PLUG-IN

T6

Basic Skills and Tools Using Access

LEARNING OUTCOMES

1. Describe the primary functions using Microsoft Access.
2. Describe the steps for creating a new database file using Microsoft Access.
3. Describe the steps for creating and modifying a table and fields using Microsoft Access.
4. Describe the steps for creating relationships between tables using Microsoft Access.

Introduction to Access

Microsoft Access is a powerful database program that allows you to enter and organize large amounts of data. Because Access allows you to relate tables and databases to one another, it is often referred to as a *relational database*. Plug-In T5, "Designing Database Applications," explains relational databases and their structures in detail.

This plug-in introduces the basics of creating a database using Microsoft Access. It is designed to show you the essentials, along with a few added-value features, to get you off to a good start using the program. However, you should review the CD, *MISource*, which accompanies this text for additional material, animated tutorials, and simulated practice files that go beyond what we cover in the text. Figure T6.1 displays all the tasks and lessons that are provided on the MISource CD.

In brief, a relational database is a group of tables related to one another by common fields. A *table* (or datasheet) looks similar to a spreadsheet. Each *row* in the table contains all the data for a single *record*. Each *column* in the table represents a specific data value called a *field*. All records have the same fields. For example, a table called *EMPLOYEE* might include fields for *Employee ID*, *Last Name*, *First Name*, *Address*, *City*, *State*, and *ZIP Code*. Another table called *TIME SHEET* might have fields for *Time sheet Number*, *Employee ID*, *Week*, *Hours Worked*, and *Rate of Pay*. The two tables are related by the *Employee ID* field, so the database can generate reports combining information from the two tables. Figure T6.2 displays this relationship.

Access comes with templates for common database categories, including project planning, employee time sheets, expense reporting, and inventory management.

MISource CD Microsoft Access Lessons

Introduction to Access
- Introduction to Access 2003
- Opening an existing database
- Creating a new blank database
- Using the database wizard
- Using table views using form views using report views
- Using navigation controls in tables
- Using navigation controls in forms
- Changing datasheet column widths
- Changing the look of a datasheet
- Hiding and unhiding columns in a datasheet

Defining Relationships
- Using the relationships window
- Enforcing referential integrity

Creating and Modifying Tables
- Creating a table with the table design wizard
- Creating a table using data entry
- Creating a table in design view
- Setting the primary key
- Changing data types
- Saving the table
- Using the input mask wizard
- Adding a lookup field to a table using the lookup wizard
- Modifying field properties in design view
- Using the format property

Producing Reports
- Using the report wizard
- Using autoreports
- Modifying the report design
- Changing margins and page orientation for reports
- Adding controls to the report
- Adding a calculated control to a report section
- Previewing and printing a report

Creating and Modifying Queries
- Using the simple query wizard
- Reordering columns in the select query datasheet
- Creating a select query in design view
- Adding selection criteria to a select query
- Sorting data in a select query
- Adding a calculated field to a query
- Using the expression builder
- Using aggregate functions to calculate totals in queries
- Using aggregate values in calculated fields
- Formatting results displayed in a calculated field
- Using the crosstab query wizard
- Using the find duplicates query wizard
- Using the find unmatched query wizard

Integrating with Other Applications
- Importing objects from another database
- Importing data from Excel
- Importing data from Outlook
- Exporting data from a table or query
- Using the page wizard to create a data Access page

(Continued)

| MISource CD Microsoft Access Lessons	
Creating and Modifying Forms ■ Creating a form using the form wizard ■ Creating and saving auto forms ■ Modifying the properties of a form ■ Modifying specific controls on a form ■ Aligning controls in a form ■ Adding form headers and footers ■ Adding page headers and footers to a form	**Managing Databases** ■ Identifying object dependencies ■ Printing database objects and data ■ Backing up a database ■ Using compact and repair
Viewing and Organizing Information ■ Entering records into a table ■ Entering records using a form ■ Editing records in a table ■ Deleting records in a table ■ Using find and replace ■ Using undo ■ Sorting records in a datasheet ■ Filtering by selection ■ Filtering by form	
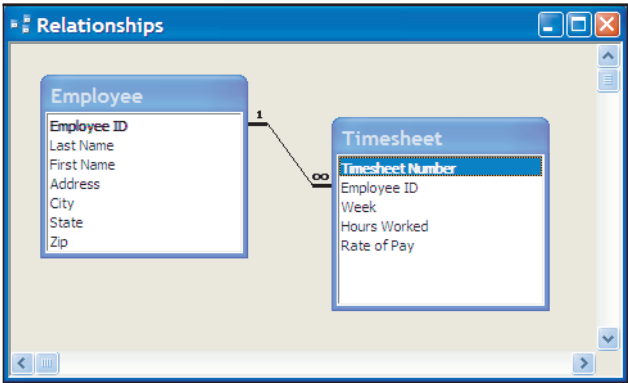
FIGURE T6.2

Database Relationship Example

An Access database includes more than just data. In addition to tables, an Access database file contains several different types of database objects:

■ Saved queries for retrieving and organizing data.

■ Forms for entering and displaying data on screen.

■ Reports for printing table data or the results of queries.

This plug-in focuses on creating an Access database file, in addition to building tables, fields, attributes and relationships. Plug-In T7, "Problem Solving Using Access," concentrates on building queries, and Plug-In T8, "Decision Making Using Access." spotlights forms and reports.

CREATING A NEW BLANK DATABASE

To start a new database using Microsoft Access, click the **Blank Database** option in the New File task pane. The first thing you do is name your database. In Access, the database file cannot be moved to another disk or folder using the *Save As* command, so be sure to save the database to the preferred location when you start. (You can always move the database later using Windows Explorer.)

To create a blank database, follow these steps:

1. If the New File task pane (illustrated in Figure T6.3) is not visible, show it by clicking the **New** toolbar button, selecting **File**, **New**, or pressing **Ctrl + N**.

2. Click the **Blank Database** command in the New area of the New File task pane.

3. Select a location to save the file and enter **Slopeside Bikes** for the database file name in the File New Database dialog box.
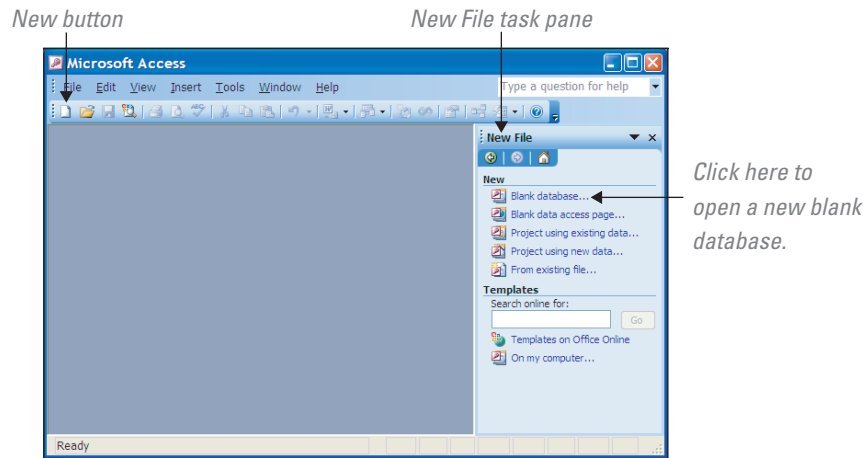
New button   *New File task pane*

*Click here to
open a new blank
database.*

4. Access will save the new, blank database in the specified database file (which will have the .mdb extension), and it will open the Database window within the main Access window.

OPENING AN EXISTING DATABASE

When you start Access, the task pane lists the most recently opened databases. To open a database that is not listed in the task pane, use the Open command. To open a database (refer to Figure T6.4):

1. Click the **Open** toolbar button.
2. If necessary, from the *Look-in:* drop-down list, select the drive or location where the database is stored.
3. If necessary, open the appropriate folder.
4. Double-click the name of the database to open it, or click the **name** of the database once to highlight it, then click the **Open** button.

USING THE DATABASE WIZARD

Access includes a variety of templates to help you get started with some of the most common types of databases.

Templates include databases to manage contacts, expenses, and inventory. Once you select a template, the Wizard will ask you a series of questions about your data to tailor the template to your specific needs. When the Wizard is finished, you will have an empty database structure into which you can enter data. Here is an overview on how to create a new database using the Database Wizard (refer to Figure T6.5):

1. Click the **On my computer...** link in the Templates section of the New File task pane.
2. If necessary, click the **Databases tab**.
3. Click an **icon** to select a template, then click **OK**.
4. Type a **file name** for your database.
5. Read each screen carefully. Click **Next** to go to the next step.
6. The first step will present you with a list of tables that will be in your database. Some tables have optional
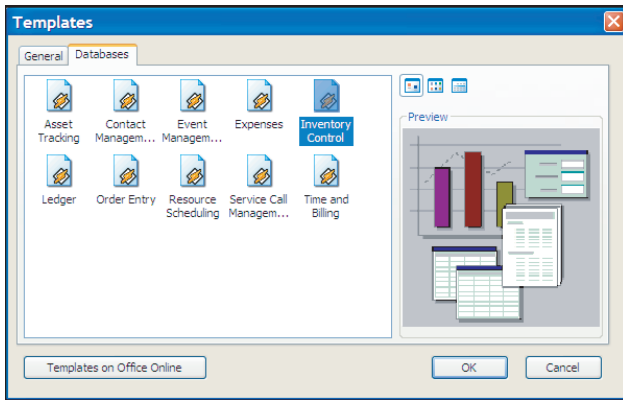
Double-click file name to open.

*…or select the file name and
click the Open button.*
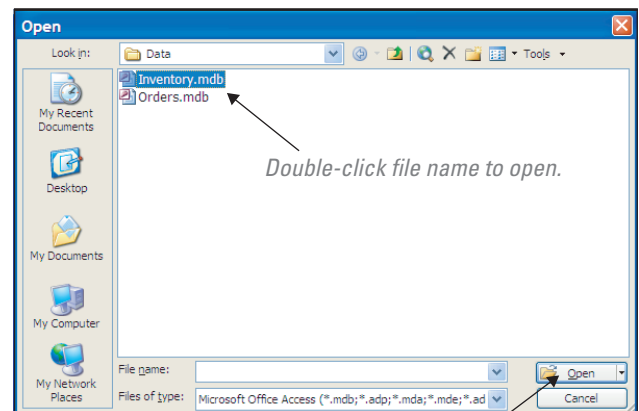
fields. To add a field, click the **check box** in front of the field name. If you change your mind and want to remove a field from your database, click the check box to remove the checkmark.

7. Next, you will select a **graphic style** for screen display and **another style** for printed reports.

8. Finally, you will give the database a **title** and build the database.
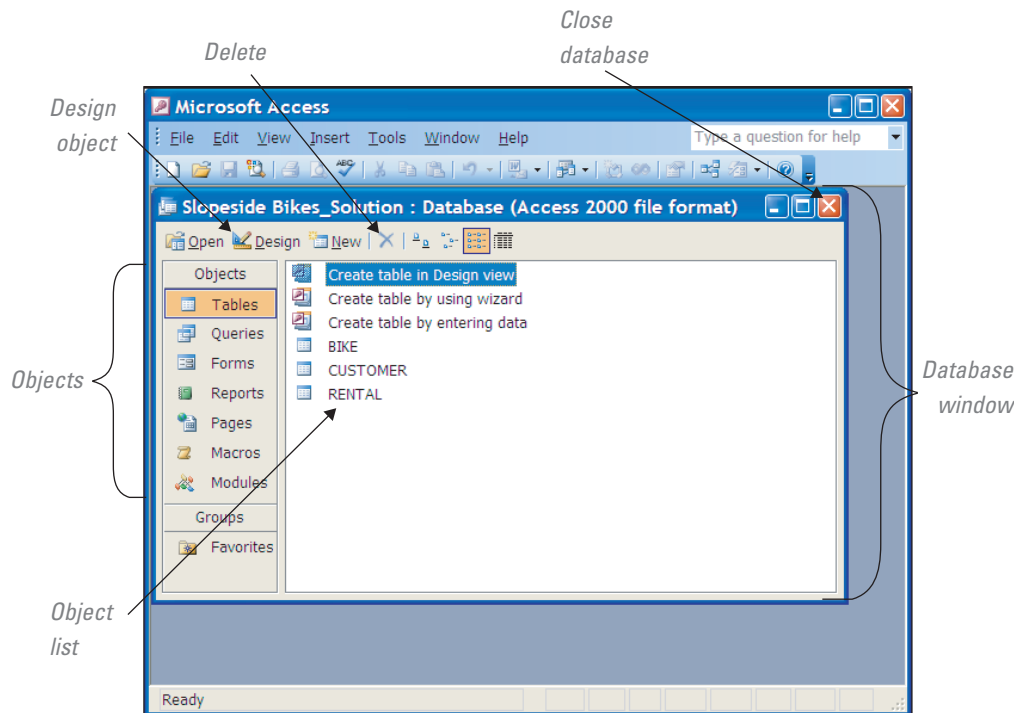
USING THE DATABASE WINDOW AND OBJECT VIEWS

Whenever a database is open, Access displays the Database window (shown in Figure T6.6), which serves as the central location for working with the database objects (tables, queries, forms, reports, etc.) in the opened database.

The following are among the important ways to work with database objects using the Database window:

■ *To work with a particular type of database object,* click the corresponding button in the left column of the Database window—Tables, Queries, Forms, Reports, Pages, and so on.

■ *To view a database object,* select it and then click the **Open** button in the Database window, or just double-click the object.

■ *To change the design of a database object,* select it and click the **Design View** button.

■ *To create a new database object* of the type currently displayed in the Database window, click the **New** button to open the New Object dialog box (New Table, New Query, New Form, New Report, or New Data Access page). The New Object dialog box will display a list of all the ways to create a new database object (the list varies according to the type of object that is being created).

- *To make a copy of a database object,* **right-click** it and choose **Copy** from the shortcut menu. Then right-click a blank spot in the Database window and choose Paste from the shortcut menu.
- *To rename a database object,* select it and **press F2**.
- *To delete a database object,* select it and press the **Delete key** or click the **Delete button** in the Database window.
- *To close the current database,* together with the Database window, click the **Close button** in the upper-right corner of the window.

USING TABLE VIEWS

You can open database objects in different views, depending on what you want to do. *Datasheet view* is the view to use when entering data (See Figure T6.7). Use *Design view* when you want to change the structure or properties of the table. To open a table from the Database window:

1. In the Database window, click **Tables** on the Objects bar to display your list of tables.
2. To automatically open a table in Datasheet View, double-click the **name** of the table. This is the Datasheet view where you can enter data in the table.
3. To change to Design view, click the **View** button on the toolbar (refer to Figure T6.7). In Design view, you can add or remove fields or change field properties.
4. To switch back to Datasheet view, click the **View** button again.

Creating and Modifying Tables

Access gives you several different ways to create tables:

- Create a table with the Table Design Wizard.
- Create a table using data entry.
- Create a table in Design view.

CREATING A TABLE WITH THE TABLE DESIGN WIZARD

Beginning a new database can be daunting. To make it easier, Access offers a wide variety of sample tables. Rather than creating your first table from scratch, try using the Table Design Wizard.
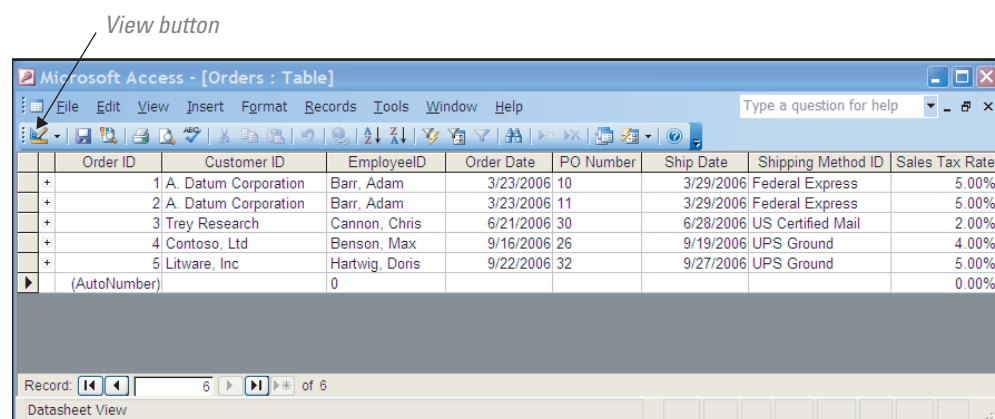
View button
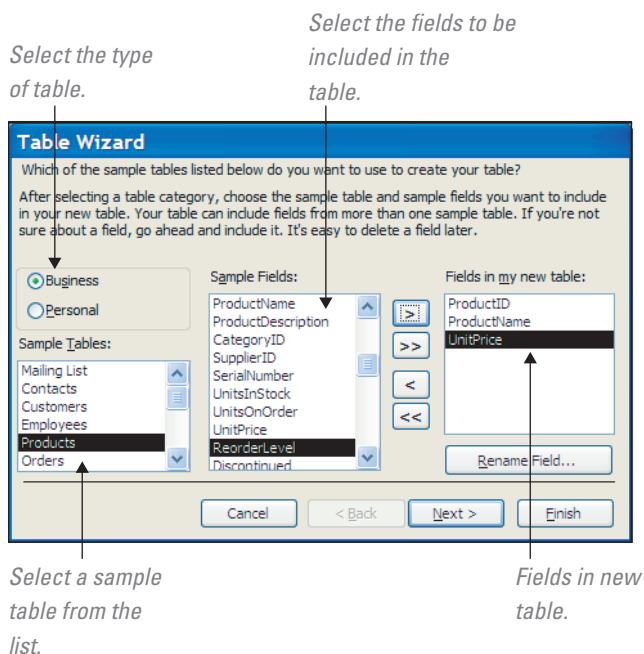

FIGURE T6.7

Datasheet View

FIGURE T6.8

Create a Table By Using Wizard

To create a table using the Table Design Wizard (see Figure T6.8):

1. Double-click **Create table by using wizard** in the Tables window.
2. Select the **type of table** you need: business or personal.
3. Select the **Sample Table** that best fits your needs.
4. Select the **fields** from the sample that you want to include in your table.
5. Give your Table a meaningful **name**, such as **CUSTOMER**.
6. Allow Access to set the **Primary Key**.
7. Select what you want to do next: modify the table design, enter data in Datasheet view, or create a data entry form based on the table you just created.
8. Click the **Finish** button to end the wizard and finalize your table.

CREATING A TABLE USING DATA ENTRY

Sometimes you need to create a very simple table. In this case, the data entry method might be easiest. A new table created with the data entry method appears as a plain datasheet. Fields are named Field1, Field2, Field3, etc., until you rename them. To create a table using the data entry method (refer to Figure T6.9):

1. If necessary, click **Tables** in the Objects bar.
2. Double-click **Create table by entering data**.
3. The new table appears and is ready for data entry.
4. Rename the fields that you are going to use by double-clicking the **column name** (Field1, Field2, etc.) and typing the new **name** (First Name, Last Name, etc.).
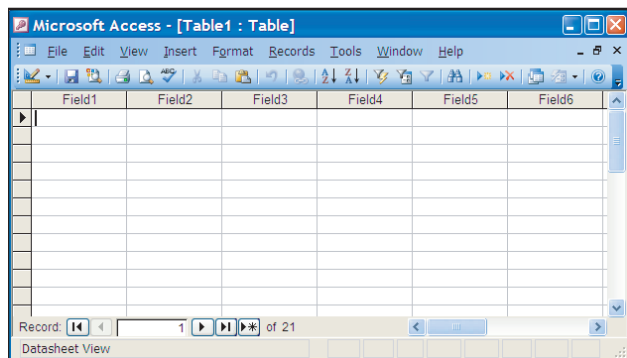
CREATING A TABLE IN DESIGN VIEW

Sometimes the Table Design Wizard does not offer a sample that fits your needs. In this case, you might want to design your table using Design view. In this next step, you will be using the Slopeside Bikes database that you created in the "Creating a New Blank Database" section to use for many of the remaining steps in this plug-in. To create a table using Design view, follow these steps:

1. In the left column of the Database window, make sure that the **Tables** object is selected.

FIGURE T6.9

Create a Table By Entering Data

2. Click **Design** on the Database dialog box.
3. Create fields for the following (see Figure T6.10):
   a. Field Name = BikeID, Data Type = Number, Field Size = Long Integer, and make the BikeID the Primary Key
   b. Field Name = Description, Data Type = Text, Field Size = 25, Required = Yes
   c. Field Name = CostPerHour, Data Type = Currency, Required = Yes

Note: Designate a primary key. The *primary key* consists of one or more fields that Access can use to uniquely

identify the records contained within the table. A table must have a primary key if it is on the "one" side of a one-to-many relationship, as explained in Plug-In T5.

When a single field is designated as the primary key, the field's *Indexed* property is automatically set to *Yes (No Duplicates)*. This setting cannot be changed. When data in a record are entered or modified, Access will not allow a primary key field to be left blank.

To designate a field, or a group of fields, as the primary key, select the field or fields in the field list and choose **Edit**, **Primary Key** or click the **Primary Key button** on the toolbar. Access will mark the primary key field(s) with a key icon, as shown in Figure T6.11. To remove the primary key designation from a field, select it and choose the Primary Key command or click the Primary Key toolbar button again.
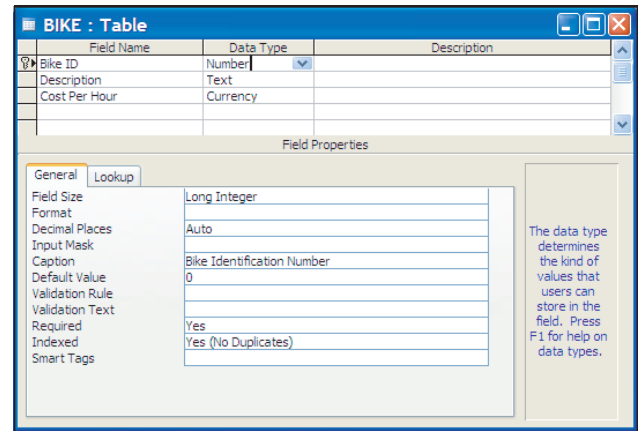

FIGURE T6.10

Bike Table

4. **Close** the Table dialog box, and click **Yes** to Save the changes. Enter **BIKE** as the Table name.

5. Create fields for each entry in Figure T6.12, using field sizes and descriptions as appropriate. Remember to set the **primary key** and that the **Required** property is set to **Yes** as appropriate.

6. **Close** the Table dialog box, and click **Yes** to Save the changes. Enter **CUSTOMER** as the Table name.

7. Create fields for each entry in Figure T6.13, using field sizes and descriptions as appropriate. Since there are three primary keys in this scenario (each acts as a composite key comprised as one primary key), make sure all three (*Drivers License*, *Date*, and *Bike ID*) are selected by holding down the **CTRL** key when clicking each field, then select the **Primary Key** button on the toolbar.

8. **Close** the Tables dialog box, and click **Yes** to Save the changes. Enter **RENTAL** for the Table name.
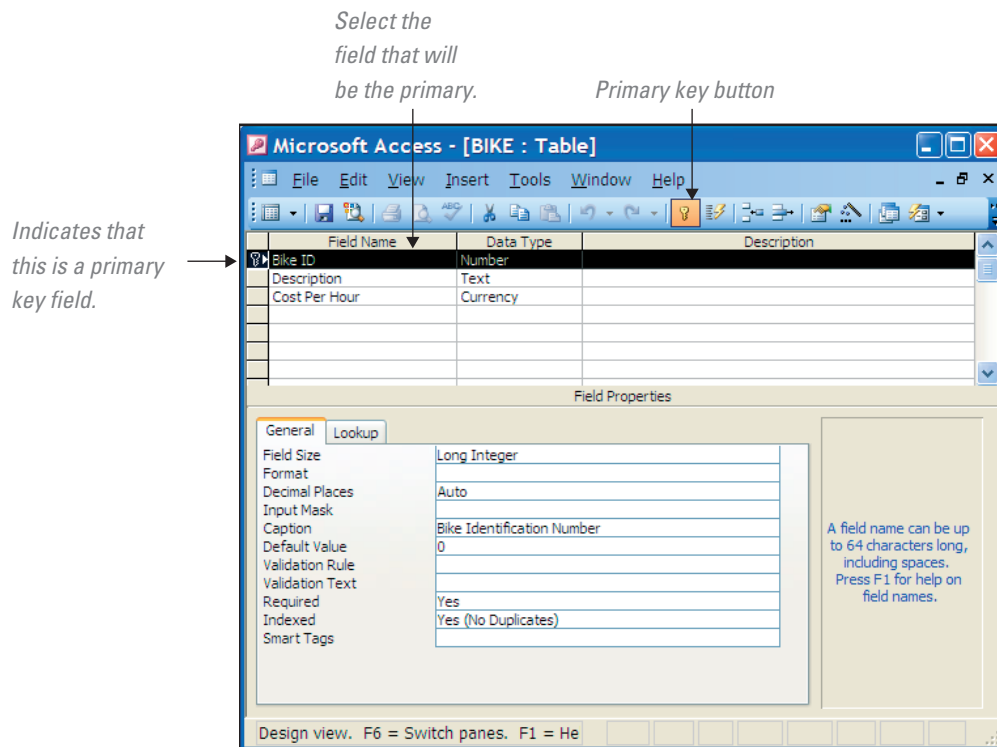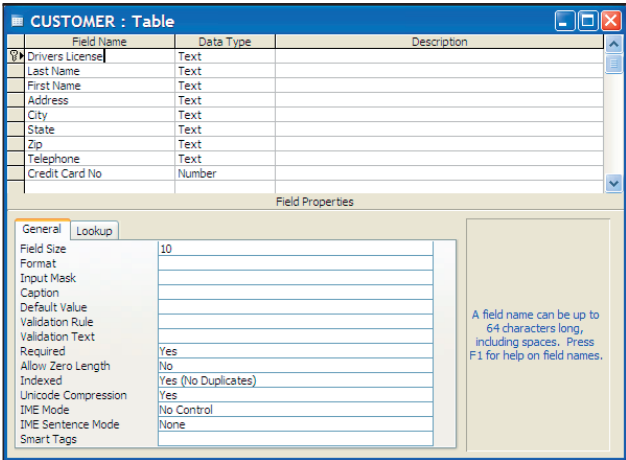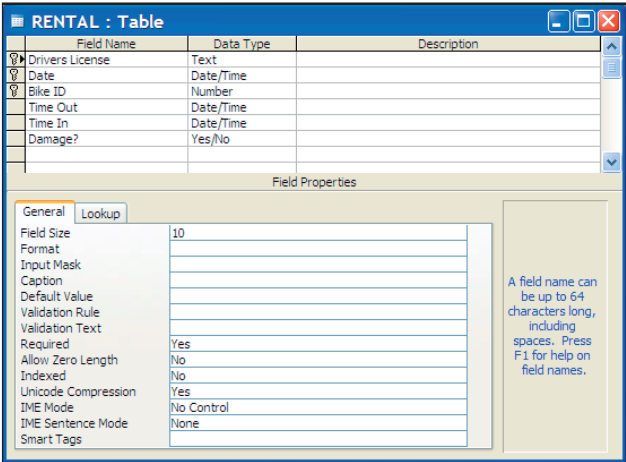
FIGURE T6.11

Setting the Primary Key

All three fields act as a primary key field.

CHANGING DATA TYPES

By default, the data type for a new field is text. You can change the data type to number, AutoNumber, Date/Time, Currency, or one of the other options available. Specifying the appropriate data type for a field is crucial to designing a useful database. For example, you cannot run calculations on a field with the text field type, and you cannot sort a date field efficiently unless you use the date/time field type.

Carefully consider the type of data you will include in each field before you decide on the data type. To change the data type for a field:

1. **Open** the table in Design view.
2. Click the **data type** for the field that you want to change.
3. Click the **drop-down** arrow to see the list of available data types.
4. Select the appropriate **data type** for your data (see Figure T6.14).

USING THE INPUT MASK WIZARD

To ensure that users enter data in a particular format, use the *Input Mask* property. Rather than typing the mask format yourself, Access has a wizard that offers samples of the most common data formats. To use the Input Mask Wizard (see Figure T6.15):

1. Open the **CUSTOMER** table in Design view.
2. Click the **Telephone** field.
3. Click the **Input Mask** box in the Field Properties pane.

Data Types	
Text	Any field that does not fit criteria for one of the other data types. This includes not only text, but also formatted numbers like ZIP codes and phone numbers.
Memo	Text descriptions longer than 255 characters.
Number	Quantities; values that will have mathematical calculations performed on them.
Date/Time	Dates and times. There are a variety of date and time formats to choose from. Although you can enter dates and times as text data types, you must use the date/time data type if you want to sort the values.
Currency	Money amounts. Choose from a variety of currency formats. You can perform mathematical calculations on currency values.
AutoNumber	Primary Keys or other ID fields.
Yes/No	Fields to which there is only a yes or no response.
OLE Object	Pictures or other graphics. Links to other files such as Word or Excel documents.
Hyperlink	E-mail or Web site addresses.
Lookup Wizard...	Limits the data in the field to values in a list (either from another table or from a list that you create).

FIGURE **T6.14**

Data Types

4. Click the **Input Mask Wizard** build button (the **...** ellipse button).
5. If you need to save the table, Access will prompt you to do so now.
6. Select the **Phone Number** under the Input Mask column.
7. Click the **Next** button to continue.
8. In this step, you can modify the input mask or change the placeholder character. To change the placeholder character, click the **drop-down** arrow and select the **character** you want. You can test the new format by typing in the *Try It:* box.
9. Finally, choose how you want to store the data. Click the **With the symbols in the mask, like this:** radio button
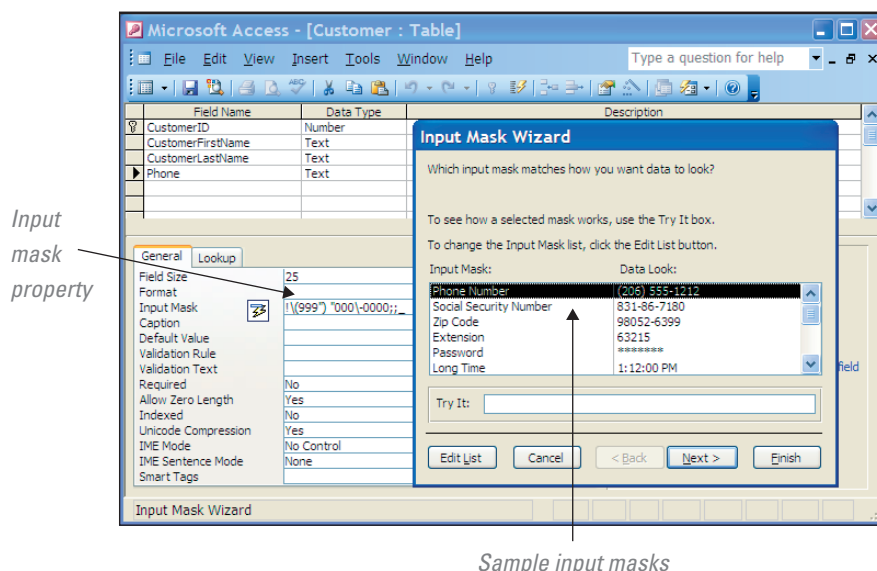

FIGURE **T6.15**

Input Mask Wizard

Input mask property

Sample input masks

10. Click **Next** to go to the last step.

11. Click **Finish** to complete the input mask.

USING THE FORMAT PROPERTY

Use the format property to ensure that data are entered in a consistent format. You can choose from predefined formats or design your own. To select a predefined format or enter a custom text format (see Figure T6.16):

1. Open the **BIKE** table in Design view.

2. Click the **Cost Per Hour** field.

3. Click the Format **drop-down arrow** to display the list of predefined formats. Refer back to Figure T6.14 for a list of the data formats.

4. Select the **Currency** format.

5. **Close** the BIKE table window.

Note: You can include Autotext in your custom text formats. For example, if you are entering apartment numbers, you could use the format "Apt. " @-@. Entering the value B1 will display Apt. B-1. Placing quotation marks around "Apt. " tells Access that this is a text string that should be included automatically in each data entry. Notice the space inside the quotation marks to ensure that a space will display between "Apt." and the apartment number. Using this text format will save data entry time. Figure T6.17 displays the different data formats used in Access.
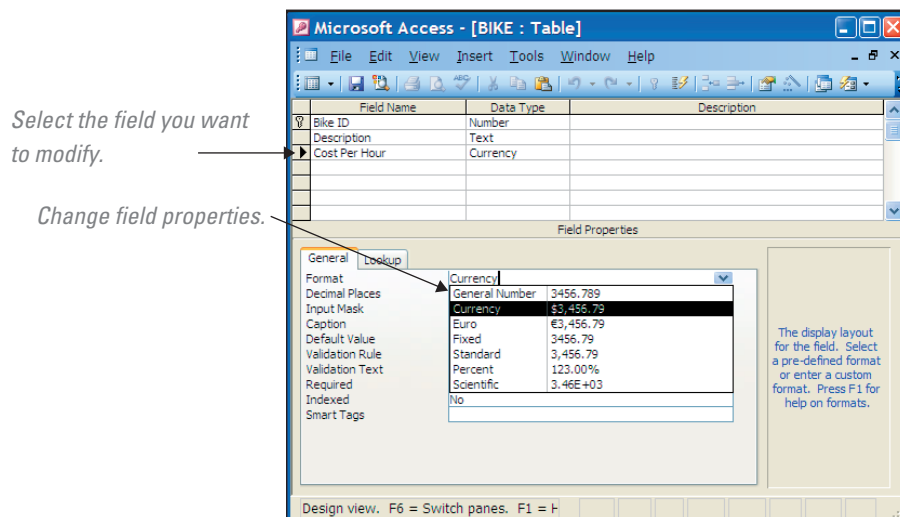
Defining Relationships

Remember that Access is a relational database. Objects in your database are related to one another through relationships defined by common fields between tables. There are three types of relationships: one-to-many, one-to-one, and many-to-many.

One-to-many relationships are the most common. In a one-to-many relationship, the primary table contains a primary key field that is included as a field (as a foreign key) in the secondary table. Thus, one record in the first table can relate to many records in the second table.

When these fields have the same names, Access automatically creates the one-to-many relationship for you. However, the fields may have different names. In those cases, you may want to manually create the relationship using the Relationships window.

FIGURE T6.16

Format Property

Select the field you want to modify.

Change field properties.

Text Formats		
<	Forces text to lowercase.	Type: Leash, Extra Long Display: leash, extra long
>	Forces text to uppercase.	Type: ca Display: CA
@	Requires character entry or space.	Example: Use for a text field that must always have the same number of characters (like a Social Security number) @@@-@@-@@@@.
@;none	Controls what value is shown.	Displays value entered; if no value entered, displays "none."
Number/Currency Formats		
General Number	Displays the number as entered. Example: 24000	
Currency	Uses the currency format specified in your Windows Regional Settings, including the comma separator and currency symbol. Example: $24,000.00	
Euro	Uses the standard currency format with the euro symbol. Example: €24,000.00	
Fixed	Uses the number format specified in your Windows Regional Settings. Displays at least one digit. Example: 24000.00	
Standard	Uses the number format specified in your Windows Regional Settings, including the comma thousands separator. Example: 24,000.00	
Percent	Multiplies the value by 100 and adds % symbol. Enter: .03 Displays 3%	
Scientific	Converts the number to scientific notation. Example: 24E+3	

USING THE RELATIONSHIPS WINDOW

To define relationships between tables follow these steps:

1. Open the Relationships window by choosing **Tools**, **Relationships** or, if the Database window is active, by clicking the **Relationships** button on the toolbar (refer to Figure T6.18).
2. The Show Table dialog box appears. Select each table listed (i.e., **BIKE**, **CUSTOMER,** and **RENTAL**) and click the **Add** button, then click the **Close** button.
3. To define a new relationship, click and drag the **Bike ID** from the **BIKE** table and drop it on the **Bike ID** in the **RENTAL** table. Click the **Create** button in the Edit Relationships dialog box that Access shows (see Figure T6.19). Make sure the
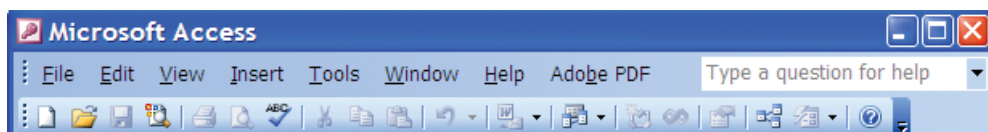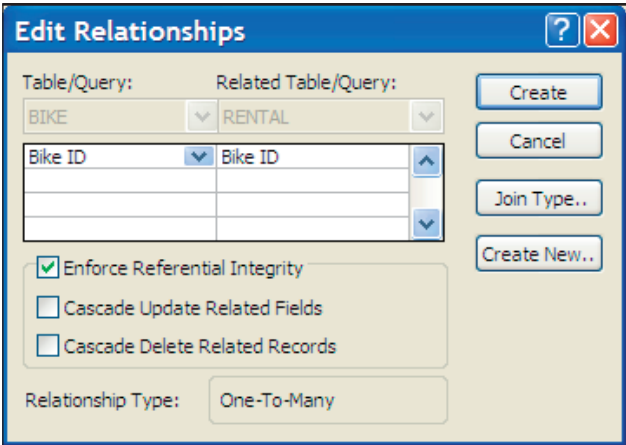
Table names and field names are the correct ones being linked. Select the **Enforce Referential Integrity** box (refer to Figure T6.19). Note that related fields do not need to have the same name, only the same data type (although it is best to give the same name to clarify the relationship).

    a. To change the features of a relationship, double-click the relationship's line in the Relationships window.

    b. To delete a relationship, click the line to select it and then press the **Delete** key.

4. Complete the diagram with the Relationships shown in Figure T6.20.

5. Close the Relationships window, and **Save** the layout.

Notice the change to the relationship line. The "1" indicates the "one" table in the one-to-many relationship. The "infinity symbol" indicates the "many" table. When these symbols appear, you know that the relationship has referential integrity enforced.
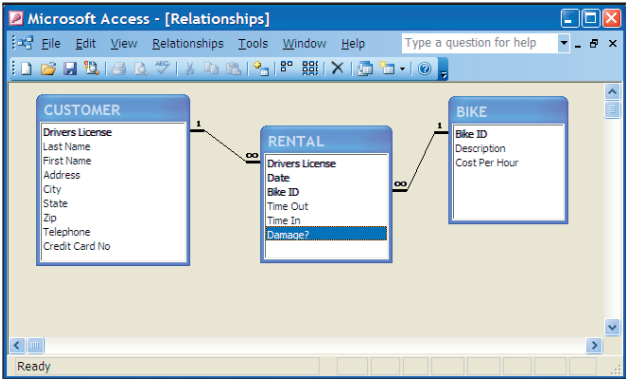
M ost organizations maintain and manage large amounts of information. One of the most efficient information management computer-based applications is Microsoft Access. Access provides a powerful set of tools for creating and maintaining a relational database. A few of the basic modules that most users utilize when working with Access are building tables and relationships.

MAKING BUSINESS DECISIONS

1. WasteNot Recycling

WasteNot Recycling picks up recyclables from homeowners in Boulder, Colorado. Neighborhoods subscribe to the service so that pickup is cost-effective. WasteNot provides special containers to subscribers for sorting recyclables: a blue container for paper products and a purple container for aluminum, plastic, and glass products.

Subscribers place their recycling containers on the curb for biweekly pickup. Each recycling container is weighed before being emptied. WasteNot drivers carry handheld recording devices used to track each pickup. Subscribers receive quarterly profit-sharing checks based on their contributions. If WasteNot does not make a profit, subscribers are not paid for their recyclables. If WasteNot makes a profit, subscribers share in that profit. WasteNot has asked you to help develop a relational database that will effectively track subscribers using the data downloaded from the drivers' devices. WasteNot has provided you with a snapshot of two tables you need to create. The CUSTOMER table listed below

Customer Table

Customer ID	Last Name	First Name	Street	City	State	ZIP Code	Phone	First Pickup
1	Wagoner	Sam	5480 Alpine Street	Boulder	CO	80308	(303) 161-5545	05/25/2004
2	Calahan	Eliza	2140 Edgewood Avenue	Boulder	CO	80308	(303) 886-6003	05/25/2004
3	Lake	James	701 Eastman Road	Boulder	CO	80308	(303) 562-4499	08/25/2005
4	Meadows	Sara	Pond Hill Drive	Boulder	CO	80308	(303) 792-36460	02/28/2004
20	Smith	Alto	114 Lexington Street	Boulder	CO	80308	(303) 838-7111	06/02/2004
64	Monarch	Shiela	431 Phillips Lane	Boulder	CO	80308	(303) 352-4847	07/17/2005
65	Guo	Amy	1935 Snow Avenue	Boulder	CO	80308	(303) 555-6731	05/19/2005
80	Rivera	Juan	482 Weston Avenue	Boulder	CO	80308	(303) 815-2456	12/28/2004
85	Williams	Max	230 Southpark Circle	Boulder	CO	80308	(303) 333-0000	07/19/2003

Customer Record
Table

Customer ID	Srvc Date	Weight Paper	Weight Other
1	11/22/2006	8	15
1	10/15/2006	32	85
1	11/7/2006	12	43
2	11/7/2006	19	0
2	11/22/2006	28	174
3	10/15/2006	5	8
3	11/22/2006	16	32
3	12/4/2006	7	12
20	10/15/2006	18	40
20	11/22/2006	35	60
80	10/15/2006	10	10
80	11/7/2006	9	13
80	11/22/2006	16	18
80	12/4/2006	18	21

will hold static customer information such as name, address, and phone. The CUSTOMER RECORD table holds data about each recyclable pickup.

Specifically, WasteNot needs you to:

1. Create a Microsoft Access database.
2. Create the tables, fields, data types, and primary key(s) for the database.
3. Populate the database with the data provided above.
4. Create the relationship(s) needed between the tables.

2. It's A Grind Coffee Shop

It's A Grind Coffee Shop is an Oakland, California, neighborhood coffee shop. Besides serving gourmet coffee, It's A Grind dishes up sandwiches and desserts. Local bands, Internet connections, and floor-to-ceiling books on every wall provide entertainment. Kate Fitzgerald, the proprietor, has decided that a database would be helpful in the acquisition of new books. Although customers rarely buy books, they do disappear or fall apart from use. Kate needs a way to keep track of what books she has so that she does not pick up duplicates. She has hired you to help design a database to keep track of the books. To assist with the design, Kate has provided you with some data in an Excel spreadsheet, **T6_ItsAGrindCoffee_Data.xls**. The spreadsheet is not normalized; Kate asks you to assist with that before you start to create the database.

Specifically, Kate wants you to:

1. Create a Microsoft Access database.
2. Create the tables, fields, data types, and primary key(s) for the database using the structure provided in the **T6_ItsAGrindCoffee_Data.xls** file.
3. Populate the database with the data provided in the **T6_ItsAGrindCoffee_Data.xls** file.
4. Create the relationship(s) needed between the tables.

3. Academic Software

Launched in 2005 in Boston, Massachusetts, Academic Software has consistently been the fastest-growing, education-focused software retailer in North America. It is committed exclusively to academic customers, offering thousands of full-version software titles at great discounts. Academic Software has partnered with the top technology manufacturers, including Adobe, Microsoft, Sibelius, Sony Media Software, and Wacom, to bring excellent service and prices, which are available only to students, schools, and teachers.

From the very beginning, Academic Software has relied heavily on technology to ensure a positive shopping experience for its customers. The company's philosophy is simple: Hire amazing people, give them the best tools, and help them deliver an unbeatable customer experience.

One facet of Academic Software's business that needs assistance is its database organization. You have been asked to assist Academic Software with creating a relational database structure for organizing software, vendors, and academic categories. Currently this information is stored in an Excel spreadsheet, **T6_AcademicSoftware_Data.xls**, which Academic Software has provided to you.

Specifically, you are asked to:

1. Create a Microsoft Access database.
2. Create the tables, fields, data types, and primary key(s) for the database using the structure provided in the **T6_AcademicSoftware_Data.xls** file.
3. Populate the database with the data provided in the **T6_AcademicSoftware_Data.xls** file.
4. Create the relationship(s) needed between the tables.

4. On-Campus Health

On-Campus Health is the infirmary located on the campus of the University of Denver. Recordkeeping at the infirmary's pharmacy, although meticulous and professional, is inefficient. Maintaining the recordkeeping using mostly manual systems is becoming more costly as additional people are hired to meet stricter industry regulations regarding the Health Insurance Portability and Accountability Act (HIPAA) and because of state regulations that affect the sale, storage, and dispensing of prescription drugs. Although Campus Health succeeded in automating some of the data management for the pharmacy in an Excel spreadsheet, a more substantial change is needed to properly maintain and store data.

Students who use the infirmary can request prescriptions, either by presenting a written order from a doctor or asking for a refill of an existing prescription. The pharmacist adds this request to the system by getting the required information to fill it, including information about the drug, the student's name, the student's health plan, and the prescribing doctor. Use the data that Campus Health has provided you in the file **T6_CampusHeath_Data.xls** to complete the following:

1. Create a Microsoft Access database.
2. Create the tables, fields, data types, primary key(s), and the like for the database.
3. Populate the database with the data.
4. Create the relationship(s) needed between the tables.