

# MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Sloan School of Management

*15.561 IT Essentials*

Spring 2005

## **Assignment #2: Relational Databases (Microsoft Access)**

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**Due: Monday, February 28, 2005**

What to turn in: For this assignment, email a WinZip archive file to your TA containing database file **nwind-ps2.mdb** with your queries.

### *Important Notes:*

- 1. You are encouraged to work in teams of 2 for this assignment. If you do, the same grade will be given to both members. Collaboration will be of “Type 3” (as defined in the *MIT Sloan Academic Standards*, January 2005). In this case, that means that both team members must be present when the work is being done, and both must understand the final answers. If team member A is substantially more knowledgeable about the subject matter than B, it is A’s responsibility to explain the reasoning behind the answers to B, and it is B’s responsibility to ask questions until B understands the answers.**
- 2. You may choose to work alone, but you will be expected to do the same amount of work as a two-person team.**
- 3. Do not leave this assignment for the last minute!**

### GENERAL INFORMATION

In this assignment, you will be using Microsoft Access to perform queries on the Northwind Traders database that was used in class. **Since there are several different versions of this database around, to make sure that we grade you correctly, we ask that you use the version, which is available from the MIT Server.** To do this assignment, you must download this file and make a private copy in one of your directories.

In order to complete this assignment, follow these steps:

- 1. Go to the MIT Server and download file **nwind-ps2.mdb****
- 2. Go to the directory where you saved this copy of file **nwind-ps2.mdb**. It's probably**

also a good idea to make a copy of this file, so you won't have to download again if you need to start over for some reason.

3. Double-click on file **nwind-ps2.mdb** to start Microsoft Access and load the Northwind Traders database
4. Build all queries required for this problem and save each query using names that obey the following pattern: "15561 Task X", where X is the number of the task corresponding to the query (e.g. "15561 Task 3"). Feel free to use any of the queries already existing in the database as intermediate steps in your solutions. It is important that you adhere to this naming scheme to make sure that your TA can locate and grade your queries.
5. By saving your queries, you have modified file **nwind-ps2.mdb**. For this reason it is very important that you work in your own personal copy of the file.

You are welcome to use either format Microsoft Access provides to create your queries (Design View or SQL View). However, unless you are already an expert on SQL, we believe you will find it *much* easier to use the Design View.

## THE QUERIES

Task 1: Write a query that displays an alphabetical list of all Northwind Traders Sales Representatives.

Task 2: Write a query that displays the names of all Northwind Traders customers who are based in Brazil.

Task 3: Write a query that displays the names of all customers who placed orders in 1995 together with the number of orders they placed that year. Order the output by the number of orders placed (customers who placed the largest number of orders should be displayed first). Each customer name should appear once.

*Hint: Join tables "Customers" and "Orders" and use Group By and Count. You'll also need to use a Where for the date range and a Sort on the Count.*

Task 4: Write a query that ranks all customers who placed orders in 1995 by the total value of their orders in that year (customers with the highest total order values should be listed first).

*Hint: There is already a query in the database called "Order Subtotals" that calculates the total dollar amount of each order. You can base your query on this query together with the two tables "Customers" and "Orders." (To include a previously constructed query in your query, you select the previous query from the "Queries" tab instead of the "Tables" tab in the "Show Table" dialog box.) You'll need to Group By company, use a Where for the date range, and Sum and Sort on Subtotal from "Order Subtotals".*

Task 5: Write a query that lists the names of all products in order of their total sales for 1995 together with the corresponding dollar amounts.

*Hint: There is already a query in the database called "Order Details Extended" which includes, for each line item sold, the product name and the total dollar value ( $\text{UnitPrice} \times \text{Quantity} \times (1 - \text{Discount})$ ). You can base your query on this query and the "Orders" table. To find the total revenue generated by each product, add together the dollar value of line items referring to the same product using "Group by" ProductID and the aggregate function "Sum". Make sure that you properly use field "OrderDate" in table "Orders" to constrain the summation to line items that refer to orders placed in 1995.*

Task 6: Start with the query you created in Task 5 and create a new query that includes only the sales to customers in Spain.

*Hint: First open the query you saved for Task 5, then add the "Customers" table to the query. (You can add a new table to an existing query by right-clicking in the upper half of the Design View and selecting "Show Table...") Use the "Country" field in the "Customers" table to select only customers in Spain. Don't forget to use the "Save as..." command to save this new query with a different name ("15561 Task 6").*