FIGURE AW-2-10

The Reserved Word Warning

The column name Date is a reserved word—do **not** use reserved words as column names

Click the **Cancel** button and revise the column name
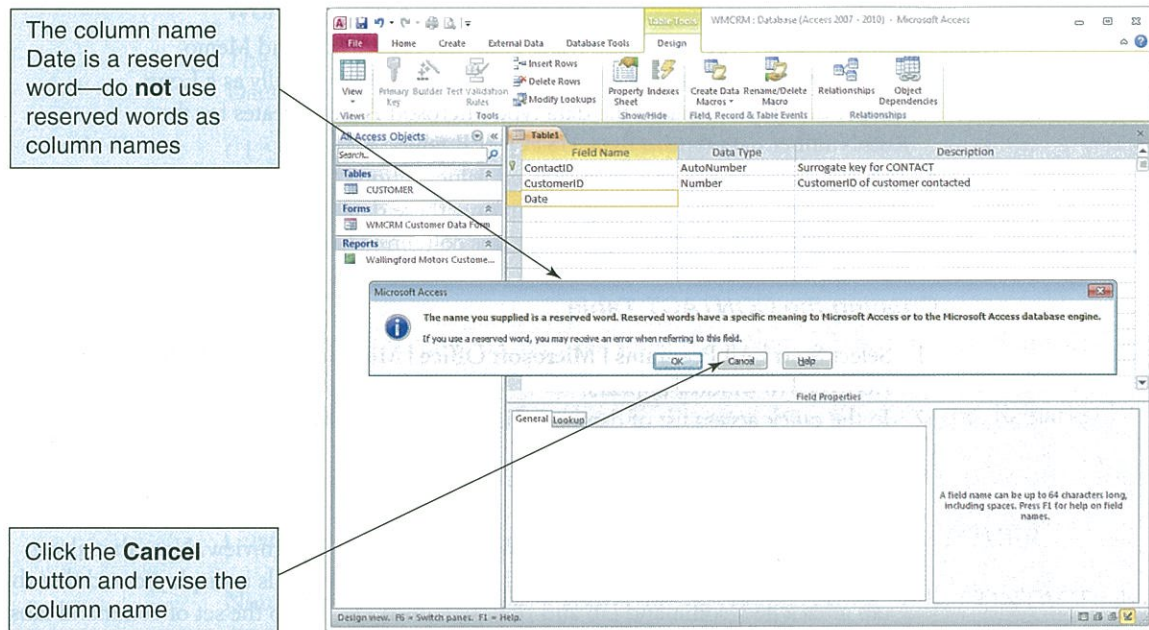
Creating Relationships Between Tables

In Microsoft Access, you build relationships between tables by using the **Relationships window**, which you access by using the **Database Tools | Relationships** command. After a relationship is created in the Relationships window, referential integrity constraints are set in the **Edit Relationships dialog box** within that window by using the **Enforce Referential Integrity check box.**
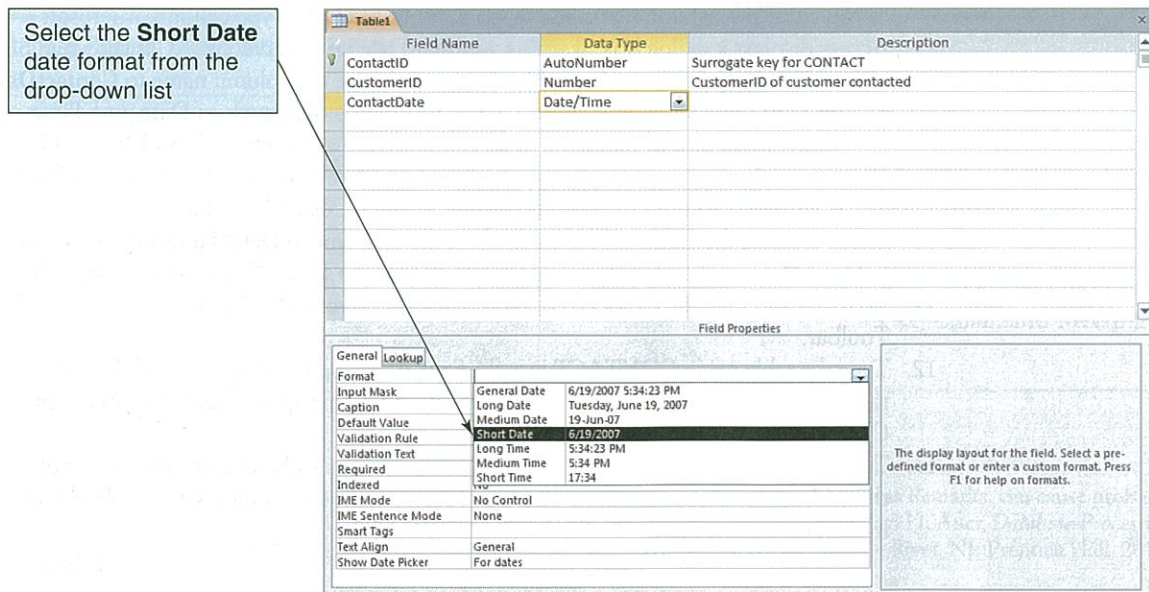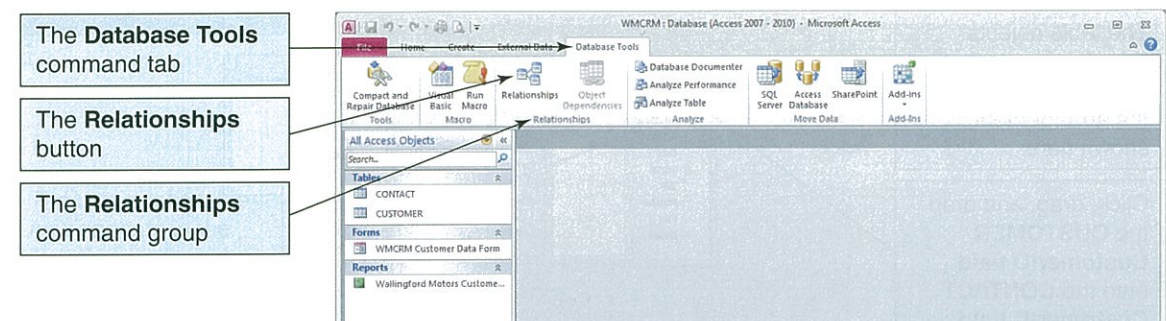
FIGURE AW-2-11

Setting the Date Format

Select the **Short Date** date format from the drop-down list

FIGURE AW-2-12

The Database Tools Command Tab

The **Database Tools** command tab

The **Relationships** button

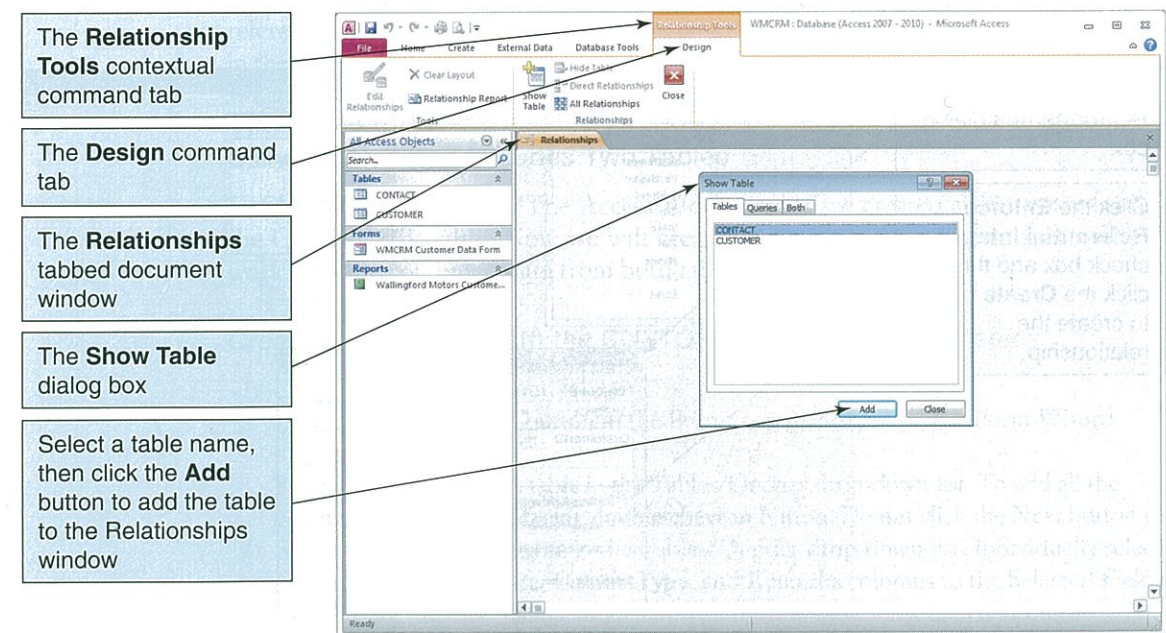The **Relationships** command group

Creating the Relationship Between the CUSTOMER and CONTACT Tables

1. Click the **Database Tools** command tab to display the Database Tools command groups, as shown in Figure AW-2-12.
2. Click the **Relationships** button in the Show/Hide group. As shown in Figure AW-2-13, the Relationships tabbed document window appears, together with the Show Table dialog box. Note that along with the Relationships window, a contextual tab named Relationship Tools is displayed and that this tab adds a new command tab named Design to the set of command tabs displayed.
3. In the Show Table dialog box, the CONTACT table is already selected. Click the **Add** button to add CONTACT to the Relationships window.
4. In the Show Table dialog box, click the **CUSTOMER** table to select it. Click the **Add** button to add CUSTOMER to the Relationships window.
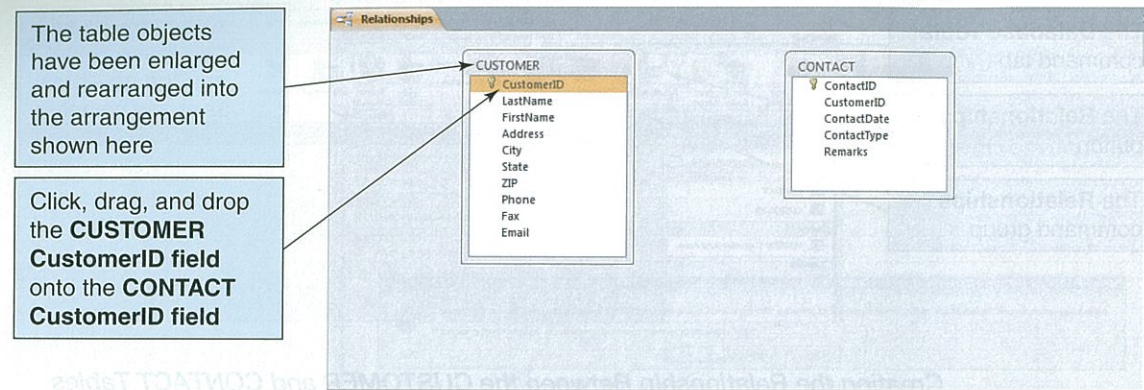
FIGURE AW-2-13

The Relationships Window

The **Relationship Tools** contextual command tab

The **Design** command tab

The **Relationships** tabbed document window

The **Show Table** dialog box

Select a table name, then click the **Add** button to add the table to the Relationships window

FIGURE AW-2-14

The Table Objects in the Relationships Window

The table objects have been enlarged and rearranged into the arrangement shown here

Click, drag, and drop the **CUSTOMER CustomerID** field onto the **CONTACT CustomerID** field

5. In the Show Table dialog box, click the **Close** button to close the dialog box.
6. Rearrange and resize the table objects in the Relationships window using standard Windows drag-and-drop techniques. Rearrange the CUSTOMER and CONTACT table objects until they appear as shown in Figure AW-2-14. Now we are ready to create the relationship between the tables.
   - **NOTE:** A formal description of how to create a relationship between two tables is "In the Relationships window, drag a primary key column and drop it on top of the corresponding foreign key column." It is easier to understand this after you have actually done it.
7. Click and hold the column name **CustomerID in the CUSTOMER table** and then drag it over the **column name CustomerID in the CONTACT table**. Release the mouse button, and the Edit Relationships dialog box appears, as shown in Figure AW-2-15.
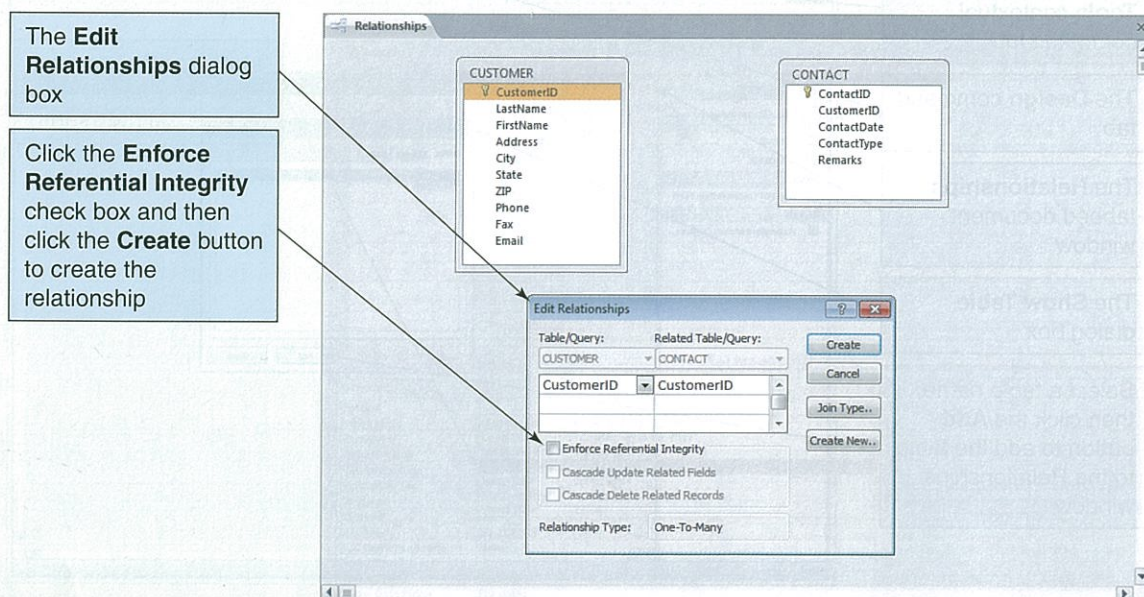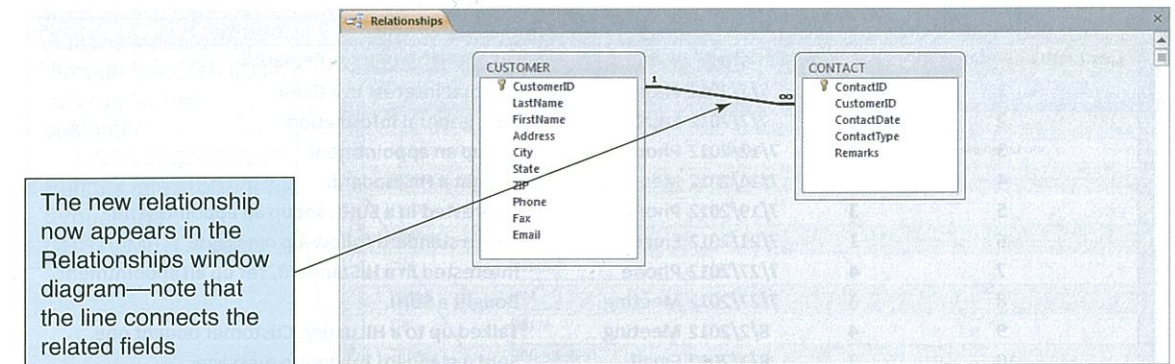
FIGURE AW-2-15

The Edit Relationships Dialog Box

The **Edit Relationships** dialog box

Click the **Enforce Referential Integrity** check box and then click the **Create** button to create the relationship

FIGURE AW-2-16

The Completed Relationship

The new relationship now appears in the Relationships window diagram—note that the line connects the related fields

- **NOTE:** In CUSTOMER, CustomerID is the primary key, and in CONTACT CustomerID is the foreign key.
8. Click the **Enforce Referential Integrity** check box.
9. Click the **Create** button to create the relationship between CUSTOMER and CONTACT. The relationship between the tables now appears in the Relationships window, as shown in Figure AW-2-16.
10. To close the Relationships window, click the **Close** button in the upper-right corner of the document window. A Microsoft Access warning dialog box appears, asking whether you want to save changes to the layout of relationships. Click the **Yes** button to save the changes and close the window.

At this point, we need to add data on customer contacts to the CONTACT table. Using the CONTACT table in Datasheet view, as discussed earlier, we enter the data shown in Figure AW-2-1 into the CONTACT table. Again, note that there is *no* customer with CustomerID of 2—this is because we deleted and reentered the data for Jessica Christman in Chapter 1's section of "The Access Workbench." Also note that because referential integrity is enabled, we *cannot* enter a CustomerID that does not already exist in the CUSTOMER table. The CONTACT table with the data inserted looks as shown in Figure AW-2-17. Be sure to close the table after the data have been entered.

Using a Form That Includes Two Tables

In Chapter 1's section of "The Access Workbench," we created a data entry form for the CUSTOMER table. Now we will create a Microsoft Access form that will let us work with the combined data from both tables.

Creating a Form for Both the CUSTOMER and CONTACT Tables

1. Click the **Create** command tab.
2. Click the **Form Wizard** button in the Forms command group. The Form Wizard appears.
3. Select the **CUSTOMER** table in the Tables/Queries drop-down list. To add all the columns, click the **right-facing double-chevron** button. Do **not** click the **Next** button yet.
4. Select the **CONTACT** table in the Tables/Queries drop-down list. Individually select and add the **ContactDate, ContactType**, and **Remarks** columns to the Selected Fields list by using the **right-facing single-chevron** button. Now click the **Next** button.

(Continued)

FIGURE AW-2-17

Data in the CONTACT Table

■ **NOTE:** You have just created a set of columns from two tables that you want to appear on one form.

5. When asked "How do you want to view your data?" use the default **by CUSTOMER** selection because we want to see all contacts for each customer. Also use the selected **Forms with subforms** option to treat the CONTACT data as a subform within the CUSTOMER form. Click the **Next** button.

6. When asked "What layout would you like for your subform?" click the **Next** button to use the default Datasheet layout.

7. When asked "What titles do you want for your form?" type the form title **WMCRM Customer Contacts Form** into the Form: text box and the form title **Contact Data** into the Subform: text box. Click the **Finish** button. The completed form appears.

8. Click the **Shutter Bar Open/Close** button to minimize the Navigation Pane. The completed form is displayed as shown in Figure AW-2-18.

9. Click the **Shutter Bar Open/Close button** to expand the Navigation Pane.

10. Close the form window.

Creating a Report That Includes Data from Two Tables

In this section, we will create a report that includes data from two or more tables. This Microsoft Access report will let us use the combined data from both the CUSTOMER and CONTACT tables.

Creating a Report for Both the CUSTOMER and CONTACT Tables

1. Click the **Create** tab.

2. Click the **Report Wizard** button to display the Report Wizard.

3. Select the **CUSTOMER** table in the Tables/Queries drop-down list. One by one, click **LastName**, **FirstName**, **Phone**, **Fax**, and **Email** to select each one, and then click the **right-facing single-chevron** button to add each column to the Selected Fields list. Do **not** click the Next button yet.

4. Select the **CONTACT** table in the Tables/Queries drop-down list. Individually select and add the **ContactDate**, **ContactType**, and **Remarks** columns to the Selected Fields list by clicking the **right-facing single-chevron** button. Now click the **Next** button.

FIGURE AW-2-18

**The Completed Form for CUSTOMER and CONTACT Data**

5. When asked "How do you want to view your data?" click the **Next** button to use the default **by CUSTOMER** selection (in order to see all contacts for each customer).

6. When asked "Do you want to add any grouping levels?" click the **Next** button to use the default nongrouped column listing.

7. We are now asked "What sort order do you want for detail records?" This is the sort order for the CONTACT information. The most useful sorting order is by date, in ascending order. Click the **sort field 1** drop-down list arrow and select **ContactDate**. Leave the sort order button set to **Ascending**. Click the **Next** button.

8. We are now asked "How would you like to lay out your report?" We will use the default setting of stepped layout, but click the **Landscape orientation** radio button to change the report orientation to landscape. Then click the **Next** button.

9. When asked "What title do you want for your report?" edit the report title to read **Wallingford Motors Customer Contacts Report**. Leave the **Preview the report** radio button selected. Click the **Finish** button. The completed report is displayed in Print Preview mode.

10. Click the **Close Print Preview** button to close Print Preview.

11. Click the **Home** command tab.

12. Click the **Shutter Bar Open/Close** button to minimize the Navigation Pane. The completed report is displayed as shown in Figure AW-2-19.

13. Although this may not be the best layout for the report, the Microsoft Access Form Wizard has created a useable report with all columns correctly sized to display the information (if there are any columns that are not correctly displayed use the Layout view in the view gallery to make minor adjustments—this tool can be used to make

FIGURE AW-2-19

The Wallingford Motors Customer Contact Report
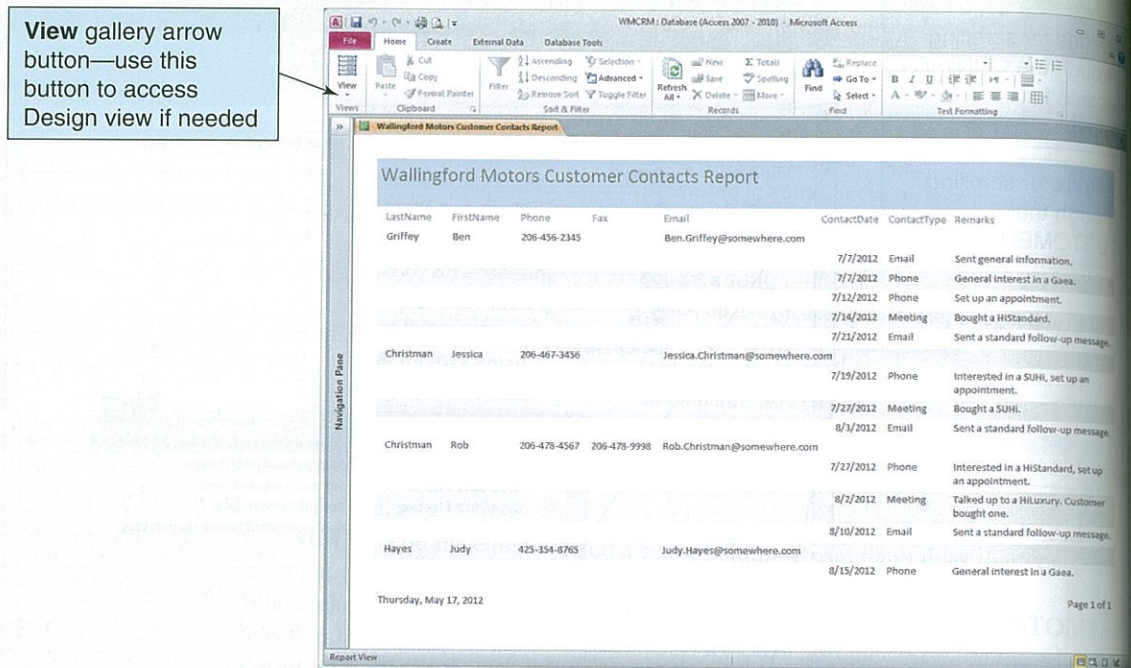
basic adjustments by simply clicking the report section you want to change). We will discuss how to use report Design view to modify reports in Chapter 5's section of "The Access Workbench."

14. Click the **Shutter Bar Open/Close** button to expand the Navigation Pane.
15. Click the document window's **Close** button to close the report window.

Closing the Database and Exiting Microsoft Access

We have finished the work we need to do in this chapter's "The Access Workbench." As usual, we finish by closing the database and Microsoft Access.

Closing the WMCRM Database and Exiting Microsoft Access

1. To close the WMCRM database and exit Microsoft Access 2010, click the **Close** button in the upper-right corner of the Microsoft Access 2010 window.

SUMMARY

The relational model is the most important standard in database processing today. It first published by E. F. Codd in 1970. Today, it is used for the design and implementa of almost every commercial database.

An entity is something of importance to a user that needs to be represented in a base. A relation is a two-dimensional table that has the characteristics listed in Figure 2 this book, and in the database world in general, the term *table* is used synonymously with term *relation*. Three sets of terminology are used for relational structures. The terms row, and *column* are used most commonly, but *file, record,* and *field* are sometimes use traditional data processing. Theorists also use the terms *relation, tuple,* and *attribute* for same three constructs. Sometimes these terms are mixed and matched. Strictly speaking