Creating a Database Lab 1

Objectives

After completing this lab, you will know how to:

1. Plan, create, and modify a database.
2. Create and save a table structure.
3. Define field names, data types, field properties, and primary key fields.
4. Enter and edit data.
5. Add attachments.
6. Change views.
7. Adjust column widths.
8. Use the Best Fit feature.
9. Create a second table.
10. Navigate among records.
11. Add, copy, and move fields.
12. Add and delete records.
13. Document a database.
14. Preview and print a table.
15. Change page orientation.
16. Close and open a table and database.

CASE STUDY

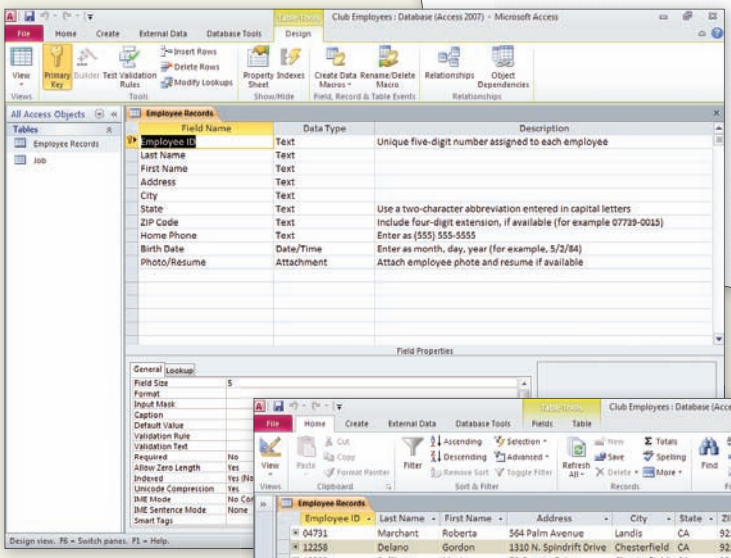
Lifestyle Fitness Club

You have recently accepted a job as a human resources administrator with Lifestyle Fitness Club. Like many fitness centers, Lifestyle Fitness Club includes exercise equipment, free weights, aerobics classes, tanning and massage facilities, a swimming pool, a steam room and sauna, and child-care facilities. In addition, it promotes a healthy lifestyle by including educational seminars on good nutrition and proper exercise. It also has a small snack bar that serves healthy drinks, sandwiches, and snacks.

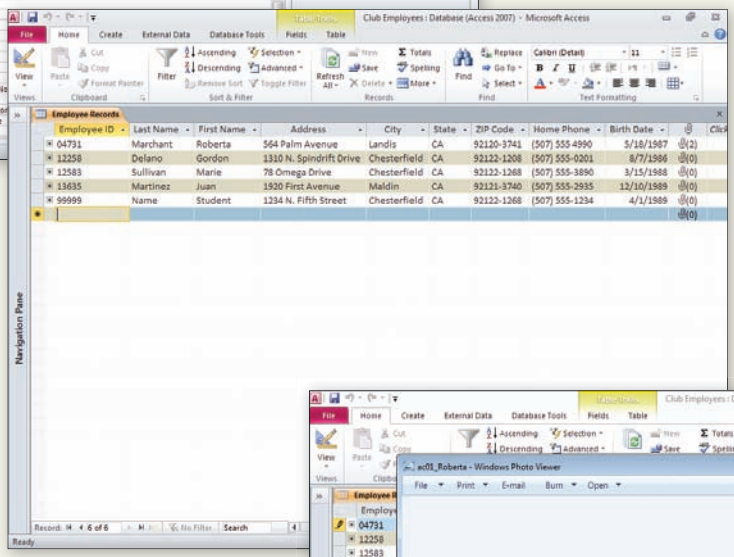
The Lifestyle Fitness Clubs are a franchised chain of clubs that are individually owned. You work at a club owned by Felicity and Ryan Albright, who also own two others in California. Accounting and employment functions for all three clubs are handled centrally at the Landis location.

You are responsible for maintaining the employment records for all employees, as well as records for traditional employment activities such as hiring and benefits. Currently the club employment records are maintained on paper forms and are stored in file cabinets organized alphabetically by last name. Although the information is well organized, it still takes time to manually look through the folders to locate the information you need and to compile reports from this data.

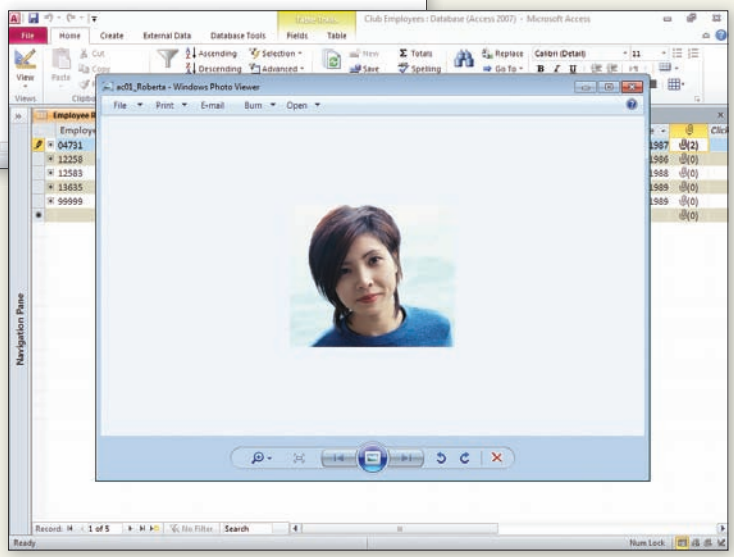
The club has recently purchased new computers, and the owners want to update the employee record-keeping system to an electronic database management system. The software tool you will use to create the database is the database application Microsoft Access 2010. In this lab, you will learn about entering, editing, previewing, and printing information in the database you create for the club.



Designing the table structure consists of defining field names, data types, and field properties.



Entering data in a table creates records of information.



Fields can contain attachments such as pictures or files.

Concept Preview

The following concepts will be introduced in this lab:

1. **Database** A database is an organized collection of related information.
2. **Object** An Access database is made up of several types of objects, such as a table or report, consisting of many elements. An object can be created, selected, and manipulated as a unit.
3. **Data Type** The data type defines the type of data the field will contain. Access uses the data type to ensure that the right kind of data is entered in a field.
4. **Field Property** A field property is a characteristic that helps define the appearance and behavior of a field.
5. **Primary Key** A primary key is a field that uniquely identifies each record.
6. **Relationship** A relationship establishes the association between common fields in two tables.
7. **Subdatasheet** A subdatasheet is a data table nested within a main data table; it contains information that is related or joined to the main table.

Designing a New Database

The Lifestyle Fitness Club recently purchased the 2010 Microsoft Office System software suite. You are very excited about learning to use the Access 2010 database management system to store and maintain the club's records.

Concept 1 Database

A **database** is an organized collection of related information. Typically, the information in a database is stored in a **table** consisting of vertical columns and horizontal rows. Each row contains a **record**, which is all the information about one person, thing, or place. Each column is a **field**, which is the smallest unit of information about a record. Access databases can contain multiple tables that can be linked to produce combined output from all tables. This type of database is called a **relational database**. Read more about relational databases in the Introduction to Microsoft Office 2010.

The Lifestyle Fitness Club plans to use Access to maintain several different types of databases. The database you will create will contain information about each club employee. Other plans for using Access include keeping track of members and inventory. To keep the different types of information separate, the club plans to create a database for each group.

Good database design follows two basic principles: Do not include duplicate information (also called redundant data) in tables and enter accurate and complete information. Redundant data wastes space, wastes the time that is required to enter the same information multiple times, and consequently increases the possibility of errors and inconsistencies between tables. The information that is stored in a database may be used to make business decisions and if the information is inaccurate, any decisions that are based on the information will be misinformed.

To attain these principles, the database design process is very important and consists of the following steps: plan, design, develop, implement, and refine and review. You will find that you will generally follow these steps in order as you create your database. However, you will probably retrace steps as the final database is developed.

Step	Description
Plan	The first step in the development of a database is to define the purpose of the database in writing. This includes establishing the scope of the database, determining its feasibility, and deciding how you expect to use it and who will use it.
Design	Using the information gathered during the planning step, you can create an implementation plan and document the functional requirements. This includes finding and organizing the information required for the database and deciding how this information should be divided into subject groups. You also need to think about the types of questions you might want the database to answer and determine the types of output you need such as reports and mailings.
Develop	Using the design you created, you are ready to create tables to hold the necessary data. Create separate tables for each of the major subjects to make it easier to locate and modify information. Define fields for each item that you want to store in each table. Determine how tables are related to one another, and include fields to clarify the relationships as needed. Try not to duplicate information in the different tables.
Implement	After setting up the tables, populate the tables by entering sample data to complete each record. Then work with the data to make sure it is providing the information you need.
Refine and Review	Refine the design by adding or removing fields and tables and continue to test the data and design. Apply the data normalization rules to see if the tables are structured correctly. Periodically review the database to ensure that the initial objectives have been met and to identify required enhancements.

As you develop the employee database for the Lifestyle Fitness Club, you will learn more about the details of the design steps and how to use Access 2010 to create a well-designed and accurate database.

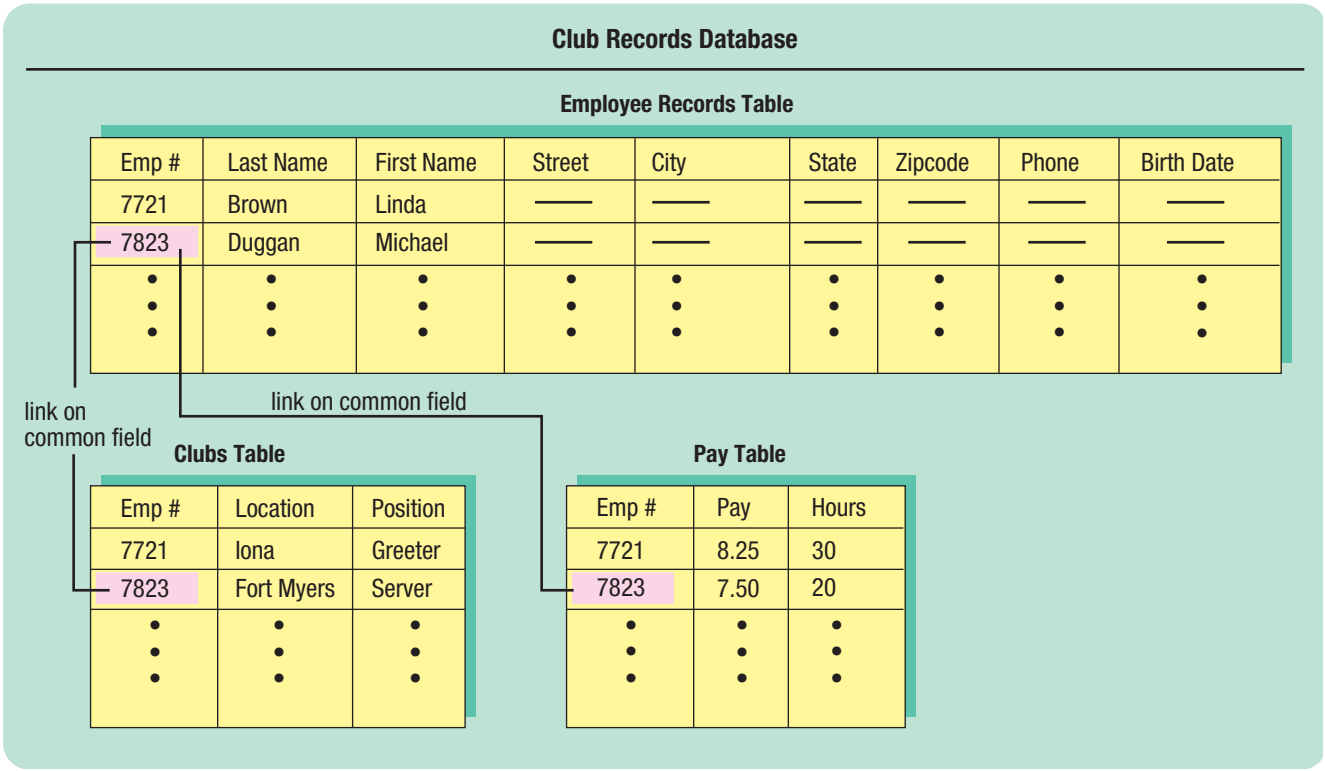
PLANNING THE CLUB DATABASE

Your first step is to plan the design of your database tables: the number of tables, the data they will contain, and the relationship between the tables. You need to decide what information each table in the employee database should contain and how it should be structured or laid out.

You can obtain this information by analyzing the current record-keeping procedures used in the company. You need to understand the existing procedures so that your database tables will reflect the information that is maintained by different departments. You should be aware of the forms that serve as the basis for the data entered into the department records and of the information that is taken from the records to produce periodic reports. You also need to determine whether there is information that the department heads would like to be able to obtain from the database that may be too difficult to generate with current procedures.

After looking over the existing record-keeping procedures and the reports that are created from the information, you decide to create several separate tables of data in the database file. Each table should only contain information about the subject of the table. Additionally, try not to duplicate information in different tables. If this occurs, create a separate table for this information. Creating several smaller tables of related data rather than one large table makes it easier to use the tables and faster to process data. This is because you can join several tables together as needed.

The main table will include the employee's basic information, such as employee number, name, birth date, and address. Another will contain the employee's job title and work location only. A third will contain data on pay rate and hours worked each week. To clarify the organization of the database, you sketched the structure for the employee database as shown below.



Creating and Naming the Database File

Now that you have decided what information you want to include in the tables, you are ready to create a new database for the employee information using the Microsoft Access 2010 database management program.

1 **Start the Access 2010 application.**

Having Trouble?

See the Introduction to Microsoft Office 2010 for information about starting an Office application and for a discussion of features that are common to all Office 2010 applications.

Your screen should be similar to Figure 1.1

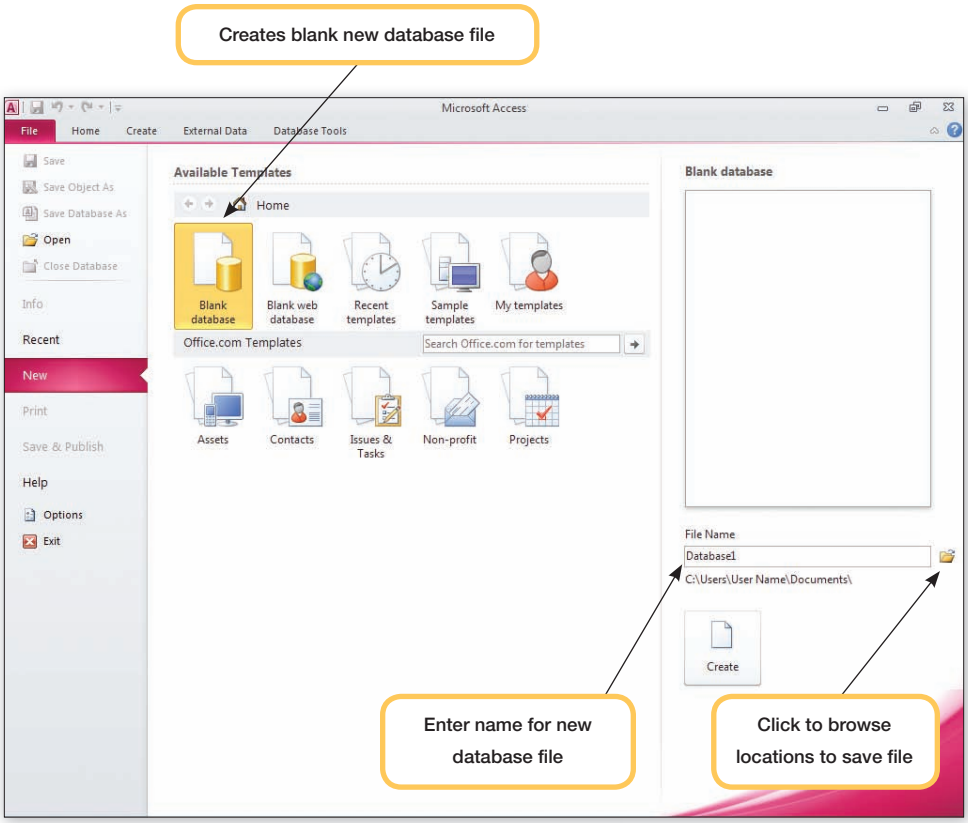


Figure 1.1

Additional Information

Backstage view can be accessed anytime by opening the File tab.

When Microsoft Access first opens, the New tab of Backstage view is open and ready for you to create a new database. Several methods can be used to create a new database. One method is to use one of the many templates that are provided by Microsoft as the basis for your new database. A database template generally includes the data structure, tables, queries, forms, and reports for the selected type of database. Another method is to start with a blank database that contains the basic database objects and then add your own content. Although using a template is sometimes the fastest way to create a database, it often requires a lot of work to adapt the template to suit the needs of the existing data. A third option is to copy or import data from another source into an Access database file. Finally, you can use a custom template that you created and saved as the basis for your new database.

You decide to create the club database from a blank database file. The Blank Database template includes the basic structure for a database file, but it does not include a data structure that is specific to a type of database.

Additional Information

Depending on your Windows settings, your screens may not display file extensions.

Additionally, when creating a new database, you need to enter a file name and specify the location on your computer where you want it saved. The File Name box displays Database1, the default database file name. After you specify the file name you want to use and the location to which it should be saved, Access will display the file extension .accdb after the file name. This identifies the file as an Access 2010 database.

Having Trouble?

For information on how to save a file, refer to the Saving a File section in the Introduction to Microsoft Office 2010 lab.

2

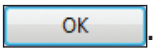
- **If necessary, click**  **in the Available Templates section of the New window.**
- **Replace the text in the File Name text box with Club Employees**

Having Trouble?

If the default file name is not highlighted, triple-click on it to select the entire file name.

Additional Information

You do not need to type the file extension, as Access will add it automatically for you.

- **Click**  **to browse locations.**
- **Specify the appropriate drive and folder where you will save your database files (check with your instructor if you are not sure).**
- **Click** 

.
- **Click** 

.

Your screen should be similar to Figure 1.2

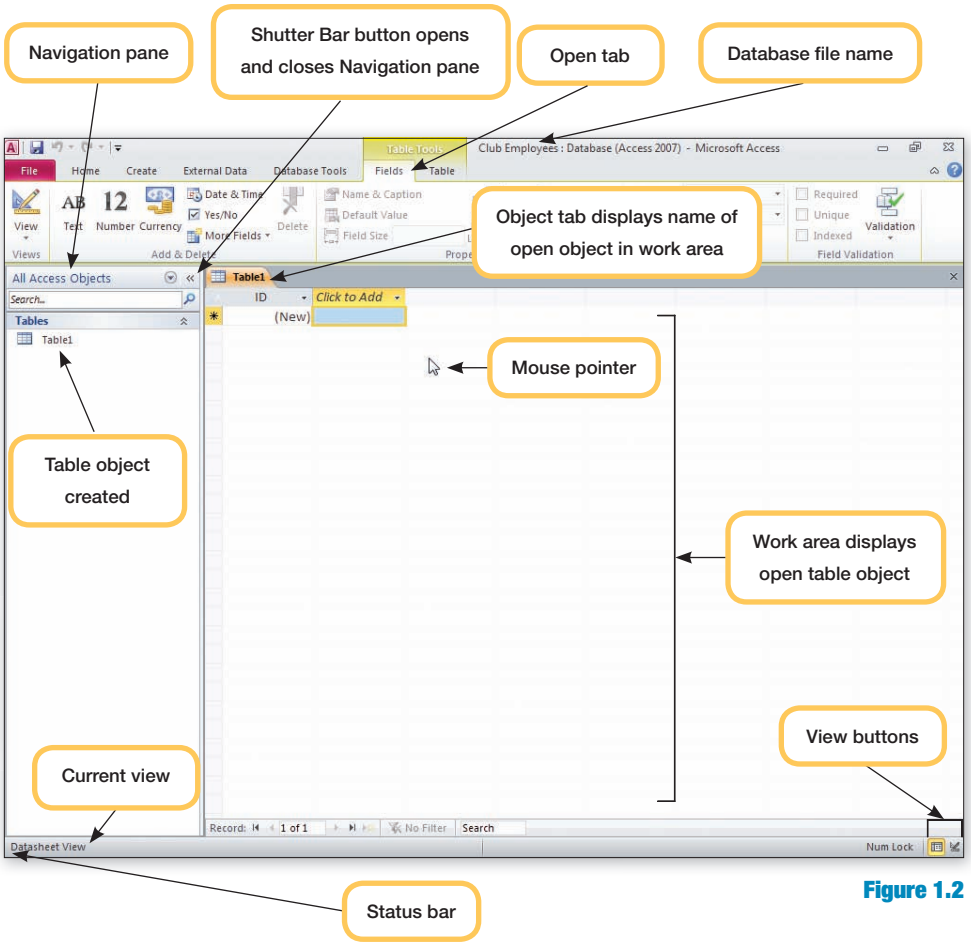


Figure 1.2

Having Trouble?

If your screen looks slightly different, this is because Access remembers settings that were on when the program was last used.

The blank database file is opened in the Access application window. The name of the database, Club Employees, followed by the application name appears in the window title bar.

EXPLORING THE ACCESS WINDOW

Additional Information

Read "Common Interface Features" in the Introduction to Microsoft Office 2010 lab for more information about the File tab, Ribbon, galleries, and other features that are common to all Office 2010 applications.

Located below the title bar is the Access 2010 Ribbon, which contain the commands and features you will use to create and modify database objects. The Access Ribbon always has four main tabs available: Home, Create, External Data, and Database Tools. Additional contextual tabs will appear as you perform different tasks and open various windows. In this case, the Table Tools Fields and Table contextual tabs are available to help you create a new table. The Table Tools Fields tab is currently open and contains command buttons that are used to perform basic database functions specifically relating to the fields within the table.

The mouse pointer appears as on your screen. The mouse pointer changes shape depending upon the task you are performing or where the pointer is located in the window.

The large area below the Ribbon is the work area where different Access components are displayed as you are using the program. When a new database file is created, it includes one empty table named Table1. A table is the main structure in a database that holds the data. It is one of several different database components or objects that can be included within the database file.

Concept 2 Object

An Access database is made up of several types of objects, such as a table or report, consisting of many elements. An **object** is a database component that can be created, selected, and manipulated as a unit. The basic database objects are described below.

Object	Use
Table	Store data.
Query	Find and display selected data.
Form	View, add, and update data in tables.
Report	Analyze and print data in a specific layout.

The table object is the basic unit of a database and must be created first, before any other types of objects are created. Access displays each different type of object in its own window. You can open multiple objects from the same database file in the work area; however, you cannot open more than one database file at a time in a single instance of Access. To open a second database file, you need to start another instance of Access and open the database file in it.

The work area displays a tab containing the table name for the open table. It is used to switch between open objects in the work area. There is currently just one tab because only one object is open.

Additional Information

You will learn more about tables and the different database views shortly.

Just below the work area, the status bar provides information about the task you are working on and about the current Access operation. Currently, the left end of the status bar displays Datasheet view and the right end displays two buttons that are used to change the view. In addition, the status bar displays messages such as instructions to help you use the program more efficiently.

USING THE NAVIGATION PANE

The **Navigation pane** along the left edge of the work area displays all the objects in the database and is used to open and manage the objects. Because your database only contains one object, Table1, that is the only object listed in the pane. When there are many different objects, the pane organizes the objects into categories and groups within each category. It is used to quickly access the different objects.

The Navigation pane is always displayed, but it can be collapsed to a bar to provide more space in the work area. The Shutter Bar close button «, located in the upper-right corner of the pane, is used to show or hide the pane.

Additional Information

The items in the Navigation pane can be organized differently by using the menu at the top of the pane.

1 Click « to close the Navigation pane.

Your screen should be similar to Figure 1.3

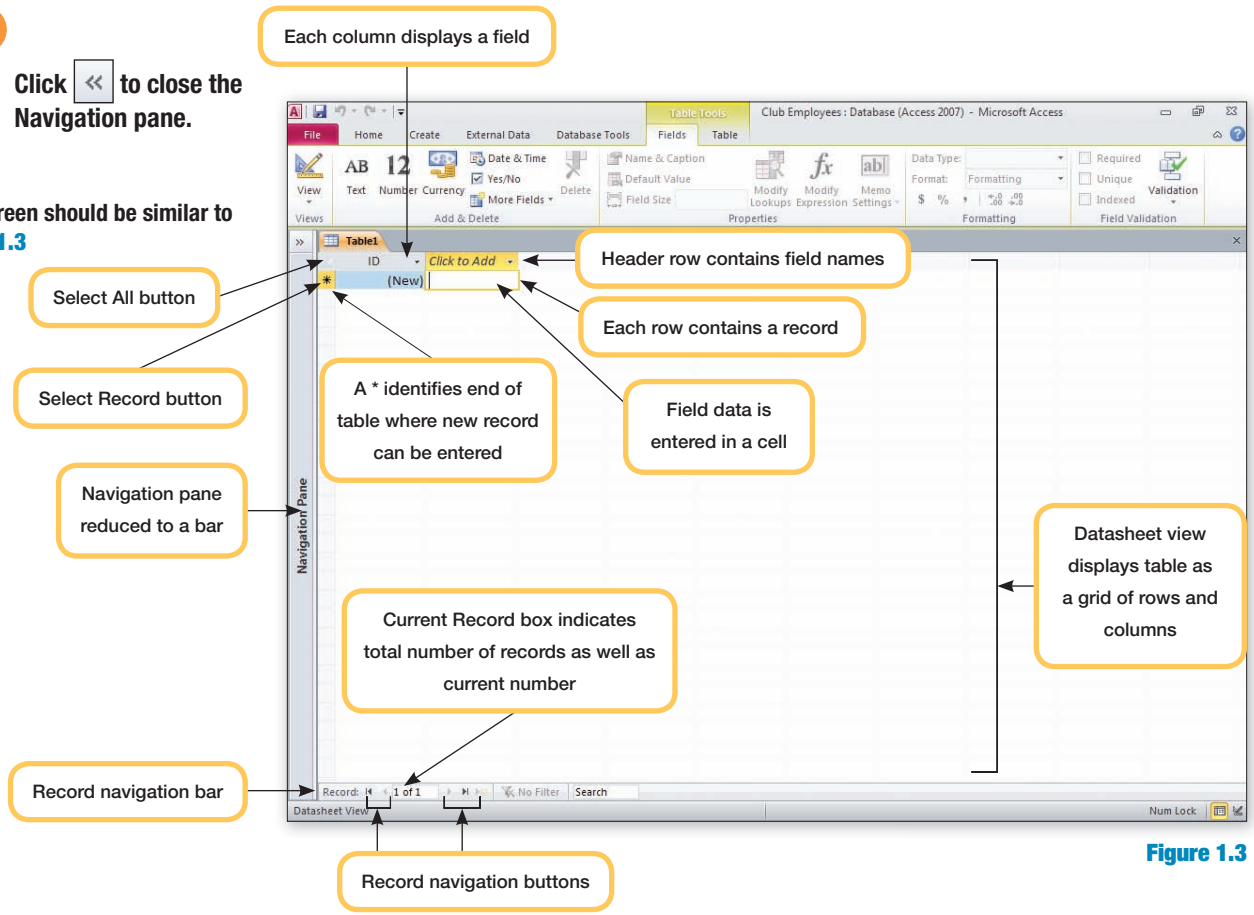


Figure 1.3

Another Method

You also can press F11 to open/close the Navigation pane.

The Navigation pane is reduced to a bar along the left side of the window, and the work area expands to fill the space. The pane can be easily displayed again by clicking ». You will learn more about using the Navigation pane throughout the labs.

Creating a Table

In anticipation of your entering information in the table, Access displays the blank table in Datasheet view, one of several different window formats, called **views**, that are used to display and work with the objects in a database. Each view includes its own Ribbon tab that contains commands that are designed

to work with the object in that view. The available views change according to the type of object you are using. For example, when working with reports the available views are report view, print preview, layout view, and design view; yet when working with datasheets the viewing options are design view and datasheet view. The basic views are described in the following table.

View	Purpose
Datasheet view	Provides a row-and-column view of the data in tables or query results.
Form view	Displays the records in a form.
Report view	Displays the table data in a report layout.
Design view	Used to create a table, form, query, or report. Displays the underlying design structure, not the data.
Layout view	Displays the object's data while in the process of designing the object.
Print Preview	Displays a form, report, table, or query as it will appear when printed.

Additional Information

Entering information in Datasheet view is very similar to working in a Microsoft Excel worksheet.

Datasheet view is a visual representation of the data that is contained in a database table. It consists of a grid of rows and columns that is used to display each field of a table in a column and each record in a row. The field names are displayed in the **header row** at the top of the datasheet.

Below the header row is a blank row. The intersection of the row and column creates a **cell** where you will enter the data for the record. The square to the left of each row is the **Select Record** button and is used to select an entire record. The record containing the insertion point is the **current record** and is identified by the color in the Select Record button. The * in the Select Record button signifies the end of the table or where a new record can be entered.

The bottom of the work area displays a Current Record box and record navigation buttons. The **Current Record box** shows the number of the current record as well as the total number of records in the table. Because the table does not yet contain records, the indicator displays "Record: 1 of 1" in anticipation of your first entry. On both sides of the record number are the **record navigation buttons**, which are used to move through records with a mouse. In addition, two buttons that are used to filter and search for data in a table are displayed. You will learn about using all these features throughout the text.

DEFINING TABLE FIELDS

Now you are ready to begin defining the fields for the table. You have already decided that the main table in this database will include the employee's basic information such as employee number, name, birth date, and address. Next, you need to determine what information you want to appear in each column (field) about the subject recorded in the table. For example, you know you want to include the employee's name. However, should the entire name be in a single column or should it appear as two separate columns: first name and last name? Because you may want to sort or search for information based on the employee's name, it is better to store the information in separate columns. Similarly, because the address actually consists of four separate parts—address, city, state, and zip code—it makes sense to store them in separate columns as well.

Generally, when deciding how to store information about a subject in a table, break down the information into its smallest logical parts. If you combine more than one kind of information in a field, it is difficult to retrieve individual facts later.

After looking at the information currently maintained in the personnel folder for each employee, you have decided to include the following fields in the table: Employee #, Hire Date, Last Name, First Name, Address, City, State, Zip Code, Home Phone, Birth Date, and Photo. The data for the first employee record you will enter is shown below.

Field Name	Data
Employee #	04731
Hire Date	August 19, 2005
Last Name	Marchant
First Name	Roberta
Address	564 Palm Avenue
City	Landis
State	CA
Zip Code	92120–3741
Home Phone	(507) 555–4990
Birth Date	May 18, 1987
Photo/Resume	Roberta.jpg

ENTERING FIELD DATA

Having Trouble?

For more information on moving through, entering, and editing text, refer to the section Entering and Editing Text in the Introduction to Microsoft Office 2010.

Notice that the first field in the table, ID, is already defined. The ID field is always included in a table when it is first created. It automatically assigns a number to each record as it is added to a table and is useful for maintaining record order. The second column header displays *Click to Add* and is used to add a new field in the table.

In Datasheet view, you can enter data for a record and create a new field at the same time. The first field of data you will enter is the employee number, which is assigned to each employee when hired. Each new employee is given the next consecutive number, so that no two employees can have the same number. Each number is a maximum of five digits.

When you enter data in a record, it should be entered accurately and consistently. The data you enter in a field should be typed exactly as you want it to appear. This is important because any printouts of the data will display the information exactly as entered. It is also important to enter data in a consistent form. For example, if you decide to abbreviate the word "Avenue" as "Ave." in the Address field, then it should be abbreviated the same way in every record where it appears. Also be careful not to enter a blank space before or after a field entry. This can cause problems when using the table to locate information.

1 **Click in the blank cell below the *Click to Add* column header.**

Type 04731

Having Trouble?

If you make an error while typing an entry, use the ←Backspace key to delete the characters back to the error and retype the entry.

Press ↵Enter.

Your screen should be similar to Figure 1.4

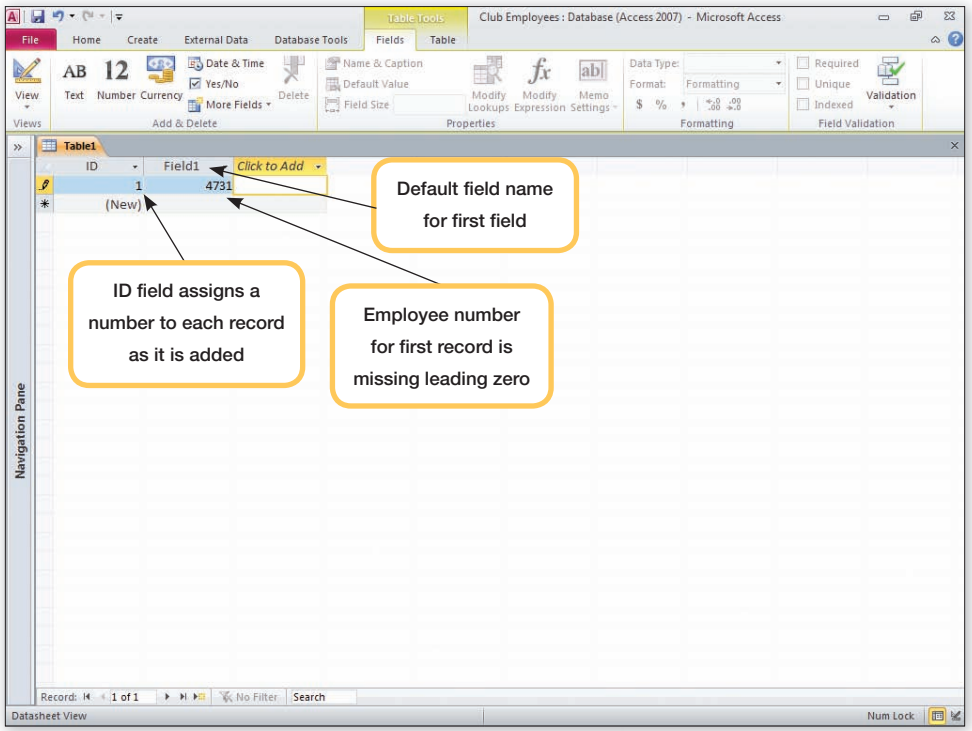


Figure 1.4

The employee number for the first record is entered in the table and Access is ready for you to enter the data for the next field. However, notice the leading zero is no longer displayed in the employee number you just typed. You will learn the reason for this and how to correct it shortly.

The new field has been assigned the default field name of Field1. Also notice that the ID field displays the number 1 for the first record entered in the table.

CHANGING FIELD NAMES

Before entering more data, you want to replace the default field name with a more descriptive field name. A **field name** is used to identify the data stored in the field. A field name should describe the contents of the data to be entered in the field. It can be up to 64 characters long and can consist of letters, numbers, spaces, and special characters, except a period, an exclamation point, an accent grave (`), or brackets ([]). You also cannot start a field name with a space. It is best to use short field names to make the tables easier to manage.

1

- **Double-click on the Field1 column header.**
- **Type Employee # (be sure to include a space before the #).**

Another Method

You also can choose Rename Column from the column header's shortcut menu.

Additional Information

The field name can be typed in uppercase or lowercase letters. It will be displayed in your database table exactly as you enter it.

Your screen should be similar to Figure 1.5

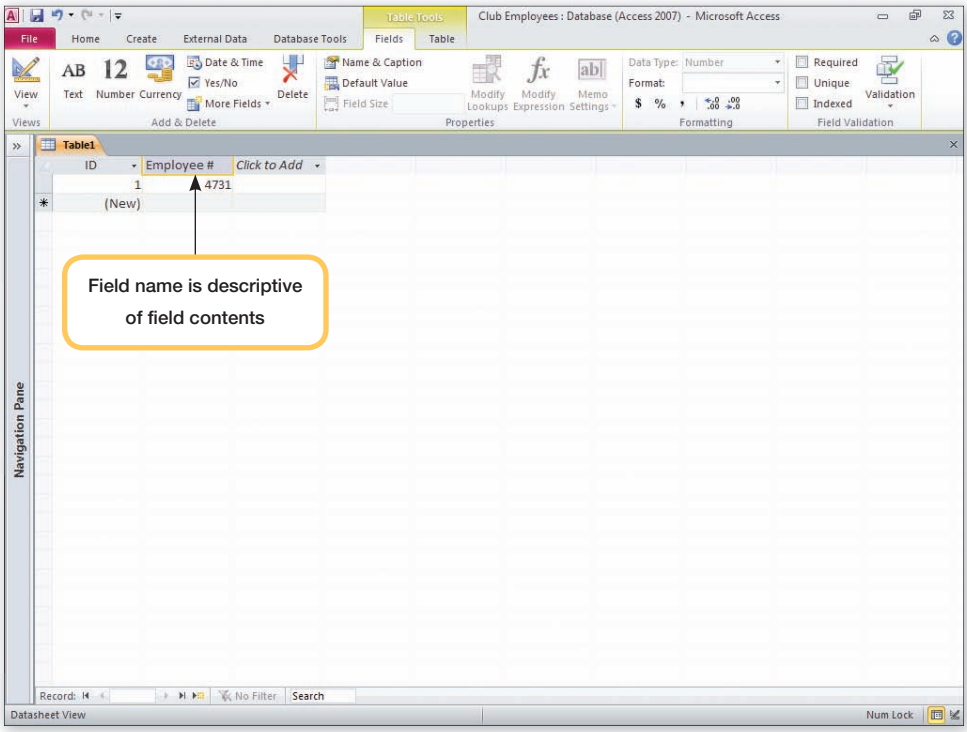


Figure 1.5

The highlighted text is deleted and replaced by the new field name you typed. You realize that "Employee ID" is the more common term used on company forms, so you decide to use this as the field name instead. As you enter text, you are bound to make typing errors that need to be corrected. You also may want to edit or update information. In this case, you want to edit the field name you are currently working on. The insertion point is already in the correct position and you just need to delete the character to the left of it.

2

- **Press ←Backspace to delete the # symbol.**
- **Type ID**
- **Press ↵Enter.**
- **Press Esc to close the Data Type shortcut menu that appears for the next field.**

Additional Information

You will learn about the Data Type shortcut menu shortly.

- **Click in the cell containing the Employee ID number.**

Your screen should be similar to Figure 1.6

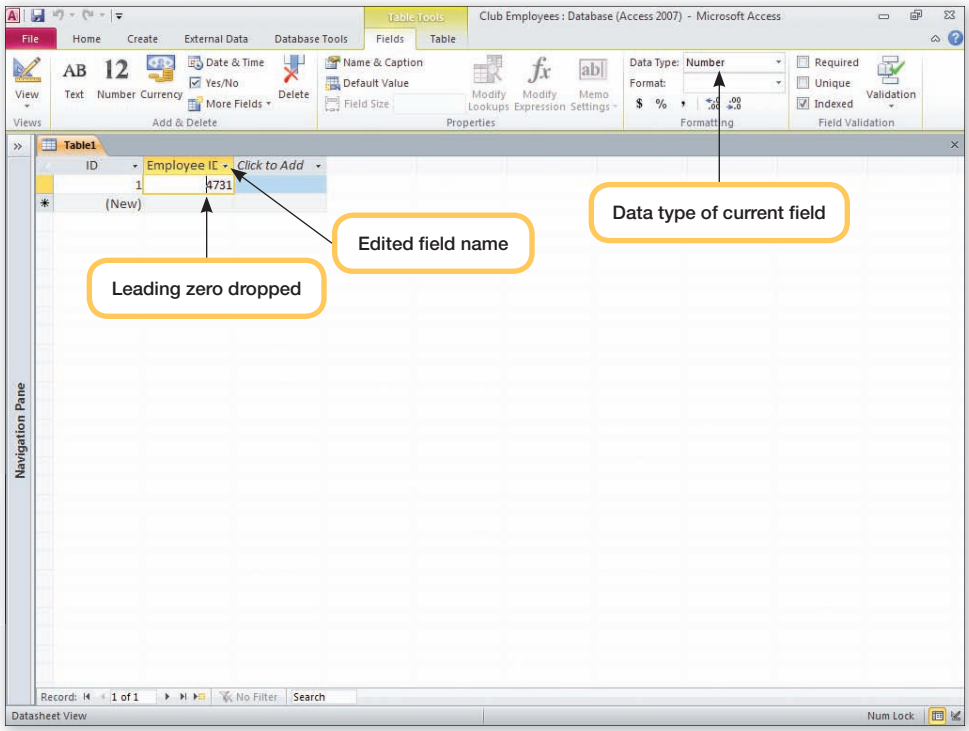


Figure 1.6

The field name has been completed, and it is now easy to know what the data in that column represents.

DEFINING FIELD DATA TYPE

As you noticed, the leading zero of the Employee ID number has been dropped. This is because Access automatically detects and assigns a data type to each field based upon the data that is entered. In this case, the field entry consisted of numbers only, and Access assigned the field a Number data type. This data type drops any leading zeros.

Concept 3 Data Type

The **data type** defines the type of data the field will contain. Access uses the data type to ensure that the right kind of data is entered in a field. It is important to choose the right data type for a field before you start entering data in the table. You can change a data type after the field contains data, but if the data types are not compatible, such as a text entry in a field whose data type accepts numbers only, you may lose data. The data types are described in the following table.

Data Type	Purpose
Text	Use in fields that contain alphanumeric data (words, combinations of words and numbers, and numbers that are not used in calculations). Text field entries can be up to 255 characters in length. Names and phone numbers are examples of Text field entries. Text is the default data type.
Memo	Use in fields where you want to store more than 255 characters of alphanumeric data. A Memo field holds up to 1 GB of characters or 2 GB of storage, of which 65,535 characters can be displayed. Text in this field can be formatted.
Number	Use in fields that contain numeric data only and that will be used to perform calculations on the values in the field. Number of units ordered is an example of a Number field entry. Leading zeros are dropped. Do not use in fields involving money or that require a high degree of accuracy because Number fields round to the next highest value. Fields that contain numbers only but will not be used in calculations are usually assigned a Text data type.
Date/Time	Use in fields that will contain dates and times. Access allows dates from AD January 1, 100, to December 31, 9999. Access correctly handles leap years and checks all dates for validity. Even though dates and times are formatted to appear as a date or time, they are stored as s**erial values** so that they can be used in calculations. The date serial values are consecutively assigned beginning with 1, which corresponds to the date January 1, 1900, and ending with 2958465, which is December 31, 9999.
Currency	Use in number fields that are monetary values or that you do not want rounded. Numbers are formatted to display decimal places and a currency symbol.
AutoNumber	Use when you need a unique, sequential number that is automatically incremented by one whenever a new record is added to a table. After a number is assigned to a record, it can never be used again, even if the record is deleted.
Yes/No	Use when the field contents can only be a Yes/No, True/False, or On/Off value. Yes values are stored as a 1 and No values as 0 so that they can be used in expressions.
OLE Object	Use in fields to store an object from another Microsoft Windows program, such as a document or graph. Stores up to 1 GB. The object is converted to a bitmap image and displayed in the table field, form, or report. An OLE server program must be on the computer that runs the database in order to render the object. Generally, use the Attachment field type rather than OLE Object field type because the objects are stored more efficiently and doing so does not require the OLE server.
Hyperlink	Use when you want the field to store a link to an object, document, Web page, or other destination.
Attachment	Use to add multiple files of different types to a field. For example, you could add a photograph and set of resumes for each employee. Unlike OLE Object fields, the files are not converted to bitmap images and additional software is not needed to view the object, thereby saving space. Attachments also can be opened and edited from within Access in their parent programs. Size limit is 256 MB per individual file, with a total size limit of 2 GB.
Calculated	Use this data type to create a calculated field in a table. For example, you could calculate the units on hand by the cost to determine the inventory value. You can then easily display or use the results of the calculation throughout your database. Whenever a record is edited, Access automatically updates the Calculated fields, thereby constantly maintaining the correct value in the field. Note that a Calculated field cannot refer to fields in other tables or queries.

Additional Information

If Access does not have enough information to determine the data type, it sets the data type to Text.

Notice in Figure 1.6 that the Data Type box in the Formatting group shows the current data type for the field is Number. Access accurately specified this data type because the Employee ID field contains numbers. However, unless the numbers are used in calculations, the field should be assigned the Text data type. This designation allows other characters, such as the parentheses or hyphens in a telephone number, to be included in the entry. Also, by specifying the type as Text, leading zeros will be preserved.

You need to override the data type decision and change the data type for this field to Text.

1

- Open the Data Type: Number drop-down menu in the Formatting group of the Table Tools Fields tab.
- Choose Text.
- Click at the beginning of the Employee ID entry to place the insertion point and type 0
- Press End to move to the end of the entry.
- Press → to move to the next column.

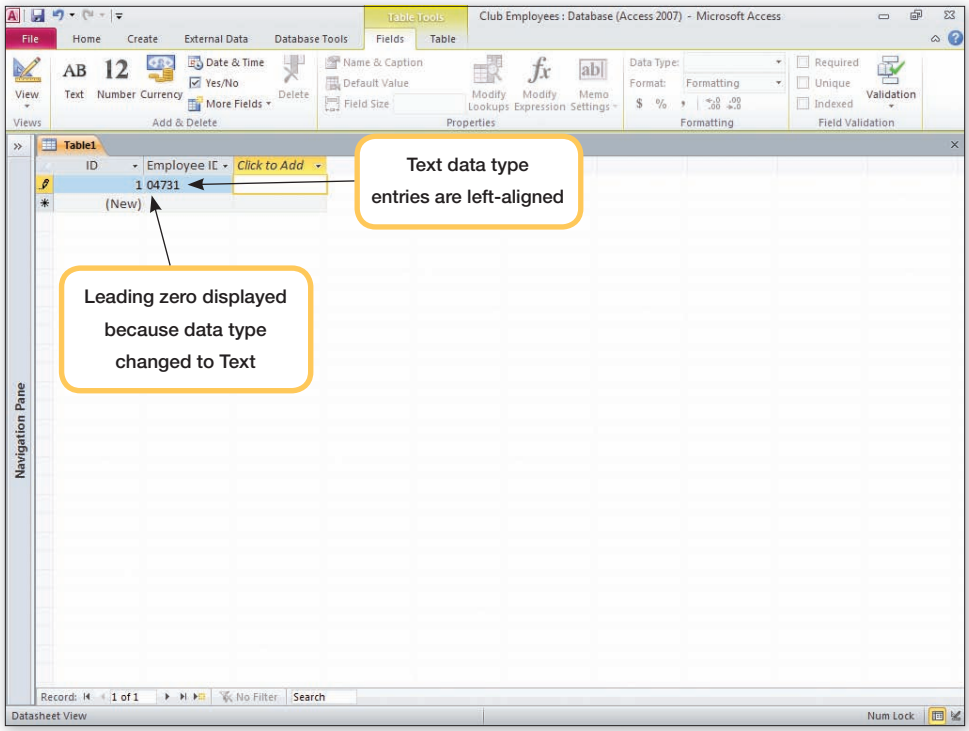


Figure 1.7

Your screen should be similar to Figure 1.7

The leading zero is now correctly displayed. Also notice that the entry is now left-aligned in the cell space whereas it was right-aligned when the data type was set to Number. Many data types also include formatting settings that control the appearance of the data in the field. In this case, the Text field format is to align the text with the left edge of the cell space. You will learn more about formatting later in the lab.

Now you are ready to enter the data for the next field, Hire Date.

2

- Type Aug 19, 2001
- Press ↵Enter.
- Right-click the Field1 column name and choose Rename Field from the shortcut menu.
- Type Hire Date
- Press ↵Enter.
- Press Esc to close the Data Type shortcut menu that appears for the next field.
- Click on the hire date.

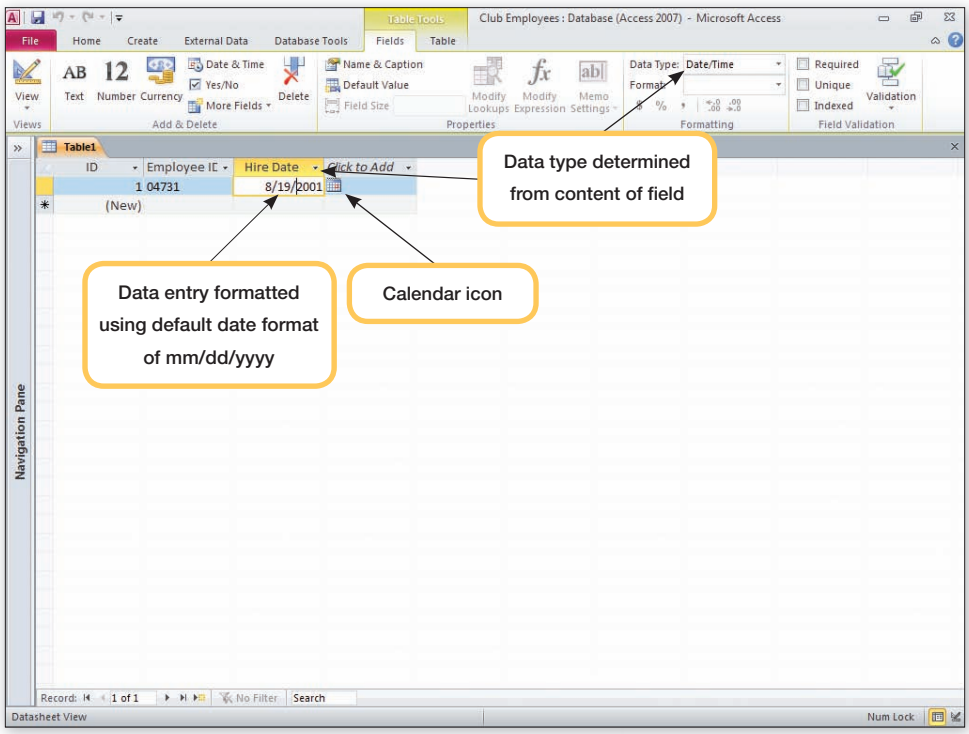


Figure 1.8

Your screen should be similar to Figure 1.8

Additional Information

The calendar icon displays the month calendar for that date when you click on it.

Access correctly determined that the entry is a Date type and displays the date using the default date format of mm/dd/yyyy.

USING THE QUICK ADD FEATURE

The next few fields you need to enter include employee name and address information.

First you will add a field for the employee's last name.

1. **Click on *Click to Add*.**

Your screen should be similar to Figure 1.9

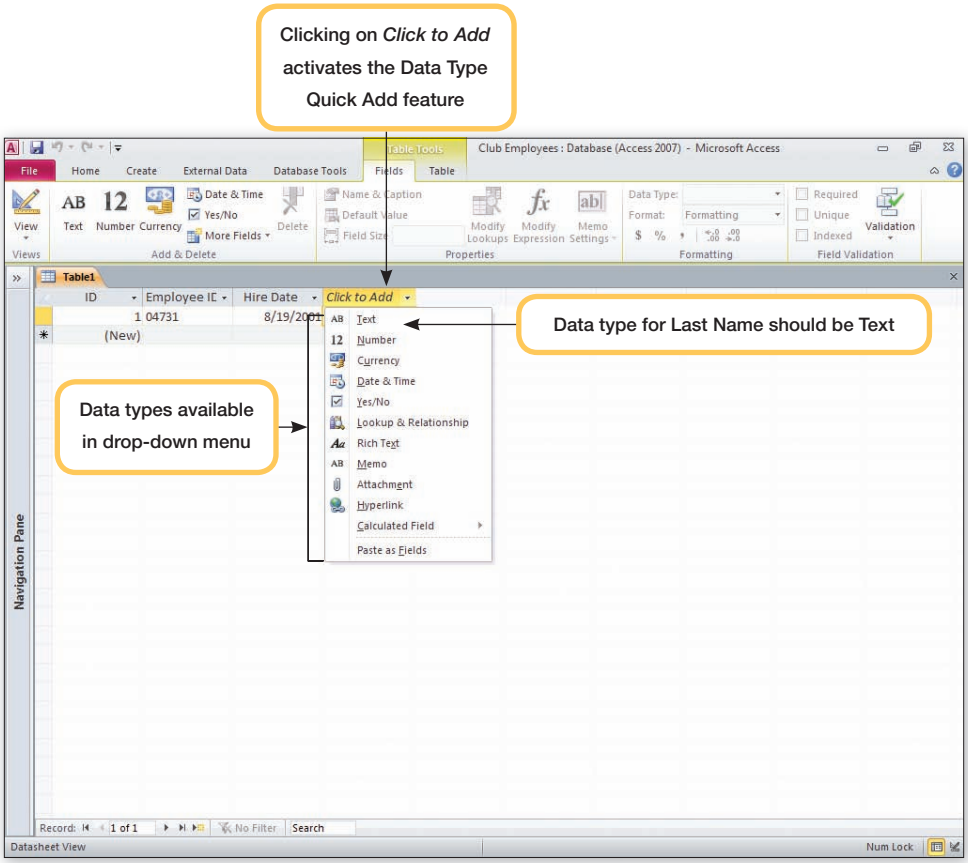


Figure 1.9

Additional Information

Rich text allows formatting such as color, bold and italics.

The Data Type Quick Add menu displays. It lists available data types as well as formatting that can be used. For example, the Rich Text option is really the Memo data type with the format property set to Rich Text.

You will choose the Text data type for this field and then define the same data type for the next field, First Name.

2

- Choose Text from the Data Type drop-down menu.
- Type **Last Name**
- Press ↵Enter.
- Press T key to select Text as the data type from the Quick Add menu.
- Type **First Name**
- Press ↵Enter.

Your screen should be similar to Figure 1.10

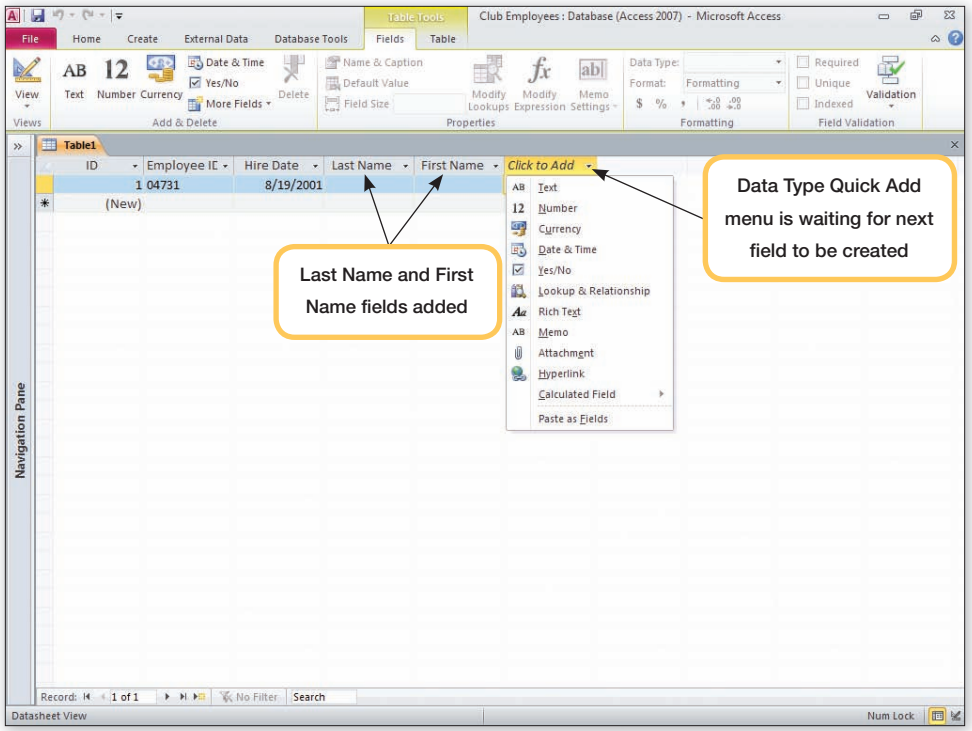


Figure 1.10

Using the Data Type Quick Add menu made it easy to quickly define the data type and specify the field name. It is again waiting for you to choose your next field type. You will add the remaining address fields using a different technique.

USING FIELD MODELS

Another way you can specify field names is to select them from a menu of predefined fields called **field models**. Each field model definition includes a field name, a data type, and other settings that control the appearance and behavior of the field.

Some field models consist of a set of several fields that are commonly used together. For example, the Address field model comes with a field for the street address, city, state, and zip code. You will use the Address field model to add the address fields next.

1

- **Click**  **in the Add & Delete group of the Table Tools Fields tab.**
- **Scroll the menu until you see the Quick Start section.**
- **Choose Address.**

Your screen should be similar to Figure 1.11

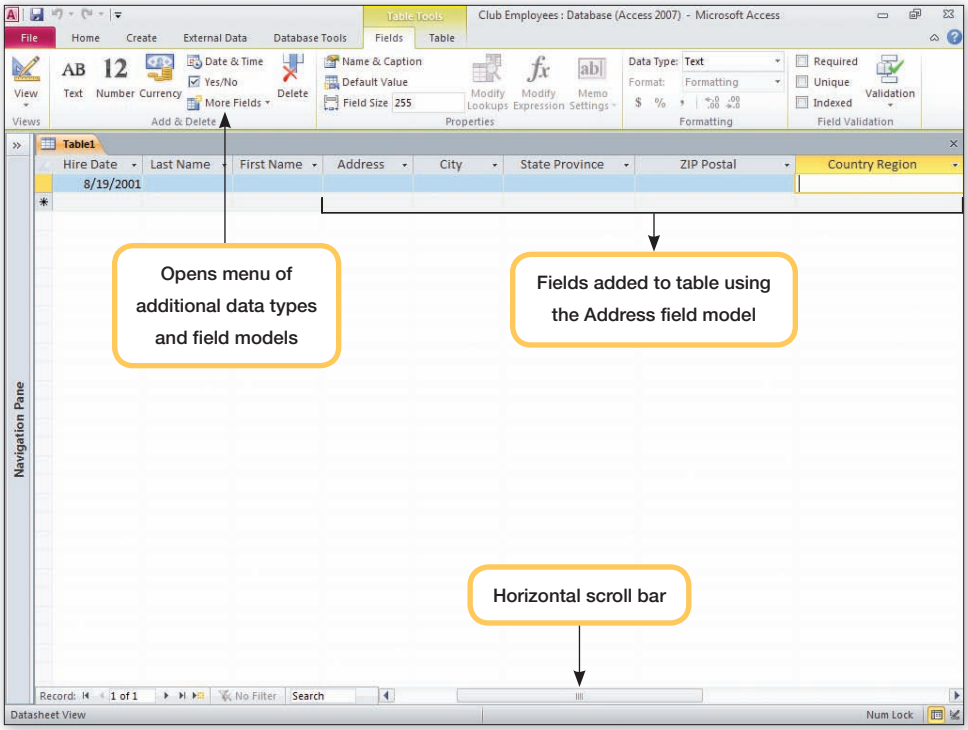


Figure 1.11

The Address, City, State Province, ZIP Postal and Country Region field names quickly appear in the table headings. Using field models saves time and provides the basis from which you can start. Once inserted, the field name and data type can be modified like any other fields.

A horizontal scroll bar may display at the bottom of the work area. This means there are more fields in the datasheet than can be viewed in the currently visible work space.

The last remaining field to add is Home Phone. You might have noticed the Phone option in the More Fields menu of Quick Start Field Models. Because the Phone field model contains three fields (Home Phone, Fax, and Mobile), it would not be the best option to use for this table. You will add the Home Phone field using the Add & Delete group.

2

- Move the horizontal scroll bar to the right to see the next available *Click to Add* column heading.
- Click on *Click to Add.*
- Click 12 Number in the Add & Delete group.
- Type **Home Phone** for the field name.
- Press ↵Enter.
- Press Esc to close the last Quick Add menu.

Your screen should be similar to **Figure 1.12**

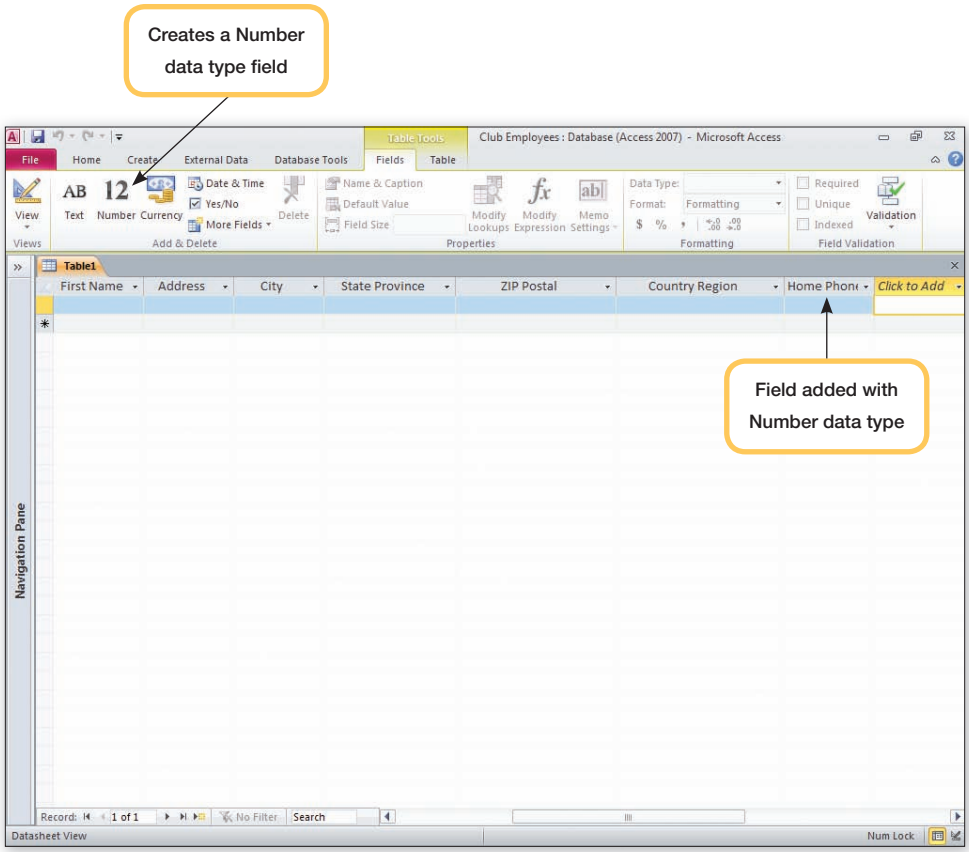
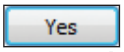


Figure 1.12

DELETING A FIELD IN DATASHEET VIEW

The Country Region field that was added as part of the Address field model is not needed, so you will delete it. Deleting a field permanently removes the field column and all the data in the field from the table.

1. **Click in the Country Region field.**
2. **Click** 

in the Add & Delete group.
3. **Click** 

in response to the message to confirm that you want to permanently delete the field.

Your screen should be similar to Figure 1.13

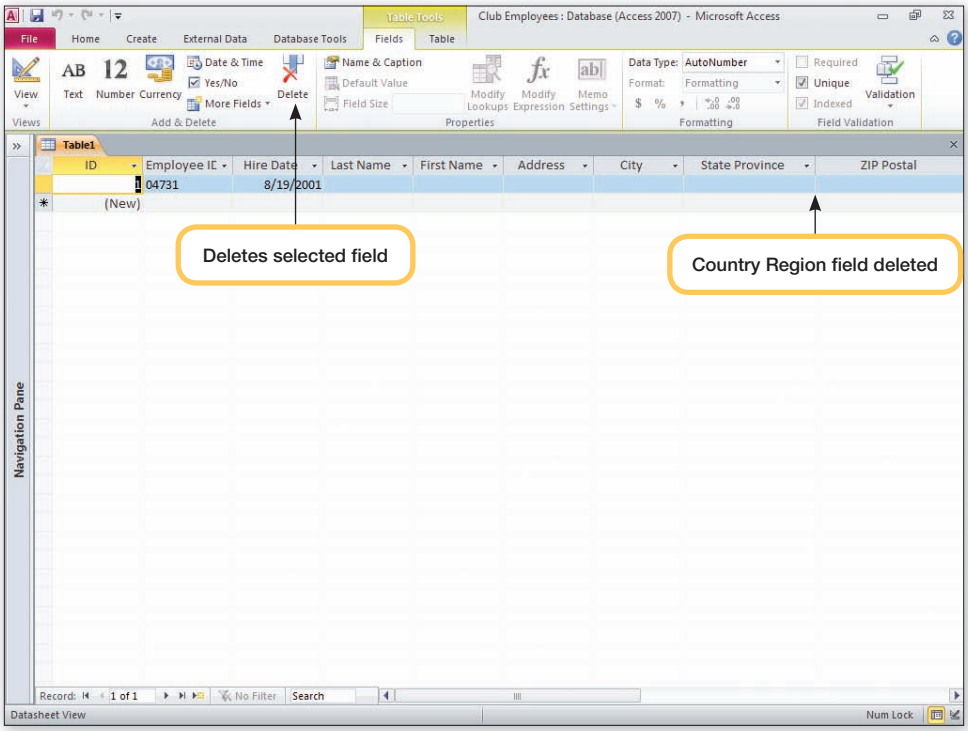


Figure 1.13

The field is permanently removed from the table.

Another Method

You also can delete a field in Datasheet view by choosing Delete Column from the shortcut menu for the field column you want to delete.

Modifying Field Properties

In addition to data type, there are many other field properties associated with a field.

Concept 4 Field Property

A **field property** is a characteristic that helps define the appearance and behavior of a field. Each field has a set of field properties associated with it, and each data type has a different set of field properties. Setting field properties enhances the way your table works. Some of the more commonly used properties and their functions are described in the following table.

Field Property	Description
Field Size	Sets the maximum number of characters that can be entered in the field.
Format	Specifies the way data displays in a table and prints.
Input Mask	Simplifies data entry by controlling the data that is required in a field and the way the data is to be displayed.
Caption	Specifies a field label other than the field name that is used in queries, forms, and reports.
Default Value	Automatically fills in a certain value for this field in new records as you add to the table. You can override a default value by typing a new value into the field.
Validation Rule	Limits data entered in a field to values that meet certain requirements.
Validation Text	Specifies the message to be displayed when the associated Validation Rule is not satisfied.
Required	Specifies whether a value must be entered in a field.
Allow Zero Length	Specifies whether an entry containing no characters is valid. This property is used to indicate that you know no value exists for a field. A zero-length string is entered as "" with no space between the quotation marks.
Indexed	Sets a field as an index field (a field that controls the order of records). This speeds up searches on fields that are searched frequently.

To view and change the field properties, you use Design view.

SWITCHING VIEWS

You can easily switch between views using the 

button in the Table Tools Fields tab. The graphic in the button changes to indicate the view that will be displayed when selected. Currently the button displays the graphic for Design view. If the view you want to change to is displayed in the button, you can simply click on the upper part of the button to change to that view. Otherwise, you can click on the lower part of the button to open the button's drop-down menu and select the view you want to use. Before you can change views, you will be asked to save the table.

1. Click » to open the Navigation pane.
2. Click View Design View in the Views group.

Another Method

You also can click View to open the View drop-down menu and choose Design View or click Design View in the status bar. Alternatively, you can right-click the object tab and choose Design View.

Your screen should be similar to Figure 1.14

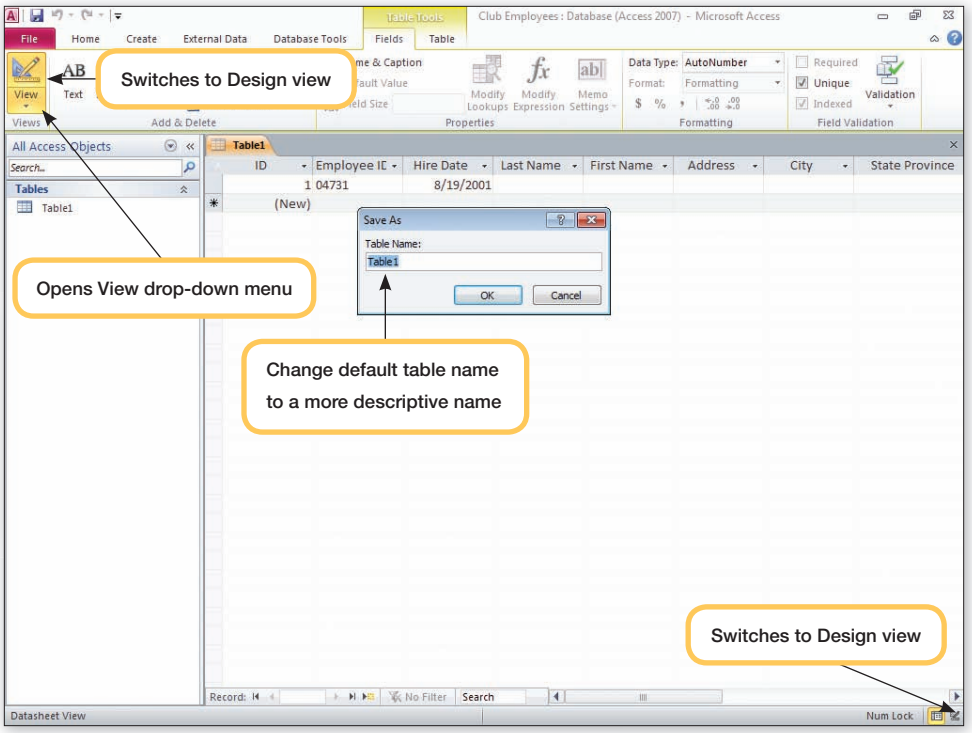


Figure 1.14

Additional Information

You also could click Save in the Records group of the Home tab, or use the keyboard shortcut Shift + Enter, or click Save in the Quick Access Toolbar to save changes to the table at any time.

When you first create a new table and switch views, you are asked to save the table by replacing the default table name, Table1, with a more descriptive name. A table name follows the same set of standard naming conventions or rules that you use when naming fields. It is acceptable to use the same name for both a table and the database, although each table in a database must have a unique name. You will save the table using the table name Employee Records.

2. Type **Employee Records**
3. Click OK.

Your screen should be similar to Figure 1.15

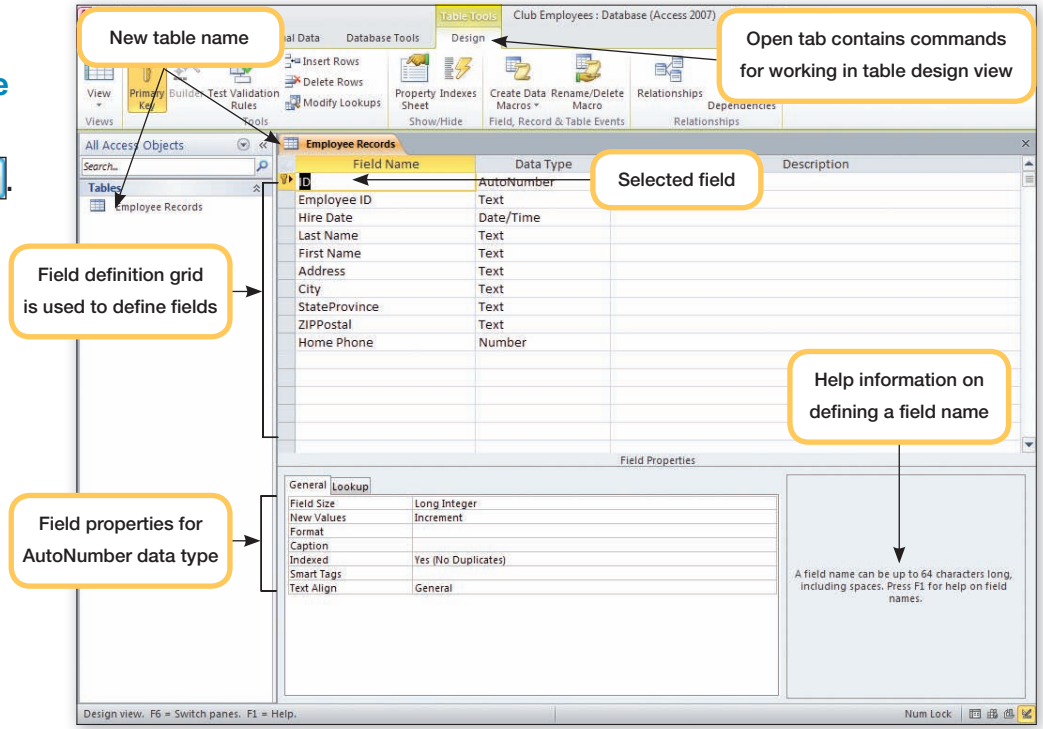


Figure 1.15

Additional Information

If you close a new table without saving it at least once, the entire table is deleted including any data you may have entered in it.

The work area now displays the table in design view. This view displays the structure of the table, not the table data. Therefore, it is only used to make changes to the layout and field properties of the table.

Additionally, the new table name appears in the Navigation pane and in the Table tab. You have created a table named Employee Records in the Club Employees database file. The table structure and data are saved within the database file.

SETTING FIELD SIZE

The Table Tools Design tab is displayed and open. The upper section of the design view window consists of a field definition grid that displays the field names, the data type associated with each field, and an area in which to enter a description of the field. The lower section displays the properties associated with each field and a Help box that provides information about the current task. The first field in the field definition grid, ID, is the selected field or **current field** and will be affected by any changes you make. It has a data type of AutoNumber. The properties associated with the current field are displayed in the Field Properties section.

Additional Information

You can get more Help information about the current selection by pressing F1 to open Access Help.

You will look at the properties associated with the first field you added to the table, Employee ID. Positioning the insertion point in any column of the field definition grid will select that field and display the associated field properties.

1 **Click on the Employee ID field name.**

Your screen should be similar to Figure 1.16

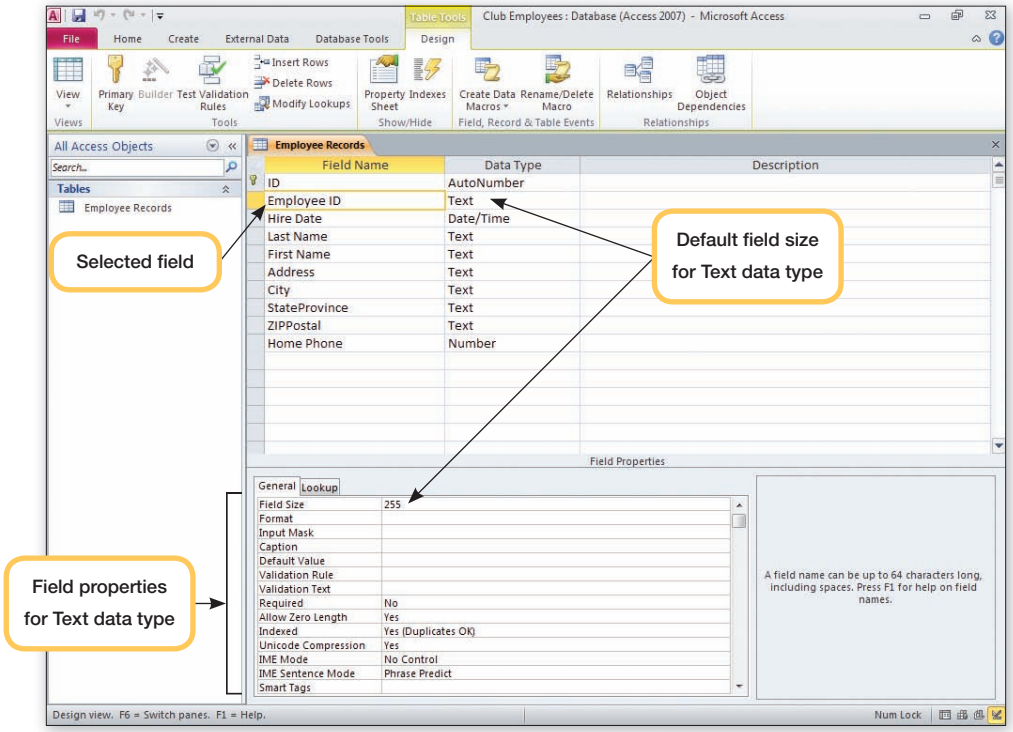


Figure 1.16

The data type of this field is Text, and the default properties associated with a Text data type are displayed in the Field Properties area. Although some of the properties are the same as those for the AutoNumber data type, most are different. Access sets the field size for a Text field to default maximum of 255 characters. It also sets the Required property to No, which allows the field to be blank. The Allow Zero Length property is set to Yes, which allows a field to be empty. The Indexed property is also set to Yes, meaning indexing is on,

and duplicate entries are allowed in the field, as, for example, the same name could be entered in the Name field of multiple records. All these settings seem appropriate, except for the field size, which is much too large.

Although Access uses only the amount of storage space necessary for the text you actually store in a Text field, setting the field size to the smallest possible size can decrease the processing time required by the program. Additionally, if the field data to be entered is a specific size, setting the field size to that number restricts the entry to the maximum number.

Because the employee number will never be more than five digits long, you will change the field size from the default of 255 to 5.

2

- **Click the Field Size property text box.**

Another Method

You also can press F6 to switch between the upper and lower areas of the Design window.

- **Click the words Field Size in the row header to automatically select its contents of 255.**

Another Method

You can select text (highlight by dragging or double-clicking) and then press the Delete key to erase the selection.

- **Type 5 to replace the default entry.**

Additional Information

You can cancel changes you are making in the current field at any time before you move on to the next field. Just press Esc and the original entry is restored.

Your screen should be similar to Figure 1.17

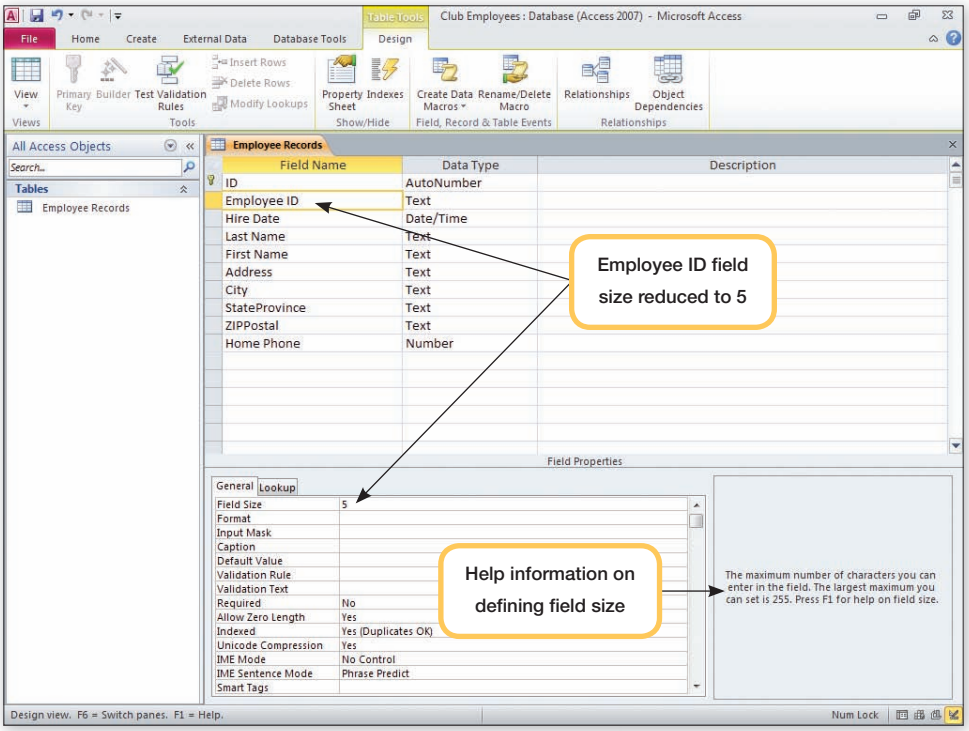


Figure 1.17

The maximum number of characters that can be entered in this field is now restricted to 5. Notice the Help box displays a brief description of the selected property.

Likewise, you will adjust the field sizes of several other fields.

3

- Change the field sizes to those shown for the fields in the following table.

Field	Size
Last Name	25
First Name	25
Address	50
City	25
StateProvince	2
ZIPPostal	10

Your screen should be similar to **Figure 1.18**

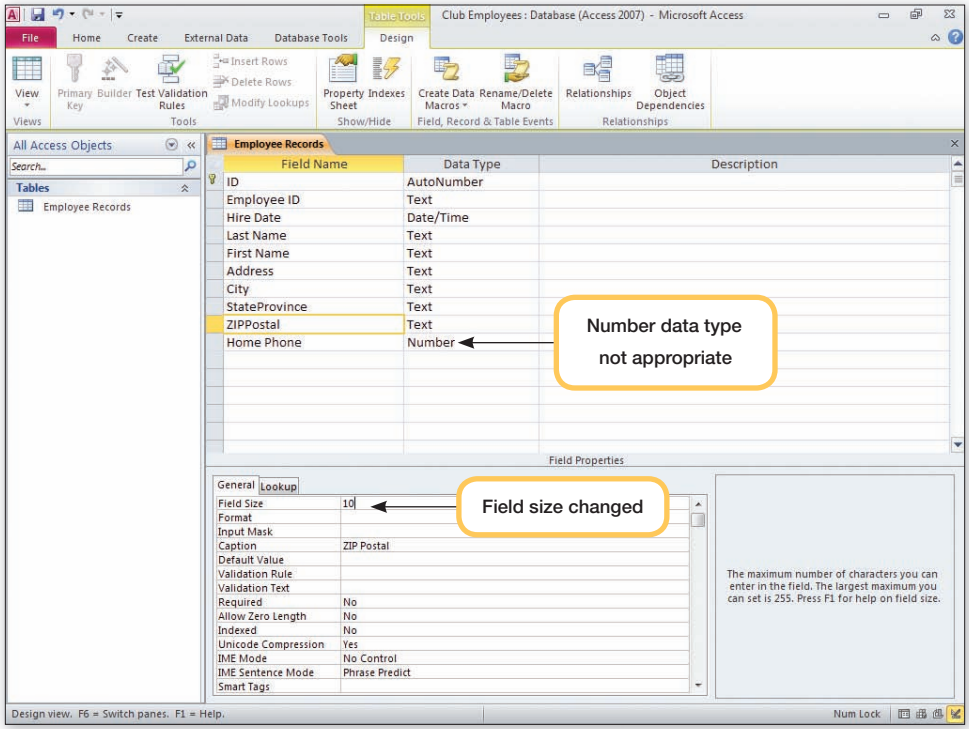


Figure 1.18

CHANGING DATA TYPE

As you look at the field definitions, it is important to make sure the correct data type has been assigned to the field. You can see that the ZIPPostal field has been correctly assigned a data type of Text because it will not be used in calculations and you may use a dash to separate the digits. For the same reasons, you realize the Home Phone field should have a Text data type instead of Number. You will correct the data type for the Home Phone field.

1

- Click in the Data Type column for the Home Phone field.
- Click ▼ to open the drop-down menu and choose Text.
- Change the field size for Home Phone to 15

Your screen should be similar to **Figure 1.19**

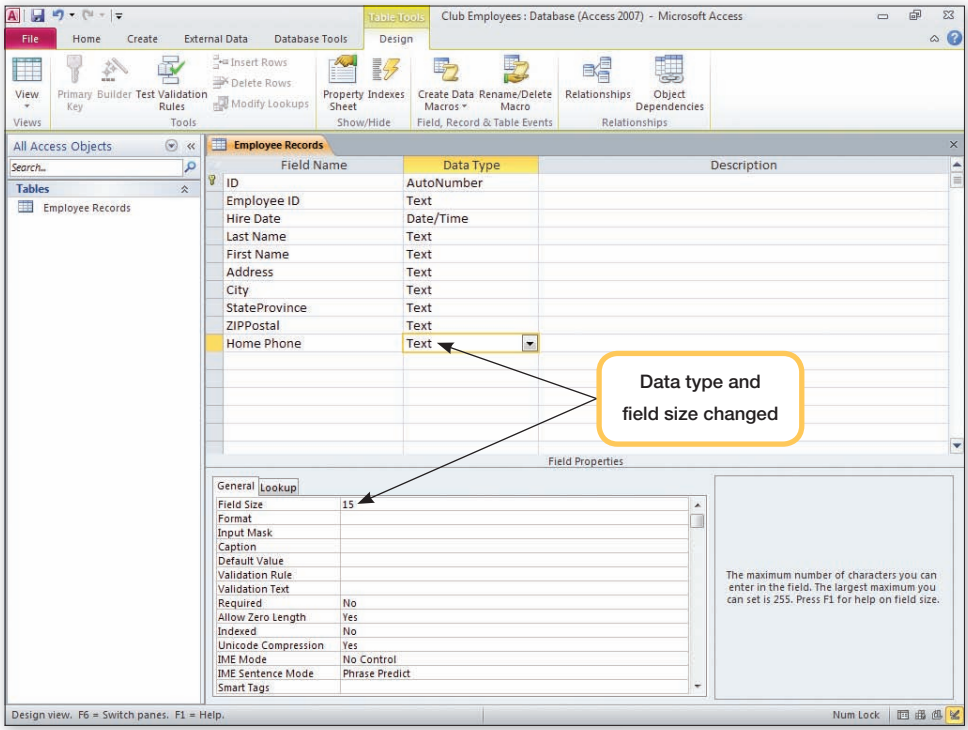


Figure 1.19

EDITING FIELD NAMES

As you continue to look over the fields, you decide to change the field names for the StateProvince and ZIPPostal fields that were assigned when you selected the Address field model.

1. **Click on the StateProvince field.**

Your screen should be similar to Figure 1.20

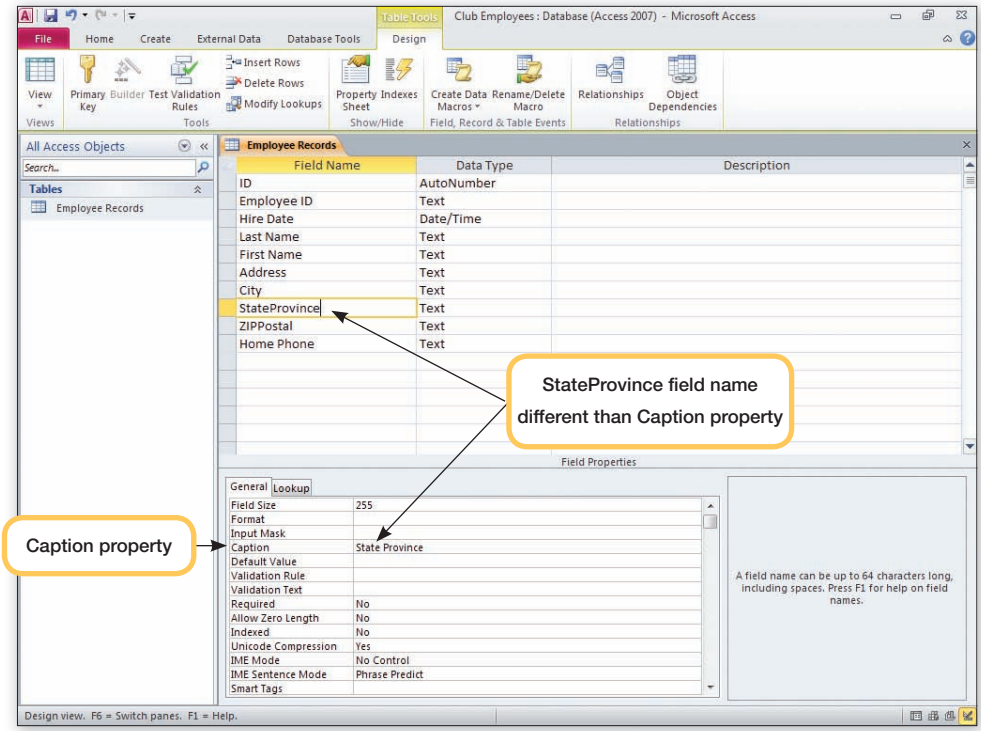


Figure 1.20

Notice that the StateProvince field name appears spelled with no space between the words, while the Caption property displays the State Province with a space. A **caption** is the text that displays in the column heading while in Datasheet view. It is used when you want the label to be different from the actual field name. If there is no text in the Caption field property, the field name will appear as the column heading in Datasheet view. You will change the field name to State and remove the caption for this field. Likewise, you will change the ZIPPostal field name to ZIP Code and clear the caption.

2

- **Change the StateProvince field name to State**

Having Trouble?

Double-click on the field name to select it.

- **Delete State Province from the Caption property.**
- **Change the ZIPPostal field name to ZIP Code**
- **Delete Zip Postal from the Caption property.**

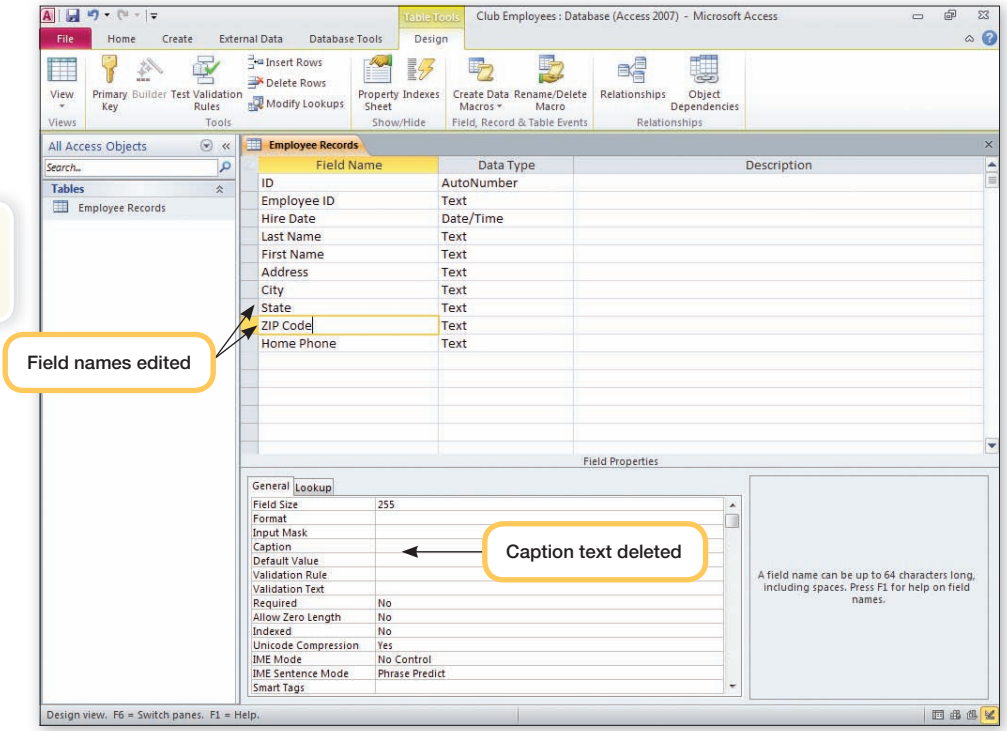


Figure 1.21

Your screen should be similar to Figure 1.21

The field names have been corrected and captions removed. The field names will automatically be used as the default text for the column headings.

DEFINING A FIELD AS A PRIMARY KEY

The next change you want to make is to define the Employee ID field as a primary key field.

Concept 5 Primary Key

A **primary key** is a field that uniquely identifies each record and is used to associate data from multiple tables. To qualify as a primary key field, the data in the field must be unique for each record. For example, a Social Security Number field could be selected as the primary key because the data in that field is unique for each employee. Other examples of primary key fields are part numbers or catalog numbers. (One example of a field that should not be used as the primary key is a name field because more than one person can have the same last or first name.) A second requirement is that the field can never be empty or null. A third is that the data in the field never, or rarely, changes.

A primary key prevents duplicate records from being entered in the table and is used to control the order in which records display in the table. This makes it faster for databases to locate records in the table and to process other operations.

Most tables have at least one field that is selected as the primary key. Some tables may use two or more fields that, together, provide the primary key of a table. When a primary key uses more than one field, it is called a **composite key**.

Notice the  icon that is displayed to the left of the ID field. This indicates that this field is a primary key field. You want to define the Employee ID field so that duplicate employee ID numbers will not be allowed.

1. **Click on the Employee ID field name.**
2. **Click  in the Tools group.**

Your screen should be similar to Figure 1.22

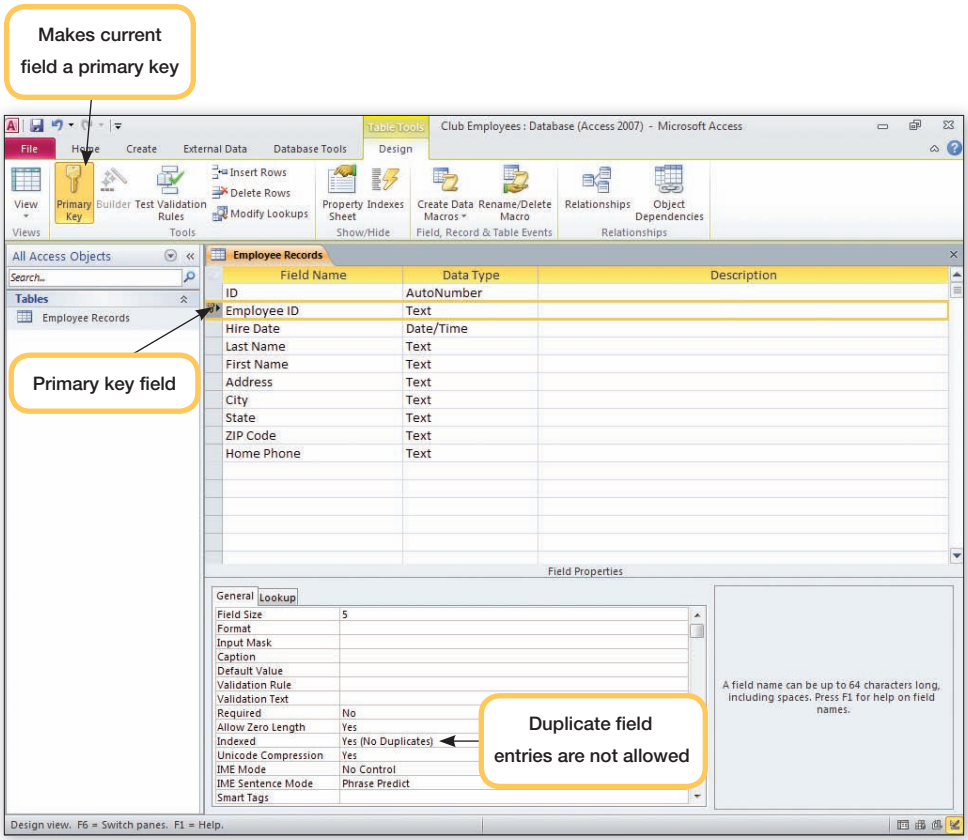


Figure 1.22

Notice the Indexed property setting for this field has changed to Yes (No Duplicates) because the field is defined as the primary key field. This setting prohibits duplicate values in a field. Also, the primary key status has been removed from the default ID field.

ENTERING FIELD DESCRIPTIONS

To continue defining the Employee ID field, you will enter a brief description of the field. Although it is optional, a field description makes the table easier to understand and update because the description is displayed in the status bar when you enter data into the table.

1

- **Click the Description text box for the Employee ID field.**
- **Type Unique five-digit number assigned to each employee**

Additional Information

The Description box scrolls horizontally as necessary to accommodate the length of the text entry. The maximum length is 255 characters.

Your screen should be similar to Figure 1.23

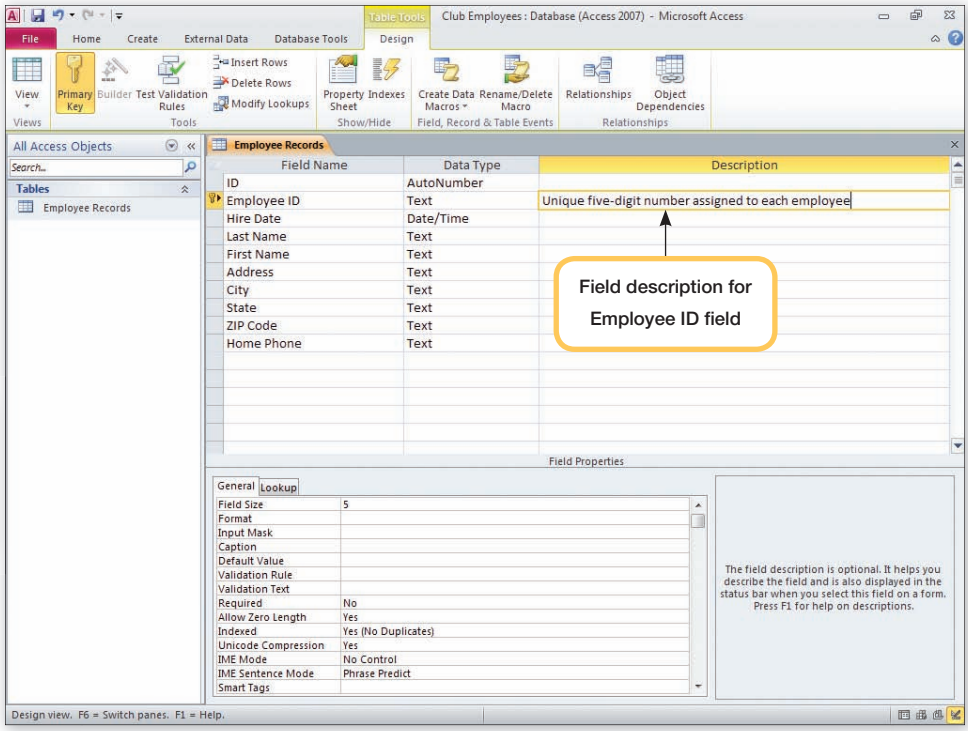


Figure 1.23

You also want to add field descriptions to several other fields. As you do, the Property Update Options button will appear when you complete the entry by moving outside the Description text box. Clicking on this button opens a menu whose option will update the description in the status bar everywhere the field is used. Because this database only contains one table, there is no need to update the description anyplace else. The button will disappear automatically when you continue working.

2

- **Add descriptions to the fields as shown in Figure 1.24.**

Your screen should be similar to Figure 1.24

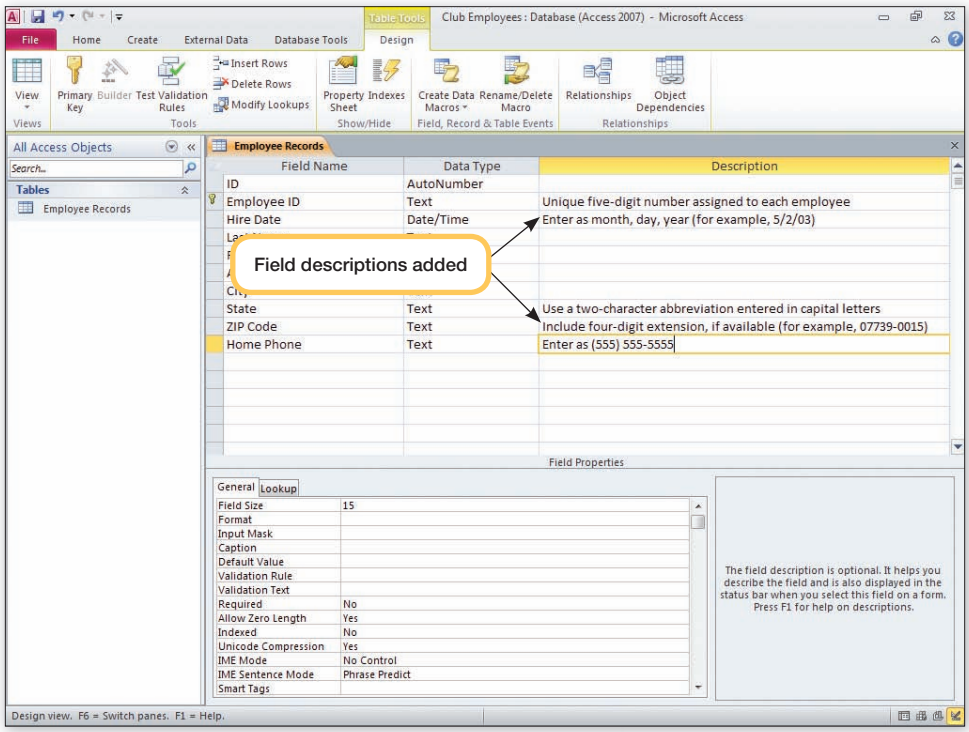


Figure 1.24

DELETING A FIELD IN DESIGN VIEW

Because the ID field essentially duplicates the purpose of the Employee ID field, you will delete the ID field. Just like deleting a field in Datasheet view, deleting a field in Design view permanently removes the field column and all the data in the field from the table.

1. **Click in the ID field.**
2. **Click** Delete Rows **in the Tools group.**
3. **Click** Yes **in response to the message to confirm you want to permanently delete the field.**

Your screen should be similar to Figure 1.25

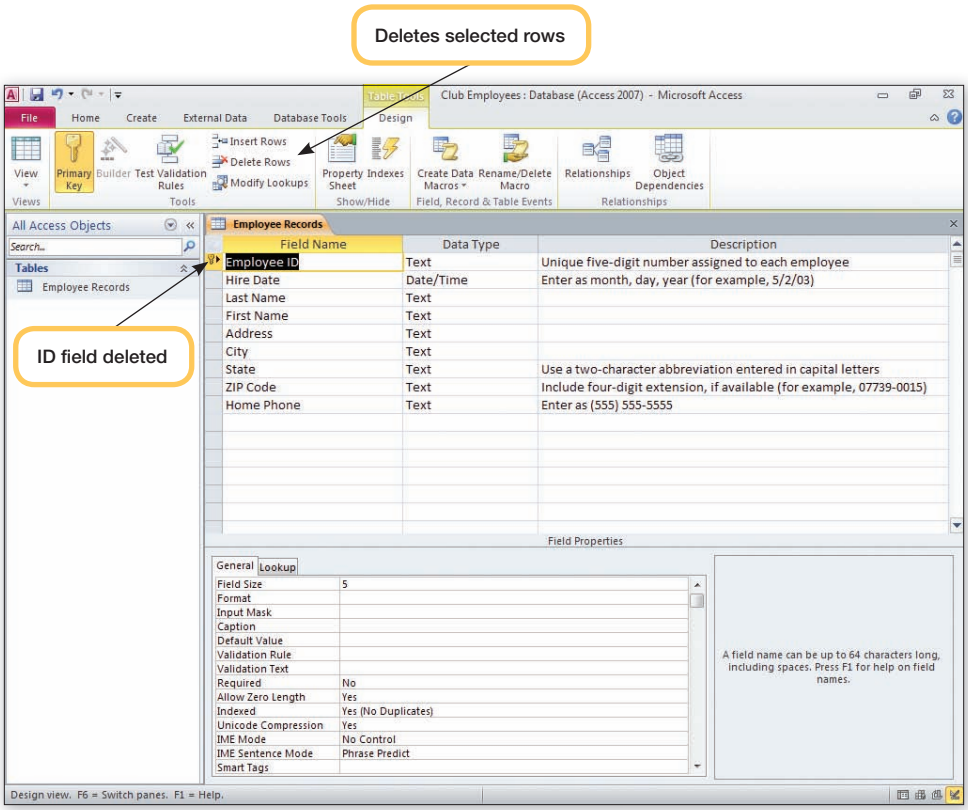


Figure 1.25

The field is permanently removed from the table.

Additional Information

In a table that contains a lot of data, it is a good idea to create a backup copy of the table before you delete a field in case you need to recover the deleted data.

CREATING A FIELD IN DESIGN VIEW

You still need to add two fields to the table: one for the employee's date of birth and the other to display the employee's photo. You will add the new fields and define their properties in Design view.

1

- **Click in the blank Field Name row below the Home Phone field name.**
- **Type Birth Date**
- **Press Enter, Tab, or → to move to the Data Type column.**
- **Open the Data Type drop-down menu and choose Date/Time.**

Another Method

You also can enter the data type by typing the first character of the type you want to use. For example, if you type D, the Date/Time data type will be automatically selected and displayed in the field.

- **Type in the field description: Enter as month, day, year (for example, 5/2/90)**

Your screen should be similar to Figure 1.26

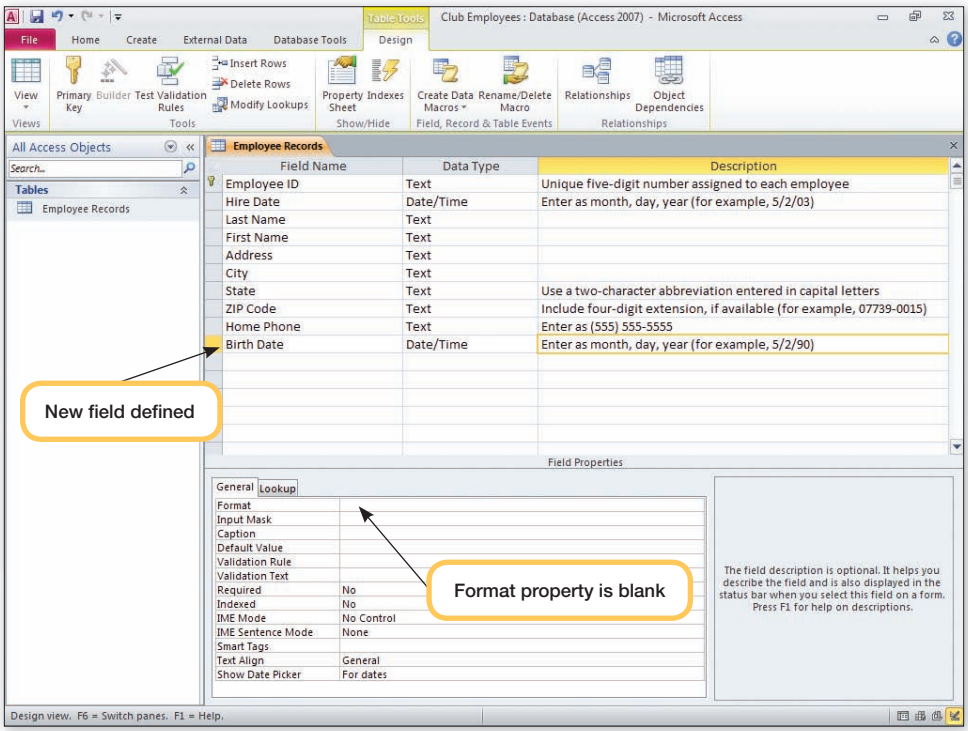


Figure 1.26

The default field properties for the selected data type are displayed. Because the format line is blank, you decide to check the format to make sure that the date will display as you want.

2

- **Click in the Format property box.**
- **Click ▼ to open the drop-down menu of format options.**

Your screen should be similar to Figure 1.27

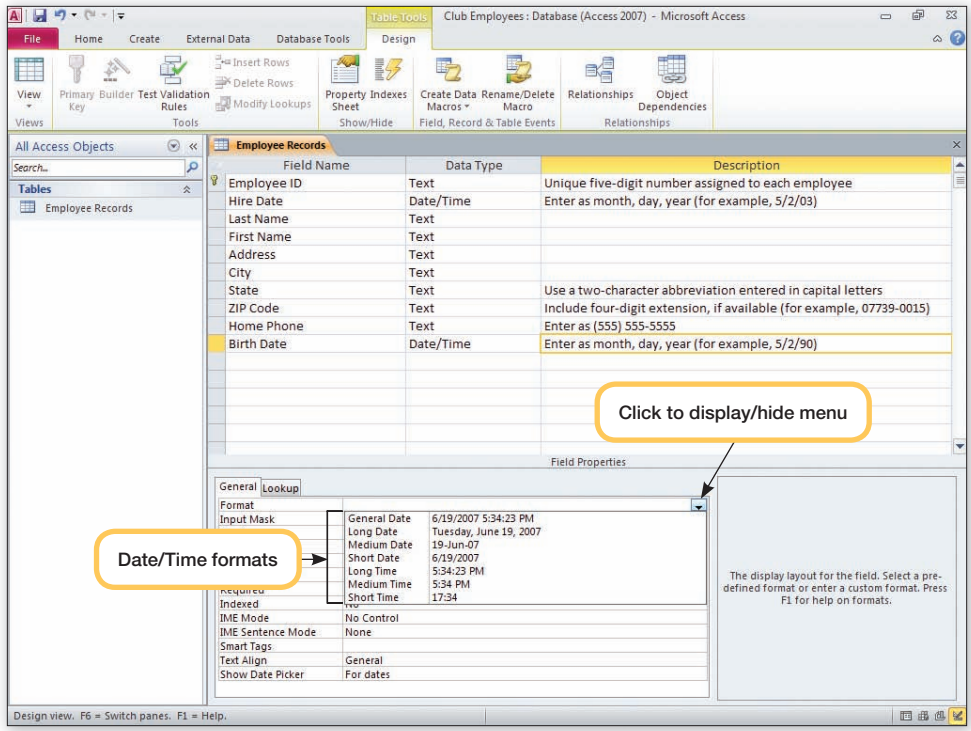


Figure 1.27

The names of the seven predefined layouts for the Date/Time field type are displayed in the list. An example of each layout appears to the right of the name. Although not displayed in the Format property box, the General Date format is the default format. It displays dates using the Short Date format. If a time value is entered, it also will display the time in the Long Time format. You will choose this format so that the setting will be displayed in the Format property box.

3

- **Choose General Date.**

Your screen should be similar to Figure 1.28

Additional Information

Access automatically assumes the first two digits of a year entry. If you enter a year that is between /30 and /99, Access reads this as a 20th century date (1930 to 1999). A year entry between /00 and /29 is assumed to be a 21st century date (2000 to 2029).

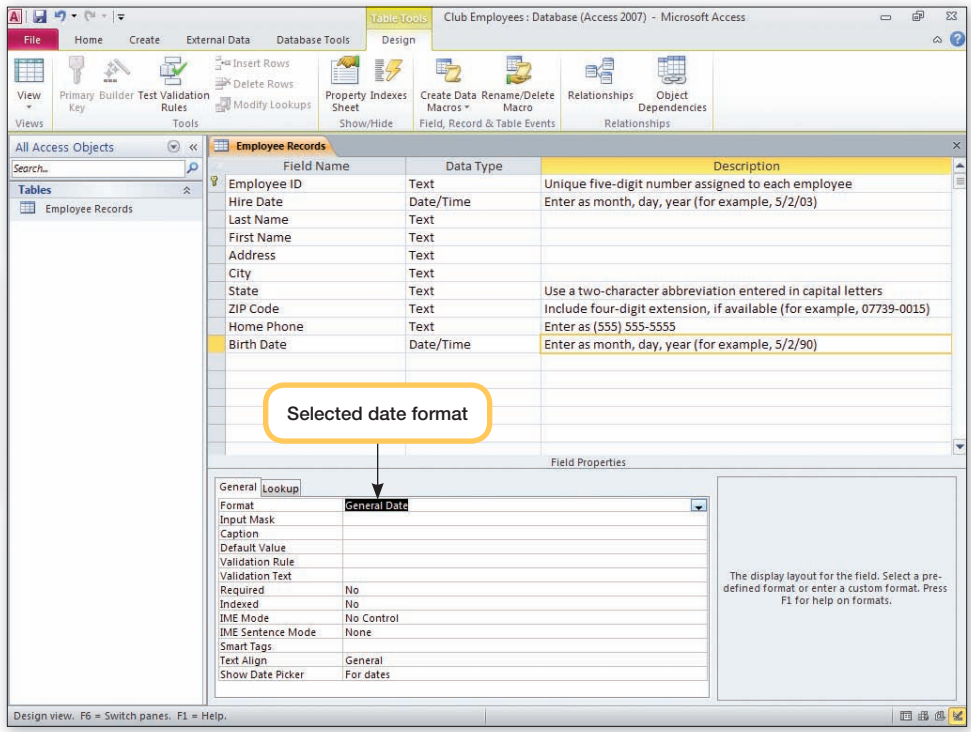


Figure 1.28

The Date/Time property setting is now displayed in the Format text box.

CREATING AN ATTACHMENT FIELD

The last field you will enter will display a photo and resume if available for each employee. The data type for this type of input is Attachment. Once a field has been assigned, this data type cannot be changed. You can, however, delete the field and then redefine it if you think you made an error.

1

- In the next blank field name row, enter the field name **Photo/Resume** with a data type of Attachment.
- Include the description **Attach employee photo and resume if available**

Your screen should be similar to **Figure 1.29**

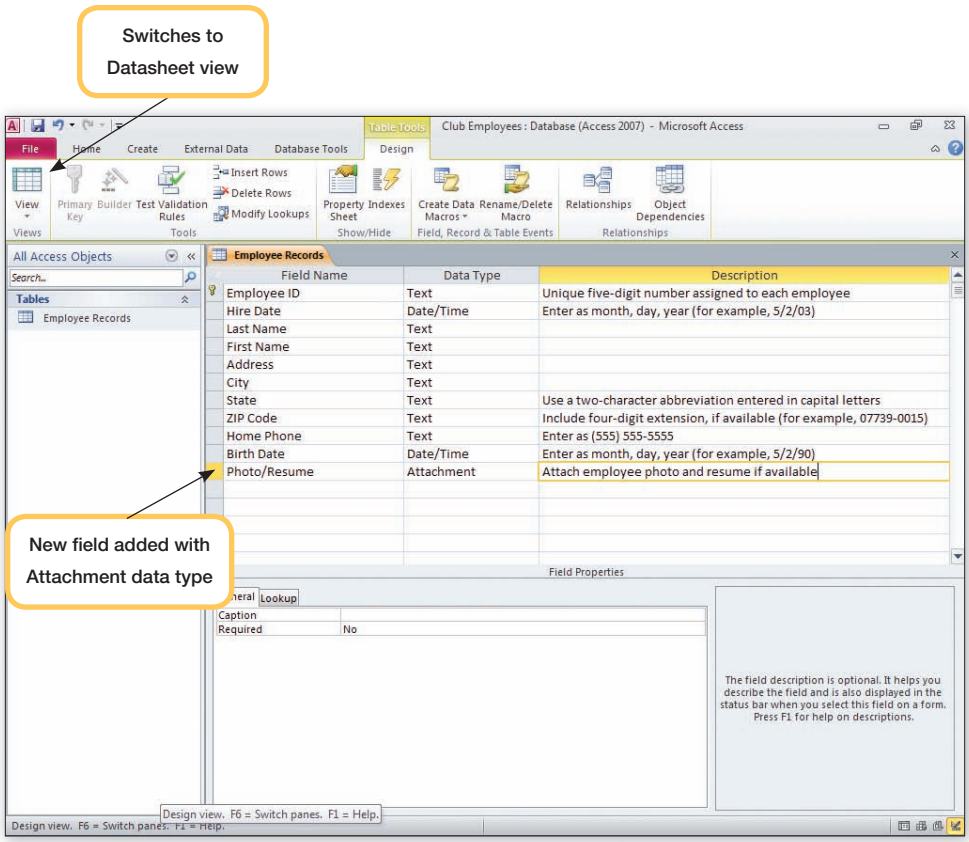


Figure 1.29

Specifying the Attachment data type allows you to store multiple files of different file types in a single field.

Entering and Editing Records

Now that the table structure is complete, you want to continue entering the employee data into the table. To do this, you need to switch back to Datasheet view.

Because you have made many changes to the table design, you will be asked to save the changes before you switch views. You also will be advised that data may be lost because you decreased field sizes in several fields. Since there is very little data in the table, this is not a concern.

1

- Click  in the Views group to switch to the Datasheet view.

Another Method

You also can click  Datasheet View in the status bar.

- Click Yes to save the changes.
- Click Yes in response to the Data may be lost warning.
- Hide the Navigation pane.
- Click in the Employee ID field for the first record.

Your screen should be similar to Figure 1.30

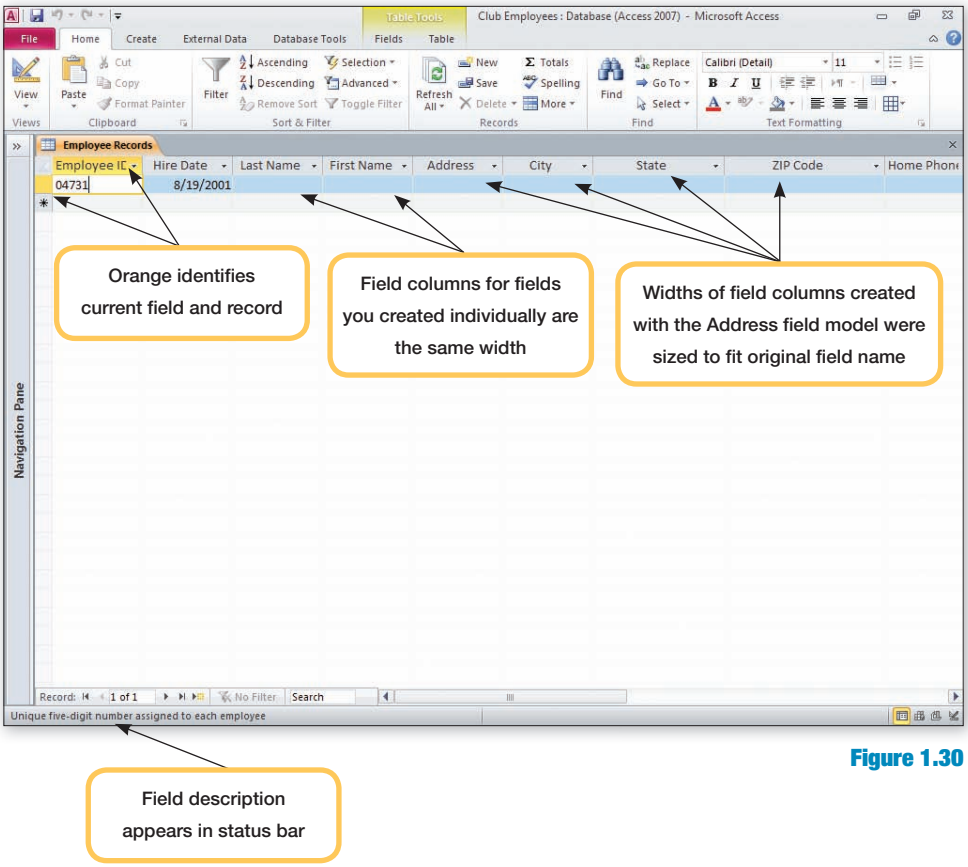


Figure 1.30

Additional Information

You will learn how to change the column width shortly.

Because you deleted the ID field, it is no longer displayed and the new fields you defined are ready for you to enter the remaining data for the first record. The first field, Employee ID, of the first record is outlined in orange, indicating that the program is ready to accept data in this field. The field name and Select Record button also are highlighted in orange to identify the current field and current record. The status bar displays the description you entered for the field.

Notice also in this view that the column widths for the fields you created individually are all the same, even though you set different field sizes in the Table Design window. This is because the Table Datasheet view has its own default column width setting. The column widths of the fields that were created using the Address field model were sized to fit the original field name for each column.

VERIFYING DATA ACCURACY AND VALIDITY

To see how field properties help ensure data accuracy, you will reenter the employee number for the first record and try to enter a number that is larger than the field size of five that you defined in Table Design view.

1

- **Double-click on the Employee ID number to select it.**
- **Type 047310**

Your screen should be similar to Figure 1.31

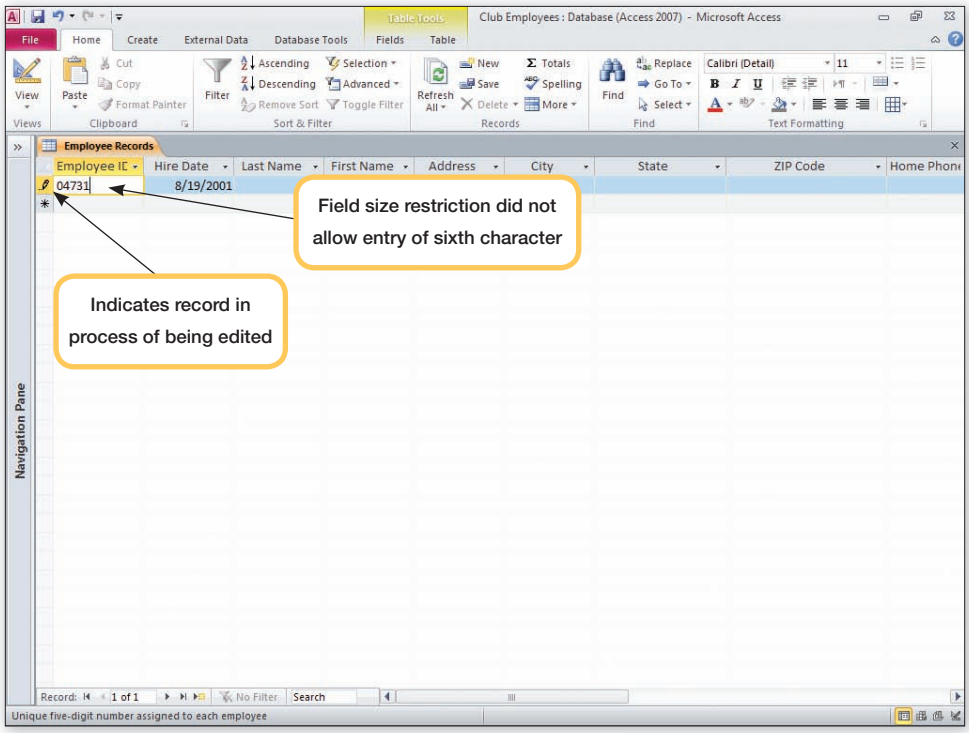


Figure 1.31

The program accepted only the first five digits and would not let you type a sixth. The field size restriction helps control the accuracy of data by not allowing an entry larger than has been specified. Notice also that the current record symbol has changed to  . The pencil symbol means the record is in the process of being entered or edited and has not yet been saved.

Next, you will intentionally enter an invalid date to see what happens.

2

- **Press ↵Enter, Tab⇆, or → to move to the Hire Date field.**
- **Type 8/32/05**
- **Press ↵Enter, Tab⇆, or →.**

Your screen should be similar to Figure 1.32

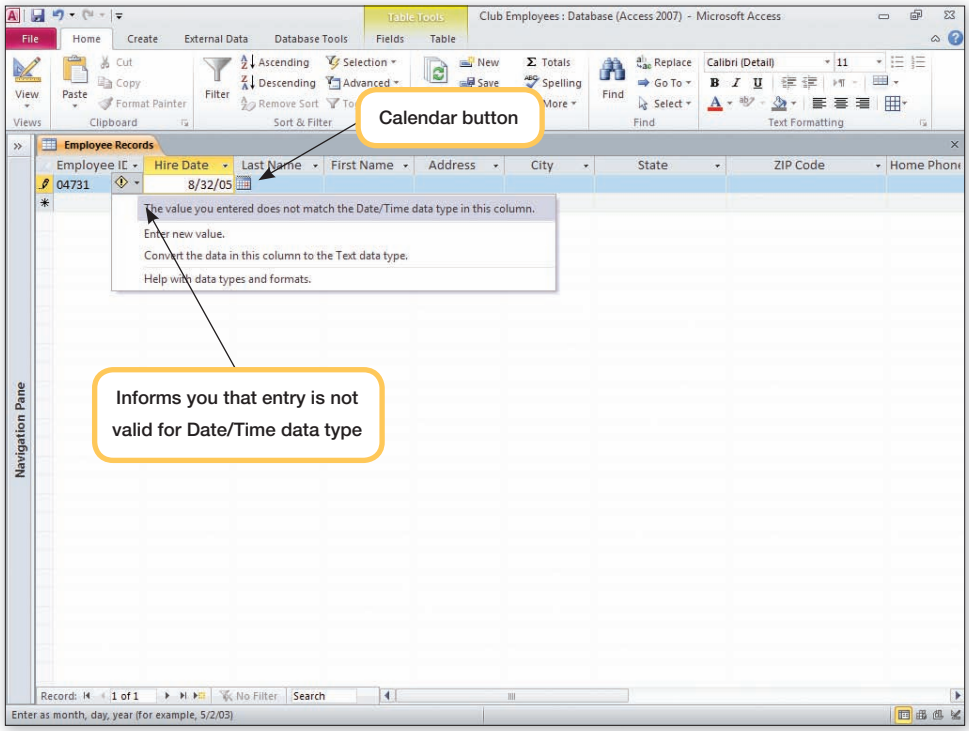


Figure 1.32

Additional Information

The calendar button appears automatically whenever a Date data type field is active. Clicking it displays a calendar for the current month from which you can quickly find and choose a date.

An informational message box is displayed advising you that the entry is not valid. In this case, the date entered (8/32/05) could not be correct because a month cannot have 32 days. Access automatically performs some basic checks on the data as it is entered based upon the field type specified in the table design. This is another way that Access helps you control data entry to ensure the accuracy of the data.

You will need to edit the date entry to correct it.

3

- **Select Enter new value from the message box.**
- **Double-click on 32 to select it.**
- **Type 19**
- **Press Tab.**

Your screen should be similar to Figure 1.33

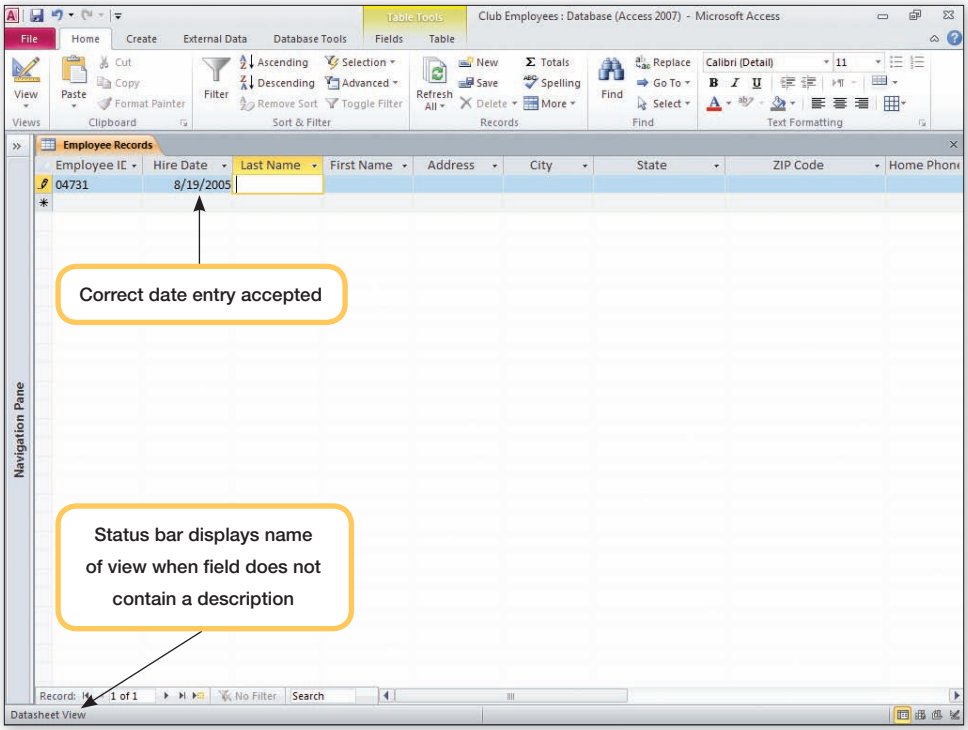


Figure 1.33

The corrected date is accepted, and the insertion point moves to the Last Name field. The year in the date changed to four digits, which reflects the date format you specified in the field's property.

Because you did not enter a description for the Last Name field, the status bar displays "Datasheet View," the name of the current view, instead of a field description.

USING AUTOCORRECT

Now you are ready to continue entering the data for the first record. As you are typing, you may make errors and they may be corrected automatically for you. This is because the AutoCorrect feature automatically corrects obvious errors such as capitalizing names of days, the first letter of sentences, and other common typing errors and misspellings such as words starting with two initial capital letters. The AutoCorrect Options button will appear next to any text that was corrected. You have the option of undoing the correction or leaving it as is. Most of the time, the typing error is not corrected, and you will need to fix it manually.

To see how this works, you will enter the last name incorrectly by typing the first two letters using capital letters.

1

Type **MArchant**

Press Tab.

Your screen should be similar to Figure 1.34

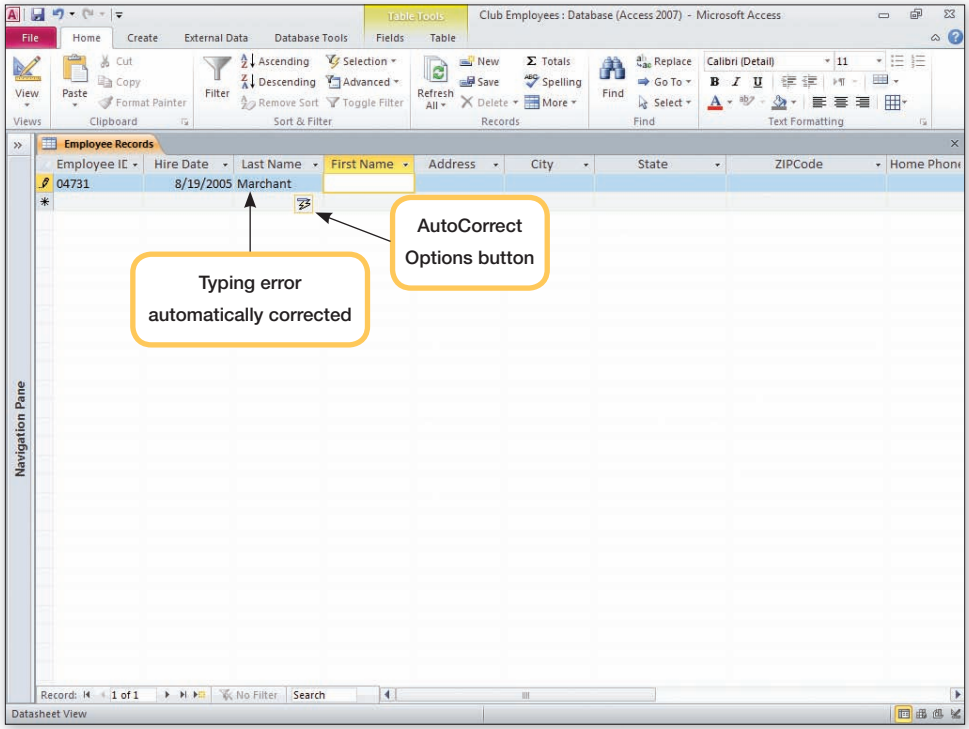


Figure 1.34

The name was automatically corrected, and the AutoCorrect Options button appears. You will leave the correction as is and continue to enter data for this record.

2

Enter the data shown in the table on the next page for the remaining fields, typing the information exactly as it appears.

Additional Information

The fields will scroll in the window as you move to the right in the record.

Your screen should be similar to Figure 1.35

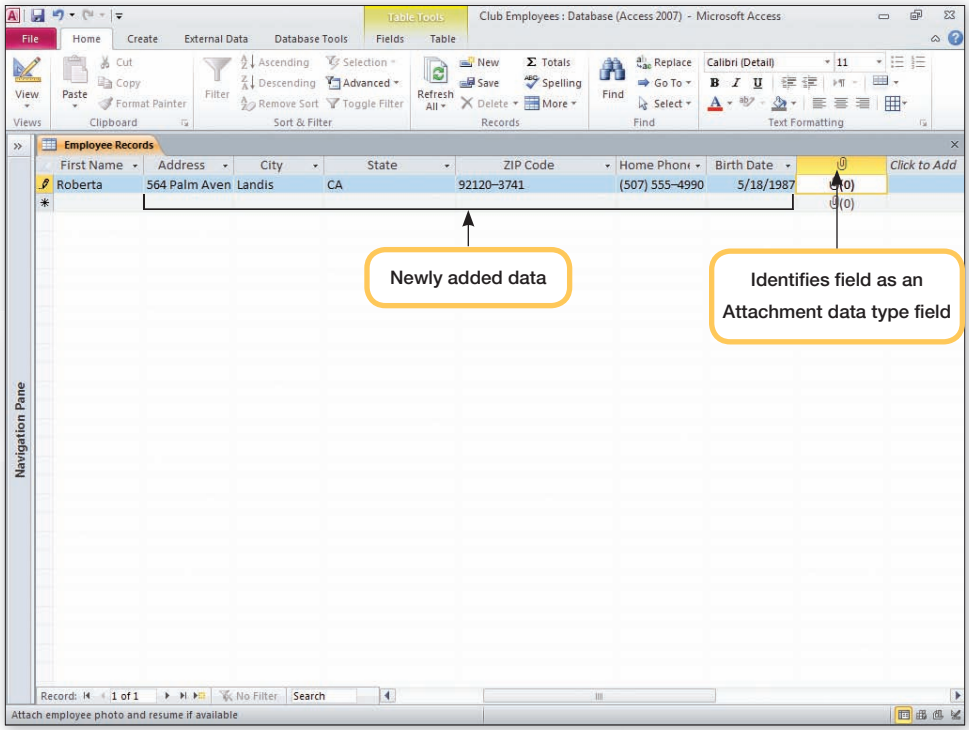


Figure 1.35

Field Name	Data
First Name	Roberta
Address	564 Palm Avenue
City	Landis
State	CA
ZIP Code	92120–3741
Home Phone	(507) 555–4990
Birth Date	May 18, 1987 (press Tab to complete the entry)

All the information for the first record is now complete, except for the last field for the employee photo and resume.

ATTACHING FILES TO RECORDS

Notice that the field name in the header for this field is not Photo/Resume, as you defined in Design view. This is because Access does not use the field name for Attachment data types. Instead it displays a paper clip icon in the field header to show that the field has an Attachment data type. However, you can specify a caption for this field that will display as the field name. Before making this change, you want to add the data for this field.

You plan to attach the employee photo and a copy of the employee's resume if it is available. A photo is one of several different types of graphic objects that can be added to a database table. A **graphic** is a nontext element or object. A graphic can be a simple **drawing object** consisting of shapes such as lines and boxes that can be created using a drawing program such as Paint, or it can be a picture. A **picture** is an illustration such as a scanned photograph. A resume is a text document that is typically created using a word processor application.

Because you have not organized all the employees' badge photographs yet, you will only insert the photo for Roberta Marchant to demonstrate this feature to the club owners. You also will attach a sample resume that was created using Word 2010.

1 **Double-click on the Attachment field cell for this record.**

Another Method

You also can choose Manage Attachments from the field's shortcut menu.

Your screen should be similar to Figure 1.36

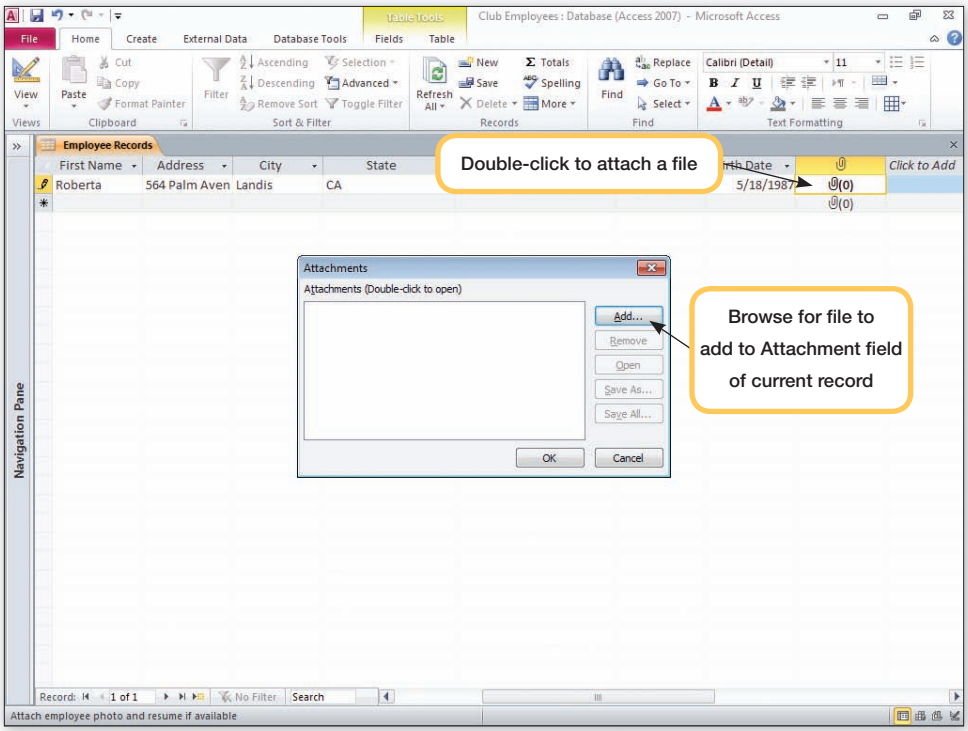


Figure 1.36

The Attachments dialog box is used to manage the items that are in an attachment field. Because there are currently no attachments associated with this field, it is empty. You will select the photo and resume files you want to add to the field.

2

- **Click** Add... **.**
- **If necessary, specify the location of your data files in the Choose File dialog box.**
- **Select** ac01_Roberta **and** ac01_Resume **from the file list box.**

Having Trouble?

Hold down Ctrl while clicking on the file names to select multiple files.

- **Click** Open **in the Choose File dialog box.**

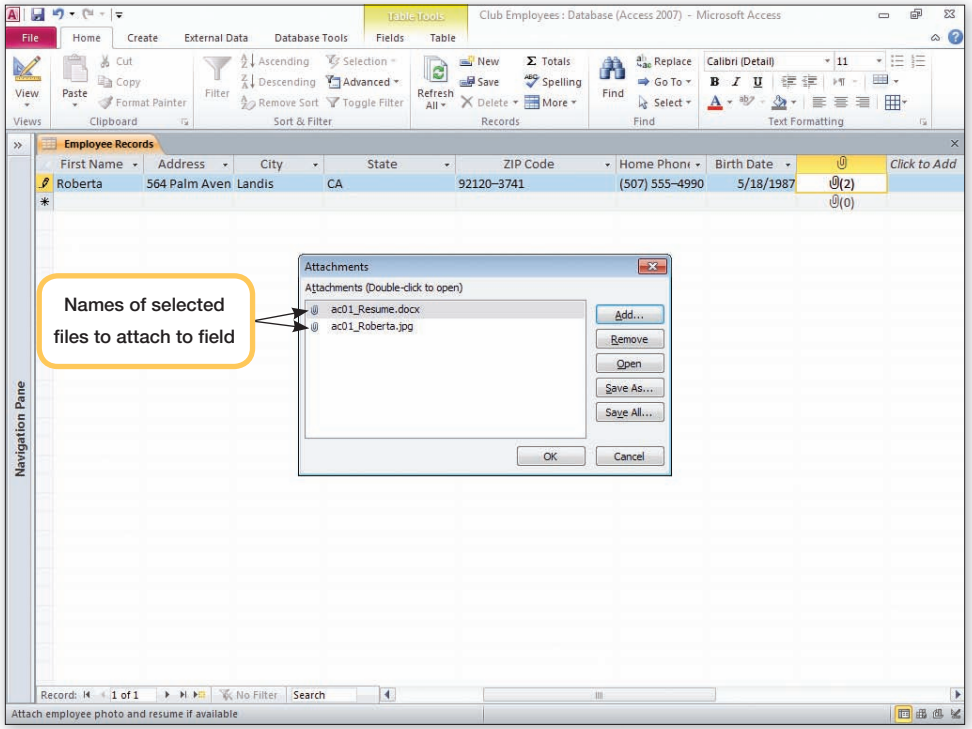


Figure 1.37

Your screen should be similar to Figure 1.37

The Attachments dialog box is displayed again and now displays the names of the selected files.

Additional Information

To remove a file from the Attachment field, select the file name from the list and click Remove.

3. Click **OK** in the Attachments dialog box.

Your screen should be similar to Figure 1.38

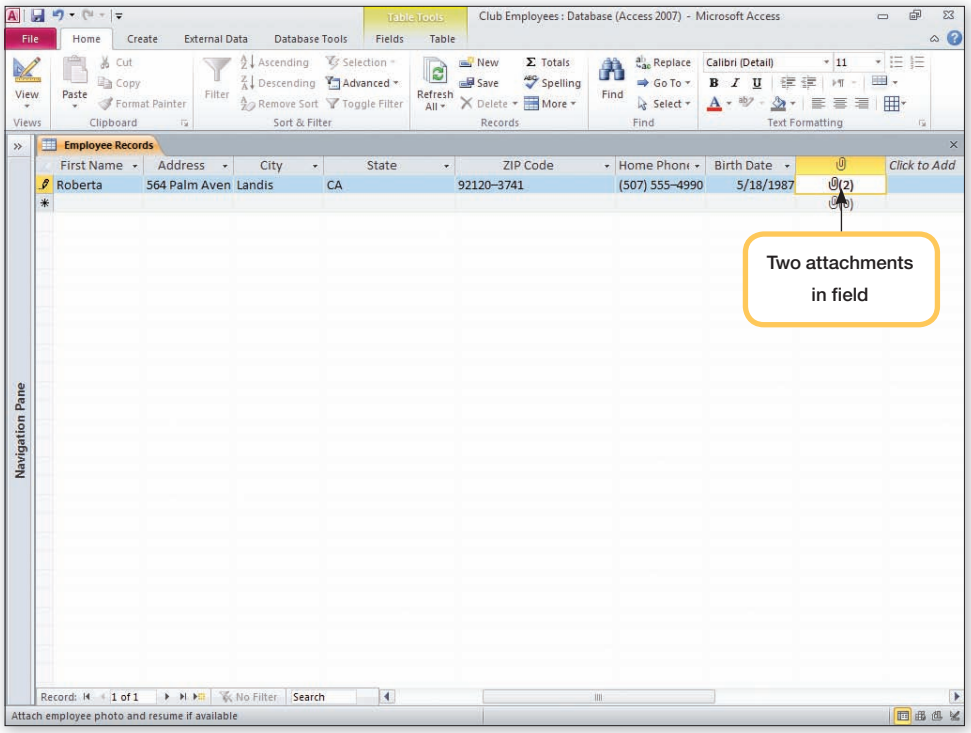


Figure 1.38

The selected files are inserted as attachments and identified with the number 2 in the cell. The number indicates how many attachments have been added to the field. You will now display the photograph from the Attachment field to check that it has been inserted properly.

4. **Double-click the cell containing the attachments for Roberta.**
   Select the ac01_Roberta file from the Attachments dialog box.
   Click Open.

Another Method

You also can double-click the file to both select and open it.

Your screen should be similar to Figure 1.39

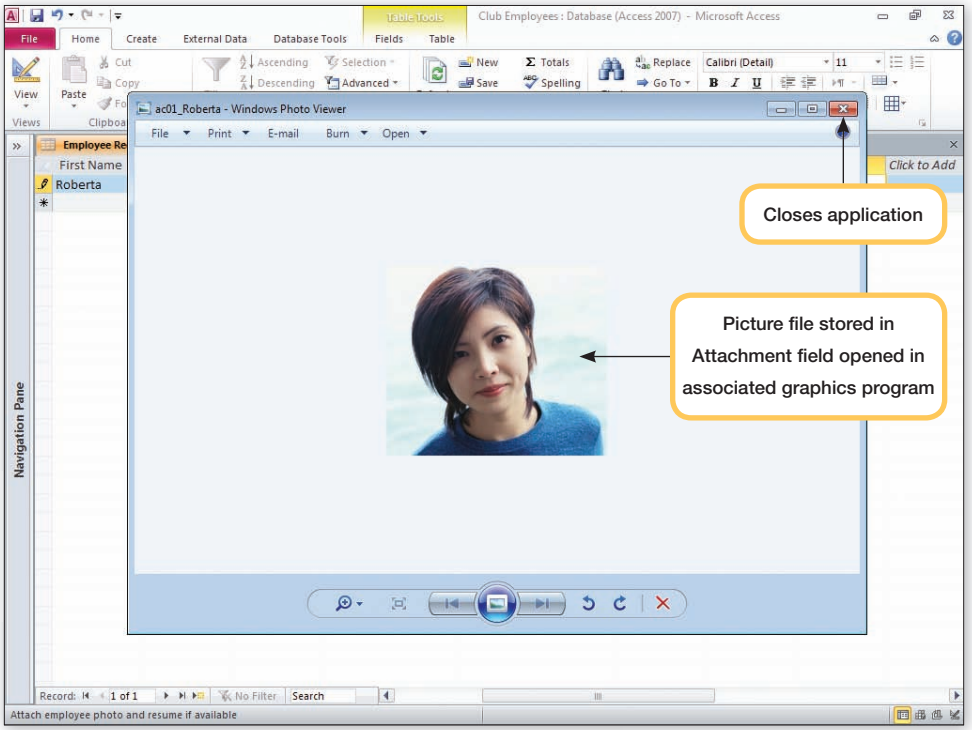


Figure 1.39

Additional Information

Image files that open in Microsoft Picture and Fax Viewer can only be viewed, not edited. If you want to edit the image, right-click on the image and choose Edit. The program used to create the file, if available on your computer, will open.

The picture object is opened and displayed in the graphics program that is associated with this type of file—in this case, Windows Photo Viewer. Yours may open and display in a different graphics program such as Paint. The application that opens is not necessarily the application in which the file was created. If the application in which it opens includes features that can be used to edit the file, you will be prompted to save any changes before closing the Attachments dialog box. If you do not save them, the changes will be lost.

5

- **Click Close in the graphics application window title bar to close the application.**
- **Select and open the ac01_Resume attachment.**
- **If necessary, maximize the Word application window.**

Your screen should be similar to Figure 1.40

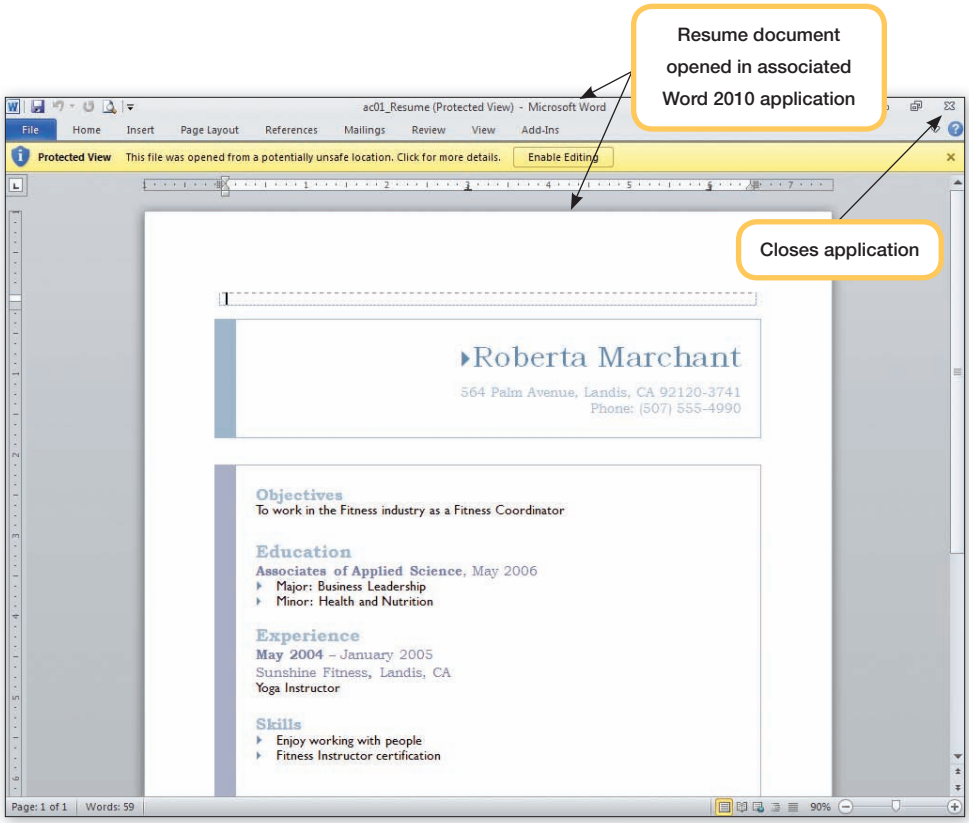


Figure 1.40

The resume is opened and displayed in the associated Word 2010 application program. A copy of the file is placed in a temporary folder. If you change the document, the changes are saved to the temporary copy. Then, when you return to Access and close the Attachments dialog box, you are asked if you want to save the attached file again.

6

- **Click Close in the application window title bar to close the Word 2010 application.**
- **Click Close to close the Attachments dialog box.**

Finally, you want to add the caption for the Attachment field. Rather than switching to Design view to make this change, you can use the Name & Caption button in the Properties group of the Table Tools Fields tab.

7

- Click Name & Caption in the Properties group of the Table Tools Fields tab.
- In the Caption text box of the Enter Field Properties dialog box, type **Photo/ Resume**
- Click OK.

Your screen should be similar to Figure 1.41

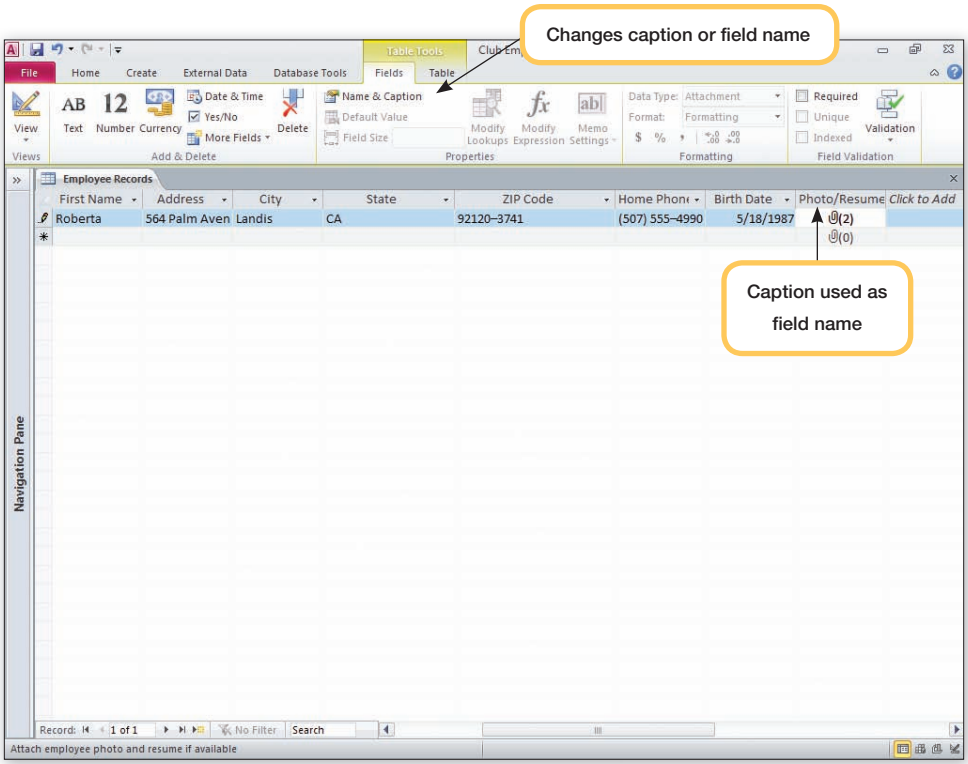


Figure 1.41

The field column now displays the caption associated with the field. This clarifies the field contents and makes it much easier for others to understand.

8

- Press ↵Enter to move to the beginning of the next record.

Your screen should be similar to Figure 1.42

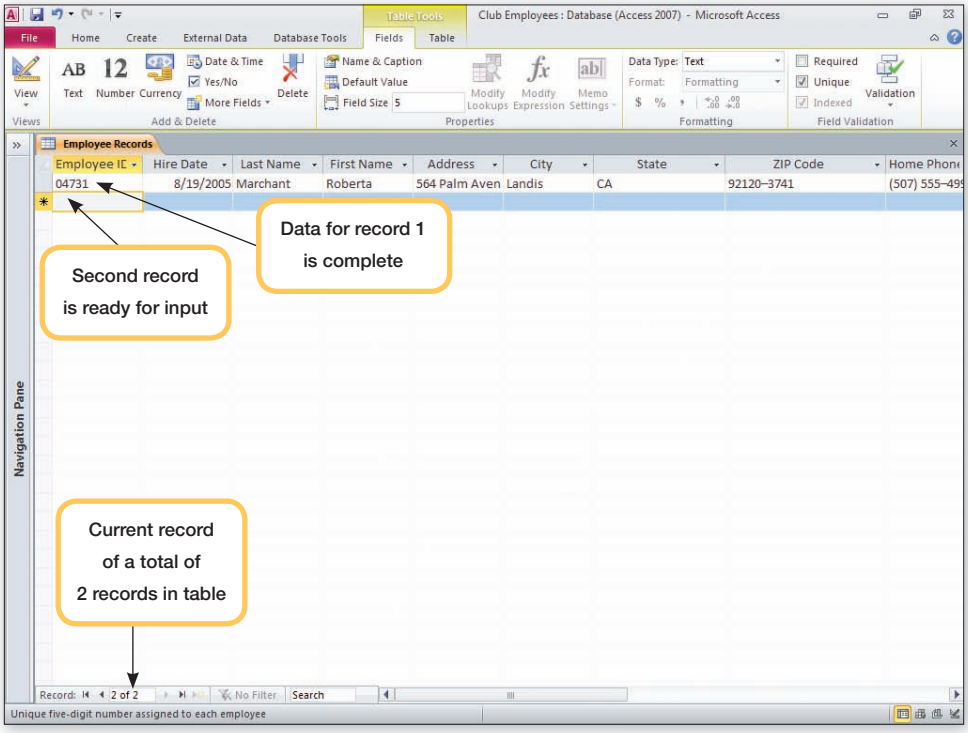


Figure 1.42

The information for the first record is now complete. The cursor moves to the first field in the next row and waits for input of the employee number for the next record. As soon as the cursor moves to another record, the data is saved

to the table file and the number of the new record appears in the status bar. The second record was automatically assigned the record number 2.

MOVING BETWEEN FIELDS

Next, you will check the first record for accuracy. To quickly move from one field to another in a record, you can first select (highlight) the entire field contents and then you can use the keyboard keys shown in the following table to move quickly between field columns.

Key	Movement
→ or Tab	Next field
← or Shift + Tab	Previous field
↑	Current field in previous record
↓	Current field in next record
Home	First field in record
End	Last field in record

You will select the Employee ID field for the first record and then move to the Address field to check its contents.

1

- **Point to the left end of the Employee ID field for the first record. When the mouse pointer appears as ✚, click the mouse button.**
- **Press → four times.**

Your screen should be similar to Figure 1.43

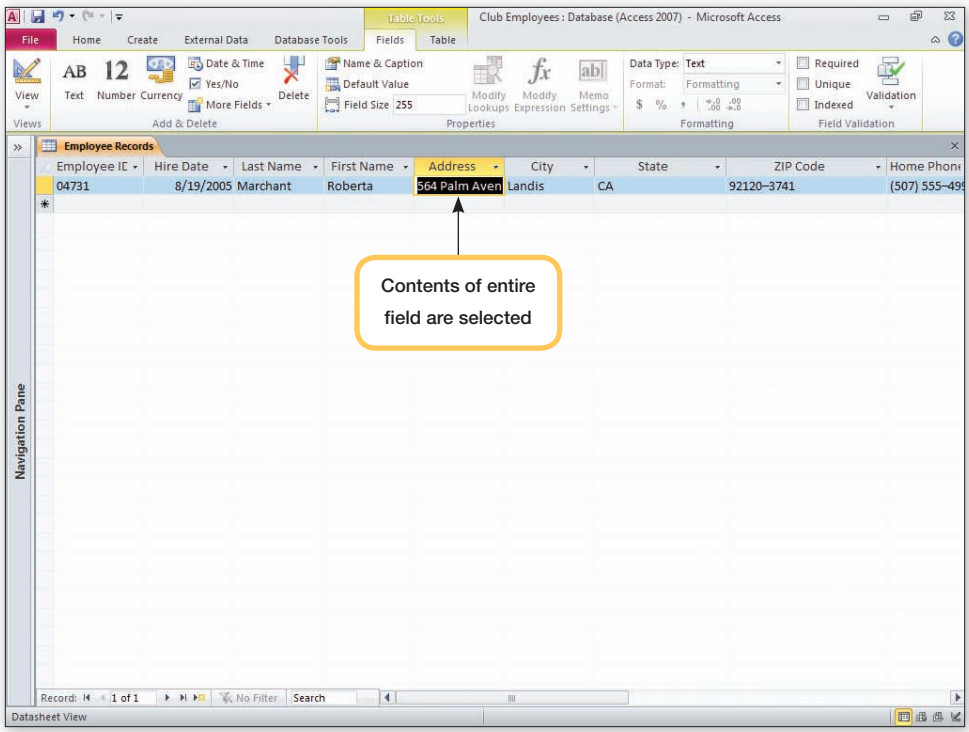


Figure 1.43

Additional Information

If you press Delete or ←Backspace while the entire field is selected, the entire field contents will be deleted.

Because the entire field contents are selected, you need to be careful that you do not type a character, as that will delete the selection and replace it with the new text. To switch back to editing, you need to display the cursor in the field and then edit the entry.

2

Click the Address field with the mouse pointer shaped as an I-beam.

Your screen should be similar to Figure 1.44

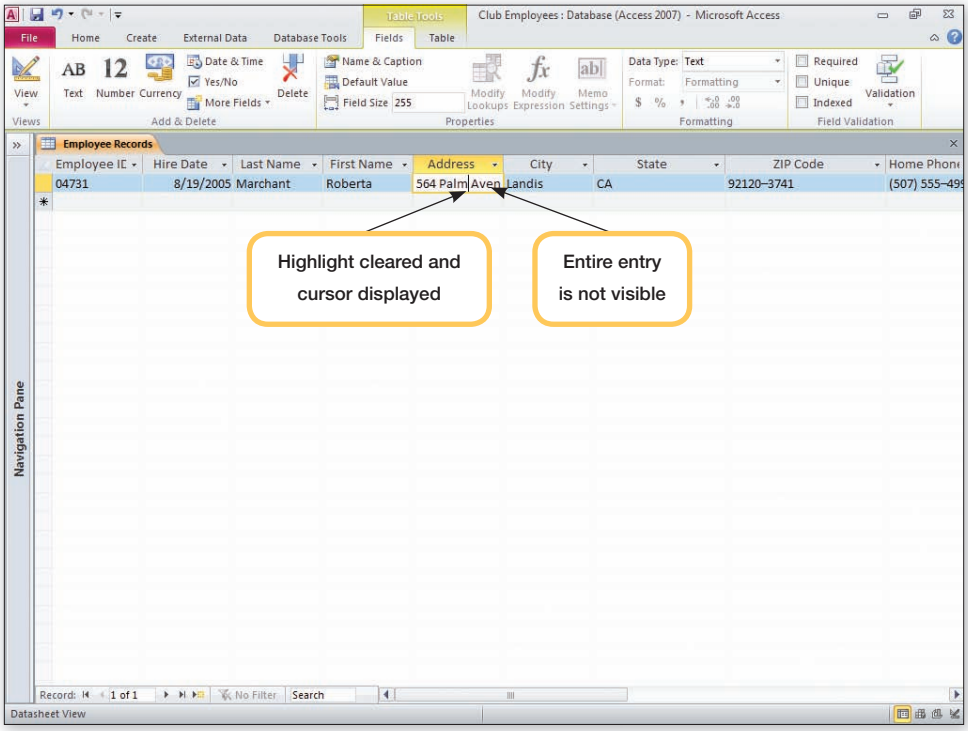


Figure 1.44

Additional Information

You can press F2 to switch between editing an entry (the cursor is displayed) and navigating (the field is selected) through the datasheet.

The highlight is cleared and the cursor is visible in the field. Now, using the directional keys moves the cursor within the field and you can edit the field contents if necessary.

ZOOMING A FIELD

The beginning of the field looks fine, but because the column width is too narrow, you cannot see the entire entry. You will move the cursor to the end of the address so you can check the rest of the entry.

1

Press End.

Your screen should be similar to Figure 1.45

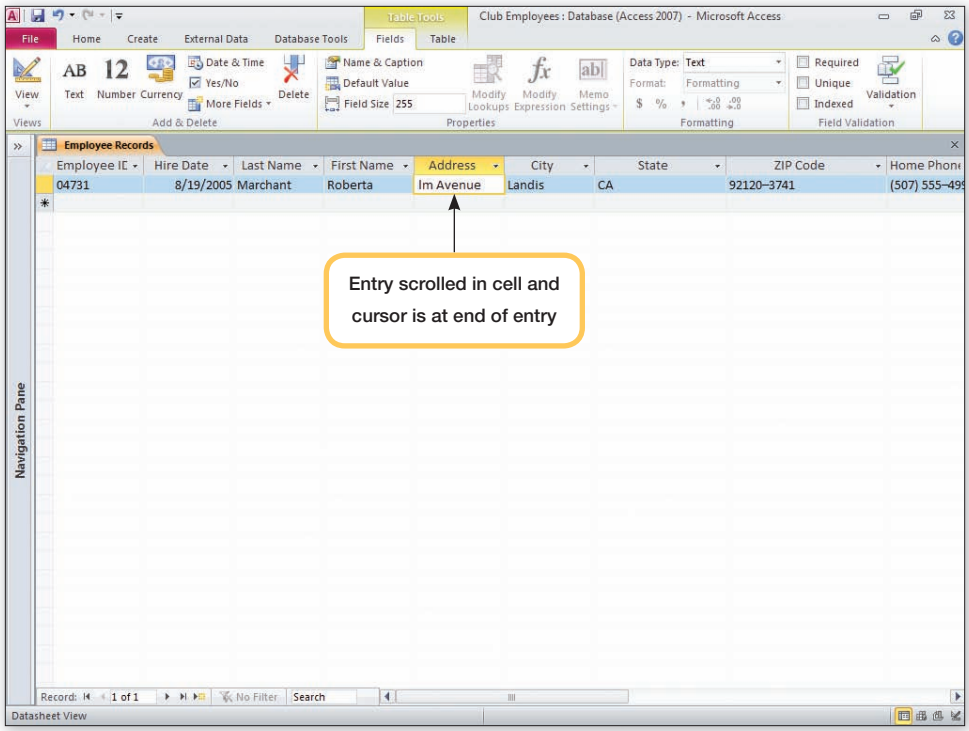


Figure 1.45

The text scrolled in the field, and the cursor is positioned at the end of the entry. However, now you cannot see the beginning of the entry, which makes it difficult to edit. Another way to view the field's contents is to expand the field.

2

Press Shift + F2.

Your screen should be similar to Figure 1.46

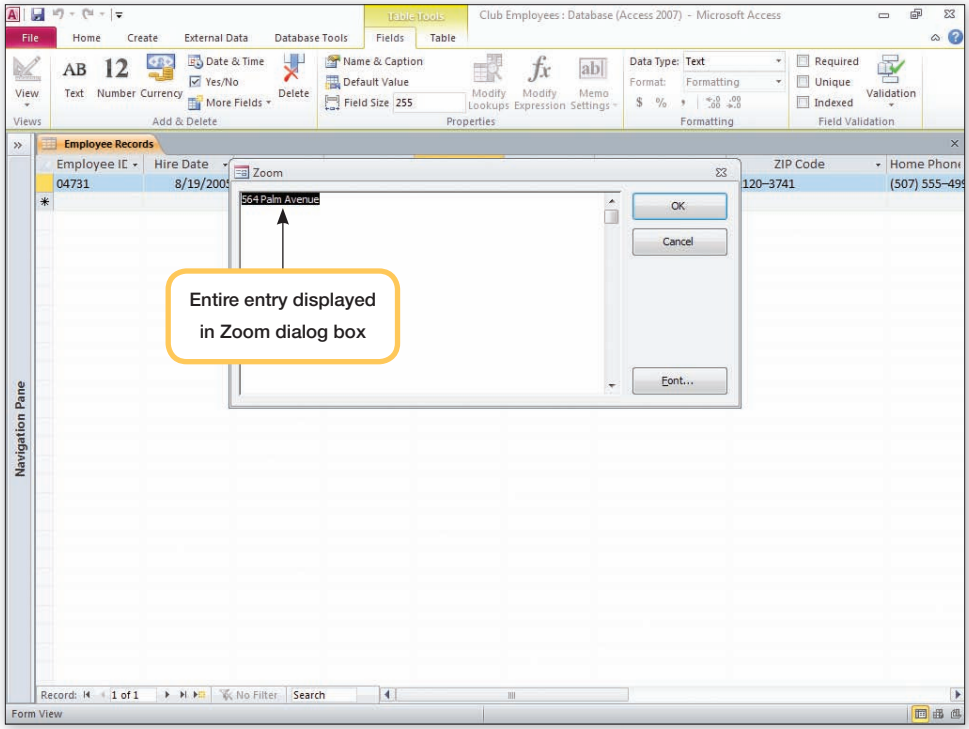


Figure 1.46

The entry is fully displayed in the Zoom dialog box. You can edit in the dialog box just as you can in the field.

3

- If the entry contains an error, correct it.
- Click OK to close the Zoom dialog box.
- Press Tab to move to the next field.

Additional Information

You also can use the horizontal scroll bar to scroll the window and check fields that are not currently visible.

- Continue to check the first record for accuracy and edit as needed.
- Enter the data for the second record as shown in the table to the right (you will leave the Attachment field empty).
- Check the second record for accuracy and edit it if necessary.
- Move to the first field of the blank record row.

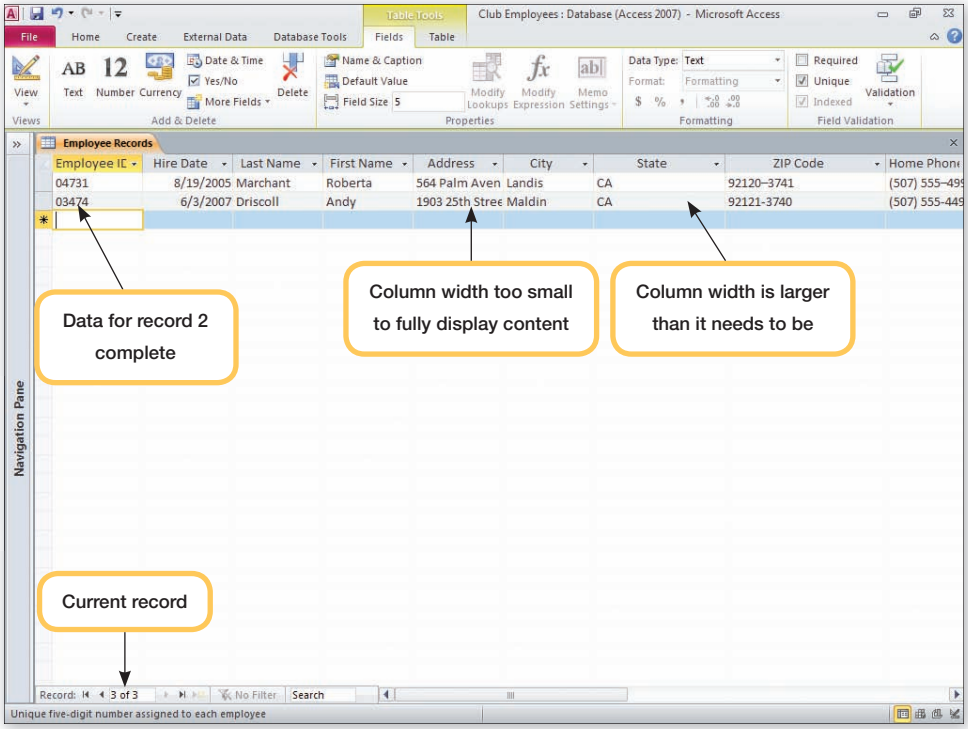


Figure 1.47

Your screen should be similar to Figure 1.47

Field Name	Data
Employee ID	03474
Hire Date	June 3, 2007
Last Name	Driscoll
First Name	Andy
Address	1903 25th Street
City	Maldin
State	CA
ZIP Code	92121-3740
Home Phone	(507) 555-4494
Birth Date	October 10, 1986

The record indicator in the status bar tells you that record 3 is the current record of a total of three records.

Changing Column Width

As you have noticed, some of the fields (such as the Address field) do not display the entire entry, while other fields (such as the State field) are much larger than the field's column heading or contents. This is because the default width of a column in the datasheet is not the same size as the field sizes you specified in Design view. **Column width** refers to the size of a field column in a datasheet. The column width does not affect the amount of data you can enter into a field, but it does affect the data that you can see.

You can adjust the column width to change the appearance of the datasheet. Usually you should adjust the column width so that the column is slightly larger than the column heading or longest field contents, whichever

Additional Information

The default datasheet column width is set to display 15.6667 characters.

is longer. Do not confuse column width with field size. Field size is a property associated with each field; it controls the maximum number of characters that you can enter in the field. If you shorten the field size, you can lose data already entered in the field.

RESIZING A COLUMN

The first thing you want to do is make the Address column wider so that you can see each complete field entry without having to move to the field and scroll or expand the field box. There are several ways that you can manipulate the rows and columns of a datasheet so that it is easier to view and work with the table data.

To quickly resize a column, simply drag the right column border line in the field selector in either direction to increase or decrease the column width. The mouse pointer shape is ✢ when you can drag to size the column. As you drag, a column line appears to show you the new column border. When you release the mouse button, the column width will be set. First you will increase the width of the Address field so that the entire address will be visible.

1

- **Point to the right column border line for the Address field.**
- **When the mouse pointer shape is ✢, click and drag to the right until you think the column width will be wide enough to display the field contents.**
- **Adjust the column width again if it is too wide or not wide enough.**

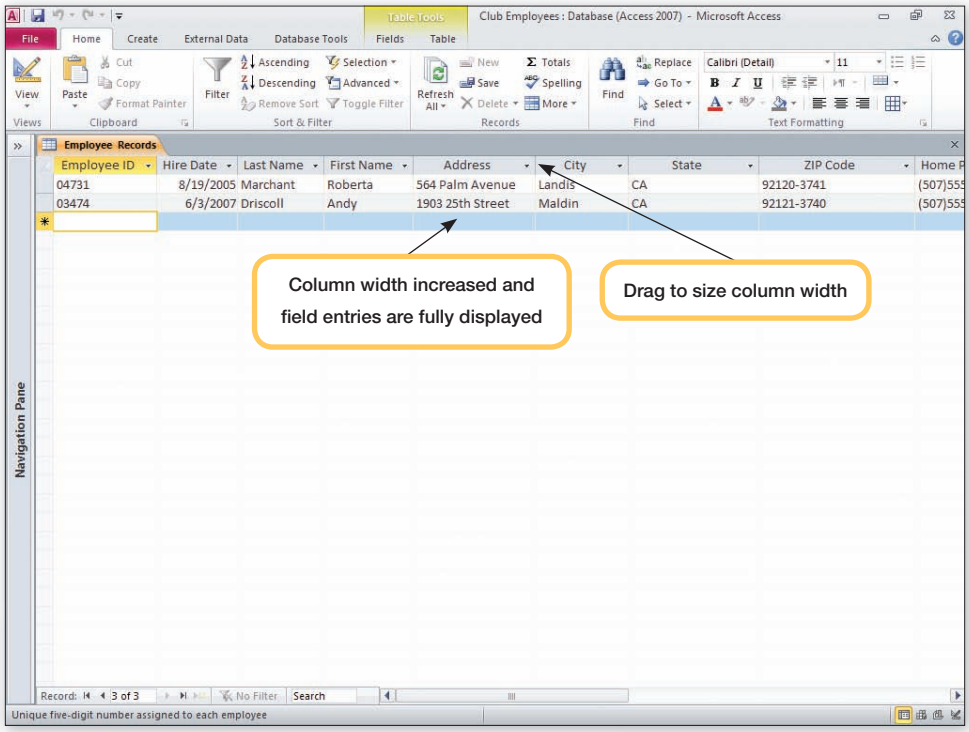


Figure 1.48

Another Method

You also can adjust the column width to a specific number of characters using More in the Records group of the Home tab and choosing Field Width. This command is also on the shortcut menu when an entire column is selected.

Your screen should be similar to Figure 1.48

USING BEST FIT

Rather than change the widths of all the other columns individually, you can select all columns and change their widths at the same time using the **Best Fit** feature. To select multiple columns, point to the column heading in the header row of the first or last column you want to select. Then, when the mouse pointer changes to ⬇, click, and without releasing the mouse button, drag in either direction across the column headings. You also can quickly select the entire table by clicking the Select All button to the left of the first field name.

1

- **Drag across the first four field columns ⬇ to select them.**
- **Click the Select All button to select the entire table.**

Your screen should be similar to Figure 1.49

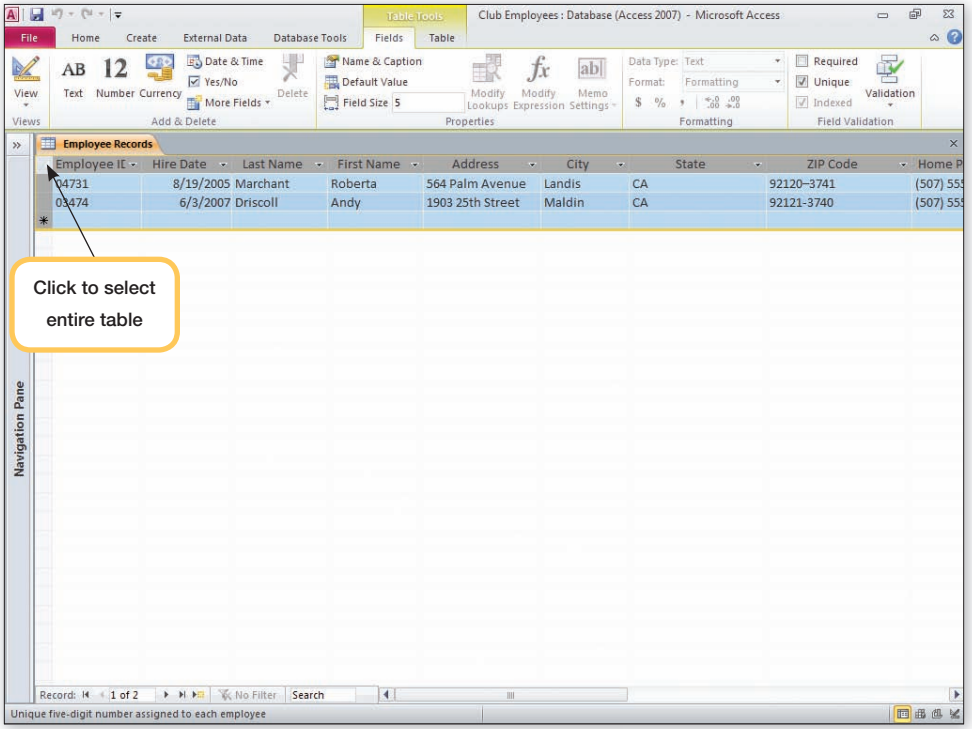


Figure 1.49

All the table columns are highlighted. Now, if you were to drag the column border of any selected column, all the selected columns would change to the same size. However, you want the column widths to be adjusted appropriately to fit the data in each column. To do this, you can double-click the column border to activate the Best Fit feature. The Best Fit feature automatically adjusts the column widths of all selected columns to accommodate the longest entry or column heading in each of the selected columns.

2 **Double-click any column border line (in the field name row) when the mouse pointer shape is ✛.**

Having Trouble?

If the *Click to Add* menu opens while trying to adjust the column width, just press Esc to close it and try again.

Click anywhere on the table to deselect the datasheet.

Another Method

You also can use More in the Records group of the Home tab and choose Field Width/Best Fit.

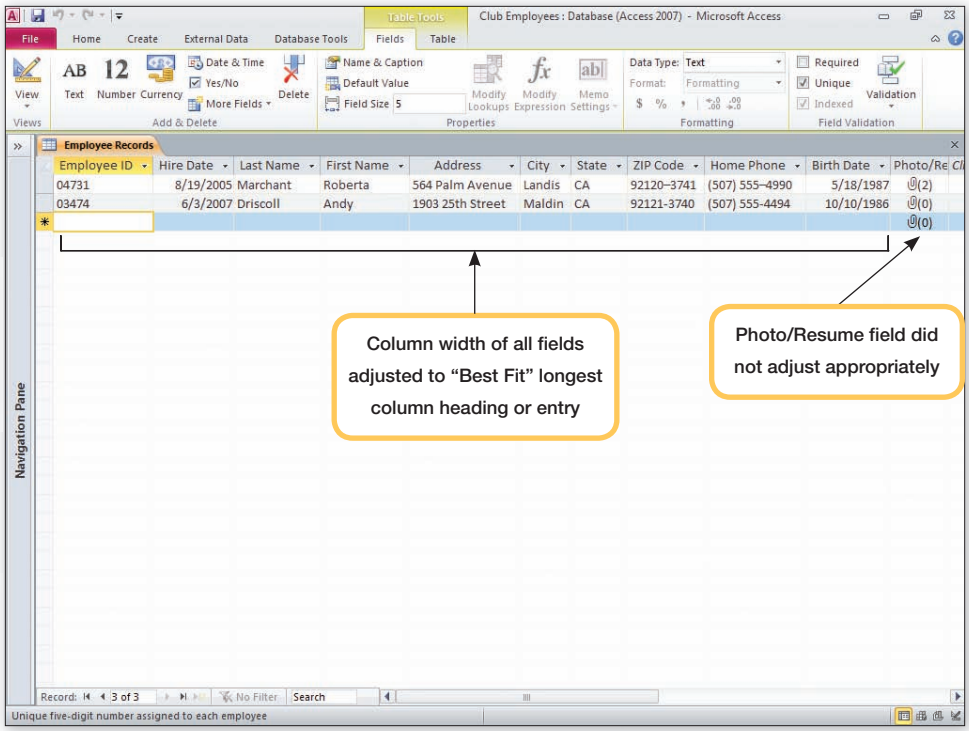


Figure 1.50

Your screen should be similar to Figure 1.50

The column widths for each field have been sized to accommodate the longest entry or column heading. Also, as you add more records to the table that contain longer field entries, you will need to use Best Fit again to readjust the column widths.

3

- **Check each of the records again and edit any entries that are incorrect.**
- **Add the data shown in the following table as record 3.**
- **Press ↵Enter twice to skip the Photo/ Resume field and complete the record.**

Your screen should be similar to Figure 1.51

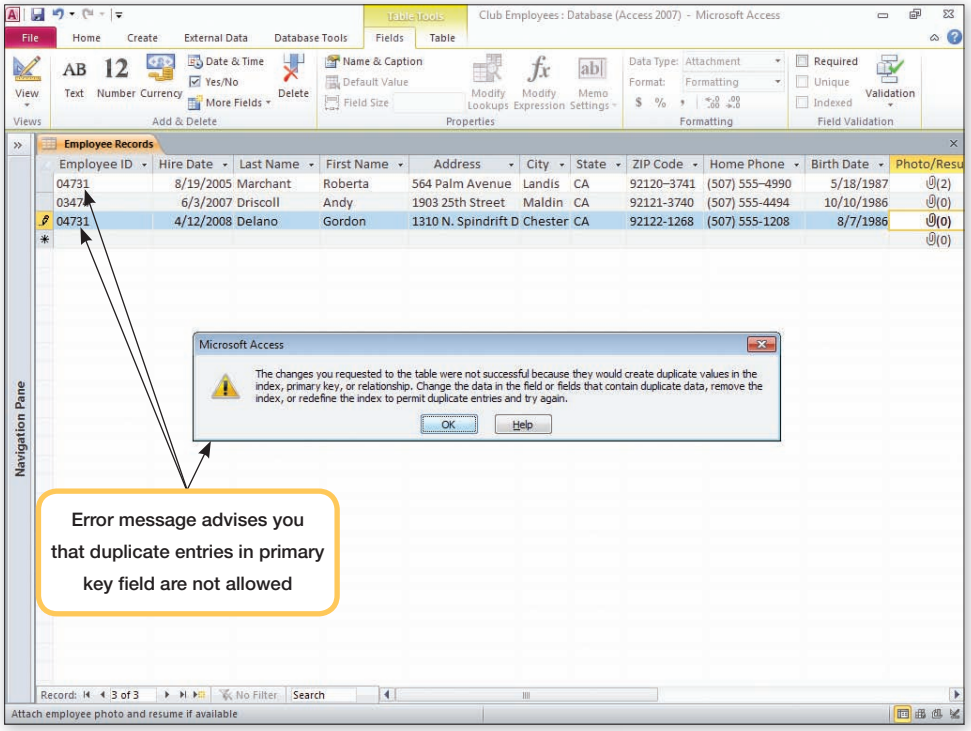


Figure 1.51

Field Name	Data
Employee ID	04731
Hire Date	April 12, 2008
Last Name	Delano
First Name	Gordon
Address	1310 N. Spindrift Drive
City	Chesterfield
State	CA
ZIP Code	92122-1268
Phone	(507) 555-1208
Birth Date	August 7, 1986

As soon as you complete the record, an error message dialog box appears indicating that Access has located a duplicate value in a primary key field. The key field is Employee ID. You realize you were looking at the employee number from Roberta Marchant's record when you entered the employee number for this record. You need to clear the message and enter the correct number.

4

- Click OK.
- Press Home to move to the first field.
- Change the Employee ID for record 3 to **12258**
- Press ↓.

Your screen should be similar to Figure 1.52

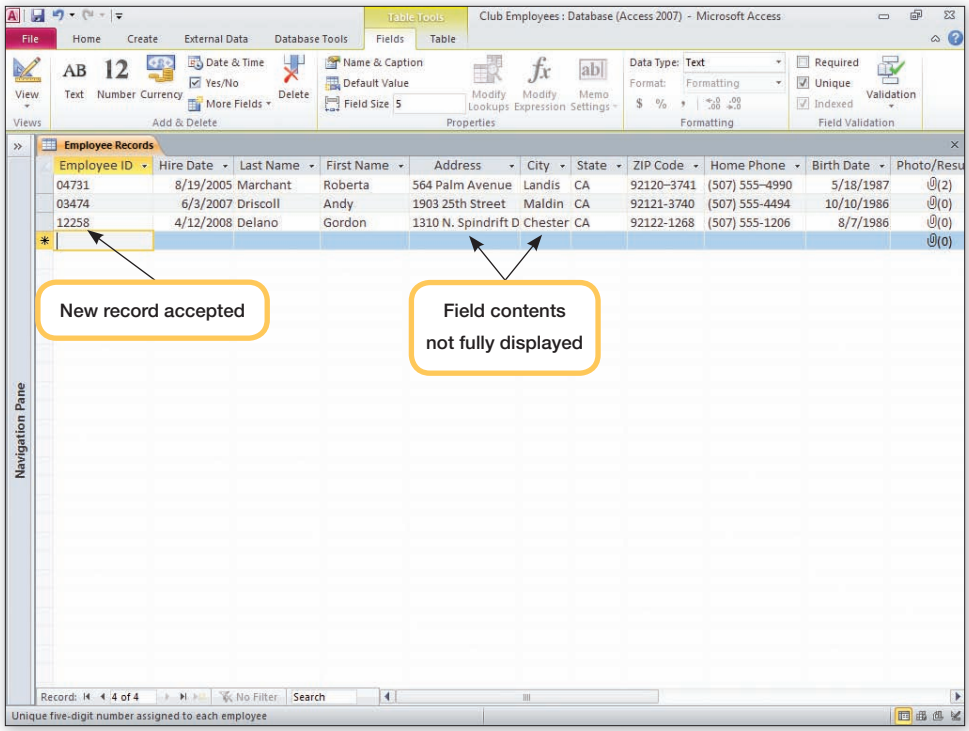


Figure 1.52

The record is accepted with the new employee number. However, you notice that the address and city for this record are not fully displayed in the fields.

5

- **Best Fit the Address and City fields.**

Your screen should be similar to Figure 1.53

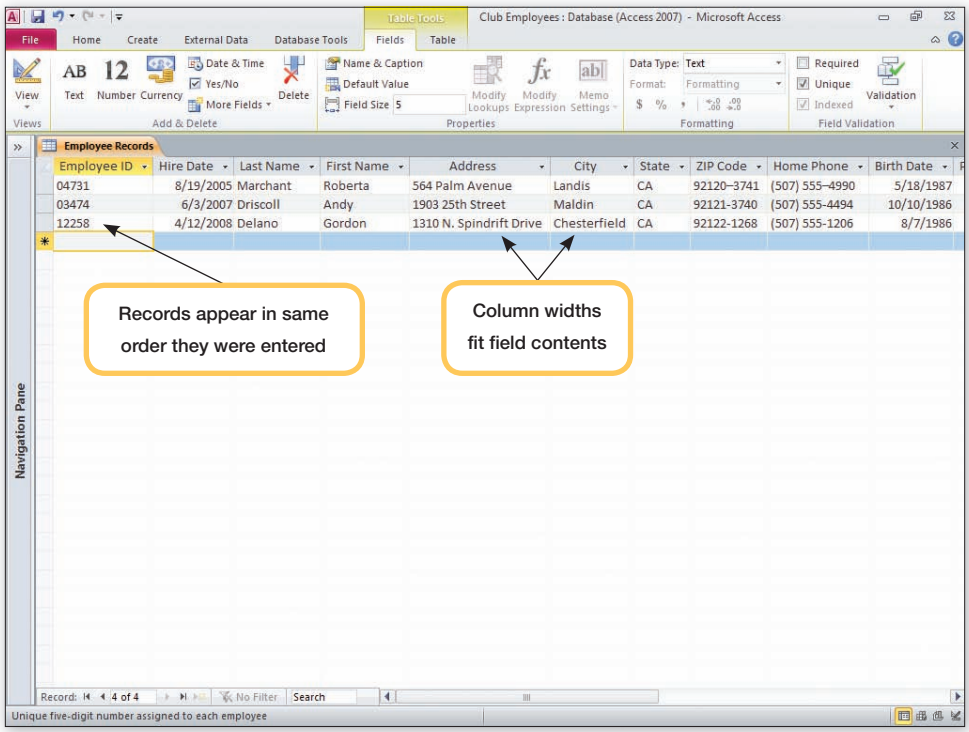


Figure 1.53

When you add new records in a datasheet, the records are displayed in the order in which you enter them. However, they are stored inside the database file in order by the primary key field.

You will add three more records to the table. If data for some fields, such as the City, State, or ZIP Code, is the same from record to record, you can save yourself some typing by copying the data from one of the other records. Just select the field contents and click Copy in the Clipboard group on the Home ribbon. Then move to the field where you want the copy to appear and click Paste in the Clipboard group.

6

- **Enter the data for the two records shown in the following table.**
- **Enter a final record using your first and last name. Enter 99999 as your employee ID and the current date as your date hired. Use Chesterfield, CA 92122-1268 for the city, state, and zip code. The information you enter in all other fields can be fictitious.**
- **Check each of the records and correct any entry errors.**

Field	Record 4	Record 5
Employee ID	13635	12583
Hire Date	January 2, 2011	April 20, 2011
Last Name	Martinez	Sullivan
First Name	Juan	Marie
Address	1920 First Avenue	78 Omega Drive
City	Maldin	Chesterfield
State	CA	CA
ZIP Code	92121-3740	92122-1268
Phone	(507) 555-2935	(507) 555-3890
Birth Date	December 10, 1989	March 15, 1988

Your screen should be similar to Figure 1.54

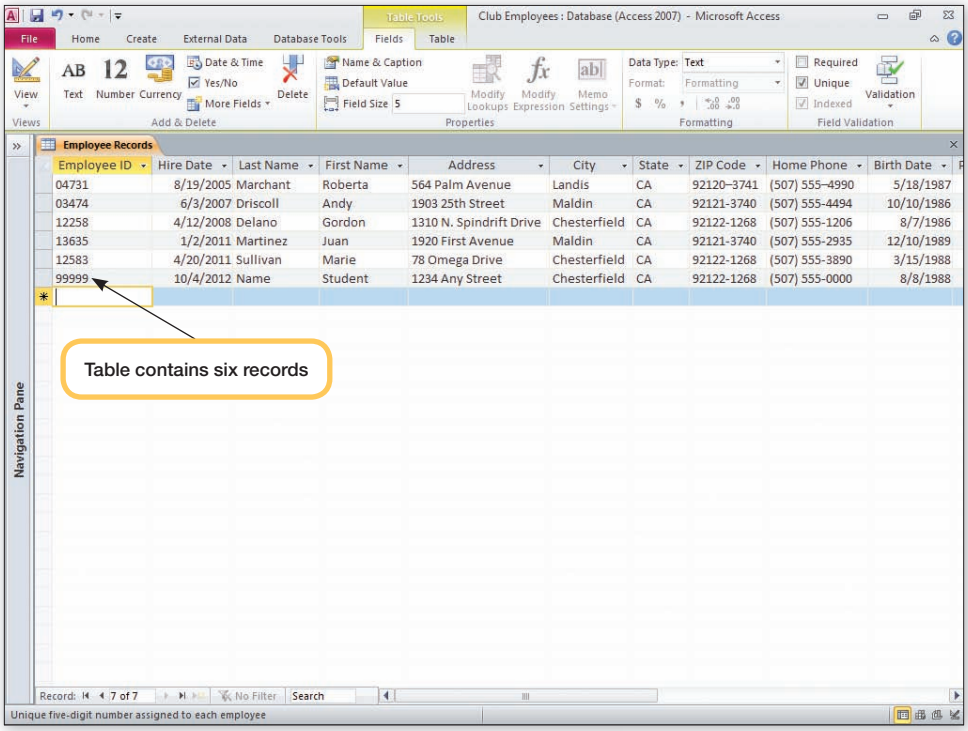


Figure 1.54

There are now a total of six records in the table.

Navigating among Records

You have found that with the addition of records, it takes longer to move around in the datasheet. Typical database tables are very large and consequently can be cumbersome to navigate. Learning how to move around in a large table will save time and help you get the job done faster.

MOVING USING THE KEYBOARD

In a large table, there are many methods you can use to quickly navigate through records in Datasheet view. You can always use the mouse to move from one field or record to another. However, if the information is not visible in the window, you must scroll the window using the scroll bar first. The following table presents several keyboard methods that will help you move around in the datasheet.

Keys	Effect
Page Down	Down one window
Page Up	Up one window
Ctrl + Page Up	Left one window
Ctrl + Page Down	Right one window
Ctrl + End	Last field of last record
Ctrl + Home	First field of first record
Ctrl + ↑	Current field of first record
Ctrl + ↓	Current field of last record

Currently, records 1 through 6 of the Employee Records table are displayed in the work area. You will use many of these methods to move around the datasheet.

1. **Select the Employee ID field of the first record.**
2. **Press** Page Down.

Your screen should be similar to Figure 1.55

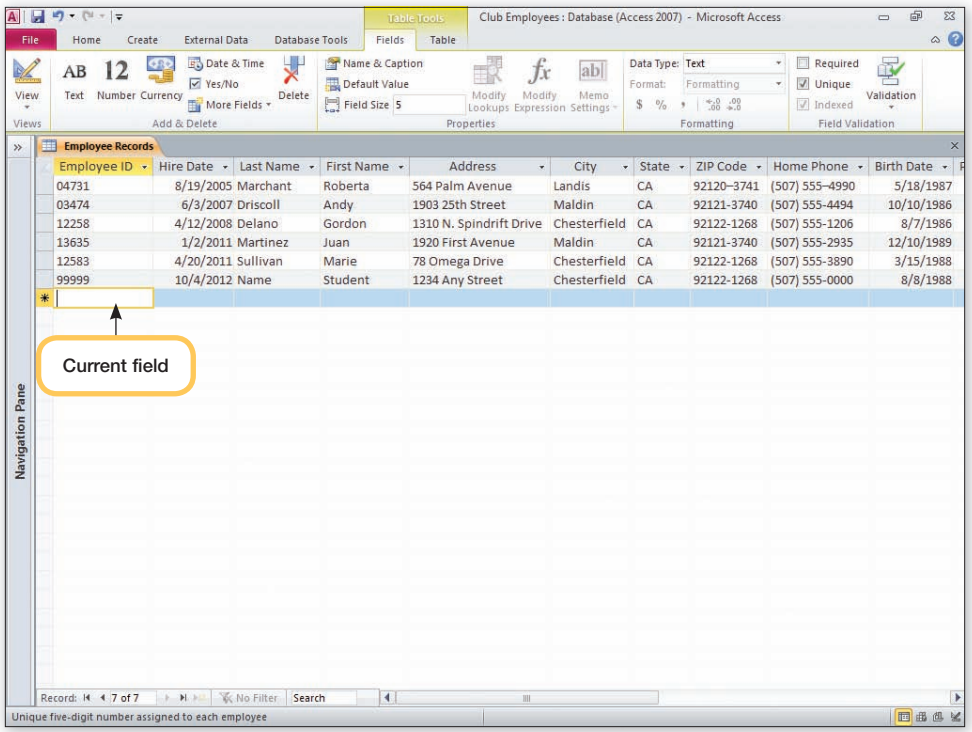


Figure 1.55

If you were working on a very large table, the next page of records would display, with the first record in the window being the current record. Because this table is small, pressing Page Down moved the cursor to the last position in the window, the row to add a new record. To see an example of moving in a wide table, you will expand the Navigation pane. Because there are numerous fields of various widths, not all of the fields are able to display in the window at the same time. Rather than scrolling the window horizontally to see the additional fields, you can quickly move to the right one window at a time.

2

- **Expand the Navigation pane.**
- **Click on First Name field for the second record.**
- **Press Ctrl + Page Down.**

Your screen should be similar to Figure 1.56

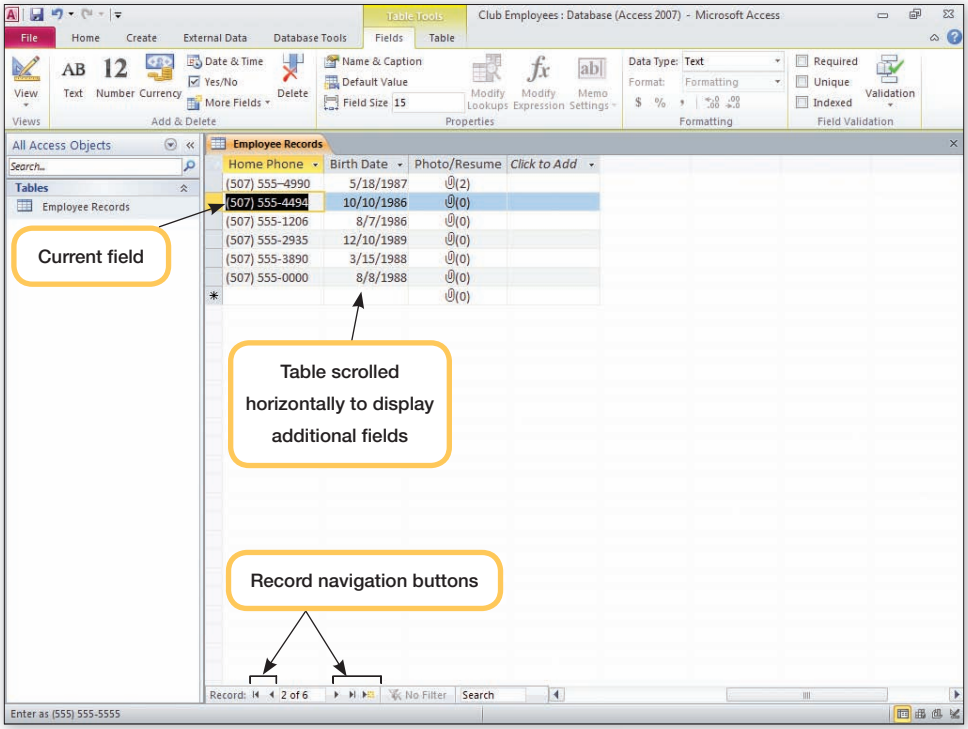


Figure 1.56

The table scrolled horizontally one window to the right, and the last three field columns in the table are now visible. The current field is the first field of this screen, but on the second record's row.

MOVING USING THE RECORD NAVIGATION BUTTONS

The record navigation buttons in the status bar also provide navigation shortcuts. These buttons are described in the following table.

Another Method

You also can use Go To in the Find group of the Home tab to access the record navigation buttons.

Button	Effect
	First record, same field
	Previous record, same field
	Next record, same field
	Last record, same field
	New (blank) record

You will use the record navigation buttons to move to the same field that is currently selected in the last record, and then back to the same field of the first record. Then you will move to the first field of the first record.

1

- Click Last Record.
- Click First Record.
- Press Home.

Your screen should be similar to Figure 1.57

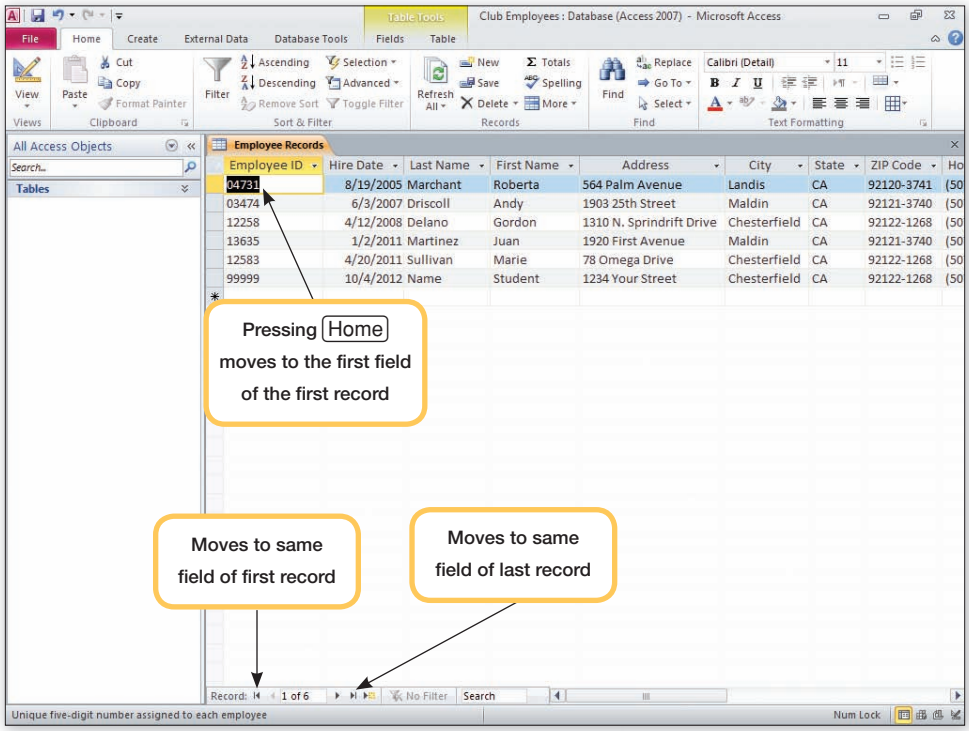


Figure 1.57

The first field of the first record is selected.

MOVING TO A SPECIFIC RECORD

You have moved the location of the cursor to the first record by using the record navigation buttons. You can also quickly move to a specific record by simply typing the record number into the Current Record box in the record navigation bar. This method is especially helpful when navigating around a large table when you know the record number you are looking for. Now you will practice moving to a specific record number.

1

- **Click in the Current Record box.**
- **Press ←Backspace or Delete to delete the number 1.**
- **Type in 5 and press ↵Enter.**

Your screen should be similar to Figure 1.58

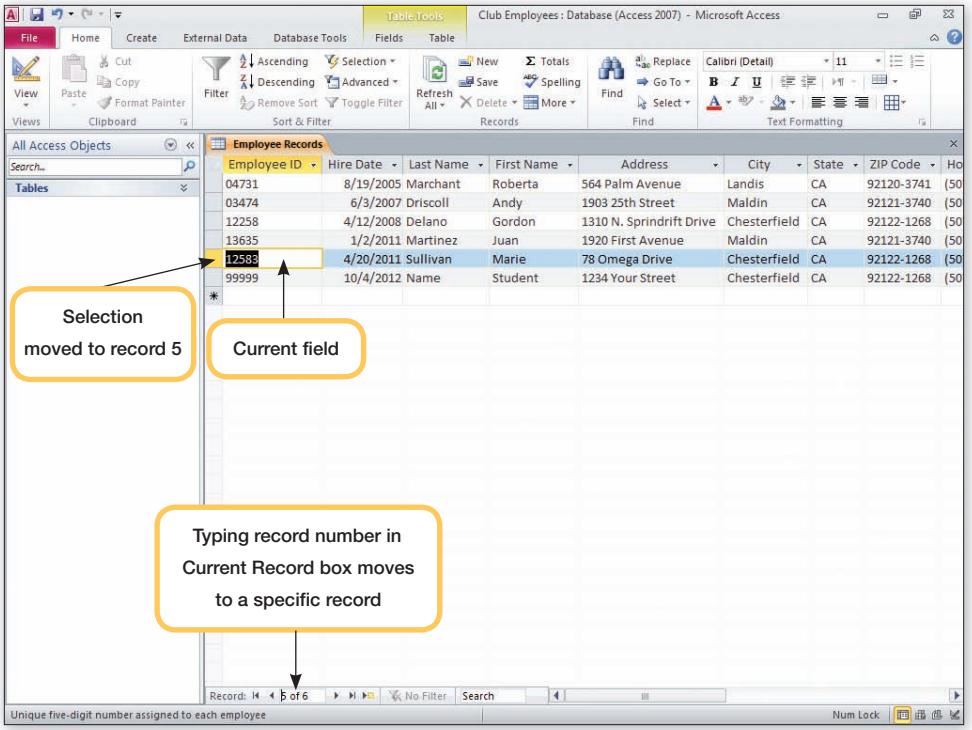


Figure 1.58

The specified record is now selected.

Deleting Records

Additional Information

You can select multiple noncontiguous records by holding down Ctrl while clicking the Select Record button of each record. To select contiguous records, click and drag along the Select Record buttons.

While you are entering the employee records, you find a memo from one of your managers stating that Andy Driscoll is no longer working at the club and asking you to remove his record from the employee files.

You can remove records from a table by selecting the entire record and pressing the Delete key. After pressing Delete, you will be asked to confirm that you really want to delete the selected record. This is because this action cannot be reversed.

1

Point to the Select Record button for record 2 (Andy Driscoll), and click when the mouse shape is ➡.

Another Method

You also can move to the record and choose Select from the Select drop-down list in the Find group of the Home tab.

Press Delete.

Another Method

You also can use Cut in the Clipboard group to delete a selected record.

Your screen should be similar to Figure 1.59

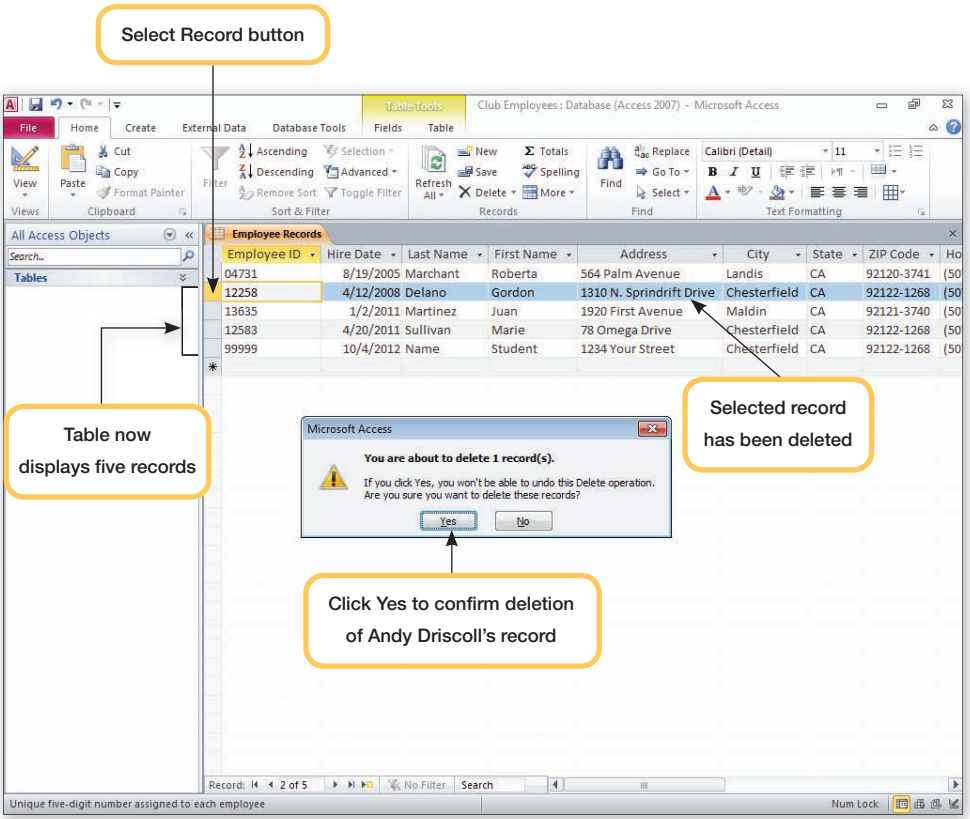


Figure 1.59

Although Andy Driscoll's record has been removed from the table, it will not be permanently deleted from the database until you confirm the deletion. If you change your mind, you can click No to restore the record.

2

Click Yes to confirm that you want to delete the record.

Another Method

You also can choose Delete Record from the Delete drop-down list in the Records group of the Home tab. The current record is both selected and deleted at the same time.

The record has been permanently deleted and the table now consists of five employee records.

Creating a Table in Design View

Following your plan for the employee database, you will add another table to the existing database file. This table will hold information about the employee's work location and job title.

There are several ways to create a new table in an existing database. You can insert a blank table and define the fields in Datasheet view as you already have done, or you can create a table based on a table model. You also can import from or link to data from another source, such as another database, an Excel worksheet, or a SharePoint list. Finally, you can create a new table starting in Design view. You will use this last method to define the two fields in the table, Location and Job Title.

Additional Information

A SharePoint list is a list of data that is stored on a SharePoint server and is available to others in an organization.

1. **Open the Create tab and click Table Design in the Tables group.**
2. **Define the fields using the settings shown in the following table.**

Your screen should be similar to Figure 1.60

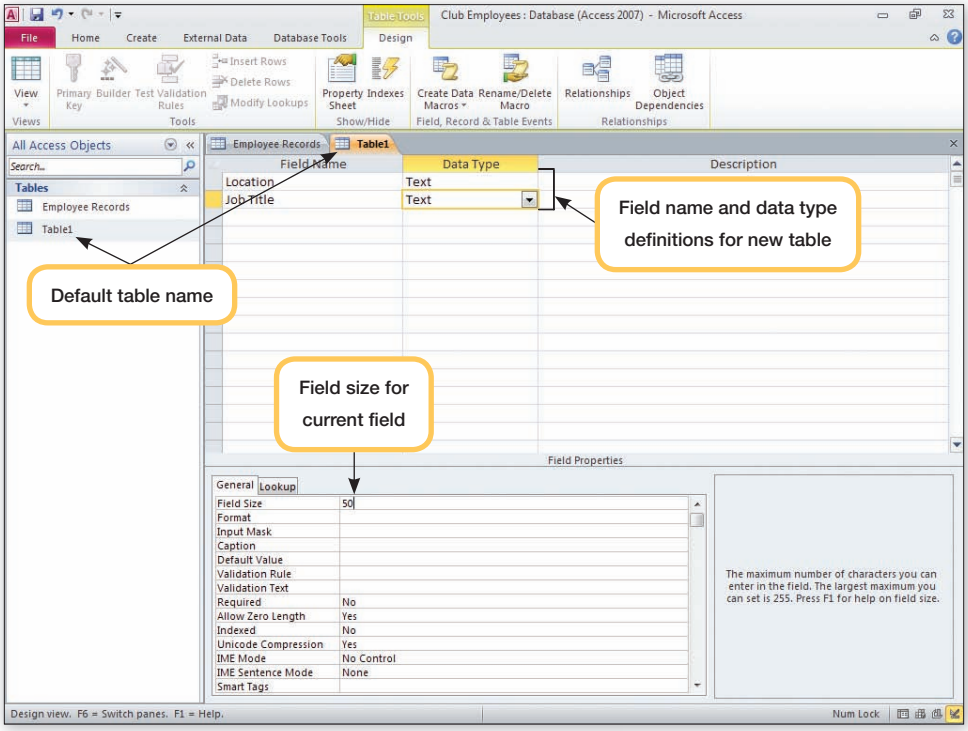


Figure 1.60

Field Name	Data Type	Field Size
Location	Text	20
Job Title	Text	50

The new table has a default table name of Table1.

INSERTING A FIELD

As you look at the table you realize you need a field to identify which employee the information belongs to. You want this field to be the first field in the table. To do this, you will insert the new field above the Location field.

1

- Make Location the current field.
- Click Insert Rows in the Tools group of the Table Tools Design tab.

Another Method

You also can use Insert Rows on the shortcut menu.

- In the newly inserted field row, enter **Employee ID** as the field name.
- Specify a data type of Text and a field size of **5**
- Set the Employee ID field as the primary key for this table.

Your screen should be similar to Figure 1.61

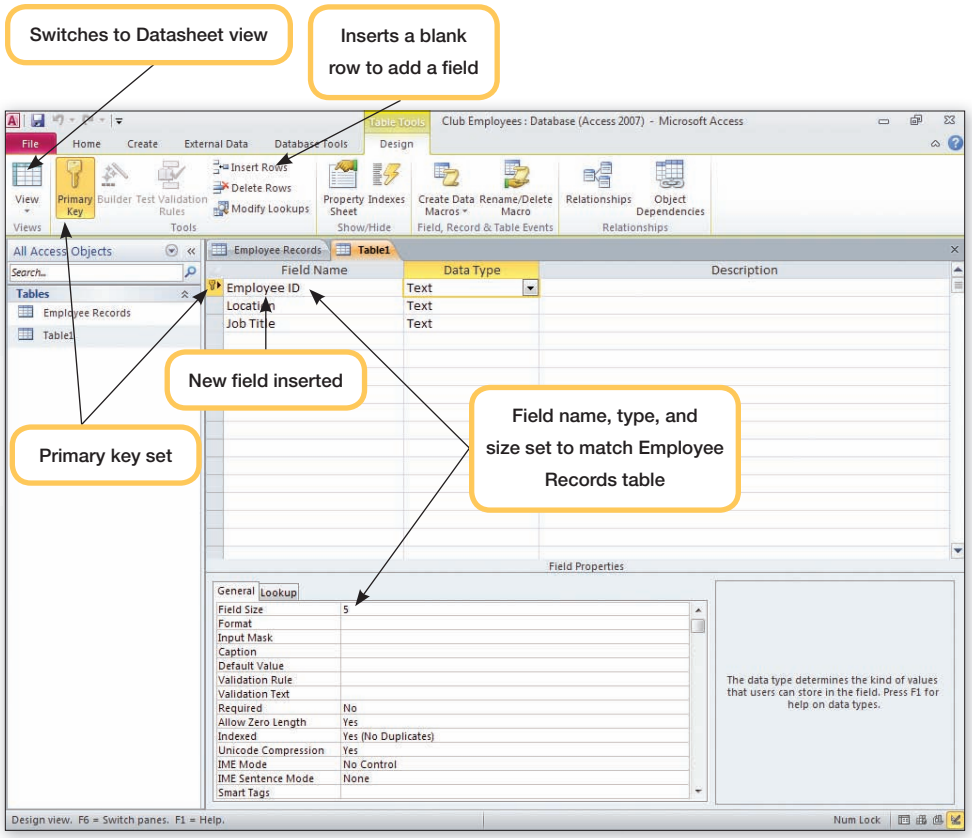


Figure 1.61

The Employee ID field is now inserted above the Location field in Design view. The Text data type and field size of 5 will match the existing property settings from the Employee Records table. Now you will switch to Datasheet view and save the table.

2

- Click to switch to Datasheet view.
- Click Yes to save the table.
- Enter **Job** as the table name and click OK.

Your screen should be similar to Figure 1.62

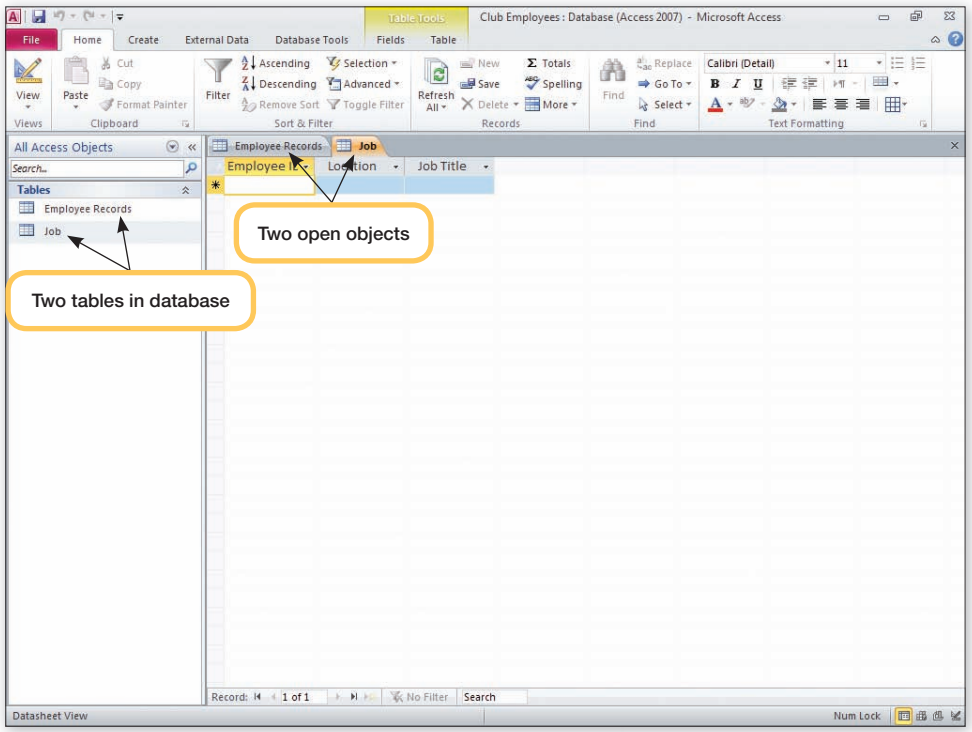


Figure 1.62

As you consider the contents of the two tables, you realize that the Hire Date information should be in the Job table because the subject matter is related to the employee's job, not to his or her personal information.

3

- **Click in the Job Title field.**
- **Click** Date & Time **in the Add & Delete group of the Table Tools Fields tab to insert a blank field column with a Date data type to the right of the current column.**
- **Name the field Hire Date**
- **Click** Format: **in the Formatting group and choose Short Date.**
- **Click in the Hire Date field to confirm your settings.**

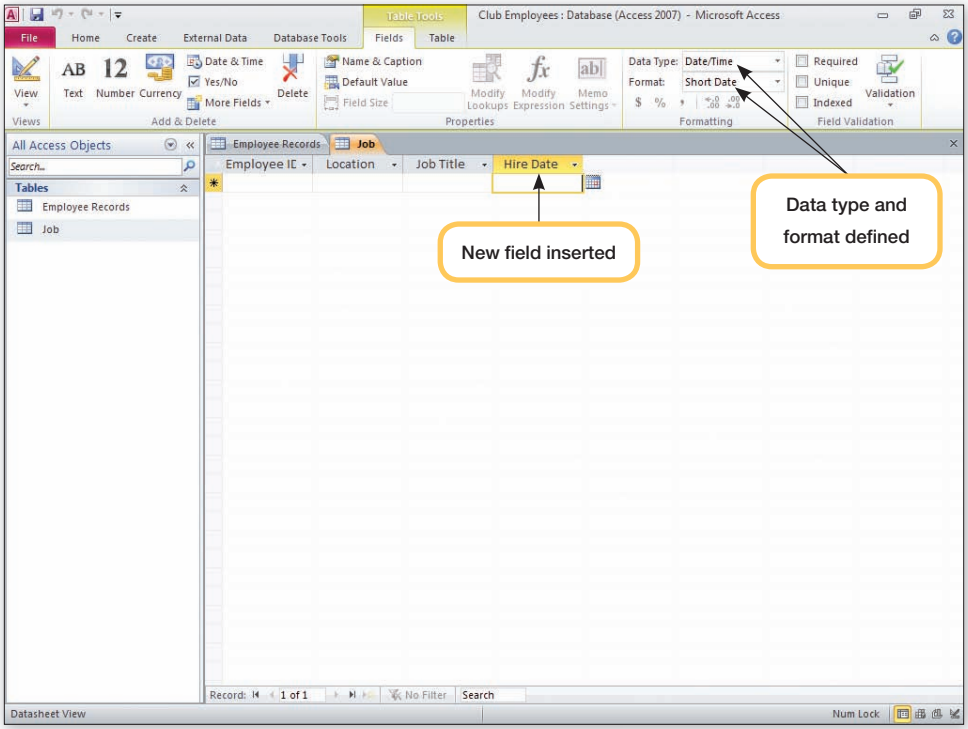


Figure 1.63

Your screen should be similar to Figure 1.63

The new field has been inserted and defined.

MOVING A FIELD

The Hire Date field was inserted as the last field in the Job table. While in Datasheet view, you decide to move the Hire Date field next to the Employee ID field. To move a field column, select the column and then drag the selected column to the new location. As you drag, a heavy black bar shows where the column will be placed when you stop dragging.

1 **Select the Hire Date column.**

Having Trouble?

Point to the field column name and click when the mouse pointer appears as ↓.

Drag the Hire Date field to the left and release the mouse when the black bar is to the right of the Employee ID field column.

Your screen should be similar to Figure 1.64

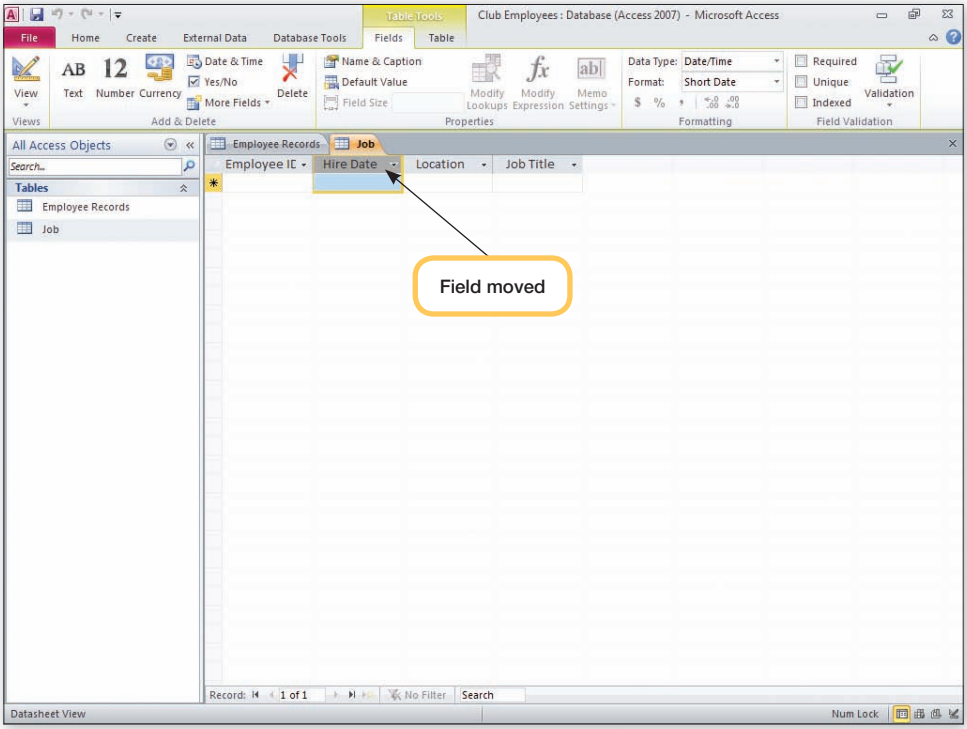


Figure 1.64

The Hire Date field has been moved to the right of the Employee ID field. To compare the Datasheet view to the Design view, you will switch back to Design view.

2 **Click to switch back to Design view.**

Your screen should be similar to Figure 1.65

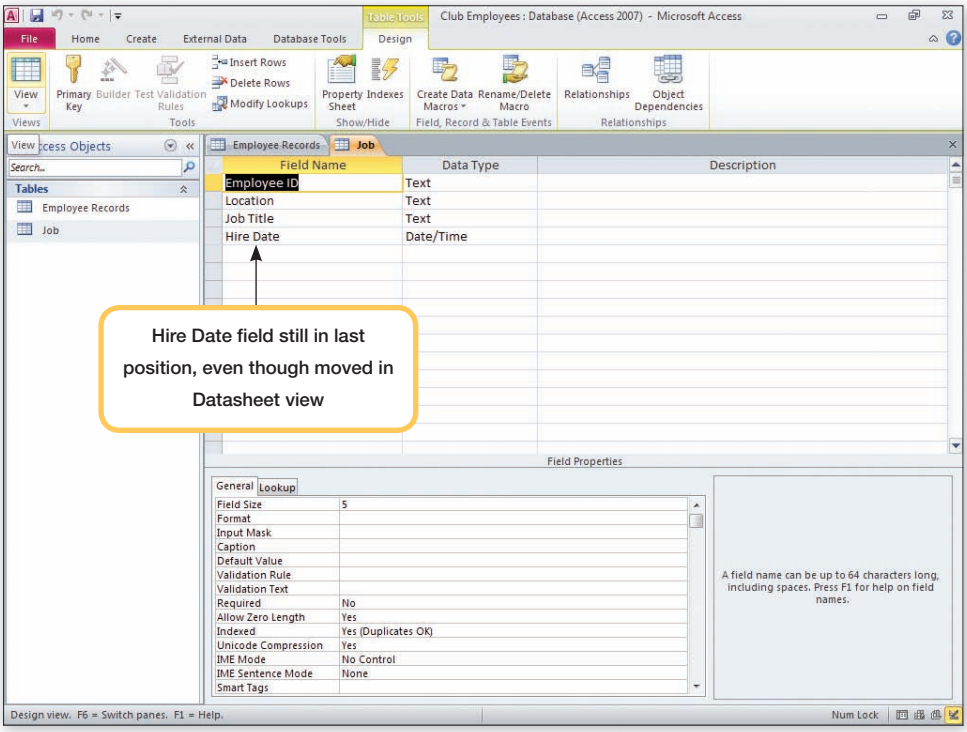


Figure 1.65

Notice the Hire Date field is still last in the list of field names in Design view, even though you moved it to the second position in Datasheet view. The order in which the fields display can differ between the two views. This enables you to aesthetically display the order of the fields in the table and yet be able to arrange them in a specific structural order in Design view. Usually it is best for the field order to be the same in both views. You want to move the Hire Date below the Employee ID to match the placement in the datasheet. Moving a field in Design view is similar to doing so in Datasheet view, except that a row rather than a column is selected.

3

- **Position the mouse in the gray row selector button next to Hire Date.**
- **Click when the mouse symbol changes to ➡ to select the Hire Date field row.**
- **While pointing to the row selector for the Hire Date row, drag up until the black move indicator line is below the Employee ID field.**
- **Release the mouse to place the Hire Date field row in its new position in Design view.**

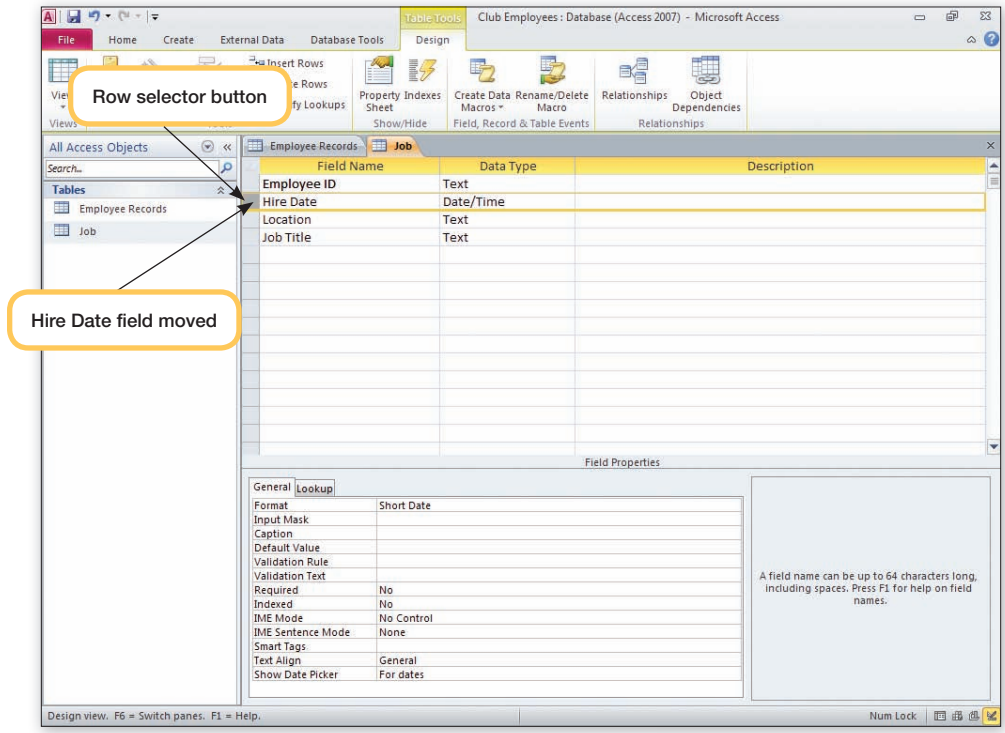
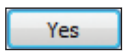


Figure 1.66

The field order in Design view now matches the order in which the fields are displayed in the datasheet.

Your screen should be similar to Figure 1.66

4

- **Click**  **to switch to Datasheet view.**
- **Click** 

to save the table.

The Job table is now ready for you to input the data.

COPYING FIELD CONTENT

Having Trouble?

To review how to copy and paste, refer to the Copying and Moving Selections section in the Introduction to Microsoft Office 2010 lab.

To save yourself time and prevent possible errors in typing, you will copy the data from the Employee ID and Hire Date fields in the Employee Records table into the new fields in the Job table. To switch between open tables, simply click on the table's tab. It then becomes the active table, or the table you can work in.

Another Method

You can also press Ctrl + F6 to cycle between open table windows.

1. **Click on the Employee Records tab to make the table active.**
2. **Select the Employee ID column.**
3. **Click Copy in the Clipboard group of the Home tab.**
4. **Click on the Job tab to make the table active.**
5. **Select the Employee ID column.**
6. **Click Paste in the Clipboard group of the Home tab.**
7. **Click Yes to confirm the paste operation.**
8. **Repeat these steps to copy the hire date information from the Employee Records table into the Job table.**

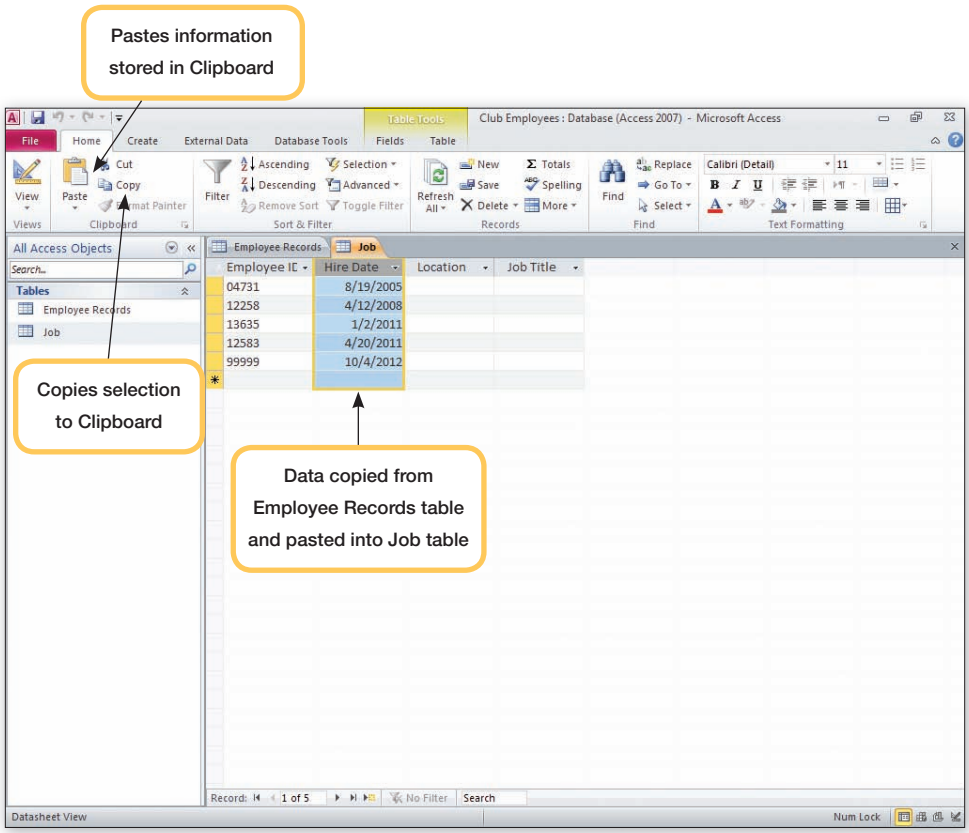


Figure 1.67

Your screen should be similar to Figure 1.67

The table now includes information on the employee ID and hire date for the same records as in the Employee Records table. Now, all you need to do is delete the Hire Date field in the Employee Records table and then enter the rest of the data for the employees' job locations and titles.

2

- Make the Employee Records table active.
- Press Delete and click Yes to remove the still-selected Hire Date field from the Employee Records table.
- Add the information shown below to the appropriate records in the Job table.
- Best Fit the columns.

Your screen should be similar to Figure 1.68

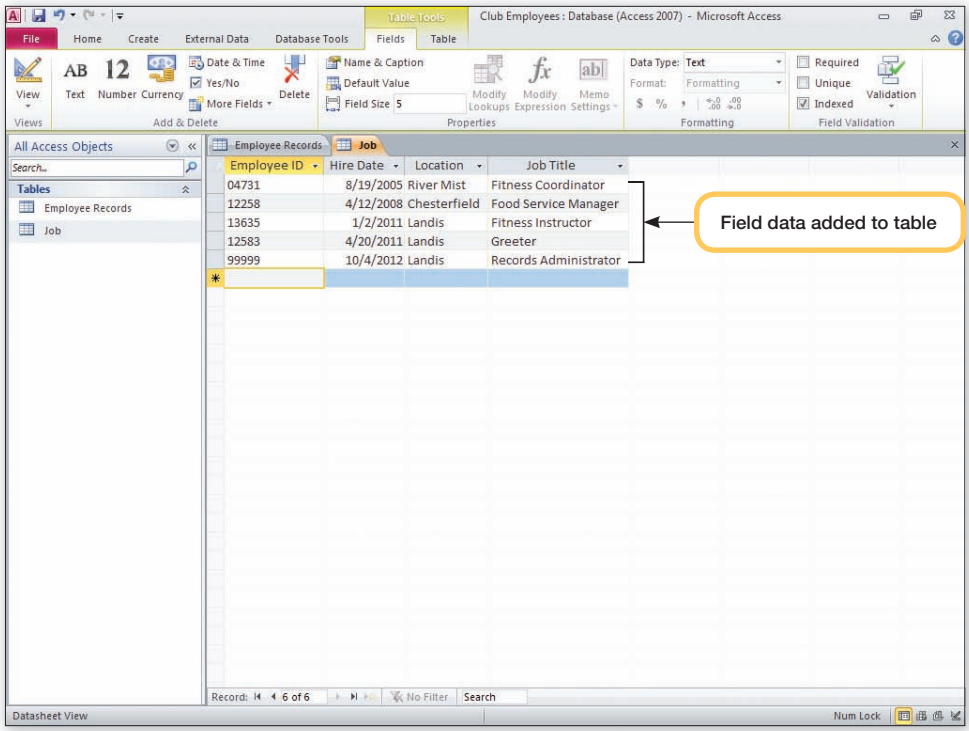


Figure 1.68

Employee ID	Location	Job Title
04731	River Mist	Fitness Coordinator
12258	Chesterfield	Food Service Manager
12583	Landis	Greeter
13635	Landis	Fitness Instructor
99999	Landis	Records Administrator

Now the Employee Records table only contains the employee's personal information, and the Job table contains information about the employee's job.

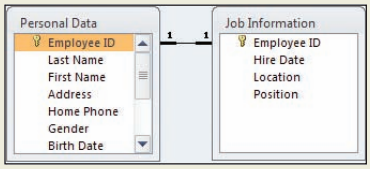
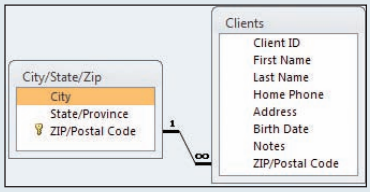
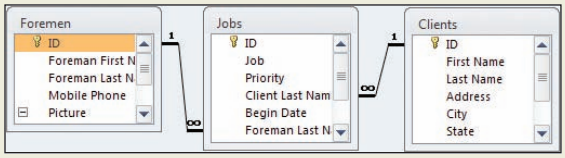
Creating Relationships

Now that the database contains two tables, a relationship needs to be created between the tables to link the data together.

Concept 6 Relationship

A **relationship** establishes the association between common fields in two tables. The related fields must be of the same data type and contain the same kind of information but can have different field names. The exception to this rule occurs when the primary key field in one of the tables is the AutoNumber type, which can be related to another AutoNumber field or to a Number field, as long as the field size property is the same for both. This is also the case when both fields are AutoNumber or Number—they always have to be the same field size in order to be related.

There are three types of relationships that can be established between tables: one-to-one, one-to-many, and many-to-many.

Relationship Type	Description
One-to-one 	An association between two tables in which each record in the first table contains a field value that corresponds to (matches) the field value of one record in the other table.
One-to-many 	An association between two tables in which the primary key field value in each record in the primary table (the "one" side of this relationship) corresponds to the value in the matching field or fields of many records in the related table.
Many-to-many 	An association between two tables in which one record in either table can relate to many records in the other table. In this type of relationship, a third table, called a junction table, is used to hold the primary key fields from the other two tables and serves as a bridge between them.

Once relationships are established, rules can be enforced, called the rules of **referential integrity**, to ensure that relationships between tables are valid and that related data is not accidentally changed or deleted. The rules ensure that a record in a primary table cannot be deleted if matching records exist in a related table, and a primary key value cannot be changed in the primary table if that record has related records.

The Employee ID field is the field that the two tables have in common in this database and on which you will establish a relationship to link the tables together. To be able to create or edit relationships, you must close all open objects.

CLOSING TABLES

You close a table by closing its window and saving any layout changes you have made. Because you changed the column widths of the table, you will be prompted to save the layout changes before the table is closed. If you do not save the table, your column width settings will be lost.

1

- Click ✕ to close the Job table in the datasheet window.
- If necessary, click Yes in response to the prompt to save the table.
- In a similar manner, close the Employee Records table.

Your screen should be similar to Figure 1.69

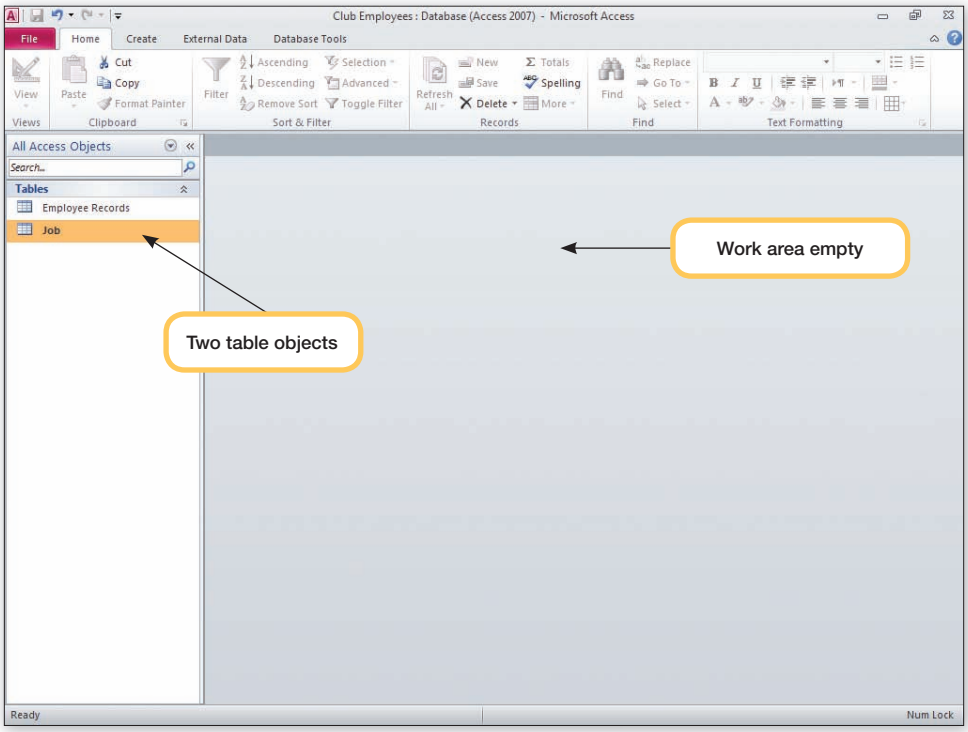


Figure 1.69

Both tables are closed and the work area is empty. The Navigation pane continues to display the names of the two table objects.

VIEWING RELATIONSHIPS

The Relationships window is used to create and edit relationships. It displays a field list for each table in the database and identifies how the tables are associated with relationship lines. However, the first time you open the Relationships window for a database, you need to select the tables to display in the window and then establish the relationship between the tables.

1. Click 

in the Relationships group of the Database Tools tab.

Your screen should be similar to Figure 1.70

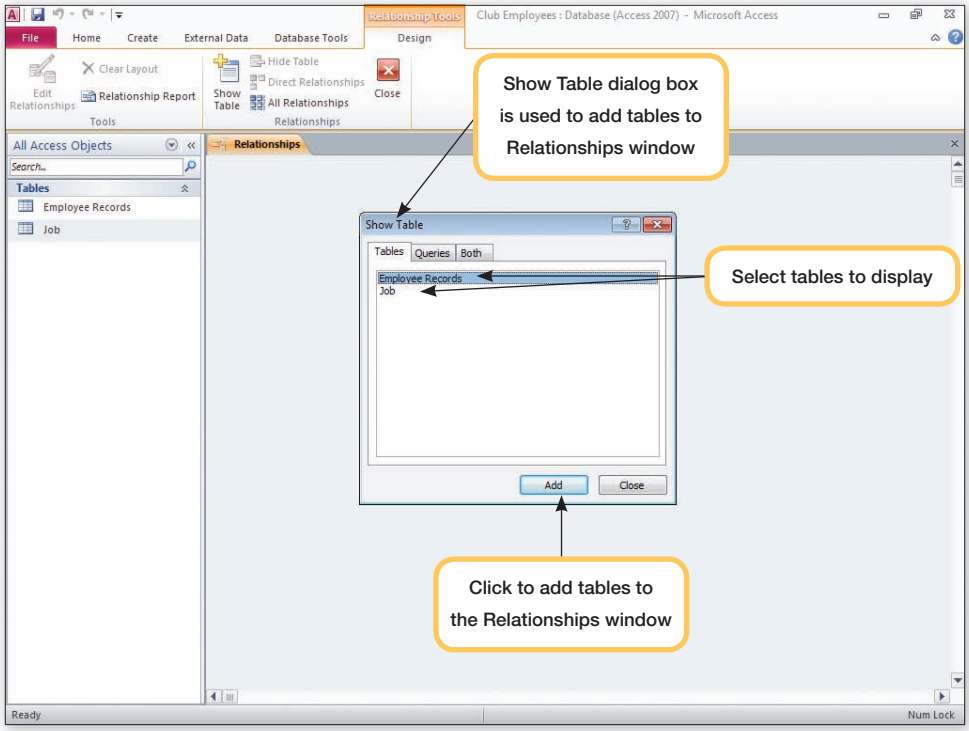


Figure 1.70

The Show Table dialog box appears automatically the first time you open the Relationships window for a database. It displays the names of both tables in the database and is used to select the tables you want displayed in the Relationships window.

2. Click Add to add the selected table, Employee Records, to the Relationships window.

3. Click Job in the Tables list to select the table and then click Add.

4. Click Close.

Your screen should be similar to Figure 1.71

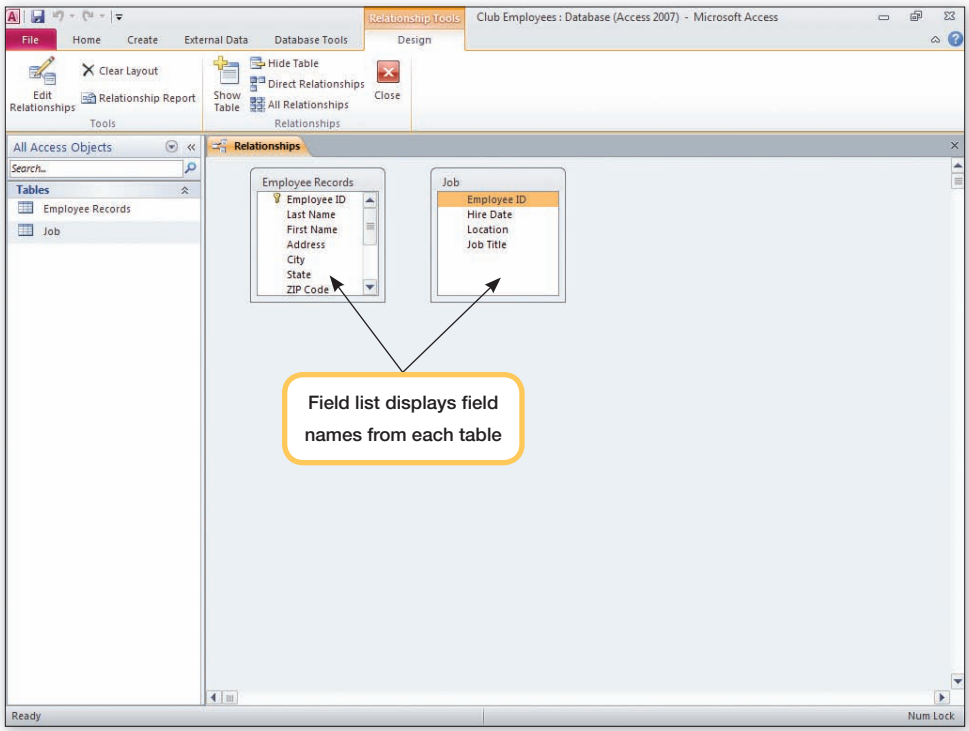


Figure 1.71

As you selected each table, a field list box displaying the field names from the table was added to the Relationships window. Next, you need to establish the relationship between the tables.

DEFINING RELATIONSHIPS

When creating relationships between the tables, study them first to determine what field the two tables have in common, and then determine which table is the main table. The common field in the lesser table, called a **foreign key** field, will be used to refer back to the primary key field of the main table. The field names of these two fields do not have to match, although their data types must be the same. As we have established, the Employee ID field is the common field between the two tables in this database. The Employee Records table is the main table, as it contains the main information about the employee. The Employee ID field in the Job table is the foreign key field.

Now you must connect the Employee Records' Employee ID field to its related field in the Job table. To create the relationship, you drag the field from the field list of one table to the common field in the field list of the other table. As you point to the foreign key field, the mouse pointer will appear as  , indicating a relationship is being established.

1. **Click on the Employee ID field in the Employee Records table and drag to the same field in the Job table.**

Your screen should be similar to Figure 1.72

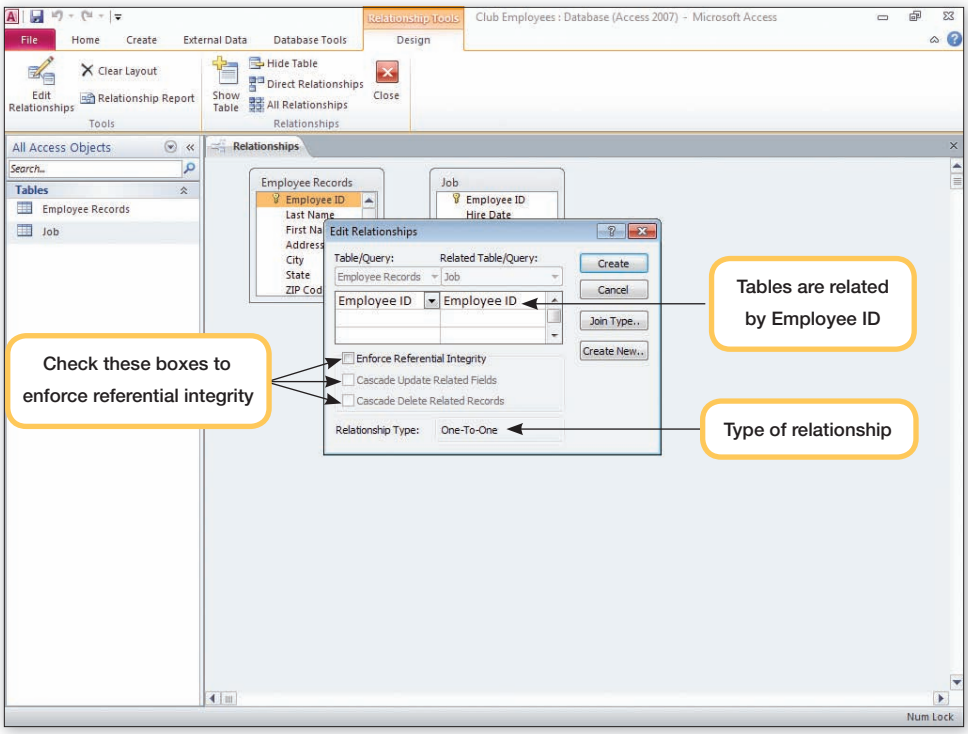


Figure 1.72

The Edit Relationships dialog box appears and shows how the tables will be related. You also want to enforce referential integrity between the tables. Selecting this option will make the Cascade Update and Cascade Delete options available. Again, you will select these options to ensure that if you change a primary key or delete a record, all fields that reference the primary key of that record are likewise updated or deleted in both tables. This prevents inconsistent and **orphaned records** (records that do not have a matching primary key record in the associated table). In addition, you can see that Access has correctly defined the type of relationship as one-to-one.

2

- Choose Enforce Referential Integrity.
- Choose both Cascade options.
- Click Create.
- Click on the Job field list title bar to clear the selection from the relationship line.

Your screen should be similar to Figure 1.73

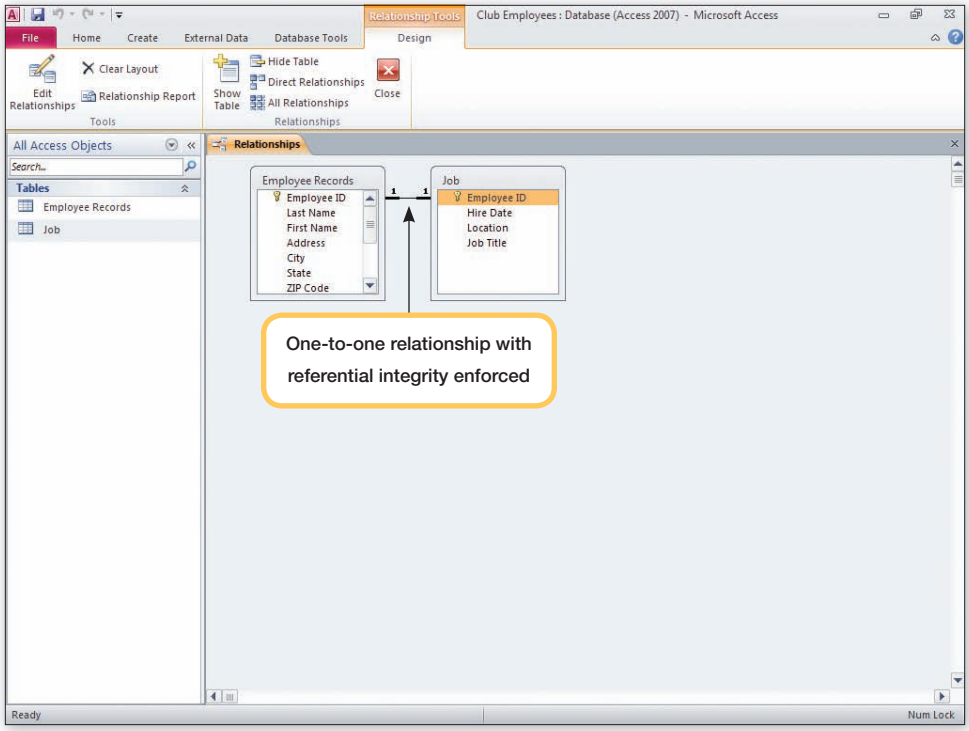


Figure 1.73

The two tables now display a relationship line that shows the tables are related on the Employee ID field. You can tell from the number 1 above each end of the relationship line that the relationship type is one-to-one. You can also tell that referential integrity is enforced because the relationship line is thicker near each end. If referential integrity were not enforced, the line would not be thicker at the ends.

3

- Click Close in the Relationships group to close the Relationships window.
- Click Yes in response to the prompt to save the layout.

The relationships and layout are saved. Now that a relationship has been established and referential integrity enforced, a warning message will automatically appear if one of the rules is broken, and you will not be allowed to complete the action you are trying to do.

OPENING TABLES

Now that you have established relationships between the tables, you will open the Employee Records table to see how the change has affected it. To open a table object, double-click on the name in the Navigation pane.

1 **Double-click Employee Records in the Navigation pane.**

Another Method

You also can drag the object from the Navigation pane to the work area to open it, or right-click the object name in the Navigation pane and choose Open.

Your screen should be similar to Figure 1.74

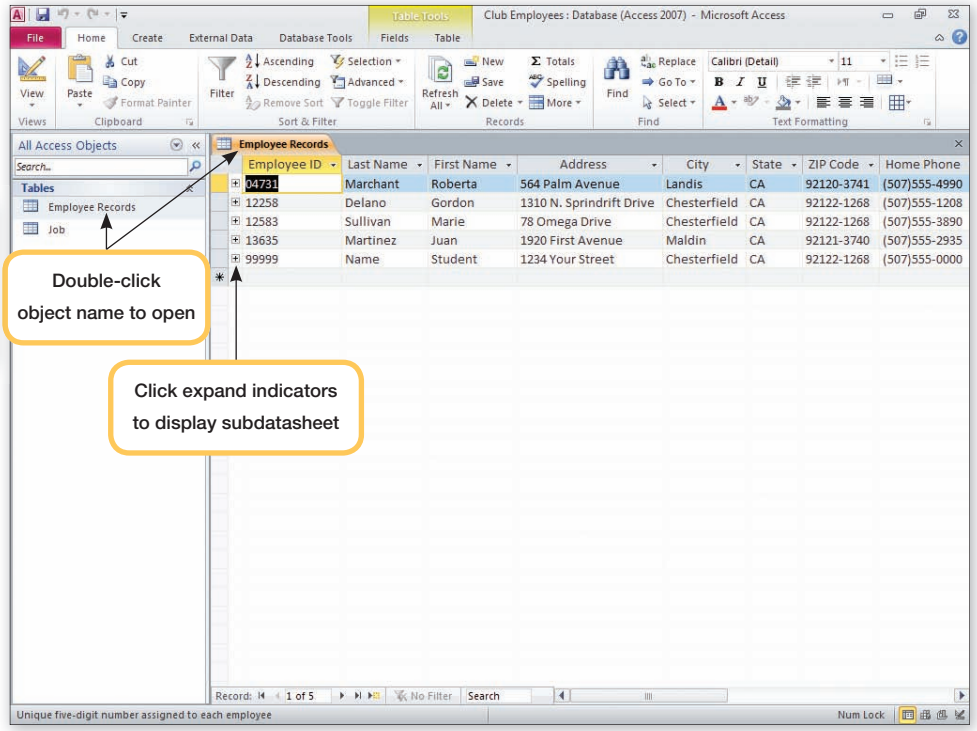


Figure 1.74

The Employee Records table is open in the work area. Notice the records are no longer in the same order they were entered, but are now in ascending order by the primary key, Employee ID. There are also expand indicators ⊞ at the beginning of each row. This indicates there is a subdatasheet linked to the records in this table.

Concept 7 Subdatasheet

A **subdatasheet** is a data table nested within a main data table that contains information that is related or joined to the main table. A subdatasheet allows you to easily view and edit related data. Subdatasheets are created automatically whenever relationships are established between tables.

In this case, the subdatasheet is the Job table. Clicking ⊞ will expand the table to show the information in the subdatasheet table, Job.

2

Click ⊞ next to the first record.

Your screen should be similar to Figure 1.75

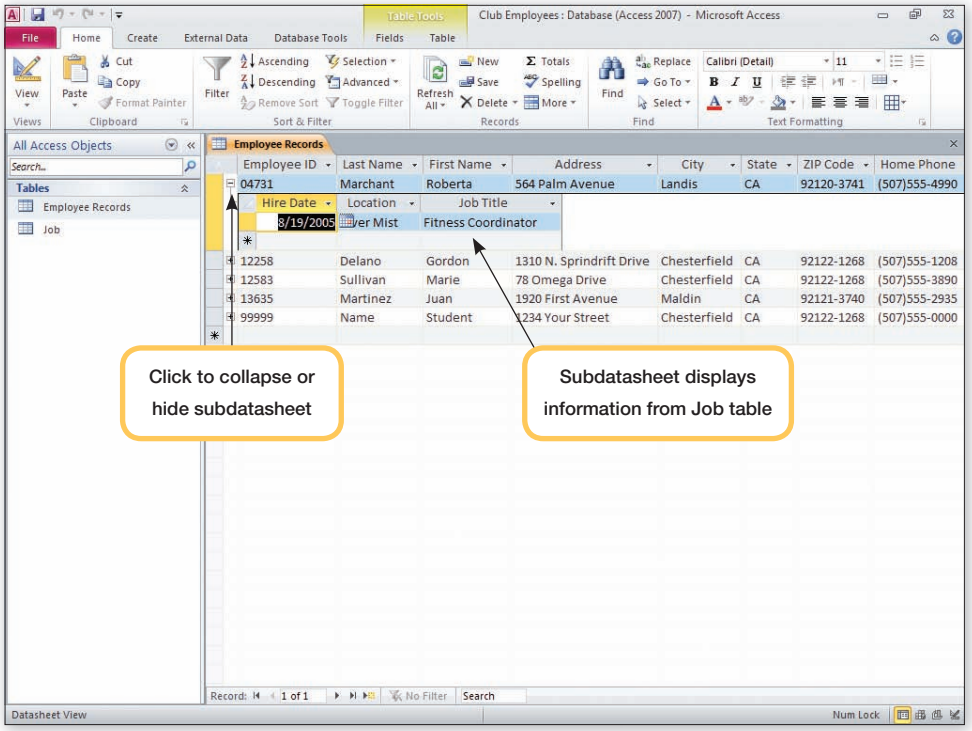


Figure 1.75

A subdatasheet appears and displays the location and job title information contained in the Job table for Roberta Marchant. Similarly, the Job table will display a subdatasheet to the Employee Records table.

Then, to hide or collapse the subdatasheet again, you click the collapse indicator ⊟.

Additional Information

You will learn more about relationships and subdatasheets in later labs.

3

Click ⊟ next to the first record.

Close the table.

You have created a database file that contains two tables and follows the two basic principles of database design: Do not include redundant information in tables, and enter accurate and complete information. Although you may think the employee number is redundant data, it is the only way the information in the two tables can be associated. The database attains the goals of **normalization**, a design technique that identifies and eliminates redundancy by applying a set of rules to your tables to confirm that they are structured properly.

Closing and Opening a Database

You are ready to show the manager your database to get approval on the setup of the data. But first you want to make sure you know how to close and open the file.

It is always a good idea to close all open objects in the work area before closing the database. Since you have already closed the tables, the work area is empty and there are no open objects. Next, you will close the database, but not the Access program.

CLOSING A DATABASE

When closing a database file, unlike other types of files, you do not need to save first, as each time changes are made to the data they are automatically saved as part of the process. Changes to an object's design, however, need to be saved for the changes to be permanent.

1. **Open the File tab and click** Close Database.

Your screen should be similar to Figure 1.76

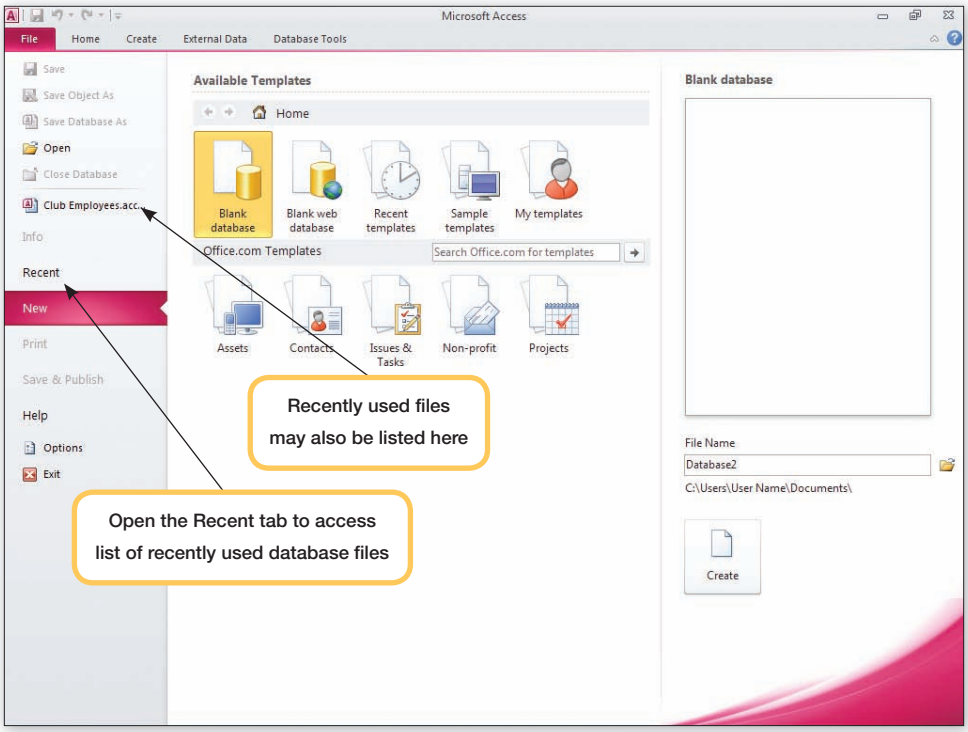


Figure 1.76

Additional Information

To review file types, refer to the Saving a File section in the Introduction to Microsoft Office 2010 lab.

The New tab in Backstage view is displayed again so you can create another new database or open an existing one. If you plan to share an Access 2007 or 2010 .accdb file with someone using Access 2003 or earlier, before closing the database open the Save & Publish tab in Backstage view, choose the Save Database As option and save it as the .mdb file type. Be aware some features may be lost when saving to an older version of Access.

OPENING A DATABASE

Additional Information

See the section Opening a File in the Introduction to Microsoft Office 2010 to review the basics on how to open a file.

Just as there are several methods to create a new database, there are several methods you can use to open an existing database. The first is to click Open, which displays the Open dialog box through which you browse to specify the location and name of the file you want to open. Another is to open the Recent tab and select from a list of recently used database files. A third is to select from the list of recently used database files above the Info tab if the feature to display recent databases in this location is selected.

You also can open database files that were created in previous versions of Access that used the .mdb file extension. These older file types must be converted to the Access 2010 file format if you want to take advantage of the new features in Access 2010.

You will open the Recent Databases window list to see the list of recently opened database files and use this method to open the database.

1

Click the Recent tab to open the Recent Databases window.

Your screen should be similar to Figure 1.77

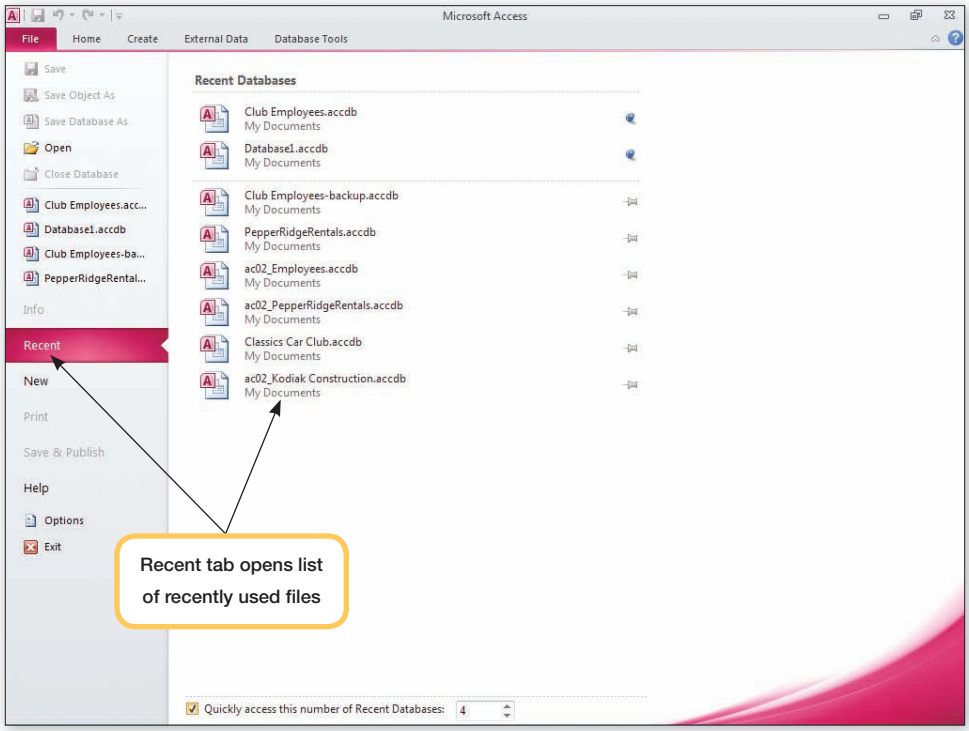


Figure 1.77

Additional Information

Items can be removed from the Recent list by right-clicking the file name and choosing Remove from list.

The Recent Databases window by default displays up to 17 names of recently used database files on the computer you are using. The file names listed, however, are not always accurate as files may have been moved or deleted since they were last accessed.

2

- **Choose Club Employees from the Recent Databases list.**
- **If necessary, click Enable Content in the Security Warning message bar below the Ribbon to fully utilize the database.**

Having Trouble?

Depending upon the security settings on your system, a Security Warning may be displayed below the Ribbon.

- **Double-click on the Employee Records table.**

Another Method

You also can drag the object from the Navigation pane to the work area to open it.

Your screen should be similar to Figure 1.78

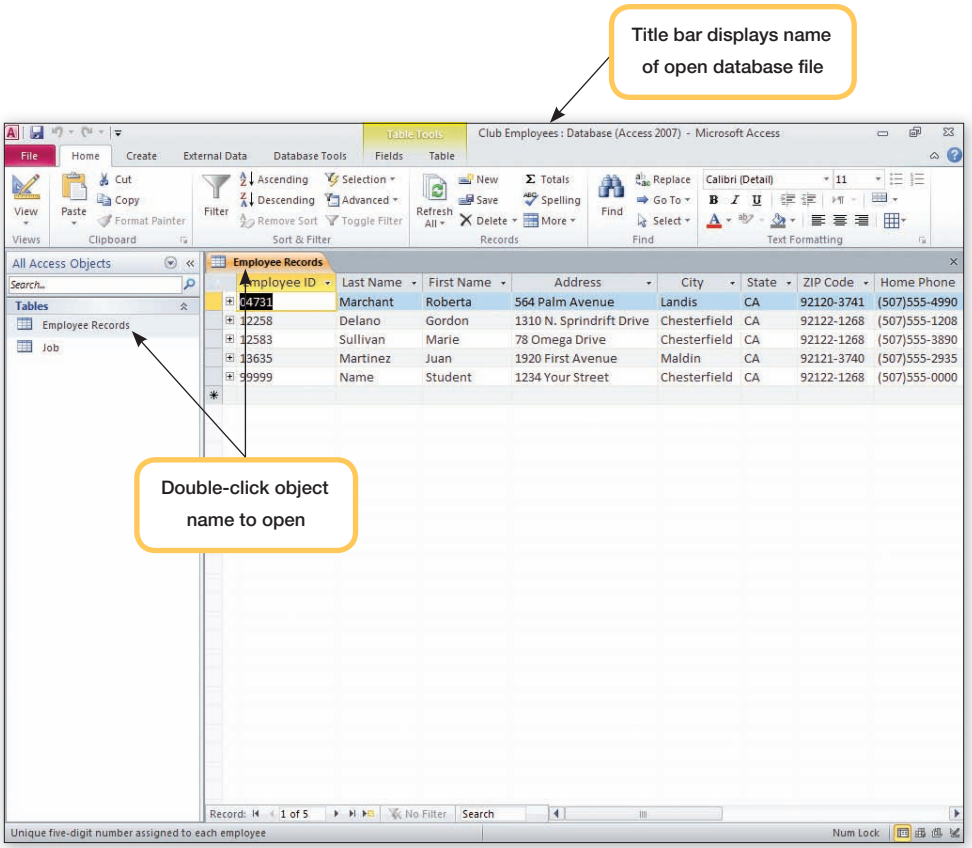


Figure 1.78

The database file and table are open again and appear just as they were when you closed them.

Setting Database and Object Properties

Now, you want to look at the file properties or settings that are associated with the database file. Some of these properties are automatically generated. These include statistics such as the date the file was created and last modified. Others such as a description of the file are properties you can add.

DOCUMENTING A DATABASE

The information you can associate with the file includes a title, subject, author, keywords, and comments about the file. You will look at the file properties and add documentation to identify you as the author and a title for the database.

Having Trouble?

See Specifying Document Properties in the Introduction to Microsoft Office 2010 for more information about this feature.

1

- **Open the File tab and, if necessary, choose Info.**
- **Click on the View and edit database properties link, located below the database preview.**
- **Open each tab in the Properties dialog box and look at the recorded information.**
- **Open the Summary tab.**
- **Enter the following information in the Summary tab.**

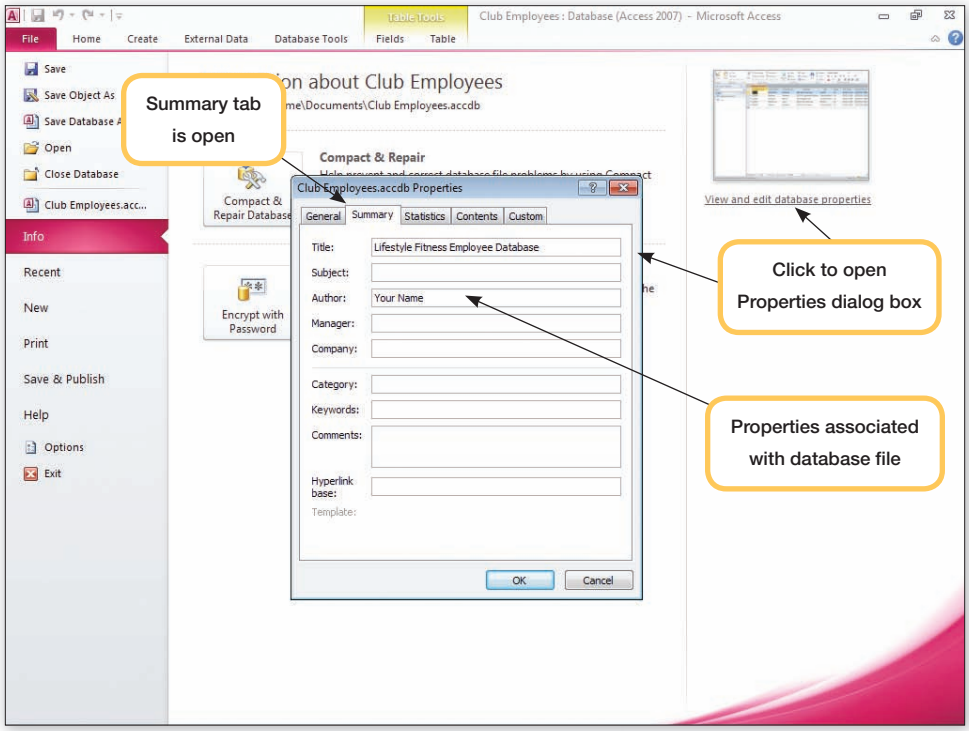


Figure 1.79

Title Lifestyle Fitness Employee Database

Author Your Name

Having Trouble?

The Title and Author text boxes may be blank or may already show information. Clear the existing contents first if necessary.

You also want to create a custom property to identify the completion date.

Your screen should be similar to Figure 1.79

2

- Open the Custom tab.
- Choose Date completed from the Name list.
- Choose Date as the Type.
- Enter the current date in the Value text box.
- Click Add.

Your screen should be similar to Figure 1.80

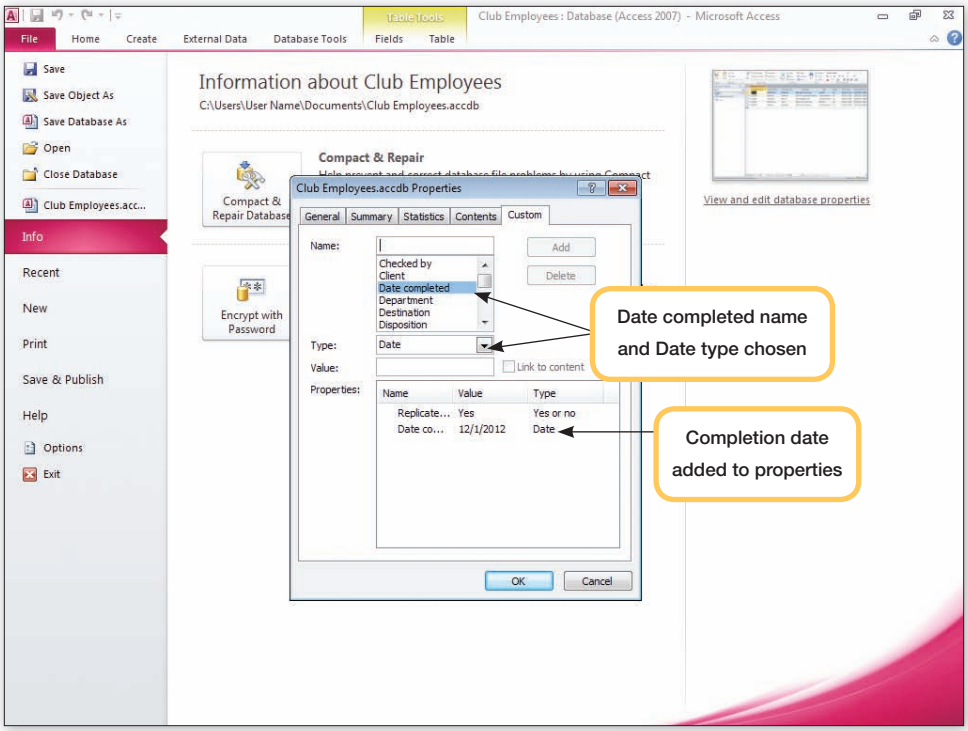


Figure 1.80

You are now finished entering information in the Database properties.

3

- Click OK.
- Click the Home tab to close Backstage view.

DOCUMENTING A TABLE OBJECT

You have completed adding the properties to the file. You also can add limited documentation to each object in a database. You will add documentation to the Employee Records table object.

1. **Right-click the Employee Records table object in the Navigation pane.**
2. **Choose Table Properties from the drop-down menu.**
3. **In the Description text box, type This table is under construction and currently contains 5 records.**

Your screen should be similar to Figure 1.81

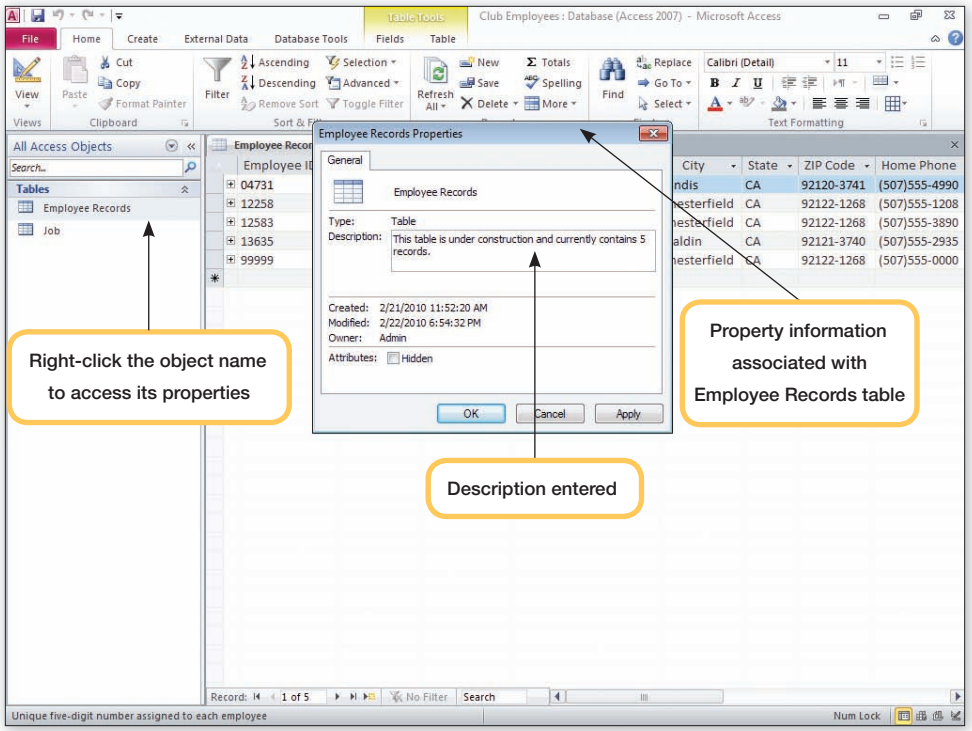


Figure 1.81

You have added property information to both the database file and the Employee Records table.

2. **Click OK to close the Properties dialog box.**

Previewing and Printing a Table

Now that you have completed designing and entering some sample data in the two tables, you want to print a copy of the tables to get your manager's approval before you begin entering more employee records. Before printing the tables, you will preview them onscreen to see how they will look when printed.

PREVIEWING THE TABLE

Previewing a table displays each page in a reduced size so you can see the layout. Then, if necessary, you can make changes to the layout before printing to save time and avoid wasting paper.

1. **Open the Job table.**
2. **Open the File tab.**
3. **Open the Print tab and choose Print Preview.**
4. **Hide the Navigation pane.**

Your screen should be similar to Figure 1.82

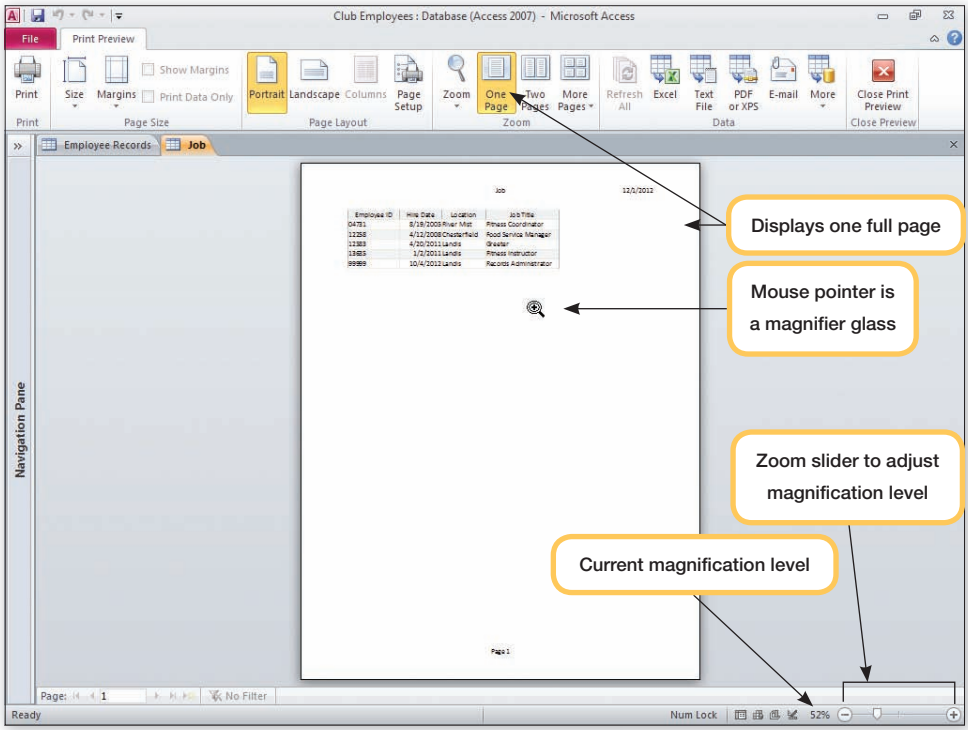


Figure 1.82

Additional Information

The current magnification level is displayed in the status bar.

The Print Preview window displays how the table will appear when printed. The Print Preview contextual tab is open and includes commands that are used to modify the print settings.

2. **Click on the table.**

Additional Information

The location where you click will determine the area that is displayed initially.

Your screen should be similar to Figure 1.83

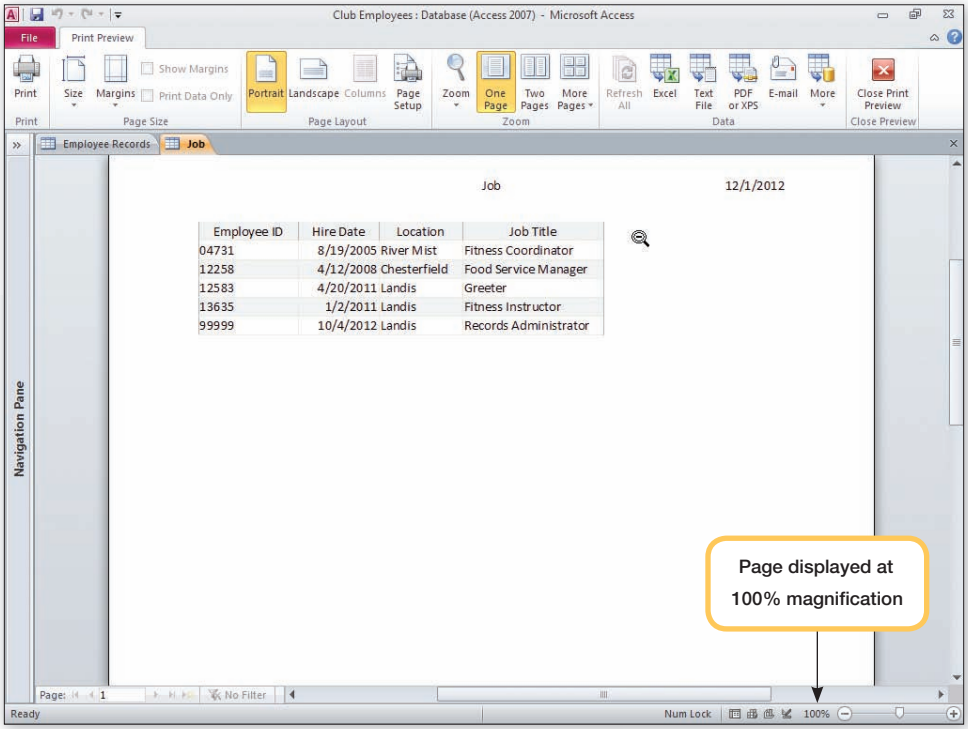


Figure 1.83

The table appears in 100 percent magnification. This is the size it will appear when printed.

PRINTING A TABLE

The Print button in the Print group of the Print Preview tab is used to define the printer settings and print the document.

1. **If necessary, make sure your printer is on and ready to print.**
2. **Click Print.**

Another Method

The keyboard shortcut is Ctrl + P.

Having Trouble?

Please consult your instructor for printing procedures that may differ from the directions given here.

Your screen should be similar to Figure 1.84

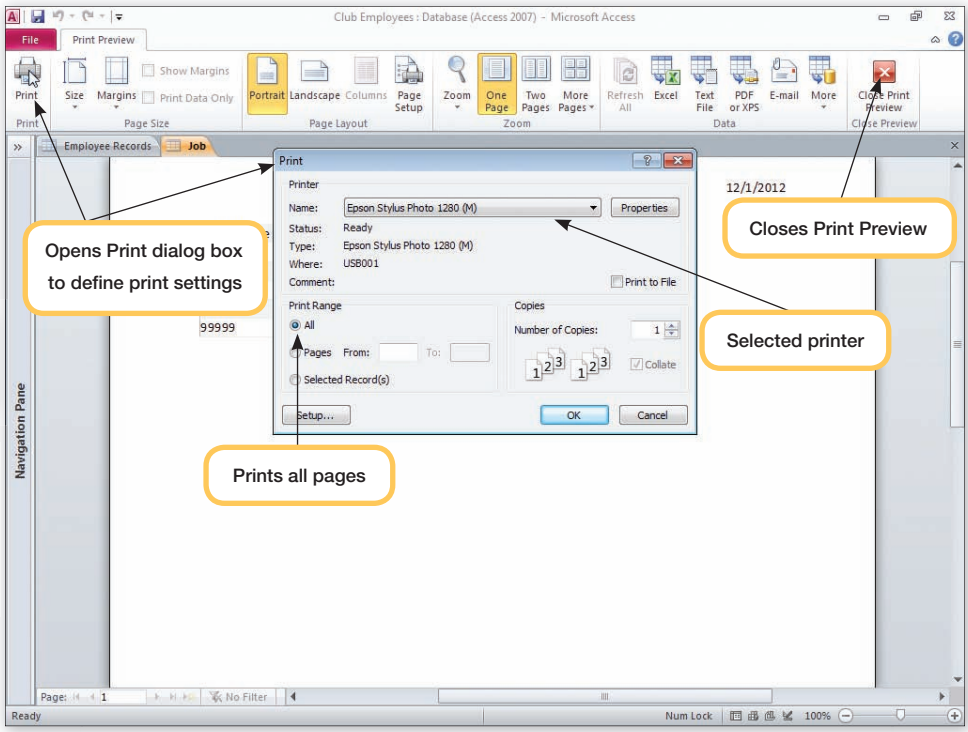


Figure 1.84

The Print Range area of the Print dialog box is used to specify the amount of the document you want printed. The range options are described in the following table.

Option	Action
All	Prints the entire document.
Pages	Prints pages you specify by typing page numbers in the text box.
Selected Records	Prints selected records only.

You will print the entire document.

2. **If you need to change the selected printer to another printer, open the Name drop-down list box and select the appropriate printer (your instructor will tell you which printer to select).**
3. **Click OK.**

A status message box is displayed briefly, informing you that the table is being printed.

CHANGING THE PAGE ORIENTATION AND MARGINS

Next, you will preview and print the Employee Records table.

1

- Click Close Print Preview in the Close Preview group.
- Make the Employee Records table active.
- Open the File tab.
- Open the Print tab and then choose Print Preview.
- Click on the table to zoom the preview.

Your screen should look similar to Figure 1.85

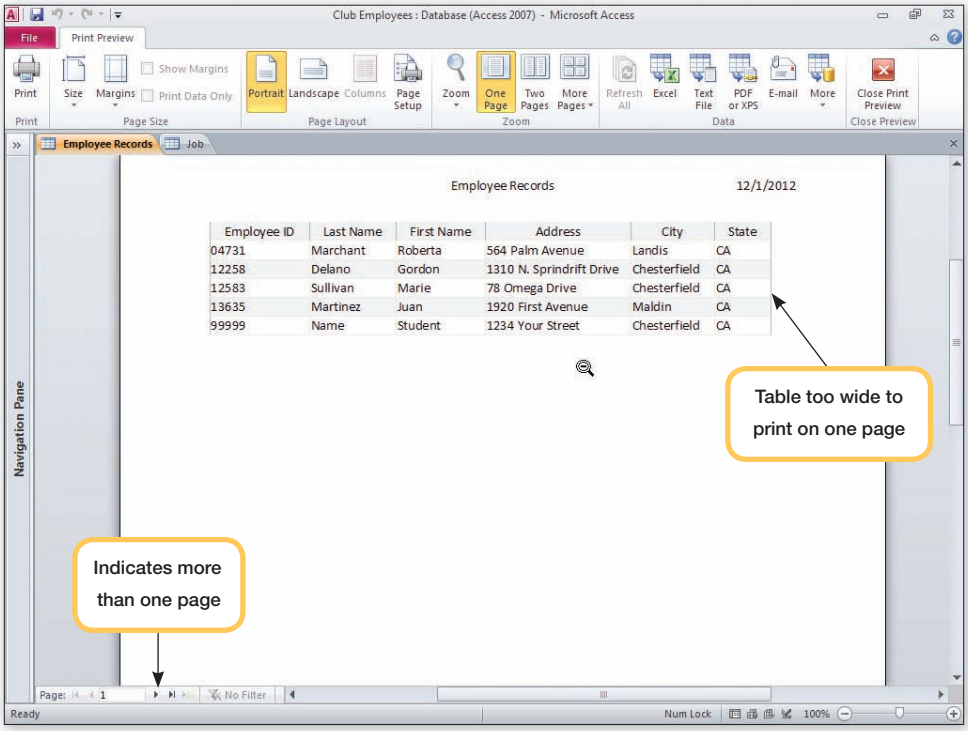


Figure 1.85

Notice that because the table is too wide to fit across the width of a page, only the first six fields are displayed on the page. Tables with multiple columns are typically too wide to fit on an 8½- by 11-inch piece of paper. You would like to see both pages displayed onscreen.

2

- Click Two Pages in the Zoom group.

Your screen should be similar to Figure 1.86

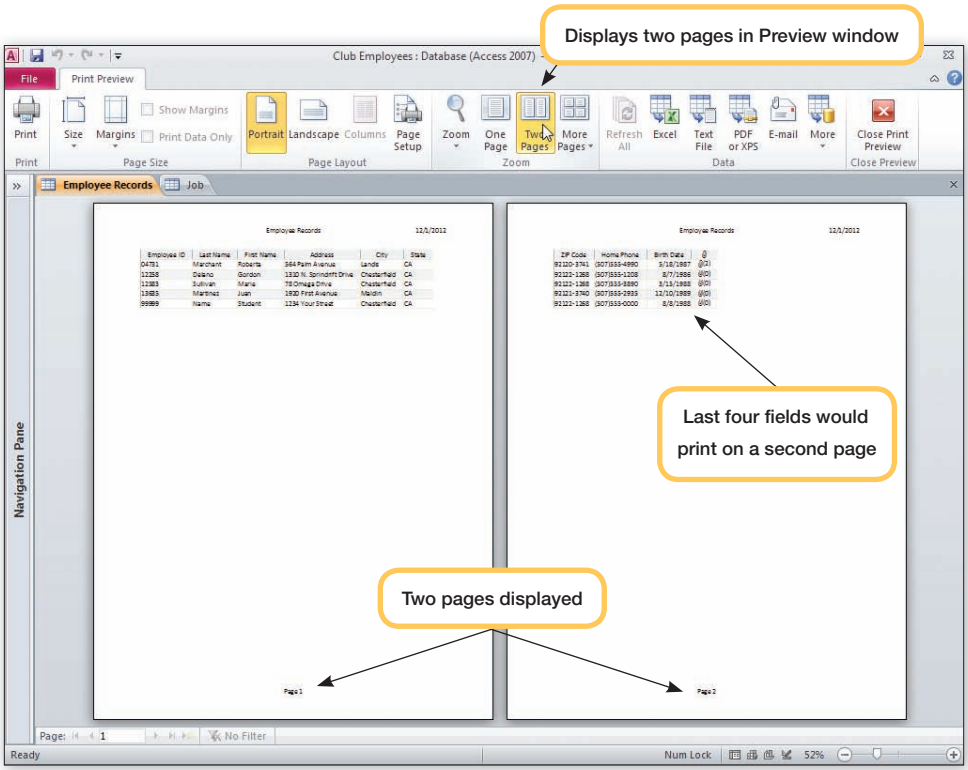


Figure 1.86

Rather than print the table on two pages, you decide to see whether changing the page orientation from portrait to landscape will allow you to print the table on one page.

Having Trouble?

Refer to the section Printing a Document in the Introduction to Microsoft Office 2010 lab to review page orientation.

3. Click Landscape in the Page Layout group.

Additional Information

Clicking Portrait changes the orientation to portrait.

Your screen should be similar to Figure 1.87

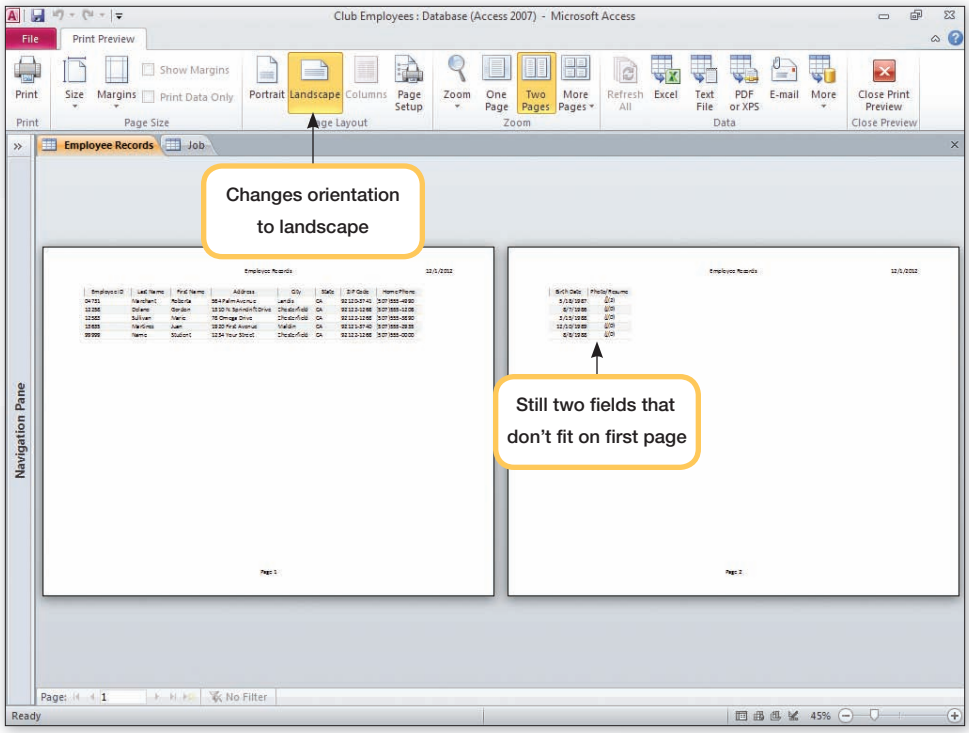


Figure 1.87

Although this helps, there are still two fields that do not fit on the page. To fix this, you will try reducing the size of the page margins. The **margin** is the blank space around the edge of a page. You will decrease the right and left margin settings to 0.25 inch to see if this allows all fields to fit on one page.

4. Click Margins in the Page Size group of the Print Preview tab.
   - Choose Normal.
   - Click One Page.
   - Increase the magnification to 90%.

Your screen should be similar to Figure 1.88

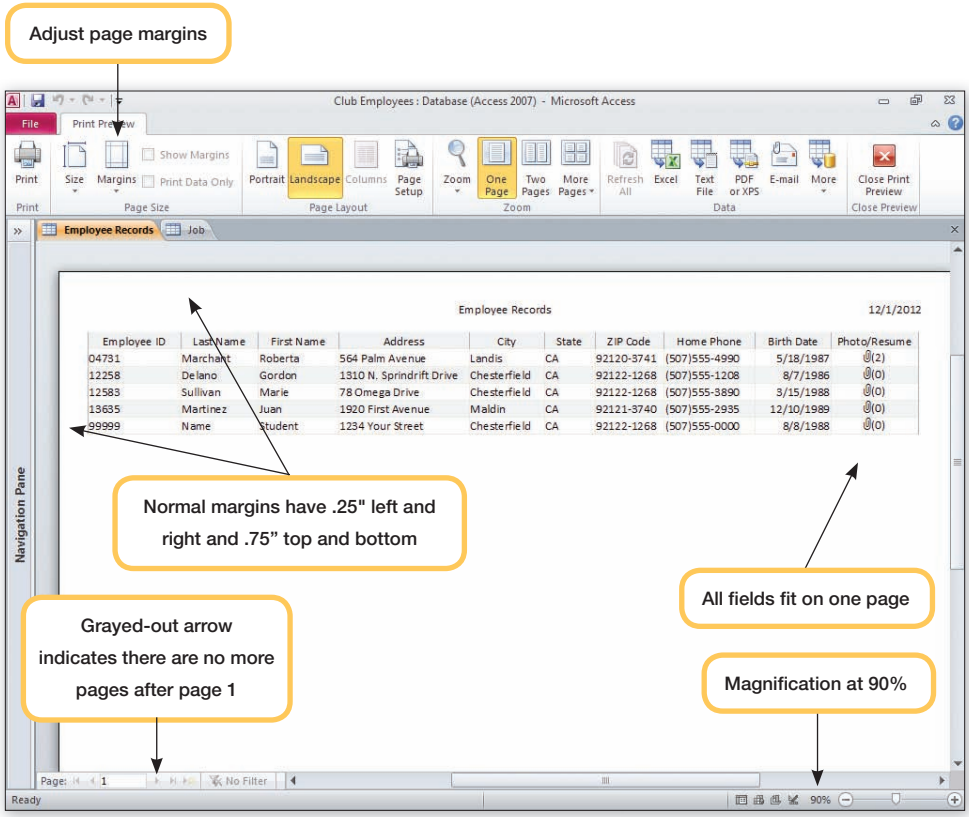


Figure 1.88

You can now see that all the fields will print on one page.

5

- **Print the table.**
- **Close the Print Preview window.**

Exiting Access

You will continue to build and use the database of employee records in the next lab. Until then, you can exit Access.

1

- **Click Close in the Access window title bar.**

Another Method

You also can open the File tab and choose Exit.

Notice that this time you were not prompted to save the tables because you did not made any layout changes to them since opening them. If you had made layout changes, you would be prompted to save the tables before exiting Access.

FOCUS ON CAREERS

EXPLORE YOUR CAREER OPTIONS

Admitting Nurse

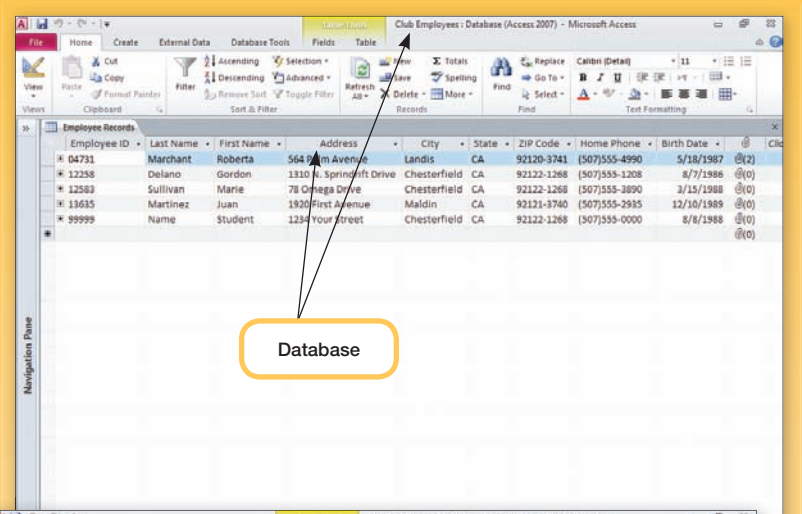
Can you imagine trying to organize the information of hundreds of patients in a busy emergency room? This is the job of an admitting nurse, who must be able to enter, edit, and format data; add and delete records; and so on. This information is used by all departments of the hospital, from the doctors, to the pharmacy, and to the billing department. Without a proper understanding of database software, a hospital cannot run efficiently. The average salary of an admitting nurse is in the $40,000 to $50,000 range. The demand for nurses is expected to remain high.

Lab 1 CONCEPT SUMMARY

Creating a Database

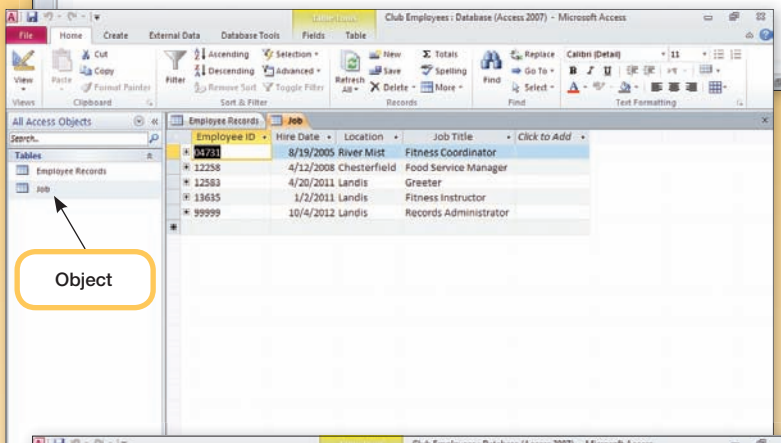
Database (AC1.4)

A database is an organized collection of related information.



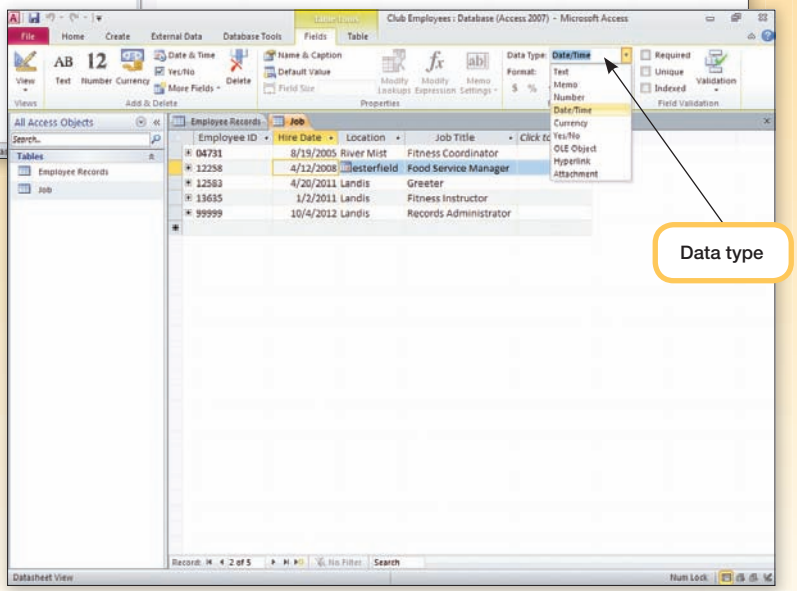
Object (AC1.9)

An Access database is made up of several types of objects, such as a table or report, consisting of many elements. An object can be created, selected, and manipulated as a unit.



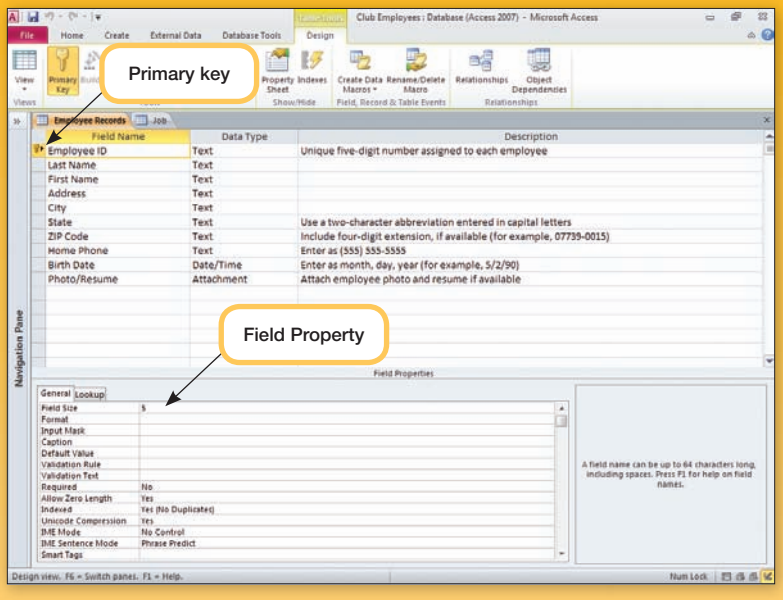
Data Type (AC1.15)

The data type defines the type of data the field will contain. Access uses the data type to ensure that the right kind of data is entered in a field.



Field Property (AC1.22)

A field property is a characteristic that helps define a field. A set of field properties is associated with each field.

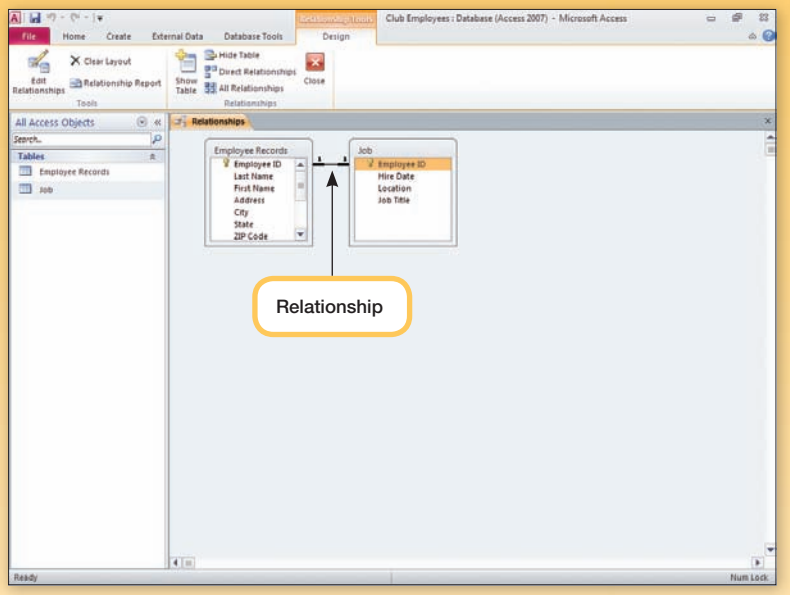


Primary Key (AC1.28)

A primary key is a field that uniquely identifies each record.

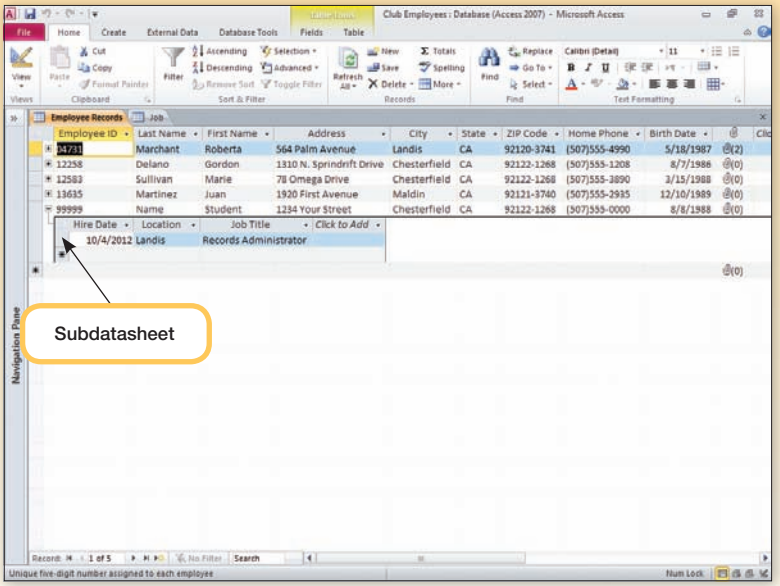
Relationship (AC1.66)

A relationship establishes the association between common fields in two tables.



Subdatasheet (AC1.71)

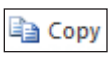
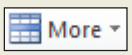
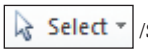
A subdatasheet is a data table nested within a main data table; it contains information that is related or joined to the main table.



KEY TERMS

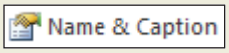
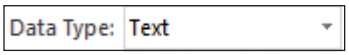
Allow Zero Length property AC1.22
Attachment data type AC1.15
AutoNumber data type AC1.15
Best Fit feature AC1.49
Calculated data type AC1.15
caption AC1.27
Caption property AC1.22
cell AC1.11
column width AC1.47
composite key AC1.28
Currency data type AC1.15
current field AC1.24
current record AC1.11
data type AC1.15
database AC1.4
Datasheet view AC1.11
Date/Time data type AC1.15
Default Value property AC1.22
Design view AC1.11
drawing object AC1.39
field AC1.4
field name AC1.13
field property AC1.22
Field Size property AC1.22
field model AC1.18
foreign key AC1.69
form AC1.9
Form view AC1.11
Format property AC1.22
graphic AC1.39
header row AC1.11
Hyperlink data type AC1.15
Indexed property AC1.22
Input Mask property AC1.22
Layout view AC1.11
margin AC1.82
Memo data type AC1.15
navigation buttons AC1.11
Navigation pane AC1.10
normal form AC1.72
normalization AC1.72
Number data type AC1.15
object AC1.9
OLE Object data type AC1.15
one-to-many AC1.66
one-to-one AC1.66
orphaned records AC1.69
picture AC1.39
primary key AC1.28
Print Preview AC1.11
query AC1.9
record AC1.4
referential integrity AC1.66
relational database AC1.4
relationship AC1.66
report AC1.9
Report view AC1.11
Required property AC1.22
Select Record button AC1.11
serial value AC1.15
subdatasheet AC1.71
table AC1.4, 9
Text data type AC1.15
Validation Rule property AC1.22
Validation Text property AC1.22
view AC1.10
Yes/No data type AC1.15

COMMAND SUMMARY

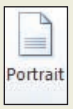
Command	Shortcut	Action
File Tab		
New		Opens a new blank database
Open	Ctrl + O	Opens an existing database
Save	Ctrl + S	Saves database object
Recent		Displays a list of recently used database files
Print/Print	Ctrl + P	Specifies print settings and prints current database object
Print/Print Preview		Displays file as it will appear when printed
Close Database		Closes open window
Exit		Closes Access
Home Tab		
Views group  Design View		Displays object in Design view
 Datasheet View		Displays object in Datasheet view
Clipboard group 	Ctrl + X	Removes selected item and copies it to the Clipboard
	Ctrl + C	Duplicates selected item and copies to the Clipboard
	Ctrl + V	Inserts copy of item from Clipboard
Records group 	Delete	Deletes current record
 /Field Width		Adjusts width of selected column
Find group  /Select		Selects current record

LAB REVIEW

COMMAND SUMMARY (CONTINUED)

Command	Shortcut	Action
Table Tools Field Tab		
Views group  Design View		Displays table in Design view
 Datasheet View		Displays table in Datasheet view
Add & Delete group 		Inserts a new text field
		Inserts a new date/time field
	Delete	Removes selected field column
Properties group 		Renames selected field
Formatting group 		Changes the data type for current field
		Sets the display format of the selected field
Table Tools Design Tab		
Views group  Design View		Displays table in Design view
 Datasheet View		Displays table in Datasheet view
Tools group 		Makes current field a primary key field
		Inserts rows above selection
	Delete	Deletes selected field row

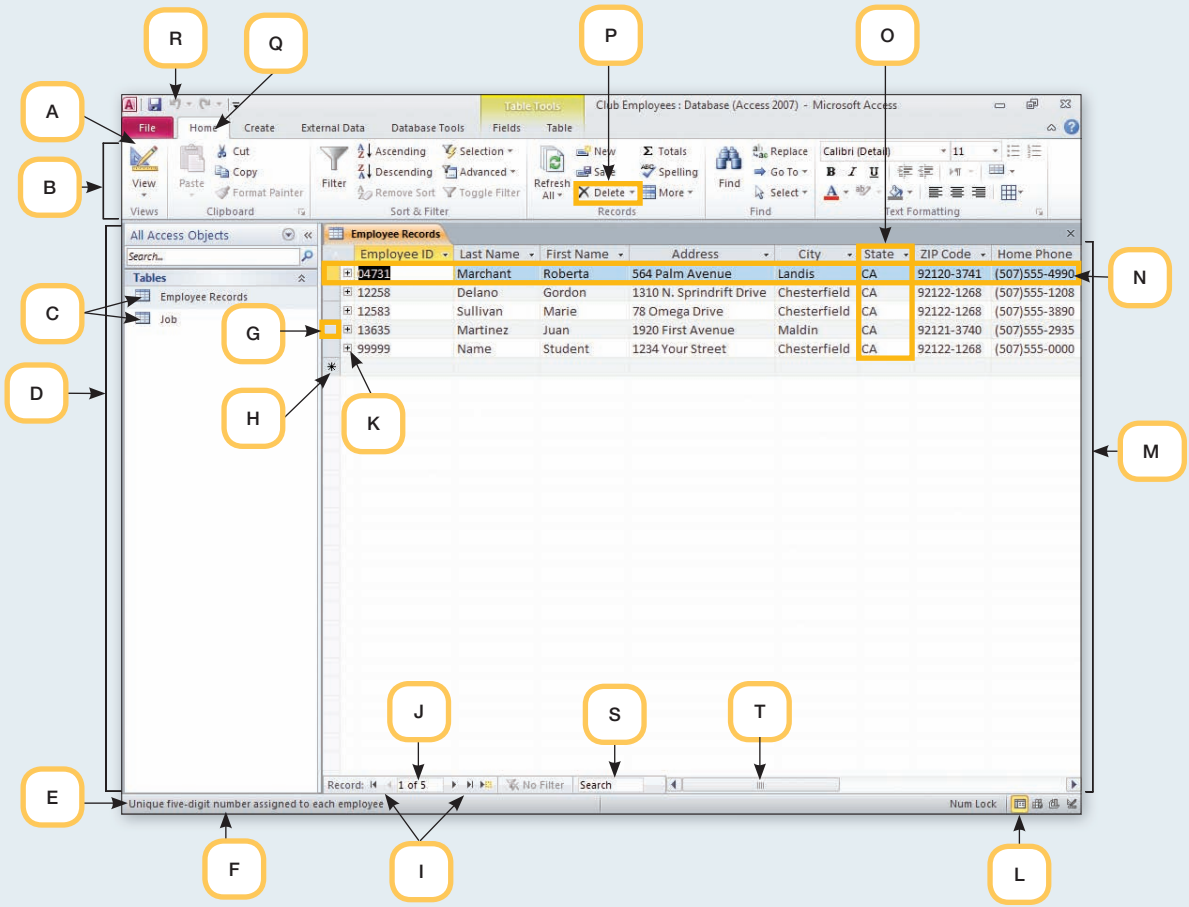
COMMAND SUMMARY (CONTINUED)

Command	Shortcut	Action
Database Tools Tab		
		Opens relationships window
Print Preview Tab		
Print group 	Ctrl + P	Prints displayed object
Page Layout group 		Changes print orientation to portrait
		Changes print orientation to landscape
Zoom group 		Displays one entire page in Print Preview
		Displays two entire pages in Print Preview
Close Preview group 		Closes Print Preview window

LAB EXERCISES

SCREEN IDENTIFICATION

1. On the following Access screen, several items are identified by letters. Enter the correct term for each item in the spaces provided.



Possible answers for the screen identification are:

Cell
Current Record box
Datasheet View button
Delete record
Design view
Field
Field description
Navigation pane
New Record/End of table marker
Object
Open object tab
Primary key indicator
Quick Access Toolbar
Record
Record navigation buttons
Ribbon
Scroll bar
Search
Select Record button
Status bar
Subdatasheet indicator
Tab
Work area

A. _____
B. _____
C. _____
D. _____
E. _____
F. _____
G. _____
H. _____
I. _____
J. _____
K. _____
L. _____
M. _____
N. _____
O. _____
P. _____
Q. _____
R. _____
S. _____
T. _____

MATCHING

Match the numbered item with the correct lettered description.

1.	Datasheet view	____	a. contains multiple tables linked by a common field
2.	Attachment	____	b. used to define the table structure
3.	Design view	____	c. used to open and manage database objects
4.	field size	____	d. a data type that stores multiple files of different file types in a single field
5.	data type	____	e. field that uniquely identifies each record
6.	object	____	f. displays table in row and column format
7.	record	____	g. defines the type of data the field will contain
8.	relational database	____	h. controls the maximum number of characters that can be entered in a field
9.	primary key	____	i. collection of related fields
10.	Navigation pane	____	j. a unit of a database

TRUE/FALSE

Circle the correct answer to the following statements.

1.	A foreign key is a field in one table that refers to the primary key field in another table and indicates how the tables are related.	**True**	**False**
2.	Tables and queries are two types of database objects.	**True**	**False**
3.	Caption text can be different from the field's name.	**True**	**False**
4.	A table is a required object in a database.	**True**	**False**
5.	Changing the column width in the datasheet changes the field size.	**True**	**False**
6.	A field description is a required part of the field definition.	**True**	**False**
7.	Interactive databases define relationships between tables by having common data in the tables.	**True**	**False**
8.	A field contains information about one person, thing, or place.	**True**	**False**
9.	The data type defines the information that can be entered in a field.	**True**	**False**
10.	You can format the text in a Memo field.	**True**	**False**

LAB EXERCISES

FILL-IN

Complete the following statements by filling in the blanks with the correct terms.

1. The _____ data type can be used to store a graphic file in a field.
2. A(n) _____ is used to create a preformatted field or a set of several fields commonly used together.
3. An Access database is made up of several types of _____.
4. A(n) _____ is a data table nested in another data table that contains data that is related or joined to the table where it resides.
5. The field property that limits a Text data type to a certain size is called a(n) _____.
6. Using _____ orientation prints across the length of the paper.
7. The _____ data type restricts data to digits only.
8. A field name is used to identify the _____ stored in a field.
9. The _____ field property specifies how data displays in a table.
10. You use the _____ located at the left of the work area to select the type of object you want to work with.

MULTIPLE CHOICE

Circle the letter of the correct response.

1. _____ view is only used to modify the table structure.
   a. Design
   b. Report
   c. Datasheet
   d. Query
2. The basic database objects are _____.
   a. panes, tables, queries, and reports
   b. tables, queries, forms, and reports
   c. forms, reports, data, and files
   d. portraits, keys, tables, and views
3. Graphics can be inserted into a field that has a(n) _____ data type.
   a. Graphic
   b. Text
   c. Attachment
   d. Memo
4. Another way to create fields is to select from a list of predefined fields called _____.
   a. value fields
   b. data types
   c. field models
   d. attachment fields

5. A _____ is a field in one table that refers to the primary key field in another table and indicates how the tables are related.
   a. foreign key
   b. common key
   c. related key
   d. data key
6. _____ affects the amount of data that you can enter into a field.
   a. Column width
   b. Field size
   c. Format
   d. Description size
7. You may lose data if your data and _____ are incompatible.
   a. field name
   b. data type
   c. default value
   d. field size
8. A _____ is often used as the primary key.
   a. phone number
   b. catalog number
   c. last name
   d. first name
9. _____ is a design technique that identifies and eliminates redundancy by applying a set of rules to your tables.
   a. Database development
   b. Normalization
   c. Validation
   d. Orientation
10. The last step of database development is to _____.
    a. design
    b. develop
    c. review
    d. plan

LAB EXERCISES

Hands-On Exercises

STEP-BY-STEP

RATING SYSTEM

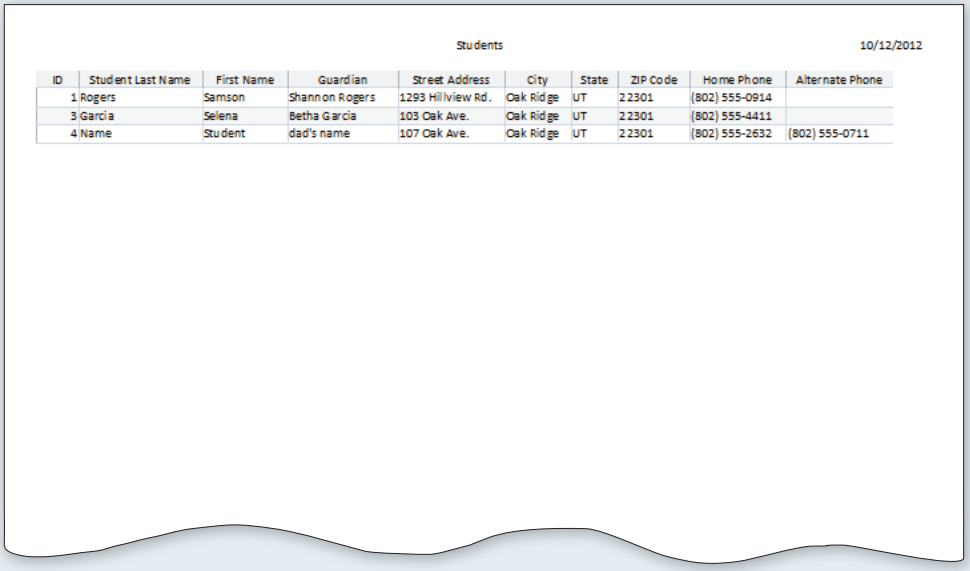
★ Easy

★★ Moderate

★★★ Difficult

OAK RIDGE SCHOOL PARENT CONTACT DATABASE ★

1. Oak Ridge Elementary School has decided to set up a database with the contact information for all students. As a parent, you have volunteered to do the initial database creation and teach the secretary at the school to maintain it. The database table you create will have the following information: student's last name, student's first name, guardian's name, home address, and home phone number. When you have finished, a printout of your completed database table should look similar to the one shown here.



Students 10/12/2012

ID	Student Last Name	First Name	Guardian	Street Address	City	State	ZIP Code	Home Phone	Alternate Phone
1	Rogers	Samson	Shannon Rogers	1293 Hillview Rd.	Oak Ridge	UT	22301	(802) 555-0914	
3	Garcia	Selena	Betha Garcia	103 Oak Ave.	Oak Ridge	UT	22301	(802) 555-4411	
4	Name	Student	dad's name	107 Oak Ave.	Oak Ridge	UT	22301	(802) 555-2632	(802) 555-0711

a. Create a blank database named Oak Ridge School. Create a table in Datasheet view using the following field information. When creating the address fields, use the Address field model to create the Address, City, State, and ZIP Code fields. Switch to Design view and save the table as **Students**. Make the ID field the primary key field. Delete the Country Region field generated from the Address field model and then modify the field names and properties to match those shown below.

Field Name	Data Type	Description	Field Size/Format
ID	AutoNumber		Long Integer
Student Last Name	Text	Student's legal last name	25
First Name	Text	Include student's nickname in parentheses	25
Guardian	Text	First and last names of primary guardian	55
Street Address	Text		75
City	Text		20
State	Text	Two-letter abbreviation	2
ZIP Code	Text		5
Home Phone	Text		15

b. In Datasheet view, enter the following records into the table, using Copy and Paste for fields that have the same data (such as the city):

	Record 1	Record 2	Record 3
Student Last Name	Rogers	Wilson	Garcia
First Name	Samson	Avette	Selena
Guardian	Shannon Rogers	Rita Wilson-Montoya	Betha Garcia
Street Address	1293 Hillview Rd.	102 4th Street	103 Oak Ave.
City	Oak Ridge	Oak Ridge	Oak Ridge
State	UT	UT	UT
ZIP Code	22301	22301	22301
Home Phone	(802) 555-0914	(802) 555-3375	(802) 555-4411

c. Adjust the column widths appropriately.

d. Delete record 2. Add another record with the following data:

[Your last name]

[Your first name]

[Your parent's name]

107 Oak Ave.

Oak Ridge

UT

22301

(802) 555-2632

e. Add a new field after the Home Phone field with the following definitions:

Field Name: **Alternate Phone**

Data Type: Text

Field Size: **15**

f. Change the ZIP Code field size to **10**

g. Enter the Alternate Phone number of **(802) 555-0711** and the ZIP Code of **22301-4459** for the record with ID number **4**

h. Best Fit all columns.

i. In the database properties, add **your name** as the author and **Oak Ridge School** as the title. Add the description **Exercise 1 in Access Lab 1** to the table properties.

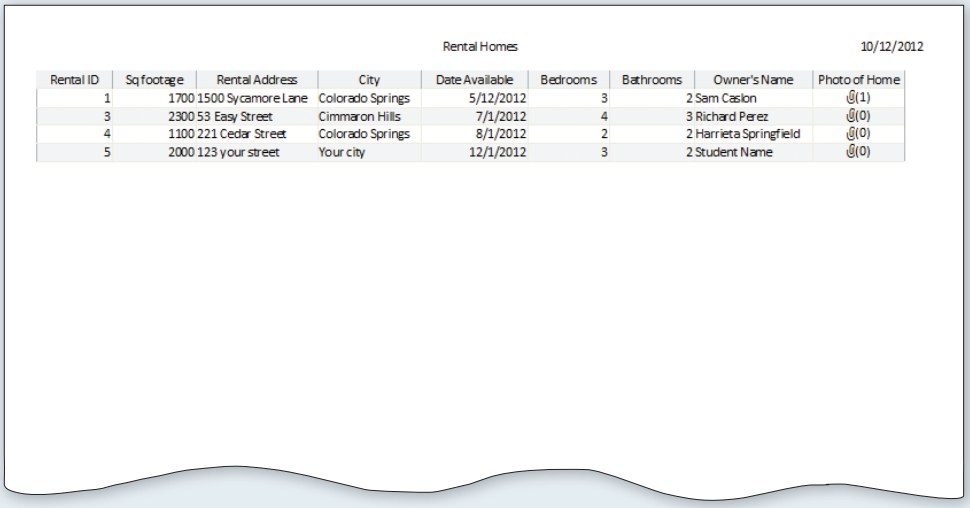
i. View the table in Print Preview; change the page orientation to landscape and margins to Normal.

j. Print, save, and close the table.

LAB EXERCISES

PEPPER RIDGE RENTALS DATABASE ★★

2. You manage a real estate rental business and decide to implement a database to track the rental properties. A database will be useful to look up any information about the rental, including its location, how many bedrooms and bathrooms, square footage, and date available. This will help you find rentals within the desired home size and price range of your clients. When you are finished, your printed database table should be similar to the one shown here.



Rental Homes 10/12/2012

Rental ID	Sq footage	Rental Address	City	Date Available	Bedrooms	Bathrooms	Owner's Name	Photo of Home
1	1700	1500 Sycamore Lane	Colorado Springs	5/12/2012	3	2	Sam Caslon	(1)
3	2300	53 Easy Street	Cimmaron Hills	7/1/2012	4	3	Richard Perez	(0)
4	1100	221 Cedar Street	Colorado Springs	8/1/2012	2	2	Harrieta Springfield	(0)
5	2000	123 your street	Your city	12/1/2012	3	2	Student Name	(0)

a. Create a blank database named PepperRidgeRentals

b. Add the following fields to the new table:

Rental Address

City

Date Available

Bedrooms

Bathrooms

Sq Footage

Owner's Name

c. Switch to Design view. Save the table as **Rental Homes**

d. Change the ID field name to **Rental ID**

e. Add an Attachment field and name it **Photo of Home**. Use this name for the Caption property as well.

f. Change the field size of the Address and Owner's Name fields to **40**

g. Change the field size of the City field to **20**

h. Set the Date Available data type to Date, Short format.

i. The data type for Bedrooms, Bathrooms, and Sq Footage should be Number.

j. Return to Datasheet view. Add the following records to the table:

Address	1500 Sycamore Lane	8900 Sparrows Nest	53 Easy Street	221 Cedar Street
City	Colorado Springs	Cascade	Cimarron Hills	Colorado Springs
Date Available	5/12/2012	6/1/2012	7/1/2012	8/1/2012
Bedrooms	3	2	4	2
Bathrooms	2	1	3	2
Sq Footage	1700	840	2300	1100
Owner's Name	Sam Caslon	Betty Rose	Richard Perez	Harrieta Springfield

k. Insert the image file ac01_1500SycamoreHouse in the Attachment field of the first record.

l. Adjust the column widths using the Best Fit feature.

m. Delete the record for the address 8900 Sparrows Nest. Add a new record with fictional information, your name in the Owner's Name field, and the current date in the Date Available field.

n. In the database properties, add **your name** as the author and **Pepper Ridge Rentals** as the title. Add the description **Exercise 2 in Access Lab 1** to the table properties.

o. Preview and print the table in landscape orientation with normal margins.

p. Save and close the table. Exit Access.

LAB EXERCISES

CAR CLUB MEMBERS DATABASE ★★

3. You are a member of the local car club. Even though the club was founded only last year, the membership has grown considerably. Because of your computer skills, you have been asked to create a database with the membership number, membership date, first name, last name, address, city, state, zip, phone number, car year, and car model. This will help the club president contact members about events, the treasurer to mail out dues notices, and the events coordinator to mail out newsletters. Your printed database tables and relationships should be similar to those shown here.

Members 12/1/2012

Member #	Sign-up Date	First Name	Last Name	Address	City	State	ZIP
1	5/14/2011	Mary	Schultz	458 W. Claire Island	Palm Springs	CA	92270
2	8/2/2011	Johan	VanHeisling	200 1st Street	Morongo Valley	CA	92273
4	3/1/2012	Claudia	Hernandez	55 Rosewood	Palm Springs	CA	92270
5	4/15/2012	Student	Name	921 Desert View Rd.	Joshua Tree	CA	92276

Cars 10/12/2012

Member #	Car Year	Car Model	Photo
1	1974	Chevy Corvette	(1)
2	1955	Chevy Bel Air	(0)
4	1970	Dodge Charger	(0)
5	2012	student's favorite car	(1)

a. Create a blank database named Classics Car Club

b. Add the following fields to the new table:

Sign-up Date

Member Name

Address (use the Address field model)

c. Switch to Design view. Save the table as **Members**

d. Edit the field properties using the following information:

Field Name	Data Type	Description	Field Size/Format
Change ID to **Member #**	AutoNumber		
Sign-up Date	Date/Time	**Date member joined club**	Short Date
Change Member Name to **First Name**	Text	**Member's first name**	**25**
Address		**Mailing address**	**50**
Change State Province to **State**		**Two-letter state abbreviation**	**2**
Change ZIP Postal to **ZIP**		**ZIP code, ex: 99999 or 99999-1234**	**10**

e. Insert a row above the Address field and add the following field there:

Field Name	Data Type	Description	Field Size
Last Name	Text	**Member's last name**	**25**

f. Delete the Country Region field that was created as part of the Address field model.

g. Switch to Datasheet view and enter the following records into the table:

	Record 1	Record 2	Record 3	Record 4
Membership date	**5/14/2011**	**8/2/2011**	**12/20/2011**	**3/1/2012**
First Name	**Mary**	**Johan**	**Frank**	**Claudia**
Last Name	**Schultz**	**Van Heisling**	**Bonaire**	**Hernandez**
Address	**458 W. Claire Island**	**200 1st Street**	**890 Lakeside Dr.**	**55 Rosewood Circle**
City	**Palm Springs**	**Morongo Valley**	**Indio**	**Palm Springs**
State	**CA**	**CA**	**CA**	**CA**
ZIP	**92270**	**92273**	**92275**	**92270**

h. Best Fit all column widths.

i. Create a second table named **Cars** with the following fields:

Field Name	Data Type	Description	Field Size
Car Year	Number	**Car's year of manufacture**	
Car Model	Text	**Car's make and model (e.g., Ford Mustang)**	**50**
Vehicle Photo	Attachment	**Photo of car in Classics Car show**	

j. Change the Caption property for the Vehicle Photo to read **Photo**

Since you need a way to link the two tables together, you will obtain the member information from the Members table and paste it into the Cars table.

k. Switch to Datasheet view. Make the Members table active. Copy the Member # column.

l. Make the Cars table active. Right-click the Car Year field name and choose Insert field from the shortcut menu. Click Paste to complete the copy process, bringing the Member # field and information into the Cars table.

m. Enter the following records into the Cars table:

Member #	1	2	3	4
Car Year	1974	1955	1930	1970
Car Model	Chevy Corvette	Chevy Bel Air	Studebaker	Dodge Charger
Photo	ac01_1974Corvette			

n. Best Fit all column widths.

o. Close the tables. Establish the relationship between the Members table and the Cars table (hint: one member can have many cars). Enforce referential integrity and check the Cascade delete and update options. Close and save the relationship.

p. Open the Members table. Delete record 3. Add a new record with the following data:

Membership Date: **4/15/2012**
First Name: **Your first name**
Last Name: **Your last name**
Address: **921 Desert View Rd**
City: **Joshua Tree**
State: **CA**
Zip: **92276**

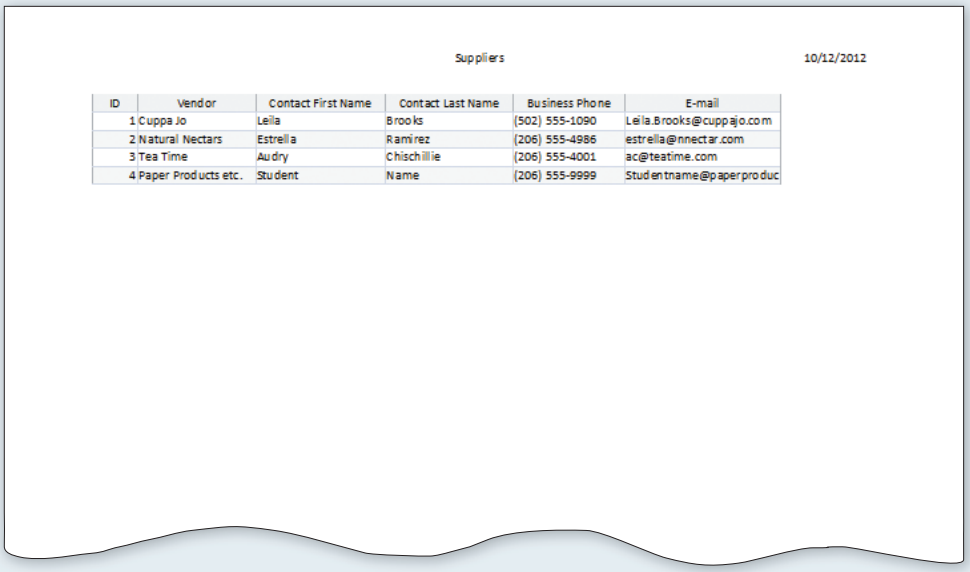
q. Open the Cars table and add your car information as a new record. (Your Member # should be 5.)

Car Year: **your favorite car year** or use **1961**
Car Model: **your favorite car model** or use **Ferrari**
Photo: attach photo of your car or use ac01_1961Ferrari

r. Check the tables in Print Preview. Print in portrait orientation with normal margins. Save and close both tables. Exit Access.

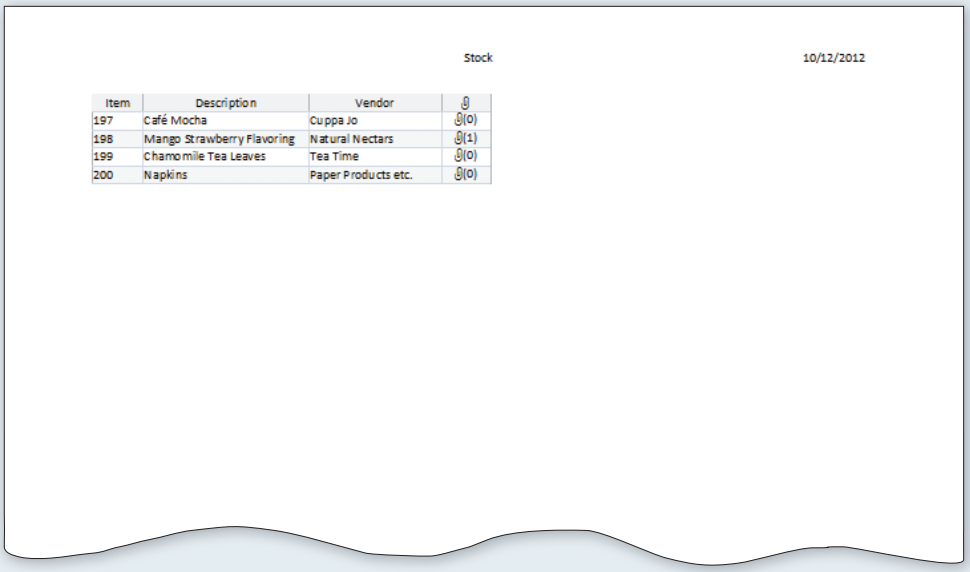
DOWNTOWN INTERNET CAFÉ INVENTORY DATABASE ★★★

4. The Downtown Internet Café, which you helped get off the ground, is an overwhelming success. The clientele is growing every day, as is the demand for the beverages the café serves. Up until now, the information about the vendors has been kept in an alphabetical card file. This has become quite unwieldy, however, and Evan, the owner, would like a more sophisticated tracking system. He would like you to create a database containing each supply item and the contact information for the vendor that sells that item. When you are finished, your database tables should be similar to those shown here.



Suppliers 10/12/2012

ID	Vendor	Contact First Name	Contact Last Name	Business Phone	E-mail
1	Cuppa Jo	Leila	Brooks	(502) 555-1090	Leila.Brooks@cuppajo.com
2	Natural Nectars	Estrella	Ramirez	(206) 555-4986	estrella@nnectar.com
3	Tea Time	Audry	Chischillie	(206) 555-4001	ac@teatime.com
4	Paper Products etc.	Student	Name	(206) 555-9999	Studentname@paperproduc



Stock 10/12/2012

Item	Description	Vendor	
197	Café Mocha	Cuppa Jo	(0)
198	Mango Strawberry Flavoring	Natural Nectars	(1)
199	Chamomile Tea Leaves	Tea Time	(0)
200	Napkins	Paper Products etc.	(0)

LAB EXERCISES

a. Create a blank database named Cafe Inventory
b. Design a table with the field names **Item** and **Description**
c. Switch to Design view. Save the table as **Stock**
d. Delete the ID field. Make Item the primary key field.
e. Add the following information to the field properties:

Field Name	Data Type	Description	Field Size
Item	Text	Unique three-digit product number	3
Description	Text	Name of product	50

f. Create a second table using the following field names:

Company
First Name
Last Name
Business Phone
E-mail Address

g. Switch to Design view. Save the table as **Suppliers**
h. Edit the field properties as shown here:

Field Name	Data Type	Description	Field Size
Change Company to **Vendor**	Text	Company name of supplier	50
Change First Name to **Contact First Name**	Text		50
Change Last Name to **Contact Last Name**	Text		50
Business Phone	Text	Include the area code in parentheses: (800) 555-5555	15
Change E-mail Address to **E-mail**	Text	E-mail address of contact person	50

i. Enter the following records into the Stock and Suppliers tables:

Stock table		
Record 1	**Record 2**	**Record 3**
197	198	199
Café Mocha	Mango Strawberry Flavoring	Chamomile Tea Leaves

Suppliers table			
Record 1	**Record 2**	**Record 3**	**Record 4**
Cuppa Jo	Natural Nectars	Tea Time	Paper Products etc.
Leila	Estrella	Audry	Enter your first name
Brooks	Ramirez	Chischillie	Enter your last name
(502) 555-1090	(206) 555-4986	(206) 555-4001	(206) 555-9999
lbrooks@cuppajo.com	estrella@nnectar.com	ac@teatime.com	Yourname@paperproducts.com

j. Add the existing field, Vendor, from the Suppliers table as the last field in the Stock table.

k. In the Stock table, select Cuppa Jo as the vendor for the first record, Natural Nectars for the second record, and Tea Time for the third record.

l. In the Suppliers table, edit the record for ID 1 by changing the e-mail address to **Leila.Brooks@cuppajo.com**

m. Add a new attachment data type field to the Stock table. Assign the new field the name and caption of **Picture**. For item number 198 insert the file ac01_Flavoring

n. Add the following new item to the Stock file.

Item:	**200**
Description:	**Napkins**
Vendor:	**Paper Products etc**

o. Adjust the column widths in both tables using Best Fit.

p. Make sure there is a relationship line connecting the Suppliers table ID field to the Stock table Vendor field. Edit the relationship line to enforce referential integrity, and the cascade update and delete options.

q. Preview the Suppliers table. Change to landscape orientation. Change the margins to wide and print the table.

r. Preview the Stock table. Change to landscape orientation. Change the margins to wide and print the table.

s. Close the database. Exit Access.

LAB EXERCISES

KODIAK CONSTRUCTION DATABASE ★★★

5. You have just been hired by Kodiak Paint and Construction to create and maintain a database containing information about their clients and jobs. The company has grown rapidly, and they need ready access to information about jobs spread across the city. When you are finished, your tables should be similar to those shown here.

Cars 10/12/2012

Member #	Car Year	Car Model	Photo
1	1974	Chevy Corvette	(1)
2	1955	Chevy Bel Air	(0)
4	1970	Dodge Charger	(0)
5	2012	student's favorite car	(1)

Foremen 12/3/2012

ID	Foreman First Name	Foreman Last Name	Mobile Phone	
1	Jonathan	Hedly	(303) 555-1480	(0)
2	Hector	Valdez	(303) 555-4677	(1)
3	Bob	England	(303) 555-3213	(0)
4	Ricky	Pisano	(303) 555-4438	(0)
5	Student	Name	(303) 555-2712	(0)

Clients 12/3/2012

ID	First Name	Last Name	Address	City	State	ZIP Code	Business Phone
1	Joe	Bortle	20032 W. 13th Place	Lakewood	CO	80215	(303) 555-1232
2	Timothy	McGhee	135 Mountain Peak Rd.	Aurora	CO	80011	(303) 555-4922
3	Charlotte	Foss	39 Avery Rd.	Denver	CO	80012	(303) 555-2525
4	Miguel	Sanchez	7218 N. Crestview St.	Glendale	CO	80246	(303) 555-0932
5	Alan	Chang	82 Pine Lane	Denver	CO	80002	(303) 555-0048

a. Create a blank database named Kodiak Construction. Design a table using the following field names:

Project Name

Begin Date

End Date

b. Add the following additional fields to the table.

Field Name	Type
Job Description	Memo
Job Location	Text
Job Estimate	Currency

c. Save the table as **Jobs**. Switch to Design view.

d. Change the Project Name field name to **Job**. Delete the End Date field. Add field descriptions and make the changes to the field properties shown in the following table:

Field Name	Data Type	Description	Field Size	Format
ID	Text	Unique three-digit job ID	3	
Job		Project Name	75	
Begin Date				Short date
Job Description		Brief description of project		
Job Location	Text	Enter city only	25	

e. Enter the following records into the table:

Record 1	Record 2	Record 3	Record 4	Record 5
034	062	010	053	112
Summit Lakes	Sandalwood Villa	Ridgeline Condos	R Bar C Ranch	Williams Retreat
4/13/2008	9/15/2008	2/18/2008	7/18/2008	12/13/2008
Remodel golf club	Remodel restaurant	New construction of 75 condo units	Private home guest addition	New construction
Denver	Aurora	Aurora	Glendale	Golden
1,200,000	750,000	2,500,000	125,000	925,000

f. Adjust the column widths using Best Fit.

g. Delete the record for the Summit Lakes job.

LAB EXERCISES

h. Create a second table for the client information using the following field names: (Use the Address field model to create the address fields.)

First Name
Last Name
Address
City
State Province
ZIP Postal Code
Business Phone

i. Save the table as **Clients**

j. Add field descriptions and make the changes to the field properties shown in the following table:

Field Name	Data Type	Description	Field Size
First Name	Text	First name of client	25
Last Name	Text	Last name of client	25
Address		Mailing address	50
City	Text		50
Change State Province to **State**		Use two-character abbreviation	2
Change ZIP Postal Code to **ZIP Code**		Enter 10 digit code, if available	10
Business Phone	Text	Enter phone as (###) ###-####	14

k. Add the following client information:

	Record 1	Record 2	Record 3	Record 4	Record 5
First Name	Joe	Timothy	Charlotte	Miguel	Alan
Last Name	Bortle	McGhee	Foss	Sanchez	Chang
Address	20032 W. 13th Place	135 Mountain Peak Rd.	39 Avery Rd.	7218 N. Crestview St.	82 Pine Lane
City	Lakewood	Aurora	Denver	Glendale	Denver
State	CO	CO	CO	CO	CO
ZIP Code	80215	80011	80012	80246	80002
Business Phone	(303) 555-1232	(303) 555-4922	(303) 555-2525	(303) 555-0932	(303) 555-0048

l. Create a third table for the foreman information with the following fields:

Field Name	Data Type	Description	Field Size
Foreman First Name	Text		25
Foreman Last Name	Text		25
Mobile Phone	Text	Enter phone as (###) ###-####	14
Picture	Attachment	Photo of foreman	

m. Save the table as **Foremen**

n. Enter the following information for the five foremen.

Jonathan Hedly	Hector Valdez	Bob England	Ricky Pisano	Your Name
(303) 555-1480	(303) 555-4677	(303) 555-3213	(303) 555-4438	(303) 555-2712

o. Add the file ac01_Valdez to the Attachment field for Hector Valdez.

p. Create a new field in the Jobs table that matches the Foreman Last Name from the Foreman table. Place the field after the Begin Date field. Use the field name **Foreman Last Name**

q. Enter the following foremen for each job:

Job	Foreman
010	Pisano
053	England
062	Your Name
112	Valdez

r. Create a field that matches the Last Name from the Client table after the Job field in the Jobs table. Rename the field **Client Last Name**

s. Enter the following clients for each job:

Job	Client
010	Foss
053	Sanchez
062	McGhee
112	Bortle

t. Establish relationships between tables: create a relationship between the Client Last Name field of the Client table and the Client Last Name field of the Jobs table; create another relationship between the Foreman Last Name field of the Foremen table and the Foreman Last Name field of the Jobs table.

u. Best Fit all fields in all tables.

v. Preview and print the Jobs table in landscape orientation with normal margins. Print the Foremen table in portrait orientation with wide margins. Print the Client table in landscape orientation with wide margins.

w. Save and close all tables and exit Access.

LAB EXERCISES

ON YOUR OWN

MUSIC COLLECTION DATABASE ★

1. You have just purchased a 200-disc CD carousel, and now you would like to organize and catalog your CDs. You realize that without an updatable list, it will be difficult to maintain an accurate list of what is in the changer. To get the most out of your new purchase, you decide a database is in order. Create a new database called Music Collection and a table called **CD Catalogue**. The table you create should include Artist's Name, Album Title, Genre, and Position Number fields. Make the Position Number field the primary key (because you may have multiple CDs by a given artist). Enter at least 15 records. Include an entry that has your name as the artist. Preview and print the table when you are finished.

VALLEY VIEW NEWSLETTER ADVERTISING DATABASE ★

2. Your homeowner's association distributes a monthly newsletter, *Valley View News,* to keep residents up to date with neighborhood news. In the past year, there has been rapid growth in building, including more houses and small office complexes. There are also plans to build an elementary school, fire station, and shopping center in the community. Consequently, the newsletter is now the size of a small newspaper, and the homeowners' dues are not covering the expense of publishing it.

   The editorial staff has already begun selling ad space in the newsletter to local businesses, and, based on your background in database management, they have asked you to set up a database to keep track of the advertiser contact information. You agree to design such a database, called Valley View News, and tell them you will have something to show them at the next meeting. Your finished database should include each advertiser's billing number, business name and address, and contact name and phone number in a table named **Advertisers**. Enter 10 records and include a record that has your name as the contact name. Preview and print the table when you are finished.

PATIENT DATABASE ★

3. You are the manager of a newly opened dental office. As one of your first projects, you need to create a patient database. Create a database called Dental Patients and a table named **Patient Information**. The database table you set up should contain patient identification numbers, last and first names, addresses, and phone numbers. Also include a field named "Referred by" and another field named "Patient since." Use appropriate field sizes and make the ID number field the primary key. Enter at least 10 records, adjusting the column widths as necessary. Include a record that contains your name as the patient. Preview and print the table.

OLD WATCH DATABASE USING THE WEB ★★

4. You have a small online business, Timeless Treasures, that locates and sells vintage wrist and pocket watches. Your business and inventory have grown large enough now that you have decided to use a database to track your inventory. Create a simple database named Timeless Treasures with a table named **Watches** that contains identification numbers, manufacturer (Waltham, Hamilton, Melrose), category (pocket watch, wrist watch), description, price, and quantity on hand. Size the fields appropriately and assign a primary key to one of them. Enter at least 10 records in the table. To obtain data about watches to include in your table, do a Web search on "old watches." Use the information you locate to complete the data for the records in your table. Adjust column widths as necessary. Include your name as the manufacturer in one of the records. Preview and print the table.

EXPENSE TRACKING DATABASE ★★★

5. You work in the accounting department at a start-up company called AMP Enterprises. One of your duties is to reimburse employees for small, company-related expenses, which up until now has been a simple task of having the employees fill out a form that they submit to you for payment. You then cut checks for them that are charged to the general expense fund of the company. However, the company has grown tremendously in the last year, adding employees and departments at a rapid rate, and the executive team has decided that it is time to start managing the income and expenses on a much more detailed level. To this end, you need to create a database that includes the employee ID, employee name, submission date, expense type, and expense amount for each expense report that is turned in. Name the database AMP Enterprises. Create two tables, one for the employee information named **Employee Info** and the other for employee expenses named **Employee Expenses**. Include the Employee ID, First Name, and Last Name fields in the Employee Info table. Include the Employee ID, Submission Date, Expense Type, and Expense Amount fields in the Employee Expenses table. Use the Currency data type for the Expense Amount field, and appropriate data types for all other fields. Size the fields appropriately. Delete the ID field from the Employee Info table and make the Employee ID field the primary key. Enter at least 15 records. Adjust the column widths as necessary. Delete one of the records you just entered, and then edit one of the remaining records so it contains your name as the employee. Enter 10 records in the Employee Expenses table (one should be an expense record for the record containing your name). Preview and print both tables.