UNIT J
Access 2010

Understanding Databases

Access is a **database management system (DBMS)**, a powerful tool for storing, organizing, and retrieving information. Before you start using Access, you need to know some basic concepts about databases and database management systems.

DETAILS

Databases can help you:

- **Store information**

A database stores data in one or more spreadsheet-like lists called **tables**. For instance, one table in a database might store all data about a company's products, another table might store data about the company's customers, and another might store data about the company's orders. A database containing just one table is called a **simple database**, while one that contains two or more tables of related information is called a **relational database**. Figure J-1 shows the Sales Reps table you will create in this unit, which will be used to keep track of sales rep information. Each row in the table is called a **record**. Records consist of **fields**, which contain information about one aspect of a record, such as the rep's last name or the sales goal. The column headings in the table are called **field names**. Because entering data in the rows and columns format of a table is tedious, you can create a form to make data entry easier. A **form** is a user-friendly window that contains text boxes and labels that let users easily input data, usually one record at a time. Each text box in a form corresponds with a field from a table. Figure J-2 shows the form you will create in this unit that is based on the Sales Reps table.

- **Retrieve information**

Once you add data to a database, you can use Access queries or reports to retrieve or display all or part of the information in meaningful ways. A **query** extracts data from one or more database tables according to criteria that you set. For instance, at Outdoor Designs, you could create a query that displays all the customers in California. You can also create reports that print selected information from the database. A **report** is a summary of information pulled from the database, specifically designed for printing. Tables, forms, queries, and reports are program components called **objects**. Table J-1 provides a summary of common database objects.

- **Connect information**

As a relational database management system, Access is particularly powerful because you can enter data once and then retrieve information from all or several tables as you need it. For example, Figure J-3 shows a report that contains fields from two related tables, Sales Reps and Sales Managers. Each table has mostly unique information, but they share Manager ID as a common field. Because the Manager ID field is shared by both tables, the tables can be linked, allowing you to pull information from both at once. Also, if you make changes to the data in a particular field in a table, any other object (such as a report or a query) that contains that field will automatically update to reflect the new value. For instance, in the example shown in Figure J-3, let's imagine that sales rep Linda Davis changed her name to Linda Brown. If you delete Davis from the Last Name field in the Sales Reps table and replace it with Brown, the report at the top of the figure would automatically update to show the last rep's name as Linda Brown. Likewise, if you replaced Davis with Brown in the Last Name field in the report, the field value in the table would automatically change from Davis to Brown.

TABLE J-1: **Common database objects in Access**

objects	description
Table	A list of data organized in rows (records) and columns (fields)
Query	A set of criteria you specify to retrieve data from a database
Form	A window that lets you view, enter, and edit data in a database one record at a time
Report	A summary of database information designed specifically for distributing or printing

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Creating a Table in Datasheet View

When you start working in a new database, a blank table opens in Datasheet view. In **Datasheet view**, you can add fields to a table and view any data that the table contains. Before you begin adding fields to the table, it is a good idea to save the table with an appropriate name. Although you already saved the database, you also need to save each object you create within it, including tables. To add a field to a table, you need to specify its data type (such as Text or Currency) and then specify a name. See Table J-2 for a description of field data types you can use. Every table in a database must contain one field that is designated as the **primary key field**, which uniquely identifies each record among all other records in a database. By default, every blank new table in Access includes a blank ID field, which is automatically designated the primary key field. You need to save the blank table with the name Sales Managers. Then, before you add new fields, you need to change the ID field data type to Text. Finally, you need to specify names and data types for new fields in the table.

STEPS

1. Click the Save button on the Quick Access toolbar

The Save As dialog box opens. You need to specify a name for the new table.

2. Type Sales Managers in the Table Name text box, then click OK

The Sales Managers table is saved to the Outdoor Designs database. The name Sales Managers now appears under the Tables heading in the Navigation Pane and in the tab above the datasheet. Notice the ID field. In this table, the ID field name can be used to store each manager's ID number.

QUICK TIP
Objects are saved within and are only available from the database file, not as separate files.

3. Click ID in the table

The ID field is selected. Notice that the Data Type text box in the Formatting group indicates that the field has the AutoNumber data type applied to it. The **AutoNumber** data type assigns a unique number for each record in the table, starting with 1 and increasing sequentially by 1 for each record. You need to change the data type to Text, because Manager ID numbers are unique numbers that need to be entered individually.

QUICK TIP
The AutoNumber data type guarantees that each record is uniquely identified, even if some fields contain identical information (for instance, two customers with the same last name). AutoNumber fields cannot be modified.

4. Click the Data Type list arrow in the Formatting group, then click Text, as shown in Figure J-6

The ID field now has the Text data type applied to it. The Text data type is appropriate here because it lets you enter text (such as names), numbers that do not require calculations (such as phone numbers), or combinations of text and numbers (such as street addresses).

5. Click Click to Add in the second field in the table

A menu of available field types opens, as shown in Figure J-7. You want to apply the Text data type to this field because it will be used for manager last names.

6. Click Text

The Text data type is now applied to the second field, and the temporary field name Field1 is selected. You can now type the name for this field.

QUICK TIP
To rename a field, double-click the field name, then type the new name.

7. Type Manager Last Name, then press [Tab]

The second field in the table now displays the name Manager Last Name. The Data Type list is now open for the third field in the table, which you need to use for manager first names.

QUICK TIP
To access a variety of named fields with data types applied, click More Fields in the Add & Delete group, then click a field.

8. Click Text, type Manager First Name, click Click to Add, click Text, type Region, then save your changes

You entered the Manager First Name field name and the Region field name and applied the Text data type for each. The table now contains four text fields, as shown in Figure J-8.

FIGURE J-6: **Applying the Text data type to the ID field**

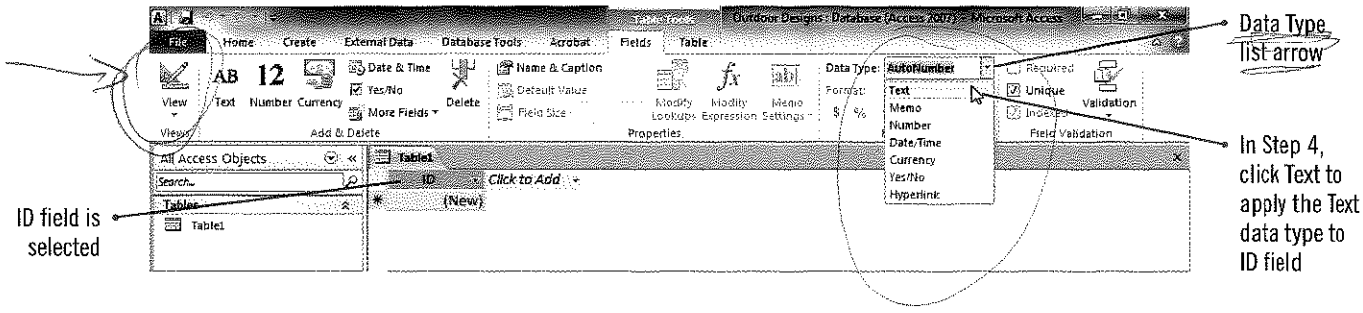

FIGURE J-7: **Specifying a data type for a new field**

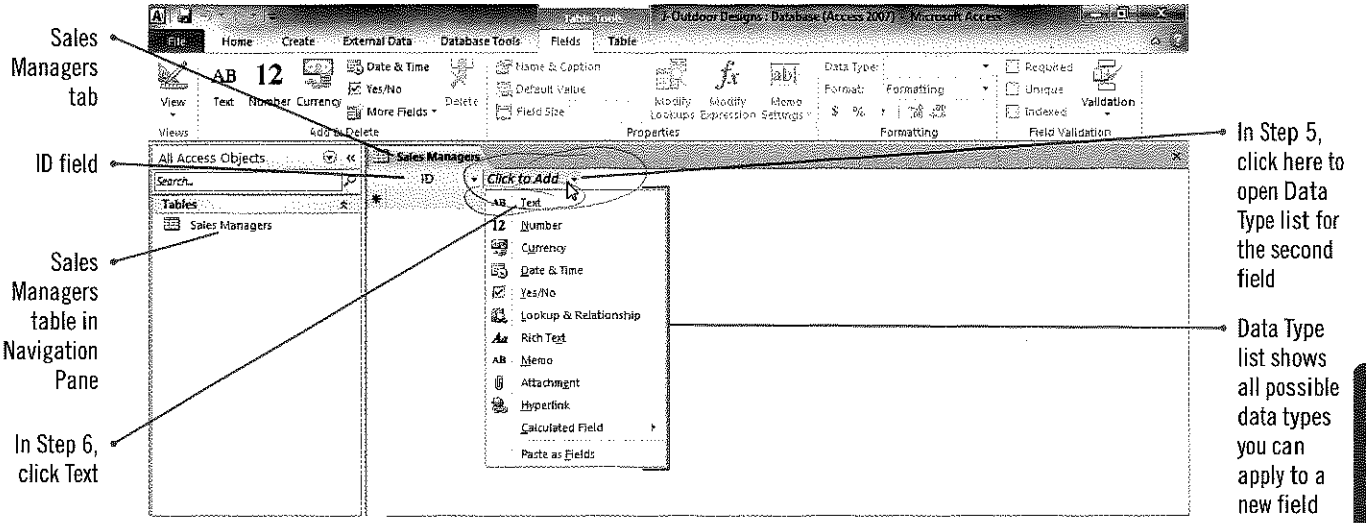

FIGURE J-8: **Sales Managers table with four fields**

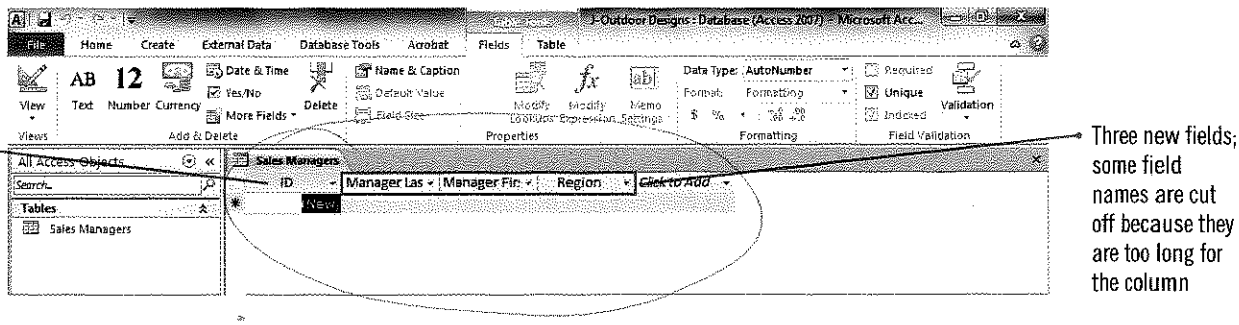

TABLE J-2: **Common field data types**

data type	description
Text	A word or string of words, numbers that do not require calculations, or a combination of text and numbers
AutoNumber	Unique sequential numbers that Access assigns to each new record, which cannot be edited
Date/Time	Date and time values
Number	Numeric data to be used in calculations
Currency	Currency values and numeric data used in calculations
Yes/No	Values that can be only Yes or No; used to identify the presence or absence of specific criteria
Memo	Lengthy text (which can also contain numbers that do not require calculations)
Calculated	Displays a value that is the result of a formula that includes field values

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Creating a Table in Design View

Databases usually contain many tables. To add a new table to a database, click the Table button in the Tables group on the Create tab. Although you can add fields to a new or an existing table using Datasheet view, it is often easier to use Design view. In Design view, you use a grid to enter fields and specify field data types. You can also add field descriptions to fields in Design view. A **field description** identifies the purpose of a field and helps users of the database understand the information that the field is meant to contain. You can also use Design view to view and change the primary key field in a table. You need to create a new table that contains information about the Sales Reps. You decide to create this table using Design view.

STEPS

1. **Click the Create tab, then click the Table button in the Tables group**
   A new blank table with the temporary name Table1 opens in Datasheet view.
2. **Click the Save button on the Quick Access toolbar, type Sales Reps in the Save As dialog box, then click OK**
   The Sales Reps table is saved to the Outdoor Designs database. The name Sales Reps now appears under the Tables heading in the Navigation Pane and in the tab above the datasheet, next to the Sales Managers tab.

QUICK TIP
You can also change to a different view by clicking the view buttons on the right end of the status bar.

3. **Click the View list arrow in the Views group, then click Design view**
   The main window now displays a grid with the headings Field Name, Data Type, and Description. The ID field is listed as the first field; the key icon to the left of ID indicates that this is the primary key field. You want to change the name of the ID field to Rep ID.
4. **Type Rep ID, then press [Tab]**
   The ID field name is changed to Rep ID. This field currently has the AutoNumber data type applied to it. You want to change the data type to Text because each rep is assigned a unique Rep ID.
5. **Click the AutoNumber arrow in the Data Type column as shown in Figure J-9, then click Text**
   The Rep ID field now has the Text data type. You need to enter a description for this field, which will appear in the status bar and help users understand what type of data should be entered for this field.
6. **Press [Tab], type Unique number assigned to a rep, then press [Enter]**
   Pressing [Tab] or [Enter] moves the pointer to the next cell in the grid. The blank field below Rep ID is now active and ready for you to type a new field name in it.
7. **Type Rep Last Name, press [Enter] three times, type Rep First Name, press [Enter] three times, type Manager ID, then press [Enter] three times**
   You entered three new fields and specified the data types for each as Text. If you specify no particular data type, the Text data field is automatically applied.

QUICK TIP
To show the description message in the status bar wherever the Gold Star Club field is used, click the Property Update Options button below the Description you typed, then click Update Status Bar Text everywhere the Gold Star Club is used.

8. **Type Sales Goal, press [Enter], click the Data Type list arrow, click Currency, then press [Enter] twice**
   You applied the Currency data type to the Sales Goal field. The Currency data type is appropriate because this field will contain the dollar amount of a rep's sales goal for the year. Any numbers entered in this field will automatically be formatted as currency.
9. **Type Gold Star Club, press [Enter], type Y, press [Enter], type Yes if rep met sales goal in prior year, press [Enter], then save your changes**
   Typing the letter Y in the Data Type column applied the Yes/No data type for the Gold Star Club field. In Datasheet view, any field with a Yes/No data type will contain a check box; a check mark in a field check box indicates a Yes value for the field. The description you typed in the Description column will let users know to mark this field as Yes if the rep achieved his or her sales goal in the prior year. Compare your screen to Figure J-10.

FIGURE J-9: **Specifying a data type for the Rep ID field in Design view**

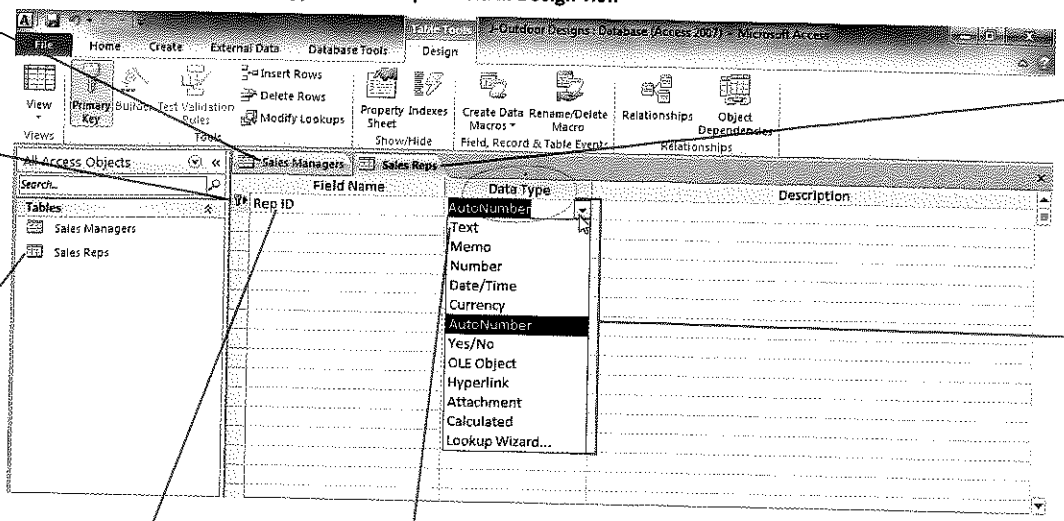
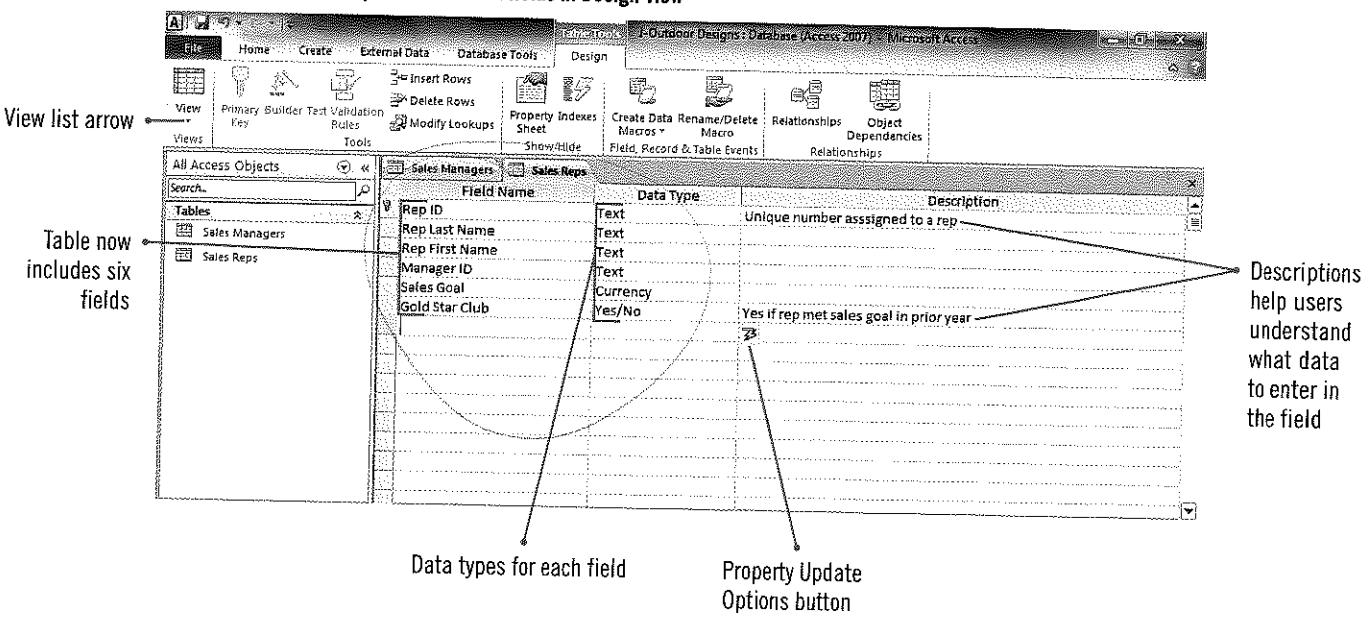


FIGURE J-10: **Sales Reps table with six fields in Design view**



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Modifying a Table and Setting Properties

After creating a table, you might need to make changes to it. For instance, you might want to add field descriptions, or insert, delete, rearrange, or rename fields. Although you can make some table design changes in Datasheet view, Design view is the best view for modifying a table's structure. In Design view, you can set field properties. **Field properties** are data characteristics that dictate how Access stores, handles, and displays field data. For instance, the Field Size property for the Text data type specifies the number of characters that a user can enter for that field. If a field name is long, is technical, or uses abbreviations, you might want to change its Caption property. The **Caption property** is a label that appears in a form or in Datasheet view in place of the field name to clarify the field's contents for data entry or interpretation. You use the Field Properties pane to view and change properties for a selected field. You need to make changes to the Sales Managers table. You need to change the name of the ID field, limit its field size to 5, and add a field description for it. You also need to add captions to two fields and insert a new Date Hired field.

STEPS

1. **Click the Sales Managers table tab, click the View list arrow in the Views group, then click Design view**

   The Sales Managers table opens in Design view. The Field Name column shows the four fields this table contains. The middle Data Type column shows that each field has the Text data type applied. You want to change the name of the ID field to Manager ID. The ID field is selected, so you are ready to type the new name.

QUICK TIP
To rename a field in Datasheet view, double-click the field name to select it, then type the new name.

2. **Type Manager ID**

   The field name is changed to Manager ID. The Field Properties pane at the bottom of the screen displays the field properties for the Manager ID field. The settings reflect the default settings for the Text data type. By default, text fields have a limit of 255 characters.

QUICK TIP
The Field Properties pane changes depending on which field is currently selected. Different data types have different field property options.

3. **Double-click 255 in the Field Size text box in the Field Properties pane, then type 5**

   Users will not be able to enter more than five characters for this field, as shown in Figure J-11. This will help prevent data entry errors because the manager ID is a five-digit number.

4. **Click Manager ID in the Field Name column, press [Tab] twice to move to the Description text box, type Unique ID number assigned to manager**

   This description will appear in the status bar in Datasheet view or Form view when this field is active.

5. **Click Region in the fourth row of the Field Name column, then click the Insert Rows button in the Tools group**

   A new, blank row is inserted between Manager First Name and Region.

6. **Type Date Hired, press [Enter], click the Data Type arrow, then click Date/Time**

   You added a new Date Hired field and specified its data type as Date/Time.

7. **Click Manager Last Name, click in the Caption text box in the Field Properties pane, type Last Name, then press [Enter]**

   The caption for the Manager Last Name field is now Last Name. This means that only Last Name will be displayed as the field name for this field in Datasheet view and in any form that includes this field.

8. **Click Manager First Name, click in the Caption text box in the Field Properties pane, type First Name, then press [Enter]**

   You specified the caption for the Manager First Name field as First Name, as shown in Figure J-12.

QUICK TIP
You must save changes to an object before switching views.

9. **Save your changes, then click the View button in the Views group**

   The view changes to Datasheet view, as shown in Figure J-13. Notice that the Manager Last Name and Manager First Name fields now appear as Last Name and First Name, reflecting the changes you made to the Caption property for these fields.

FIGURE J-11: **Changing the Field Size property for the Manager ID field in Design view**

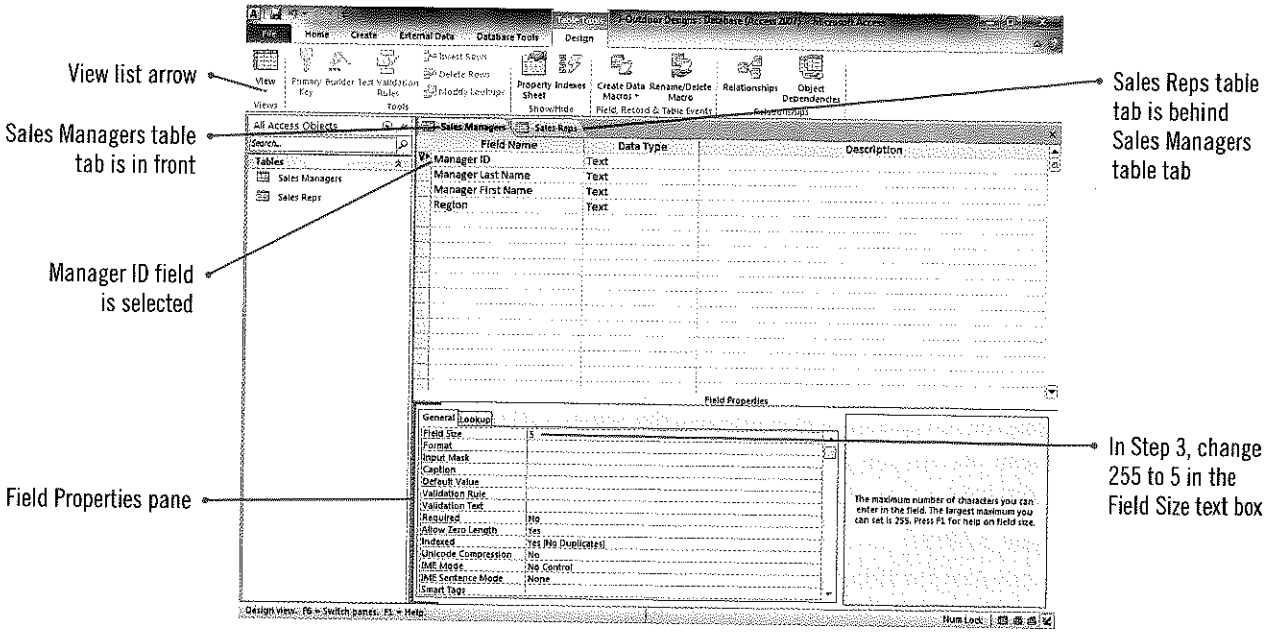


FIGURE J-12: **Sales Managers table in Design view after adding a field and changing properties**

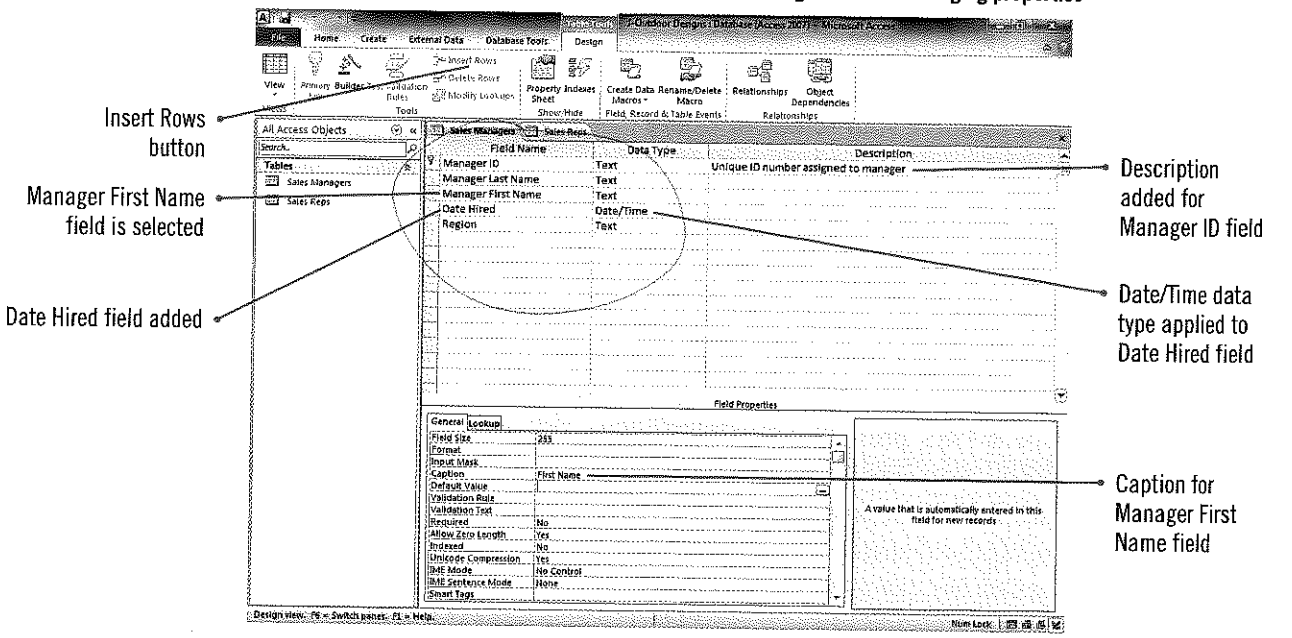
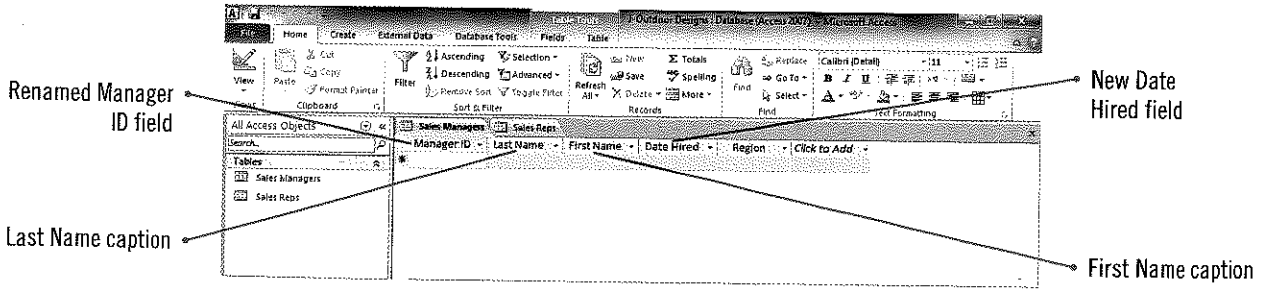


FIGURE J-13: **Sales Managers table in Datasheet view after changes**



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Entering Data in a Table

You can use Datasheet view to enter data in a table; just click where you want to enter a value and start typing. Each row of the table is one record. A **row selector** to the left of each record lets you select a record or records. The field names at the top of each column identify the fields. The data you enter in each field is called a **field value**. You are ready to enter records into the Sales Managers and Sales Reps tables. You decide to enter all three Sales Manager records, but only the Sales Reps records for the West region.

STEPS

QUICK TIP
You can also press [F11] to open or close the Navigation Pane.

1. **Click the Shutter Bar Close button on the Navigation Pane, then click in the Manager ID field**

With the Navigation Pane minimized, the Manager ID field name is highlighted, indicating it is selected. A star in the first row selector indicates it is a new record. The Manager ID field description appears in the status bar.

QUICK TIP
A pencil icon appears in the row selector for the first record, indicating that this record is being edited.

2. **Type 520997**

Notice that the field will not accept the sixth digit (7) because you set the Field Size property to five. The manager ID for this record is actually 52099, so you can move on to the next field.

3. **Press [Enter]**

Pressing [Enter] or [Tab] accepts your entry and moves the insertion point to the next field.

QUICK TIP
You can also enter a date by clicking the calendar icon that appears when you click in a field formatted as a date, then using the calendar window to complete the entry.

4. **Type Perkins, press [Enter], type Emily, press [Enter], type 9/3/10, press [Enter], type West, then press [Enter]**

Access changed the date to the date format 9/3/2010. The Manager ID in the second record is now active.

5. **Use the table below to add two more records to the Sales Managers table, press [Enter], then compare your screen to Figure J-14**

Manager ID	Last Name	First Name	Date Hired	Region
91552	Jackson	Alex	10/5/2010	Midwest
70485	Cardoso	Sofia	4/22/2011	East

QUICK TIP
To indicate No in a Yes/No field, no action is required; just press [Enter] or [Tab] to skip to the next field. If you inadvertently add a check mark, click it again to remove the check mark.

6. **Click the Sales Reps table tab, then click the Datasheet View button on the status bar**

In Datasheet view, the six fields you added in Design view appear as column headings, and the Rep ID field is active. You need to enter the records for the reps who report to Emily Perkins. Emily's Manager ID is 52099.

7. **Type R-1985, press [Enter], type Sanders, press [Enter], type Jerome, press [Enter], type 52099, press [Enter], type 1200575, press [Enter], click the check box in the Gold Star Club field, then press [Enter]**

The value you entered for the Sales Goal field (1200575) is formatted as currency. The check box in the Gold Star Club field indicates a Yes value.

QUICK TIP
To delete a record, click the row selector for the record, then press [Delete].

8. **Use the table below to add three more records to the Sales Reps table, save your changes, then compare your screen to Figure J-15**

Rep ID	Rep Last Name	Rep First Name	Manager ID	Sales Goal	Gold Star Club
R-1999	Garcia	Jose	52099	$875,275	Yes
R-1974	Holmes	Grace	52099	$775,865	Yes
R-1981	Chung	David	52099	$665,785	No

FIGURE J-14: **Field values entered in Sales Managers table in Datasheet view**

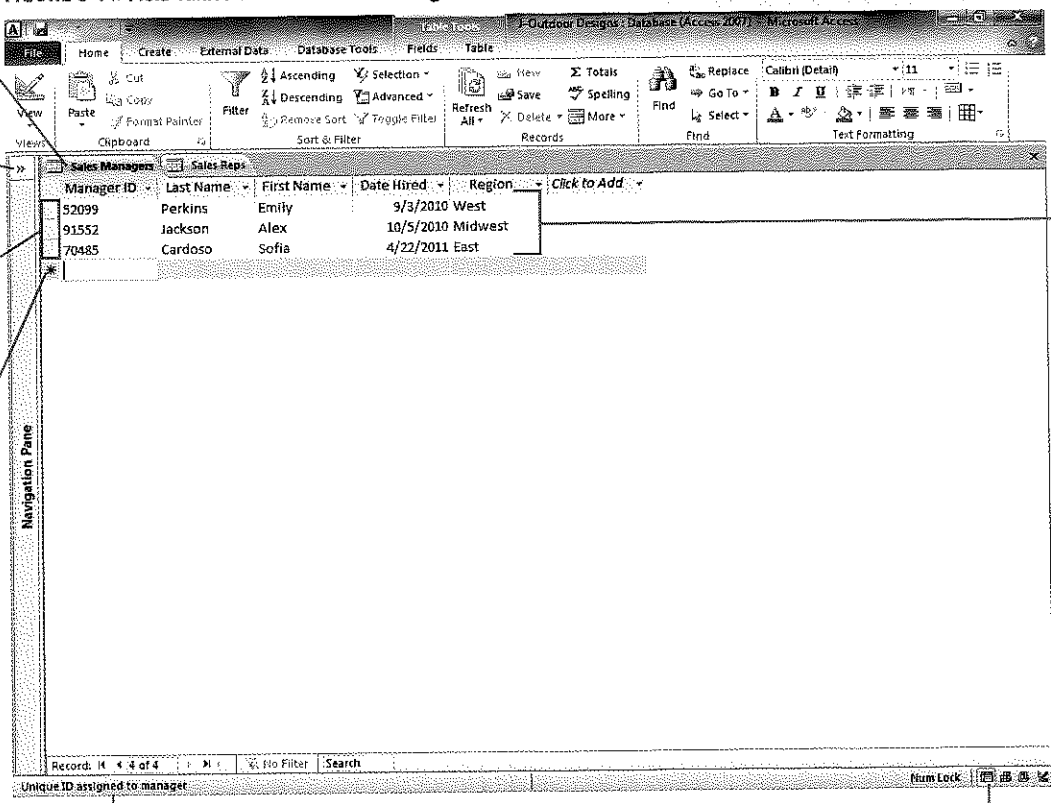
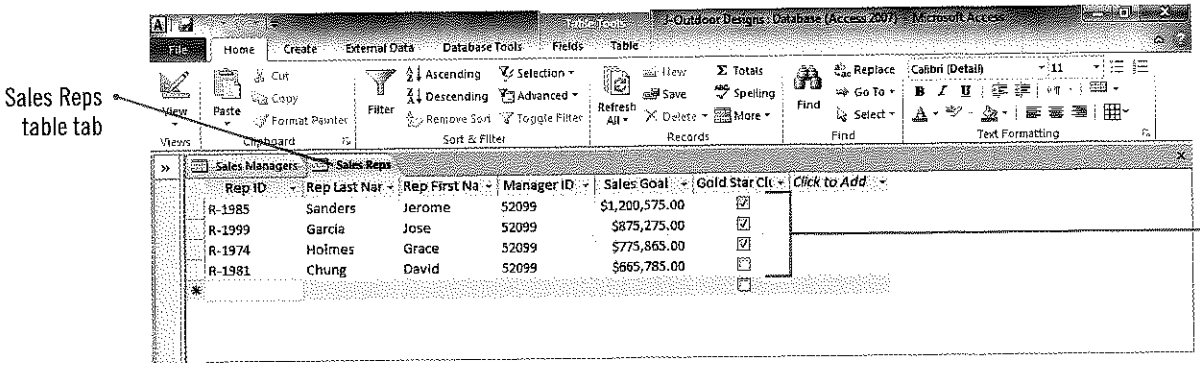


FIGURE J-15: **Field values entered in Sales Reps table in Datasheet view**



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Editing Data in Datasheet View

The data in a database is dynamic and always changing. Unlike a Word document or an Excel workbook, a database is never "finished"; the data it contains constantly needs updating to reflect changes. To keep the data in a database current, you need to add and delete records and make edits to individual fields on a regular basis. You can edit the data in a table in Datasheet view using the editing skills you learned for Word and Excel. To edit a field value, you need to select either the entire field value or the part of it you want to edit, then type the replacement data. As you make edits in a datasheet, you might find it helpful to resize columns to make the data easier to see. To resize a column to fit its contents, double-click the line between the column headings. To resize a column to a specific width, drag the line between the column headings to the desired width. You just learned that sales rep Grace Holmes moved to Ohio and now reports to the Midwest sales manager, and that a new rep has taken over David Chung's territory. You need to edit these records in the Sales Reps table.

STEPS

1. **In the Sales Reps table, click R-1981 in the fourth row, then press [F2]**
   Pressing [F2] selects the entire field value R-1981, the Rep ID for David Chung.

QUICK TIP
If you start editing a field and realize you want to keep the original entry, press [Esc] to undo the edit.

2. **Type R-2010, press [Enter], type Horowitz, press [Enter], type Sam, then press [Enter]**
   The text you typed replaced the original field values for the Rep ID, Rep Last Name, and Rep First Name fields for the fourth record. No other changes are needed for this record.

3. **In the Sales Goal field for the Grace Holmes record, click to the right of $775,865.00, press [Backspace] six times, type 225, then press [Enter]**
   The field value in the Sales Goal field for the third record now reads $775,225.00, the new sales goal for Grace Holmes. Using the [Backspace] key is another useful method for editing field values in a datasheet. You can also edit text by selecting it and then typing new text.

QUICK TIP
To move to the previous field in a datasheet, press [Shift][Tab].

4. **In the Manager ID field for Grace Holmes, double-click 52099, type 91552, then press [Enter]**
   The Manager ID field value for the third record now reads 91552, which is the Manager ID for the Midwest sales manager (Alex Jackson).

QUICK TIP
You can also resize columns by dragging the column separator to the width you want.

5. **Point to the border between the Rep Last Name field and the Rep First Name field names until the pointer changes to ✢, as shown in Figure J-16, then double-click**
   The Rep Last Name column widened just enough to fit the entire field name. The border between the field names that you clicked is called the **column separator**. Double-clicking the column separator automatically resizes a column to make it larger or smaller to fit the widest field name or field contents.

6. **Double-click the column separator ✢ between each of the field names in the field name row**
   Each column is now resized, as shown in figure J-17.

QUICK TIP
You can also save or close a table by right-clicking its tab, then clicking Save or Close.

7. **Save your changes to the Sales Reps table, then click the Close 'Sales Reps' button**
   The Sales Reps table closes.

8. **Save your changes to the Sales Managers table, then click**
   The Sales Manager table closes.

FIGURE J-16: **Resizing a column in Datasheet view**

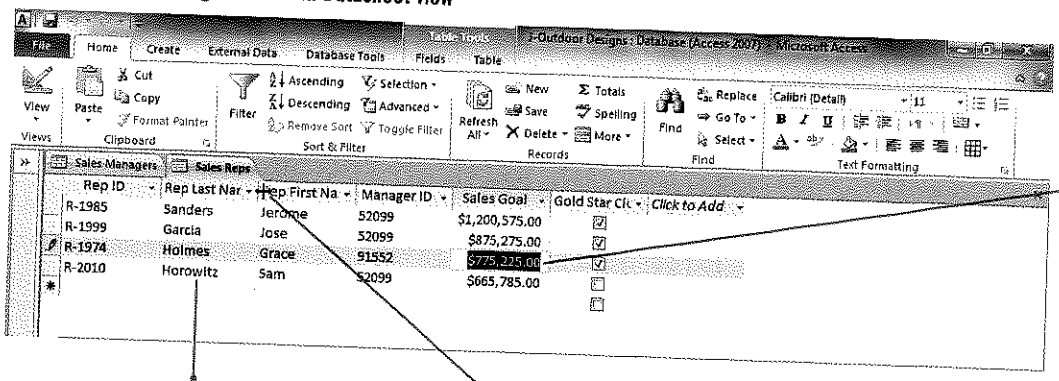
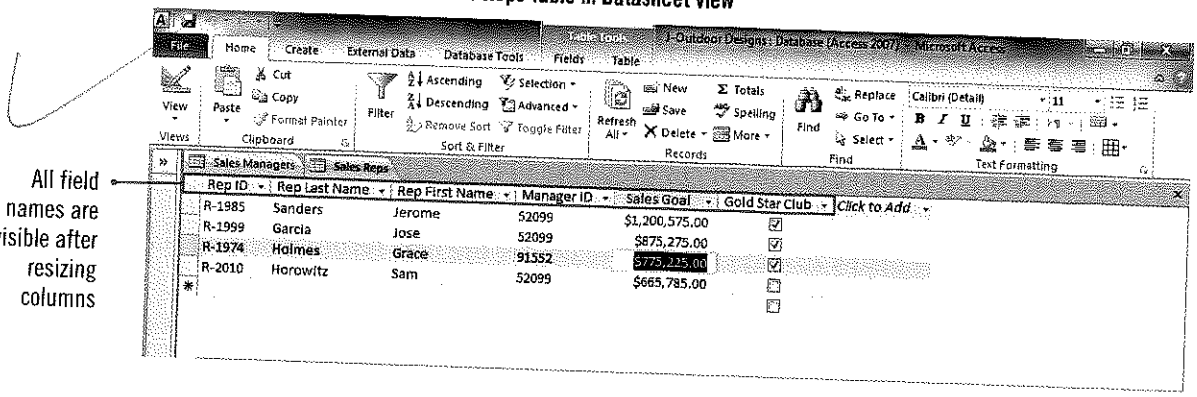


FIGURE J-17: **Edited records in Sales Reps Table in Datasheet view**



Printing objects in Access

If you want to print information from a database, you would usually create a report that includes selected fields, then print it. However, there might be times when you want to print a datasheet or form. To print any object in Access, select the object in the Navigation Pane, click the File tab, then click Print. The Print page opens in Backstage view and displays three print options. Click Quick Print to print the object using default print settings. Click Print to open the Print dialog box, which lets you adjust print settings. Click Print Preview to preview the object with its default settings. In Print Preview, you can use the tools on the Print Preview tab to adjust settings, then click the Print button when you are ready to print.

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Creating and Using a Form

Entering and editing records in Datasheet view is easy, but it is more efficient to use a form. In Datasheet view, entering data in the grid format where you see all the records at once can be tedious and cause eyestrain, and may risk introducing errors by entering data into the wrong record. A form usually displays one record at a time and contains **form controls**—devices for inputting data, such as text boxes, list arrows, or check boxes. You can create a form using a variety of approaches; the simplest is to click the Form button on the Create tab, which creates a form based on the open database table or the currently selected object in the Navigation Pane. Karen asks you to create a form based on the Sales Reps table.

STEPS

1. **Click the Shutter Bar Open button in the Navigation Pane, then click the Create tab**
   The Navigation Pane is now open and lists the Sales Managers table and the Sales Reps table. The Create tab allows you to add new objects to your database.

QUICK TIP
To apply a theme to a form, click the Theme button in the Themes group on the Form Layout Tools Design tab, then click the theme you want.

2. **Click the Sales Reps table in the Navigation Pane, then click the Form button in the Forms group**
   A new form based on the Sales Reps table opens in Layout view, as shown in Figure J-18. You use Layout view to change the structure of the form. The data for the first record (Grace Holmes) is shown in the form. In Layout view, you can view records but cannot add, delete, or edit records. To view different records, you use the buttons on the **navigation bar**.

3. **Click the Next record button twice on the navigation bar**
   The record for Jose Garcia (record 3 of 4) is now open.

4. **Click the Previous record button on the navigation bar**
   The record for Jerome Sanders (record 2 of 4) is now open.

QUICK TIP
You can also create a new record by pressing [Tab] or [Enter] after the last field in a record.

5. **Click the New (blank) record button on the navigation bar**
   A blank form for a new record opens. In order to enter data in a form, you must switch to Form view.

6. **Click the View list arrow in the Views group, then click Form view**
   The form is now displayed in Form view, which you use to add, edit, and delete records.

7. **Use the table below to enter the field values for the new record, pressing [Tab] or [Enter] to move to the next field, then compare your screen to Figure J-19**

Rep ID	Rep Last Name	Rep First Name	Manager ID	Sales Goal	Gold Star Club
R-2012	Davis	Linda	91552	$875,356	Yes

QUICK TIP
A **split form** is a form that displays the data entry form above the underlying datasheet. To create a split form, click the Create tab, click More forms in the Forms group, then click Split Form.

8. **Click the Save button on the Quick Access toolbar, click OK in the Save As dialog box, then click the Close 'Sales Reps' button**
   The Sales Reps form closes. You are now ready to close the J-Outdoor Designs database and exit Access.

9. **Click the File tab as shown in Figure J-20, click Close Database, then click Exit**

FIGURE J-18: **New form in Layout view**

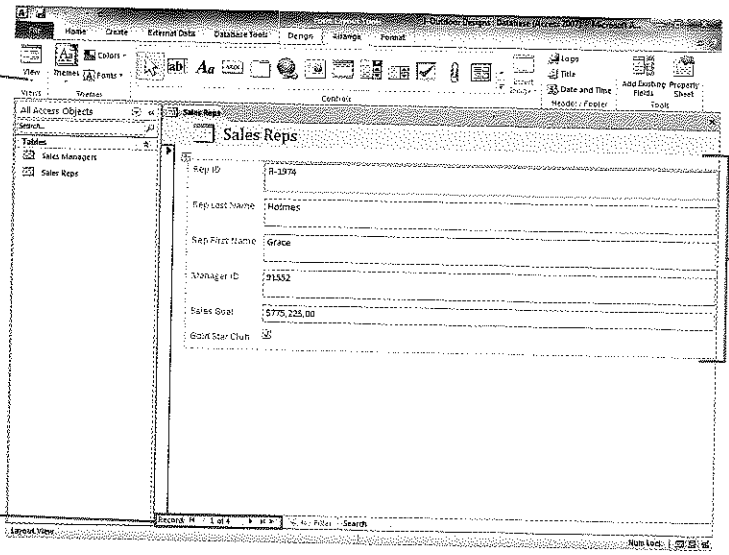


FIGURE J-19: **New record added to Sales Reps form in Form view**

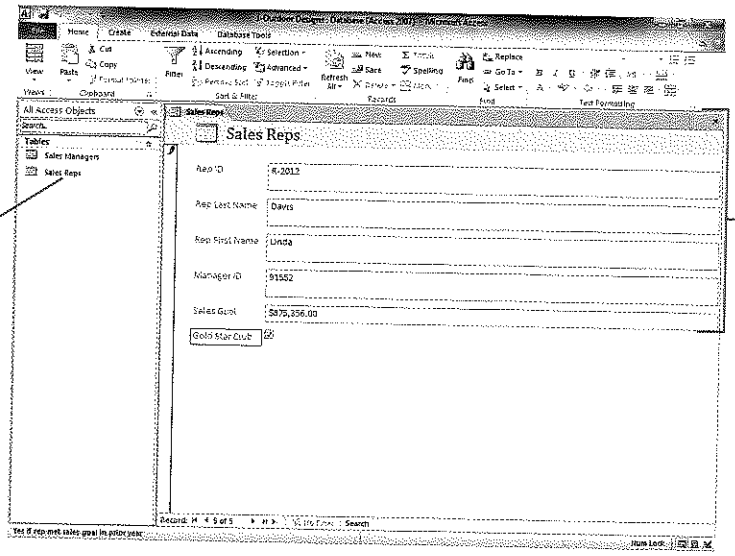
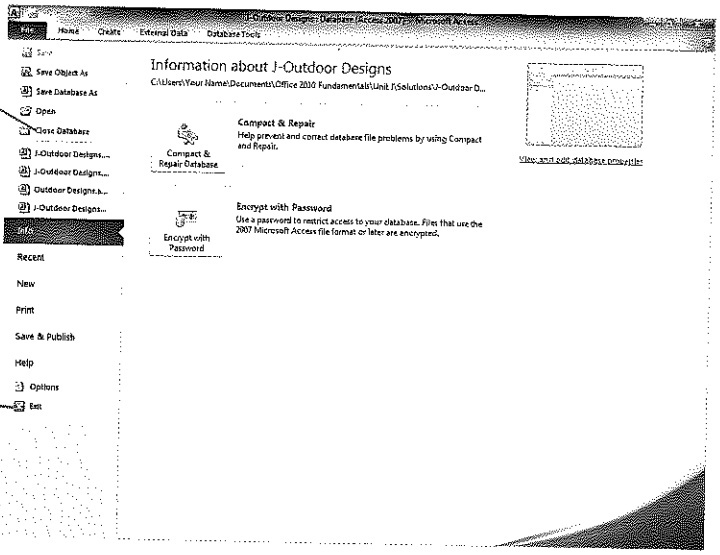


FIGURE J-20: **Closing the database and exiting Access**



Select the best answer from the list of choices.

13. **In Datasheet view, each row in a table is a(n) _____.**
    - **a.** Field
    - **b.** Object
    - **c.** Field value
    - **d.** Record
14. **Form view is the best view for:**
    - **a.** Viewing all records at once.
    - **b.** Entering data for a single record at a time.
    - **c.** Adding a field to a table.
    - **d.** Applying a style to a form.
15. **Which of the following activities is *not* possible to do in Datasheet view?**
    - **a.** View multiple records at once.
    - **b.** Edit a field name.
    - **c.** Enter a field value.
    - **d.** Specify the Field Size property.
16. **Which of the following is a database object?**
    - **a.** Form
    - **b.** Field
    - **c.** Caption
    - **d.** Field value
17. **Which of the following activities is possible to do in Form Layout view?**
    - **a.** Edit a record.
    - **b.** Add a record.
    - **c.** Change a field value.
    - **d.** View a specific record in a table.
18. **Where does a field description appear in Datasheet view?**
    - **a.** In the status bar
    - **b.** In the Field Properties pane
    - **c.** In the Navigation Pane
    - **d.** On the Create tab
19. **Which of the following data types should you use if you want each record to be numbered sequentially starting with 1?**
    - **a.** Number
    - **b.** AutoNumber
    - **c.** Calculated
    - **d.** Currency

Skills Review

1. **Create a database.**
    - **a.** Start Access.
    - **b.** Create a new, blank database with the name **J-Seaside Boat Rentals**, then save it where you store your Data Files.
2. **Create a table in Datasheet view.**
    - **a.** Save the blank table that is open in Datasheet view with the name **Boats**.
    - **b.** Use a button on the Ribbon to change the data type of the ID field to Text.
    - **c.** Use the table below to add fields to the table.

Field Name	Data Type
Boat Type	Text
Rental Rate	Currency
GPS System	Yes/No
Data Entered By	Text

    - **d.** Save your changes to the table.

Skills Review (continued)

3. **Create a table in Design view.**
   a. Create a new table and save it as **Rental Orders**.
   b. View the Rental Orders table in Design view, then change the name of the ID field name to **Rental ID**. Change the data type for the Rental ID field to Text.
   c. Use the table below to add fields to the Rental Orders table.

Field Name	Data Type
Rental Date	Date/Time
Customer Last Name	Text
Customer First Name	Text
Boat ID	Text
Hours Rented	Number
Data Entered By	Text

   d. Save your changes to the table.
4. **Modify a table and set properties.**
   a. Open the Boats table in Design view, then change the ID field name to **Boat ID**.
   b. Change the Field Size property for the Boat ID field to **6**.
   c. Add a new field between Boat Type and Rental Rate. Rename the new field **Date Purchased** and apply the Date/Time data type to it.
   d. Add the following description to the Rental Rate field: **Rental rate is for one hour of use.**
   e. Change the Caption property for the Rental Rate field to **Rate**.
   f. Add the following description to the GPS System field: **Specify yes if boat includes GPS system.**
   g. Save your changes to the table.
5. **Enter data in Datasheet view.**
   a. View the Boats table in Datasheet view.
   b. Using the table below, enter the three records shown into the Boats table in Datasheet view, then save the Boats table.

Boat ID	Boat Type	Date Purchased	Rate	GPS System	Data Entered By
765234	Jetski	4/1/2013	$55.00	no	Your Name
787544	Jet Boat Twin	3/1/2009	$60.00	no	Your Name
876345	Cape Ann Cruiser	2/1/2012	$75.00	yes	Your Name

   c. View the Rental Orders table in Datasheet view.
   d. Using the table below, enter the three records shown into the Rental Orders table in Datasheet view.

Rental ID	Rental Date	Customer Last Name	Customer First Name	Boat ID	Hours Rented	Data Entered By
B-2277	6/16/13	Rigby	Charles	765234	2	Your Name
B-2278	6/17/13	Marsh	Peter	876345	4	Your Name
B-2279	6/19/13	Brown	Jamal	787544	5	Your Name

   e. Save your changes to the Rental Orders table.

Skills Review (continued)

6. **Edit data in Datasheet view.**
   a. In the Boats table, change the Rate field value for the Jet Boat Twin to **$80.00**.
   b. In the Boats table, change the Boat Type field value for the Jet Boat Twin to **Ultra Light Jet Boat Twin**.
   c. Adjust all the column widths in the Boats table datasheet for best fit.
   d. In the Rental Orders table, in the third record, change the Hours Rented field value to **4**.
   e. Adjust all the column widths in the Rental Orders table datasheet for best fit.
   f. Save your changes to the Boats table. Compare the Boats table to Figure J-22. Save your changes to the Rental Orders table. Compare the Rental Orders table to Figure J-23.

FIGURE J-22

Boats

Boat ID	Boat Type	Date Purchased	Rate	GPS System	Data Entered By	Click to Add
765234	Jetski	4/1/2013	$55.00	☐	Your Name	
787544	Ultra Light Jet Boat Twin	3/1/2009	$80.00	☐	Your Name	
876345	Cape Ann Cruiser	2/1/2012	$75.00	☑	Your Name	
*				☐		

FIGURE J-23

Rental Orders

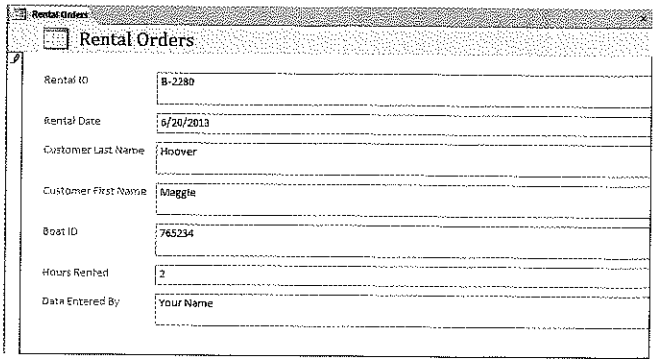
Rental ID	Rental Date	Customer Last Name	Customer First Name	Boat ID	Hours Rented	Data Entered By	Click to Add
B-2277	6/16/2013	Rigby	Charles	765234	2	Your Name	
B-2278	6/17/2013	Marsh	Peter	876345	4	Your Name	
B-2279	6/19/2013	Brown	Jamal	787544	5	Your Name	
*							

7. **Create and use a form.**
   a. Create a new form based on the Rental Orders table.
   b. In Layout view, view each record one by one using the Record Navigation buttons.
   c. Switch to Form view, then add a new record using the information in the table below:

Rental ID	Rental Date	Customer Last Name	Customer First Name	Boat ID	Hours Rented	Data Entered By
B-2280	6/20/13	Hoover	Maggie	765234	2	Your Name

   d. Save the form as **Rental Orders Form**, then compare your screen to Figure J-24.
   e. Close the database, then exit Access.
   f. Submit your completed database to your instructor.

FIGURE J-24



Real Life Independent Challenge

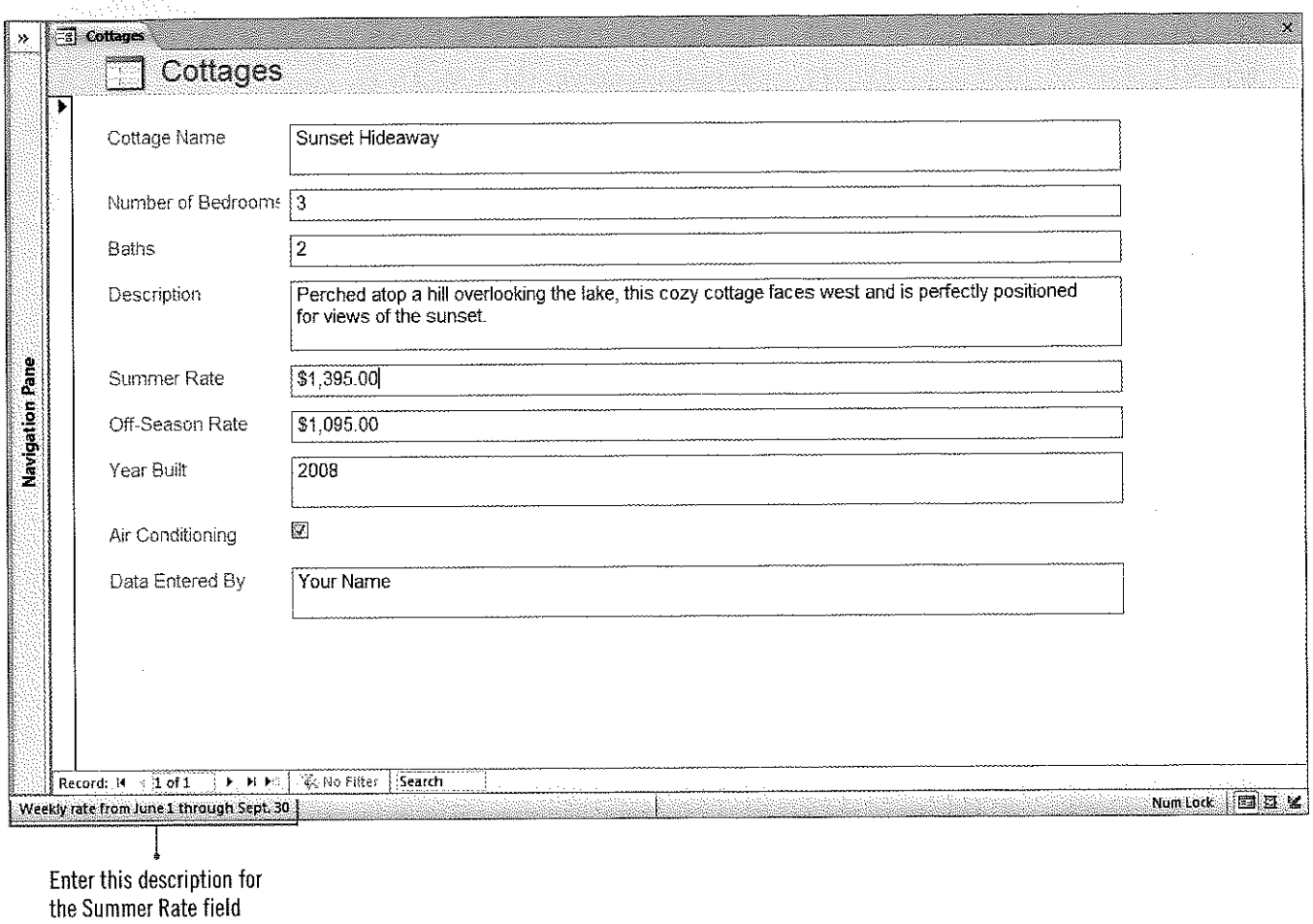
You can use Access to keep track of information in your life. As a student, you might be enrolled in several classes at your school. In this Real Life Independent Challenge, you create a database to keep track of your classes.

a. Start Access.
b. Create a new, blank database named **J-My Classes** and save it where you store your Data Files.
c. Save the blank open table as **Classes**, then switch to Design view.
d. Use Design view to design your table. Change the ID field name to **Class ID**, and change its data type to Text. Keep it as the primary key field.
e. Add the following fields to the table: **Class Name**, **Days**, **Classroom**, **Building**, **Instructor Last Name**, and **Start Time**.
f. Add a description to the Days field: **Days when class meets (M T W Th F)**.
g. Add a **Data Entered By** field that has the Text data type.
h. Change the Caption property for the Instructor Last Name field to **Instructor**.
i. Save the Classes table.
j. Create a form based on the Classes table. Enter all your information about your classes into the form.
k. Save the form as **Classes**.
l. Close the Classes form. View the Classes table in Datasheet view, then resize the columns for best fit.
m. Close the table. Close the database and exit Access. Submit your completed database to your instructor.

Visual Workshop

Create the database form shown in Figure J-25. (*Hint*: First create a new, blank database called **J-Cottage Rentals** where you store your Data Files, then create a table called **Cottages** that contains the fields shown in the form.) Set the Field Size property to **4** for the Year Built field. Add the description shown in the status bar in the figure for the Summer Rate field. Create a form based on the table and save it as **Cottages**. In Layout view, apply the Essential theme. Enter the data shown in the figure into the form. Save and close the table and the form, close the database, then exit Access. Submit your completed database to your instructor.

FIGURE J-25



Enter this description for the Summer Rate field