

# A Quick Microsoft Access 2007 Tutorial

By Charles W. Neville, © Charles W. Neville, with modification by Leith Chan, Vicky Wong and Steven Lu

*Verbatim copying and redistribution of this tutorial are permitted in any medium provided this notice and the copyright notice are preserved.*

This tutorial is intended for students who need a quick introduction to Microsoft Access, but it will be useful to anyone needing such an introduction. To get the full benefit of this tutorial, you will need a computer with 500 megahertz (MHz) processor or higher and running one of Microsoft Windows XP with Service Pack (SP) 2, Windows Server 2003 with SP1, or later operating system. You will also need at least 1.5 gigabyte (GB) hard disk space to have Microsoft Access 2007 installed (a portion of this disk space will be freed after installation if the original download package is removed from the hard drive).

*Microsoft Access 2007 provides a library of prebuilt database solutions to get you started quickly*



## Introduction

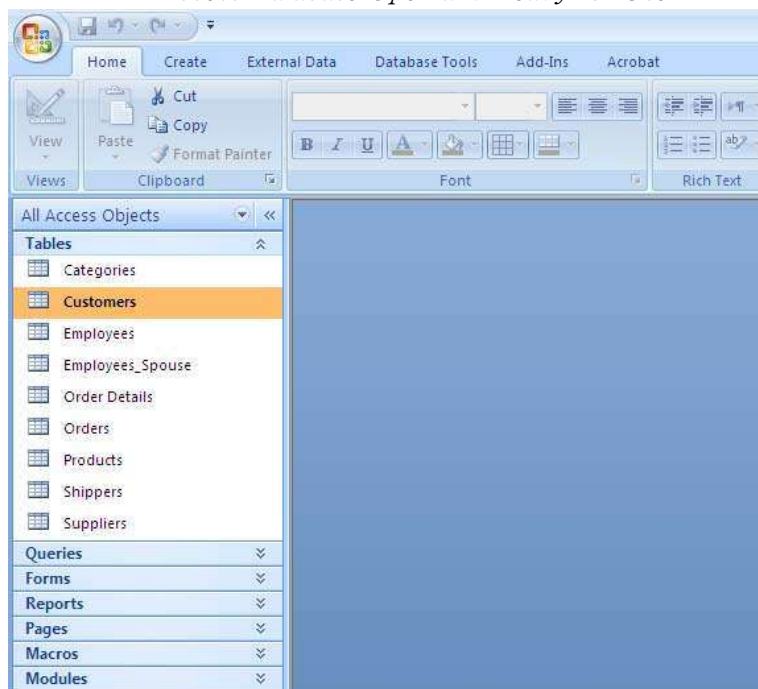
**Though Microsoft Access** is NOT synonymous with database systems; there are more copies of Microsoft Access in use than any other database system. It therefore behooves computer science students to be at least superficially familiar with MS Access. This tutorial will guide you through some of the basic point-and-click stuff, and will even show you how to issue complex SQL (Structured Query Language) queries. You will open the Northwind Microsoft sample database and query it in various ways. This is a HANDS-ON tutorial; it gives you step-by-step directions for carrying out simple tasks in Access. As you read, you should have a copy of the Northwind database open in Microsoft Access 2007, and you should carry out the tasks yourself, exactly as directed.

**First, a few words** about what Microsoft Access 2007 is and isn't. People who don't really understand what a relational database system is, and people who don't actually understand what Microsoft Access 2007 is, will

tell you that Microsoft Access is not a *fully relational* database system. In the database world, not being fully relational is *very bad*. Don't worry! The people who tell you that are like those who try to tell you that Linux is not a 32 bit operating system. Microsoft Access 2007, and its predecessors Access 95, 97, 02 and 03, are excellent fully relational database systems.

But Microsoft Access 2007 does have a few shortcomings. The principle shortcoming is that it is almost impossible to enforce reasonable security restrictions with Microsoft Access 2007. So if you want a variety of users to interact with a database, you should move up to Microsoft's SQL Server, an Oracle database above the level of Oracle Personal Edition, or the wonderful, and FREE, MySQL. (And let us not forget to mention the higher levels of FileMaker Pro as good possibilities.) As a certified Microsoft hater, I would naturally prefer that you move up to Oracle, MySQL, or FileMaker Pro, but I have to be fair. Microsoft's database products are *extremely good*, easy to develop for, readily accepted by the outside world, and always good choices.

*An Access Database Open and Ready for Use*



This tutorial is divided into chapters. You probably should go through the chapters in sequence, starting with chapter 1.

## Chapters

1. [GettingStarted.](#)
2. [Adding and Changing Data.](#)
3. [Simple Queries.](#)
4. [Creating Append Queries](#)
5. [Creating QBE Queries.](#)
6. [Multi-table QBE Queries.](#)
7. [SQL Queries.](#)

# Chapter 1. Getting Started

## Copying the Northwind Sample Database

The first thing you need to do is make a copy of the Northwind sample database to avoid altering and perhaps permanently disabling it. You should use this copy instead of the original database while you go through this tutorial. You can copy the Northwind sample database from P:\IMSE1013\Access\Northwind.mdb to your U: drive.

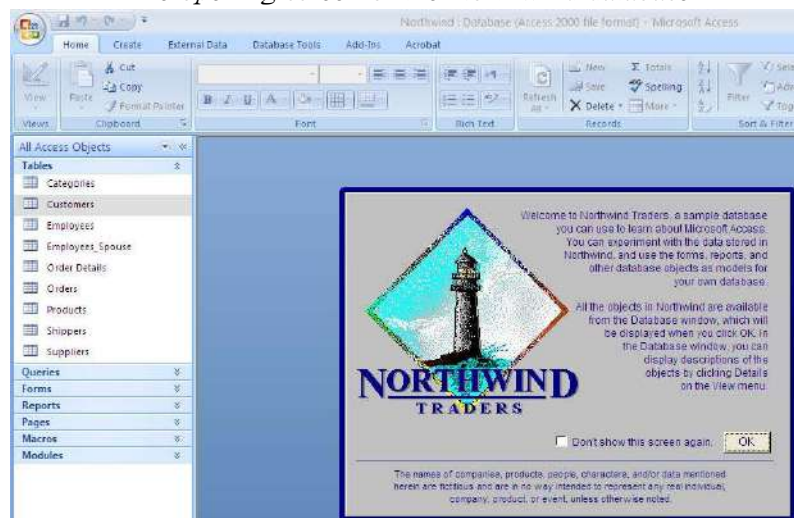
## Opening the Northwind Sample Database

**Step 1.** Open your copy of Northwind by double clicking it. Microsoft Access will start up with a security warning. Click the “Options...” button, check the “Enable this content” checkbox and then press OK button.



**Step 2.** If all goes well, you will see the opening screen of the Northwind database. Press the OK button to get the *Northwind Traders* splash screen out of the way and start working with the actual Northwind database.

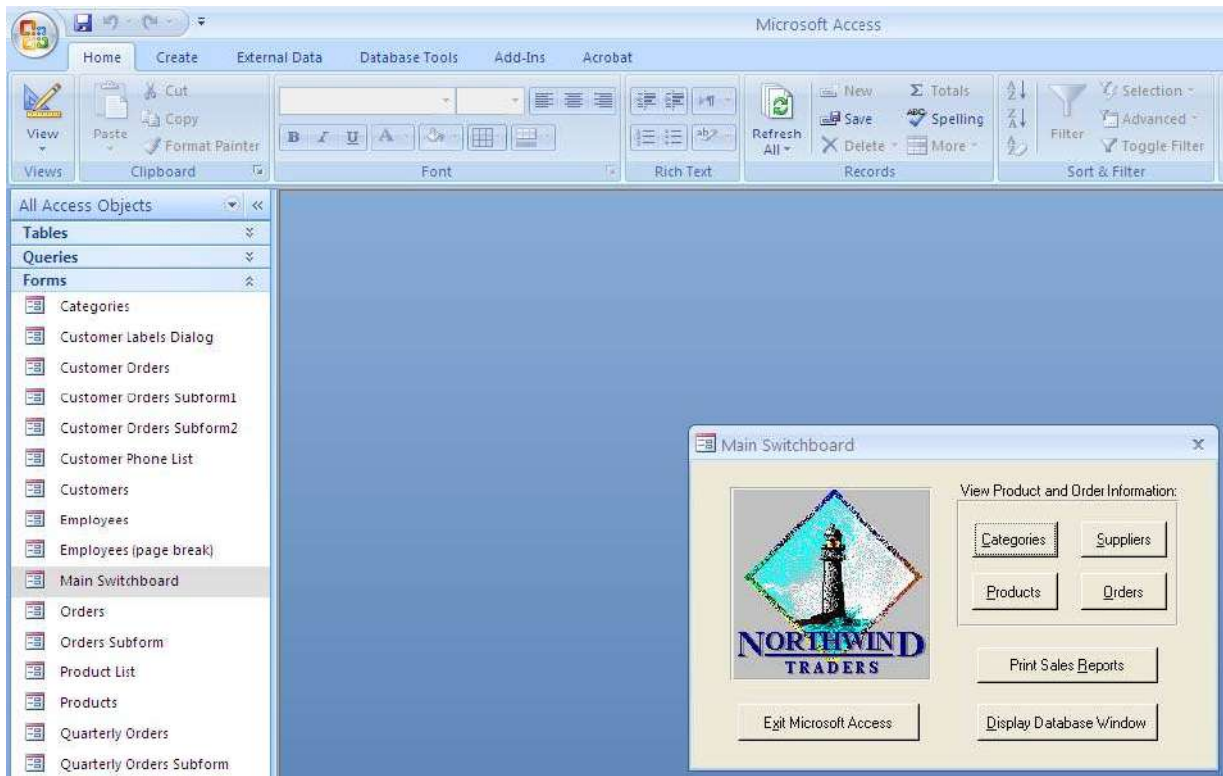
*The opening screen of the Northwind database*



## Moving around the Northwind Database

Once the opening splash screen is out of the way, you can see the *database window*. It consists of a number of *tabs*, each of which displays a different aspect of the database. Typically, the Northwind database opens with the *Forms* tab selected. In Microsoft applications, *Forms* are windows used to interact with the application. Later, after you have finished this tutorial, you might want to satisfy your curiosity about forms. If so, try selecting the *Main Switchboard* form, *dragging it to the layout* (or double clicking it). As is typical in Microsoft applications, you can close a form by clicking the small *x* at the top right of the form on its title bar. (Be careful not to click on the *x* at the top right of the Microsoft Access title bar, or you will close Access completely.) If you want to find out how to build your own forms and develop Microsoft Access applications, try find a book on Microsoft Access.

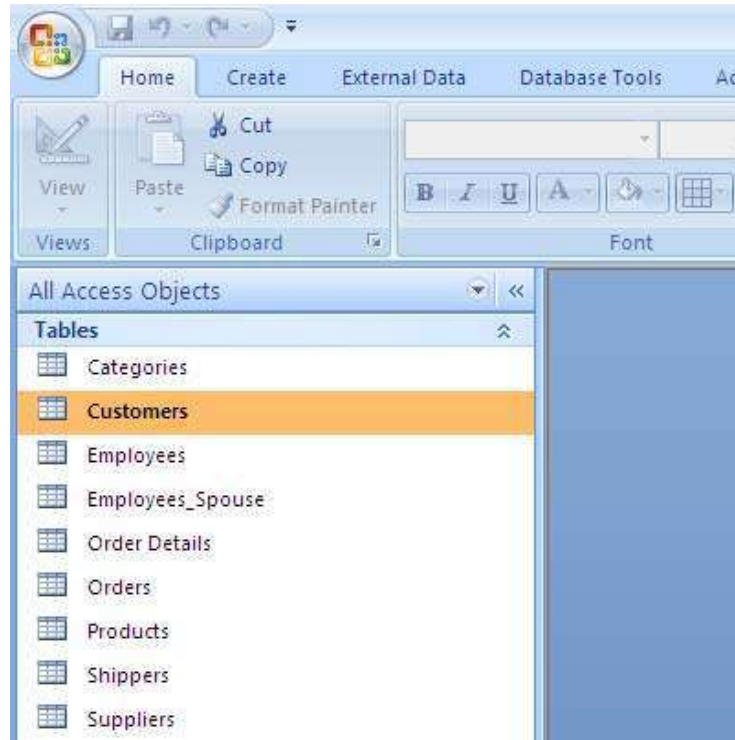
*The forms tab of the Northwind database window*



We are mainly interested in the relational database aspects of Microsoft Access, so let us open the *Tables* tab and look at some of the tables in the Northwind database.

**Step 1.** Press the tab marked *Tables* under the list of *Objects* at the left of the database window, and then clicks ONCE on *Customers* to select the *Customers Table*.

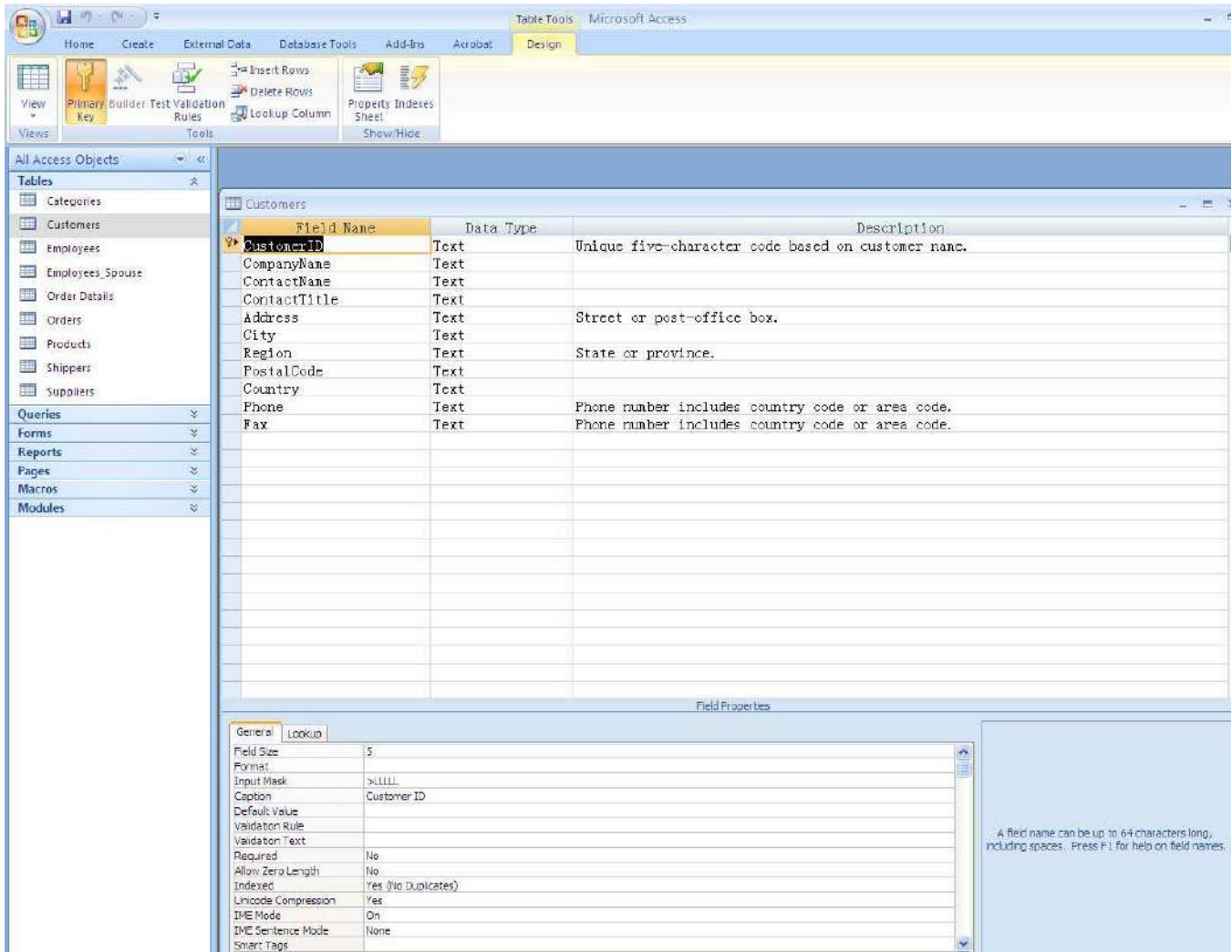
The tables tab of the Northwind database window with Customers selected



**Step 2.** Right-click the *Customers Table* and click *Design View* on the shortcut menu to view the design (table definition) of the *Customers Table*. Notice the small key by CustomerID. As you have probably already guessed, this means that CustomerID is a key field.



## The design of the Customers Table



Move the small vertical scroll bar at the right side of the table description window up and down, if necessary, so you can read the names and data types of all the fields in the *Customers Table*.

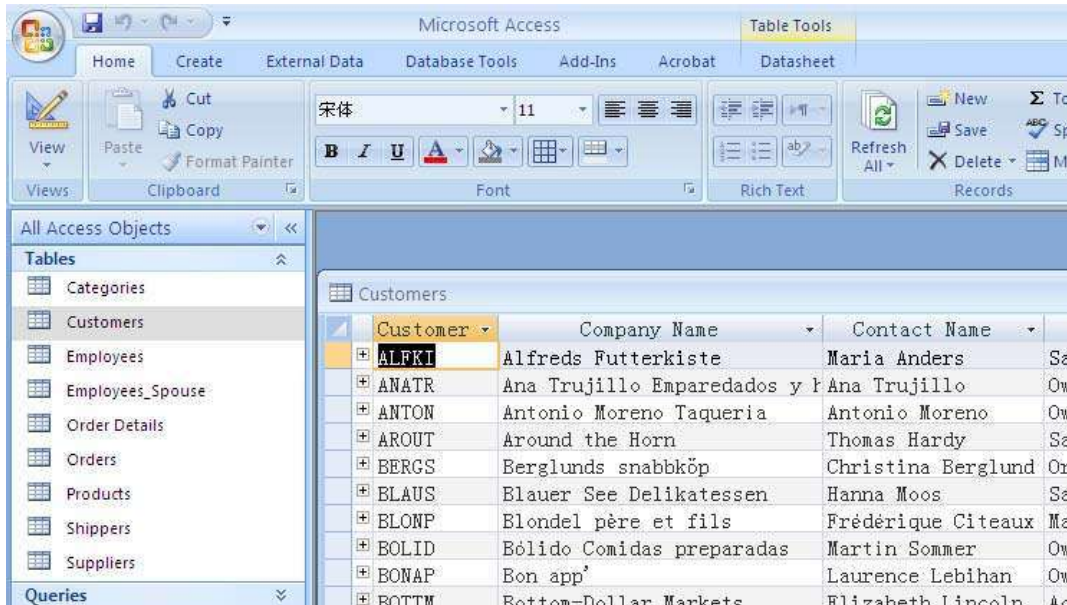
**Caution:** Do not change any of the table field definitions, as you do not want to mess up the database. (Changing table field definitions without knowing what you are doing is one of the few really bad things you can do to a database. If you change the table field definitions, you will destroy a large part of the data in the table.)

**Step 3.** After you have inspected the *Customers Table* design, click on the small *x* at the top right of the *Customers Table* on its title bar to close the table definition panel and return to the *Tables tab*. Again, be careful not to click on the *x* at the top right of the Microsoft Access title bar, or you will close Access completely.

### Viewing the Data in the Customers Table

**Step 1.** Be sure the *Tables* tab is visible in the database window. Open the *Customers Table* by double-clicking on it. This will display the data in the table.

## The Customers table opened



Customer	Company Name	Contact Name	
ALFKI	Alfreds Futterkiste	Maria Anders	Sa
ANATR	Ana Trujillo Emparedados y Pa	Ana Trujillo	Ow
ANTON	Antonio Moreno Taqueria	Antonio Moreno	Ow
AROUT	Around the Horn	Thomas Hardy	Sa
BERGS	Berglunds snabbköp	Christina Berglund	Or
BLAUS	Blauer See Delikatessen	Hanna Moos	Sa
BLONP	Blondel père et fils	Frédérique Citeaux	Ma
BOLID	Bólido Comidas preparadas	Martin Sommer	Ow
BONAP	Bon app'	Laurence Lebihan	Ow
BOTTM	Bottom-Dollar Markets	Elizabeth Lincoln	Ac

The *Customers Table* contains only 91 records, so it is easy to scroll through the opened table and view all the records. Move the vertical scrollbar up and down so you can inspect the data in some of the records. Move the horizontal scrollbar back and forth to view all the fields in a given record. Then close the table by clicking on the small *x* at the top right of the table on its title bar. Again, be careful not to close Access itself.

## Getting Familiar with the Remaining Tables

View the definitions and data for each of the other tables in the database window. Note the large number of datatypes supported by Access. These include *text* fields of various sizes, *memo* fields which are text fields of unlimited size, *number* fields, *autonumber* fields, and even image fields. To actually see the images in the *Picture* field in the *Categories Table*, you have to double click them while the table is open. Those of you familiar with object technology will be able to see that Microsoft Access 2007 is in part an *object oriented* database because access methods (to view images for instance) are bundled with the data. However, Microsoft Access 2007 is not fully object oriented because (1) it does not support inheritance, and (2) you are not able to specify the access methods for fields in a table.


## What's Next?

The next thing to do is to study how to *Add and Change Data*

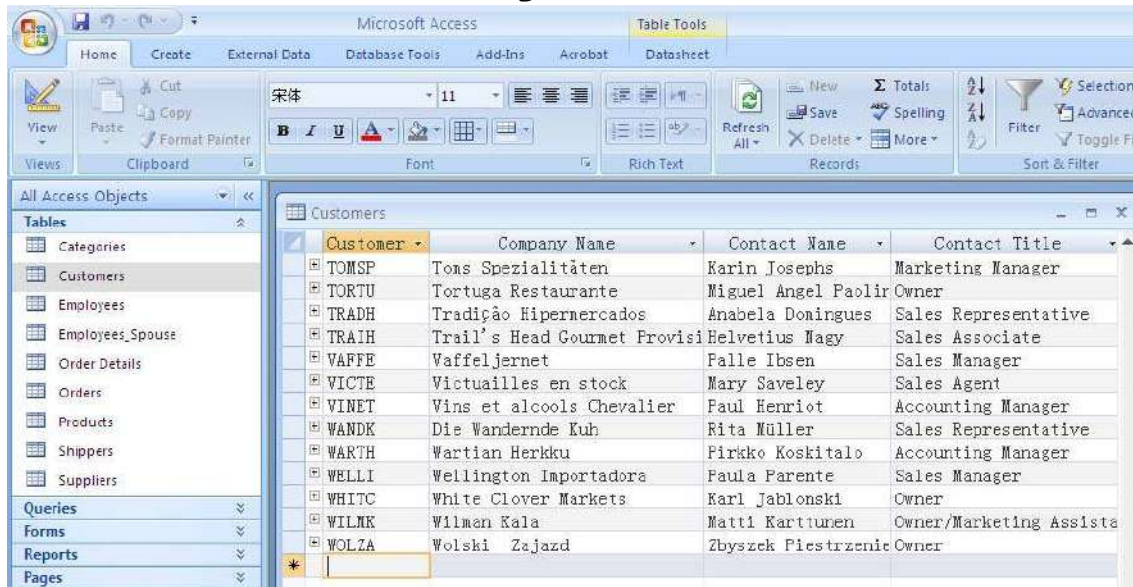
# Chapter 2. Adding and Changing Data

## Adding Data to the Customers Table

To add records to a table, all you have to do is *type them in*. Let's add a record for a new customer, *Restaurante Villa*, to the *Customers Table*.

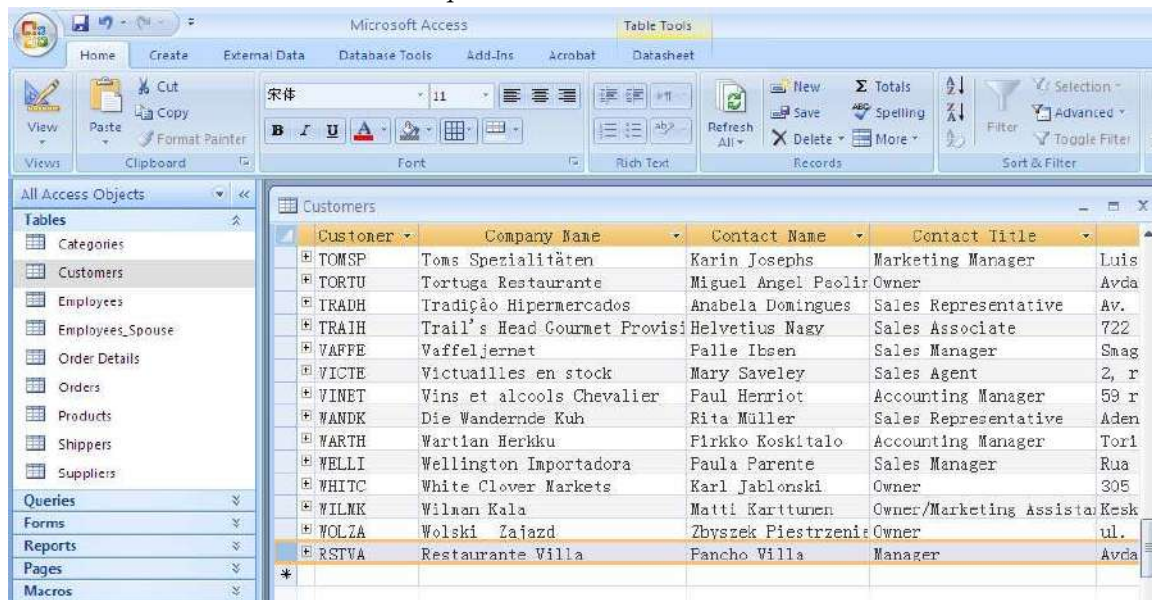
**Step 1.** Be sure the *Customers Table* is open in the database window with its data displayed. Click on the  button at the bottom of the *Customers Table* window to move to the blank record at the end of the Customers table. The cursor should be positioned in the *Customer ID* field of the record.

### *Adding a new record*



**Step 2.** Enter *RSTVA* in the *Customer ID* field. Click on the next field, the *Company Name* field and enter *Restaurante Villa*. Then repeat this process to add the following information to the following fields of the Restaurante Villa record: *Pancho Villa* to *Contact Name*, *Manager* to *Contact Title*, *Avda. Azteca 123* to *Address*, *Juarez* to *City*, *Mexico* to *Country*, *(5) 555 4781* to *Phone*, and *(5) 555 4782* to *Fax*. Click anywhere outside of the new record to save it. (There will be no feedback that the new record has been saved.)

### *The completed Restaurante Villa record*



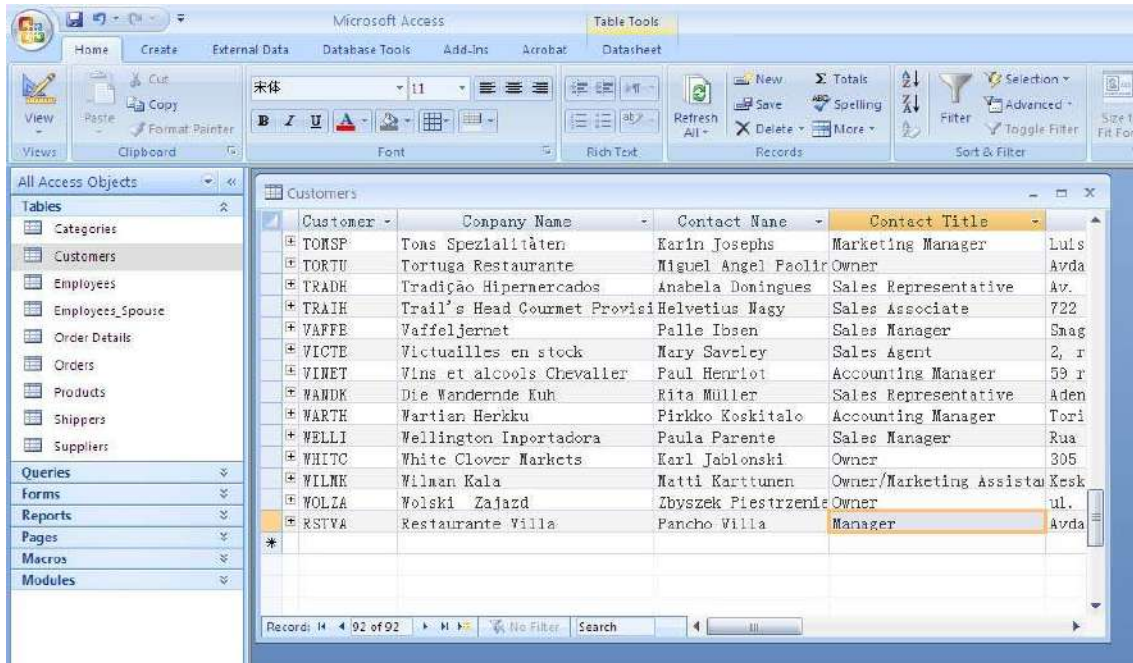


## Changing Data in the Customers Table

Suppose you have just learned that *Pancho Villa* is not the manager of *Restaurante Villa*, rather he is the owner. To make the change, all you have to do is *type it in*.

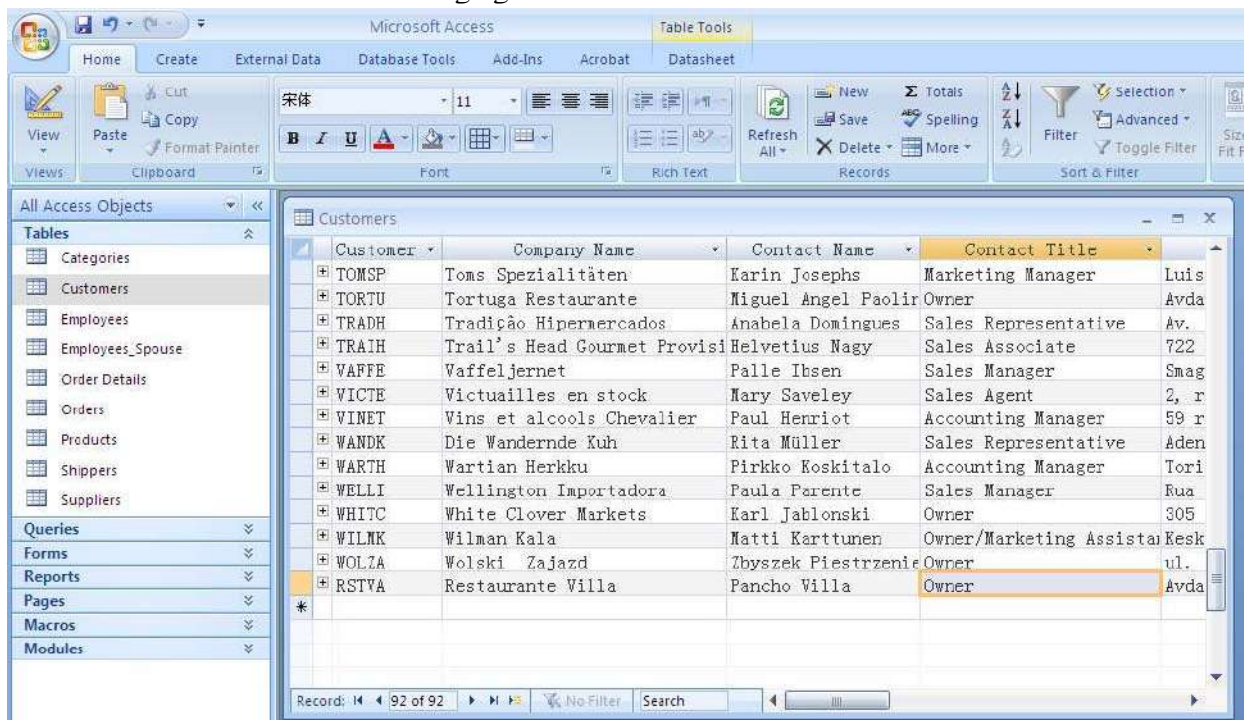
**Step 1.** Be sure the *Restaurante Villa* record is visible in the *Customers Table* window. Click anywhere on *Manager* in the *Contact Title* field to place the cursor there.

*Ready to change the Contact Title field of the Restaurante Villa record*



**Step 2.** Use the *Delete* or *Backspace* key to erase *Manager*, and then type *Owner* in its place to make the change. Click anywhere outside the *Contact Title* field to save the change. (There will be no feedback that the change has been saved.)

*Changing the Restaurante Villa record*

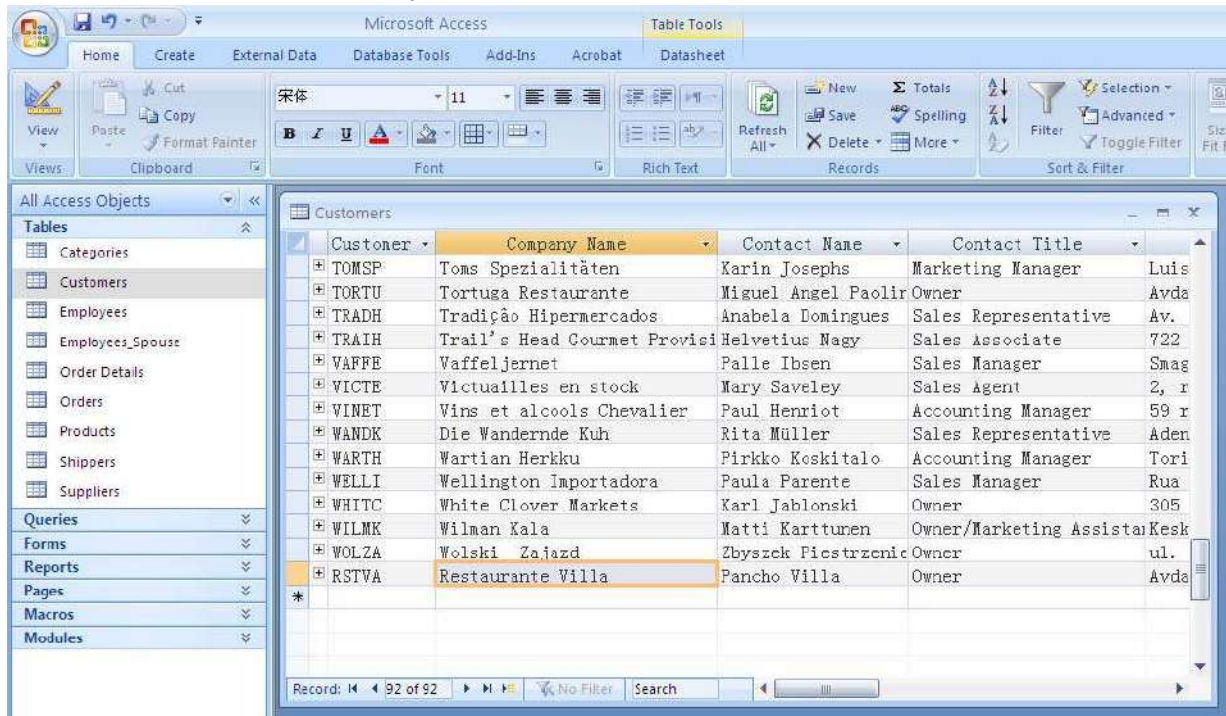


## Deleting Data from the Customers Table

Sometimes you need to completely delete a record. Let's delete the *Restaurante Villa* record so we can restore your copy of the Northwind sample database to its original state.

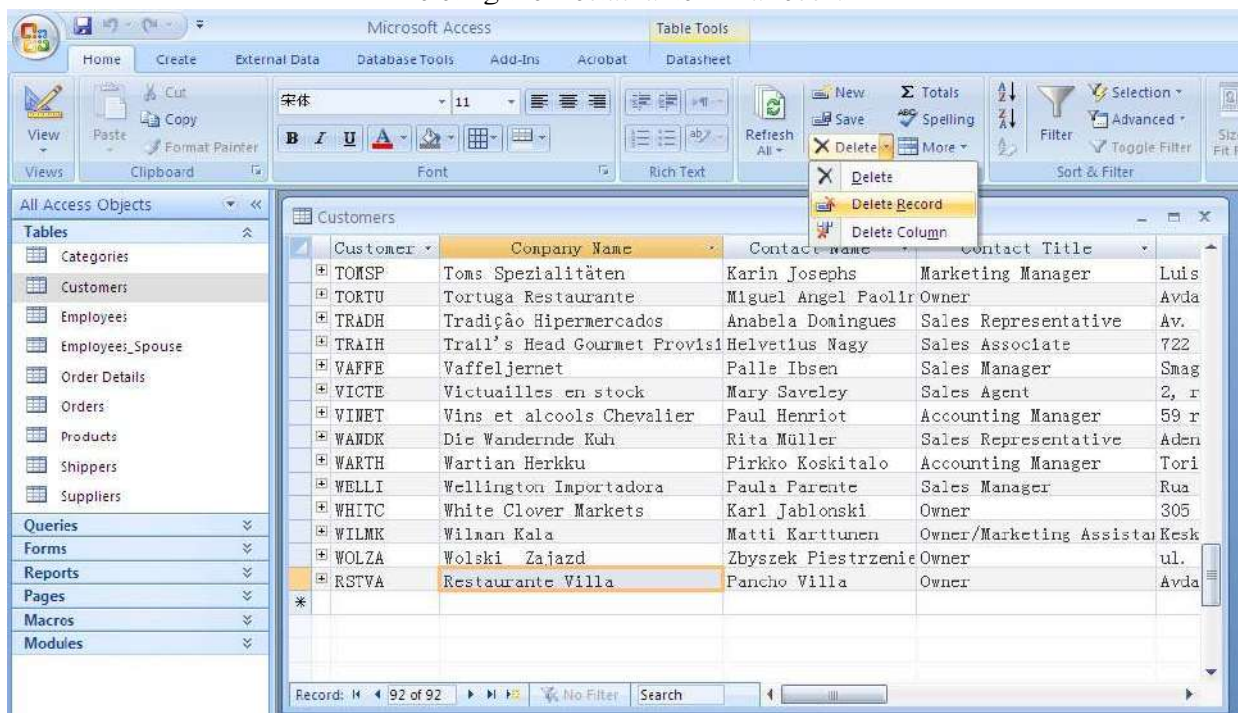
**Step 1.** Be sure the *Restaurante Villa* record is visible in the *Customers Table* window. Click anywhere on the record to select it. This is VERY IMPORTANT, as not selecting the correct record may result in the WRONG RECORD being deleted.

*Ready to delete the Restuarante Villa record*



**Step 2.** On the *Home* tab, in the *Records* group, click the down arrow next to *Delete* and click *Delete Record*.

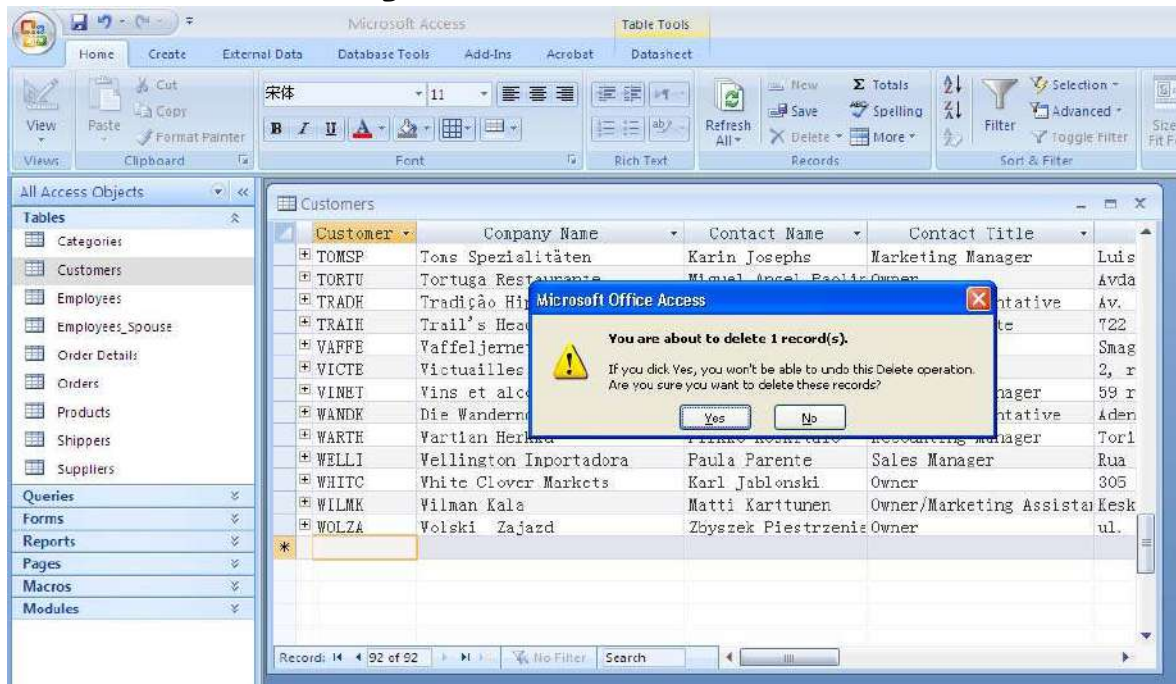
*Deleting the Restaurante Villa record*





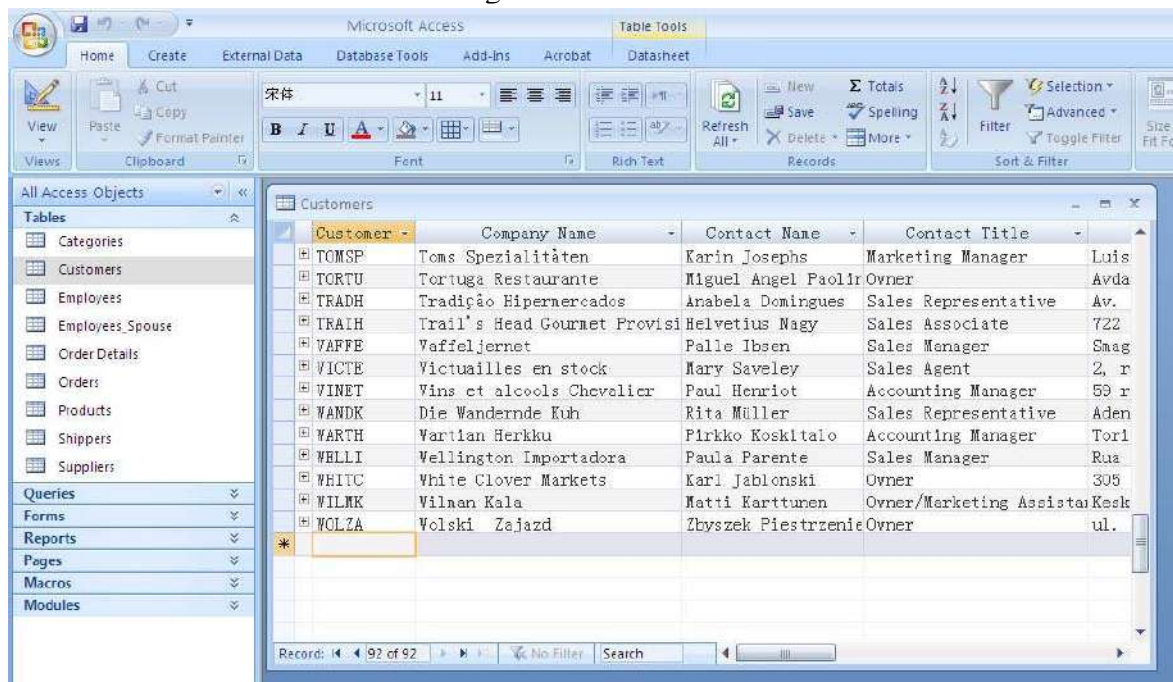
**Step 3.** Because deleting a record is an extreme change and an irreversible process, you will be asked to *confirm* the deletion. Check carefully to be sure you are deleting the correct record.

*Confirming the deletion of the Restaurante Villa record*



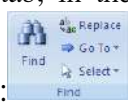
**Step 4.** Click *Yes* on the confirmation box to finish deleting the record. Observe that the *Restaurante Villa* record is no longer there.

*After deleting the Restaurante Villa record*



**Finding Records in the Customers Table**

To find a record in the *Customers Table*, On the *Home* tab, in the *Find* group, click *Find*. (Alternate procedure: Press *CTRL+F*.) This figure shows the command:



*Find* works just about the way Find

works in your favorite word processor, so I won't present you with any screen shots. Just be careful that the cursor is located in the column of the table containing the item you are looking for, because the default is to search only down the current column. You should practice using *Find*. Try moving to the first record in the table and then finding *TOMSP* in the *Customer ID* column. Then go back to the top of the table and repeat this for *Karin Josepfs* in the *Contact Name* column.

**The last thing** you should do is close the *Customer's Table* by clicking the small *x* at the top right of the table on its title bar. Be careful not to click on the *x* at the top right of the Microsoft Access title bar, or you will close Access completely.

## What's Next?

**The next thing** to do is to study *Simple Queries*



# Chapter 3. Simple Queries

## What Are Queries?

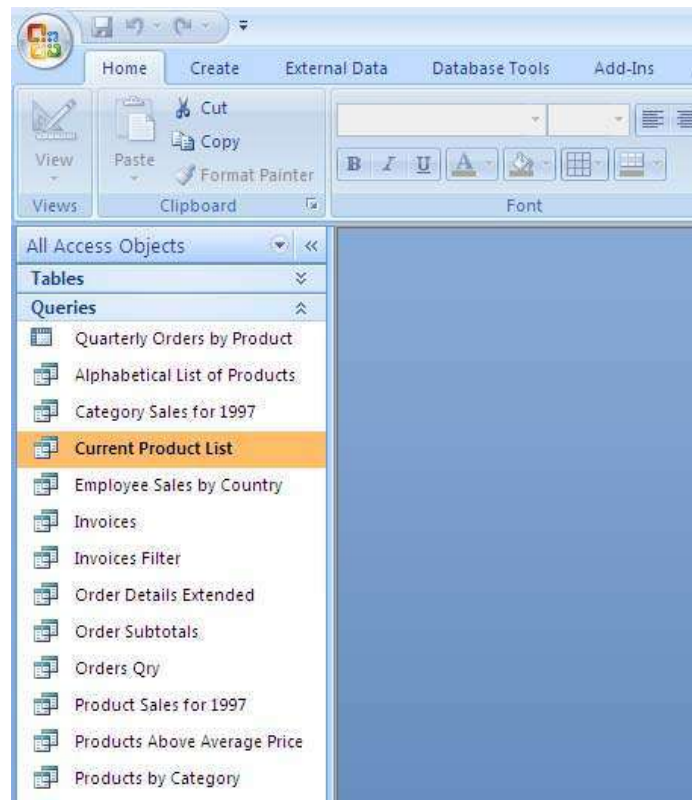
It is **easier** to give examples of queries than to give a formal definition. So consider, for example, the *Products* table in the Northwind sample database. The *Products* table lists both current and discontinued products. You can tell which is which by looking at the *Discontinued* field of the Products table. Suppose you want a list of all current products. It is inconvenient to print out all 77 product records in the table and then run down the list by hand and check off those which are not discontinued. It would be far easier to let the computer do the work by *querying* the database and getting a machine prepared list of current products. This is where *queries* come in.

**Microsoft Access 2007** allows you to create queries and store them for reuse. The stored queries are listed in the *Queries tab* of the database window. As it turns out, the designers of the Northwind database have already created and stored the very query we are interested in to list all current products. The name of the query is *Current Product List*. Let us examine and then run it.

## Examining the Current Product List Query

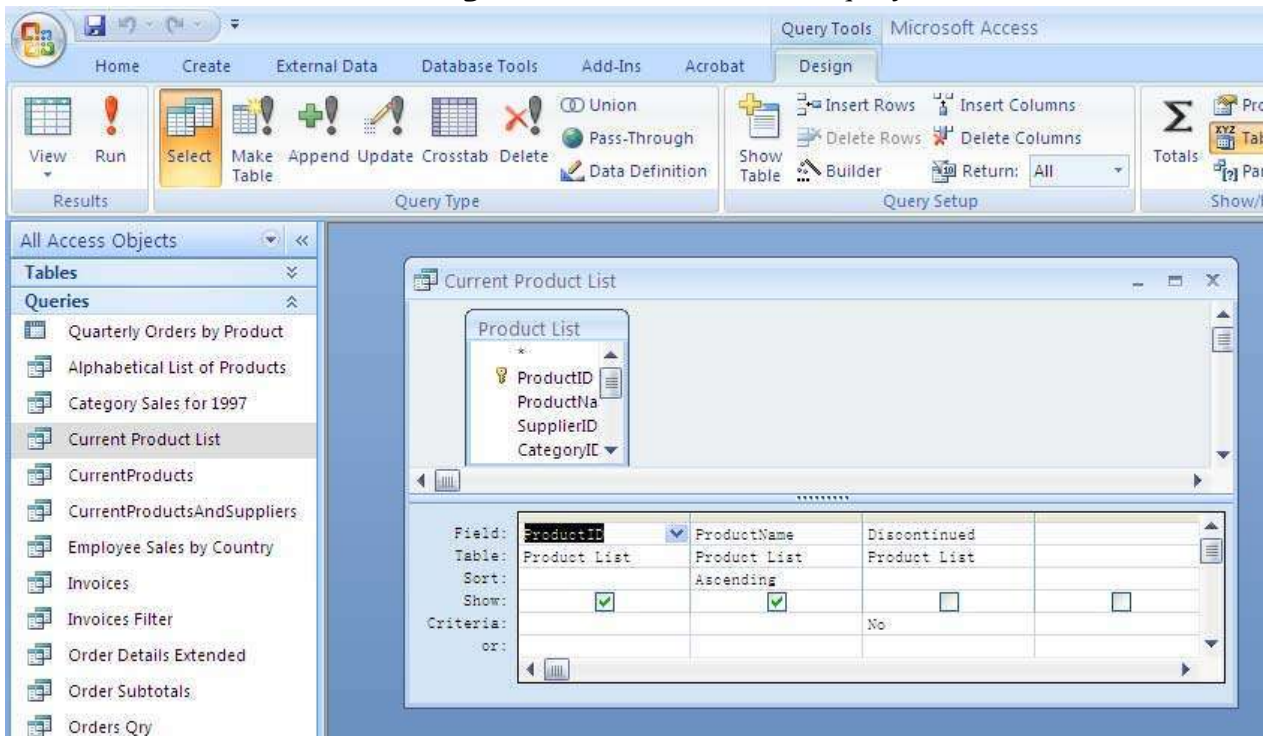
**Step 1.** Be sure the database window is visible. Click on the *Queries tab* of the database window to make the list of stored queries visible. Click **ONCE** on the *Current Product List* query to select it.

*The queries tab of the Northwind database window with Current Product List selected*



**Step 2.** Right-click the *Current Product List* query and click Design View on the shortcut menu to view the design (query definition) of the *Current Product List* query.

## The design of the Current Product List query



The *design view* of the query, which you are looking at now, presents the design of the query in a graphical format. Move the vertical scroll bars in the *Product List* box up and down to see what fields are available in the *Product List* table. Notice the checks at the bottom of the *ProductID* and *ProductName* columns of the design window. These indicate that the *ProductID* and *ProductName* fields will be shown when the query is run. Notice the *lack* of a check at the bottom of the *Discontinued* column. This indicates that the *Discontinued* field will not be shown when the query is run. Finally, notice the *No* in the *Criteria* row at the very bottom of the *Discontinued* column. This indicates that that only those records with *No* in their *Discontinued* fields will be selected when the query is run. In this way, the query will list the product IDs and names of all current products, but will not list any discontinued products.

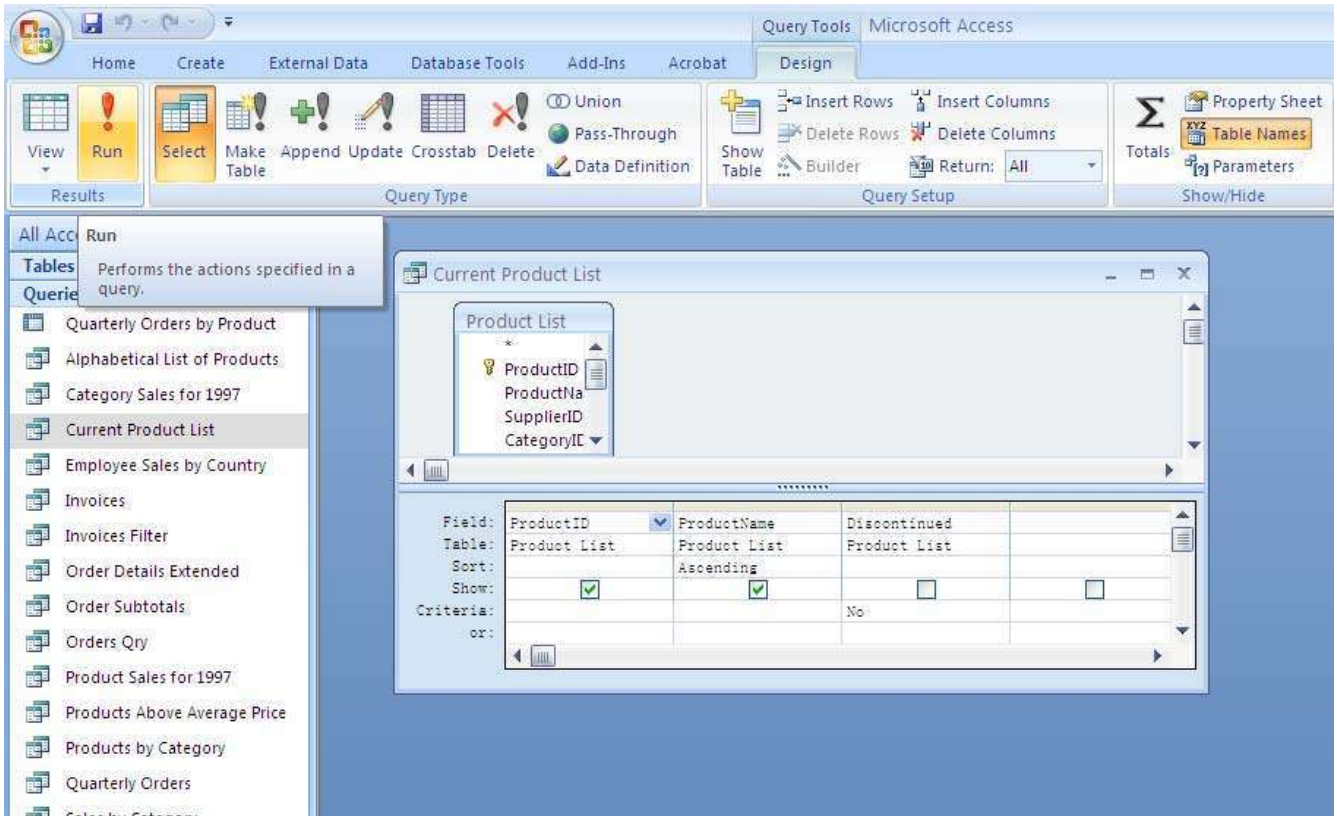
*Note.* You may have wondered, where did the *Product List* table come from? After all, the correct name of the table in the database is *Products*. The answer is that *Product List* is an *alias* for the *Products* table. This introduces an unnecessary complication into the query, and I suppose the designers of the Northwind database used this alias just to prove they could.

*Another note.* The graphical format used by design view has another name, *Query By Example* or *QBE*, so design view could equally well be called *QBE View*. Of course, Microsoft doesn't call it that, perhaps because QBE was invented by IBM. QBE was originally a simple text based method for entering queries. The second generation of QBE became known as *graphical QBE* because it used a tabular graphical interface similar to the one used by Microsoft and many other database vendors today. The graphical interface for second generation QBE was much simpler than Microsoft Access 2007's because second generation QBE, despite its name of *graphical QBE*, ran on the text based terminals used by the mainframes of the time.

## Running the Current Product List Query

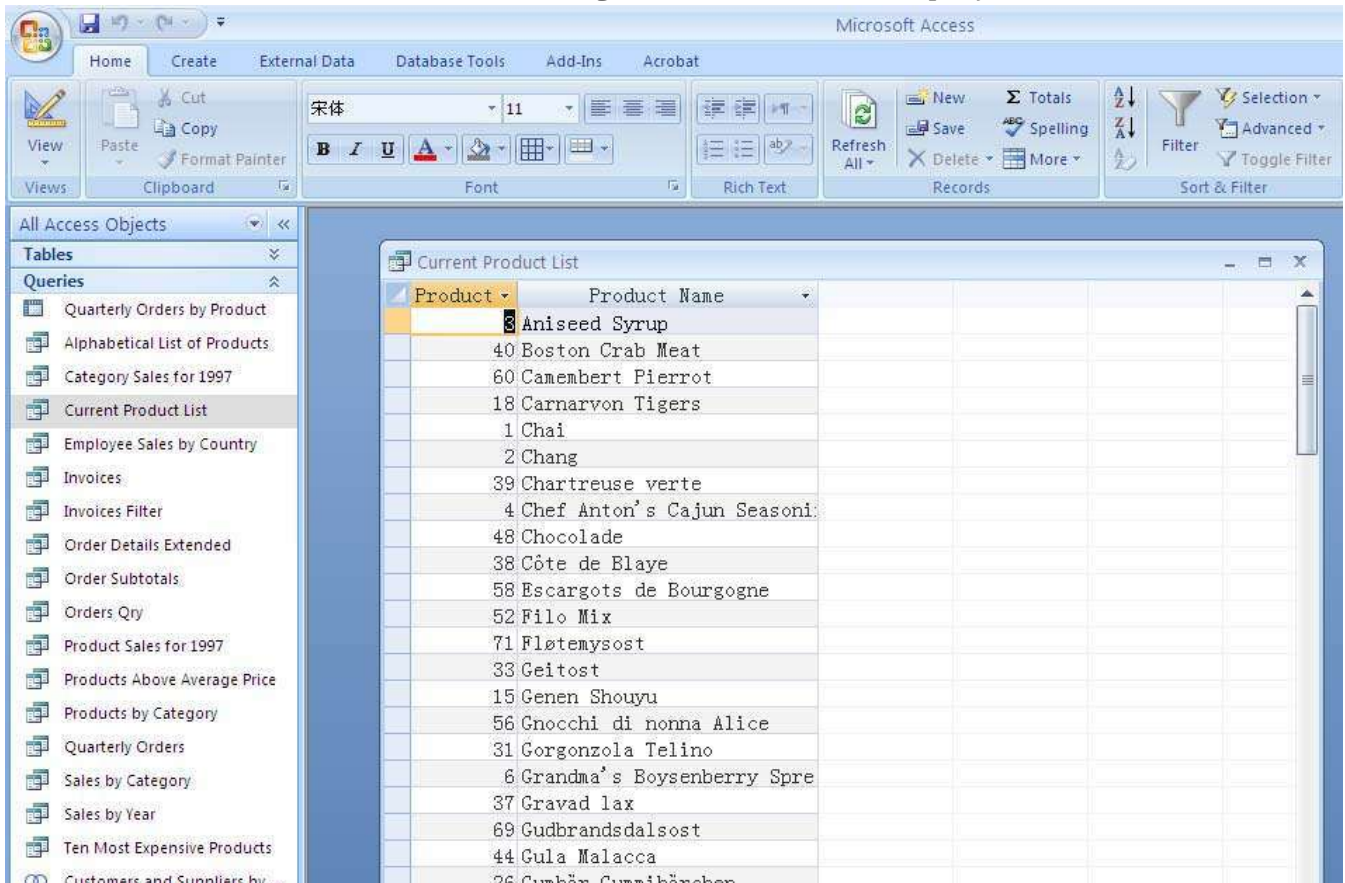
**Step 1.** Be sure the *Current Product List* query is open in design view. On the *Design* tab, in the *Results* group, click *Run* to run the query. (Alternate procedure: double-click the *Current Product List* query in the Navigation Pane, or click it and then press ENTER.)

## Running the Current Product List query



If all goes well, the *Current Product List* query will run rather quickly, and the following table of results will appear,

## The result of running the Current Product List query



This table of results is referred to as the *Datasheet View* of the query.



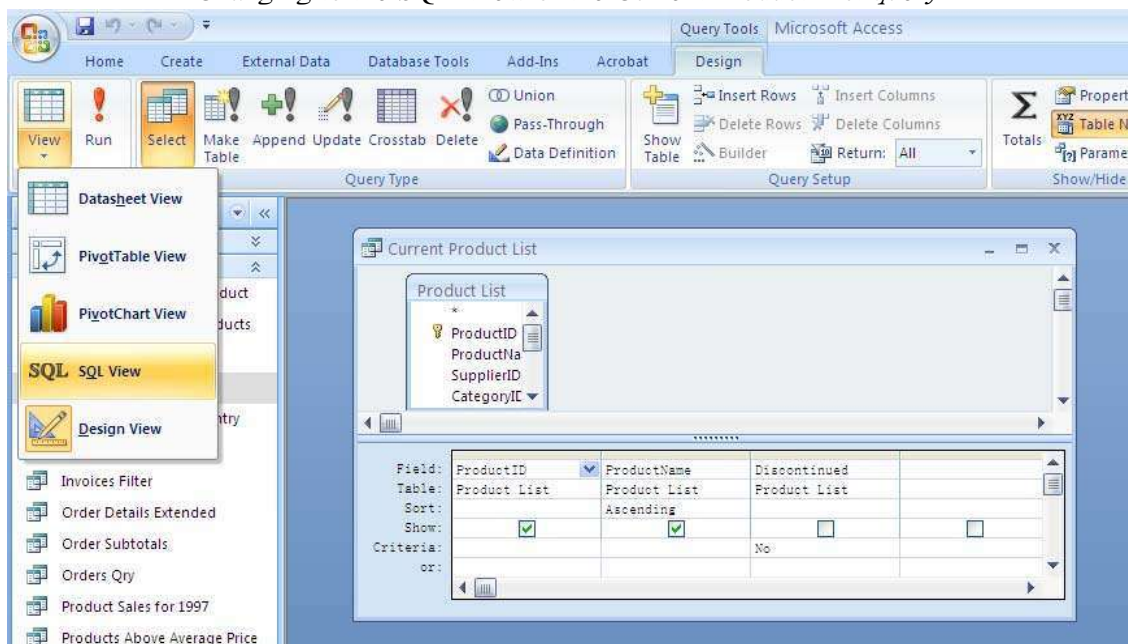
Move the vertical scroll bars at the right of the table up and down to view all 69 records in the table of results. This is a lot easier than examining all 77 records in the original table by hand, isn't it?. And with real data, where there may be thousands or even millions of records, machine run queries are essential.

## The SQL View of the Current Product List Query

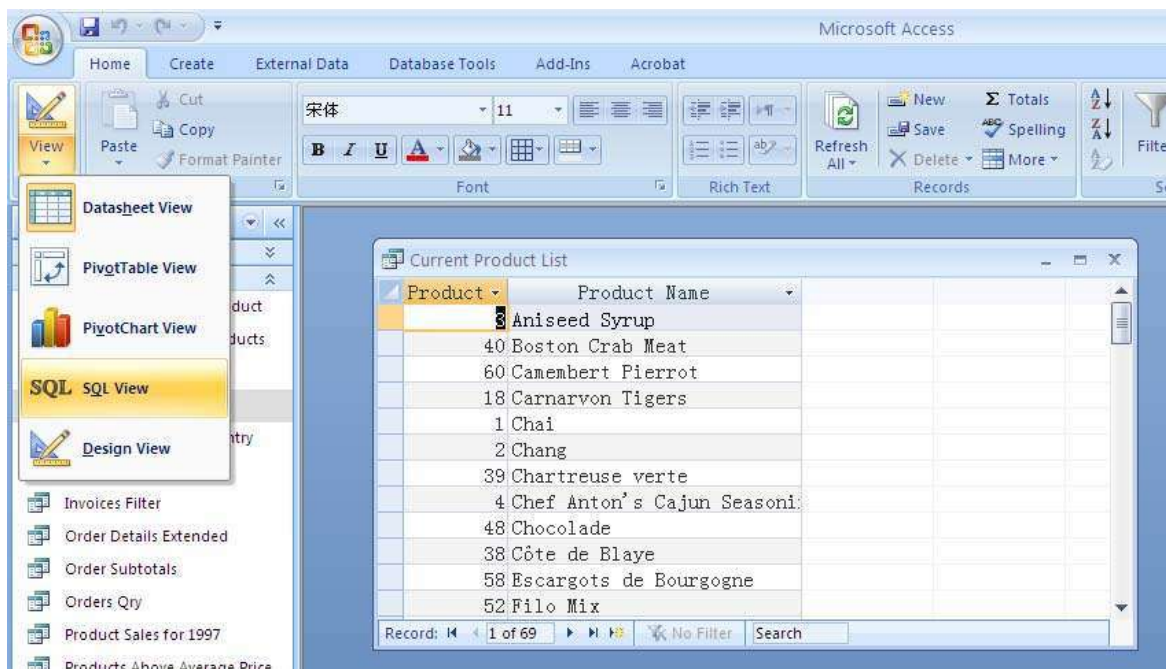
A **query** is really an SQL (Structured Query Language) statement or statements. Microsoft Access 2007 makes it possible for you to examine and edit the actual SQL statements making up a query by switching to *SQL View*. Let us switch to *SQL View* and look at the SQL statements making up the *CurrentProductList* query.

**Step 1.** Be sure the *Current Product List* query is open in design view. On the *Design* tab, in the *Results* group, click *View Menu* and then click *SQL View* to look at the query in SQL view. (Alternate procedure: Be sure the *Current Product List* query is open in Datasheet view. On the *Home* tab, in the *Views* group, click *View Menu* and then click *SQL View* to look at the query in SQL view.)

*Changing to the SQL View of the Current Product List query*



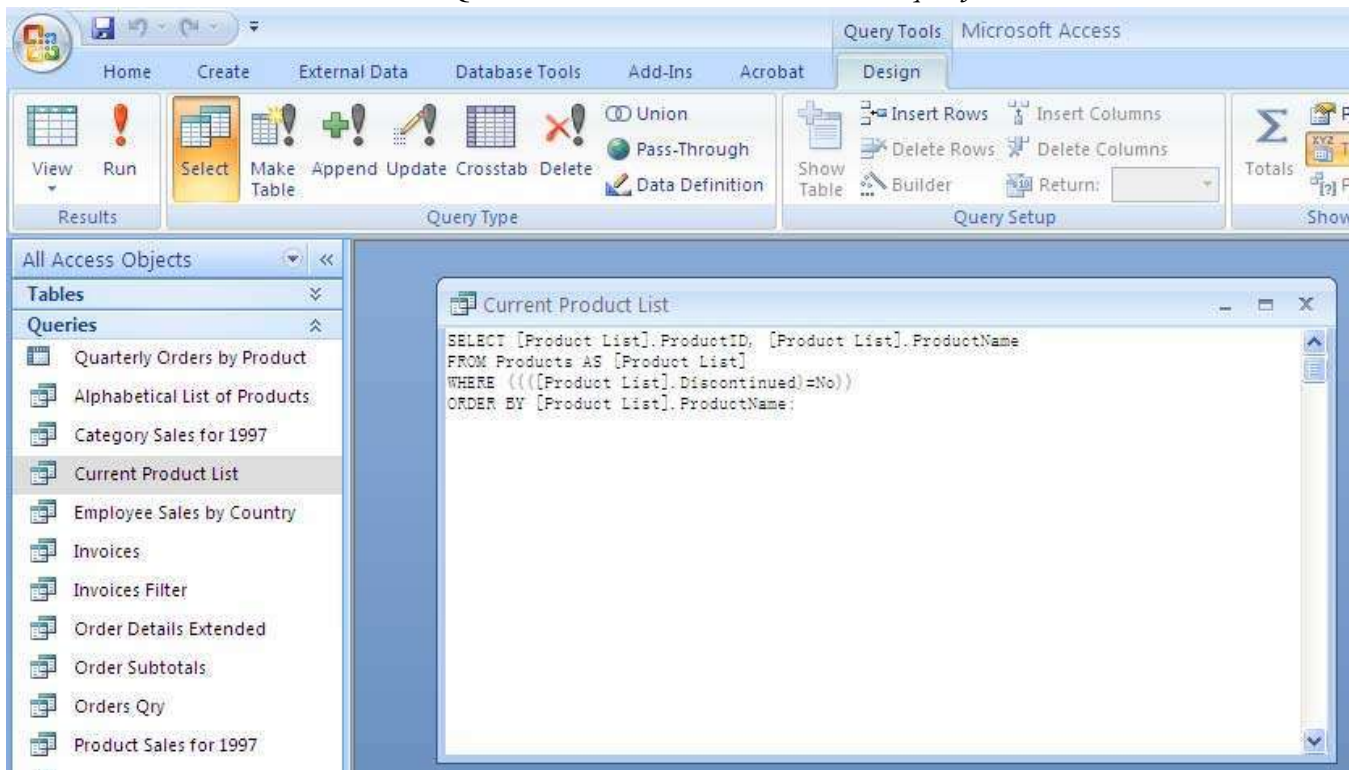
Or,





If all goes well, you will see the following window appear,

### *The SQL View of the Current Product List query*



**This window** is actually a simple text editor. You can edit the SQL, enter more SQL, and cut, copy and paste text. Thus, if you already have some SQL queries prepared in a text file, say one you wrote in Notepad or UltraEdit 32, you can create an Access 2007 query by clicking *Query Design* in the *Other* group of the *Create* tab to start a new query, switching to *SQL view*, deleting the small amount of text in the SQL view window, and then pasting in the text of your prepared SQL query. The really nice thing is that if you switch back to *design view*, your query will appear there nicely in graphical QBE. Of course, you can run your new query as we just did. You will get to do these things when you study *SQL Queries*.

**Note.** The SQL produced by Access 2007 when you create a QBE query in design view is often unnecessarily complicated. In the example above, there are lots of unnecessary parentheses. This is typical of machine generated code, and Access 2007 should not be criticized on this account.

**The last thing** you should do is close the *Current Product List* query by clicking the small *x* at the top right of the *SQL View* window on its title bar. Be careful not to click on the *x* at the top right of the Microsoft Access title bar, or you will close Access completely.

### What's Next?

**The next thing** to do is to study how to create an append query. After that, you will be prepared to study how to create *QBE Queries*.

# Chapter 4. Creating Append Queries

## What are append queries?

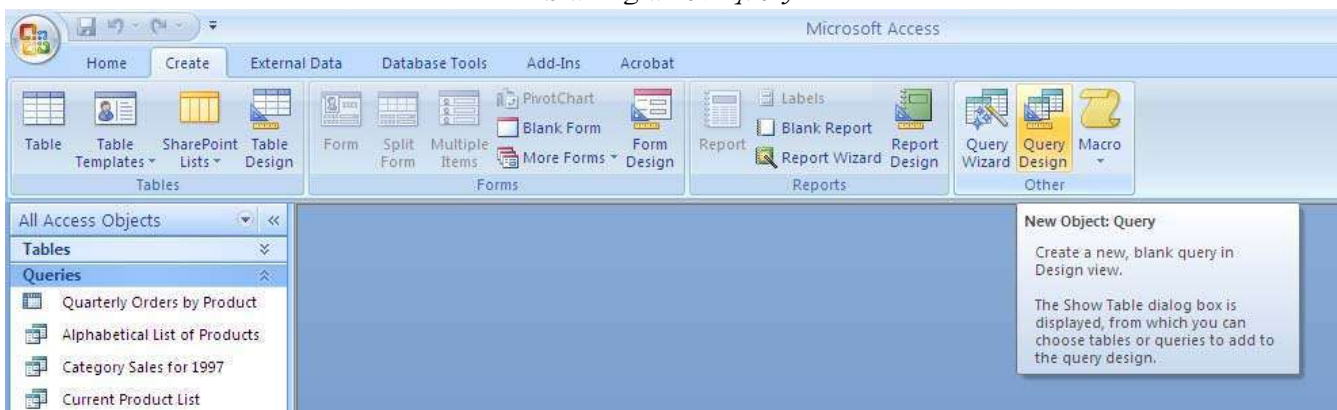
An append query adds a set of records (rows) from one or more source tables (or queries) to one or more destination tables. Typically, the source and destination tables reside in the same database, but they don't have to. For example, suppose that you acquire some new customers and a database that contains a table of information about those customers. To avoid entering that new data manually, you can append it to the appropriate table in your database. You can also use append queries to: (1) Append fields that are based on criteria. For example, you might want to append only the names and addresses of customers who have outstanding orders. (2) Append records when some of the fields in one table don't exist in the other table. For example, suppose that your Customers table has 11 fields, and the fields in the Clients table in another database match 9 of your 11 fields. You can use an append query to add only the data in the matching fields and ignore the others.

**Note.** You cannot use append queries to change the data in individual fields in existing records. You can only use append queries to add rows of data.

## Create a select query?

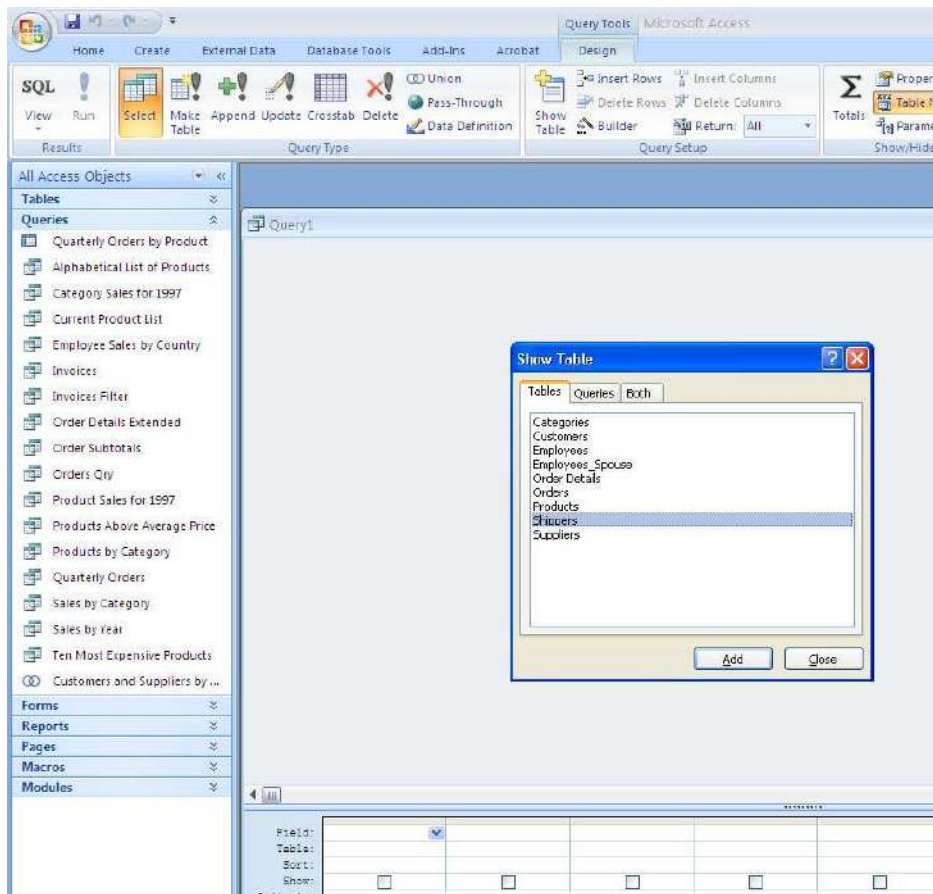
**Step 1.** Be sure the database window is visible. On the *Create* tab, in the *Other* group, click *Query Design*.

### Starting a new query



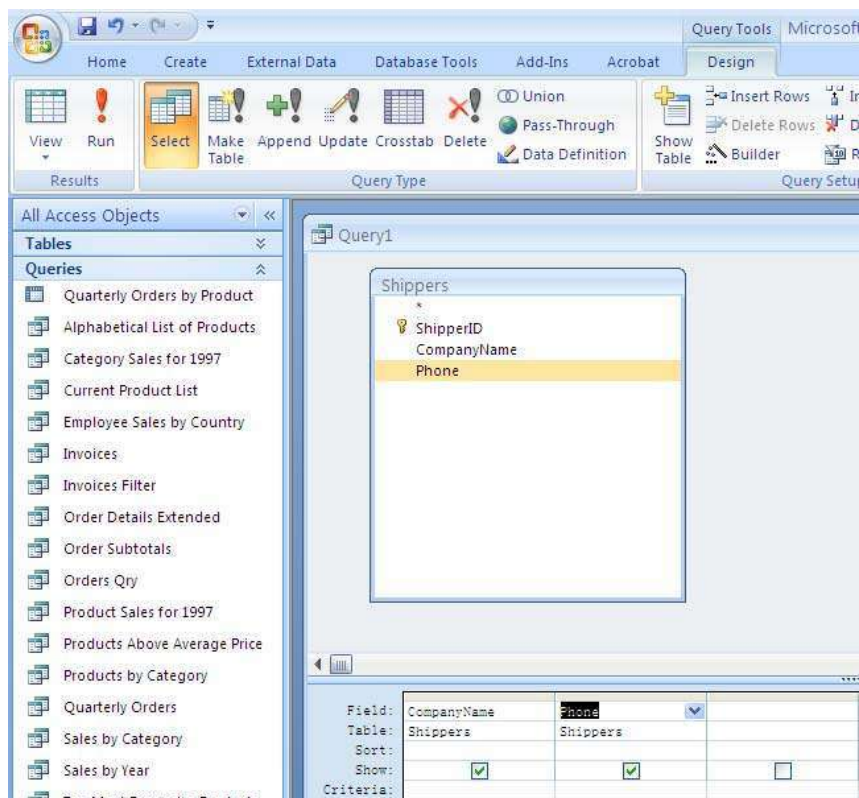
**Step 2.** This displays a new blank query in design view, and also presents you with the *Show Table* dialog box so you can choose which tables will be involved in the query. Select the *Shippers* table and press the *Add* button.

*The new blank query in design view with the Show Table dialog box*



**Step 3.** Double-click the fields that you want to append. The selected fields appear in the Field row in the design grid (the lower section of the query designer).

*The new blank query in design view with selected fields*

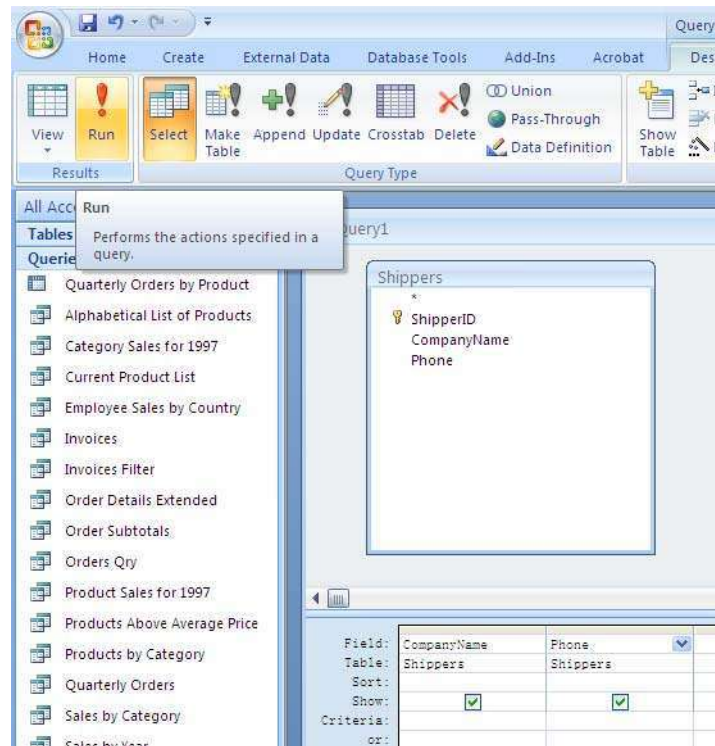


## Testing the new Query

You should always test a new query by running it.

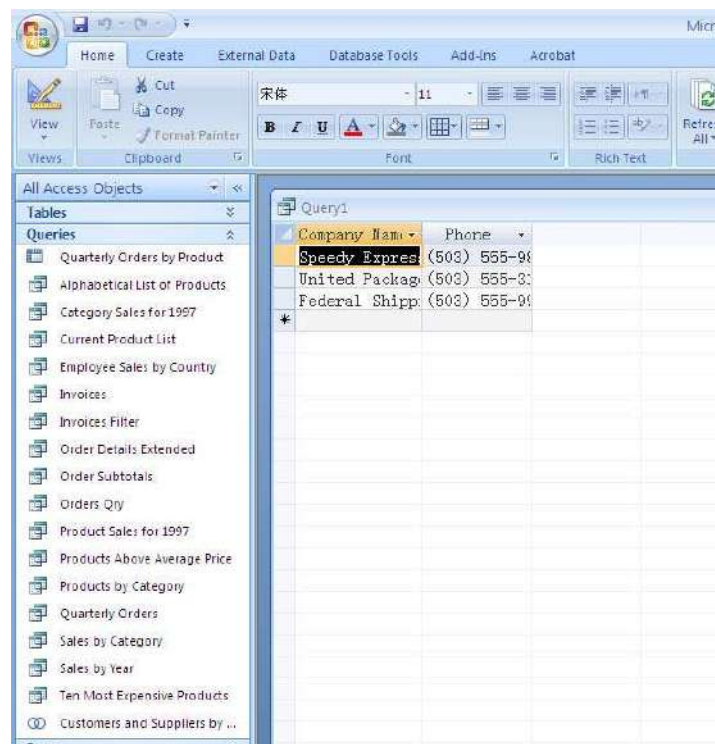
On the *Design* tab, in the *Results* group, click *Run* to run the query.

### *Running the new query*




If all goes well, the new query will run rather quickly, and the following table of results will appear,

### *The result of running the new query*





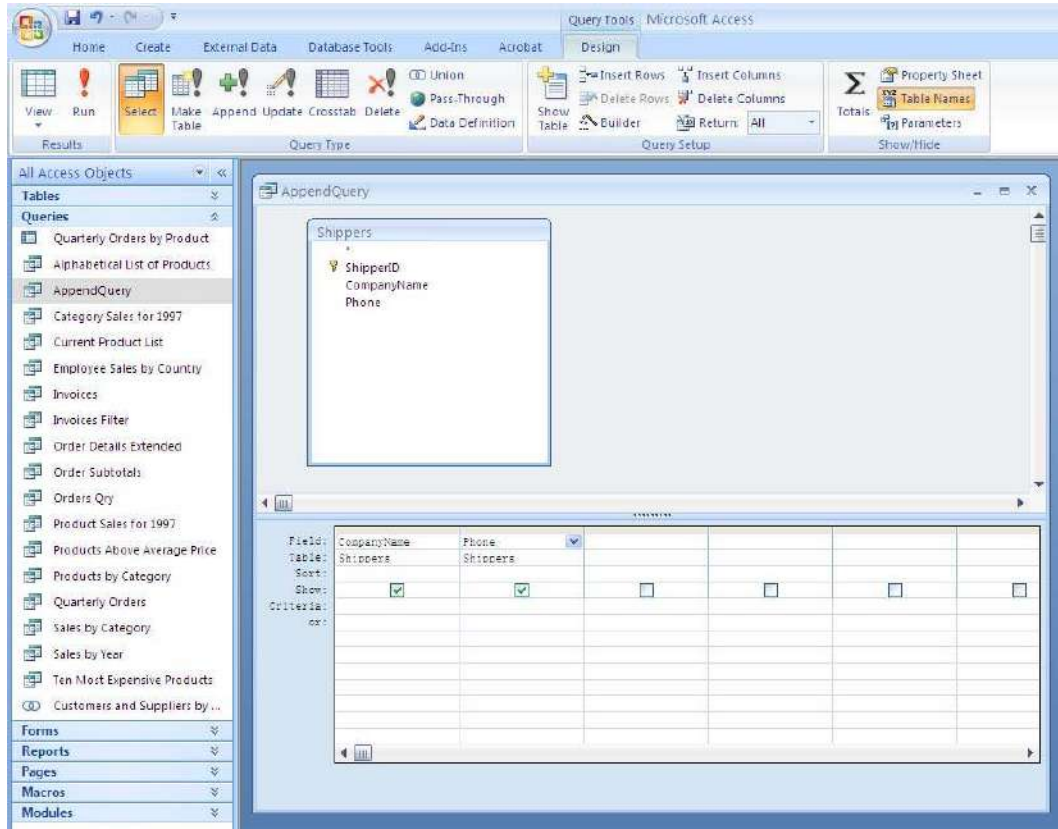
## Saving the New Query

You need to save your new query for future use. To save the query, click the Microsoft Office Button , and then click *Save*. Save the query as *AppendQuery*.

## Convert the select query to an append query

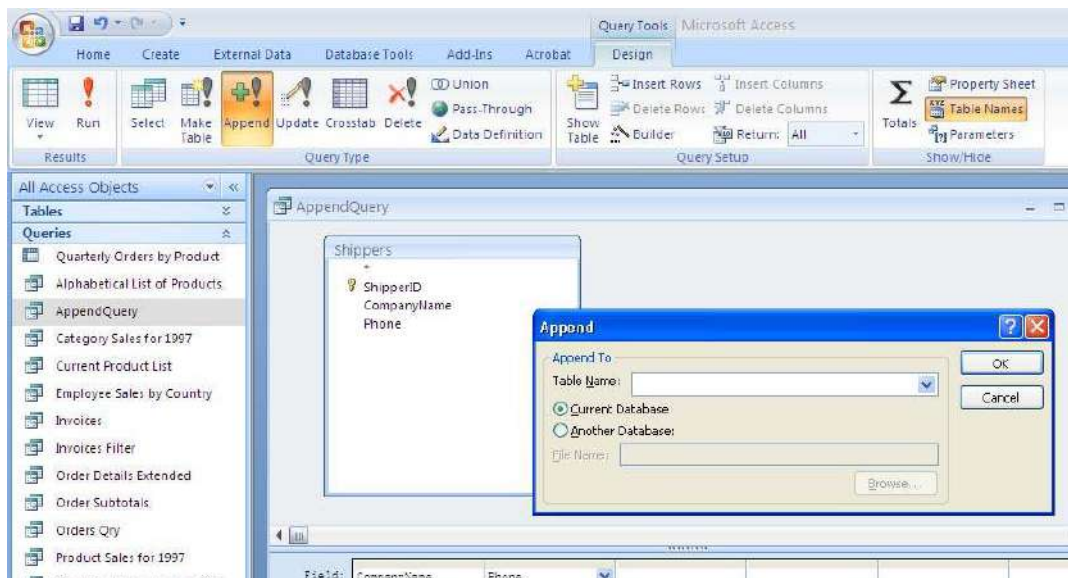
**Step 1.** Right-click the *AppendQuery* and then click Design View on the shortcut menu.

### The design of the AppendQuery



**Step 2.** On the *Design* tab, in the *Query Type* group, click *Append*. The Append dialog box appears.

### The AppendQuery with the Append dialog box



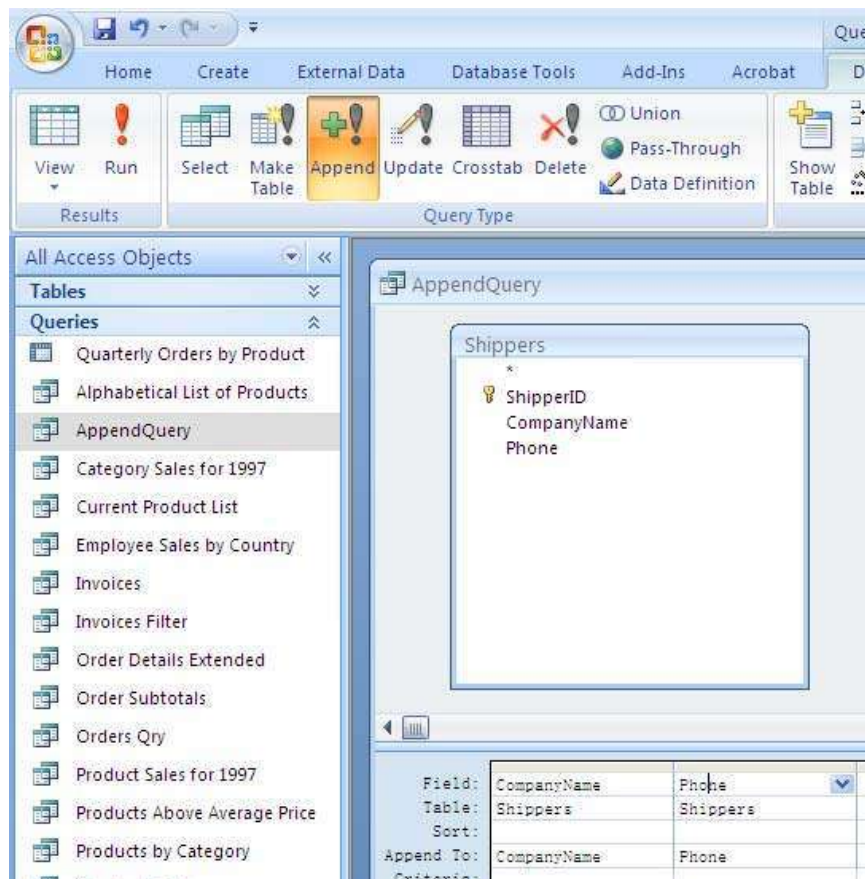
**Step 3.** In the Append dialog box, click *Current Database* (if it isn't already selected), and then select *Suppliers* as the destination table from the *Table Name* combo box.

### Appending records to a table in the same database



**Step 4.** Microsoft Access 2007 now adds all the fields in the destination table to the *Append to* row in the design grid.

### Appending records to a table in the same database

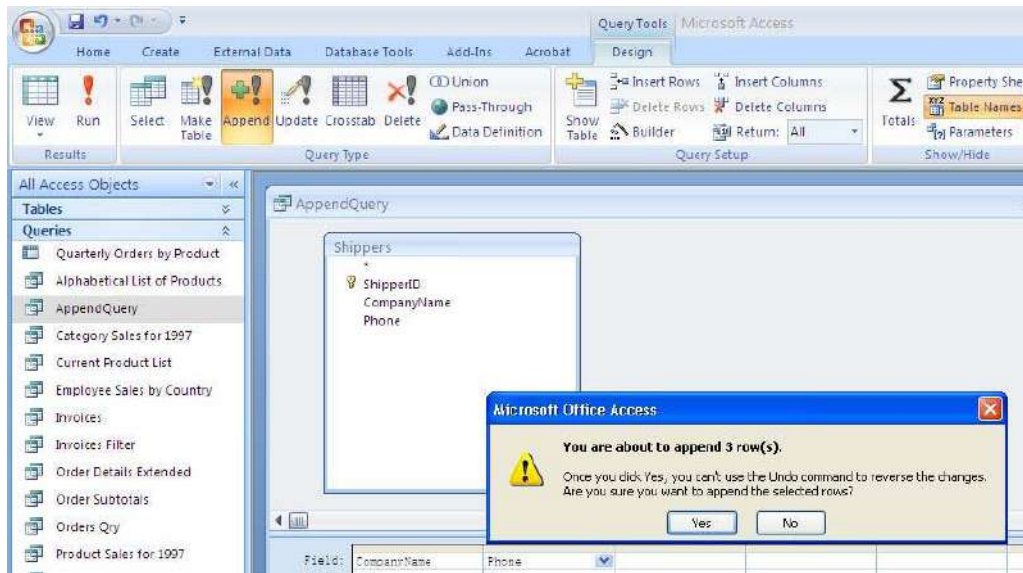


## Testing the New Query

You should always test a new query by running it.

**Step 1.** On the *Design* tab, in the *Results* group, click *Run* to run the query.

### *Running the new query*



**Step 2.** Click *Yes* on the confirmation box to finish appending the record

### *The table of results for the AppendQuery*

The screenshot shows the Microsoft Access interface with the *Table Tools* tab selected. The *Suppliers* table is displayed in Datasheet view. The table contains the following data:

SupplierID	Company Name	Contact Name	Contact Title	Address
12	Plutzer Lebensmittelgroßmärkte	Martin Bein	International Marketi	Bogenallee 51
13	Nord-Ost-Fisch Handelsgesellschaft	Sven Petersen	Coordinator Foreign M	Frahredder 112a
14	Fornaggi Fortini s.r.l.	Elio Rossi	Sales Representative	Viale Dante, 75
15	Norske Meierier	Beate Vileid	Marketing Manager	Harlevegen 5
16	Bigfoot Breweries	Cheryl Saylor	Regional Account Rep.	3400 - 8th Avenue
17	Svensk Sjöföda AB	Michael Björn	Sales Representative	Brovallavägen 231
18	Aux joyeux ecclésiastiques	Cuylerne Modier	Sales Manager	203, Rue des Francs-Bour
19	New England Seafood Cannery	Robb Merchant	Wholesale Account Age	Order Processing Dept.
20	Leka Trading	Chandra Leka	Owner	471 Serangoon Loop, Sui
21	Lyngbysild	Niels Petersen	Sales Manager	Lynbysild
22	Zaanse Snoepfabriek	Dirk Luchte	Accounting Manager	Verkoop
23	Karkki Oy	Anne Heikkonen	Product Manager	Valtakatu 12
24	G'day, Mate	Wendy Mackenzie	Sales Representative	170 Prince Edward Parade
25	Ma Maison	Jean-Guy Lauzon	Marketing Manager	2960 Rue St. Laurent
26	Pasta Buttini s.r.l.	Giovanni Giudici	Order Administrator	Via dei Gelsomini, 153
27	Escargots Nouveaux	Marie Delamare	Sales Manager	22, rue H. Volron
28	Gai pâturage	Eliane Noz	Sales Representative	Bat. B
29	Forêts d'érables	Chantal Goulet	Accounting Manager	148 rue Chasseur
30	Speedy Express			
31	United Package			
32	Federal Shipping			
*	(Rev)			

## What's Next?

The next thing to do is to study how to create your own *QBE Queries*. After that, you will be prepared to study how to create *SQL Queries*.



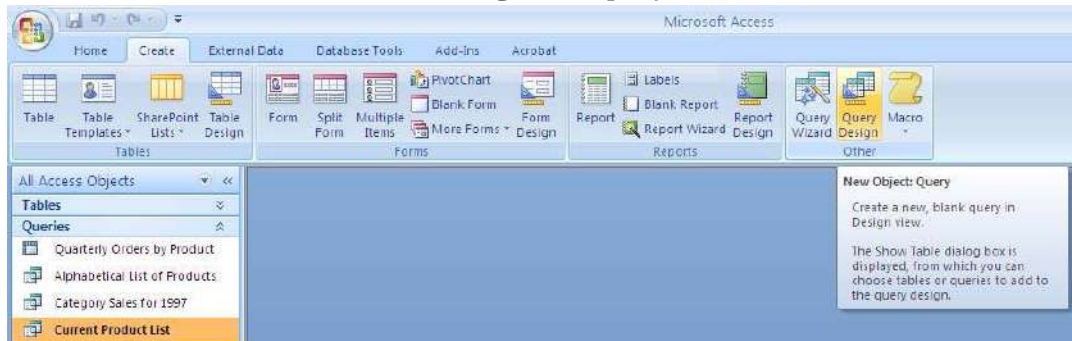
# Chapter 5. Creating QBE Queries

## Creating a New Query

The **Current Product List** query only displayed the *Product ID* and *Product Name* fields of the products which have not been discontinued. Let us create a new query which will also display the *Supplier* and *Category* fields. The fastest way to do this would be to open the Current Product List query in design view, and then alter the query. But instead, for practice, we shall create a new query from scratch.

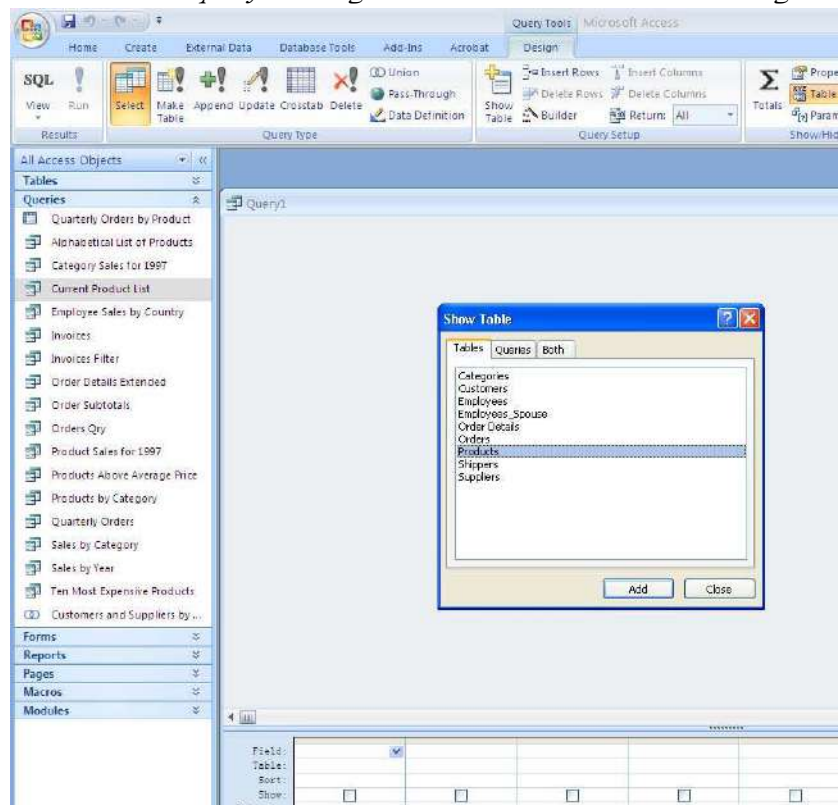
**Step 1.** Be sure the database window is visible. On the *Create* tab, in the *Other* group, click *Query Design*.

*Starting a new query*



**Step 2.** This displays a new blank query in design view, and also presents you with the *Show Table* dialog box so you can choose which tables will be involved in the query. Select the *Products* table and press the *Add* button.

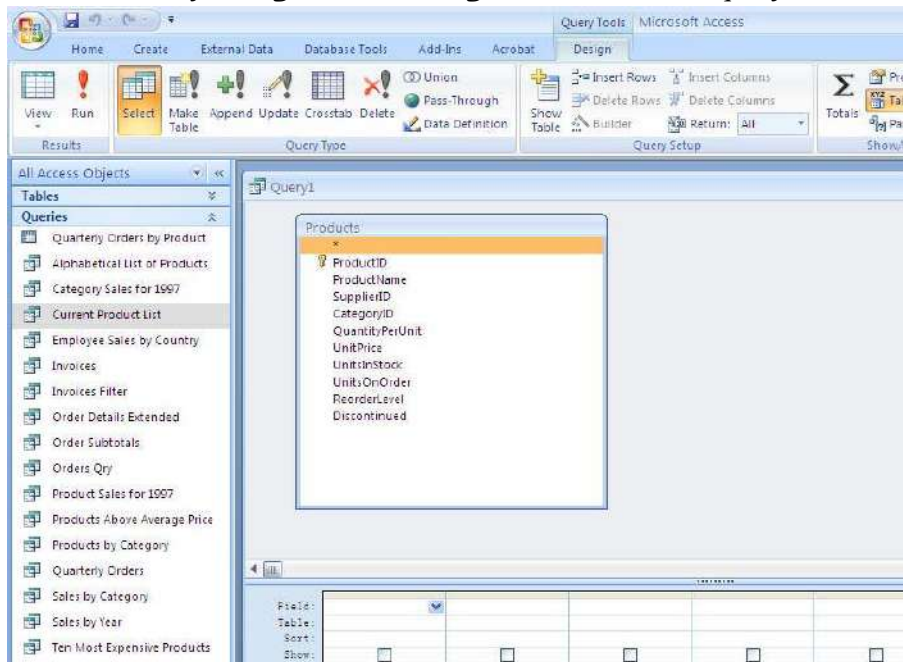
*The new blank query in design view with the Show Table dialog box*



**Step 3.** As the *Products* table will be the only table involved in the query for the time being, press the *Close* button on the *Show Table* dialog box. You are now ready to begin the real design work.

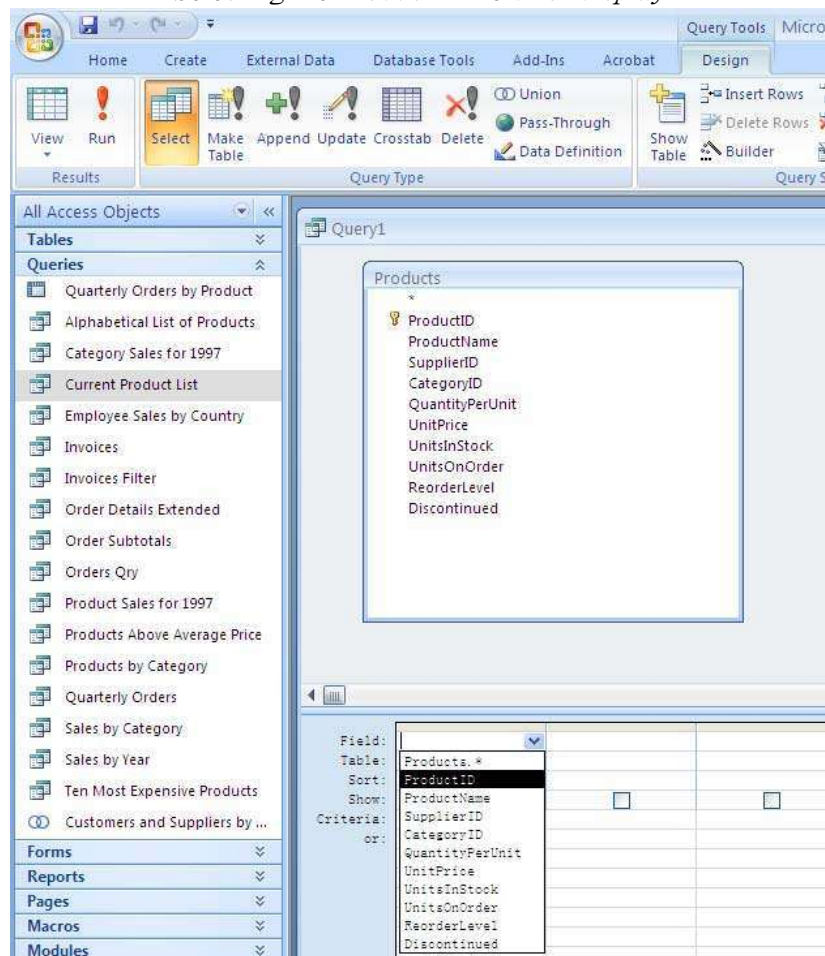



Ready to begin the real design work on the new query



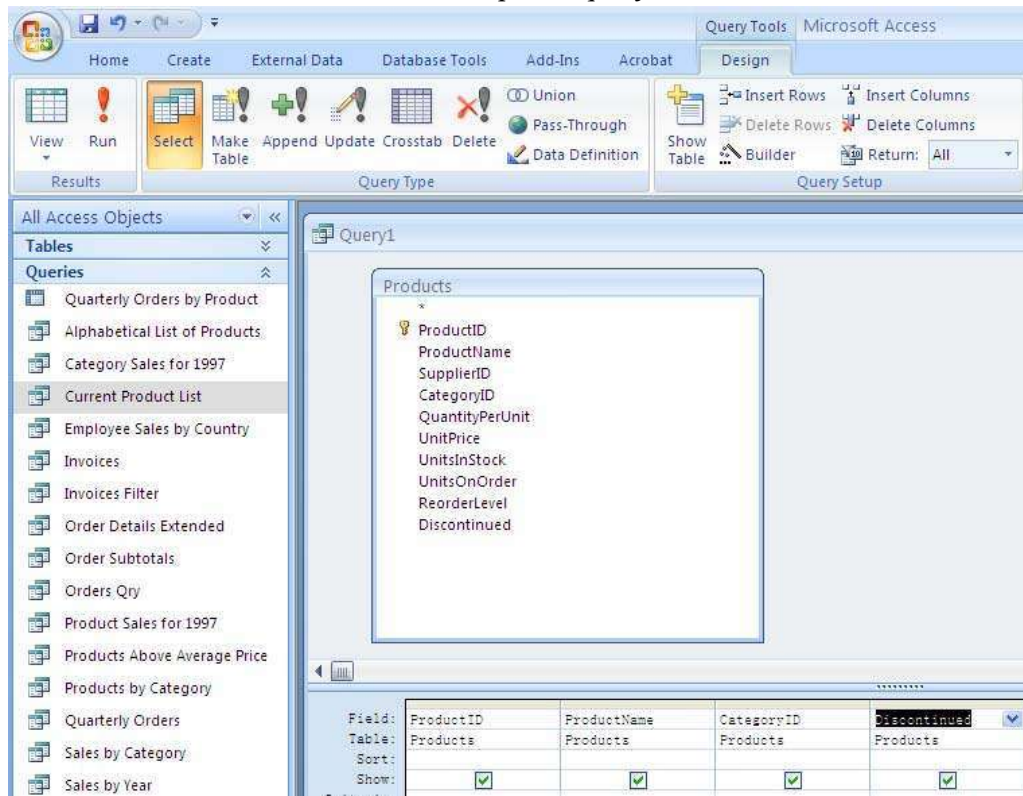
**Step 4.** Be sure the cursor is in the first box of the *Field* row and press the  button in the box to display the field choices for the *Products* table. Select *ProductID*.

Selecting the *ProductID* field for display



**Step 5.** Click on the second box of the *Field* row and press the  button again to display the field choices for the *Products* table. Select *ProductName*. Continue in this fashion, with *CategoryID* in the third box and *Discontinued* in the fourth box.

## The completed query

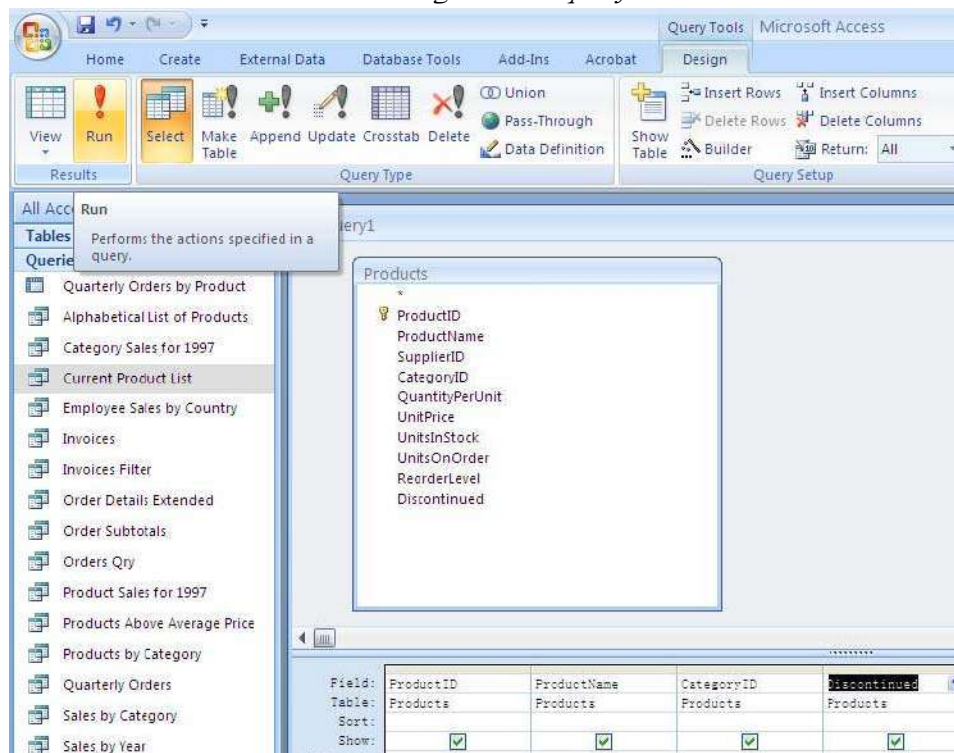


## Testing the New Query

You should always test a new query by running it.

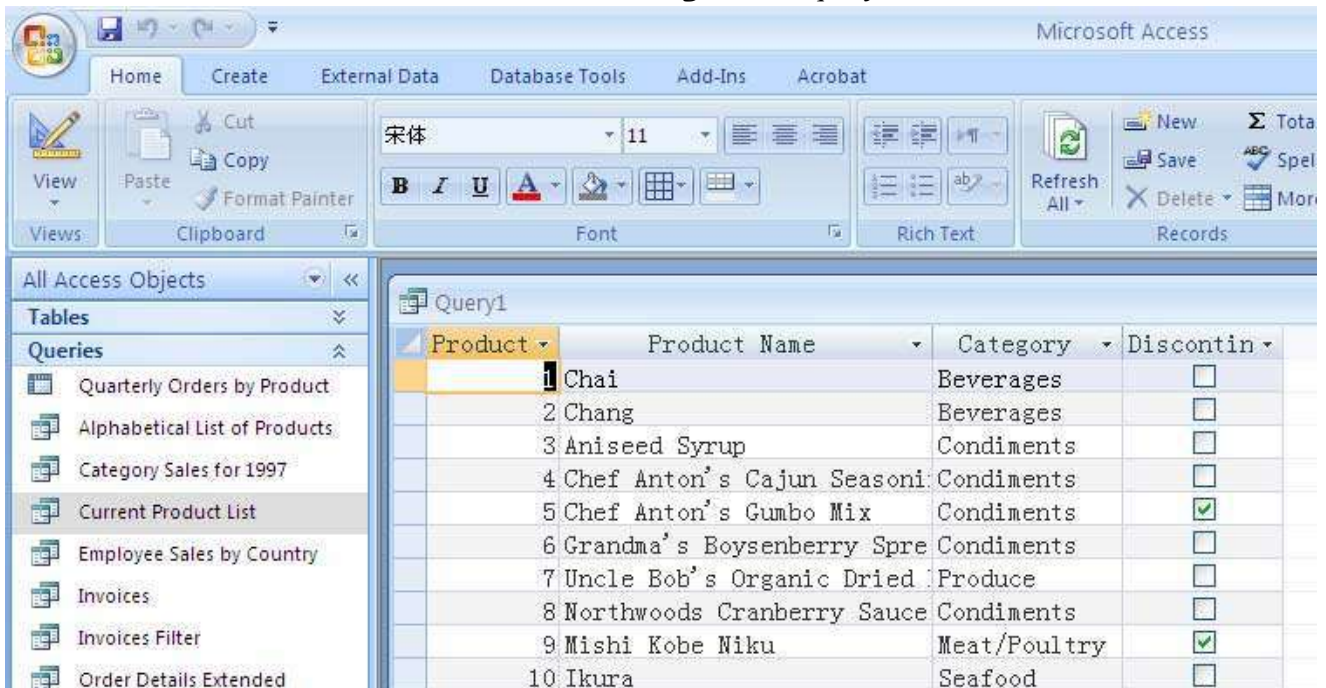
Step 1. On the *Design* tab, in the *Results* group, click *Run* to run the query.

## Running the new query



If all goes well, the new query will run rather quickly, and the following table of results will appear,

## The result of running the new query



Product	Product Name	Category	Discontinued
1	Chai	Beverages	<input type="checkbox"/>
2	Chang	Beverages	<input type="checkbox"/>
3	Aniseed Syrup	Condiments	<input type="checkbox"/>
4	Chef Anton's Cajun Seasoni	Condiments	<input type="checkbox"/>
5	Chef Anton's Gumbo Mix	Condiments	<input checked="" type="checkbox"/>
6	Grandma's Boysenberry Spre	Condiments	<input type="checkbox"/>
7	Uncle Bob's Organic Dried	Produce	<input type="checkbox"/>
8	Northwoods Cranberry Sauce	Condiments	<input type="checkbox"/>
9	Mishi Kobe Niku	Meat/Poultry	<input checked="" type="checkbox"/>
10	Ikura	Seafood	<input type="checkbox"/>

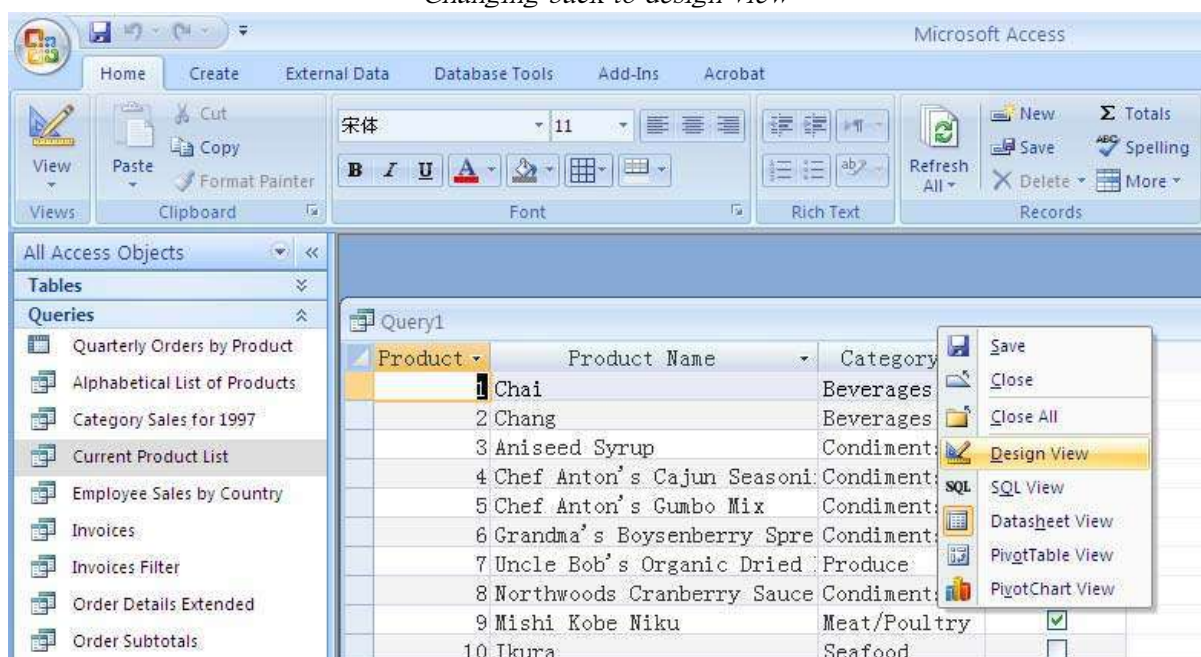
You should inspect all the records in the table of results. You will immediately notice a problem. There are 77 records instead of the expected 69, and some of the records have their *Discontinued* fields checked. We forgot to specify that the value of the *Discontinued* field should be *No*. We have to correct this error. This is why you should *always test* your queries.

We also forgot to uncheck the checkbox in the *Discontinued* field column. But this was fortunate because it helped us diagnose the problems with our query.

## Correcting the New Query

**Step 1.** Right-Click on its title bar and then click on *Design View* to change back to design view.

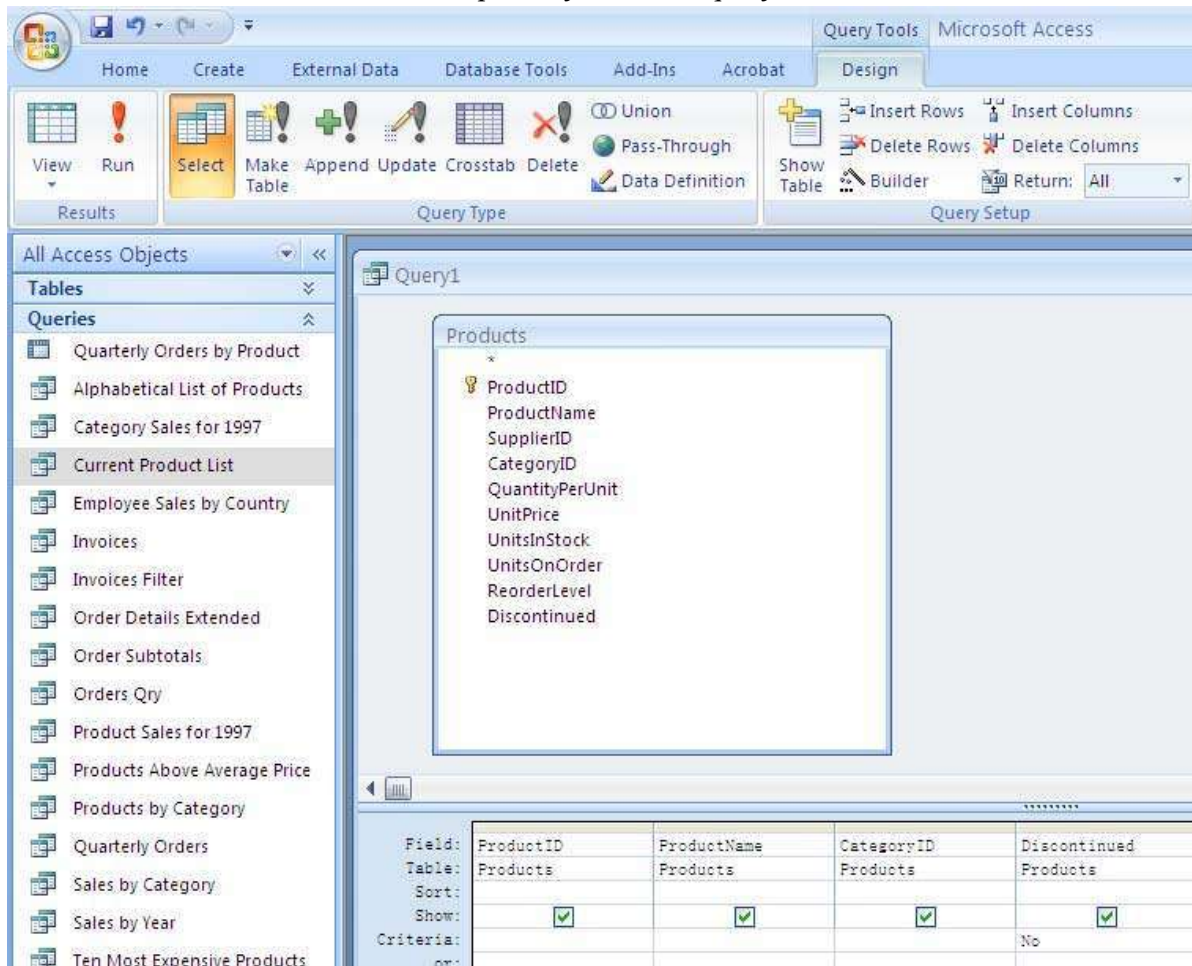
### Changing back to design view



**Step 2.** Enter *No* in the *Criteria* row of the fourth column.

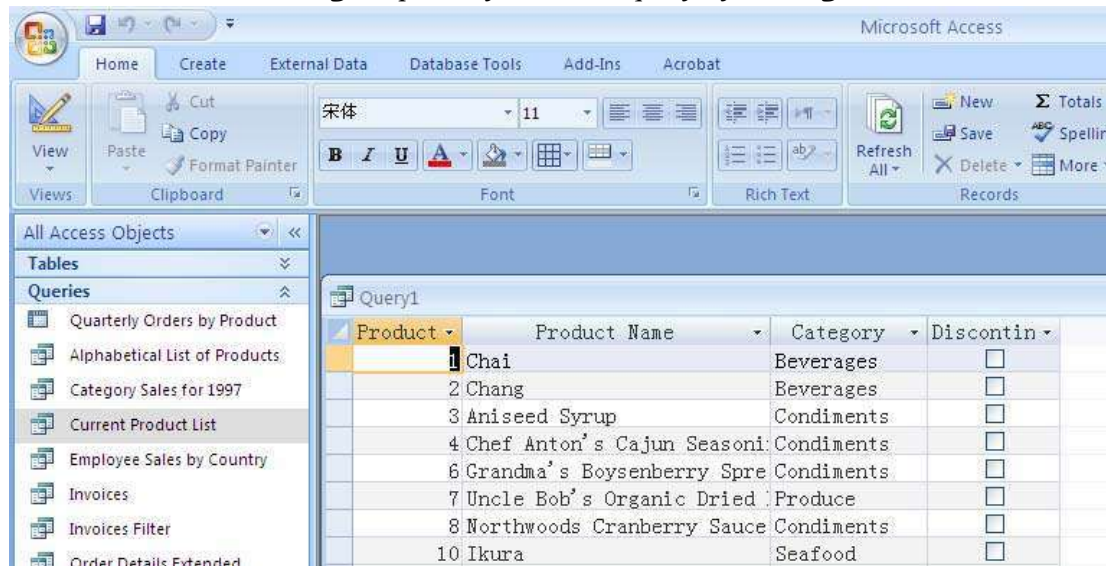


*The partially corrected query*



**Step 3.** Run the partially corrected query to test it.

*Testing the partially corrected query by running it*

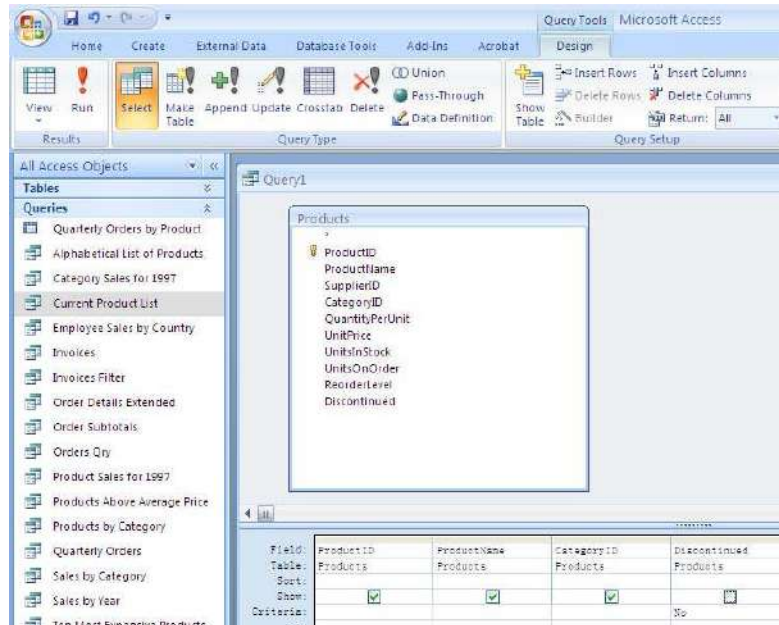


*Inspect* all the records in the table of results. Observe that there are the expected number of records, 69, and that none of the records have their *Discontinued* fields checked. Thus, the query appears to be correct, except for the display of the *Discontinued* field.

**Step 4.** Return to design view. Click on the  check box in the *Discontinued* column to uncheck it. This completes the corrections to the query.



## The fully corrected query




**Step 5.** Test the fully corrected query one more time by running it.

## Testing the fully corrected query by running it



Once more, carefully inspect the table of results. Observe that the query appears to be correct.

## Saving the Fully Corrected Query

You need to save your new query for future use. To save the query, click the Microsoft Office Button , and then click *Save*. Save the query as *CurrentProducts* so you don't overwrite the *Current Product List* query which comes as part of your copy of the Northwind sample database. *Save* works just about the way *Save* works in your favorite word processor, so I won't present you with any screen shots. The only difference is that you save the query inside your copy of the Northwind database, so you don't get the usual Windows File Save dialog box. Instead, you just get a dialog box where you type in the name under which to save the query.

After you have saved the query, close it by clicking on the small *x* at the top right of the table of results on its title bar. (Be careful not to click on the *x* at the top right of the Microsoft Access title bar, or you will close Access completely.) Then inspect the *Query* tab and verify that your new query, *CurrentProducts*, is listed there. You can reopen and run the query any time you want by double clicking its name, *CurrentProducts*.

## What's Next?

The next thing to do is to study *Multi-table QBE Queries*

# Chapter 6. Multi-table QBE Queries

## Converting the CurrentProducts Query to a Multi-table Query

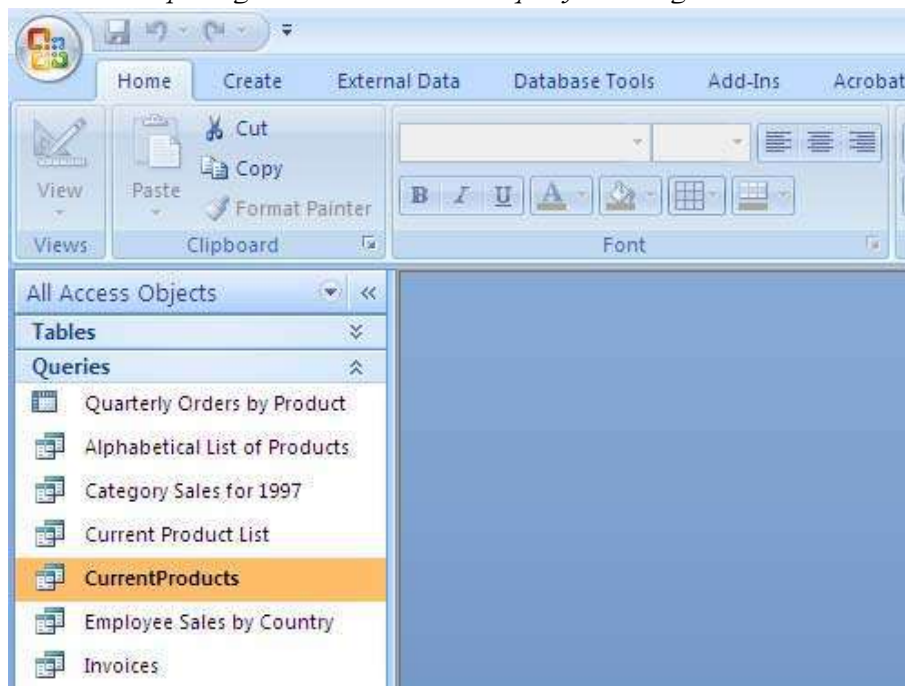
The **CurrentProducts** query that you developed and saved in the last chapter only displays the *ProductID*, *ProductName*, and *CategoryID* fields of the products which have not been discontinued. These fields, and the *Discontinued* field, are all part of the *Products* table, so you only needed that one table in the design of the query.

**But suppose** you wanted to change the query so it would also present the name of the supplier of each product, and the *suppliers telephone number*. The supplier name is available in the *Products* table in the *SupplierID* field. (Strictly speaking, this isn't true; instead the numerical SupplierID is available. But the designers of the Northwind sample database made it *appear* as though the supplier name is available.) However, the supplier's telephone number is NOT available in the *Products* table, so we have to use a second table, the *Suppliers* table, where it is available.

**Let us convert** the *CurrentProducts* query to a multi-table query.

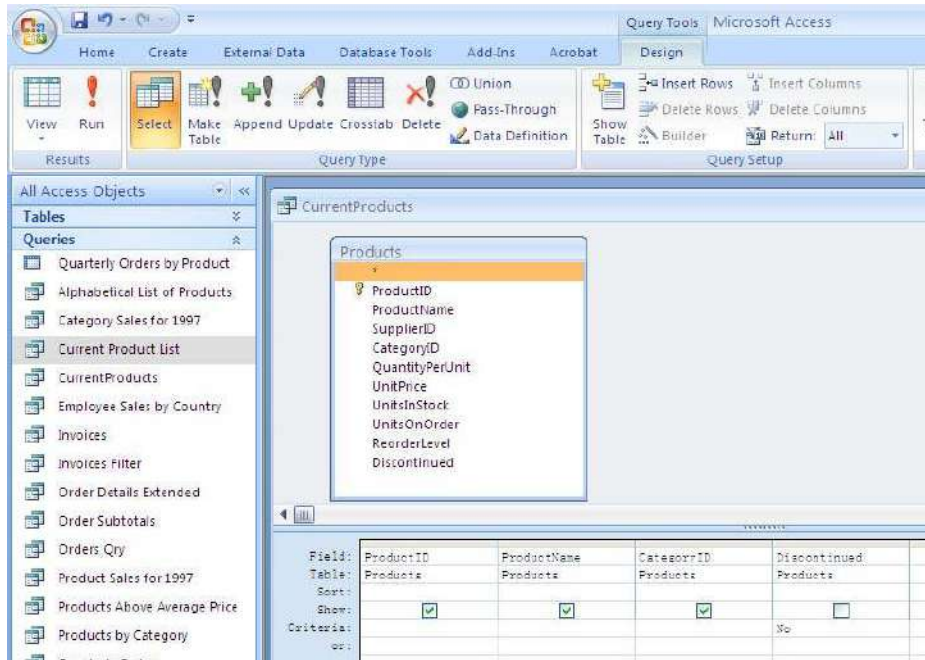
**Step 1.** Be sure the *Queries* tab is selected and visible in the database window. Open the *CurrentProducts* query in design view by right-clicking it and then clicking on the *Design View* button.

*Opening the CurrentProducts query in Design View*



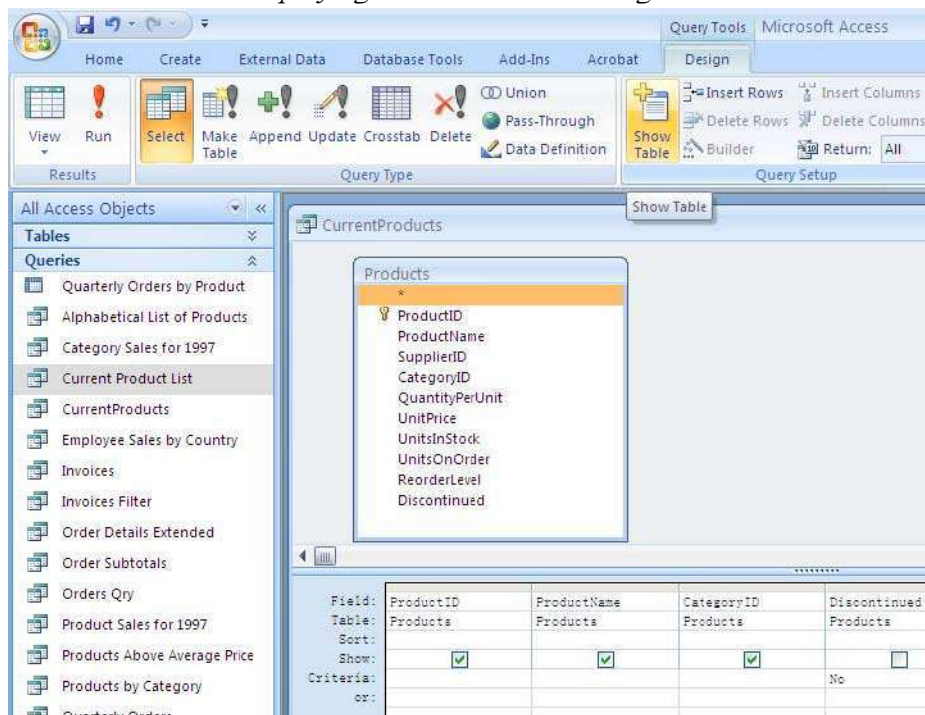
**If all goes well**, you will see the familiar *CurrentProducts* query you designed, tested, and saved in the last chapter.

### The Design View of the CurrentProducts query



**Step 2.** On the *Design* tab, in the *Query Setup* group, click *Show Table* to display the *Show Table* dialog box.

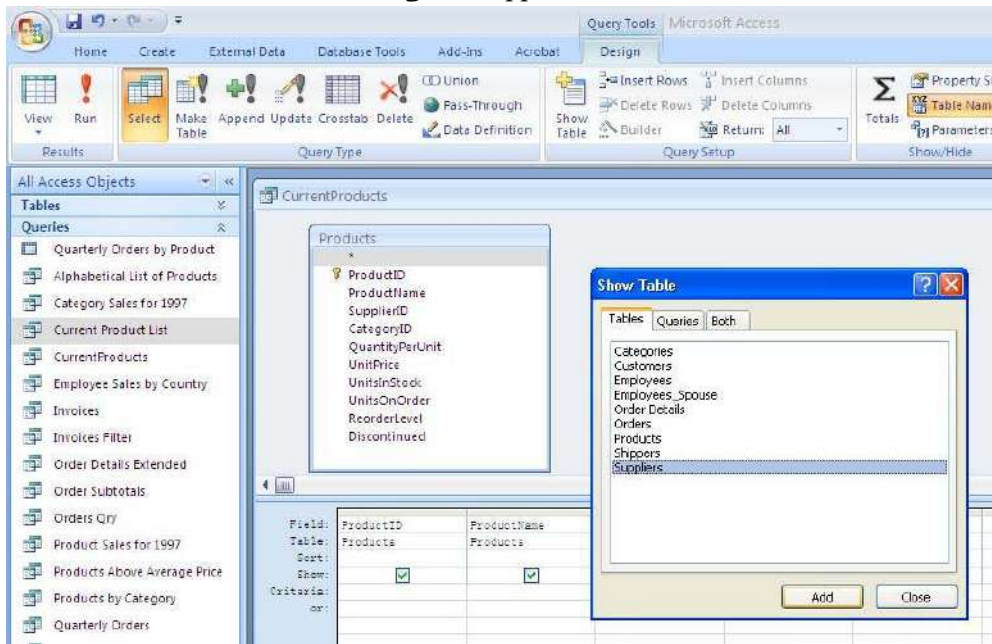
### Displaying the Show Table dialog box



**Step 3.** When the *Show Table* dialog box appears, select the *Suppliers* table and press the *Add* button.

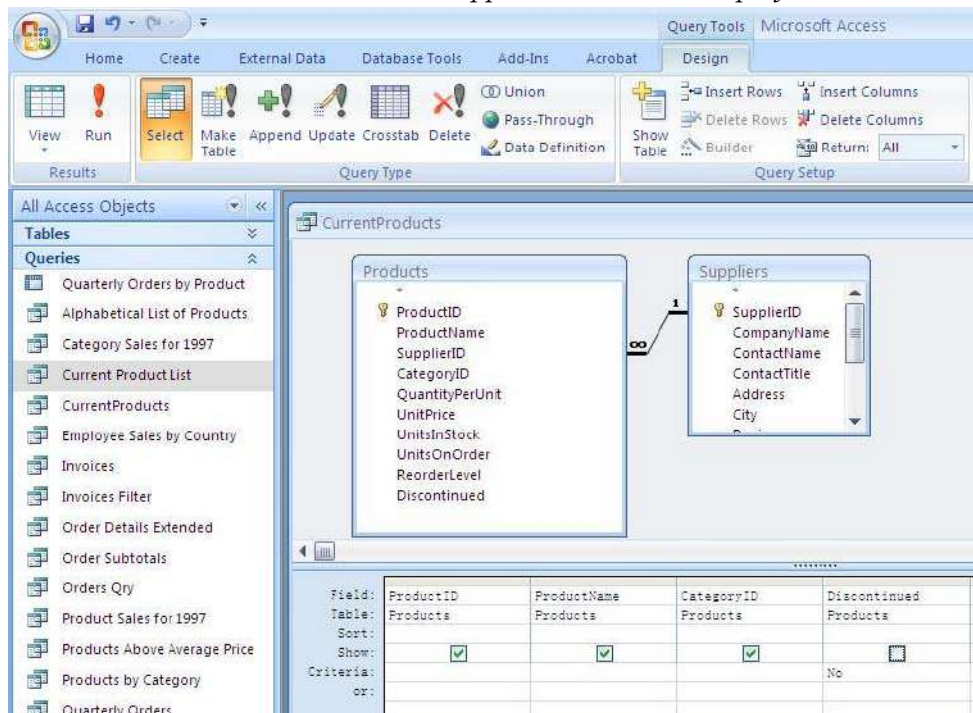


## Adding the Suppliers Table



**Step 4.** Close the *Show Table* dialog box by pressing the *Close* button. If all goes well, you will see both the *Products* table and the *Suppliers* table in the design view window.

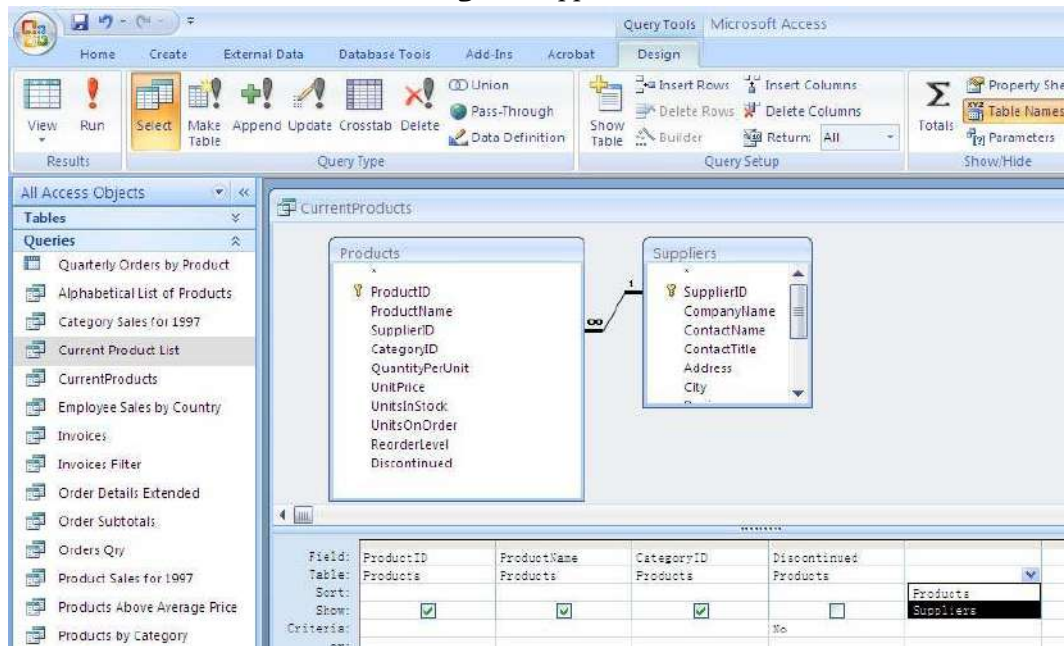
### The Products and the Suppliers tables both displayed



The line running from *Products* to *Suppliers* denotes a many-one relationship between the two tables. Microsoft Access 2007 incorporates relationships as objects separate from tables, so you can design directly from Entity-Relationship diagrams. Access also uses relationships to automatically generate joins between tables. In this chapter of the tutorial, you can safely ignore relationships.

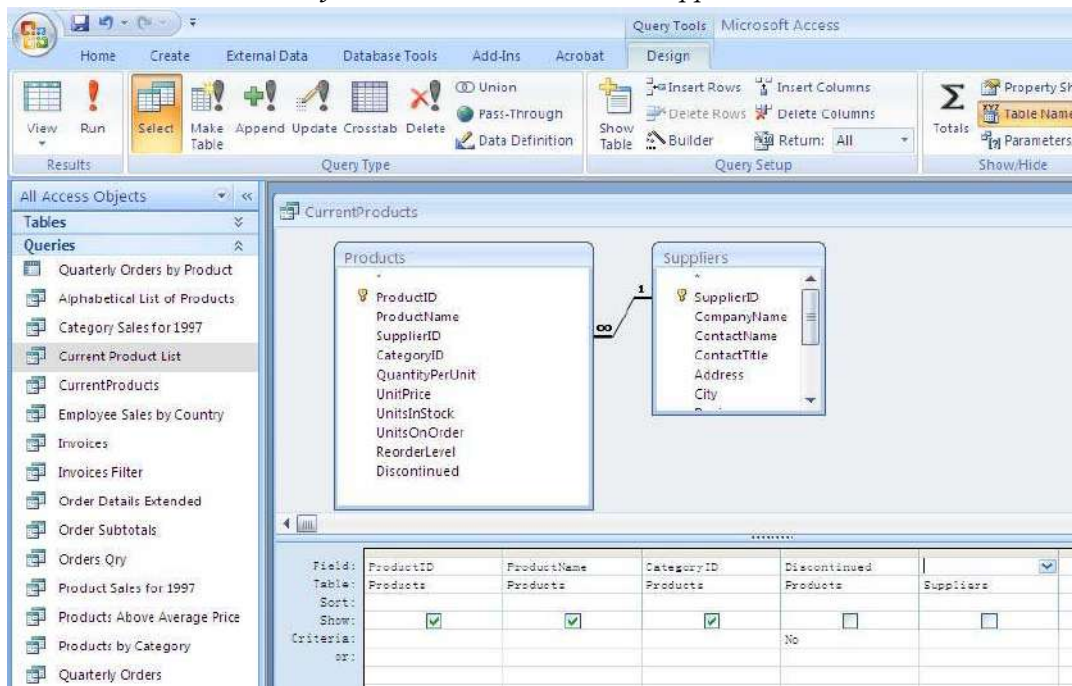
**Step 5.** Be sure the cursor is in the box in the *Table* row immediately to the right of the *Discontinued* column. Press the button in the box to display the table choices. Select *Suppliers*.


## Selecting the Suppliers table



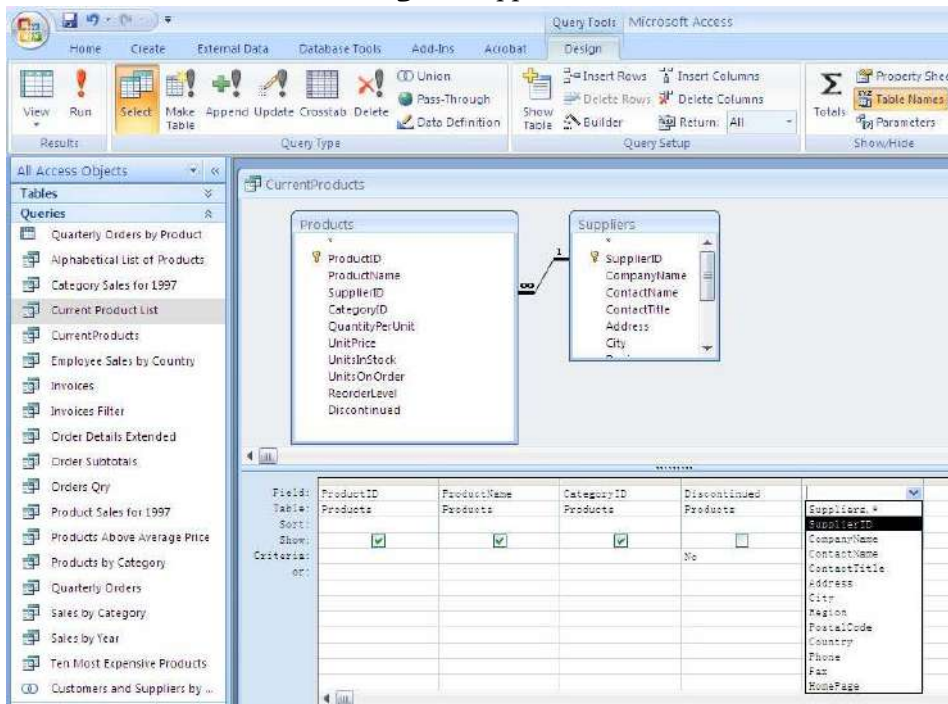
**Step 6.** Click on the box of the *Field* row just above where you selected the *Suppliers* table, so you can choose the proper field from the *Suppliers* table.

## Ready to select a field from the Suppliers table



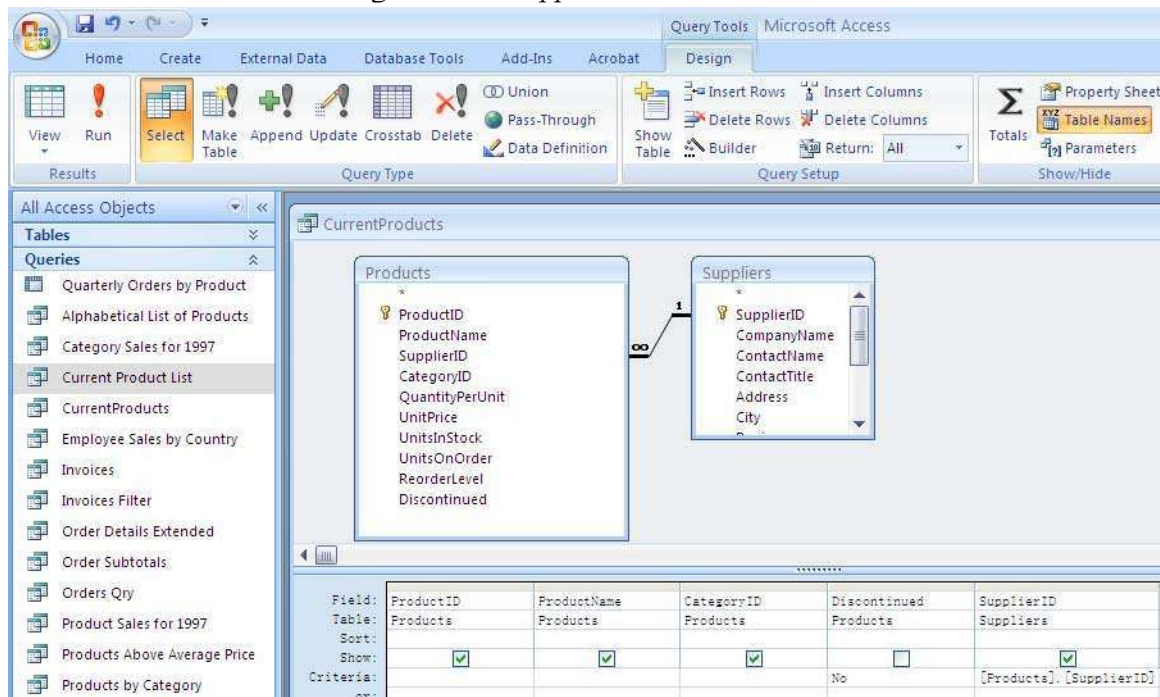
**Step 7.** Press the  button again to display the field choices for the *Suppliers* table. Select *SupplierID*.

## Selecting the SupplierID field



**Step 8.** Enter *Products.SupplierID* in the box in the *Criteria* row and the *Suppliers* column. This will guarantee that *Suppliers.SupplierID = Products.SupplierID*, so that you will match up the correct product with the correct supplier.

## Entering Products.SupplierID in the criterion box

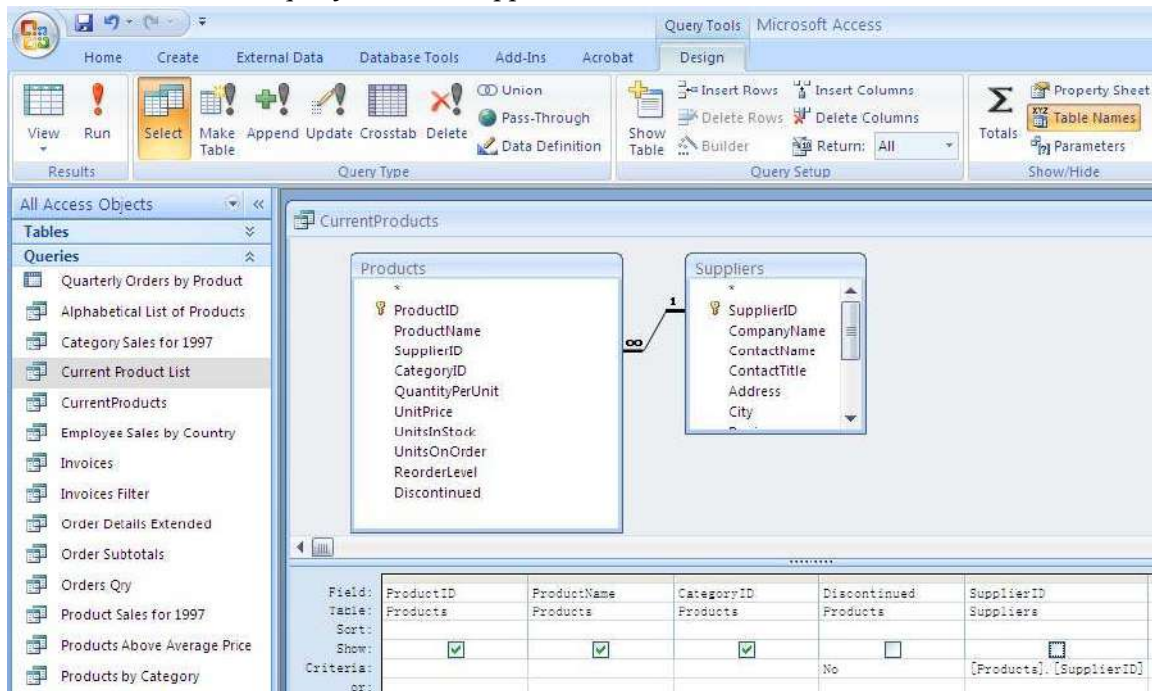


*Note.* Strictly speaking, this is not necessary because of the Microsoft Access many-one relationship between Products and Suppliers. But we have included it for clarity. (Remember, we are ignoring Access relationships in this chapter.)

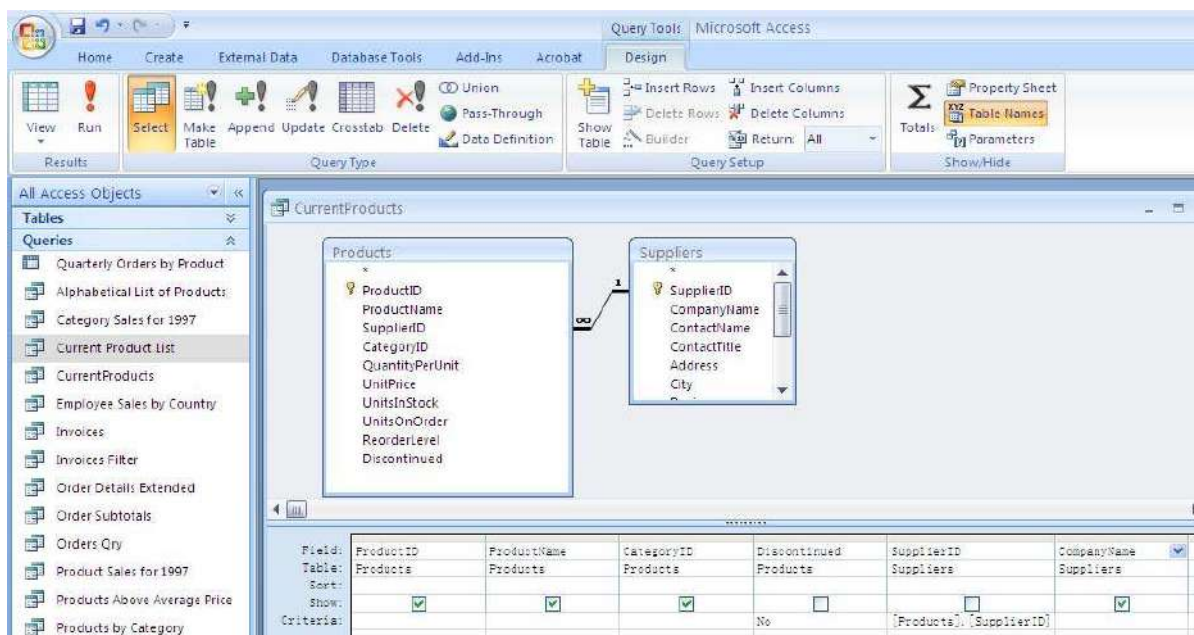
**Step 9.** Click the  check box in the *Suppliers* column to uncheck it.



The query with the Suppliers column checkbox unchecked

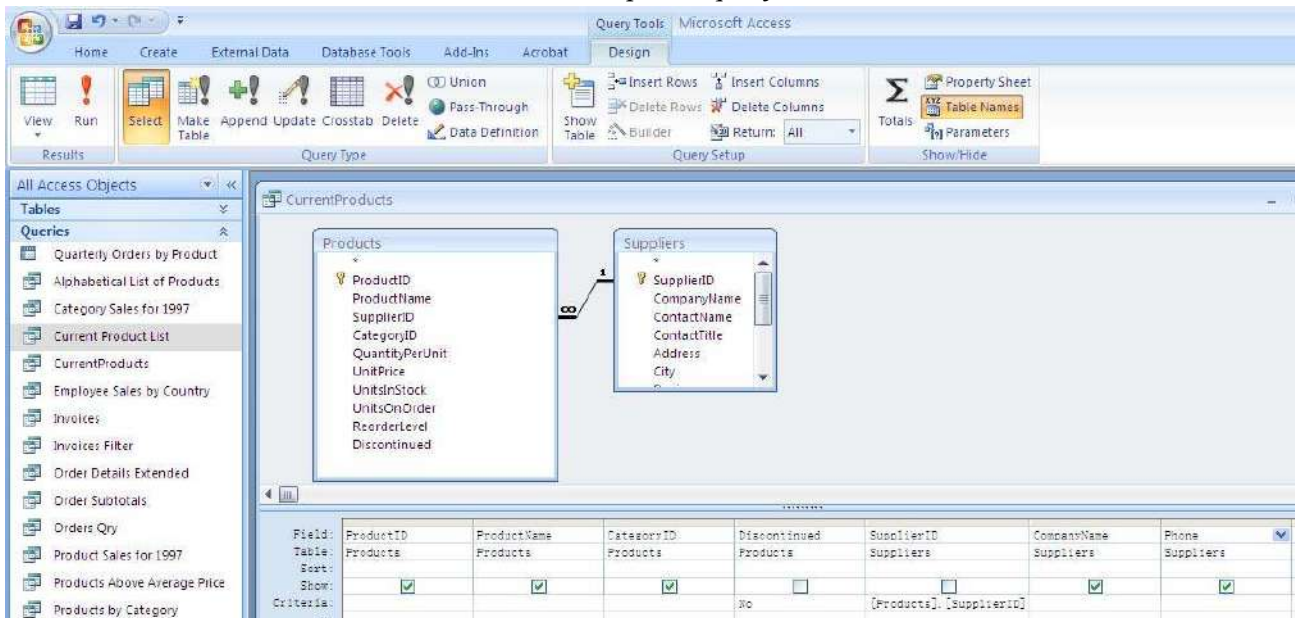


**Step 10.** Repeat steps 5 through 7 in the blank column immediately to the right of the *Suppliers* column you just completed. Select the *Suppliers* table and the *CompanyName* field. Be sure you leave the  check box checked, and be sure you leave the box in the *Criteria* row blank.



**Step 11.** Repeat this in the next blank column immediately to the right of the *Suppliers* column you just completed. Select the *Suppliers* table and the *Phone* field. This completes the multi-table query.

## The completed query



## Testing the Multi-table Query

Remember, you should always test a new query by running it.


**Step 1.** Run the completed query.

## The table of results for the multi-table query

Product	Product Name	Category	Company Name	Phone
1	Chai	Beverages	Exotic Liquids	(171) 555-2
2	Chang	Beverages	Exotic Liquids	(171) 555-2
3	Aniseed Syrup	Condiments	Exotic Liquids	(171) 555-2
4	Chef Anton's Cajun Seasoni	Condiments	New Orleans Cajun Delights	(100) 555-4
6	Grandma's Boysenberry Spre	Condiments	Grandma Kelly's Homestead	(313) 555-5
7	Uncle Bob's Organic Dried	Produce	Grandma Kelly's Homestead	(313) 555-5
8	Northwoods Cranberry Sauce	Condiments	Grandma Kelly's Homestead	(313) 555-5
10	Ikura	Seafood	Tokyo Traders	(03) 3555-5
11	Queso Cabrales	Dairy Product	Cooperativa de Quesos 'Las Cabr	(98) 598 76
12	Queso Manchego La Pastora	Dairy Product	Cooperativa de Quesos 'Las Cabr	(98) 598 76
13	Konbu	Seafood	Mayumi's	(06) 431-78
14	Tofu	Produce	Mayumi's	(06) 431-78

*Carefully examine* the table of results. It appears to be correct, so the completed query appears to be correct.

## Saving the Completed Multi-table Query

Save the completed multi-column query for future use as *CurrentProductsAndSuppliers*. (The period is there for grammatical reasons and is not part of the name.) Be sure you use *Save As* rather than *Save* from the Microsoft Office Button , and then click, because *Save* doesn't allow you rename the query.

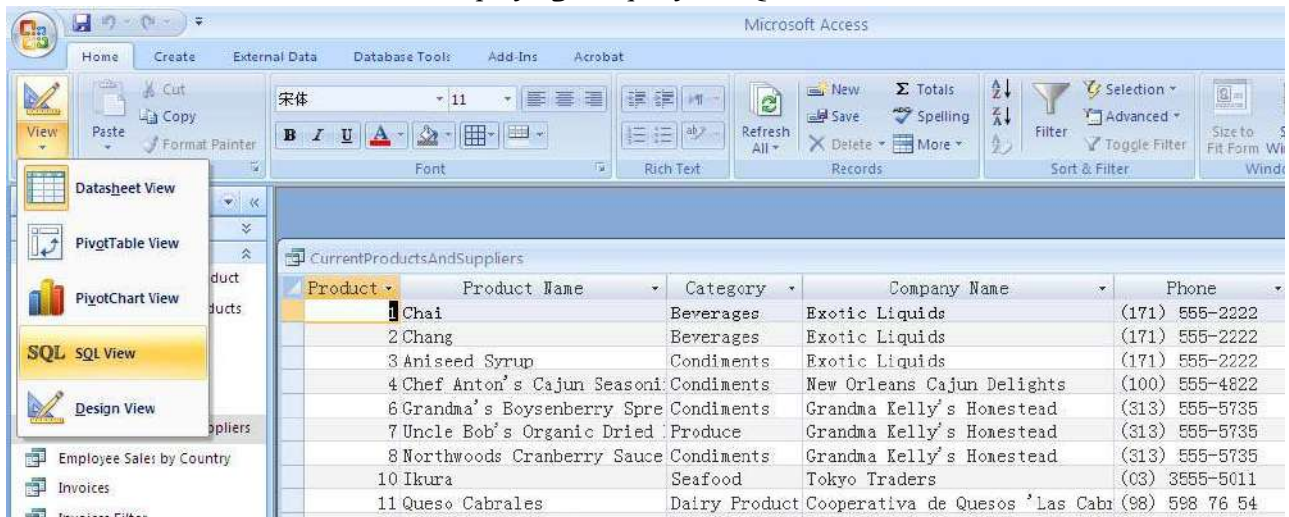
## Displaying the Multi-table Query in SQL View

Let us look at the SQL behind the query by displaying the query in *SQL View*.



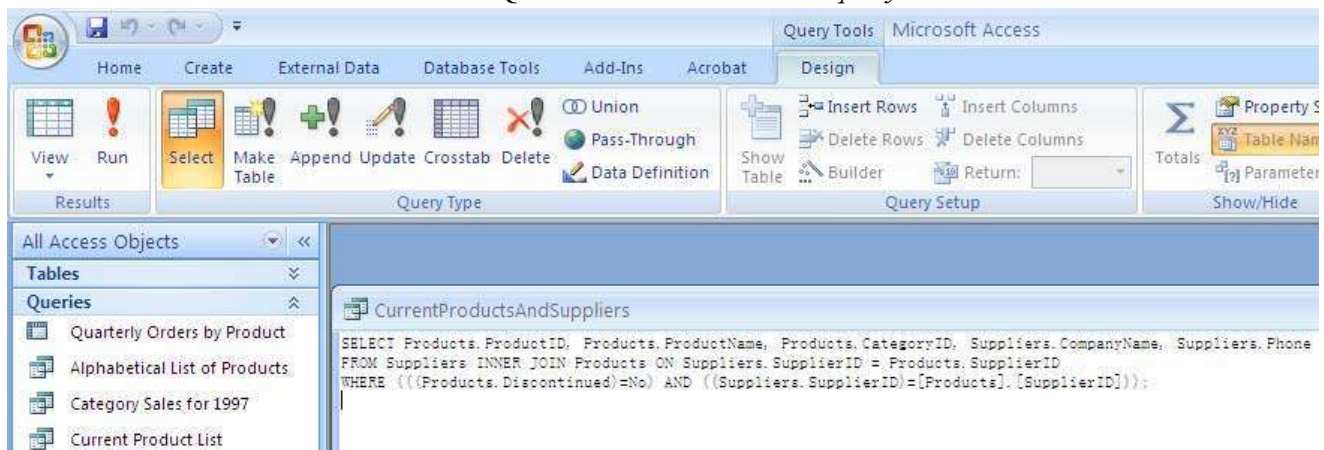
**Step 1.** On the *Home* tab, in the *Views* group, click *View Menu* and then click *SQL View* to look at the query in SQL view.

### Displaying the query in SQL view



If all goes well, the *SQL View* display of the query will look like

### The SQL view of the multi-table query



*Note.* The INNER JOIN appears in the SQL because of the Access many-one relationship between the *Products* table and the *Suppliers* table. The query will work correctly without the INNER JOIN, as we shall see in the next chapter.

### What's Next?

The next thing to do is to study *SQL Queries*



# Chapter 7. SQL Queries

## Overview

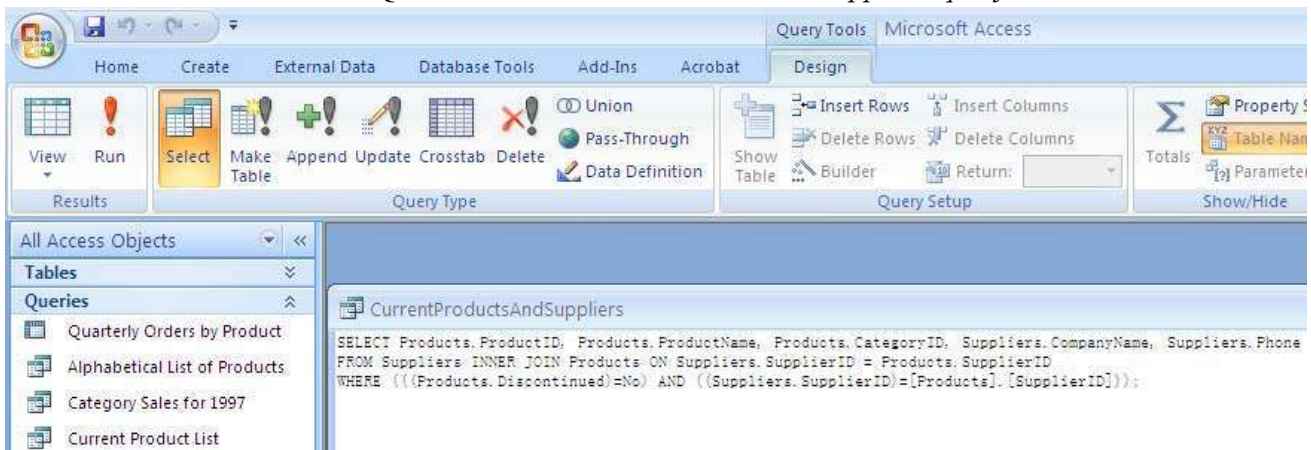
You need to become familiar with SQL (Structured Query Language) because you will need it if you ever develop a Microsoft Access application and have to issue queries through code. You also need SQL to query other database systems, such as Oracle and MySQL. Finally, once you know SQL, it is often easier to write a query directly in SQL than to design it using Access's QBE interface.

One of the best ways to learn SQL is to build QBE queries and then inspect and alter the query in *SQL View*. You are going to do just that with the *CurrentProductsAndSuppliers* query that you developed and saved in the last chapter. In detail, you are going to copy the SQL from the *CurrentProductsAndSuppliers* query, start a new blank query, paste the SQL into the new query, and save the new query under a new name. Then, you are going to change the SQL behind the new query.

## Copying the SQL from the CurrentProductsAndSuppliers Query

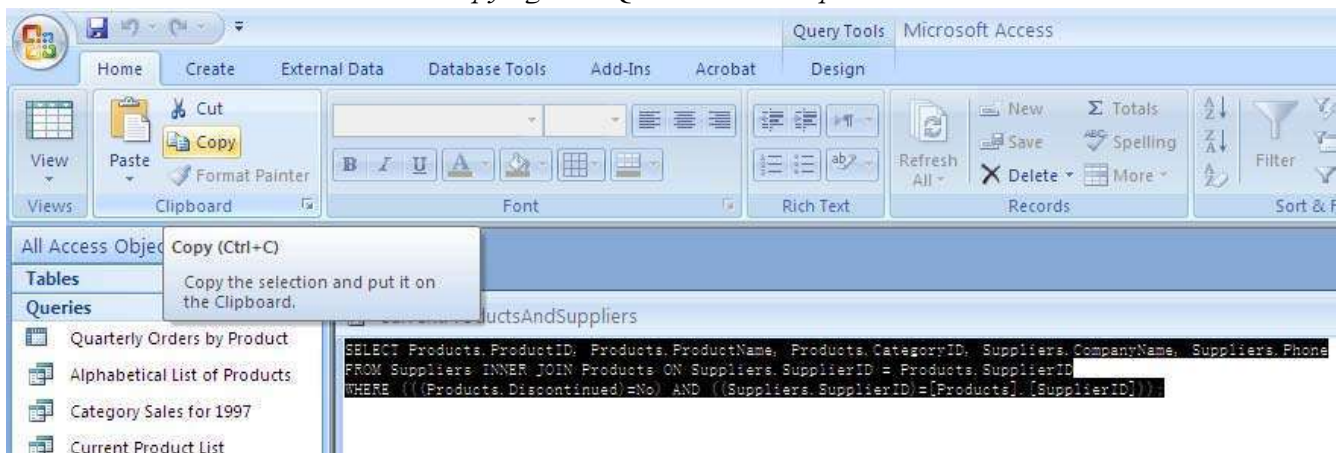
**Step 1.** Be sure the *CurrentProductsAndSuppliers* query is visible in SQL view. By now, you know how to open the query and change to SQL view if it is not.

*The SQL view of the CurrentProductsAndSuppliers query*



**Step 2.** Select the SQL text and copy it to the clipboard using the *Edit menu*.

*Copying the SQL text to the clipboard*

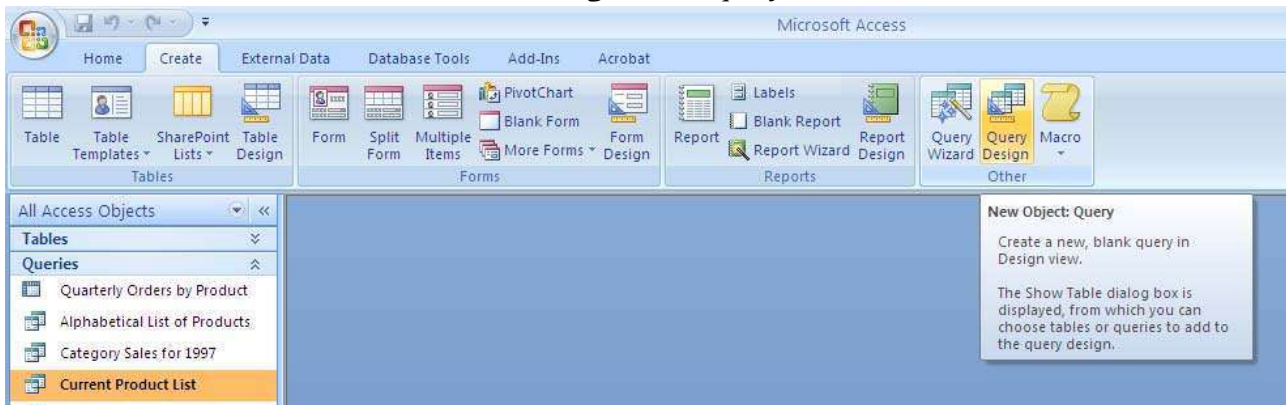


**Step 3.** Close the query by clicking on the small *x* at the top right of the SQL View window on its title bar. (Be careful not to close Microsoft Access by clicking on the *x* at the top right of the Microsoft Access title bar.) If a dialog box comes up asking you if you want to save the changes to the query, answer *No*.

## Starting the New Query

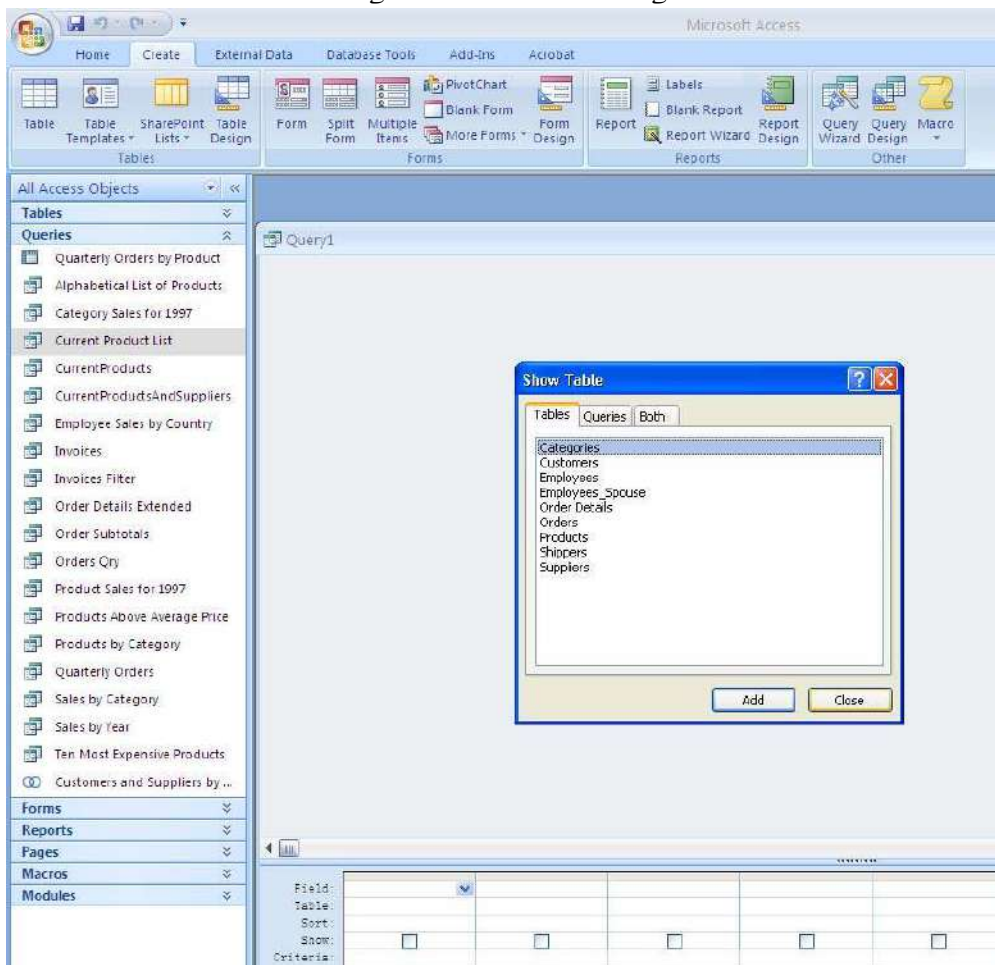
**Step 1.** Be sure the *Queries* tab is visible. On the *Create* tab, in the *Other* group, click *Query Design*.

*Starting the new query*



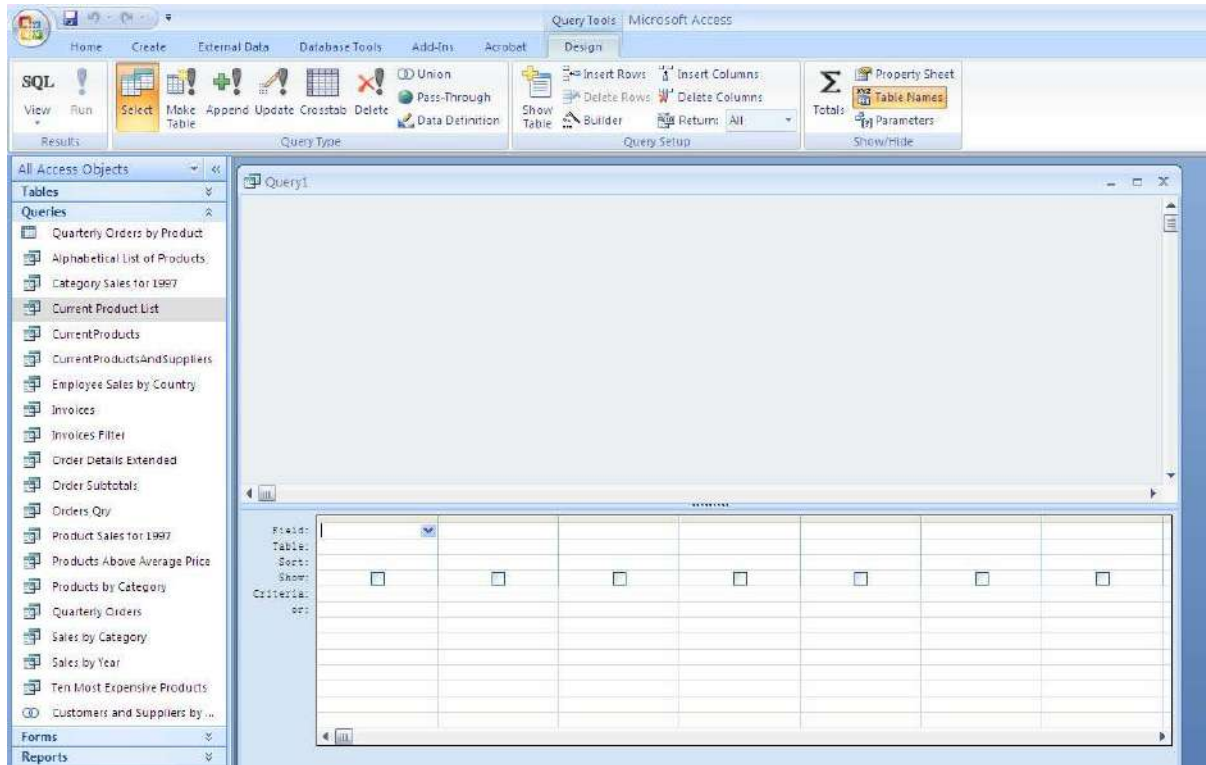
**Step 2.** Because you want to start a new blank query, press *Close* as soon as the *Show Table* dialog box appears.

*Closing the Show Table dialog box*



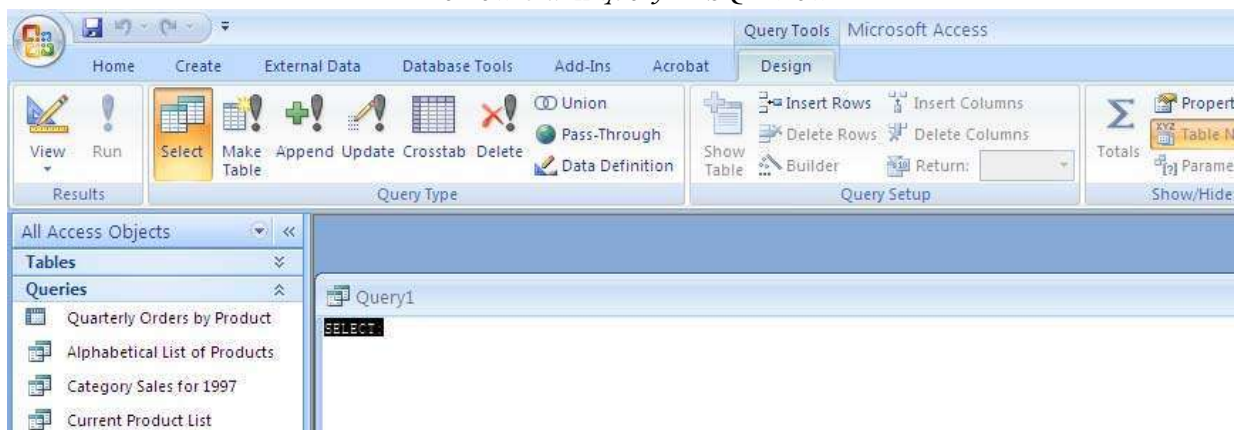
You should see a new blank query in design view, with *no* tables.

### The new blank query in design view



Step 3. Change to SQL view. By now, you know how.

### The new blank query in SQL view

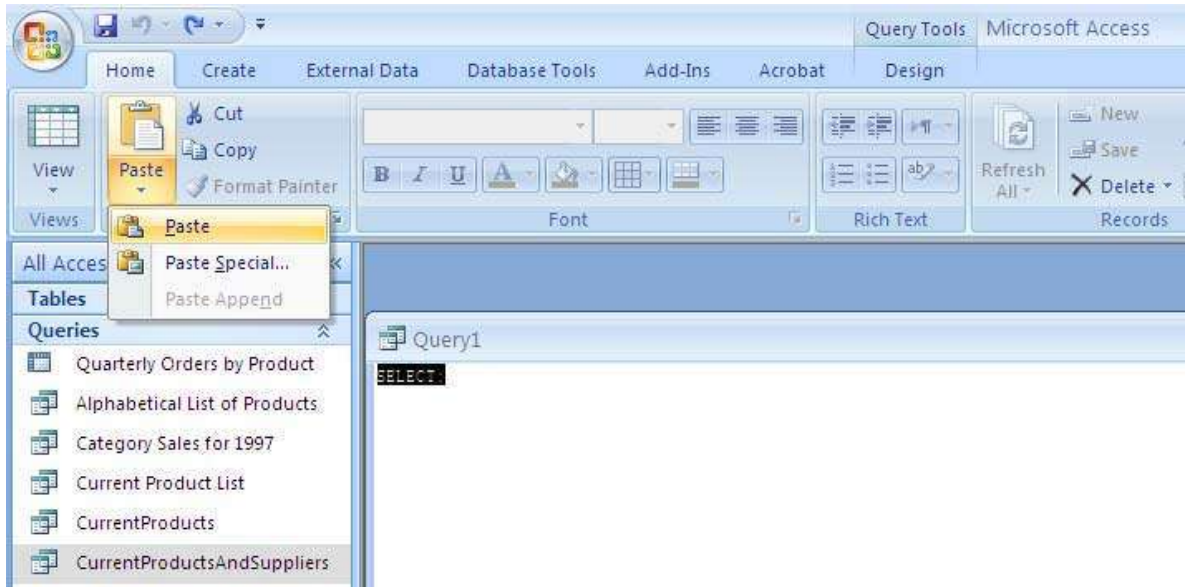


### Pasting SQL into the New Query

Step 1. Paste the SQL you have previously copied to the clipboard into the new query's SQL view window by selecting the text in the window if necessary, clicking *Paste* on the *Paste* menu in *clipboard* group of the *Home* tab.

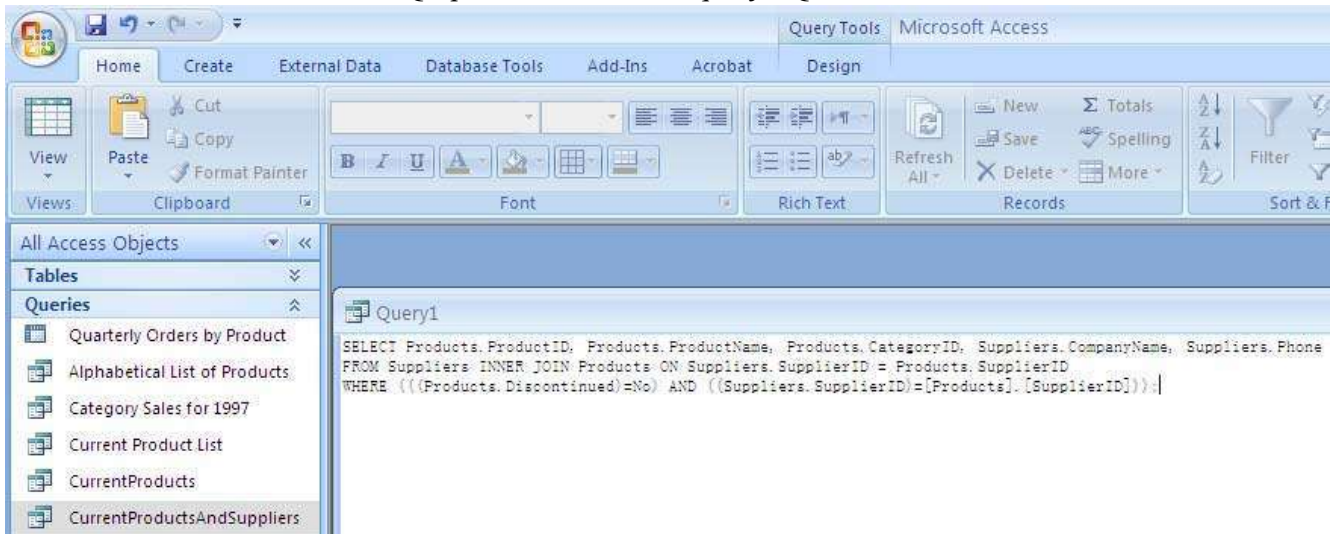


## Pasting the SQL into the SQL view window



The result will be that you have the SQL from the *CurrentProductsAndSuppliers* query pasted into the SQL view window of your new query

## The SQL pasted into the new query SQL view window

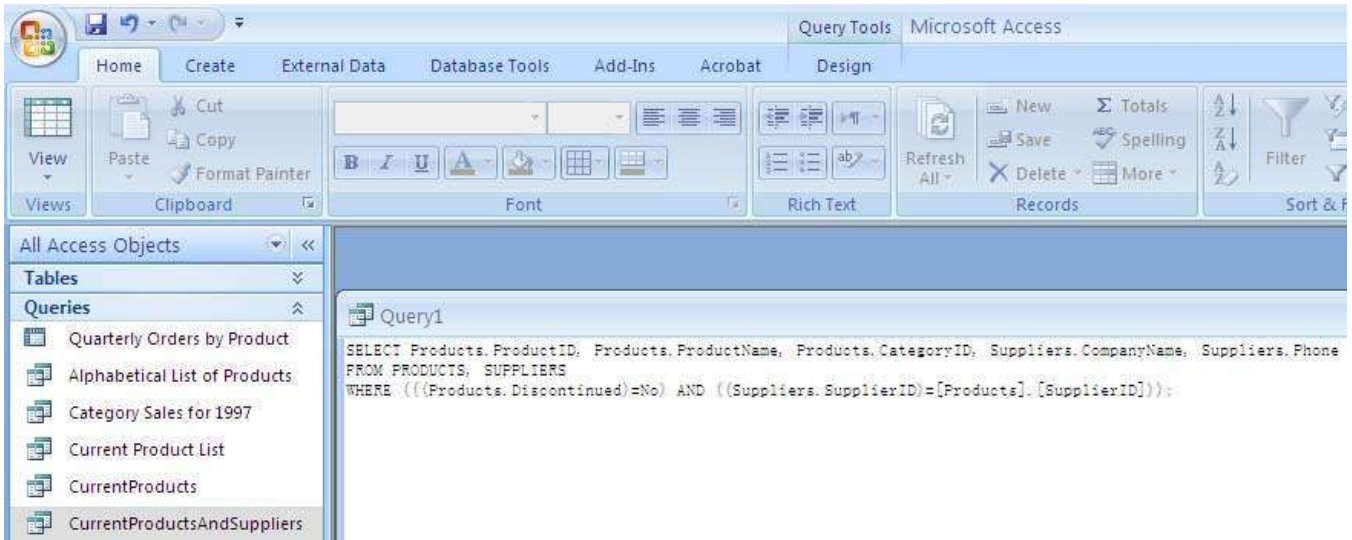


## Simplifying the New Query SQL

The SQL view window is a complete, though simple, text editor. You are going to *simplify* the SQL you have just pasted in by *editing* it.

**Step 1.** The parentheses in the SQL are not needed, so delete them.

**Step 2.** The INNER JOIN statement is not needed either, so remove it too. (Remove everything after the FROM on the INNER JOIN line.) You do need to say what tables you are using though, so insert PRODUCTS, SUPPLIERS after the FROM. The simplified SQL in the SQL view window of the new query should look like

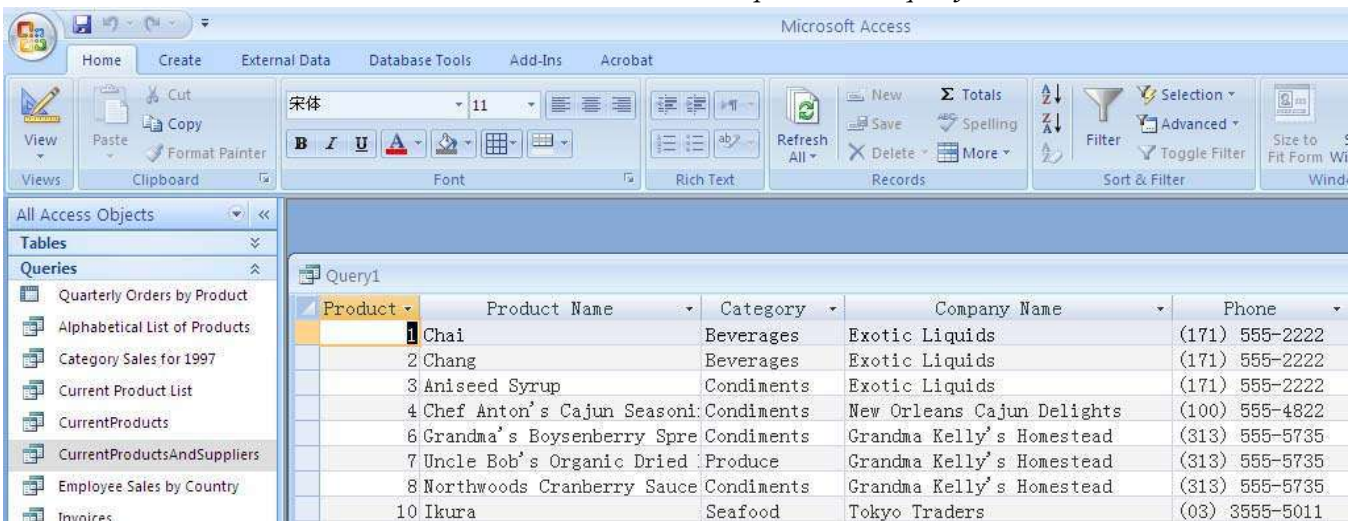


## Testing the Simplified New Query

Remember, you should always test a new query by running it.

**Step 1.** Run the completed query.

*The table of results for the simplified new query*



**Note that** the table of results is the same as that for the *CurrentProductsAndSuppliers* query. Thus the new query appears to be equivalent to the *CurrentProductsAndSuppliers* query, even though the SQL has been greatly simplified by replacing the INNER JOIN by a WHERE clause. Most people who write SQL use WHERE clauses instead of JOINS because WHERE clauses are so much simpler.

## Saving the Simplified New Query

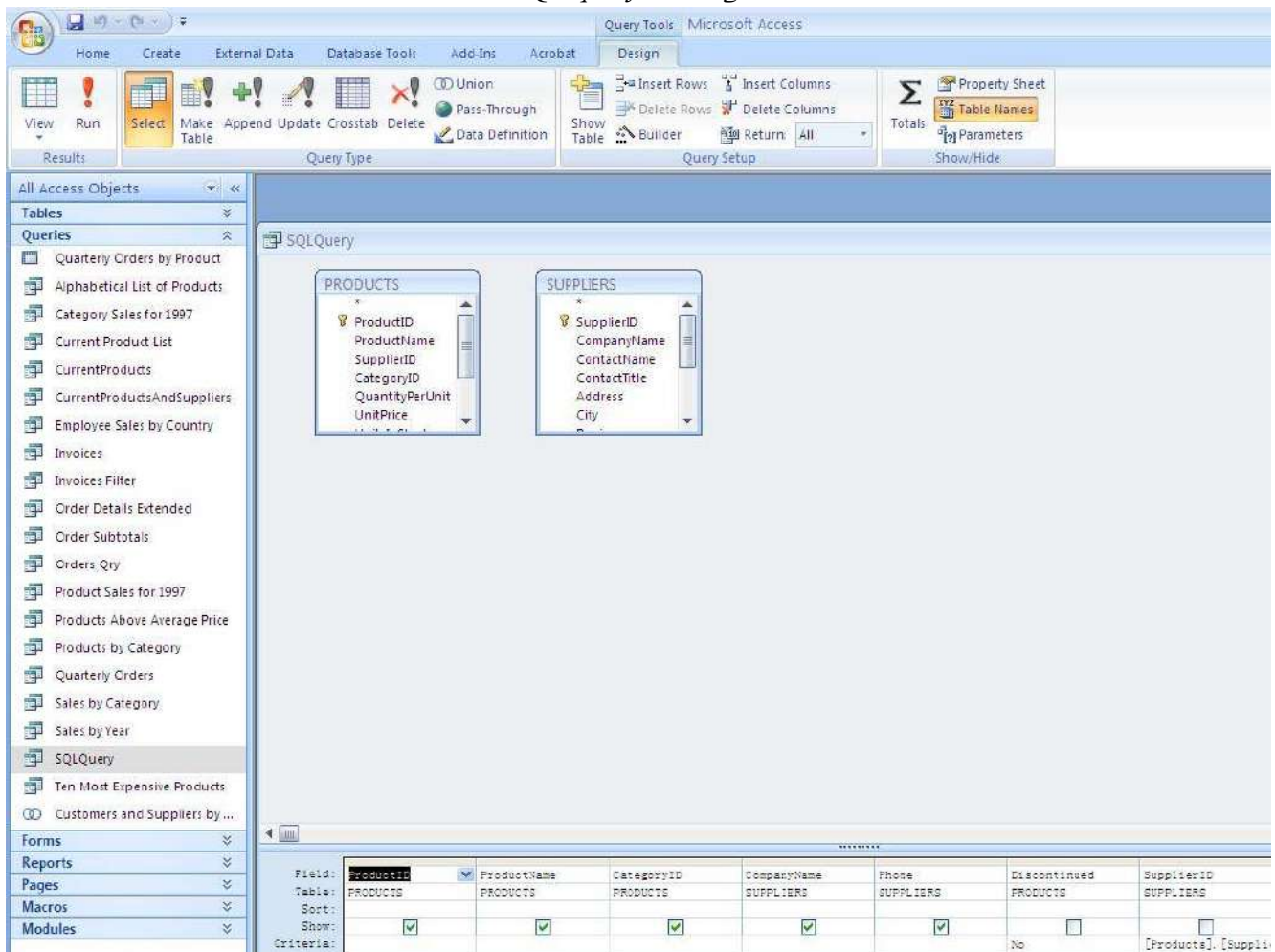
**Save the** simplified new query for future use as *SQLQuery*. (The period is there for grammatical reasons and is not part of the name.) Yes, the name *SQLQuery* is a dumb one, but there are only so many variations on the more descriptive *CurrentProductsAndSuppliers* name.

## Displaying the SQL Query in Design View

**Once a query** has been built with SQL, it has a perfectly reasonable design view (QBE view). Let us verify this by displaying the SQL query in design view.

**Step 1.** Change to the *Design View* of the query. By now, you know how.

### *The SQL query in design view*



Note that the design view of the SQL query is nearly the same as the design view of the *CurrentProductsAndSuppliers* query. Note the two tables displayed in the tables panel of the design view window. Only the line denoting the Access many-one relationship is missing. Note how similar the tabular QBE panel of the SQL query is to the QBE panel of the *CurrentProductsAndSuppliers* query. Only the order of some of the columns is different.

**You can** switch back and forth between designing a query in *SQL View* and *Design View* at will. You should mix and match, and use whatever is simplest at the time.

### **What's Next?**

**Congratulations!** You have finished *A Quick Microsoft Access 2007 Tutorial*. If you want to review, you should go back to the introduction to select the chapters you want to revisit.

**If, for any reason,** you want to delete any of the queries you have saved, you select the query to be deleted and use *Delete* from the *Edit menu*.

**There is much more** to learn about *Microsoft Access*, especially about *Forms*. In Microsoft applications, *Forms* are windows used to interact with the application. Most Microsoft Access databases use *Forms* to make it easy for people to interact with the database.



*If want to satisfy your curiosity* about forms, try selecting the *Forms tab* and then open the *Main Switchboard* form. Then use it to open various other forms in the Northwind sample database. By now, you know enough to switch back and forth between *form view* and *design view*, so you can learn something about how forms are constructed. Each form has an associated *code module*, written in a form of Visual Basic called VBA (Visual Basic for Applications). To view the code, switch to *code view*.

**To close** Microsoft Access 2007, Click the Microsoft Office Button , and then click Close Database. (Alternate procedure: Click on the small *x* at the very top right of the Microsoft Access window.) But I'm sure you already know that.