Access 2003 – Basics & Beyond Guide

Introduction

What is a database?

The traditional definition of a database is a collection of related data organized into fields, records and tables that has been created for a particular purpose. Data is the basic information component. Data (such as a person's last name or zip code) is stored in fields and related fields are organized into records. Identically structured records are then collected into a table. The data stored in this table can then be sorted and searched, and useful information in the form of reports can be produced. As an example, the table below contains fields for First Name, Last Name, Address, City, State, Zip and Age, and each row contains the data for each field for a particular individual.

Figure 1: Sample Table

First Name	Last Name	Address	City	State	Zip	Age
Mickey	Mouse	123 Fantasy Way	Anaheim	CA	90000	73
Bat	Man	321 Cavern Ave	Gotham	NY	10000	54
Wonder	Woman	987 Truth Way	Paradise	FL	30000	39
Donald	Duck	555 Quack St	Mallard	OH	60000	65
Bugs	Bunny	567 Carrot St	Rascal	NY	12000	58
Wiley	Coyote	999 Acme Way	Canyon	AZ	85000	61
Cat	Woman	234 Purrfect St	Hairball	VT	00300	39
Daisy	Duck	125 Fantasy Way	Anaheim	CA	90000	39
Tweety	Bird	543 Nest Pl	Itotltaw	NJ	12000	43
Foghorn	Leghorn	678 Dixie Way	Isay	KY	40000	81

This table will be used in throughout this training guide to demonstrate the various functions of Microsoft Access 2003.

The Access Database Management System

The concept of a database is more broadly defined within the Microsoft Access 2003 environment. A Microsoft Access database not only consists of data, fields, records, and tables but also includes those queries and reports created as a result of manipulating those fields, records, and tables. As such Microsoft Access is more than a tool used to store data — it is a complete database management system (DBMS). Additionally, the Microsoft Access 2003 DBMS can not only organize and manage a table of records (sometimes called a flat file database)

but can also manage and organize many tables possessing common components into a relational database.

Getting Started

Starting Access 2003

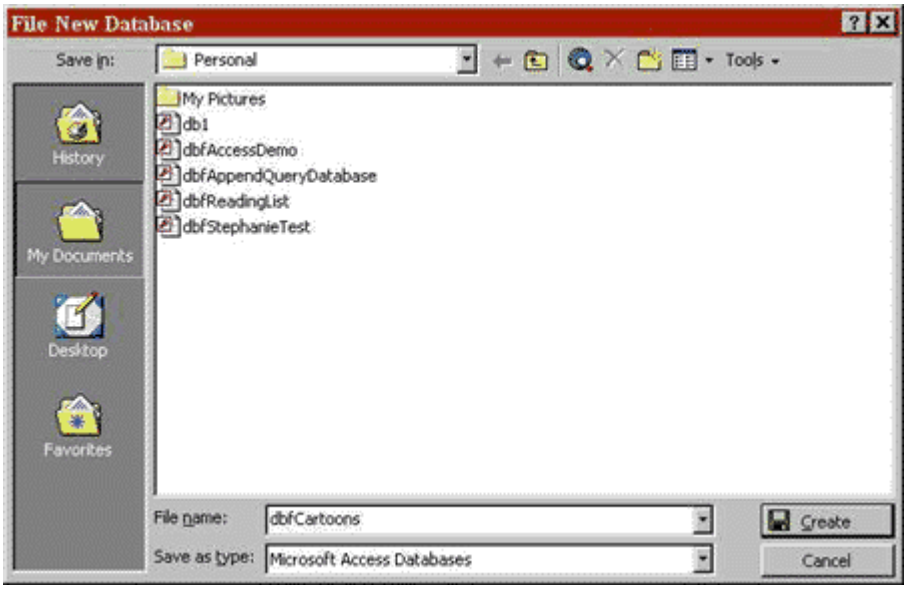
1. Click the **Start** button on the Windows Taskbar.
2. Point to **Programs**.
3. Click **Microsoft Access** from the submenu.

Creating a New Database

When Microsoft Access is launched, click **Create a new file…** on the right pane of the screen, then click **Blank database…**

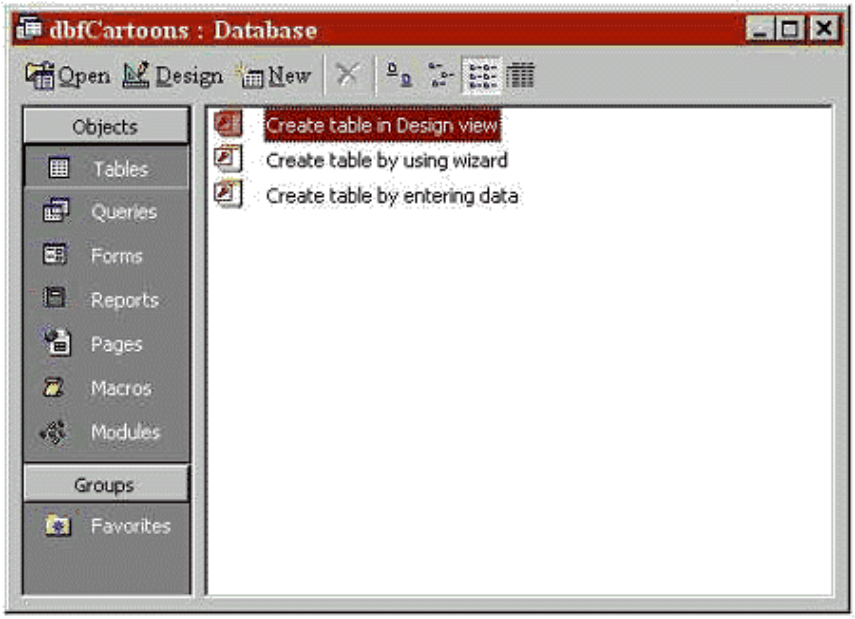
In the "File New Database" dialog box (see Figure 1, below) enter the name of your new database into the **File Name**: text box and click on the **Create** button.

Figure 1: File New Database dialog box



The "Database Name: Database" dialog box is then displayed (see Figure 2, below).

Figure 2: Database Name: Database dialog box



The database has been created. It is now ready for use.

Naming Conventions

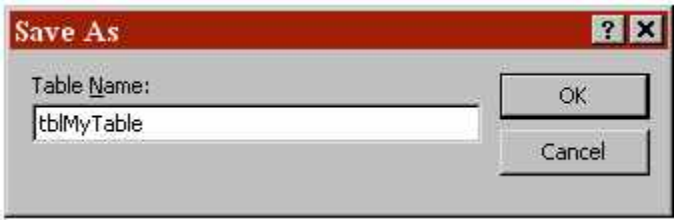
Database development includes naming object files consistently. You do this by using the assigned naming conventions for each object within Microsoft Access 2003. Naming conventions are not mandatory, but they do make your work consistent. If you plan on sharing a database with others, then it is a particularly good idea to use them.

The Leszynski Naming Convention

The naming convention used in this document is called the Leszynski Naming Convention (or LNC). Originally suggested by Stan Leszynski and Greg Reddick in a white paper entitled "The Leszinski/Reddick Guidelines for Access 1.x, 2.x" it has become the convention used by Access and Visual Basic developers**. This naming convention suggests that you precede object names with three letters**. These letters are **called "tags**" and enable you to open, edit, and troubleshoot without having to decode what is contained within the object itself.

Let's say you have just created a table called "My Table". The LNC way to save that table is to start the filename with the tag "tbl" (see Figure 1, below). Please note, file names can be more than one word, but underscores and spaces should not be utilized and each word within the file name should begin with a capital letter. Since databases are often shared with others, this format allows other users to easily identify the file and it saves you time when you begin to use some of the more advanced features that Access has to offer.

Figure 1: Save As dialog box example



As you can see from Figure 1, the file name is preceded by "tbl" for table, and the file name does not contain any spaces or underscores.

Object Naming Conventions

The same format applies to the other objects within Access; the only thing that changes is the naming convention for the object you are working with. For a listing of the different naming conventions, please refer to table below.

Table	Tbl
Query	Qry
Form	Frm
Report	Rpt
Macro	Mcr
Module	Mdl
Database	Dbf

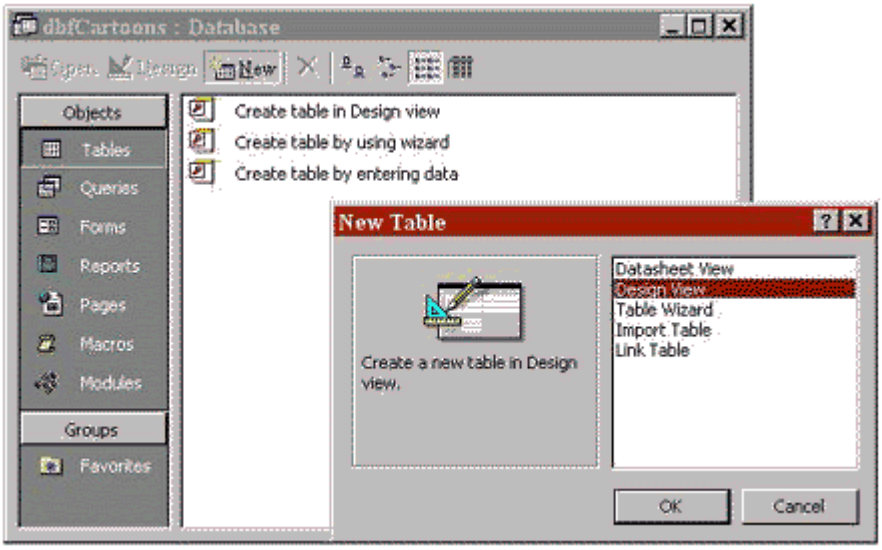
Designing a Table in Design View

Starting a New Table

After you've started Access and created a new database, do the following to start a new table.

1. Click **Tables** in the Objects section of the "Database Name: Database" dialog box.
2. Next, click the **New** button.
3. In the "New Table" dialog box (see Figure 1, below) click **Design View.**
4. Then click on the **OK** button.

Figure 1: Dialog boxes showing “Tables” choice and “New Table” options



Data Types

Before entering data into the fields in the Design View of your new table you should become familiar with the kinds of data you can store in these fields. By selecting the proper Data Type for a field you can optimize its usefulness when you perform queries, sorts and produce reports.

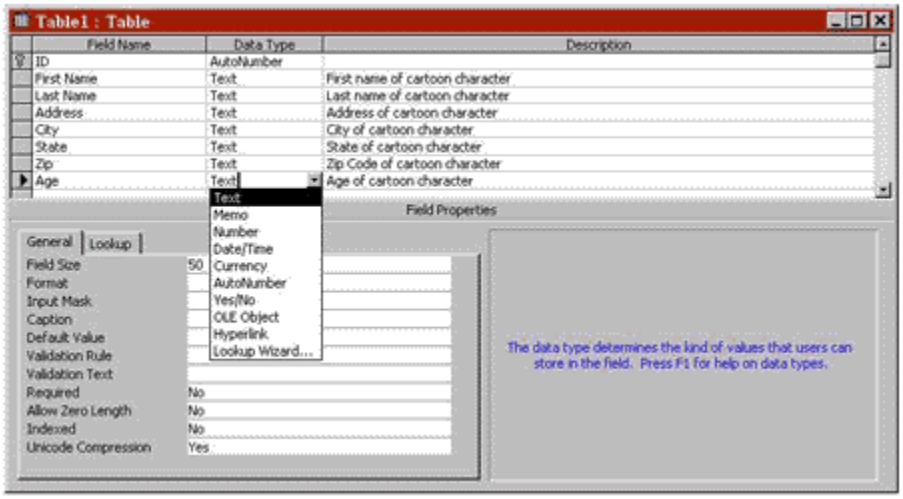
Data Type	Description
Text	Text and/or numbers that don't require calculations — up to 255 characters
Memo	Any text and/or numbers — up to 65,535 characters
Number	Numeric data used in calculations
Date/Time	Date and time values for years 100 through 9999
Currency	Currency values used in calculations

AutoNumber	Unique sequential number assigned automatically to each new record
Yes/No	Values can be only Yes or No, True or False, or On or Off
OLE Object	An object such as a spreadsheet, document, graphic, etc.
Hyperlink	WWW hyperlink address

Defining Data Fields

In the Design View window (Figure 2), you will enter the name of each field, the Data Type of that field and a description.

Figure 2: Design View window



1. Click the mouse in the first blank cell in the Field Name column and enter the desired name for that field.
2. Tap the TAB key to move the insertion pointer to the Data Type column.
3. The default Data Type is Text. To change the Data Type click on the down-arrow box in the cell and then click on the desired Data Type from the drop list menu.
4. Tap the TAB key again and the insertion pointer moves to the Description column.
5. Enter in any text you want to describe this field.
6. Tap the TAB key again to repeat this process for the next field. As you create fields notice the two tabs **General** and **Lookup** in the Field Properties portion of the Design View window. By clicking on the General tab you can customize the properties of the fields by defining such characteristics as Field Size, Format, Decimal Places, etc. To modify one of these field properties click on the property, click on the down arrow box and then click on the desired value from the drop list menu.

7. When finished defining the fields for the table click on the **Save** button in the toolbar (or click **File** on the menu bar and then click the **Save** option in the File drop-down menu).

Now you're ready to enter data into your database.

Entering Data in Datasheet View

Once you have defined your data fields (in Design View), you can enter data in Datasheet View. To get to the Datasheet View, do one of the following:

- Click the **View** button on the toolbar, or
- Click **View** on the menu bar and then click the **Datasheet View** option in the View menu.

The Datasheet View allows you to visualize your data, fields and records in the form of a spreadsheet (see Figure 1, below). Each column in the Datasheet View will contain a particular field (such as a person's first name or the city in which they live). Each row in the Datasheet View will contain those related fields to form an individual record.

Figure 1: Datasheet View

The contents of the fields and records of the table and the appearance of the Datasheet View can be manipulated in the following ways:

To change field names:	Double click on the current field name. Enter a new field name up to 64 characters. Tap the ENTER key (or click mouse anywhere outside of field name).
To delete a column or field:	Click anywhere in the column to be deleted. From the **Edit** menu click **Delete Column**. In the dialog box asking, "Do you want to permanently delete the selected field(s) and all the data in the field(s)?", click **Yes**.
To insert a column or add a field:	Click anywhere in the column to the right of where the new column is to be inserted. From the **Insert** menu click **Column**.
To move a column:	Click on the field name of the column to be moved. Click on the column again and continue to hold the mouse button down while dragging the column to its new location.
To enter data into fields:	Click the mouse button on the datasheet cell. Enter the desired data. Tap the ENTER or TAB key to move to the next field on the right. Hold down the SHIFT key and tap the TAB key to move back to the previous field.
To change column width:	Click anywhere in the column that needs to be changed. From the **Format** menu click **Column Width**. In the Column Width dialog box, enter the desired width in the "Column Width": text box and click **OK**. Or choose **Best Fit** to let Access determine the best width for the data that has been entered.
To change row height:	Click anywhere in the row that needs to be changed. From the **Format** menu click **Row Height**. In the Row Height dialog box enter the desired height in the "Row Height": text box and click **OK**.
To hide a column:	Click anywhere in the column to be hidden. From the **Format Menu** click **Hide Columns**.
To remove gridlines:	From the **Format** menu click on **Datasheet**. In the Datasheet Formatting dialog box click on **Horizontal** and/or **Vertical** in the "Gridlines Shown" area to turn

	gridlines on or off.
To select a font:	From the **Format** menu click **Font**. In the Font dialog box select the desired Font, Font Style, and Size then click **OK**.
To add a new record:	Click on the new record navigation button (located at the bottom of the screen) and enter data for the record into the appropriate fields.
To delete a record:	Click anywhere in the record or row to be deleted. From the **Edit** menu click on **Delete Record**. The dialog box will read, "You are about to delete 1 record(s). Are you sure you want to delete these record(s)?", click **Yes**.
To change the contents of a cell:	Click in the cell to be edited. Make the appropriate insertions or deletions, and then tap the ENTER or TAB key.
To sort data in the table:	Click the column that you would like to sort. From the **Records** menu, click **Sort** and choose **Sort Ascending** to go from A-Z, or **Sort Descending** to go from Z-A.
To print the datasheet:	From the **File** menu click **Print**. In the Print dialog box click **OK**.
To save the table or datasheet:	Click the **Save** button on the Table Datasheet toolbar. In the "Save As" dialog box, enter the name of your table in the Table Name text box and click **OK**. (For more information about naming your file, please see the section entitled "Naming Conventions".) In the Microsoft Access dialog box stating, "There is no Primary Key defined. Do you want to create one now?", click **Yes**. A Primary Key field called **ID** will be created.

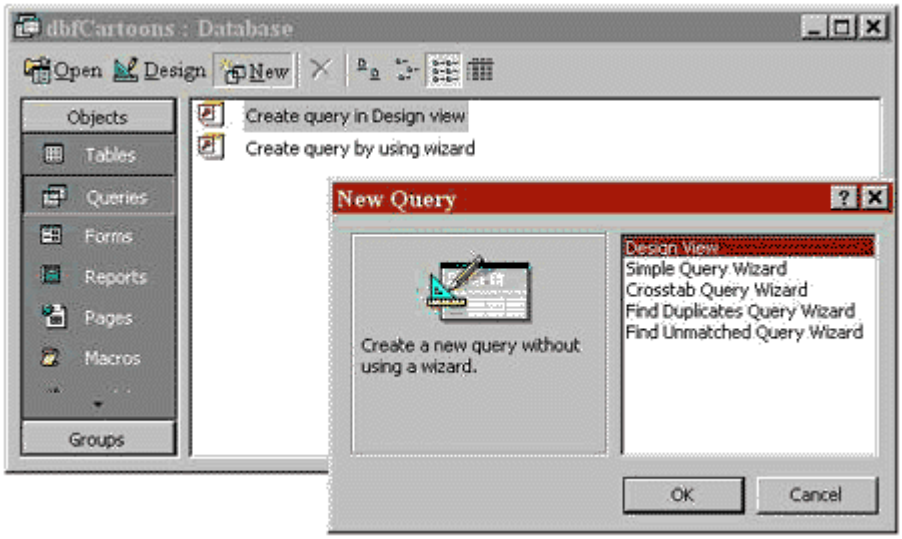
Creating a Query

A query permits you to select records from your database tables that meet certain conditions or criteria. For example, you may want to produce a report that contains only those records that have a zip code greater than 90000, or you may want to select those records where the state is California and the age of the individual is more than 50. These tests or criteria are specified and applied to the

table by creating a query. In effect the query creates a subset of the table containing only those records and fields specified in the query.

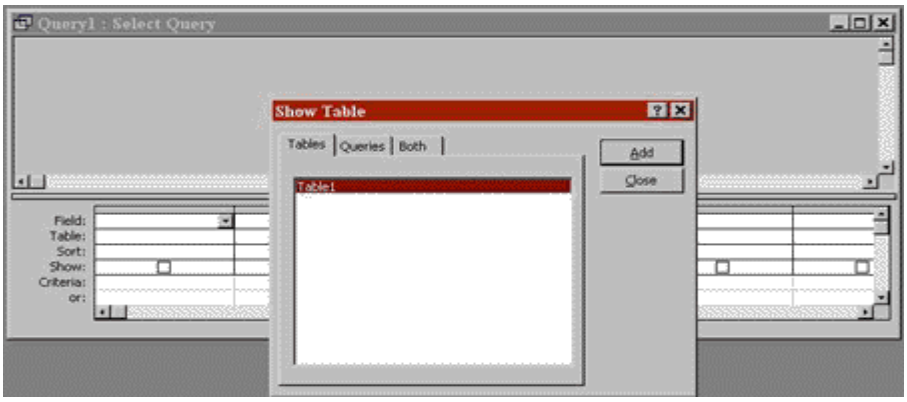
To create a query click **Queries** in the Objects section of the "Database name: Database" dialog box and then click on the **New** button (see Figure 1, below).

Figure 1: Dialog boxes showing “Queries” choice and “New Query” options



In the "New Query" dialog box (see Figure 1, above), click **Design View** and then click the **OK** button. The "Show Table" dialog box appears (see Figure 2, below). Click on the **Tables** tab and then click on the name of the table containing the data to be queried. Click the **Add** button and then click the **Close** button.

Figure 2: “Show Table” dialog box

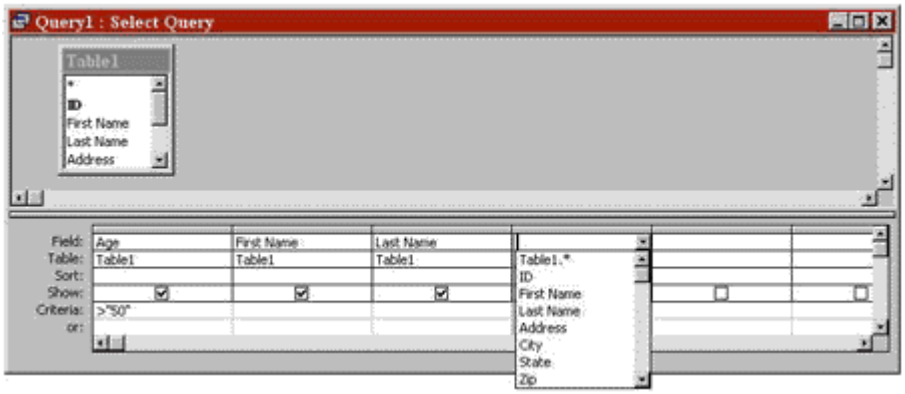


1. From within the "Query 1: Select Query" window, click on the first Field cell. (A sample "Select Query" window is shown in Figure 4, below).
2. Click the down arrow button to display the drop list of field names.
3. Click on the field name that you want to set criteria for.
4. Click on the Criteria cell and enter the criteria description.
5. Tap the ENTER key.
6. Repeat this process for any additional criteria using other fields.

> **Note:** If more than one field is tested by a criterion the only records selected will be those that meet the conditions of the first criterion and any successive criteria. If more than one criterion is defined for an individual field, those records that meet the first criterion or any successive criteria will be selected.

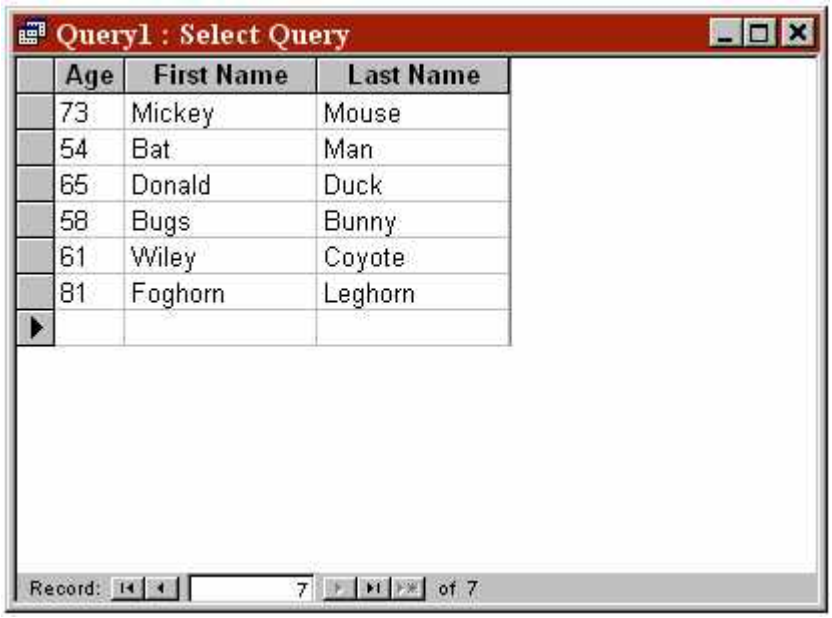
Any reports using a particular query will only display those records meeting the collective query criteria and will only display those fields specified in the query. To include fields that are not being tested by any criteria but need to be part of a report, include that field in the "Select Query" window by clicking on the next Field cell and click on the desired field name, and leave the Criteria cell blank. Make sure the check box in the Show cell is checked.

Figure 3: Select Query Window



Once the query criteria has been defined you will need to run the query by clicking the **Run** button — an exclamation mark (!) — on the toolbar, or by clicking **Query** on the Menu Bar and choosing **Run**. A sample of query results is shown in Figure 4, below. This sample query was created to determine who is over 50 years in age.

Figure 4: Sample Query results



Save the query by clicking the **Save** button on the toolbar (or by clicking on the File menu item on the menu bar and selecting **Save As**). In the Save As dialog

box enter the name of the query and click **OK**. (For more information about naming your file, please see the section entitled "Naming Conventions".)

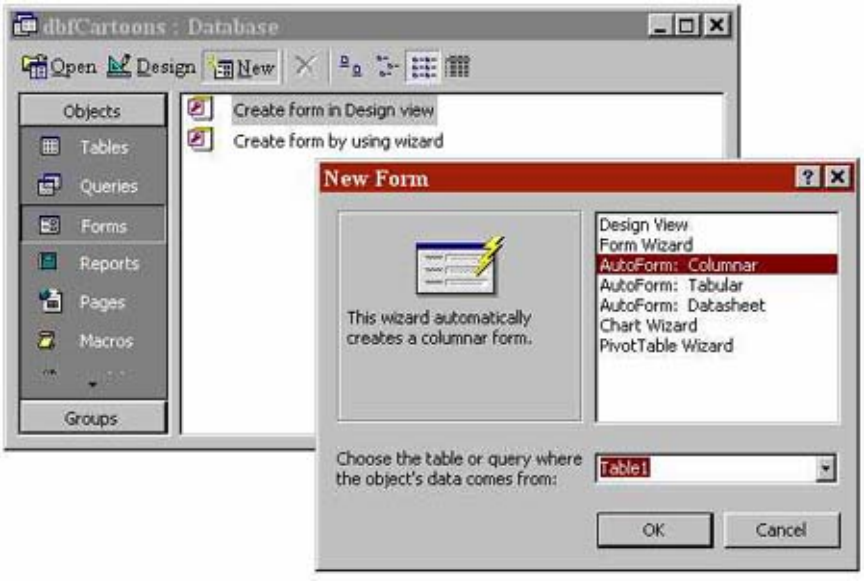
This query can now be used to produce reports containing only those records meeting the query criterion.

Designing an Input Form

An input form is an easy, effective, efficient way to enter data into a table. Input forms are especially useful when the person entering the data is not familiar with the inner workings of Microsoft Access and needs to have a guide in order to input data accurately into the appropriate fields. Microsoft Access provides several predefined forms and provides a forms wizard that walks you through the process of creating a form. One of these predefined forms will be used in the example below. You can also create your own customized forms by using Microsoft Access form design tools.

To use one of the predefined forms click **Forms** in the Objects section of the "Database name: Database" dialog box and click on the **New** button (see Figure 1, below).

Figure 1: Dialog boxes showing “Forms” choice and “New Form” options

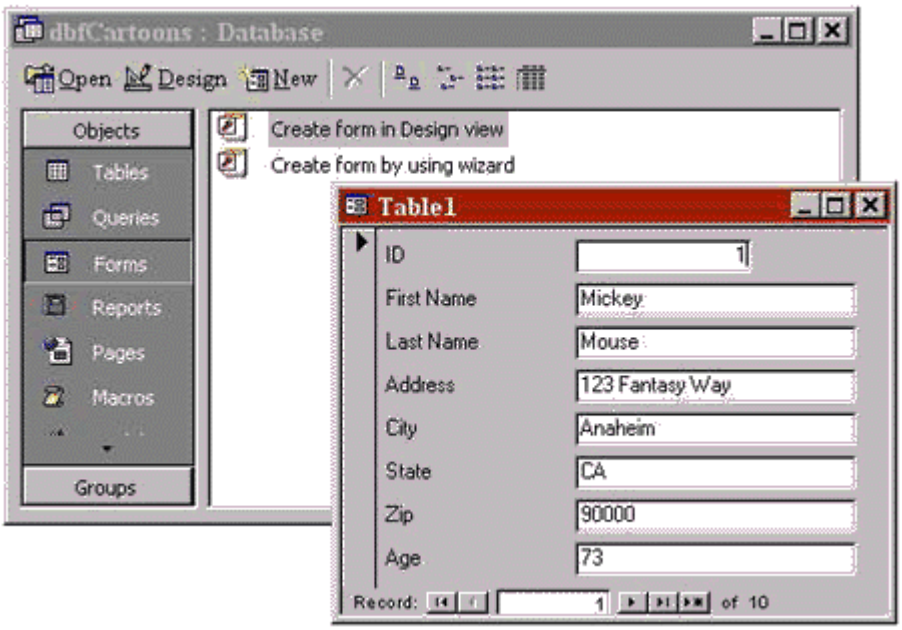


In the "New Forms" dialog box (see Figure 1, above), click **Autoform: Columnar** to select this predefined form. Click on the down-arrow button to show the list of tables and click on the table name to be used with this form. Click the **OK** button.

Save the form by clicking on the **Save** button on the toolbar (or by clicking on the **File** menu item in the menu bar and then clicking **Save As**). Enter the name of the new form and then click the **OK** button. (For more information about naming your file, please see the section entitled "Naming Conventions".)

To use the form once it has been defined click on the **Forms** tab in the "Database name: Database" dialog box and choose (click) the desired form name. Then click the **Open** button to get to the data entry dialog box (see Figure 2, below).

Figure 2: Dialog boxes showing “Forms” selection and data entry text boxes



The input form has now been created. You can begin to enter data at this point, or you can use the navigational toolbar located at the bottom of the input form. Click < to move backward, or click >* to enter a new record.

Note: Moving to the next record will ensure that the previous record has been saved.)

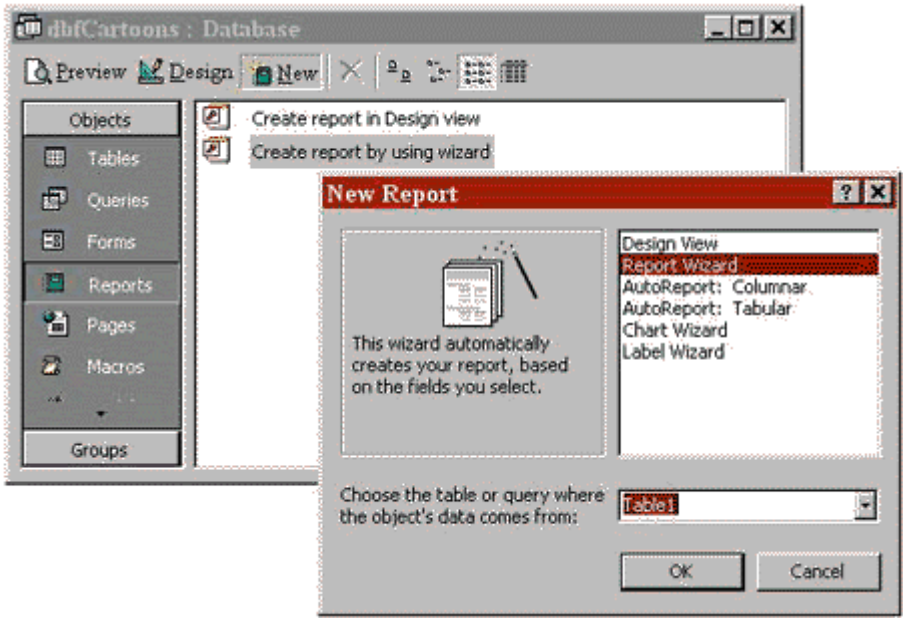
Producing a Report

Reports are what Microsoft Access is all about. Once you have created the database, set up a table, created an input form, entered data into the table,

selected records from the table through a query, you now want to create a report to display the data as useful information. As in the case with forms, Microsoft Access provides several predefined reports and has a Report Wizard. The Report Wizard will be used in the example below. You can also create your own customized reports by using Microsoft Access report design tools.

To create a report using the Report Wizard click on **Reports** in the Objects section of the "Database name: Database" dialog box and then click the **New** button (as illustrated in Figure 1, below).

Figure 1: Dialog boxes showing “Reports” selection and “New Report” options



In the "New Reports" dialog box (see Figure 1, above) click **Report Wizard** and then click the **OK** button.

In the first Report Wizard dialog box you are asked which fields you would like to include in your report. You can highlight the available field you want to work with and then click the > button, or you can choose all the fields listed by clicking the >> button. Click on the **Next** button to go to the next Wizard dialog box. Continue to click on the **Next** button in the successive dialog boxes while making the necessary changes along the way (shown in Figures 2 through 7, below). In the last dialog box enter the title for your report, choose "Preview the report" or "Modify the report's design", and then click **Finish**. The end result is displayed (as illustrated in Figure 8).

Note: For information about naming your report file, please see the section entitled "Naming Conventions".

Figure 2: Report Wizard “Selected Fields”

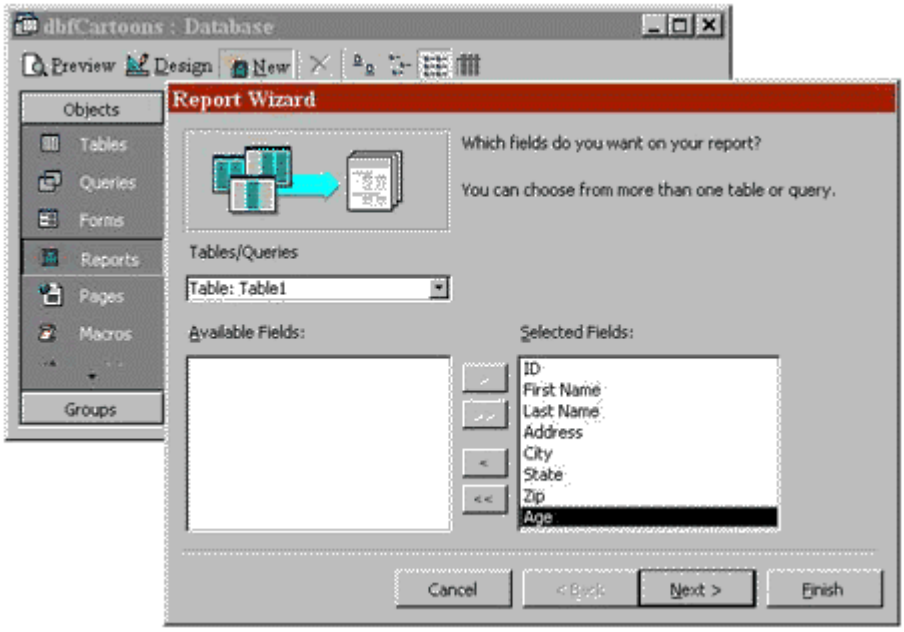


Figure 3: Report Wizard, grouping levels

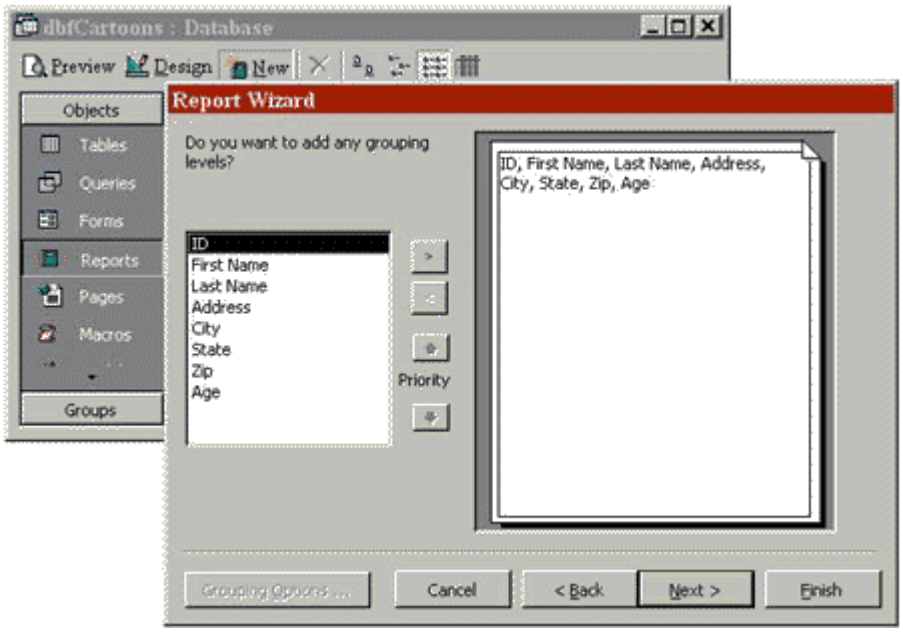


Figure 4: Report Wizard, sort order

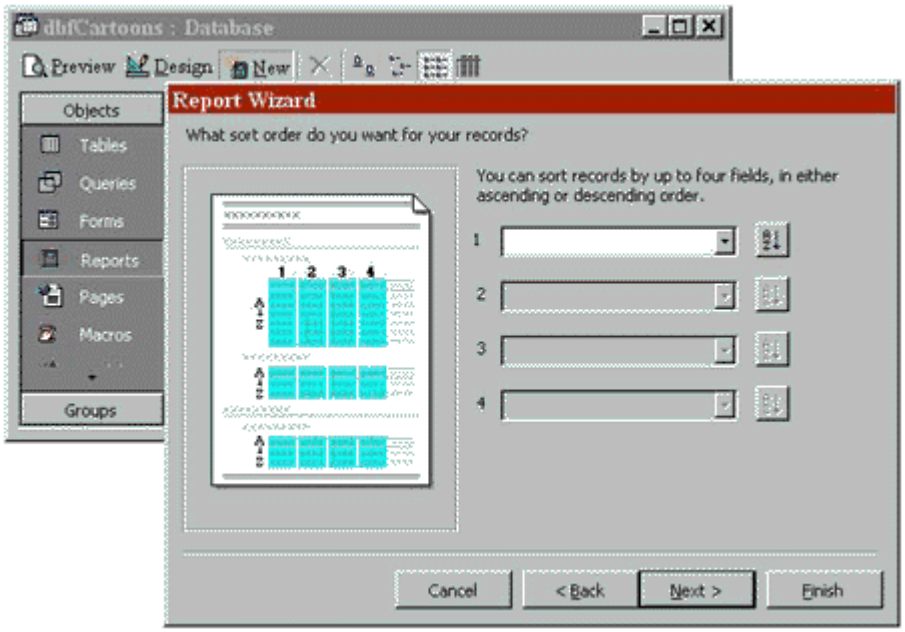


Figure 5: Report Wizard, layout and orientation

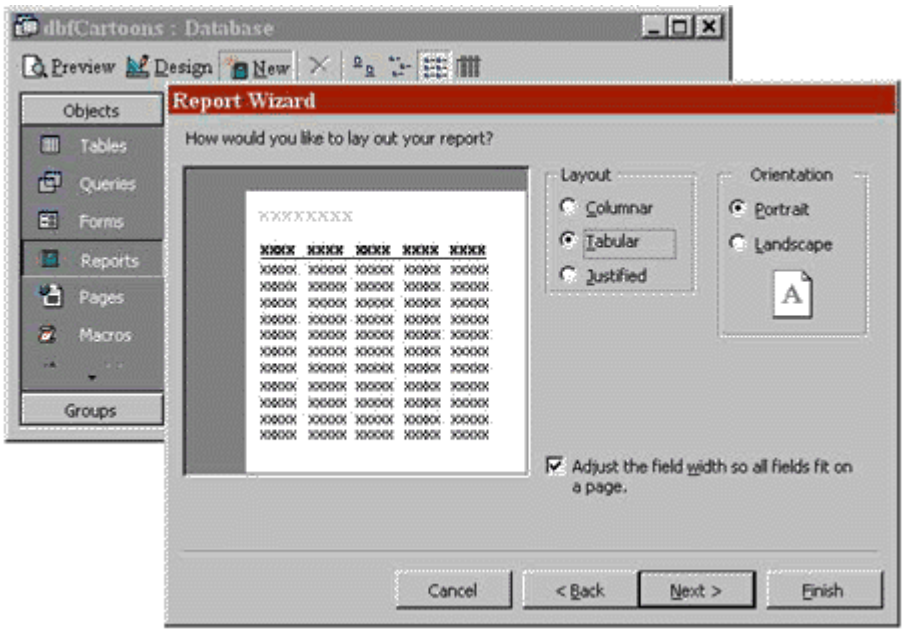


Figure 6: Report Wizard, style

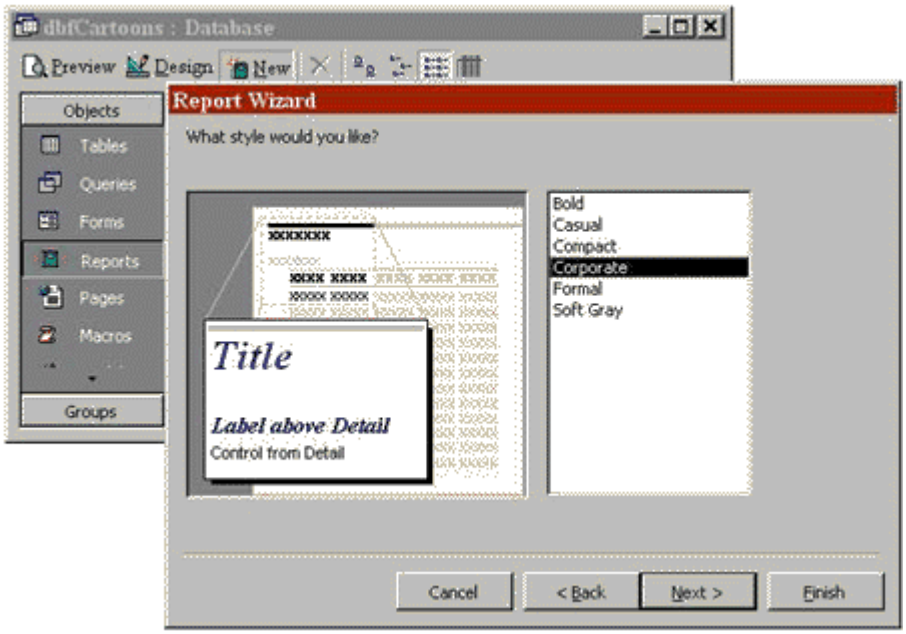
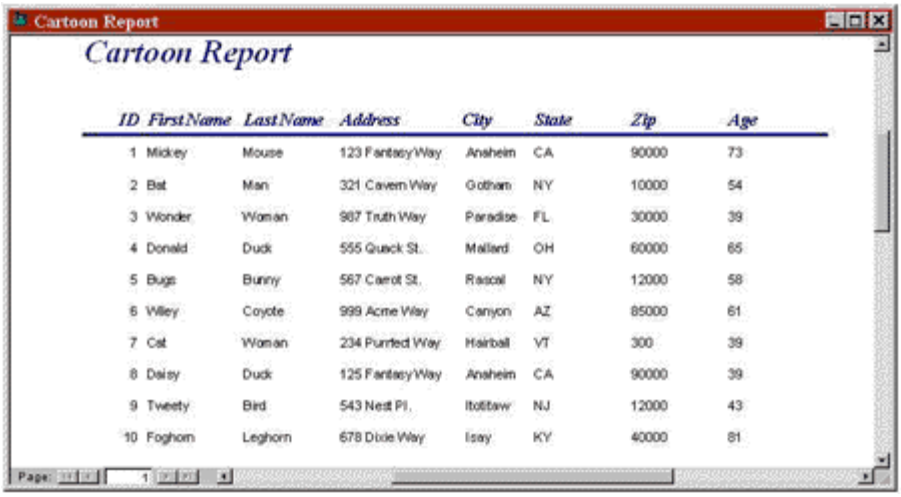


Figure 7: Report Wizard title

Figure 8: The Report



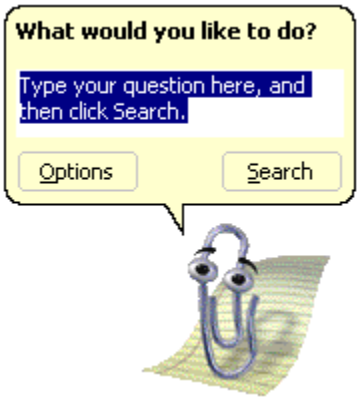
How To Learn More

Access Help Options

Microsoft Access provides a variety of online help to assist you in learning how to use the program's features. Click **Help** on the menu bar to see (and access) what is available.

The Office Assistant (Microsoft Access Help)

Figure 1: The “Office Assistant



Quick access to information can be obtaining using a Help feature called "The Office Assistant". Click the **Microsoft Access Help** button — a question mark (?) — on the toolbar at the top of the window, or click **Help** on the Menu Bar and choose **Show the Office Assistant**. The "Office Assistant" will appear — as a paperclip (or some other icon) — with a dialog bubble where you can pose questions. Simply type the question (or word or phrase) in the space provided, click the **Search** button to get a list of possible topics, and then click the topic desired.

Unless you turn this feature off by hiding or disabling the assistant, the "Office Assistant" automatically pops up on your screen whenever it thinks you may need some help with what you're doing. In this case, the dialog bubble will ask if

you need help with the task the "Office Assistant" thinks you are trying to accomplish. To hide or disable the Office Assistant, please see **Office Assistant Options** below.

You can close the dialog bubble but leave the Office Assistant on the screen by clicking the **Close** button. To end your Office Assistant session, click the **Close** button [**X**] in the upper right-hand corner of the little Office Assistant window.

Office Assistant Options:

- If the Office Assistant is hidden or disabled, then on the main menu bar click **Help**. Choose **Show the Office Assistant.**
- When the Office Assistant is active, you may temporarily hide the assistant by right clicking on it and choosing **Hide** from the pop-up menu.
- If you would like to disable the Office Assistant (so that it doesn't automatically pop up while you're working), then follow these steps:

    1. Right click on the Office Assistant while it is active.
    2. Choose **Options**.
    3. Click on the **Options** tab if it is not already highlighted.
    4. Uncheck **Use the Office Assistant** by clicking on the box to the left of it.
    5. Click **OK** at the bottom of the screen.

    This will disable the Office Assistant until you choose to activate it again by clicking on **Help** and then **Show the Office Assistant**.

Microsoft Access Help

If you disable the Office Assistant (as described above), you can take additional advantage of the Microsoft Access Help feature. Click on the Microsoft Access Help button or go to **Help** on the main menu and then click on **Microsoft Access Help**, you will be able to look at a list of Contents, use the Answer Wizard, or access an Index of alphabetized topics. To use any of these features, simply click the appropriate tab. Double click on the topic that you are interested in or type the topic or question when prompted. On the right-hand side of the help screen, you will see your topic in more detail. If you would like to print the information for later use, simply click on the **Print** button at the top of the screen. Once you have obtained the information you need, click on the **Close** [**X**] button in the upper right-hand corner to close Help.

What's This?

Click **Help** on the main menu bar and choose **What's This?** if you are curious about a particular button or menu item. Once you have chosen **What's This?** you can point to any item on your screen to get a brief description of what it is. If you click on the item, you receive a bit more information and instructions for its use. When you have read the instructions, click anywhere in the worksheet window to return to normal operation.

Office on the Web

Click **Help** on the main menu bar and choose **Office on the Web**. This feature provides links to Web locations were you can find out more about Microsoft Office products. You need Internet connectivity and a Web browser in order to make use of this feature.

Printed Material

There are numerous books available to help you learn how to use Microsoft Access 2003. Students can purchase these and others at most bookstores.

- **Microsoft Access 2003 Step by Step** (self study kit, including exercise CD, by Microsoft Press)
- **Access 2003 Bible** (comprehensive reference, by Cary N. Prague, Michael R. Irwin, Jennifer Reardon)

Closing a Database and Exiting Access

To close a database and exit the program, do the following:

1. Click **File** on the Menu Bar.
2. Then click **Exit**.
3. Click the **Close** button on the Access program window Title Bar (the upper and larger of the two buttons marked with an X), or click **File** on the Menu Bar and click **Exit**.

Note: If you have an open file and you have not saved it since you last changed the file, a dialog box will ask you if you want to save the changes. Click **Yes** to save or **No** to ignore any changes you might have made. If no files are open or have been saved, Access will close automatically.