

# 10 Advanced Forms

## LESSON SKILL MATRIX

Skill	Exam Objective	Objective Number
Creating Advanced Forms		
Using Application Parts to Create Blank Forms	Use Blank Forms.	1.3.1
Creating a Navigation Form	Create Navigation forms.	3.1.4

### KEY TERMS

- Blank Forms
- hierarchical form
- main form
- Multiple Items tool
- Navigation form
- split form
- subform



As a regional manager for Contoso Pharmaceuticals, you are in charge of overseeing the sales reps in your division. The salespeople you supervise call on doctors to promote Contoso medications and to leave samples. You use Access to put the sales information together and pull data from a variety of sources. In this lesson, you learn how to create a multi-item form, a split form, and a subform.

## SOFTWARE ORIENTATION

### The Templates Group and the Forms Group

The Application Parts button in the Templates group and the Navigation and More Forms buttons in the Forms group, all located on the Create tab, contain menus with commands for creating all types of forms—some of which you have already learned about. Figures 10-1, 10-2, and 10-3 show the menus and commands you use to create advanced forms. Use these figures as references throughout this lesson as well as the rest of this book.

**Figure 10-1**

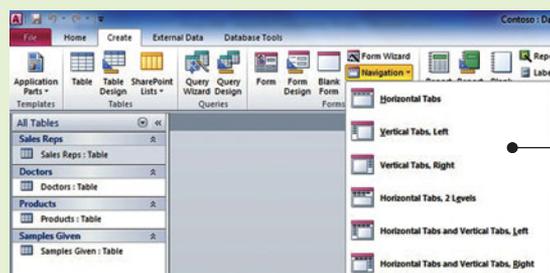
Application Parts button and menu



Blank Forms category on Application Parts menu

**Figure 10-2**

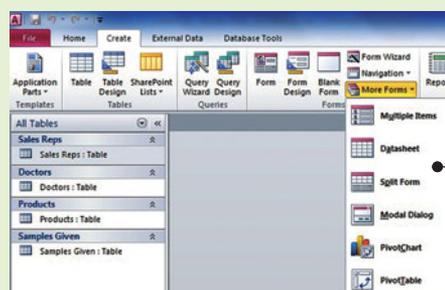
Navigation button and menu



Navigation menu

**Figure 10-3**

More Forms button and menu



More Forms menu



Ref

In Lesson 5, you learned how to use some of the commands in the Forms group to create several basic forms.

## The Bottom Line

### CREATING ADVANCED FORMS

Access provides tools to help you create forms quickly—including advanced forms with features that can improve the usability of your database. The **Multiple Items tool** creates a customizable form that displays multiple records. A **split form** gives you two views of your data at the same time—in both Form View and Datasheet View. A **subform** is a form that is inserted into another form.

### Creating a Multi-Item Form

When you create a simple form by using the Form tool, Access creates a form that displays a single record at a time. To create a form that displays multiple records but that is more customizable than a datasheet, you can use the Multiple Items tool. In this exercise, you create a Multi-Item form using the Multiple Items tool.

When you use the Multiple Items tool, the form that Access creates resembles a datasheet. The data is arranged in rows and columns, and you see more than one record at a time. However, a Multiple Items form gives you more customization options than a datasheet, such as the ability to add graphical elements, buttons, and other controls.

### STEP BY STEP

### Create a Multi-Item Form

 The *Contoso* file for this lesson is available on the book companion website or in WileyPLUS.



WileyPLUS Extra! features an online tutorial of this task.

**GET READY.** Before you begin these steps, be sure to **LAUNCH** Microsoft Access.

1. **OPEN** the *Contoso* database from the data files for this lesson.
2. **SAVE** the database as *Contoso XXX* (where *XXX* is your initials).
3. In the Navigation pane, double-click the **Doctors** table to open it.
4. On the Create tab, in the Forms group, click the **More Forms** button. On the menu that appears, click the **Multiple Items** button. Access creates the form and displays it in Layout View, as shown in Figure 10-4.

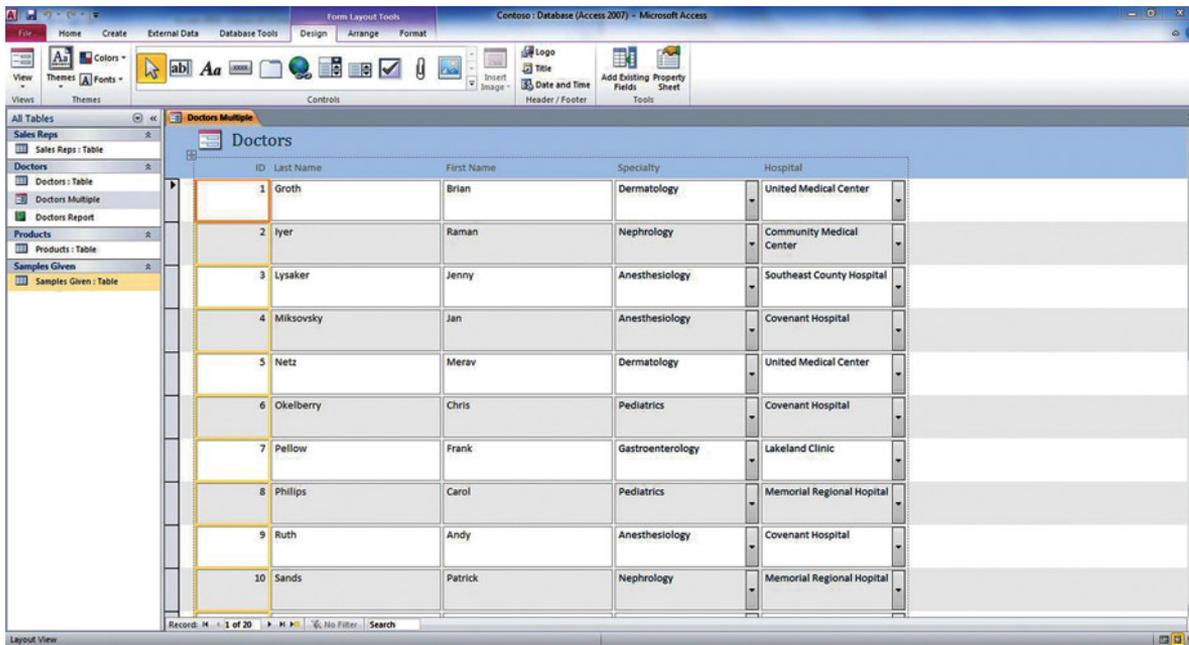


Figure 10-4

Multiple Items form in Layout View

5. Scroll down and to the right to view the multiple records on the form.
  6. Click the **File** tab and click **Save**.
  7. In the Save As dialog box, key **Doctors Multiple** and click **OK**.
  8. Click the **Close** button on Doctors Multiple to close the form.
  9. Click the **Close** button on Doctors to close the table.
  10. **LEAVE** the database open.
- PAUSE. LEAVE** Access open to use in the next exercise.



Ref

You learned about using controls to format your forms in Lesson 7.

## Creating a Split Form

Creating a split form allows you to see two views of your data at the same time—in Form View and in Datasheet View. The two views are connected to the same data source and are completely synchronized with each other. In this exercise, you create a split form.

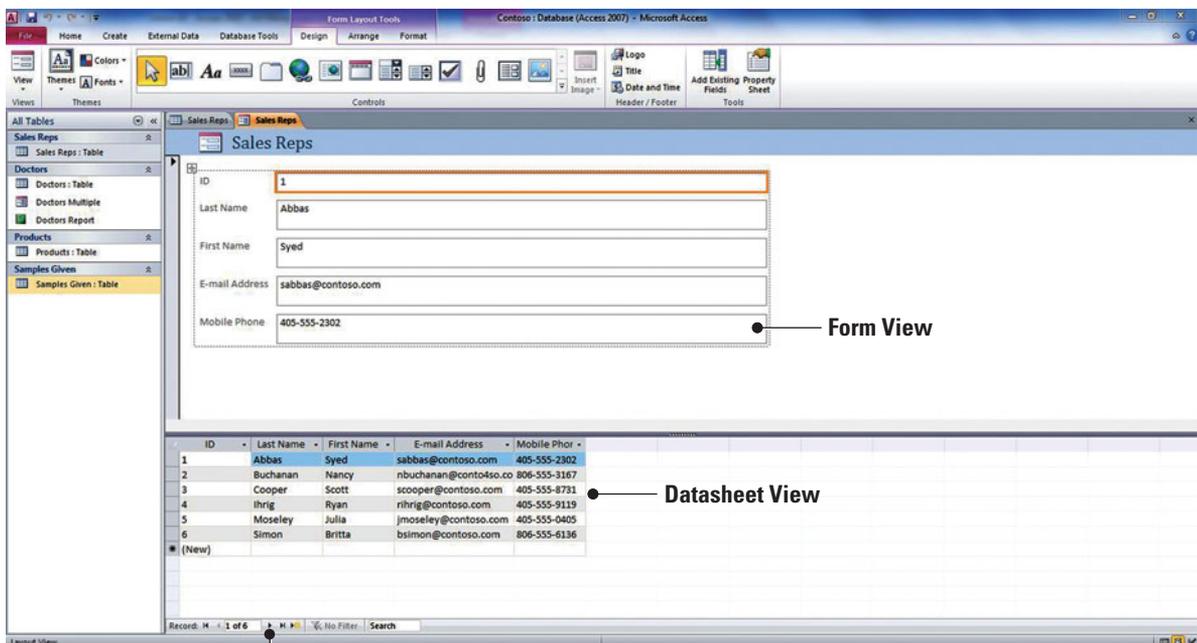
Working with split forms gives you the benefits of both types of forms in a single form. Selecting a field in the datasheet part of the form selects the same field in the form part of the form. When you add, edit, or delete data in the datasheet part, the change is reflected in the form part.

### STEP BY STEP

#### Create a Split Form

**USE** the database that is open from the previous exercise.

1. In the Navigation pane, double-click the **Sales Reps** table to open it.
2. On the Create tab, in the Forms group, click the **More Forms** button. On the menu that appears, click the **Split Form** button. Access creates the form and displays it in Form View and Datasheet View at the same time, as shown in Figure 10-5.

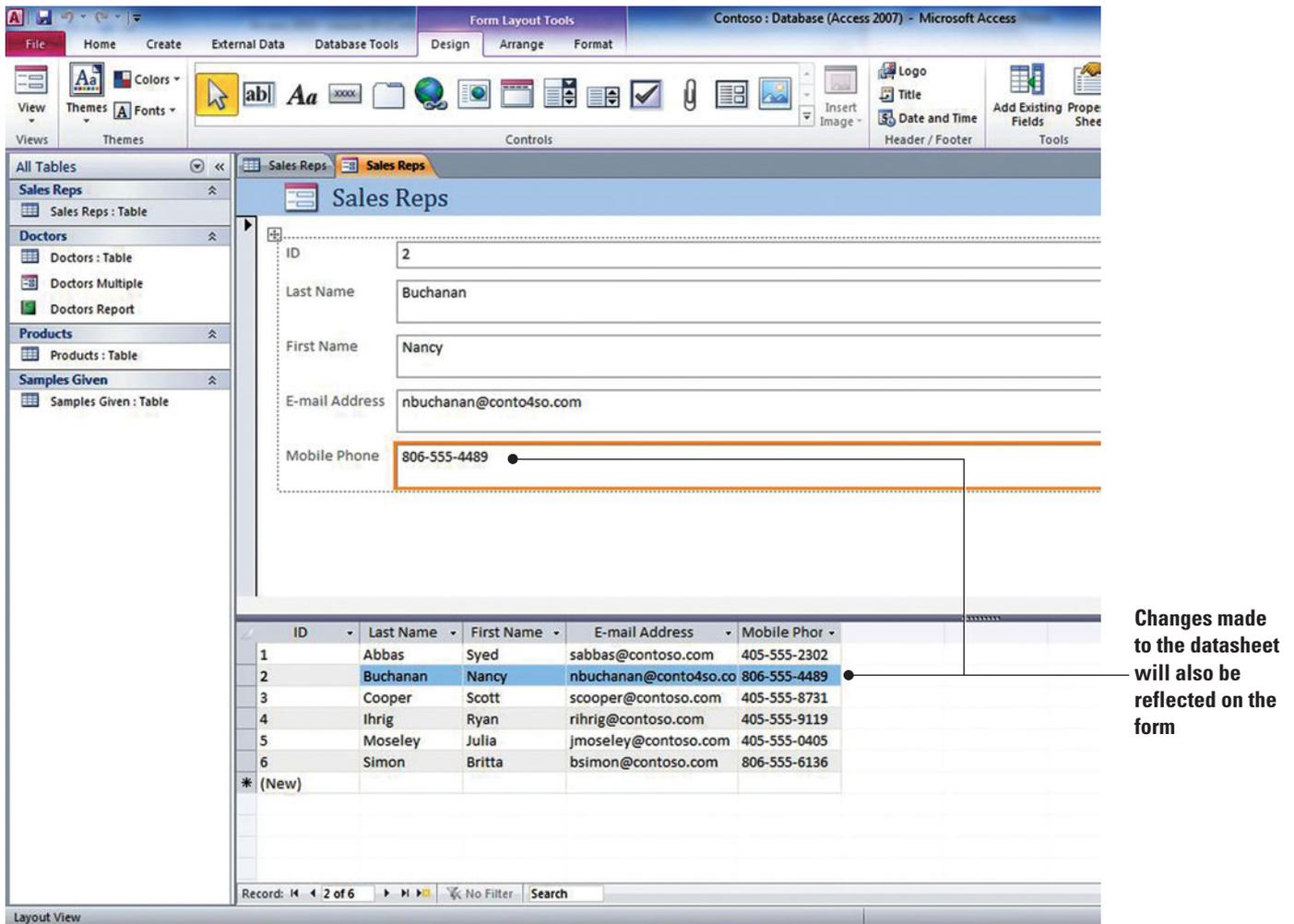


Next Record button

Figure 10-5

Split form

3. Click the **Next Record** navigation button to display the next record in Form View.
4. In the datasheet part on the bottom, place the insertion point in the *Mobile Phone* field for Nancy Buchanan. Notice that the same field is selected in the form part at the top.
5. Change the number for Nancy Buchanan in the *Mobile Phone* field to **806-555-4489**.
6. Click anywhere on the form part above the datasheet and notice that the mobile phone number has been changed there as well, as shown in Figure 10-6.



**Figure 10-6**

Editing a split form

7. On the Home tab, in the Views group, click the **View** button and click **Design View**.
8. Press **F4** to display the Property Sheet.
9. Click **Form** in the drop-down list at the top of the Property Sheet and click the **Format** tab, if necessary, as shown in Figure 10-7.

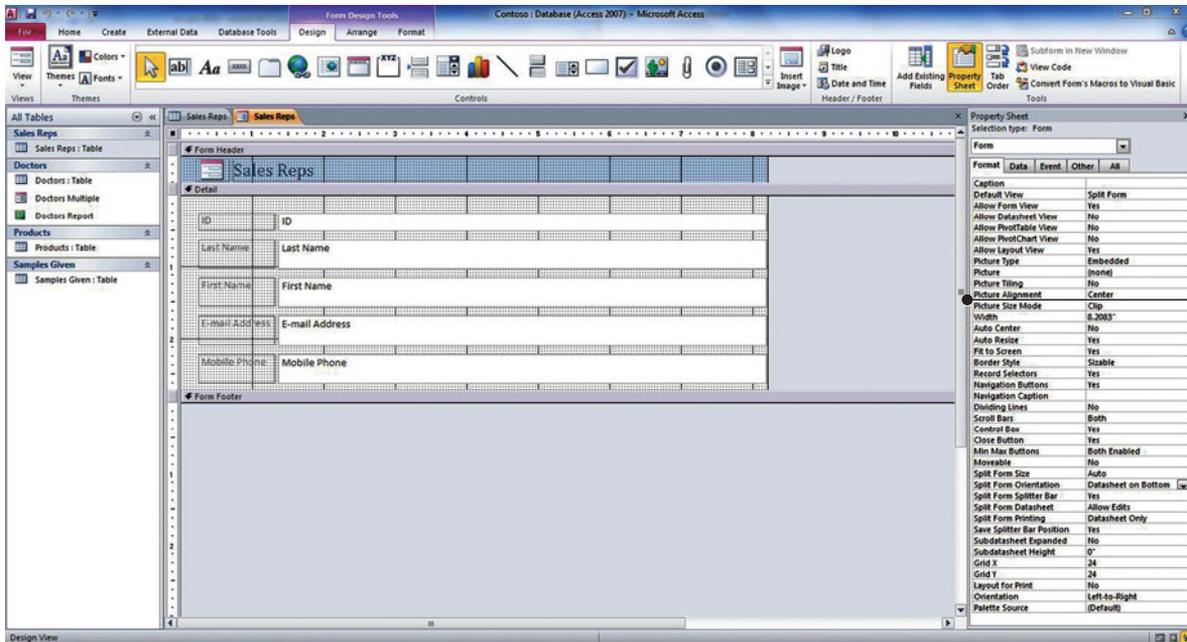


Figure 10-7

Property Sheet

10. Scroll down to the Split Form Orientation property, click the **down arrow**, and click **Datasheet on Top**, as shown in Figure 10-8.

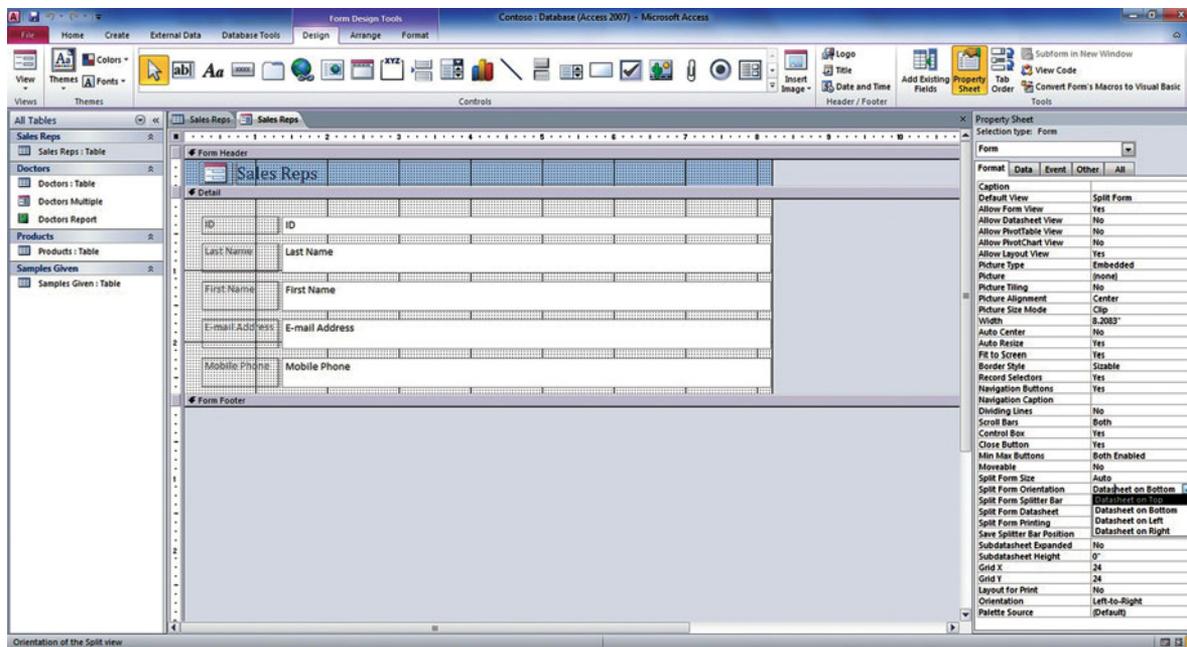


Figure 10-8

Changing a property

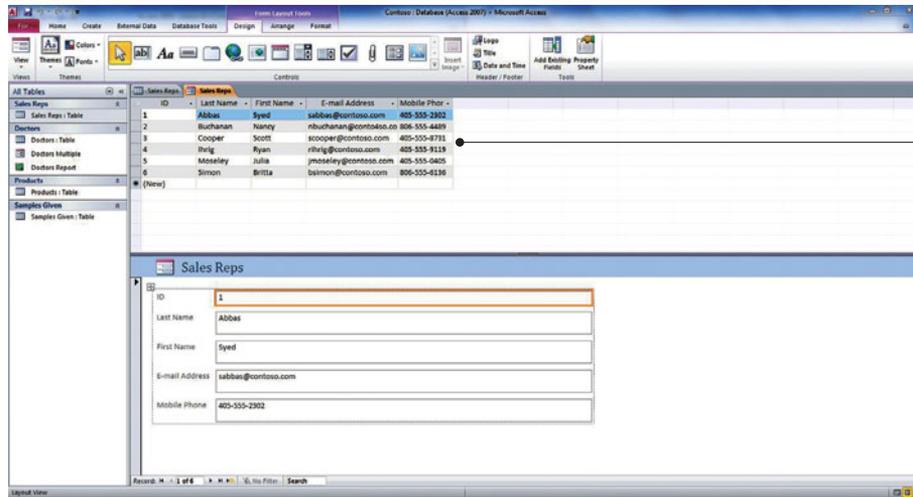
**Take Note**

If all text for the properties is not visible, click the left border of the Property Sheet and drag to widen it.

11. Click the **Close** button to close the Property Sheet.
12. On the Home tab, in the Views group, click the **View** button and click **Layout View**. The split form is displayed with the datasheet on top, as shown in Figure 10-9.

Figure 10-9

Split form with datasheet on top



Change the Split Form Orientation property to display the datasheet on top

13. Click the **File** tab and click **Save**.
  14. In the Save As dialog box, key **Sales Reps Split** and click **OK**.
  15. Click the **Close** button on Sales Reps Split to close the form.
  16. Click the **Close** button on Sales Reps to close the table.
  17. **LEAVE** the database open.
- PAUSE.** **LEAVE** the database open to use in the next exercise.

Table 10-1 lists some of the properties related to split forms that you can set on the Property Sheet to fine-tune your form. To change form properties, switch to Design View, press F4 to display the Property Sheet, select Form from the drop-down list at the top of the Property Sheet, and click the Format tab.

**X** Ref

You learned how to set properties using the Property Sheet in Lesson 4.

Table 10-1

Properties Related to Split Forms

Property	View(s) in which you can set the property	Description
Split Form Orientation	Design View	Allows you to define whether the datasheet appears above, below, to the left, or to the right of the form.
Split Form Datasheet	Design View or Layout View	If set to Allow Edits (and the form's record source is updateable), Access allows edits to be made on the datasheet. If set to Read Only, Access prevents edits from being made on the datasheet.
Split Form Splitter Bar	Design View	If set to Yes, Access allows you to resize the form and datasheet by moving the splitter bar that separates the two parts. If set to No, the splitter bar is hidden, and the form and datasheet cannot be resized.
Save Splitter Bar Position	Design View	If set to Yes, the form opens with the splitter bar in the same position in which you last left it. If set to No, the form and datasheet cannot be resized, and the splitter bar is hidden.
Split Form Size	Design View or Layout View	Allows you to specify an exact height or width (depending on whether the form is split vertically or horizontally) for the form part of the split form. For example, key 1" to set the form to a height or width of 1 inch. Key Auto to set the dimension by other means, such as dragging the splitter bar in Layout View.
Split Form Printing	Design View or Layout View	Allows you to define which portion of the form is printed when you print the form. If set to Form Only, only the form portion is printed. If set to Datasheet Only, only the datasheet portion is printed.

## Creating a Subform

A subform is a convenient tool that allows you to view data from more than one table or query on the same form. A subform is a form that is inserted into another form. The primary form is called the **main form**, and the form within the form is called the subform. A form/subform combination is sometimes referred to as a **hierarchical form**, a *master/detail form*, or a *parent/child form*. You can use the Form Wizard to help you create subforms quickly. For best results, all relationships should be established first. This enables Access to automatically create the links between subforms and main forms. In this exercise, you create a subform.

When working with a relational database, you often need to view data from more than one table or query on the same form. For example, you want to see customer data, but you also want to see information about the customer's orders at the same time. Subforms are a convenient tool for doing this.

Subforms are especially effective when you want to show data from tables or queries that have a one-to-many relationship—the main form shows data from the “one” side of the relationship and the subform shows the data from the “many” side of the relationship.

### STEP BY STEP

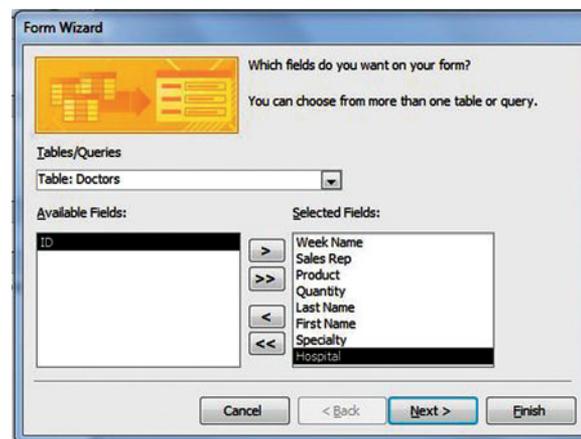
#### Create a Subform

USE the database that is open from the previous exercise.

1. On the Create tab, in the Forms group, click **Form Wizard**.
2. In the first screen on the Form Wizard, click the **down arrow** in the Tables/Queries box and click **Table: Samples Given**.
3. In the Available Fields box, double-click the **Week Name**, **Sales Rep**, **Product**, and **Quantity** fields to move them to the Selected Fields box.
4. Click the **down arrow** in the Tables/Queries box and click **Table: Doctors**.
5. In the Available Fields box, double-click the **Last Name**, **First Name**, **Specialty**, and **Hospital** fields to move them to the Selected Fields box. The screen should look like Figure 10-10.

**Figure 10-10**

Form Wizard, screen 1



6. Click the **Next >** button.
7. In the *How do you want to view your data?* box, click **by Doctors**. The *Form with subform(s)* radio button should be selected, and the Form Wizard should look like Figure 10-11.

Figure 10-11

Form Wizard, screen 2

8. Click the **Next >** button.
9. Click the **Tabular** radio button to select that as the layout for your subform, as shown in Figure 10-12.

Figure 10-12

Form Wizard, screen 3

10. Click the **Next >** button. Access has suggested titles for the forms, as shown in Figure 10-13. Keep the default selection to open the form.

Figure 10-13

Form Wizard, screen 4

11. Click the **Finish** button to create the forms. The Doctors form appears with the Samples Given subform, as shown in Figure 10-14.

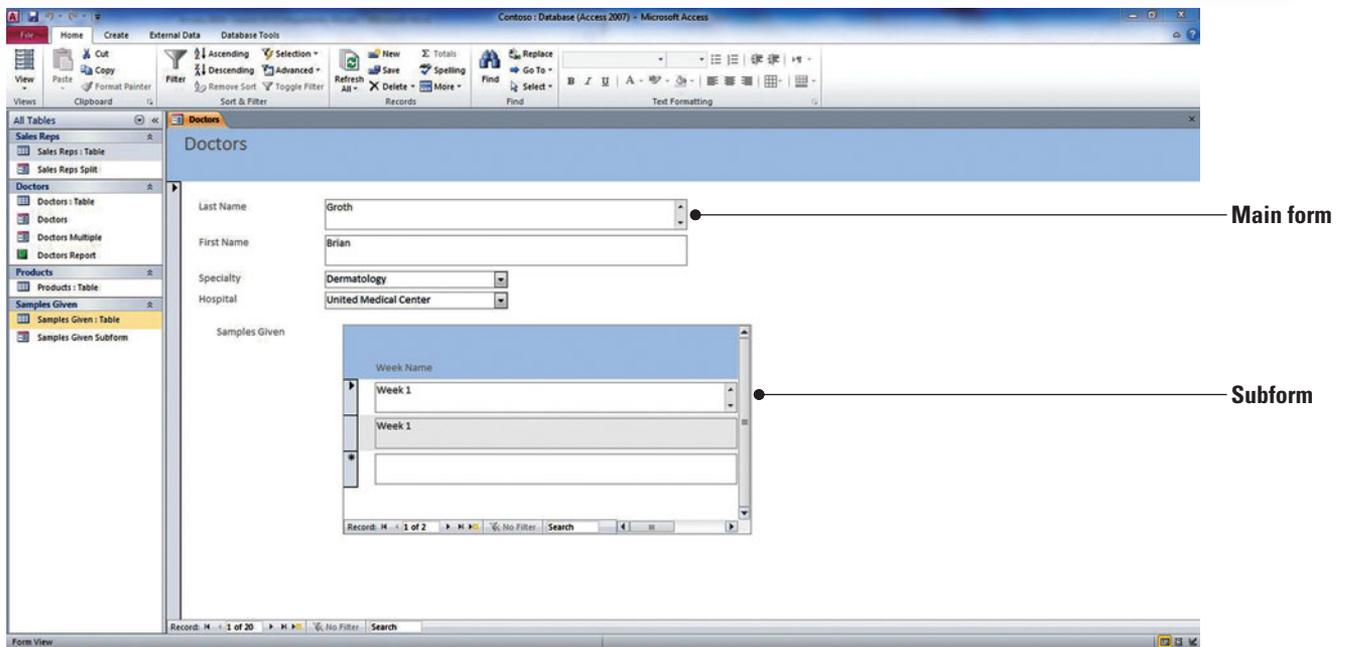


Figure 10-14

Doctors form with subform

12. In the Navigation pane, double-click the **Samples Given subform** to open it, as shown in Figure 10-15.

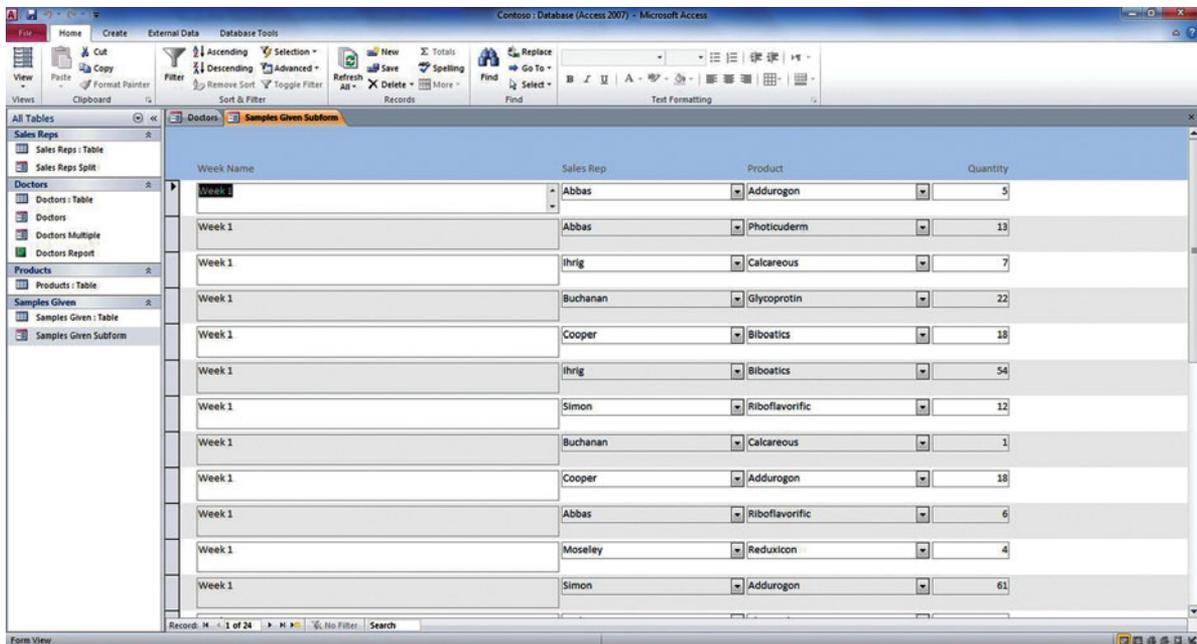


Figure 10-15

Samples Given subform

13. Scroll down and to the right, if necessary, to see the data contained in the records and then click the **Close** button on the Samples Given subform to close the subform.
14. Click the **Close** button on the Doctors form to close the form.
15. **LEAVE** the database open.
- PAUSE.** LEAVE the database open to use in the next exercise.

## The Bottom Line

**NEW**  
to Office 2010

## USING APPLICATION PARTS TO CREATE BLANK FORMS

As you learned in Lesson 2, the Application Parts gallery consists of two categories, **Blank Forms** and Quick Start. The Blank Forms category contains a collection of 10 form parts that allow you to add predefined forms to a database. In this exercise, you create an Application Parts Blank Form and populate the form with bound controls using the Field List.

Application Parts Blank Forms are created as unbound forms and provide a prearranged control layout. They can also provide unbound command button controls, depending on what type of Blank Form you choose. These forms can also be easily populated with bound controls by using the Field List.

Application Parts Blank Forms differ from adding a form using the Blank Forms tool since you can add forms that automatically include command buttons that provide additional functionality such as saving a record or closing a form. Using Application Parts Blank Forms, you can also easily add forms that do more than just display data from a record source. Unbound forms can be created to display messages to a user, or to provide dialog boxes that prompt the user for an action. These unbound forms can be referenced through code using Visual Basic for Applications (VBA) to help provide a more functional database.

### STEP BY STEP

#### Use Application Parts to Create Blank Forms

USE the database that is open from the previous exercise.

1. On the Create tab, in the Templates group, click the **Application Parts** button and in the Blank Forms category, hover your mouse over the 1 Right button. A Tooltip appears informing you of the form's layout.
2. Click the **1 Right** button and a new form object named `SingleOneColumnRightLabels` appears in the Navigation Pane in the Unrelated Objects category, as shown in Figure 10-16.

**Figure 10-16**

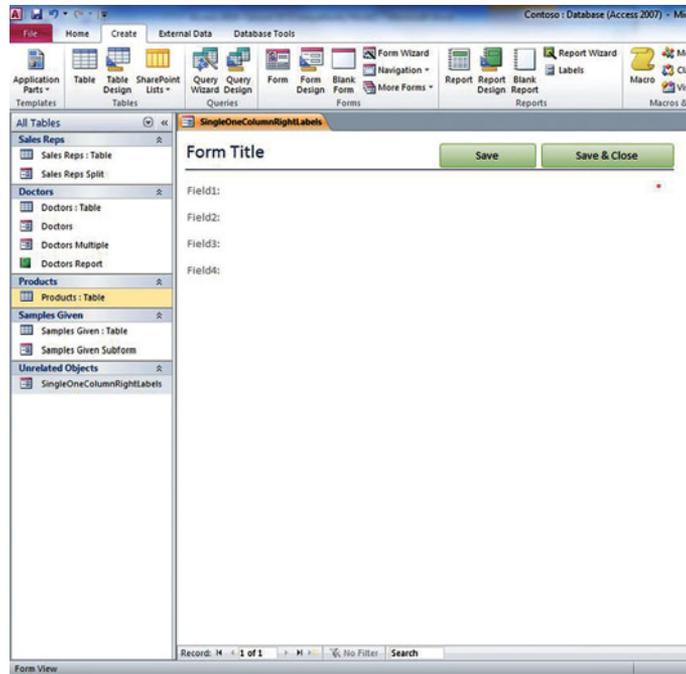
New Blank Form object in Navigation pane



3. Open the `SingleOneColumnRightLabels` form. The form displays in Form View, as shown in Figure 10-17.

Figure 10-17

Blank Form in Form View



4. Switch to Layout View and shift-click each label control placeholder titled **Field1**, **Field2**, **Field3**, and **Field4** to select them all. Press the **Delete** key on the keyboard to delete the label controls. Also delete the label control placeholder that contains the red asterisk, which could be used to denote an important field, like a key field.
5. Click the **Add Existing Fields** button in the Tools group. The Field List pane appears. If necessary, click the **Show all tables** link. Your screen should resemble Figure 10-18.

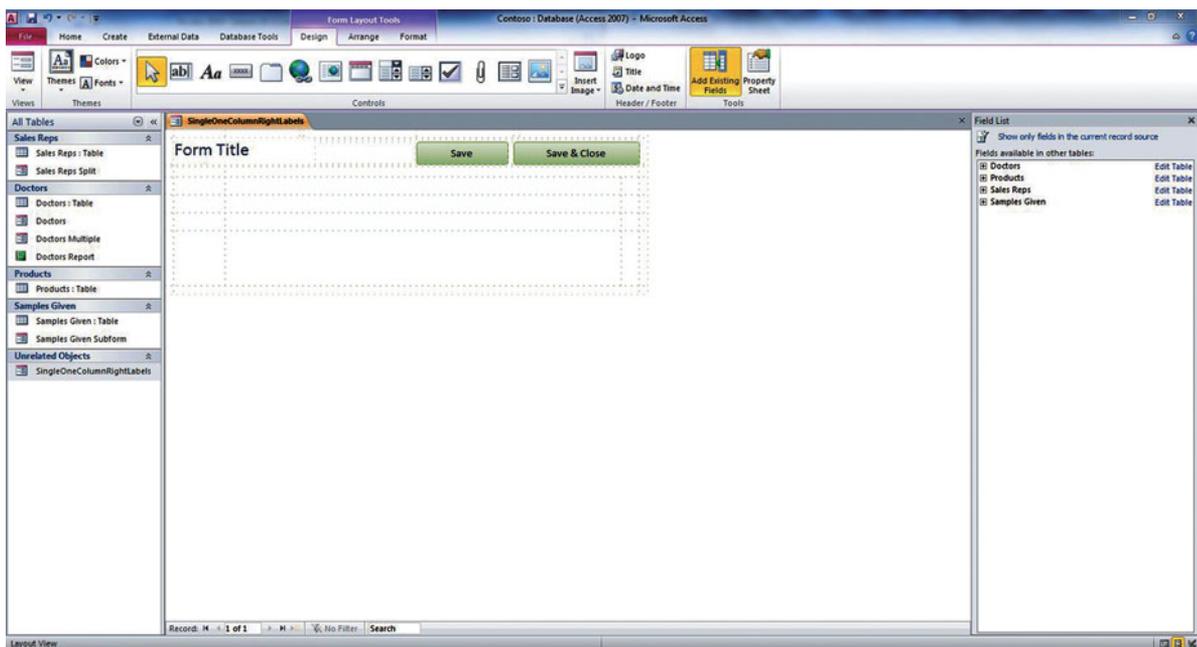


Figure 10-18

Blank Form in Layout View and Field List pane

6. In the Field List pane, expand the Doctors table.
7. In the Field List pane, click and drag each **Last Name**, **First Name**, **Specialty**, and **Hospital** field to the form and to the right placeholder of the original locations of the Field1, Field2, Field3, and Field4 label controls that you just deleted. Your screen should resemble Figure 10-19.

Fields dragged to placeholders on right-side of previously deleted labels

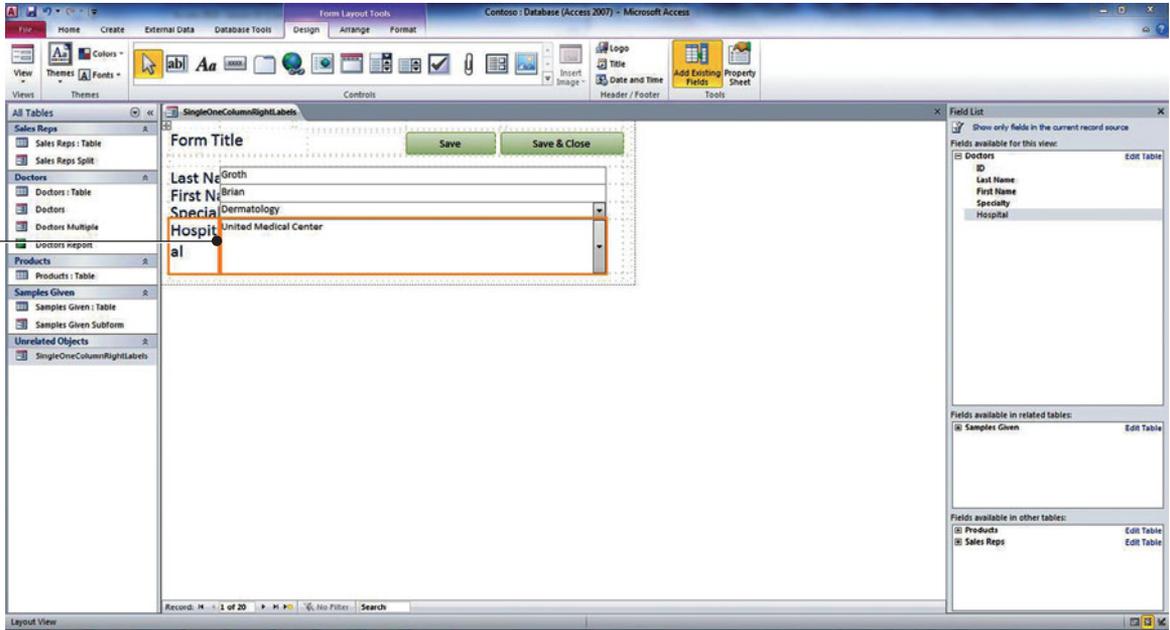


Figure 10-19

Form with fields from Field List pane

8. Resize the label and field controls that you just added until your screen resembles Figure 10-20.

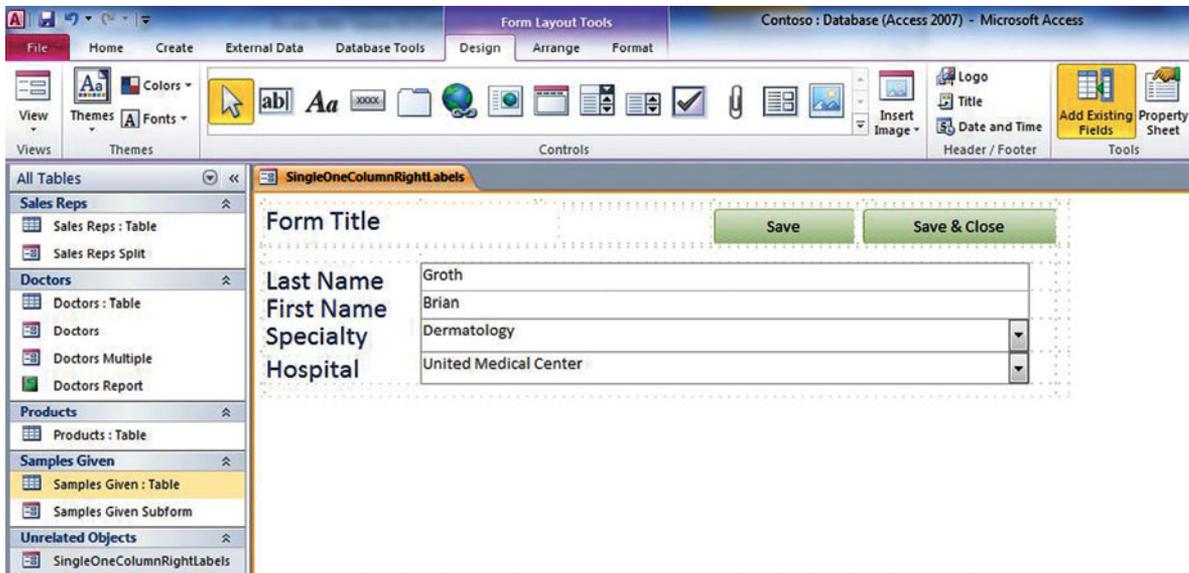


Figure 10-20

Form with resized label and field control

9. Click the **Form Title** label, and delete FormTitle. Key **Doctors**.
  10. Switch to Form View and cycle through the records. Click the **Save & Close** button on the form to close the form.
  11. Rename the form **Doctors Blank Form**.
  12. **LEAVE** the database open.
- PAUSE. LEAVE** the database open to use in the next exercise.

**CERTIFICATION READY 1.3.1**

How do you use Application Parts to create Blank Forms?

**The Bottom Line****NEW**  
to Office 2010

## CREATING A NAVIGATION FORM

The ability to create **Navigation forms** is a new feature in Access 2010. A Navigation form includes a set of navigation tabs that you can click to display forms and reports. In this exercise you create a Navigation form.

As you learned in Lesson 2, you can create databases based on templates. When a database is created using a web database template, a navigation form is used as the main interface within the database since the Navigation pane cannot be viewed from within a web browser. However, Navigation forms can also be used from within the Access application window to simplify your interaction with database objects. For example, you can easily click a tab on a Navigation form to view a form to add, view, or edit data. Similarly, you can simply click a button on the Navigation form to work with reports. Navigation forms are created by clicking the Navigation button in the Forms group on the Create tab. There are six Navigation form layouts to choose from. Each layout includes a specific arrangement of tabs that can then be modified in Layout or Design View to access forms and reports. In Layout View, form and report objects can be clicked and dragged from the Navigation pane to tabs to quickly add functionality to the Navigation form. You can also type a form or report's name as the tab's label and Access will automatically bind the associated form or report to that label. You can also work with Navigation forms using Design View to have the most control over design options, but you lose the ability to quickly add form and report objects just by clicking and dragging them to the tabs, or modifying the labels.

**Take Note**

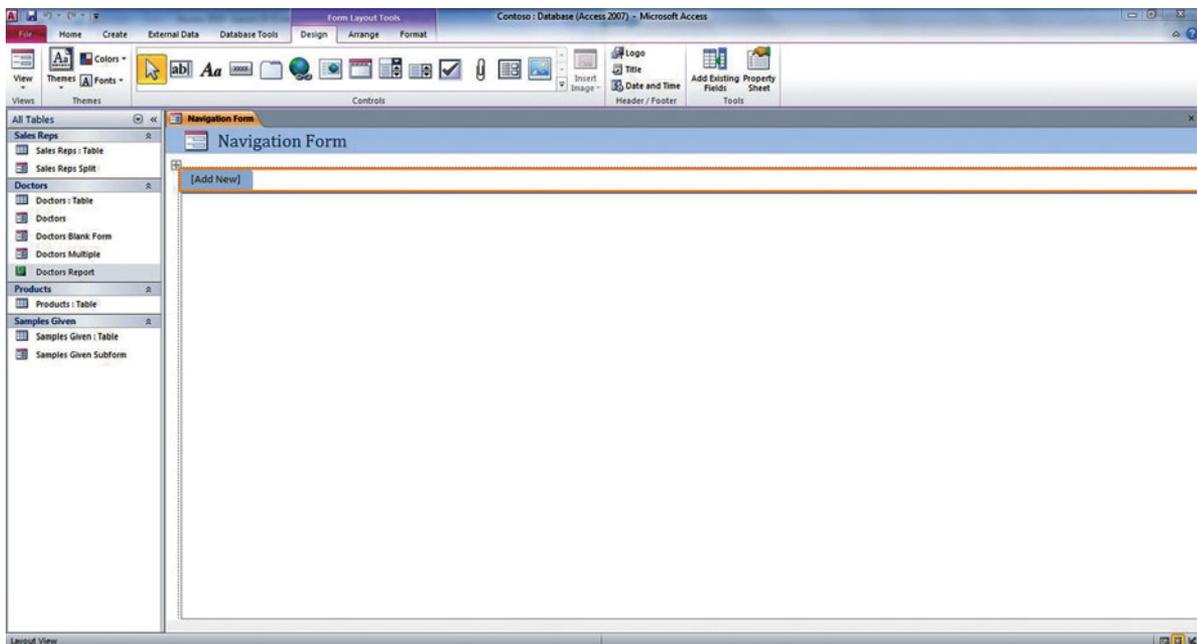
You can also add fields from multiple tables using the Field List pane to your Navigation form in both Design and Layout Views to allow for even greater customization.

**STEP BY STEP**

### Create a Navigation Form

**USE** the database that is open from the previous exercise.

1. On the Create tab, in the Forms group, click the **Navigation** button to display a menu that contains six form layouts.
2. Click the **Horizontal Tabs** button and a new Navigation form appears in Layout View, as shown in Figure 10-21.



**Figure 10-21**

Navigation form in Layout View

- Click and drag the **Doctors** form object from the Navigation pane to the [Add New] tab near the top of the form. The form tab has been renamed Doctors and all the Doctors form's controls appear. A new [Add New] tab appears next to the Doctors tab. Your screen should resemble Figure 10-22.

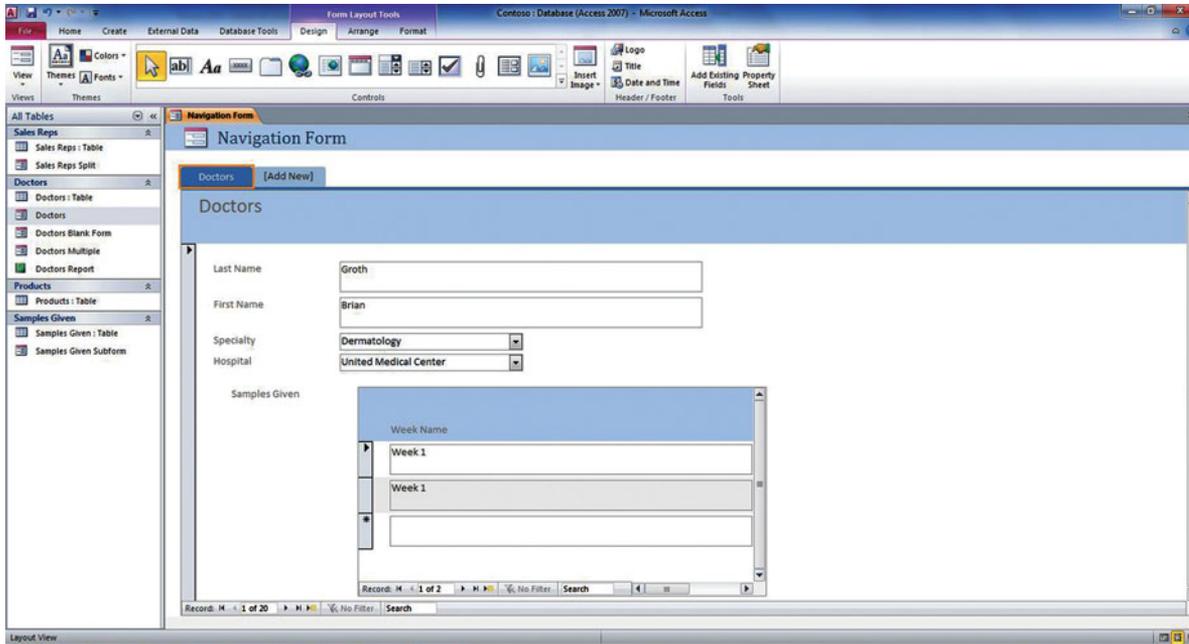


Figure 10-22

Navigation form displaying Doctors form

- Click and drag the **Doctors** report object from the Navigation pane to the [Add New] tab near the top of the form. The form tab has been renamed **Doctors Report** and all the Doctors report controls appear. A new [Add New] tab appears next to the Doctors tab. Your screen should resemble Figure 10-23.

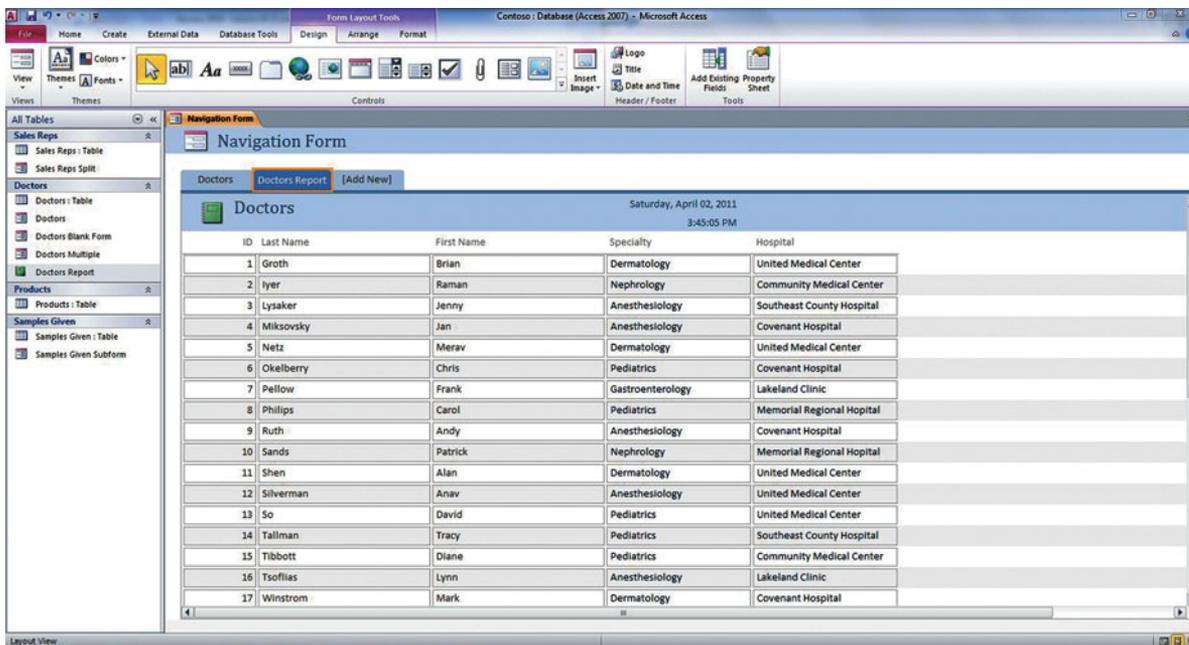


Figure 10-23

Navigation form displaying Doctors report

**CERTIFICATION  
READY 3.1.4**

How do you create  
Navigation forms?

5. Double-click the **Doctors** tab and key **Doctors Form** to rename the tab.
6. Switch to Form View and use the form's tabs to switch between the form and report.
7. Click the **File** tab and click **Save**.
8. In the Save As dialog box, key **Doctors Navigation Form** and click **OK**.
9. Click the **Close** button to close the Doctors Navigation Form.

**STOP. CLOSE** the database.

## SKILL SUMMARY

In This Lesson You Learned How To:	Exam Objective	Objective Number
Create Advanced Forms		
Use Application Parts to Create Blank Forms	Use Blank forms.	<b>1.3.1</b>
Create a Navigation Form	Create Navigation forms.	<b>3.1.4</b>

## Knowledge Assessment

### Fill in the Blank

Complete the following sentences by writing the correct word or words in the blanks provided.

1. The Forms group, located on the \_\_\_\_\_ tab, contains commands for creating all types of forms.
2. When Access creates a Multiple Items form, it is displayed in \_\_\_\_\_ View.
3. Creating a(n) \_\_\_\_\_ form allows you to see two views of your data at the same time.
4. To set properties for a split form, first switch to \_\_\_\_\_ View.
5. For best results, all \_\_\_\_\_ should be established before creating a subform.
6. When creating a subform, the primary form is called the \_\_\_\_\_ form.
7. To create a Navigation form, first select the Navigation button in the \_\_\_\_\_ group.
8. A(n) \_\_\_\_\_ form resembles a datasheet, but it gives you more customization options.
9. The views in a split form are connected to the same data \_\_\_\_\_ and are completely synchronized with each other.
10. Subforms are especially effective when you want to show data from tables or queries that have a(n) \_\_\_\_\_ relationship.

### Multiple Choice

Select the best response for the following statements or questions.

1. Which tool creates a customizable form that displays multiple records?
  - a. PivotTable
  - b. Subform
  - c. Split Form
  - d. Multiple Items

2. When you use the Multiple Items tool, the form that Access creates resembles a
  - a. Control
  - b. Datasheet
  - c. Filter
  - d. Query
3. A split form shows your data in which views?
  - a. Form View and Datasheet View
  - b. Layout View and Design View
  - c. Form View and Design View
  - d. Layout View and Datasheet View
4. Which split form property allows you to define whether the datasheet appears above, below, to the left, or to the right of the form?
  - a. Split Form Orientation
  - b. Split Form Datasheet
  - c. Split Form Splitter Bar
  - d. Split Form Size
5. Which type of form allows you to view data from more than one table or query on the same form?
  - a. Multi-item form
  - b. Split form
  - c. Subform
  - d. Navigation form
6. Which tool would you use to create a subform?
  - a. Form Design
  - b. Blank Form
  - c. Form
  - d. Form Wizard
7. A form/subform combination is sometimes referred to as a
  - a. Hierarchical form
  - b. Master/detail form
  - c. Parent/child form
  - d. All of the above
8. Which type of form already has a predefined layout and can automatically contain command buttons?
  - a. Multi-item form
  - b. Split form
  - c. Subform
  - d. Application Parts Blank form
9. What type of form can be added to a database to simplify your interaction with objects preventing the need to use the Navigation pane?
  - a. Subform
  - b. Blank form
  - c. Split form
  - d. Navigation form
10. Unbound forms can be easily created that display messages to users using
  - a. Application Parts Blank forms
  - b. Navigation forms
  - c. Split forms
  - d. None of the above

## Competency Assessment

### Project 10-1: Create a Multi-Item Form

In your job as a travel agent at Margie's Travel, you want to create a form that displays multiple database records but that is more customizable than a datasheet. You use the Multiple Items tool to create the form.



The **Margie's Events** file for this lesson is available on the book companion website or in WileyPLUS.

**GET READY. LAUNCH** Access if it is not already running.

1. **OPEN** the **Margie's Events** database from the data files for this lesson.
2. **SAVE** the database as **Margie's Events XXX** (where XXX is your initials).
3. In the Navigation pane, double-click the **Events** table to open it.
4. On the Create tab, in the Forms group, click the **More Forms** button and then click the **Multiple Items** button on the menu that appears.
5. Scroll down and to the right to view the multiple records on the form.
6. Click the **File** tab and click **Save**.
7. In the Save As dialog box, key **Events Multiple** and click **OK**.
8. Click the **Close** button to close the Events Multiple form.
9. Click the **Close** button to close the Events table.
10. **CLOSE** the database.

**LEAVE** Access open for the next project.

### Project 10-2: Create a Split Form

Your brother, who owns Wingtip Toys, wants to be able to see two views of his inventory data at the same time—in Form View and in Datasheet View. He asks you to help him create a split form and to modify it so that the datasheet is on top.



The **Toy Stock** file for this lesson is available on the book companion website or in WileyPLUS.

**GET READY. LAUNCH** Access if it is not already running.

1. **OPEN** **Toy Stock** from the data files for this lesson.
2. **SAVE** the database as **Toy Stock XXX** (where XXX is your initials).
3. In the Navigation pane, double-click the **Inventory** table to open it.
4. On the Create tab, in the Forms group, click the **More Forms** button and then click the **Split Form** button on the menu that appears to create the form and display it in Form View and Datasheet View at the same time.
5. On the Home tab, in the Views group, click the **View** button and click **Design View**.
6. Press **F4** to display the Property Sheet.
7. Click **Form** in the drop-down list at the top and click the **Format** tab, if necessary.
8. Scroll down to the Split Form Orientation property, click the **down arrow**, and click **Datasheet on Top**.
9. Click the **Close** button to close the Property Sheet.
10. On the Home tab, in the Views group, click the **View** button and click **Layout View** to display the split form with the datasheet on top.
11. Click the **File** tab and click **Save**.
12. In the Save As dialog box, key **Inventory Split** and click **OK**.
13. Click the **Close** button to close the Inventory Split form.
14. Click the **Close** button to close the Inventory table.
15. **CLOSE** the database.

**LEAVE** Access open for the next project.

## Proficiency Assessment

### Project 10-3: Create Forms for the Wine Club Database

Information about each selection for the Coho Vineyard monthly wine club is stored in an Access database. As purchasing manager, you use the database frequently and need to have several types of forms available to work with the data. Create a multi-item form and a split form.

**GET READY. LAUNCH** Access if it is not already running.

1. **OPEN** *Wines* from the data files for this lesson.
2. **SAVE** the database as *Wines XXX* (where XXX is your initials).
3. Create a multi-item form for the red wine table.
4. Name the form **Red Wines Multi** and close it.
5. Create a multi-item form for the white wine table.
6. Name the form **White Wines Multi** and close it.
7. Create a split form for the red wine table.
8. Name the form **Red Wines Split** and close it.
9. Create a split form for the white wine table.
10. Name the form **White Wines Split** and close it.
11. **LEAVE** the database open for the next project.

**LEAVE** Access open for the next project.

 The *Wines* file for this lesson is available on the book companion website or in WileyPLUS.

### Project 10-4: Create a Subform

As purchasing manager for Coho Winery, it would be helpful to view data about wines by distributor. Create a subform that shows the red wines in the monthly club by distributor.

**GET READY. LAUNCH** Access if it is not already running.

1. On the Create tab, in the Forms group, click **Form Wizard**.
2. In the first screen on the Form Wizard, select **Table: Red Wines** in the Tables/Queries box.
3. Move the *Bottled*, *Label*, and *Type* fields to the Selected Fields box.
4. Select **Table: Distributors** in the Tables/Queries box.
5. Move the *Company* field to the Selected Fields box.
6. In the second screen of the Form Wizard, choose to view your data by distributors.
7. In the third screen of the Form Wizard, choose to view your data in tabular layout.
8. In the final screen of the Form Wizard, accept the default form names and click **Finish**.
9. Navigate to the third record to see which red wines in your monthly club are distributed by Northwind Traders.
10. Close the form.
11. **CLOSE** the database.

**LEAVE** Access open for the next project.

## Mastery Assessment

### Project 10-5: Modify a Split Form

As the manager at Southridge Video, you created a split form to work with the used game information in the Access database. However, when you open the form, it appears that someone has made changes because the datasheet is on the right and the splitter bar is not visible. Change the form properties back to the way you want them.

**GET READY. LAUNCH** Access if it is not already running.

1. **OPEN** *Used Games* from the data files for this lesson.
2. **SAVE** the database as *Used Games XXX* (where XXX is your initials).
3. Open the split form Games.
4. Switch to Design View and open the form properties.
5. Change the property to make the datasheet appear on the top.
6. Change the property to make the splitter bar visible, thus allowing the form and datasheet to be resized.
7. Change the form property so the form will open with the splitter bar in the same position in which you last left it.
8. Change the property to allow edits to be made on the datasheet.
9. Change the property to print only the datasheet portion of the form.
10. Switch to Layout View.
11. Close the form and save the changes to the design when prompted.
12. **CLOSE** the database.

**LEAVE** Access open for the next project.

@ The *Used Games* file for this lesson is available on the book companion website or in WileyPLUS.

### Project 10-6: Create a Navigation Form

Your son plays on a recreational league basketball team, and you have volunteered to manage the team's database of games, players, and statistics by tracking and updating data. In order to be able to quickly and efficiently update data, you decide to create a Navigation form.

**GET READY. LAUNCH** Access if it is not already running.

1. **OPEN** *Stats* from the data files for this lesson.
2. **SAVE** the database as *Stats XXX* (where XXX is your initials).
3. Use the Stats:Table and the skills you have learned in this lesson to create a Navigation form using the Vertical Tabs, Left layout.
4. Save the form as *Games, Player, Stats Navigation Form* and close it.
5. **CLOSE** the database.

**CLOSE** Access.

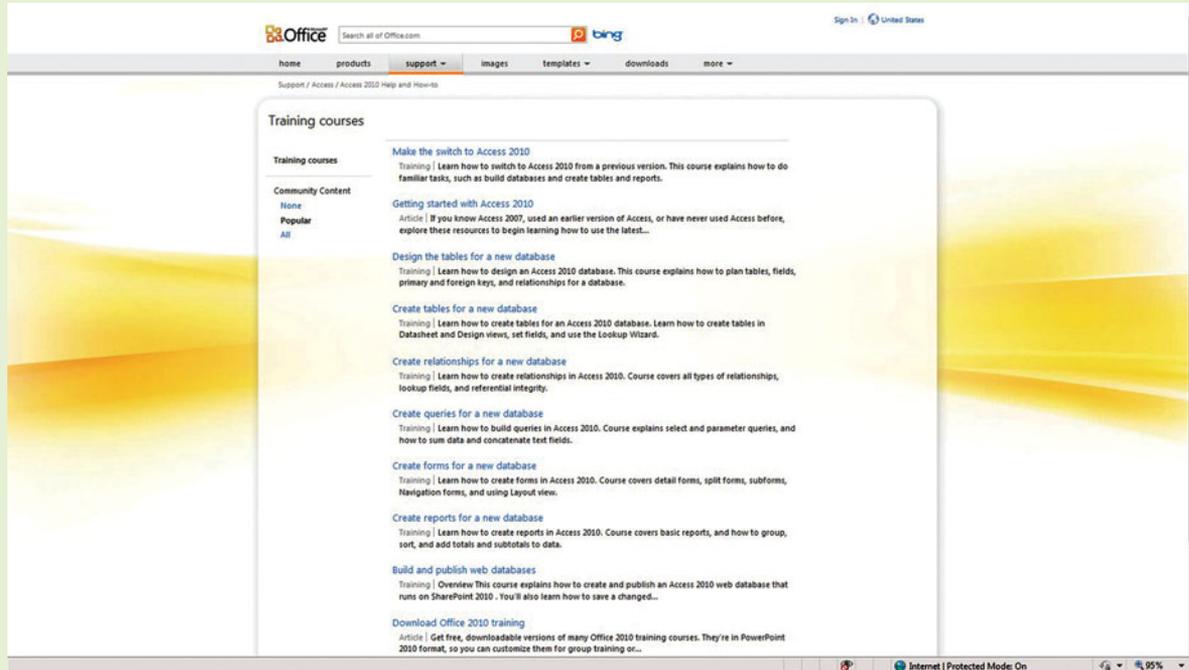
@ The *Stats* file for this lesson is available on the book companion website or in WileyPLUS.



## INTERNET READY

Get help learning Access or other Microsoft Office applications with self-paced training courses and more. Using your browser, go to [office.microsoft.com](http://office.microsoft.com) and conduct a search for Resources for learning Access 2010. Explore the page that contains several helpful links to Access 2010 resources arranged in categories for different types of Access

users. When finished, click the Access training on Office.com link in the Resources for all Access 2010 users category. On the Training courses page, shown in Figure 10-24, you can find links to several articles to help you improve your skills, as well as training courses to help you practice your skills. Online resources don't have to be dull. These training courses also contain audio and slideshows to help you learn visually.



**Figure 10-24**

Training courses page

## Circling Back 2

Woodgrove Real Estate is growing and adding more listings. Your office has added another real estate agent and has begun listing commercial properties as well as residential ones. The database you created has been a great way to keep track of all the listings and other relevant information. As you learn more about Access, you begin using it for a wider variety of tasks.

### Project 1: Create and Format a Report

You want to create a report to display data about each agent's listings. Use the Report Wizard and then switch to Design View to make changes to the format and add a control.

**GET READY. LAUNCH** Access if it is not already running.

@ The *Real Estate* file for this lesson is available on the book companion website or in WileyPLUS.

1. **OPEN** the *Real Estate* database from the data files for this lesson.
2. **SAVE** the database as *Real Estate XXX* (where XXX is your initials).
3. On the Create tab, in the Reports group, click the **Report Wizard** button.
4. In the Tables/Queries menu, choose **Table: Listings**.
5. Click the >> button to move all the fields into the Selected Fields list.
6. Click the **ID** field to select it and click the < button to move it back to the Available Fields list.
7. Click the **Next >** button.
8. Click the **Listing Agent** field to select it and click the > button to add it as a grouping level.
9. Click the **Next >** button.
10. Select **Price** from the fields menu to sort in ascending order and click the **Next >** button.
11. In the Layout section, click the **Outline** button. In the Orientation section, click the **Landscape** button. Click **Next**.
12. Key **Listings Report** as the title of the report.
13. Click **Finish** to display the Listings Report.
14. On the Print Preview tab, in the Close Preview group, click the **Close** button on Print Preview to display the report in Design View.
15. In the Listing Agent Header section, click and drag the right border of the *Listing Agent* field to make it smaller.
16. Continue clicking and dragging the borders of the remaining report fields to size them so your report looks similar to the report displayed in Report View, as shown in Figure 1.

**Figure 1**  
Listings report

Listing Agent	Price	Address	Bedrooms	Bathrooms	Square Feet	Type
1	\$96,450.00	4 Reed Street	3	4	1094	Residential
	\$93,000.00	349 Rose Place	4	3	3141	Residential
2	\$65,500.00	201 Nassau Road	3	2	1145	Residential
	\$75,500.00	3000 Cayton Road	4	2	2700	Residential
	\$57,545.00	1251 Broadway	5	4	4200	Residential
3	\$25,000.00	540 Magnolia Avenue	3	1	1850	Residential
	\$22,500.00	89 Hickory Drive	3	1	1000	Residential
	\$40,000.00	4500 Monroe Avenue	4	3	3675	Residential
	\$1,500,000.00	100 Sundown Highway	6	6	8990	Commercial

- Click the **Close** button on the Listings Report to close the report and save the changes when prompted.

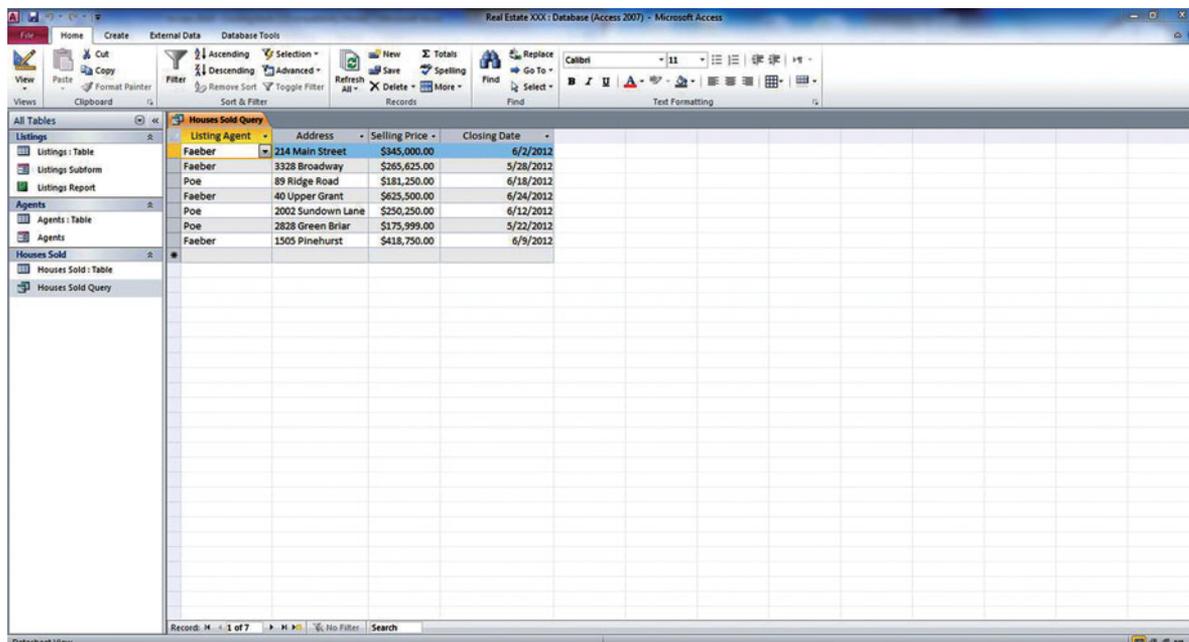
**PAUSE. LEAVE** the database open to use in the next project.

## Project 2: Create and Modify Queries

You want to query the database to find all the house sales that closed in June. Create a query using the Query Wizard and then add criteria to get the information you need.

**USE** the database that is open from the previous project.

- On the Create tab, in the Other group, click the **Query Wizard** button to display the New Query dialog box.
- Click **Simple Query Wizard** and then click **OK** to display the Simple Query Wizard.
- In the Tables/Queries drop-down list, click **Table: Houses Sold**.
- Under Available Fields, double-click **Listing Agent**, **Address**, **Selling Price**, and **Closing Date** to move them to the Selected Fields box.
- Click the **Next >** button to display the next screen. Detail query should be selected.
- Click the **Next >** button to display the final screen.
- Click the **Finish** button to display the query.
- On the Home tab, in the Views group, click the **View** button and click **Design View**.
- In the Criteria row of the *Closing Date* field, key **Between #6/1/2011# And #6/30/2012#**.
- On the Design tab, in the Results group, click the **View** button and click **Datasheet View** to display the query results of all records for houses that closed in June.
- Right-click the **Closing Date** field header and choose **Sort Oldest to Newest** on the menu. Your query should look similar to Figure 2.



Listing Agent	Address	Selling Price	Closing Date
Faerber	214 Main Street	\$345,000.00	6/2/2012
Faerber	3328 Broadway	\$265,625.00	5/28/2012
Poe	89 Ridge Road	\$181,250.00	6/18/2012
Faerber	40 Upper Grant	\$625,500.00	6/24/2012
Poe	2002 Sundown Lane	\$250,250.00	6/12/2012
Poe	2828 Green Briar	\$175,999.00	5/22/2012
Faerber	1505 Pinehurst	\$418,750.00	6/9/2012

**Figure 2**

Query results

- Click the **Close** button on the Houses Sold Query to close the query. When prompted to save, click **Yes**.

**PAUSE. LEAVE** the database open for the next project.

### Project 3: Sum Table Data

You want to know the total value of the current listings. Open the table and add a Totals row to get this information.

USE the database that is open from the previous project.

1. Open the **Listings** table.
2. On the Home tab, in the Records group, click the **Totals** button. The Totals row appears below the asterisk (\*) row.
3. Click the **down arrow** in the Price column of the Totals row. Select **Sum** from the menu. Your screen should look similar to Figure 3.

ID	Address	Bedrooms	Bathrooms	Square Feet	Price	Listing Agent	Type	Click to Add
1	541 Magnolia Avenue	3	1	1850	\$225,000.00	Poe	Residential	
2	3002 Canyon Road	4	2	2720	\$365,500.00	Mew	Residential	
3	309 Wall Street	2	2	1475	\$179,250.00	Friske	Residential	
4	23 Austin Lane	0	0	9050	\$875,000.00	Friske	Commercial	
5	4500 Monroe Avenue	4	3	3675	\$459,200.00	Poe	Residential	
6	2 Reed Street	3	2	2190	\$301,450.00	Faeber	Residential	
7	111 Sundown Highway	0	0	8990	\$1,250,000.00	Poe	Commercial	
8	1252 Broadway	5	4	4200	\$578,345.00	Mew	Residential	
9	201 Nazsau Road	3	2	2845	\$345,500.00	Mew	Residential	
10	66 Maple Street	3	3	3100	\$415,400.00	Friske	Residential	
11	949 Rose Place	4	3	3240	\$389,900.00	Faeber	Residential	
12	89 Hickory Drive	3	1	1990	\$235,890.00	Poe	Residential	
13	1502 Main Street	0	0	9750	\$1,550,000.00	Friske	Commercial	
(New)								
	<b>Total</b>				<b>\$7,170,435.00</b>			

**Figure 3**

Totals row

4. On the Home tab, in the Records group, click the **Totals** button to hide the Totals row.
5. On the Home tab, in the Records group, click the **Totals** button again. The Totals row reappears.
6. Save and close the table.

**PAUSE. LEAVE** the database open for the next project.

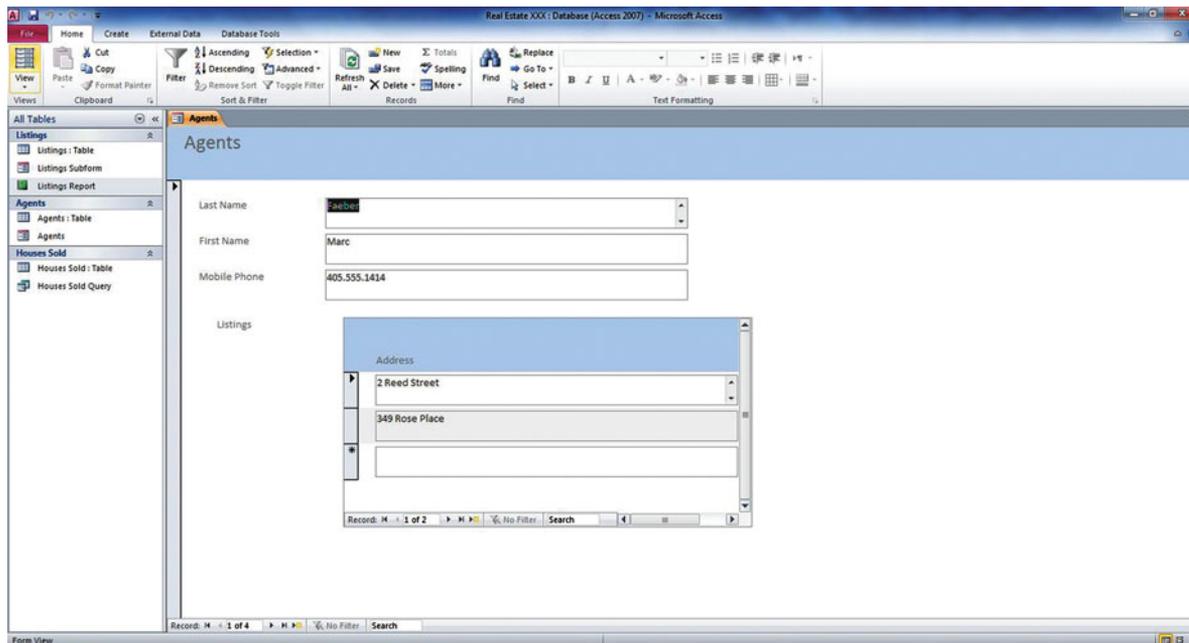
### Project 4: Create a Subform

You want to see the real estate agent's contact information along with the listings. Use the Form Wizard to create a subform that will show all the data in the same place.

USE the database that is open from the previous project.

1. On the Create tab, in the Forms group, click **Form Wizard**.
2. In the first screen on the Form Wizard, click the **Tables/Queries box down arrow** and click **Table: Agents**.
3. In the Available Fields box, double-click the **Last Name**, **First Name**, and **Mobile Phone** fields to move them to the Selected Fields box.
4. Click the **Tables/Queries box down arrow** and click **Table: Listings**.
5. In the Available Fields box, double-click the **Address**, **Square Feet**, and **Price** fields to move them to the Selected Fields box.
6. Click **Next >**.

7. In the How do you want to view your data? box, click **by Agents**. The Form with subform(s) radio button should be selected.
8. Click **Next >**.
9. Click the **Tabular** radio button to select that as the layout for your subform.
10. Click **Next >**.
11. Click the **Finish** button to create the Agents form with the Listings subform. Your form should look similar to Figure 4.



**Figure 4**

Subform

12. In the Navigation pane, double-click the **Listings subform** to open it.
  13. Scroll down to see the data contained in the records and then click the **Close** button on the Listings subform to close the subform.
  14. Click the **Close** button on the Agents table to close it.
- STOP. CLOSE** the database.

## LESSON SKILL MATRIX

Skill	Exam Objective	Objective Number
Defining Groups	Add calculated controls.	5.2.2
Creating Aggregate Fields	Add calculated controls.	5.2.2
Creating the Print Layout	Change page size. Change page orientation.	5.5.1 5.5.2
Using the Label Wizard		



## KEY TERMS

- aggregate fields
- group
- group footer
- group header
- grouping fields
- grouping intervals
- grouping levels
- Label Wizard
- Print Preview



Consolidated Messenger is a New York City—based company that provides quick and reliable pickup and delivery services to area businesses. The company provides courier service by foot, bike, or truck. The company has a sales force that negotiates contracts with some of its larger corporate clients. As sales manager, you have created a database with tables and reports to keep track of this data. In this lesson, you generate reports that group data, create aggregate fields to total data in reports, use Print Preview to adjust reports before printing, and use the Label Wizard to create labels for customer mailings.

### The Bottom Line

## DEFINING GROUPS

A **group** is a collection of records separated visually with any introductory or summary information displayed with it. Reports can be grouped on fields or expressions. A **grouping field** is a field by which data is grouped. **Grouping levels** are the nested arrangement of the groups in a report. Access creates indented levels to show the groups from highest to lowest priority. You can change a group's level in the Report Wizard by using the priority up and down arrows. Access allows you to specify as many as 10 groups in a report. Groups can be nested so that that you can easily see the group structure.

When data is arranged in groups, it is often easier to comprehend and it becomes more meaningful. For example, if you want to see the sales performance for each region, it is easier to review this data if each region's sales are grouped together. You can go a step further and specify another group level, such as salesperson. This allows you to group a report by region and by salesperson within each region.

You can specify grouping intervals by using the Grouping Options button. **Grouping intervals** establish the way that records are grouped together. They can be very useful in arranging a large number of records in a group. You can group on the first character of a text field so that all of the records are visually separated alphabetically. You can specify a group interval of a day, week, month, or quarter on a date field. This is useful if you want to view the sales for each week in a report. You can also specify a custom interval.

## Using the Report Wizard

You can easily specify groups with the Report Wizard when creating a new report. This is an easy and fast way to create a report with groups. The Report Wizard lets you specify how you would like data to be grouped as you create the report. You can also add grouping to an existing report using the Group, Sort, and Total pane. Grouping options let you further specify how you want the groups to appear in your report. In this exercise, you use the Report Wizard to specify grouping levels and create a report.

### STEP BY STEP

#### Use the Report Wizard

**GET READY.** Before you begin these steps, be sure to turn on and/or log on to your computer and start Access.

1. **OPEN** *Messenger* from the data files for this lesson.
2. **SAVE** the database as *Messenger XXX* (where XXX is your initials).
3. Open the **Corporate Sales** table.
4. On the Create tab, in the Reports group, click the **Report Wizard** button. The first Report Wizard dialog box appears.
5. Select the **Region (Borough)** field and click the > button to move the field to the Selected Fields list.

@ The *Messenger* file for this lesson is available on the book companion website or in WileyPLUS.

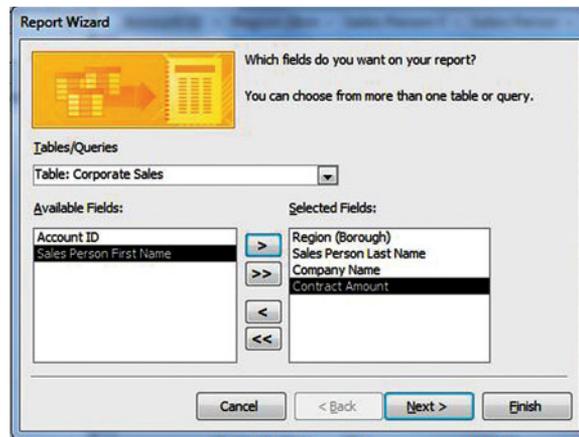


WileyPLUS Extra! features an online tutorial of this task.

- Using the same method, move the *Sales Person Last Name*, *Company Name*, and *Contract Amount* fields from the Available Fields list to the Selected Fields list, as shown in Figure 11-1.

Figure 11-1

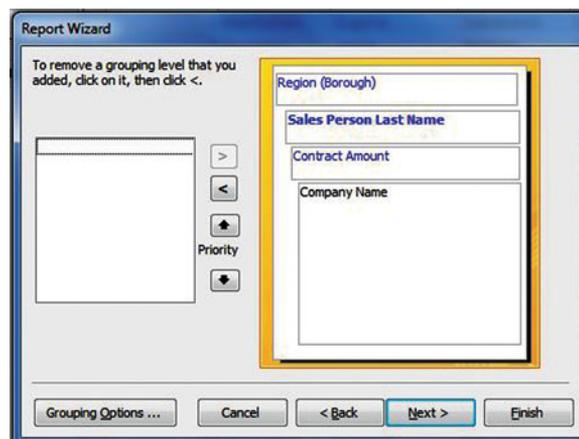
Report Wizard, screen 1



- Click the **Next >** button. The second Report Wizard screen appears.
- Select the **Region (Borough)** field and click the **>** button to move it to the grouping levels box.
- Select the **Contract Amount** field and click the **>** button to move it to the grouping levels box.
- Select the **Sales Person Last Name** field and click the **>** button to move it to the grouping levels box.
- Notice that the *Sales Person Last Name* field is the active field in bold type. Click the **Priority up arrow** to move the *Sales Person Last Name* field to the second level of grouping. Your screen should look similar to Figure 11-2.

Figure 11-2

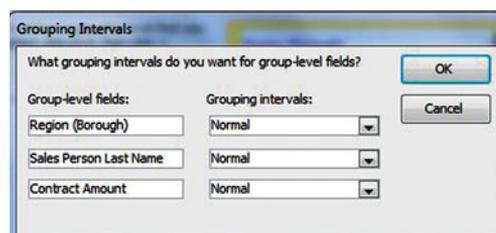
Report Wizard, screen 2



- Click the **Grouping Options** button at the bottom of the dialog box. The Grouping Intervals dialog box appears, as shown in Figure 11-3.

Figure 11-3

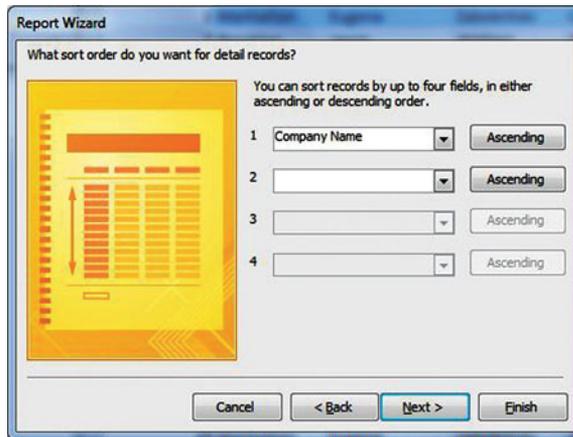
Grouping Intervals dialog box



13. Click the **down arrow** on the first Grouping intervals menu to see the choices available. Select **Normal** from the menu and click **OK**.
14. Click the **Next >** button. The third Report Wizard screen appears. You can sort in either ascending or descending order, and by up to four fields.
15. Click the **down arrow** on the Sort menu and select **Company Name**, as shown in Figure 11-4. You will sort in ascending order by Company Name.

Figure 11-4

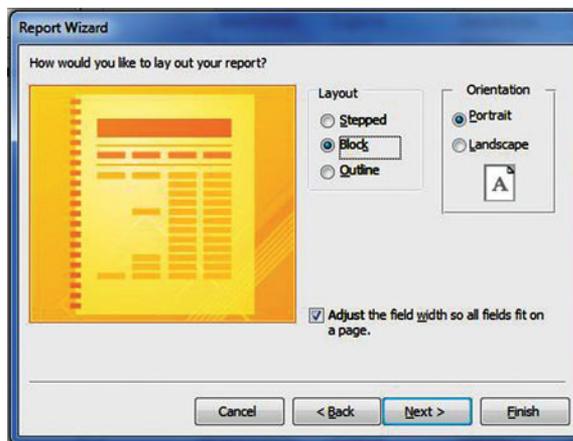
Report Wizard, screen 3



16. Click the **Next >** button. The fourth Report Wizard screen appears. You can choose from three different layouts for your report as well as two different orientations.
17. In the Layout section, click the **Block** radio button, as shown in Figure 11-5. Keep the default orientation as Portrait and keep the selection so all fields fit on one page.

Figure 11-5

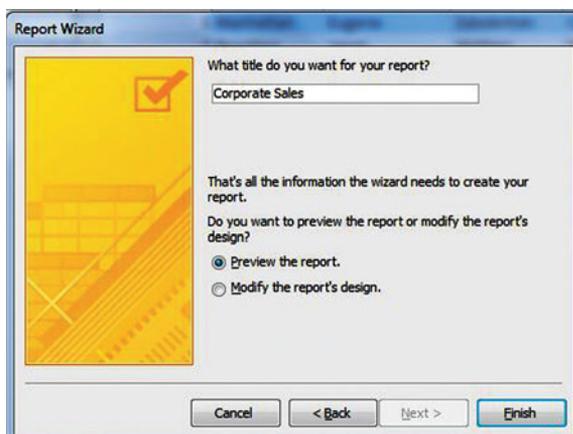
Report Wizard, screen 4



18. Click the **Next >** button. The fifth Report Wizard screen appears, as shown in Figure 11-6.

Figure 11-6

Report Wizard, screen 5



19. Click the **Finish** button to accept the settings. The Report Wizard creates the report, shown in Figure 11-7, with the groups you specified.

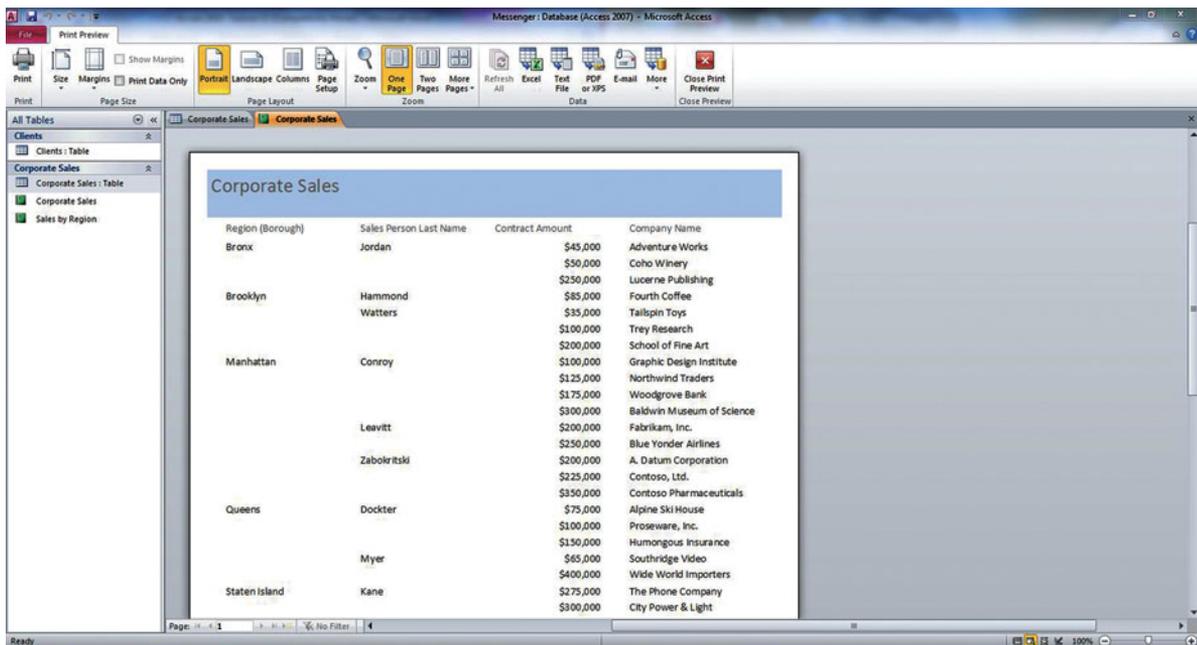


Figure 11-7

Corporate Sales report

**CERTIFICATION  
READY 5.2.2**

How do you group report records?

20. Close the report and close the table.

**PAUSE. LEAVE** the database open to use in the next exercise.

## Adding Group Headers and Footers

You can add group headers and footers to a report using the Group, Sort, and Total pane. When you select a field from the Group On menu, the group header is added to the report. In this exercise, you add group headers using the Group, Sort, and Total pane.

As you may remember from Lesson 6, a report is organized into sections. You can view sections of a report in Design View. The **group header** is the section of a report where the name of a grouped field is displayed and printed. Group headers take on the name of the group, so instead of seeing a group header named *Group Header* you will see *[Fieldname] Header*.

A **group footer** is the section of the report where the data in the group is summarized. It is optional. If you do not have any summary data, such as a total, you don't need a group footer.

### STEP BY STEP

#### Use the Group, Sort, and Total Pane

**USE** the database open from the previous exercise.

1. Open the **Sales by Region** report. Notice that the report is not arranged by groups.
2. Switch to Layout View and close the Field List pane if it opens.
3. On the Design tab, in the Grouping & Totals group, click the **Group & Sort** button. The Group, Sort, and Total pane appears at the bottom of the screen, as shown in Figure 11-8.

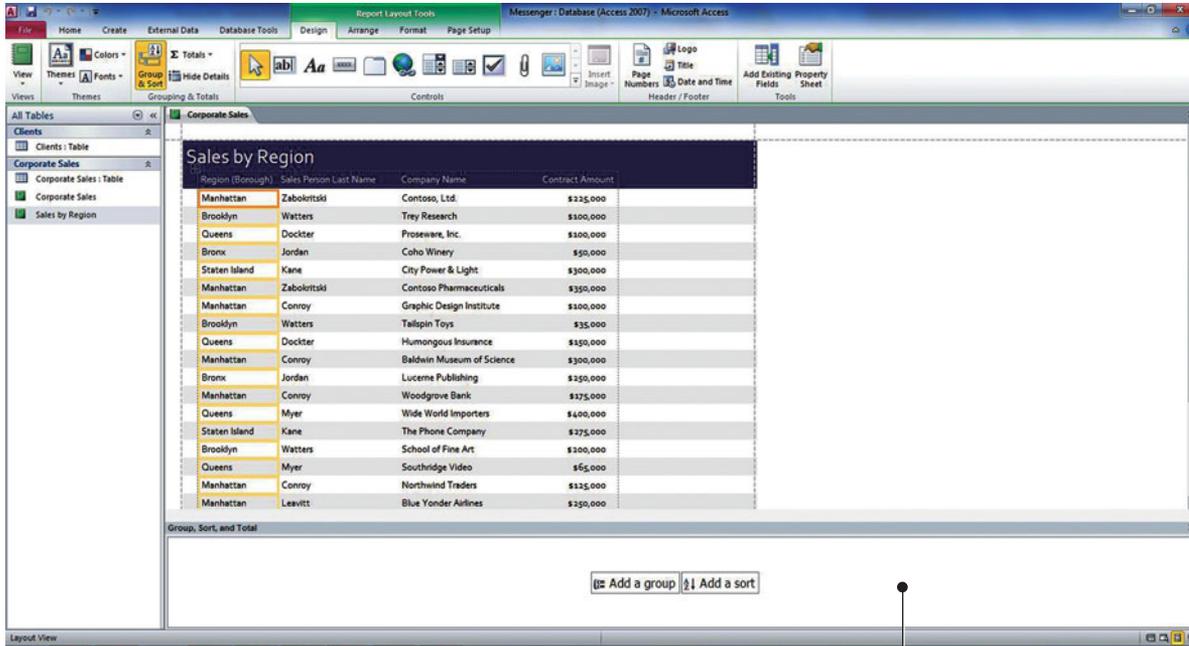
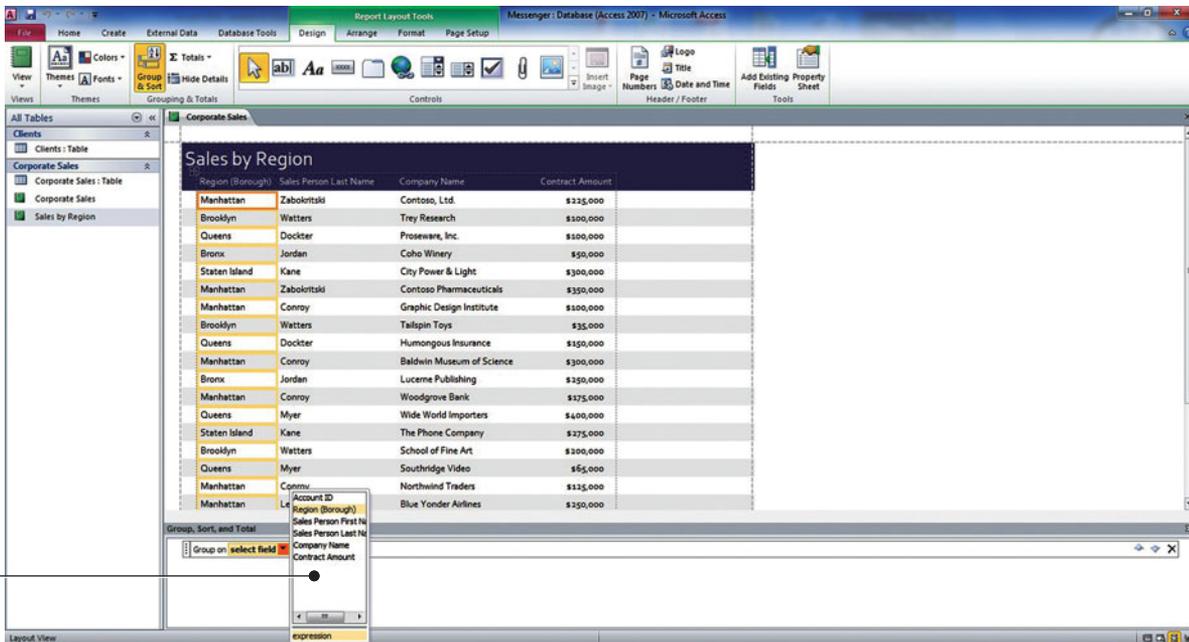


Figure 11-8

Group, Sort, and Total pane

Group, Sort, and Total Pane

- Click the **Add a group** button. Select **Region (Borough)** from the Group On menu, as shown in Figure 11-9. The report is now grouped on the **Region (Borough)** field.



Group On menu

Figure 11-9

Group On menu



**Another Way**

You can also right-click a field header in Layout View and select Group on Field name from the shortcut menu to define a group header.

- Click the **Add a group** button on the Group, Sort, and Total pane. Select **Sales Person Last Name** from the Group On menu. The report is now also grouped on the **Sales Person Last Name** field.
- Switch to Design View. Your screen should look similar to Figure 11-10. Notice that there is a **Region (Borough)** Header for that group and a **Sales Person Last Name** header for that group. The **Company Name** and **Contract Amount** fields are arranged in the Detail section.

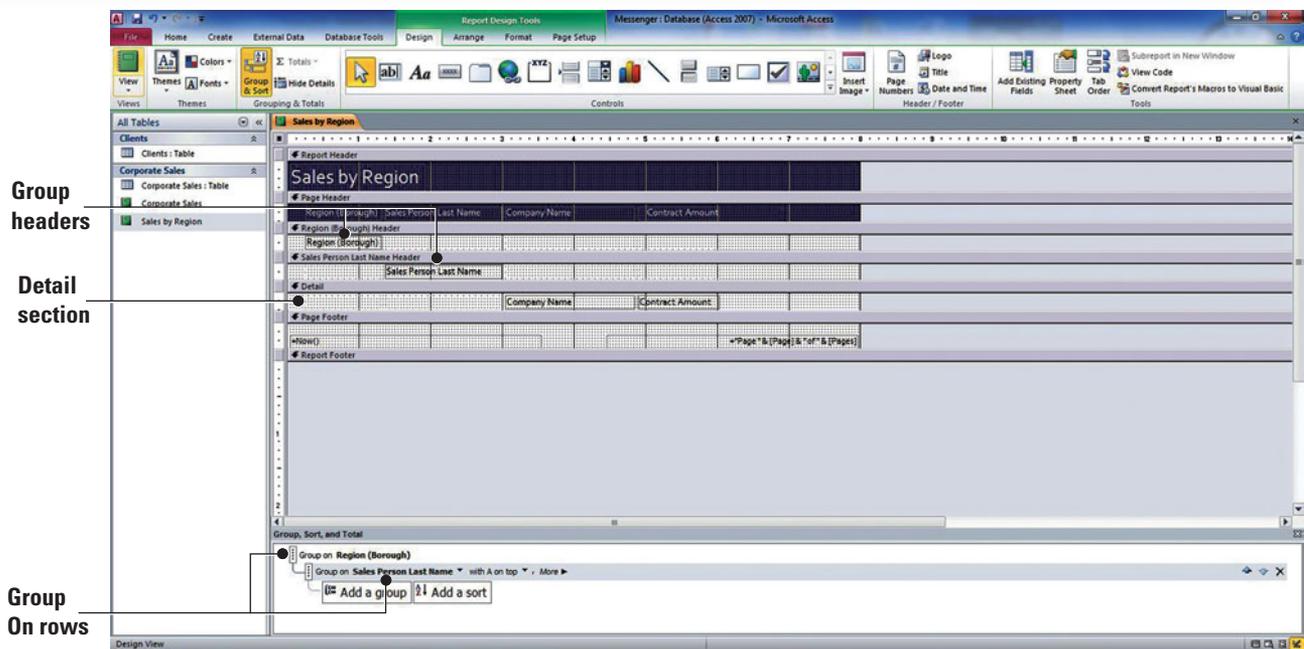


Figure 11-10

Group headers in Design View

7. Save the report.

**PAUSE. LEAVE** the database open to use in the next exercise.

## Changing Grouping Options

After grouping data, Access gives you options for displaying grouped data. To display the grouping options in the Group, Sort, and Total pane, click **More** on the group level that you want to change. If you want to hide the grouping options, click **Less**. In this exercise, you use the Group, Sort, and Total Pane to change group options.

Grouping options include:

- **Sort order:** Choose ascending or descending
- **Group interval:** Change the way records are grouped together
- **Totals:** Add totals to fields
- **Title:** Change the label of a column heading or summary field
- **With/without header:** Add or remove the header section
- **With/without footer:** Add or remove footer section
- **Keep group together:** Decide how or if you want to keep grouped data together on the same page
- **Do not keep group together on one page:** Groups can be broken up by page breaks
- **Keep whole group together on one page:** Minimizes the number of page breaks in a group
- **Keep header and first record together on one page:** Makes sure a group header is not printed by itself at the bottom of a page

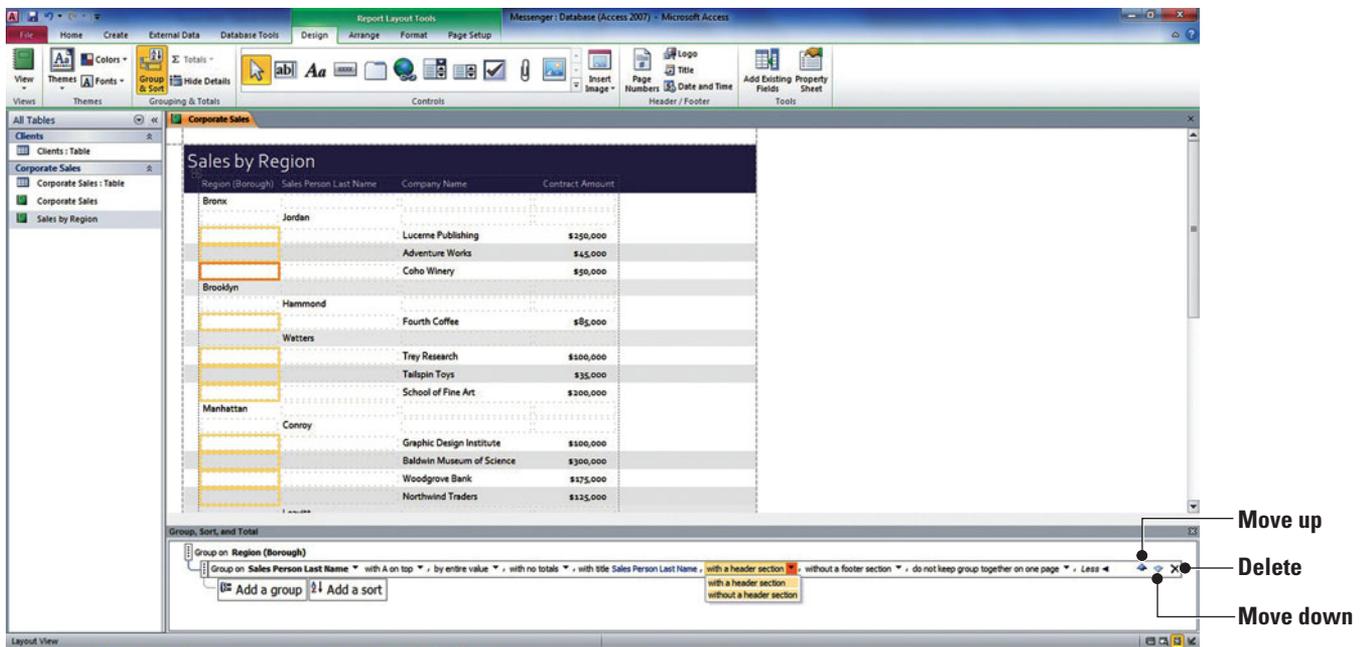
You can also click the **Move up** and **Move down** arrows at the end of the **Group On row** to change the priority of grouping levels. To delete a grouping level, click the **Delete** button at the end of its **Group On row** and Access will move the data to the **Detail** section of the report. However, if other controls are in the header, Access will warn you that these could be deleted.

The **Hide Details** command is a toggle button that hides data in the **Details** section of the report. Click it again to display the data.

## STEP BY STEP Change Grouping Options

USE the database and report open from the previous exercise.

1. Switch to Layout View.
2. Click the **Group On Sales Person Last Name** row in the Group, Sort, and Total Pane and then click the **More** button to view the available grouping options.
3. Click the **down arrow** beside *with a header section* and select **without a header section** from the drop-down menu, as shown in Figure 11-11.



**Figure 11-11**

Group On *Sales Person Last Name* row

4. Switch to Design View. Note that the Sales Person Last Name Header has been deleted.
5. Switch to Layout View.
6. Click the **down arrow** beside the *without a header section* (if the *without a header section* option doesn't appear, click the **More** button) and select **with a header section** from the drop-down menu.
7. Click the **Move up arrow** at the end of the Group On Sales Person Last Name row. Notice that the Sales Person Last Name group is now the top level group in the report.
8. Click the **Add a group** button and select **Company Name** from the menu. A new group level is added to the report.
9. On the Design tab, in the Grouping & Totals group, click the **Hide Details** button. The data in the *Contract Amount* field is hidden.
10. On the Design tab, in the Grouping & Totals group, click the **Hide Details** button. The data in the *Contract Amount* field is displayed.
11. Click the **More** button in the Group, Sort, and Total pane.
12. Click the **with A on top down arrow** on the Group On Company Name row in the Group, Sort, and Total Pane and select **with Z on top** from the drop-down menu. The sort order is changed from ascending to descending order.
13. Click the **with Z on top down arrow** and select **with A on top**.
14. Click the **Delete** button on the right side of the Group On Company Name row in the Group, Sort, and Total pane. The row is deleted, as is the Company Name header section.
15. Switch to Report View to see the report. Your screen should resemble Figure 11-12.

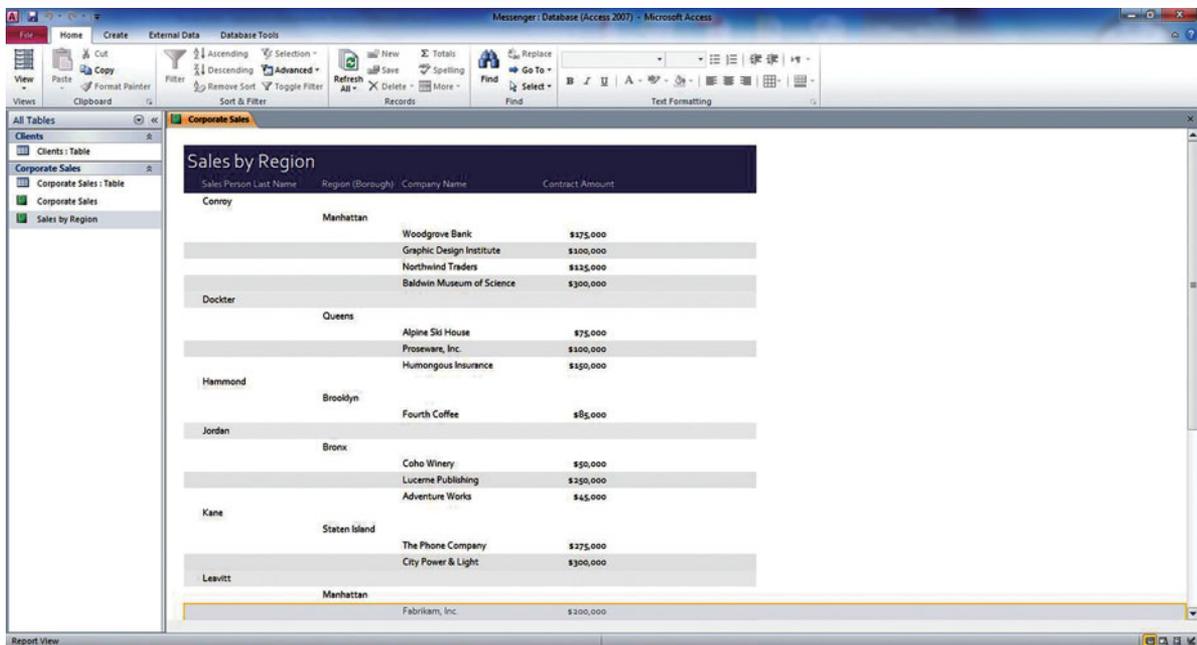


Figure 11-12

Sales by Region report

16. Save the report.

**PAUSE. LEAVE** the database open to use in the next exercise.

## The Bottom Line

**CREATING AGGREGATE FIELDS**

Report data often contains numbers, such as sales figures, that need to be totaled. A report that lists sales for each month in a quarter but does not total all the sales for the quarter is incomplete. **Aggregate fields** use functions to provide summary information of such data. You can create an aggregate field by using aggregate functions to calculate data in a field. The aggregate functions you can use are Sum, Average, Count Records, Count Values, Max, Min, Standard Deviation, or Variance.

Access 2010 provides a Totals command that lets you create an aggregate field that provides not only grand totals, but totals for groups in a report as well. You can also use the Group, Sort, and Total pane to add aggregate functions to fields.

The Totals command is located on the Format tab, in the Grouping & Totals group, but you can also access it on the shortcut menu. In Layout View, just right-click the field you want to total and select Totals from the shortcut menu. The Totals command adds a calculated control in the report footer where it displays the grand total. If you don't already have group footers in your report, the Totals command adds group footers and calculated controls to calculate the totals for each group.



Ref

For more information about aggregate functions, see Lesson 9.

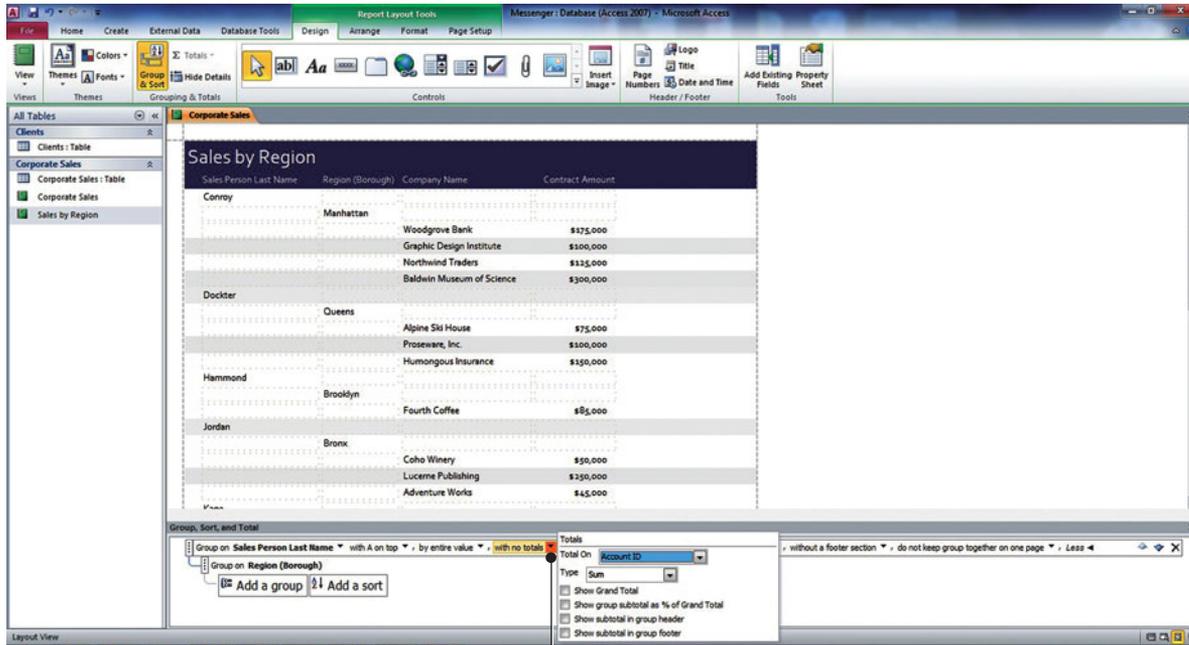
**Creating Aggregate Fields**

You have a few more options when using the Group, Sort, and Total pane to create an aggregate field in a report. The Totals menu gives you options for choosing the field and type of function as well as options on how you want to display totals. You can display a grand total or a group total as a percentage of the grand total. You can also choose to show the totals in the group header or footer. In this exercise, you use the Group, Sort, and Total pane to create aggregate fields.

**STEP BY STEP****Create Aggregate Fields**

USE the database and report open from the previous exercise.

1. Switch to Layout View.
2. Click the **Group On Sales Person Last Name** row and click **More**.
3. Click the **With No Totals down arrow**. The Totals menu appears, as shown in Figure 11-13.



With no totals down arrow

Figure 11-13

Totals menu



### Another Way

You can also right-click a field in Layout View and select Total from the shortcut menu to apply an aggregate function to a field.

**CERTIFICATION  
READY 5.2.2**

How do you total report records?

4. Click the **Total On menu down arrow** and select **Contract Amount**.
5. Click the **Type menu down arrow** and select **Sum** if it isn't selected already.
6. Click the **Show Grand Total** box. The menu disappears and the grand total appears in the Contract Amount column at the bottom of the report.
7. Click the **Group On Sales Person Last Name** row again and click **More**, then click the **with Contract Amount totaled down arrow**.
8. Click the **Total On menu down arrow** and select **Contract Amount**, then click the **Show subtotal in Group Footer** box. The settings are applied, and the subtotals are now shown in each group's footer.
9. Select the **Sales Person Last Name** field header on the report.
10. On the Design tab, in the Grouping & Totals group, click the **Totals** button and select **Count Records** from the menu.
11. Switch to Report View. The total number of records appears at the bottom of the report.
12. Save the report and close it.

**PAUSE. LEAVE** the database open to use in the next exercise.

## SOFTWARE ORIENTATION

### Print Preview Tab

The Print Preview tab (Figure 11-14) has commands for viewing a report in a variety of ways and for adjusting its layout. You can display the Print Preview tab by choosing the Print Preview option on the File tab's Print menu. Use the Print Preview tab to view and adjust page layout before printing.

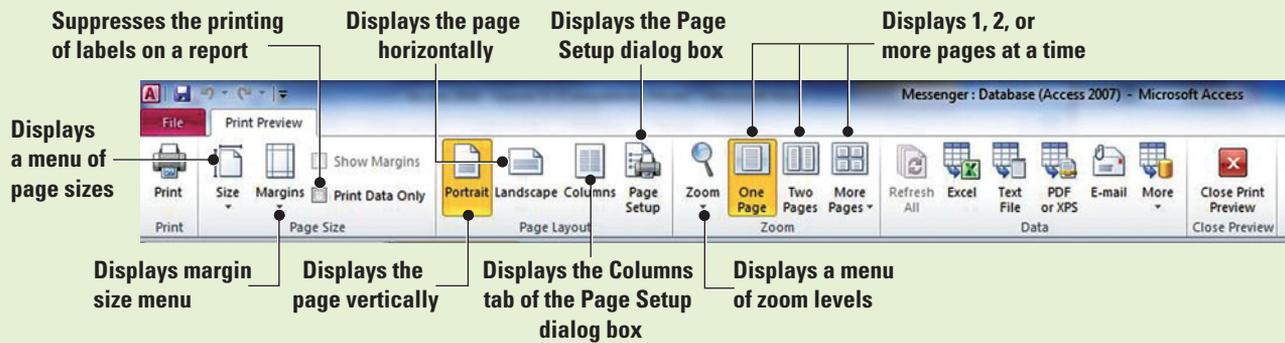


Figure 11-14

Print Preview tab

### The Bottom Line

## CREATING THE PRINT LAYOUT

Reports are often created so that they can be printed and displayed or shared with colleagues. You can print a report from any view: Report, Layout, Design, or Print Preview. **Print Preview** displays a report as it will look when printed. It is helpful to preview a report before printing it. This allows you to make adjustments to the layout before clicking the Print button so that you can make sure the report prints the way that you want. The settings that you choose will be saved with the report, so you won't have to select the same settings each time you print.

When you are confident your report will print correctly, you can click the Print button. The Print dialog box lets you select the printer, choose the number of copies you want to print, and specify which pages you want to print. If you don't need to preview a report, you can skip Print Preview and select Print or Quick Print on the File tab's Print menu. The Print command displays the Print dialog box, but the Quick Print command sends the report directly to the printer.

### Take Note

You can even print a report from the Navigation pane. But before you print a report, you should check settings such as margins and page orientation to make sure the report will print correctly.

## Using Print Preview to Create a Print Layout

The Print Preview tab has commands for printing, changing the page layout, and zooming in or out to view the pages. When you are finished previewing a report, you can click the Close Print Preview button to leave the view. In this exercise you use Print Preview to create the print layout of a report.

## STEP BY STEP

### Create the Print Layout

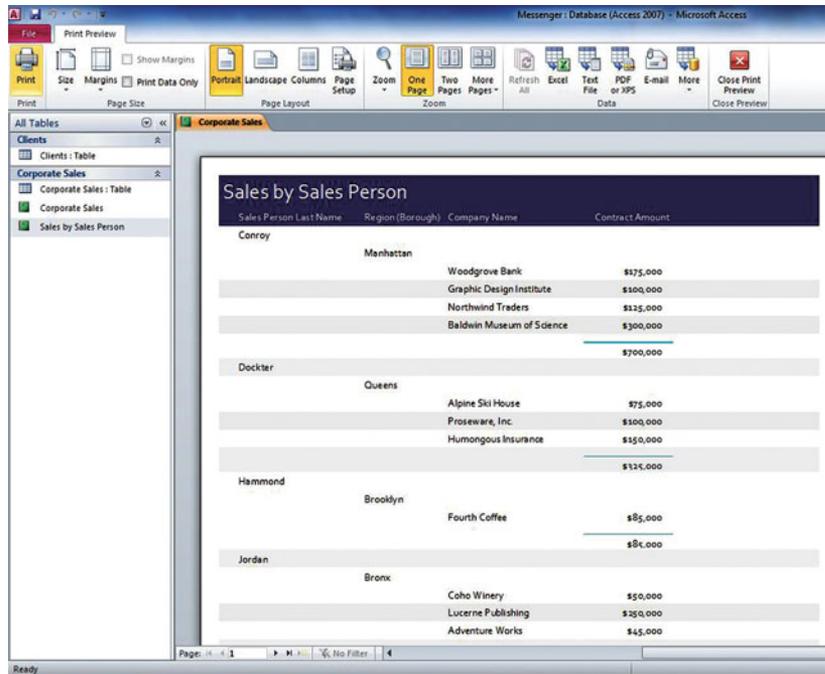
USE the database open from the previous exercise.

1. Right-click the **Sales by Region** report in the Navigation pane and select **Rename** from the menu.

2. Key **Sales by Sales Person**.
3. Open the report in Design View and click the **Report title**. Select **Region** and key **Sales Person**, because the report no longer shows sales by region, but sales by salesperson.
4. On the Home tab, in the Views group, click the **View** button and select **Print Preview** from the menu. The report is displayed in Print Preview, as shown in Figure 11-15.

Figure 11-15

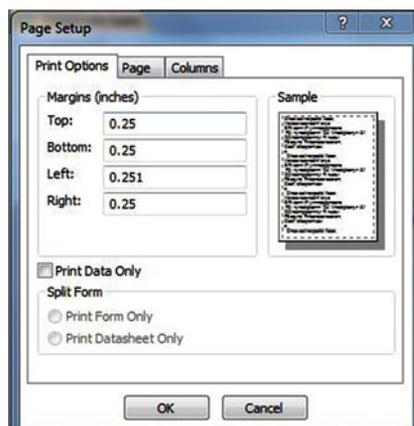
Report in Print Preview



5. On the Print Preview tab, in the Zoom group, click the **Two Pages** button. Both pages of the report are displayed on the screen.
6. On the Print Preview tab, in the Page Layout group, click the **Landscape** button. The report is displayed in landscape orientation.
7. On the Print Preview tab, in the Page Layout group, click the **Portrait** button. The report is displayed in portrait orientation again. The margins need adjustment.
8. Click the **Margins** button and select **Narrow** from the menu.
9. On the Print Preview tab, in the Page Layout group, click the **Page Setup** button. The Page Setup dialog box appears, as shown in Figure 11-16. Notice it has many of the same options that are available in the Page Layout group, but more options and details to choose from.

Figure 11-16

Page Setup dialog box



10. Click the **Page** tab. Click the **Size box down arrow** and select **Legal** from the menu to see if all data will fit on one page.

11. Click **OK**.
12. On the Print Preview tab, in the Zoom group, click the **Zoom** button and select **50%** from the menu. Notice that all data does not fit on one page.
13. On the Print Preview tab, in the Page Layout group, click the **Size** button and select **Letter (8 1/2 × 11 in)** from the menu. Notice that the group at the bottom of the first page is split and continues on the second page.
14. Click the **Close** button on Print Preview.
15. Switch to Layout View.
16. On the Group, Sort, and Total pane, on the *Group On Sales Person Last Name* row, click the **More** button. Click the *Do Not Keep Group Together On One Page* down arrow and select **Keep whole group together on one page** from the menu.
17. Save the report design.
18. Right-click in a blank area of the report and select **Print Preview** from the shortcut menu, as shown in Figure 11-17. Notice that the group is no longer split across two pages.

Figure 11-17

Shortcut menu



**CERTIFICATION  
READY 5.5.1**

How do you change the page size of a report?

**CERTIFICATION  
READY 5.5.2**

How do you change the page orientation of a report?

19. Click the **Print** button. The Print dialog box appears. Click **OK** to print or click **Cancel** to close the dialog box.

20. Close Print Preview and close the report.

**PAUSE. LEAVE** the database open to use in the next exercise.

### Take Note



#### Another Way

Right-click the report you want to preview in the Navigation pane and select Print Preview from the shortcut menu.

### The Bottom Line

You can add the Print Preview and/or the Quick Print command to the Quick Access Toolbar by clicking the Customize Quick Access Toolbar down arrow at the end of the toolbar and selecting Print Preview or Quick Print from the menu.

## USING THE LABEL WIZARD

You can create labels for mailing, or other purposes, using the data in your Access databases. The **Label Wizard** helps you create a label-sized report that you can use to print labels. The Label Wizard asks you a series of questions about the labels you want and then creates the labels based on your answers. You can choose from a wide variety of sizes, including sizes to fit label sheets that you purchase at the office supply store or custom-created labels.

### Creating Labels Using the Label Wizard

You can create mailing labels or other types of labels from an Access table or query. Access allows you to choose the font name, font size, font weight, and text color for your labels. You can also choose to underline or italicize text in the label. The Sample box displays the choices you make. In this exercise, you use the label wizard to create labels.

You can select predefined label sizes that match popular manufacturer's label sheets. These are listed by Product Number in the first Label Wizard screen. If you don't know the manufacturer of your label sheets, you can choose a sheet with similar dimensions and with the correct number of labels across the sheet. If you don't see the size you need, you can customize the size and create a new label using the Customize button.

As you add fields to the Prototype label, remember to use the Spacebar to add a space between fields and press Enter to move to the next line. You can also key text directly in the Prototype label that you want to appear on each label.

You can sort the labels by one or more fields, such as zip code for bulk mailings. On the last Label Wizard screen, you can choose to See the labels as they will look when printed and they will be displayed in Print Preview. Choose Modify the label design to view the label report in Design View.

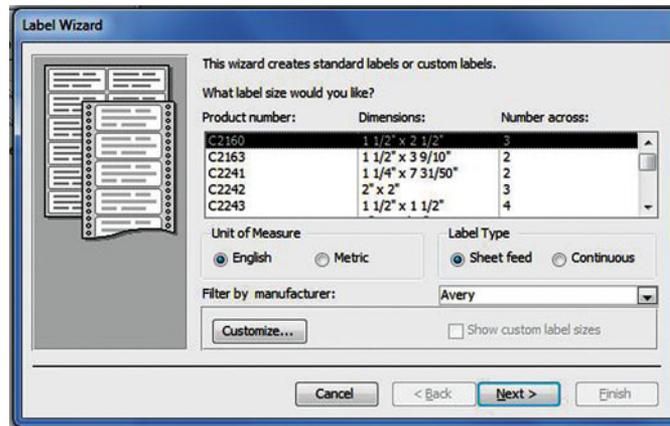
## STEP BY STEP Use the Label Wizard

USE the database open from the previous exercise.

1. Select the **Clients** table in the Navigation pane.
2. On the Create tab, in the Reports group, click the **Labels** button. The first Label Wizard screen appears, as shown in Figure 11-18.

Figure 11-18

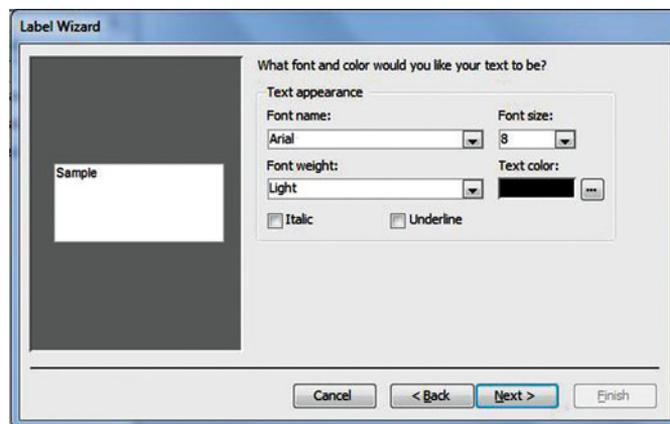
Label Wizard, screen 1



3. Scroll down in the Product number box and select **Avery USA 5160** and click the **Next >** button. The second Label Wizard screen appears, as shown in Figure 11-19.

Figure 11-19

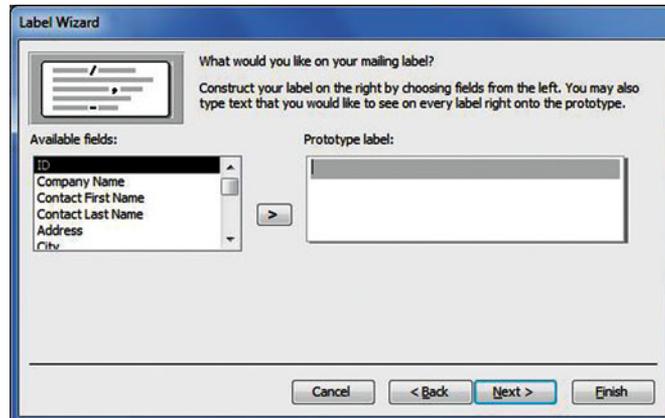
Label Wizard, screen 2



4. Click the **Font name drop-down arrow** and scroll down to select **Times New Roman**. Notice the preview sample displays the new font.
5. Click the **Font size** menu and select **9**.
6. Click the **Font weight** menu and select **Normal**.
7. In the *Text color* section, click the **Ellipses** button to display the Color menu. Notice the options available, then click **Cancel** to close it.
8. Click the **Next >** button. The third Label Wizard screen appears, as shown in Figure 11-20.

**Figure 11-20**

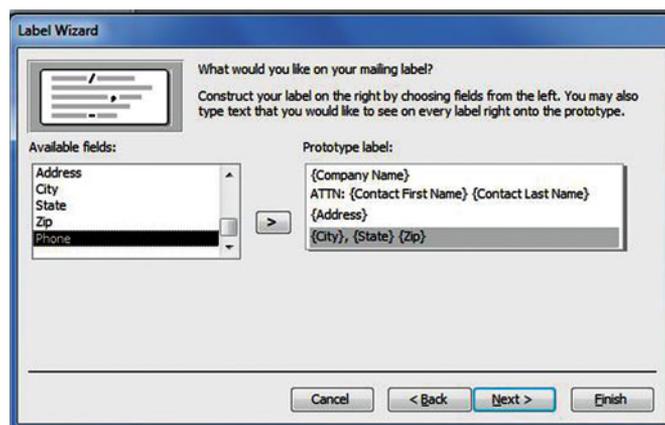
Label Wizard, screen 3



9. Select the **Company Name** field in the Available fields list and click the **>** button to place it on the Prototype label.
10. Press **Enter**.
11. Key **ATTN:** and press the **Spacebar**.
12. Select the **Contact First Name** field and click the **>** button.
13. Press the **Spacebar** to insert a blank space between fields.
14. Select the **Contact Last Name** field and click the **>** button.
15. Press **Enter**.
16. Select the **Address** field and click the **>** button. Press **Enter**.
17. Select the **City** field and click the **>** button. Key a **comma** and press the **Spacebar**.
18. Select the **State** field and click the **>** button. Press the **Spacebar**.
19. Select the **Zip** field and click the **>** button. Your screen should look similar to Figure 11-21.

**Figure 11-21**

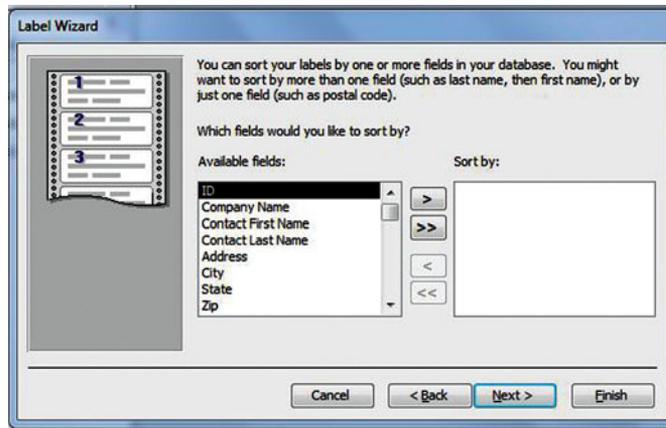
Completed Prototype label



20. Click **Next >**. The fourth Label Wizard screen appears, as shown in Figure 11-22.

Figure 11-22

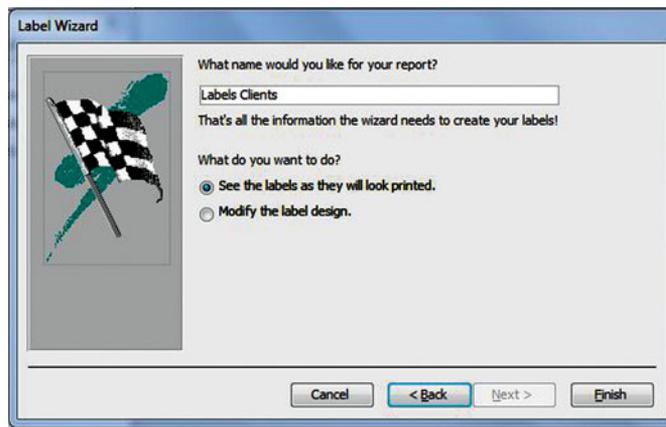
Label Wizard, screen 4



21. Select the **Zip** field and click the **>** button.
22. Click **Next >**. The fifth Label Wizard screen appears, as shown in Figure 11-23.

Figure 11-23

Label Wizard, screen 5



23. Click the **Modify the label design** radio button and click **Finish**. Your screen should look similar to Figure 11-24.

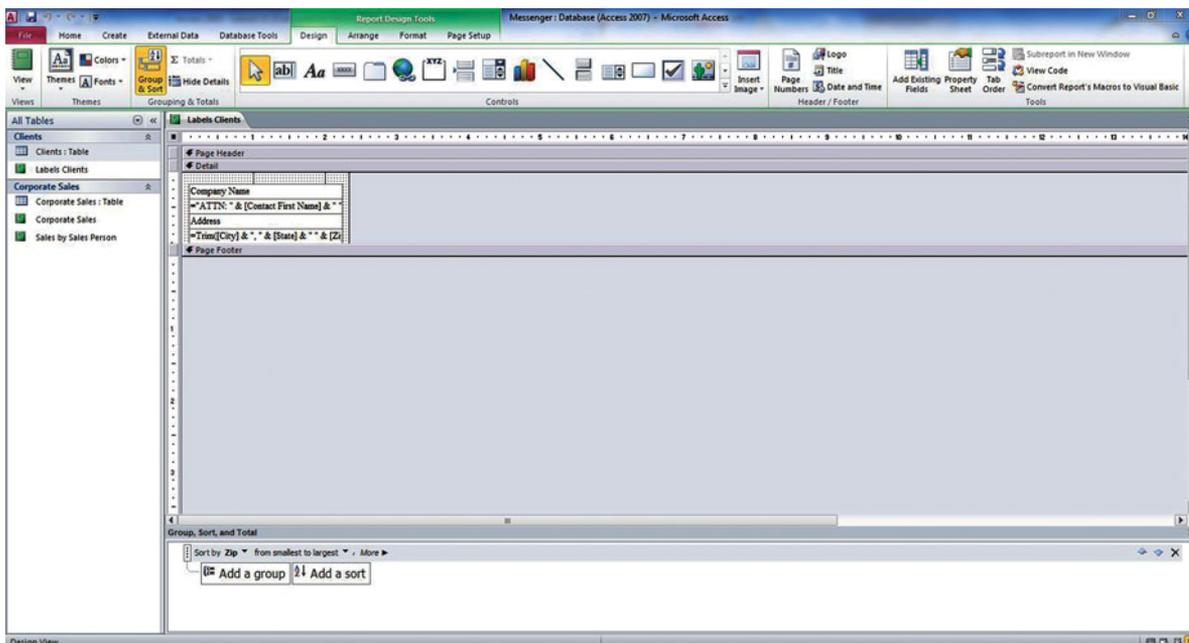
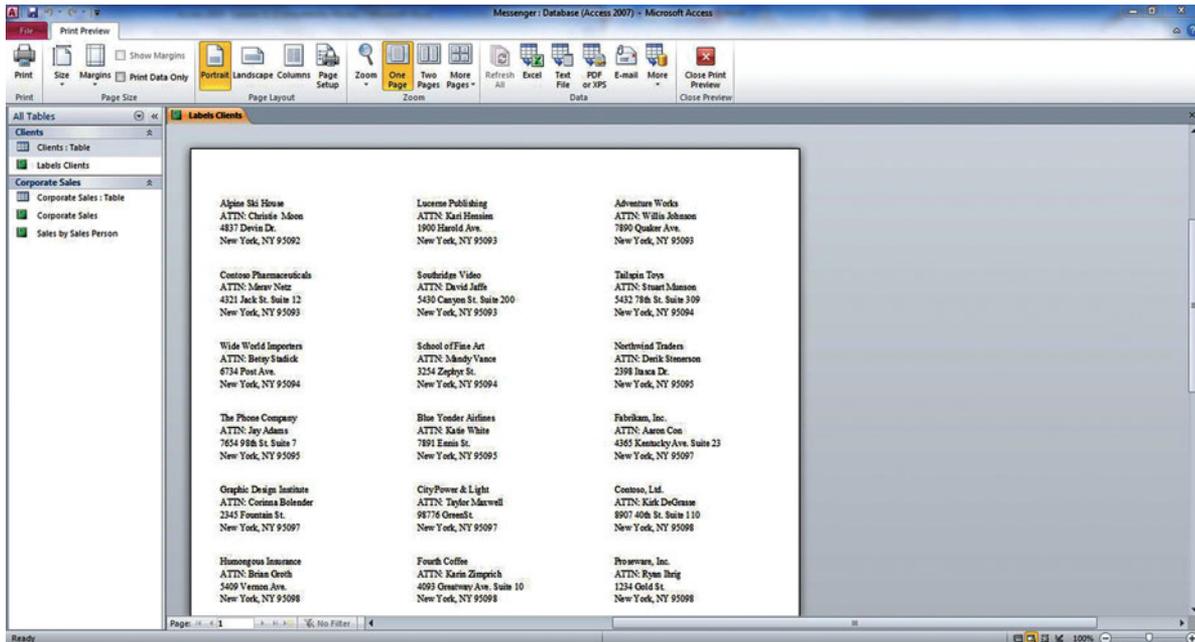


Figure 11-24

Label report

24. On the Home tab, in the Views group, click the **View** menu and select **Print Preview** from the menu. Your screen should look similar to Figure 11-25.



**Figure 11-25**

Report in Print Preview

25. Click the **Print** button. The Print dialog box appears. Click **OK** to print or click **Cancel** to close the dialog box.
26. Close Print Preview and close the report.  
**CLOSE** the database.



### Troubleshooting

If Access displays a message warning you that some of your data may not be displayed, this means the controls on the label are too wide for the allotted space. If this happens, try reducing the size of the controls in Design View so that they fit in the space available for a single label or try reducing the page margins using Page Setup.

### Take Note

As an alternative to printing labels, you can print addresses directly on envelopes. To do this, you will need to create a custom label instead of a predefined label and set the Label Type setting to Sheet Feed.

## SKILL SUMMARY

In This Lesson You Learned How To:	Exam Objective	Objective Number
Define Groups	Add calculated controls.	5.2.2
Create Aggregate Fields	Add calculated controls.	5.2.2
Create the Print Layout	Change page size.	5.5.1
	Change page orientation.	5.5.2
Use the Label Wizard		

## Knowledge Assessment

### Matching

Match the term in Column 1 to its description in Column 2.

#### Column 1

1. group
2. group header
3. group footer
4. Hide Details command
5. grouping field
6. aggregate field
7. Print Preview
8. grouping levels
9. Label Wizard
10. Prototype label

#### Column 2

- a. asks you questions about the labels and data you want to display and then creates labels based on your answers
- b. field that contains an aggregate function to calculate data
- c. a field by which data is grouped
- d. the nested arrangement of the groups in a report
- e. a collection of records separated visually with any introductory or summary information displayed with it
- f. the section of a report where the name of a grouped field is displayed and printed
- g. the sample in the Label Wizard where you create the label design
- h. hides the data in the Details section of a report
- i. the section of a report where the data in a group is summarized
- j. displays a report as it will look when printed

### True/False

Circle T if the statement is true or F if the statement is false.

- T F 1. Grouping intervals establish the way that records are grouped together.
- T F 2. You cannot group data in the Report Wizard.
- T F 3. Group headers take on the name of the group.
- T F 4. Group footers are optional in a report.
- T F 5. The arrows at the end of a Group On row determine sort order.
- T F 6. Average is an aggregate function.
- T F 7. The Totals command adds group footers and calculated controls for you.
- T F 8. You must preview a report before you can print.
- T F 9. You can modify labels in Design View.
- T F 10. Labels are small reports.

## Competency Assessment

### Project 11-1: Create Address Labels for Authors

You need to send out confidential contract information to the authors in the Business Books division. Create labels for the authors using the Author Contact Information table.

**GET READY. LAUNCH** Access if it is not already running.

1. **OPEN** the *Lucerne* database.
2. **SAVE** the database as *Lucerne XXX* (where XXX is your initials).
3. Select the **Author Contact Information** table in the Navigation pane.
4. On the Create tab, in the Reports group, click the **Labels** button.
5. Select the **C2242** label in the *Product number* box and click **Next**.
6. Select **Arial** from the *Font name* menu and select **9** from the *Font size* menu.

 The *Lucerne* file for this lesson is available on the book companion website or in WileyPLUS.

7. Click the **Italic** button and click **Next**.
8. Key **CONFIDENTIAL** in all caps and press **Enter**.
9. Key **For Addressee Only** and press **Enter**.
10. Select the **Author First Name** field and click the **>** button. Press the **Spacebar**.
11. Select the **Author Last Name** field and click the **>** button. Press **Enter**.
12. Select the **Author Address** field and click the **>** button. Press **Enter**.
13. Select the **Author City** field and click the **>** button. Key a **comma** and press the **Spacebar**.
14. Select the **Author State** field and click the **>** button. Press the **Spacebar**.
15. Select the **Author Zip** field and click the **>** button.
16. Click **Finish**.
17. Close the report.

**LEAVE** the database open for the next project.

### Project 11-2: Total and Preview the Book Sales Report

Finish the **Book Sales** report to show totals for **Domestic and International Sales**. You also need to make some adjustments in **Print Preview** before printing.

**USE** the database open from the previous project.

1. Open the **Book Sales** report.
2. In Layout View, select the **Domestic Sales** field header.
3. On the Design tab, in the Grouping & Totals group, click the **Totals** button and select **Sum** from the menu.
4. Select the **International Sales** field header.
5. On the Design tab, in the Grouping & Totals group, click the **Totals** button and select **Sum** from the menu.
6. Select the **Book Title** field header.
7. On the Design tab, in the Grouping & Totals group, click the **Totals** button and select **Count Records** from the menu.
8. On the Design tab, in the Views group, click the **View** menu and select **Print Preview** from the menu.
9. On the Print Preview tab, in the Page Size group, click the **Margins** button and select **Wide** from the menu.
10. On the Print Preview tab, in the Zoom group, click the **Zoom** button and select **Fit to Window**.
11. Save the report.
12. On the Print Preview tab, in the Print group, click the **Print** button. Click **OK**.
13. Close the report.

**CLOSE** the database.

## Proficiency Assessment

### Project 11-3: Create a Grouped Report with Aggregate Fields

Your supervisor asks you to create a report using the **Monthly Sales by Store** table that shows monthly sales by store.

**GET READY. LAUNCH** Access if it is not already running.

1. **OPEN** **Fourth Coffee** from the data files for this lesson.
2. **SAVE** the database as **Fourth Coffee XXX** (where XXX is your initials).
3. Select the **Monthly Sales by Store** table.

 The **Fourth Coffee** file for this lesson is available on the book companion website or in WileyPLUS.

4. Use the Report Wizard to create a report that includes the *Mon, Store, and Sales* fields.
5. Group **by Store** and create a **Stepped** layout.
6. Close Print Preview and switch to Layout View to **decrease the width** of the Mon and Sales columns.
7. Click the **Group & Sort** button to open the Group, Sort, and Total pane.
8. Click the **Add a Sort** button and select **Sales** from the menu. Sort from smallest to largest.
9. Select the **Sales** column.
10. Click the **Totals** button and select **Sum** from the menu.
11. Save the report.

**LEAVE** the report open for use in the next project.

### Project 11-4: Preview and Print the Monthly Sales Report

You need to print the Monthly Sales by Store report. View the report in Print Preview to make sure the report is centered on the page before printing.

**USE** the *Fourth Coffee XXX* database that you saved in a previous exercise.

1. Switch to Print Preview.
2. Click the **Zoom** button and select **Fit to Window**.
3. Click the **Margins** button and select **Wide** from the menu.
4. Click the **Landscape** button.
5. Click the **Page Setup** button.
6. Click the **Print Options** tab. In the Margins section, key **1** in the Top box and key **1** in the Bottom box.
7. Key **1.5** in the left box and key **1.5** in the right box.
8. Click **OK**.
9. Click the **Print** button and click **OK** to print the report or click **Cancel** to close the dialog box.
10. Save the report.
11. Click the **Close** button on Print Preview.
12. Close the report.

**CLOSE** the database.

## Mastery Assessment

### Project 11-5: Group and Total the Inventory Report

As marketing manager at Wingtip Toys, you review Inventory information regularly with other employees. Add groups and totals to the Inventory report before your meeting with the production manager.

**GET READY. LAUNCH** Access if it is not already running.

1. **OPEN** *Wingtip* from the data files for this lesson.
2. **SAVE** the database as *Wingtip XXX* (where XXX is your initials).
3. Open the **Inventory** report.
4. Switch to Layout View and open the Group, Sort, and Total pane.
5. Group the report by the *In Stock* field.
6. Sort the Description column from **A to Z**.
7. Sum the *Price* field. Show a grand total and totals in the group footers.
8. Save and close the report.

**CLOSE** the database.



The *Wingtip* file for this lesson is available on the book companion website or in WileyPLUS.

## Project 11-6: Create Labels for Alpine Ski House Customers

In your position as Administrative Assistant for Alpine Ski House, you are involved in a variety of projects. The owners want to send a special thank you letter and promotion to previous customers. Create labels for the mailing.

 The *Alpine* file for this lesson is available on the book companion website or in WileyPLUS.

**GET READY. LAUNCH** Access if it is not already running.

1. **OPEN** *Alpine* from the data files for this lesson.
2. **SAVE** the database as *Alpine XXX* (where *XXX* is your initials).
3. Open the **Customers** table.
4. Use the Label Wizard to create address labels for all the customers in the table.
5. Select the **C2160** labels.
6. Arrange the customers' last name, first name, address, city, state, and zip code fields appropriately on the mailing label.
7. Name the labels **Customers Labels**.
8. Save, print and close the report.
9. **CLOSE** the database.

**CLOSE** Access.



### INTERNET READY

Delivery service companies are used extensively in business. As a result, comparing service and prices can be very important for a company to make sure it is using a reliable and economical delivery service. Search the Internet for three companies that pick up and deliver packages. Gather

information such as services offered and prices charged for common services such as overnight delivery or two-day service. Create a database table and report that displays the data grouped by company with group totals for like services. Preview your report, make sure it looks attractive on the page, and then print it.

# 12 Advanced Queries

## LESSON SKILL MATRIX

Skill	Exam Objective	Objective Number
Creating Crosstab Queries	Create a Crosstab query.	4.1.4
Creating a Subquery	Add field.	4.3.1
	Remove field.	4.3.2
	Rearrange fields.	4.3.3
	Use the Zoom box.	4.5.2
Saving a Filter as a Query		
Creating Action Queries	Create an Append query.	4.1.3
	Create a Make Table query.	4.1.2
Understanding Advanced Query Modification	Create ad hoc relationships.	4.2.3
	Use Expression Builder.	4.5.3
	Perform calculations.	4.5.1
	Use Group By.	4.4.2
	Use the Total row.	4.4.1

### KEY TERMS

- action query
- aggregate function
- append query
- calculated field
- cross join
- crosstab query
- delete query
- inner join
- join
- left outer join
- make table query
- outer join
- right outer join
- SELECT statement
- subquery
- unequal join
- update query





World Wide Importers is a car dealership that specializes in imported luxury cars. The company has recently opened a used car division that sells vehicles acquired in trade and expands the buyer's purchasing options. As the office manager for the new division, you have started using Access to track inventory and sales. In this lesson, you learn how to create an action query, a crosstab query, a subquery, and how to save filters as a query. You also learn how to create joins, include calculated fields in a query, and create aggregated queries.

### The Bottom Line

## CREATING CROSTAB QUERIES

Queries are powerful tools that can be used to retrieve exactly the data you need from your database, showing only the relevant records. Depending on the information you want to display, these advanced queries can help refine the results of your search or perform the actions you want. A **crosstab query** calculates a sum, average, count, or other type of total on records and then groups the results by two types of information: one down the left side of the datasheet and the other across the top. When you summarize data using a crosstab query, you select values from specified fields or expressions as column headings so you can view data in a more compact format than with a select query.



Ref

In Lesson 7, you learned how to create and modify several types of queries.

### Creating Crosstab Queries

A crosstab query is a special type of query that displays its results in a grid similar to an Excel worksheet. Crosstab queries summarize your values and then group them by two sets of facts—a set of row headers down the side and a set of column headers across the top. A crosstab query typically includes data from more than one table and always includes three types of data: the data used as row headings, the data used as column headings, and the values that you want to sum or otherwise compute. A crosstab query does not always populate all the fields in the result set because the tables that you use in the query do not always contain values for every possible data point. In this exercise, you create a crosstab query.

The easiest way to create a crosstab query is to use the Crosstab Query Wizard. To run a crosstab query, double-click it in the Navigation pane, or click it and then press Enter. When you run a crosstab query, the results are displayed in Datasheet View.

## STEP BY STEP

### Create Crosstab Queries



The *Importers* file for this lesson is available on the book companion website or in WileyPLUS.

**GET READY.** Before you begin these steps, be sure to launch Microsoft Access.

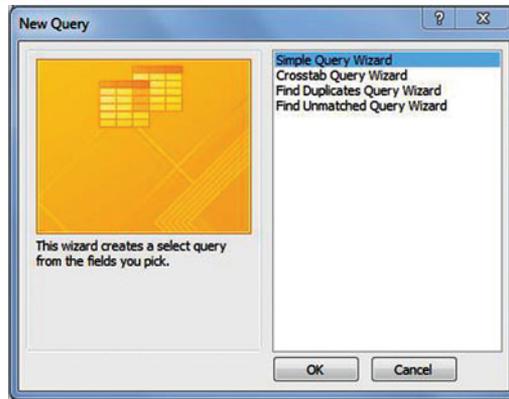
1. **OPEN** the *Importers* database from the data files for this lesson.
2. **SAVE** the database as *Importers XXX* (where XXX is your initials).
3. On the Create tab, in the Queries group, click the **Query Wizard** button to display the New Query dialog box, shown in Figure 12-1.



WileyPLUS Extra! features an online tutorial of this task.

Figure 12-1

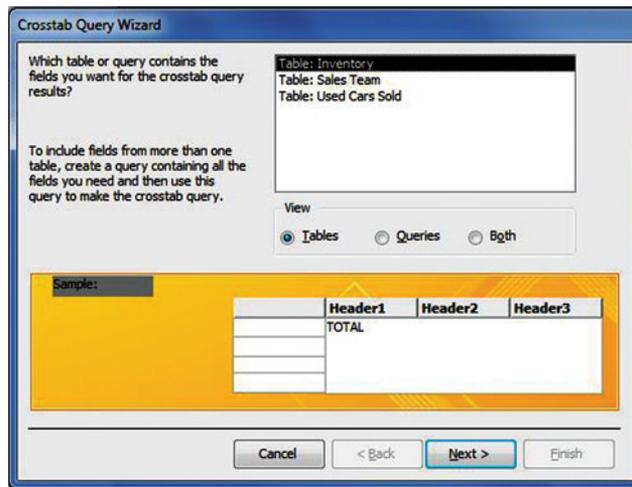
New Query dialog box



- Click **Crosstab Query Wizard** and click **OK** to display the Crosstab Query Wizard, shown in Figure 12-2.

Figure 12-2

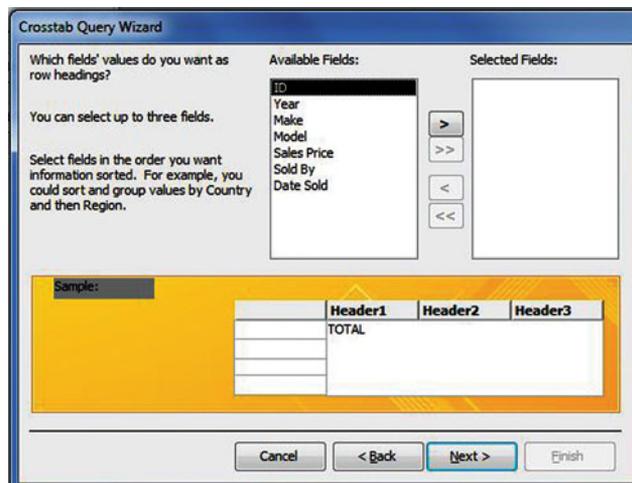
Crosstab Query Wizard, screen 1



- Click **Table: Used Cars Sold** and then click **Next >** to display the next screen, shown in Figure 12-3.

Figure 12-3

Crosstab Query Wizard, screen 2



6. In the Available Fields box, double-click **Sold By** to move it to the Selected Fields box and then click **Next >**. The next screen appears, as shown in Figure 12-4.

**Figure 12-4**

Crosstab Query Wizard,  
screen 3

Which field's values do you want as column headings?

For example, you would select Employee Name to see each employee's name as a column heading.

Sample:

Sold By	ID1	ID2	ID3
Sold By1	TOTAL		
Sold By2			
Sold By3			
Sold By4			

Buttons: Cancel, < Back, Next >, Finish

7. Click **Date Sold** and then click **Next >** to display the next screen, shown in Figure 12-5.

**Figure 12-5**

Crosstab Query Wizard,  
screen 4

By which interval do you want to group your Date/Time column information?

For example, you could summarize Order Amount by month for each country and region.

Sample:

Sold By	Qtr1	Qtr2	Qtr3
Sold By1	TOTAL		
Sold By2			
Sold By3			
Sold By4			

Buttons: Cancel, < Back, Next >, Finish

8. Click **Month** and then click **Next >** to display the next screen, shown in Figure 12-6.

**Figure 12-6**

Crosstab Query Wizard,  
screen 5

What number do you want calculated for each column and row intersection?

For example, you could calculate the sum of the field Order Amount for each employee (column) by country and region (row).

Do you want to summarize each row?  
 Yes, include row sums.

Fields:

- ID
- Year
- Make
- Model
- Sales Price

Functions:

- Avg
- Count
- First
- Last
- Max
- Min
- StDev
- Sum
- Var

Sample:

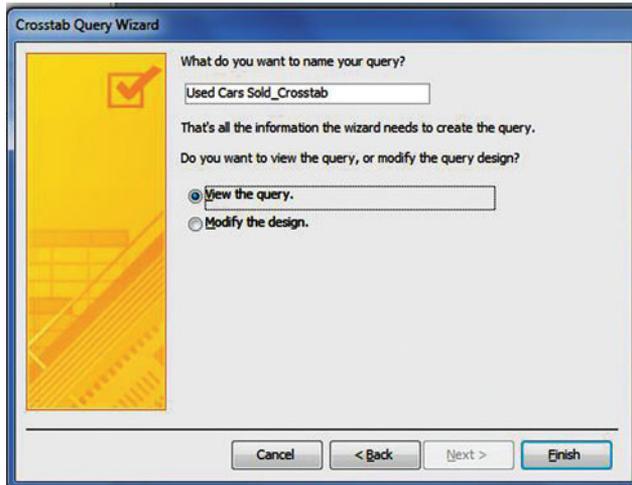
Sold By	Jan	Feb	Mar
Sold By1	Avg(ID)		
Sold By2			
Sold By3			
Sold By4			

Buttons: Cancel, < Back, Next >, Finish

- In the Fields box, click **Sales Price**, and in the Functions box, click **Sum**. Click **Next >** to display the final screen, as shown in Figure 12-7.

**Figure 12-7**

Crosstab Query Wizard, final screen



- Click **Finish** to display the results of the crosstab query, as shown in Figure 12-8.

Sold By	Total Of Sale	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bready	\$73,490.00			\$109,700.00	\$17,995.00	\$36,155.00							
Hasselberg	\$76,015.00			\$34,440.00	\$39,050.00								
Nartker	\$125,450.00			\$17,495.00	\$26,525.00	\$31,995.00							
Steiner	\$65,590.00			\$22,110.00	\$67,500.00	\$35,840.00							

**A crosstab query does not always populate all the fields in the result set because the tables used do not always contain values for every possible data point.**

**Figure 12-8**

Crosstab query results

- Click the **Close** button to close the Used Cars Sold Crosstab query. **PAUSE. LEAVE** the database open to use in the next exercise.

**CERTIFICATION READY 4.1.4**

How do you create crosstab queries?

## The Bottom Line

## CREATING A SUBQUERY

You can use a subquery to limit the amount of data returned by a query. A **subquery** is a SELECT statement that is inside another select or action query. A **SELECT statement** is a SQL command that instructs the Microsoft Access database engine to return information from the database as a set of records.

At a minimum, the syntax for a SELECT statement is:

```
SELECT fields FROM table
```

An asterisk (\*) can be used to select all the fields in a table. The following example selects all the fields in the Inventory table:

```
SELECT * FROM Inventory
```

Clauses such as WHERE and ORDER BY can be used in a SELECT statement to restrict and organize your returned data. Table 12-1 shows some SELECT statements and the results that are returned.

**Table 12-1**  
Select Statements with  
Returned Results

SELECT Statement	Result
SELECT [FirstName], [LastName] FROM [Employees] WHERE [LastName] = "Cooper";	Displays the values in the <i>FirstName</i> and <i>LastName</i> fields for employees whose last name is Cooper.
SELECT [ProductID], fields [ProductName] FROM [Products] WHERE [CategoryID] = Forms! [New Products].[CategoryID];	Displays the values for ProductID and ProductName in the Products table for records in which the CategoryID value matches the CategoryID value specified in an open New Products form.
SELECT Avg([ExtendedPrice]) AS [Average Extended Price] FROM the [Order Details Extended] WHERE [ExtendedPrice] > 1000;	Displays in a field named Average Extended Price the average extended price of orders for which the value in <i>ExtendedPrice</i> field is more than 1,000.
SELECT [CategoryID], Count([ProductID]) AS [CountOfProductID] FROM [Products] GROUP BY [CategoryID] HAVING Count([ProductID]) > 10	Displays in a field named CountOfProductID the total number of products for categories with more than 10 products.

A SELECT statement can be entered in a field or criteria cell in Design View. If you need more space in which to enter the SELECT statement in a field or criteria cell, press Shift+F2 and enter the statement in the Zoom box. You can see the entire SQL statement by switching to SQL View.

In a subquery, you use a SELECT statement to provide a set of one or more specific values to evaluate in the WHERE or HAVING clause expression. A subquery has three parts:

- **Comparison:** An expression and a comparison operator that compares the expression with the results of the subquery
- **Expression:** An expression for which the result set of the subquery is searched
- **Sqlstatement:** A SELECT statement, following the same format and rules as any other SELECT statement. It must be enclosed in parentheses

## Creating a Subquery

In this exercise, you create a subquery that returns results that select only the records from the Inventory table whose asking price is equal to or greater than the average asking price. You also add, remove, and reposition fields while working within the query design grid.

Subqueries are created in Design View. You first need to add the table window with the pertinent fields to the query design grid by using the Show Table dialog box. You can easily add fields from the table window either by double-clicking the field name, or by clicking and dragging it to the design grid. You can remove fields from the query design grid by moving the mouse pointer above the field name you want to remove until the pointer changes to a bold down arrow, then press delete on the keyboard, or the Delete Columns button in the Query Setup group on the Design tab. You can rearrange fields on the grid by moving the mouse pointer above the field you want to move until the pointer changes to a bold down arrow, then click and drag the field to any position on the grid using the vertical placeholder bar that appears as a guide.

### STEP BY STEP

### Create a Subquery

USE the database that is open from the previous exercise.

1. On the Create tab, in the Queries group, click **Query Design**. The query designer opens, and the Show Table dialog box appears, as shown in Figure 12-9.

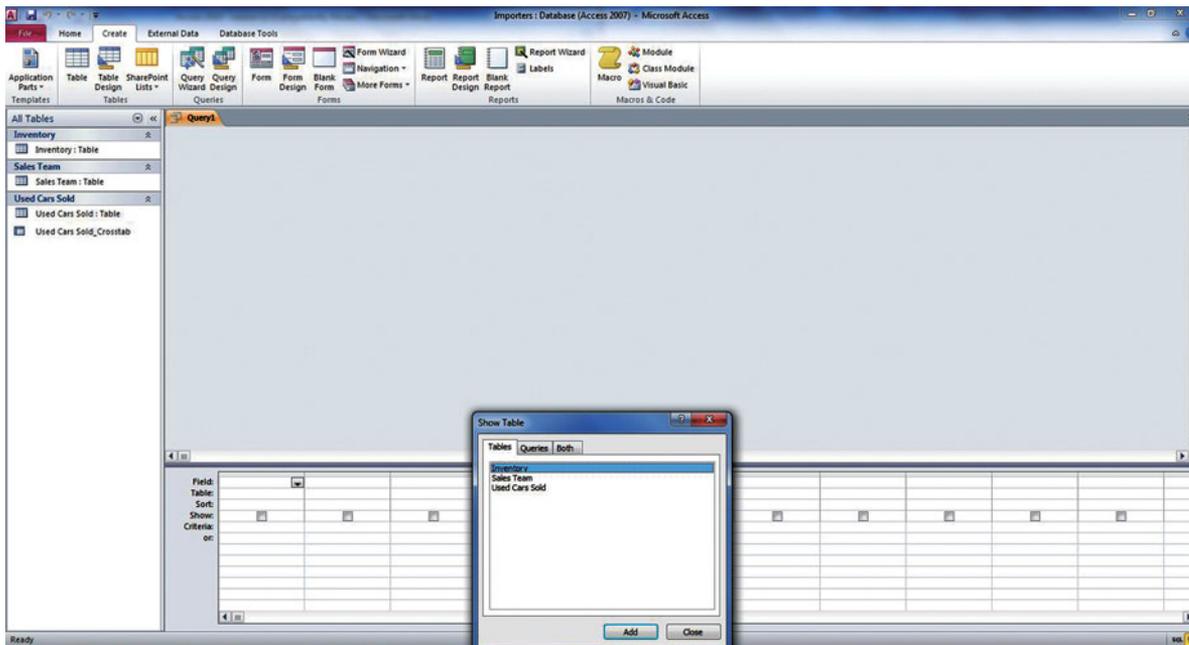


Figure 12-9

Show Table dialog box

2. In the Tables tab, click **Inventory**, click **Add**, and then click **Close**. The table appears as a window in the upper section of the query design grid, as shown in Figure 12-10.

Table field list

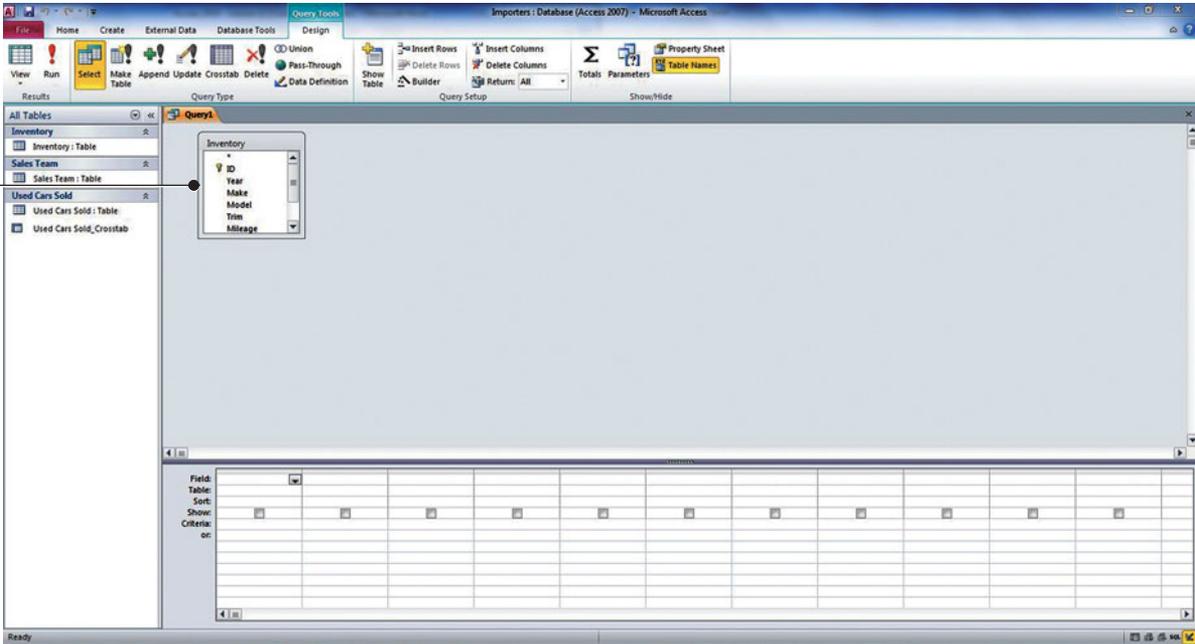


Figure 12-10

Query design grid

Take Note

To quickly add all the fields in a table, double-click the asterisk (\*) at the top of the list of table fields.

3. In the list of table fields, double-click Year, Make, Model, Trim, and AskingPrice to add those fields to the design grid, as shown in Figure 12-11.

Double-click a field name to add it to the query design grid below.

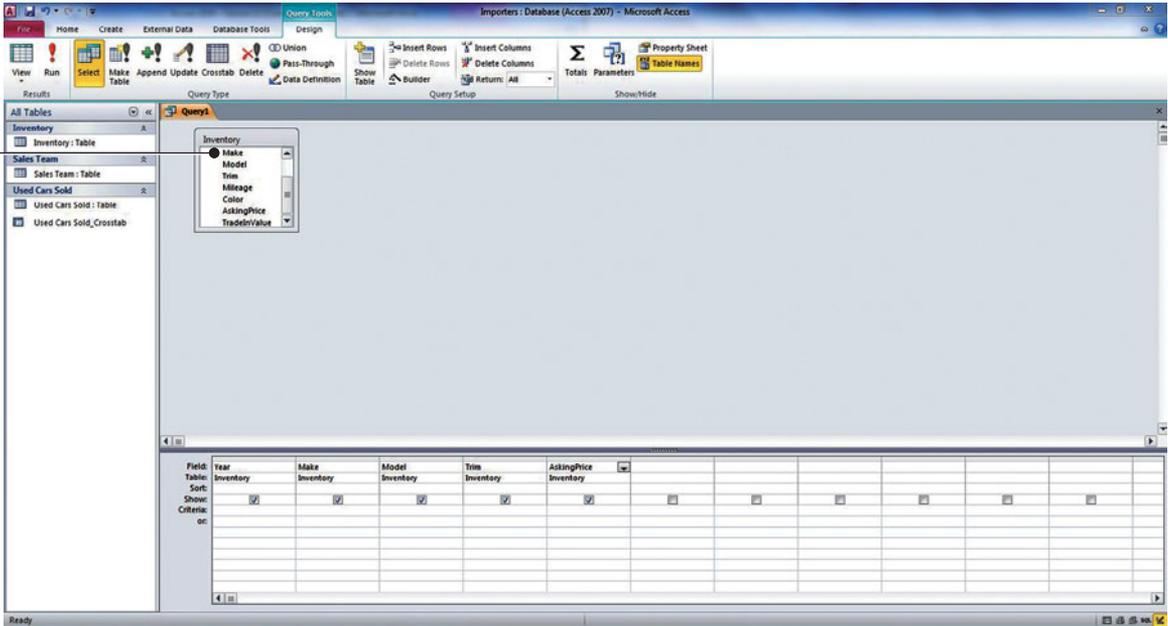


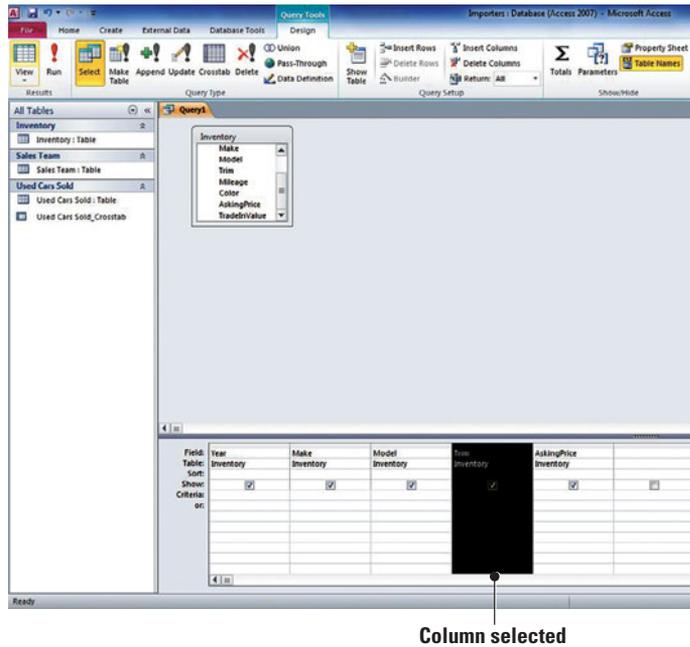
Figure 12-11

Fields added to design grid

4. Move the insertion point above the *Trim* field on the design grid until it turns into a bold down arrow. Click to highlight and select the **Trim column**, as shown in Figure 12-12.

**Figure 12-12**

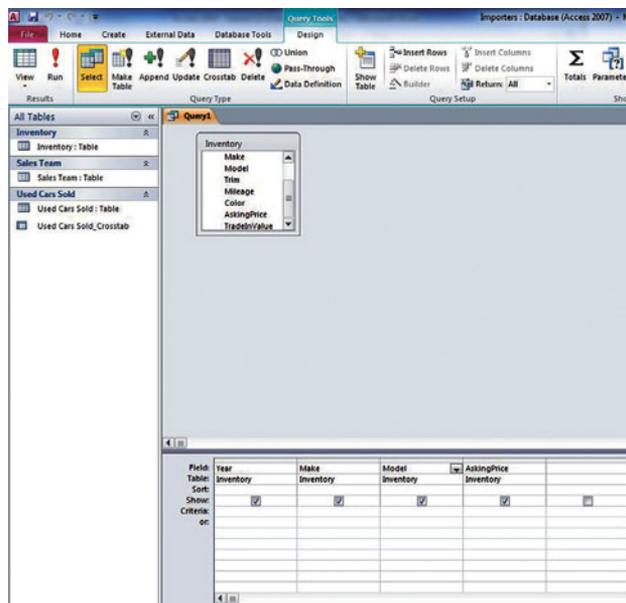
Column highlighted on design grid



5. Press the **Delete** key on the keyboard and the Trim column is deleted. The *AskingPrice* field replaces the Trim column.
6. Move the insertion point above the *Model* field on the design grid until it turns into a bold down arrow. Click to highlight and select the **Model** column.
7. On the Design tab, in the Query Setup group, click the **Delete Columns** button. The Model column is deleted.
8. In the table field list in the Inventory table window, double-click the **Model** field to add it back to the query design grid as the last column.
9. Move the insertion point above the *Model* field on the design grid until it turns into a bold down arrow. Click to highlight and select the **Model** column. Click and hold the mouse button down and drag the *Model* field to the left until the black vertical placeholder bar is positioned between the *Make* and *AskingPrice* fields. Your screen should resemble Figure 12-13.

**Figure 12-13**

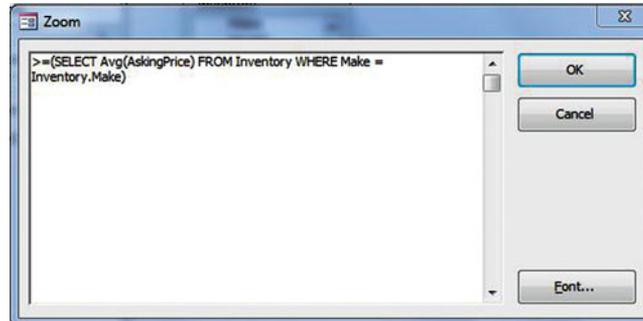
Query design grid



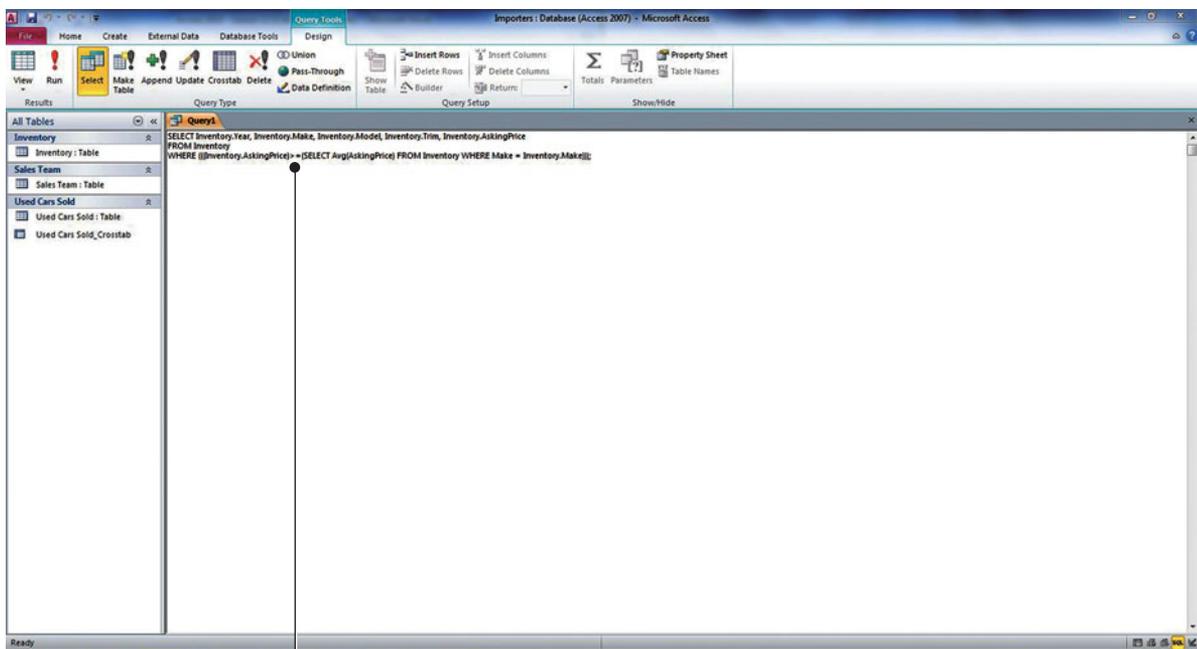
10. Place the insertion point in the Criteria row of the *AskingPrice* field and press **Shift+F2** to display the Zoom dialog box.
11. Key the following expression in the Zoom dialog box, as shown in Figure 12-14:  
`>=(SELECT Avg(AskingPrice) FROM Inventory WHERE Make = Inventory.Make)`

Figure 12-14

Zoom dialog box with expression



12. Click **OK** to insert the expression in the Criteria row of the Asking Price field.
13. On the Design tab, in the Results group, click the **View** tab, and click **SQL View** to see the entire expression, as shown in Figure 12-15.



Subquery WHERE clause in SQL View

Figure 12-15

SQL View

14. On the Design tab, in the Results group, click **Run**. The query results are displayed, as shown in Figure 12-16.

Figure 12-16

Subquery results

**CERTIFICATION READY 4.3.1**

How do you add a field to a query?

**CERTIFICATION READY 4.3.2**

How do you remove a field from a query?

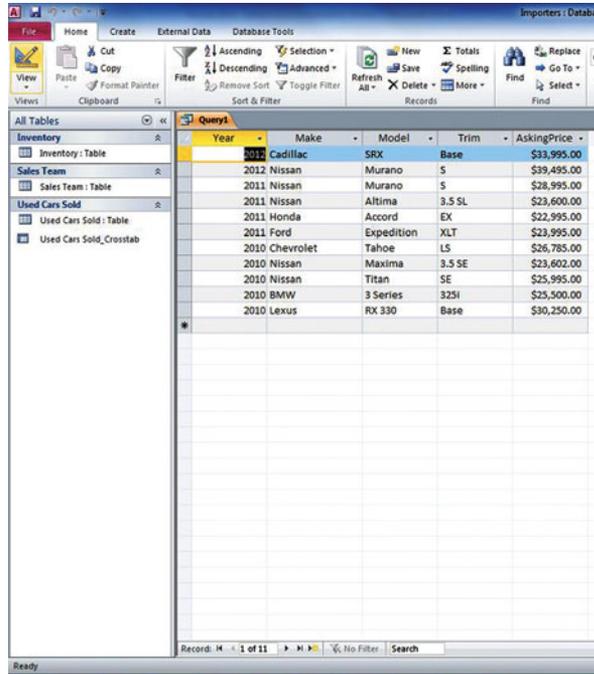
**CERTIFICATION READY 4.3.3**

How do you rearrange query fields?

**CERTIFICATION READY 4.5.2**

How do you use the Zoom box?

**The Bottom Line**



- Click the **File** tab and click **Save**.
  - In the Save As dialog box, key **Subquery** as the query name and click **OK**.
  - Click the **Close** button to close the Subquery query.
- PAUSE. LEAVE** the database open to use in the next exercise.

### SAVING A FILTER AS A QUERY

A filter can be saved as a query so it can be run again anytime you want. If you often work with certain filters, you might want to save these filters so that you are not wasting time defining them each time. You cannot save more than one filter for each table, query, or form—but, you can save a filter as a query and then apply the query as a filter when and where you want.

#### Saving a Filter as a Query

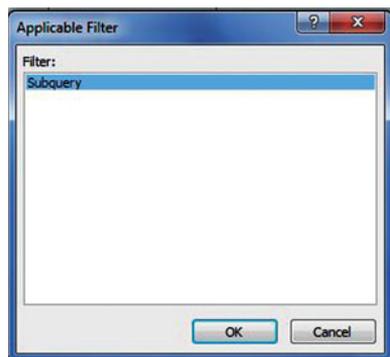
In this exercise, you create a simple select query, filter it, and then save it.

Create a filter by form and apply it to the query. On the Home tab, in the Sort & Filter group, click the Advanced button and click Advanced Filter/Sort. The new query appears in the Database window. It automatically includes all the fields from the underlying view. On the Home tab, in the Sort & Filter group, click the Advanced button and click Save As Query. Key a name for the query and click OK.

To apply the query as a filter, click the Advanced button, and click Load from Query to display the Applicable Filter dialog box, shown in Figure 12-17.

Figure 12-17

Applicable Filter dialog box



Only select queries that are based on the same underlying table or query as the form or datasheet will appear in the dialog box. Select the filter, click OK, and then apply the filter.

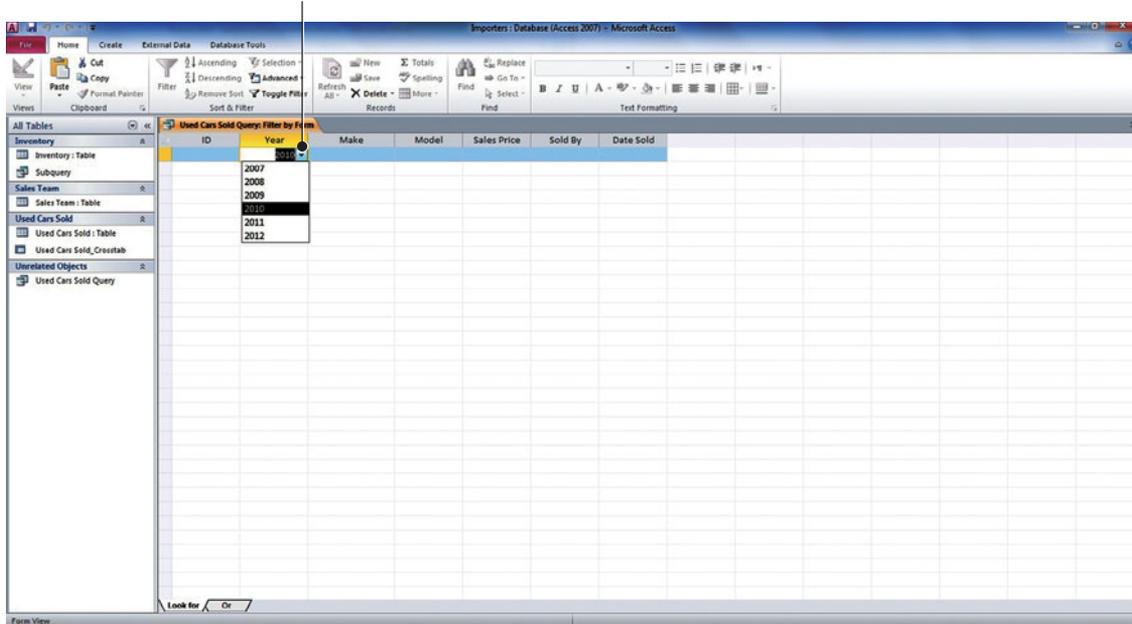
**STEP BY STEP**

**Save a Filter as a Query**

USE the database that is open from the previous exercise.

1. On the Create tab, in the Queries group, click the **Query Wizard** button.
2. In the New Query dialog box, click **Simple Query Wizard** and click **OK**.
3. In the Tables/Queries drop-down list, click **Table: Used Cars Sold**.
4. Click the **>>** button to move all the fields from the Available Fields to the Selected Fields box and then click **Next >**.
5. Click **Next >** again and then click **Finish** to display a simple select query.
6. On the Home tab, in the Sort & Filter group, click the **Advanced** button and then click **Filter by Form**.
7. In the Filter by Form dialog box, click the **Year field down arrow** and click **2010**, as shown in Figure 12-18.

Click the down arrow to select criteria by which to filter a field



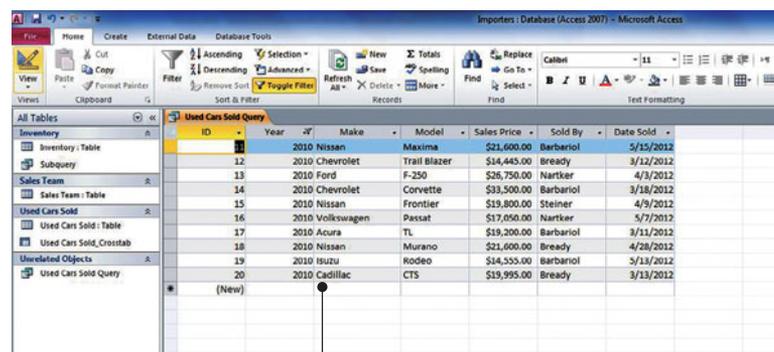
**Figure 12-18**

Filter by Form

8. On the Home tab, in the Sort & Filter group, click the **Toggle Filter** button to apply the filter. The results are displayed, as shown in Figure 12-19.

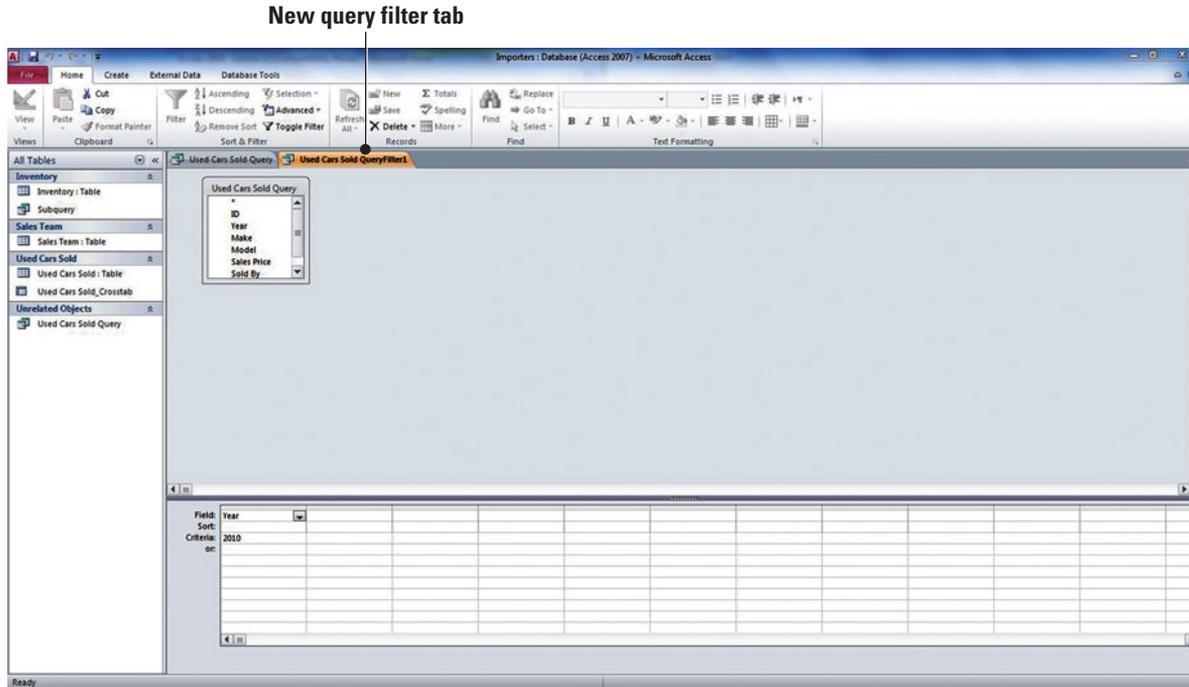
**Figure 12-19**

Filter by Form results



Results filtered to show only 2010 cars

- On the Home tab, in the Sort & Filter group, click the **Advanced** button and then click **Advanced Filter/Sort** to display the new query design grid, shown in Figure 12-20.



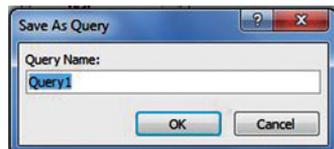
**Figure 12-20**

New query design grid

- On the Home tab, in the Sort & Filter group, click the **Advanced** button and then click **Save As Query**. The Save As Query dialog box appears, as shown in Figure 12-21.

**Figure 12-21**

Design grid



- Key **Filter Query** in the Query Name box and click **OK**.
- Click the **Close** button to close the Used Cars Sold Queryfilter1 query.
- On the Home tab, in the Sort & Filter group, click the **Toggle Filter** button to remove the filter.
- Click the **Close** button to close the Used Cars Sold Query and save the changes when prompted. If another dialog box appears informing you that another user may have changed the data, click **Yes**.

**PAUSE. LEAVE** the database open to use in the next exercise.

## CREATING ACTION QUERIES

An **action query** changes the data in its datasource or creates a new table. There are four types of action queries—append, delete, update, and make table—and except for the make table query, action queries make changes to the data in the tables on which they are based.

As their name suggests, action queries make changes to the data in the tables they are based on (except for make table queries, which creates new tables). There are four types of action queries:

- **Append query:** Adds the records in the query's result set to the end of an existing table
- **Delete query:** Removes rows matching the criteria that you specify from one or more tables
- **Update query:** Changes a set of records according to criteria that you specify
- **Make table query:** Creates a new table and then creates records in it by copying records from an existing table

Changes made by action queries cannot be easily undone, so if you later decide you didn't want to make those changes, usually you will have to restore the data from a backup copy. For this reason, you should always make sure you have a current backup of the underlying data before running an action query.

To minimize the risk involved in running an action query, you can first preview the data that will be acted upon by viewing the action query in Datasheet View before running it. When you are ready to run an action query, double-click it in the Navigation pane or click it and then press Enter. Or, on the Design tab, in the Results group, click Run.

## Creating an Append Query

An **append query** adds a set of records from one or more source tables (or queries) to one or more destination tables. Typically, the source and destination tables reside in the same database, but they don't have to. For example, suppose you acquire some new customers and a database that contains a table of information about those customers. To avoid entering that new data manually, you can append it to the appropriate table in your database. In this exercise, you practice creating an append query.

You can also use append queries to append fields that are based on criteria. For example, you might want to append only the names and addresses of customers who have outstanding orders. Or you can use append queries to append records when some of the fields in one table don't exist in the other table. For example, suppose that your Customers table has 10 fields, and the fields in the Clients table in another database match 8 of your 10 fields. You can use an append query to add only the data in the matching fields and ignore the others.

You cannot use append queries to change the data in individual fields in existing records. To do that type of task, you use an update query—you can only use append queries to add rows of data.

### STEP BY STEP

#### Create an Append Query

**USE** the database that is open from the previous exercise.

1. On the Create tab, in the Queries group, click the **Query Design** button.
2. In the Show Table dialog box, double-click **Inventory** to add it to the upper section of the query design grid.
3. Click **Close** to close the Show Table dialog box.
4. In the list of table fields, double-click **Year**, **Make**, **Model**, and **Asking Price** to add those fields to the design grid. Your screen should look similar to Figure 12-22.

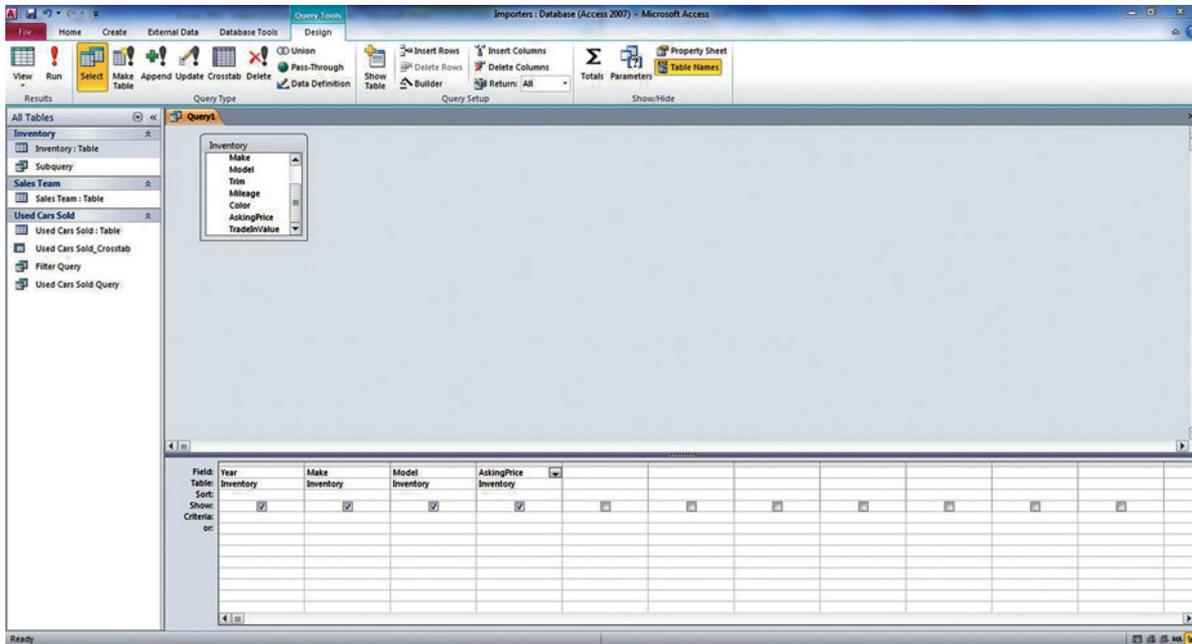


Figure 12-22

Design grid

- On the Design tab, in the Results group, click **Run**. Verify that the query returned the records that you want to append, as shown in Figure 12-23.

Figure 12-23

Records to be appended

Year	Make	Model	AskingPrice
2012	Toyota	Corolla	\$18,495.00
2012	Chevrolet	Equinox	\$21,995.00
2012	Nissan	Altima	\$20,995.00
2012	Cadillac	SRX	\$33,995.00
2012	Ford	Mustang	\$18,995.00
2012	Nissan	Murano	\$39,495.00
2011	Mitsubishi	Outlander	\$19,111.00
2011	Nissan	Murano	\$28,995.00
2011	Nissan	Altima	\$23,600.00
2011	Chevrolet	Impala	\$19,555.00
2011	Ford	Explorer	\$18,495.00
2011	Honda	Accord	\$22,995.00
2011	Ford	Expedition	\$23,995.00
2011	Honda	Civic	\$18,495.00
2010	Nissan	Sentra	\$14,495.00
2010	Saturn	ION	\$15,400.00
2010	Chevrolet	Tahoe	\$26,785.00
2010	Nissan	Maxima	\$23,602.00
2010	Toyota	Camry	\$19,887.00
2010	Nissan	Titan	\$25,995.00
2010	BMW	3 Series	\$25,500.00
2010	Buick	Rendezvous	\$17,995.00
2010	Lexus	RX 330	\$30,250.00
2009	Honda	Pilot	\$22,680.00
2009	GMC	Envoy	\$19,495.00
2009	Lincoln	Town Car	\$19,995.00

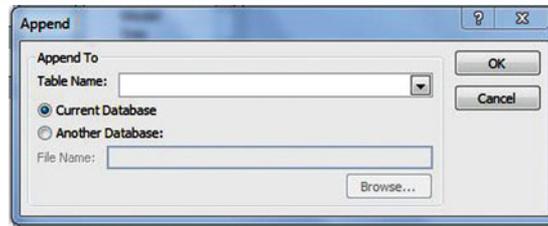
**Take Note**

If you need to add or remove fields from the query, switch back to Design View and double-click to add fields or select the fields that you don't want and press Delete to remove them from the query.

- Right-click the document tab for the open query and click **Design View** on the shortcut menu.
- On the Design tab, in the Query Type group, click **Append**. The Append dialog box appears, as shown in Figure 12-24.

Figure 12-24

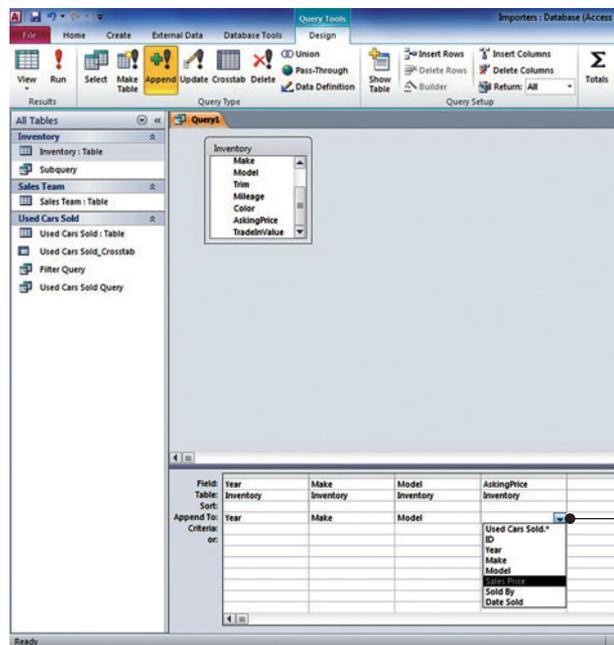
Append dialog box



8. In the Table Name box, click the **down arrow** and click **Used Cars Sold**. This is the table you want to append to. The Current Database radio button should be selected.
9. Click **OK**. Access automatically adds the names of the destination fields that match the source field names to the Append To row in the design grid. Because the *Asking Price* field doesn't have a match, Access leaves that field blank.
10. Click the blank field in the Append To row under the Asking Price cell and select **Sales Price** as the destination field, as shown in Figure 12-25.

Figure 12-25

Source and destination fields matched

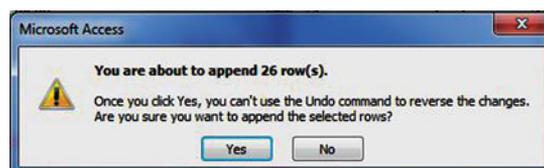


Click the down arrow to manually choose SalesPrice as the destination field for the AskingPrice source field

11. Right-click the document tab for the query, and then click **Datasheet View** to preview your changes.
12. Right-click the document tab for the query, and then click **Design View**.
13. On the Design tab, in the Results group, click **Run**. An alert message appears, as shown in Figure 12-26.

Figure 12-26

Append alert message



14. Click **Yes**.
15. Open the **Used Cars Sold** table and scroll down to see that the records from the Inventory table have been appended to the end, as shown in Figure 12-27.

Figure 12-27

Results of append query

**Original records**

**Appended records**

ID	Year	Make	Model	Sales Price	Sold By	Date Sold	Click to Add
16	2010	Volkswagen	Passat	\$17,050.00	Nartker	5/7/2012	
17	2010	Acura	TL	\$19,200.00	Barbariol	3/11/2012	
18	2010	Nissan	Murano	\$21,600.00	Bready	4/28/2012	
19	2010	Isuzu	Rodeo	\$14,555.00	Barbariol	5/13/2012	
20	2010	Cadillac	CTS	\$19,995.00	Bready	3/13/2012	
21	2009	Honda	Accord	\$17,995.00	Barbariol	4/9/2012	
22	2009	Toyota	4Runner	\$18,790.00	Nartker	5/27/2012	
23	2009	Chevrolet	Avalanche	\$18,250.00	Nartker	4/7/2012	
24	2008	Ford	Thunderbird	\$22,110.00	Nartker	3/20/2012	
25	2007	Oldsmobile	Aurora	\$10,050.00	Hasselberg	4/1/2012	
26	2007	Nissan	Pathfinder	\$11,875.00	Steiner	5/5/2012	
27	2012	Toyota	Corolla				
28	2012	Chevrolet	Equinox				
29	2012	Nissan	Altima				
30	2012	Cadillac	SRX				
31	2012	Ford	Mustang				
32	2012	Nissan	Murano				
33	2011	Mitsubishi	Outlander				
34	2011	Nissan	Murano				
35	2011	Nissan	Altima				
36	2011	Chevrolet	Impala				
37	2011	Ford	Explorer				
38	2011	Honda	Accord				
39	2011	Ford	Expedition				
40	2011	Honda	Civic				
41	2010	Nissan	Sentra				
42	2010	Saturn	ION				
43	2010	Chevrolet	Tahoe				
44	2010	Nissan	Maxima				
45	2010	Toyota	Camry				
46	2010	Nissan	Titan				
47	2010	BMW	3 Series				

**CERTIFICATION  
READY 4.1.3**

How do you create append queries?

16. Click the **Close** button to close the Used Cars Sold table.
  17. Click the **File** tab and click **Save**.
  18. In the Save As dialog box, key **Append Query** as the query name and click **OK**.
  19. Click the **Close** button on Append Query to close the query.
- PAUSE. LEAVE** Access open to use in the next exercise.

## Creating a Make Table Query

A **make table query** is an action query that creates a new table and then creates records in it by copying records from an existing table. You use a make table query when you need to copy the data in a table or to archive data. In this exercise, you practice creating a make table query.

### STEP BY STEP

#### Create a Make Table Query

**USE** the database that is open from the previous exercise.

1. On the **Create** tab, in the **Queries** group, click the **Query Wizard** button.
2. In the **New Query** dialog box, click **Simple Query Wizard** and click **OK**.
3. In the **Tables/Queries** drop-down list, click **Table: Sales Team**.
4. Click the **>>** button to move all the fields from the **Available Fields** to the **Selected Fields** box and then click **Next >**.
5. Click **Finish** to display a simple select query.
6. Right-click the **Sales Team Query** document tab and click **Design View** to display the query in Design View, as shown in Figure 12-28.

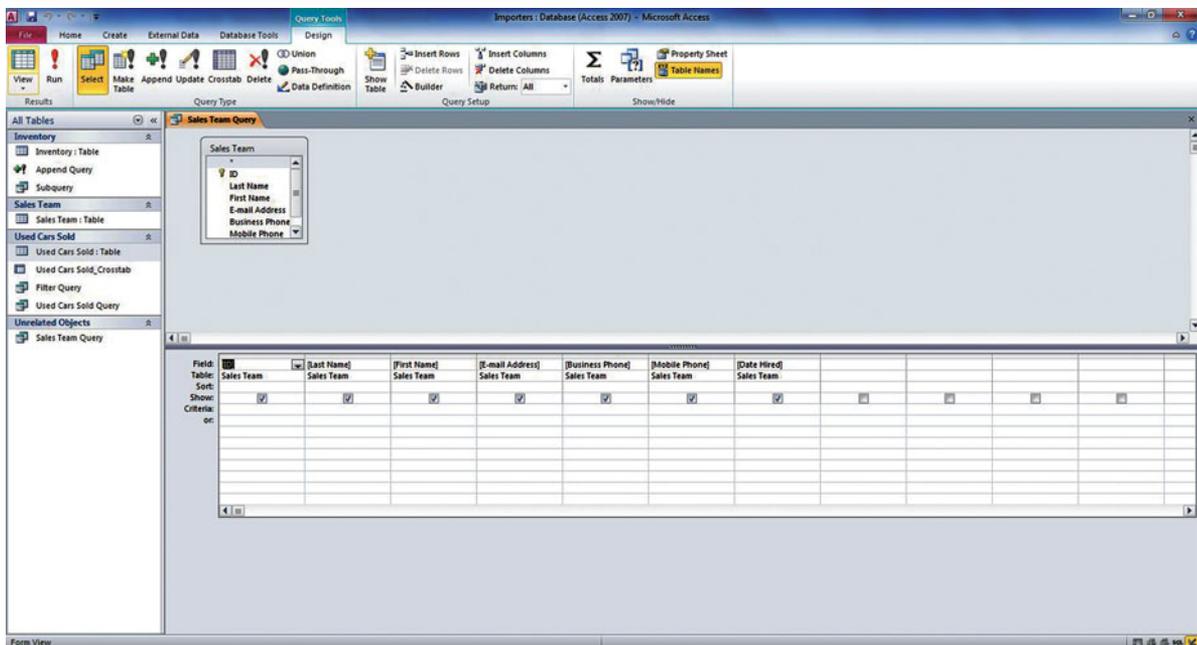


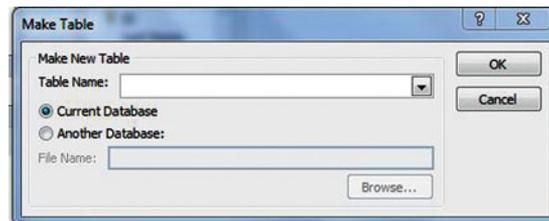
Figure 12-28

Query in Design View

- On the Design tab, in the Query Type group, click **Make Table**. The Make Table dialog box appears, as shown in Figure 12-29.

Figure 12-29

Make Table dialog box



- In the Table Name box, key **Sales Team Backup**. If it isn't already selected, click **Current Database**, and then click **OK**.
- On the Design tab, in the Results group, click **Run**. An alert message appears, as shown in Figure 12-30.

Figure 12-30

Make table alert message



- Click **Yes**. A new table appears in the Navigation pane.
- Double-click **Sales Team Backup: Table** in the Navigation pane to open the new table, as shown in Figure 12-31.

New table now available in the Navigation pane

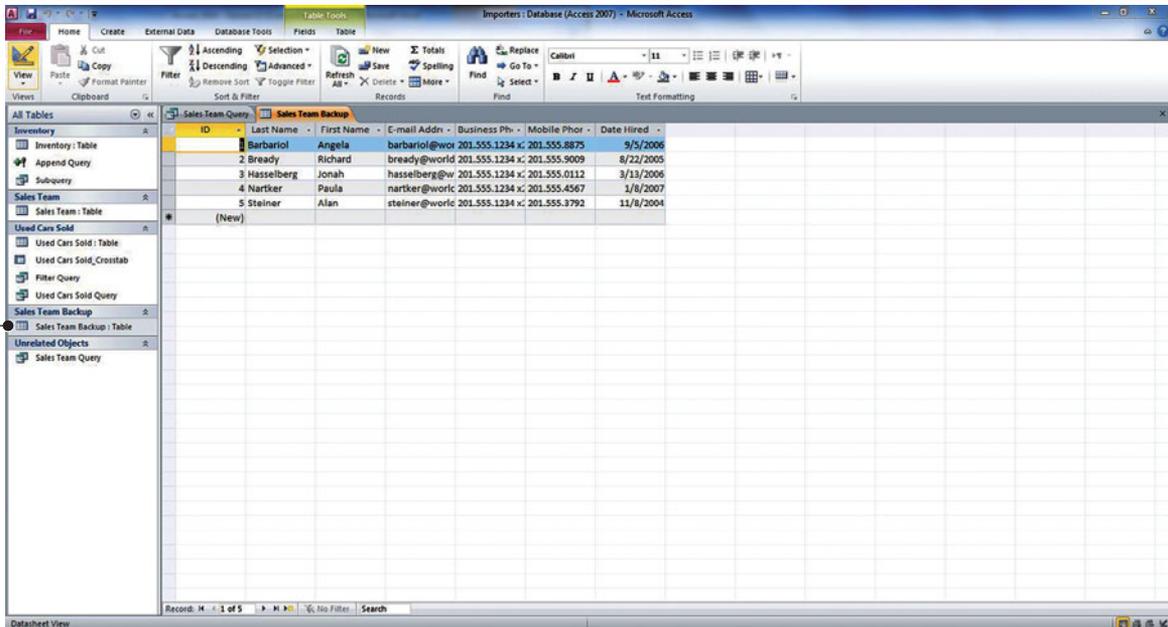


Figure 12-31

New table

**CERTIFICATION  
READY 4.1.2**

How do you create make table queries?

12. Click the **Close** button to close the Sales Team Backup table.
  13. Click the **Close** button to close the Sales Team query. Save the changes when prompted.
  14. **LEAVE** the database open.
- PAUSE. LEAVE** Access open to use in the next exercise.

## Creating an Update Query

An **update query** is an action query that changes a set of records according to specified criteria. Use an update query when you need to add, change, or delete the data in one or more existing records. You can think of update queries as a powerful form of the Find and Replace dialog box. In this exercise, you practice making an Update Query.

When making an update query, you enter a select criterion and an update criterion. Unlike the Find and Replace dialog box, update queries can accept multiple criteria. You can use them to update a large number of records in one pass and to change records in more than one table at one time. You can also update the data in one table with data from another—as long as the data types for the source and destination fields match or are compatible.

To create an update query, first create or open a select query. On the Design tab, in the Query Type group, click Update. Access adds the Update to row in the query design grid. Locate the field that contains the data you want to change, and type your change criteria in the Update to row for that field.

You can use any valid expression in the Update to row. Table 12-2 shows some example expressions and explains how they change data.

**Table 12-2**  
Expressions and How They  
Change Data

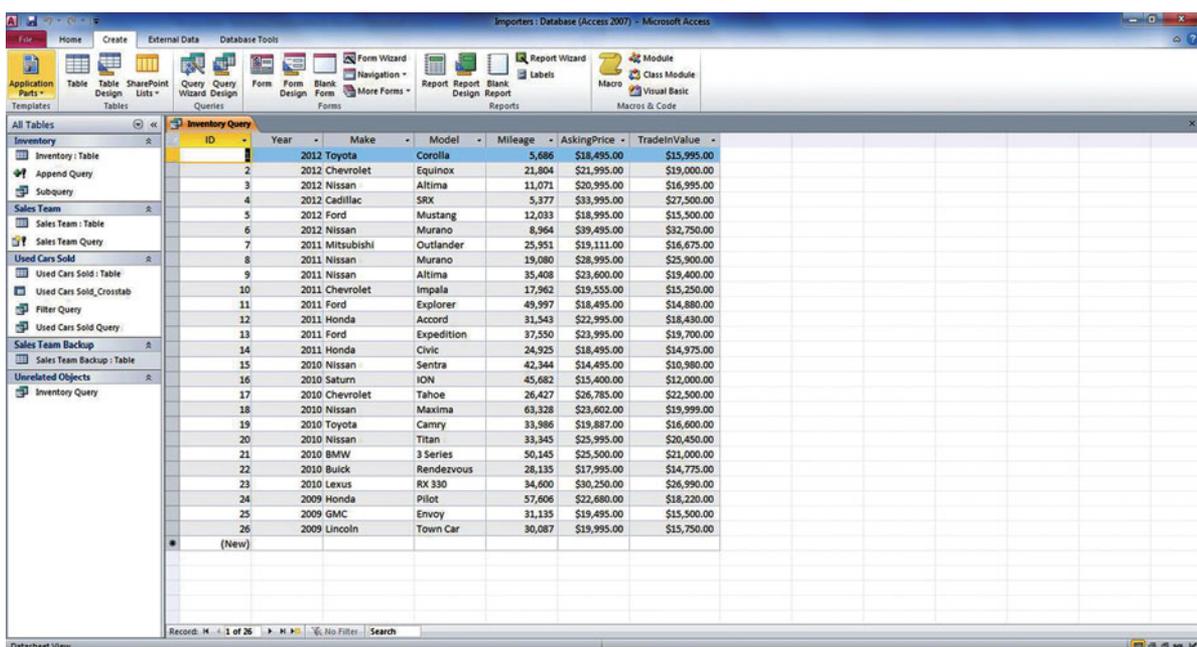
Expression	Result
"Chicago"	In a <i>Text</i> field, changes a text value to Chicago.
#9/25/11 #	In a <i>Date/Time</i> field, changes a date value to 25-Sept-11.
Yes	In a Yes/No field, changes a No value to Yes.
"PN" & [PartNumber]	Adds "PN" to the beginning of each specified part number.
[UnitPrice] * [Quantity]	Multiplies the values in fields named <i>UnitPrice</i> and <i>Quantity</i> .
[Shipping] * 1.5	Increases the values in a field named <i>Shipping</i> by 50 percent.
DSum("[Quantity] * [UnitPrice]", "Order Details", "[ProductID] = "& [ProductID])	Where the ProductID values in the current table match the ProductID values in table named Order Details, this expression updates sales totals by multiplying the values in a field named <i>Quantity</i> by the values in a field named <i>UnitPrice</i> . The expression uses the DSum function because it can operate against more than one table and table field.
Right([PostalCode], 5)	Removes the leftmost characters in a text or numeric string and leaves the 5 rightmost characters.
IIf(IsNull([SalesPrice]), 0, [SalesPrice])	Changes a null (unknown or undefined) value to a zero (0) value in a field named <i>SalesPrice</i> .

## STEP BY STEP

### Create an Update Query

USE the database that is open from the previous exercise.

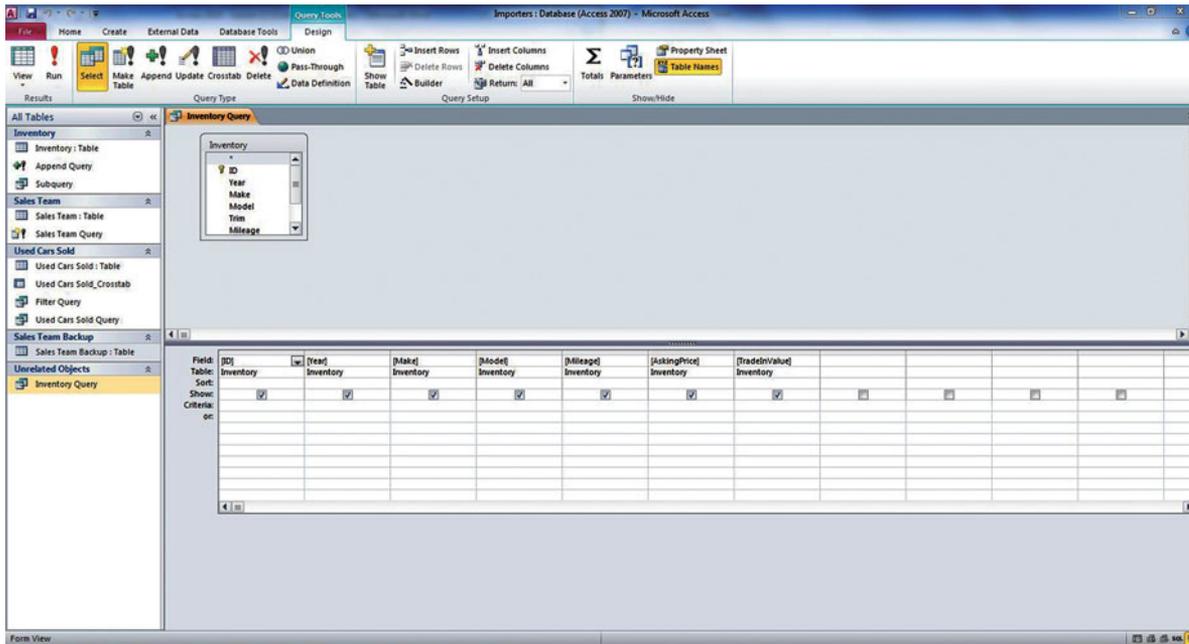
1. On the Create tab, in the Queries group, click the **Query Wizard** button.
2. In the New Query dialog box, click **Simple Query Wizard** and click **OK**.
3. In the Tables/Queries drop-down list, click **Table: Inventory**.
4. Click the **>>** button to move all the fields from the Available Fields to the Selected Fields box.
5. Click **Trim** and then the **<** button to move it back to the Selected Fields box. Click **Color** and then the **<** button to move it back to the Selected Fields box. Click **Next >**.
6. Click **Next >** again and then click **Finish** to display a simple select query in Datasheet View, as shown in Figure 12-32.



**Figure 12-32**

Select query in Datasheet View

- Right-click the **Inventory Query** document tab and click **Design View** to display the query in Design View, as shown in Figure 12-33.



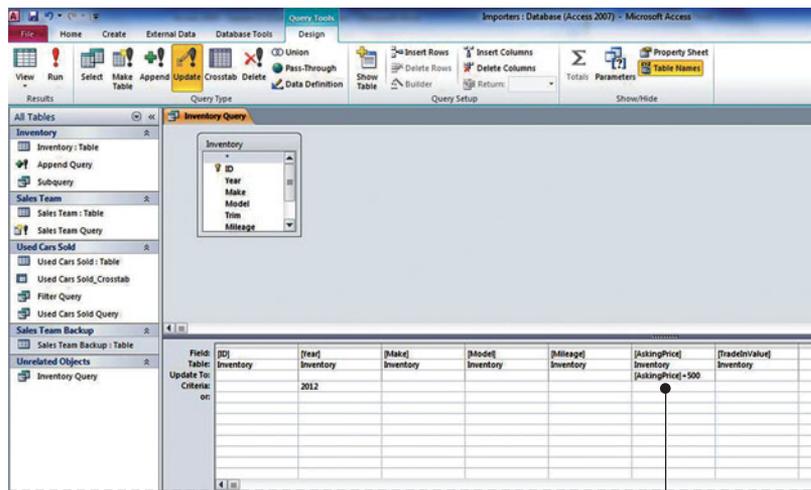
**Figure 12-33**

Select query in Design View

- Key **2012** in the Criteria row of the **Year** field.
- On the Design tab, in the QueryType group, click **Update**. Access adds the Update To row in the query design grid.
- In the Update To row of the **AskingPrice** field, key **[AskingPrice] + 500**. The design grid should look similar to Figure 12-34.

**Figure 12-34**

Select and update criterion

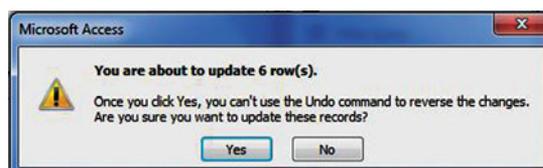


Update criteria

- On the Design tab, in the Results group, click **Run**. An alert message appears, as shown in Figure 12-35.

**Figure 12-35**

Update alert message



12. Click **Yes**.
13. Right-click the **Inventory Query** document tab and click **Datasheet View** to display the update query results, as shown in Figure 12-36.

Figure 12-36

Update query results

Inventory	AskingPrice
\$18,995.00	
\$22,495.00	
\$21,495.00	
\$34,495.00	
\$19,495.00	
\$39,995.00	

The query contains fields that you don't update, so Access does not display those fields in the results

### Take Note

When you run the query, you will notice that some fields are missing from your result set. If the query contains fields that you don't update, Access does not display those fields in the results.

14. Click the **Close** button to close the Inventory query. Save the changes when prompted.
15. Double-click **Inventory: Table** in the Navigation pane to open it. Notice that the asking price for all 2012 cars has been increased by \$500.
16. Click the **Close** button to close the Inventory table.
17. **LEAVE** the database open.

**PAUSE.** LEAVE Access open to use in the next exercise.

## Creating a Delete Query

A **delete query** is an action query that removes rows matching the criteria that you specify from one or more tables. A delete query is used to delete entire records from a table, along with the key value that makes a record unique. Typically, delete queries are used only when you need to change or remove large amounts of data quickly. To remove a small number of records, open the table in Datasheet View, select the fields or rows that you want to delete, and press Delete.

To create a delete query, first create or open a select query and add criteria to return the records you want to delete. On the Design tab, in the Query Type group, click Delete. Access changes the select query to a delete query, hides the Show row in the lower section of the design grid, and adds the Delete row. The word Where should appear in any columns that you use for criteria.

When you click Run, Access prompts you to confirm the deletion. Click Yes to delete the data and then open the table to see that the records have been deleted.

### STEP BY STEP

#### Create a Delete Query

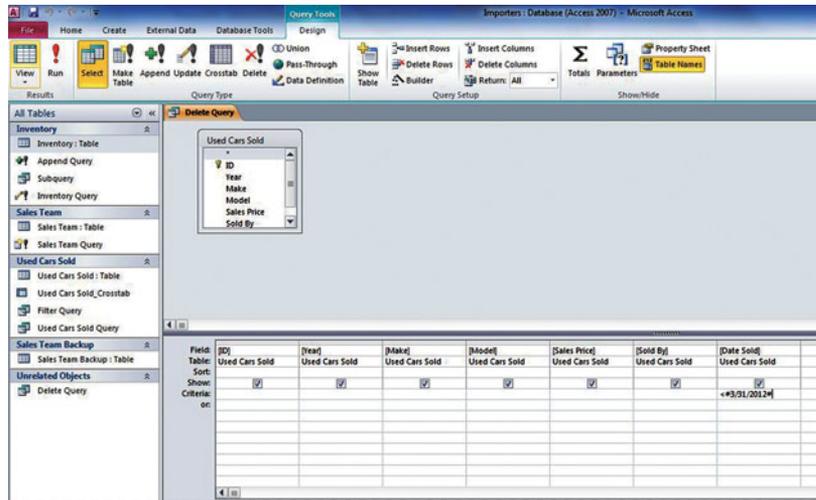
**USE** the database that is open from the previous exercise.

1. On the Create tab, in the Queries group, click **Query Wizard**.
2. In the New Query dialog box, click **Simple Query Wizard** and click **OK**.

3. In the Tables/Queries drop-down list, click **Table: Used Cars Sold**.
4. Click the **>>** button to move all the fields from the Available Fields to the Selected Fields box and then click **Next >**.
5. Click **Next >** again.
6. Key **Delete Query** as the title and then click **Finish** displaying a simple select query.
7. Right-click the **Delete Query** document tab and click **Design View** to display the query in Design View.
8. Key **<#3/31/2012#** in the Criteria row of the *Date Sold* field, as shown in Figure 12-37.

**Figure 12-37**

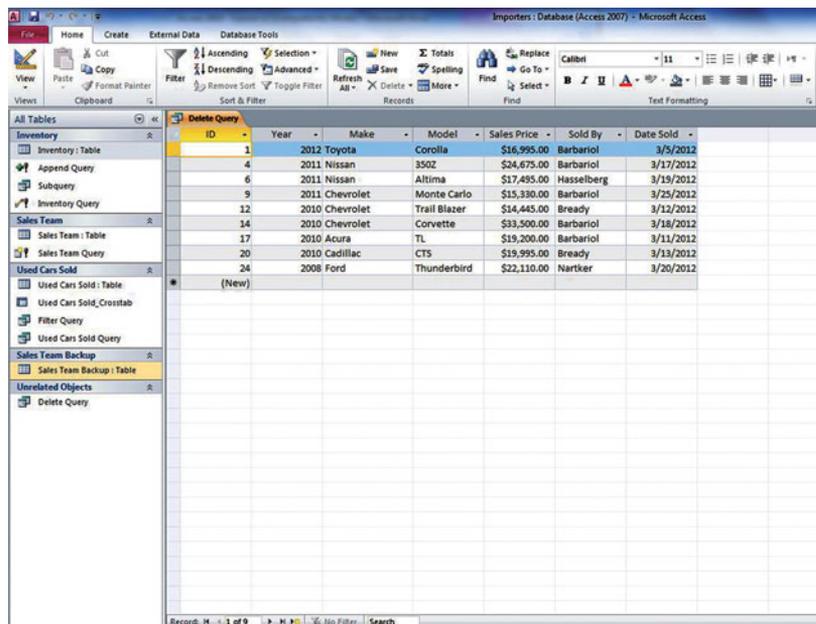
Date Sold criteria



9. On the Design tab, in the Results group, click **Run** to display the records to be deleted, as shown in Figure 12-38.

**Figure 12-38**

Records to be deleted

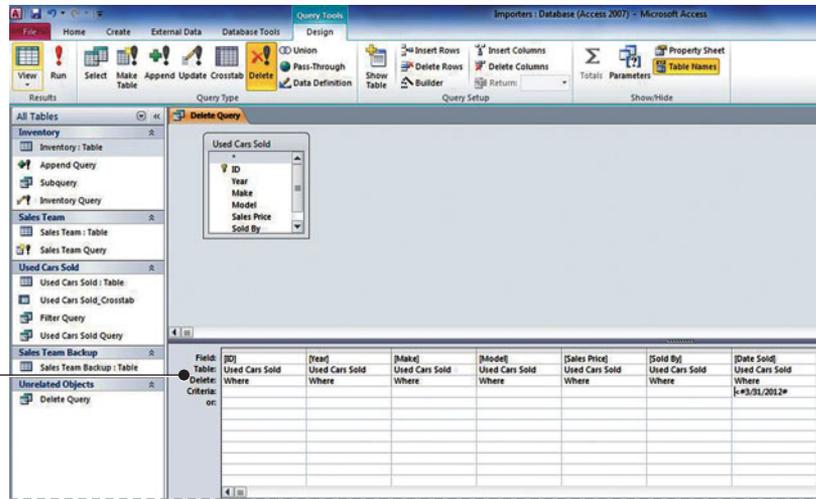


10. Right-click the **Delete Query** document tab and click **Design View** to display the query in Design View.
11. On the Design tab, in the Query Type group, click **Delete**. Access hides the Show row in the lower section of the design grid and adds the Delete row, as shown in Figure 12-39.

Figure 12-39

Delete row in design grid

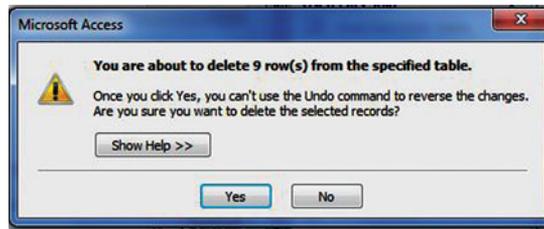
Delete row added



- On the Design tab, in the Results group, click **Run**. An alert message appears, as shown in Figure 12-40.

Figure 12-40

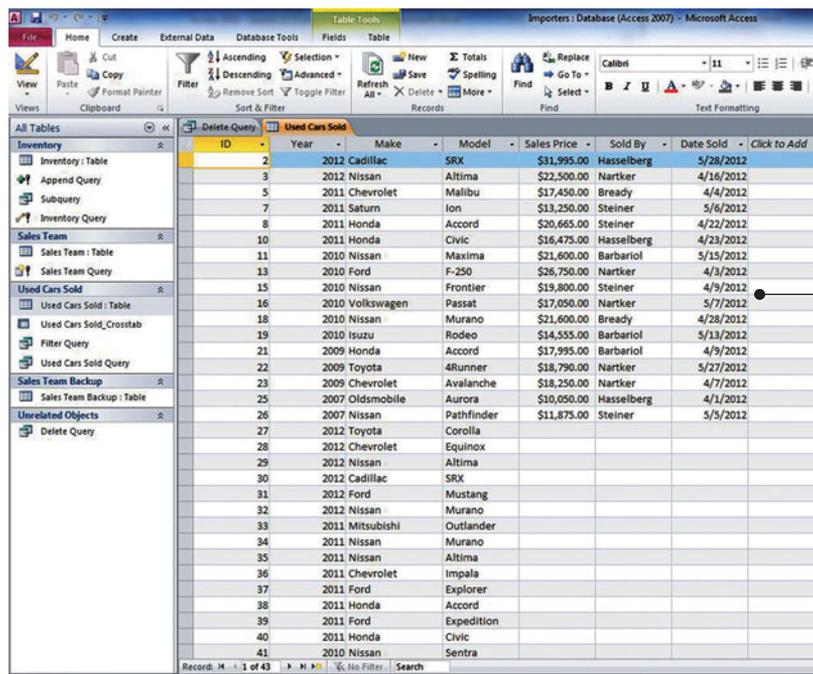
Delete alert message



- Click **Yes**.
- Double-click **Used Cars Sold: Table** in the Navigation pane to open it. Notice that all the records for cars sold before March 31, 2012 have been deleted, as shown in Figure 12-41.

Figure 12-41

Table with records deleted



All the records for cars sold before March 31, 2012 have been deleted

15. Click the **Close** button on Used Cars Sold to close the table.
  16. Click the **Close** button on Delete Query to close the query. Save the changes when prompted.
  17. **LEAVE** the database open.
- PAUSE.** LEAVE Access open to use in the next exercise.

## UNDERSTANDING ADVANCED QUERY MODIFICATION

### The Bottom Line

After a query has been created, you can modify it in various ways to suit your purposes—by creating a join, creating calculated fields, or using aggregated functions.

### Creating a Join

Relational databases consist of tables that have logical relationships to each other. You use relationships to connect tables on fields that they have in common. A relationship between identical fields in different tables is represented by a **join** in Design View. When you include multiple tables in a query, you use joins to help you get the results you want. A join helps a query return only the records from each table you want to see, based on how those tables are related to other tables in the query. When you add tables to a query, Access creates joins that are based on relationships that have been defined between the tables. You can manually create joins known as ad hoc relationships in queries, even if they do not represent relationships that have already been defined. In this exercise, you create a join between tables.

#### Take Note

If the relationship is one-to-many, Access displays a “1” above the join line to show which table is on the “one” side and an infinity symbol ( $\infty$ ) to show which table is on the “many” side.

The four basic types of joins are inner joins, outer joins, cross joins, and unequal joins. An **inner join** includes rows in the query only when the joined field matches records in both tables. Inner joins are the most common type of join. Most of the time, you don't need to do anything to use an inner join. Access automatically creates inner joins if you add two tables to a query and those tables each have a field with the same or compatible data type and one of the join fields is a primary key.

An **outer join** includes all of the rows from one table in the query results and only those rows from the other table that match the join field in the first table. You create outer joins by modifying inner joins.

To create an outer join, double-click the line joining the tables to display the Join Properties dialog box. In the Join Properties dialog box, Option 1 represents an inner join. Option 2 is a **left outer join**, where the query includes all of the rows from the first table and only those records from the second table that match the join field in the first table. Option 3 is a **right outer join**, where the query includes all of the rows from the second table and only those rows from the first table that match the join field in the second table.

#### Take Note

To tell which table is the left table or the right table in a given join, double-click the join to view the Join Properties dialog box.

Because some of the rows on one side of an outer join will not have corresponding rows from the other table, some of the fields returned in the query results from that other table will be empty when the rows do not correspond.

In a **cross join**, each row from one table is combined with each row from another table. Any time you run a query that has tables that are not explicitly joined, a cross join is produced. Cross joins are usually unintentional, but there are cases where they can be useful. A cross join can be used if you want to examine every possible combination of rows between two tables or queries.

If you want to combine the rows of two sources of data based on field values that are not equal, you use an **unequal join**. Typically, unequal joins are based on either the greater than (>), less than (<), greater than or equal to (>=), or less than or equal to (<=) comparison operators. Unequal joins are not supported in Design View. If you wish to use them, you must do so in SQL View.



## Troubleshooting

If you create a join by mistake, for example, a join between two fields that have dissimilar data types, you can delete it. In the query design grid, click the join you want to remove and press Delete.

## STEP BY STEP

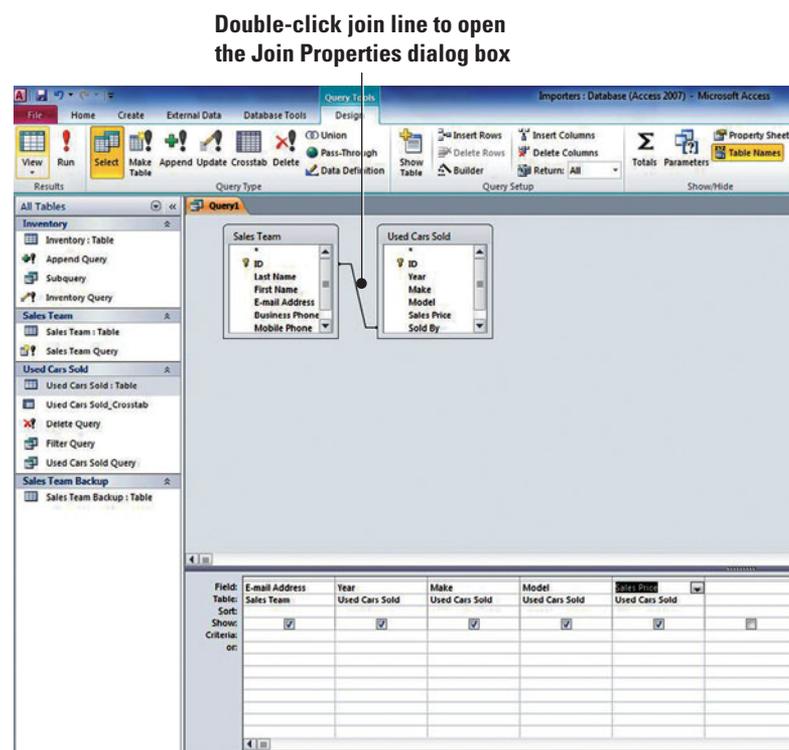
### Create a Join

USE the database that is open from the previous exercise.

1. On the Create tab, in the Queries group, click **Query Design**.
2. In the Show Table dialog box, double-click **Sales Team** and **Used Cars Sold** to add them to the design grid.
3. Click **Close**.
4. In the *Sales Team* field list, double-click **E-mail Address**.
5. In the *Used Cars Sold* field list, double-click **Year**, **Make**, **Model**, and **Sales Price**. Your screen should look similar to Figure 12-42.

Figure 12-42

New query



6. Double-click the join line between the tables, indicating which fields are joined. The Join Properties dialog box opens, as shown in Figure 12-43.

Figure 12-43

Join properties dialog box



7. Click the radio button for option 2: and then click **OK** to create a left outer join.
8. On the Design tab, in the Results group, click **Run**.
9. The results of the query are displayed, as shown in Figure 12-44.

Figure 12-44

Left outer join

E-mail Address	Year	Make	Model	Sales Price
barbarioi@worldwideimporters.com	2010	Isuzu	Rodeo	\$14,555.00
barbarioi@worldwideimporters.com	2010	Nissan	Maxima	\$21,600.00
barbarioi@worldwideimporters.com	2009	Honda	Accord	\$17,995.00
bready@worldwideimporters.com	2010	Nissan	Murano	\$21,600.00
bready@worldwideimporters.com	2011	Chevrolet	Malibu	\$17,450.00
hasselberg@worldwideimporters.com	2007	Oldsmobile	Aurora	\$10,050.00
hasselberg@worldwideimporters.com	2012	Cadillac	SRX	\$31,995.00
hasselberg@worldwideimporters.com	2011	Honda	Civic	\$16,475.00
nartker@worldwideimporters.com	2012	Nissan	Altima	\$22,500.00
nartker@worldwideimporters.com	2010	Ford	F-250	\$26,750.00
nartker@worldwideimporters.com	2010	Volkswagen	Passat	\$17,050.00
nartker@worldwideimporters.com	2009	Chevrolet	Avalanche	\$18,250.00
nartker@worldwideimporters.com	2009	Toyota	4Runner	\$18,790.00
steiner@worldwideimporters.com	2010	Nissan	Frontier	\$19,800.00
steiner@worldwideimporters.com	2011	Honda	Accord	\$20,665.00
steiner@worldwideimporters.com	2011	Saturn	Ion	\$13,250.00
steiner@worldwideimporters.com	2007	Nissan	Pathfinder	\$11,875.00

Results include all of the rows from the first table and only those records from the second table that match the join field in the first table.

**CERTIFICATION  
READY 4.2.3**

How do you create ad hoc relationships between tables?

10. Save the query as **Join Query** and close.
  11. **LEAVE** the database open.
- PAUSE.** LEAVE Access open to use in the next exercise.

## Creating a Calculated Query Field

You can create a new field that displays the results of a calculation you define with an expression or that manipulates field values. A **calculated field** is a column in a query that results from an expression. For example, you can calculate a value; combine text values, such as first and last names; or format a portion of a date. In this exercise you use the Expression Builder to create a calculated query by subtracting two fields to determine a markup price.

You can use expressions that perform arithmetic operations in calculated fields to add, subtract, multiply, and divide the values in two or more fields. You can also perform arithmetic operations on dates or use expressions that manipulate text. Table 12-3 shows examples of expressions that can be used in calculated fields.

Table 12-3

Expressions that Can Be Used  
in Calculated Fields

Expression	Description
PrimeShip: [Ship] * 1.1	Creates a field called <i>PrimeShip</i> , and then displays shipping charges plus 10 percent in the field.
OrderAmount: [Quantity] * [Price]	Creates a field called <i>OrderAmount</i> , and then displays the product of the values in the <i>Quantity</i> and <i>Price</i> fields.
LeadTime: [RequiredDate] – [ShippedDate]	Creates a field called <i>LeadTime</i> , and then displays the difference between the values in the <i>RequiredDate</i> and <i>ShippedDate</i> fields.
TotalInventory: [UnitsInStock] + [UnitsOnOrder]	Creates a field called <i>TotalInventory</i> , and then displays the sum of the values in the <i>UnitsInStock</i> and <i>UnitsOnOrder</i> fields.
FullName: [FirstName] & "" & [LastName]	Creates a field called <i>FullName</i> that displays the values in the <i>FirstName</i> and <i>LastName</i> fields, separated by a space.
Address2: [City] & "" & [Region] & "" & [PostalCode]	Creates a field called <i>Address2</i> that displays the values in the <i>City</i> , <i>Region</i> , and <i>PostalCode</i> fields, separated by spaces.

A well-designed database does not store simple calculated values in tables. For example, a table might store an employee's hire date, but not how long she has worked for the company. If you know both today's date and the employee's date of hire, you can always calculate her employment length, so there is no need to store that in the table. Instead, you create a query that calculates and displays the pertinent value. The calculations are made every time you run the query, so if the underlying data changes, so do your calculated results.

To create a calculated field, first open or create a query and switch to Design View. In the Field row of the first blank column in the design grid, key the expression. You can use the Zoom box to access a larger screen area to help you enter the expression or, as you learned in Lesson 8, you can use the Expression Builder to easily select the elements of the expression (fields, operators, and built-in functions) from menus. To name the field, key a name followed by a colon before the expression. If you do not supply a name, Access will use a generic name for the field, for example, EXPR1. The string following the colon is the expression that supplies the values for each record. To see the SQL code, you can switch to SQL View.

## STEP BY STEP

### Create a Calculated Query Field

**USE** the database that is open from the previous exercise.

1. On the Create tab, in the Queries group, click **Query Design**.
2. In the Show Table dialog box, double-click **Inventory** to add the table to the design grid.
3. Click **Close**.
4. In the *Inventory* field list, double-click **Year**, **Make**, **Model**, **AskingPrice**, and **TradeInValue**.
5. Click the **Field** cell in the first blank column (to the right of the *TradeInValue* field) and click the **Builder** button in the Query Setup group to open the Expression Builder dialog box.
6. In the blank area of the dialog box, key the following:  
**Markup: [AskingPrice]**
7. In the Expression Elements category, click **Operators**. The dialog box should resemble Figure 12-45.

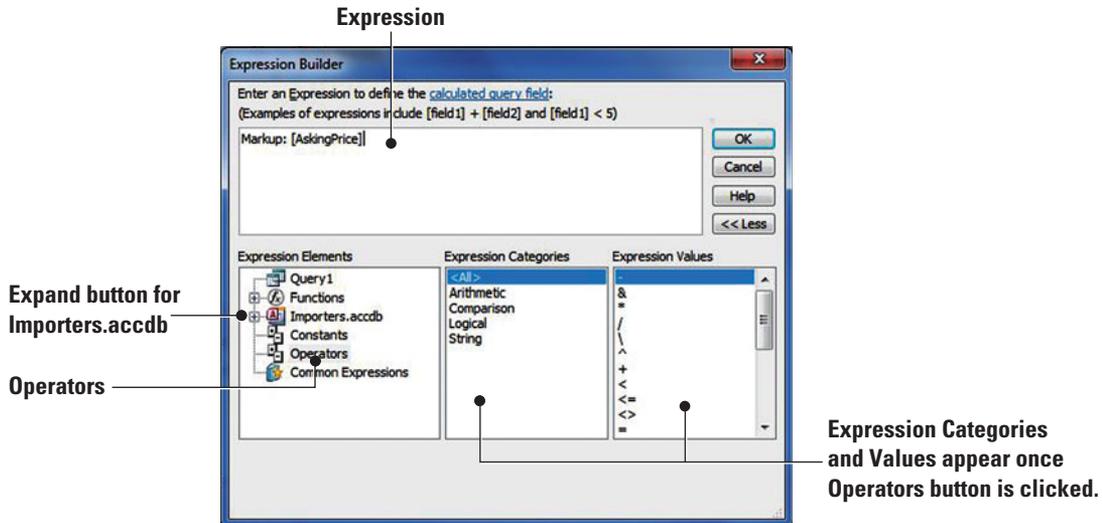


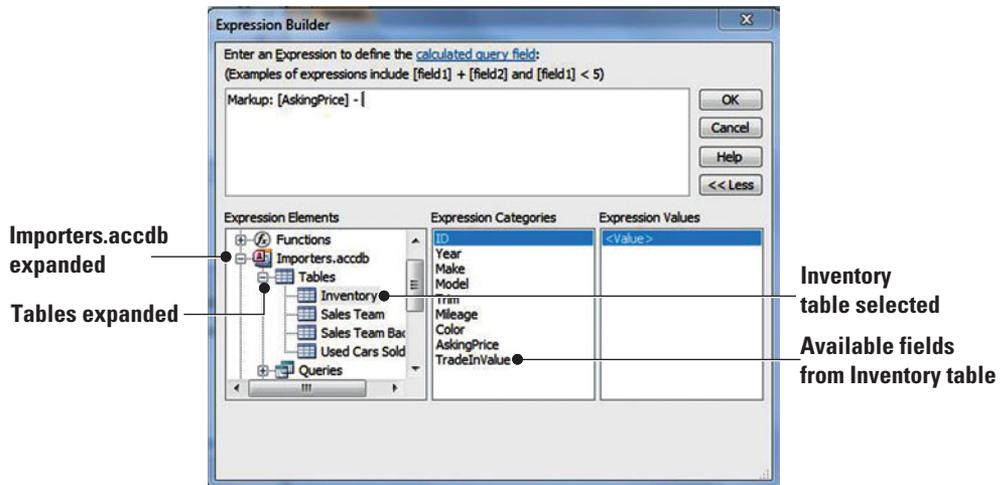
Figure 12-45

Expression Builder

8. In the Expression Values category, double-click the **minus sign (-)**. The minus sign should appear in the expression and next to the *AskingPrice* field.
9. In the Expression Elements category, click the **expand** button next to *Importers.accdb*. Tables, Queries, Forms, and Reports should appear under *Importers.accdb*.
10. In the Expression Elements category, click the **expand** button next to *Tables* to expand it. The available table names appear. Click **Inventory**. The available field from the *Inventory* table should appear in the Expression Categories box. Your screen should resemble Figure 12-46.

Figure 12-46

Expression Builder with Expression Elements expanded



11. In the Expression Categories box, double-click **TradeInValue**; *[Inventory]!TradeInValue* should appear in the expression and next to the minus sign (-).

**Take Note**

The part of the expression that reads *[Inventory]!TradeInValue* specifies that the *TradeInValue* field originates from the *Inventory* table; however, even though Access automatically formats it this way, this expression format is not required since you're already referencing the *Inventory* table in the *Table* row of the design grid.

12. Click **OK**.
13. On the *Design* tab, in the *Results* group, click **Run**. The query with the new calculated *Markup* field is displayed, as shown in Figure 12-47.

Figure 12-47

Calculated field query results

Year	Make	Model	AskingPrice	TradeInValue	Markup
2012	Toyota	Corolla	\$18,995.00	\$15,995.00	\$3,000.00
2012	Chevrolet	Equinox	\$22,495.00	\$19,000.00	\$3,495.00
2012	Nissan	Altima	\$21,495.00	\$16,995.00	\$4,500.00
2012	Cadillac	SRX	\$34,495.00	\$27,500.00	\$6,995.00
2012	Ford	Mustang	\$19,495.00	\$15,500.00	\$3,995.00
2012	Nissan	Murano	\$39,995.00	\$32,750.00	\$7,245.00
2011	Mitsubishi	Outlander	\$19,111.00	\$16,675.00	\$2,436.00
2011	Nissan	Murano	\$28,995.00	\$25,900.00	\$3,095.00
2011	Nissan	Altima	\$23,600.00	\$19,400.00	\$4,200.00
2011	Chevrolet	Impala	\$19,555.00	\$15,250.00	\$4,305.00
2011	Ford	Explorer	\$18,495.00	\$14,880.00	\$3,615.00
2011	Honda	Accord	\$22,995.00	\$18,430.00	\$4,565.00
2011	Ford	Expedition	\$23,995.00	\$19,700.00	\$4,295.00
2011	Honda	Civic	\$18,495.00	\$14,975.00	\$3,520.00
2010	Nissan	Sentra	\$14,495.00	\$10,980.00	\$3,515.00
2010	Saturn	ION	\$15,400.00	\$12,000.00	\$3,400.00
2010	Chevrolet	Tahoe	\$26,785.00	\$22,500.00	\$4,285.00
2010	Nissan	Maxima	\$23,602.00	\$19,999.00	\$3,603.00
2010	Toyota	Camry	\$19,887.00	\$16,600.00	\$3,287.00
2010	Nissan	Titan	\$25,995.00	\$20,450.00	\$5,545.00
2010	BMW	3 Series	\$25,500.00	\$21,000.00	\$4,500.00
2010	Buick	Rendezvous	\$17,995.00	\$14,775.00	\$3,220.00
2010	Lexus	RX 330	\$30,250.00	\$26,990.00	\$3,260.00
2009	Honda	Pilot	\$22,680.00	\$18,220.00	\$4,460.00
2009	GMC	Envoy	\$19,495.00	\$15,500.00	\$3,995.00
2009	Lincoln	Town Car	\$19,995.00	\$15,750.00	\$4,245.00

New field  
with results  
of calculated  
expression

**CERTIFICATION  
READY 4.5.1**

How do you create a  
calculated query field?

**CERTIFICATION  
READY 4.5.3**

How do you use Expression  
Builder to create a calculated  
query field?

14. Save the query as **Calculated Query** and close.

15. **LEAVE** the database open.

**PAUSE.** **LEAVE** Access open to use in the next exercise.

## Creating Aggregated Queries

An **aggregate function** performs a calculation on a set of values and then returns a single value. You can add, count, or calculate other aggregate values, and display them in a special row, called the Total row, which appears below the asterisk (\*) row in Datasheet View. You can use a different aggregate function for each column and you can also choose not to summarize a column. You can use aggregated functions to count the data returned by a query; calculate average values; and find the smallest, largest, earliest, and latest values using a feature called the Total row, which doesn't alter the design of your query. You can work with the Total row in both query Design and query Datasheet Views. In this exercise, you create an aggregated query using the Total row in both query Design and query Datasheet Views.

You can also apply aggregated functions in Design View where you also have the ability to use the Group By function in the Totals row on the design grid. The Group By function can be used in combination with other fields and aggregated functions. For example, if you're managing a human resource database, you can group by employees' gender and display the average salary per group.

The following aggregated functions are available in both Datasheet View and Design View:

- **Count:** Counts the number of items in a field (column of values)
- **Sum:** Sums a column of numbers
- **Average:** Averages a column of numbers
- **Maximum:** Finds the highest value in a field
- **Minimum:** Finds the lowest value in a field
- **Standard Deviation:** Measures how widely values are dispersed from an average value (a mean)
- **Variance:** Measures the statistical variance of all values in the column

The following additional aggregated functions are available in Design View:

- **First:** Finds the first value in a field
- **Last:** Finds the last value in a field

- **Expression:** Groups data based on an expression you can specify
- **Where:** Groups data based on criteria you can specify

**Take Note**

Many of the aggregated functions work only on data fields set to specific data types. For example, if you are in a column that only displays text values, some functions—such as Sum or Average—are not relevant, and are therefore not available.

**STEP BY STEP****Create an Aggregated Query**

USE the database that is open from the previous exercise.

1. On the Create tab, in the Queries group, click **Query Design**.
2. In the Show Table dialog box, double-click **Inventory** to add the table to the design grid.
3. Click **Close**.
4. In the *Inventory* field list, double-click **Year**, **Make**, **Model**, **Mileage**, **AskingPrice**, and **TradeInValue** to add them to the design grid.
5. On the Design tab, in the Results group, click **Run**.
6. On the Home tab, in the Records group, click the **Totals** button. Scroll down, if necessary, to see the Totals row at the bottom of the result set.
7. In the Totals cell of the *Year* field, click the **down arrow** to display the menu and click **Count**, as shown in Figure 12-48.

Click the down arrow in the Totals row to see aggregate function options.

Year	Make	Model	Mileage	AskingPrice	TradeInValue
2009	GMC	Envoy	31,135	\$19,485.00	\$15,500.00
2009	Honda	Pilot	57,606	\$22,680.00	\$18,220.00
2009	Lincoln	Town Car	30,087	\$19,995.00	\$15,750.00
2010	BMW	3 Series	50,145	\$25,500.00	\$21,000.00
2010	Buick	Rendezvous	28,135	\$17,995.00	\$14,775.00
2010	Chevrolet	Tahoe	26,427	\$26,785.00	\$22,500.00
2010	Lexus	RX 330	34,600	\$30,250.00	\$26,990.00
2010	Nissan	Maxima	65,328	\$23,602.00	\$19,999.00
2010	Nissan	Sentra	42,344	\$14,495.00	\$10,980.00
2010	Nissan	Titian	33,345	\$25,995.00	\$20,450.00
2010	Saturn	ION	45,682	\$15,400.00	\$12,000.00
2010	Toyota	Camry	33,986	\$19,887.00	\$16,600.00
2011	Chevrolet	Impala	17,962	\$19,555.00	\$15,250.00
2011	Ford	Expedition	37,550	\$23,995.00	\$19,700.00
2011	Ford	Explorer	49,997	\$18,485.00	\$14,880.00
2011	Honda	Accord	31,543	\$22,995.00	\$18,430.00
2011	Honda	Civic	24,925	\$18,495.00	\$14,975.00
2011	Mitsubishi	Outlander	25,951	\$19,111.00	\$16,675.00
None	Nissan	Altima	35,408	\$23,600.00	\$19,400.00
Sum	Nissan	Murano	19,080	\$28,995.00	\$25,900.00
Average	Cadillac	SRX	5,377	\$34,495.00	\$27,500.00
Count	Chevrolet	Equinox	21,804	\$22,495.00	\$19,000.00
Maximum	Ford	Mustang	12,033	\$19,495.00	\$15,500.00
Minimum	Nissan	Altima	11,071	\$21,495.00	\$16,995.00
Standard Deviation	Nissan	Murano	8,964	\$39,995.00	\$32,750.00
Variance	Toyota	Corolla	5,686	\$18,995.00	\$15,995.00
Total					

**Figure 12-48**

Totals row menu options

8. Click the **down arrow** in the Totals cell of the *Mileage* field and click **Average**.
9. Click the **down arrow** in the Totals cell of the *AskingPrice* field and click **Maximum**.
10. Click the **down arrow** in the Totals cell of the *TradeInValue* field and click **Sum**. Your Totals row should appear similar to Figure 12-49.

Year	Make	Model	Mileage	AskingPrice	TradeInValue
2009	GMC	Envoy	31,135	\$19,495.00	\$15,500.00
2009	Honda	Pilot	57,606	\$22,680.00	\$18,220.00
2009	Lincoln	Town Car	30,087	\$19,995.00	\$15,750.00
2010	BMW	3 Series	50,145	\$25,500.00	\$21,000.00
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2010	Chevrolet	Tahoe	26,427	\$26,785.00	\$22,500.00
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2010	Nissan	Maxima	65,328	\$23,602.00	\$19,999.00
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2010	Saturn	ION	45,682	\$15,400.00	\$12,000.00
2010	Toyota	Camry	33,986	\$19,887.00	\$16,600.00
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2011	Ford	Expedition	37,550	\$23,995.00	\$19,700.00
2011	Ford	Explorer	49,997	\$18,495.00	\$14,880.00
2011	Honda	Accord	31,543	\$22,995.00	\$18,430.00
2011	Honda	Civic	24,925	\$18,495.00	\$14,975.00
2011	Mitsubishi	Outlander	25,951	\$19,111.00	\$16,675.00
2011	Nissan	Altima	35,408	\$23,600.00	\$19,400.00
2011	Nissan	Murano	19,080	\$28,995.00	\$25,900.00
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2012	Chevrolet	Equinox	21,804	\$22,495.00	\$19,000.00
2012	Ford	Mustang	12,033	\$19,495.00	\$15,500.00
2012	Nissan	Altima	11,071	\$21,495.00	\$16,995.00
2012	Nissan	Murano	8,964	\$39,995.00	\$32,750.00
2012	Toyota	Corolla	5,686	\$18,995.00	\$15,995.00
<b>26</b>			<b>30,160</b>	<b>\$39,995.00</b>	<b>\$487,714.00</b>

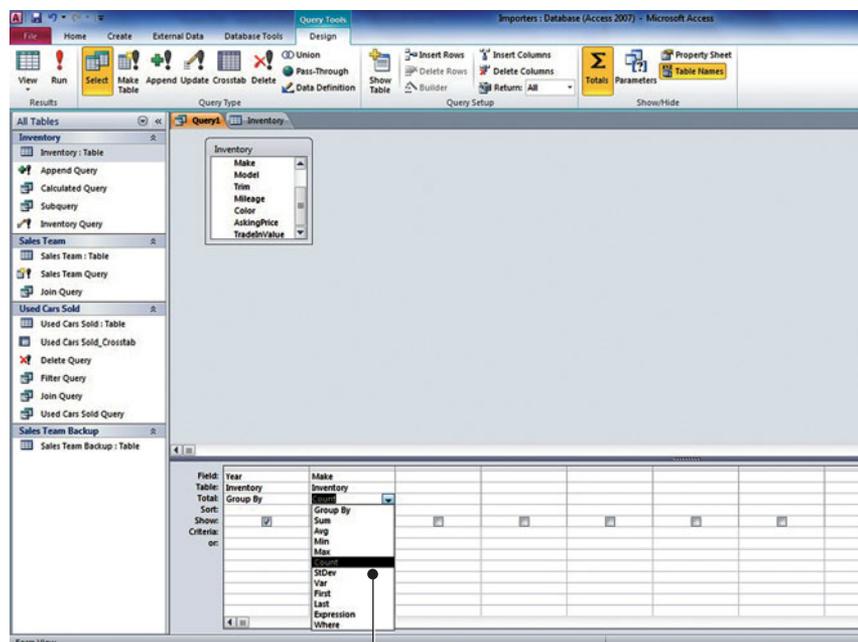
Figure 12-49

Aggregate function results

11. Switch to Design View and remove the **Model**, **Mileage**, **AskingPrice**, and **TradeInValue** from the design grid. The **Year** and **Make** fields should be the only ones remaining on the grid.
12. On the Design tab, in the Show/Hide group, click the **Totals** button. A new Totals row should appear below the Table row on the design grid.
13. Click the **Group By** cell below the **Make** field cell and click the **down arrow** to display the aggregate function menu.
14. Click the **Count** aggregate function to select it from the menu, as shown in Figure 12-50.

Figure 12-50

Aggregate function menu in Design View

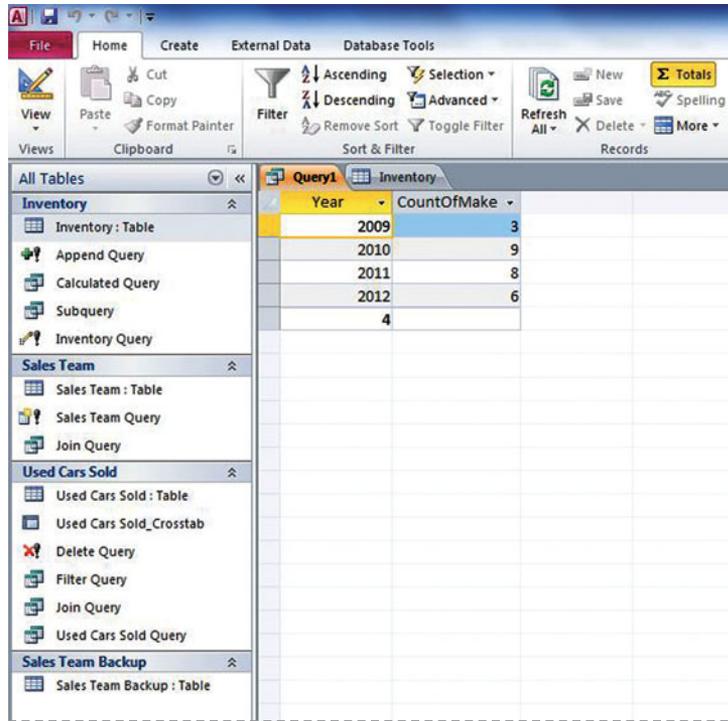


Aggregate function menu in Total row

- Switch to Datasheet View. Your screen should resemble Figure 12-51. Notice the records in the Make field are grouped by Year and counted with the results appearing in a new column named CountOfMake. Also notice the Year field is grouped and each year remains counted as applied from the aggregate function we created previously in Datasheet View.

**Figure 12-51**

Aggregate function results



**CERTIFICATION READY 4.4.1**  
How do you use the Total row to calculate totals in queries?

**CERTIFICATION READY 4.4.2**  
How do you use Group By to calculate totals in queries?

- Save the query as **Aggregated Query** and close.
  - CLOSE** the database.
- PAUSE. LEAVE** Access running to use in the next exercise.

## SKILL SUMMARY

In This Lesson You Learned How To:	Exam Objective	Objective Number
Create Crosstab Queries	Create a Crosstab query.	4.1.4
Create a subquery	Add fields.	4.3.1
	Remove fields.	4.3.2
	Rearrange fields.	4.3.3
	Use the Zoom box.	4.5.2
Save a Filter as a Query		
Create Action Queries	Create an Append query.	4.1.3
	Create a Make Table query.	4.1.2
Understand Advanced Query Modification	Create ad hoc relationships.	4.2.3
	Use Expression Builder.	4.5.3
	Perform calculations.	4.5.1
	Use Group By.	4.4.2
	Use the Total row.	4.4.1

## Knowledge Assessment

### Fill in the Blank

Complete the following sentences by writing the correct word or words in the blanks provided.

1. A(n) \_\_\_\_\_ is a SELECT statement that is inside another select or action query.
2. A(n) \_\_\_\_\_ removes rows matching on the criteria that you specify from one or more tables.
3. To minimize the risk of running an action query, you can first preview the data that will be acted upon by viewing the action query in \_\_\_\_\_ View before running it.
4. A(n) \_\_\_\_\_ includes all of the rows from one table in the query results and only those rows from the other table that match the join field in the first table.
5. A(n) \_\_\_\_\_ is a column in a query that results from an expression.
6. You can use the Group By function in the \_\_\_\_\_ row on the design grid in query Design View.
7. A(n) \_\_\_\_\_ performs a calculation on a set of values and then returns a single value.
8. A(n) \_\_\_\_\_ query always includes three types of data: the data used as row headings, the data used as column headings, and the values that you want to sum or otherwise compute.
9. To quickly add all the fields in a table to the design grid in Design View, double-click the \_\_\_\_\_ at the top of the list of table fields.
10. To be able to apply a filter when and where you want, save the filter as a(n) \_\_\_\_\_.

### Multiple Choice

Select the best response for the following statements or questions.

1. What type of query displays its results in a grid similar to an Excel worksheet?
  - a. Crosstab
  - b. Append
  - c. Aggregated
  - d. Subquery
2. What can you use for a more intuitive interface in which to enter criteria or an expression in a field or criteria cell?
  - a. Zoom box
  - b. Field list pane
  - c. Control label
  - d. Expression Builder
3. Which action query does not make changes to the data in the tables that it is based on?
  - a. Append
  - b. Make table
  - c. Update
  - d. Delete
4. Which type of query can be thought of as a powerful version of the Search and Replace dialog box?
  - a. Filter
  - b. Calculated field
  - c. Update
  - d. Crosstab

5. Which of the following is *not* a type of join?
  - a. Inner join
  - b. Exterior join
  - c. Cross join
  - d. Unequal join
6. Which of the following is *not* an aggregated function?
  - a. Lowest
  - b. Sum
  - c. Average
  - d. Count
7. Which of the following SELECT statement selects all the fields from the Inventory table?
  - a. SELECT all fields FROM Inventory
  - b. SELECT [ALL] from [INVENTORY]
  - c. SELECT from INVENTORY {all fields}
  - d. SELECT \* FROM Inventory
8. For more space in which to enter the SELECT statement in a field or criteria cell, what do you press to display the Zoom box?
  - a. Shift+F2
  - b. Ctrl+2
  - c. Shift+Enter
  - d. Ctrl+Spacebar
9. To undo the changes made by an action query,
  - a. Click the Undo button
  - b. Restore the data from a backup copy
  - c. Switch to Datasheet View
  - d. Run the query again
10. Which type of query adds the records in the query's result set to the end of an existing table?
  - a. Append
  - b. Make table
  - c. Update
  - d. Delete

## Competency Assessment

### Project 12-1: Create a Calculated Query Field

In your job as a travel agent at Margie's Travel, you are frequently asked the length of various trips. So that you don't have to calculate it mentally, create a calculated field that will give you this information.

**GET READY. LAUNCH** Access if it is not already running.

1. **OPEN** the *M Travel* database from the data files for this lesson.
2. **SAVE** the database as *M Travel XXX* (where XXX is your initials).
3. On the Create tab, in the Queries group, click **Query Design**.
4. In the Show Table dialog box, double-click **Events** to add the table to the design grid.



The *M Travel* file for this lesson is available on the book companion website or in WileyPLUS.

5. Click **Close**.
  6. In the *Inventory* field list, double-click **Event**, **StartTime**, and **EndTime** to add them to the design grid.
  7. Click the **Field** cell in the first blank column and press **Shift+F2** to open the Zoom dialog box.
  8. In the Zoom dialog box, key the following expression:  
**TripLength: [EndTime] – [StartTime]**
  9. Click **OK**.
  10. On the Design tab, in the Results group, click **Run**. The query is displayed, with a new *TripLength* field calculating the number of days of the trip.
  11. Save the query as **Calculated Query** and close.
  12. **CLOSE** the database.
- LEAVE** Access running for the next project.

### Project 12-2: Save a Filter as a Query

As purchasing manager for the Coho Vineyard monthly wine, you frequently run the same filters on the database. Now that you have learned to save a filter as a query, you can save yourself some time.

**GET READY. LAUNCH** Access if it is not already running.

1. **OPEN** *Wine Coho* from the data files for this lesson.
2. **SAVE** the database as *Wine Coho XXX* (where XXX is your initials).
3. On the Create tab, in the Queries group, click the **Query Wizard** button.
4. In the New Query dialog box, click **Simple Query Wizard** and click **OK**.
5. In the Tables/Queries drop-down list, click **Table: Red Wines**.
6. Click the **>>** button to move all the fields from the Available Fields to the Selected Fields box and then click **Next >**.
7. Click **Next >** again and then click **Finish** to display a simple select query.
8. On the Home tab, in the Sort & Filter group, click the **Advanced** button and then click **Filter by Form**.
9. In the Filter by Form, click the **down arrow** in the *Country* field and click **Italy**.
10. On the Home tab, in the Sort & Filter group, click the **Toggle Filter** button to apply the filter. The results are displayed.
11. On the Home tab, in the Sort & Filter group, click the **Advanced** button and then click **Advanced Filter/Sort** to display the new query design grid.
12. On the Home tab, in the Sort & Filter group, click the **Advanced** button and then click **Save As Query**. The Save As Query dialog box appears.
13. Key **Filter Query** in the Query Name box and click **OK**.
14. Click the **Close** button to close the Red Wines QueryFilter1 query.
15. On the Home tab, in the Sort & Filter group, click the **Toggle Filter** button to remove the filter.
16. Click the **Close** button to close the Red Wines query and save the changes when prompted.
17. **LEAVE** the database open.

**LEAVE** Access open for the next project.



The *Wine Coho* file for this lesson is available on the book companion website or in WileyPLUS.

## Proficiency Assessment

### Project 12-3: Create a Subquery

You are interested in extracting specific information about the wine prices from the database. Create a subquery to determine which white wines have a purchase price that is above average.

USE the database that is open from the previous project.

1. On the Create tab, in the Queries group, click **Query Design**.
2. Use the Show Table dialog box to add the White Wines table to the upper section of the query design grid and then close it.
3. Add the *Bottled*, *Label*, *Type*, and *PurchasePrice* fields to the design grid.
4. Place the insertion point in the Criteria row of *PurchasePrice* field and display the Expression Builder.
5. Key the following expression in the Expression Builder, using the available categories and menus:  
 > (SELECT AVG([PurchasePrice]) FROM [White Wines])
6. Click **OK**.
7. On the Design tab, in the Results group, click **Run** to display the query results.
8. Save the query as **Subquery** and close.
9. **CLOSE** the database.

LEAVE Access open for the next project.

### Project 12-4: Create a Make Table Query

As the manager at Southridge Video, you want to archive the current table with information about used games. Use the make table action query to create a backup table.

GET READY. LAUNCH Access if it is not already running.

1. **OPEN** *Games Southridge* from the data files for this lesson.
2. **SAVE** the database as *Games Southridge XXX* (where XXX is your initials).
3. Create a simple select query named **Games Query** using all the fields in the Games: Table.
4. Display the query in Design View if it is not already.
5. On the Design tab, in the Query Type group, click **Make Table** to display the Make Table dialog box.
6. In the Table Name box, key **Games Backup**. If it is not already selected, click **Current Database**, and then click **OK**.
7. On the Design tab, in the Results group, click **Run**. An alert message appears.
8. Click **Yes**. A new table appears in the Navigation Pane.
9. Close the Games Query and save the changes when prompted.
10. **CLOSE** the database.

LEAVE Access open for the next project.

 The *Games Southridge* file for this lesson is available on the book companion website or in WileyPLUS.

## Mastery Assessment

### Project 12-5: Create a Crosstab Query

As a regional manager for Contoso Pharmaceuticals, you are in charge of overseeing the sales reps in your division. To determine the total samples given by each rep in the first two weeks of the quarter, you decide to create a crosstab query.

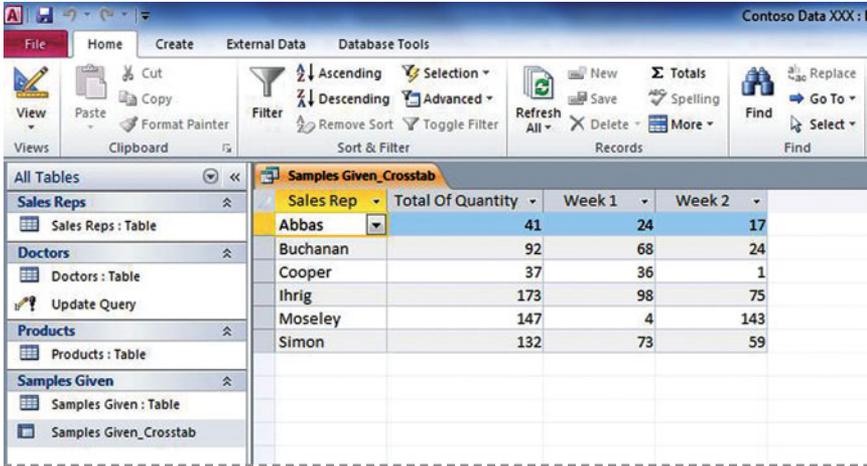
**GET READY. LAUNCH** Access if it is not already running.

1. **OPEN** *Contoso Data* from the data files for this lesson.
2. **SAVE** the database as *Contoso Data XXX* (where XXX is initials).
3. Use the Samples Given: Table and the skills you have learned in this lesson to create the crosstab query named Samples Given\_Crosstab shown in Figure 12-52.

 The *Contoso Data* file for this lesson is available on the book companion website or in WileyPLUS.

**Figure 12-52**

Crosstab query



Sales Rep	Total Of Quantity	Week 1	Week 2
Abbas	41	24	17
Buchanan	92	68	24
Cooper	37	36	1
Ihrig	173	98	75
Moseley	147	4	143
Simon	132	73	59

4. **LEAVE** the database open for the next project.

**LEAVE** Access open for the next project.

### Project 12-6: Create an Update Query

The name of one of the hospitals in your region has recently been changed. You need to create an update query to change the name in the database.

**USE** the database that is open from the previous project.

1. Create a select query named **Update Query** that includes all the fields in the Doctors: Table.
2. Switch to Design View.
3. Use criteria to select only the records that have Community Medical Center in the Hospital field.
4. Use the skills you have learned in this lesson to create an update query that will change the name of Community Medical Center to Community Regional Hospital.
5. Open the **Doctors: Table** to verify that the hospital name has been changed. Then, close the table and the query.
6. **CLOSE** the database.

**CLOSE** Access.



## INTERNET READY

At this point in the book, you have learned a lot about using Access. If you want to learn even more about Access from a programming and coding perspective, you can explore the Microsoft Developers Network (MSDN) website. The URL for this site is <http://msdn.microsoft.com>.

Here you can ask and answer questions in forums related to Access 2010 and all Microsoft applications and technologies, stay connected with the MSDN community to explore new innovations and technologies, and read articles about technical trends. The MSDN home page is shown in Figure 12-53.

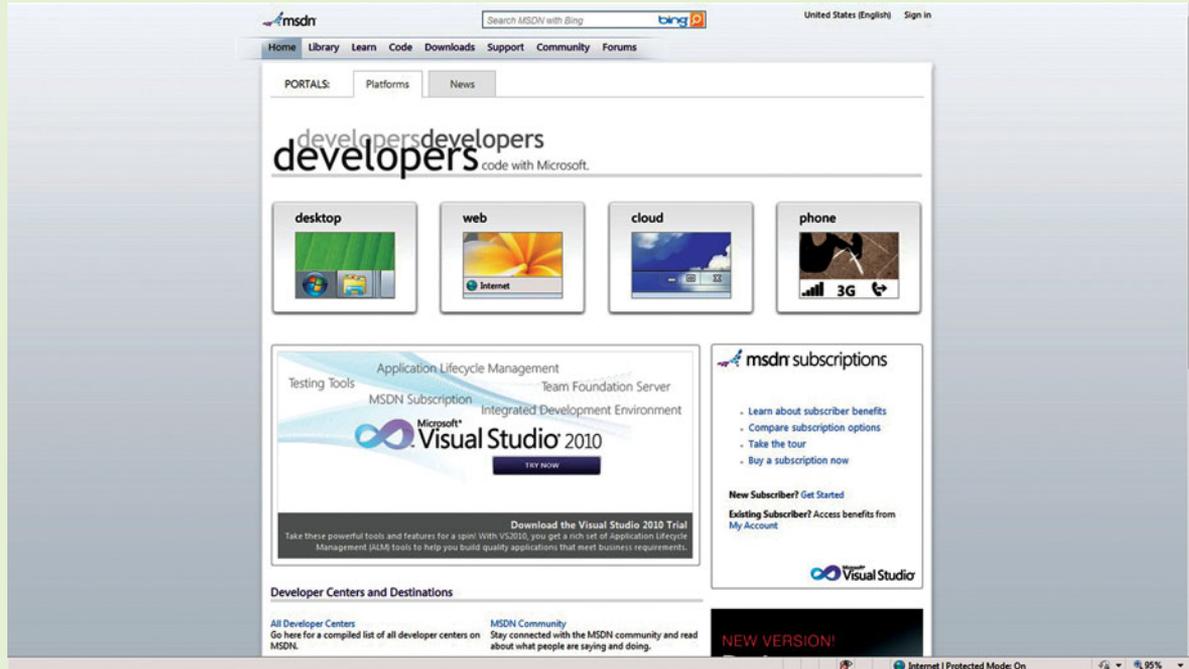


Figure 12-53

MSDN home page

## Workplace Ready

### CREATING MAILING LABELS IN ACCESS

Keeping track of sales data and contacts is vital to the success of any business. Access provides the tools you need to not only keep these records available and secure, but also to generate sales and provide customer service. Whether you need to mail a single sales brochure or do a mass mailing of two hundred, you can use Access to create the labels using the records you maintain in your Access databases.

Imagine you are a partner in a start-up software firm named Proseware, Inc., that has developed specialized software for colleges and universities. You have created an Access database with tables that include information for customers as well as sales leads for professors to whom you are marketing the product.

Using the Label Wizard in Access, you can create mailing labels and sort them by zip code for bulk mailing. You can create a parameter query that uses one or more criteria to select only certain records for labels. You can specify a label size that matches a brand of label sheets you can purchase at the office supply store, or you can choose to create a custom-sized sheet of labels. With Access, you can produce professional, high-quality mailings to your targeted audience quickly and efficiently.