



LESSON 3

Building a Database

Now that you are familiar with the basic concepts of a database and how to use it, you can turn your attention to building a database and creating database objects. Successful projects normally start with a list of tasks to accomplish, an outline of the order in which to complete these tasks, and a projected final product. You can apply these same concepts to building a database. Start with a list of data (fields) to include in the database, and then group the fields into

objects—tables, forms, reports—required for the database. After these lists are complete, you can sit down at the computer and begin building the database. In this lesson, you will design and create a database for TechCache, an electronics store. You will also add a form, a query, and a report to the database.

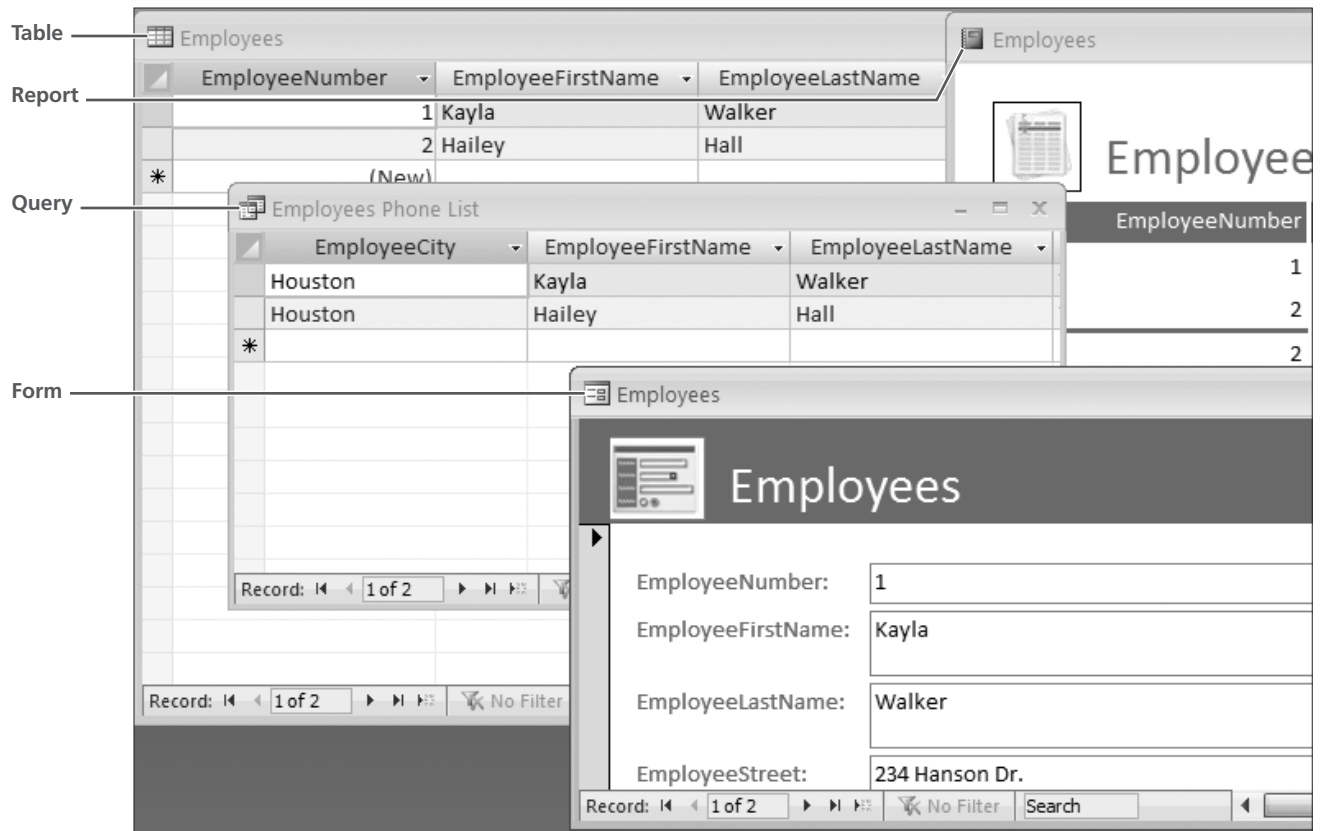
LESSON OBJECTIVES

After studying this lesson, you will be able to:

- Create a new blank database
- Create a database table using Datasheet View
- Create a form
- Add records to a table
- Create a report
- Create a simple query
- Create a table from an Excel worksheet
- Create a new database using a template

Case Study: Designing and Building a Database

Edward Johnson is the Chief Operating Officer of TechCache, an electronics store with 21 locations throughout the nation—primarily in major cities. The business has grown so rapidly that TechCache corporate headquarters in Baton Rouge, Louisiana, is struggling to maintain up-to-date records. Mr. Johnson has asked you to work with consultants to design a basic database that can grow with the corporation as the business expands. Your job is to create the database, add a table, form, query, and report to the database, and add data to the database table.



The TechCache database contains a table, a form, a query, and a report.

Designing a Database

Creating a database that contains well-organized database objects requires careful planning. Taking the time to sketch out the elements that are required for the database will reduce the amount of time you spend modifying and editing the database design as you start using it.

Planning a Database Design

The mechanics of sitting down at the computer and creating a database are straightforward and reasonably easy—planning the database is often more time consuming. Before sitting down at the computer, answer the following questions about the database you are creating:

- What information do you want to be able to obtain from the database? This information identifies the reports you will add to the database. Reports provide great insight into the fields you need to include in the database tables.
- What data elements (fields) do you need to include in the database to be able to obtain the information?
- What types of data will you enter into each field: dates, numeric values, amounts of money, text, etc.?
- What fields of data relate to the same basic item and could be grouped together? These form the tables.
- How do the groups of data relate to one another? These are the fields that connect the tables to one another.
- What is the most efficient way to get data into the database tables? The answers to this question help you identify the forms required.
- What questions will you need the database to be able to answer? Answers here will identify the queries you need.

Documenting a Database Design

Listing the fields required for a database leads naturally to organizing and grouping the fields into tables that build into forms, queries, and reports. The list you create as you plan the database is often called the *data dictionary* because it identifies and defines each field and the objects in which the field is used within the database. As you have already discovered, most databases contain multiple tables. Designing the database to distribute the fields into logical groups helps you define the tables you will need and reduces the redundancy of data stored in the database.

The list on the left shows a brief data dictionary that contains a selected list of fields required for the *TechCache* database.

One field in each table is used to connect—or relate—it to other tables.

Field Name	Tables				
	Customers	Employees	Departments	Inventory	Suppliers
CustomerFirstName	X				
CustomerLastName	X				
CustomerTelephone	X				
CustomerNumber	X				
EmployeeFirstName		X			
EmployeeLastName		X			
EmployeeTelephone		X			
EmployeeNumber	X	X			
DepartmentCode	X	X	X		
DepartmentName			X		
DepartmentManager			X		
Inv#				X	X
ItemType				X	
SupplierName					X
SupplierAdd					X

The table is designed to hold data for each field.

Each table contains fields related to the table title and all tables relate to *TechCache* stores.

The partial view of a data dictionary shows some of the fields required in the *TechCache* database and how they are grouped into database tables.

Creating a Blank Database

A database file is a shell that holds database objects. As a result, you create the database file before you create tables, forms, reports, and other database objects. When you create a new database, Access automatically creates Table1 and displays the datasheet view of the table so that you can enter table fields immediately. In addition, the Datasheet Table Tools become available on the Ribbon when you create a new database.

After you create and close an Access database, each time you open the database, you may be prompted to enable content as you have each time you opened one of the databases used in previous lessons. Settings on your system may be changed to automatically accept databases you create. As a result, you may no longer need to enable content.



QUICK REFERENCE: CREATING A BLANK DATABASE

Task	Procedure
Create a Blank Database	<p>Use one of these techniques to create a new blank database:</p> <ul style="list-style-type: none"> ■ Launch Access and click the Blank Database icon on the Getting Started with Microsoft Office Access window. ■ Press [Ctrl]+[N]. ■ Choose Office→New.



Hands-On 3.1 Create a Blank Database

In this exercise, you will create a new blank database named TechCache.



1. Launch Access 2007 and follow these steps to create a new blank database:

- A** Click the Blank Database icon in the New Blank Database section of the Getting Started screen.



- B** Type **TechCache-xx**, substituting your initials for the xx in the database name.

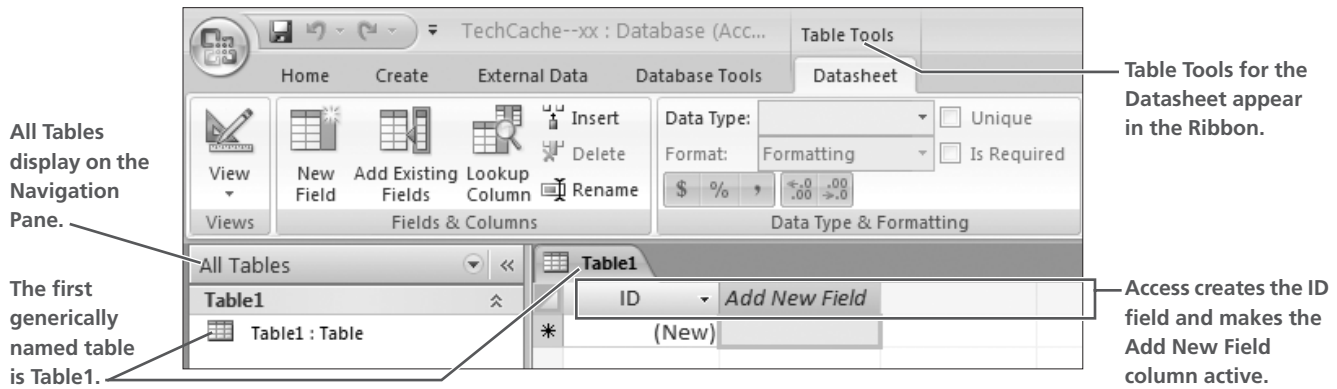
- C** Click the Create button.

Access creates the new database, shows the database name in the application title bar, and displays a blank table named Table1.

Creating Database Objects

2007
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As you have already learned, all data stored in a database is stored in tables. As a result, Access automatically creates a table when you create a database, identifies the object using a generic table number (Table1), and creates one field named ID. Access also displays the Table Tools Datasheet Ribbon so that the tools you need as you build the first table are available.



Creating Tables in Datasheet View

If you are acquainted with the Microsoft Word table feature or Microsoft Excel worksheets, you will find using the Access datasheet familiar. Because tables hold the field names and data used in other database objects, tables must be created first in Access databases.

Each table in the TechCache database will contain fields that focus on specific data—customers, departments, employees, etc. As you build the tables for the database, consider these guidelines:

- Each table should have a *primary key* field that contains unique data—data that will not be the same for any two database records. Social Security Numbers make a good example of unique data because no two people have the same number; however, most organizations have avoided using Social Security Numbers for security reasons. As a result, most organizations use some type of coded ID as primary keys.
- As you have discovered, Access creates the first field (ID) for you when you create a new database. It uses this field as a primary key field designed to hold unique data. To ensure that the data is unique, Access will assign sequential numeric data to each record you enter. You will leave the field as Access designs it and make adjustments to the field in a later lesson.
- The field identified as the primary key field must contain data—it cannot be empty. When Access creates the primary key field, it automatically sets the key field to automatically number the records. This ensures that each record has a unique number.
- Planning database tables to share data before you add them to the database reduces the amount of time spent editing and restructuring the tables.
- Tables have at least one field in common with another database table so that you can tie together information between the tables to create reports and other database objects. These common fields are sometimes referred to as *foreign keys*. In the Employees table, the EmployeeNumber will tie it to the Customers table and serve as a foreign key.

Saving Tables

Each object you create in a database must be saved. As you save the database objects, you assign an appropriate name to the object. An appropriate name for each table, then, should help identify the data it holds. After you save the table, Access displays the name you give the table in the Navigation Pane.



QUICK REFERENCE: CREATING DATABASE OBJECTS

Task	Procedure
Create a New Database Table	<ul style="list-style-type: none">■ Display the Create tab on the Ribbon.■ In the Tables command group on the Ribbon, choose Table.
Create a Simple Form	<ul style="list-style-type: none">■ Choose Create→Forms→Form from the Ribbon.
Create a Simple Report	<ul style="list-style-type: none">■ Choose Create→Reports→Report from the Ribbon.
Create a Query	<ul style="list-style-type: none">■ Choose Create→Other→Query Wizard from the Ribbon.■ Select the type of query you want to create and choose Next.■ Move the fields to be included in the query from the Available Fields list to the Selected Fields list, and then choose Next.■ Type the name for the query and choose Finish.



Hands-On 3.2 Create and Save a Table Using a Datasheet

In this exercise, you will create a table to hold TechCache employee data.

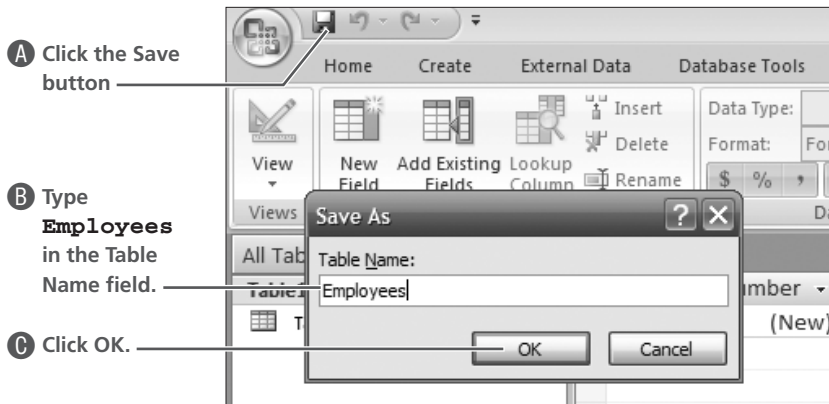
1. Double-click the ID field column heading to select the text and type **EmployeeNumber**.
2. Double-click the Add New Field column heading and type **EmployeeFirstName**.

EmployeeNu	eFirstName
*	(New)

Field names/column headings truncate because the columns are narrow.

3. Press **[Tab]** and repeat the procedures outlined in step 2 to enter the following nine fields in the order indicated by the numbers:
 1. EmployeeLastName
 2. EmployeeStreet
 3. EmployeeCity
 4. EmployeeState
 5. EmployeeZIP
 6. EmployeeTelephone
 7. EmployeeDateHired
 8. EmployeeTermDate
 9. EmployeeDOB

4. Adjust the width of the table columns to display complete field names.
5. Follow these steps to save the table using a new table name:



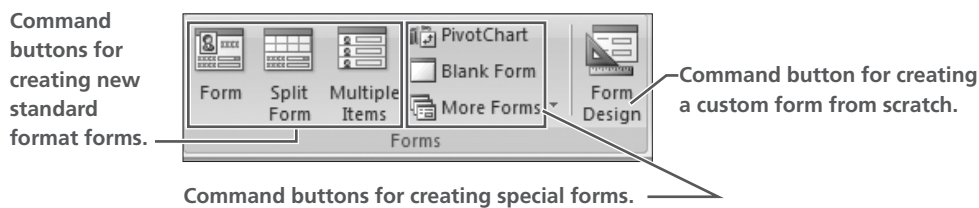
6. Close  the table.

Creating and Using Forms

In Lesson 1, Exploring Access 2007, you learned that forms are database objects that display table data onscreen one record at a time. Forms serve as input objects for entering data into tables. When you create databases that others will use to enter data, forms are useful data entry objects because they present data fields in a more aesthetically pleasing layout—especially for the novice data entry clerk.

Identifying Form Tools

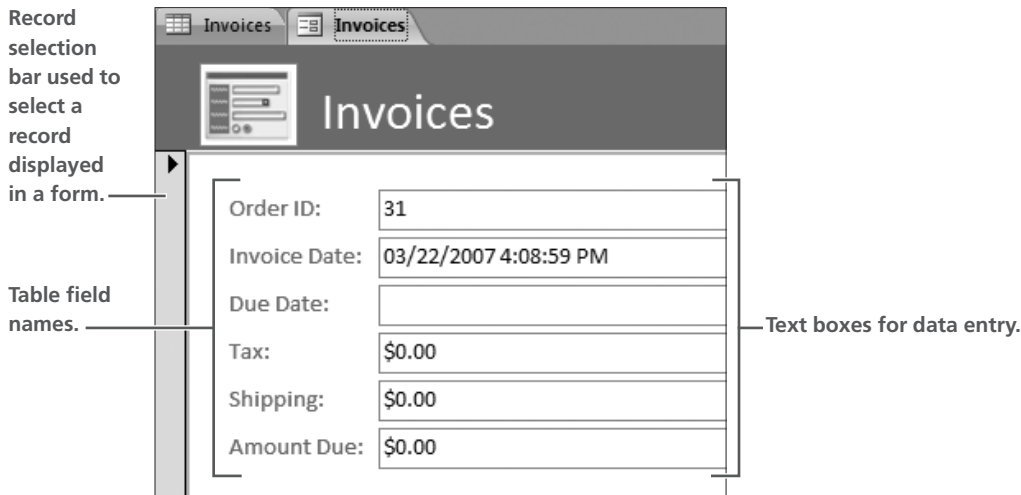
Access contains a number of tools that enable you to create forms in different layouts. By applying different form formats, you can make the forms easier to navigate and use to enter data. Tools used to create forms appear on the Create tab of the Ribbon.



After you create a form, the Form Tools are available on the Ribbon so that you can modify the form format, if necessary. In this section, you will create a simple form along with a more complex form using the Forms Wizard.

Creating Simple Forms

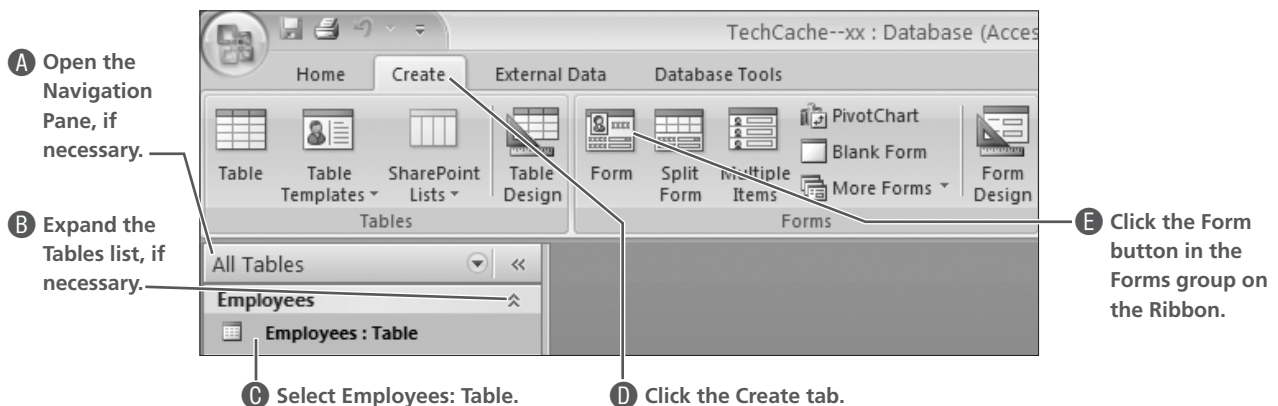
Forms obtain their data and fields from database tables. As a result, it is necessary to select or open the table that contains the fields you want to include on the form. Because queries also use fields stored in database tables, you can also use a query as the object from which to create a form. When you create a form using the Form button on the Create tab of the Ribbon, Access creates a simple form that lists each field contained in the selected or active table in a single column on the left and places the fields in the order in which they appear in the table. Data entry boxes appear in a column on the right directly across from the field names.



Hands-On 3.3 Create a Simple Form

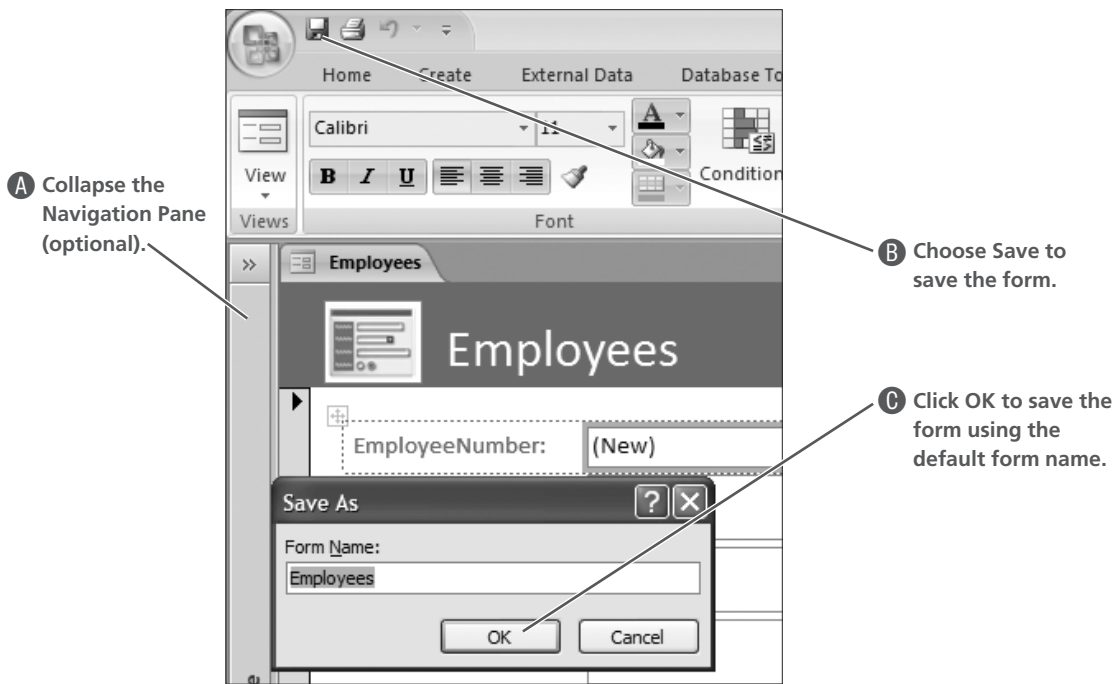
In this exercise, you will create a simple form for entering data for the Employees table.

1. If you exited Access, launch Access again, open the TechCache-xx database, and enable content.
2. Follow these steps to select a table and display the Create tools on the Ribbon:



Access creates the form and displays the Form Layout Tools, Form, and Arrange tabs on the Ribbon.

3. Follow these steps to save the new form:



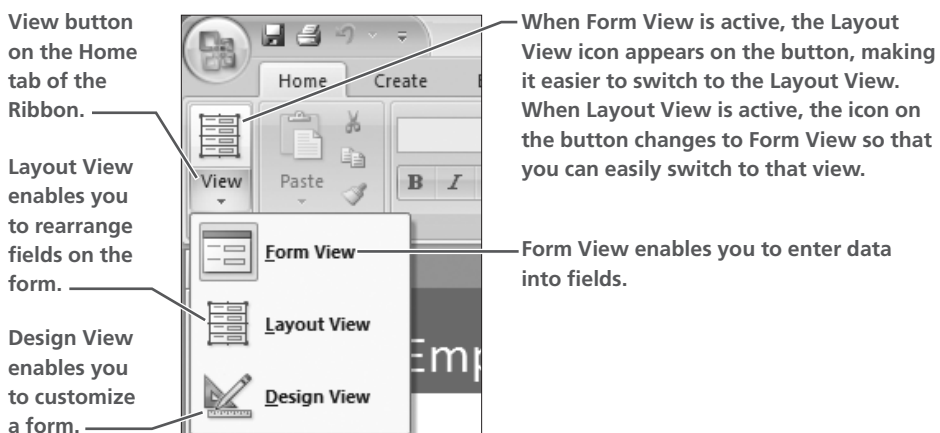
4. Close the form. Choose Yes to save any changes if prompted.

5. Close the table.

Entering Data Using Datasheets and Forms

Frequently, data entry clerks have access to limited fields of data to enter into database tables. As a result, creating forms that contain only those data entry fields is a valuable tool. The form you created in Hands-On 3.3 contains all fields included in the Employees table. You now have two objects in the database to use for entering table data: the table datasheet and the form.

Now that the Employees form has been saved, Access automatically makes the Form Tools tab active and displays the form in the Layout View so that you can adjust the arrangement of fields on the form if you wish. Before entering data into the form, you must display the form in Form View. The View button on the Ribbon enables you to change the view of the form you just created so that you can enter data.



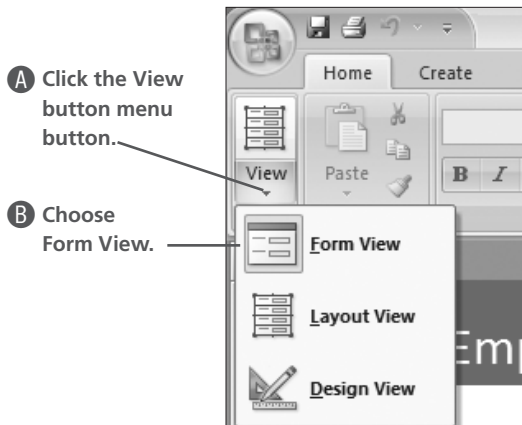
The View button on the Ribbon contains a menu button that displays the views available for the active object.



Hands-On 3.4 Add Records to a Table

In this exercise, you will add records to the *Employees* table using a form and a table.

1. Open the *Employees* form just created, if it is closed.
2. Follow these steps to change the view so that you can enter data:



3. Click the `EmployeeFirstName` field to make it active and follow these steps to enter the values in each form field:



NOTE! Depending on the settings that are active on your computer, the field arrangement may be different from the one shown here. Be sure to note the field name that is active before typing the data.

A screenshot of the 'Employees' form in Microsoft Access. The form has a title bar 'Employees' and a header area with the title 'Employees'. Below the header, there are several text boxes for data entry. The data entered is as follows:

EmployeeNumber:	1
EmployeeFirstName:	Kayla
EmployeeLastName:	Walker
EmployeeStreet:	234 Hanson Dr.
EmployeeCity:	Houston
EmployeeState:	TX
EmployeeZIP:	77002
EmployeeTelephone:	7145558934
EmployeeDateHired:	04-14-06

Callout boxes provide instructions for data entry:

- A Type **Kayla** into the `EmployeeFirstName` box.
- B Press `Enter` or `Tab` to move to the next field, then type the next data item as shown here.
- C Continue entering data and using `Enter` or `Tab` to move to the next field for the rest of the fields on this form.
- D When a new blank record appears, continue with the next step.

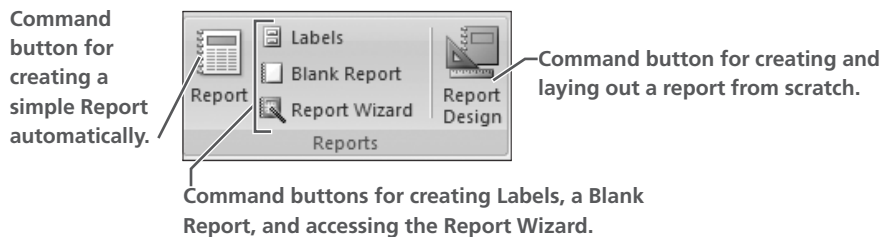
4. Close the form and open the Employees table to review the data.
5. Enter the following data into fields in the Employees table datasheet:

EmployeeFirstName	Hailey
EmployeeLastName	Hall
EmployeeStreet	23 Ida's Way
EmployeeCity	Houston
EmployeeState	TX
EmployeeZIP	77216
EmployeeTelephone	7145551470
EmployeeDateHired	06-12-06
EmployeeDOB	11-15-47

6. Close the table, saving changes if prompted.

Creating and Generating Reports

While forms are objects used to input data into database tables, reports are database objects used to sort, summarize, and output table data as useful information. Access contains numerous tools designed to help you create new reports. These tools are grouped together on the Create tab in the Report section of the Ribbon, as shown.



As you discovered when you created new forms earlier in this lesson, these tools create reports from the most simple to a more complex report that groups and sorts data. In this lesson, the focus will be on a simple report.

Creating a Simple Report

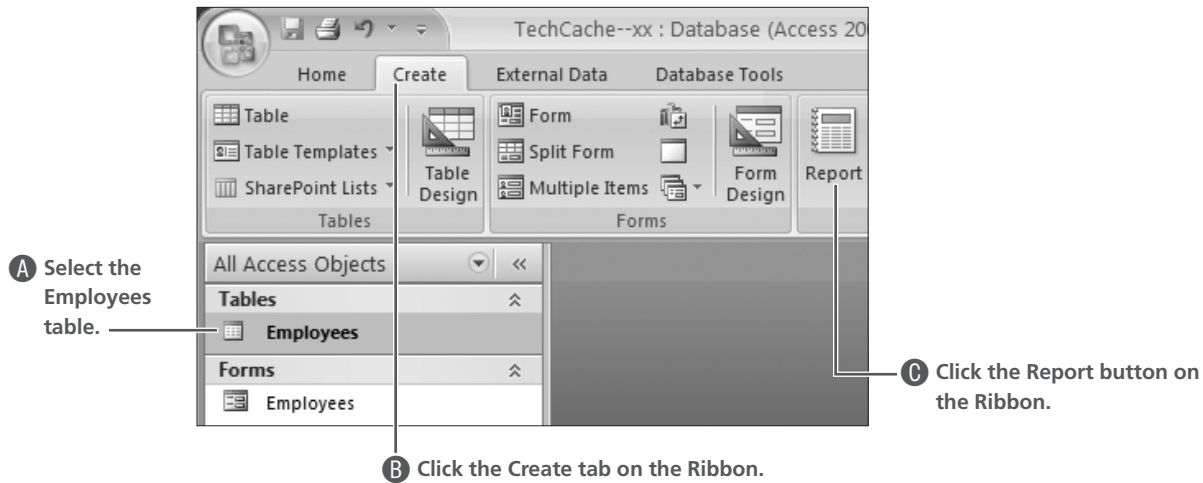
Access contains a Report command that, like the Form tool, helps you create a simple report that lists data from a database table or query. Reports you generate using the Report command contain no data summarization or “frills”—they simply report the data contained in the table, but they report it in a more attractive layout when printed than found by printing the table datasheet.



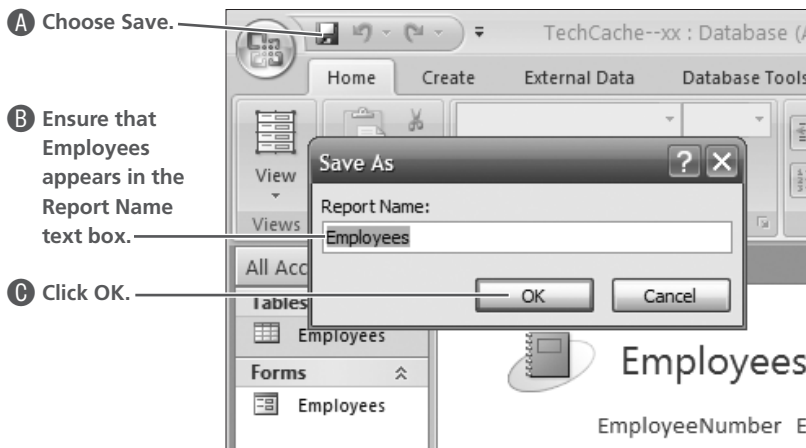
Hands-On 3.5 Create a Simple Report


In this exercise, you create a simple report.

1. Open the Navigation Pane and display All Access Objects by Object Type.
2. Follow these steps to create a new report based on data contained in the selected table:



3. Click the View  button to display the report in Report View.
4. Review the report and then follow these steps to save the report:

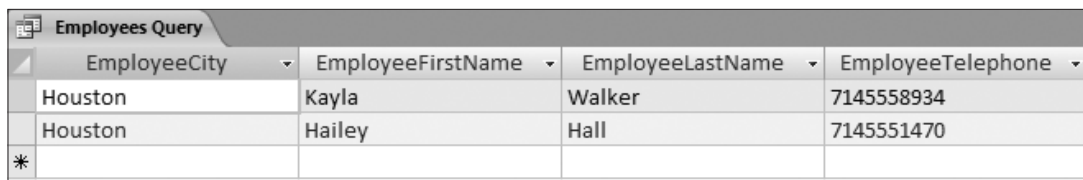


5. Close  the report.

Creating a Query

When data is stored in tables in a relational database, you can retrieve data and extract records that meet specific criteria using a *query*—a database object used to locate records on the basis of conditions you set. Not only do queries locate records that meet specific criteria, but also they enable you to select the specific fields of data in database tables that you want to view. As a result, you can display data from selected fields in multiple tables as long as the tables are contained within the same database.

For example, suppose the staff of a large corporation with offices around the world wants to create a telephone list of all employees in their organization. They can create a simple query to display only the office location, employees' names, and telephone numbers in a datasheet and print it or create a report to print the list. They can save the query as an object in the database and use it again to print an updated list each time employees change.



EmployeeCity	EmployeeFirstName	EmployeeLastName	EmployeeTelephone
Houston	Kayla	Walker	7145558934
Houston	Hailey	Hall	7145551470
*			

A simple query showing select fields from the Employees table.

Query Features

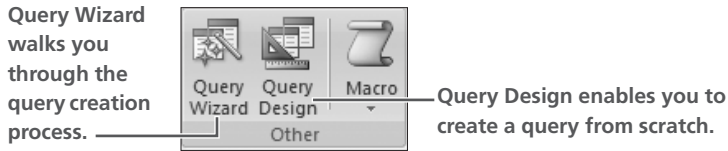
Some important points about queries to keep in mind:

- A query acts as a saved question you ask a database or as a subset of data from one or more tables.
- Data displayed in the query results datasheet remains stored in its original table rather than in the query.
- When you edit data in a query results datasheet, you are actually editing the data stored in a table.
- Queries are dynamic objects that display up-to-date data stored in database tables.
- Queries can be used to create forms and reports containing fields from multiple tables.
- Query results datasheets enable you to filter or organize data using the same techniques you use to filter and organize table datasheets.

Using a Simple Query

The most common type of query is the *simple query*. The simple query retrieves data from one or more tables and displays the results in a query results datasheet. You can update records that appear in the query results datasheet and use a select query to group records and calculate sums, counts, averages, and other types of totals.

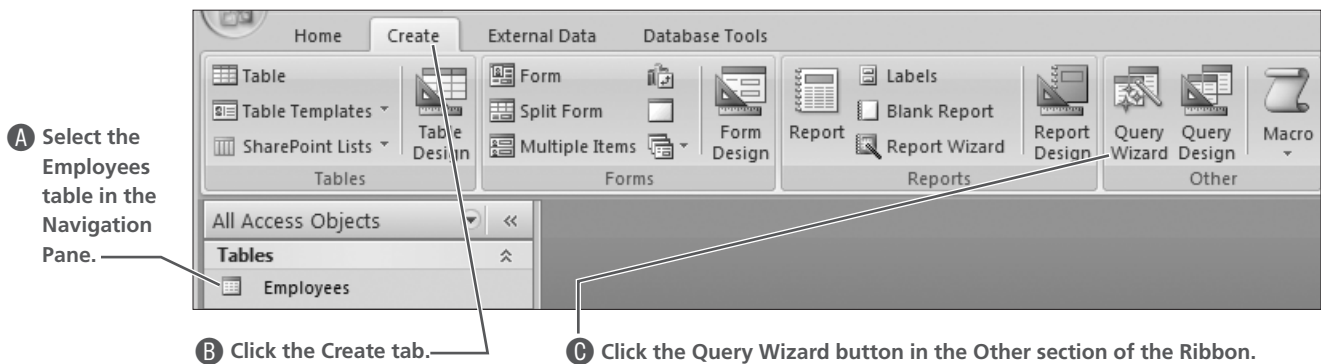
Unlike creating simple forms and reports, which require clicking the appropriate button on the Ribbon, creating a simple query requires the use of the Query Wizard. Buttons are grouped on the Other section of the Ribbon used to create objects.



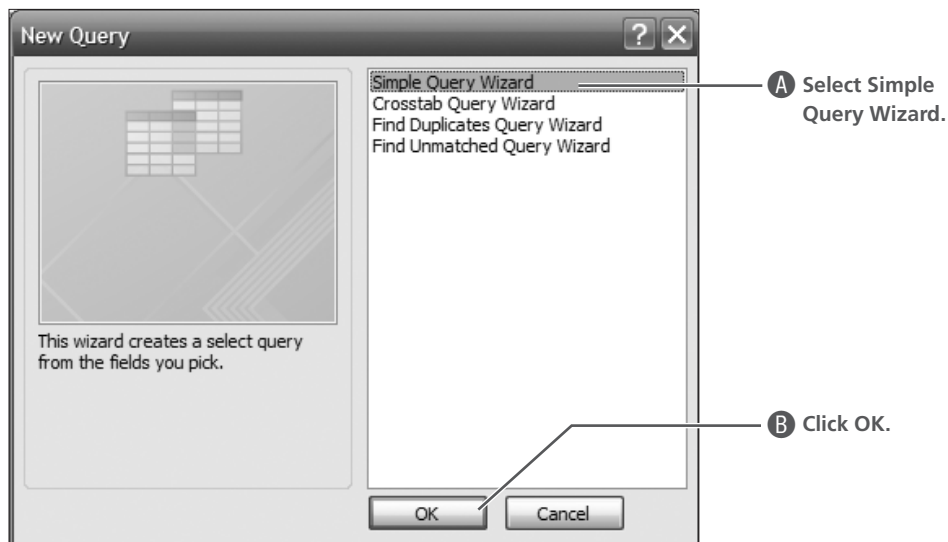
Hands-On 3.6 Create a Simple Query

In this exercise, you will create a simple query using the Query Wizard to create a telephone list of TechCache employees.

1. Follow these steps to activate the Query Wizard:



2. Follow these steps to select the query type:



3. Follow these steps to move selected fields to the query:

The screenshot shows the 'Simple Query Wizard' dialog box. At the top, it asks 'Which fields do you want in your query?' and 'You can choose from more than one table or query.' Below this, there is a 'Tables/Queries' section with a dropdown menu set to 'Table: Employees'. The main area is divided into two lists: 'Available Fields:' and 'Selected Fields:'. The 'Available Fields:' list contains: EmployeeNumber, EmployeeStreet, EmployeeState, EmployeeZIP, EmployeeDateHired, EmployeeTermDate, and EmployeeDOB. The 'Selected Fields:' list contains: EmployeeCity, EmployeeFirstName, EmployeeLastName, and EmployeeTelephone. Between the lists are four arrow buttons: a single right arrow (>), a double right arrow (>>), a single left arrow (<), and a double left arrow (<<). At the bottom are buttons for 'Cancel', '< Back', 'Next >', and 'Finish'. Annotations with letters A through D point to specific elements: A points to 'EmployeeCity' in the Available Fields list; B points to the '>' button; C points to 'EmployeeCity', 'EmployeeFirstName', and 'EmployeeLastName' in the Selected Fields list; D points to the 'Next >' button.

A Select the **EmployeeCity** field in the Available Fields list.

B Click the Move button to move the field to the Selected Fields list.

C Repeat the procedures to move these three additional fields to the Selected Fields list.

D Choose Next.

4. Follow these steps to complete the query:

The screenshot shows the 'Simple Query Wizard' dialog box at a later stage. It asks 'What title do you want for your query?' with a text box containing 'Employees Phone List'. Below this, it says 'That's all the information the wizard needs to create your query.' and 'Do you want to open the query or modify the query's design?'. There are two radio button options: 'Open the query to view information.' (which is selected) and 'Modify the query design.'. At the bottom are buttons for 'Cancel', '< Back', 'Next >', and 'Finish'. Annotations with letters A through C point to specific elements: A points to the text box containing 'Employees Phone List'; B points to the 'Open the query to view information.' radio button; C points to the 'Finish' button.

A Type **Employees Phone List** in the text box.

B Select the Open the Query to View Information option.

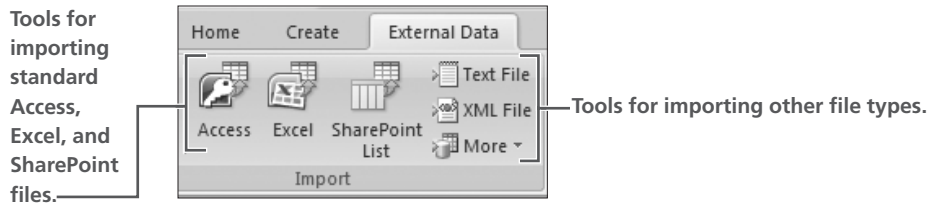
C Click Finish.

5. Review the query results datasheet and then close  the query.

Creating a Table from an Excel Worksheet

Sometimes the data you want to use in a database exists in an electronic file created in another application such as Excel. Rather than retype the data, you can retrieve the data from its original file to create a new Access table. This process of retrieving data from other files is called *importing* data. When you import data from other programs, Access examines the file and prompts you for information about the file so that data imports accurately. In the case of an Excel worksheet, Access uses the Import Spreadsheet Wizard to guide the process. After you import the data, it becomes part of the database file. Changes you make to the Excel file have no impact on the table data in Access.

The External Data tools on the Ribbon are used to import and export data as well as to collect data and connect to SharePoint lists. Import buttons are grouped on the Ribbon.



QUICK REFERENCE: IMPORTING EXCEL DATA TO CREATE A TABLE

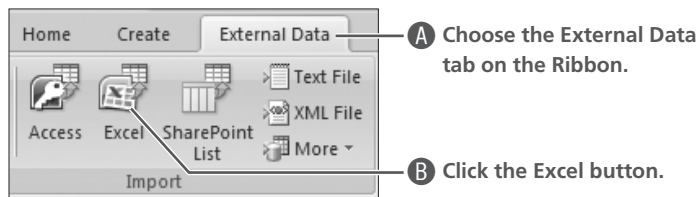
Task	Procedure
Import Excel Worksheet Data	<ul style="list-style-type: none">■ Choose External Data→Import→Excel on the Ribbon.■ Navigate to the folder containing the file you want to import and open the folder.■ Double-click the filename of the file you want to import.



Hands-On 3.7 Import Excel Data

In this exercise, you will create the Customers table for the TechCache database by importing the data from a Microsoft Office Excel workbook.

1. Close the Navigation Pane in the TechCache-xx database and follow these steps to launch Get External Data:

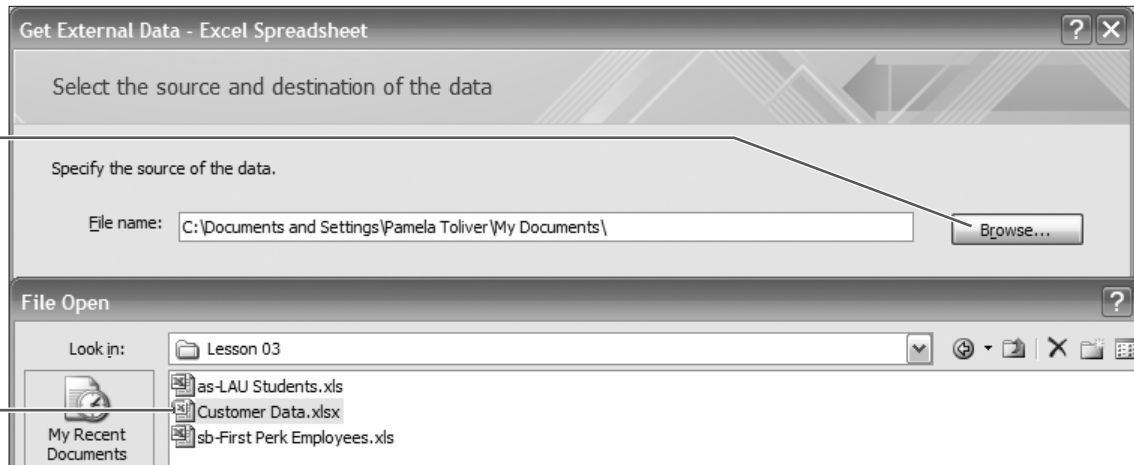


Access launches the Get External Data – Excel Spreadsheet screen.

2. Follow these steps to locate the file to import:

A Click the Browse button in the Get External Data window.

B Navigate to the folder that contains your student data files and double-click the Customer Data.xlsx filename.



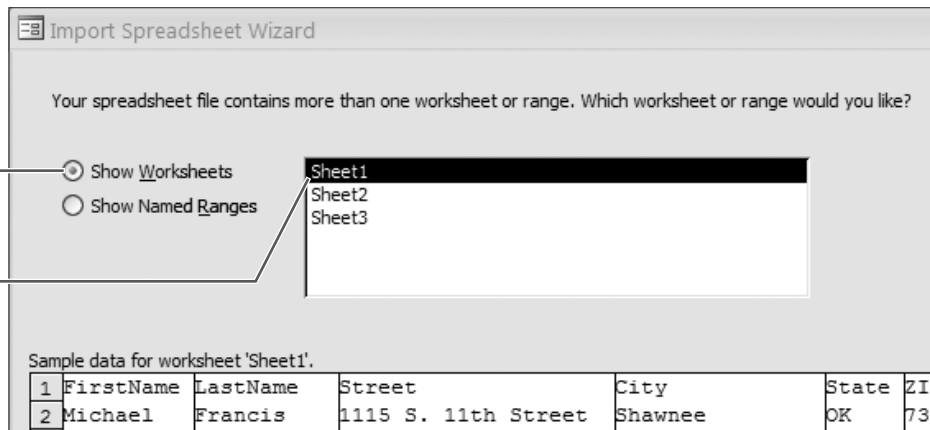
3. Select the Import the Source Data into a New Table in the Current Database option in the Get External Data window and click OK.

Access launches the Import Spreadsheet Wizard.

4. Follow these steps to select the sheet containing the data:

A Select the Show Worksheets option.

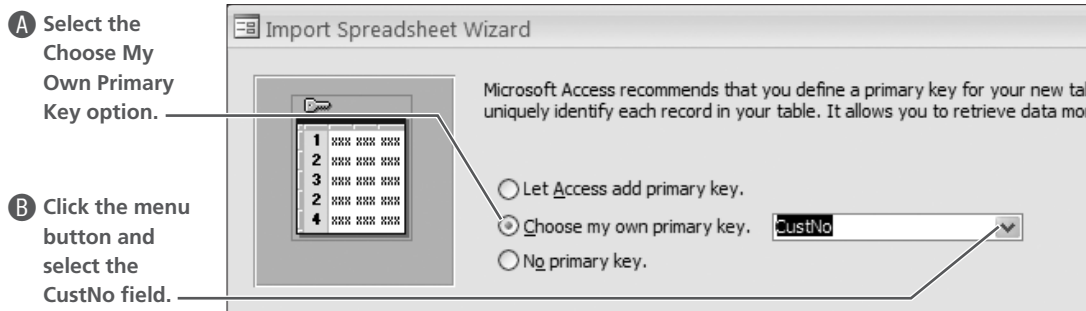
B Select Sheet1 and click Next.



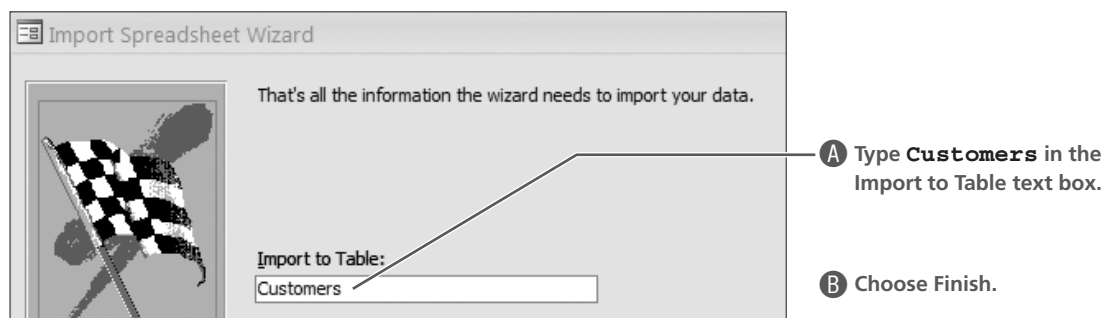
5. Select the First Row Contains Column Headings checkbox and choose Next.

6. Choose Next to indicate that all fields in the worksheet should import to the new table.

7. Follow these steps to set the primary key:



8. Choose Next and follow these steps to name and save the table:



9. Choose Close to close the Get External Data window.

Viewing Data

10. Open the Navigation Pane and then open the new Customers table to view the data.

11. Adjust column widths, save changes to the table, and close it.

12. Close the database.

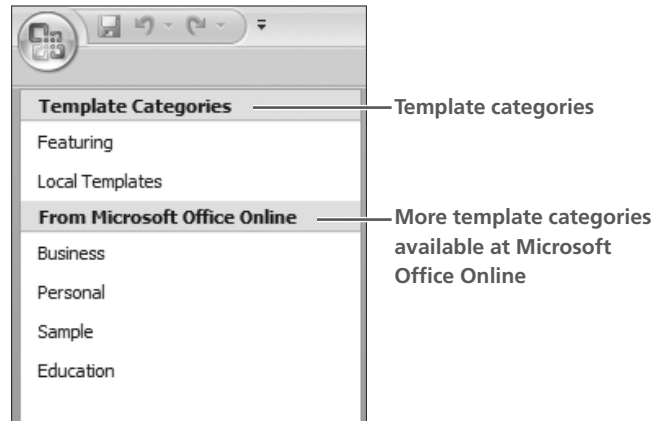
Creating a New Database Using a Template

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As you discovered, you can use the Query Wizard to create new queries in Access databases. If you are familiar with Microsoft Word and Excel, you may also be familiar with templates. In Word, templates contain document format and design elements that help you create files that are consistent in their look and design.

Access also contains templates that enable you to create new databases—but in Access, a template is a ready-to-use database that contains all the tables, queries, forms, and reports needed to perform a specific task. When you need to create a database to track expenses or manage contacts, you can create the database using the appropriate template. After you create a database using a template, you can modify it to better meet your needs.

Access comes with a collection of templates that are featured on the Getting Started with Microsoft Office Access screen. You can use one of them to create a new database or connect to Microsoft Office Online and download additional templates.



NOTE! *The categories of templates in each group may change as more templates become available.*



QUICK REFERENCE: CREATING A DATABASE USING A TEMPLATE

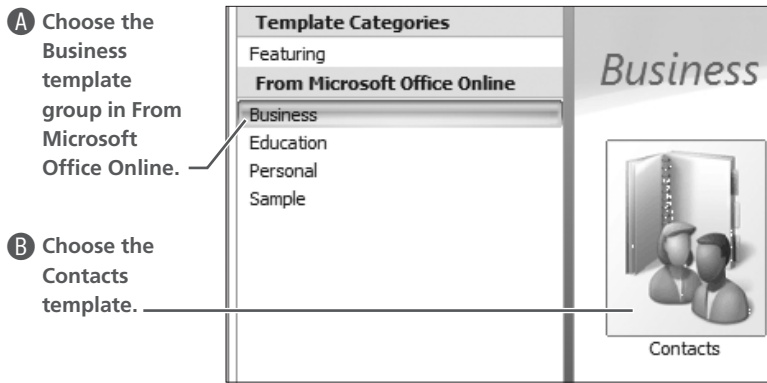
Task	Procedure
Create a Database Using a Template	<ul style="list-style-type: none">■ Choose the Template Category or type from the Microsoft Office Online group of the Getting Started with Microsoft Office Access screen.■ Click the template that corresponds to the database type you want to create.■ Click the Browse button and navigate to the folder in which you want to save the new database.■ Type a filename for the database in the File Name text box and click OK.■ Choose Download.



Hands-On 3.8 Create a Contacts Database

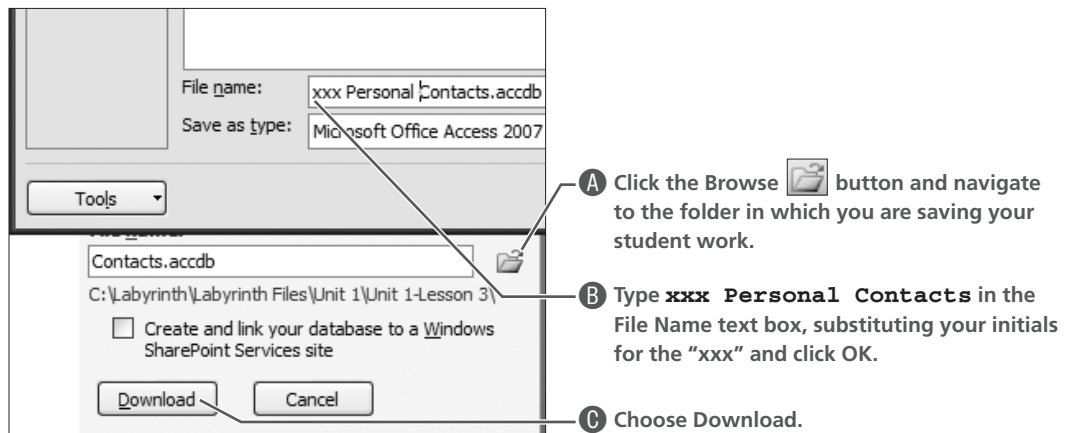
In this exercise, you will create a new database using the Contacts template.

1. Launch Access, if it is closed, and follow these steps to create a new database using a template:




Access displays the Panel on the right that enables you to name the database.

2. Follow these steps to save the new database:



Access downloads the template, saves it using the filename you assigned, and then opens the database.

Reviewing Database Objects

3. Open the Navigation Pane and display All Access Objects by Object Type.
4. Enable content and open each table, form, query, and report and review the arrangement of data in each object.
5. Close the database and exit  Access.



Concepts Review

True/False Questions

1. Queries and tables can be used to create forms and reports. **TRUE FALSE**
2. The only way to get tables into a database is to create them in Access. **TRUE FALSE**
3. Templates in Access hold only the design elements you want to apply to tables, forms, and other database objects. **TRUE FALSE**
4. When you create a new blank database, Access creates a table automatically. **TRUE FALSE**
5. Primary and foreign key fields contain the same data. **TRUE FALSE**
6. Every table must have a primary key. **TRUE FALSE**
7. Queries can contain fields from one or more tables. **TRUE FALSE**
8. Simple forms contain all the fields included in a table or query. **TRUE FALSE**
9. Planning the elements that will go into a database is an important step in working with databases. **TRUE FALSE**
10. Data displayed in query results datasheets is deleted from the table. **TRUE FALSE**

Multiple Choice Questions

1. What purpose does a database file serve?
 - a. As a holder for database objects
 - b. As a backup copy of database data
 - c. As a database window
 - d. None of the above
2. Which of the following Access tools can you use to input data to a database?
 - a. Tables and Reports
 - b. Tables only
 - c. Forms and Reports
 - d. Tables and Forms
3. When you use a form to add data, where does Access put the data?
 - a. In the form
 - b. In a table associated with the form
 - c. In a report
 - d. All of the above
4. Which of the following techniques enables users to create tables using data from other sources?
 - a. Table Design view
 - b. Table Wizard
 - c. Import
 - d. All of the above



Skill Builders

Skill Builder 3.1 Create a New Database with a Table

First Perk is a coffee shop that is getting ready to open in your town. Before opening, they would like to have a database in place that will enable them to track sales, supplies, menu items, etc. In this exercise, you will create the First Perk database and the first table.

1. Launch Access and click the Blank Database icon on the Getting Started with Access screen.
2. Type **sb-First Perk-xxx** in the File Name text box, substituting your initials for the xxx, and click the Browse folder to select a folder in which to save the database.
3. Choose Create to create the database.
4. Change the ID field name to **Item Number**, and then enter the following field names into the Table1 column headings:

Item Name	Price
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5. Save the table using the table name **Menu Items**.
6. Add the following records to the Menu Items table:

Cappuccino	2
Latte	3

7. Close the table but leave the database open for the next exercise.

Skill Builder 3.2 Create a Form and a Report

The First Perk database is taking shape. In this exercise, you will add a form and a report to the database.

1. Launch Access and open your sb-First Perk-xxx database if it is closed.
 2. Select the Menu Items table and choose Create→Forms→Form on the Ribbon to create a form for the table.
 3. Save the form using the form name **Menu Items**.
 4. Select the Menu Items table again and choose Create→Reports→Report on the Ribbon.
 5. Save the report using the report name **Menu Items**.
 6. Close the form and report.
-

Skill Builder 3.3 Import a Table

The First Perk database currently contains only one table. In preparation for opening the business, the owners stored data about the people they have hired in an Excel worksheet. In this exercise, you will import the data from the worksheet to create a second table for the database.

1. Launch Access and open your sb-First Perk-xxx database if it is closed.
 2. Choose External Data→Import→Excel on the Ribbon to launch the Get External Data window.
 3. Choose Browse and navigate to the folder that contains your student data files.
 4. Double-click the sb-First Perk Employees.xls workbook, select the Import the Source Data into a New Table in the Current Database option, and click OK to launch the Import Spreadsheet Wizard.
 5. Select the Show Worksheets option, select Sheet1, and choose Next.
 6. Check the First Row Contains Column Headings checkbox and choose Next.
 7. Choose Next to let Access know you want to import all the data.
 8. Select the Let Access Add Primary Key option and choose Next.
 9. Type **First Perk Workers** in the Import to Table text box, choose Finish, and then choose Close to close the Get External Data window.
 10. Display All Access Objects by Object Type in the Navigation Pane, open the First Perk Workers table and review the data.
-

Skill Builder 3.4 Create a Query

The First Perk database now contains two tables—the First Perk Workers and the Menu Items. In this exercise, you will add a query to the database using the First Perk Workers table so that you have a quick reference telephone list of the workers.

1. Launch Access and open your sb-First Perk-xxx database if it is closed.
 2. Select the First Perk Workers table and choose Create→Other→Query Wizard to create a query for the table.
 3. Select Simple Query Wizard and click OK.
 4. Move the FirstName, LastName, and Telephone fields from the Available Fields list to the Selected Fields list.
 5. Choose Next, choose Detail, and choose Next again.
 6. Choose Finish to accept the default query name and to open the query.
 7. Print a copy of the query results datasheet.
 8. Close the query, close the database, and exit Access.
-



Assessments

Assessment 3.1 Plan a New Database

Every university and school has a giant database that stores data for students, faculty, classes, grades, and so forth. In this exercise, you will identify fields needed to store student data for such a database and group these fields into appropriate objects.

1. Using a sheet of paper, a document in Word, or an Excel worksheet, list reports that you know are commonly generated by schools for students.
 2. List data fields required to generate the reports as well as other fields required to build a student database for your school. You should have at least 50 fields.
 3. Group the fields into logical categories and decide on a name for each category.
 4. Identify tables, forms, and queries required for the database.
-

Assessment 3.2 Create a New Database Using a Template

One of the groups of templates available in Access relates to education. In this exercise, you will use the Education templates to create a new database designed to store student data.

1. Launch Access and choose the Education templates group.
 2. Create a new database using the Students template, name the database **as-LAU Students-xxx** where xxx represents your initials, and save the file in the folder in which you are storing your student files.
 3. Close the Student List form that opens when you create the database, enable content, and then open the Navigation Pane.
 4. Compare the database tables listed under the Supportive Objects Group to the database tables you designed in Assessment 3.1. Then answer these questions:
 - What fields did you include in your student database that the Students template did not?
 - What fields did the Students template include that you did not?
 - What objects did you include in your database that the Students template did not?
 - What objects did the Students template include that you did not?
 5. Add your name and other data (real or fictional) to the Student List form in the database.
 6. Close the form, but leave the database open for the next exercise.
-

Assessment 3.3 Import Students into the Database

A preliminary list of students appears in a worksheet named as-LAU Students.xls. In this exercise, you will import the data into a new table in your as-LAU Students-xxx database.

1. Open your as-LAU Students-xxx database if it is closed.
 2. Import all data in Sheet1 of the as-LAU Students.xls file. The first row of the worksheet contains field names and there is no primary key field.
 3. Save the table using the table name **LAU Students**.
 4. Open the Navigation Pane and locate the group of unassigned objects. Open all objects in this group, study the data, and then answer these questions:
 - How many objects did Access create when you imported the worksheet?
 - Did one of the objects have “Error” in the object title?
 - What does the object containing the word “Error” have in it? Do you know why?
 5. Close the object, enter fictitious data into the missing data fields, and then delete the error object from the database.
 6. Close the database and exit Access.
-



Critical Thinking

Critical Thinking 3.1 Design a New Database

Service League is a nonprofit organization that was organized to raise money for a home for adults with disabilities. They have successfully raised more than \$60,000 annually through sponsoring a home tour in their city. They would like to have a database that will enable them to track membership, donations from businesses, ticket sales, etc. In this exercise, you will identify fields and objects they should include in the database.

1. Using the ct-SL Database.doc file in Word, identify at least 25 fields of data that you believe should be included in the Service League database.
 2. Group the fields into logical categories.
 3. Identify the tables that will be required to hold the data.
 4. Identify primary and secondary key fields for each table.
 5. Determine the forms and reports you want to create for the database.
 6. List at least five questions that you should be able to answer using data from the database. These questions will help you identify queries to be included in the database.
-

Critical Thinking 3.2 Import Data and Create Objects

In this lesson, you learned that you can import data from Excel files and use the data to create tables in Access. You can also import data from other databases and append the data to existing tables or use the tables to create new tables in the database.

The Rich Homestead database currently contains one table. Other tables were added to the wrong database and need to be imported from that database into the Rich Homestead database. In this exercise, you will import the tables from the database.

1. Open the ct-Rich Homestead database and save the database using the filename **ct-Rich Homestead-xxx**, substituting your initials for the xxx.
 2. Using the External Data tools, import an Access file and select the ct-Antiques database as the file source.
 3. Choose the Tables tab to make it active and then choose Select All and click OK to import all five tables into the ct-Rich Homestead-xxx database.
 4. Open and examine each table.
 5. Create a form for each table except the Selling Format table, saving the form using the table name.
 6. Create a simple detailed query for each table that shows the item title and the starting price.
 7. Create a report for the Records table.
 8. Print a copy of each query datasheet and the Records report.
 9. Close all open objects, close the database, and exit Access.
-

Critical Thinking 3.3 Create a New Database with Objects

The Mangle Dental Clinic has just purchased Microsoft Office. They would like for you to create a new database to hold patient information. In this exercise, you will use the list of fields you created for the LAU Students database to compile a list of fields and database objects that should be included in the clinic database.

1. Launch Access, create a new blank database, and save the database using the filename **ct-Mangle Dental Clinic-xx** in the Lesson 03 folder of your file storage location, substituting your initials for the xx.
 2. Add fields to Table1 using the fields you identified as required for patients.
 3. Save the table using the table name **Clinic Patients**.
 4. Create a form named **Clinic Patients** for entering data into the patients table.
 5. Create a simple query named **Mailing Data** that includes each patient name, street address, city, state, and ZIP.
 6. Create a simple report named **Mailing Data** that prints data from the Mailing Data query.
 7. Enter your personal (or fictional) data to the database and print a copy of your data as a form and in the report.
 8. Close the database and exit Access.
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