46

The pane is titled Placer Hills Main Menu with a drop-down arrow on the right. Below the title is the Search bar. Under the Search bar are options such as Active Listings, Sold, Canceled or Expired Listings, and Unassigned Objects, each with an extended arrow on the far right. Below these options are other table options, such as Agents, Canceled Or Expired Listings, Listings, Sold Properties, Days On Market With Month Parameter, Active Listings, Canceled Or Expired Listings, Listing Details, Listings Subform, Placer Hills Main, Property Listings By Agent, Days On Market, and Sold Properties. A right click on the Agents option displays the context menu. The menu shows options such as Open, Design View, Import, Export, Rename, Hide in this Group, Delete, Cut, Copy, Paste, Add to group, Linked Table Manager, Refresh link, Convert to Local Table, and Table Properties. The Add to group option shows an extended arrow on the right. Clicking on the arrow further displays the options such as Active Listings, Sold, Canceled or Expired Listings, and New Group. The Active Listings option is selected.

Return to Figure 9-46

Figure 9.47 Extended Description (Chapter 9)

Return to Figure 9-47

The dialog box titled Listings Subform Properties has the close button at the top right corner. It shows the General tab, which is selected. Below the tab are four sections. The first section shows a Table icon on the left, followed by the Shortcut to Form (Local) field with the entry Listing Details. The next section shows the Type field with the entry Shortcut. Under it is the Description field with a blank text block on the right. The next section shows the Created field with an entry 8/9/2021, 3:47:40 P M. Below it is the Modified field with an entry 8/9/2021, 3:47:40 P M. This is followed by the Owner field with an entry Admin. The last section shows the Attributes feature with two options, having checkboxes beside them. The options are: Hidden and Disable Design View shortcuts. The bottom right of the dialog box shows the OK, Cancel, and Apply buttons.

Return to Figure 9-47

Figure 9.48 Extended Description (Chapter 9)

Return to Figure 9-48

The dialog box titled Listings Subform Properties has the close button at the top right corner. It shows the General tab, which is selected. Below the tab are four sections. The first section shows a Table icon on the left, followed by the text Listings Subform. The next section shows the Type field with the entry Form (Local). Under it is the Description field with a blank text block on the right. The next section shows the Created field with an entry 8/9/2021, 3:40:23 P M. Below it is the Modified field with an entry 8/9/2021, 3:40:23 P M. This is followed by the Owner field with an entry Admin. The last section shows the Attributes field with a Hidden option on the right. The Hidden option shows a checkbox on the left. The bottom right of the dialog box shows the OK, Cancel, and Apply buttons.

Return to Figure 9-48

Figure 9.49 Extended Description (Chapter 9)

Return to Figure 9-49

The dialog box titled Navigation Options has the Help and Close buttons at the top right corner. The dialog box displays a rectangular block titled Grouping Options. The block shows the text Click on a Category to change the Category display order or to add groups. Below the text are two blocks next to each other. The block on the left is titled Categories, which displays the options: Tables and Related Views, Object Type, Custom, and Placer Hills Main Menu. Below the block shows the Add Item, Delete Item, and Rename Item buttons. To the right is another block titled Groups for “Tables and Related Views”, which displays the options such as Agents, Listings, Canceled or Expired Listings, Sold Properties, and Unrelated Objects, each with a marked checkbox beside them. Under the block are the Add Group, Delete Group, and Rename Group buttons. Under the block are the Add Group, Delete Group, and Rename Group buttons. Beneath these blocks are two blocks placed side by side. The block on the left is titled Display Options, which shows the options accompanied by a checkbox. The options are Show Hidden Objects, Show System Objects, and Show Search Bar. The Show Hidden Objects and Show Search Bar options are selected. The block on the right is titled Open Objects with, which displays radio options such as Single-click and Double-click. The Double-click option is selected. The bottom right of the dialog box shows the OK and Cancel buttons.

Return to Figure 9-49

Figure 9.50 Extended Description (Chapter 9)

Return to Figure 9-50

The pane is titled Placer Hills Main Menu with a drop-down arrow on the right. Below the title is the Search bar. Under the Search bar are the categories with a list of file options, as follows:
Active Listings: Active Listings, Listing Details, Property Listings By Agent, and Days On Market.

Sold, Canceled, or Expired Listings: Canceled Or Expired Listings and Sold Properties.

Unassigned Objects: Agents and Listings.

The Unassigned Objects category is faded or dimmed out.

Return to Figure 9-50

Figure 9.51 Extended Description (Chapter 9)

Return to Figure 9-51

The dialog box titled Navigation Options has the Help and Close buttons at the top right corner. The dialog box displays a rectangular block titled Grouping Options. The block shows the text Click on a Category to change the Category display order or to add groups. Below the text are two blocks next to each other. The block on the left is titled Categories, which displays the options: Tables and Related Views, Object Type, Custom, and Placer Hills Main Menu. The Placer Hills Main Menu option is selected, and it displays an up arrow and a down arrow on the right. Below the block are the Add Item, Delete Item, and Rename Item buttons. To the right is another block titled Groups for “Placer Hills Main Menu”, which displays the options such as Active Listings, Sold, Canceled or Expired Listings, and Unassigned Objects option with marked checkboxes beside them. The Sold, Canceled, or Expired Listings option is selected, which shows an up arrow and a down arrow on the right. Under the block are the Add Group, Delete Group, and Rename Group buttons. Beneath these blocks are two blocks placed side by side. The block on the left is titled Display Options, which shows the options accompanied by a checkbox. The options are Show Hidden Objects, Show System Objects, and Show Search Bar. The Show Hidden Objects and Show Search Bar options are selected. The block on the right is titled Open Objects with, which displays radio options such as Single-click and Double-click. The Double-click option is selected. The bottom right of the dialog box shows the OK and Cancel buttons.

Return to Figure 9-51

Figure 9.52 Extended Description (Chapter 9)

Return to Figure 9-52

The pane is titled Placer Hills Main Menu with a drop-down arrow on the right. Below the title is the Search bar. Under the Search bar, categories with a list of file options are listed as follows:

Active Listings: Active Listings, Listing Details, Property Listings By Agent, and Days On Market.

Sold, Canceled or Expired Listings: Canceled Or Expired Listings and Sold Properties.

Unassigned Objects: Agents.

The Unassigned Objects category is faded. To the far right of the categories and options is the vertical line labeled Divider bar.

Return to Figure 9-52

Figure 9.54 Extended Description (Chapter 9)

Return to Figure 9-54

The properties of a field are shown in a table. The table consists of 2 columns and 7 rows. The row entries are as follows: Row 1: Required, Yes.

Row 2: Allow Zero Length, Yes.

Row 3: Indexed, No.

Row 4: Unicode Compression, No.

Row 5: I M E Mode, Yes (Duplicates OK).

Row 6: I M E Sentence Mode, Yes (No Duplicates).

Row 7: Text Align, General.

Return to Figure 9-54

Figure 9.55 Extended Description (Chapter 9)

Return to Figure 9-55

The dialog box titled Performance Analyzer has the close button at the top right corner. It shows the Analysis Results field with a rectangular block below. The block shows the properties with their description as follows:

Application: Save your application as an M D E file.

Table ‘Agents’: Change data type of field ‘Phone’ from ‘Short Text’ to ‘Double’.

Table ‘Agents’: Change data type of field ‘Employee Num’ from ‘Short Text’ to ‘Long Integer’.
Table ‘Canceled Or Expired Listings’: Add an index to field(s) ‘Listing Agent Number’.

Table ‘Canceled Or Expired Listings’: Change data type of field ‘Listing Agent Number’ from ‘Short’.

Table ‘Listings’: Add an index to field(s) ‘Listing Agent Number’.

Table ‘Listings’: Change data type of field ‘Listing Agent Number’ from ‘Short Text’ to ‘Long Integer’.

To the right of the block are the Optimize, Select all, Deselect all, and Close buttons. Below the block is the Key feature, which shows the options such as Recommendation, Suggestion, Idea, and Fixed. These options are accompanied by an icon to their left, respectively. The Recommendation option displays an exclamation mark icon, the Suggestion option has the question mark icon, the Idea option has the light bulb icon, and the Fixed option has a tick mark icon. Under these options is the rectangular block titled Analysis Notes, labeled Analysis Notes window. The block shows the text as follows:

This optimization applies to the entire database.

An M D E file is smaller and faster because it doesn’t have all the information used by Access in design modes. Caution: You can’t make design changes to an M D E file, so always keep a copy of the original database. To the bottom right of the block, the Help button is present.

Return to Figure 9-55

Figure 9.56 Extended Description (Chapter 9)

Return to Figure 9-56

The Ribbon shows the Analyze Command group, which features buttons for Database Documenter, Analyze Performance, and Analyze Table. The Analyze Performance button is selected.

Return to Figure 9-56

Figure 9.57 Extended Description (Chapter 9)

Return to Figure 9-57

The dialog box titled Performance Analyzer has the close button at the top right corner. It shows tabs for Modules, Current Database, All Object Types, Tables, Queries, Forms, Reports, and Macros. The Tables tab is selected. Below the tabs is a rectangular block that lists tables such as Agents, Canceled Or Expired Listings, Listings, and Sold Properties. Each table is accompanied by a checkbox to its left. The Agents table is selected. To the right of the block are the OK, Cancel, Select, Select All, and Deselect All buttons.

Return to Figure 9-57

Figure 9.58 Extended Description (Chapter 9)

Return to Figure 9-58

The dialog box titled Performance Analyzer has the close button at the top right corner. It shows the Analysis Results field with a rectangular block below. The block shows the properties with their description as follows:

Application: Save your application as an M D E file.

Table ‘Agents’: Change data type of field ‘Phone’ from ‘Short Text’ to ‘Double’.

Table ‘Agents’: Change data type of field ‘Employee Num’ from ‘Short Text’ to ‘Long Integer’.

Table ‘Canceled Or Expired Listings’: Add an index to field(s) ‘Listing Agent Number’.

Table ‘Canceled Or Expired Listings’: Change data type of field ‘Listing Agent Number’ from ‘Short’.

Table ‘Listings’: Add an index to field(s) ‘Listing Agent Number’.

Table ‘Listings’: Change data type of field ‘Listing Agent Number’ from ‘Short Text’ to ‘Long Integer’.

Table ‘Sold properties’: Add an index to field(s) ‘Listing Agent Number’.

To the right of the block are the Optimize, Select all, Deselect all, and Close buttons. Below the block is the Key feature, which shows the options such as Recommendation, Suggestion, Idea, and Fixed. These options are accompanied by an icon to their left, respectively. The Recommendation option displays an exclamation mark icon, the Suggestion option has the question mark icon, the Idea option has the light bulb icon, and the Fixed option has a tick mark icon. Under these options is the rectangular block titled Analysis Notes, labeled Analysis Notes window. The block shows the text as follows:

This optimization applies to the entire database.

An M D E file is smaller and faster because it doesn’t have all the information used by Access in design modes. Caution: You can’t make design changes to an M D E file, so always keep a copy of the original database. To the bottom right of the block, the Help button is present.

Return to Figure 9-58

Figure 9.59 Extended Description (Chapter 9)

Return to Figure 9-59

It shows a C P U placed at the center, and five laptops arranged in a circle around it. The five laptops, starting from the top and moving in a clockwise direction, are all named as Front-end database, while the C P U is named Back-end database. Five two-way arrows are shown pointing from the C P U to the laptops and vice versa.

Return to Figure 9-59

Figure 9.60 Extended Description (Chapter 9)

Return to Figure 9-60

The Ribbon shows the Move Data Command group featuring buttons such as the Access Database and Share Point. The Access Database button is selected.

Return to Figure 9-60

Figure 9.61 Extended Description (Chapter 9)

Return to Figure 9-61

The dialog box shows a rectangular block on the left, which shows an illustration of a form icon. To the right of the block, the following text is displayed:

This wizard moves tables from your current database to a new back-end database. In multi-user environments, this reduces network traffic, and allows continuous front-end development without affecting data or interrupting users.

If your database is protected with a password, the new back-end database will be created without a password and will be accessible to all users. You will need to add a password to the back-end database after it is split.

It could be a long process. Make a backup copy of your database before splitting it.

Would you like to split the database now?

The bottom right of the dialog box shows the Split Database and Cancel buttons.

Return to Figure 9-61

Figure 9.62 Extended Description (Chapter 9)

Return to Figure 9-62

The dialog box titled Create Back-end Database has the close button at the top right corner. It shows the arrows, such as a left arrow for Go Back, a right arrow for Go Forward, a dropdown arrow, and an up arrow for Go One Folder Up. To the right is the address bar, which shows the text My ellipses right-pointing arrow Placer ellipses. To the right of this is the Search bar. Below it is the toolbar, which shows the Organize and New folder options on the left. Under the toolbar, a vertical pane on the left shows the options such as Desktop, Downloads, Documents, and Pictures under the Quick access category. To the right of the pane is a rectangular block that shows a table with column headers Name, Date Modified, and Type. Under the table, a list of files, such as Placer Hills-09 dot a c c d b, P P A 9-3 dot a c c d b, and P P A 9-3_2021-11-26 dot a c c d b, is shown along with their Date modified and Type fields. Beneath this block is the File name field with a text box on the right. The text box shows the text P P A 9-3 be dot a c c d b. Below is the Save as type field with a text box on the right. The text box shows the text Microsoft Access 2007 - 2016 Databases (asterisk dot a c c d b). The bottom left of the dialog box shows the Hide Folders options. To the far right are the Tools option, Split, and Cancel buttons.

Return to Figure 9-62

Figure 9.63 Extended Description (Chapter 9)

Return to Figure 9-63

The pane is titled All Access Objects with a drop-down arrow on the right. Below it is the Search bar. Under the Search bar is a Tables category with the options: Agents and Canceled Or Expired Listings. An arrow pointing to the right is shown on the left of each option labeled Linked Access table.

Return to Figure 9-63

Figure 9.64 Extended Description (Chapter 9)

Return to Figure 9-64

The Access Database shows the Ribbon that contains tabs for File, Home, Create, External Data, Database Tools, and Help. The External Data tab is selected and consists of the Command group, Import and Link. The Import and Link group shows buttons such as the New Data Source, Saved Imports and Linked Table Manager. The New Data Source button is selected, and it displays a list of options such as From File, From Database, From Online Services, and From Other Sources, each with an extended arrow. The From Database option is selected, which further displays a drop-down with the options such as Access, From S Q L Server, From Azure Database, and d Base File. The Access option is selected.

Return to Figure 9-64

Figure 9.65 Extended Description (Chapter 9)

Return to Figure 9-65

The dialog box titled Get External Data - Access Database has the Help and Close buttons located at the top right corner. The dialog box shows a rectangular block at the top, highlighted with an orange-yellowish background. The block shows the text Select the source and destination of the Data. Below the block, the text Specify the source of the definition of the objects, is displayed. This is followed by the File name field with a text box on the right. The text box shows the text C colon backslash My Work backslash. To the right of the text box is the Browse button. Under this is the text “Specify how and where you want to store the data in the current database.”

Beneath the text, the following radio options are shown:

Import tables, queries, forms, reports, macros, and modules into the current database: If the specified object does not exist, Access will create it. If the specified object already exists, Access will append a number to the name of the imported object. Changes made to source objects (including data in tables) will not be reflected in the current database.

Link to the data source by creating a linked table: Access will create a table that will maintain a link to the source data. Changes made to the data in Access will be reflected in the source and vice versa. NOTE: If the source database requires a password, the unencrypted password will be stored with the linked table.

The Import tables, queries, forms, reports, macros, and modules into the current database option is selected. The OK and Cancel buttons are present on the bottom right of the dialog box.

Return to Figure 9-65

Figure 9.66 Extended Description (Chapter 9)

Return to Figure 9-66

The dialog box titled Link Tables has the Help and Close buttons located at the top right corner. It shows a Tables tab, which displays a rectangular block on the left. The block shows the options such as Agents, Canceled Or Expired Listings, Listings, and Sold Properties. To the right of the block are the OK, Cancel, Select All, and Deselect All buttons.

Return to Figure 9-66

Figure 9.67 Extended Description (Chapter 9)

Return to Figure 9-67

The Access Database shows the Import and Link Command group with buttons such as the New Data Source option on the left, followed by the Saved Imports and Linked Table Manager on the right. The Linked Table Manager button is selected.

Return to Figure 9-67

Figure 9.68 Extended Description (Chapter 9)

Return to Figure 9-68

The dialog box titled Linked Table Manager has the Help and Close buttons located at the top right corner. The dialog box shows the Search bar at the top. Below the Search bar is a rectangular block, which shows a table with three columns having the headings: Data Source Name, Data Source Information, and Refresh Status. The Refresh Status column is blank. The entries under the headings, Data Source Name and Data Source Information, are as follows:

Row 1: Access, C colon backslash My Work backslash Placer Hills backslash P H - Agents dot a c c d b.

Row 2: Access, C colon backslash My Work backslash Placer Hills backslash PlacerHills_be dot a c c d b. The Access option further shows a sub table with entries, such as,

Subrow 1: Canceled Or Expired Listings, Canceled Or Expired Listings.

Subrow 2: Listings, Listings.

Subrow 3: Sold Properties, Sold Properties.

Row 3: Excel, C colon backslash My Work backslash Placer Hills backslash Approved Specialties dot x l s x.

All Data Sources Names show a checkbox on their left. The Data Source Name Access, and its options, Canceled Or Expired Listings, Listings, and Sold Properties show a marked checkbox. To the right of the block are the Refresh, Relink, Add, Delete, Edit, Select All, Deselect All, Expand All, Collapse All, and Close buttons.

Return to Figure 9-68

Figure 9.69 Extended Description (Chapter 9)

Return to Figure 9-69

The dialog box titled Select New Location of Access has the close button at the top right corner. It shows the arrows, such as a left arrow for Go Back, a right arrow for Go Forward, a dropdown arrow, and an up arrow for Go One Folder Up. To the right is the address bar, which shows the text My ellipses right-pointing arrow Placer ellipses. To the right of this is the Search bar. Below it is the toolbar, which shows the Organize and New folder options on the left. Under the toolbar, a vertical pane on the left shows the options such as Desktop, Downloads, Documents, and Pictures under the Quick access category. To the right of the pane is a rectangular block that shows a table with column headers Name and Date Modified. Under the table, a list of files, such as P H - Agents dot a c c d b, Placer Hills dot a c c d b, and Placer Hills_ be dot a c c d b, is displayed along with the Date Modified entries. Beneath the block is the File name field with a blank text box to its right. To the right of the text box is another text box with a drop-down arrow, which shows the text Microsoft Access (asterisk dot a c c d b, asterisk dot m d l). The bottom right of the dialog box shows the Tools option, Split, and Cancel buttons.

Return to Figure 9-69

Figure 9.70 Extended Description (Chapter 9)

Return to Figure 9-70

The Backstage view shows the vertical Navigation pane on the left, which shows tabs for Home, New Open, Account, Feedback, and Options. The Open tab is selected. To the right of the pane is the Open page, which is divided into two sections next to each other. The section on the left shows a block with the Recent option. Below the block is the Office In Practice category, which displays the options such as One Drive - Office In Practice and Sites - Office In Practice. Below the options is the Other locations category, which shows the options such as This P C, Add a Place, and Browse. To the right of this block is the Recent area, which has a Search bar at the top, followed by the tabs: Files and Folders. The Files tab is selected. Below the tabs are two headings: Name and Date Modified. Under the headings is the Pinned category, which shows the text Pin files you want to easily find later. Click the pin icon that appears when you hover over a file. Beneath that is the Today category, which shows the file names along with the date, as follows:

Life Animal Shelter - 09 dot a c c d b: 11/14/2021 3:07 P M.

P H - Agents dot a c c d b: 11/14/2021 3:07 P M.

P P A 9-3 dot a c c d b: 11/14/2021 3:05 P M.

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Figure 9.71 Extended Description (Chapter 9)

Return to Figure 9-71

The dialog box titled Open has the close button at the top right corner. It shows the arrows, such as a left arrow for Go Back, a right arrow for Go Forward, a dropdown arrow, and an up arrow for Go One Folder Up. To the right is the address bar, which shows the text My Work right-pointing arrow Placer Hills Files. To the right of this is the Search bar. Under this, the toolbar shows the Organize and New folder options on the left. Below the toolbar is a vertical pane to the left that shows the options such as Desktop, Downloads, Documents, and Pictures. To the right of the pane is a rectangular block that shows a table with column headers Name and Date Modified. Under the table, a list of files, such as Placer Hills - 09 dot a c c d b, P P A 9-3 dot a c c d b, and P P A 9-3_ 2021-11-14 dot a c c d b. Below the block is the File name field with a text box on the right, which shows the text P P A 9-3 dot a c c d b. To the right of the text box is another text box with a drop-down arrow, which shows the text Microsoft Access (asterisk dot a c c d b, asterisk dot m d l). The bottom right of the dialog box shows the Tools option, Open, and Cancel buttons. The Open button shows a drop-down arrow on the right. Clicking on the drop-down arrow displays the options Open, Open Read Only, Open Exclusive, and Open Exclusive Read-Only. The Open Exclusive option is selected.

Return to Figure 9-71

Figure 9.72 Extended Description (Chapter 9)

Return to Figure 9-72

The Backstage view shows the vertical Navigation pane on the left, which shows tabs for Home, New Open, Info, Save, Save As, Print, Close, Account, Feedback, and Options. The Info tab is selected. To the right of the pane is the Info page, which shows the file name P P A 9-3, along with the address C colon right pointing arrow My Work right pointing arrow Placer Hills Files. Below it are two options: Copy path and Open file location. Under these options are two vertically aligned buttons: Compact and Repair Database, and Encrypt with Password, each with its description on the right. The Encrypt with Password button is selected. To the right of the buttons is the linked text View and edit database properties.

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Figure 9.73 Extended Description (Chapter 9)

Return to Figure 9-73

The dialog box titled Set Database Password has the Help and Close buttons located at the top right corner. It shows the Password field with a text box below. The text box shows the entry of eleven asterisks. Below the text box is the Verify field with a text box below. The text box shows the entry of eleven asterisks. The bottom right of the dialog box shows the OK and Cancel buttons.

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Figure 9.74 Extended Description (Chapter 9)

Return to Figure 9-74

The Access Database consists of a Title bar at the top, followed by a Ribbon below. The Title bar has the Save button on the Quick Access Toolbar on the far left. The Minimize, Maximize, and Close buttons are on the far right of the Title bar. The Ribbon has tabs for File, Home, Create, External Data, Database Tools, and Help. The Home tab is selected and consists of Command groups such as Undo, View, Clipboard, Sort and Filter, Records, Find, and Text Formatting. Below the groups is the Work area. Overlapping the Work area is the Password Required dialog box with Help and Close buttons located at the top right corner. The dialog box shows the Enter Database password field with a blank text box below. The OK and Cancel buttons are present on the bottom right of the dialog box.

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Figure 9.75 Extended Description (Chapter 9)

Return to Figure 9-75

The Backstage view shows the vertical Navigation pane on the left, which shows tabs for Home, New Open, Info, Save, Save As, Print, Close, Account, Feedback, and Options. The Info tab is selected. To the right of the pane is the Info page, which shows the file name P P A 9-3, along with the address C colon right pointing arrow My Work right pointing arrow Placer Hills Files. Below it are two options: Copy path and Open file location. Under these options are two vertically aligned buttons: Compact and Repair Database, and Decrypt Database, each with its description on the right. The Decrypt Database button is selected. To the right of the buttons is the linked text View and edit database properties.

Return to Figure 9-75

Figure 9.76 Extended Description (Chapter 9)

Return to Figure 9-76

The dialog box titled Unset Database Password has the Help and Close buttons located at the top right corner. The dialog box shows the Password feature with a blank text box below. The OK and Cancel buttons are present on the bottom right of the dialog box.

Return to Figure 9-76

Figure 9.77 Extended Description (Chapter 9)

Return to Figure 9-77

The Notepad file titled selfcert dot e x e - Search Results in Office 16 has the minimize, maximize, and close buttons at the top right corner. It shows the toolbar under it. The toolbar displays options such as New, Cut, Copy, Save, Undo, and Delete. To the right of the options are the Sort, View, and Search options buttons. Below the toolbar is the address bar. It shows the arrows, such as a left arrow for Go Back, a right arrow for Go Forward, a dropdown arrow, and an up arrow for Go One Folder Up. To the right is the address bar, which shows the text Search Results in Office 16. To the right is the Search bar. Under this, on the left, is a vertical pane that displays the Desktop option under the Quick access category. To the right of the pane is the rectangular block which displays the file name SELFCERT dot E X E, along with the address, C colon backslash Program Files backslash Microsoft Office backslash root backslash Office 16. Besides that are the Date Modified and Size fields, with the inputs 9/16/2021 7:10 P M and 782 K B, respectively.

Return to Figure 9-77

Figure 9.78 Extended Description (Chapter 9)

Return to Figure 9-78

The dialog box titled Self Cert Success has the close button at the top right corner. The dialog box displays the text Successfully created a new certificate for Annette Easton. The bottom right of the dialog box shows the OK button.

Return to Figure 9-78

Figure 9.79 Extended Description (Chapter 9)

Return to Figure 9-79

The dialog box titled Self Cert Success has the close button at the top right corner. The dialog box displays the text Successfully created a new certificate for Annette Easton. The bottom right of the dialog box shows the OK button.

Return to Figure 9-79

Figure 9.80 Extended Description (Chapter 9)

Return to Figure 9-80

The Backstage view shows the vertical Navigation pane on the left, which shows tabs for Home, New Open, Info, Save, Save As, Print, Close, Account, Feedback, and Options. The Save As tab is selected. To the right of the pane is the Save As page, which shows the File Types feature on the left, which includes two options: Save Database As and Save Object As. The Save Database As option is selected. To the right is the heading, Save Database As. Below the heading is the Database File Types category, which includes buttons as follows:

Access Database (asterisk dot a c c d b): Default database format.

Access 2002-2003 Database (asterisk dot m d b): Save a copy that will be compatible with Access 2002-2003.

Access 2000 Database (asterisk dot m d b): Save a copy that will be compatible with Access 2000.

Template (asterisk dot a c c d t): Save the current database as a database template (A C C D T).

Below the buttons is the Advanced category, which includes buttons as follows:

Package and Sign: Package the database and apply a digital signature.

Make A C C D E: File will be compiled into an executable-only file.

Back Up Database: Back up important databases regularly to prevent data loss. Share Point: Share the database by saving it to a document management server. The Package and Sign button is selected. Under these options, the Save As button is shown on the left.

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Figure 9.81 Extended Description (Chapter 9)

Return to Figure 9-81

The dialog box titled Windows Security has the close button at the top right corner. The dialog box shows the title Select a Certificate. Below the title is the Digital certificate named 36 a 93 d f 7 - 56 f 4 - 41 a 5 - a f 16 - e e 715676 c 549, along with the details such as Issuer: M S-Organization-Access and Valid From: 9/1/2021 to 9/1/2031. Under the details is the Click here to view certificate properties link. Beneath that is the heading, More choices, which includes the various certificates along with their details as follows:

Option 1: 36 a 93 d f 7 - 56 f 4 - 41 a 5 - a f 16 - e e 715676 c 549, Issuer: M S- Organization-Access, and Valid From: 9/1/2021 to 9/1/2031.

Option 2: Annette Easton, Issuer: Annette Easton, and Valid From: 1/1/2021 to 1/1/2027.

The bottom of the dialog box shows the OK and Cancel buttons. The OK button is selected.

Return to Figure 9-81

Figure 9.82 Extended Description (Chapter 9)

Return to Figure 9-82

The dialog box titled Create Microsoft Access Signed Package has the close button at the top right corner. It shows the arrows, such as a left arrow for Go Back, a right arrow for Go Forward, a dropdown arrow, and an up arrow for Go One Folder Up. To the right is the address bar, which shows the text My Work right-pointing arrow Placer Hills File. To the right of this is the Search bar. Below it is the toolbar, which shows the Organize and New folder options on the left. Under the toolbar, a vertical pane on the left shows the options such as Desktop, Downloads, Documents, and Pictures under the Quick access category. To the right of the pane is a rectangular block that shows a table with column headers Name, Date Modified, and Type. Under the table, the text No items match your search is displayed. Beneath the block is the File name field with a text box to its right. Below is the Save as type feature with a text box on the right. The text box shows the text Microsoft Access Signed Package (asterisk dot a c c d c). The bottom left of the dialog box shows the Hide Folders options. To the far right are the Tools option, Split, and Cancel buttons.

Return to Figure 9-82

Figure 9.83 Extended Description (Chapter 9)

Return to Figure 9-83

The block shows the Microsoft Access files, such as P P A 9-3 dot a c c d b and P P A 9-3 dot a c c d c, each with an Access file icon. The P P A 9-3 dot a c c d c file icon shows a badge on the bottom right corner of the icon. The icon is labeled Packaged database icon.

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Figure 9.84 Extended Description (Chapter 9)

Return to Figure 9-84

The dialog box titled Open has the close button at the top right corner. It shows the arrows, such as a left arrow for Go Back, a right arrow for Go Forward, a dropdown arrow, and an up arrow for Go One Folder Up. To the right is the address bar, which shows the text My Work right-pointing arrow Placer Hills Files. To the right of this is the Search bar. Under this, the toolbar shows the Organize and New folder options on the left. Below the toolbar is a vertical pane to the left that shows the options such as Desktop, Downloads, and Documents. To the right of the pane is a rectangular block that shows a table with column headers Name and Date Modified. Under the table, a list of files, such as P H Agents dot a c c d b, Placer Hills dot a c c d b, and Placer Hills_be dot a c c d b, along with the Date Modified information. Below the block is the File name field with a blank text box on the right. To the right of the text box is another text box with a drop-down arrow, which shows the text Microsoft Access (asterisk dot a c c d b; asterisk dot m d b; asterisk dot a d p; asterisk dot m d a; asterisk dot a c c d a; asterisk dot m d e; asterisk dot a c c d e; asterisk dot a d e). Under the text box is a drop-down menu which displays options such as All Files (asterisk dot asterisk), Microsoft Access (asterisk dot a c c d b; asterisk dot m d b; asterisk dot a d p; asterisk dot m d a; asterisk dot a c c d a; asterisk dot m d e; asterisk dot a c c d e; asterisk dot a d e), Microsoft Access Databases (asterisk dot m d b; asterisk dot a c c d b), Microsoft Access Web App Reference (asterisk dot a c c d w), Microsoft Access Database Templates (asterisk dot a c c d t), Microsoft Access Signed Packages (asterisk dot a c c d c), Microsoft Access 2007 - 2016 Databases (asterisk dot a c c d b), and Add-ins (asterisk dot m d a; asterisk dot a c c d a). The bottom right of the dialog box shows the Tools option, Open, and Cancel buttons.

Return to Figure 9-84

Figure 9.85 Extended Description (Chapter 9)

Return to Figure 9-85

The dialog box titled Microsoft Access Security Notice has the Help and Close buttons located at the top right corner. The dialog box shows the warning symbol on the left, followed by the text A potential security concern has been identified. Additional text under it reads as “Note: The digital signature is valid, but the signature is from a publisher whom you have not yet chosen to trust.” Below is the File Path field with a text box on the right. The text box shows the input C colon backslash My Work backslash Placer Hills Files backslash P P A 9-3 dot a c c d c. Under the text box is the text “This file may not be safe if it contains code that was intended to harm your computer. Do you want to open this file?” Beneath that is the Show Signature Details option. The bottom of the dialog box shows the Trust all from publisher, Open and Cancel buttons.

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Figure 9.86 Extended Description (Chapter 9)

Return to Figure 9-86

The dialog box titled Extract Database To has the close button at the top right corner. It shows the arrows, such as a left arrow for Go Back, a right arrow for Go Forward, a dropdown arrow, and an up arrow for Go One Folder Up. To the right is the address bar, which shows the text My Work right-pointing arrow Trusted Database. To the right of this is the Search bar. Below it is the toolbar, which shows the Organize and New folder options on the left. Under the toolbar, a vertical pane on the left shows the options such as Desktop, Downloads, and Documents under the Quick access category. To the right of the pane is a rectangular block that shows a table with column headers Name, Date Modified, and Type. Under the table, the text No items match your search is displayed. Beneath the block is the File name field with a text box on the right, which shows the text P P A 9-3 dot a c c d b. Below is the Save as type feature with a text box on the right. The text box shows the text Microsoft Access 2007 - 2016 Databases (asterisk dot a c c d b, asterisk dot a c c d e). The bottom left of the dialog box shows the Hide Folders options. To the far right are the Tools option, Split, and Cancel buttons.

Return to Figure 9-86

Figure 9.87 Extended Description (Chapter 9)

Return to Figure 9-87

The Backstage view shows the vertical Navigation pane on the left, which shows tabs for Home, New Open, Info, Save, Save As, Print, Close, Account, Feedback, and Options. The Save As tab is selected. To the right of the pane is the Save As page, which shows the File Types feature on the left, which includes two options: Save Database As and Save Object As. The Save Database As option is selected. To the right is the heading, Save Database As. Below the heading is the Database File Types category, which includes buttons as follows:

Access Database (asterisk dot a c c d b): Default database format.

Access 2002-2003 Database (asterisk dot m d b): Save a copy that will be compatible with Access 2002-2003.

Access 2000 Database (asterisk dot m d b): Save a copy that will be compatible with Access 2000.

Template (asterisk dot a c c d t): Save the current database as a database template (A C C D T).

Below the buttons is the Advanced category, which includes buttons as follows:

Package and Sign: Package the database and apply a digital signature.

Make A C C D E: File will be compiled into an executable-only file.

Back Up Database: Back up important databases regularly to prevent data loss.

Share Point: Share the database by saving it to a document management server.

The Make A C C D E button is selected. Under these options, the Save As button is shown on the left.

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Figure 9.88 Extended Description (Chapter 9)

Return to Figure 9-88

The block shows the Microsoft Access files such as P P A 9-3 dot a c c d b, P P A 9-3 dot a c c d c, and P P A 9-3 dot a c c d e, each with an Access file icon. The P P A 9-3 dot a c c d e file icon with a lock on its top right corner. The icon is labeled Locked database icon.

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Figure 9.89 Extended Description (Chapter 9)

Return to Figure 9-89

The dialog box titled Performance Analyzer has the close button at the top right corner. It shows the Analysis Results field with a rectangular block below. The block shows the properties with their description as follows:

Application: Save your application as an M D E file.

Table ‘Agents’: Change data type of field ‘Phone’ from ‘Short Text’ to ‘Double’.

Table ‘Agents’: Change data type of field ‘Employee Num’ from ‘Short Text’ to ‘Long Integer’.

Table ‘Canceled Or Expired Listings’: Add an index to field or fields ‘Listing Agent Number’.

Table ‘Canceled Or Expired Listings’: Change data type of field ‘Listing Agent Number’ from ‘Short’.

Table ‘Listings’: Add an index to field or fields ‘Listing Agent Number’.

Table ‘Listings’: Change data type of field ‘Listing Agent Number’ from ‘Short Text’ to ‘Long Integer’.

Table ‘Sold properties’: Add an index to field(s) ‘Listing Agent Number’.

The Table ‘Canceled Or Expired Listings’: Add an index to field or fields ‘Listing Agent Number’ is labeled Select this recommendation.

To the right of the block are the Optimize, Select all, Deselect all, and Close buttons. Below the block is the Key feature, which shows the options such as Recommendation, Suggestion, Idea, and Fixed. These options are accompanied by an icon to their left, respectively. The Recommendation option displays an exclamation mark icon, the Suggestion option has the question mark icon, the Idea option has the light bulb icon, and the Fixed option has a tick mark icon. Under these options is the rectangular block titled Analysis Notes. The block shows the text as follows:

This optimization applies to the entire database.

An M D E file is smaller and faster because it doesn’t have all the information used by Access in design modes. Caution: You can’t make design changes to an M D E file, so always keep a copy of the original database. To the bottom right of the block, the Help button is present.

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Figure 9.90 Extended Description (Chapter 9)

Return to Figure 9-90

The pane is titled All Access Objects with a drop-down arrow on the right. Below the title is the Search bar. Under the Search bar is the Table category with table options, such as Agents, Canceled Or Expired Listings, Listings, and Sold Properties. Each table option shows a table icon with an arrow in the top left corner pointing to the right.

Return to Figure 9-90

Figure 9.91 Extended Description (Chapter 9)

Return to Figure 9-91

The dialog box titled Open has the close button at the top right corner. It shows the arrows, such as a left arrow for Go Back, a right arrow for Go Forward, a dropdown arrow, and an up arrow for Go One Folder Up. To the right is the address bar, which shows the text Office right-pointing arrow C h - 09. To the right of this is the Search bar. Under this, the toolbar shows the Organize and New folder options on the left. Below the toolbar is a vertical pane to the left that shows the options such as Microsoft Access, One Drive - Personal, and This P C. To the right of the pane is a rectangular block that shows a table with column headers Name and Date Modified. Under the table, a list of files, such as P P A 9-3_Back up dot a c c d b, P P A 9-3_ Back up_2 dot a c c d b, and P P A 9-3_be dot a c c d b, is shown. Below the block is the File name field with a text box on the right, which shows the text P P A 9-3_be dot a c c d b. To the right of the text box is another text box with a drop-down arrow, which shows the text Microsoft Access (asterisk dot a c c d b, asterisk dot m d l). The bottom right of the dialog box shows the Tools option, Open, and Cancel buttons. The Open button shows a drop-down arrow on the right. Clicking on the drop-down arrow displays the options Open, Open Read Only, Open Exclusive, and Open Exclusive Read-Only. The Open Exclusive option is selected.

Return to Figure 9-91

Figure 9.92 Extended Description (Chapter 9)

Return to Figure 9-92

The Access database Work Area displays the Delete Sold Properties From Listings Table tab. Below the tab is a block for Listings. The Listings block shows the fields, such as Listing I D, with a primary key icon, Date Listed, List Price, Address, City, and Square feet. Below this block, a table with 2 columns and 6 rows is displayed. The table has rows for various query parameters, such as Field, Table, Sort, Show, Criteria, and or. The Field row shows the entries Listing I D and Result. The Table row shows the entries Listings and Listings. The Sort row is empty. The Show row shows the entries as a marked check box in all columns. The Criteria row shows the entries Blank and “S”. The or row is empty.

Return to Figure 9-92

Figure 9.93 Extended Description (Chapter 9)

Return to Figure 9-93

The Access database Work Area displays the Delete Sold Properties From Listings Table tab. Below the tab is the DELETE command, as shown in the text DELETE Listings dot Listings I D, Listings dot Result. Under that is the FROM command with a condition as shown by the text FROM Listings, WHERE (((Listings dot Result) equals “S”));

Return to Figure 9-93

Figure 9.94 Extended Description (Chapter 9)

Return to Figure 9-94

The Access database Work Area shows a tab for Query 1. Below the tab is the SELECT command as depicted by the text SELECT ;. The Status bar at the bottom shows the Num Lock and S Q L buttons. The S Q L button is selected. To the right is the Design view icon.

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Figure 9.95 Extended Description (Chapter 9)

Return to Figure 9-95

The Access database Work Area displays the SELECT command as depicted by the text SELECT Listing I D, List Price, Sold Price. Below is the FROM command with a condition as shown by the text FROM Sold Properties WHERE Sold Price greater than [List Price]. Below is the ORDER BY command as displayed by the text ORDER BY Sold Price D E S C;.

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Figure 9.96 Extended Description (Chapter 9)

Return to Figure 9-96

The Access database Work Area shows a table that consists of 3 columns and 13 rows. The column headings are Listing I D, List Price, and Sold Price. The row entries are as follows:

Row 1: 10051, $368,505.00, and $375,875.00.

Row 2: 10067, $350,000.00, and $357,000.00.

Row 3: 10033, $347,500.00, and $349,000.00.

Row 4: 10058, $299,999.00, and $311,998.96.

Row 5: 10090, $299,900.00, and $311,896.00.

Row 6: 10052, $299,500.00, and $305,000.00.

Row 7: 10080, $274,000.00, and $301,400.00.

Row 8: 10104, $270,000.00, and $280,800.00.

Row 9: 10085, $275,000.00, and $280,500.00.

Row 10: 10069, $249,499.00, and $255,000.00.

Row 11: 10172, $234,500.00, and $249,000.00.

Row 12: 10027, $135,000.00, and $150,000.00.

Row 13: 10053, $104,900.00, and $110,145.00.

Return to Figure 9-96

Figure 9.97 Extended Description (Chapter 9)

Return to Figure 9-97

The Access database shows a table with 3 columns and 6 rows. The table has rows for various query parameters, such as Field, Table, Sort, Show, Criteria, and or. The Field row shows the entries Listing I D, List Price, and Sold Price. The Table row shows the entries Sold Properties, Sold Properties, and Sold Properties. The Sort row shows the entries Blank, Blank, and Descending. The Show row shows the entries as a marked check box in all three columns. The Criteria row shows the entries Blank, Blank, and greater than [List Price]. The or row is empty.

Return to Figure 9-97

Figure 9.98 Extended Description (Chapter 9)

Return to Figure 9-98

The Access database Work Area displays the SELECT command as depicted by the text SELECT Sold Properties dot Listing I D, Sold Properties dot List Price, Sold Properties dot Sold Price. Below it is the FROM command with a condition as shown by the text FROM Sold Properties WHERE (((Sold Properties dot Sold Price) greater than [List Price])). Below is the ORDER BY command as displayed by the text ORDER BY Sold Properties dot Sold Price D E S C;.

Return to Figure 9-98

Figure 9.99 Extended Description (Chapter 9)

Return to Figure 9-99

The Access database features a tab titled Query 1, which shows a table that consists of 8 columns and 4 rows. The column headings are Employee Num, Last Name, First Name, Multilingual, Date Listed, Phone, Specialties, and About. The row entries are as follows:

Row 1: 225, Bui, Miles, Y, 5/6/2017, (530) 648-7689, Luxury Properties, and Milie brings 14 years of experience in real estate. She excels at customer service and is committed to being your advocate in all real estate transactions. She understands the unique demands of buyers and sellers in the luxury home market.

Row 2: 109, Rapinose, Simone, Y, 10/6/2017, (530) 622-6787, Blank, and Blank.

Row 3: 115, Koshowski, Kashi, Y, 10/25/2017, (916) 481-3048, Blank, and Blank.

Row 4: 127, Woodbury, Kelly, Y, 11/10/2017, (916) 987-3756, Land Purchases and Building Custom Homes, and Kelly epitomizes integrity, energy, hard work, & creative service in every detail of your real estate transaction. She is a Sacramento native who was born and raised in a construction family. She first began her real estate career in 2005 after designing & remodeling homes. Kelly's referrals are sent to her from...

Return to Figure 9-99

Figure 9.100 Extended Description (Chapter 9)

Return to Figure 9-100

The Access database features a tab titled Query 1, which shows a table that consists of 4 columns and 10 rows. The column headings are Listing I D, Date Listed, List Price, and City. The row entries are as follows:

Row 1: 10024, 8/5/2022, $702,000.00, and Roseville.

Row 2: 10034, 8/23/2022, $999,000.00, and Lincoln.

Row 3: 10049, 10/1/2022, $623,900.00, and Roseville.

Row 4: 10077, 11/11/2022, $649,900.00, and Lincoln.

Row 5: 10110, 11/23/2022, $584,000.00, and Roseville.

Row 6: 10123, 12/5/2022, $884,000.00, and Roseville.

Row 7: 10125, 12/5/2022, $1,175,200.00, and Roseville.

Row 8: 10126, 12/7/2022, $1,346,800.00, and Roseville.

Row 9: 10146, 12/11/2022, $497,000.00, and Lincoln.

Row 10: 10156, 12/15/2022, $653,120.00, and Lincoln.

A Record button, the Page number, a Filter, and a Search bar are displayed on the bottom left of the window.

Return to Figure 9-100

Figure 9.101 Extended Description (Chapter 9)

Return to Figure 9-101

The Access database features a tab titled Query 1, which shows a table that consists of 4 columns and 13 rows. The column headings are First Name, Last Name, Listing I D, and List Price. The row entries are as follows:

Row 1: Millie, Bui, 10249, and $72,800.00.

Row 2: Millie, Bui, 10390, and $78,000.00.

Row 3: Millie, Bui, 10582, and $97,760.00.

Row 4: Millie, Bui, 10692, and $119,600.00.

Row 5: Millie, Bui, 10131, and $130,000.00.

Row 6: Millie, Bui, 10194, and $154,960.00.

Row 7: Millie, Bui, 10656, and $155,480.00.

Row 8: Millie, Bui, 10223, and $191,880.00.

Row 9: Millie, Bui, 10359, and $192,400.00.

Row 10: Millie, Bui, 10278, and $196,560.00.

Row 11: Millie, Bui, 10406, and $208,000.00.

Row 12: Millie, Bui, 10333, and $211,120.00.

Row 13: Millie, Bui, 10579, and $234,000.00.

A Record button, the Page number, a Filter, and a Search bar are displayed on the bottom left of the window.

Return to Figure 9-101

Figure 9.102 Extended Description (Chapter 9)

Return to Figure 9-102

The Access database features a tab titled Query 1, which shows a table that consists of 4 columns and 13 rows. The column headings are Agent's Name, Listing I D, List Price, and Potential Commission. The row entries are as follows:

Row 1: Simone Rapinoe, 10120, $310,960.00, and 18657.6.

Row 2: Simone Rapinoe, 10124, $225,200.00, and 13512.

Row 3: Simone Rapinoe, 10127, $77,000.00, and 4620.

Row 4: Simone Rapinoe, 10133, $202,800.00, and 12168.

Row 5: Simone Rapinoe, 10134, $145,600.00, and 8736.

Row 6: Simone Rapinoe, 10140, $199,680.00, and 11980.8.

Row 7: Simone Rapinoe, 10146, $497,000.00, and 29820.

Row 8: Simone Rapinoe, 10149, $150,800.00, and 9048.

Row 9: Simone Rapinoe, 10153, $346,216.00, and 20772.96.

Row 10: Simone Rapinoe, 10160, $161,980.00, and 9718.8.
0

Row 11: Simone Rapinoe, 10163, $249,184.00, and 14951.04.

Row 12: Simone Rapinoe, 10167, $283,920.00, and 17035.2.

Row 13: Simone Rapinoe, 10174, $260,000.00, and 15600.

Return to Figure 9-102

Figure 9.103 Extended Description (Chapter 9)

Return to Figure 9-103

The Table Analyzer Wizard shows the text: Is the wizard grouping information correctly? If not, you can drag and drop fields to form groups that make sense. To the far right of the text is a light bulb icon labeled Tips button. Below it, another text reads What name do you want for each table?

It's a good idea for the name to identify the kind of information the table contains. To the far right of this text are the two icons displayed by a table with a pencil at its top right corner and a curved arrow pointing to the left. The table with a pencil icon is labeled Rename Table. Under the text is a rectangular block which shows four tables, titled Table 1, Table 2, Table 3, and Table 4. Table 1 shows fields such as Album I D, Album Name, Length, Reference Date, Lookup to Table 2, Lookup to Table 3, and Lookup to Table 4. Table 2 shows fields such as Generated Unique I D, which is highlighted, and Recording Label. A zig-zag line is shown between the tables, which connects the Lookup to Table 2 field from Table 1 to the Generated Unique I D field of Table 2. Table 3 shows fields such as Generated Unique I D, which is highlighted, and Artist. A zig-zag line is shown between the tables, which connects the Lookup to Table 3 field from Table 1 to the Generated Unique I D field of Table 3. Table 4 shows fields such as Generated Unique I D, which is highlighted, and Genre. A zig-zag line is shown between the tables, which connects the Lookup to Table 4 field from Table 1 to the Generated Unique I D field of Table 4.

The Cancel, Back, Next, and Finish buttons are present on the bottom right of the dialog box.

Return to Figure 9-103

Figure 9.104 Extended Description (Chapter 9)

Return to Figure 9-104

The dialog box titled Performance Analyzer has the close button at the top right corner. It shows tabs for Modules, Current Database, All Object Types, Tables, Queries, Forms, Reports, and Macros. The Tables tab is selected. Below the tabs is a rectangular block that lists tables such as Albums, Songs, Song Count Artist Parameter, Songs By Genre, Songs On Albums, Genre Selection, Music Albums, Song Listing On Albums By Artist, Songs Subform, Genre Report, Song Listing, Albums By Artist, Songs Sub report. The Albums option is selected. To the right of the block are the OK, Cancel, Select, Select All, and Deselect All buttons.

Return to Figure 9-104

Figure 9.105 Extended Description (Chapter 9)

Return to Figure 9-105

The dialog box titled Navigation Options has the Help and Close buttons at the top right corner. The dialog box displays a rectangular block titled Grouping Options. The block shows the text Click on a Category to change the Category display order or to add groups. Below the text are two blocks next to each other. The block on the left is titled Categories, which displays the options: Tables and Related Views, Object Type, Custom, and My Music Main Menu. The My Music Main Menu option is selected, and it displays an up arrow and a down arrow on the right. Below the block are the Add Item, Delete Item, and Rename Item buttons. To the right is another block titled Groups for “My Music Main Menu”, which displays the options such as Music Collection and Unassigned Objects option with marked checkboxes beside them. The Music Collection option is selected, which shows an up arrow and a down arrow on the right. Under the block are the Add Group, Delete Group, and Rename Group buttons. Beneath these blocks are two blocks placed side by side. The block on the left is titled Display Options, which shows the options accompanied by a checkbox. The options are Show Hidden Objects, Show System Objects, and Show Search Bar. The Show Hidden Objects and Show Search Bar options are selected. The block on the right is titled Open Objects with, which displays radio options such as Single-click and Double-click. The Double-click option is selected. The bottom right of the dialog box shows the OK and Cancel buttons.

Return to Figure 9-105

Figure 9.106 Extended Description (Chapter 9)

Return to Figure 9-106

The pane is titled My Music Main Menu with a drop-down arrow on the right. Below the title is the Search bar. Under the Search bar, categories with a list of file options are listed as follows:

Music Collection: Open Genre Report, Song Listing On Album By Artist, Song Listing- Albums By Artist. The Unassigned Objects category listed below is faded.

Return to Figure 9-106

Figure 9.107 Extended Description (Chapter 9)

Return to Figure 9-107

The dialog box titled Game Selection Form has the Close button located at the top right corner. The dialog box shows the Select the genre to display field with a blank text box with a drop-down arrow. The OK and Cancel buttons are present on the bottom of the dialog box.

Return to Figure 9-107

Figure 9.108 Extended Description (Chapter 9)

Return to Figure 9-108

The Access database features a tab titled Past Due Invoices, which lists a table with 7 columns and 12 rows. The column headings are as follows: Invoice I D, Invoice Date, Due Date, Days Late, Amount Due, Doctor I D, and Description. The first four row entries are as follows:

Row 1: 67, 16-October-22, 01-November-22, 22, $1,250.00, 1, November 2022, Rent Agarwal and Sharma.

Row 2: 68, 16-October-22, 01-November-22, 22, $1,100.00, 2, November 2022, Rent (Scher and Dyer).

Row 3: 69, 16-October-22, 01-November-22, 22, $1,350.00, 4, November 2022, Rent.

Row 4: 70, 16-October-22, 01-November-22, 22, $1,350.00, 5, November 2022, Rent (Flores and Alanar).

Return to Figure 9-108

Figure 9.109 Extended Description (Chapter 9)

Return to Figure 9-109

The pane is titled All Access Objects with a drop-down arrow on the right. Below the title is the Search bar. Under the Search bar, there are 2 categories, each with a list of file options. The list is as follows:

Table: Physicians and Rent Invoices.

Queries: Invoice History.

Return to Figure 9-109

Figure 9.110 Extended Description (Chapter 9)

Return to Figure 9-110

The Print Table Definition dialog box has a close button on the top right corner of the box. This dialog box shows three blocks named Include for Table, Include for Fields, and Include for Indexes under it. The first block, named Include for Table, displays three options such as Properties, Relationships, and Permissions by User and Group. The checkboxes for Properties and Relationships are marked. Below this, the second block named Include for Fields displays three radio options such as Nothing, Names, Data Types, and Sizes, and Names, Data Types, Sizes, and Properties. The Names, Data Types, Sizes, and Properties option is selected. Under that, the third block named Include for Indexes displays three radio options such as Nothing, Names and Fields, and Names, Fields, and Properties. The Names, Fields, and Properties option is selected. To the top right of the dialog box, beside the first block, are the OK and Cancel buttons.

Return to Figure 9-110

Figure 9.111 Extended Description (Chapter 9)

Return to Figure 9-111

The document shows a block that displays the document address C: backslash Annette Files backslash 1 Office 2021 Files backslash Office 2021 Chapter 9 backslash Chapter 09-Solution Files backslash Access 9-2_b e dot a c c d b, on the left. Below the address is the table name that is Table: Physicians. To the right is the date Wednesday, November 23, 2022. Below the date is the page number, Page: 1. Under this block is a section named Properties, followed by various properties with their values. Below the Properties section is the section named Columns. Beneath the Column section, a table with 3 columns and 1 row is displayed. The column headings are Name, Type, and Size. The row entries are as follows:

Row 1: Doctor I D, Long Integer, and 4.

A list of features is shown for each entry under the column heading Name.

Return to Figure 9-111

Figure 9.112 Extended Description (Chapter 9)

Return to Figure 9-112

The Access Database shows a table that consists of 6 columns and 15 rows. The column headings are as follows: Rental I D, Boat I D, Rental Date, Four Hour Rental, Member Name, and Rental Cost. The first 4 row entries are as follows:

Row 1: 08013, 1146, 5/6/2022, tick checkbox, 1003, $269.00.

Row 2: 08014, 1146, 5/6/2022, tick checkbox, 1075, $269.00.

Row 3: 08015, 1146, 5/9/2022, untick checkbox, 1212, $319.00.

Row 4: 08016, 1419, 5/9/2022, tick checkbox, 1075, $269.00.

Return to Figure 9-112

Figure 9.113 Extended Description (Chapter 9)

Return to Figure 9-113

The Access Database shows a table that consists of 16 columns and 11 rows. The column headings are as follows: Boat I D, Boat Type, Length, Seats, Sleeps, 4 Hour Rate, Full Day Rate, Gallery with Stove, Model Year, Manufacturing I D, Manufacturing Name, Manufacturing Address, Manufacturing City, Manufacturing State, Manufacturing ZIP, and Manufacturing Phone. The first 3 row entries are as follows:

Row 1: 1003, Catalina 270, 28 feet 4 inches, 8, 6, $125.00, $169.00, tick checkbox, 2007, 1, Catalina Yachts, 21200 Victory Boulevard, Woodland Hills, C A, 91367, 818-884-7700.

Row 2: 1015, Catalina 270, 28 feet 4 inches, 8, 6, $129.00, $169.00, tick checkbox, 2008, 1, Catalina Yachts, 21200 Victory Boulevard, Woodland Hills, C A, 91367, 818-884-7700.

Row 3: 1046, Capri 22 M K 2, 23 feet 6 inches, 10, 6, $260.00, $319.00, tick checkbox, 2009, 2, Marlow - Hunter, Route 441, Post, Alachua, F L, 32616, 386-162-3077.

Return to Figure 9-113

Figure 9.114 Extended Description (Chapter 9)

Return to Figure 9-114

The Table Analyzer Wizard shows the text: Is the wizard grouping information correctly? If not, you can drag and drop fields to form groups that make sense. To the far right of the text is the Tips button. Below it, another text reads What name do you want for each table?

It's a good idea for the name to identify the kind of information the table contains. To the far right of this text are the two icons displayed by a table with a pencil at its top right corner and a curved arrow pointing to the left. Under the text is a rectangular block which shows three tables, titled Table 1, Table 2, and Table 3. Table 1 shows fields such as Boat I D, Model Year, and Lookup to Table 2. Table 2 shows fields such as Boat Type, Length, Seats, Sleeps, Four Hour Rental Rate, Full Day Rental Rate, and Lookup to Table 3. A zig-zag line is shown between the tables, which connects the Lookup to Table 2 field from Table 1 to the Full Day Rental Rate field of Table 2. Table 3 shows fields such as Gallery with Stove, Manufacturing I D, Manufacturing Name, Manufacturing Address, Manufacturing City, Manufacturing State, Manufacturing ZIP, and Manufacturing Phone. A zig-zag line is shown between the tables, which connects the Lookup to Table 3 field from Table 2 to the Manufacturing I D field of Table 3. The Cancel, Back, Next, and Finish buttons are present on the bottom right of the dialog box.

Return to Figure 9-114

Figure 9.115 Extended Description (Chapter 9)

Return to Figure 9-115

The Access database features a tab titled Manufacturers, which lists a table with 7 columns and 5 rows. The column headings are as follows: Manufacturing I D, Manufacturing Name, Manufacturing Address, Manufacturing City, Manufacturing State, Manufacturing ZIP, and Manufacturing Phone. The first two row entries are as follows:

Row 1: 1, Catalina Yachts, 21200 Victory Boulevard, Woodland Hills, C A, 91367, 818-884-7700.

Row 2: 2, Marlow - Hunter Limited Liability Company, Route 441, Post Office Box, Alachua, F L, 32616, 386-162-3077.

Return to Figure 9-115

Figure 9.116 Extended Description (Chapter 9)

Return to Figure 9-116

The Access database features a tab titled Fleet Details, which lists a table with 6 columns and 4 rows. The column headings are as follows: Boat I D, Boat Type, Length, Model Year, Manufacturing Name, and Manufacturing Phone. The first two row entries are as follows:

Row 1: 1401, Capri 22 M K 2, 24 feet 8 inches, 2021, Catalina Yachts, 818-884-7700.

Row 2: 1410, Beneteau 40, 39 feet 10 inches, 2021, Beneteau America, 410-990-7700.

Return to Figure 9-116

Figure 9.117 Extended Description (Chapter 9)

Return to Figure 9-117

The dialog box titled Performance Analyzer has the close button at the top right corner. It shows tabs for Tables, Queries, Forms, Reports, Macros, Modules, Current Database, and All Object Types. The All Object Types tab is selected. Below the tabs is a rectangular block that lists tables such as Manufacturers, Sailboat Fleet, S D Rentals, Boat Type Parameters, Fleet Details, Sailboat Fleet Without Matching S D Rentals, Add New Sailboat, Rental Information, S D Rentals, Rentals By Month, and Rentals By Type. Each table is accompanied by a checkbox to its left. All the checkboxes are ticked. To the right of the block are the OK, Cancel, Select, Select All, and Deselect All buttons.

Return to Figure 9-117

Figure 9.118 Extended Description (Chapter 9)

Return to Figure 9-118

The pane is titled Mary's Rentals with a drop-down arrow on the right. Below the title is the Search bar. Under the Search bar, categories with a list of file options are listed as follows:

Customers: Add New Customers.

Employees: Add New Employee.

Equipment: View Equipment Details and View Equipment Service History.

Rentals: View Customer Rentals, View Rental Listing Report, and View Top 5 Rentals.

Unassigned Object: Customers.

The View Top 5 Rentals option is selected.

Return to Figure 9-118

Figure 9.119 Extended Description (Chapter 9)

Return to Figure 9-119

The pane is titled N Y D M V Main Menu with a drop-down arrow on the right. Below the title is the Search bar. Under the Search bar, categories with a list of file options are listed as follows:

Ticket Processing: Ticket Summary by Month, View Tickets by Driver, and View Tickets by Officer.

License Processing: Add New Driver, and View and Edit Driver Information.

Below this, a faded Unassigned Objects option is shown.

Return to Figure 9-119

Figure 9.120 Extended Description (Chapter 9)

Return to Figure 9-120

The Table Analyzer Wizard shows the text: Is the wizard grouping information correctly? If not, you can drag and drop fields to form groups that make sense. To the far right of the text is a light bulb icon labeled Tips button. Below it, another text reads What name do you want for each table?

It's a good idea for the name to identify the kind of information the table contains. To the far right of this text are the two icons displayed by a table with a pencil at its top right corner and a curved arrow pointing to the left. Under the text is a rectangular block which shows two tables, titled Table 1 and Table 2. Table 1 shows fields such as Member I D, First Name, Last Name, Address, Email Address, Cell Phone Number, and Lookup to Table 2. Table 2 shows fields such as Generated Unique I D, which is highlighted, City, State, and ZIP Code. A zig-zag line is shown between the tables, which connects the Lookup to Table 2 field from Table 1 to the Generated Unique I D field of Table 2. The Cancel, Back, Next, and Finish buttons are present on the bottom right of the dialog box.

Return to Figure 9-120

Figure 9.121 Extended Description (Chapter 9)

Return to Figure 9-121

The Table Analyzer Wizard shows the text: Is the wizard grouping information correctly? If not, you can drag and drop fields to form groups that make sense. To the far right of the text is a light bulb icon. Below it, another text reads What name do you want for each table?

It's a good idea for the name to identify the kind of information the table contains. To the far right of this text are the two icons displayed by a table with a pencil at its top right corner and a curved arrow pointing to the left. Under the text is a rectangular block which shows two tables, titled Table 1 and Table 2. Table 1 shows fields such as Plan I D, F K Member I D, Place, Time, Division, and Lookup to Table 2. Table 2 shows fields such as Generated Unique I D, which is highlighted, and Age Group. A zig-zag line is shown between the tables, which connects the Lookup to Table 2 field from Table 1 to the Generated Unique I D field of Table 2. The Cancel, Back, Next, and Finish buttons are present on the bottom right of the dialog box.

Return to Figure 9-121

Figure 9.122 Extended Description (Chapter 9)

Return to Figure 9-122

The dialog box titled Performance Analyzer has the close button at the top right corner. It shows the Analysis Results field with a rectangular block below. The block shows the properties with their description as follows:

Application: Save your application as an M D E file.

Table ‘Members’: Change data type of field ‘ZIP Code’ from ‘Short Text’ to ‘Long Integer’.

Table ‘Race Information’: Relate to table ‘Race Results’.

Table ‘Race Information’: Relate this table to others in the database.

Table ‘Race Information’: Change data type of field ‘Race I D’ from ‘Short Text’ to ‘Long Integer’.

Table ‘Race Results’: Change data type of field ‘Race I D’ from ‘Short Text’ to ‘Long Integer’.

To the right of the block are the Optimize, Select all, Deselect all, and Close buttons. Below the block is the Key feature, which shows the options such as Recommendation, Suggestion, Idea, and Fixed. These options are accompanied by an icon to their left, respectively. The Recommendation option displays an exclamation mark icon, the Suggestion option has the question mark icon, the Idea option has the light bulb icon, and the Fixed option has a tick mark icon. Under these options is the rectangular block titled Analysis Notes. The block shows the text as follows:

This optimization applies to the entire database.

An M D E file is smaller and faster because it doesn’t have all the information used by Access in design modes. Caution: You can’t make design changes to an M D E file, so always keep a copy of the original database. To the bottom right of the block, the Help button is present.

Return to Figure 9-122

Figure 9.123 Extended Description (Chapter 9)

Return to Figure 9-123

The Access Database shows a tab for Female Race Results_30 to 40 Age Group. Below the tab is the table, which consists of 9 columns and 13 rows. The column headings are Member Name, Member I D, City, Race I D, Race Name, Place, Time, Division, and Age Group. Each heading has a drop-down option next to it. The entries for the first 4 rows are as follows:

Row 1: Karen Graves, 11, Lincoln, 112, Tierra Bella Cen, 5, 2:23, F, greater than or equal to 30 and less than 40.

Row 2: Karen Graves, 11, Lincoln, 108, Mammoth Grar, 7, 1:58, F, greater than or equal to 30 and less than 40.

Row 3: Karen Graves, 11, Lincoln, 102, Mr. Frog Wild, 3, 0:52, F, greater than or equal to 30 and less than 40.

Row 4: Sue Schooler, 8, Rocklin, 110, Party Pardee, 4, 2:22, F, greater than or equal to 30 and less than 40.

A Record button, the Page number, a Filter, and a Search bar are displayed on the bottom left of the window.

Return to Figure 9-123

Figure 9.124 Extended Description (Chapter 9)

Return to Figure 9-124

The pane is titled Human Resources Main Menu with a drop-down arrow on the right. Below the title is the Search bar. Under the Search bar, categories with a list of file options are listed as follows:

Employees: Add New Employee, View and Edit Employee Information, View Employees by Branch, 3 percent Salary Increase Cost Summary, View Insurance Agents by Branch.

Branches: View and Edit Branch Details.

Unassigned Objects: Branches, Employees.

The Unassigned Objects category is faded.

Return to Figure 9-124

Figure 9.125 Extended Description (Chapter 9)

Return to Figure 9-125

The pane is titled Policies Main Menu with a drop-down arrow on the right. Below the title is the Search bar. Under the Search bar, categories with a list of file options are listed as follows:

Policy Information: View and Edit Policy Quotes.

Unassigned Objects: Branches, Employees.

The Unassigned Objects category is faded.

Return to Figure 9-125

Figure 9.126 Extended Description (Chapter 9)

Return to Figure 9-126

The Print Table Definition dialog box has a close button on the top right corner of the box. This dialog box shows three blocks named Include for Table, Include for Fields, and Include for Indexes under it. The first block, named Include for Table, displays three radio options such as Properties, Relationships, and Permissions by User and Group. The checkboxes for Properties and Relationships options are marked. Below this, the second block named Include for Fields displays three radio options such as Nothing, Names, Data Types, and Sizes, and Names, Data Types, Sizes, and Properties. The Names, Data Types, Sizes, and Properties option is selected. Under that, the third block named Include for Indexes displays three radio options such as Nothing, Names and Fields, and Names, Fields, and Properties. The Names, Fields, and Properties option is selected. To the top right of the dialog box, beside the first block, are the OK and Cancel buttons.

Return to Figure 9-126

Figure 9.127 Extended Description (Chapter 9)

Return to Figure 9-127

The document shows a block that displays the document address C: backslash My World backslash Access 9-7 dot a c c d b, on the left. Below the address is the table name that is Table: Branches. To the right is the date Monday, November 28, 2022. Below the date is the page number, Page: 1. Under this block is a section named Properties, followed by various properties with their values. Below the Properties section is the section named Columns. Beneath the Column section, a table with 3 columns and 1 row is displayed. The column headings are Name, Type, and Size. The row entry is as follows:

Row 1: Branch, Short Text, and 30.

A list of features is shown for each entry under the column heading Name.

Return to Figure 9-127

Figure 10.1 Extended Description (Chapter 10)

Return to Figure 10-1

The dialog box titled Access Options has the Help and Close buttons located at the top right corner. Below that, the left pane shows the following options: General, Current Database, Datasheet, Object Designers, Proofing, Language, Client Settings, Customize Ribbon, Quick Access Toolbar, Add-ins, and Trust Center. The General option is selected. The section to the right titled General options for working with Access is split into three subsections. They are named User Interface options, Creating databases, and Personalize your copy of Microsoft Office. The first subsection at the top, named User Interface options, shows a checked checkbox for Enable Line Preview field. An icon with an i inside a circle is shown to the right, labeled Information icon. Under that is the Screen Tip style field with the input Show feature descriptions in Screen Tips, along with a drop-down arrow. A checked checkbox for Show shortcut keys in Screen Tips is displayed under that.

The subsection in the middle, named Creating databases, shows the Default file format for Blank Database field with the input Access 2007 to 2016, along with a drop-down arrow. Under that is the Default database folder field with the input C: backslash My Work, followed by a Browse button, which is shown to the right. Below that is the New database sort order field with the input General- Legacy, along with a drop-down arrow. The third subsection, named Personalize your copy of Microsoft Office, has the User name field with a text box displaying the input Annette Easton. Under that is the Initials field with the text box having the input A E. Beneath that is a checkbox for Always use these values regardless of sign in to Office option, followed by the Office Background and Office Theme fields. Both these fields are accompanied by a text box with a drop-down arrow and show the inputs No Background and Colorful, respectively.

The buttons for OK and Cancel are shown at the bottom right.

Return to Figure 10-1

Figure 10.2 Extended Description (Chapter 10)

Return to Figure 10-2

The dialog box titled Access Options has the Help and Close buttons located at the top right corner. Below that, the left pane shows the following options: General, Current Database, Datasheet, Object Designers, Proofing, Language, Client Settings, Customize Ribbon, Quick Access Toolbar, Add-ins, and Trust Center. The Current Database option is selected. The section to the right titled Options for the current database is split into four subsections. The first subsection is named Application Options and displays the Application Title field with the input Placer Hills. Under that is the Application Icon with the input Blank, followed by a button for Browse is shown to the right. An Unchecked checkbox for Use as Form or Report icon is shown below. Beneath that is the Display Form field with the input (none), along with a drop-down arrow. Under that is the Web display Form field with the input (none), along with a drop-down arrow. A checked checkbox for Display Status Bar is shown below it. Beneath that is the Document Window Options, which displays two radio options such as Overlapping Windows and Tabbed Documents. The option for Tabbed Documents is selected. This is followed by the checked checkbox for Display Document Tabs. A list of checkbox options is shown under this. They are as follows:

A checked checkbox for the Use Access Special Keys option, accompanied by an Information icon.

An unchecked checkbox for the Compact on Close option.

An unchecked checkbox for the Remove personal information from file properties on save option.

A checked checkbox for the Use Windows-themed Controls on Forms option.

A checked checkbox for the Enable Layout View option.

A checked checkbox for the Enable design changes for tables in Datasheet view option.

A checked checkbox for the Check for truncated number fields option.

Under this is the Picture Property Storage Format option, followed by two radio options such as Preserve source image format (smaller file size) and Convert all picture data to bitmaps (compatible with Access 2003 and earlier). The option for Preserve source image format (smaller file size) is selected.

The second subsection, named Navigation, lists a checked checkbox for Display Navigation Pane, followed by a button for Navigation Options. Beneath that is the subsection named Ribbon and Toolbar, with the Ribbon Name field having a blank text box with a drop-down arrow. Under that is the Shortcut Menu Bar field with the input default, along with a drop-down arrow. Two checked

checkboxes for the Allow Full Menus option and the Allow Default Shortcut Menus option are shown below this. Beneath that is the subsection named Name Auto Correct Options. Two checked checkboxes for the Track name Auto Correct info option and the Perform name Auto Correct option are present.

The buttons for OK and Cancel are shown at the bottom right.

Return to Figure 10-2

Figure 10.3 Extended Description (Chapter 10)

Return to Figure 10-3

The Access database shows three tabs at the top: Agents, Sold Properties, and Listings. The Listings tab is selected. A table is shown below. The table consists of 4 columns and 5 rows. The column headings are as follows: Listing I D, Date Listed, List Price, and Address. Each heading has a drop-down option next to it. The Listing I D column is selected. The first row is selected. The first two row entries are as follows:

Row 1: 10112, 5/8/2020, $224,000.00, 340 Center Point.

Row 2: 10113, 5/8/2020, $532,500.00, 829 Spotted Pony Lane.

Return to Figure 10-3

Figure 10.4 Extended Description (Chapter 10)

Return to Figure 10-4

The first sheet at the bottom is titled Agents. Options for minimize, maximize, and close are shown at the top right. A table with 5 columns with the headings Employee Number, Last Name, First Name, Multilingual, and Date Hired is shown. Each heading has a drop-down option next to it.

The second sheet in the middle is titled Sold Properties. Options for minimize, maximize, and close are shown at the top right. A table is shown below.

The third sheet at the top is titled Listings. Options for minimize, maximize, and close are shown at the top right. A table with 6 columns with the headings Listing I D, Date Listed, List Price, Address, City, and Square Feet is shown. Each heading has a drop-down option next to it. The Listing I D column is selected. The first row is selected. The row entry is as follows:

Row 1: 10112, 5/8/2020, $224,000.00, 340 Center Point, Newcastle, 1480.

Return to Figure 10-4

Figure 10.5 Extended Description (Chapter 10)

Return to Figure 10-5

The dialog box titled Access Options has the Help and Close buttons located at the top right corner. Below that, the left pane shows the following options: General, Current Database, Datasheet, Object Designers, Proofing, Language, Client Settings, Customize Ribbon, Quick Access Toolbar, Add-ins, and Trust Center. The Datasheet option is selected. The section to the right titled Customize the way datasheet look in Access is split into two subsections. The subsection at the top is named Gridlines and cell effects. Below that are the following options with their inputs:

Default gridlines showing field, followed by two checked checkboxes for Horizontal and Vertical options.

Default cell effect field, followed by three radio options such as Flat, Raised, and Sunken. The option for Flat is selected.

Under that is the Default column width: 1 inch.

Beneath this is the subsection named Default font. It lists the following options with their inputs:

Size: 11 (drop-down arrow).

Weight: Normal (drop-down arrow). Under this are two unchecked checkboxes for Underline and Italic options.

The buttons for OK and Cancel are shown at the bottom right.

Return to Figure 10-5

Figure 10.6 Extended Description (Chapter 10)

Return to Figure 10-6

The dialog box titled Access Options has the Help and Close buttons located at the top right corner. Below that, the left pane shows the following options: General, Current Database, Datasheet, Object Designers, Proofing, Language, Client Settings, Customize Ribbon, Quick Access Toolbar, Add-ins, and Trust Center. The Datasheet option is selected. The section to the right displays the text, Change the default settings for design of database objects. Most options are ignored in table datasheet and layout view. This section is further split into four subsections. The first subsection at the top is named Table design view and consists of the following fields with their inputs:

Default field type: Short Text (drop-down arrow).

Default text field size: 255 (drop-down arrow).

Default number field size: Long Integer (drop-down arrow).

Auto Index on Import or Create: I D: key: code: num. Under this is a checked checkbox for Show Property Update Options buttons.

The second subsection is named Query design and consists of the following fields with their inputs:

Three checked checkboxes for the Show table names, Output all fields, and Enable Autojoin. Under that is the Query design font option with the fields:

Font: Axial (drop-down arrow).

Size: 9 (drop-down arrow).

Beneath that is the S Q L Server Compatible Syntax (A N S I 92) option with two checkboxes for This database and Default for new databases options.

The third subsection is named Form or Report design view and consists of the following fields with their inputs:

Selection behavior accompanied by two radio buttons, such as Partially enclosed and Fully enclosed. The Fully enclosed option is selected. Below that are the fields for: Form template: Normal and Report template: Normal. Beneath that is an unchecked checkbox for the Always use event procedures option.

Beneath that is the Error checking in form and report design view subsection, which consists of the following checked checkboxes along with the options:

Enable error checking, Check for unassociated label and control, Check for new unassociated labels, Check for keyboard shortcut errors, Check for invalid control properties, and Check for common report errors.

An Error indicator color with a Fill color icon is shown to the right, below these options.

The buttons for OK and Cancel are shown at the bottom right.

Return to Figure 10-6

Figure 10.7 Extended Description (Chapter 10)

Return to Figure 10-7

In the Worksheet Area of the Details form, text boxes for Employee Number and Last Name are shown on the left. On the right, the text boxes for Employee and Last Name are displayed. A cursor drags a rectangular box over all the text boxes.

Return to Figure 10-7

Figure 10.8 Extended Description (Chapter 10)

Return to Figure 10-8

In the Worksheet Area of the Details form, text boxes for Employee Number and Last Name are shown on the left. On the right, the text boxes for Employee and Last Name are displayed. The textboxes on the left and the Employee text box on the right are selected. The text box for Last Name on the right is not selected.

Return to Figure 10-8

Figure 10.9 Extended Description (Chapter 10)

Return to Figure 10-9

The dialog box titled Access Options has the Help and Close buttons located at the top right corner. Below that, the left pane shows the following options: General, Current Database, Datasheet, Object Designers, Proofing, Language, Client Settings, Customize Ribbon, Quick Access Toolbar, Add-ins, and Trust Center. The Proofing option is selected. The section to the right shows the text Change how Access automatically corrects and formats the contents of your databases, and how it indicates the errors that it finds. This section is further split into two subsections. The first subsection at the top is named Auto Correct options and consists of the option,

Specify how Access corrects text as you type. This is followed by a button for Auto Correct Options, shown to the right. The second subsection under this is named When correcting spelling in Microsoft Office Program. Below this are multiple checkboxes with the following options accompanying them:

A checked checkbox for Ignore words in UPPERCASE.

A checked checkbox for Ignore words that contain numbers.

A checked checkbox for Ignore Internet and file addresses.

A checked checkbox for Flag repeated words.

An unchecked checkbox for Enforce accented uppercase in French.

An unchecked checkbox for Suggested from main dictionary only.

An option for Custom Dictionaries is shown below. This is followed by the fields French modes with the input Traditional and new spellings, along with a drop-down arrow, Spanish modes with the input Tuteo verb forms only, along with a drop-down arrow, and Dictionary language with the input English (United States), along with a drop-down arrow.

The buttons for OK and Cancel are shown at the bottom right.

Return to Figure 10-9

Figure 10.10 Extended Description (Chapter 10)

Return to Figure 10-10

The dialog box titled Auto Correct: English (United States) has the Help and Close buttons located at the top right corner. The box shows a tab for Auto Correct, which is selected. This is followed by multiple options accompanied by checked checkboxes such as Show Auto Correct Options buttons, Correct TWo INitial CApitals, Capitalize first letter of sentences, Capitalize names of days, Correct accidental use of cAPS Lock key, and Replace text as you type. A button for Exceptions is shown to the right of these options. Below this is a table with 2 columns, having the headings Replace and With. The table contains letters to be replaced by symbols. The buttons for Add and Delete are shown at the bottom right of the table. The buttons for OK and Cancel are shown at the bottom right of the dialog box.

Return to Figure 10-10

Figure 10.11 Extended Description (Chapter 10)

Return to Figure 10-11

The dialog box titled Access Options has the Help and Close buttons located at the top right corner. Below that, the left pane shows the following options: General, Current Database, Datasheet, Object Designers, Proofing, Language, Client Settings, Customize Ribbon, Quick Access Toolbar, Add-ins, and Trust Center. The Language option is selected. The section to the right displays the text Office Language References. This section is further split into two sections. The first section at the top is named Office display language. This is followed by the text Buttons, menus, and other controls will show in the first available language in this list. An information icon is shown next to the text. A block with the following entries is shown under it:

1. Match Microsoft Windows [English] <preferred>
2. English.

Buttons for Add a Language, Move Up, Move Down, and Set as Preferred are shown to the right of the block.

The second section at the bottom is named Office authoring languages and proofing. This is followed by the text Manage language used for creating and editing documents, including proofing tools such as spelling and grammar check.

A block with the following entry is shown under it: English (United States) <preferred>; Proofing installed.

Buttons for Add a Language, Remove, and Set as Preferred are shown to the right of the block.

Under the block, a link with the text Install additional keyboards from Windows Settings is displayed. The buttons for OK and Cancel are shown at the bottom right.

Return to Figure 10-11

Figure 10.12 Extended Description (Chapter 10)

Return to Figure 10-12

The dialog box titled Access Options has the Help and Close buttons located at the top right corner. Below that, the left pane shows the following options: General, Current Database, Datasheet, Object Designers, Proofing, Language, Client Settings, Customize Ribbon, Quick Access Toolbar, Add-ins, and Trust Center. The Client Settings option is selected. The section to the right displays the text Settings that change the client behavior. These are user settings that don't move to the web experience. Under that are two subsections named Editing and Display. The subsection Editing shows the following options:

The Move after enter option, accompanied by three radio options such as Don't move, Next field, and Next record. The Next field option is selected.

The Behavior entering field option, accompanied by three radio options such as Select entire field, Go to start of field, and Go to end of field. The Select entire field option is selected.

The Arrow key behavior option, accompanied by two radio options, such as Next field and Next character. The Next field option is selected.

The Continuous Form Record Navigation Keys option, accompanied by three radio options, such as None, Up or Down, and Left or Right. The None option is selected. An unchecked checkbox for Cursor stops at first or last field is shown under this.

The Default find and replace behavior option, accompanied by three radio options, such as Fast search, General search, and Start of field search. The Fast search option is selected.

The Confirm option, accompanied by three ticked checkboxes for the options, Record changes, Document deletions, and Action queries.

The Default direction option, accompanied by two radio options, such as Left-to-right and Right-to-left. The Left-to-right option is selected.

The General alignment option, accompanied by two radio options such as Interface mode and Text mode. The Interface mode option is selected.

The Cursor movement option, accompanied by two radio options, such as Logical and Visual. The Logical option is selected. This is followed by an unchecked checkbox for the Use High Calendar option.

Under these options is the subsection Display. It shows the field named Show this number of Recent Databases with the input present as 3. Up and Down arrows are shown to the right. An information icon is shown beside the text box.

Unchecked checkbox for Quickly access this number of Recent Databases: 4. Up and Down arrows are shown to the right.

Show this number of unpinned Recent Folders: 4. Up and Down arrows are shown to the right.

The buttons for OK and Cancel are shown at the bottom right of the dialog box.

Return to Figure 10-12

Figure 10.13 Extended Description (Chapter 10)

Return to Figure 10-13

The dialog box titled Access Options has the Help and Close buttons located at the top right corner. Below that, the left pane shows the following options: General, Current Database, Datasheet, Object Designers, Proofing, Language, Client Settings, Customize Ribbon, Quick Access Toolbar, Add-ins, and Trust Center. The Trust Center option is selected. The section to the right displays the text Help keep your documents safe and your computer secure and healthy. This section is split into two subsections. The subsection at the top is named Security and More and displays the text Visit Office dot com to learn more about protecting your privacy and security. Under this, you have the Microsoft Trust Center link. Beneath that is the second subsection with the name Microsoft Access Trust Center.

Below the subsection is the text, The Trust Center contains security and privacy settings. These settings help keep your computer secure. We recommend that you do not change these settings. A Trust Center Settings button is shown to the right of this text.

The buttons for OK and Cancel are shown at the bottom right of the dialog box.

Return to Figure 10-13

Figure 10.14 Extended Description (Chapter 10)

Return to Figure 10-14

The dialog box titled Trust Center has the Help and Close buttons located at the top right corner. Below that, the left pane shows the following options: Trusted Publishers, Trusted Locations, Trusted Documents, Trusted Add-in Catalogs, Add-ins, Active X Settings, Macro Settings, Message Bar, Privacy Options, and Form-based Sign-in. The Trusted Locations option is selected.

To the right of this pane is the section titled Trusted Location. Below this section, the following text is displayed: Warning: All these locations are treated as trusted sources for opening files. If you change or add a location, make sure that the new location is secure. Under this is a rectangular block with a table having three columns and three rows. The column headings are: Path, Description, and Date Modified. The row entries are as follows:

Row 1: User Locations, blank, and blank.

Row 2: C: backslash Program Files backslash Microsoft Office backslash root backslash Office 16 backslash A C C W I Z backslash, Access default location: Wizard Databases, and blank.

Row 3: Policy Locations, blank, and blank.

Beneath the block is the Path field with the input C: backslash Program Files backslash Microsoft Office backslash root backslash Office 16 backslash A C C W I Z backslash. Below that is the Description field with the input Access default location: Wizard Databases. This is followed by the Date Modified field with a blank entry, and the Sub Folders field with the input Disallowed. The buttons for Add new location, Remove, and Modify are shown below at the right. Two unchecked checkboxes for Allow Trusted Locations on my network (not recommended) and Disable all Trusted Locations options are displayed under it.

The OK and Cancel buttons are shown at the bottom right of the dialog box.

Return to Figure 10-14

Figure 10.15 Extended Description (Chapter 10)

Return to Figure 10-15

The dialog box titled Access Options has the Help and Close buttons located at the top right corner. Below that, the left pane shows the following options: General, Current Database, Datasheet, Object Designers, Proofing, Language, Client Settings, Customize Ribbon, Quick Access Toolbar, Add-ins, and Trust Center. The Customize Ribbon option is selected. The section to the right titled Customize the Ribbon is divided into two vertical sections displayed next to each other. The section on the left displays the field Choose commands from (an information icon is shown) with the input Popular Commands, which is accompanied by a drop-down arrow. Below that, a rectangular block lists various options. The section on the right displays the field Customize the Ribbon (an information icon is shown) with the input Main Tabs, which is accompanied by a drop-down arrow. Below that, a rectangular block lists various options along with a checked checkbox. The options shown are Print Preview, Home, Create, External Data, Database Tools, and Source Control. The Up and Down arrow buttons are shown to the right. Buttons for New tab, New Group, and Rename are shown below. The Customizations field with the input Reset followed by an information icon is displayed under that. The drop-down with the input Import or Export, followed by an information icon, is shown beneath that. In between the blocks for the two sections, buttons for Add and Remove are shown. The buttons for OK and Cancel are shown at the bottom right of the dialog box.

Return to Figure 10-15

Figure 10.16 Extended Description (Chapter 10)

Return to Figure 10-16

A rectangular block lists various options, along with a checked checkbox is displayed in the background. The options shown are Print Preview, Home, New Tab (Custom), Add-Ins, and Help. Overlapping it is a dialog box titled Rename which has the help and close buttons at the top right corner. The dialog shows the field Display Name with the input Import Data in the text box beside it. The buttons for OK and Cancel are shown at the bottom right.

Return to Figure 10-16

Figure 10.17 Extended Description (Chapter 10)

Return to Figure 10-17

The dialog box titled Rename has the Help and Close buttons located at the top right corner. Under it is the Symbol field, followed by a rectangular block showing 11 columns and 10 rows of symbols. The Display Name field with the input Import Options is displayed under this block. The buttons for OK and Cancel are shown at the bottom right of the dialog box.

Return to Figure 10-17

Figure 10.18 Extended Description (Chapter 10)

Return to Figure 10-18

The Ribbon displays the following tabs at the top: File, Home, Create, External Data, Database Tools, and Help. A search option is shown to the right. The Create tab is selected. Under this, Command groups for Templates, Tables, and Queries are shown. The Templates group shows the Application Parts option with a drop-down arrow. The Tables group shows Table, Table Design, and Share Point Lists options. The Share Point Lists option has a drop-down arrow. The Queries group shows Query Wizard and Query Design options. Forms, Reports, and Marcos and Code options are shown to the right. The icon for each option is shown above it. Besides this, a drop-down arrow is displayed in the bottom right corner.

Return to Figure 10-18

Figure 10.19 Extended Description (Chapter 10)

Return to Figure 10-19

The dialog box is divided into two vertical sections displayed next to each other. The section on the left displays the field Choose commands from (an information icon is shown) with the input All Commands, which is accompanied by a drop-down arrow. Below that, a rectangular block lists various options. The Excel [Import Excel spreadsheet] option is selected. The section on the right displays the field Customize the Ribbon (an information icon is shown) with the input Main Tabs, which is accompanied by a drop-down arrow. Below that, a rectangular block lists various options, along with a checked checkbox. The options shown are Print Preview, Home, Import Data (Custom), Create, External Data, Database Tools, and Source Control. In between the blocks for the two sections, buttons for Add and Remove are shown. The cursor is shown over the Add button.

Return to Figure 10-19

Figure 10.20 Extended Description (Chapter 10)

Return to Figure 10-20

The Ribbon displays the following tabs at the top: File, Home, Import Data, and Create. The Import Data tab is selected, and it shows the Import Options Command group under it. The group shows options for Excel, Text File, X M L File, Access, and Saved Imports. The icon for each option is shown above it.

Return to Figure 10-20

Figure 10.21 Extended Description (Chapter 10)

Return to Figure 10-21

The dialog box displays the field Customize the Ribbon, followed by an information icon. The field shows the input Main Tabs, which is accompanied by a drop-down arrow under it. Below that, a rectangular block lists various options, along with a checked checkbox such as Print Preview, Home, Import Data (Custom), and Create. To the right of the block, the Up and Down buttons are shown and are labeled Move Up and Move Down buttons. The cursor is shown over the Add button.

Return to Figure 10-21

Figure 10.22 Extended Description (Chapter 10)

Return to Figure 10-22

The Access Database consists of a Title bar at the top, followed by a Ribbon below. The Title bar has the Datasheet View, Save, Undo, and Redo buttons, from left to right, followed by a drop-down arrow. The drop-down arrow is labeled Customer Quick Access Toolbar button and has been expanded. The drop-down displays its name, Customize Quick Access Toolbar, with options such as New, Open, Save (tick mark), Email, Quick Print, Print Preview, Spelling, Undo (tick mark), Redo (tick mark), Mode, Refresh All, Sync All, Touch or Mouse Mode, More Commands, Show Below the Ribbon, and Hide Quick Access Toolbar listed under it. The Minimize, Maximize, and Close buttons are on the far right of the Title bar. The Ribbon has tabs for File, Home, Create, External Data, Database Tools, and Help. The Home tab is selected and consists of Command groups such as Undo, View, Clipboard, Sort and Filter, Records, Find, and Text Formatting. Besides this, a drop-down arrow is displayed in the bottom right corner and is labeled Ribbon Display Options button. Beneath that, the Navigation pane is displayed to the left and the Work area to the right.

Return to Figure 10-22

Figure 10.23 Extended Description (Chapter 10)

Return to Figure 10-23

The dialog box titled Access Options has the Help and Close buttons located at the top right corner. Below that, the left pane shows the following options: General, Current Database, Datasheet, Object Designers, Proofing, Language, Client Settings, Customize Ribbon, Quick Access Toolbar, Add-ins, and Trust Center. The Quick Access Toolbar option is selected. The section to the right titled Customize the Quick Access Toolbar is divided into two vertical sections displayed next to each other. The section on the left displays the field Choose commands from (an information icon is shown) with the input Popular Commands, which is accompanied by a drop-down arrow. Below that, a rectangular block lists various options. Beneath that, a checked checkbox for the Show Quick Access Toolbar option is present, followed by the Toolbar Position field showing the input Below Ribbon, along with a drop-down arrow. Under that, another checked checkbox for the Always show command labels option is shown. The section on the right displays the field Customize Quick Access Toolbar (an information icon is shown) with the input For all documents (default), which is accompanied by a drop-down arrow. This is labeled Select where customizations are applied. Below that, a rectangular block lists Undo and Redo options. The Up and Down arrow buttons are shown to the right. The button for Modify is shown below the block. The Customizations field with the input Reset followed by an information icon is displayed under that. The drop-down with the input Import or Export, followed by an information icon, is shown beneath that. In between the blocks for the two sections, buttons for Add and Remove are shown. The buttons for OK and Cancel are shown at the bottom right of the dialog box.

Return to Figure 10-23

Figure 10.24 Extended Description (Chapter 10)

Return to Figure 10-24

The field Customize Quick Access Toolbar, followed by an information icon, is shown with the input For C: backslash My Work backslash P P A 10-1 dot a c c d b, which is accompanied by a drop-down arrow. Below that, a rectangular block lists options such as open angular bracket Separator close angular bracket, Queries (Client) (drop-down option), and Quick Print. The Queries (Client) option is selected, and the drop-down arrow beside it is highlighted.

Return to Figure 10-24

Figure 10.25 Extended Description (Chapter 10)

Return to Figure 10-25

The Access Database consists of a Title bar at the top, followed by a Ribbon below. The Title bar has the Datasheet View and Save buttons, followed by the file name, Placer Hills, beside it. Below that, the Ribbon has tabs for File, Home, Create, Import Data, and External Data. The Home tab is selected and consists of Command groups such as Undo, View, Clipboard, Sort, and Filter. Buttons for Undo, Can't Redo, Queries, and Quick Print are shown below.

Return to Figure 10-25

Figure 10.26 Extended Description (Chapter 10)

Return to Figure 10-26

The Access Database consists of a Title bar at the top, followed by a Ribbon below. The Title bar has the Datasheet View and Save buttons, followed by the file name, Placer Hills, beside it. Below that, the Ribbon has tabs for File, Home, Create, Import Data, and External Data. The Home tab is selected and consists of Command groups such as Undo, View, Clipboard, Sort, and Filter. Buttons for Undo, Can't Redo, Queries, and Quick Print are shown below. The Undo, Can't Redo, and Quick Print have drop-down options. The cursor is shown on the Queries button, which displays a menu with options such as the Query Wizard and Query Design under it.

Return to Figure 10-26

Figure 10.27 Extended Description (Chapter 10)

Return to Figure 10-27

The dialog box titled Access Options has the Help and Close buttons located at the top right corner. Below that, the left pane shows the following options: General, Current Database, Datasheet, Object Designers, Proofing, Language, Client Settings, Customize Ribbon, Quick Access Toolbar, Add-ins, and Trust Center. The Customize Ribbon option is selected. The section to the right titled Customize the Ribbon is divided into two vertical sections displayed next to each other. The section on the left displays the field Choose commands from (an information icon is shown) with the input Popular Commands, which is accompanied by a drop-down arrow. Below that, a rectangular block lists various options. The section on the right displays the field Customize the Ribbon (an information icon is shown) with the input Main Tabs, which is accompanied by a drop-down arrow. Below that, a rectangular block lists various options along with a checked checkbox. The options shown are Print Preview, Home, Create, External Data, and Database Tools. The Up and Down arrow buttons are shown to the right. Buttons for New tab, New Group, and Rename are shown below. The Customizations field with the input Reset followed by an information icon is displayed under that. The drop-down with the input Import or Export, followed by an information icon, is shown beneath that. In between the blocks for the two sections, buttons for Add and Remove are shown. The cursor is shown over the Remove button. The buttons for OK and Cancel are shown at the bottom right of the dialog box.

Return to Figure 10-27

Figure 10.28 Extended Description (Chapter 10)

Return to Figure 10-28

The Access Database consists of a Title bar at the top, followed by a Ribbon below. The Title bar has the Datasheet View, Save, Undo, Redo, Quick Access toolbar, drop-down arrow buttons, followed by the file name, Placer Hills, beside it. The Quick Access Toolbar is selected, and it shows a drop-down menu with the options such as Remove from Quick Access Toolbar, Customize Quick Access Toolbar, Show Quick Access Toolbar Below the Ribbon, Hide Quick Access Toolbar, Customize Quick Access Toolbar, and Collapse the Ribbon. The cursor is shown over the Remove from Quick Access Toolbar option. Below that, the Ribbon has tabs for File, Home, and Import Data.

Return to Figure 10-28

Figure 10.29 Extended Description (Chapter 10)

Return to Figure 10-29

The field Customize the Ribbon with an information icon is shown, displaying the input Main Tabs, which is accompanied by a drop-down arrow. Below that, a rectangular block lists various options along with a checked checkbox. The options shown are Print Preview, Home, Create, External Data, Database Tools, and Source Control. The Up and Down arrow buttons are shown to the right. Buttons for New tab, New Group, and Rename are shown below. The Customizations field with the input Reset followed by an information icon is displayed under that. The drop-down for the Reset option is expanded and shows the Reset only selected Ribbon tab and Reset all customizations. The cursor is shown over the Reset only selected Ribbon tab option.

Return to Figure 10-29

Figure 10.30 Extended Description (Chapter 10)

Return to Figure 10-30

The dialog box titled Microsoft Office has a Close button in the top right corner.

A danger icon is shown below at the left. The following text is given to the right:

Delete all Ribbon and Quick Access Toolbar customizations for this program?

Buttons for Yes and No are shown below.

Return to Figure 10-30

Figure 10.31 Extended Description (Chapter 10)

Return to Figure 10-31

The field Customize Quick Access Toolbar with an information icon on its right shows the input For C: backslash My Work backslash P P A 10-1 dot a c c d b, which is accompanied by a drop-down arrow. Below that, a rectangular block lists options such as open angular bracket Separator close angular bracket, Queries (Client) (drop-down option), and Quick Print. The Up and Down arrow buttons are shown to the right. The button for Modify is shown below the block. The Customizations field with the input Reset followed by an information icon is displayed under that. The drop-down for the Reset option is expanded and shows the Reset only Quick Access Toolbar and Reset all customizations. The cursor is shown over the Reset only Quick Access Toolbar option.

Return to Figure 10-31

Figure 10.32 Extended Description (Chapter 10)

Return to Figure 10-32

A picture icon displaying a photo with the name Annette Easton is shown at the top right. The cursor is shown over the display photo. A Sign Out option is shown below it on the right of the window. The following information is shown under that:

Annette Easton.

annette dot easton at Office In Practice.

View account link.

Office user info link.

Besides this information, a photo, similar to the display photo, is shown on the left.

Return to Figure 10-32

Figure 10.33 Extended Description (Chapter 10)

Return to Figure 10-33

The Backstage view shows the vertical Navigation pane on the left, which shows tabs for Home, New Open, Info, Save, Save As, and Close. At the bottom of this pane, tabs for Account, Feedback, and Options are displayed. The Account option is selected. To the right of the pane is the Account page, which shows the text Placer Hills on the top left, and Annette Easton, a display picture, followed by a smiley face and a frown face, to the right. A help icon and options for minimize, maximize, and close are shown at the top right. Below that, the Account page is divided into two sections next to each other. The section on the left shows User Information, displaying details like the user name, which is Annette Easton, and the user email I D that is annette dot easton at Office In Practice dot com. A display photo is shown to the left of this information. Links for the options Change photo, About me, Sign Out, and Search account are shown under this. Beneath that, the field for Account Privacy, followed by the Manage Settings option, is shown. Below this, fields for Office Background and Office Theme are present with drop-down boxes displaying the inputs No Background and Colourful, respectively. Under that is the Connected Services section, which displays options such as One Drive- Office In Practice and Sites- Office In Practice. Each option is accompanied by the user email I D annette dot easton at Office In Practice dot com. An option for Add a service is shown with a drop-down arrow under this. The section to the right is titled Product Information and shows the Microsoft logo followed by the text, Subscription Product, Microsoft 365 Apps for business, Belongs to annette dot easton at Office In Practice dot com. The product contains, followed by icons for Word, Excel, PowerPoint, Outlook, Notes, et cetera. The options for Manage Account and Change License are shown below. Three vertical buttons with their descriptions are listed beneath this. The options, along with their descriptions, are as follows:

Office Updates - Updates are automatically downloaded and installed.

An Update Options icon is shown to the left.

About Access - Learn more about Access, Support, Product I D, and Copyright Information. Version 2111 (Build 14701 29166 Click-to-Run). Current Channel (Preview).

An About Access icon is shown to the left.

What’s New - See the most secretly installed updates.

A What’s New icon is shown to the left.

Return to Figure 10-33

Figure 10.34 Extended Description (Chapter 10)

Return to Figure 10-34

The dialog box has the Microsoft logo at the top and is titled Microsoft. Under that is the text Sign in, followed by an area to enter the email I D. The input provided is annette dot easton at office in practice dot com. Beneath that, the text No account? is displayed next to the link Create one. A Next button is shown at the bottom right with the cursor over it.

Return to Figure 10-34

Figure 10.35 Extended Description (Chapter 10)

Return to Figure 10-35

The Backstage view shows the vertical Navigation pane on the left, which shows tabs for Home, New Open, Info, Save, Save As, and Close. At the bottom of this pane, tabs for Account, Feedback, and Options are displayed. The Account option is selected. To the right of the pane is the Account page, which shows the text Accounts. Below that is the User Information, displaying details like the user name, which is Annette Easton, and the user email I D that is annette dot easton at Office In Practice dot com. A display photo is shown to the left of this information. Links for the options Change photo, About me, Sign Out, and Search account are shown under this. Beneath that, the field for Account Privacy, followed by the Manage Settings option, is shown. Below this, fields for Office Background and Office Theme are present with drop-down boxes displaying the inputs No Background and Colourful, respectively. Under that is the Connected Services section, which displays options such as One Drive- Office In Practice and Sites- Office In Practice. Each option is accompanied by the user email I D annette dot easton at Office In Practice dot com. An option for Add a service is shown with a drop-down arrow under this.

Return to Figure 10-35

Figure 10.36 Extended Description (Chapter 10)

Return to Figure 10-36

The dialog box titled Rename has the Help and Close buttons located at the top right corner. Under it is the Symbol field, followed by a rectangular block showing 11 columns and 10 rows of symbols. The Display Name field with the input Common Tools is displayed under this block. The buttons for OK and Cancel are shown at the bottom right of the dialog box.

Return to Figure 10-36

Figure 10.37 Extended Description (Chapter 10)

Return to Figure 10-37

The dialog box titled Access Options has the Help and Close buttons located at the top right corner. Below that, the left pane shows the following options: General, Current Database, Datasheet, Object Designers, Proofing, Language, Client Settings, Customize Ribbon, Quick Access Toolbar, Add-ins, and Trust Center. The Customize Ribbon option is selected. The section to the right titled Customize the Ribbon is divided into two vertical sections displayed next to each other. The section on the left displays the field Choose commands from (an information icon is shown) with the input All Commands, which is accompanied by a drop-down arrow. Below that, a rectangular block lists various options. The section on the right displays the field Customize the Ribbon (an information icon is shown) with the input Main Tabs, which is accompanied by a drop-down arrow. Below that, a rectangular block lists various options along with a checked checkbox. A list is shown below with the Query Design option selected. The Up and Down arrow buttons are shown to the right. Buttons for New tab, New Group, and Rename are shown below the block. The Customizations field with the input Reset followed by an information icon is displayed under that. The drop-down with the input Import or Export, followed by an information icon, is shown beneath that. In between the blocks for the two sections, buttons for Add and Remove are shown.

The buttons for OK and Cancel are shown at the bottom right of the dialog box.

Return to Figure 10-37

Figure 10.38 Extended Description (Chapter 10)

Return to Figure 10-38

A ticked checkbox titled Queries, Reports, and Tools (Custom) is shown at the top.

Sections for Queries (Custom), Reports (Custom), and Common Tools (Custom) are shown below it. Each section lists various files under it. The options under the Queries (Custom) are Query Design and Query Wizard. The options under the Reports (Custom) are Report Design, Report View, and Report Wizard.

The options under the Common Tools (Custom) are Compact and Repair Database, Excel [Import Excel spreadsheet], and Text File [Import text file].

Return to Figure 10-38

Figure 10.39 Extended Description (Chapter 10)

Return to Figure 10-39

The Access Database shows the following tabs at the top: File, Home, Queries, Reports and Tools, and Help. A search bar is shown to the right. The Queries, Reports and Tools tab is selected. Below it, Command groups for Queries, Reports, and Command Tools are shown. The Queries Command group shows the Query Design and Query Wizard options. The Reports Command group shows Report Design, Report View, and Report Wizard options. The Common Tools command group shows the Compact and Repair Database, Excel, and Text File options.

Return to Figure 10-39

Figure 10.40 Extended Description (Chapter 10)

Return to Figure 10-40

The Access Database shows the following tabs at the top: File, Home, Queries, Reports and Tools, and Help. A search bar is shown to the right. The Queries, Reports and Tools tab is selected. Below it, Command groups for Queries, Reports, and Command Tools are shown. The Queries Command group shows the Query Design and Query Wizard options. The Reports Command group shows Report Design, Report View, and Report Wizard options. The Common Tools Command group is displayed with a drop-down arrow to the right.

Return to Figure 10-40

Figure 10.41 Extended Description (Chapter 10)

Return to Figure 10-41

The Access Database consists of a Title bar at the top, followed by a Ribbon below. The Title bar has the Datasheet View, Save, followed by a drop-down arrow. The drop-down arrow has been expanded. The drop-down displays its name, Customize Quick Access Toolbar, with options such as New, Open, Save, Email, Quick Print, and Print Preview listed under it. The cursor is shown on the Quick Print option. The Minimize, Maximize, and Close buttons are on the far right of the Title bar. The Ribbon has tabs for File, Home, Create, External Data, Database Tools, and Help.

Return to Figure 10-41

Figure 10.42 Extended Description (Chapter 10)

Return to Figure 10-42

The dialog box titled Access Options has the Help and Close buttons located at the top right corner. Below that, the left pane shows the following options: General, Current Database, Datasheet, Object Designers, Proofing, Language, Client Settings, Customize Ribbon, Quick Access Toolbar, Add-ins, and Trust Center. The Quick Access Toolbar option is selected. The section to the right titled Customize the Quick Access Toolbar is divided into two vertical sections displayed next to each other. The section on the left displays the field Choose commands from (an information icon is shown) with the input All Commands, which is accompanied by a drop-down arrow. Below that, a rectangular block lists various options. Beneath that, a checked checkbox for the Show Quick Access Toolbar option is present, followed by the Toolbar Position field showing the input Above Ribbon, along with a drop-down arrow. Under that, another checked checkbox for the Always show command labels option is shown. The section on the right displays the field Customize Quick Access Toolbar (an information icon is shown) with the input For all documents (default), which is accompanied by a drop-down arrow. Below that, a rectangular block lists the Quick Print option. Two buttons with Up and Down arrowheads are shown to the right and are labeled Move Up and Move Down buttons. The button for Modify is shown below the block. The Customizations field with the input Reset followed by an information icon is displayed under that. The drop-down with the input Import or Export, followed by an information icon, is shown beneath that. In between the blocks for the two sections, buttons for Add and Remove are shown. The buttons for OK and Cancel are shown at the bottom right of the dialog box.

Return to Figure 10-42

Figure 10.43 Extended Description (Chapter 10)

Return to Figure 10-43

The Access Database consists of a Title bar at the top, followed by a Ribbon below. The Title bar has the Datasheet View, Save, Search, Undo, followed by a drop-down arrow. A profile photo with the name Annette Easton is shown at the top right with the options for minimize, maximize, and close. The Ribbon displays tabs for File, Home, Queries, Reports and Tools, and Help. A search bar is shown to the right. The Queries, Reports and Tools tab is selected. Below it, Command groups for Queries, Reports, and Command Tools are shown. The Report View option in the Reports Command group is selected. A vertical Navigation pane titled Placer Hills Main Menu is shown on the left. To the right in the Worksheet Area, the tab Sold Properties is selected and shown. A table is shown below. The table consists of 8 columns and multiple rows. The column headings are as follows: Listing I D, Date Listed, Square Feet, Beds per Baths, City, List Price, Sold Price, and Percent of List Price. A dialog box for Find is shown overlapping the table. It has a close button in the top right corner. Below that is the tab Find, which is selected. The field Find What, with the input Auburn, along with a drop-down arrow, is shown under that. Beneath that are the fields for Look In with the input Current field, Match with the input Whole Field, and Search with the input All. All three inputs are accompanied by a drop-down arrow to their right. An unchecked checkbox for Match Case is shown below. A checked checkbox for Search Fields As Formatted is shown beside it. Buttons for Find Next and Cancel are shown to the right.

Return to Figure 10-43

Figure 10.44 Extended Description (Chapter 10)

Return to Figure 10-44

The dialog box titled One Drive-Office In Practice has the minimize, maximize, and close buttons at the top right corner. Below that, it shows options for New, Sort, and View. Under that, it displays the arrows, such as a left arrow for Go Back, a right arrow for Go Forward, a dropdown arrow, and an up arrow for Go One Folder Up. To the right is the address bar, which shows the text One Drive with a drop-down arrow beside it. To the right of this is the Search bar. Below this, a vertical pane on the left shows the options such as Quick Access, One Drive- Office In Practice, One Drive- Personal, This P C, and Network. One Drive- Office In Practice and One Drive- Personal options are jointly labeled One Drive folders. The One Drive- Office In Practice is selected. To the right of this pane is a rectangular block displaying a table with column headings: Name and Size. A list of folders is shown under this table.

Return to Figure 10-44

Figure 10.45 Extended Description (Chapter 10)

Return to Figure 10-45

The Title bar of the One Drive dialog box shows a 3 by 3 grid of dots at the top left that is labeled Click to select other areas of your Microsoft account. A search bar is shown at the top right. Below this, a vertical pane on the left shows the signed-in person's name. The name currently displayed is Annette Easton. This is labeled Different areas display under the [Your Name] heading. Below that are the My Files, Recent, Shared, and Recycle bin options. Under that is the Quick Access section, which lists options such as Office 2021 In Practice and Office 365. The cursor is shown on the My files options. To the right of this pane, options for New, Upload, and Sync are shown at the top. The New option is selected. Below this, the My files section is open, and it displays a list of folders.

Return to Figure 10-45

Figure 10.46 Extended Description (Chapter 10)

Return to Figure 10-46

Icons for Settings and Help are shown at the top right. A display photo is shown at the top right corner beside them as well. Below it, the Sort, View, and Information buttons are shown on the Ribbon. The Sort button has a drop-down arrow that shows options such as List, Compact List, and Tiles. The List option is selected. A button with three horizontal lines and a drop-down arrow next to the Sort button is labeled View options button. An Information button is labeled and shown to the right.

Return to Figure 10-46

Figure 10.47 Extended Description (Chapter 10)

Return to Figure 10-47

A section is named My files and displays the Name option, with a drop-down arrow that shows a list of folders such as A R C C, Central Sierra, and Courtyard Medical Plaza. The cursor is shown over a drop-down arrow in a circle next to the Courtyard Medical Plaza folder.

Return to Figure 10-47

Figure 10.48 Extended Description (Chapter 10)

Return to Figure 10-48

The Title bar of the One Drive dialog box shows a 3 by 3 grid of dots at the top left. A search bar is shown at the top right. Below this, a vertical pane on the left shows the signed-in person's name. The name currently displayed is Annette Easton. Below that are the My Files, Recent, Shared, and Recycle bin options. Under that is the Quick Access section, which lists options such as Office 2021 In Practice and Office 365. The My files option is selected. To the right of this pane, options for New, Share, Copy Link, and Request are shown at the top. The New option is selected. Below this, the My files section is open, and it displays the Name option, with a drop-down arrow that shows a list of folders such as A R C C, Central Sierra, Courtyard Medical Plaza, and Mag Meals. The Courtyard Medical Plaza folder has a checkbox on its left that is ticked. An icon for three dots vertically arranged is shown to the right of this folder. The icon is labeled Show actions button. An icon is shown to the left of Mag Meals and is labeled Recently added icon.

Return to Figure 10-48

Figure 10.49 Extended Description (Chapter 10)

Return to Figure 10-49

The Title bar of the One Drive dialog box shows a 3 by 3 grid of dots at the top left. A search bar is shown at the top right. Below this, a vertical pane on the left shows the signed-in person's name. The name currently displayed is Annette Easton. Below that are the My Files, Recent, Shared, and Recycle bin options. Under that is the Quick Access section, which lists options such as Office 2021 In Practice and Office 365. The My files option is selected. To the right of this pane, options for New and Upload are shown at the top. The New option is selected and labeled New button. The drop-down menu for the New button is open, and it displays the Folder option, with a drop-down arrow that shows a list of options such as Word Document, Excel workbook, PowerPoint presentation, One Note notebook, Forms for Excel, Visio drawing, and Links.

Return to Figure 10-49

Figure 10.50 Extended Description (Chapter 10)

Return to Figure 10-50

The Title bar of the One Drive dialog box shows a 3 by 3 grid of dots at the top left. A search bar is shown at the top right. Below this, a vertical pane on the left shows the signed-in person's name. The name currently displayed is Annette Easton. Below that are the My Files and Recent options. To the right of this pane, options for New, Upload, and Share are shown at the top. The Upload option is selected and labeled Upload button.

Return to Figure 10-50

Figure 10.51 Extended Description (Chapter 10)

Return to Figure 10-51

The dialog box titled Open has the close button at the top right corner. It shows the arrows, such as a left arrow for Go Back, a right arrow for Go Forward, a dropdown arrow, and an up arrow for Go One Folder Up. To the right is the address bar, which shows the folder Sailing Files. To the right of this is the Search bar. Under this, the toolbar shows the Organize and New folder options on the left. Below the toolbar is a vertical pane to the left that shows the options such as One Drive- Office In Practice, One Drive - Personal, and This P C. The This P C option is selected. To the right of the pane is a rectangular block that shows a list of files, such as Sailing- 10 dot j p g, and San Diego Sailing- 10 a c c d b. Below the block is the File name field with a text box on the right, which shows the file name Sailing- 10 dot j p g. To the right of the text box is another text box with a drop-down arrow, which shows the text All Files(”,”), with a drop-down option. The bottom right of the dialog box shows the Open and Cancel buttons.

Return to Figure 10-51

Figure 10.52 Extended Description (Chapter 10)

Return to Figure 10-52

The top of the window shows options for New, Open Share, Copy Link, Download, and Sort. An icon with three horizontal dots is shown between the Download and Sort options. The cursor is shown on the icon, and a drop-down list with options such as Delete, Rename, Automate, Move to, Copy to, and Version history is shown.

Behind this, the My Files, Miscellaneous Files section is shown on the left with a list of files displayed under it.

Return to Figure 10-52

Figure 10.53 Extended Description (Chapter 10)

Return to Figure 10-53

The dialog box titled Copy 1 item has a close button on the top right corner. The box shows a PowerPoint file named New Agent Training dot p p t x. Below that, the file path: Your One Drive, Central Sierra is displayed. A New folder option is visible under this, followed by the text, This folder doesn't have any subfolders.

A button for Copy here is shown below with the cursor over it.

Return to Figure 10-53

Figure 10.54 Extended Description (Chapter 10)

Return to Figure 10-54

The window is divided into two sections that is, Send Link and Copy Link. The section at the top is named Send link and has the close option at the top right. Below this is the button with the text Anyone with the link can edit. A globe icon is shown to the left. This button is labeled Link settings button. Under it, a black space with the text For: Name group or email is shown. This is labeled Type email address or addresses. Below that is a blank space with the text Message. This is labeled Type message.

An icon for Outlook is shown below. A Send button is shown to the right.

The second section at the bottom is named Copy link. This is followed by the button Anyone with the link can edit. A globe icon is shown to the left. A Copy link is shown beside it at the right.

Return to Figure 10-54

Figure 10.55 Extended Description (Chapter 10)

Return to Figure 10-55

The dialog box titled Link settings has a close option shown at the top right corner. It shows the text: Who would you like this link to work for? This is followed by the Learn More option that has a link attached to it. Under that, a list with options such as Anyone with the link, People in Office In Practice with the link, People with existing access, and Specific people. Each option is preceded by its respective icon to the left. This list is labeled Select who can access the sharing link. Beneath this is the Other settings section, which displays options such as a checkbox for Allow editing, Set expiration date, and Set password. The buttons for Apply and Cancel are shown at the bottom right of the dialog box.

Return to Figure 10-55

Figure 10.56 Extended Description (Chapter 10)

Return to Figure 10-56

The dialog box shows a close option at the top right corner. In the center of the box, the text Link to ‘P H R E’ copied, accompanied by a green tick button above it, is shown. A link in a text box is shown under it with a Copy button to the right. The button for Anyone with the link can edit with a globe icon is shown to the left of the dialog box.

Return to Figure 10-56

Figure 10.57 Extended Description (Chapter 10)

Return to Figure 10-57

The screenshot displays a Word document with a Sort option, having a drop-down arrow shown at the top. The document titled displayed partially is [your initials] Access 10-2 Document. A Manage Access window is shown overlapping the document at the bottom. It displays the following information:

Has access, followed by Icons and profile photos shown under it. The text, This item has been shared with guests accompanied by a globe icon on its left, is shown. Beneath this is the Manage access link. This is labeled Manage access link.

Return to Figure 10-57

Figure 10.58 Extended Description (Chapter 10)

Return to Figure 10-58

A document at the top is titled [your initials] Access 10-2_Documentation has the Close button at the top right corner. Below that is the name Manage Access, followed by the Stop Sharing link. Under that is the Links giving access field. Beneath that, a globe icon accompanied by a text box showing the link h t t p s: backslash backslash office in practice, is present. A Copy button is shown to the right. An icon with three dots is shown to the right of the button and is labeled More options button. The text Anyone with the link can edit is present under it.

An icon with two people with a plus sign in a circle is shown below. A link is shown to the right, which is h t t p s: backslash backslash office in practice. A Copy button is shown to the right of the link. An icon with three dots is shown to the right of the button. The text People you specify can view is present under it. A drop-down arrow accompanied by the contact icon is shown below. Beneath that is the Direct access section, showing the following: a profile photo is to the left along with the text Annette Easton, and Owner to the right. The Advanced link is available at the bottom right of the document.

Return to Figure 10-58

Figure 10.59 Extended Description (Chapter 10)

Return to Figure 10-59

The window shows a grid of nine dots on the far left of the title bar, labeled App launcher button. Below the button is the heading Microsoft 365, followed by the applications, including Outlook, OneDrive, Word, Excel, PowerPoint, One Note, SharePoint, Teams, Bookings, Yammer, Power Automate, and Forms. Below the apps is the All apps link option.

Return to Figure 10-59

Figure 10.60 Extended Description (Chapter 10)

Return to Figure 10-60

The window shows the title bar at the top with an App launcher button on the far left, followed by the title One Drive. To the right is the Search bar. Below the title bar is a vertical pane on the left that shows the name Annette Easton, followed by the options such as My files, Recent, Shared, and Recycle bin. My Files option is selected. Under the option is the Quick access category, which includes options such as Office 2021 In Practice and Office 365. Beneath this is the Create shared library option. To the right of the pane are the buttons for New, Upload, and Share at the top. Under that is the address My Files right-pointing arrow P H R E. Below the address is the Name category, which includes a list of files. The cursor is shown on the Word file with a circular checkbox on the left that has not been selected.

Return to Figure 10-60

Figure 10.61 Extended Description (Chapter 10)

Return to Figure 10-61

The Word document shows a drop-down arrow at its left that is clicked to display a menu with two sections: Ribbon Layout and Show Ribbon. The Ribbon Layout sections feature options such as Classic Ribbon and Simplified Ribbon. The Classic Ribbon option is ticked. The Show Ribbon section features options such as Always Show and Automatically Hide. The Always Show option is ticked.

Return to Figure 10-61

Figure 10.62 Extended Description (Chapter 10)

Return to Figure 10-62

The Title bar displays two tabs named P H R E - One Drive and Disclosure Letter-10. The Disclosure Letter-10 tab is selected. On the right corner of the bar, the minimize, maximize, and close buttons are shown. Below that is the Address bar with the back, forward, and undo arrows. This is followed by the address bar, which shows the online address of the Word document. Under that is a 3 by 3 grid of dots with the text Apps next to it. Beneath that, a 3 by 3 grid is shown at the top left, and is labeled App launcher. The document title that is Disclosure Letter-10 is shown beside it. An option for Save with a drop-down arrow is shown next to it. A search bar option is shown to the right. Tabs for File, Home, Insert, Layout, References, Review, View, and Help are shown below on the left. Buttons for Editing, Share, Comments, and Catch Up are shown to the right. The Existing button is labeled. The Home tab is selected, and displays Command groups under it. Besides the Command groups, a drop-down arrow is displayed in the bottom right corner labeled Ribbon Display Options drop-down list. The Work area is displayed below this, and it consists of the document contents.

Return to Figure 10-62

Figure 10.63 Extended Description (Chapter 10)

Return to Figure 10-63

The window shows the title bar at the top with an App launcher button on the far left, followed by the title One Drive. To the right is the Search bar. Below the title bar is a vertical pane on the left that shows the name Annette Easton, followed by the options such as My files, Recent, Shared, and Recycle bin. My Files option is selected. Below the option is the Quick access category, which includes options such as Office 2021 In Practice and Office 365. Under this is the Create shared library option. To the right of the pane are the buttons for New and Upload at the top. The New option is selected. The drop-down menu for the New button is open, and it displays the Folder option, with a drop-down arrow that shows a list of options such as Word Document, Excel workbook, PowerPoint presentation, One Note notebook, Forms for Excel, Visio drawing, and Links.

Return to Figure 10-63

Figure 10.64 Extended Description (Chapter 10)

Return to Figure 10-64

The window shows the title bar at the top with an App launcher button on the far left, followed by the title Excel. To the right is the File name Book, and the Saved option, followed by a Search bar. The Book option is labeled File name in the Title bar. The drop-down for the Saved option is selected and displays the File Name field with the input Volunteer Listing dot x l s x.

Below that is the Location field, showing a folder icon on the left, followed by the text Annette Easton forward arrow Miscellaneous Files. Beneath that, the text Save status and Saved are present. At the bottom left corner, the option for the button Version History is displayed.

Return to Figure 10-64

Figure 10.65 Extended Description (Chapter 10)

Return to Figure 10-65

The window displays a vertical pane at the left with options for Back, Home, New, Open, and three horizontal dots. To the left, the title Print with a list of options is displayed under it. The options show their respective icons to the left. along with a brief description under them. The options, along with their descriptions, are as follows: Print Full Page Slides. One slide per page.

Print Notes Pages. Slides with notes.

Print Handouts. Three slides per page.

The Print Full Page Slides. One slide per page option is selected.

Return to Figure 10-65

Figure 10.66 Extended Description (Chapter 10)

Return to Figure 10-66

The window is divided into two sections that is, Send Link and Copy Link. The section at the top is named Send link and has the close option at the top right. Below this is the button with the text Anyone with the link can edit. This is labeled Link settings button. A globe icon is shown to the left. Under it, a black space with the text For: Name group or email is shown. A pencil icon is shown to the right. Below that is a blank space with the text Message. An icon for Outlook is shown below. A Send button is shown to the right.

The second section at the bottom is named Copy link. This is followed by the button Anyone with the link can edit. A globe icon is shown to the left. A Copy link is shown beside it at the right.

Return to Figure 10-66

Figure 10.67 Extended Description (Chapter 10)

Return to Figure 10-67

The dialog box titled Link settings has a close option shown at the top right corner. It shows the text:

Who would you like this link to work for? This is followed by the Learn More option that has a link attached to it. Under that, a list with options such as Anyone with the link, People in Office In Practice with the link, People with existing access, and Specific people. Each option is preceded by its respective icon to the left. This list is labeled Select who can access the sharing link. Beneath this is the Other settings section, which displays options such as a checkbox for Allow editing, a Toggle button on the right for the option Open in review mode only, Set expiration date, and Set password. The buttons for Apply and Cancel are shown at the bottom right of the dialog box.

Return to Figure 10-67

Figure 10.68 Extended Description (Chapter 10)

Return to Figure 10-68

The dialog box shows a close option at the top right corner. In the center of the box, the text Link to ‘Customer Report-10 dot doc x’ copied, accompanied by a green tick button above it, is shown. A link in a text box is shown under it with a Copy button to the right. The button for Anyone with the link can edit with a globe icon is shown to the left of the dialog box.

Return to Figure 10-68

Figure 10.69 Extended Description (Chapter 10)

Return to Figure 10-69

The Offline Online window is titled Mary's Rentals, Customer Listing. The cursor is shown over the word Rentals with a purple box having the text Annette Easton. This is labeled Collaboration tag. Below the title, a table is shown with 5 columns with the headings: I D, First Name, Last Name, Address, and City.

Return to Figure 10-69

Figure 10.70 Extended Description (Chapter 10)

Return to Figure 10-70

The Ribbon shows the following tabs: References, Review, View, and Help. The Review tab is selected. The Comments Command group is shown below with the options such as New Comment, Delete, with a drop-down arrow, Previous, Next, and Show Comments. The cursor is shown over the Show Comments option. An icon is shown above each option.

Return to Figure 10-70

Figure 10.71 Extended Description (Chapter 10)

Return to Figure 10-71

A dialog box titled Comments has a close button to the right. Under that, to the left, a button for New is shown. A box is shown below with a profile photo. The following information is shown in the box: Annette Easton.

Please verify that item number 11 is on page 2 of the transfer release statement.

A button with an arrowhead pointing to the right is shown below, and the cursor is shown over it. This is labeled Post comment button.

Return to Figure 10-71

Figure 10.72 Extended Description (Chapter 10)

Return to Figure 10-72

A dialog box titled Comments has a close button to the right. Under that, to the left, a button for New is shown. A box is shown below with a profile photo. The following information is shown in the box: Annette Easton.

Please verify that item number 11 is on page 2 of the transfer release statement.

An icon with three horizontal dots is shown at the top right with the cursor over it. This is labeled More thread actions button. A drop-down menu with options preceded by their respective icons is shown. The options are Link to comment (an icon shows two message boxes), Edit comment (an icon shows a pencil), Resolve comment (an icon shows a tick mark), and Delete comment (an icon shows a dustbin).

Return to Figure 10-72

Figure 10.73 Extended Description (Chapter 10)

Return to Figure 10-73

Icons for Settings and Help are shown at the top right. A display photo is shown at the top right corner beside them as well. Below it, the Sort option, followed by a button with three horizontal lines and a drop-down arrow next to is shown. This button is labeled View options button. Besides the View button, the Information button is also shown on the Ribbon. The Sort button has a drop-down arrow that shows options such as List, Compact List, and Tiles. The List option is selected.

Return to Figure 10-73

Figure 10.74 Extended Description (Chapter 10)

Return to Figure 10-74

The window shows the title bar at the top with an App launcher button on the far left, followed by the title One Drive. To the right is the Search bar. Below the title bar is a vertical pane on the left that shows the name Annette Easton, followed by the options such as My files, Recent, Shared, and Recycle bin. My Files option is selected. Below the option is the Quick access category, which includes options such as Office 2021 In Practice and Office 365. Under this is the Create shared library option. To the right of the pane are the buttons for New and Upload at the top. The New option is selected. The drop-down menu for the New button is open, and it displays the Folder option, with a drop-down arrow that shows a list of options such as Word Document, Excel workbook, PowerPoint presentation, One Note notebook, Forms for Excel, Visio drawing, and Links.

Return to Figure 10-74

Figure 10.75 Extended Description (Chapter 10)

Return to Figure 10-75

The Title bar displays two tabs named P H R E - One Drive and Placer Hills. The Placer Hills tab is selected. On the right corner of the bar, the minimize, maximize, and close buttons are shown. Below that is the Address bar with the back, forward, and undo arrows. This is followed by the address bar, which shows the online address of the Excel worksheet. Under that is a 3 by 3 grid of dots with the text Apps next to it. Beneath that, an App launcher button is shown on the far left. An option for Saved with a drop-down arrow is shown next to it. A search bar option is shown to the right. Tabs for File, Home, Insert, Draw, Page Layout, Formula, and Data are shown below on the left. Buttons for Editing, Share, Comments, and Catch Up are shown to the right. The Home tab is selected.

Return to Figure 10-75

Figure 10.76 Extended Description (Chapter 10)

Return to Figure 10-76

The box titled Placer Hills Marketing shows the following bullet points listed under it:

Community Garage Sales (February and October).

Navigating the Home Loan Process (March and November).

Getting Your Home Ready to Sell (May).

Return to Figure 10-76

Figure 10.77 Extended Description (Chapter 10)

Return to Figure 10-77

A dialog box titled Comments has a close button to the right. Under that, to the left, a button for New is shown. A box is shown below with a profile photo. The following information is shown in the box:

Annette Easton followed by the text Confirm these dates with Praveen.

A button with an arrowhead pointing to the right is shown below, and the cursor is shown over it. This is labeled Post comment button.

Return to Figure 10-77

Figure 10.78 Extended Description (Chapter 10)

Return to Figure 10-78

The window is divided into two sections that is, Send Link and Copy Link. The section at the top is named Send link and has the close option at the top right. Below this is the button with the text Anyone with the link can edit. A globe icon is shown to the left. This button is labeled Link settings button. Under it, a black space with the text For: Name group or email is shown. Below that is a blank space with the text Message. An icon for Outlook is shown below. A Send button is shown to the right.

The second section at the bottom is named Copy link. This is followed by the button Anyone with the link can edit. A globe icon is shown to the left. A Copy link is shown beside it at the right.

Return to Figure 10-78

Figure 10.79 Extended Description (Chapter 10)

Return to Figure 10-79

The dialog box titled Link settings has a close option shown at the top right corner. It shows the text:

Who would you like this link to work for? This is followed by the Learn More option that has a link attached to it. Under that, a list with options such as Anyone with the link, People in Office In Practice with the link, People with existing access, and Specific people. Each option is preceded by its respective icon to the left. Beneath this is the Other settings section, which displays options such as a checkbox for Allow editing, Set expiration date, and Set password. The buttons for Apply and Cancel are shown at the bottom right of the dialog box.

Return to Figure 10-79

Figure 10.80 Extended Description (Chapter 10)

Return to Figure 10-80

The window shows a grid of nine dots on the far left of the title bar, labeled App launcher button. To the right is the title Office, followed by the Search bar. Below on the left is the vertical pane, which shows tabs for Home, Create, My Content, Outlook, Teams, Word, Excel, PowerPoint, and Apps. To the right of the pane is the page displaying the text Good morning on the top left. To the far right is the Install Office button. Below on the left is the Recommended feature, which displays two window previews. The left preview is for the Microsoft Word titled P P A 10-2 c, and the right preview is for the Microsoft Excel titled P P A 10-2 b. Below the previews is the Quick Access feature, which includes options such as All, Recently opened, Shared, and Favourites. The All option is selected. To the far right are the List and Grid buttons, which are highlighted. Below the buttons is the Feedback option.

Return to Figure 10-80

Figure 10.81 Extended Description (Chapter 10)

Return to Figure 10-81

The window shows the App launcher button on the top left. Below the button is the heading Microsoft 365, followed by the applications, including Outlook, OneDrive, Word, Excel, PowerPoint, One Note, SharePoint, Teams, Bookings, Yammer, Power Automate, and Forms. Below the apps is the All apps option labeled All apps link.

Return to Figure 10-81

Figure 10.82 Extended Description (Chapter 10)

Return to Figure 10-82

The window shows an App launcher button on the far left of the title bar. To the right is the title Forms, followed by the Search bar. Below on the left is the vertical pane, which shows tabs for Home, Create, My Content, Outlook, Teams, Forms, and Apps. To the right of the pane is the page displaying the New form button on the top left. Below are the tabs for Recent, Pinned, and Shared with me. To the far right is the message area with the text Type to filter list with the filter icon on the right. Below on the left are two form previews. The left preview is for the Custom Survey Form by Annette Barron, and it shows 2 responses. The right preview is for the Rental Property Survey by Annette Barron, and it shows 2 responses. The bottom right of the window shows the Feedback option.

Return to Figure 10-82

Figure 10.83 Extended Description (Chapter 10)

Return to Figure 10-83

The window shows a title bar at the top, which displays an App launcher button on the far left, followed by the title Forms. At the center is the form name, Rental Property Survey. Below the title bar is the toolbar, which shows the Preview, Theme, and Share buttons along with an icon of three horizontally aligned dots labeled More form settings button. Below the toolbar shows two categories, Questions and Responses. Below is the form, which shows a rectangular block at the top with the text Rental Property Survey, labeled Title. On the far right is the Insert image icon labeled Insert image button. Below is another rectangular block, which shows the text Placer Hills Real Estate, labeled Description. Below is a green-highlighted rectangular block that shows a plus symbol, Choice, Text, Rating, and Date buttons, and a drop-down arrow, from left to right. The drop-down arrow is labeled More question types button. To the right of the block is an icon for Question suggestion labeled Question suggestion button. Clicking the drop-down arrow displays a list of options such as Ranking, Likert, File upload, Net Promoter Score, and Section.

Return to Figure 10-83

Figure 10.84 Extended Description (Chapter 10)

Return to Figure 10-84

The window shows two categories: Questions and Responses. Below is the form, which shows a rectangular block at the top with the text Rental Property Survey. Below is another rectangular block, which shows the text Placer Hills Real Estate. Below is the form, which shows the icons for Copy, Delete, an up arrow, and a down arrow, on the far right. The Delete icon is labeled Delete question button, the up arrow is labeled Move question up button, and the down arrow is labeled Move question down button. Below is question numbered 1, with the text What is your monthly budget for rent? Below are two options. Option 1 and Option 2, each with a radio button. Below the options are the Add option and Add “Other” option buttons. Below on the far right are the Multiple answers and Required options, each with a toggle on and off button. The Required toggle button is labeled Required button. The options are followed by a drop-down arrow labeled More settings for question button. Clicking the drop-down arrow displays the options such as Shuffle options, Drop-down, Subtitle, and Add branching. Below the form on the left is the Add new button.

Return to Figure 10-84

Figure 10.85 Extended Description (Chapter 10)

Return to Figure 10-85

The window shows a title bar at the top, with the Back button on the left, and the Computer and Mobile options on the far right. The Computer option is selected. Below is the green-highlighted rectangular block, which displays the title Rental Property Survey, followed by the subtitle Placer Hills Real Estate. Below the block is the text “Hi, Annette. When you submit this form, the owner will see your name and email address.” Below is the asterisk Required field. Below is the numbered list of questions as follows:

Question 1: Your Name asterisk.

Below is the description: Enter your first and last name, followed by the text box with the text Enter your answer.

Question 2: What is your monthly budget for rent? asterisk

Below are the options: less than symbol $1,000, $1,000 to $1,999, and greater than symbol equals $4,000, each with a radio button.

Question 3: Check the locations where you would consider renting. asterisk

Below is the description: Check all options that apply, followed by the options: Auburn, Weimar, and Other, each with a check box.

The bottom left of the window shows the Submit button.

Return to Figure 10-85

Figure 10.86 Extended Description (Chapter 10)

Return to Figure 10-86

The window shows the Preview, Theme, Share, and More form settings buttons at the top. The Share button is selected. Below is the heading, Send and collect responses. Below the headings is the text box with the text Only people in my organization can respond. The text is labeled Select who can respond to the Form. Below is another text box which shows the link h t t p s colon double forward slash forms dot office dot com forward slash Pages forward slash Response. To the right of the text box is the Copy button. Below the text box is the Shorten U R L option with a check box. Below the option are horizontally aligned icons for Link, Q R code, Embed, and Email. The icons Q R code, Embed, and Email are labeled Q R code button, Embed button, and Email button, respectively.

Return to Figure 10-86

Figure 10.87 Extended Description (Chapter 10)

Return to Figure 10-87

The window shows two categories: Questions and Responses. The Questions category is selected. Below is the title 'Rental Property Survey,' with a rectangular block below. The block shows the text highlighted in a bigger font as follows: 9 responses, 01:29 Average time to complete, and Active status. The bottom right of the block shows a three-dot icon labeled More options for Responses button. Below the block is the View results button on the left. On the far right is the Open in Excel option. Below is the form, which shows numbered questions as follows:

Question 1: Your name.

Below is the More Details link. Below the link is the entry 9 Responses, followed by the text Latest Responses, "Noah Bigler", "Roberto Mejias", and "Jung Yoon".

Question 2: What is your monthly budget for rent?

Below is the More details link, followed by the options as follows:

Blue highlighted circle, less than symbol $1,000, and 0.

Orange highlighted circle, $1,000 to $1,999, and 1.

Green highlighted circle, $2,000 to $2,999, and 4.

Red highlighted circle, $3,000 to $3,999, and 4.

Purple highlighted circle, greater than symbol equals $4,000, and 0.

To the right of the options is the pie chart, which shows the data divided into three colored categories: red, green, and orange.

Question 3: Check the locations where you would consider renting.

Below is the More details link, followed by the options as follows:

Blue highlighted circle, Auburn, and 3.

Orange highlighted circle, Lincoln, and 2.

Green highlighted circle, Newcastle, and 2.

Red highlighted circle, Rocklin, and 1.

Voilet highlighted circle, Roseville, and 2.

Brown highlighted circle, Weimar, and 1.

Purple highlighted circle, Other, and 1.

To the right of the options is the bar chart with the Y-axis values as 0, 1, 2, 3, 4, and 5. The bar chart shows seven different colored bars.

Return to Figure 10-87

Figure 10.88 Extended Description (Chapter 10)

Return to Figure 10-88

The window shows a title bar at the top with the Create new and Tutorials options on the far right. Below the title bar shows the three-dimensional background with the text Welcome to Sway. The bottom of the block shows three options: Create New, Start from a topic, and Start from a document. Below the block is the Start from a template category, which includes template previews titled Internal newsletter, External newsletter, and How-to...Below the template previews is the Get inspired by a featured Sway category, which includes Sway previews titled Litware-Contoso Sales Proposal, Contoso Sales Training, and Press Release.

Return to Figure 10-88

Figure 10.89 Extended Description (Chapter 10)

Return to Figure 10-89

The window shows an App launcher button on the far left of the title bar. To the right is the title One Note, followed by the file name P H R E Notebook. Below the title bar is the Ribbon that includes tabs for File, Home, Insert, Draw, View, and Help. To the far right is the Share button. The Home tab is selected. Below is the toolbar, which shows the Undo and Redo buttons on the far left, followed by the Formatting options such as Bold, Italic, Underline, Font color, Alignment, and many more. Below is the Work area, which shows two sections. The left section shows the title P H R E Notebooks. Below the title are the two subheadings, Listings and Sales, and Sales Meeting Notes. The subheading, Listing and Sales is labeled Sections. Below the subheadings is a rectangular block. The Listing Notes option, labeled Pages, is present below the subheading Sales Meeting Notes. The bottom of the section shows the Add section and Add page options. The right section shows the heading Sales Meeting Notes. Below is the date and time mentioned as Saturday, December 18, 2021, 10:06 A M. Below is the heading Meeting Agenda, labeled Page content. The heading is followed by the bulleted points as follows:

Review New State Regulations.

Review Year-To-Date Listings and Sales Numbers.

Brainstorm Ideas for Increasing Listing Marketability.

Return to Figure 10-89

Figure 10.90 Extended Description (Chapter 10)

Return to Figure 10-90

The window shows two categories: Questions and Responses. The Responses category is selected. Below is the form, which shows a rectangular block at the top with the text Rental Property Survey. Below is another rectangular block, which shows the text Placer Hills Real Estate. Below is the form, which shows the icons for Copy, Delete, an up arrow, and a down arrow, on the far right. Below is question numbered 1, with the text Your name. Below is a text box with the text Enter your answer. Below the text box are the Long answer and Required options, each with a toggle on and off button. The Required toggle button is labeled Required button. The options are followed by the three dots icon labeled More settings for question button. Clicking the icon displays the options such as Subtitle, Restrictions, and Add branching. Below the form on the left is the Add new button.

Return to Figure 10-90

Figure 10.91 Extended Description (Chapter 10)

Return to Figure 10-91

The form displays the icons for Copy, Delete, an up arrow, and a down arrow on the far right. Below is question numbered 1 with the text Check the locations where you would consider renting. Beneath that the text, Check all options that apply. Under the text are the options such as Auburn, Lincoln, Newcastle, Rocklin, Roseville, Weimer, and Other, each with a checkbox. Below the options is the Add option button. Beneath that, on the right, are the Multiple answers and Required options, each with a toggle on and off button, followed by the More form question settings button. The bottom left of the form shows the Add new button.

Return to Figure 10-91

Figure 10.92 Extended Description (Chapter 10)

Return to Figure 10-92

The window shows a title bar at the top, with the Back button on the left, and the Computer and Mobile options on the far right. The Mobile option is selected. Below is a mobile screen that displays the blue-highlighted rectangular block. The block displays the title Rental Property Survey, followed by the subtitle Placer Hills Real Estate. The bottom right of the block shows the three horizontally aligned dots illustrating the More settings button. Under it is the asterisk Required field. Beneath that is the numbered list of questions as follows:

Question 1: Your Name asterisk.

Below is the description: Enter your first and last name, followed by the text box with the text Enter your answer.

Question 2: What is your monthly budget for rent? asterisk

Below are the options: less than symbol $1,000, $1,000 to $1,999, $2,000 to $2,999, and $3,000 to $3,999, each with a radio button.

Return to Figure 10-92

Figure 10.93 Extended Description (Chapter 10)

Return to Figure 10-93

The window shows the Preview, Theme, Share, and More form settings buttons at the top. The Share button is selected. Below is the heading, Send and collect responses. Beneath the headings is the text box with the text Anyone can respond. The text box is labeled Select who can respond to the Form. Under it is another text box which shows the link h t t p s colon double forward slash forms dot office dot com forward slash Pages forward slash Response. To the right of the text box is the Copy button. Below the text box is the Shorten U R L option with a check box. Under the option are horizontally aligned buttons for Link, Q R code, Embed, and Email.

Return to Figure 10-93

Figure 10.94 Extended Description (Chapter 10)

Return to Figure 10-94

The window shows two categories: Questions and Responses. The Responses category is selected. Below is the title 'Rental Property Survey,' with a rectangular block below. The block shows the text highlighted in a bigger font as follows: 2 responses, 00:16 Average time to complete, and Active status. The bottom right of the block shows a three-dot icon labeled More options for Responses button. Under the block is the View results button on the left. On the far right is the Open in Excel option. Beneath it is the form, which shows numbered questions as follows:

Question 1: Your name.

Below is the More Details link. Below the link is the entry 2 Responses, followed by the text Latest Responses, "Professor Name", and "Student Name".

Question 2: What is your monthly budget for rent?

Below is the More details link, followed by the options as follows:

Blue highlighted circle, less than symbol $1,000, and 0.

Orange highlighted circle, $1,000 to $1,999, and 1.

Green highlighted circle, $2,000 to $2,999, and 0.

Red highlighted circle, $3,000 to $3,999, and 1.

Purple highlighted circle, greater than symbol equals $4,000, and 0.

To the right of the options is the pie chart, which shows the data divided into two colored categories: red and orange.

Question 3: Check the locations where you would consider renting.

Below is the More details link, followed by the options as follows:

Blue highlighted circle, Auburn, and 0.

Orange highlighted circle, Lincoln, and 1.

Green highlighted circle, Newcastle, and 2.

Red highlighted circle, Rocklin, and 0.

Voilet highlighted circle, Roseville, and 1.

Brown highlighted circle, Weimar, and 0.

Purple highlighted circle, Other, and 0.

To the right of the options is the bar chart with the Y-axis values as 0, 1, and 2. The bar chart shows three different colored bars: orange, green, and violet.

Return to Figure 10-94

Figure 10.95 Extended Description (Chapter 10)

Return to Figure 10-95

The field Customize Quick Access Toolbar with an information icon on its right shows the input For all documents (default) which is accompanied by a drop-down arrow. Below that is a blank rectangular block. The Up and Down arrow buttons are shown to the right of this block. The button for Modify is shown below the block. The Customizations field with the input Reset followed by an information icon is displayed under that. The drop-down for the Reset option is expanded and shows the Reset only Quick Access Toolbar and Reset all customizations. The cursor is shown over the Reset all customizations option.

Return to Figure 10-95

Figure 10.96 Extended Description (Chapter 10)

Return to Figure 10-96

The dialog box titled Access Options has the Help and Close buttons located at the top right corner. Below that, the left pane shows the following options: General, Current Database, Datasheet, Object Designers, Proofing, Language, Client Settings, Customize Ribbon, Quick Access Toolbar, Add-ins, and Trust Center. The Quick Access Toolbar option is selected. The section to the right titled Customize the Quick Access Toolbar is divided into two vertical sections displayed next to each other. The section on the left displays the field Choose commands from (an information icon is shown) with the input Popular Commands, which is accompanied by a drop-down arrow. Below that, a rectangular block lists various options. Beneath that, a checked checkbox for the Show Quick Access Toolbar option is present, followed by the Toolbar Position field showing the input Above Ribbon, along with a drop-down arrow. Under that, another checked checkbox for the Always show command labels option is shown. The section on the right displays the field Customize Quick Access Toolbar (an information icon is shown) with the input For all documents (default), which is accompanied by a drop-down arrow. The drop-down arrow is selected to display a list with the option For C: backslash My Work backslash [your initials] Access 10-1 dot a c c d b. This option is labeled Customize the Quick Access toolbar on the selected database only. Below that is a blank rectangular block. The Up and Down arrow buttons are shown to the right of this block. The button for Modify is shown below the block. The Customizations field with the input Reset followed by an information icon is displayed under that. The drop-down with the input Import or Export, followed by an information icon, is shown beneath that. In between the blocks for the two sections, buttons for Add and Remove are shown. The buttons for OK and Cancel are shown at the bottom right of the dialog box.

Return to Figure 10-96

Figure 10.97 Extended Description (Chapter 10)

Return to Figure 10-97

The window shows the title bar at the top with an App launcher button on the far left, followed by the title One Drive. To the right is the Search bar. Below the title bar is a vertical pane on the left that shows the name Annette Easton, followed by the options such as My files, Recent, Shared, and Recycle bin. My Files option is selected. Below the option is the Quick access category, which includes options such as Office 2021 In Practice and Office 365. To the right of the pane are the buttons for New, Upload, and Share at the top. Beneath that is the address My Files, right-pointing arrow Music. Below the address is the Name category, which includes files such as New Album-10 dot x l s x and [your initials] Access 10-1 dot a c c d b.

Return to Figure 10-97

Figure 10.98 Extended Description (Chapter 10)

Return to Figure 10-98

The window is divided into two sections that is, Send Link and Copy Link. The section at the top is named Send link and has the close option at the top right. Below this is the button with the text Anyone with the link can edit. A globe icon is shown to the left. Under it, a black space with the text For: Name group or email is shown. This is labeled Link settings button. Below that is a message with the following content: Hello Professor,

I shared the [your initials] Access 10-1 file with you.

Your Name. An icon for Outlook is shown below. A Send button is shown to the right.

The second section at the bottom is named Copy link. This is followed by the button Anyone with the link can edit. A globe icon is shown to the left. A Copy link is shown beside it at the right.

Return to Figure 10-98

Figure 10.99 Extended Description (Chapter 10)

Return to Figure 10-99

The dialog box titled Access Options has the Help and Close buttons located at the top right corner. Below that, the left pane shows the following options: General, Current Database, Datasheet, Object Designers, Proofing, Language, Client Settings, Customize Ribbon, Quick Access Toolbar, Add-ins, and Trust Center. The Customize Ribbon option is selected. The section to the right titled Customize the Ribbon is divided into two vertical sections displayed next to each other. The section on the left displays the field Choose commands from (an information icon is shown) with the input All Commands, which is accompanied by a drop-down arrow. Below that, a rectangular block lists various options. The section on the right displays the field Customize the Ribbon (an information icon is shown) with the input Main Tabs, which is accompanied by a drop-down arrow. Below that, a rectangular block lists various options along with a checked checkbox. The options shown are Print Preview, Home, Create, External Data, and Database Tools. The Up and Down arrow buttons are shown to the right. Buttons for New tab, New Group, and Rename are shown below the block. The Customizations field with the input Reset followed by an information icon is displayed under that. The drop-down with the input Import or Export, followed by an information icon, is shown beneath that. In between the blocks for the two sections, buttons for Add and Remove are shown. The buttons for OK and Cancel are shown at the bottom right of the dialog box.

Return to Figure 10-99

Figure 10.100 Extended Description (Chapter 10)

Return to Figure 10-100

The Ribbon displays the following tabs at the top: File, Home, Create, External Data, Database Tools, and Help. A search bar is shown to the right with the text, Tell me what you want to do. The Home tab is selected. Command groups for Undo, Views, Clipboard, Sort and Filter, Records, Find, Annette, and Text formatting are shown below.

Return to Figure 10-100

Figure 10.101 Extended Description (Chapter 10)

Return to Figure 10-101

The Ribbon displays the following tabs at the top: File, Home, Create, External Data, Database Tools, and Help. A search bar is shown to the right with the text, Tell me what you want to do. The Home tab is selected. Command groups for Undo, Views, Clipboard, Sort and Filter, Records, Find, Annette, and Text formatting are shown below. The icon for each option is shown above it. Besides this, a drop-down arrow is displayed in the bottom right corner.

Return to Figure 10-101

Figure 10.102 Extended Description (Chapter 10)

Return to Figure 10-102

The document shows a section at the top titled Example One. Under that, a block that displays the document address C: backslash Annette Files backslash Annette Miscellaneous Folders backslash McGraw Hill Files backslash Microsoft Office- Access Files backslash Microsoft Access 2021 and 365 backslash Access Chapter 10- Solution Files backslash [your, on the left. To the right is the date Saturday, December 18, 2021. Beneath this is a table named Properties, followed by various properties with their values. Below this is a section titled Example Two. Under that, a block that displays the document address C: backslash 1-Office 2021 Files- copied 12-17-21 backslash Office 2021 Chapter 10 backslash Chapter 10-Solution Files backslash [your initials] Access 10-2 dot a c c d b, on the left. Below the address is the table name that is Table: Physicians. This is highlighted and labeled Table name displays when the file path is shorter. To the right is the date Saturday, December 18, 2021. Below the date is the page number, Page: 1. Beneath this is a table named Properties, followed by various properties with their values.

Return to Figure 10-102

Figure 10.103 Extended Description (Chapter 10)

Return to Figure 10-103

A block displays the document address C: backslash My Work [your initials] Access 10-2 dot a c c d b, on the left. Below the address is the text, Physicians Table Information. This text is highlighted. Beneath this is a table named Properties.

Return to Figure 10-103

Figure 10.104 Extended Description (Chapter 10)

Return to Figure 10-104

A block displays the document address C: backslash My Work [your initials] Access 10-2 dot a c c d b, on the left. Below the address is the text, Rent Invoices Table Information. This text is highlighted. Beneath this is a table named Properties.

Return to Figure 10-104

Figure 10.105 Extended Description (Chapter 10)

Return to Figure 10-105

A dialog box titled Comments has a close button to the right. Under that, to the left, a button for New is shown. A box is shown below with a profile photo. The following information is shown in the box: Annette Easton.

Javier, please review to see if additional changes need to be made to these two tables.

A button with an arrowhead pointing to the right is shown below, and the cursor is shown over it.

Return to Figure 10-105

Figure 10.106 Extended Description (Chapter 10)

Return to Figure 10-106

The window is divided into two sections that is, Send Link and Copy Link. The section at the top is named Send link and has the close option at the top right. Below this is the button with the text Anyone with the link can view. A globe icon is shown to the left. Beneath that ab contact icon with an email I D followed by a close button is displayed. Under it, a black space with the text Add another is shown. A pencil icon with a line over it is shown to the right. Under this, an information icon is shown with a note: instructor_email at college dot e d u is outside of your organization. Below that is a message with the contents: Professor, I shared the Courtyard Medical Plaza database documentation with you.

Your Name. An icon for Outlook is shown below. A Send button is shown to the right.

The second section at the bottom is named Copy link. This is followed by the button Anyone with the link can view. A globe icon is shown to the left. A Copy link is shown beside it at the right.

Return to Figure 10-106

Figure 10.107 Extended Description (Chapter 10)

Return to Figure 10-107

A block displays the document address C: backslash My Work backslash [your initials] Access 10-2 dot a c c d b, on the left. To the right is the date Saturday, December 18, 2021. Besides, this is the Comments icon. Below the address is the text, Physicians Table Information. This text is highlighted. Beneath this is a table named Properties, followed by various properties with their values. To the right of the document area, a box is shown with a profile photo on the left. A pencil icon and a three-dot icon are shown at the top right. The following information is shown in the box:

Annette Easton.

Javier, please review to see if additional changes need to be made to these two tables. Under that is a text box with the text At mention or reply.

Return to Figure 10-107

Figure 10.108 Extended Description (Chapter 10)

Return to Figure 10-108

The dialog box titled Access Options has the Help and Close buttons located at the top right corner. Below that, the left pane shows the following options: General, Current Database, Datasheet, Object Designers, Proofing, Language, Client Settings, Customize Ribbon, Quick Access Toolbar, Add-ins, and Trust Center. The Quick Access Toolbar option is selected. The section to the right titled Customize the Quick Access Toolbar is divided into two vertical sections displayed next to each other. The section on the left displays the field Choose commands from (an information icon is shown) with the input Popular Commands, which is accompanied by a drop-down arrow. Below that, a rectangular block lists various options. Beneath that, a checked checkbox for the Show Quick Access Toolbar option is present, followed by the Toolbar Position field showing the input Above Ribbon, along with a drop-down arrow. Under that, another checked checkbox for the Always show command labels option is shown. The section on the right displays the field Customize Quick Access Toolbar (an information icon is shown) with the input For all documents (default), which is accompanied by a drop-down arrow. The drop-down arrow is selected to display a list with the option For C: backslash My Work backslash [your initials] Access 10-2 dot a c c d b. Below that is a blank rectangular block. The Up and Down arrow buttons are shown to the right of this block. The button for Modify is shown below the block. The Customizations field with the input Reset followed by an information icon is displayed under that. The drop-down with the input Import or Export, followed by an information icon, is shown beneath that. In between the blocks for the two sections, buttons for Add and Remove are shown. The buttons for OK and Cancel are shown at the bottom right of the dialog box.

Return to Figure 10-108

Figure 10.109 Extended Description (Chapter 10)

Return to Figure 10-109

The Access Database consists of a Title bar at the top, followed by a Ribbon below. The Title bar has the Datasheet View, Save, Excel, Print, Quick Access toolbar, drop-down arrow buttons, followed by the file name, San Diego Sailing, beside it. Below that, the Ribbon has tabs for File, Home, Create, and External Data. The Home tab is selected.

Return to Figure 10-109

Figure 10.110 Extended Description (Chapter 10)

Return to Figure 10-110

The document shows the rows ranging from 76 to 85, and columns ranging from A to I. The document displays a table that consists of 6 columns and 4 rows. The row entries are as follows:

Row 1: 08087, 1235, 7/26/2022, TRUE, 1494, and $105.00.

Row 2: 08088, 1168, 7/26/2022, FALSE, 1075, and $319.00.

Row 3: 08089, 1003, 7/29/2022, FALSE, and 1197, $149.00.

Row 4: 08090, 1235, 7/29/2022, TRUE, and 1168, $105.00.

The rows 81 and 82 show the text $206.64 Average Rental Revenue, $16,274.00 Total Rental Revenue, under the columns F, G, and H. The status bar at the bottom of the document shows the tab for S D Rentals.

Return to Figure 10-110

Figure 10.111 Extended Description (Chapter 10)

Return to Figure 10-111

The document is titled Central Sierra Insurance. Below the title is the heading Roadmap to Retirement. Under that is the subheading Presented by the Human Resource Department. Below the subheading is the text “Get ahead of the curve or create a plan to catch up. This lunch and learn workshop will discuss:” Below the text are the bulleted lists as follows:

Determine your needs for retirement income.

Plan beyond Social Security.

How much should you save each year.

Finding the money to invest.

Return to Figure 10-111

Figure 10.112 Extended Description (Chapter 10)

Return to Figure 10-112

The window shows a title bar at the top, with the Back button on the left, and the Computer and Mobile options on the far right. The Computer option is selected. Below is the green-highlighted rectangular block, which displays the title [your initials] Form 10-4, followed by the subtitle Central Sierra Insurance Checkup. Below the block is the text “Hi, Annette. When you submit this form, the owner will see your name and email address.” Under that is the asterisk Required field. Beneath it is the numbered list of questions as follows:

Question 1: Your Name asterisk.

Below is the text box with the text Enter your answer.

Question 2: I would like to schedule an appointment to review my insurance policy. asterisk

Below is the text Select Yes or No, followed by a text box with a text Select your answer and a drop-down arrow on the right.

Question 3: Best time to contact you.

Below is the text box with the text Select your answer

The bottom left of the window shows the Submit button.

Return to Figure 10-112

Figure 10.113 Extended Description (Chapter 10)

Return to Figure 10-113

The window shows the title bar at the top with an App launcher button on the far left, followed by the title One Drive. To the right is the Search bar. Below the title bar is a vertical pane on the left that shows the name Annette Easton, followed by the options such as My files, Recent, Shared, and Recycle bin. My Files option is selected. Below the option is the Quick access category, which includes options such as Office 2021 In Practice and Office 365. Under this is the Create shared library option. To the right of the pane are the buttons for New, Upload, Share, and Copy at the top. Beneath that is the address My Files right-pointing arrow A R C C. Below the address is the Name category, which includes files such as [your initials] Access_Export 10-6 dot x l s x, Cycling Calendar A R C C - 10 dot docx, Training Log - 10 dot docx.

Return to Figure 10-113

Figure 10.114 Extended Description (Chapter 10)

Return to Figure 10-114

The application shows a Quick Access toolbar at the top, which includes Datasheet View, Save, View options, Design wizard, and External Data import or export buttons, from left to right, followed by a drop-down arrow. Below the toolbar is the Ribbon that contains tabs for File, Home, Create, and External Data.

Return to Figure 10-114

Unnumbered Figure 1 Extended Description (Appendix B)

Return to Unnumbered Figure 1

The memo is titled MEMORANDUM in all capital letters and is centered at the top of the page. An annotation points to the title, stating, Memo title is centered and typed in all caps. TS or DS after title. Below the title is the heading section. An annotation points to the guidewords TO: , FROM: , DATE: , and SUBJECT: , explaining, Memo guidewords are typed in all caps followed by a colon. The information following the guidewords is aligned on a left tab stop. An annotation points to this aligned text and reads, Information after the guidewords lines up at 1 . Set a 1 left tab stop if necessary. DS after each line. The heading section reads: TO: All ARCC Club Members FROM: Taylor Mathos, ARCC Coach DATE: January 12, 2027 SUBJECT: Heart Rate Training An annotation points to the space after the SUBJECT line, stating, TS or DS after subject line. Spacing should be consistent with the spacing after the title. The body of the memo follows. An annotation points to the body paragraphs and explains, SS body paragraphs with a DS (two Enters) after each paragraph. The first paragraph begins, What is Maximum Heart Rate? The maximum heart rate is the highest your pulse rate can get. To calculate your predicted maximum heart rate, use this formula: Below this paragraph, the following formula is centered: 220 – Your Age = Predicted Maximum Heart Rate (Example: a 40-year-old's predicted maximum heart rate is 180.) The second paragraph reads, Your actual maximum heart rate can be determined by a graded exercise test. Please note that some medications and medical conditions might affect your maximum heart rate. If you are taking medicines or have a medical condition (such as heart disease, high blood pressure, or diabetes), always ask your doctor if your maximum heart rate/target heart rate will be affected. The third paragraph reads, You gain the most benefits and decrease the risk of injury when you exercise in your Target Heart Rate Zone. Usually this is when your exercise heart rate (pulse) is 60 percent to 80 percent of your maximum heart rate. Do not exercise above 85 percent of your maximum heart rate. This increases both cardiovascular and orthopedic risk and does not add any additional benefit. At the bottom of the memo, after the last paragraph, are the lowercase initials yoi . An annotation points to these initials and explains, DS after last body paragraph and type reference initials. Typist's initials are typed in lowercase with no spaces or punctuation. Omit if the writer is also the typist. The image also uses paragraph symbols to indicate where to press Enter for correct spacing, such as after the title, after each line in the heading, between paragraphs, and before the reference initials.

Return to Unnumbered Figure 1

Unnumbered Figure 2 Extended Description (Appendix B)

Return to Unnumbered Figure 2

The letter is dated September 1, 2027. An annotation for the date line states: Date line: Press Enter five times before the date line or use 72 pt. Before paragraph spacing on the date line for an average-length business letter. QS after date line. The inside address is for Mrs. Cammie Speckler at Hartford Specialty, 4788 Market Street, Suite A205, San Francisco, CA 95644. The annotation for the inside address reads: Inside Address: SS each line and DS after the last line. Use proper USPS format for the address. The salutation is Dear Mrs. Speckler. Its annotation says: Salutation: Use courtesy title and last name. DS after. Open Punctuation: No colon after the salutation. The subject line is RE: Valley Custom Manufacturing. The annotation for this optional element is: Subject Line: Optional. DS after. The body of the letter consists of three paragraphs. The first paragraph begins, Central Sierra Insurance has insured Valley Custom Manufacturing (VCM) for over 20 years... The second paragraph starts, Valley Custom Manufacturing are best known as a manu... The third paragraph begins, Thank you for your careful... The annotation for the body reads: Body: SS body paragraphs with a DS after each paragraph. The complimentary close is Sincerely. Its annotation explains: Complimentary Close: DS after body to type the complimentary close. QS after. Open Punctuation: No comma after the complimentary close. The writer's signature block shows the name Jennie Owings and the title Vice President. The annotation for this section states: Writer's Name and Title: Name and title can be typed on the same line or separate lines. Company name can also be included after title. DS after last line. Below the signature block are several notations. The reference initials are yoi. The corresponding annotation says: Reference Initials: Use lowercase letters and no punctuation. Next is the enclosure notation, Enclosures (2). Its annotation reads: Enclosure Notation: If needed. SS before. This is followed by the copy notation, c Bob Lingle. The annotation for this is: Copy Notation: If needed. SS before. Finally, there is a postscript: P.S. Last year's policy will be faxed to you. The annotation for the postscript says: Postscript: If needed. DS before. The image uses paragraph marks to visually represent the spacing between sections, such as a quadruple space (QS) after the date and complimentary close, and a double space (DS) after the inside address, salutation, and between body paragraphs.

Return to Unnumbered Figure 2

Unnumbered Figure 3 Extended Description (Appendix B)

Return to Unnumbered Figure 3

The letter is dated September 1, 2027, and is addressed to Mrs. Cammie Speckler at Hartford Specialty. Paragraph symbols are used to show line breaks. The annotations provide the following instructions: For the date line, September 1, 2027, which is tabbed to the horizontal midpoint, the instructions are: Modified Block: Set left tab stop at the horizontal midpoint (3.25 when using 1 default left and right margins). and Date line: Press Enter five times before the date line or use 72 pt. Before paragraph spacing on the date line for an average-length business letter. QS after date line. For the inside address, which is left-aligned and reads Mrs. Cammie Speckler, Hartford Specialty, 4788 Market Street, Suite A205, San Francisco, CA 95644, the instruction is: Inside Address: SS each line and DS after the last line. Use proper USPS format for the address. For the salutation, Dear Mrs. Speckler:, the instructions are: Salutation: Use courtesy title and last name. DS after. and Mixed Punctuation: Colon after the salutation. For the subject line, SUBJECT: Valley Custom Manufactu..., the instruction is: Subject Line: Optional. DS after. For the body of the letter, which consists of three left-aligned paragraphs, the instruction is: Body: SS body paragraphs with a DS after each paragraph. For the complimentary close, Sincerely,, which is tabbed to the horizontal midpoint, the instructions are: Complimentary Close: DS after body., Modified Block: Tab to the horizontal midpoint. QS after., and Mixed Punctuation: Comma after the complimentary close. For the writer's name and title, Jennie Owings, Vice President, which is also tabbed to the horizontal midpoint, the instruction is: Writer's Name and Title: Tab to the horizontal midpoint. DS after last line. Below the signature block, the following left-aligned elements are shown with their formatting rules: Reference Initials yoi: Use lowercase letters and no punctuation. Enclosure Notation Enclosures (2): If needed. SS before. Copy Notation c Bob Lingle: If needed. SS before. Postscript P.S. Last year's policy will be faxed to...: If needed. DS before. The abbreviations used in the instructions are SS for single space, DS for double space, and QS for quadruple space.

Return to Unnumbered Figure 3

Unnumbered Figure 4 Extended Description (Appendix B)

Return to Unnumbered Figure 4

The letter is from Mark Dillard to Ms. Geneva Song. The letter begins with the date line, March 22, 2027. An annotation points to this and reads: Date line: Press Enter five times before the date line or use 72 pt. Before paragraph spacing on the date line for an average-length business letter. QS after date line. The symbol for a paragraph break appears multiple times to indicate spacing. Below the date line, after a quadruple space, is the inside address. An annotation reads: Inside Address: SS each line and DS after the last line. Use proper USPS format for the address. The address is: Ms. Geneva Song, Central Sierra Insurance, 5502 Ridley Way, Cameron Park, CA 94463. After a double space, the salutation appears: Dear Ms. Song:. The annotation for this part says: Salutation: Use courtesy title and last name. DS after. Mixed Punctuation: Colon after the salutation. Following the salutation, after a double space, is the body of the letter, which consists of three paragraphs. An annotation points to the body and reads: Body: SS body paragraphs with a DS after each paragraph. The first paragraph reads: I am interested in the position of Marketing Director listed on Career Finder. I will be receiving my bachelor's degree in Business Communication and Computer Science in May. I also have internship and educational experience in sales, sales analysis, graphic design, event planning, customer service, and distribution logistics. The second paragraph reads: As a small business owner, I have direct sales experience. I have developed programs to increase sales among existing customers and to expand the customer base. Flyers, and brochures are still useful, but a company website is the strongest path to connect with customers. Web sites offers exceptional flexibility in reaching a target audience with a message. My training in the most current and effective methods of web development and business communication will benefit your company and customers. The third paragraph reads: The combination of actual work experience and contemporary and relevant education makes me a candidate who is very suitable to be your marketing director. My resume is enclosed. I look forward to meeting you in person to further discuss this opportunity. Feel free to schedule an appointment at your convenience. After a double space, the complimentary close is Sincerely,. The annotation for this section states: Complimentary Close: DS after body to type the complimentary close. QS after. Mixed Punctuation: Comma after the complimentary close. Following a quadruple space for the signature, is the writer's typed name and address. The annotation reads: Writer's Name and Address: SS after each line. Use proper USPS format for the address. The name and address are: Mark Dillard, 6784 Akers Road, Sacramento, CA 95841. Finally, after a double space, is the enclosure notation, Enclosure. The annotation for this says: Enclosure Notation: If needed. DS before.

Return to Unnumbered Figure 4

Unnumbered Figure 5 Extended Description (Appendix B)

Return to Unnumbered Figure 5

An image displays an example of a business letter formatted in the modified block style, with detailed annotations explaining the formatting rules for each part. The letter is from Mark Dillard to Ms. Geneva Song. At the top, the date March 22, 2027 is tabbed to the center. An annotation for this Modified Block style states: Set left tab stop at the horizontal midpoint (3.25 when using 1 default left and right margins). A second annotation for the Date line explains: Press Enter five times before the date line or use 72 pt. Before paragraph spacing on the date line for an average-length business letter. QS after date line. Below the date and aligned to the left margin is the Inside Address, which reads: Ms. Geneva Song, Central Sierra Insurance, 5502 Ridley Way, Cameron Park, CA 94463. The corresponding annotation instructs: Inside Address: SS each line and DS after the last line. Use proper USPS format for the address. Following a double space is the Salutation: Dear Ms. Song. The annotation for this part reads: Salutation: Use courtesy title and last name. DS after. Open Punctuation: No colon after the salutation. Next is the Subject Line: Subject: Marketing Director. The annotation notes: Subject Line: Optional. DS after. The Body of the letter consists of three paragraphs, all aligned to the left margin. The first paragraph begins, I am interested in the position of Marketing Director... The second paragraph starts, As a small business owner, I have direct sales experience... The third paragraph begins, The combination of actual work experience and contemporary skills... An annotation for the body specifies: Body: SS body paragraphs with a DS after each paragraph. After the body, the Complimentary Close, Sincerely, is tabbed to the horizontal midpoint. The annotation for this section provides several instructions: Complimentary Close: DS after body to type the complimentary close. QS after. Modified Block: Tab to the horizontal midpoint. QS after. Open Punctuation: No comma after the complimentary close. Below the complimentary close, also tabbed to the horizontal midpoint, is the Writer's Name and Address: Mark Dillard, 6784 Akers Road, Sacramento, CA 95841. The annotation explains: Writer's Name and Address: SS after each line. Use proper USPS format for the address. Modified Block: Tab to the horizontal midpoint. At the bottom left of the page is the Enclosure Notation, which reads Enclosure. The annotation for this part states: Enclosure Notation: If needed. DS before. Throughout the letter, paragraph symbols are used to indicate line breaks, illustrating single spacing (SS), double spacing (DS), and quadruple spacing (QS).

Return to Unnumbered Figure 5

Glossary

.accdb
: The file format of an Access database.

Access Executable Database (ACCDE) file
: Database file type that prevents users from creating new forms or reports, or from using *Design* view to change existing forms and reports; compiles all of the macro code; uses an extension of .accde; also called a locked database or an executable file.

Access Options
: Dialog box that allows users to customize global Access settings.

accessible form
: Ensures that all users, including those with disabilities, are able to understand and use the form.

action
: Individual command inside of a macro.

action query
: Query that makes changes to the data records in a database.

add-ins
: Programs that add specialized functionality to your Office programs.

aggregate function
: Function that performs calculations on a group of records such as *Avg*, *Count*, and *Sum*.

Allow Additions property
: Form property that controls whether the user is allowed to enter data into the database.

Allow Deletions property
: Form property that controls whether the user is allowed to delete a record from the database.

Allow Edits property
: Form property that controls whether the user is allowed to change data in the database.

Allow Value List Edits property
: Lookup field property that determines if a user can edit the choices in the drop-down list.

Anchoring button
: Tool used to select options to keep a control in a certain position on a form.

AND logical operator
: Operator that requires that a record meet all of the individual conditions to be included in the results.

append query
: Action query that copies records from one or more tables and adds the records into another table.

append row
: Last row in a table, indicated by an asterisk; you enter data values into the fields in the append row to add a new record into the table.

Application Log
: Table that displays details about errors encountered when data macros execute.

Application Parts
: Pre-built database parts that can be added into an existing database.

argument
: Piece of information required by a macro action.

ascending order
: Sort order that arranges data from lowest to highest for a numeric field or from A to Z for a text field.

attribute
: Details about an entity; similar to a field of an object or table.

AutoExec macro
: Macro that runs automatically when a database is first opened.

AutoNumber data type
: Data type used to store a unique number; automatically assigned by Access.

Axis (Category) field
: Field that maps to the horizontal axis (X-axis) in a chart; used to show the categories of the data.

back-end database
: Part of a split database that contains the database tables.

background image
: Graphic image displayed as the background of a form.

Backstage view
: Area of an Office application where you perform common actions (such as *Save*, *Open*, *Print*, and *Share*) and change application options document properties are displayed here.

Blank desktop database
: Command used to create a new database from scratch.

bound control
: Control that gets its value from a field in a table.

bound form
: Form that is directly connected to a table or query as the data source.

button
: Use to apply a command or open a dialog box in Office applications.

Button control
: Control on a form or report that performs an action when clicked; also known as a *Command Button* control.

calculated control
: Control that gets its value from an expression.

calculated field
: Field that gets its value from a calculation instead of a value that is entered into the field.

candidate keys
: Fields that could have been selected as the primary key.

Caption property
: Field property used to create a caption that displays in the column header in *Datasheet* view of a table and in the labels on forms and reports; captions often include spaces and multiple words and are more readable than field names.

cardinality
: Type of relationship; either one-to-one, one-to-many, or many-to-many.

Cascade Delete Related Records
: Referential integrity option that allows you to delete a record from a table even if there are matching records in related tables; also deletes all matching records from related tables.

Cascade Update Related Fields
: Referential integrity option that allows a primary key value to be changed in a record in one table and automatically updates the foreign key values in matching records in related tables.

category
: Highest organizational level in the *Navigation Pane.*

chart
: Visual representation of numeric data that can be added to a report.

check box
: Box that allows you to choose one or more from a group of options.

Check box control
: Control on a form or report used to display data for a field with a *Yes/No* data type; when used on a form, it can also accept data when a user enters a value.

column heading field
: Field that contains the different values that display in the top row of a crosstab query.

columnar layout
: Form or report layout that displays the fields in one column with the field names displayed to the left of the field.

Comma Separated Value (CSV) file
: Delimited text file where each field is separate by a comma.

Command Button control
: Control on a form or report used to perform an action such as *Close Report* or *Open Form.*

Command Button Wizard
: Tool that guides you through the steps of creating a command button control and assigning an action to the button.

comment
: Note in a macro used to document the design or usage of the macro; most common program flow statement.

Compact & Repair Database
: Database utility that removes unused space from a database to help improve performance; can be used to repair a database in which some objects have become corrupted.

comparison operator
: A symbol, such as = or >, used to compare two values in an expression.

completeness rule
: Data integrity rule that ensures a value is entered if required.

compound criteria
: Criteria used in filters or expressions that combine more than one value using the *AND* and *OR* logical operators.

concatenate
: Combine multiple parts of an equation together into one piece; often used in an expression to combine several fields together.

concatenated primary key
: Primary key made up of more than one field; also known as a composite key.

conditional formatting

Format settings that are automatically applied to data values based on rules, rankings, or other criteria.

Conditional Formatting Rules Manager
: Tool used to create, edit, and delete conditional formatting rules.

Connected Service
: Third-party services users can add to Office application programs, such as Facebook, LinkedIn, and YouTube.

consistency rule
: Data integrity rule that ensures a value in one field is consistent with a value in another field.

constant
: A typed or hardcoded value in a formula.

context menu
: Menu of commands that appears when you right-click text or an object.

context-sensitive
: Describes menu options that change depending on what you have selected.

contextual tabs
: *Ribbon* tabs that become available when working on different tasks.

control
: Item on a form or report such as a text box, label, or command button; used to enter, edit, or display data, or perform tasks in the database.

control layout
: Structure that helps to align the different controls on a form or report.

Control Margins property
: Property used to control the amount of margin space around the text inside a control on a form or report.

Control Padding property
: Property used to control the amount of space between controls on a form or report.

Control Source property
: Property that identifies the source of data for the control.

Control Wizards
: Tool that directs Access to launch an available wizard when adding controls to an object in the database; for example, the *Control Wizards* tool must be turned on for the *Command Button Wizard* to activate.

Copilot
: Microsoft's generative artificial intelligence product; used to improve productivity and efficiency when performing tasks.

crosstab query
: Query that summarizes data in a row/column format.

Crow's Foot notation
: Common way to represent entities and relationships in an ERD; a single line indicates a "one," and a crow's foot indicates a "many."

Data Entry property
: Form property that determines whether existing data in the database is displayed on the form.

data format rule
: Data integrity rule that ensures a value entered into a field matches the data type of the field.

data integrity rules
: A set of rules that ensures data in a database is accurate and consistent.

data macro
: Macro used to automate tasks related to database tables.

Data Source property
: Property in a chart that controls which data fields are available to use in the chart.

Data Type property
: Field property that determines the type of data that can be entered in a field, what properties can be manipulated, and how that field is used.

data validation
: Process of verifying the accuracy of data entered into a table.

database
: An organized collection of integrated and related tables.

Database Documenter
: Tool used to view and print details about the objects in a database.

database management system (DBMS)
: Software that allows a user to create a database; the data in the database is managed by adding, deleting, and updating records; sorting and retrieving data; and creating queries and reports relating to that data.

Database Properties
: Details and information about the database.

Database Splitter
: Tool used to create the back-end and front-end databases.

datasheet layout

Form layout that displays the fields in *Datasheet* view.

Datasheet view
: View option that allows you to enter, modify, view, or delete data; available in a table, query, or form.

Date() function
: Function that obtains the current date from your computer.

Default Value property
: Field property that sets a value to automatically be entered into a field.

delete query
: Action query that deletes records from a table.

delimited text file
: Text file where each field is separated by a character or tab.

descending order
: Sort order that arranges data from highest to lowest for a numeric field or from Z to A for a text field.

Design view
: View option that allows you to build or modify the basic structure or functionality of a database object.

Detail section
: Section of a report or form that displays the fields from each record.

dialog box
: Window that opens and displays additional features.

digital certificate
: Authentication mechanism that contains identification details about the creator and a digital signature.

digital signature
: An electronic stamp attached to a digital certificate.

Display Control property
: Lookup field property that determines whether the control displays as a text box, combo box, or list box.

drop-down list
: List of options that displays when you click a button.

duplicate records
: Two or more records in a table share the same values.

Edge Browser control
: Control on a form that displays web content.

edit mode
: *Office Online* view where users can edit and save a file.

embedded macro
: Macro attached to an event associated with a specific object or control.

Enabled property
: Property that determines whether a control can have the focus.

encryption
: Technique that converts data into a coded format that can't be understood unless it is decoded.

entity
: A person, place, or thing about which you want to store data.

Entity-Relationship Diagram (ERD)
: Diagram used to plan database design.

#Error error
: Error that indicates that Access can't evaluate the expression; usually caused by a misspelling in a control name used in the expression.

event
: Occurs when an action happens to an object or control.

event-driven data macro
: Macro in which the actions are unique to a specific event in a table.

executable file
: Database file type that prevents users from creating new forms or reports, or from using *Design* view to change existing forms and reports; compiles all of the macro code; uses an extension of .accde; also called a locked database file.

exporting
: Saving or copying data for use in another program or application.

expression
: Formula used to write validation rules, perform calculations, create query criteria, control macros, and group and sort data in a report.

Expression Builder dialog box
: Window that provides easy access to tools used to create expressions.

Extensible Markup Language (XML)
: Industry standard language used to describe, store, and transfer data between programs or applications.

extract

Create a regular folder from a zipped folder.

field
: Collection of characters that describes one aspect of a business object or activity (a single unit of data).

Field Name property
: Field property that assigns a unique name to the field.

field properties
: Description of the specific details of each field in a table; basic field properties include the *Field Name*, *Data Type*, and *Field Size*.

File Explorer
: Window where you browse for, open, and manage files and folders (formerly called Windows Explorer).

file name extension
: A series of letters automatically added to a file name that identifies the type of file.

filter
: Feature that limits the data records that display in a datasheet.

Filter by Selection
: Filter option that displays only the records that match the value in specific fields you have selected.

find duplicates query
: Query used to locate duplicate data values in a table.

first normal form (1NF)
: Table that does not have any repeating values.

fixed-width file
: Text file where data is stored in predefined positions.

focus
: The status of a control or object. A control or object becomes active when a cursor stops at the control or object. The active control or object is said to “have the focus.”

footer
: Display content at the bottom of a document page or object.

foreign key
: Field in one table that is also the primary key in another table; used to create relationships between tables.

form
: Database object used to enter, modify, view, or delete data from a table.

Form button
: Tool that allows you to quickly create a form; no options are provided during the initial creation process.

Form Footer section
: Form section used to display totals at the bottom of the form.

Form Header section
: Form section used to display a title, logo, or date that shows once at the top of the form.

Form view
: View option used to enter and view data.

Form Wizard
: Tool that guides you through the steps to create a form.

Format property
: Property that indicates the way a field displays in a table.

Forms
: Office Online application used to create, distribute, and analyze surveys and questionnaires.

From clause
: Required part of an *SQL* statement that lists the tables used in the query.

front-end database
: Part of a split database that contains linked tables, and all forms, reports, and queries that use the data.

function
: Predefined formula that performs a specific task.

function keys
: The numbered command keys (i.e., **F1, F2,** etc.) located near the top of the keyboard. Function keys can perform both Windows and Office application commands. Some laptops require the user to press the function key (**Fn** or **fn**) on the keyboard in conjunction with a numbered function key to activate an Office command.

gallery
: Group of options on a tab.

generative AI
: Branch of artificial intelligence that focuses on creating new content rather than making predictions based on existing data.

gridlines
: Lines that visually frame rows and columns.

group
: Area on a tab that contains related commands and options; option used to organize data in a report so that similar records

appear together; second organizational level in the *Navigation Pane.*

Group Footer section
: Report section that displays aggregate calculations and prints at the bottom of each group.

Group Header section
: Report section that displays a group title or values and prints at the top of each group.

header
: Displays content at the top of a document or object.

Hypertext Markup Language (HTML)
: Primary language used to build web pages.

Import Spreadsheet Wizard
: Tool that guides you through the steps to import a spreadsheet.

Import Text Wizard
: Tool that guides you through the steps to import a text file.

importing
: The process of getting data from an outside source into an Access database.

index
: Internal list used by a database to find data more quickly.

inner join
: Returns only records that have matching values in both tables; the most common type of join.

Input Mask property
: Property used to specify the format for data entered into a field.

Input Mask Wizard
: Tool that guides you through the steps to define an input mask; available only on *Short Text* or *Date* fields.

instance
: A single example of an entity.

IntelliSense
: Tool that suggests a list of possible values when you enter an expression.

Join Type property
: Relationship property that determines how to match the data in two related tables.

junction table
: Table created to link the two tables in a many-to-many relationship; also known as an intersection table.

justified layout
: Form or report layout option that displays the fields in a horizontal justified layout with field names displayed above each field.

keyboard shortcut
: Key or combination of keys that you press to apply a command.

Label control
: Control on a form or report that displays the content of the caption property of a field.

layout selector
: Small icon in the upper-left corner of a layout that displays when a control in the layout is selected.

Layout view
: Form or report view option used to make design changes to the object and see the effects of the changes in real time.

left outer join
: Returns all records from the table on the left side of a join and only records that have a matching value from the table on the right side of the join.

legend
: Text that describes the data represented in a chart.

Len() function
: Function that returns the number of characters in a field.

Limit to List property
: Lookup field property that indicates if a user is restricted to selecting a choice from the drop-down list.

linked table
: Access table that does not contain any records but allows you to see and use the data by linking to the data source.

Linked Table Manager
: Tool used to update and maintain the links from a front-end database to the back-end database.

List Rows property
: Lookup field property that determines how many choices display in the list.

List Width property
: Lookup field property that sets the width of the drop-down list.

locked database file
: Database file type that prevents users from creating new forms or reports, or from using *Design* view to change existing forms and reports; compiles all of the macro code; uses an extension of .accde; also called an executable database.

Long Text data type

Data type used to store alphanumeric data longer than 255 characters or text containing rich text formatting.

lookup field
Field used to display a list of data values that users can select to store in the field.

Lookup Wizard
Tool that guides you through the steps to create a lookup field.

macro
Database object used to attach code to objects and controls in a database.

Macro Builder
Tool used to write and edit macros.

Mail Merge
Feature that merges a main document, such as a letter or labels, with data from a database.

main form
Form that shows the data from the “one” side of a one-to-many relationship.

main report
Report that shows the data from the “one” side of a one-to-many relationship.

make table query
Action query that creates a new table and copies records from one or more tables into the new table.

many-to-many relationship
Relationship between tables in a database where many rows of data in one table can be associated with many rows of data in a related table.

maximize
Increase the size of the window of an open Office file so it fills the entire computer monitor.

merge field
An individual piece of information from the data source, such as first name or company name; used in a mail merge.

metadata
All properties that describe what data fields in a table represent.

Microsoft 365 account
User profile used to log in to Windows and Microsoft Office; this free account also provides access to *OneDrive* and *Office Online*.

Microsoft Word Mail Merge Wizard
Tool that guides you through the mail merge process.

minimize
Place an open Office file on the *Taskbar* so it is not displayed on the desktop.

modality
Constraint that specifies whether an entity must participate in the relationship.

module
Database object that contains VBA code used to automate tasks and add functionality to a database.

Monaco SQL editor
Editor in Microsoft Access 365 used to write and display SQL queries; includes line numbers and adds color-coded keywords and operators.

#Name? error
Error that indicates you have used an invalid name for a field, control, object, or function.

named data macro
Macro associated with a specific table but called by an event-driven or stand-alone macro.

Navigation bar
Area at the bottom left corner of a table or form that contains buttons used to move among table records in *Datasheet* view.

Navigation Buttons property
Property that controls whether the *Navigation* bar appears at the bottom of a form.

Navigation form
Type of form that contains tabs that each display a different form or report.

Navigation Pane
Displays all objects contained in a database.

New Values property
Property to select sequential or random values in an *AutoNumber* field.

normal forms
Rules of normalization.

normalization
Database design process that creates well-structured database tables.

Notepad
Windows program used to edit text files.

Now() function
Function that obtains the current date and time from your computer.

null

Value in a field that indicates that nothing was ever entered in that field.

#Num! error
Error that indicates the cell contents violate the numeric data type rule; can occur when importing data.

Number data type
Data type used to store numbers in fields used in mathematical calculations.

object
Major component in an Access database.

Office Background
Graphic image displayed in the upper- right corner of all Office program windows.

Office desktop apps
The version of Microsoft Office that users download and install on a PC or Apple computer.

Office Online
The online version of Microsoft Office that is available through a web browser.

Office Theme
Color of the working environment in all Office programs.

OneDrive
Online (cloud) storage area that is a part of your Microsoft account where you can store and access documents from any computer with an internet connection.

OneDrive folder
Windows folder that displays folders and files stored on a user's *OneDrive* account; synchronizes folders and files stored in the *OneDrive* folder with *OneDrive* cloud storage.

OneNote Online
Note-taking program that is available in both *Office Online* and the desktop version of Office 2019.

one-to-many relationship
Relationship between tables in a database where a row of data in one table can be associated with many rows of data in a related table.

one-to-one relationship
Relationship between tables in a database where a row of data in one table can be associated with only one row of data in a related table.

Open Exclusive
Access mode used to open a database which prevents others from opening the database; used to encrypt a database.

operating system
Software that makes a computer function and controls the working environment.

OR logical operator
Operator that requires that a record meet at least one individual condition to be included in the results.

Order By clause
Optional part of an *SQL* statement that indicates how the results are sorted.

Package and Sign
Tool used to create a database with a digital certificate which lets others know the database can be trusted; uses extension of .accdc.

page
A layered area in a tab control.

Page Footer section
Report section used for page numbers or data that prints at the bottom of each page. If used in a form, contents display only when printed.

Page Header section
Report section used for column headings, page numbers, or dates that prints at the top of every page. If used in a form, contents display only when printed.

parameter
Value or object reference passed into a macro; specific phrase (entered in the *Criteria* box of a query field) that displays in the *Enter Parameter Value* dialog box, receives a value from the user, and passes it to the query when a parameter query is run.

parameter query
Query that asks a user to enter a specific criterion value each time the query is run.

parameter report
Report that asks a user to enter a specific criterion value each time the report is run.

partial dependency
Dependency that exists when an attribute can be determined by knowing just one part of a concatenated key.

PDF (portable document format)
File format used to convert a file into a static image.

Performance Analyzer
Tool that analyzes database objects and makes recommendations on how to improve performance.

primary key

Field that contains a unique value for each record in a table; allows one record to be distinguished from another.

Print Preview
: Print option that allows you to see how a document, spreadsheet, or database object will look when printed and lets you make changes to the printing options.

program flow statement
: Macro statement used to provide organizational structure.

program options
: Area in each Office application where you can make changes to the program settings.

qualified field name
: Field name that includes both the table name and the field name, separated by a period.

query
: Database object used to find data in a database.

Query Design button
: Tool used to open *Design* view to build a query.

Query Wizard
: Tool that guides you through the steps to create a query.

Quick Access toolbar
: Area located above the *Ribbon* with buttons you use to perform commonly used commands.

radio button
: Round button you click to choose one option from a list.

range rule
: Data integrity rule that ensures a value in a field falls within an established range of acceptable values.

read-only mode
: *Office Online* view where users can view and add comments to a file.

record
: Collection of related data fields.

Record Selectors property
: Property that controls whether a record selector displays on a form.

Record Source property
: Property of a form or report that determines which database fields are available to use in the form or report.

record validation rule
: Validation rule that compares fields in the same table; is entered into the *Validation Rule* property of a table.

Recycle Bin
: Location where deleted files and folders are stored.

referential integrity
: Quality of consistency in data entered into related tables; enforcing referential integrity prevents a record in one table from referencing a record that does not exist in a related table.

relational database
: Database in which data is organized into a collection of related tables.

relationship
: Association or connection between entities.

report
: Database object used to view and print data in a database.

Report Footer section
: Report section used to display totals, prints once at the bottom of the last page.

Report Header section
: Report section used to display a title or logo; prints once at the top of the first page.

Report view
: View option that shows all of the data contained in the report; displays in a continuous layout, which does not separate the data into separate pages.

Report Wizard
: Tool that guides you through the steps to create a report.

Required property
: Field property that indicates whether a value must be entered into a field or if it can be skipped and left blank.

reserved word
: A word or symbol that has a specific meaning in Access, such as *Date*, *Form*, and *Name*.

restore down
: Decrease the size of the window of an open Office file so it does not fill the entire computer monitor.

Ribbon
: Bar that appears at the top of an Office file window and displays available commands.

Rich Text Format (RTF) file
: A file format the preserves the formatting of the data.

right outer join

Returns all records from a table on the right side of a join and only records that have a matching value from the table on the left side of the join.

row heading field
: Field that displays in the left-most column(s) of a crosstab query; can include up to three fields as row headings.

Row Source property
: Property of a *Combo Box* or *List Box* that identifies the source of data for the field.

Row Source Type property
: Property of a *Combo Box* or *List Box* that designates whether the data comes from a *Table/Query*, *Value List*, or *Field List.*

Running Sum property
: Text box property used to create a running total.

running total
: Field that shows the results of accumulating a total over a set of records.

Saved Exports
: Command used to run a saved export action.

Saved Imports
: Command used to run a saved import action.

ScreenTip
: Descriptive information about a button, drop-down list, launcher, or gallery selection that appears when you place your pointer on the item.

Scroll Bars property
: Property that controls whether vertical, horizontal, or no scroll bars display on a form.

second normal form (2NF)
: Table that is in 1NF and all of its non-key fields depend on the entire primary key.

Select clause
: Required part of an *SQL* statement that lists the fields to display in the query results.

select query
: Query that locates, or selects, data in a database.

SharePoint
: A web application platform used to store, track, and manage information.

Short Text data type
: Data type used to store alphanumeric data; the maximum length is 255 characters.

shortcut
: Pointer to an object in the *Navigation Pane;* created when an object is assigned to a *Navigation Pane* group.

Show check box
: Box in *Design* view of a query that indicates whether a field used in a query displays in the results.

Simple Query Wizard
: Tool that guides you through the steps to create a query.

Single Step
: Tool in the *Macro Builder* that executes a macro one step (action) at a time.

sort
: Feature used to organize data in ascending or descending order.

Split Form
: Option that allows you to view data two different ways at the same time; the top section of the form displays a columnar layout, and the bottom section of the form displays a datasheet layout.

SQL (Structured Query Language)
: Underlying language used in a relational database system.

stacked layout
: Control layout that organizes data vertically.

stand-alone macro
: Macro that is independent of any other object; displays in the *Navigation Pane.*

stepped layout
: Report layout option available when grouping records; displays the fields in a row and column format with the field names displayed as column heads; the grouped field displays in the left-most column.

subform
: Form inserted within another form; often used to show records from the “many” side of a one-to-many relationship.

SubForm Wizard
: Tool that guides you through the steps to add a subform onto a main form.

submacro
: Named, executable set of actions to perform a specific task.

subquery
: Query used inside of another query.

subreport
: Report inserted within another report; often used to show records from the “many” side of a one-to-many relationship.

SubReport Wizard
: Tool that guides you through the steps to add a subreport onto a main report.

summary query
: Query that analyzes a set of records and displays summarized results.

Sway
: Online digital presentation application similar to PowerPoint and Prezi that is available through your Microsoft account.

tab
: Area on the *Ribbon* that lists groups of related commands and options.

Tab control
: Control used to create a layered area on a form; helps to create an organized form.

Tab Index property
: Property that determines the order that Access moves from one control to another on a form when **Tab** or **Enter** is pressed.

Tab Stop property
: Property that determines whether the cursor stops at a control on a form when **Tab** or **Enter** is pressed.

table
: Database object that stores a collection of related records.

Table Analyzer
: Tool that looks for duplicated data or poorly structured tables and makes recommendations on how to normalize.

tabular layout
: Form or report layout option that displays the fields in a row and column format with the field names displayed as column heads.

task pane
: Area at the left or right of an Office application window where you can perform tasks.

Taskbar
: Horizontal area at the bottom of the Windows desktop where you can launch programs or open folders.

template
: Predesigned database that contains various prebuilt objects, and provides you with a complete, ready-to-use database application.

test data
: Set of data created to test a database application and ensure that the system performs as desired.

text box
: Area where you type text.

Text box control
: Control on a form or report used to display data; when used on a form, it can also accept data when a user enters a value.

text file
: A file format used to transfer data between programs; contains only letters, numbers, and punctuation.

third normal form (3NF)
: Table that is in 2NF and all of its non-key fields depend only on the primary key.

Toggle Field Codes
: Tool used to format numbers in a merge field.

Top Values property
: Query property used to restrict the number of records that display in the query results.

Total row
: Row added into *Design* view of a query that specifies the aggregate function to perform, or a row added in *Datasheet* view of a table that aggregates values in a table column.

transitive dependency
: Dependency that exists when an attribute can be determined by knowing the non-key field.

Trust Center
: Contains security and privacy settings that help keep your database safe and prevent your computer from becoming infected with viruses.

unbound control
: Control that is not linked to a data source.

unbound form
: Form that does not have a connection to a data source.

Unique Records property
: Query property that directs Access to display only records that do not include duplicated values; checks all fields in the table, whether or not they have been included in the query.

Unique Values property
: Query property that directs Access to display only records that do not include duplicated values in the fields included in the query.

unmatched records query
: Query that compares records in two tables and identifies the records in one table that don’t have any matching records in the related table.

update query
: Action query that changes the data of one or more fields in all records that match the specified criteria.

user interface macro
: Macro attached to objects and controls that are part of the user interface.

Validation Rule property
: Property used to set limits on acceptable values that can be entered into a field.

Validation Text property
: Property used to enter a custom message that displays when a validation rule is violated.

Values (Y Axis) field
: Field that maps to the vertical axis (Y-axis) in a chart; represents the data series or field to be measured and plotted on the chart.

Visual Basic for Applications (VBA)
: Programming language used to add functionality to Office applications.

Where clause
: Optional part of an *SQL* statement that lists the criterion that records must meet in the query.

wildcard character
: Symbol used in an expression in a query to find records that match, or used in a validation rule to require data being entered to match a specific character, number, or pattern.

Windows desktop
: Working area in Windows.

XML Schema Definition (XSD)
: File that defines the structure of the database by specifying table and field details.

zipped (compressed) folder
: Folder that has a reduced file size and can be attached to an email.

zoom
: Change file display size.

modified block format letter
: Type the date line and closing lines [complimentary close, writer's name, writer's title, and return address (on personal business letters)] beginning at the horizontal midpoint. Typically, set a left tab stop at 3.25". Modified block format can be used on either business or personal business letters.

block format letter
: All parts of the letter begin at the left margin. No lines are indented or centered. Block format can be used on either business or personal business letters.

mixed punctuation
: Use a colon after the salutation (e.g., "Dear Ms. Vasquez:") and a comma after the complimentary close (e.g., "Best regards,"). Mixed or open punctuation can be used on either business or personal business letters.

open punctuation
: Punctuation after the salutation and complimentary close are omitted. Mixed or open punctuation can be used on either business or personal business letters.

Microsoft OneNote
: The note-taking software in the Microsoft 365 Office applications.

Quick access
: (Windows File Explorer) The area at the top of the *Navigation* pane in a *File Explorer* window that displays folders or locations on a computer so users can quickly access these items. Users can pin folders or locations on a computer to the *Quick access* area of a File Explorer window.

Remarks

Sample annotation #1.

inserting an annotation

inseting annotakjslfkjLKD

annotation sample