Getting Started with

Microsoft
Access 2000®

By

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Manipulating or processing "data" to produce "information" is an essential function required to make good decisions. Producing the information in a timely, efficient, and effective manner can be a key in whether or not a business succeeds. While we could manually process data into information, the extremely large volumes of data and business needs for information that is accurate, valid, and cost effective, demands the use of computers and database management systems (DBMSs).

Microsoft Access 2000® provides the user a very robust and powerful microcomputer-based relational DBMS. As an integral part of Microsoft Office 2000 Professional®, MSAccess® enables you to capitalize on common MS Office® techniques and procedures in order to manipulate data and produce information. MS Access® also departs significantly from the other applications in the office package because of the functions required by a DBMS. While individual functions, such as formatting, selection of items, saving and printing, work the same, Access® is more complicated by its nature from applications such as Word®, Excel®, and PowerPoint®. These applications are focused on a document (which could be multiple pages), workbook (which could have multiple worksheets), and presentation (which could have multiple slides), with each of these multiple items are simply multiples of the same thing, i.e. a page, worksheet, or slide.

Unlike Word®, Excel®, and PowerPoint®, MS Access® allows the user to create and manipulate several different objects in order to process data into information. These objects include: tables, queries, reports, forms, macros, modules, and pages. The foundation and basis for databases is the table object, which looks much like a worksheet with columns and rows.

For this lab requirement, you will not need to be able to create tables as a baseline database with a table and data will be provided. When you finish this exercise you will be able to:
1. Add records to a table,
2. Create a form,
3. Create a query,
4. Create a report.

In order to accomplish these objectives, you must have a baseline of fundamental terms and concepts. The foundation for the database is the table. A table is composed of records, where each row in the table is a record, a collection of data elements relevant to a single entity, for example a person. Each column in the table is an item of data relevant to the record. As an example, consider the items of data on an application form, e.g. last name, first name, address, city, state, zip, phone number, date of birth, etc. You could collect all of the data about one person in each row of a table. The data elements comprising a record are called *fields*. The table then by default is a collection of records containing similar data elements (fields) concerning individual entities.

A database file could contain multiple tables, but for our purposes, we'll keep it simple and work with a single table. Collecting data is not useful unless you can process it, manipulate it, to provide information for decisions. Once the data is processed or manipulated, it needs to be portrayed in a form useable by humans.

Data is manipulated primarily through the database object called a *Query*. In effect, you query or question the database to provide specific sets of data, called dynasets, which meet specific criteria or parameters. The criteria or parameters are determined by the person needing the data, for example, identifying all applicants who live in Tacoma or have Zip Code 098384 or whose last name is "Smith" have Zip Code 98488 and were born before 1960.

Once we have the query extracting or selecting the information we want, it needs to be portrayed effectively. The *Reports* object and report generator is the means MS Access® provides to produce professional looking output. Reports can be based on queries and thereby limited in the number of records and the data elements available for the report. Reports can also be based on a table giving access to all records and data elements.

The first thing to do is to start MS Access®. After starting Access®, you will see a window offering you three options: create a new database using a blank Access database, create a new database using a wizard, or open an existing database. You should have downloaded the Addresses_Access200.mdb (Addresses_Access97.mdb if you have MS Office Professional 97®) and saved it in a folder. At this point it is important to note that MS Access2000® databases and MS Access97® databases are different. MS Access97® cannot open an MS Access2000® database directly unless it has been converted in MS Access2000® and made MS Access97® compatible. Similarly, MS Access2000® can open an MS Access97® but cannot make any structural changes, e.g. creating and saving new queries or reports, with converting the database to an MS Access2000® database.

Following are the step by step instructions for you to follow in order to accomplish the homework objectives.

When you start MS Access2000, this is how your desktop should appear. Notice the three initial options for beginning your work. If you need to browse to locate the appropriate MS Access2000 database file, then leave the default of "open an existing file" and "More files . . ." selected.
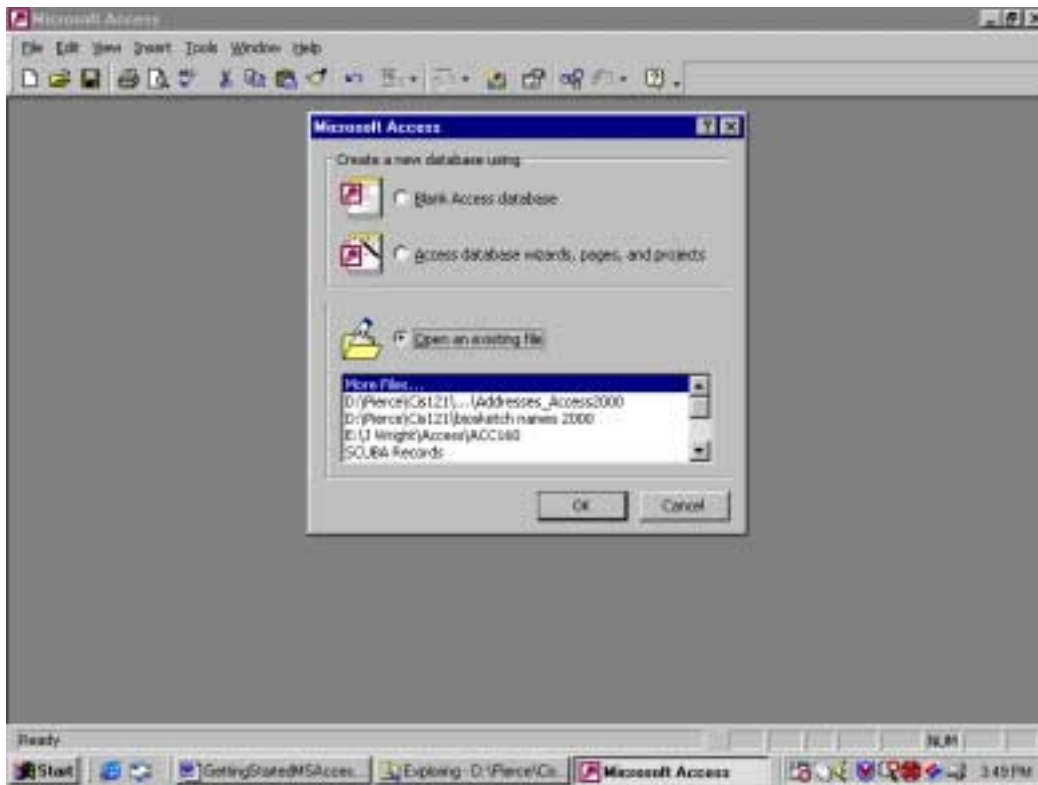
If you <*Click*> on the *OK* button, then you will open the dialogue box where you will be able to navigate through your computer's file system to locate the proper file.
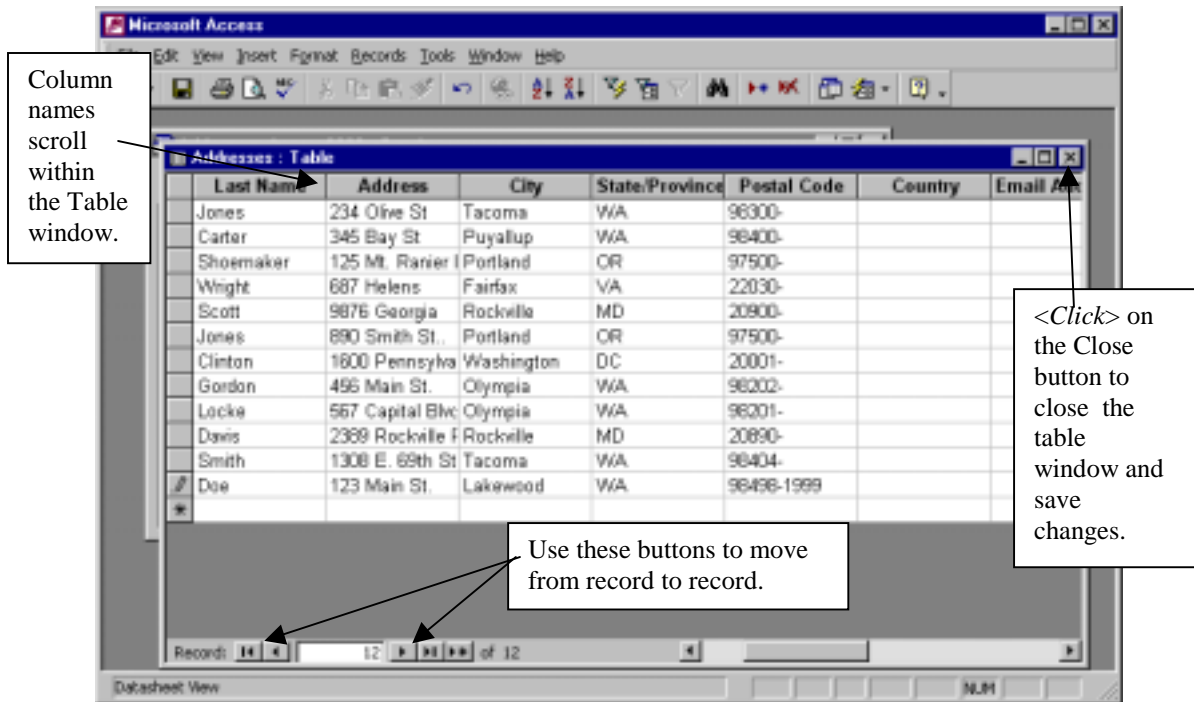
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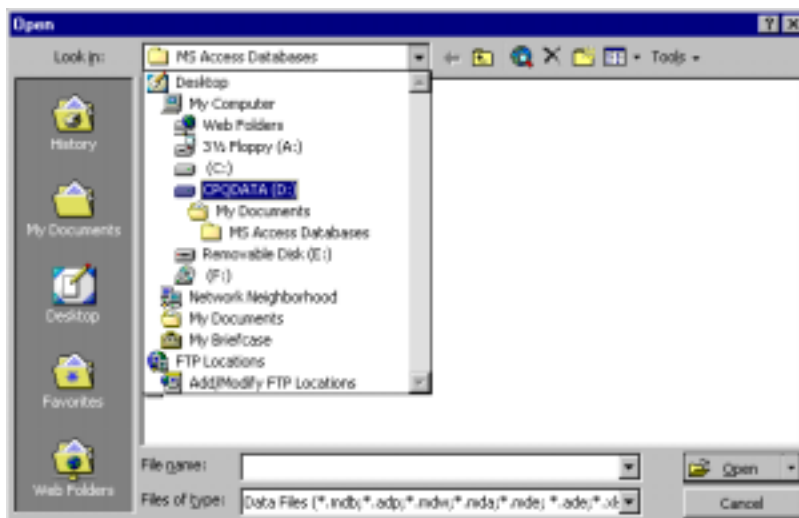
Find the file "Addresses_Access2000.mdb" and open it. You will then see a database window open within the MS Access® desktop as seen below. Note in the database window, you will see the listing of Objects (Tables, Queries, Forms, etc.) with the Tables object selected and the "Addresses" table name selected or highlighted. To open the table, you may either <Click> on the Open button on the window toolbar or <Double-Click> on the highlighted table name.
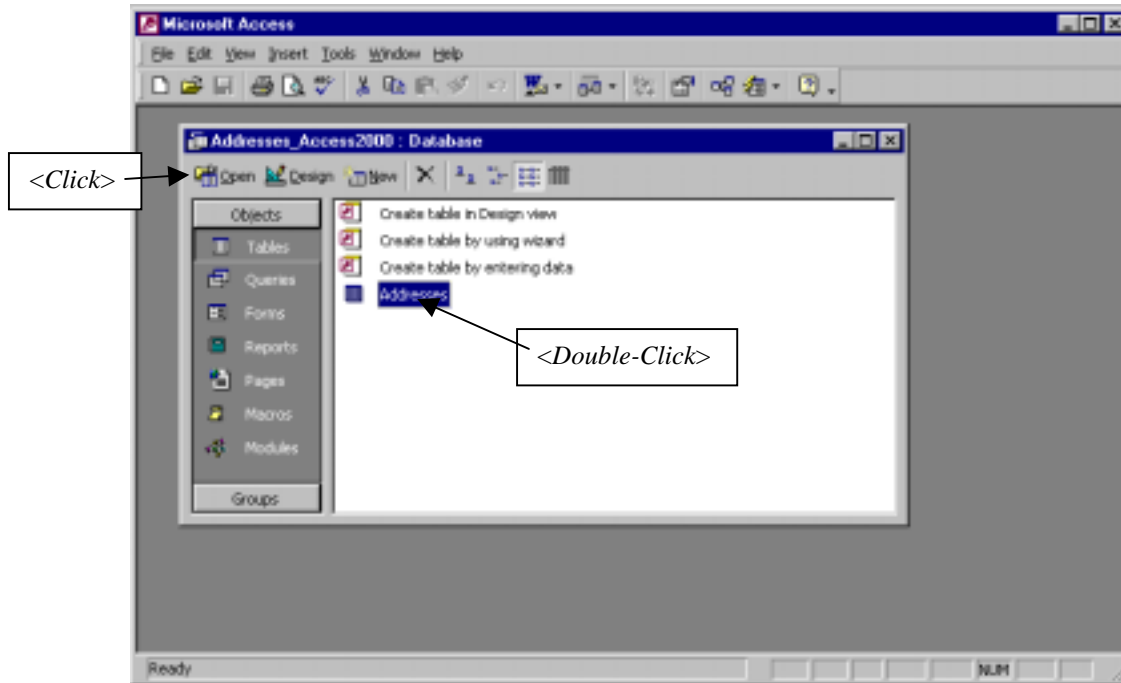
When you open the table, you will see a window with rows and columns. Each row represents a record and the columns the individual data elements or fields. <Click> in the last row, First Name column, to begin entering the data for a new record.
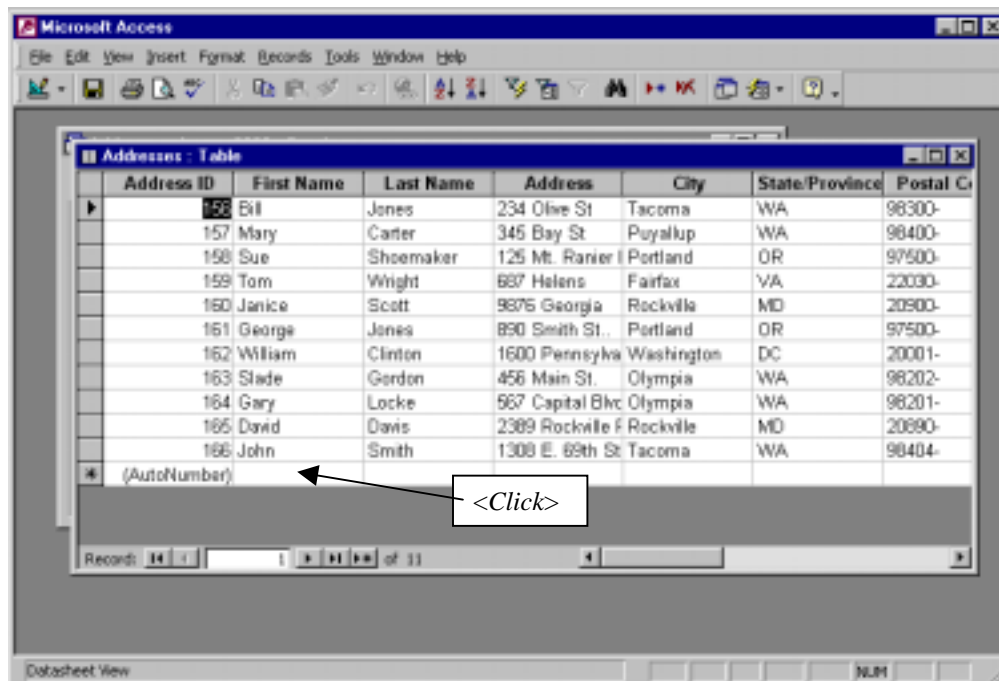
Enter your name and the information identified at the column titles, e.g. First Name, Last Name, Address, etc., into the last row in the table. You may press the *<Tab>* key, the *<Right Arrow>*, or *<Click>* to move from column to column. Since all of the columns cannot be seen, the display of columns will scroll as you move from column to column.

Column names scroll within the Table window.

<Click> on the Close button to close the table window and save changes.

Use these buttons to move from record to record.

After you finish entering you information as the last record in the table (on the last row), close the table window. MS Access® automatically saves the changes you made when you close the window. It also saves any/all changes you have made in any object in the database when you close the database file. It does NOT warn you or ask you if you want to save changes but assumes if you made changes you want them saved.

Do NOT be concerned about the order of records in a table. Always enter new records as the last record in the table. Depending on how the table is configured it may automatically sort the records according to criteria established by the database designer or just leave the sorting to other tools in MSAccess®.

The principle tool you will use to process data (sort, select, compute, cull, etc., records and specific fields with the records) into information is the query. The process is one of identifying a source of data and then selecting specific records (and the fields within the records) where certain criteria is met. As an example, from the Addresses Table, select all of the records where the Last Name starts with an "S" and show the Last Name, First Name, City, and State. Creating a query in MSAccess® is accomplished using a intuitive point and click interface called QBE or Query By Example. The QBE technique is a powerful yet simple tool used by beginners and experts alike to transform data into information and is the means for identifying portions of the data, called dynasets, which may be used as information or further processed.

To begin querying, you must first access the Query object in the database by *<Clicking>* on the *Query* button in the database window. Notice the Query window has only two items providing you the means to create a Query in either Design View or with a Wizard.


<Click>
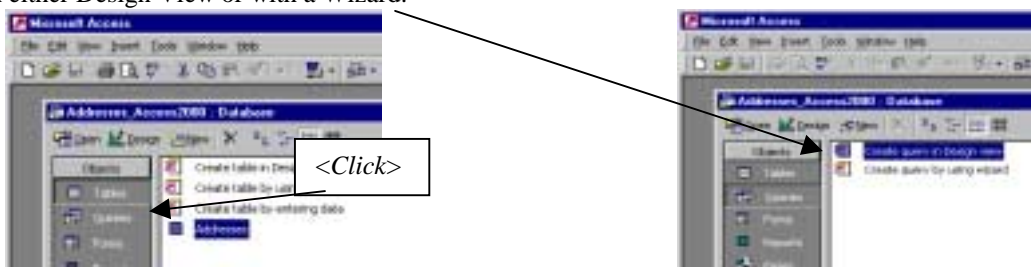
Since no queries exist in the database, you must create the first one. Either *<Double-Click>* on the item *Create Query in Design View* (or <Click> on the *New* button opening the *New Query* window with *Design View* highlighted (<Click> on the OK button)). This action opens the *Select Query* and the *Show* Table windows, where you will see a list of available tables, in our case only the *Address* table. *<Click>* the table name to select it and then *<Click>* on the *Add* button. After you add the table to the *Select Query* window, *<Click>* on the *Close* button.
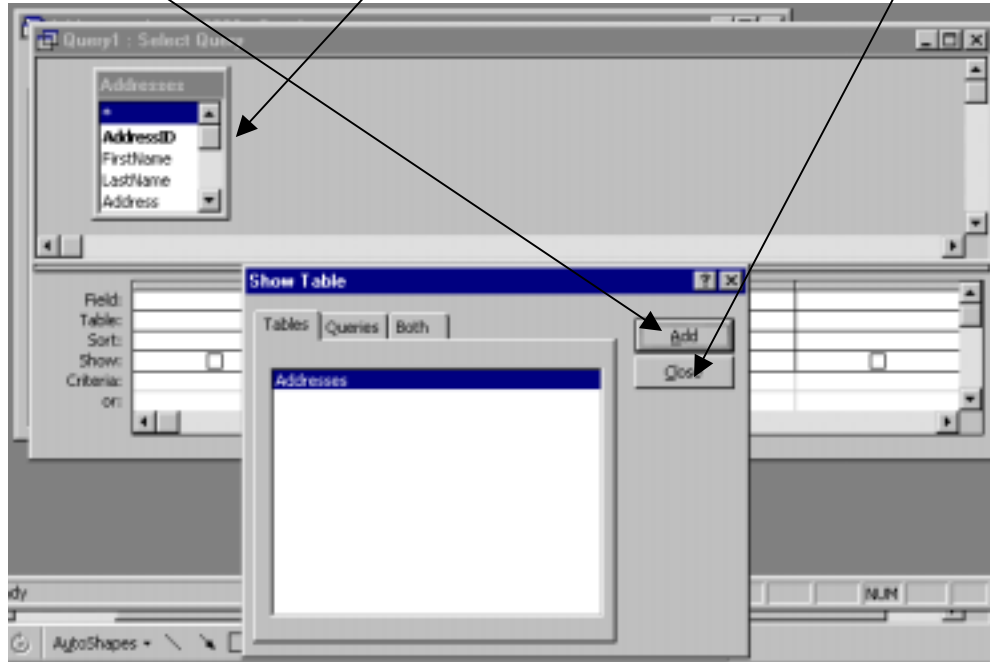

After you close the *Show Table* window, you should see a listing of the fields that comprise the data elements of the records in the *Address Table*. Since the list of field names is longer than the table window, a scroll bar appears on the right side of the window to allow you to select any/all of the field names. The lower half of the *Select Query* window is the QBE grid. When you construct a query, using one of 3 techniques, you place the field names of the data elements from the records into the first cell in each column. When the query is "run", the fields will be displayed in the same order you placed them into the grid, hence, query by example. You can move the desired field names from the listing of available names in the *Table* window to the columns in the QBE grid by either *<Double-Clicking>* on the field name, or by *<Dragging>* the field name to the QBE grid, or by by *<Clicking>* in the first cell in the column and selecting the desired field from the drop-down menu.
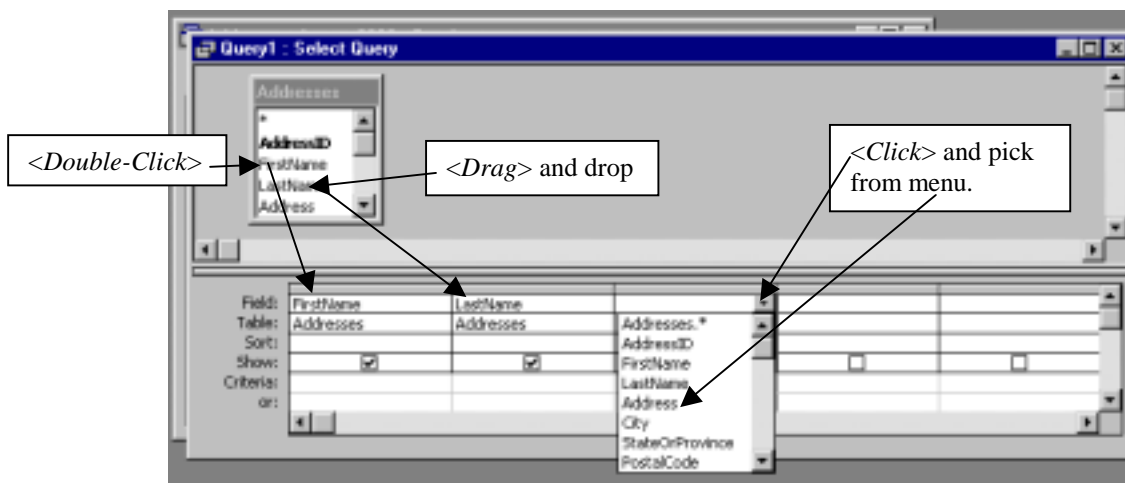
Using these techniques, add the following fields to the QBE grid columns in the field row: First Name, Last Name, Address, City, State, Postal Code. When you finish your QBE should look as follows.
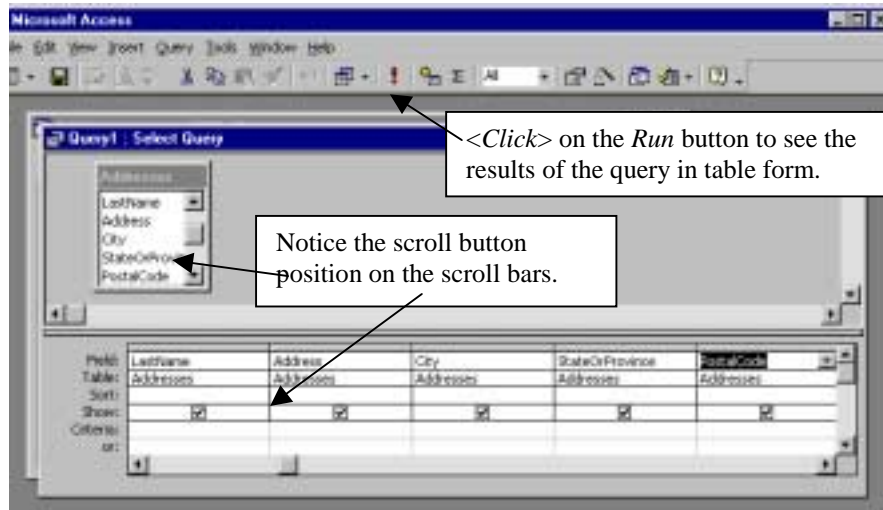

Getting the desired fields into the QBE grid is one part of creating a query designed to "select" specific records and only the fields you designate from those records. If the query were "run" at this time, all of the records in the Addresses Table would be shown, but only those six fields you designated. In order to be more useful, we need to be able to select on the records we want based on some criteria and we need to be able to organize the records into some sort of order.
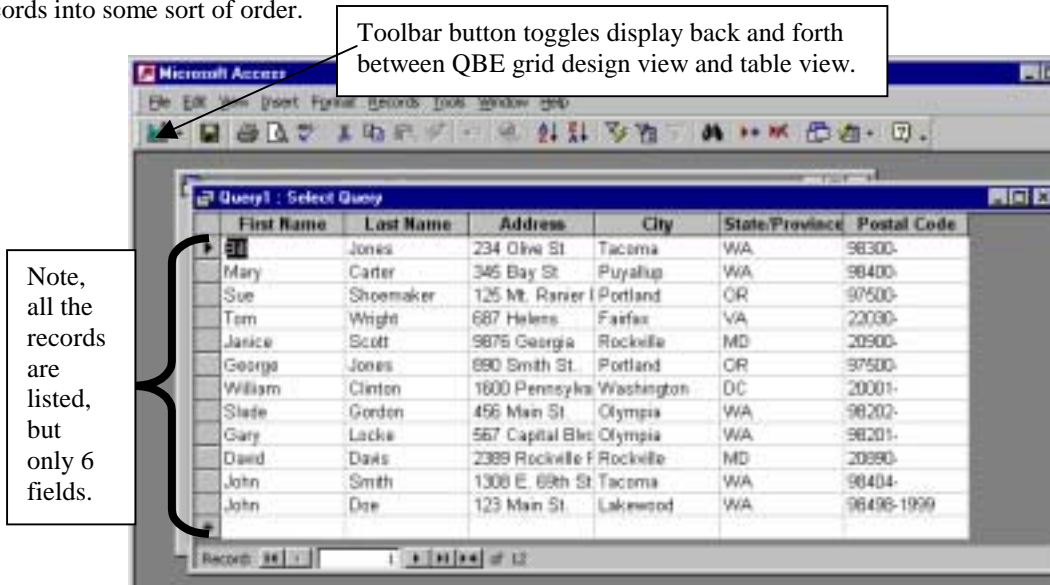
<*Click*> on the toolbar button to toggle the query back to the QBE design view. Once back into this view, you can modify the QBE grid and add criteria for selection of records as well as choosing a field to sort the results. The query is the primary tool you can use to provide order to your results. Other tools, such as reports also provide additional controls and capabilities to facilitate the best possible presentation of your data.

In the QBE grid view, <*Click*> on cell on the Sort row of the Last Name column. The dropdown menu provide you the choices of Ascending, Descending, or Not sorted. Point to the Ascending selection to highlight it and <*Click*>. In the Criteria row on the StateOrProvince column, type in a WA and either press *Enter*. Notice how MSAccess placed the WA inside double quotes.
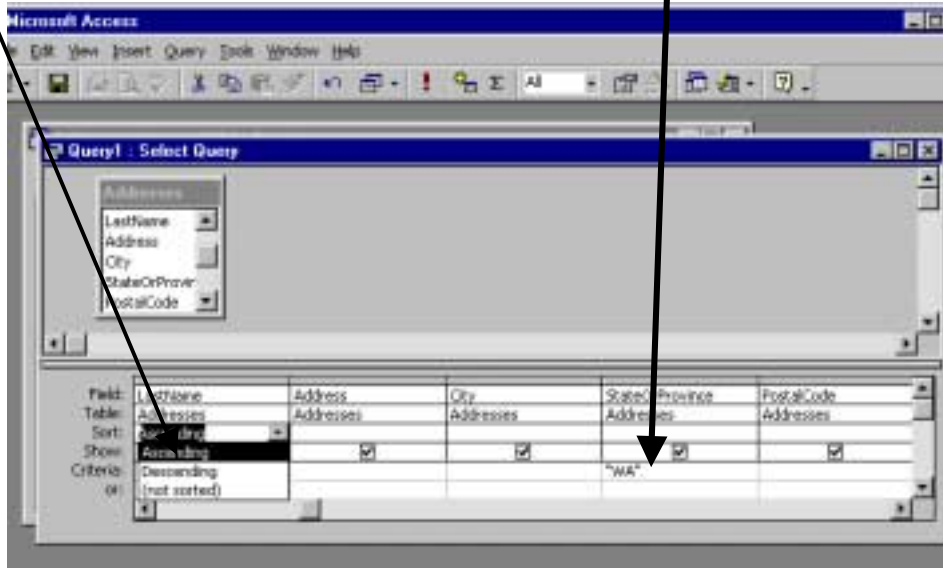

With this selection criteria and sorting established, the recorded identified by this query are significantly fewer than before. Either <*Click*> on the *Run* button or the *View* button on the toolbar to see the results. At this time you see only the six records meeting the criteria and now they are listed in alphabetical order by last name.

Only 6 records, all WA state, sorted by Last Name

At this point, if the query processes the data in the way you want it to, then you can save the query and then "run" it as often as needed as records in the table are added/deleted. You should close and save the query by either using the menu bar (*File/Save As . . .*) or <*Click*> on the close button (X) in the active query window. If you <*Click*> on the close button, you will be asked if you want to save changes. <*Click*> on the Yes button and follow standard Windows procedures for saving files. When you save the query, use the word query in its name to avoid future confusion as to the type of object. You could also print the query using standards printing procedures.
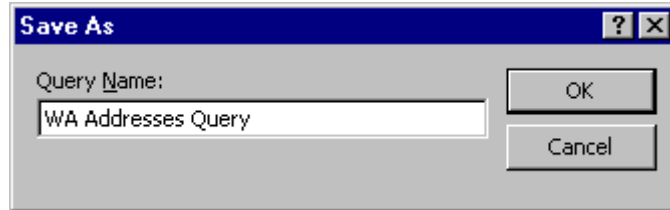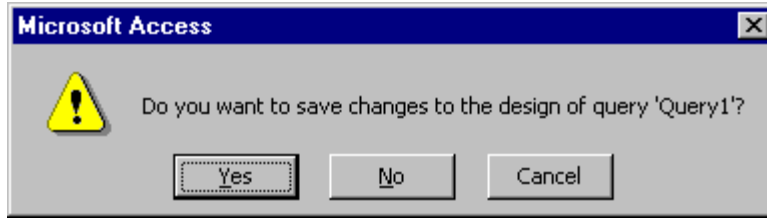
After the query is saved and closed, you will be returned to the database window and see the name of the query you just created.
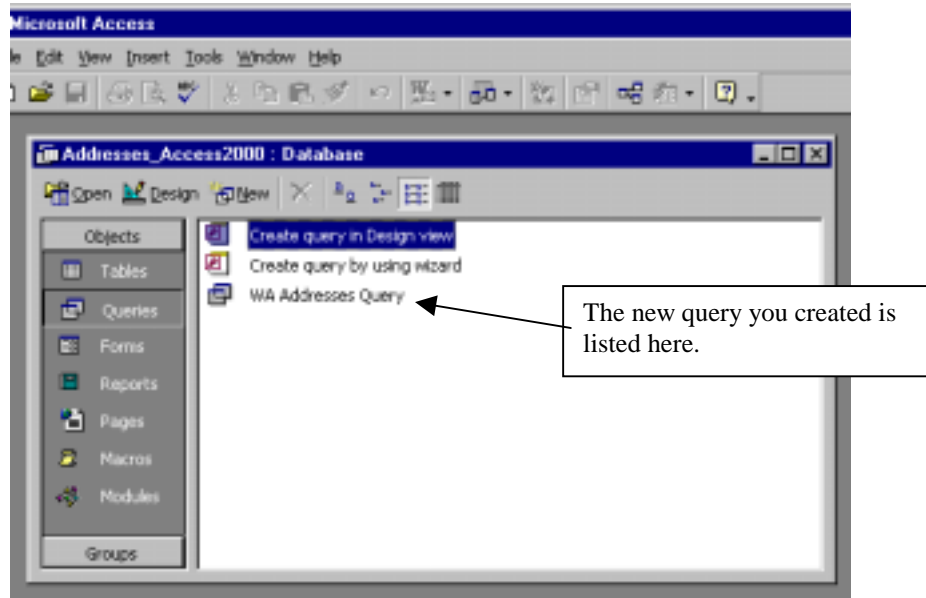

Having a table to hold data items and records and queries to process the data into information, one key to making the system efficient is insuring the user can effectively and efficiently add, delete, and edit records. While you can perform these manipulations directly on the table, it is very easy to become confused and make changes on the wrong record (row or column). When you view the table, you are browsing all of the records. MS Access® has another means for viewing records, in whole or in part, and that is by using Forms.

Creating forms in MS Access® has been made easy through Microsoft's continued use of "wizards", in this case the form wizard. While in the database window, <Click> on the Forms button. You will notice two entries listed, *Create Form in Design View*, and *Create Form by using Wizard*. You will want to experiment with the Form Wizard later to easily create forms. You can also get to the Form Wizard by <Clicking> on the New button and selecting Form Wizard in the New Form window.

> *<Click>* on either the New button or *<Double Click>* on the Create form using wizard selection.
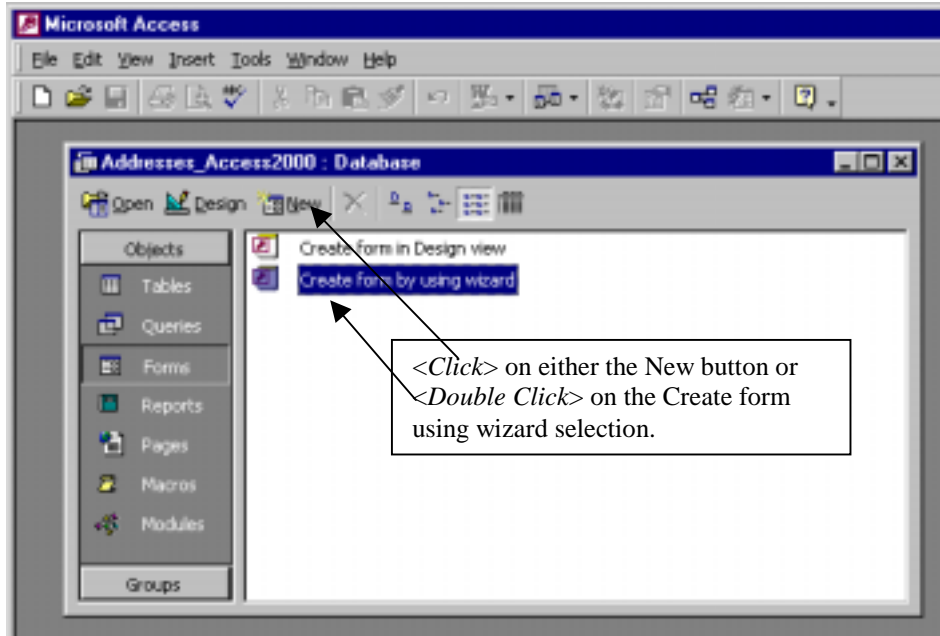
If you start your new Form by using the New button, in the New Form window you will be given several options for creating the form. The easiest and fasted method for creating a form is to use the AutoForm function. *<Click>*on the AutoForm: Columnar option. In order to create a form, you must identify the source of the data you want portrayed as a form. The source my be either a table or a query. In this case, *<Click>* on Addresses to select the Addresses table containing all the records and fields for each record.
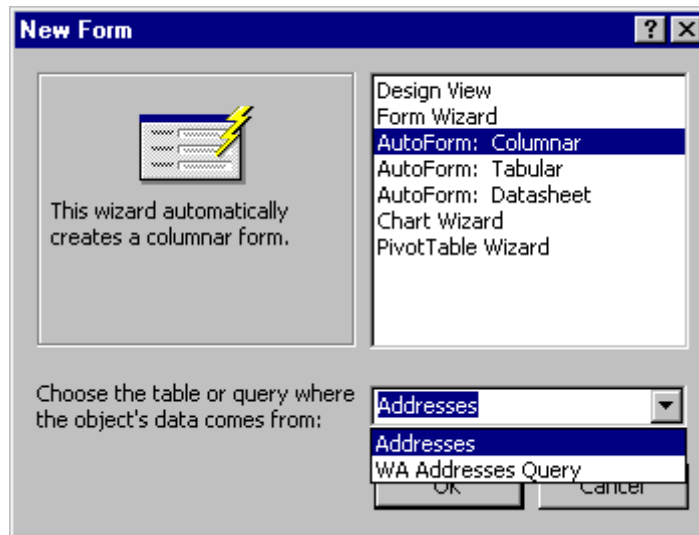
Once you have identified the tool or method you want to use to create the form, *<Click>* on the OK button and MS Access® will create the form for you. Within a few seconds, the following form appears on the screen.
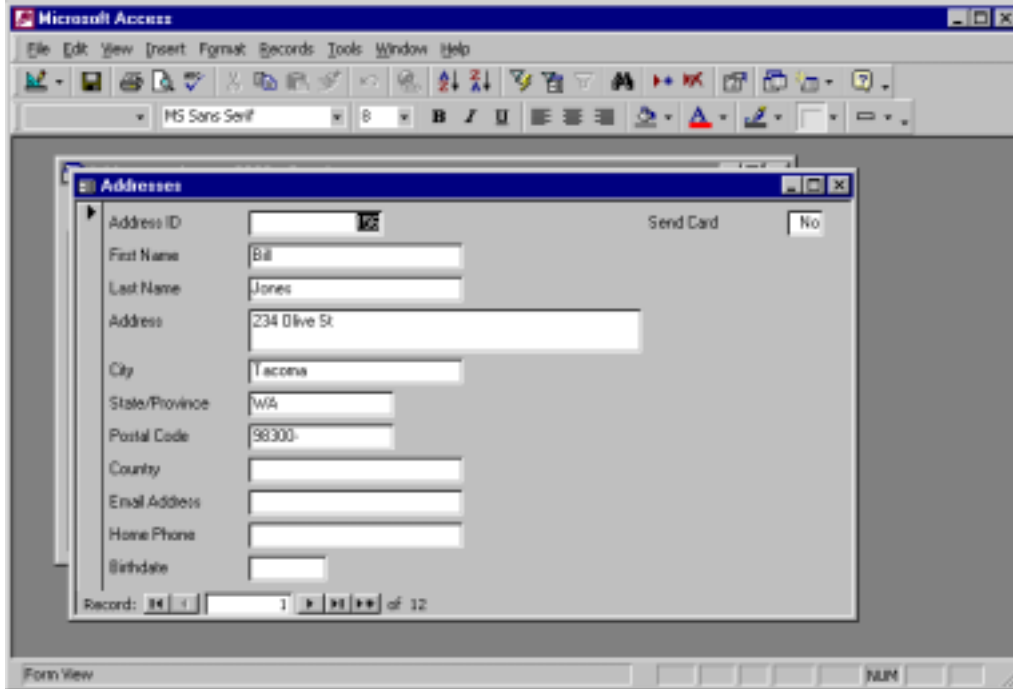
In the Form View, you will all of the fields in a record, one record at a time. Using the navigation buttons in the lower left of the form window you can navigate through the records in the table. If the form is satisfactory, simply save the form using standard Windows procedures and give the form the name Complete Addresses Form.
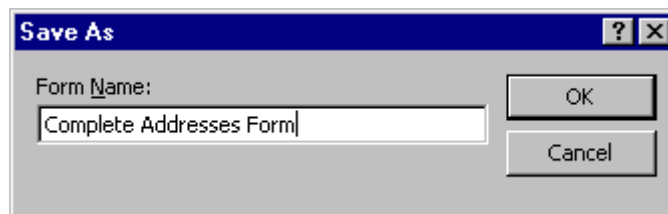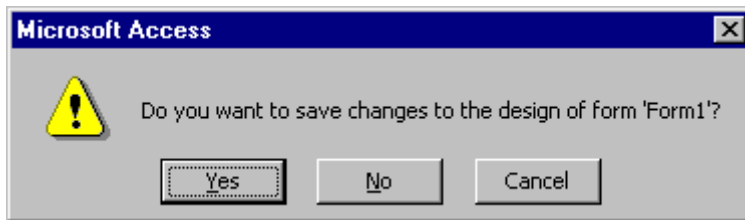
Once the form is saved, you will see its name listed in the database window when the Forms object is selected.
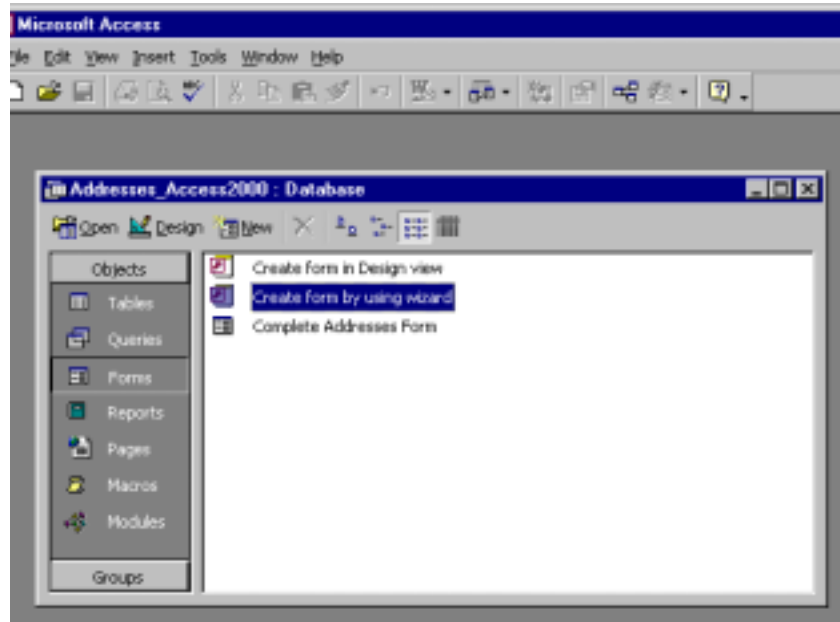
Tables store the data records, queries help process the data, and forms provide the means to easily work with one record's data at a time. Finally, the processed data needs to be provided to a decision maker and this is usually done by creating a Report. The Reports object in MS Access provides the user the means to easily create customized information reports.

<Double Click> on this item to start the wizard.
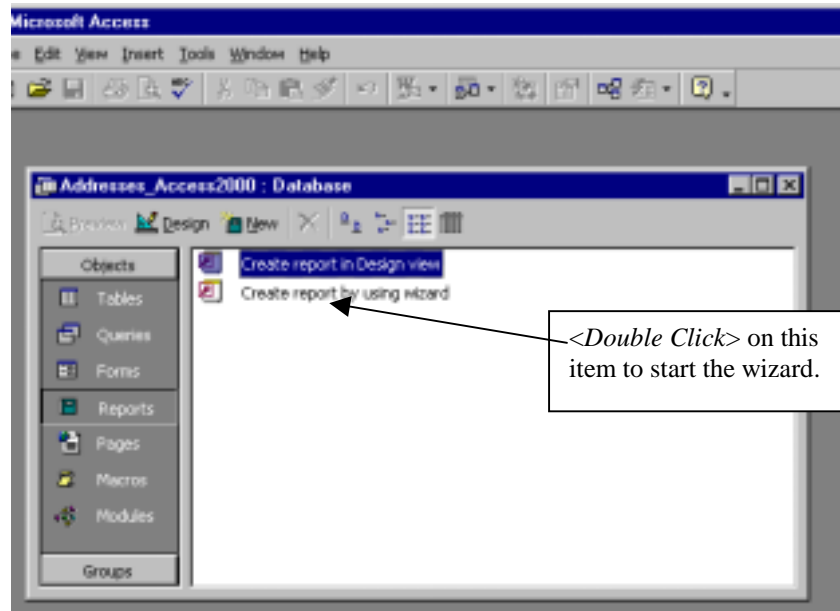
MS Access® once again provides the necessary tools enabling the user to easily and efficiently create custom reports by using a wizard. *<Double Click>* on the Create Report by Using Wizard selection in the database window to start the wizard.

Microsoft Acces® will then lead you through a series of steps in order to create your report.

Report Wizard

Which fields do you want on your report?

You can choose from more than one table or query.

Tables/Queries

Query: WA Addresses Query ▼

Available Fields:

Address
City
StateOrProvince
PostalCode

Selected Fields:

FirstName
LastName

Cancel   < Back   Next >   Finish

Report Wizard

Do you want to add any grouping levels?

FirstName, LastName, Address, City, StateOrProvince, PostalCode

FirstName
LastName
Address
City
StateOrProvince
PostalCode

Priority

Grouping Options ...   Cancel   < Back   Next >   Finish

Report Wizard

What sort order do you want for your records?

You can sort records by up to four fields, in either ascending or descending order.

1 LastName

2

3

4

Cancel   < Back   Next >   Finish

Report Wizard

How would you like to lay out your report?

XXXXXXXX

Layout
- ○ Columnar
- ● Tabular
- ○ Justified

Orientation
- ● Portrait
- ○ Landscape

☑ Adjust the field width so all fields fit on a page.

Cancel   < Back   Next >   Finish

Report Wizard

What style would you like?

Bold
Casual
Compact
Corporate
Formal
Soft Gray

Cancel   < Back   Next >   Finish

Report Wizard

What title do you want for your report?

WA Addresses Report

That's all the information the wizard needs to create your report.

Do you want to preview the report or modify the report's design?

◉ Preview the report.

◯ Modify the report's design.

☐ Display Help on working with the report?

Cancel   < Back   Next >   Finish

The report wizard leads you through all of the necessary steps required to create a report. If you are satisfied with the report, then save it using standard windows procedures.