Microsoft® Access 2019 & 365

LEVEL 1 OF 3

IAN EWELL
Davis Technical College

LABYRINTH LEARNING™

Microsoft Access 2019 & 365: Level 1

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Access Chapter 4:
Using Reports to Display Information

Preface

This textbook is part of our new approach to learning for introductory computer courses. We've kept the best elements of our proven, easy-to-use instructional design and added interactive elements and assessments that offer enormous potential to engage learners in a new way.

Why Did We Write This Content?

In today's digital world, knowing how to use the most common software applications is critical, and those who don't are left behind. Our goal is to simplify the entire learning experience and help every student develop the practical, real-world skills needed to be successful at work and in school. Using a combination of text, videos, interactive elements, and assessments, we begin with fundamental concepts and take learners through a systematic progression of exercises to achieve mastery.

What Key Themes Did We Follow?

We had conversations with dozens of educators at community colleges, vocational schools, and other learning environments in preparation for this textbook. We listened and adapted our learning solution to match the needs of a rapidly changing world, keeping the following common themes in mind:

Keep it about skills. Our content focus is on critical, job-ready topics and tasks, with a relentless focus on practical, real-world skills and common sense. We use step-by-step instructional design to ensure that learners stay engaged from the first chapter forward. We've retained our proven method of progressively moving learners through increasingly independent exercises to ensure mastery—an approach that has successfully developed skills for more than 25 years.

Keep it simple. Our integrated solutions create a seamless experience built on a dynamic instructional design that brings clarity to even the most challenging topics. We focus our content on the things that matter most and present it in the easiest way possible. Concise chunks of text are combined with visually engaging and interactive elements to increase understanding for all types of learners.

Keep it relevant. Fresh, original, and constantly evolving content helps educators keep pace with today's student and work environments. We reviewed every topic for relevancy and updated it where needed to offer realistic examples and projects for learners.

How Do I Use This Book?

Our comprehensive learning solution consists of a print textbook, a groundbreaking interactive ebook, and our easy-to-use eLab course management tool featuring additional learning content, such as overviews and video tutorials, and assessment content. Our interactive ebook contains learning content delivered in ways that will engage learners.

The eLab assessment solution includes Project Grader exercises for most chapters that are automatically graded by the system, in addition to clear feedback and analytics on student actions.

Included with Your Textbook Purchase

Interactive ebook: A dynamic, engaging, and truly interactive textbook that includes elements such as videos, self-assessments, slide shows, GIFs, and other interactive features. Highlighting, taking notes, and searching for content is easy.

eLab Course Management System: A robust tool for accurate assessment, tracking of learner activity, and automated grading that includes a comprehensive set of instructor resources. eLab can be fully integrated with your LMS, making course management even easier.

Instructor resources: This course is also supported on the Labyrinth website with a comprehensive instructor support package that includes detailed lesson plans, lecture notes, PowerPoint presentations, a course syllabus, test banks, additional exercises, and more.

Student Resource Center: The exercise files that accompany this textbook can be found within eLab and in the Student Resource Center, which may be accessed from the ebook or online at: **labyrinthelab.com/Office19**

We're excited to share this innovative, new approach with you, and we'd love you to share your experience with us at: lablearning.com/share

Visual Conventions

This book uses visual and typographic cues to guide students through the lessons. Some of these cues are described below:

Cue Name	What It Does
`Type this text`	Text you type at the keyboard is printed in this typeface.
Action words	The important action words in exercise steps are presented in boldface.
Ribbon	Glossary terms are highlighted with a yellow background.
Note! Tip! Warning!	Tips, notes, and warnings are called out with special icons.
	Videos, WebSims, and other ebook or online content are indicated by this icon.
Command→Command→ Command→Command	Commands to execute from the Ribbon are presented like this: Ribbon Tab→Command Group→Command→Subcommand.
Design→Themes→Themes	These notes present shortcut steps for executing certain tasks.

Display Settings

Multiple factors, including screen resolution, monitor size, and window size, can affect the appearance of the Microsoft Ribbon and its buttons. In this textbook, screen captures were taken at the native (recommended) screen resolutions in Office 2019 running Windows 10, with ClearType enabled.

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OVERVIEW

1 Introducing Microsoft Office and Using Common Features

In this chapter, you will be introduced to Microsoft Office and given an overview of the various versions of the software. Understanding what is offered in each will help you make the best decision about which version meets your needs. You'll also practice using some of the features that are common across the Office suite. Once you learn how to use a feature in one application, you can use the same or similar steps in the others.

LEARNING OBJECTIVES

- Describe similarities and differences between Office 2019 for the desktop, Office 365, and Office Online
- Identify uses of cloud storage
- Identify parts of the Office user interface
- Identify Office features available through Backstage view
- Use the Office Clipboard
- Format text in Office applications
- Search for Help within Office applications

Introduction to Microsoft Office

Microsoft Office is a software suite that enables users to create, format, revise, collaborate, and share files quickly across multiple devices. The Microsoft Office 2019 software suite for Windows includes Word, Excel, Access, PowerPoint, Outlook, OneNote, Publisher, and Skype. A software suite is a collection of applications generally produced by the same manufacturer and bundled together for a better price. Being produced by the same manufacturer also means that each application offers the same user interface. Examples of features shared among the different Office 2019 apps are the Ribbon, Quick Access toolbar, a spelling and grammar checker, and collaboration tools.

What Devices Will Microsoft Office Work With?

Microsoft Office works on desktops, laptops/notebook computers, and all-in-one PCs and Macs, as well as Windows, Android, and iOS smartphones and tablets (though some apps, like Publisher and Access, work only on PCs).

If you are writing a paper or preparing a business plan, you probably want to create it on a desktop, laptop, or all-in-one computer. If you want to open, read, share, or make simple changes to a Word document, you could select any device. This chapter assumes you will be using a desktop, laptop, or all-in-one computer.

To learn more about the operating systems (Windows, Android, macOS, or iOS) and types of devices (all-in-one computer, desktop, laptop, smartphone, or tablet) that will run Microsoft Office, do a web search for *Microsoft Office 2019 products*.

What Storage Does Microsoft Office Provide?

Microsoft OneDrive is the cloud storage location included with Microsoft Office 2019 and Office 365, and it provides a convenient way to save, store, and share files, photos, and videos via your computer, smartphone, or tablet anytime, anywhere, and on any device—provided you have an Internet connection or Wi-Fi access. Depending on the Microsoft Office product you use or purchase, you will receive anywhere from five gigabytes to five terabytes of OneDrive cloud storage.

You may want to use cloud storage as your primary saving method so you can access your files at home, at school, at work, or anywhere. Or you may decide to use cloud storage as a backup for your files located on your computer's hard drive or your flash drive. Instead of emailing files to yourself, use OneDrive as a faster way to store something in the cloud. To learn more about OneDrive, do a web search for *OneDrive*.

Which Microsoft Office Should I Use?

You may have heard others talk about Microsoft Office 2019, Office 365, and Office Online and are not sure which one is right for you. Base your decision on the apps and features you need, in addition to the pricing structure.

- **Office Online:** This version is free and requires a Microsoft account. It includes limited versions of Word, Excel, PowerPoint, and OneNote. No software is installed on your computer, as the apps are accessed and run in a web browser. The apps are not the same as the full-version apps in the other variations of Office and lack many features of those full versions. This version requires an Internet connection. Office Online is great for simple tasks, like writing a short letter or creating a basic slide show presentation.

- **Microsoft Office 2019:** This version is software that is purchased once and installed on one PC. It does not require an Internet connection to run. It does not have all the features of Office 365, and you must pay for future major upgrades. Choose from a variety of plans that may include Word, Excel, PowerPoint, OneNote, Outlook, Publisher, Access, and Skype.
- **Office 365:** This version requires users to pay a monthly or annual subscription fee for installing and using the software on one or more devices (PC/Mac and mobile devices). All upgrades are included, so you always have the latest-and-greatest version, and all Office 2019 apps are included. Microsoft says the Office 365 apps can include features not present in the Office 2019 apps, as Office 365 is updated more frequently than Microsoft Office.

While Microsoft Office has three distinct formats—Microsoft Office 2019, Office 365, and Office Online—and the examples provided in this chapter can work in each of the Office formats, this book assumes you are using Office 2019 on the desktop or Office 365 in a subscription-based plan, as well as Windows 10. Remember that Office 365 can change at any time. If you are using Office 365, keep in mind that your screen may not match all the illustrations in this book. Changes made to Office 365 after publication of this title may result in additional differences between your book and the software.

What Are the Microsoft Office Apps?

In this chapter, you will learn about four of the Microsoft Office applications included in the Microsoft Office suite: Word, Excel, Access, and PowerPoint.

Application	What It Is Used For
Word 	Word-processing software used to create, edit, format, and share documents like letters, reports, essays, and business plans.
Excel 	Spreadsheet software, arranged with rows and columns, used to perform calculations and analyze numerical data. Use Excel to prepare a budget or income statement, or to determine the amount of interest paid on a loan.
Access 	Database software that stores and helps you quickly retrieve data. In Access, you create and enter data into a table and then use forms, reports, and queries to display the desired results.
PowerPoint 	Presentation software used to create, edit, format, and share slides designed to tell a story, market a product, or explain a concept.

The Microsoft Office suite includes the following additional applications:

Application	What It Is Used For
OneNote 	Note-taking software used to organize notes (handwritten or typed), audio recordings, screen captures, or sketches you have collected or created to share with others.
Outlook 	Personal information management software used to create, send, and receive emails, record tasks, maintain one or more calendars, schedule meetings and appointments, manage contacts, and take notes.
Publisher 	Desktop-publishing software used to design and lay out text and images, often for newsletters or brochures.
Skype 	Internet communication software used to share audio, video, text, messages, files, or desktop screens.

Microsoft Accounts

A Microsoft account provides you with access to your Microsoft settings, files, contacts, and more. A valid Microsoft account can include Hotmail, Bing, MSN, Office, OneDrive, Outlook, Skype, Store, Windows, or Xbox Live. Once logged in to your computer, you can log in to your Microsoft account from any Office app. If you do not have a Microsoft account, you can create one for free by doing a web search for *Microsoft account*.

Common Features in Microsoft Office Apps

The Office 2019 applications share some frequently used features. They include the Ribbon, Quick Access toolbar, and common commands.

The Ribbon

Within each application, you will find the Ribbon displayed along the top of the window. The Ribbon contains tabs and commonly used buttons and other icons that are specific to the application. The buttons are arranged in groups within each tab. While the Ribbon changes with each application, some tabs, groups, and commands are common throughout the Microsoft suite. In this chapter, we will look at the Access Ribbon and, specifically, the File, Home, Create, External Data, Database Tools, and Help tabs.

View the video "Ribbon Overview."

The Quick Access Toolbar

Each application has a one-line Quick Access toolbar located, by default, in the top-left corner of the application window. This helpful toolbar contains some frequently used commands to help you be more efficient as you work. You can customize the toolbar with the buttons you use most frequently. The settings for each application's Quick Access toolbar work independently; therefore, you need to customize the Word, Excel, Access, PowerPoint, and Outlook Quick Access toolbars separately.

View the video "Quick Access Toolbar Overview."

Undo/Redo

Within any application, you may type text or perform a command or action and then change your mind about what you did. As long as you have not exited the application, you may be able to undo the action.

Note! *Some actions, such as saving or sharing, cannot be undone.*

You may want to redo an action you just undid. Sounds confusing, right? Use the Redo button to undo the undo, or to reapply the action. This puts the command or action you just undid back into effect.

Undo and Redo on the Quick Access toolbar

The Undo and Redo commands in Access operate differently from the same commands in other Office applications. Because of a database's nature, many changes made within Access, such as creating an object or deleting a record, cannot be undone or redone. Also, the Undo and Redo commands do not function the same across all object types.

Tip! *In Access, the Undo and Redo commands are most often used while working with text entry and control design.*

Quick Access toolbar→Undo *or* Redo

DEVELOP YOUR SKILLS: O1-D1

In this exercise, you will use the Undo and Redo buttons.

1. Log in to your computer, start Access, and tap Enter to accept the default template Blank Database.
2. Click the **Create** button.

   A new database has been created using the default name Database1 *and placed in your Documents folder. You can delete this file after the chapter exercises if you like.*
3. Type **`Hello`** and tap Enter.
4. Type: **`Field`**
5. Click the **Undo** button once to remove the word *Field*.
6. Type **`Record`** and tap Enter.
7. Click the **Undo** button once to remove the word *Record*.

   Because you tapped Enter, the database created a new record. Using the Undo command in this instance would remove the entire record and not just the word Record.
8. Keep Access open.

   Unless otherwise directed, always keep any files or programs open at the end of an exercise.

Common Features on the File Tab

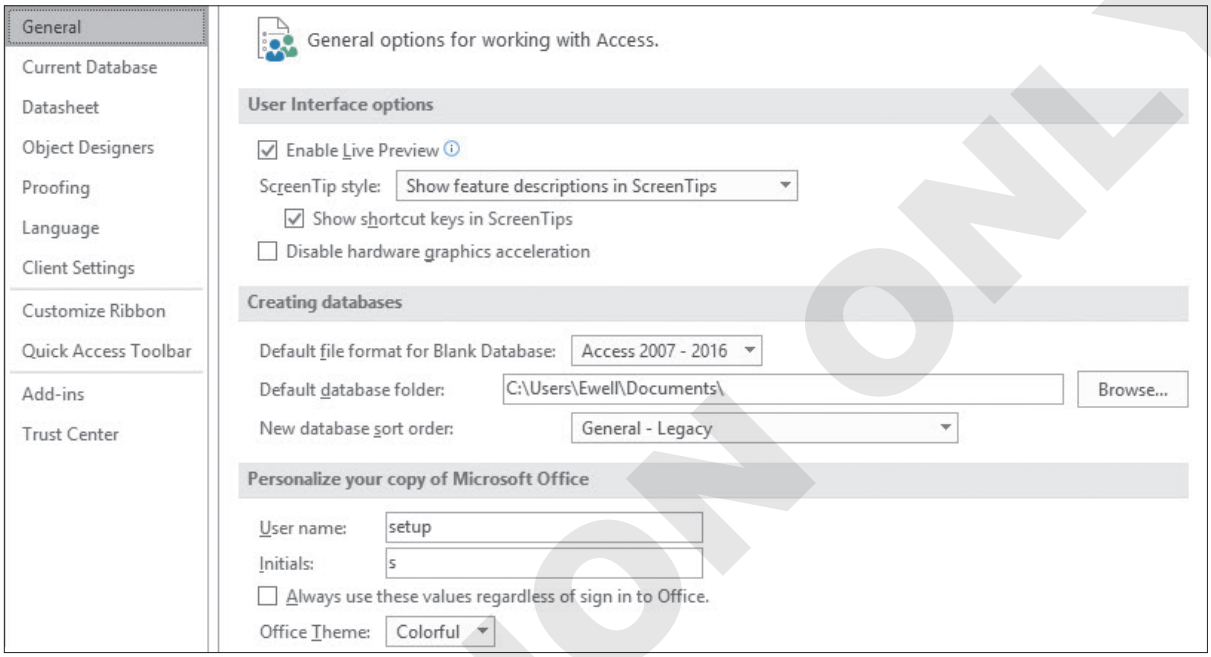
In this section, you will learn about the features on the File tab that are used in a similar manner throughout multiple Microsoft applications, including Word, Excel, PowerPoint, and Access. Here you will use Microsoft Access to save, close, open, and print.

Backstage View

When you are working in your file and open the File tab, the Backstage view displays. Think of your Backstage view as your personal manager for the open file and application. Use the Backstage view to update file information, select account settings, view program options, open new files, save, print, and provide feedback to Microsoft, and recover unsaved files. These are the "big-picture" items you do to your file and not the specific tasks you perform using the other tabs on the Ribbon.

Program Options

Microsoft provides preference settings that you can customize for each application (that is, Access or Word) so they are automatically applied each time you use the application on your device. To change your preferences, use the Options feature on the File tab. Some custom options include adding your username and initials, saving files to a default file location, and customizing the Ribbon.



Options include allowing you to set defaults for the file format and personalizing with username and initials.

File→Options

Saving Files

In most Office applications, you should save frequently to prevent data or information loss. Some people prefer to save important files every few minutes, while others save at less frequent intervals.

When an Access file is created, it is also named and saved in the location chosen by the user. A key feature of Access is that your file will constantly save as changes to data or objects are entered or updated. Because of this feature, you will not need to utilize the save settings reserved for other Office applications (Word, Excel, PowerPoint). However, it is still good practice to use the saving commands, especially when working on major design or layout changes.

The saving commands are found on the File tab, and you'll see different options, including Save and Save As. In Access, these commands work to save either an individual object within the database or to save the entire database file.

View the video "Using Save and Save As."

An Access database file is most likely to be saved to a shared location such as SharePoint. In a small organization a file may be saved to a personal device (for example, on the hard drive of a PC). Depending on the file size, it could possibly be saved to a flash drive or to the cloud in OneDrive.

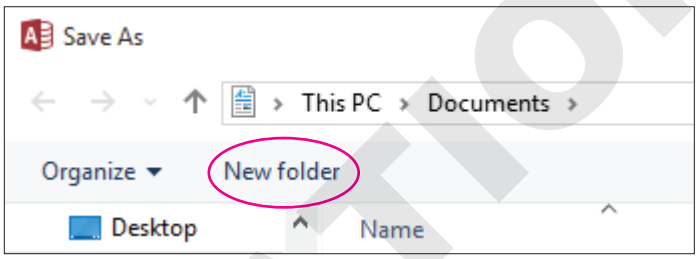
File→Save *or* Save As

DEVELOP YOUR SKILLS: O1-D2

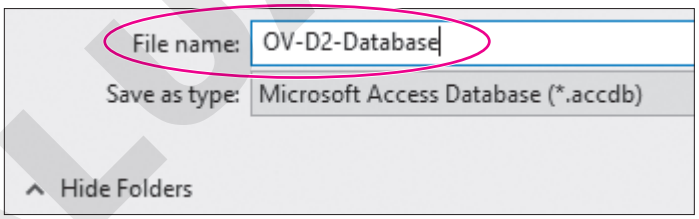
In this exercise, you will use Save to save an open object and Save As to store an Access database file in a new folder.

Before You Begin: *Be sure to visit the Learning Resource Center at labyrinthelab.com/lrc to retrieve the exercise files for this course and to determine your file storage location before beginning this exercise.*

1. In your open Access database, choose **File** to display the Backstage view and then click **Save**.
   Because Table1 is open, Access prompts you to save this object by opening a dialog box.
2. In the Save As dialog box, type **`New Table`** for the table name and then click **OK**.
   Notice the table name has changed and is indicated in the object tab.
3. Choose **File** to display the Backstage view and then click **Save As**.
4. Verify the Save Database As option is chosen from the File Types menu on the left and the Access Database option is chosen to the right.
5. Click the **Save As** button and then choose **Yes** to close all objects.
6. In the Save As dialog box, navigate to the **Overview Chapter 1** folder in your file storage location.
7. Click the **New Folder** command located to the right of the Organize command, just under the address bar.



8. Type **`My Database`** for the new folder name and tap Enter twice.
9. Click in the **File Name** box and type: **`OV-D2-Database`**



10. Click the **Save** button.
11. Click **File** to display the Backstage view and then click **Close**.

Finding, Searching, and Opening Files

Files can be opened within an application by using the Open dialog box, choosing from a recently saved files list within the application, using File Explorer, or typing the filename in the Windows Search box. Within Windows 10, as well as previous versions of Windows, you can use File Explorer to locate and manage your files. You can click the File Explorer icon on the taskbar and then search for files located on your PC, flash drive, or OneDrive.

View the video "Opening Files."

Printing

If you are connected and have access to a printer, you should be able to print. Before printing, you should verify formats, ensure proper layout, and review the file to see if you have used the fewest possible number of pages. Use the Print Preview feature to browse the pages before printing so you don't waste time or printing resources, and use the options in the Settings area to adjust elements such as page orientation, paper size, margins, and more.

Keep in mind that you can print to paper or to PDF if you want to be eco-friendly.

View the video "Printing Files."

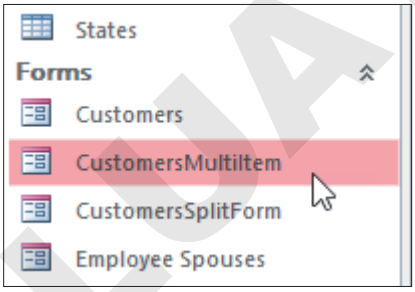
File→Print

DEVELOP YOUR SKILLS: O1-D3

In this exercise, you will open an Access database file using Windows Explorer and then print an Access object.

1. Ensure that Access is open and then click the **File** tab to display the Backstage view.
2. Choose **Open**.
3. Open **OV-D3-WinDesign** from your **Overview Chapter 1** folder.
4. Click **Enable Content** if the Security Warning bar displays.

   The Security Warning appears whenever a database file is opened for the first time. When working with the files that correspond to this text, you should always click the Enable Content button that appears. You should never open files unless you know or trust the file sender.
5. Save your database in the same location as: **`OV-D3-WinDesignRev`**
6. Choose the **`CustomersMultiItem`** form located in the Navigation pane on the left by clicking the form name (don't double-click).



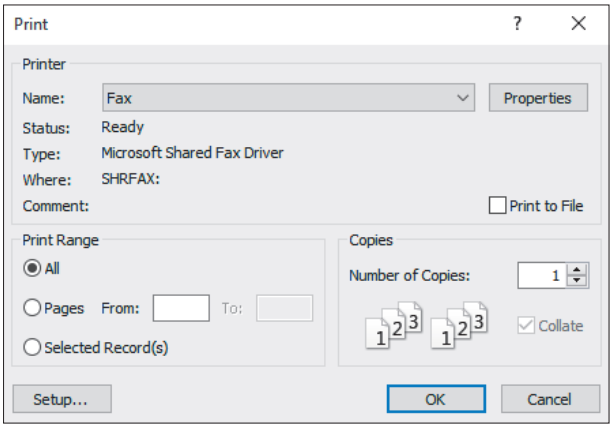
7. Click the **File** tab.
8. Choose **Print** from the menu and then choose **Print Preview** from the list of options to the right.

   The object opens in Print Preview.
9. Choose **Print Preview→Zoom→Two Pages**.

   The form is currently set to print across two pages with only a portion of the fields printing on the second page.
10. Choose **Page Layout→Landscape**.

    The entire form is now set to print across the length of one page.

11. Choose **Print Preview**→**Print**→**Print** to open the Print dialog box.



The Print dialog box allows you to set the print range and the number of copies and select which printer will perform the job.

12. Click the **Cancel** button at the bottom right of the dialog box.
13. From the Ribbon, click **Close Print Preview**.

Templates

A template is a database that has created objects with preconfigured fields, relationships, and settings. The fonts, styles, and object and control layout settings such as orientation and size may already be built in. Instead of creating each object and selecting these settings when you prepare a blank database file, you may opt to use a template to save time.

In most Office applications including Access, you can search for online templates using the Search feature available when you create a new database. Templates are arranged according to categories; for example, by business, personal, and industry.

Most Office applications include sample templates that are stored on the hard drive of your computer when you install the software. Access does not include this feature because of large file sizes of most database templates.

File→New

DEVELOP YOUR SKILLS: O1-D4

In this exercise, you will open a prebuilt database template. You will need an Internet connection to complete this exercise.

1. Choose **File**→**New** and then select the **Students Database** template.
2. Name the database **Students** and click **Create**.

   Explore the database. Notice the many objects available in the Navigation pane to the left. Open and explore a few objects of your choice by double-clicking on the object's name.
3. Click **File** to display the Backstage view and then click **Close** to close the database without saving.

Common Features on the Home Tab

In this section, you will learn about the features on the Home tab that are used in a similar manner throughout multiple Microsoft applications, including Word, Excel, Access, and PowerPoint. You will

use Microsoft Access to Cut, Copy, and Paste with the Office Clipboard; format text; use the Mini toolbar; and find and replace text.

The Office Clipboard

Located at the far left on the Home tab, the Clipboard group contains the Cut, Copy, Paste, and Format Painter buttons. Selecting the Clipboard dialog box launcher opens the Clipboard pane, which displays at the side of your application. The Clipboard contains thumbnails (small images) of what you have recently cut or copied from your Microsoft Office file(s) during your Windows session, with the most recent item at the top of the list.

You can use the Clipboard to quickly paste text, pictures, or other images into your file. You can paste all items on the Clipboard into your file(s) as many times as desired, and you can clear all items from the Clipboard. The Cut feature in the Clipboard group allows you to cut data, and then paste it in the desired location. When data is cut, the original selection is removed from the source location and is pasted at the target location. When data is copied, the original selection remains in the source location and a new selection is pasted at the target location.

View the video "Clipboard Overview."

CLIPBOARD FEATURES

Feature	What It Does
Cut	**Cut:** Removes the original selection from the *source* location and places the selection on the Office Clipboard.
Copy	**Copy:** Creates a duplicate of the original selection, which remains in the source location, and places a copy of the selection on the Office Clipboard.
Paste	**Paste:** Inserts a copy of the most recent item found on the Office Clipboard at the *target* location, or destination. Depending on the application, there are usually at least three paste choices: Keep Source Formatting, Merge Formatting, and Keep Text Only. **Keep Source Formatting:** Pastes the text and the formatting (bold, italic, underline) of the selection from the source location to the target location. The selection pasted retains the original formatting from the source location. **Merge Formatting:** Pastes the text and formatting (bold, italic, underline) of the selection from the source location to the target location and combines it with any formatting that is already at the target location. The selection pasted has formats from both the source and target locations. **Keep Text Only:** Pastes the selection from the source location to the target location. The selection pasted takes on the formatting of the target location.
Format Painter	**Format Painter:** Applies the character and paragraph formatting from the source selection to any characters or text selected. Double-click the Format Painter to apply formats to multiple selections. Click the Format Painter button to turn it off when you are finished.

Home→Clipboard→Cut | Ctrl+X

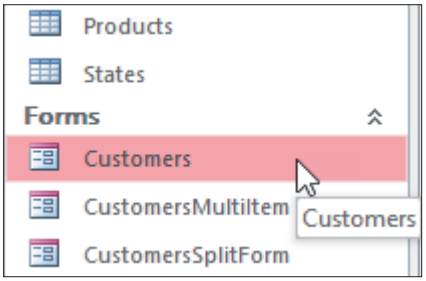
Home→Clipboard→Copy | Ctrl+C

Home→Clipboard→Paste | Ctrl+V

DEVELOP YOUR SKILLS: O1-D5

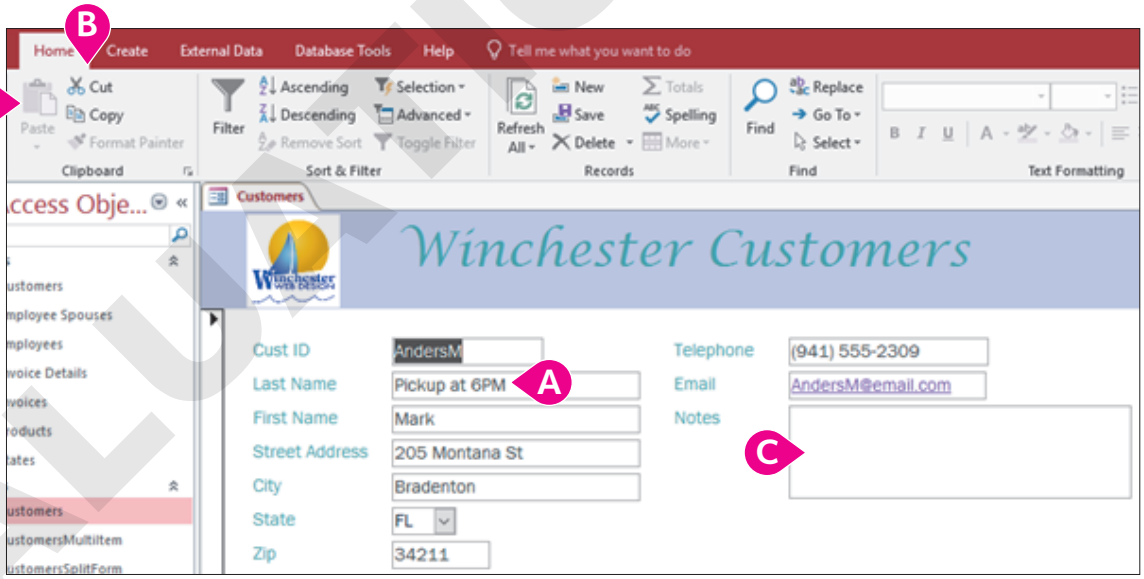
In this exercise, you will use Access to copy data from the source destination to the target destination. You will also use a form control and cut data from its original location and paste it into the target location.

1. Ensure that Access is open and then choose **File** to display the Backstage view.
2. Choose **Open**.
3. Open **OV-D3-WinDesignRev** from your **Overview Chapter 1** folder and save it as: **`OV-D5-WinDesignRev`**
4. Open the **Customers** form located in the Navigation pane on the left by double-clicking the form name.



The form opens in Form View. Now you will move text from one field to another using the Cut command.

5. Follow these steps to cut data from the selection and paste to the target:



A. Highlight the text **Pickup at 6PM**, located in the Last Name text box.

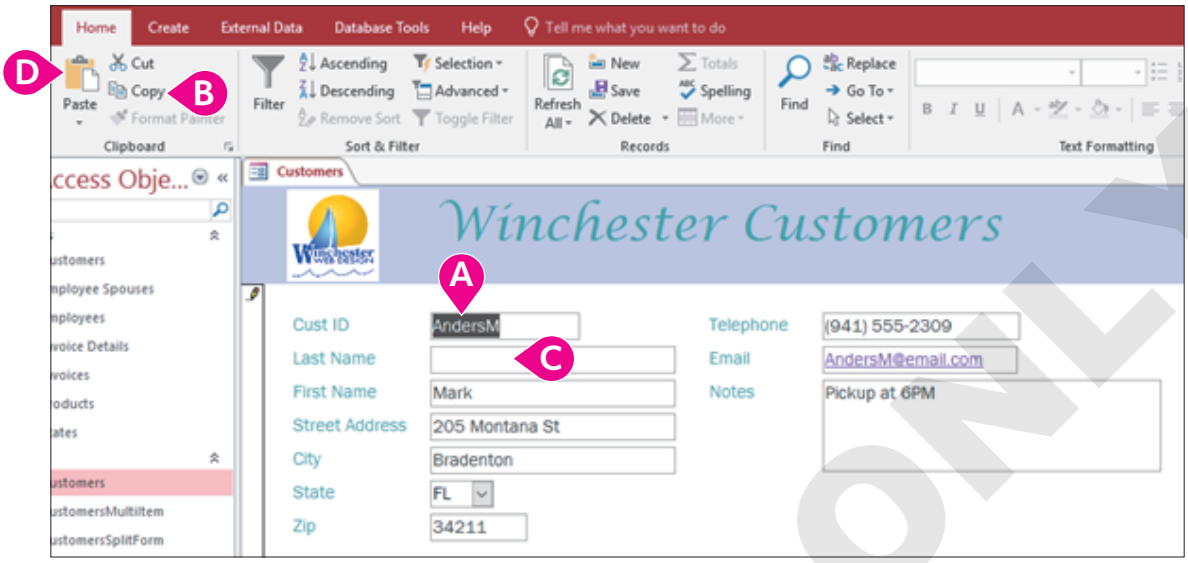
B. Choose **Home→Clipboard→Cut** .

C. Click the **Notes** text box.

D. Choose **Home→Clipboard→Paste** .

The note has been moved to the Notes text box and the Last Name textbox is now blank. Next you will use the Copy command.

6. Follow these steps to copy data from the selection and paste to the target:



A. Highlight the text **AndersM**, located in the Cust ID text box.

B. Choose **Home→Clipboard→Copy**.

C. Click the **Last Name** text box.

D. Choose **Home→Clipboard→Paste**.

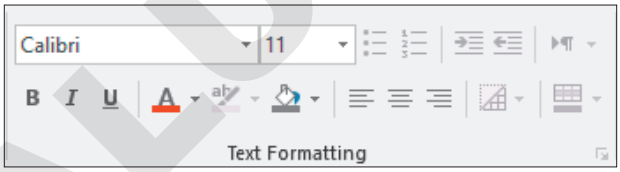
The data appears in both the Cust ID and the Last Name text box. Now you will make a final edit to the Last Name field.

7. Tap the Backspace key one time to remove the *M*.

Leave the form open for the next exercise.

Formatting Text Using Text Formatting Group Settings

To make your selection more visibly appealing and easy to read, you may want to use some or all of the font formats available in the Text Formatting group. To apply the formats, you must first select text.



The Format Painter applies multiple formats located in one control to another within the object. Think of the selected control as your paint can. You apply the formats found in your paint can, the selected control, to another control with the help of the paintbrush, or Format Painter. Whatever control you select gets the formatting. You can use Format Painter to format multiple controls by double-clicking the Format Painter button. To turn off the multiple-use feature and stop "painting," tap the Esc key.

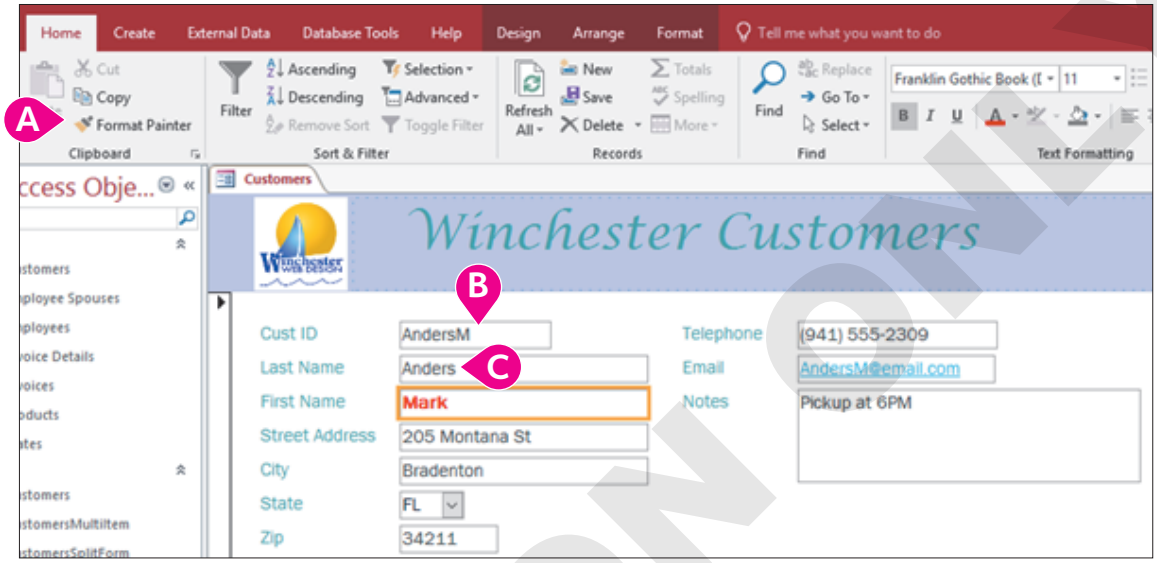
DEVELOP YOUR SKILLS: O1-D6

In this exercise, you will make text bold, change the font color, and use the Format Painter.

1. Choose **Home→Views→View** to switch to Layout View.
2. Select the **First Name** text box.

3. Choose **Home→Text Formatting→Bold** B.
4. Choose **Home→Text Formatting→Font Color** A.

   Text in the First Name text box is now formatted to bold and red.
5. Follow these steps to apply formatting taken from the selected text to the chosen target using Format Painter:



A Double-click the **Format Painter** button.

B Click the **Cust ID** text box.

C Click the **Last Name** text box.

The same formatting applied to the First Name text box is now applied to both Last Name and Cust ID text boxes.

Leave the form open for the next exercise.

The Mini Toolbar

The Mini toolbar is a floating toolbar that contains some of the more commonly used formatting buttons found on the Home tab and specific to the application. The Mini toolbar appears at various times in all the Office applications, giving you a convenient way to choose the most commonly used commands.

Note! *In Access, the Mini toolbar appears only if you are working with rich text. By default, the text properties for most data types is plain text so you will not likely see the Mini toolbar unless you have changed the field settings.*

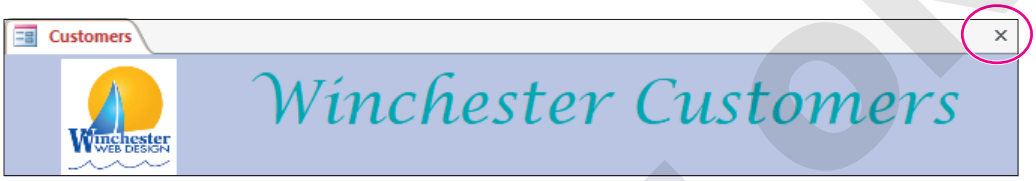
The Mini toolbar in Access (left) and Word (right)

DEVELOP YOUR SKILLS: O1-D7

In this exercise, you will use the Mini toolbar in Access to apply formatting.

1. Choose **Views→View** to change to Form View.
2. Highlight the text **6PM** in the Notes text box.

   The Mini toolbar appears.
3. In the Mini toolbar, click the **Bold** B button and the **Font Color** A button to apply red formatting.
4. Click anywhere in the form to close the Mini toolbar.
5. Click the **Close** × button at the far right of the Customers tab.



6. Click **Yes** when prompted to save your changes to the Customers form.

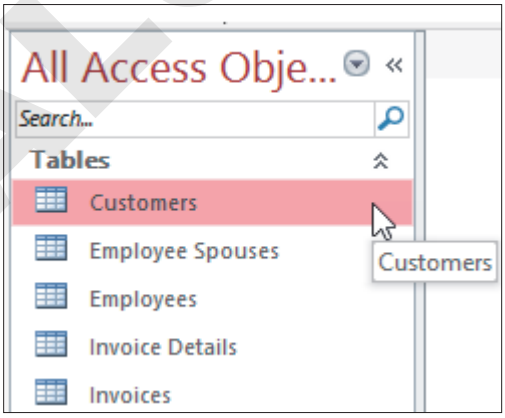
Find and Replace

Within a database you may need to locate text quickly. You may also need to substitute data for something else. The Find command is used to search for characters, symbols, numbers, words, phrases, or any other data that meet the criteria. The Replace command first finds whatever meets the criteria and then replaces it with data you desire.

DEVELOP YOUR SKILLS: O1-D8

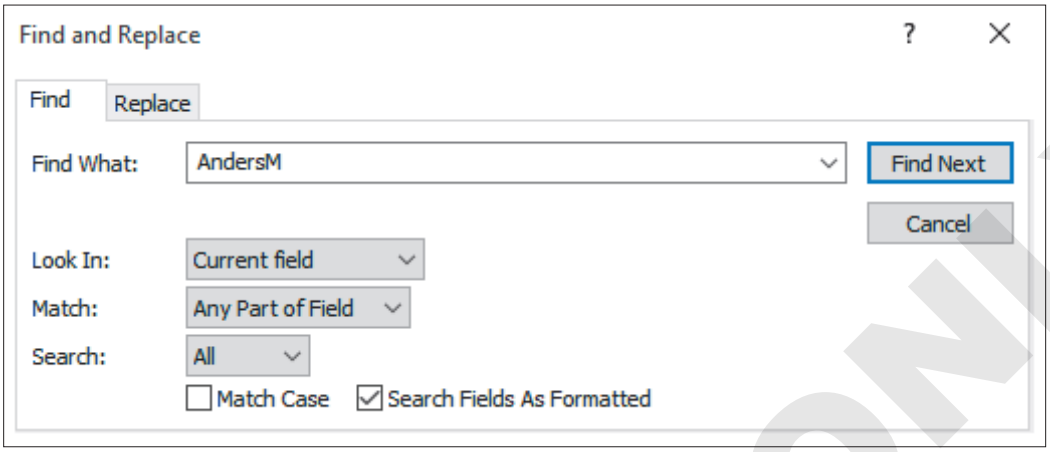
In this exercise, you will use the Find command to locate the word dogs *and then replace each occurrence with* puppy.

1. Open the **Customers** table located in the Navigation pane on the left by double-clicking the table name.



2. Choose **Home→Find→Find**.

   The Find and Replace dialog box opens.



3. Click the drop-down arrow for the **Look In** option and choose **Current Document**.
4. Click the drop-down arrow for the **Match** option and choose **Any Part of Field**.
5. Type **dogs** in the Find What box.
6. Click **Find Next**.

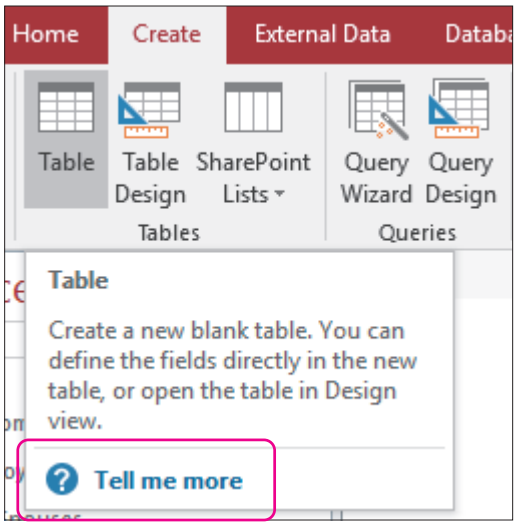
   The word dogs *is highlighted in the table.*
7. Click the **Replace** tab in the Find and Replace box.

   Verify that the Find What box displays dogs.
8. Type **puppy** in the Replace With box.
9. Click **Replace All** to change the one occurrence of the word *dogs* to *puppy*.
10. Click **Yes** in the Microsoft Access message box.
11. Close the Find and Replace box.

Help

When you are working in Microsoft Office, you may need to find out more about a topic as it relates to the application. Located to the right of the last tab on the Ribbon is the *Tell Me What You Want to Do* box. This box provides a quick way to access help or learn more about a feature in the application. When you click the box, suggestions related to the application display. Use the text box to enter words or phrases describing what you would like to do or locate next in the application. You can use the Tell Me... box to research or explain the meaning of a term with Smart Lookup. To view a list of Help topics, tap the F1 function key on the keyboard.

Another Help feature is the *Tell Me More* link that may display at the bottom of a button's help tip. When you click the link, the Help window displays with more information about the specific feature. Using this method, you learn more about the feature without typing any search text.



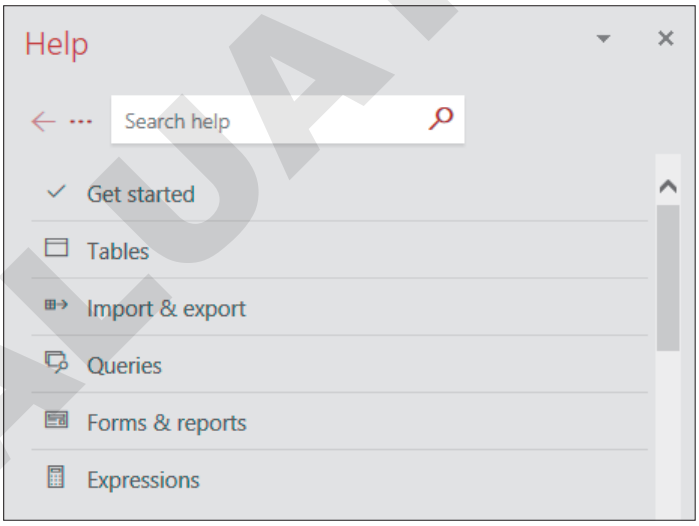
Some buttons display robust ToolTips with a Tell Me More link when you point to them.

DEVELOP YOUR SKILLS: O1-D9

In this exercise, you will explore the Help and Tell Me More features.

1. With your Access database open, tap the F1 key.

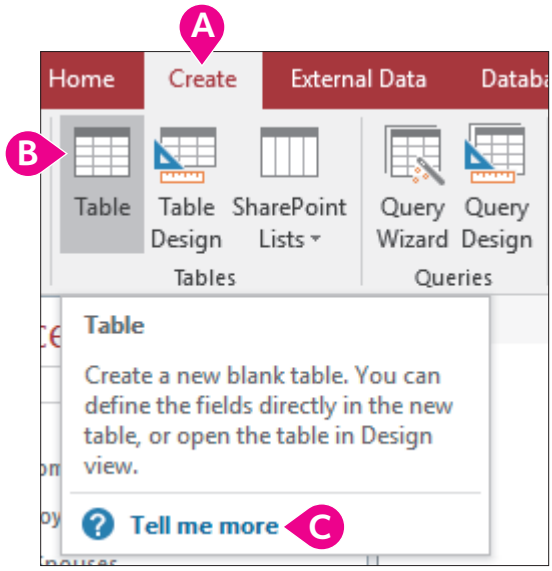
   The Access 2019 Help window appears.



2. Click in the **Search Help** box, type **Tables**, and press Enter.

   Search results display numerous articles that include or relate to the topic of Tables.

3. Close the Help window.
4. Follow these steps to open the Tell Me More link for the Table command:



A Click the **Create** tab in the Ribbon.

B In the Tables group, hover your mouse pointer over the Table command (don't click).

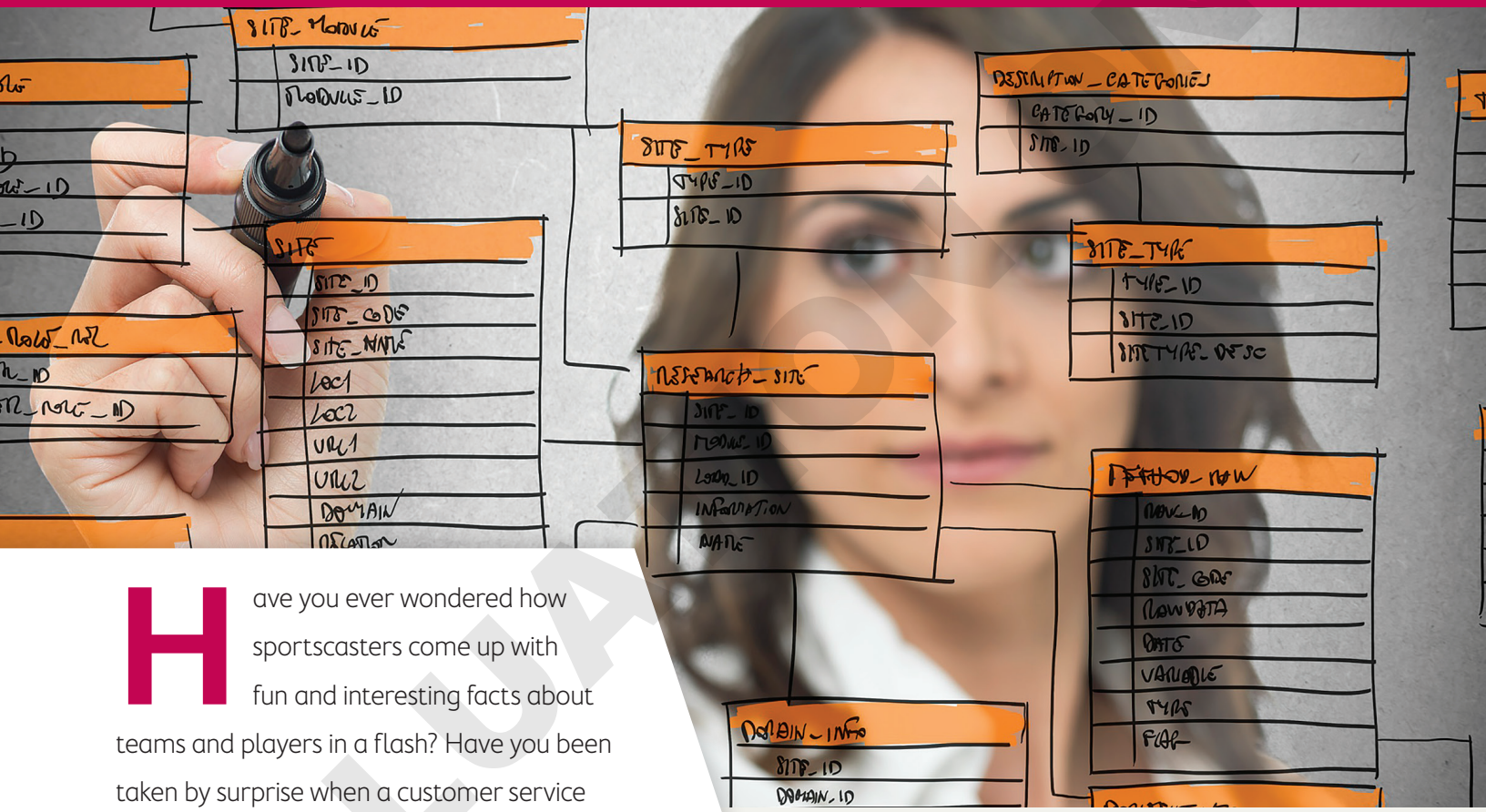
C Click the **Tell Me More** link at the bottom of the ToolTip.

The help window opens with topics related to the Create Table command.

5. Close the Help window and then **Close** Access.

ACCESS

1 Getting Started with Tables



Have you ever wondered how sportscasters come up with fun and interesting facts about teams and players in a flash? Have you been taken by surprise when a customer service agent suddenly begins to recite your name, address, and a detailed purchase history? In most cases, these people have access to a powerful database from which they obtain the information. In this chapter, you will be introduced to database concepts and work with tables, the starting point of all databases.

LEARNING OBJECTIVES

- Identify database objects and the functions they perform
- Identify table features
- Create database tables
- Identify and choose data types
- Sort and filter table records
- Import a data source
- Establish a relationship between two database tables

Project: Creating a Database

Winchester Web Design is a website development company that specializes in building websites for small businesses. You have been asked to build a database to help the company manage its employee, customer, and sales data. You'll get started by creating a database and building tables and table relationships.

Introducing Databases

It is likely that you routinely interact with databases. If you make an online purchase, your order information goes into a database. The database might be used to track your order status, product likes and reviews, past orders, or future promotions. If you post or like something on your Facebook account, that information is maintained in a database. If you search for or store a telephone number, that information is likely kept in a database. It is quite possible you have been using databases without even knowing it! Here, you will be introduced to what a database is and gain a better understanding of related terms, explore a sample database, and, finally, create your own!

While there are many definitions of a database, you can think of a database as an organized collection of related data files or tables. For example, a company might organize its information by both customers (external to the business) and employees (internal to the business). While the data relate to the same business, the types of data provided for customers and employees will likely differ.

Databases are the epicenter of our digital world.

Types of Databases

Large organizations typically use large custom-designed databases specifically for that company or industry. When you make travel plans, you are using a database that is specific to the airline industry. It contains real-time data, meaning that if there is only one seat left on a plane, whoever selects and pays for the seat first gets the reservation. If you are a small-business owner, you may use predesigned database software such as Microsoft Access to track information about your customers, products, and employees. Access provides the tools needed to let small organizations create, use, and maintain databases.

Open and Save an Access Database

Each time you start Access, the Backstage view displays options for opening an existing file, creating a new blank database, or selecting from a number of prebuilt templates. If you're creating a new database, Access will immediately prompt you to save the file in your desired storage location. You must save your file first because the database will constantly update data as it is entered or edited.

DEVELOP YOUR SKILLS: A1-D1

In this exercise, you will open an existing Access database and save it with a new name.

1. Start Microsoft Access.
2. Browse through the list of templates and then choose **Open Other Files** near the upper-left side of the window.
3. Click the **Browse** button, navigate to your **Access Chapter 1** folder, and double-click **A1-D1-WinDesign**.

   The database opens with the database objects shown in the Navigation pane on the left.
4. Click **Enable Content** if the Security Warning bar displays.

   The Security Warning appears whenever a database file is opened for the first time. When working with the files that correspond to this text you should always click the Enable Content button that appears. You should never open files unless you know or trust the file sender.
5. Choose **File→Save As**.

   Notice the Save Database As option is already selected in the File Types task pane to the left. This allows users to save the entire contents of a database, including any objects, relationships, and settings.
6. Click **Save As** to accept Access Database as the file type.
7. Replace the *1* at the end of the filename with **`Rev`** to make it *A1-D1-WinDesignRev* and then click the **Save** button.

   The database is saved as a Microsoft Access Database file type. This format saves databases as Access 2007–2019 files with the file extension of .accdb.
8. Click **Enable Content** when the Security Warning bar displays again.

   Not only did you save the database with a new name, which creates another file, but you also closed the original database and opened the new one, so the Security Warning appears again.
9. Keep Access open, as you will continue to use the database to explore the Access environment.

Note! *Always leave the database file open at the end of an exercise unless instructed to close it.*

Database Objects and the Access Window

The Access window includes the Ribbon, Navigation pane, and work area. The Navigation pane appears along the left side of the window and displays the database objects. A database object is a structure used to either store or retrieve data, and the four Access objects are tables, forms, queries, and reports. You can open and use database objects from the Navigation pane; you can also create new database objects using commands on the Ribbon along the top of the window. Whether you use the Ribbon to create a new object or double-click an existing object from within the Navigation pane, the object will open in the work area, where you create and modify database objects.

DATABASE OBJECT TYPES

Access Object	What It Does
Table	Tables contain the database's data, and they let you enter, edit, delete, or view records in a row and column layout that is similar to that used in an Excel worksheet.
Form	Forms are used to view, edit, delete, and add data to a table one record at a time.
Query	Queries are used to search for specific table records using criteria and to sort and perform calculations on the results.
Report	Reports are printable database objects that can display, group, and summarize data from tables and/or queries.

View the video "Working with Access Objects."

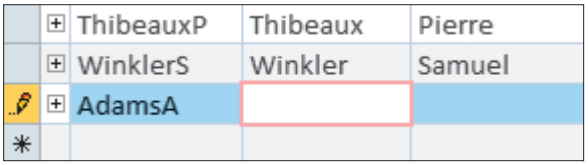
DEVELOP YOUR SKILLS: A1-D2

In this exercise, you will open and view the four Access object types.

1. Take a moment to explore the Access window, noticing the various tables, forms, queries, and reports in the Navigation pane.
2. Double-click the **Customers** table from within the Navigation pane to open the table in the work area.

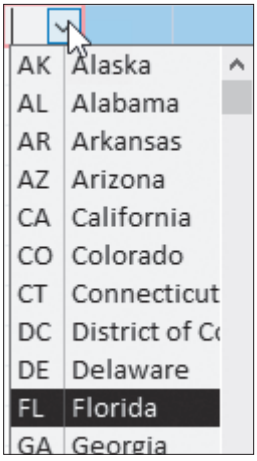
   The table opens in Datasheet View by default, which appears similar to a worksheet with columns and rows. Datasheet View lets you view, add, and edit table records. One benefit of Datasheet View is it lets you see more than one record at a time.
3. Click in the first empty **Cust ID** cell at the bottom of the CustID column.
4. Type **AdamsA** and tap Tab to complete the entry and move the insertion point to the next field.

   Notice the pencil icon highlighted in yellow. This indicates the current record is active and being created or edited.



   Cust ID *is known as a primary key field in this table, so each Cust ID must be unique.*
5. Type **Adams** in the Last Name field and tap Tab.

6. Enter **Anthony** as the first name, **23 Pine St** as the street address, and **Bradenton** as the city.
7. Click the drop-down **menu** button ▾ in the ST field and choose **FL** from the list of states.



The ST field is an example that utilizes field properties to make data entry easy and accurate.

8. Complete the record as follows, making sure to tap Tab after entering the information.

   Tapping Tab after entering data completes the record, saving it in the database. As you enter the telephone number, Access will automatically format the entry for you.
   - ZIP: **34210**
   - Telephone: **(941) 555-3648**
   - Email: **AAdams@email.com**
   - Notes: **Call for delivery.**
9. Choose **Home→Views→View menu button** ▾ and then choose **Design View**.

   Each object type can be created or edited using Design View. Tables Design View is where fields can be added, removed, or edited and field properties can be set.
10. Click the **View menu** button ▾ and choose **Datasheet View**.

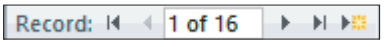
    The Anthony Adams record is now the second record in the table. It moved up because the records are sorted in ascending order by the data in the Cust ID field.

Explore a Form

Now you will explore a form that is based on the Customers table. Forms help facilitate effective data entry by displaying one record at a time.

11. Double-click **Customers Form** in the Forms section of the Navigation pane.

    The form displays all fields from the Customers table, but only one record is visible.
12. Locate the Record bar at the bottom of the form.



13. Click the **Next Record** button to view the Anthony Adams record you just entered.
14. Click in the **Notes** box and add the phrase **after 10:00** to the end of the note (that is, "Call for Delivery after 10:00").
15. Click the **Next Record** button again to complete the edit.

    This edit has now been saved in the Customers table.

Explore a Query

Now you will explore a query that is based on the Customers table. Queries choose specific database records using criteria that you specify.

16. Double-click **Customers Query** in the Queries section of the Navigation pane.

The query results look like a table displayed in Datasheet View, but the query displays only some of the fields from the underlying Customers table and records where the City is equal to Bradenton.

17. Click the **View menu** button ▾ on the Ribbon and choose **Design View**.

The query has fields from the Customers table and the criterion Bradenton. *This is an example of a simple query based on a single table. Queries can draw data from multiple tables and can include more sophisticated criteria.*

18. Choose **Query Tools→Design→Results→Run** ! to run the query and display only the Bradenton results.

Explore a Report

Now you will explore a report that uses multiple tables, including the Customers table.

19. Double-click **Invoice Details Report** in the Reports section.

Take a moment to scroll through and observe the report.

20. Switch to **Design View**.

The Report design grid may look complicated, but it's easy to create a robust report using the Access Report Wizard. The design grid can then be used to make modifications once the foundation has been set with the Wizard.

21. Switch to **Report View**, which is great for viewing reports.

22. Follow these steps to display and then close an object:

A Display the Invoice report by selecting the tab at the far right.

The object type is indicated on each tab by the icon on the left of the tab.

B Click the **Close Object** button at the far right to close the object.

23. Close the three open objects that remain.

24. Choose **File→Close** to close the database.

Introducing Tables

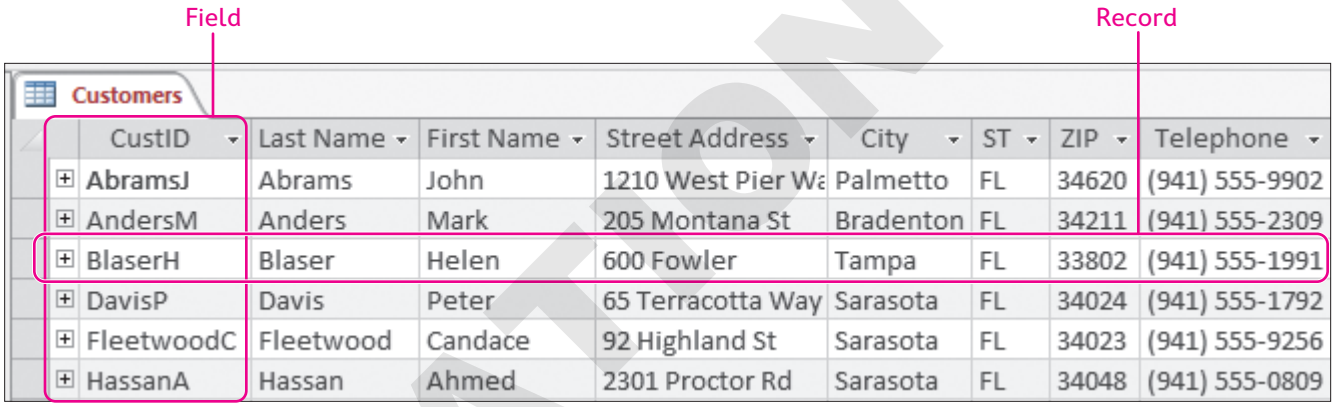
A table is the starting point for entering, finding, and reporting useful information located in your database. A database can have separate tables, each tracking different types of data. A business might use a table to keep track of customer billing or employee contact information.

Table Features

Data are meaningful units of information such as names, numbers, dates, and descriptions organized for reference or analysis. The data stored in the Winchester Web Design database might include customer first and last names, business names, telephone numbers, and other important information.

A field is the smallest meaningful unit of information about one person, place, or item. Individually, each field represents a piece of data. Together the fields provide information. In most databases fields are displayed in columns.

A record is a collection of related fields about a person, place, or item, such as a single customer or employee. A collection of related records makes up a table. In most databases records are displayed in rows.



CustID field and BlaserH record in Customers table

Field Data Types

If you have ever filled out an online form, you might have seen instant formatting of some fields. When typing in currency values, the dollar sign and decimal point may appear automatically, and when entering a date, the slashes between month, day, and year spontaneously appear. This can be accomplished by assigning a data type to the field. A data type sets the characteristics of a particular field, identifying the type of values it may hold, such as alphanumeric text or numbers, dates, yes/no values, or even a hyperlink.

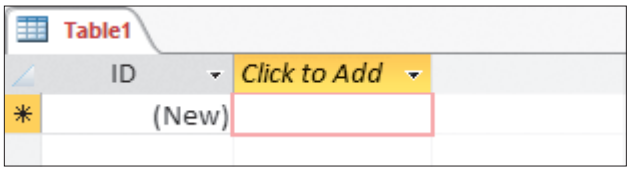
Primary Key Fields

Almost every database table should have a primary key field. A primary key is a unique identifier for each record in the table. Examples of field data that would make good primary keys are Social Security numbers, student IDs, and email addresses. Using a student ID as a primary key ensures that each student is uniquely identified in a student database table. Two students may have identical names, but they will never have identical student ID numbers.

Table Tools→Design→Tools→Primary Key

Creating a Table in a New Database

Instead of using a database that someone else has prepared, you can design your own using a blank database template in Access. Tables are the starting point for databases, and this shows up when a new blank database is first created. The new table has a single primary key field as a starting point for the database.



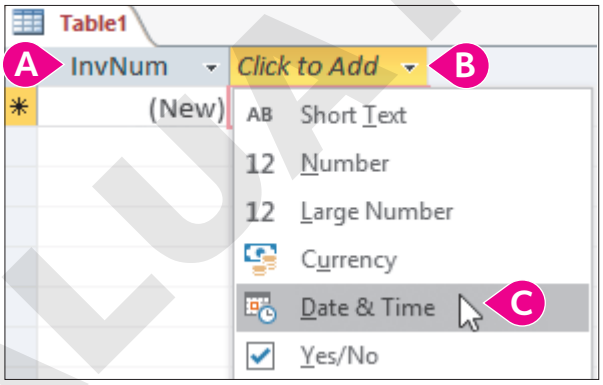
The starting point in a blank database

DEVELOP YOUR SKILLS: A1-D3

In this exercise, you will create a new blank database and add an Invoices table in Datasheet View.

1. Choose **File→New→Blank Database**.
2. Click **Browse Folders** and navigate to your **Access Chapter 1** folder.
3. In the File Name box at the bottom of the window, enter **`A1-D3-Datasheet`** as the filename and then click **OK**.

   The browsing window closes. Your new database file is now ready for creation in your chosen location using the filename you entered.
4. Click the **Create** button, and a new table will appear.
5. Follow these steps to change the name of the ID field and set the data type for a second field:



   A. Double-click the **ID** field name and type **`InvNum`** as the new name. This will be the primary key field.

   B. Tap Tab to go to the second column and, if necessary, choose **Click to Add** to display the data type list.

   C. Choose **Date & Time**.

   Once the data type is selected, the heading for the new field becomes Field1.

6. Replace *Field1* with the name **`InvDate`** and tap Tab to move to a new field.

   Your table currently has a primary key field and one Date/Time field.

7. Choose **Short Text** as the data type for the third field and change the field name to: **`EmpID`**
8. Tap Tab, choose **Short Text** for the fourth field data type, and change the field name to: **`CustID`**

   Your simple table with four fields is now set up and ready for data to be entered.

9. Click in the empty **InvDate** field directly below the InvDate header you just created (you might have to click twice) and type: **`12/15/2019`**
10. Tap Tab and type **`JFW`** as the EmpID.
11. Tap Tab and type **`SmithW`** as the CustID.
12. Enter the data for the three additional records shown.

    As you enter the records notice that the InvNum primary key field is automatically numbered because it has an AutoNumber property set.

Note! *You cannot enter data into a field that has an AutoNumber property set. Tap Tab or use your mouse to select the next field. Once you type data into the next field the AutoNumber field will automatically populate with the next available number in sequence.*

InvNum	InvDate	EmpID	CustID
1	12/15/2019	JFW	SmithW
2	12/2/2019	MJW	SantosE
3	1/1/2019	JMM	SantosE
4	11/30/2019	JMM	SmithW

13. Choose **File→Save** or click the **Save** button on the Quick Access toolbar and save the table with the name: **`Invoices`**
14. **Close** × the table.

Creating Tables in Design View

You may find it easier to create a new table in Design View than Datasheet View because Design View offers a straightforward layout and intuitive options for entering field names, setting data types, adding field descriptions, and setting field properties.

Create→Tables→Table

Field Properties

Each field data type has numerous properties that can be set to assist with data entry, formatting of displayed data, and other useful functions. Some properties contain drop-down menus and built-in wizards to help guide the user in setting the property.

Properties are set while working in Design View by using the Field Properties Pane at the bottom of the window.

Tip! *The field properties available are always based on the data type for the selected field. For example, a field set with the Number data type will include the Decimal Places property while fields set as Short Text would not.*

Customers

Field Name	Data Type	Description (Optional)
CustID	Short Text	
CustLastName	Short Text	
CustFirstName	Short Text	
CustStreetAddress	Short Text	
CustCity	Short Text	
CustState	Short Text	
CustZIP	Short Text	
CustPhone	Short Text	
CustEmail	Hyperlink	
Notes	Long Text	

Field Properties

General | Lookup

Field Size	15
Format	
Input Mask	
Caption	
Default Value	
Validation Rule	
Validation Text	
Required	Yes
Allow Zero Length	Yes
Indexed	Yes (No Duplicates)
Unicode Compression	Yes
IME Mode	No Control
IME Sentence Mode	None
Text Align	General

View the video "Exploring Field Properties."

DEVELOP YOUR SKILLS: A1-D4

In this exercise, you will create a new table using Table Design View. Then you will adjust the width of the table columns.

1. Choose **Create→Tables→Table Design**.

   Access opens an empty table in Design View.

2. Type **`CustID`** in the Field Name box and tap Tab.
3. Tap Tab to accept *Short Text* as the Data Type.
4. Type **`Customer Last Name and First Initial`** in the Description field and tap Tab.

   It's a good idea to use field descriptions when setting up tables to help keep track of the purpose and intent of the fields.

5. Click in the **CustID** field and choose **Table Tools→Design→Tools→Primary Key**.

   CustID is now a required field, and each record must have a unique customer ID. Notice the key icon next to the CustID field name, indicating it is the primary key field.

6. Click in the empty box below the CustID field and complete the following fields as shown:

Table1

Field Name	Data Type	Description (Optional)
CustID	Short Text	Customer Last Name and First Initial
CustLastName	Short Text	
CustFirstName	Short Text	
CustStreetAddress	Short Text	
CustCity	Short Text	
CustState	Short Text	2 character state abbreviation
CustZip	Short Text	5 digit ZIP code
CustPhone	Short Text	Area code and number
CustEmail	Hyperlink	
Notes	Long Text	Special comments

7. Click anywhere in the **CustLastName** field, and the Field Properties for that field will display at the bottom of the window.

8. Change the Field Size property to **`25`** and enter **`Last Name`** as the Caption property.

   The field will now accept only last names of up to 25 characters in length. The Caption property will make Last Name the label that appears for the field when the table is displayed in Layout View and when the table is used in queries, forms, and reports. Good database design requires the actual field names follow certain guidelines such as eliminating spaces within the name. The caption lets you follow good design principles while having more descriptive labels for fields.

9. Change the Field Size and Caption properties for the remaining fields as follows:

Field Name	Field Size	Caption
CustFirstName	`25`	`First Name`
CustStreetAddress	`25`	`Street`
CustCity	`15`	`City`
CustState	`2`	`State`
CustZip	`5`	`ZIP`
CustPhone	`15`	`Telephone`
CustEmail		`Email`

10. Choose **File→Save** or click **Save** on the Quick Access toolbar and save the table as: **`Customers`**

    If you ever forget to save, Access will prompt you to save when you close a table or other object.

Set an Input Mask Property

In the next few steps, you will set an input mask property for the CustPhone field. The input mask will automatically format telephone numbers as they are entered, adding parentheses, ( ), around the area code and a hyphen, -, between the digits.

11. Click anywhere in the **CustPhone** field and then click in the **Input Mask** property box.

12. Click the **Input Mask** button on the right side of the property box to display the Input Mask Wizard.

    The Input Mask Wizard has several steps that can be used to fine-tune the mask. However, the default settings will work just fine.

13. Click **Finish** to complete the input mask and apply it to the CustPhone field.
14. Click the **View menu** button ▾, choose **Datasheet View**, and choose **Yes** when asked if you want to save the table.

    Notice the CustID field is still listed as CustID because you did not apply a caption in the preceding steps. However, all other fields now display the captions you entered previously.

Enter Records

Notice as you are entering records that the input mask you just created formats the telephone numbers, and the email field is automatically formatted as a hyperlink because of the field type setting you made. Also, feel free to widen the columns slightly by dragging the double-headed arrow that appears between column headings if you need more space to see all the data.

15. Enter the following records.

    Be sure to check your data entry for accuracy.

Customers

CustID	Last Name	First Name	Street	City	State	ZIP	Telephone	Email	Notes
AndersM	Anders	Mark	205 Pine St	Bradenton	FL	34211	(941) 555-2309	MAnders@email.com	
DavisP	Davis	Peter	65 Maple St	Sarasota	FL	34228	(941) 555-1792	PDavis@email.com	
JeffriesD	Jeffries	Daniel	102 Fern St	Bradenton	FL	34209	(941) 555-6939	DannyJ@email.com	

16. Choose **File→Close** to close the database.

Sorting and Filtering Table Data

The primary purpose of any database is to locate and retrieve data quickly and efficiently. Sorting and filtering table records can help accomplish this goal.

When a table is created the records are automatically sorted using the primary key field. This can be changed by applying an ascending or descending sort to other table fields. You can even sort on more than one field, so customers could be sorted by last name and then by first name.

Home→Sort & Filter→Ascending *or* Descending

Filtering displays a subset of records. For example, in a customer table you may want to view only customer records for customers that live in a specific ZIP code. This is accomplished by applying a filter to the ZIP code field.

Home→Sort & Filter→Filter

DEVELOP YOUR SKILLS: A1-D5

In this exercise, you will sort and filter records in a database for a medical clinic named Raritan Clinic East.

1. Open **A1-D5-RCE** from your **Access Chapter 1** folder and save it as: **A1-D5-RCERev**
2. Double-click the **Patients** table in the Navigation pane to open it in Datasheet View.

    The records are sorted in ascending order (smallest to largest) on the Patient ID primary key field. Records are always sorted on the primary key field unless a sort is applied to one or more other fields.
3. Click any name in the Last Name column and then choose **Home→Sort & Filter→Ascending**.

Apply a Filter

4. Double-click the **Raritan Clinic East Doctors** table in the Navigation pane.
5. Click anywhere in the **ZIP** column and click the **Filter** button.
6. Uncheck the **Select All** box and then check the **34205** box.
7. Click **OK** to apply the filter.

   Just two records should now be visible. The remaining records are still in the table but are hidden from view because of the filter.
8. Close both tables and save the changes.

   The sort and filter you applied will be active next time the tables are used.
9. Choose **File→Close** to close the database.

Importing Data Sources

Organizations frequently have data in text files, Excel worksheets, and other formats that needs to be imported into a database. It's easy to import data into Access using the Import & Link tools. Data is imported into tables that become part of the database. Excel workbooks are the most common source of imported data.

External Data→Import & Link→Excel

DEVELOP YOUR SKILLS: A1-D6

In this exercise, you will import an Excel worksheet into a new table.

1. Open **A1-D6-WinDesign** from your **Access Chapter 1** folder and save it as: **`A1-D6-WinDesignRev`**
2. From the Ribbon, choose **External Data→Import & Link→New Data Source** and then choose **From File→Excel** from the menu.
3. Take a moment to examine the options in the first screen of the Get External Data Wizard.

   You will leave the how and where *option set to Import the Source Data into a New Table in the Current Database. Notice the data could also be appended (added) to an existing table if desired.*
4. Click the **Browse** button, navigate to your **Access Chapter 1** folder and choose **A1-D6-WebContacts**, and click **Open**.
5. Click **OK** to start the import and display the second Wizard screen.
6. Check the **First Row Contains Column Headings** box and click **Next** to specify the Excel column headings as the field names in the new table.

   The next Wizard screens let you adjust various settings, including field names and data types. In the next step you will change the data type for the email field, changing it to a hyperlink.
7. Click in the **Email** column and click the **Data Type menu** button.
8. Choose **Hyperlink** and click **Next**.

   The new Email field hyperlink formatting won't show up until the import is complete.

9. Click **Next** again to let Access add a primary key field with autonumbering.
10. Name the table **`Web Contacts`** and click **Finish**.
11. Choose **Close** on the final Wizard screen without checking the Save Import Steps box.

    The Web Contacts table appears at the bottom of the Tables list in the Navigation pane.
12. Double-click the **Web Contacts** table to open it in Datasheet View.

    Notice the hyperlink format is applied to the Email field.
13. Adjust the column widths to fit the widest entries in each column by either dragging the column head borders or autofitting the columns by double-clicking between two column heads.
14. Click **Save** on the Quick Access toolbar and close any open tables.

Relational Databases

Early database programs stored data in one large, flat file similar to a worksheet. If a salesperson sold merchandise and the same product was sold many times, these databases required the salesperson to enter the same product description and price for every transaction. Such repetitive data entry is time-consuming and bound to cause data errors and inconsistencies.

Relational databases like Access link tables using primary key fields. A good example is linking a Salesperson table with a Sales Invoices table. One salesperson might be linked to hundreds of sales invoices for which that person received commissions. Once a relationship between the Salesperson and Sales Invoices tables is created, all that's needed to associate an invoice with a salesperson is to choose the correct salesperson when creating the invoice. This type of relationship is called a one-to-many relationship because one salesperson is responsible for many invoices. The other types of database relationships are one-to-one and many-to-many, although they are not frequently used.

Database Tools→Relationships→Relationships

Referential Integrity

Referential integrity is an option that can be chosen when creating a relationship between tables. It is a set of rules that prevents changes from being made to fields or records that are related to other fields or records. For example, if referential integrity were in effect, then a salesperson could not be removed from a database that has invoices assigned to that salesperson. Referential integrity would require all the invoices either be removed (not a good idea) or associated with a different salesperson before the original salesperson's record could be deleted. Referential integrity also requires the data types of related fields to be the same or compatible.

Data Normalization

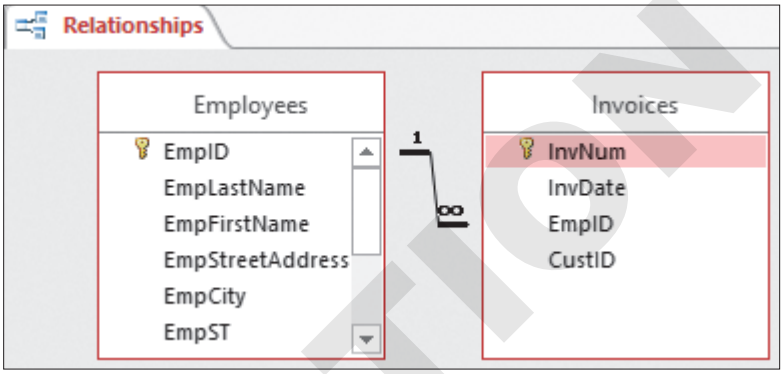
A properly designed database organizes tables and fields into their smallest usable units and then links them using relationships. This is known as normalization. Normalization eliminates data duplication, decreases data entry errors and inconsistencies, reduces file size, and streamlines the search for necessary information. An example of reducing fields to their smallest usable units would be to use separate fields for first name and last name rather than a single name field. If a single name field were used, then the database could never be searched or sorted by just last name or first name.

DEVELOP YOUR SKILLS: A1-D7

In this exercise, you will open the Relationships window, add tables, create a one-to-many relationship between the Invoices table and the Employees table, and set referential integrity for the relationship.

1. Choose **Database Tools→Relationships→Relationships**.
2. Click the **Show Table** button.
3. Add the **Employees** and **Invoices** tables to the Relationships window by double-clicking them from the list.
4. Close the Show Table box.

   The one-to-many relationship between the EmpID fields is automatically created because it is a primary key in the Employees table and a foreign (or secondary) key in the Invoices table. The line connecting the tables is called a join line. There's a 1 on the Employees side of the join line because EmpID is the primary key in that table. EmpID is a foreign key in the Invoices table, so it has an infinity symbol on that side of the join line. Each employee can have an unlimited number of invoices associated with them.



5. Click **Close** in the Relationships group on the Ribbon and choose **Yes** to save the relationship.
6. Choose **File→Close** to close the database and then close Access.

Self-Assessment

Check your knowledge of this chapter's key concepts and skills using the Self-Assessment in your ebook or online (eLab course or Student Resource Center).

Reinforce Your Skills

REINFORCE YOUR SKILLS: A1-R1

Create a Table in Datasheet View

In this exercise, you will create a new database and a table using Datasheet View.

1. Start Access and choose **Blank Database** from the template list.
2. Click the **Browse Folders** button and save the database to your **Access Chapter 1** folder as: **A1-R1-K4C**
3. Click the **Create** button to start a new database.
4. Double-click the **ID** heading and change the text to: **StID**

   This will be the primary key field with autonumbering, so your records will automatically get numbered.
5. Tap Tab, choose **Short Text** as the data type, and change the heading from *Field1* to: **StLName**
6. Add the following as fields with the Short Text data type: **StFName**, **StAdd**, **StCity**, **StST**, **StZIP**, **StPhone**, and **StAvail**
7. Choose **File→Save** or click **Save** on the Quick Access toolbar and save your table as: **Staff**
8. Click the first empty cell in the StLName field and enter the following records using these guidelines:
   - Use Tab to complete entries.
   - Enter hyphens in the phone field, as the field is not formatted with an Input Mask.
   - Widen the columns as necessary.
   - Strive for 100% accuracy when entering data, including spaces between characters and upper-case and lowercase letters.

StID	StLName	StFName	StAdd	StCity	StST	StZIP	StPhone	StAvail
1	Bryant	Matthew	12 Macintosh St	Sarasota	FL	34022	941-555-7523	Thursday
2	Earle	Kevin	77 Kingfisher Ct	Sarasota	FL	34024	941-555-1368	Monday

9. Choose **File→Close** to close the database.

REINFORCE YOUR SKILLS: A1-R2

Create a Table in Design View

In this exercise, you will create a new table using Table Design View. Then you will adjust the width of the table columns.

1. Choose **File→New** and then choose **Blank Database** from the template list.
2. Click the **Browse Folders** button and navigate to your **Access Chapter 1** folder. Name the database file: **A1-R2-K4C**
3. Click the **Create** button and then switch to **Design View**.
4. Save the table with the name **Children**, and the design grid will appear.

5. Replace the field name *ID* with **ChID** and tap Tab.

   Notice the key icon to the left of the Field Name indicating this is a primary key field.

6. Change the Data Type to **Short Text** and tap Tab.
7. Type **Last Name and First Initial** and tap Tab to complete the description.
8. Enter the remaining fields using the data types and descriptions shown:

Field Name	Data Type	Description (Optional)
ChLName	Short Text	
ChFName	Short Text	
ChAdd	Short Text	
ChCity	Short Text	
ChST	Short Text	2-char abbreviation
ChZIP	Short Text	5-digit ZIP code
ChPhone	Short Text	Area code & number
ChBday	Date/Time	

9. Click anywhere in the **ChPhone** field and then click in the **Input Mask** property box.
10. Click the **Input Mask** button on the right side of the Input Mask property box and choose **Yes** if asked to save the table.
11. Click **Finish** to accept the Phone Number input mask and apply it to the ChPhone field.
12. Switch to **Datasheet View**, saving the table if prompted to do so.
13. Enter these records, adjusting the column widths as necessary:

ChID	ChLName	ChFName	ChAdd	ChCity	ChST	ChZIP	ChPhone	ChBday
CregerK	Creger	Kurt	503 Hillview St	Sarasota	FL	34022	(941) 555-0245	10/12/2012
LangfordJ	Langford	James	43 Wisteria Ct	Bradenton	FL	34209	(941) 555-1098	8/13/2010

14. Choose **File→Close** to close the database, saving the changes if prompted.

REINFORCE YOUR SKILLS: A1-R3

Create, Import, and Sort Tables and Establish Relationships

The staff director of Kids for Change would like you to add two new tables to the database: one that stores various community activities and one that stores parent volunteers. You'll create one of these tables and import the other.

1. Open **A1-R3-K4C** from your **Access Chapter 1** folder and save it as: **A1-R3-K4CRev**

   The first thing you'll do is import a worksheet into a table, which will then be linked with other tables through relationships.

2. Choose **External Data→Import & Link→New Data Source**.
3. From the menu that appears, choose **From File→Excel**.
4. Click the **Browse** button on the first Wizard screen and navigate to your **Access Chapter 1** folder.
5. Choose **A1-R3-ActivityParticipation** and click **Open**.
6. Click **OK** to import the worksheet into a new table and display the next Wizard screen.
7. Click **Next** again to choose **ActivityParticipation** as the worksheet to use.

8. Check the **First Row Contains Column Headings** box and click **Next** to specify the Excel column headings as the field names in the new table.
9. Click **Next** again to accept the data type of the two fields as Short Text.
10. Click **Next** again to let Access add a primary key field.
11. Click **Finish** to accept *ActivityParticipation* as the table name and then click **Close** to complete the import.

    ActivityParticipation *should now be in the table list.*

Sort the Imported Worksheet

12. Double-click the **ActivityParticipation** table to open it in Datasheet View.

    Notice the table is sorted in ascending order by Activity ID.
13. Click anywhere in the **Child ID** column and choose **Home→Sort & Filter→Ascending**  .

    The records are now sorted by Child ID to easily see all the activities each child has participated in.
14. Close the table and save the changes.

Create Relationships

15. Choose **Database Tools→Relationships→Relationships**  .

    Notice there is currently a relationship between the Donors and Donations tables.
16. Click the **Show Table**  button.
17. Add the **Children**, **ActivityParticipation**, and **Activities** tables and then close the Show Table box.
18. Drag the **Child ID** primary key field from the Children table and drop it on the ChildID field in the Activity Participation table.

    Make sure ChildID *appears in both the Table/Query and Related Table/Query lists.*
19. Check the **Enforce Referential Integrity** box and then click the **Create** button to complete the relationship.
20. Drag the **ActID** field from the Activities table and drop it on the ActID field in the **ActivityParticipation** table.
21. Choose to **Enforce Referential Integrity** and then click **Create**.

    These relationships will now allow a database user to determine all the activities a particular child has participated in and to view the details of those activities.
22. Click the **Close**  button above the relationships and choose **Yes** to save the relationships.

Add a Table in Design View

23. Choose **Create→Tables→Table**  .
24. Choose **Home→Views→Design View**  and save the table as: **`Volunteers`**

25. Follow these guidelines to set up the table and enter a record:

- Use the field names provided in the image.
- Let VolID be the primary key field with autonumbering.
- Set the data type of all fields (except the primary key field) to **Short Text**.
- Enter the record shown here, including the hyphens in the phone number:

VolID	VolLName	VolFName	VolStreet	VolCity	VolST	VolZIP	VolPhone	AvailDay
1	Jones	Stan	892 South St	Sarasota	FL	34024	941-555-8929	Tuesday

26. Choose **File→Close** when you are finished, saving the changes if prompted.

Apply Your Skills

APPLY YOUR SKILLS: A1-A1

Create a Database and Tables

In this exercise, you will create a new database with two tables.

1. Create a new database and save it to your **Access Chapter 1** folder as: **A1-A1-SunStateU**
2. Create a new table named **Classes** using these field names, data types, and captions:

Field Name	Data Type	Caption
ClassID	**Short Text (Primary Key)**	
Department	**Short Text**	
ClassNumber	**Short Text**	**Class Number**
SectionNumber	**Short Text**	**Section Number**
RoomNumber	**Short Text**	**Room Number**
StartTime	**Date/Time**	**Start Time**
EndTime	**Date/Time**	**End Time**
CreditHours	**Number**	**Credit Hours**

3. Brainstorm and add at least two records to the table and then close the table.
4. Create another new table named **Professors** using these fields and data types and making **ProfID** the primary key field:

Field Name	Data Type
ProfID	**Short Text**
ProfLastName	**Short Text**
ProfFirstName	**Short Text**
ProfDept	**Short Text**
ProfRank	**Short Text**

5. Brainstorm and add at least two new records to the table and then close the table.
6. Choose **File→Close** to close the database.

APPLY YOUR SKILLS: A1-A2

Import a Table and Establish a Relationship

In this exercise, you will import an Excel worksheet and establish a relationship between the new table and an existing table.

1. Open **A1-A2-Customers** from your **Access Chapter 1** folder and save it as: **A1-A2-CustomersRev**
2. Open the **Customers** table in Datasheet View.
3. Sort the records in **Ascending** order on the **CustZIP** field.

4. Widen all columns to fit the widest entry in the columns.
5. Close the table, saving the changes.

Import a Worksheet

6. Follow these guidelines to import the **A1-A2-Invoices** workbook in your **Access Chapter 1** folder as a table into the open database:
   - Leave all field names and data types as they are in the Wizard.
   - Make **InvNum** the primary key field.
   - Use **`Invoices`** as the table name.
7. Double-click the **Invoices** table to open it in Datasheet View.
8. Sort the table in **Ascending** order on the **EmpID** field.
9. Close the table, saving the changes.

Establish a Relationship

10. Open the **Relationships** window and create a relationship between the CustID fields in the Customers and Invoices tables, enforcing referential integrity.
11. Close the Relationships window and save the changes to the relationship.
12. Choose **File→Close** to close the database.

APPLY YOUR SKILLS: A1-A3

Create a Table, Import a Database, and Establish a Relationship

In this exercise, you will create a database to track the courses taught by specific teachers in a nonprofit organization.

1. Create a new database and save it to your **Access Chapter 1** folder as: **`A1-A3-Teachers`**
2. Follow these guidelines to create the table shown:
   - Use the table name, field names, and data as shown.
   - Set all data types to **Short Text** and make **TeacherID** the primary key field.
   - Enter this data:

TeacherID	TFirstName	TLastName	TStatus
Amack	Alex	Mack	Fulltime
Bsmith	Brian	Smith	Parttime
Jjones	Jack	Jones	Parttime
Twatts	Tonya	Watts	Fulltime

3. Close the table and save it with the name: **`Teachers`**
4. Import the **A1-A3-Courses** workbook (**Access Chapter 1** folder) using **CourseID** as the primary key field and naming the table: **`Courses`**
5. Establish a one-to-many relationship between the **TeacherID** fields in the Teachers and Courses tables and enforce referential integrity.
6. Close and save the Relationships window and close the database.

Project Grader

If your class is using eLab (labyrinthelab.com), you may upload your completed Project Grader assignments for automatic grading. You may complete these projects even if your class doesn't use eLab, though you will not be able to upload your work.

PROJECT GRADER: A1-P1

Taylor Games: Create and Import Tables

Taylor Games creates replacement parts for many different games as well as various types of dice. You've been asked to create a database to manage orders and inventory. It would like you to use the data from a spreadsheet that was previously created to manage inventory for various items.

1. Download and open your Project Grader starting file.
   - *Using eLab:* Download **A1_P1_eStart** from the Assignments page. You *must* start with this file or your work cannot be automatically graded.
   - *Not using eLab:* Open **A1_P1_Start** from your **Access Chapter 1** folder.
2. Create a new table named **Orders** that contains the following fields and criteria:

Field Name	Data Type	Primary Key	Field Size	Caption
Order_ID	AutoNumber	Yes		Order #
Order_Date	Date & Time			Date
SKU	Number		Double	
Item	Short Text			
Quantity	Number			
Cost	Currency			
Total_Cost	Currency			Total Cost

3. Import data from an Excel file into a new table using the following guidelines in the Import Wizard:
   - Choose the **A1_P1_Inventory.xlsx** Excel workbook from your **Access Chapter 1** folder.
   - The first row should contain column headings.
   - Leave all Field Options set to the default values.
   - Use **SKU** as the primary key.
   - Import to a table named: **Inventory**
4. Sort the Inventory table data in **Ascending** order on the **Quantity** field; then close the table, saving the changes.
5. Create a one-to-many relationship between the SKU fields in the Inventory and Orders tables, enforcing referential integrity. Close and save the relationship when you are finished.
6. Save your database.
   - *Using eLab:* Save it to your **Access Chapter 1** folder as **A1_P1_eSubmission** and attach the file to your eLab assignment for grading.
   - *Not using eLab:* Save it to your **Access Chapter 1** folder as: **A1_P1_Submission**

PROJECT GRADER: A1-P2

WebVision: Design a Database and Create Tables

You are the Senior Sales Rep for WebVision, a startup company providing a unique closed-circuit television service. You've been asked to create an Access database of the most recent orders taken and relate them to the sales reps who made the sales.

1. Download and open your Project Grader starting file.
   - *Using eLab:* Download **A1_P2_eStart** from the Assignments page. You *must* start with this file or your work cannot be automatically graded.
   - *Not using eLab:* Open **A1_P2_Start** from your **Access Chapter 1** folder.
2. Create a new table named **`Sales Reps`** that contains the following fields and criteria:

Field Name	Data Type	Primary Key	Caption
`RepID`	`Short Text`	`Yes`	`Rep ID`
`LastName`	`Short Text`		`Last Name`
`FirstName`	`Short Text`		`First Name`
`SalesTeam`	`Short Text`		`Sales Team`

3. Enter the following data into the Sales Rep table and then close the table, saving the changes, if necessary:

Rep_ID	LastName	FirstName	SalesTeam
`S101`	`Franks`	`Bernie`	`North`
`S102`	`Edmunds`	`Sally`	`Central`
`S103`	`Berry`	`Amy`	`West`
`S104`	`Lifestone`	`Ben`	`South`

4. Import data from an Excel file into a new table using the following guidelines in the Import Wizard:
   - Choose the **A1_P2_Orders.xlsx** Excel workbook from your **Access Chapter 1** folder.
   - The first row should contain column headings.
   - Leave all Field Options set to the default values.
   - Use **OrderID** as the primary key.
   - Import to a table named: **`Orders`**
5. Make the following changes in the Orders table:
   - Set the caption for the OrderID field to: **`Order Number`**
   - Set the caption for the RepID field to: **`Rep ID`**
   - Sort the data in the **Date** field in descending order and then close the table, saving the changes if necessary.
6. Create a one-to-many relationship between the RepID fields in the Sales Reps and Orders tables, enforcing referential integrity. Close and save the relationship when you are finished.
7. Save your database.
   - *Using eLab:* Save it to your **Access Chapter 1** folder as **`A1_P2_eSubmission`** and attach the file to your eLab assignment for grading.
   - *Not using eLab:* Save it to your **Access Chapter 1** folder as: **`A1_P2_Submission`**

Extend Your Skills

These exercises challenge you to think critically and apply your new skills in a real-world setting. You will be evaluated on your ability to follow directions, completeness, creativity, and the use of proper grammar and mechanics. Save files to your chapter folder. Submit assignments as directed.

A1-E1 That's the Way I See It

You've volunteered to help a nonprofit organization determine how much recyclable material is being collected by the five recycling centers in the area. You've been tasked with creating a database with contact information for the five centers. You will also visit the five centers, gathering information on the recyclables they accept and the annual number of metric tons of each that they've collected each year over the past three years. The annual tonnage information needs to be in a separate table that is related to the Centers table. Save your completed database as: **A1-E1-Recycle**

A1-E2 Be Your Own Boss

Your boss, the owner of Blue Jean Landscaping, has decided to sponsor the Sarasota Service Guild, a nonprofit organization created to raise money to help adults with disabilities. It needs a database that tracks businesses that donate to the guild and the donations that are made. Create a database with tables and fields to track the businesses and the donations they make. Create a relationship that can be used to relate businesses to the donations it has made over the past five years. Populate your tables with information for two businesses, with each making an annual donation over the past five years. Include relevant information about the businesses, including their names, addresses, and primary contact information. Include the amount and date of the annual donations. Save your completed database as: **A1-E2-BJL**

A1-E3 Demonstrate Proficiency

Stormy BBQ wants to modernize its business. It has hired you to design and create a database for its BBQ restaurant. Use Access to create a database with three tables: one for staff, one for menu items, and one for transactions where each transaction lists the menu items on that transaction including the quantity and price of each item. Relate the menu and transactions tables. Enter enough data to be able to view and modify the tables as needed. Save your completed database as: **A1-E3-StormyBBQ**

ACCESS

2 Working with Forms

If you have ever entered your personal information on a college application, filled out a loan application, or purchased an item from an online retailer, you have used a form. You also use forms to sign up for social media and email accounts. In this chapter, you will create and work with Access forms that provide an attractive, easy-to-use interface that allows users to focus on one table record at a time.

LEARNING OBJECTIVES

- Create basic forms
- Create forms using the Forms Wizard
- Modify forms using Layout View
- Modify forms using Design View
- Set properties for form sections and form controls
- Set the tab order of a form
- Create multiple item forms and split forms

Project: Designing Forms at Winchester Web Design

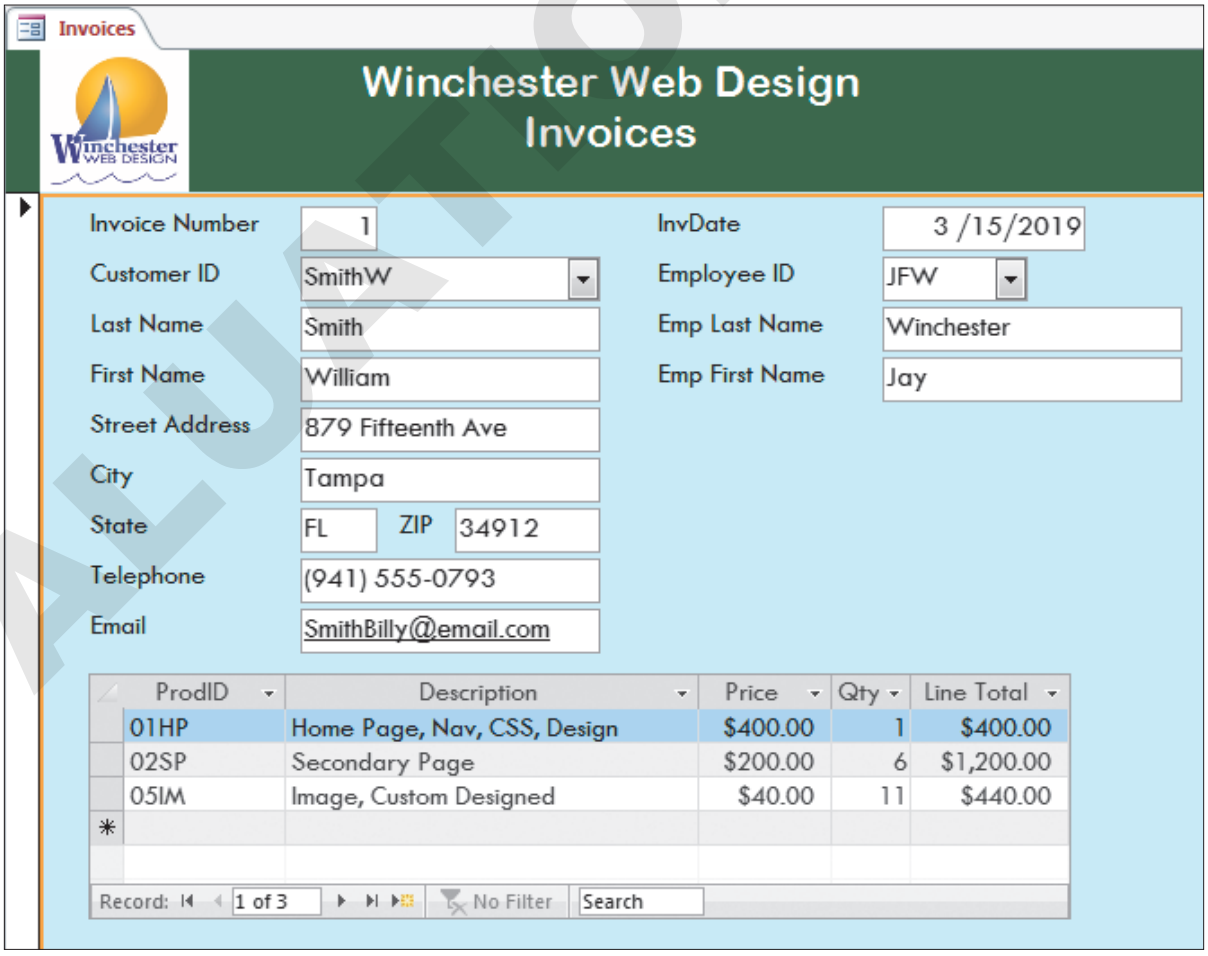
As the information technology (IT) director at Winchester Web Design, you are responsible for designing and formatting the forms and reports in the company database to make them more attractive, consistent, and user-friendly. Part of your job is to customize forms so they better identify the company. To accomplish this, you plan to create a consistent color scheme and add the corporate name and logo to all company forms.

Creating Forms

A form is a database object used to enter, edit, or view the data for individual table records. Forms are a nice alternative to the row and column arrangement of table Datasheet View. Being able to view and focus on a single record can help ensure data accuracy.

Record Sources

Forms display data from a record source, which is typically a single table or query. However, if a relationship exists between two or more tables, fields from all related tables can be displayed on the same form. An example is an Invoice form that displays fields from the Invoice, Products, Customers, and Employee tables.



A form with controls containing data from fields in the Invoice, Products, Customers, and Employee tables

Creating and Using Basic Forms

The Form button instantly creates a basic form based on the table or query selected in the Navigation pane. This is the easiest way to create a form using all fields from the selected table or query. Only one table or query can be used in a basic form.

Create→Forms→Form

DEVELOP YOUR SKILLS: A2-D1

In this exercise, you will create a basic form and edit a record using the form.

1. Open **A2-D1-WinDesign** from your **Access Chapter 2** folder and save it as: **A2-D1-WinDesignRev**

   When completing exercises, always choose to Enable Content.

2. Choose the **Employee Spouses** table in the Navigation pane by clicking the table name (don't double-click).

3. Choose **Create→Forms→Form**.

   A basic form is created based on all fields in the Employee Spouses table and is displayed in Layout View. Layout View is used to size and position form controls.

4. Click the **View menu** button and choose **Form View**.

   Form View is used for entering, editing, and viewing table records one at a time. The navigation controls located in the record selector at the bottom of the form are used to browse table records and create new records.

5. Navigate to record 2 (the Tom Franklin record) by clicking once on the **Next Record** button in the navigation controls.

6. Change the last four digits of the phone number to: **6767**
7. Choose **File→Save** or click **Save** on the Quick Access toolbar and save the form as: **Employee Spouses**
8. Click the **Close** button on the right side of the form.

Creating Forms with the Form Wizard

The Form Wizard is a great way to get started with the creation of most forms. It allows you to build a form using the fields you choose from one or more tables or queries (record source). When choosing the fields your form requires, the Add and Remove buttons allow you to add or remove the field selected, while the Add All or Remove All buttons add or remove all fields within the record source with one command. You can also choose from multiple layout options—including Columnar, Tabular, Datasheet, and Justified—from within the Wizard. The form can then easily be modified using Layout View or Design View.

View the video "Working with the Form Wizard."

Create→Forms→Form Wizard

DEVELOP YOUR SKILLS: A2-D2

In this exercise, you will use the Form Wizard to create a form.

1. Choose the **Customers** table in the Navigation pane.
2. Choose **Create→Forms→Form Wizard**.

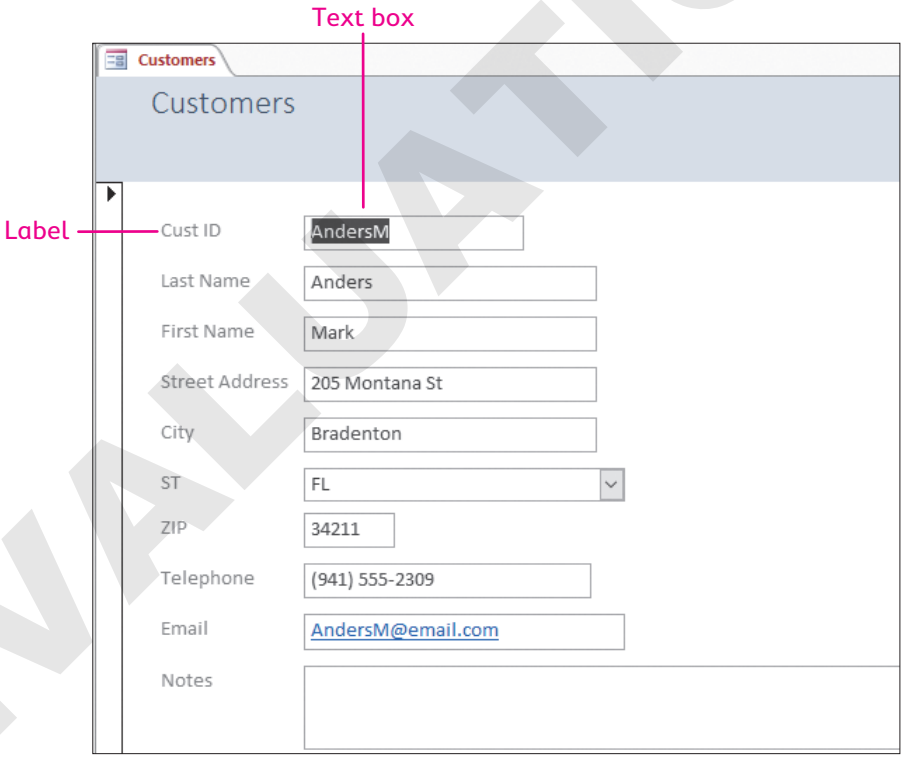
   Customers is chosen in the Tables/Queries list because you chose it before starting the Wizard.
3. Click the **Add All Fields** >> button and click **Next**.

   This adds all fields from the Customers table to the Selected Fields list. You could add fields from other tables and queries as well, although you won't do that now.
4. Click **Next** again to accept the Columnar layout format option.
5. Leave the form name as *Customers* and click **Finish**.

   The form is displayed in Form View and is ready for data entry or editing.

Changing Forms in Layout View

A typical form has a header section where tiles, logos, and decorative elements are displayed and a detail section with control labels and text boxes. In a basic form, most labels will contain the name of the field, while the text box displays the field data for that record.



These objects can easily be sized, moved, edited, and removed in Layout View. Multiple objects can be selected by holding the Ctrl key while clicking each desired one. Selecting multiple objects allows you to format or edit those objects at one time.

View the video "Reorganizing Forms in Layout View."

Home→Views→Layout View

DEVELOP YOUR SKILLS: A2-D3

In this exercise, you will size, position, and edit controls, and you'll get extensive practice selecting multiple controls.

1. With the Customers form still open, click the **View menu** button and choose **Layout View**.
2. Click the **Street Address** label to select it.
3. Click in the selected label, just to the right of *Address*.
4. Tap the Backspace key until the word *Address* has been removed.

   The label should now be Street.
5. Click in the **ST** label and rename it to: **`State`**
6. Click in the **ZIP** label and change it to: **`Zip`**

Size Text Boxes

7. Click the large, empty **Notes** text box (not the label) to select it.
8. Hover the mouse pointer over the right edge until the adjust pointer appears.

9. Drag left, reducing the box width to equal the Email text box width.
10. Reduce the width of the State text box so it is slightly wider than the two-character state abbreviation.

Change the Position of Labels and Text Boxes

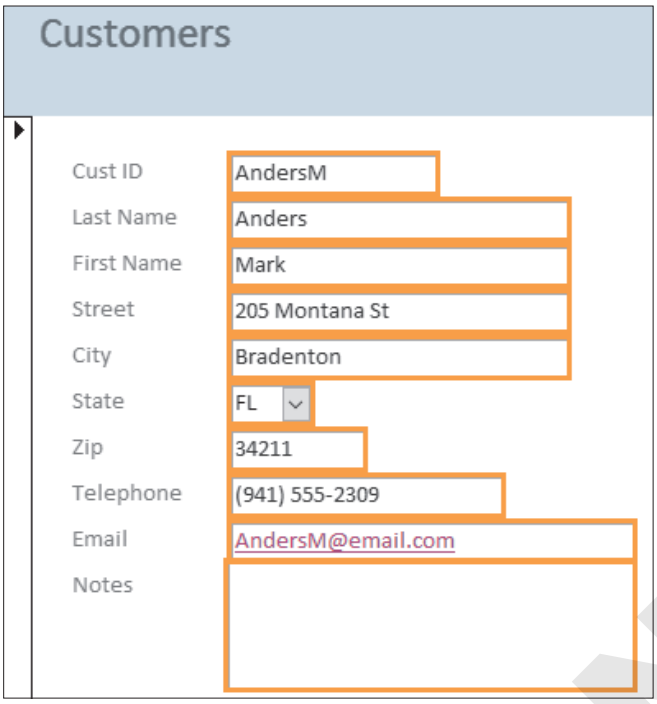
In the next few steps, you will move the text boxes so they are closer to their descriptive labels.

11. Click the large **Notes** text box.
12. Press and hold Ctrl and click the **Email** text box.

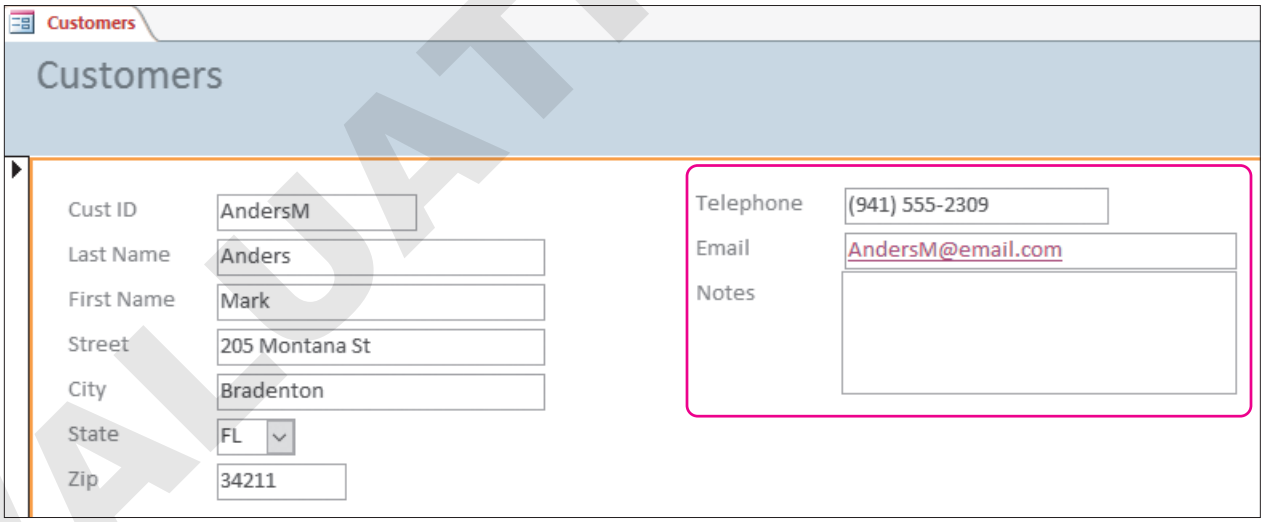
    Both boxes should be selected.
13. Press and hold Ctrl while you select all other text boxes in the column.

    Use Undo if you accidentally move the boxes while selecting.

14. Tap the **left arrow** ← key repeatedly to move the text boxes closer to their labels.



15. Click any empty part of the form (white background) to deselect all boxes.
16. Use the mouse and Ctrl key to select the **Telephone**, **Email**, and **Notes** labels and text boxes.
17. Use the keyboard or drag with the mouse (when the four-headed arrow appears) to move the labels and text boxes up and right as shown.



18. Choose **File→Save** or click **Save** on the Quick Access toolbar to save the changes to the form.

Changing Forms in Design View

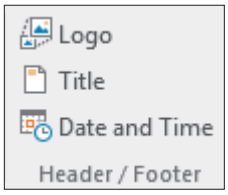
Form Layout View is a great tool for controlling the visual layout of a form, including editing, sizing, and rearranging labels and text boxes. However, some form design details can be more precisely set using Design View. In Design View you can set section properties as well as which Sections to include in a form. The Property Sheet is used in both Layout View and Design View to specify the details for any form object.

Form Layout Tools→Design→Views→Design View

Form Design Tools→Design→Tools→Property Sheet

Modifying Form Header and Footer Sections

The Form Header and Footer sections appear at the top and bottom of the form. The Form Header is the typical location for decorative features such as the title and logo controls, which are available in the Header / Footer group on the Home tab of the Ribbon.



Form Footers are used less frequently; however, you can place static data there, such as the date or various contact information. Form Footers are available with the same controls offered to the Form Header section. The Form Header and Form Footer can be modified in either Layout View or Design View.

DEVELOP YOUR SKILLS: A2-D4

In this exercise, you will format the Form Header and field labels and insert a logo to make the form look more professional.

1. With the Customers form still open, choose **Form Layout Tools→Design→Views→ Design View**.

   The Form Header section contains the Customers title and the text boxes, and their labels are located in the Detail section.

2. Click in the **Customers** title box in the form header and change the title to: **`Winchester Customers`**

   Next you will use the Property Sheet to precisely size, position, and format the title.

3. Choose **Form Design Tools→Design→Tools→Property Sheet**.

   The Property Sheet shows the settings for the currently selected object (the Customers title box).

4. Click in the **Width** box in the Property Sheet and then set the width to **5.5** and press Enter.

Tip! *After setting a property, press Enter or Tab. Property settings don't take effect until after the current property box is no longer active.*

5. Click in the **Left** box and enter: **1.5**
6. Choose **Lucida Calligraphy** for the Font Name setting and enter **30** for the Font Size setting.
7. Choose **Home→Text Formatting→Font Color menu button** and choose a blue color of your choice.

   You can set text formats in this manner or directly in the Property Sheet, if desired.

Set Control Properties in the Detail Section

8. Click the **Cust ID** label (not the text box) in the Detail section.

   The name CustID_Label *appears at the top of the Property Sheet. The Property Sheet always indicates which control is selected.*

9. Press and hold Ctrl and click all labels in the Detail section to select them all.

   Properties can be set for multiple controls at the same time, provided the controls are of the same type (labels or text boxes). Notice in the Property Sheet that many properties, like Width and Height, are identical for all labels. Other properties, like Top and Left positioning, are blank because they are not the same for all labels.

10. Apply the same blue font color you just applied to the title to the selected labels.

Insert a Logo

11. Choose **Form Design Tools→Design→Header/Footer→Logo**.
12. Navigate to your **Access Chapter 2** folder, choose **WWD-Logo.bmp**, and click **OK**.

    Access places the logo in the upper-left corner of the Report Header section, but it's a bit small. The logo should be selected so the Property Sheet will show the logo properties.

13. Set both the width and height to: **0.8**

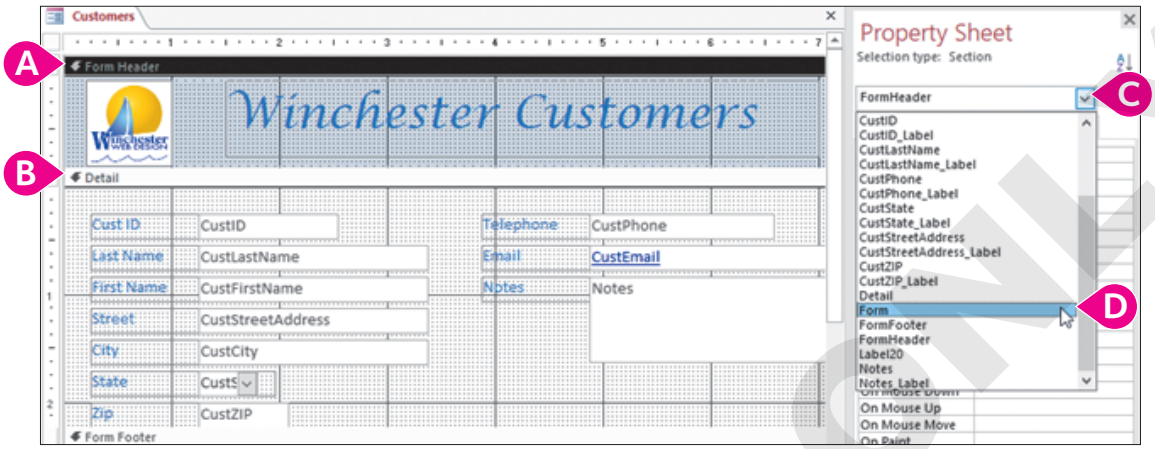
    The form header will increase in height slightly to accommodate the logo.

14. Switch to **Form View** to see the changes.

Explore Property Sheets for Sections and the Form

15. Switch to **Design View**.

16. Follow these steps to explore section and report properties :



A Click the **Form Header** section bar and view the Property Sheet.

The Property Sheet should be set to FormHeader. Here you can specify the visibility of the header area and set formats like the background color.

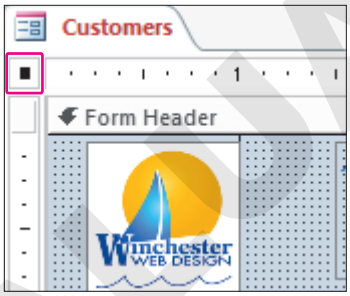
B Click the **Detail** section bar and examine its properties.

C Click the **Selection Type menu** button ▾ in the Property Sheet.

D Scroll through the list and choose **Form** from the list.

The Form properties control the overall appearance and functionality of the form.

Tip! *Properties for the form can also be accessed by clicking the Select Form box at the top-left corner of the form.*



Tab Order

The most effective way to enter a record using a form is to use Tab to move from one field to the next. Forms have a tab order that determines which field the insertion point moves to each time the Tab key is tapped. The tab order can be changed to allow fields to be entered in a different sequence. This may be necessary if fields are rearranged on a form and when fields from more than one table appear on the same form.

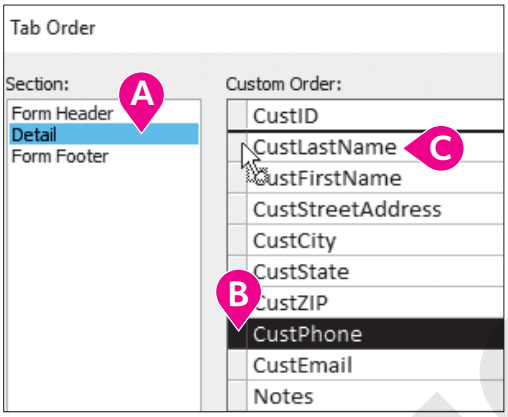
Design→Tools→Tab Order

DEVELOP YOUR SKILLS: A2-D5

In this exercise, you will change the form tab order to make the telephone number the second field in the tab order.

1. Switch to **Form View**.
2. Use the Tab key to cycle through the fields.

   The last name field is the first field in the tab order after the CustID field.
3. Switch to **Design View**.
4. Choose **Form Design Tools→Design→Tools→Tab Order**.
5. Follow these steps to adjust the tab order:



   A. Choose **Detail** from the section pane to the left to see the current tab order for fields in the Detail section.

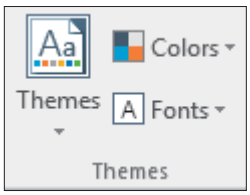
   B. Click the small selection box next to the CustPhone field.

   C. Drag the **CustPhone** selection box up and drop it above the CustLastName field. CustPhone should now be second in the tab order.
6. Click **OK** to complete the tab order change.
7. Switch to **Form View** and tap Tab repeatedly to cycle through the fields.

   The tab order remains the same with the exception of the CustPhone field, which is now second in the order.

Themes

Themes are prepackaged groups of design elements such as background colors, font families, font sizes, and other properties. When themes are applied, they impact all objects in the database (tables, forms, queries, and reports). The Themes group on the Ribbon lets you change just the colors or fonts or the overall design, including both the colors and fonts.



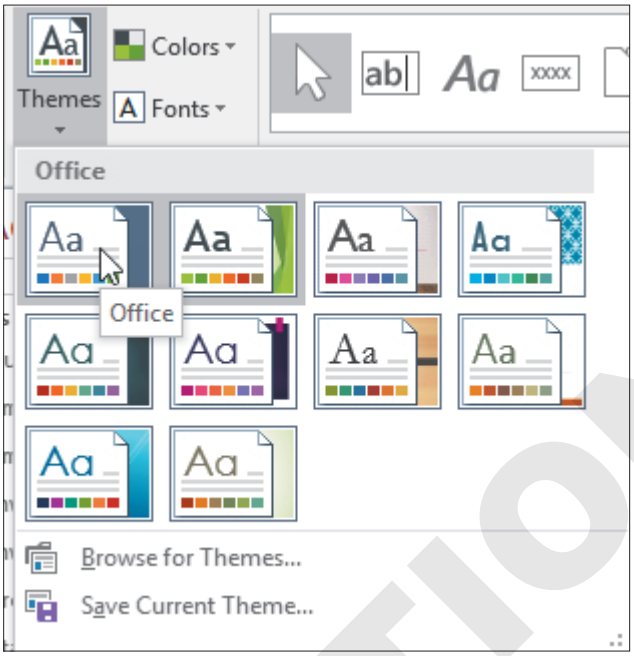
Form Design Tools→Design→Themes→Themes

DEVELOP YOUR SKILLS: A2-D6

In this exercise, you will apply a theme to your form and adjust theme colors and fonts.

1. Switch to **Design View** and choose **Form Design Tools→Design→Themes→Themes**.
2. Hover over the thumbnail of the first available theme (first row, first column) in the gallery.

   A ToolTip showing the theme name appears near the bottom of the mouse pointer and a live preview of the theme appears in the working area.



Tip! *With the exception of the first theme (Office), themes in the gallery are listed in alphabetical order from left to right, top to bottom.*

3. Click to choose the **Office** theme from the gallery.
4. Choose **Design→Themes→Colors menu button**.
5. Choose **Blue Warm** from the menu.
6. Choose **Design→Themes→Fonts menu button** and then choose **Franklin Gothic** from the menu.
7. Switch to **Form View** to see how your finished form looks with the new theme.

   Access themes are subtle, applying small, incremental changes to the form. Keep in mind that themes are applied to all objects in the database (tables, forms, queries, and reports). And once a theme is applied, it cannot be undone.
8. Close your form, saving the changes if prompted to do so.

Creating Other Types of Forms

The basic form may not always meet the needs of an organization. Some organizations will benefit by equipping staff to view multiple records or compare a form to a corresponding table within the same object. Different departments within an organization may need to access the same database tables but view different fields from within those tables. A good example would be the difference between

what a customer service representative and a salesperson might need. They will both have a need to access customer information, but the salesperson will want to see sales history, sales opportunities, and other information that a customer service representative won't need. For these and other reasons, organizations may desire a variety of forms designed to make their staff highly efficient.

Creating Multiple Item Forms

Most forms are designed to let the user focus on one record at a time. Sometimes, however, it is necessary to print multiple items in a table using a layout more appropriate for printing and distributing than a table datasheet. The multiple item form is used for those occasions.

Multiple item forms resemble datasheets because data appears in rows and columns. However, multiple item forms can be customized to enhance the appearance of the form using colors, graphics, and other design elements.

Create→Forms→More Forms→Multiple Items

DEVELOP YOUR SKILLS: A2-D7

In this exercise, you will create a multiple item form.

1. Choose the **Customers** table in the Navigation pane.
2. Choose **Create→Forms→More Forms→Multiple Items**.

   Notice the form's datasheet-like appearance.
3. Choose **Form Layout Tools→Design→Themes→Themes** and choose a theme that has text sizes and formatting you like.
4. If necessary, click any of the customer ID data below the CustID column header to select all cells in that column.

   The selected cells will have faint yellow borders.
5. Hover the mouse pointer over the right edge until the adjust pointer appears.
6. Drag the right border of the selected cells to the left, reducing the column width to just accommodate the largest entry.
7. Reduce the widths of the remaining columns; see if you can get the form to fit on your screen.
8. Change the title to: **`Customers MultiForm`**
9. Click the **Forms** icon in the form header next to the Customers MultiForm title and tap Delete to remove it.

   Your completed form is now ready to be used as an alternative to a datasheet for data entry and other uses.
10. Close the form, saving it as: **`CustomersMultiForm`**

Creating Split Forms

A split form simultaneously shows a table in Datasheet View and a form displaying a single record from the table. The views are synchronized so that a selected record in one view is also selected in the other view.

Create→Forms→More Forms→Split Form

DEVELOP YOUR SKILLS: A2-D8

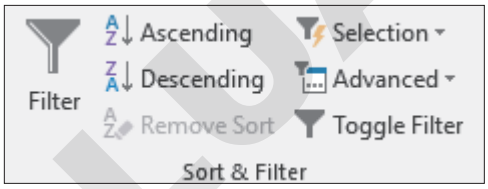
In this exercise, you will create a split form.

1. Choose the **Customers** table in the Navigation pane.
2. Choose **Create→Forms→More Forms→Split Form**.

   Click any record in the datasheet and notice that it displays in the form.
3. Choose **Form Layout Tools→Design→Themes→Themes** and choose a theme that has text sizes and formatting you like.
4. Change the title to: **`Customers SplitForm`**
5. In the header, remove the Forms icon located next to the title control.
6. Choose **File→Close** to close the database, saving the form as: **`CustomersSplitForm`**

Sorting and Filtering Records by Form Field

Like tables, forms allow the user to filter or sort data using the commands provided in the Sort and Filter group. Ready-to-use filters are available for each data type, allowing a different filter to be used for each field. You can apply filters to any single field or to multiple fields—as long as those fields are present in Form View.



Filtering a Form

The Filter by Form command creates a blank form with a look and layout that mimics the original. This form allows you to filter multiple fields at one time by entering values directly in the text box or selecting from a drop-down list located in the field. When the filter is applied, only the records that match the values you entered will be displayed.

Home→Sort & Filter→Advanced→Filter by Form

DEVELOP YOUR SKILLS: A2-D9

In this exercise, you will first sort records in a form. You will also add and then remove a filter from the form.

1. Open the **Customers** form from the Navigation pane.
2. Select the **Last Name** text box control.
3. Choose **Home→Sort & Filter→Descending**.

   The Last Name field is now sorted in descending order, making William Smith *the first record in the form.*
4. Choose **Home→Sort & Filter→Remove Sort**.

   The sort is removed, and the records are now back to the order held previously.

Filter by Form

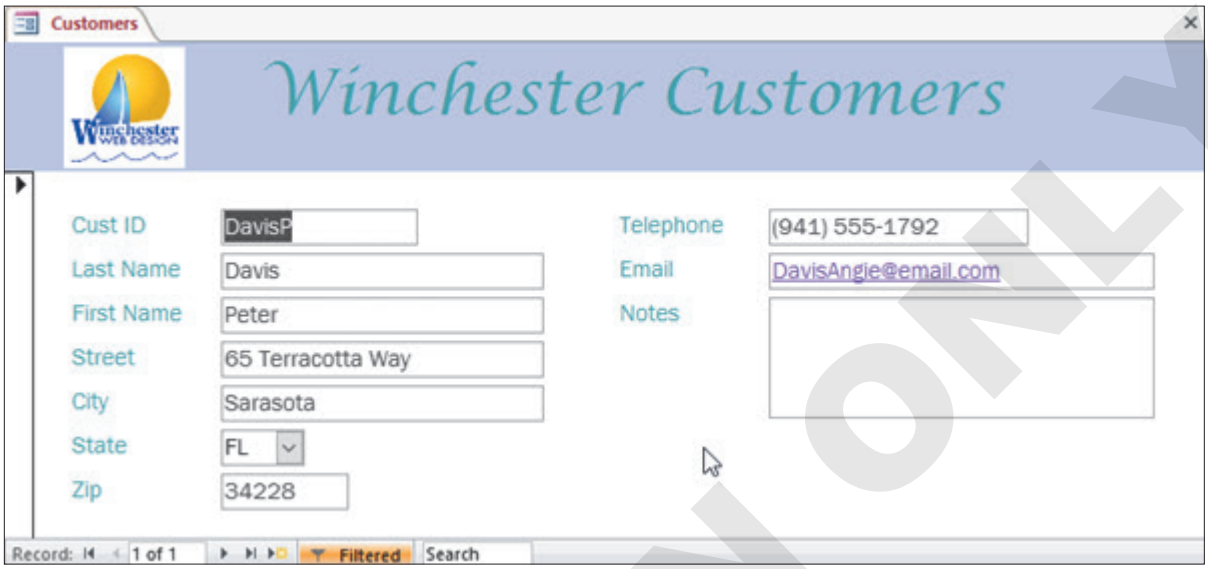
5. Choose **Home→Sort & Filter→Advanced**.
6. Choose **Filter by Form** from the menu.

   A blank form appears with two new tabs at the bottom of the form.
7. Follow these steps to create a filtered form:

A. Select the **City** text box control.
B. Click the drop-down **menu** button ▾ that appears to the right.
C. Choose **Sarasota** from the list.

8. Choose **Home→Sort & Filter→Toggle Filter** to apply the filter.

   The Customers form is restored with the navigation control indicating the form is filtered to one record. This is the only record in our form with Sarasota *in the City field.*



Tip! *The field drop-down menu provides a list of all data entered into the active field. This is a helpful option if you are not familiar with the data in a field or are unsure about keying in the values you would like to use in a filter.*

9. Choose **Home→Sort & Filter→Toggle Filter** to remove the filter.
10. Save and then close your database file.

Self-Assessment

Check your knowledge of this chapter's key concepts and skills using the Self-Assessment in your ebook or online (eLab course or Student Resource Center).

Reinforce Your Skills

REINFORCE YOUR SKILLS: A2-R1

Create and Customize a Form

Kids for Change has hired you to create a new form and customize it with a new design. In this exercise, you will use the Form Wizard to create a form, add an image, and set several formatting properties.

1. Open **A2-R1-K4C** from your **Access Chapter 2** folder and save it as: **`A2-R1-K4CRev`**
   Enable the content when prompted.
2. Choose the **Children** table in the Navigation pane.
3. Choose **Create→Forms→Form Wizard**  .
4. Add all fields from the Children table to the Selected Fields list and click **Next**.
5. Keep the Columnar layout and click **Next**.
6. Name the form **`Kids for Change Children Volunteers`** and click **Finish**.

Edit and Format the Title

7. Switch to **Design View**  .
8. Click in the title box and position the insertion point just in front of the letter *C* in *Children*.
9. Press and hold the Shift key and tap Enter to force *Children Volunteers* to a new line.
10. If necessary, display the **Property Sheet**  .
11. Set these properties for the title:

Property	New Value
Width	**3**
Font Name	**Arial**
Font Size	**18**
Text Align	**Center**
Font Weight	**Semi-bold**

Insert a Logo and Set Properties

12. Choose **Form Design Tools→Design→Header/Footer→Logo**  .
13. Navigate to your **Access Chapter 2** folder, choose **K4C-Logo.bmp**, and click **OK**.
14. Set these properties for the logo:

Property	New Value
Width	**0.7**
Height	**0.7**
Left	**3.3**

Format Text Boxes and Labels

15. Click the **Child ID** label in the Detail section.
16. Press and hold Ctrl while you select all other labels.
17. Set these properties for the labels:

Property	New Value
Width	`1.5`
Height	`0.25`
Special Effect	**Raised**
Font Name	**Arial**
Font Weight	**Semi-bold**

18. Select all text boxes in the Detail section and set these properties:

Property	New Value
Height	`0.25`
Font Name	**Arial**
Font Weight	**Semi-bold**

19. Choose **Form Design Tools→Design→Themes→Themes** and apply the **Slice** theme.
20. Switch to **Form View** to see your completed form.
21. Choose **File→Close** to close the database and save the changes to your form.

REINFORCE YOUR SKILLS: A2-R2

Create a Multiple Item Form and Apply a Theme

Kids for Change has hired you to redesign its database forms and apply a consistent and attractive theme to both new and existing forms. In this exercise, you will create a multiple item form for entering and managing staff information. Then you will apply a theme to the new form.

1. Open **A2-R2-K4C** from your **Access Chapter 2** folder and save it as: `A2-R2-K4CRev`
2. Choose the **Staff** table in the Navigation pane and choose **Create→Forms→More Forms→Multiple Items**.
3. Change the title to: `Kids for Change Staff`
4. Delete the small image that is just to the left of the *Kids for Change Staff* title.
5. Choose **Form Layout Tools→Design→Themes→Themes** and apply the **Ion** theme.
6. Reduce the widths of all columns to fit the widest entries in the columns.
7. Switch to **Form View** to see your completed form.
8. Choose **File→Close** to close the database, saving the form as: `Staff-MultiItem`

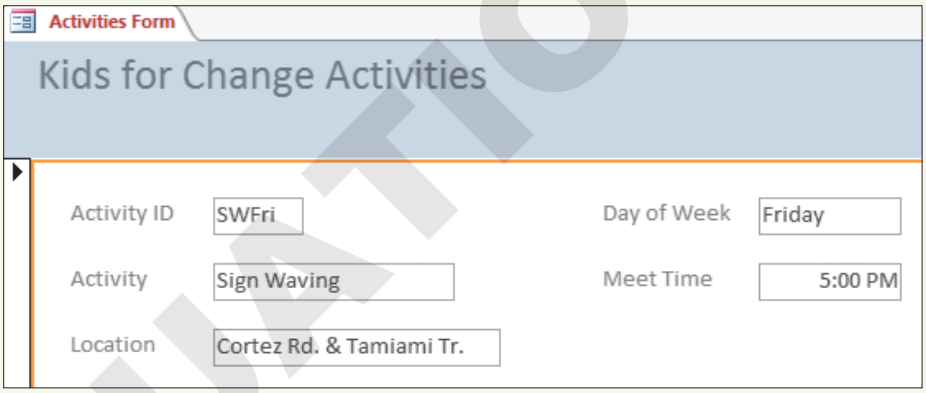
REINFORCE YOUR SKILLS: A2-R3

Create and Sort a Form

You have been asked to help facilitate the management of the Kids for Change Activities table. In this exercise, you will create a form with a title and an image. Then you will sort the form to display the activities by day.

1. Open **A2-R3-K4C** from your **Access Chapter 2** folder and save it as: **`A2-R3-K4CRev`**
2. Using the Form Wizard, create a form that includes all fields in the **Activities** table. Choose the **Columnar** layout and save the form as: **`Activities Form`**
3. Switch to **Layout View** and change the title to: **`Kids for Change Activities`**
4. Widen the title box so the text doesn't wrap inside the box.

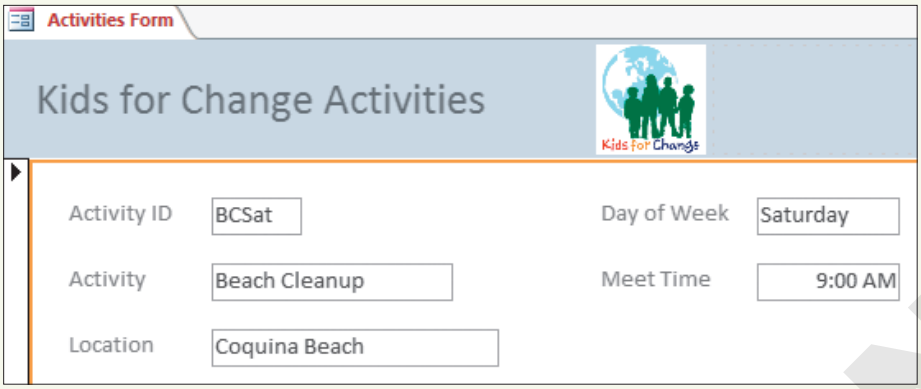
   You may need to click outside of the title box and then click on the title again before sizing it.
5. Reduce the widths of all labels so they are just slightly wider than the label text.
6. Use the form to navigate through the ten records and reduce the width of the text boxes to be slightly wider than the widest entries.
7. Move the text boxes closer to the labels.
8. Move the **Day of Week** and **Meet Time** labels and text boxes. Add a little extra space between all rows as shown here:



9. Choose **Form Layout Tools→Design→Header/Footer→Logo** .
10. Navigate to your **Access Chapter 2** folder, choose **K4C-Logo.bmp**, and click **OK**.
11. Set these properties:

Property	New Value
Width	**`0.7`**
Height	**`0.7`**
Left	**`3.6`**

12. Reduce the height of the title box so it's just high enough to hold the title and then move it down in the Form Header so it is vertically centered in the header area.



13. Choose **Form Layout Tools→Design→Themes→Themes** and apply the theme of your choice.

    If you apply a theme that increases the text size, you may need to go back and adjust the controls' sizes again.

Apply a Sort

Now you will sort the records in order by the day of the week the activity occurs so you and others can easily see the weekly Kids for Change offerings.

14. Switch to **Form View**.
15. Select the **Day of Week** text box control.
16. Choose **Sort & Filter→Ascending**.
17. Choose **File→Close** to close the database, saving the changes to the form.

Apply Your Skills

APPLY YOUR SKILLS: A2-A1

Create and Modify a Form

Universal Corporate Events is a planner of corporate and professional events. You have been tasked with revamping the image of Universal Corporate Events, including everything from reports to forms. In this exercise, you will create a new Personnel form.

1. Open **A2-A1-UniversalCorp** from your **Access Chapter 2** folder and save it as: **`A2-A1-UniversalCorpRev`**
2. Using the Form Wizard, create a form that includes all fields in the **Personnel** table. Choose the **Columnar** layout and save the form as: **`Personnel Mgmt`**
3. Switch to **Layout View** and display the Property Sheet.
4. Click in the **title** box and set these properties for the title:

Property	New Value
Width	**`4`**
Left	**`1.5`**
Text Align	**Center**

5. Edit the title, creating a two-line title with **`Universal Corporate Events`** on the first line and **`Personnel`** on the second.

   Remember to use the Ctrl + Enter *keystroke combination to push Personnel to the second line.*
6. Insert **UCE-Logo.bmp**, located in your **Access Chapter 2** folder.
7. Set both the Width and Height properties to: **`0.7`**

Modify the Detail Section

8. Apply the **Slice** theme to the form.
9. Set the Width property of all labels to: **`1.2`**
10. Set the Width property of the EmpID, ST, and ZIP text boxes to: **`0.6`**
11. Set the Width property of the First Name, Last Name, Address, and City text boxes to: **`1.5`**
12. Set the Width property of the **Email Address** and **Salary Grade** text boxes to: **`2`**
13. Select all text boxes and move them closer to the labels.
14. Reposition the **Telephone**, **Email Address**, **Date Hired**, and **Salary Grade** labels and text boxes up and to the right of the other fields, creating a two-column form.
15. Switch to **Design View** and change the tab order, making EmpPhone the second field in sequence and leaving the rest of the tab order as it currently is.
16. Switch to **Form View** to view the database and test the tab order.
17. When you are finished, close the database, saving the changes you've made to the form.

APPLY YOUR SKILLS: A2-A2

Edit and Format Labels and Text Boxes

In this exercise, you will create a new Personnel form.

1. Open **A2-A2-UniversalCorp** from your **Access Chapter 2** folder and save it as: **`A2-A2-UniversalCorpRev`**
2. Open the **Event Schedules** form and switch to **Layout View**.
3. Change the *Location* label to: **`Venue`**
4. Change the *Event ID* label to: **`Event Code`**
5. Display the Property Sheet and change the properties for the Universal Corporate Events title as follows:

Property	New Value
Width	**`4.5`**
Height	**`0.3`**
Font Name	**Georgia**

6. Set these properties for the Scheduling subtitle:

Property	New Value
Width	**`4.5`**
Height	**`0.3`**
Font Name	**Georgia**
Font Weight	**Light**

7. Select all the labels in the Detail section and set these properties:

Property	New Value
Width	**`1.3`**
Height	**`0.3`**
Font Name	**Arial**
Font Size	**`12`**
Font Weight	**Semi-bold**

8. Select all the text boxes in the Detail section and set these properties:

Property	New Value
Height	**`0.3`**
Left	**`1.5`**
Font Name	**Arial**
Font Size	**`14`**

9. Apply the **Slice** theme.
10. Switch to **Form View** and then make any changes needed.
11. Close the database, saving the changes to the form.

APPLY YOUR SKILLS: A2-A3

Create a Form with a Logo and Filter

In this exercise, you will create a new form for managing UCE's event venue information, add and format a Form Header and title, and add an original company logo. You will then add a filter to the form to show only the events occurring in the city of Sarasota.

1. Open **A2-A3-UniversalCorp** from your **Access Chapter 2** folder and save it as: **`A2-A3-UniversalCorpRev`**
2. Using the Form Wizard, create a form that includes all fields in the **Venues** table. Choose the **Columnar** layout and save the form as: **`Event Venues`**
3. Switch to **Layout View** and display the Property Sheet.
4. Click in the title box and set these properties:

Property	New Value
Height	**`0.35`**
Top	**`0.25`**
Left	**`1.5`**
Font Name	**Georgia**

5. Insert the **UCE-Logo.bmp** logo, which is located in your **Access Chapter 2** folder.
6. Set the Width and Height properties of the logo to: **`0.8`**
7. Select all the labels in the Detail section and set these properties:

Property	New Value
Width	**`1.5`**
Height	**`0.25`**
Font Name	**Arial**
Font Size	**`12`**
Font Weight	**Semi-bold**

8. Select all the text boxes in the Detail section and set these properties:

Property	New Value
Height	**`0.25`**
Left	**`1.6`**
Font Name	**Arial**
Font Size	**`12`**

9. Apply any theme with an alternative theme color and the theme font of your choice.
10. Change the tab order, making VenuWebsite the second-to-last field in sequence and leaving the rest of the tab order as is.
11. Switch to **Form View** to see your completed form.

Apply a Sort and Filter

Universal Corporate Events would like to add an additional event in the city of Sarasota. It wants to review any events that are currently scheduled there before making a selection. Now you will add a filter to show only events occurring in the city of Sarasota.

12. Sort the **City** field in descending order.
13. Use the **Filter by Form** command to display only the records that include the city of Sarasota.
14. Choose **File→Close** to close the database, saving any changes to your form.

Project Grader

If your class is using eLab (labyrinthelab.com), you may upload your completed Project Grader assignments for automatic grading. You may complete these projects even if your class doesn't use eLab, though you will not be able to upload your work.

PROJECT GRADER: A2-P1

Taylor Games: Creating Forms

Taylor Games wants to provide forms for employees to enter inventory and orders. You will first create a basic order form and improve readability and layout. You will also create an inventory split form and enhance its appearance.

1. Download and open your Project Grader starting file.
   - *Using eLab:* Download **A2_P1_eStart** from the Assignments page. You *must* start with this file or your work cannot be automatically graded.
   - *Not using eLab:* Open **A2_P1_Start** from your **Access Chapter 2** folder.
2. Create a basic form based on the **Orders** table.
3. Change the Date label to: **`Order Date`**
4. Set these properties for all label controls:

Property	Value
Width	**`1`**
Height	**`0.3`**

5. Set these properties for all text box controls:

Property	Value
Width	**`2`**
Height	**`0.3`**

6. Set the SKU text box Font Weight property to: **`Bold`**
7. Insert a **Logo** control in the Form Header and set properties for it as follows:

Property	Value
Picture	Use **Taylor Games Logo-B.png** from your **Access Chapter 2** folder.
Size Mode	**Zoom**
Width	**`0.75`**
Height	**`0.5`**

8. Set the following properties for the Title control located in the Form Header (contains the title *Orders*):

Property	Value
Width	**2**
Font Size	**26**
Text Align	**Center**
Font Weight	**Bold**

9. Apply the **Facet** theme (the second theme in the Office category).
10. Save the form with the name: **Orders**
11. Create a new split form based on the **Inventory** table.
12. Set the Width property of all label controls to: **1**
13. Set the following properties for all text box controls:

Property	Value
Width	**3**
Height	**0.25**

14. Set the SKU text box Font Weight property to: **Bold**
15. Insert a **Logo** control in the Form Header and set properties for it as follows:

Property	Value
Picture	Use **Taylor Games Logo-B.png** from your **Access Chapter 2** folder.
Size Mode	**Zoom**
Width	**0.75**
Height	**0.5**

16. Set the following properties for the Title control located in the Form Header (contains the title *Inventory*):

Property	Value
Width	**2**
Font Size	**26**
Text Align	**Center**
Font Weight	**Bold**

17. Apply the **Facet** theme (the second theme in the Office category)..
18. Save the form with the name: **Inventory**
19. Close all open forms and then save your database.
    - *Using eLab:* Save it to your **Access Chapter 2** folder as **A2_P1_eSubmission** and attach the file to your eLab assignment for grading.
    - *Not using eLab:* Save it to your **Access Chapter 2** folder as: **A2_P1_Submission**

PROJECT GRADER: A2-P2

WebVision: Work with Forms

WebVision is updating a database to provide forms for employees to enter data. You will first create a form using the Form Wizard and modify it for employee use. You will also create a multiple item form and enhance its appearance.

1. Download and open your Project Grader starting file.
   - *Using eLab:* Download **A2_P2_eStart** from the Assignments page. You *must* start with this file or your work cannot be automatically graded.
   - *Not using eLab:* Open **A2_P2_Start** from your **Access Chapter 2** folder.
2. Create a new form using the Form Wizard and the following guidelines:
   - It should be based on the **Orders** table.
   - Add all available fields.
   - Use **Columnar** layout.
   - Set the title as: **`Orders`**
3. Change the Date label to: **`Order Date`**
4. Set these properties for all label controls:

Property	Value
Width	`1.2`
Height	`0.25`

5. Set these properties for all text box controls:

Property	Value
Width	`0.75`
Height	`0.25`
Left	`1.5`
Text Align	**Left**

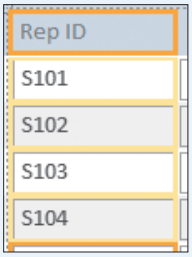
6. Delete the **Title** control from the Form Header (contains the title *Orders*) then insert a new **Title** control and set these properties for it:

Property	Value
Width	`2`
Height	`0.35`
Font Weight	**Bold**

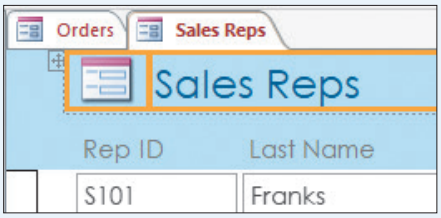
7. Follow these guidelines to insert a **Logo** control in the Form Header and set properties for it:

Property	Value
Picture	Use **WebVision Logo.jpg** from your **Access Chapter 2** folder.
Width	`1.75`

8. Apply the **Gallery** theme (the third theme in the Office category).
9. Set the tab order from top to bottom for the fields in the Detail section as: OrderID, RepID, Date, Amount.
10. Save the form.
11. Create a new multiple item form based on the **Sales Reps** table.
12. Set the Width property to **1** and the Height property to **0.25** for all controls in the Rep ID column:



13. Delete the **Form Icon** and **Title** controls from the Form Header.



14. Insert a new **Logo** control and set these properties for it:

Property	Value
Picture	Use **WebVision Logo.jpg** from your **Access Chapter 2** folder.
Width	**1.75**
Height	**0.35**

15. Insert a new **Title** control and set these properties for it:

Property	Value
Width	**2**
Font Weight	**Bold**

16. Save the form with the name: **Sales Reps**
17. Close all open forms and then save your database.
    - *Using eLab:* Save to your **Access Chapter 2** folder as **A2_P2_eSubmission** and attach the file to your eLab assignment for grading.
    - *Not using eLab:* Save to your **Access Chapter 2** folder as: **A2_P2_Submission**

Extend Your Skills

These exercises challenge you to think critically and apply your new skills. You will be evaluated on your ability to follow directions, completeness, creativity, and the use of proper grammar and mechanics. Save files to your chapter folder. Submit assignments as directed.

A2-E1 That's the Way I See It

You've been asked to create a sales invoice form for Blue Jean Landscaping that shows all fields from the Sales Invoices query. Open **A2-E1-BJL** and create a well-designed form that is based on the Sales Invoices query and that includes a title and logo (use **BJL-Logo.bmp**). Make sure all fields are appropriately positioned and sized using the largest entries in the database as a guideline for determining the appropriate text box sizing. Apply a theme of your choice. Apply a filter to show only records with the Last Name of Ford. Save your form as: **`Sales Invoices`**

A2-E2 Be Your Own Boss

Blue Jean Landscaping wants a split form that's based on the Services table. The split form should include all fields from the table, a company logo, and the company name in the Form Header along with a *Landscape Services* subtitle. Begin with the file **A2-E2-BJL** and use the logo file **BJL-Logo.bmp**. Make sure all fields are appropriately positioned and sized using the largest entries in the database as a guideline for determining the appropriate text box sizing. Apply a theme of your choice. Sort the Equip ID field in ascending order. Save your form as: **`Services Split Form`**

A2-E3 Demonstrate Proficiency

You've been asked by the management of Stormy BBQ, a local BBQ restaurant, to create consistent forms and reports. Open the **A2-E3-StormyBBQ** database and examine the Merchandise form. Create a new form from the Restaurants table that closely matches the Merchandise form. Replicate the layout and formatting of fields and of the Form Header. You may not be able to create a perfect match but try to get the layout and formatting as close to the Merchandise form as possible. Add the **SBQ-Logo.bmp** file. Name your new form: **`Restaurants`**

ACCESS

3 Querying a Database

One of the main goals of a database is to organize data so that information can be located and retrieved quickly. People in all types of businesses retrieve stored data and information daily, often at a moment's notice. In this chapter, you will search information that is stored in tables in a relational database and extract records that meet specific criteria using a query, a database object used to locate records based on the conditions you set.

LEARNING OBJECTIVES

- Create, save, and run select queries
- Create select queries using multiple tables
- Use simple query criteria
- Use AND and OR criteria in queries
- Use wildcard characters in query criteria
- Sort query results
- Create and format a calculated field

Project: Using Queries to Get Answers

You have been asked to query the Winchester Web Design database and compile two separate customer lists. The lists will be used to notify all past clients of updates to their website contact forms. The first list will include only the first and last names of the clients and their email addresses. The second list will include the first and last names of the clients and their mailing addresses, sorted by ZIP code. Additionally, you have been asked to build queries that instantly calculate the total income from all the Winchester Web Design services and from specific areas such as blogs or shopping carts.

Select Queries

A query asks a question, such as, *What are the customer addresses?* or *How much money did the company make last month?* The answer to the question is provided in a set of records.

All queries have common attributes:

- They function like a saved question you ask a database.
- They produce a subset of data from one or more tables.
- They are dynamic objects that display up-to-date data from tables.
- They can be used to create forms and reports with fields drawn from multiple tables.
- When you edit data in query results, you are actually editing the data stored in the source tables.

A select query is basically a database inquiry that selects only the records you want to see or edit, from one or more database tables, based on criteria that you set. The easiest way to create a select query is with the Query Wizard.

Create→Queries→Query Wizard 

DEVELOP YOUR SKILLS: A3-D1

In this exercise, you will use the Query Wizard to create a select query that generates a customer email list.

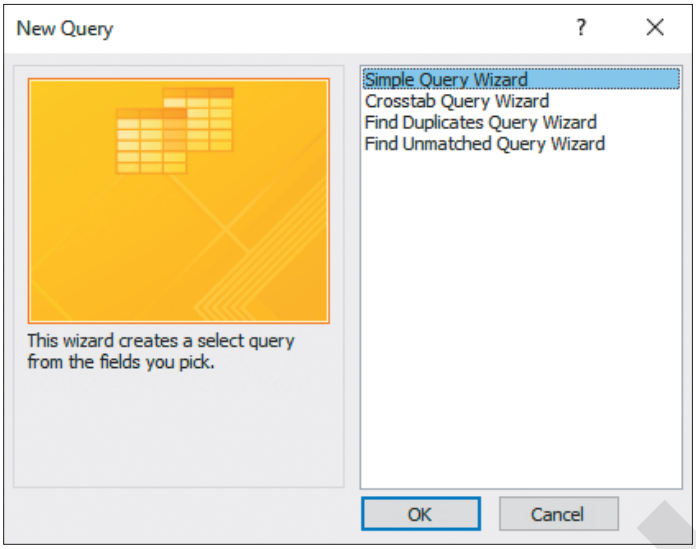
1. Open **A3-D1-WinDesign** from your **Access Chapter 3** folder and save it as: **A3-D1-WinDesignRev**

   Notice in the Navigation pane that the database currently has three queries.

Note! *When completing exercises, always choose to Enable Content.*

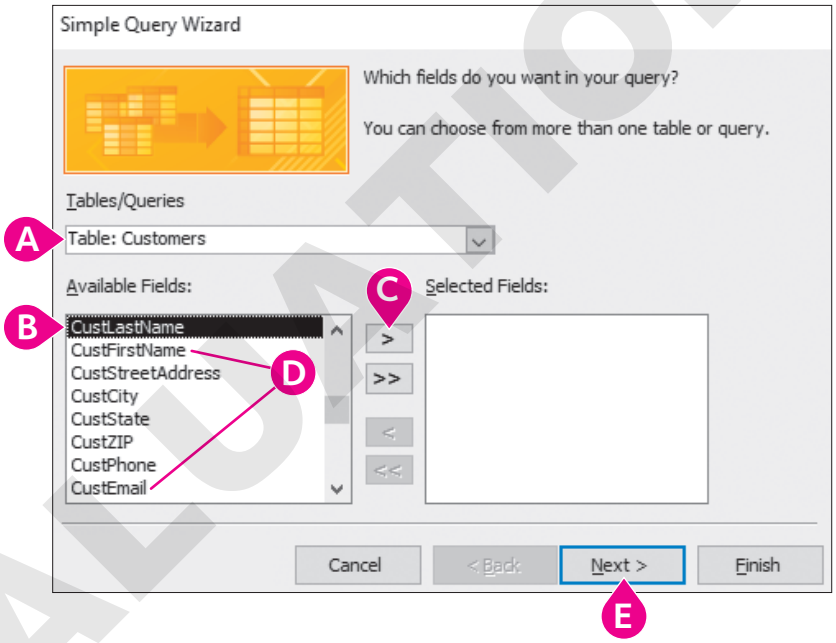
2. Choose **Create→Queries→Query Wizard**.

The New Query dialog box appears, allowing you to select the Query Wizard you would like. The Wizard can help you create four types of queries, shown in the right pane of the dialog box.



3. Click **OK** to accept the Simple Query Wizard.

4. Follow these steps to build the query:



A. Make sure the **Customers** table is chosen in the Tables/Queries list. When building a query, you can use multiple tables and even existing queries.

B. Choose the **CustLastName** field from the Available Fields list.

C. Click the **Add** > button to add it to the Selected Fields list.

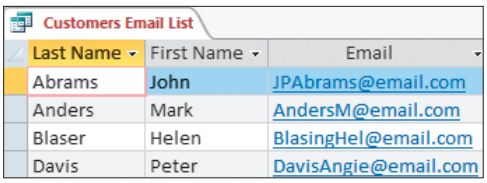
D. Now add the **CustFirstName** and **CustEmail** fields, scrolling to find them as necessary, to the Selected Fields list.

E. Click **Next**.

If you add the wrong field, double-click the name to move it back to the Available Fields list or select it and use the Move Back < *or Move All Back* << *buttons.*

5. Type **`Customers Email List`** in the query title field at the top of the dialog box.
6. Make sure the **Open the Query to View Information** option is chosen and click the **Finish** button.

   Notice the query results datasheet includes only the three fields you chose from the Customers list.



Customers Email List

Last Name	First Name	Email
Abrams	John	JPAbrams@email.com
Anders	Mark	AndersM@email.com
Blaser	Helen	BlasingHel@email.com
Davis	Peter	DavisAngie@email.com

7. Click the **Close** × button to the right of the *Customers Email List* tab to close the query.

Creating a Select Query Using Query Design View

Some queries display just a few fields but report on every single record in the table. That may not be a problem for a small table, but, when thousands of records and multiple tables are involved, it is often necessary to choose only specific records by setting precise criteria. Using Query Design View, Access allows you to:

- Select fields from multiple tables
- Locate records using criteria from one or more fields
- Perform calculations
- Sort query results and show or hide fields in query results

Create→Queries→Query Design

DEVELOP YOUR SKILLS: A3-D2

You have already created an email list for the Winchester Web Design customers and now need one for the company's employees. In this exercise, you will create a query to select fields from the Employees table in the Winchester Web Design database and then rearrange the columns in the query grid.

1. Choose **Create→Queries→Query Design** to display the query design grid.

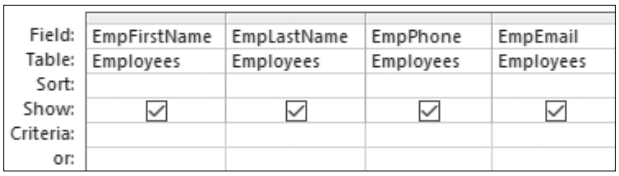
   The Show Table list appears, showing the existing tables and queries in the database.
2. Choose the **Employees** table and click the **Add** button.

   The Employees table appears in the design grid.
3. Close the Show Table dialog box and close the Property Sheet if it's open.

   Next you will add fields from the Employees table to the grid.
4. Double-click the **EmpFirstName** field in the Employees table to add it to the grid.

5. Now add the **EmpLastName**, **EmpPhone**, and **EmpEmail** fields to the grid by either double-clicking or dragging them.

Tip! *Use the scroll bar located at the right of the table fields to access all available fields in the list.*

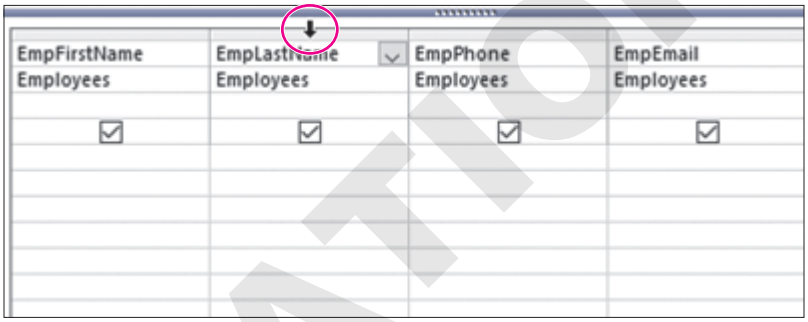


6. Choose **File→Save** or click the **Save** button on the Quick Access toolbar.
7. Type **`Employee Contact Info`** as the query name and click **OK**.
8. Choose **Query Tools→Design→Results→Run** !.

   Access runs the query and displays four columns of data (First Name, Last Name, Telephone, and Email) for all Employee records.

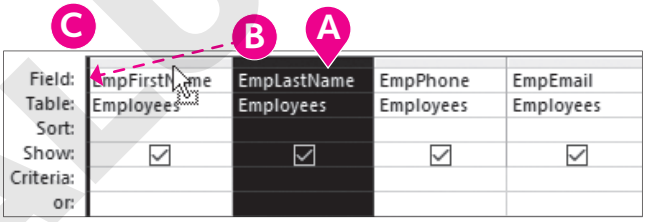
Rearrange Query Fields

9. Choose **Home→Views→View→Design View**.
10. Select the **EmpLastName** column by placing your mouse pointer over the column heading until it becomes a downward-facing black arrow and then single-click.



The entire column is selected, shown by shading it in black.

11. Follow these steps to rearrange the EmpFirstName and EmpLastName fields:



   A. Click the **EmpLastName** column heading again, this time without releasing the button. The button will change to a white arrow with a silhouetted box, indicating you can move the column.

   B. Drag the **EmpLastName** column to the left of the *EmpFirstName* column until the thick vertical bar is positioned as shown.

   C. Release the mouse button to complete the rearrangement.

12. **Run** ! the query.

    Last Name should now appear first in the results.

13. Close the query and save the changes.

Designing a Query Using Multiple Tables

Until now, the query results presented in the datasheets you have worked with have displayed data from only one table. There will be times when you need to view data contained in different tables within the same database. Multi-table queries allow you to do this.

Choosing Fields to Include in a Query

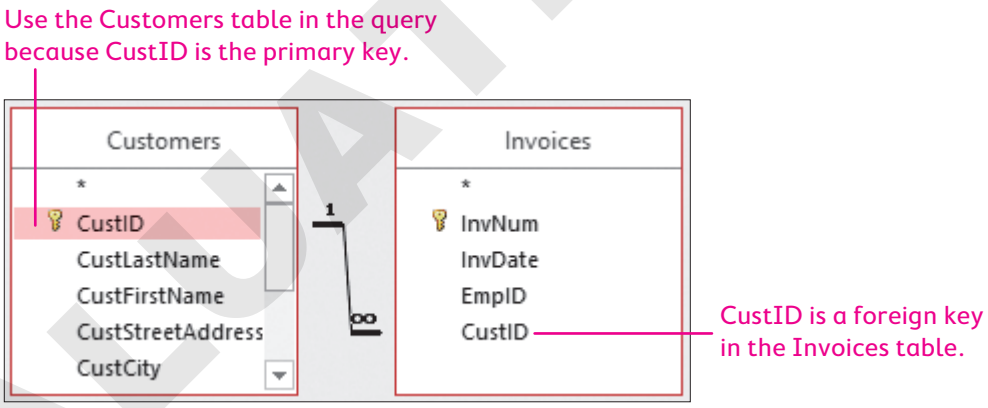
When you build a multi-table select query, you start in Query Design view. Using the Show Table dialog box, you can select only those tables and fields that you want to display in the query results datasheet and leave out those fields that have no impact on the data you want to view or that are confidential. By specifying only certain tables and fields in a database and displaying only the desired fields in a query, you can create a report or a form that presents only pertinent data.

Multiple tables are effective in a query only if the tables are related. Using related tables allows a query to provide results based on all the data contained in the related table fields selected. For example, if you want to find the names and addresses of customers who placed orders from a specific employee, you would need fields from both the Customers table and the Invoices table. This is because the Customers table does not include any Employee fields, and the Invoices table does not include the Customer fields. It would be impossible to answer the question using only the Customers or Invoice tables alone.

View the video "Create a Multi-Table Select Query."

Selecting a Field That Appears in Multiple Tables

Sometimes the same field occurs as a primary key in one table and as a foreign (or secondary) key in another table. If this occurs, always use the table with the primary key in your query.



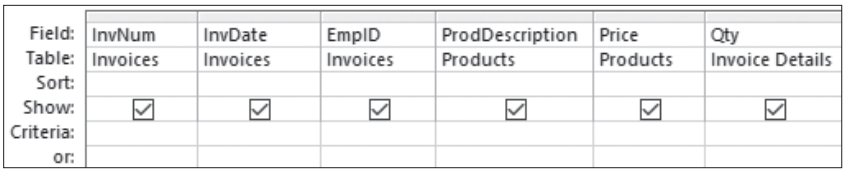
DEVELOP YOUR SKILLS: A3-D3

In this exercise, you will create a multi-table query using Query Design view to track the Winchester Web Design invoices by invoice number.

1. Choose **Create→Queries→Query Design** to display the query design grid.
2. Double-click the **Invoices**, **Invoice Details**, and **Products** tables to add them to the query.
   If the Show Table dialog box is not visible, choose Query Tools→Design→Query Setup→Show Table.
3. Close the Show Table dialog box.

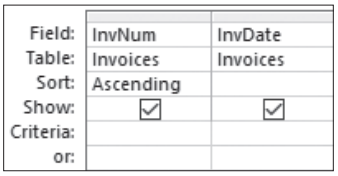
4. Double-click the **InvNum**, **InvDate**, and **EmpID** fields in the Invoices table to add those fields to the query grid.
5. Add the **ProdDescription** and **Price** fields from the Products table.
6. Add the **Qty** field from the Invoice Details table.

   Your query field list should look like this.



Field:	InvNum	InvDate	EmpID	ProdDescription	Price	Qty
Table:	Invoices	Invoices	Invoices	Products	Products	Invoice Details
Sort:						
Show:	☑	☑	☑	☑	☑	☑
Criteria:						
or:						

7. Click the **Sort** cell for the InvNum field, click the **menu** button ▾, and choose **Ascending**.



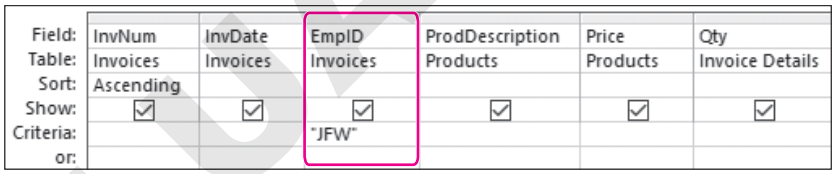
Field:	InvNum	InvDate
Table:	Invoices	Invoices
Sort:	Ascending	
Show:	☑	☑
Criteria:		
or:		

8. Choose **Query Tools→Design→Results→Run** ! to run the query.

   The query results are now sorted by invoice number in the first column.
9. Click the **Save** button on the Quick Access toolbar; then name the query **`InvoicesList`** and click **OK** to save the query.

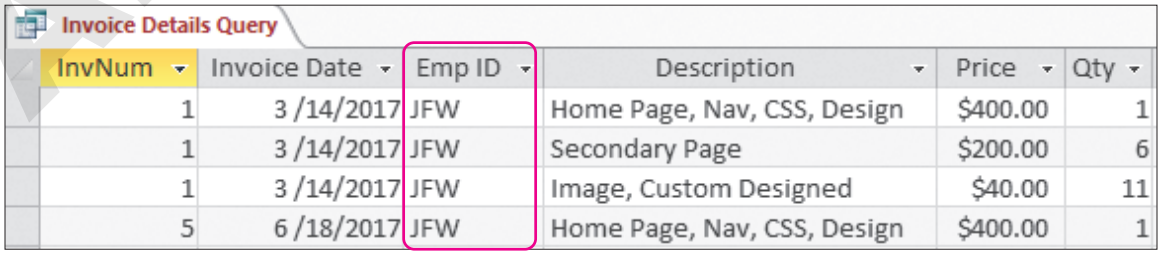
Using Criteria in Queries

Queries let you specify criteria, which are conditions that field values must meet. Only records meeting the criteria are returned when the query is run.



Field:	InvNum	InvDate	EmpID	ProdDescription	Price	Qty
Table:	Invoices	Invoices	Invoices	Products	Products	Invoice Details
Sort:	Ascending					
Show:	☑	☑	☑	☑	☑	☑
Criteria:			"JFW"			
or:						

In this query, the EmpID criteria is set to *JFW*.



Invoice Details Query

InvNum	Invoice Date	Emp ID	Description	Price	Qty
1	3/14/2017	JFW	Home Page, Nav, CSS, Design	$400.00	1
1	3/14/2017	JFW	Secondary Page	$200.00	6
1	3/14/2017	JFW	Image, Custom Designed	$40.00	11
5	6/18/2017	JFW	Home Page, Nav, CSS, Design	$400.00	1

Only records where EmpID is *JFW* are returned.

Criteria are commonly used with text, numeric, currency, and date fields. Review the table for examples of how criteria are used.

TYPES OF CRITERIA

Field Type	Criteria	Examples of How Records Are Returned
Text	Smith	Last name is Smith
	> =Smith	Last names are from Smith through the end of the alphabet
	Not Smith	Last name is not Smith
Numeric & Currency	> 123	Numeric value is greater than 123
	> =123	Numeric value is greater than or equal to 123
Date	Date( )	Date is today's date
	< Date( ) – 30	The Date field is 30 days or more prior to today's date

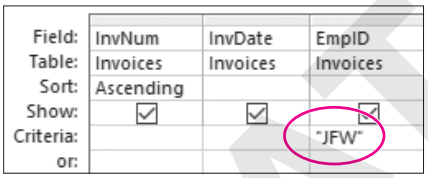
Tip! *Search for* Query Criteria *in Access help for more criteria examples.*

DEVELOP YOUR SKILLS: A3-D4

In this exercise, you will add criteria to the query grid and run the query.

1. With the InvoicesList query open, switch to **Design View**.
2. Click the **Criteria** cell for the EmpID field.
3. Type **JFW** and tap Enter.

   Access will apply quotation marks indicating this is a literal value.



4. Choose **Query Tools→Design→Results→Run** to run the query.

   The query results now include only records where the EmpID is equal to JFW.

5. Close the query and choose **No** when prompted to save the changes.

   Saving changes to the query at this time would save the JFW criteria as part of the query. However, you will continue to use the query for all employees.

Wildcard Characters

Wildcard characters are used to locate records that have similar but not identical data. They help you locate records that match a pattern. For example, you might want to find all customers with last names that begin with the letter *B* or all products that begin with the word *Blog*.

COMMON WILDCARD CHARACTERS

Wildcard Symbol	How It Is Used
Asterisk (*)	Substitutes for a group of characters that appear at the position of the asterisk **Example**: *R** in the last name field will locate all last names beginning with *R* regardless of how many characters make up the name. In this case, *Rogers, Rich,* and *Rodriquez* would all appear in the results datasheet.
Question mark (?)	Substitutes for a single character that might appear at the position of the question mark **Example**: *m?s* will locate records containing values such as *mrs, ms,* and *mbs*.
Open/close brackets [ ]	Matches text or individual characters placed within the brackets individually **Example**: *ca[rt]* will find *cat* and *car* but not *cab* or *cad*.

Tip! *Search for* wildcard characters *in Access help for more wildcard symbols and examples.*

AND and OR Criteria

In some cases, you may need to locate records that meet multiple criteria. This can be done using AND and OR conditions. For example, you may want to locate all records where the employee is web certified AND lives in Sarasota. Or you may want to locate all employees who live in Sarasota OR Bradenton.

Field:	CustID	CustFirstName	CustLastName	CustCity
Table:	Customers	Customers	Customers	Customers
Sort:				
Show:	☑	☑	☑	☑
Criteria:				"Sarasota"
or:				"Bradenton"

Create an OR condition by adding a second criterion to the Or row of a field.

Field:	InvNum	InvDate	ProdDescription	Price	Qty
Table:	Invoices	Invoices	Products	Products	Invoice Details
Sort:	Ascending				
Show:	☑	☑	☑	☑	☑
Criteria:			"Image"		>10

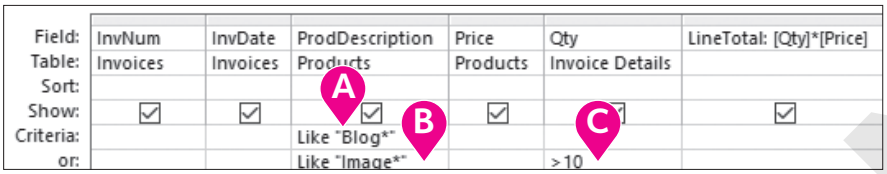
Create an AND condition by adding another criterion to a different field on the Criteria row.

View the video "Create a Query with Criteria."

DEVELOP YOUR SKILLS: A3-D5

In this exercise, you will use wildcards to locate variable data and set multiple criteria in a query to find out which customers have gotten blogs and which customers have added more than ten images at a time to their websites.

1. Open the **Invoices Query** query in **Design View**.
2. Follow these steps to use wildcard characters and to use AND and OR criteria:



   A. In the ProdDescription **Criteria** cell, type **`Blog*`** and tap Enter.

      Access converts Blog* *to:* Like "Blog*"

   B. In the ProdDescription **Or** cell, type **`Image*`** and tap Enter.

   C. Enter **`> 10`** in the Qty **Or** cell. Be sure to type in the same row as *Like "Image*"* (the *Or* row).

   These criteria will choose records where ProdDescription begins with Blog *OR ProdDescription begins with* Image *AND the Qty is greater than 10.*

3. **Run** ! the query.

   Access displays the records that meet the specified criteria: either a blog or a transaction with more than ten images.

4. Close the query and save the changes.

Date Criteria

You can set date criteria to determine age, hired date, invoice date, and so forth. Access acknowledges the same comparison criteria for performing date comparisons that it does for locating other types of data, regardless of the format used to enter dates.

DATE CRITERIA

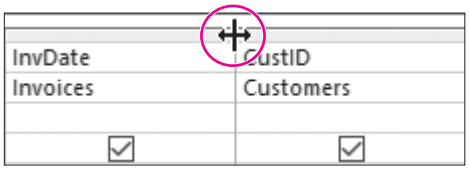
Criterion	Examples of How Records Are Returned
06/22/2019	Date is 06/22/2019
<22-Oct-2019	Dates that occur before 22/Oct/2019
>01/01/19	Dates that occur after 01/01/19
Between 01/01/19 and 06/30/19	Dates between 01/01/2019 and 06/30/2019

DEVELOP YOUR SKILLS: A3-D6

Winchester Web Design needs to track all invoices issued in 2018. In this exercise, you will query the database to locate customers with invoices dated from January 1, 2018, through December 31, 2018.

1. Choose **Create→Queries→Query Design**.
2. Use double clicks to add the **Customers**, **Invoices**, **Invoice Details**, and **Products** tables to the query.

3. Close the Show Table dialog box.
4. In the Invoices table double-click **InvNum** and **InvDate** to add those fields to the query grid.
5. From the Customers table add the **CustID** field.
6. From the Invoice Details table add the **Qty** field.
7. From the Products table add the **ProdDescription** and **Price** fields.
8. Hover your mouse pointer on the right edge of the InvDate column heading so a black, two-direction arrow appears.

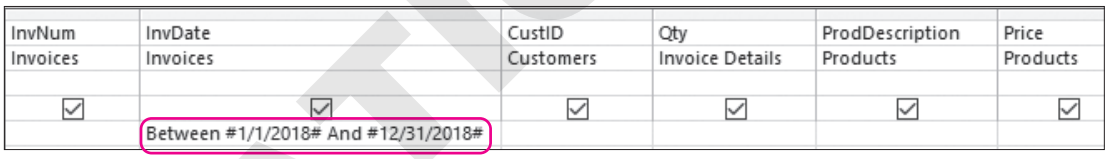


9. Click and drag the column heading to the right until the column is about three times the original width.

   You will enter a long entry in the next step and widening the InvDate column will allow you to see the entire entry.

10. Click in the **Criteria** cell for the InvDate field and type: **`Between January 1, 2018 And December 31, 2018`**

    Access formats the expression. Your query grid should now match this example. Regardless of how you type the dates—whether January 1, 2018; 01/01/18; or 1-1-2018—Access formats the data after you enter it so it appears as #1/1/2018#.



11. **Run** ! the query.

    Notice that only records with a date in 2018 appear in the results.

12. Choose **File→Save** or click the **Save** button on the Quick Access toolbar.
13. Save the query as **`Invoices2018`** and then close it.

Sorting, Showing, and Limiting Results

The query grid contains a Sort row that lets you sort the query results. At times you may also want to use fields to specify criteria but may not want those fields to be displayed in the query results. This can be accomplished by unchecking the Show box for the desired field(s).

Limiting the Number of Results Displayed

Large databases with thousands of records often return so many records that it can be challenging to find what you are looking for. Limiting the number of records displayed can be beneficial, especially when these records are sorted.

For example, if you set up a query to sort in descending order and then limit the number of items displayed to ten, you would, in effect, have a list of the top ten items in the table being queried. The Return feature lets you set the number of records to be displayed, or returned, in the query results.

Design→Query Setup→Return

DEVELOP YOUR SKILLS: A3-D7

In this exercise, you will create a query that sets a sort order and hide a field from displaying in the query results. You will also limit the number of records returned.

1. Choose **Create→Queries→Query Design**.
2. Use double clicks to add the **Customers**, **Invoices**, **Invoice Details**, and **Products** tables to the query.
3. Close the Show Table dialog box.
4. In the Customers table double-click the **CustID**, **CustFirstName**, and **CustLastName** fields to add them to the design grid.
5. From the Invoices table add the **InvDate** field.
6. From the Products table add the **ProdDescription** field.
7. From the Invoice Details table add the **Qty** field.
8. Follow these steps to set a criterion and set the sort order:

Field:	CustID	CustFirstName	CustLastName	InvDate	ProdDescription	Qty
Table:	Customers	Customers	Customers	Invoices	Products	Invoice Details
Sort:						Descending
Show:	☑	☑	☑	☑	☑	☑
Criteria:					Like "Image*"	
or:						

A

A. In the ProdDescription **Criteria** cell, type **`Image*`** and tap Enter. Access converts *Image** to *Like "Image*"*. This criterion will choose only records where the product description begins with *Image*.

B

B. In the **Sort** cell for the Qty field, choose **Descending** from the list of sort options.

9. **Run** the query.

   The records are now sorted in descending order (largest to smallest) by quantity.

   CustID is an important key to have in the query because it is a primary key field. But it isn't needed in the query results because it contains the same information that appears in the CustFirstName and CustLastName fields, so you will hide it from the query results.

10. Choose **Home→Views→Design View** to switch back to Design View.
11. Uncheck the **Show** box for the CustID field and **Run** the query.

    The CustID field is still part of the query design, but it no longer shows in the query results.

12. Switch back to **Design View** and choose **Query Tools→Design→Query Setup→Return menu button**.
13. Choose **5** from the list and run the query.

    The query returns seven records (not five). This is because the query returns all records with the five largest quantities. But three records had a Qty of 14, which is the fifth highest amount, so all those records were returned, increasing the total to seven records.

14. Save the query as **`Most Images`** and then close it.

Calculated Fields

Calculated fields are fields containing formulas that perform calculations. Formulas used in calculated fields are often based on other fields within the query. Calculated fields are added as an additional field to a query and are not part of the underlying query tables. They are added to the query design grid and their calculated results then appear in the query results. A calculated field:

- Creates a new field in a query that can also be used in a form or report
- Can be used to perform mathematical operations, such as addition and multiplication
- Has a name and can be formatted with properties just like a regular field
- Enables you to combine values in two text fields into one field, such as LastName and FirstInitial
- Updates and recalculates each time you run the query

Identifying Parts of a Calculated Field

The structure of a calculated field includes a field name and a mathematical expression. An example of a calculated field in an Access query is Wage: 12.00 * 40, where Wage is the calculated field name and 12.00 * 40 is the calculation to be performed. Another example is Total: Price * Quantity, where Total is the calculated field name and Price * Quantity are the calculations performed using the data in those query fields.

Price	Qty	LineTotal: [Price]*[Qty]
Products	Invoice Details	
☑	☑	☑

The LineTotal calculated field multiplies Price * Qty.

Price	Qty	LineTotal
$200.00	6	$1,200.00
$40.00	11	$440.00
$400.00	1	$400.00
$40.00	15	$600.00

The query results.

Each calculated field can contain the following elements:

CALCULATED FIELD ELEMENTS

Element	Description
Calculated field name	This is the unique name you assign to the field and is followed by a colon (:) to separate the field name from the expression.
Field names from existing tables	Field names from the query can be added to the calculated field expression. Access adds brackets [ ] around field names.
Arithmetic or comparison operators	Use +, -, *, /, ( ), ^, <, =, and > to perform mathematical operations or compare values.
Concatenation (i.e., linking together)	An ampersand (&) can be used to join text values from multiple fields. For example, FirstName&LastName. Spaces can be added between fields by using quotation marks around a single space (" "). For example, the quotation marks in FirstName& " " &LastName create a space between the first and last names in the query results.

Calculated Field Properties

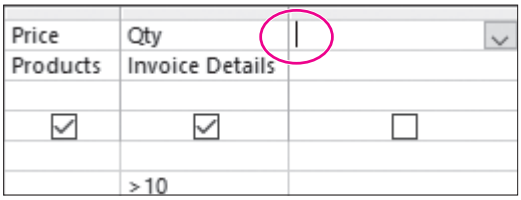
You can set field properties such as size, number format, and default values within tables. Likewise, you can set field properties in calculated fields. This is almost always needed in calculated fields as the query results need to be formatted with the correct number of decimal places, commas, currency format, and other formatting as needed. Field properties are set using the field Property Sheet.

Design→Show/Hide→Property Sheet

DEVELOP YOUR SKILLS: A3-D8

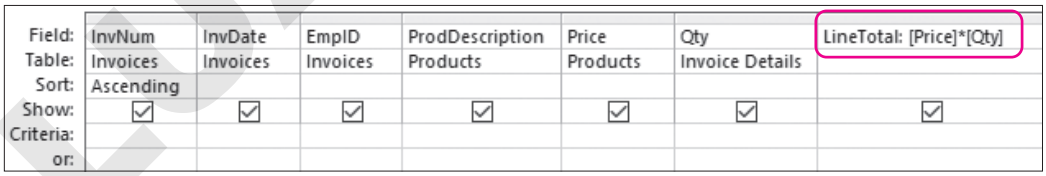
In this exercise, you will create and format a calculated field.

1. Open the **InvoicesList** query and switch to **Design View**.
2. Click in the first cell of the blank column next to the Qty field.



3. Type the calculated field expression, taking care to include the colon between *LineTotal* and *Price*:
   `LineTotal:Price * Qty`
4. Tap Enter to accept the entry and allow Access to format the expression by adding brackets to the field names.

   Access does not always format your expression by adding brackets to field names. Brackets are required for Access to identify the entry as a field within the query. If you want to use field data within a calculated field expression, you need to include the name of your calculated field within brackets. In this example our calculated field is named LineTotal*, and it will multiply the data in the Price field by the data in the Qty field in each record when the query is run. Your completed field should match the following.*



5. Right-click anywhere in the column of your calculated field and choose **Properties**.

   The Property Sheet opens.
6. Click the **Format** field, then click the **menu** button ▾ and choose **Currency** from the list.
7. Click the **Caption** field and type: **`Line Total`**

   The currency format will display the calculated results with a dollar sign and two decimals. The caption will become the column heading for your calculated field in the query results.

8. **Run** ! the query, and your calculated field results will appear as shown:

InvoiceList

InvNum	Invoice Date	Emp ID	Description	Price	Qty	Line Total
1	3/14/2017	JFW	Secondary Page	$200.00	6	$1,200.00
1	3/14/2017	JFW	Image, Custom Designed	$40.00	11	$440.00
1	3/14/2017	JFW	Home Page, Nav, CSS, Design	$400.00	1	$400.00
2	4/1/2017	MJW	Image, Custom Designed	$40.00	15	$600.00
2	4/1/2017	MJW	Home Page, Nav, CSS, Design	$400.00	1	$400.00
2	4/1/2017	MJW	Secondary Page	$200.00	7	$1,400.00

9. Save and close the query and then close the database.

Self-Assessment

Check your knowledge of this chapter's key concepts and skills using the Self-Assessment in your ebook or online (eLab course or Student Resource Center).

Reinforce Your Skills

REINFORCE YOUR SKILLS: A3-R1

Create Queries Using Criteria and Wildcards

Kids for Change is planning to fine-tune its database by adding queries that enable it to track activities as well as staff/volunteer availability. In this exercise, you will create various queries that will yield the desired information.

1. Open **A3-R1-K4C** from your **Access Chapter 3** folder and save it as: **`A3-R1-K4CRev`**
2. Choose **Create→Queries→Query Wizard** .
3. Choose **Simple Query Wizard** and click **OK**.
4. Add the **Activity**, **Location**, **Day**, and **MeetTime** fields from the Activities table to the Selected Fields list and click **Next**.
5. Name the query **`Activities List`** and click **Finish**.
6. Review the query results and then close the query.

Create a Query in Design View

7. Choose **Create→Queries→Query Design** to start a new query.
8. Add the **Volunteers** table and then close the Show Table dialog box.
9. Add the **VolLastName**, **VolFirstName**, **VolPhone**, and **VolDay** fields to the query design grid (in that order).
10. Run the query and take a moment to review the results.

    Now you will change the field order.
11. Switch to **Design View** .
12. Click and drag the **VolDay** field, dropping it in front of the *VolLastName* field.

Field:	VolDay	VolLastName	VolFirstName	VolPhone
Table:	Volunteers	Volunteers	Volunteers	Volunteers
Sort:				
Show:	☑	☑	☑	☑
Criteria:				
or:				

13. **Run** the query and review the results.

    You may notice the field names appear differently from those used in the query grid. Field names in queries retain any caption labels previously set in table properties.
14. Save the query as **`Volunteer List`** and then close the query.

Create a Multi-Table Query

15. Create a new query in **Query Design** view, add the **Activities** and **Staff** tables to the query, and then close the Show Table dialog box.
16. Move the fields from the indicated tables to the query design grid:

From This Table	Add These Fields
Activities	• **Activity** • **Day** • **MeetTime**
Staff	• **StaffLastName** • **StaffFirstName** • **StaffPhone**

17. Set the Sort option for the Activity field to **Ascending**.
18. **Run** ! the query and view the results.
19. Save the query as **`Activity Staffing List`** and then close it.

Add Wildcard and AND/OR Criteria to a Query

20. Right-click the **Activity Staffing List** query in the Navigation pane and choose **Design View**.

    You can open a query in Design View using this method or you can run it first and then switch to Design View. Remember to try right-clicks if you are having trouble finding commands.
21. Create a Saturday or Sunday OR condition in the Day field.

    Typing the quotation marks " " isn't necessary, as Access will add them for you.

Field:	Activity	Day	MeetTime
Table:	Activities	Activities	Activities
Sort:	Ascending		
Show:	☑	☑	☑
Criteria:		"Saturday"	
or:		"Sunday"	

22. Run the query.

    Only activities for Saturday or Sunday should be displayed.
23. Switch to **Design View** and delete **Sunday** to remove the OR condition.
24. Enter **`12:00`** in the **MeetTime Criteria** field, tapping Enter when finished.

    This creates a Saturday AND 12:00 meet-time condition. Access will format the 12:00 condition like this: #12:00:00 PM#

Field:	Activity	Day	MeetTime
Table:	Activities	Activities	Activities
Sort:	Ascending		
Show:	☑	☑	☑
Criteria:		"Saturday"	#12:00:00 PM#
or:			

25. Run the query.

    Because both conditions must be met, just one activity meeting (a car wash) should be returned by the query.
26. Switch to **Design View** and remove both the **Saturday** and **12:00** criteria.

27. Type **S*** in the Criteria cell for the Day field and tap Enter.

    *Access recognizes the asterisk * wildcard character and formats the condition as* Like "S*"*. The query will return all records where the name of the day begins with S (Saturday and Sunday) and should produce the same results as when you used the Saturday OR Sunday condition earlier in this exercise.*

28. Run the query and take a moment to observe the results.
29. Save the changes and close the query.

Add Date Criteria to a New Query

Now you will create a query that returns the records of the youngest children so you can determine which children may need more supervision.

30. Create a new query in **Design View**, adding the **Children** table and the fields **ChildLastName**, **ChildFirstName**, and **BirthDate**.
31. Run the query and take a moment to observe the results.

    Now you will add a condition.

32. Switch to **Design View**, type **>January 1, 2010** in the **BirthDate Criteria** field, and tap Enter.

    Once again Access will apply formatting to the criterion.

33. Run the query.

    Only records where the child was born after January 1, 2010, should be displayed.

34. Choose **File→Save** or click the **Save** button on the Quick Access toolbar and save the query as: **Younger Children**
35. Close the query and then close the database.

REINFORCE YOUR SKILLS: A3-R2

Limit the Records Returned and Use Calculated Fields

Kids for Change is planning to fine-tune its database further by adding queries that will produce calculated results. You are in charge of the IT department. In this exercise, you will generate the desired query results.

1. Open **A3-R2-K4C** from your **Access Chapter 3** folder and save it as: **A3-R2-K4CRev**
2. Run (open) the **Children List** query.

   The query returns the records of all children in the database in alphabetical order by last name.

3. Switch to **Design View** and choose **Query Tools→Design→Query Setup→ Return menu button**.
4. Choose **5** from the list.
5. Click in the **Sort** cell for the BirthDate field and choose **Descending**.
6. Run the query.

   Only the records for the five youngest children should be displayed.

7. Close the query, saving the changes.

Add a Calculated Field and Format the Field

As part of its community give-back policy, Kids for Change puts 10% of all donations into a scholarship fund. Now you will add a field that calculates 10% of each donation.

8. Run the **Donations Query** query and take a moment to observe the results.
9. Switch to **Design View** and use the scrollbar at the bottom of the grid to scroll the query grid to the right until the first empty column is visible.

   You will enter a calculated field in this column.
10. Type **`ScholarFund:Amount*.1`** in the first cell (the Field cell) of the empty column, being sure to include the colon between *ScholarFund* and *Amount*.
11. Tap Enter to complete the calculated field, and if necessary, widen the column so you can see the entire calculated field.
12. If the Property Sheet is not open, right-click anywhere in your calculated field column and choose **Properties**.
13. Click in the **Format** field and choose **Currency** from the drop-down list.
14. Type **`Scholar Fund`** in the Caption field.
15. Run the query and take a moment to ensure that the calculated field is calculating correctly and is formatted with the Currency format.
16. Close the query, saving the changes, and then close the database.

REINFORCE YOUR SKILLS: A3-R3

Create Select Queries Using Criteria and Calculated Fields

In this exercise, you will help Kids for Change further develop its database by adding queries that will produce calculated and formatted results based on specific search criteria.

1. Open **A3-R3-K4C** from your **Access Chapter 3** folder and save it as: **`A3-R3-K4CRev`**
2. Use the **Query Wizard** to create a simple query using the **Donors** table and the **DonorLName**, **DonorFName**, **DonorPhone**, and **DonorEmail** fields.
3. Use **`Donor Contact List`** as the query name and finish the query.
4. Review the query results and then close the query.
5. Using **Query Design**, create a new query with the **Staff** table and the **StaffLastName, StaffFirstName**, **StaffStreet**, **StaffCity**, **StaffST**, and **StaffZIP** fields.
6. Save the query as: **`Staff Mailing List`**
7. Run the query, review the results, and then close the query.

Create a Multi-Table Query

8. Create a new query using **Query Design** view and add the **Activities** and **Children** tables to the design grid.
9. Move the fields from the indicated tables to the query design grid:

From This Table	Add These Fields
Activities	• **Activity** • **Day** • **MeetTime**
Children	• **ChildLastName** • **ChildFirstName** • **ChildPhone**

10. Save the query as: **`Participant List`**
11. Run the query and review the results.

Add Criteria Including Wildcards and Dates

Now you will add criteria to the Participant List query to list the children signed up for 9:00 AM Saturday activities.

12. Switch to **Design View**.
13. Create an AND condition by setting **`Saturday`** as a criterion in the Day field and **`9:00`** as a criterion in the MeetTime field.
14. Run the query.

    The only records returned are those where the day is Saturday AND the meet time is 9:00.
15. Close the query, saving the changes.

    Now you will use a wildcard to select nearby donors so they can be invited to local activities.
16. Right-click the **Donations Query** query in the Navigation pane and choose **Design View**.
17. If necessary, scroll right through the field list until you locate the DonorZIP field.
18. Enter **`34*`** in the DonorZIP Criteria field.

    The asterisk is a wildcard character.
19. Run the query.

    Only records where the ZIP code begins with 34 are returned by the query.
20. Switch to **Design View** and remove the criteria from the DonorZIP field.
21. Enter **`>01/01/2018`** in the DonationDate Criteria field.
22. Run the query and review the results.

Sort and Limit Query Results

23. Switch to **Design View**.
24. Set the DonationDate field to sort in **Descending** order.

25. Use the **Query Tools→Design→Query Setup→Return** **menu button** ▾ list to limit the records returned to **5**.
26. Run the query and review the results.

Add a Calculated Field and Format the Field

27. Switch to **Design View** and set the Return number back to **All**.
28. Create a calculated field by entering **`NetAmt:Amount-ScholarFund`** in the first empty column's Field row.
29. Right-click in the new calculated field column and open the Property Sheet.
30. Set the Format to Currency and type **`Net Donation`** as the Caption.
31. Run the query and review the results.
32. Close the query, saving the changes, and then close the database.

Apply Your Skills

APPLY YOUR SKILLS: A3-A1

Create Queries Using Criteria and Wildcards

The new CEO of Universal Corporate Events has asked you to refine a number of queries to be more selective in data output. In this exercise, you will create queries; add criteria, wildcards, and AND/OR conditions to a query; and add date criteria to a query.

1. Open **A3-A1-UCE** from your **Access Chapter 3** folder and save it as: **`A3-A1-UCERev`**
2. Use the **Query Wizard** and this table to create a simple select query:

Table to Use	Fields to Add	Query Name
Personnel	• **PerLastName** • **PerFirstName** • **PerPhone** • **PerEmail**	**`Personnel Contact List`**

3. Review the results and then close the query.
4. Create a query in **Design View** that uses the tables and fields indicated:

From This Table	Use These Fields
Events	• **EventName**
Schedules	• **VenueID** • **ContactID** • **EventDate** • **Guests**
Menus	• **MenuPlan** • **Chg/PP**

5. Run the query and review the results.
6. Save the query as **`Event List`** and then close it.

Use Wildcards and AND/OR Criteria

UCE is planning a recruiting event in Sarasota and would like to contact employees from greater Sarasota (area code 941) to involve them in the planning. You will modify a query to return the records of personnel who live in the Sarasota area.

7. Open the **Personnel Contact List** query in **Design View**.
8. Enter the wildcard text **`*941*`** in the PerPhone Criteria field.
9. Run the query and verify that each telephone number in the query results contains *941* somewhere in the number.
10. Close the query, saving the changes.

11. Create a new query in **Design View** from the **Venues** table that includes the **VenueName**, **VenueCity**, **VenuePhone**, and **VenueWebSite** fields.
12. Enter **`Sarasota`** in the VenueCity Criteria field and **`Tampa`** in the Or row of the VenueCity field.
13. Run the query and verify that the city is *Sarasota* or *Tampa* in each record.
14. Save the query as **`Tampa-Sarasota Venues`** and then close it.

Add Date Criteria

15. Run the **Event List** query and notice the range of dates.
16. Switch to **Design View** and type **`>May 1, 2019`** in the EventDate Criteria field.
17. Sort the query in **Ascending** order on the **EventDate** field.
18. Run the query and make sure it produces the intended results.
19. Close the query, saving the changes, and then close the database.

APPLY YOUR SKILLS: A3-A2

Limit the Records Returned and Use Calculated Fields

You've been asked to improve Universal Corporate Events' data retrieval and formatting. In this exercise, you will sort and limit records returned in query results and create a query using a calculated field.

1. Open **A3-A2-UCE** from your **Access Chapter 3** folder and save it as: **`A3-A2-UCERev`**
2. Run the **Event Revenue** query and review the results.
3. Switch to **Design View** and set the sort order of the TotalRev calculated field to **Descending**.
4. Set the Return number to **5** to limit the number of records returned by the query to the top five.
5. Run the query and review the results.
6. Switch to **Design View** and change the Return value back to **All**.

Add a Calculated Field and Format the Field

7. Create a new calculated field using the name and the expression: **`Comm:TotalRev*.08`**
8. Open the Property Sheet for the new calculated field and set the Format to **Currency** and use **`Commission`** as the Caption.
9. Run the query and review the results.
10. Close the query, saving the changes, and then close the database.

APPLY YOUR SKILLS: A3-A3

Create Select Queries Using Criteria and Calculated Fields

In this exercise, you will create and modify a number of queries for more precise, targeted data selection for Universal Corporate Events.

1. Open **A3-A3-UCE** from your **Access Chapter 3** folder and save it as: **`A3-A3-UCERev`**

   To begin, you will create a query to list contact information for the event venues that have an 800 telephone number so they can be reached by phone at no charge to the caller.

2. Create a simple query named **`TollFreeVenues`** that uses the **Venues** table to generate a list of venue names and their corresponding phone numbers and websites.
3. In **Design View**, add the wildcard text **`*800*`** to the Criteria row to return only records for which the venue phone number includes *800*.
4. Run the query and resize the columns in the query results so all data is visible.
5. Close the query, saving the changes.

Add Wildcard and Date Criteria and Sort the Query

Because June is the most popular month for weddings, UCE wants to pay special attention to weddings scheduled for June so they can hire extra part-time workers.

6. Using the **Query Wizard**, create a simple query that uses all fields from the Event List query.
7. Leave the Wizard's Detail or Summary option set to **Detail**.
8. Name the query **`June Weddings`** and finish the query.
9. Switch to **Design View**.
10. Add the wildcard text **`Wed*`** (for *Weddings*) to the EventName Criteria field.
11. Set the sort order of the EventDate field to **Ascending**.
12. In the EventDate Criteria field, enter: **`Between June 1, 2019 And June 30, 2019`**
13. Run the query and review the results.
14. Close the query, saving the changes.

Limit the Number of Records in Query Results

Now you will sort the Location Scheduling query by the largest number of guests and return the ten highest values so the company can focus extra personnel and resources to those events if the guests are scheduled for a full menu plan.

15. Display the **Location Scheduling** query in **Design View**.
16. Sort the query in **Descending** order by **Guests**.
17. Set the number of records returned to: **`10`**

    You'll need to click in the Return cell and type 10. If Access changes the 10 to 100, delete the extra zero (0).

18. Run the query and review the results.
19. Close the query, saving the changes.

Add and Format Calculated Fields

Now you will add a calculated field that subtracts the venue contact's commission from the total revenue to result in a net revenue amount.

20. Display the **Event Revenue** query in **Design View**.
21. Add a calculated field named **`NetRev`** that subtracts Comm from TotalRev.
22. Format the new field as **Currency** and set the Caption as: **`Net Revenue`**
23. Add a criterion to the TotalRev field to choose only records where the TotalRev is greater than 3000.
24. Run the query and review the results.
25. Close the query, saving the changes, and then close the database.

Project Grader

If your class is using eLab (labyrinthelab.com), you may upload your completed Project Grader assignments for automatic grading. You may complete these projects even if your class doesn't use eLab, though you will not be able to upload your work.

PROJECT GRADER: A3-P1

Taylor Games: Creating Queries

Taylor Games wants to evaluate where levels of inventory are too high. You will use the inventory data to create several queries, leverage wildcard characters, and add a calculated field.

1. Download and open your Project Grader starting file.
   - *Using eLab:* Download **A3_P1_eStart** from the Assignments page. You *must* start with this file or your work cannot be automatically graded.
   - *Not using eLab:* Open **A3_P1_Start** from your **Access Chapter 3** folder.
2. Use **Query Design** to create a simple query using the following guidelines:
   - Add all fields from the **Inventory** table in the same sequence as they appear in the table.
   - Set the criteria to include all records where (Quantity is greater than 75) AND (Total Cost is greater than 250).
   - Save the query as **`Overstock`** and run it.

Query1

Item	SKU	Quantity	Cost	Total Cost
Vinyl 3-hole card holders	5273359	621	$0.76	$471.96
Replacement pieces - Monopoly	5273363	88	$3.25	$286.00

3. Add criteria to the Overstock query so that the query logic now becomes (Quantity is greater than 75 AND Total Cost is greater than 250) OR (Item contains the word *dice* AND Quantity is greater than 75) and then run the query.

Overstock

Item	SKU	Quantity	Cost	Total Cost
Vinyl 3-hole card holders	5273359	621	$0.76	$471.96
Replacement pieces - Monopoly	5273363	88	$3.25	$286.00
20-sided dice -White	5273368	247	$0.38	$93.86

4. Add a calculated field named **`Overstock Qty`** that subtracts 75 from the Quantity field in each record.
5. Sort the query results on the **Overstock Qty** field in descending order.

Overstock

Item	SKU	Quantity	Cost	Total Cost	Overstock
Vinyl 3-hole card holders	5273359	621	$0.76	$471.96	546
20-sided dice -White	5273368	247	$0.38	$93.86	172
Replacement pieces - Monopoly	5273363	88	$3.25	$286.00	13

6. Save and close the query.
7. Save your database.
   - *Using eLab:* Save it to your **Access Chapter 3** folder as **`A3_P1_eSubmission`** and attach the file to your eLab assignment for grading.
   - *Not using eLab:* Save it to your **Access Chapter 3** folder as: **`A3_P1_Submission`**

PROJECT GRADER: A3-P2

WebVision: Querying a Database

WebVision would like to create a monthly query that will calculate the Sales Rep commissions for each order. You will use the data in multiple tables to create a select query and add a calculated field.

1. Download and open your Project Grader starting file.
   - *Using eLab:* Download **A3_P2_eStart** from the Assignments page. You *must* start with this file or your work cannot be automatically graded.
   - *Not using eLab:* Open **A3_P2_Start** from your **Access Chapter 3** folder.
2. Use the **Query Wizard** to create a simple query using the following guidelines:
   - Add the **RepID**, **LastName**, and **SalesTeam** fields from the **Sales Reps** table in that sequence.
   - Add the **OrderID**, **Date**, and **Amount** fields from the **Orders** table in that sequence.
   - Use the **Detail** option.
   - Name the query: **`June Commissions`**
3. Set the Date criteria to include records between **`6/1/2019 And 6/30/2019`**.
4. Sort the query results on the **RepID** field in **Ascending** order.
5. Add a calculated field named **`Commissions`** that multiplies the Amount field in each record by: **`0.02`**
6. Apply the **Currency** number format to the Commissions field and then run, save, and close the query.

June Commissions

Rep ID	Last Name	Sales Team	Order Numb	Date	Amount	Commission
S101	Franks	North	9	6/7/2019	$38,024	$760.48
S101	Franks	North	5	6/15/2019	$29,382	$587.64
S102	Edmunds	Central	10	6/3/2019	$62,569	$1,251.38
S102	Edmunds	Central	6	6/14/2019	$52,063	$1,041.26
S102	Edmunds	Central	2	6/23/2019	$60,093	$1,201.86
S103	Berry	West	11	6/2/2019	$36,759	$735.18
S103	Berry	West	7	6/11/2019	$46,146	$922.92
S103	Berry	West	3	6/20/2019	$53,933	$1,078.66
S104	Lifestone	South	8	6/8/2019	$35,249	$704.98
S104	Lifestone	South	4	6/19/2019	$63,958	$1,279.16

7. Save your database.
   - *Using eLab:* Save it to your **Access Chapter 3** folder as **`A3_P2_eSubmission`** and attach the file to your eLab assignment for grading.
   - *Not using eLab:* Save it to your **Access Chapter 3** folder as: **`A3_P2_Submission`**

Extend Your Skills

These exercises challenge you to think critically and apply your new skills in a real-world setting. You will be evaluated on your ability to follow directions, completeness, creativity, and the use of proper grammar and mechanics. Save files to your chapter folder. Submit assignments as directed.

A3-E1 That's the Way I See It

Blue Jean Landscaping needs queries to better manage its customer and equipment lists and you've volunteered to assist. Open **A3-E1-BJL** and save it as: **A3-E1-BJLRev**

Create a query named **813 Area Code** that uses all fields from the Customers table. The query should return only customers with a phone area code of 813 sorted in ascending order by city. Create another query named **Equipment Value** that uses all fields from the Equipment table. Use a calculated field named **EquipValue** to determine the total value of equipment by multiplying the Cost by the quantity In Stock. Sort the results with the largest Equipment Values appearing first and format the EquipValue field using the Currency format.

A3-E2 Be Your Own Boss

Blue Jean Landscaping wants to devise more targeted data retrieval. Open **A3-E2-BJL** and save it as: **A3-E2-BJLRev**

Create a query that returns a contact list for BJL's customers sorted by last name. Create another query that creates a customer mailing list sorted by ZIP code. Use a wildcard to select only records where the ZIP code begins with 33. Add a calculated field to the Sales Invoices query that multiplies Cost by Qty Sold to produce a total. Format the new field as Currency and assign it a caption. Finally, limit the number of records returned to the largest five invoice totals, so those customers can be targeted for preferred customer offers.

A3-E3 Demonstrate Proficiency

You've been asked by the management at Stormy BBQ to query its database. Open **A3-E3-StormyBBQ** and save it as: **A3-E3-StormyBBQRev**

Create a query that uses data from the DailyReceipts table and determines the total revenue received for each item using the ItemPrice and QtySold fields. Include all fields from the table in the query and sort in descending order on the field that is used to perform the daily total calculations. Create another query using the Merchandise table that contains all fields from the Merchandise table and a sequence of calculated fields. For each item, the calculated fields should determine the Stock Cost of that item (Cost * Stock), the List Price Revenue if all items were sold at list price (Listprice * Stock), and the Profit, which is the difference between the revenue and cost.

ACCESS

4 Using Reports to Display Information

Although reports can summarize data from a single database table, they often present specific data from multiple tables or from queries based on multiple tables. Both forms and reports use many of the same tools and techniques to organize and present information in a readable format. In this chapter, you will create reports to organize and summarize data into meaningful information.

LEARNING OBJECTIVES

- Create basic reports using the Report tool
- Create reports with the Report Wizard
- Change field alignment and size in Layout View
- Change field properties
- Insert logos and dates
- Insert new fields

Project: Turning Data into Information with Reports

Forms are great for entering data and displaying single records. Most businesses, however, want to filter and summarize data, as well as display specific data, such as running totals, in a readable format. Winchester Web Design needs a new report to summarize the sales for each employee and display sales totals. As its database manager, you have agreed to create a report to meet these needs.

Introducing Reports

Because reports are often presented in a readable format and end up as a printout, there are some basics that every report should include. Of course, it should be well organized, look professional, and be visually appealing. Imagine finding a report on your desk without a date, page numbers, or a title that states what it is for. How might this affect the usability and readability of the data?

Most reports should have both a title and a subtitle. The title may simply be the company name. The subtitle should state specifically what the report is for, such as Monthly Income or Product List. Every report requires a date and should include the page number, even if the report is only one page. Once you have a good handle on the who, what, and when, you will be ready to create your first report.

Basic Reports

Use the Report button to instantly create a basic report for a selected table or query. This is the easiest way to create a report using all fields from the table or query. Only one table or query can be used in a basic report.

Create→Reports→Report

DEVELOP YOUR SKILLS: A4-D1

In this exercise, you will create and explore a basic report and then apply a multiple column format to that report.

1. Open **A4-D1-WinDesign** from your **Access Chapter 4** folder and save it as: **A4-D1-WinDesignRev**

   Click the Enable Content button, if it appears.
2. Choose the **Products** table in the Navigation pane.
3. Choose **Create→Reports→Report**.

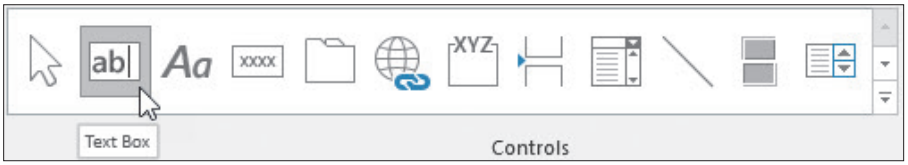
   A basic report is displayed in Layout View. In Layout View you can easily move and size report objects.
4. Close any boxes that may be open, such as the Property Sheet or Field List pane.
5. Choose **Home→Views→View menu button →Report View**.

   Report View is best when viewing how a report will be presented electronically.

6. Choose **Home→Views→View menu button →Design View**.

   The report body contains sections populated with text labels and controls that display the date, time, and other data and that perform calculations.

7. Mouse over the report control tools in the Controls group of the Ribbon, reviewing the ToolTips that appear.



Apply Multiple Columns

8. Choose **Home→Views→View menu button →Print Preview** to see how your report will look when printed.
9. Choose **Print Preview→Page Layout→Landscape** and then click the **Columns** button.

   The Page Setup dialog box appears with the Columns tab active.

10. Set the Number of Columns property to **2** and the Width property under Column Size to **4.5** and then click **OK**.

    The report is now formatted to print records into two even columns.

11. Click **Close Print Preview** on the right side of the Ribbon.
12. Choose **File→Save** or click the **Save** button on the Quick Access toolbar and save the report as: **Products**
13. Close the report.

Report Organization and Structure

Reports can display data from multiple tables and even from queries. Report data must often be grouped and sorted so it can be easily analyzed and interpreted. Effective reports turn data into information by displaying it in an organized and understandable manner. Queries are often the best data source for reports as they can receive data from multiple tables, sort the data, and even include calculated fields.

Sections

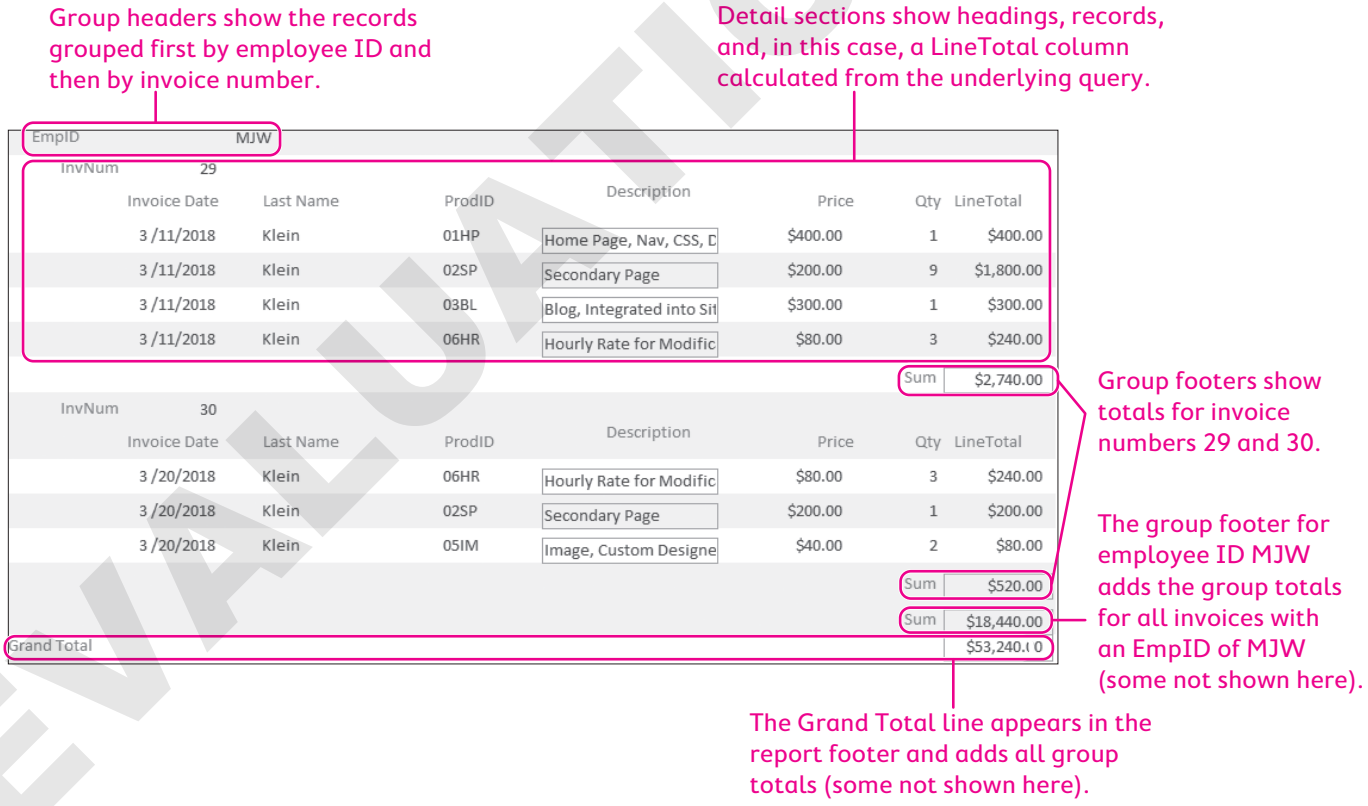
Sections provide the structure needed to effectively organize and present information. There are several types of sections, with each type used for a specific purpose.

REPORT SECTIONS

Section(s)	Description
Report Header and Footer	Displayed only at the top of the first page and bottom of the last page. Some uses include titles, subtitles, and logos.
Page Header and Footer	Displayed at the top and bottom of every page. Some uses include descriptive labels, page numbers, and dates.
Group Header and Group Footer	The group header shows the fields on which report data is grouped. For example, grouping by Salesperson might list each salesperson and all the transactions that person is responsible for. The group footer displays summary information such as the total of all transactions for each salesperson.
Detail	Main part of the report where the records are displayed. The records are typically organized in groups. The detail sections are where field headings appear.

The Report Header appears at the top of the report.

This image shows a report in Layout View with the various sections highlighted.



Grouping and Sorting

A group is a collection of records that has at least one data element or key field in common. In the preceding example, records are grouped first by employee ID MJW and then by invoice numbers 29 and 30. A group consists of a header, records, and a footer. Grouping helps organize the information in meaningful ways. Groups are arranged by level. Each nested group (lower level) will appear indented below the group above it (higher level), so you can visualize how groups are prioritized.

Once grouping has been set, summary options become available. Summary options allow users to summarize a group with calculated values such as a total, average, maximum, or minimum value. These calculations are based on the remaining ungrouped fields whose data contains a numeric value.

It is important that records first be sorted using the same field used for grouping. Otherwise, a new group might be created each time the data in the group changes. Sorting can be added in the report; however, it's best to make the sorting occur in the underlying tables or queries.

The Report Wizard

The Report Wizard is a great way to get started with most reports. It lets you choose multiple tables or queries, group and sort data, perform calculations, and organize and present the information. The Wizard builds the report for you, creating the necessary structure and organization.

View the video "Grouping and Sorting in the Report Wizard."

Create→Reports→Report Wizard

DEVELOP YOUR SKILLS: A4-D2

In this exercise, you will create a detailed Invoice report using the Report Wizard.

1. Choose the **Invoice Details Query Q1 2018** query in the Navigation pane.
2. Choose **Create→Reports→Report Wizard**.

   Invoice Details Query Q1 2018 is chosen in the Tables/Queries list because you chose it before starting the Report Wizard.
3. Double-click the **EmpID** field to add it to the Selected Fields list or choose it and click the **Add** > button.
4. Add the **InvNum**, **InvDate**, **CustLastName**, **ProdID**, **Price**, **Qty**, and **LineTotal** fields to the Selected Fields list.

   Do not select CustFirstName *and* ProdDescription. *If you add every field to the report, there won't be enough room to display all the information. Be sure that* EmpID *is the first field on the list.*
5. Click **Next**, and the Wizard will ask if you want to add grouping levels.
6. With EmpID still selected, click the **Add** > button to set EmpID as the first grouping level.

   All invoices associated with a particular employee will be grouped together.
7. Click **Add** > once more, this time to make the **InvNum** field the second grouping level.

   The information will first be grouped by employee ID and then within each employee group by invoice number.

8. Click **Next**, and the sort order and summary information screen will appear.

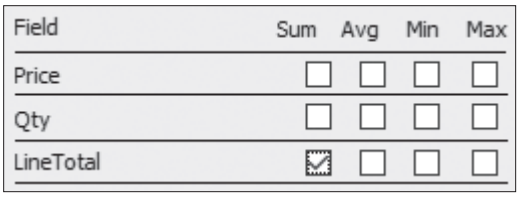
   This is where you can add totals and other calculations and sort the results within groups. The underlying query sorts the invoices in ascending order, so it isn't necessary to add sorting in this report.

9. Click the **Summary Options** button in the lower part of the dialog box.

   Price, Qty, and LineTotal are numeric fields, so they can be used to create totals as well as average, minimum, or maximum values.

10. Check the **Sum** box for the LineTotal field.

    This will sum the invoices associated with each employee ID.



11. Leave the other settings as they are and click **OK**.
12. Click **Next** because sorting isn't needed.
13. Choose **Outline** for the layout type and **Landscape** for the orientation.
14. Leave the Adjust the Field Width box checked and click **Next**.
15. Name the report **`Invoice Details Report Q1 2018`** and click **Finish**.

    Your report displays in Print Preview, showing invoice totals and summary totals for each employee.

16. Take a moment to review the report using the page controls at the bottom of the screen (there should be ten pages, including unnecessary extras resulting from the width of the summary totals control).

    The Report Wizard provides a great starting point; however, the report needs some formatting and layout work.

17. Click the **Close Print Preview** button on the right side of the Ribbon.

    The report will display in Design View.

Modifying Reports

Reports can be created from scratch using Design View, but the Report Wizard is much easier to use and far more efficient. And while the Report Wizard provides a great starting point, it's often necessary to add, delete, move, or resize fields and to enhance a report in other ways such as adding titles and a company logo. These and other enhancements can be done using Layout View or Design View.

Layout View allows controls to be moved and sized while viewing how the report will look when printed. Design View gives you a detailed view of the report to allow design changes to individual controls, sections, and report structure without affecting the underlying data.

View the video "Modify Reports in Layout View."

View the video "Modify Reports in Design View."

Controls

Controls determine where field data, titles, headings, images, and other information are precisely positioned within report sections. There are three types of controls used in reports.

TYPES OF CONTROLS

Control Type	Description
Bound	Controls that display data from the table or query
Unbound	Objects that enhance the appearance of a report, such as labels, titles, lines, and images
Calculated	Controls that display calculated fields from queries or that perform calculations within the report itself

Here are the controls available on the Design tab of the Ribbon.

Adding Fields to a Report

Sometimes fields need to be added to an existing report. The Existing Fields tool displays a list of tables and their fields. Fields are added to the report in Design View by dragging them from the Field List pane into report sections. Adding a field creates a text box control where the field data is displayed and a label control that contains the field name. The label can be changed, allowing you to be creative with the field names displayed on the report.

Report Design Tools→Design→Tools→Add Existing Fields

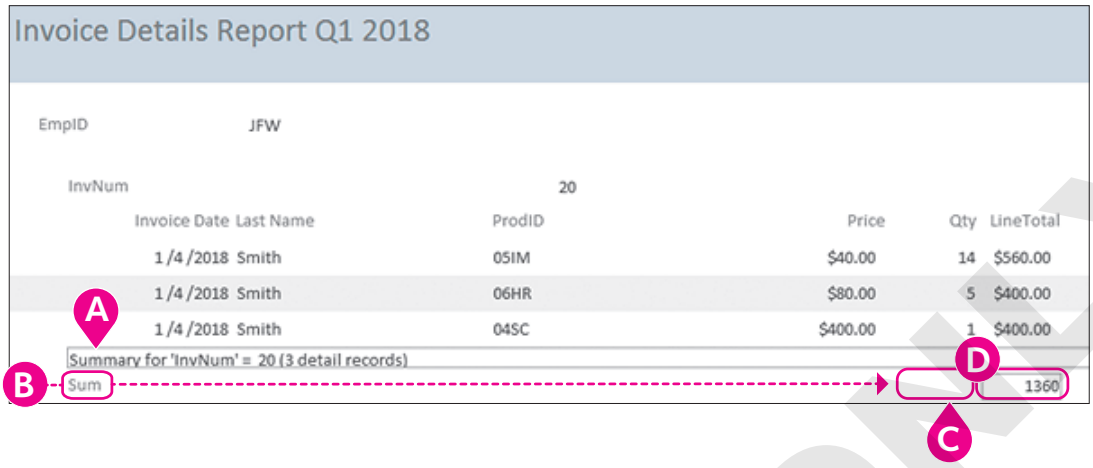
DEVELOP YOUR SKILLS: A4-D3

In this exercise, you will delete unneeded controls, add controls, and rearrange and resize controls to produce a more attractive, well-balanced report.

1. If necessary, open **Invoice Details Report Q1 2018**.
2. Switch to **Layout View**.

   Layout View lets you easily move controls and adjust their sizes while seeing how the report will look when printed.
3. Close any open boxes, such as the Property Sheet or Field List pane.

4. Follow these steps to delete and rearrange the invoice number summary controls:

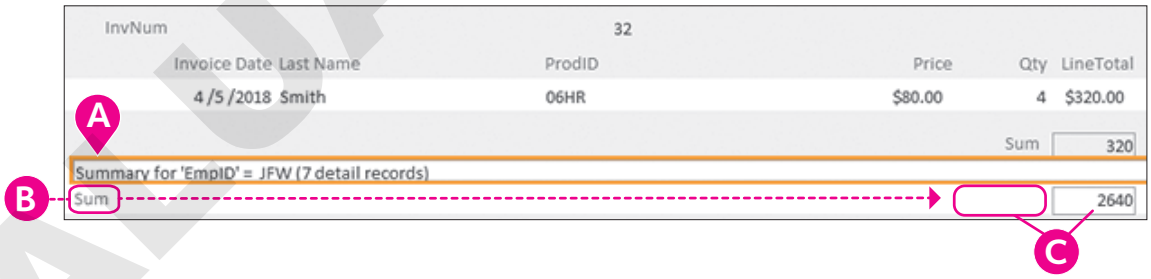


- **A** Click the **Summary for 'InvNum'** control and tap Delete to remove it.
- **B** Click the **Sum** label and then tap or hold the **right arrow** → to move it across the report next to the Total text box.
- **C** With the Sum label still selected, press the Ctrl key and click the **Total** text box. Both controls should be selected.
- **D** Tap the **up arrow** ↑ three times to move the controls up.

This section of the report should now look like this.

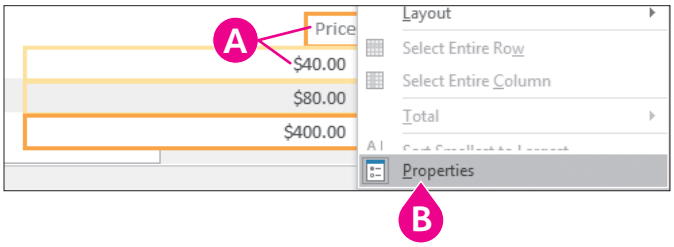
Price	Qty	LineTotal
$40.00	14	$560.00
$80.00	5	$400.00
$400.00	1	$400.00
	Sum	1360

5. Follow these steps to rearrange the EmpID field controls:



- **A** Scroll down to the Summary for 'EmpID' control, click to select it, and then tap Delete to remove it.
- **B** Scroll down, click the **Sum** label, and tap the **right arrow** → multiple times until the Sum label aligns with the Sum and Qty controls above it.
- **C** With the Sum label selected, press Ctrl, click the **Total** text box, and then tap the **up arrow** ↑ three times to move the controls up.

6. Follow these steps to change the width and alignment of the Price controls:



   A. Click any **Price** label and then press Ctrl and click any price text box to select all price labels and text boxes.

   B. Right-click the selected controls and choose **Properties** at the bottom of the menu.

7. Set the Width property to: **0.8**

   The setting won't take effect until you tap Enter or click in another box.

8. Set the Left property to **6.625** and tap Enter so you can see the change take effect.

   The Left property determines the position from the left side of the page.

Change the Width of a Control and the Overall Report

Now you will work in Design View as you adjust the width of the page numbering control located in the Page Footer section.

9. Switch to **Design View**.

10. Click the **="Page"** numbering control in the page footer section.

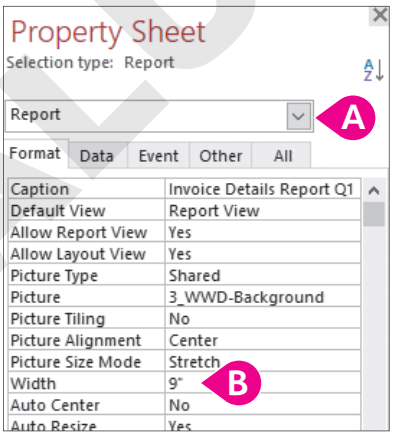
    You may need to move the Property Sheet box to be able to see the control. This control determines how page numbers appear in the report, including their position within the page footer.

    ="Page " & [Page] & " of " & [Pages]

11. With the Property Sheet box visible, set the Width property to **2** and tap Enter to see the change.

    Now you will change a width setting for the entire report.

12. Follow these steps to change the report width :



   A. Click the **Selection Type** button in the Property Sheet box and choose **Report**.

   B. Set the width to: **9**

   You are now viewing the properties for the report rather than for individual controls. The overall report width will now be 9", although this won't be readily visible in Design View.

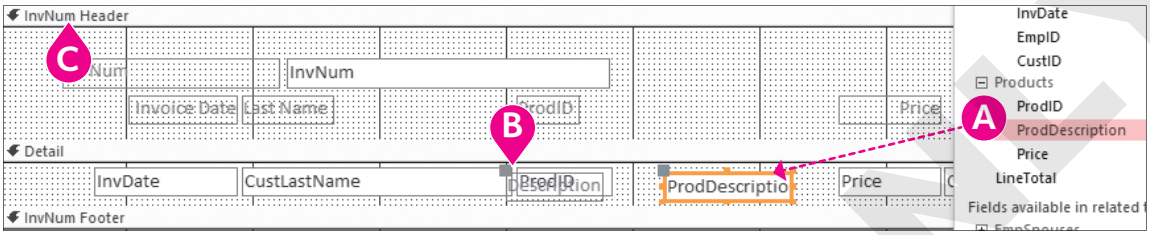
Add a Control

Now you will add the Product Description control to the report and reposition it and its label.

13. Choose **Report Design Tools→Design→Tools→Add Existing Fields**.

This tool lets you add new fields to reports.

14. Follow these steps to add the ProdDescription field and to move its label:



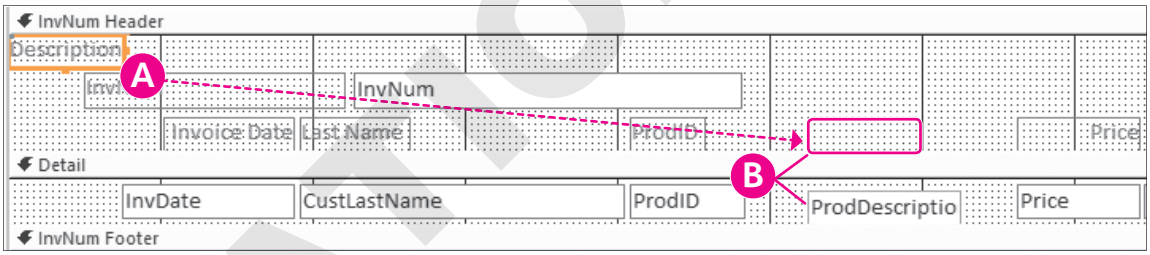
A. Drag the **ProdDescription** field from the Field List pane between the ProdID and Price fields in the Detail section.

B. Select the new **Description** label (it will be hard to see) then right-click the selected label and choose **Cut** from the menu.

C. Right-click **InvNum Header** and choose **Paste**.

This pastes the field label in the header section. You will move it in the next step.

15. Follow these steps to reposition the fields:



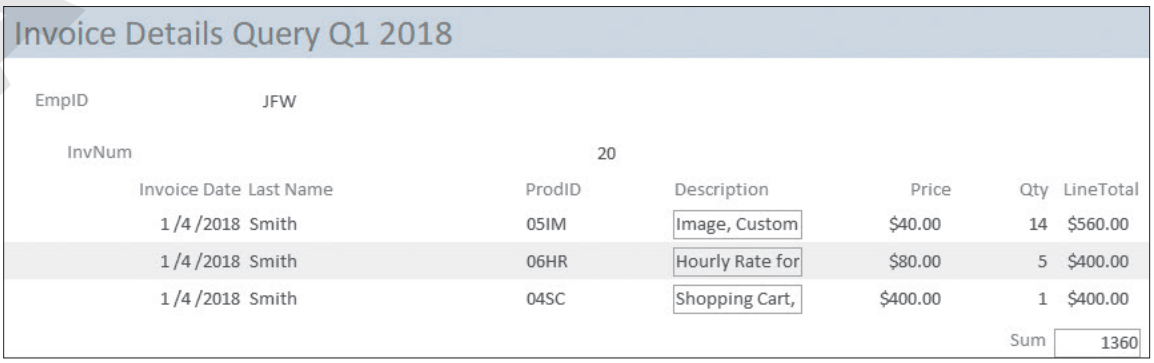
A. Drag the **Description** label between the ProdID and Price labels in InvNum Header.

B. Use the arrow keys to position the **Description** label and **ProdDescription** field so they are left-aligned with each other and roughly centered between the ProdID and Price fields.

16. Close the Field List pane and switch to **Layout View**.

17. Click the **Save** button on the Quick Access toolbar to save your changes.

At this point, the top part of the report should closely match this example. You will continue to enhance the appearance of this report.



Invoice Details Query Q1 2018

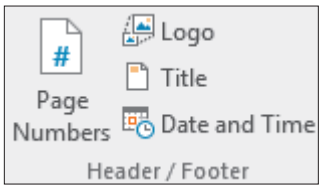
EmpID JFW

InvNum 20

Invoice Date	Last Name	ProdID	Description	Price	Qty	LineTotal
1/4/2018	Smith	05IM	Image, Custom	$40.00	14	$560.00
1/4/2018	Smith	06HR	Hourly Rate for	$80.00	5	$400.00
1/4/2018	Smith	04SC	Shopping Cart,	$400.00	1	$400.00
					Sum	1360

Header and Footer Objects

The Header/Footer group on the Design tab lets you easily add page numbers, titles, the date and time, and logos while working in Design View. Logos are especially useful because they can make reports look more professional and visually appealing. When a new report is created, a title control is generated based on the name of the report, so the Title tool is often used to add subtitles.



DEVELOP YOUR SKILLS: A4-D4

In this exercise, you will enhance the report header by adding a subtitle, logo, and the date and time. You will also format these controls.

1. Switch to **Design View**.

   The first thing you will do is increase the height of the header area to accommodate a logo and subtitle.

2. Right-click the **Report Header** section bar and choose **Properties**.

3. Set the Height property to: **`0.9`**

Format the Title and Subtitle

4. Click in the existing title control, **Invoice Details Report Q1 2018**, and replace the text with: **`Winchester Web Design`**
5. Set these properties for the title control:

Property	Setting
Width	**`3.5`**
Font Size	**`22`**
Text Align	**Center**
Font Weight	**Bold**

6. Choose **Report Design Tools→Design→Header/Footer→Title**.

   The report name appears in the new title control, which is placed on top of the existing title.

7. Drag the new subtitle control so it is left-aligned with and just below the *Winchester Web Design* title.
8. Replace the text in the new subtitle control with: **`Invoices for Q1 2018`**

9. Set these properties for the subtitle control:

Property	Setting
Width	**3.5**
Height	**0.35**
Special Effect	**Shadowed**
Text Align	**Center**
Font Weight	**Bold**

Insert a Logo

10. Choose **Report Design Tools→Design→Header/Footer→Logo**.

The Insert Picture dialog box opens, prompting you to insert an image file.

11. Navigate to your **Access Chapter 4** folder, choose **WWD-Logo.bmp**, and click **OK**.

Access places the logo in the upper-left corner of the Report Header section.

12. Set the Left property of the logo to: **4**

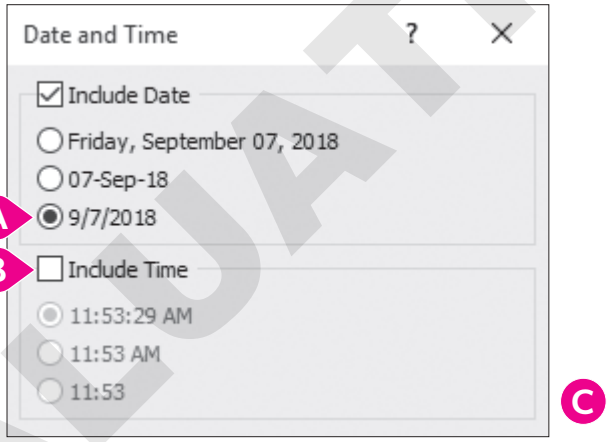
The logo moves over to the 4" position.

13. Set both the Width and Height properties to: **0.8**

Add the Date and Time and Review the Report

14. Choose **Report Design Tools→Design→Header/Footer→Date and Time**.

15. Follow these steps to insert a date control into the header:



A. Choose the **mm/dd/yyyy** date format (the third format).

B. Uncheck the **Include Time** checkbox.

C. Click **OK**.

The date is inserted at the right edge of the header.

16. Switch to **Report View** and review your report header.

Formatting Controls

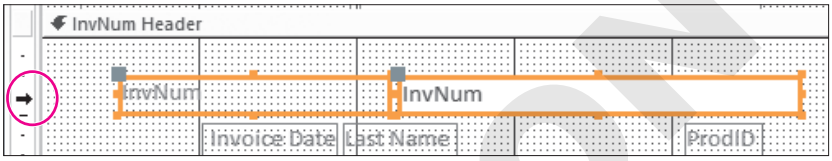
It is important to ensure that the data values are fully displayed in a report, while at the same time taking care not to leave unsightly and unnecessary blank space between columns. To accomplish this, you must resize, reposition, and align controls. It is best to adjust controls in Layout View because you can see the actual field values while making the adjustments. Multiple controls can be formatted simultaneously after you select them. You will need to use the Ctrl key when selecting any nonadjacent controls.

DEVELOP YOUR SKILLS: A4-D5

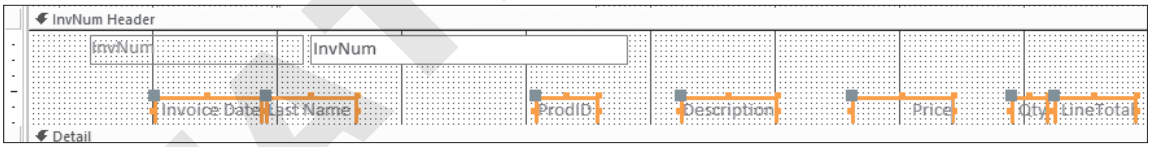
In this exercise, you will use both Design View and Layout View to resize, reposition, and align report controls.

1. Switch to **Design View** in the Invoice Details Report Q1 2018 report.
2. Click the vertical ruler to the left of the InvNum label and text box in InvNum Header, as shown here, to select both of them.

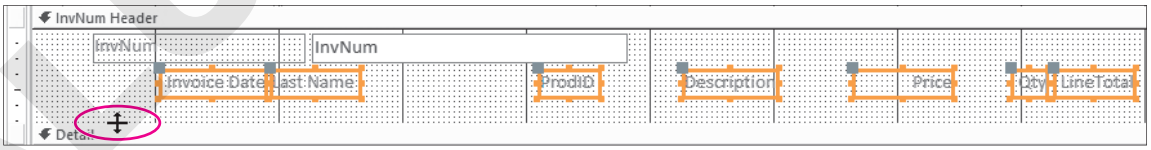
   You can also click one field and hold down Ctrl while clicking the other.



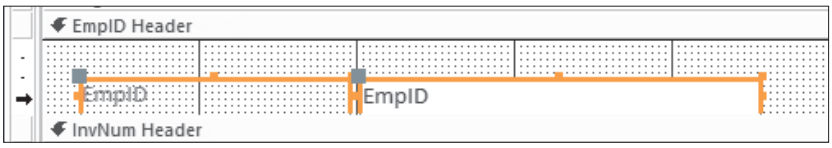
3. Tap the **up arrow** ↑ five times to nudge the controls up closer to the InvNum Header.
4. Select the remaining controls in the InvNum Header section, as shown here, and tap the **up arrow** ↑ five times to nudge them up.



5. Position the mouse pointer over the top edge of the Detail section bar until your pointer becomes a two-headed arrow.



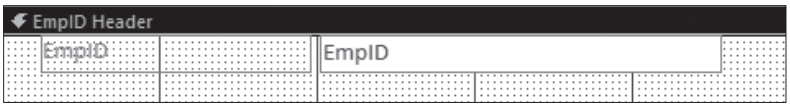
6. Click and drag with the mouse upward until the section bar is just below the controls you moved previously.
7. If necessary, choose **Report Design Tools→Design→Tools→Property Sheet** to display the Property Sheet.
8. Select the **EmpID** label *and* text box in the EmpID Header section.



9. Set the Top property for these controls to: **0**

   This will move them up so they are just below the EmpID Header section bar. You can move controls by setting properties, using the arrow keys, or dragging. Setting properties is a way to position them with precision.

10. Click **EmpID Header**, and it will turn black to indicate it is selected.

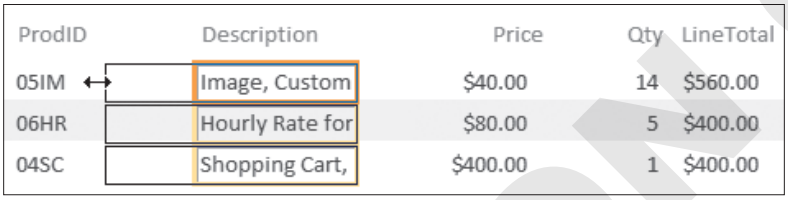


11. Set the height to: **0.33**

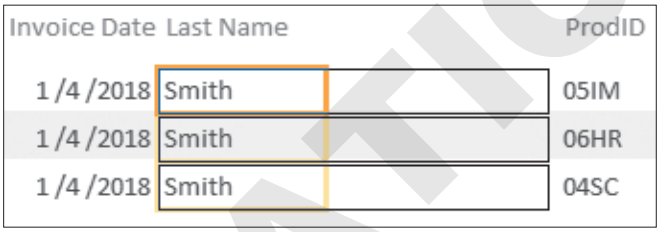
    Access sometimes changes a precise property value that you type, so don't worry if your Height property differs slightly from 0.33.

12. Switch to **Layout View**.

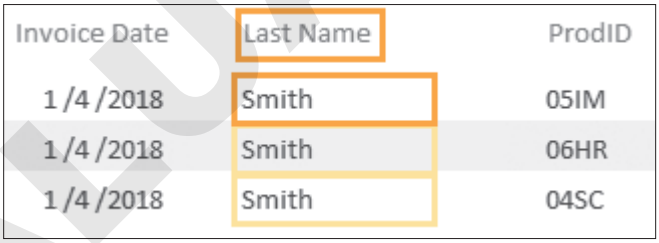
13. Click one of the text boxes in the Description column to select all the fields and then drag left to widen the column almost to the ProdID column.



14. Select the **Last Name** boxes and drag left to shorten the boxes as shown.



15. Press Ctrl and click the **Last Name** label to select the label with all the text boxes.



In the next step, you will nudge the boxes to the right. Sometimes while moving a group of controls in Layout View, the screen scrolls down to the end. If this occurs, just keep nudging until you are finished and then scroll back up to the top of the report.

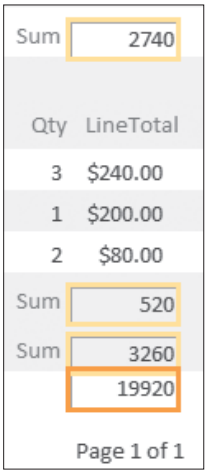
16. Tap the **right arrow** → eight times to nudge the text boxes to the right.

17. Select the **ProdID** label and one of the text boxes below it and then nudge the entire selection to the left six times.

18. Scroll to the top of the report, click the **InvNum** text box with *20* in it, and then drag the left border to the right to shorten the box as shown.

19. Tap the **left arrow** ← enough times to position the text box closer to the InvNum label.

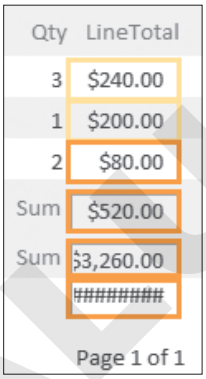
20. Scroll to the bottom of the report until the Sum controls are visible.
21. Use Ctrl to select the two **Sum** text boxes and the **Grand Total** text box.



22. In the Property Sheet, set the Format property to **Currency**.

    When you apply formatting, the fields may no longer fit in the text box. When a value is too large for the text box, it fills the box with the # symbol.

23. With the controls still selected, press Ctrl and click one of the unselected **LineTotal** text boxes in the column so all line total boxes are selected.



24. Now drag the right border of one of the controls to the right until the Grand Total is fully visible.
25. Switch to **Print Preview** view to see how your report will look when printed.
26. Close Print Preview. Feel free to return to **Design View** or **Layout View** to make additional adjustments to the report.
27. Save the report.

Themes

Themes in a report function identically to themes in forms, including any steps taken to apply and modify them. Don't forget that when a theme is applied in any object, the applied theme impacts all objects in the database.

Report Design Tools→Design→Themes→Themes

Backgrounds

Backgrounds are images in a report or form that add a visual element beyond applying a basic back color in report sections. Backgrounds appear behind form controls and include additional settings for size, alignment, and mode. Using the Background Image command in the Background group on the Ribbon allows you to select the image of your choosing to be inserted as a background image.

Report Design Tools→Format→Background→Background Image

DEVELOP YOUR SKILLS: A4-D6

In this exercise, you will apply a theme and insert a background image into your report.

1. Switch to **Design View** and choose **Report Design Tools→Design→Themes→Themes**.
2. Hover over each theme's thumbnail and take note of the ToolTips that appear to show the theme names, then choose **Office** theme to apply it to the report.
3. Choose **Report Design Tools→Format→Background→Background Image menu button →Browse.**

   The Insert Picture dialog box appears.
4. Navigate to your **Access Chapter 4** folder, select the file named **WWD-Background.jpg**, and click **OK**.
5. If necessary, choose **Report Design Tools→Design→Tools→Property Sheet** to display the Property Sheet.
6. If necessary, click the **Selection Type** button in the Property Sheet box and choose **Report**.
7. Set the Picture Size Mode property to **Stretch** so the inserted image spans the entire report page background.

Tip! *When setting the property for a background image, be sure to evaluate the size and format of the image file being inserted. Smaller images may need to be tiled or stretched to fill the report page.*

8. Switch to **Print Preview** to see your finished report.
9. Choose **File→Close** to close the database, saving the changes to your report.

Self-Assessment

Check your knowledge of this chapter's key concepts and skills using the Self-Assessment in your ebook or online (eLab course or Student Resource Center).

Reinforce Your Skills

REINFORCE YOUR SKILLS: A4-R1

Create and Modify a Report

The president of Kids for Change wants a report that lists financial donations the organization has received since its inception, grouped by donor. He also wants to list the amount that Kids for Change is depositing into its scholarship fund for local high-school students. In this exercise, you will create a basic donations report and create a more customized report. Then you will rearrange, resize, and format controls and also add a logo and title.

1. Start Access, open **A4-R1-K4C** from your **Access Chapter 4** folder, and save it as: **`A4-R1-K4CRev`**
2. Choose the **Donations** table in the Navigation pane.
3. Choose **Create→Reports→Report**  .
4. Take a moment to review the report and then close it, saving it as: **`Quick Donations List`**

Create a Report Using the Report Wizard

Now you will create a donations report that is grouped by donor IDs and includes donation totals.

5. Choose **Donations Query** in the Navigation pane and then choose **Create→Reports→ Report Wizard**  .
6. Add **DonorID**, **DonorLName**, **DonorFName**, **DonationDate**, and **Amount** to the Selected Fields list and click **Next**.

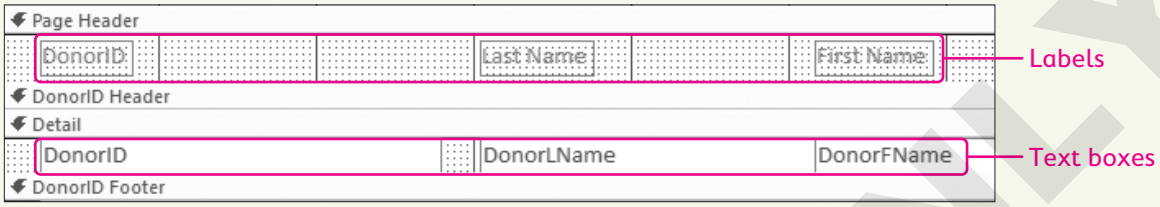
   The next Wizard screen asks how you want to view your data. This screen appears because the query uses two tables and the Wizard wants to know which table will be used for the first grouping level.
7. Choose **By Donations** and click **Next**.
8. Choose **DonorID** as the grouping field and add it to the grouping area.
9. Click **Next** and then click the **Summary Options** button.
10. Check the **Sum** box for the Amount field and click **OK** to add a sum calculation for that field; click **Next**.
11. Choose **Block** for the layout and **Landscape** for the orientation; click **Next** to display the final Wizard screen.
12. Enter **`Donations Report 2017-2018`** as the title and click **Finish**.
13. Review both report pages and then close Print Preview.

    You will continue to use this report.

Add, Delete, and Edit Report Controls

14. In **Design View**, open the Property Sheet, if necessary.

    In the next few steps you will select and format text boxes that display field data and the labels for those text boxes. The text boxes are located in the Detail section, while their labels are located in the Page Header section.



15. Click the **DonorID** text box and set the width to: **0.5**
16. Use Ctrl to select the **DonorLName** and **DonorFName** text boxes and set the Width property to **1** and apply it to both controls.
17. Select the **Last Name** label in the Page Header section and the **DonorLName** text box in the Detail section and set their left properties to: **1.5**
18. Select the **First Name** label in the Page Header section and the **DonorFName** text box in the Detail section and set their left properties to: **3**
19. If necessary, scroll to the right of the report grid to see the other controls. Then set the left properties for the controls listed as indicated:

Control	Location	Left Property
Date label	Page Header	**5**
DonationDate text box	Detail	**4.5**
Amount label	Page Header	**6.2**

20. Select the **Amount** text box in the Detail section and both **=Sum(Amount)** controls located in the DonorID footer and in the report footer.
21. Set the width to **1** and the left property to **6** for each of the three controls.

Add a New Field and Format It

22. Choose **Report Design Tools→Design→Tools→Add Existing Fields** to open the Field List pane.
23. Drag **ScholarFund** from the Field List pane and drop it to the right of the Amount text box in the Detail section.

    The corresponding Scholar Fund label is partly on top of the Amount text box.

24. Click the **Scholar Fund** label and tap Delete to remove it.

    Next you will use the Label control tool to insert a new label in the Page Header for the Scholar Fund.

25. Choose **Report Design Tools→Design→Controls→Label** Aa.
26. Drag the **Page Header** section above the ScholarFund text box to create a rectangular label box.
27. Type **Scholarship** into the new label, adjusting the size of the label box as necessary.
28. Close the Field List pane and then scroll to the left in the design grid.
29. Click the long **Summary for " & "'DonorID'...** control in the DonorID Footer section.

30. Tap Delete to remove the control.
31. Click in the **Sum** label located in the DonorID Footer and replace the label text *Sum* with: **`Donor ID Total`**
32. Select the title in the report header section and replace it with: **`Kids for Change`**

Add a Logo and a New Title

33. Choose **Report Design Tools→Design→Header/Footer→Logo**, navigate to your **Access Chapter 4** folder and choose **K4C-Logo.bmp**, and click **OK**.
34. Set the width and height of the logo to: **`0.7`**
35. Drag the logo toward the right side of the header so it is positioned above the Amount fields.
36. Choose **Report Design Tools→Design→Header/Footer→Title**.
37. Drag the new title to the left and position it below the *Kids for Change* title.
38. Switch to **Report View** to see how your report looks and then, if necessary, switch back to **Design View** and make the desired adjustments to your report.
39. Close the database, saving the changes to your report.

REINFORCE YOUR SKILLS: A4-R2

Use Controls and Apply a Theme

In this exercise, you will size, align, and format report controls, apply a theme, and add the date to the Page Header.

1. Open **A4-R2-K4C** from your **Access Chapter 4** folder and save it as: **`A4-R2-K4CRev`**
2. Double-click the **Donations Report 2017-2018**.

   The report has some alignment problems, and the formatting of controls is inconsistent.
3. Switch to **Design View** and open the **Property Sheet**, if necessary.
4. Select the two titles in the report header section and set these property values:

Property	Value
Width	**4**
Height	**0.4**
Left	**2**
Text Align	**Center**

5. Press Ctrl and click the **Donations Report 2017-2018** subtitle to deselect it.
6. Set the font size of the *Kids for Change* title to: **`22`**
7. Set the width and height of the logo to: **`0.8`**
8. Set the logo's top property to: **`0.05`**

   Be sure to type 0.05 *and not* 0.5.
9. Click the vertical ruler to the left of the controls in the Detail section to select all the controls in that section.
10. Choose **Report Design Tools→Arrange→Sizing & Ordering→Size/Space→Equal Horizontal** to evenly space all controls in the Detail section.

11. Click the **Last Name** label in the page header and then press Ctrl and click the **DonorLName** text box in the Detail section.
12. Choose **Report Design Tools→Arrange→Sizing & Ordering→Align→Left** to left-align the controls.
13. Follow the procedures in the previous two steps to left-align the First Name controls.
14. Click the **Date** label in the page header and drag to center it above the DonationDate text box.
15. Select the **Donor ID Total** label (in the DonorID footer), the **Grand Total** label (in the report footer), and the **DonationDate** text box (in the Detail section).
16. Choose **Report Design Tools→Arrange→Sizing & Ordering→Align→Right** to right-align the controls.
17. Select the **Amount** text box located in the Detail section and the two **=Sum([Amount])** calculated controls located in the DonorID footer and the report footer.
18. Choose **Report Design Tools→Arrange→Sizing & Ordering→Align→Right** to right-align the controls.

Add the Date to the Page Header

Now you will add a date control to the page header section so when viewing the report on a computer, readers don't have to scroll to the very end of the report to check the date.

19. Click **=Now( )** in the page footer section and tap Delete to remove it.
20. Choose **Report Design Tools→Design→Header/Footer→Date and Time**.
21. Choose the **mm/dd/yyyy** date format (the third format).
22. Uncheck the **Include Time** checkbox and click **OK**.

    The new date control is inserted on the right-hand side of the Report Header. You may need to move the Property Sheet to be able to see the new date box.
23. Click the new date control and set these property values:

Property	Value
Width	1
Top	0.875
Left	3.5
Text Align	Center

24. Switch to **Print Preview** to review the completed report.
25. Feel free to return to **Design View** to make any adjustments you feel are necessary.
26. Close the report when you are finished, saving any changes.

Apply Themes to a Report

27. Display the **Quick Donations List** report in **Design View**.
28. Choose **Report Design Tools→Design→Themes→Themes** and apply the **Integral** theme.

29. Review the report in **Print Preview** and, if desired, switch back to **Design View** to choose another theme.
30. Save the report and close it when you're finished.

REINFORCE YOUR SKILLS: A4-R3

Create Reports and Modify Controls

Kids for Change is rapidly expanding, adding new activities and staff members almost daily. To meet the organization's need to match staffers with the new activities, you will create two new reports.

1. Open **A4-R3-K4C** from your **Access Chapter 4** folder and save it as: **`A4-R3-K4CRev`**
2. Select the **Activities** table in the Navigation pane and then choose **Create→Reports→Report**  .

   Access generates a report of Kids for Change's activities in Layout View. Notice the vertical dotted line toward the right side of the report. This is a page break line indicating the report extends beyond a standard 8.5" x 11" printed page.
3. Click an **Activity** text box to select the entire Activity column of text boxes.
4. Hover the mouse pointer over the right border of one of the text boxes until it is a resize arrow  and then drag left to reduce the width of the boxes to fit the widest entry in the column.
5. Resize the remaining columns to fit the widest entries in the columns.
6. Switch to **Design View** and display the **Property Sheet**.
7. Click the **="Page"** control in the page footer and set the width to **1** and the left property to: **6**
8. Choose **Report** from the Selection Type list at the top of the Property Sheet box and set the width to: **7**

   Access may change the property, making it greater than 7 to account for any variations in your report. Setting this property to 7 adjusts the overall width of the report.
9. Select the **=Count(*)** control in the Report Footer and set the Height property to: **`0.25`**
10. Switch to **Print Preview**.

    The report should now fit nicely on one page.
11. Close Print Preview and then save the report as **`Activities Report`** and close it.

Create a Report Using the Report Wizard

Now you will use the Report Wizard to create a staff availability report to match staffers with specific activities. The report will be grouped by activity.

12. Click the **Staff Schedule** query in the Navigation pane and then choose **Create→Reports→Report Wizard**  .
13. Add the **Activity**, **Day**, **MeetTime**, **StaffLastName**, **StaffFirstName**, **StaffPhone**, and **Hours** fields to the Selected Fields list.
14. Click **Next**, add **Activity** as a group, and click **Next** again.
15. Click **Next** two more times, once to skip the Sort Order and Summary screen and once to accept Stepped as the layout.
16. Name the report **`Staff Availability Report`** and click **Finish**.

Size, Add, Delete, and Edit Report Controls

17. Close Print Preview and then display the report in **Layout View**, opening the **Property Sheet** if necessary.
18. Select the **Activity** label and **Activity** text box and set the Width property to: **1.2**
19. Set the properties for both the label and text box controls as indicated:

Label and Text Box	Width Property	Left Property
Day	**0.9**	**1.5**
Meet Time	**0.75**	**2.5**
Last Name	**0.8**	**3.3**
First Name	**0.8**	**4.2**
Telephone	**1.1**	**5.1**
Hours	**0.4**	**7**

20. Switch to **Design View** and then choose **Report Design Tools→Design→Tools→ Add Existing Fields** to display the Field List pane.
21. Drag the **HrlySal** field to the right of the StaffPhone text box in the Detail section.

    A label control is included with the text box. You will delete the label then add a new label in the Page Header section.
22. Click the **HrlySal** label control, which will be on top of the StaffPhone box, and delete it.
23. Close the Field List pane and open the **Property Sheet**.
24. Select the **HrlySal** text box and set the width to **0.55** and the left property to: **6.3**
25. If necessary, use the arrow keys to nudge the control up or down to align it with the other controls in the Detail section.
26. Choose **Report Design Tools→Design→Controls→Label** and drag a new label between the *Telephone* and *Hrs* labels in the Page Header section.
27. Type **Hrly Sal** in the new label, tap Enter, and then set the width to **0.55** and the left property to: **6.3**
28. If necessary, use the arrow keys to nudge the control up or down to align it with the other controls in the page header section.
29. Switch to **Print Preview** to review your report.

Add a Subtitle and a Logo

30. Close Print Preview and switch to **Design View**.
31. Select the title in the report header and replace the text with: **Kids for Change**
32. Set these property values for the Kids for Change title:

Property	Value
Width	**4**
Left	**2**
Font Size	**22**
Text Align	**Center**

33. Choose **Report Design Tools→Design→Header/Footer→Title** to insert a new title and then enter these property values for it:

Property	Value
Top	**0.46**
Width	**4**
Left	**2**
Font Size	**20**
Text Align	**Center**

34. Choose **Report Design Tools→Design→Header/Footer→Logo** and navigate to your **Access Chapter 4** folder.
35. Choose the **K4C-Logo.bmp** and click **OK** to insert it.
36. Set the width and height of the logo to: **0.8**

Add the Date to the Page Header Section

37. Choose **=Now()** in the page footer and delete it.
38. Choose **Report Design Tools→Design→Header/Footer→Date and Time**.
39. Choose the **mm/dd/yyyy** date format (the third format) and uncheck the **Include Time** check-box; click **OK**.

    The new date control is inserted on the right-hand side of the page header.
40. Click the new date control and tap the **up arrow** repeatedly to move it to the top of the report header section.
41. Drag the left border of the date box to the right to the 6.5" mark on the horizontal ruler.
42. Review your report using **Print Preview** and return to **Design View** to make any adjustments you feel are necessary.
43. Save the changes to your report and then close it.

Finalize the Report

44. Display **Activities Report** and take a moment to review it.
45. Switch to **Design View** and choose **Report Design Tools→Design→Themes→Themes**.
46. Choose any theme.
47. Choose **Report Design Tools→Format→Background→Background Image** and select **Browse** from the menu.
48. Navigate to your file storage location, select the file **K4C-Background.jpg**, and click **OK**.
49. If necessary, choose **Report Design Tools→Design→Tools→Property Sheet** to display the Property Sheet.
50. If necessary, click the **Selection Type** button in the Property Sheet box and choose **Report**.
51. Set the property for Picture Alignment to **Top Right**.
52. Switch to **Print Preview** to review the report.
53. Close the database, saving the changes to your report.

Apply Your Skills

APPLY YOUR SKILLS: A4-A1

Create and Modify Reports

Universal Corporate Events is ready to add reports to its database. In this exercise, you will create two reports: The first is a basic report that lists contacts' telephone numbers; the second lists the event venues and their contact information (address, telephone number, and website), grouped by the contact person. Then you will add, delete, and edit the venue report controls and also add a logo and title.

1. Open **A4-A1-UCE** from your **Access Chapter 4** folder and save it as: **`A4-A1-UCERev`**
2. Use the **Report** tool to create a report based on the **Contacts** table.
3. Save the report as **`Contacts List`** and then close it.

Use the Report Wizard and Delete and Edit Report Controls

Now you will use the Report Wizard to create a list of the event venues, including their address, phone number, and website, grouped by contact person.

4. Choose the **Venues** table and start the **Report Wizard**.
5. Choose all the fields *except* VenueID.
6. Leave VenueContact as the only grouping level.
7. Do not add a sort or change any layout options.
8. Name the report **`Venues List`** and finish the report.
9. Switch to **Design View** and delete the **=Now()** control in the page footer.
10. Change the *VenueContact* label in the page header to: **`Contact`**
11. Change the *VenueName* label in the page header to: **`Name of Venue`**

Add a New Title and a Logo

12. Change the *Venue List* title in the report header to **`Universal Corporate Events`** and then set these properties for it:

Property	Value
Width	**`4`**
Height	**`0.4`**
Left	**`2`**
Font Name	**Arial Narrow**
Font Size	**`22`**
Text Align	**Center**

13. Insert a new title, leaving the name set as *Venue List* and setting these properties:

Property	Value
Width	**4**
Height	**0.4**
Top	**0.45**
Left	**2**
Font Name	**Arial Narrow**
Font Size	**20**
Text Align	**Center**

14. Insert **UCE-Logo.bmp** from your **Access Chapter 4** folder into the header.

    The logo should be positioned on the left side of the header.

15. Set the logo's width and height properties to: **0.8**
16. Review your report in **Layout View**.

    The report has layout problems that are addressed in the next exercise.

17. Save the report, close it, and close the database.

APPLY YOUR SKILLS: A4-A2

Fine-Tune Reports

The CEO of Universal Corporate Events has sent back the first draft of the Contacts List and Venues List with a list of modifications he would like you to make. In this exercise, you will resize, align, and format controls on the Venues List report and apply a theme and background image to the Contacts List report.

1. Open **A4-A2-UCE** from your **Access Chapter 4** folder and save it as: **A4-A2-UCERev**
2. Display the **Venue List** report in **Layout View**.
3. Modify the position and width of all columns as necessary so all data is visible.
4. Insert a date in the header using the **mm/dd/yyyy** format and omitting the time.
5. Save and then close the report.

Apply a Theme and Insert a Background

6. Display the **Contacts List** report in **Design View**.
7. Apply a theme of your choice to the report.
8. Delete the Logo control next to the title in the report header section.
9. Insert a background image using the image file **UCE-Background.jpg** and set the alignment to **Bottom Right**.
10. View the report in **Report View** and make any adjustments you feel are necessary.
11. Save and close the report and then close the database.

APPLY YOUR SKILLS: A4-A3

Create and Modify Reports

Universal Corporate Events is ready to add more reports to its database. In this exercise, you will create two reports: a basic report using the Menus table as the record source and a report that lists personnel contact information grouped by last name. Then you will add, delete, and edit report controls; modify the captions of several labels to make them more readable; and add a logo, title, and subtitle to the venue report.

1. Open **A4-A3-UCE** from your **Access Chapter 4** folder and save it as: **`A4-A3-UCERev`**
2. Use the **Report** tool to create a report based on the **Menus** table.
3. Save the report as **`Menus List`** and close it.

   Now you will use the Report Wizard to create a list of the company personnel and their addresses, phone numbers, and email addresses. The report will be grouped by last name.
4. Choose the **Personnel** table and start the **Report Wizard**.
5. Add **PerLastName**, **PerFirstName**, **PerAddress**, **PerCity**, **ST**, **PerZIP**, **PerPhone**, and **PerEmail** to the **Selected Fields** list.
6. Use **PerLastName** as the only grouping level.
7. Do not add a sort and leave the layout default values.
8. Name the report **`Personnel List`** and finish it.

Modify Controls and Add a New Title, Logo, and Date

9. Switch to **Design View** and delete the **=Now()** and **="Page"** controls in the page footer.
10. Change the *PerLastName* label in the page header to: **`Last Name`**
11. Change the *Personnel List* title in the report header to **`Universal Corporate Events`** and then set these properties for it:

Property	Value
Width	**4**
Height	**0.4**
Left	**2**
Font Name	**Arial Narrow**
Font Size	**22**
Text Align	**Center**

12. Insert a new title, leaving the name set as *Personnel List* and setting these properties:

Property	Value
Width	**4**
Height	**0.4**
Top	**0.5**
Left	**2**
Font Name	**Arial Narrow**
Font Size	**22**
Text Align	**Center**

13. Insert **UCE-Logo.bmp** from your **Access Chapter 4** folder into the header.

    The logo should be positioned on the left side of the header.

14. Set the logo's Width and Height to: **0.8**

15. Insert a date in the header using the **mm/dd/yyyy** format and do not include the time.

16. Move the new **Date** control to the top-right corner of the report header and shorten its width so it doesn't overlay the title.

Review the Report and Apply a Theme

17. Review your report in **Layout View**.

    Some controls, such as Telephone and Email Address, may not be wide enough to display all data. You will need to move some columns to the left to create space to allow for the expansion of the Telephone and Email Address columns. Remember that an entire column can be selected by clicking the column heading and using Ctrl *to select any box in the column.*

18. Move and widen columns as necessary so all data is visible, but make sure the Email Address field does not go past the vertical dotted page break line.

19. Save the report and close it.

20. Display the **Menus List** report in **Design View**.

21. Apply a theme of your choice to the report.

22. Review your report in **Report View** and change the theme if desired.

23. Save and close the report.

Project Grader

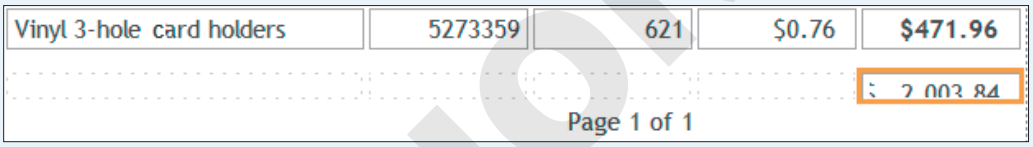
If your class is using eLab (labyrinthelab.com), you may upload your completed Project Grader assignments for automatic grading. You may complete these projects even if your class doesn't use eLab, though you will not be able to upload your work.

PROJECT GRADER: A4-P1

Taylor Games: Create and Modify a Basic Report

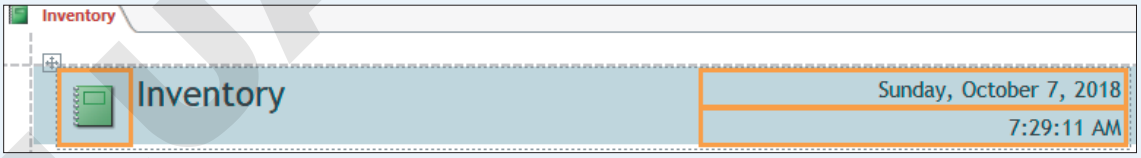
Taylor Games needs a basic inventory report. You will first create the report using the Report command, then modify it to improve readability and enhance its appearance.

1. Download and open your Project Grader starting file.
   - *Using eLab:* Download **A4_P1_eStart** from the Assignments page. You *must* start with this file or your work cannot be automatically graded.
   - *Not using eLab:* Open **A4_P1_Start** from your **Access Chapter 4** folder.
2. Create a basic report based on the **Inventory** table.
3. Set the following properties for the Total Cost Total control located at the bottom of the report:



Property	Value
Format	**Currency**
Height	**0.25**
Font Weight	**Bold**

4. Delete the **Logo**, **Date**, and **Time** controls from the Report Header.



5. Insert a **Date and Time** control in the report header and set properties for it as follows:

Property	Value
Date Format	Any
Time Format	None
Width	**4**
Text Align	**Center**

6. Format the Title control (contains the title *Inventory*) in the Report Header as follows:

Property	Value
Width	**6.25**
Font Size	**26**
Text Align	**Center**
Font Weight	**Bold**

7. Insert a background image and set properties for it as follows:

Property	Value
Picture	Use **Taylor Games BG.png** from your **Access Chapter 4** folder.
Picture Alignment	**Bottom Right**
Picture Size Mode	**Stretch**

Hint: Set the Property Sheet's selection type to Report to access the needed properties.

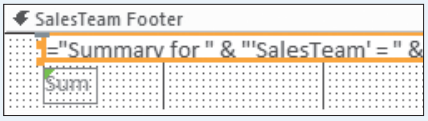
8. Apply the **Facet** theme (the second theme in the Office category).
9. Save the report as **`Inventory`** and then close it.
10. Save your database.
    - *Using eLab:* Save it to your **Access Chapter 4** folder as **`A4_P1_eSubmission`** and attach the file to your eLab assignment for grading.
    - *Not using eLab:* Save it to your **Access Chapter 4** folder as: **`A4_P1_Submission`**

PROJECT GRADER: A4-P2

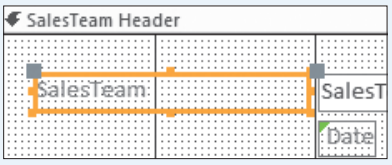
WebVision: Work with Reports

WebVision would like a report that displays the sales orders for each sales team. You will first create the report using the Report Wizard and then modify it to improve readability and enhance its appearance.

1. Download and open your Project Grader starting file.
    - *Using eLab:* Download **A4_P2_eStart** from the Assignments page. You *must* start with this file or your work cannot be automatically graded.
    - *Not using eLab:* Open **A4_P2_Start** from your **Access Chapter 4** folder.
2. Create a new report using the Report Wizard and these guidelines:
    - Add the **SalesTeam** field from the **Sales Reps** table.
    - Add the **OrderID**, **Date**, and **Amount** fields from the **Orders** table.
    - View the data by **Orders**.
    - Add **SalesTeam** as the only grouping level.
    - Sort by **Date** in descending order.
    - Add summary options that include a **Sum** calculation on the **Amount** field and show **Detail and Summary**.
    - Use **Outline** layout.
    - Set the Orientation to **Landscape**.
    - Use **`Orders by Region`** as the title.
3. Delete the **Summary for Sales Team** control.

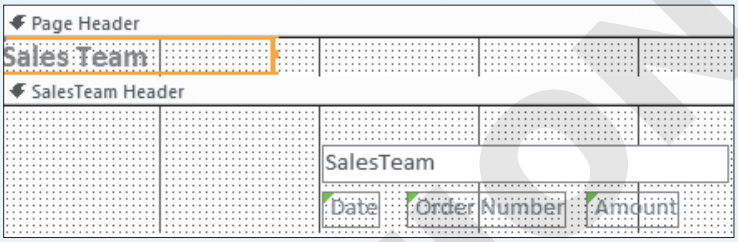


4. Set the following properties for the SalesTeam label:



Property	Value
Caption	**`Sales Team`** (add a space to the current caption)
Font Size	**`14`**
Font Weight	**Bold**

5. Set the Page Header section height to: **`0.25`**
6. Move the **SalesTeam** label into the Page Header section. Move only the label (not the Sales Team text box).



7. Set the following properties for the SalesTeam text box:

Property	Value
Width	**`1`**
Top	**`0`**
Left	**`0`**
Font Size	**12**
Font Weight	**Semi-Bold**

8. Insert the **LastName** field from the **Sales Reps** table into the SalesTeam Header section.
9. Delete the **LastName** label control.
10. Set these properties for the LastName text box:

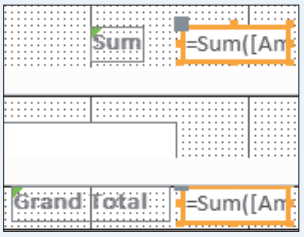
Property	Value
Top	**`0.2`**
Left	**`1`**
Border Style	**Transparent**
Font Weight	**Bold**

11. Set the Date text box Width property (located in the Detail section) to **`1`** and the Text Align property to **Left**.

12. Set the Date label Left property to: **0.5**
13. Set the Sum label Left property to **3** and Font Weight property to **Semi-Bold**.
14. Set the following properties for the Grand Total label:

Property	Value
Width	**1**
Left	**2.5**
Font Weight	**Semi-Bold**

15. Set the following properties for both the Sum of Amount text box and the Amount Grand Total Sum (Sum) text box:



Property	Value
Border Style	**Transparent**
Font Weight	**Bold**

16. Delete the **Title** control (*Orders by Region*) from the report header and insert a new **Title** control using the following properties:

Property	Value
Width	**2**
Height	**0.35**
Font Weight	**Bold**

17. Insert **WebVision Logo.jpg** from your **Access Chapter 4** folder and set the Width property to: **1.75**
18. Save and close the report.
19. Save your database.
    - *Using eLab:* Save it to your **Access Chapter 4** folder as **A4_P2_eSubmission** and attach the file to your eLab assignment for grading.
    - *Not using eLab:* Save it to your **Access Chapter 4** folder as: **A4_P2_Submission**

Extend Your Skills

These exercises challenge you to think critically and apply your new skills in a real-world setting. You will be evaluated on your ability to follow directions, completeness, creativity, and the use of proper grammar and mechanics. Save files to your chapter folder. Submit assignments as directed.

A4-E1 That's the Way I See It

You've been asked to create a sales report for Blue Jean Landscaping that shows the total amount of sales by equipment type, drawing the information from sales invoices. Open **A4-E1-BJL** and save it as: **A4-E1-BJLRev**

Create a well-designed report header with a title and logo (use **BJL-Logo.bmp**). Make sure all information is visible and that the report is easy to read and understand. The date and page numbering should appear at either the top or bottom of the report. Save your report as: **Equipment Sales**

A4-E2 Be Your Own Boss

Blue Jean Landscaping has asked you to add reports to its company database that provide listings of its equipment, services, and customers in an attractive and useful manner. Open **A4-E2-BJL** and save it as: **A4-E2-BJLRev**

Use the Store Inventory query as a record source to create a report that is grouped by manufacturer and includes item name, price, quantity in stock, inventory amount, and a sum of the InvTot field. Use the default layout settings. Use the skills you learned in this chapter to size, rearrange, and format the report controls. Create a well-designed report header with a title and logo (use **BJL-Logo.bmp**). Name the report: **Store Inventory Report**

Create another report using the Service Invoices Query that includes all fields except InvNum. Group the results by InvDate and sum the LineTotal field. Choose the Stepped and Landscape layout options and use **Service Invoices Report** as the report name. Format the report controls and create the same consistent header with a logo, title, and subtitle as in the Store Inventory Report. Add the background image **BJL-Background.jpg** that is aligned bottom left to the report.

A4-E3 Demonstrate Proficiency

You've been asked by Stormy BBQ to prepare a Manufacturer Stock Level report that shows the total number of items in stock for each manufacturer. Open **A4-E3-StormyBBQ** and save it as: **A4-E3-StormyBBQ-Rev**

Locate the table or query in the database that will provide the data you need and use all fields from that table or query. Organize the report so the total stock for each manufacturer is displayed. Create a well-designed report header with a title and logo (**SBQ-Logo.bmp**). Make sure all information is visible and the report is easy to read and understand. The date and page numbering should appear at either the top or bottom of the report. Save your report as: **Manufacturer Stock Levels**

Glossary

Access Database software that helps you quickly retrieve data; allows you to create and enter data into a table and then use forms, reports, and queries to display the desired results

Clipboard Location within Microsoft Office that contains thumbnails of what you have recently cut or copied from your Microsoft Office file(s) during your Windows session; used to quickly paste text, pictures, images, or charts into a file

controls Objects placed in forms or reports that display data, text, checkboxes, lines, images, or buttons

Copy Creates a duplicate of the original selection, which remains in the source location, and places a copy of the selection on the Office Clipboard

Cut Removes the original selection from the source location and places the selection on the Office Clipboard

data Information such as names, numbers, dates, descriptions, etc., organized for reference or analysis

database A collection of data related to a subject or purpose, organized by records and fields; for example, an employee database contains information for each employee, such as their name, employee ID, and contact information

Datasheet View Displays actual data values

description Optional field property in Design View to help identify special information about a field

Design View Where form, query, and report layout are defined; shows field names and labels, as well as other objects that can be displayed

Excel Worksheet software, arranged with rows and columns, used to create calculations and to make what-if analyses; perfect for preparing a budget or income statement or determining the amount of interest paid on a loan

field Group or category of specific information or data, such as last names or phone numbers; in an Access table, each field is displayed in a column

foreign (or secondary) key Field in a secondary table that links to the primary key field in the main table, which contains the detailed information for an item

form Database screen used to enter, edit, and view data for an individual record in a layout that is more convenient and attractive than a table datasheet layout

Form Footer Bottom section of a form that appears on the last page of a page form; seldom used

Form Header Top section of a form that contains constant information, such as a title, logo, decorative line, or color scheme

Format Painter Applies the character and paragraph formatting from the source selection to any characters or text selected

group Collection of controls or records with at least one feature in common; quick forms tie all automatically inserted text boxes and corresponding labels into one group, allowing you to move the entire group but not individual controls; or, if you want to display all vendors with offices in the same state, you could group on the State field

Group Footer displays summary information (such as the total of all transactions for each salesperson)

Group Header Identifies a field (such as EmpID) by which report data is grouped, so a summary (such as a total of each employee's sales) can be displayed for the grouped field

Keep Source Formatting Pastes the text and the selection with any formatting (bold, italic, underline) from the source location to the target location; the selection pasted retains the original formatting from the source location

Keep Text Only Pastes the selection from the source location to the target location; the selection pasted takes on the formatting of the target location

labels Part of a control that contains a caption identifying the data displayed in a text box or checkbox; e.g., the caption Last Name is a good label for the LastName field

Layout View Combines the editing ability of Design View with the layout look of Form/Report View so you can better visualize and modify the form's appearance; does not allow you to add, change, or delete records

Merge Formatting Pastes the text and selection with any formatting (bold, italic, underline) from the source location to the target location and combines it with any formatting already at the target location; the selection pasted has formats from both the source and target locations

Microsoft account Account that gives you access to your Microsoft settings, files, contacts, and more, as well as to your computer or other devices; can include Bing, Hotmail, MSN, Office, OneDrive, Outlook, Skype, Stores, or Xbox Live

Microsoft Office 2019 Version of Microsoft Office that you purchase one time, for one device, similar to what you may have done to obtain software in the past; anytime there is a new version of Microsoft Office, you need to purchase it if you desire the most recent version (select Office Home & Student 2019 to install Office on one PC)

multiple item form A form resembling a datasheet with data appearing in row and column format

Navigation pane Objects panel that lists existing database objects (specifically tables, queries, forms, and reports)

object A database structure used to store or reference data

Office 365 Version of Microsoft Office that has a monthly subscription rate for one or more devices that offers automatic updates similar to how you make apps purchases on your smartphone or tablet (select Office 365 Personal for a monthly subscription for one device—PC or Mac, plus one smartphone and one tablet; select Office 365 Home for a monthly subscription for up to five PCs or Macs, plus five smartphones and five tablets)

Office Online Version of Microsoft Office that is free when you are logged in to a Microsoft account; the online apps include Outlook.com, Word Online, Excel Online, PowerPoint Online, OneNote Online, and Sway; not all features of Office 365/2019 are available in these apps

OneNote Notetaking software used to organize notes (handwritten or keyed), audio/sound recordings, screen captures, or sketches you have collected or created to share with others

Outlook Personal information manager software used to create, send, and receive emails, record tasks, maintain one or more calendars, schedule meetings and appointments, manage contacts, and take notes

Paste Inserts a copy of the most recent item found on the Office Clipboard at the target location, or destination; there are usually at least three paste choices: Keep Source Formatting, Merge Formatting, and Keep Text Only

PowerPoint Presentation software used to create, edit, revise, format, and share slides designed to tell a story, market a product, or explain a concept

primary key Unique ID that cannot be the same for any two records (e.g., a student ID)

property Field attributes that control features such as format, field size, font size, weight, and color; available properties depend on the data type

Property Sheet Panel on the right side of a design window used to set values for controls, such as font size, color, alignment, etc., depending on the type of control

Publisher Desktop publishing software used to design and lay out text and images, often for newsletters or brochures

query Object used to select, search, sort, and extract table data based on criteria and conditions; displays results in a row-and-column format

real-time data Data that is updated and shown at the speed at which a computer receives and processes information

record Collection of details (fields) about an individual person, place, or thing, such as an employee record or a product record

record source Field property that connects text boxes in a form, subform, or report to a field in an underlying table or query

referential integrity Relationship protocol that maintains the validity of related data; requires that the data types of related primary and foreign key fields are the same or compatible

report Database page that presents processed and summarized data from tables and queries as meaningful information in an easy-to-read format; designed to be printed

sections The major parts of the form, such as the Form Header, Form Footer, Detail, Page Header, and Page Footer, that are separated by section bars

Skype Web communication software that utilizes the Internet to share audio, video, text, messages, files, or Desktops via a webcam on both the sending and receiving devices

software suite Collection of applications generally produced by the same manufacturer and bundled together for a better price that provides a common user interface throughout each application

sort Process used to arrange data in a specific order, such as alphabetic, numeric, by date, or in ascending or descending order

source Original location of text that has been cut or copied

split form Two synchronized views of a table data in Layout/Form View and Datasheet View, shown simultaneously

tab order Order in which Access moves among form fields when you press [Tab] or [Enter]

table File or collection of related records; contains the data used in all other database objects

target Destination location for pasted text

text boxes Controls that display the actual data stored in a field (e.g., Smith might be the data displayed in a LastName text box linked to the LastName field in an Employees table)

thumbnails Small images that represent an application, file, etc.

toggle Selecting a button once to turn it on and again to turn it off

wildcard characters Special characters such as an asterisk (*) used to represent multiple characters or a question mark (?) to represent any single character

Wizard Tool that walks you through the selection and ordering of specific fields from the tables or queries that contain the data you want to place onto a form, query, or report

Word Word-processing software for creating, editing, revising, formatting, and sharing documents such as letters, reports, essays, and business plans

work area Main part of the screen where you design tables, queries, forms, and reports; where you enter data into tables and forms

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