University Computing & Communications Services

ACCESS 2003

QUERIES

WORKSHOP DESCRIPTION

Once data has been entered into a table, it may be necessary to manipulate the data. A query is created when you want to gather information from one or more tables, perform calculations, sort data on more than one field, and update a group of records. This workshop will identify the different types of queries and explore, through the use of lecture and hands-on practice, the basics of creating, running, and modifying a query.

PREREQUISITE

Access 2003 Overview & Tables

OBJECTIVES

Participants attending this workshop will:

- Review creating a table
- Use filter and sort
- Define query types
- Create a query based on a single table
- Identify different types of queries
- Understand and manipulate table relationships
- Modify a query by using sorting and criteria options
- Create a query based on two tables
- Create a lookup query
- Summarize data in a query
- Calculate a field

TABLE OF CONTENTS

What is a Query?

A query creates a question about the data stored in an associated table(s), or a request to perform an action on the data.

Why Use Queries?

- Select only the fields you want displayed
- Specify only the records you are interested in displaying with criteria
- Sort more than one field
- Gather information from more than one table
- Perform calculations by creating new fields
- Serves as a source of data for a form, report or other queries
- Update a group of records

Terms to Know

Select Queries

A select query asks questions about the data stored in your tables and returns a datasheet that contains the result of the query, *without changing the data* in the original datasheet.

Action Queries

An action query *can change* data or move data in the associated table. Append, delete, make-table, and update queries are action queries.

Crosstab Queries

Crosstab queries can compute summary totals based on values for each row and column.

Parameter Queries

Parameter queries, which are **not** a separate type of query, extend the flexibility of other queries by prompting you to enter certain criteria each time the query is run.

Create a Query

Here's the scenario: you are the owner of Northwind Trading Company. You use access for your employee, customer, product, order, supplying and shipping data. You need to send your suppliers an update on your receiving hours. To do this you need to query your database for your supplier names and addresses. To do this you will perform a **Select Query**.

Using a Wizard

1. Start the **Northwind** database. It is located at **c:\Program Files\Microsoft Office\Office11\Samples\Northwind.mdb**.
2. In the Database window, click the **Queries** button, and then click **New**.
3. In the New Query dialog box click **Simple Query Wizard**, then click **OK**.
4. Choose the name of the table or query, on which the query will be based. Choose the **Suppliers** table.
5. Select the fields whose data you want to retrieve. Choose **CompanyName**, **ContactName**, **ContactTitle**, **Address**, **City**, and **PostalCode**. Click **Next**.

Note: you can select additional tables or queries to add more fields.

6 Name your query **qrytblSuppliers(Addresses)**.

7 You now have two options, you can choose either to run the query or to see and modify the query's structure in Design view. Choose **Open the query to view information**. Click **Finish**.

Note: If the resulting query isn't exactly what you want, you can rerun the wizard or change the query in Design view.

8 Save the query and close it.

Using Design View

The end of your fiscal year is coming and you will need to prepare company bonuses. You decide to pull up a quick list of Salespeople and the invoice totals of the accounts on which they have worked.

1 In the Database window, click the **Queries** button, and then click **New**.

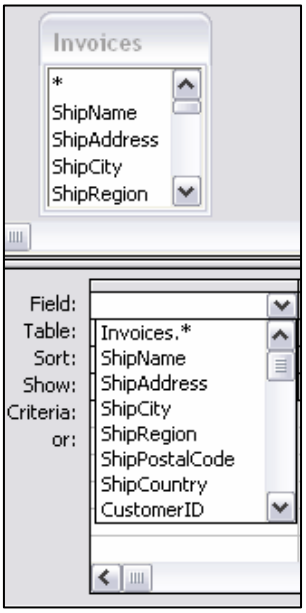
2 In the **New Query** dialog box, click **Design View**, and then click OK.

3 Add the **Invoices** query for your query by selecting it from the **Show Table** dialog box and clicking the **Add** button. Close the dialog box.

Note: If you have multiple tables or queries in this query, make sure they are related. If they aren't connected, create the join line yourself.

Adding Fields to Query

In order for the data from the table on which the query is based to appear in the query, fields must be added into the query. There are several different ways in which to add fields to the query.



- Select the fields from the field lists and drag them to the columns in the grid. You can select and drag one field or several fields, as described below.
  - **One field** – Drag and drop the field, double-click the field in the field list, or select a field directly from the list box in the Field row on the grid.
  - **A block of fields** -Hold down the **<Shift>** key and select the first and last fields in the block.
  - **All fields** - Double-click the title bar of the field list.

1. Using the drop-down list box, add the following fields to the query grid: **Salesperson** and **ExtendedPrice**.
2. Save the query as **qryqryInvoices(Bonus)**.

Running a Query

Run or activate the query once the fields have been set.

1. Select **Query, Run**.

OR

2. Click the Run Query button 

NOTE: After a query is run, the results will appear in a dynaset, which looks just like a Table.

Editing Queries

Move a Field

1. Return to design view.
2. Select the **ExtendedPrice** field by clicking the column selector above the field name.
3. Click the Column selector again while holding down the mouse button and drag the column in front of the **SalesPerson** column.

Change Column Width

1. Position the pointer on the right edge of the column you want to resize.
2. Drag the edge to resize the column.

Insert a Field

1. From the field list, select the field.
2. Drag the field from the field list to a column in the grid. Insert the **Quantity** field.

Delete a field

1. Select the field to be deleted by clicking above the field name.
2. Press the **DELETE** key. Delete the **Quantity** field.

Table Relationships

To relate information from one table to another table a relationship between two or more tables must be created. To query related records, they must be linked.

Viewing Relationships

1 Close the query.

2 Select **Tools, Relationships**

OR

3 Click the Relationships Button 

Creating Relationships

1 Close the Northwind database.

2 Begin a new database entitled **QueryTraining**.

3 Create a table. Add the following fields and data types:

PersonID	Text
FirstName	Text
LastName	Text

4 Make the **PersonID** field your primary key.

5 Save the table as **tblPeople** and close the table.

6 Create a table. Add the following fields and data types:

TypeID	Text
AnimalType	Text

7 Make the **TypeID** field the primary key.

8 Save the table as **tblAnimalTypes**.

9 Create a table. Add the following field and data type:

AnimalID	AutoNumber

9a. Set this field as the **Primary Key**.

10 Continue adding the following fields and data types to the table:

Name	Text
PersonID	Text
Type	Lookup Wizard…

10a. In the first screen of the lookup wizard, choose next.

10b. Base the look up on the **tblAnimalTypes** table and click **Next**.

10c. Choose the **AnimalType** field.

10d. Sort by **AnimalType**.

10e. Keep the key column hidden.

10f. Change the label name to Animal Types.

11 Save the table as **tblAnimals** and close the table.

12 Select **Tools**, **Relationships** from the menu bar.

The Relationships Dialog Box will appear. Notice that a link was created automatically when you used the **Lookup Wizard**. Now create a link manually.

13 Add the **tblPeople** table by clicking the **Show Table** button and selecting the table(s) and clicking the **Add** button.

14 Click **Close**.

15 In the Relationships window, drag the field **PersonID** from the **tblPeople** table to the **PersonID** field in the **tblAnimals** table.

16 Enforce **Referential Integrity**. Now an ID cannot be added in the **tblAnimals** table until the ID has been created in the **tblPeople** table. Click **Create**.

17 Close the **Relationships** window.

18 Add the following data to your tables:

tblPeople

PersonID	cardar	bilgre	shemeg
FirstName	Carla	Bill	Sheila
LastName	Darma	Green	Megget

tblAnimalTypes

TypeID	kan	rab	dog	cat
AnimalType	Kangaroo	Rabbit	Dog	Cat

tblAnimals

AnimalID	This is automatically generated.			
Name	Bingo	Ziggy	Bouncer	Lucky
TypeID	Dog	Cat	Kangaroo	Rabbit
PersonID	cardar	cardar	bilgre	shemeg

Edit Existing Relationships

1 Open the **Table Relationships** window.

2 Double-click the relationship line for the relationship you wish to edit.

3 In the Relationship Dialog Box, set any changes.

4 Choose OK.

Delete Relationships

1 Click the line for the relationship you wish to delete.

2 Press the **DELETE** key.

Remove a Table from the Relationships Window

1. Choose **Tools**, **Relationships**.
2. Select the table to remove and press the **DELETE** key.
3. Close the relationships window.

Adding a Table to the Relationships Window

1. Click the **Show Table** button. 
2. Add the table back that you just deleted.

Modifying a Query

Specify a Sort

A query can be defined to sort records in ascending or descending alphabetic or numeric order. The sort order is determined by the fields placement in **Design View**. The fields to the left are sorted first.

1. Open the Northwind database.
2. Select the **Design View** of the **Invoices** query.
3. Click the **Sort** cell or the field you wish to sort choose the **ShipName** field.
4. Click the down arrow associated with the Sort text box.
5. Select **ascending** from the list.
6. Sort **ProductName** in ascending order also.
7. Select the Datasheet View button on the toolbar or choose **View, Datasheet** from the menu to view the data in sorted order.

Criteria

Criteria defines the records you are searching for. The updated set of records is a dynaset. You can change data in a dynaset and Access updates the records in the underlying tables in most cases.

1. Select the **Design View** of the **Invoices** query.
2. Move to the **Criteria cell** for the field you are searching on. Choose **City**.
3. Type the expression **= "Berlin" Or "London"** in the cell and press Enter.
4. Select the Datasheet View button on the toolbar or choose **View, Datasheet** from the menu.

Rules for Setting Criteria

- When entering a text criteria, you can use either uppercase or lowercase.
- You can use wildcard characters **?** for any character and ***** for any group of characters.
- Use the **Not** operator to find records not matching a value.
- Use **Is Null** to find records with a blank field; use **Is Not Null** to find only records with data in a specific field.
- Use the **In** operator to find a value from a list of values. E.G.- typing the expression **In(NY, CA, TX)** would find customers in the states of New York, California, and Texas.
- To find a **Yes value**, enter Yes, True, On, or –1.
- To find a **No value**, enter No, False, Off, or 0.

Different Types of Queries

Grand Total Expression Query

1 Click the **Query** tab and select **New**.

2 Select the **Design View**.

3 Add the **Invoices** query to the design of the query.

4 Add all the fields to the query design.

5 In a blank query field, type the following **GrandTotal: [UnitPrice]+[ExtendedPrice]+[Freight]**

6 Run the query to see the results.

NOTE: If you want to multiply the fields together use ***** (asterisk)
If you want to subtract the fields, use **-** (minus)
If division is part of the equations, use / (forward slash)

7 Save your query as **qryqryInvoices(GrandTotal)**. Close the query.

Creating a Parameter Query

1 Click the **Query** tab and select **New**.

2 Select the **Design View**.

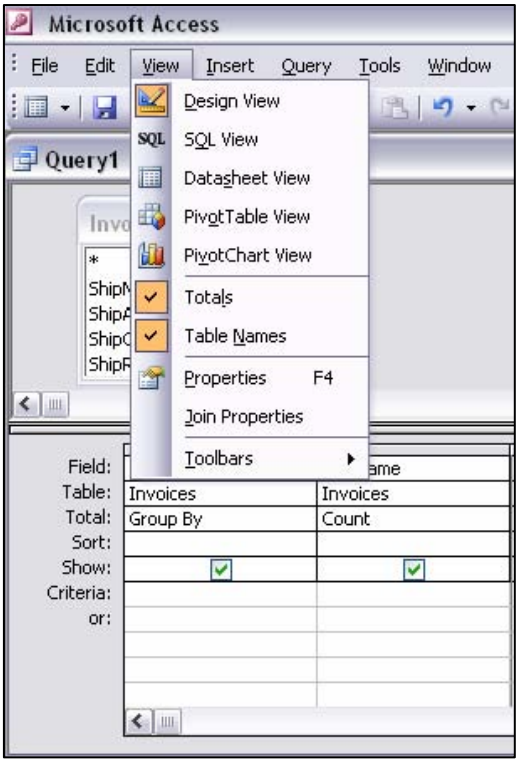
3 Add the **qryqryInvoices(GrandTotal)** query to the design of the query.

4 Add all the fields to the query.

5 Create a parameter for the **OrderDate** field, type **Between [OrderDate#1] and [OrderDate#2]** in the **criteria** cell.

6 Run the query to see the results.

Performing a Grouped Count Query



1 Create a new query in design view.

2 Base the query on the **Invoices** query.

3 Add the field **ShipName** to the query. Add the field again.

4 Choose **Totals** from the **View** menu or click the **Totals** button on the toolbar. 

5 A new row titled **Total:** will be added to your query grid. Keep the first instance of the field as **Group By**.

6 Change the second instance to **Count** by selecting it from the drop-down list in the **Total:** row.

7 You can now run the query.

The query will group each row by the items in the column and will total each item.

Make Table Query

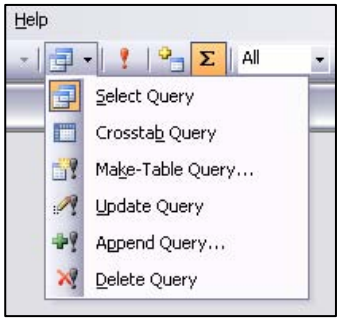
Create a new table based on the **Customers** table in the **Northwind** database.

1 Open the **Northwind** database.

2 Begin a new query in design view.

3 Add the **Customers** table and close the **Show Table** dialog box.

4 Add the **Contact Name** and **Company Name** fields to your query.



5 Choose **Make-Table Query…** from the **Query Type** drop-down list.

6 Name the new table **tbltblCustomers(ContactNames)**.

7 Click **OK**.

8 Run the query, by clicking the **Run** button. 

9 Close the query without saving it.

10 Look at your tables by clicking the **Tables** tab in the database window.

11 Open the table you created.

Update Query

Use the update query to update records in the **Customers** table.

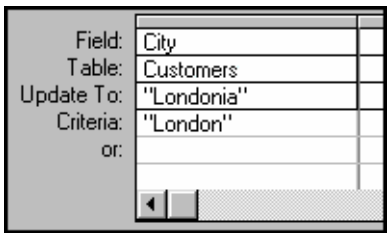
1 Create a new query in design view.

2 Choose **Update Query** from the query type drop-down list.

3 Add the field **City** to the query.

4 In the **Update To:** field type **Londonia**.

5 In the **Criteria** field type **London**.



6 Run the query.

7 Open the **Customers** table and perform a find. Look for the city **Londonia**.

8 Perform a **Filter by Selection** on the selection **Londonia**.

9 Rerun the query. This time update the City **Londonia** to **London**.

10 Close the query without saving it.

Delete Query

Use the delete query to delete the records in your tbltblCustomers(ContactNames) table.

1 Begin a new query in design view.

2 Add the table **tbltblCustomers(ContactNames)**.

3 Choose **Delete Query** from the query type drop-down list.

4 Add the field **ContactName** to the query.

5 In the **Criteria** field, type **Maria Anders**. In the **or:** field, type **Antonio Moreno**.

6 Run the query.

7 Open the **tbltblCustomers(ContactNames)** table.

8 Close the query without saving it.

Append Query

Add records to the **tbltblCustomers(ContactNames)** table.

1 Create a new query in design view.

2 Add the **Customers** table.

3 Choose **Append Query …** from the query type drop-down list.

4 In the **Append** dialog box, choose **tbltblCustomers(ContactNames)**.

5 Add the **ContactName** and **CompanyName** fields to the query.

6 Run the query.

7 View the **tbltblCustomers(ContactNames)** table. Notice that the records were added twice since a primary key was not assigned.