8 MORE ON DATABASE USE
Manipulating the Data in the database

LEARNING OUTCOMES

Lesson 7 introduced you to the database concept in general, and to the *Access* database in particular. You learned how to plan a new database, how to set it up, how to add records, make changes to records, and delete records. You also learned how to save a database, and how to make backup copies.

It is now time to start using those functions of the database that make it such a powerful tool for learning—for organizing data resulting from research, for helping you or your students to work on projects, for personalizing your interaction with students, and so forth. Some of the exercises cover aspects of database use—rules for finding and sorting records, for example—which may be difficult for you to grasp. Forewarned is forearmed; put your thinking cap on!

Lesson 8, then, after reviewing the basics, will introduce you to the following additional features of the *Access* database:

- searching and querying a database
- sorting records
- creating reports
- improving the report (making changes)
- printing reports

A caveat before you begin: You'll find it easiest to use the tutorial if you follow the directions carefully. On computers there are always other ways of doing things, but if you wander off on your own be sure you know your way back!

8.1 GETTING STARTED

What are the some of the advantages that electronic databases have over manual record keeping systems such as filing cabinets, folders, rolodexes, and the like? By the time you completed Lesson 7 you must have had a clearer idea of what a database is, and can probably now come up with an answer to this question. Here are a couple of the reasons frequently forwarded for using a database. Can you find your response among them?

- One can store huge amounts of data in a small amount of space (on a 3 1/2" disk one can store about 500 pages of text, or over 7000 records, where each record might have up to

100 characters; on a zip disk you can store the equivalent of over 70 floppy disks; on a hard disk you can store the equivalent of dozens of zip disks, and so on);

- One can easily manage all the data—view records, add new records, delete old records, or change existing records. You learned how to handle these tasks in Lesson 7.

Here are some other reasons for using an electronic database.

- One can quickly find anything one needs to know, and get answers to questions about the data in the database. *What is Larry Dorey's phone number?*
- One can home in on a small subset of the data. *Which students have a GPA below 2.0?*
- One can instruct the computer to arrange (sort) records, and thus organize the data any way one likes. *I'd like a listing with everything sorted based on the student hobby field. That'll make it easy for me to identify students who have the same interests.*
- One can use the computer to create any number of reports for the purpose of supplying others with information pertaining to the data in the database. *My principal, Yvonne Singer, wants a monthly report of student progress in Reading, Writing, Math and Science.*

The purpose of this tutorial is to help you learn how to use the *Access* database in these last four ways. By the end of the tutorial you will have the basic skills you need to become a power user of the database. Whether you ever can call yourself a skilled user will depend, of course, on whether or not you continue to use *Access* as a tool to support your professional work in the classroom.

You should be familiar with how to open the Office ***Access*** program by now, so go ahead and do so

Showing the Full menus and organizing the Toolbars

Recall from the previous lessons that when using any of the *Office* programs, it is best to be able to see the full menus at all times.

Unless you set the Customize options to show the full menus, you will only see a few of the items in each menu at the top of the *Word* window. So let's start out by setting the Option in *Word* to "Always show full menus."

In the **Tools** menu, select **Customize…**, then in the dialog box that pops up, select the **Options** tab (Fig. 8.1)

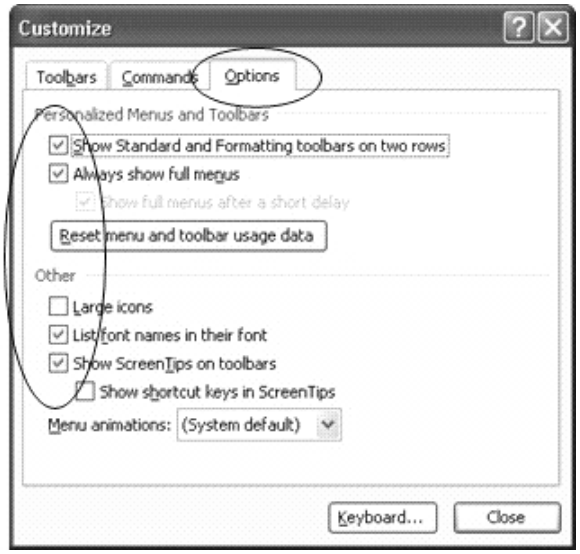


Fig. 8.1 The Customize dialog box

Make sure there is a **check mark** next to the item to **Always show full menus**

While you're at it, check the box next to **Show Standard and Formatting toolbars on two rows**, **List font names in their font**, and **Show ScreenTips on toolbars**

Click the **Close** button when you're ready

On with the tutorial…
When you are ready you should have the *Access* Task Pane on the right of the window, inviting you to either create a new database or open an existing database.

Make sure the **Work Files for Office 2003 Tutorials** disk is selected, then In the **File** menu select **Open** and open the **Access Files** folder

You are going to work first with a database similar to the one you created in Lesson 7. It is possible you never completed Lesson 7, so a document called Student Database 2004 has been prepared for you.

In the **Access Files** folder open the **Student Database 2004** database

On the left side of the dialog box, click on the **Forms** button and double click to open **Student Record**

You should see the Forms View illustrated in Fig. 8.2.

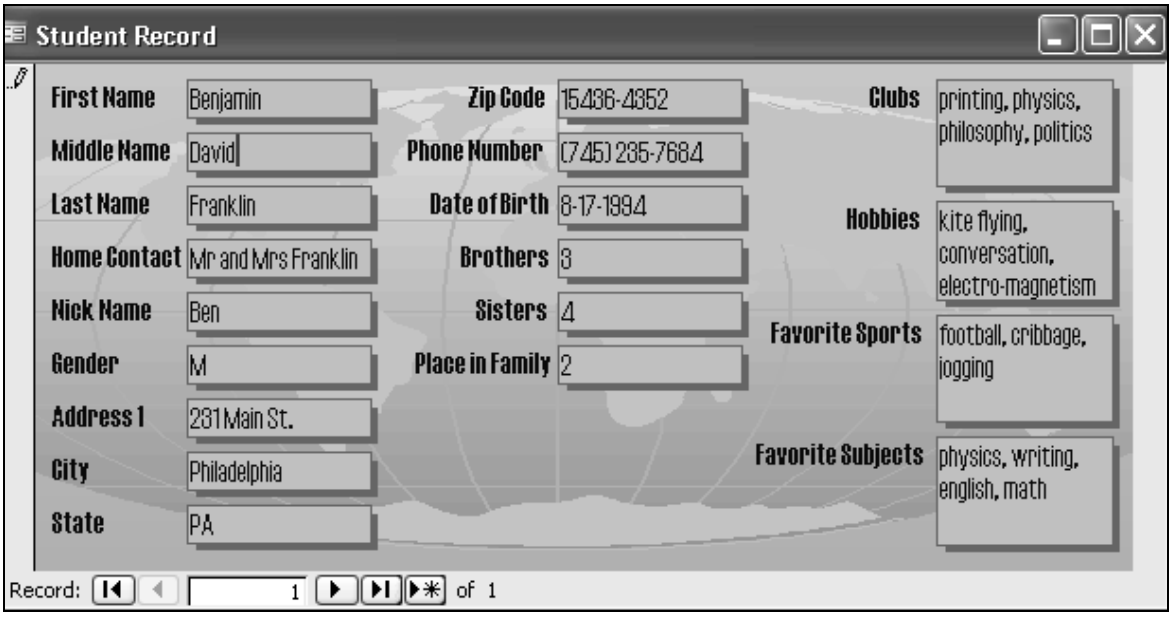


Fig. 8.2 The Forms View of the Student Database 2004 database

8.2 REVIEWING THE BASICS

You may not have worked with databases a great deal prior to using these tutorials, so it will be a good idea to start by recapitulating what you learned in Lesson 7 by way of reinforcement. Then you can move on to learn about the new features of the *Access* database that are targeted for this tutorial. Let's start with terminology.

A database is a document which contains a set of records. Each record is made up of one or more fields, and each field may or may not contain entries.

For example, a database of movie titles might have records for a few thousand movies. Each record will have fields for the movie title, the director, the producer, the star(s), and so on. A particular entry for the Movie Title field might be "Star Wars."

Viewing the data in the database

When you first open an existing database into primary memory, it is generally best to open a Forms View of the database because you can easily view the contents of an entire record on the screen, thus showing you what all the records basically contain.

In the Forms View, as you can see, the data for one complete record is shown in the Form. Notice the database navigation tools at the bottom of the Form window (Fig. 8.3).

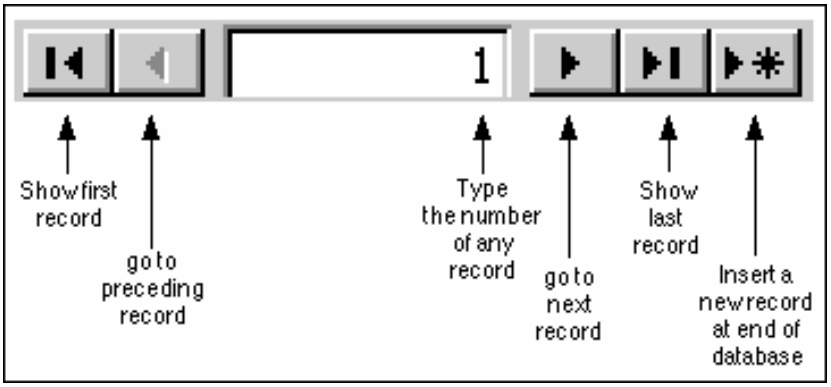
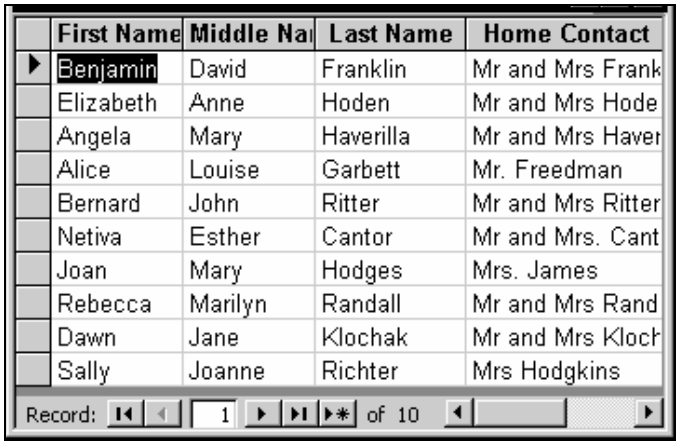


Fig. 8.3 Navigation tools in the *Access* database

Look them over now to re-familiarize yourself with how they work. The Datasheet view (Fig. 8.4) shows the records across the screen in rows and columns much like the Spreadsheets you learned to use in Lessons 4 and 5.



First Name	Middle Na	Last Name	Home Contact
Benjamin	David	Franklin	Mr and Mrs Frank
Elizabeth	Anne	Hoden	Mr and Mrs Hode
Angela	Mary	Haverilla	Mr and Mrs Haver
Alice	Louise	Garbett	Mr. Freedman
Bernard	John	Ritter	Mr and Mrs Ritter
Netiva	Esther	Cantor	Mr and Mrs. Cant
Joan	Mary	Hodges	Mrs. James
Rebecca	Marilyn	Randall	Mr and Mrs Rand
Dawn	Jane	Klochak	Mr and Mrs Kloch
Sally	Joanne	Richter	Mrs Hodgkins

Record: 1 of 10

Fig. 8.4 Viewing records in the Datasheet view

Adding a record to the database

You can add a new record any time you want, wherever you may be in the database, because you can tell *Access* to sort everything into a specific order whenever you need to do so. You will learn how to do this in a later section of this tutorial (8.4 SORTING RECORDS). You are going to add a couple of new records now.

Make sure you have **Forms View** selected (from the **View** menu) when you want to add a new record

In the **Insert** menu, select **New Record** (or click on the **New Record** button in the **Navigation tools** at the bottom of the Form window (Fig. 8.2) which will open up a set of empty fields for the new record

Enter the data for this **new** record, and at least one other, record (**two records in all**), pressing the **Tab** key after you type the data for each field

You can put junk entries in the records you are adding because you'll delete them in a bit. You can skip a field if you like by simply pressing Tab without entering any data.

Clearing a field in a record

First you need to know that you cannot clear entries from a field that has been defined as requiring data of some kind in the field. If you try to clear data from these fields (in our database the First Name through the Home Contact fields, for example) you will get a warning prompt from *Access* telling you that you cannot have a *null value* in these fields.

So click in the **Nick Name** field **entry** (not on the field name) of the **first** of the records you added just now and highlight the field **entry**, then from the **Edit** menu select **Cut** (**ctrl-X**)

Next go to the **second** of the records you added a moment ago, click in the **Clubs** field **entry** and again select the entire field **entry**, then from the **Edit** menu select **Cut** (**ctrl-X**)

Notice that this does not delete the field or the record; it simply clears the selected entries. The field is still there, so new data can be entered into it.

Deleting (clearing) a record, or a set of records

Use the **Navigation tools** to locate one of the records you just added, then from the **Edit** menu select **Delete Record** (or click on the **Delete Record** icon in the *Access* toolbar—Fig. 8.5)

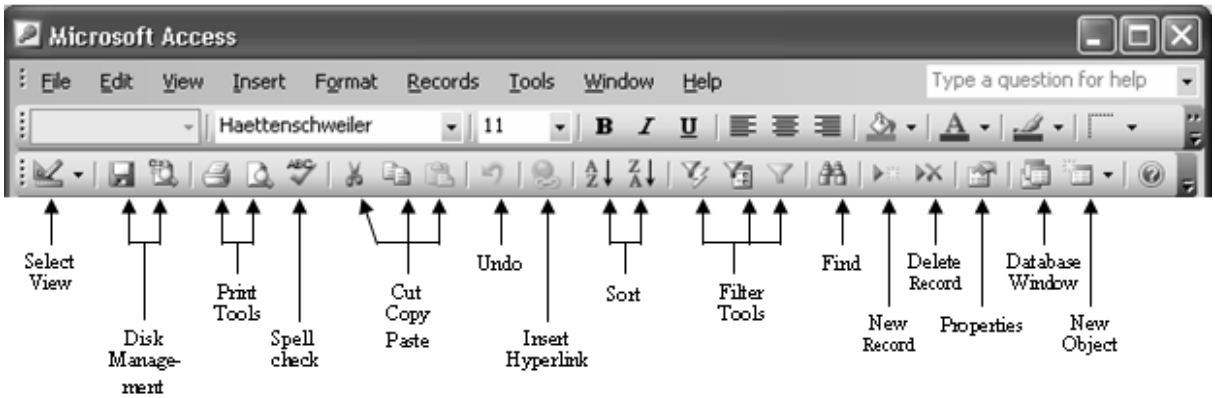


Fig. 8.5 The *Access* database toolbar (annotated)

Access immediately displays a warning dialog box to tell you that if you go ahead you will permanently lose the data in the record.

Click on **Yes** to delete the selected record

Notice that this removes the record(s) entirely.

Changing the data in a field
Suppose some data gets entered incorrectly—through misspelling or a typo. Let's say you needed to update a nickname in a student's record. To change it you would do the following.

> Locate a record in which you want to make the change (for this exercise select any record you like)
>
> Click on the entry next to the field name that needs to be changed (use any entry in the **Nick Name** field for this exercise)
>
> Change it to some other nick name in the same way you would in a word processor

All of the exercises in this section were by way of recapitulating what you learned in Lesson 7. Now let's move on to learn some more advanced features of the *Access* database.

8.3 SEARCHING AND QUERYING A DATABASE

This is a powerful function of the *Access* database. You can give *Access* any set of characters as the key for a search of the database, and the system will find that set of characters, if it exists, even if it is a subset (a part) of a larger word or phrase.

There are several ways you can do this. But first you need to open a new, larger, document onto the *Access* Desktop.

> Close the **Student Database 2004** database document and from the **File** menu select **Open...**

Your *Work Files for Office 2003 Tutorials Disk* should still be in the disk drive.

> Open the **Birds database** (inside the **Access** folder on your **Work Files for Office 2003 Tutorials** didk), then open the **BirdSightings** form (not the Table)

Finding a single record using data from a specific field
You often may need to locate and display the contents of one particular record, or set of records, based on data from one specific field. The function Find, which is in the Edit menu, is the *Access* command to do this. It works much the same as when you use the Find command in the word processor, which you learned about in Lesson 2.

Suppose, for example, you wanted to find the record for the bird with the Common Name *Northern Oriole* in the Birds database. Here is how you do this.

First you have to select (by positioning the cursor anywhere in it) the field which contains the criteria for the search, in this case the **Common Name** field.

> Click anywhere in the **Common Name** field, then from the **Edit** menu select **Find…** (or click on the **Find** button in the toolbar—Fig. 8.5 above)

Access now displays the Find and Replace dialog box (Fig. 8.6)

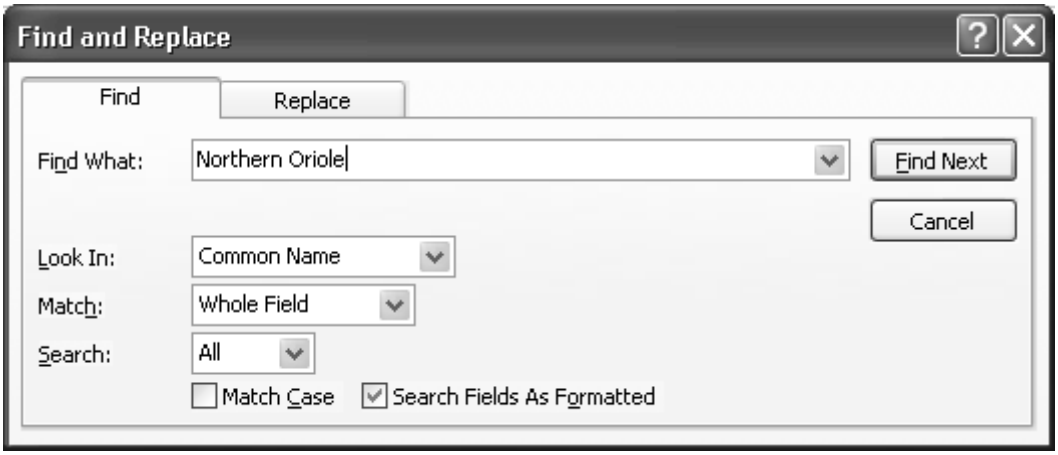


Fig. 8.6 The Find and Replace dialog box

You must indicate exactly what data you want found by typing the word or string of characters that will be the search criteria. The record(s) you find with a find request are called the "found set".

In the **Find What:** entry box type **Northern Oriole** (if you do not check the "Match Case" box, *Access* doesn't care whether you use upper or lower case letters)

Click on **Find Next** then click on **Cancel**

Access quickly locates the record containing the name "Northern Oriole." This one record alone is shown on the Forms View screen. Of course, if you incorrectly typed Northern Oriole, *Access* would tell you that the search item was not found (Fig. 8.7).

Fig. 8.7 Warning message after unsuccessful search of the database

To see all the records surrounding the **Northern Oriole**, in the **View** menu select **Datasheet View**

Finding two or more records based on data from a single field

Next let's search on criteria which will find more than one record. You want to find any bird with the primary color (Color1) that has any shade of black in its plumage.

Close the **BirdSightings** datasheet table

Click on the **Forms** tab again and **double click** on the **BirdSightings** form to open it, then click in the **Color1** field

Click on the **Find** button in the *Access* toolbar (looks like a pair of binoculars), and type the word **Black** in the **Find What:** box; press **Enter** to tell *Access* to **Find Next**, then click on **Cancel**

The search finds the first of 11 records where a bird has the color black in its plumage. To see all the records that result from a search you must use a filter.

Filter by selection

The exercise that follows will use a filter to select the set of birds whose habitat is "marshes."

Close the **BirdSightings** Form, then click on the **Tables** button and open the **BirdSightings** Table

Scroll, if necessary, from left to right to locate the **Habitat** column

Now position the mouse arrow near the **left edge** of one of the **marshes** entries (the mouse pointer will become a **hollowed out plus sign (✚)**—Fig. 8.8) and click the mouse button

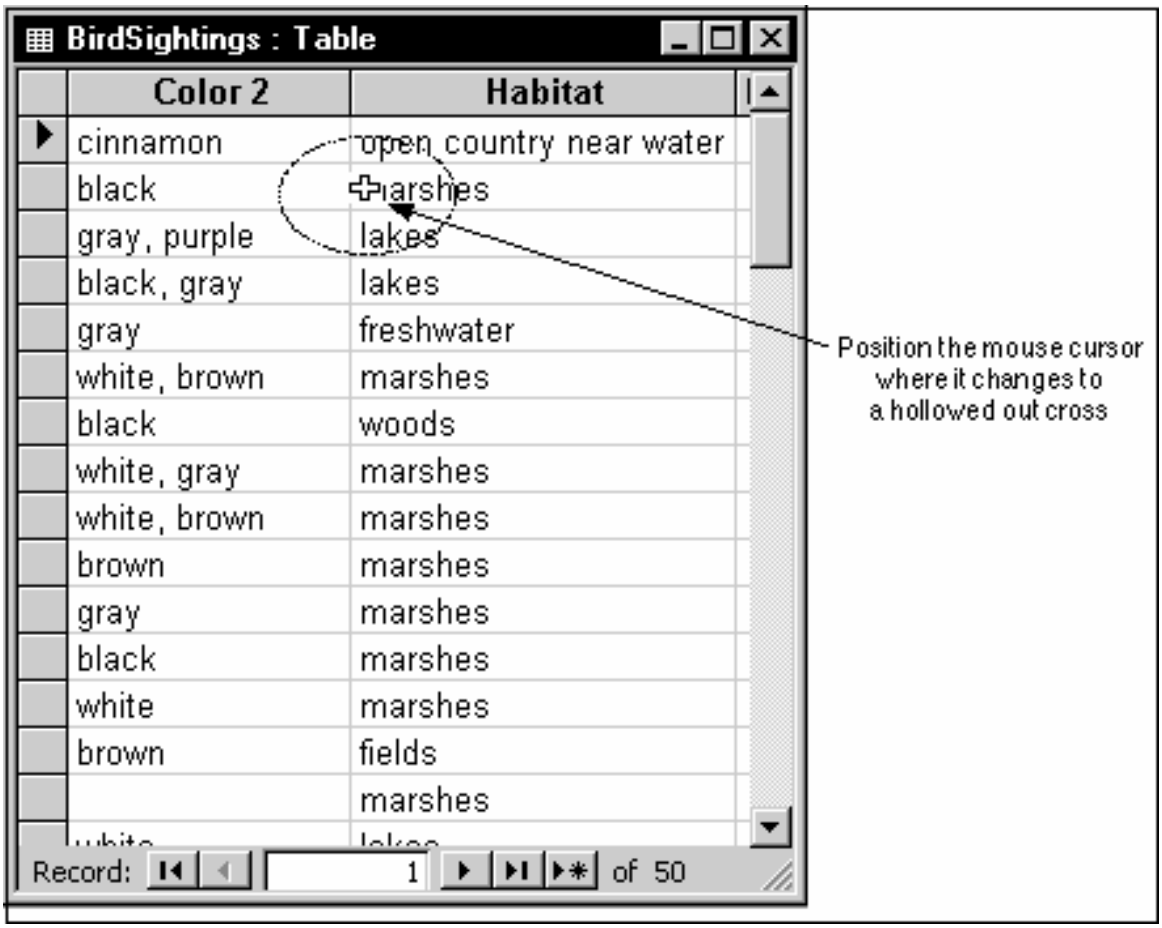


Fig. 8.8 The cursor changes to a hollowed out cross

This tells *Access* that you want the set of birds who live among marshes.

Click on the **Filter by Selection** button in the toolbar (or from the **Records** menu select **Filter/Filter by Selection**)

You will now see a list of 15 birds in the database that live in marshes (Fig. 8.9).

BirdSightings : Table

Color 2	Habitat	Date Sight
black	marshes	9/1.
white, brown	marshes	9/1.
white, gray	marshes	9/8.
black	marshes	9/8.
gray	marshes	9/8.
brown	marshes	9/8.
white, brown	marshes	9/8.
white	marshes	10/1.
	marshes	10/1.
cinnamon, white	marshes	10/3.
white,red	marshes	10/3.
brown	marshes	5/1.
green, purple	marshes	5/21.
red	marshes	10/16.
white	marshes	5/21.

Record: 1 of 15 (Filtered)

Fig. 8.9 The found set of filtered records

Click the **Remove Filter** button on the toolbar, or from the **Records** menu select **Remove Filter/Sort** to go back to viewing all the records in the database

Filter by Form

From the **Records** menu select **Filter > Filter by Form** or click on the **Filter by Form** button in the toolbar

Access presents an empty form for you to select the criteria for the filter (Fig. 8.10).

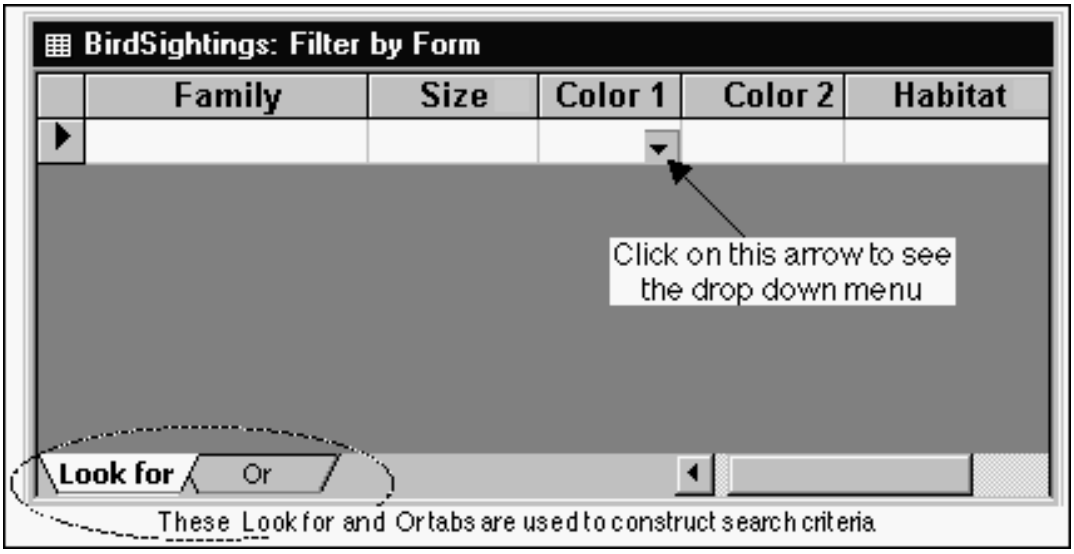


Fig. 8.10 The Filter window with its Look For and Or tabs

But first you need to tell *Access* that the previous filter (for the birds that live among marshes) is no longer relevant. *Access* keeps previous search criteria active unless you switch them off or remove them from the filter. So you need to remove "marshes" from the Habitat entry box. This is easy enough to do.

Highlight **"marshes"** if it isn't already highlighted and hit the **Backspace** key and click in the **Color1** field

You will see an arrow at the right hand edge of the Color1 field (Fig. 8.10 above) indicating a drop down list.

Click on the **arrow** on the **right edge** of the **Color1** data entry box to see the list of the possible colors in the Color1 field (Fig. 8.11)

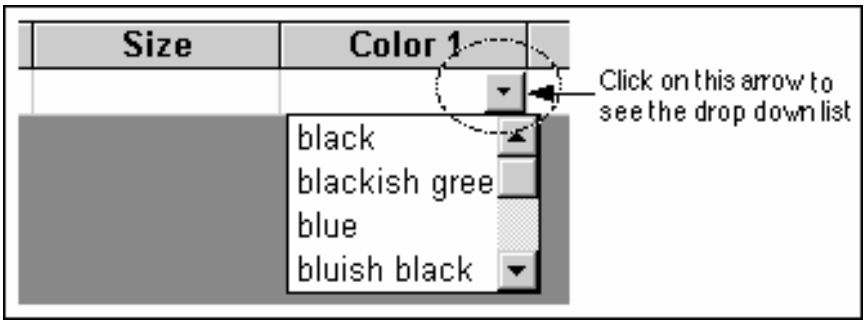


Fig. 8.11 The drop down list of colors

Click on the color "**black**" in the list, then click on the first **Or** in the **Look for** filter rule icons at the **bottom** of the **Filter by Form** dialog box (Fig. 8.9)

This will bring up a new empty filter dialog box.

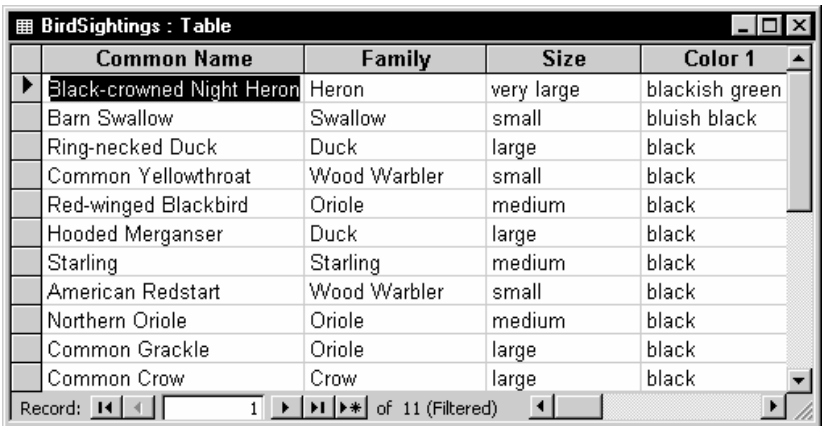
In the **Color1** field, click on the **arrow** again to see the list of the **possible colors** and in the drop down list click on "**blackish green**"

Click on the next **Or** in the **Look for** filter icons at the bottom left of the dialog box, click on the arrow again and in the drop down list click on "**bluish black**"

That is all the colors in the Color1 field that have black in them.

Now click on the **Apply Filter** button in the *Access* toolbar (or select **Apply Filter/Sort** from the **Filter** menu)

Immediately *Access* filters out the set of birds with black in their plumage (Fig. 8.12).



BirdSightings : Table

Common Name	Family	Size	Color 1
Black-crowned Night Heron	Heron	very large	blackish green
Barn Swallow	Swallow	small	bluish black
Ring-necked Duck	Duck	large	black
Common Yellowthroat	Wood Warbler	small	black
Red-winged Blackbird	Oriole	medium	black
Hooded Merganser	Duck	large	black
Starling	Starling	medium	black
American Redstart	Wood Warbler	small	black
Northern Oriole	Oriole	medium	black
Common Grackle	Oriole	large	black
Common Crow	Crow	large	black

Record: 1 of 11 (Filtered)

Fig. 8.12 The result of the color filter

Searching based on criteria from more than one field

This time you are going to give *Access* two or more search criteria for your search of the database. The system will search every field of every record, locating those records that contain the set of characters that constitute the search criteria. *Access* will then display the complete contents of all the records that contain the search criteria.

> Click on the **Remove Filter** button in the toolbar (or select **Remove Filter/Sort** from the **Records** menu)

It doesn't matter where you are in the database to begin the search. *Access* will always search the entire database for the records you request. For instance, let's say you want to find all the records for birds that you spotted in the month of September. You know there were several, but you don't remember which they were. Here are the steps you would follow to do this.

First you need to remove any previous filters from a previous search because *Access* remembers them from search to search.

> Select **Filter by Form** again and remove the "**black**" filter in the **Color1** box by hitting the **Backspace** key
>
> Now hit the **Or** tab in the filter search expression (**Look for**) tools at the bottom of the window
>
> Hit the **Backspace** key to remove the criterion "**blackish green**", click on the next **Or**, and hit the **Backspace** key to remove "**bluish black**"

Now you are ready to create the new filter.

> First click on the **Look for** tab in the lower left corner of the Filter by Form window, then scroll across if necessary to the **Date Sighted** field entry box and click in it
>
> Click on the **arrow** that pops up to see the drop down list of all **dates** on which birds were sighted
>
> Click on the **first** date which has a **'9'** for the month (**September**)

After you click on it, you'll see the first date in the entry box with '#' symbols around it to indicate its selection by the filter.

> Click on the first **Or** tab, then click on the arrow in the **Date Sighted** box again and select the **second** date with a **'9'** for the month
>
> Now click on the **Apply Filter** button in the toolbar

How many records did you get? There should be 12.

8.4 SORTING RECORDS

The three major advantages of an *electronic* data storage system such as a computer disk over a manual, paper-based filing system are

1. the organizational flexibility (making *change* easy);
2. the enormous reduction in the amount of room required to store all the data (saving *space*);
3. the greatly increased speed of data access (saving *time*).

When we use filing cabinets to store data we usually come up with some kind of organization. So we put labels on the drawers in the cabinets and labels on the folders inside the drawers. This organization is often based on numeric or alphabetic sequencing. The purpose, of course, is to enable us to quickly find what we have stored in the appropriate folder in the appropriate drawer.

This is a good system as long as we have no cause to frequently change the organization we have set up, and assuming space and time are not at a premium in our day to day operations. Unfortunately, change, space, and time are factors critical to our productivity, so we should welcome any system which helps us cope with change and optimizes our use of space and time.

Today, using state of the art technology, we can electronically store the equivalent of the Library of Congress in a shoe box. And we can now access any specific item in that "box" in a few thousandths of a second. What is more, software such as *Access* makes it possible for us to organize that data more or less on the fly.

Sorting on a single field

Take, for example, the Birds database that is on your Desktop at this time. As you can see, the bird names (Common Name field) are not sorted in any particular order. In fact, the database is sorted based on the *Date* on which each bird was *Sighted*.

So the ordering is chronological rather than alphabetical. It would therefore be difficult, especially if the database were very large, to visually find the record for a particular bird (which is why *Access* makes available the Go To Record, Sort Records and Match Records functions under the Organize menu).

What if you wanted to print out a report listing all the birds in alphabetical order by name of bird? You would have to first organize the records alphabetically on the bird names. Fortunately *Access* has a Sort Records... function which enables you to complete this operation with the greatest of ease.

First you need to remove the filter you used to select the set of birds sighted in September.

Click on the **Remove Filter** button in the toolbar

You can best see the results of a sort if you are in the Datasheet view of the database, which is the view you should have on your screen. If you do not have the Datasheet View, select it now from the View menu before proceeding.

Click anywhere in the **Common Name** field , then click on the **Sort Ascending** button in the toolbar (Fig. 8.13)

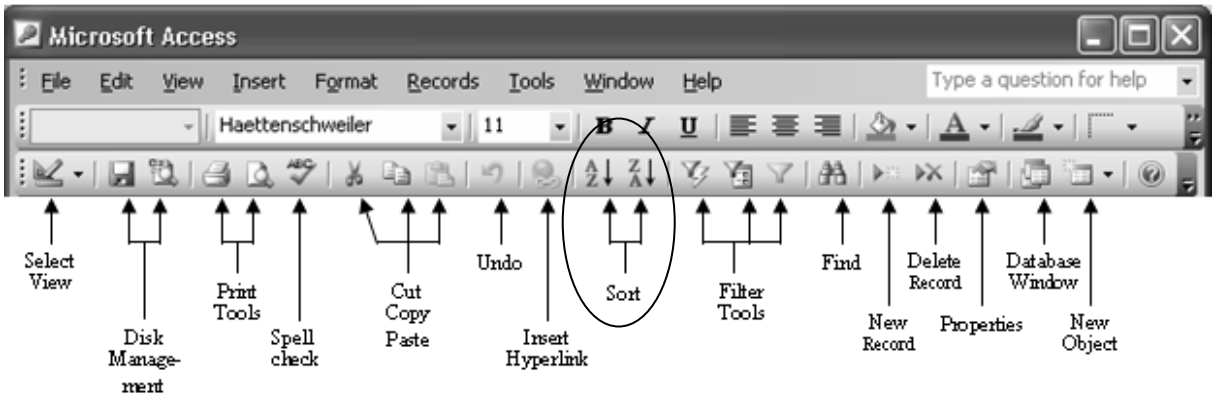


Fig. 8.13 The *Access* Sorting tools

Immediately *Access* sorts the records alphabetically on the Common Name field. There are other sorting options depending on the type of data in the field you are using as the basis, or key, for the sort:

- If your sort request is based on a Text field such as Common Name or Location Sighted, the sort will be either Ascending (A to Z) or Descending (Z to A).
- If you are sorting on a Number field such as the Count field, you would be able to sort in Ascending (Low number to high number) or Descending (High number to low number) order.
- Finally, if you are sorting on a Date field such as Date Sighted, you would be able to sort in Ascending (Chronological) or Descending (Reverse Chronological) order.

8.5 CREATING REPORTS

A word about the *Access* database reporting facility

- Planning is still an important prerequisite for good report definition. No matter how tempting it might be, always *resist* creating a report without first thinking and mapping out what you want as the end result.
- Changes you make to data fields for the report do *not* affect the data in the database at all. So you don't have to worry about losing data, or messing up the database when you create reports.
- You can create reports that contain just a few fields from a selected set of records by using the search criteria techniques that you already learned about in this lesson. For instance, you could use the Birds database to print a report listing just the name, color, and count of birds that were seen in your neighborhood. Shortly you will practice doing something along these lines.
- You can create numerous layouts or reports for a database, each report having different sets of data, and you can store them all along with the database.

In the next sections you will continue to work with the *Birds* database. You are going to create a simple report.

Initial definition of the layout or report

You are going to create a layout or report format which will list all members of the duck and rail families sighted during the reporting period covered by the database. The fields in the report will include the Common Name, Family, Date Sighted and Count fields.

A word about selecting tabular layouts

Bear in mind that most databases have many fields. If there are more field names in a report layout than can fit across the screen or page, the names simply wrap around, creating two or more lines, if necessary, in the top section (the Header) of the layout.

This can make for very untidy, not to say confusing, reports. The columnar report you are about to work with will not have this problem because you will be using only a small selection of the fields in the database (just 4 to be exact), but it is good to be aware of the problem should the occasion arise where you want to create a report that uses many fields.

On with the show!

You need to start by using a filter to create a new Table. You want to select only the birds in the Duck family for the Report.

Click on the **Filter by Form** button in the toolbar then click in the **Family** field

Now click on the **arrow** to see the drop down list of all possible **families** of birds and click on **Duck**, then click on the **Apply Filter** button in the toolbar

Next click the little arrow next to the **New Object** button at the end of the *Access* toolbar (Fig. 8.14) to show the drop down list of database objects and click on the **Report** icon

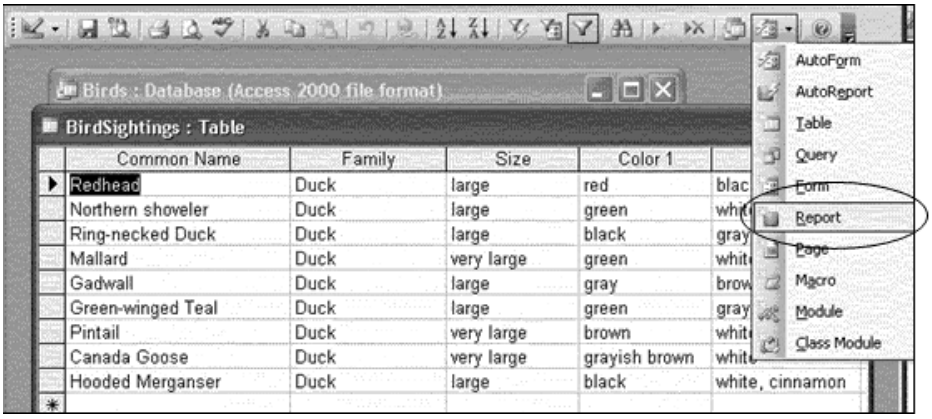


Fig. 8.14 The Report object in the database objects drop down list

You have to save the Table before you can work on it, so click on **Yes** in the dialog box that pops up on the screen

This brings up the New Report dialog box.

In the **New Report** dialog box select **Report Wizard** (Fig. 8.15)

Fig. 8.15 The New Report dialog box

Select the **BirdSightings** table as the source for the report's data, and click on **OK**

In the **Report Wizard** dialog box (Fig. 8.16) from the **Available Fields:** double click to select the **Common Name**, **Family**, **Date Sighted**, and **Count** fields, then click on the **Next** button

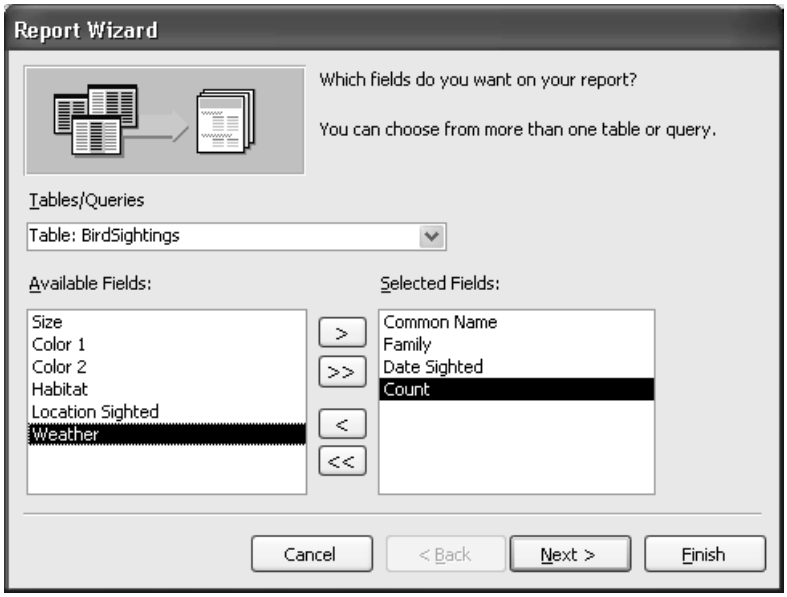


Fig. 8.16 The Report Wizard dialog box

Access now asks you in a new dialog box if you want to add any grouping levels to the report.

You don't want to add any grouping levels, so click on the **Next** button again to by-pass this dialog box

In the next dialog box you are asked if you want to sort the records. There is no need to do this since you already sorted them in Ascending order on the Common Name

Click on **Next** once more to proceed to the next step in the Report Wizard

The default setting for the report layout is *Tabular*, which is what you want.

Click on the **Next** button, then select **Corporate** for the style of the report in the next dialog box (Fig. 8.17) and click on **Next**

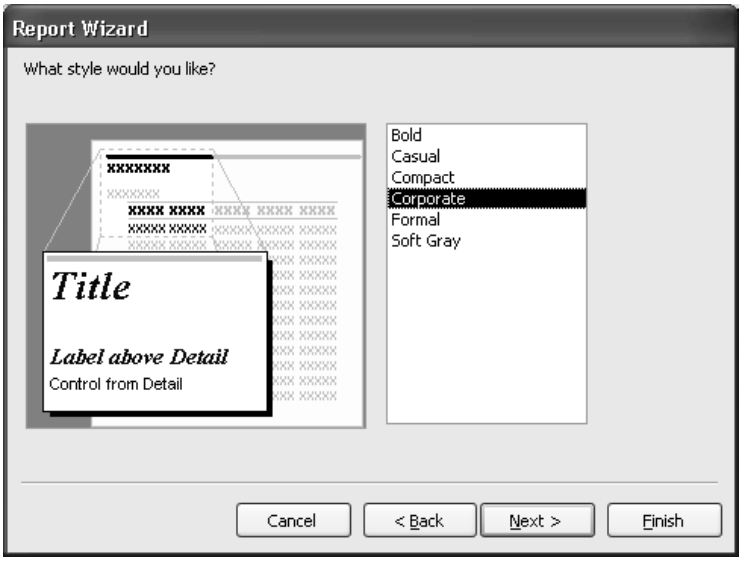


Fig. 8.17 The Report Wizard Style selector dialog box

In the next step of the Report Wizard you have to enter the title for the report (Fig. 8.18 on the next page).

For the **Title** of the report, type **Count of Ducks Sighted**, then click on the radio button next to "**Modify the report's design**"

You need to select this option to modify the report's design since, as you will see shortly, you need to rearrange the headers and fields so they fit nicely on the page of the report.

Click on **Finish**

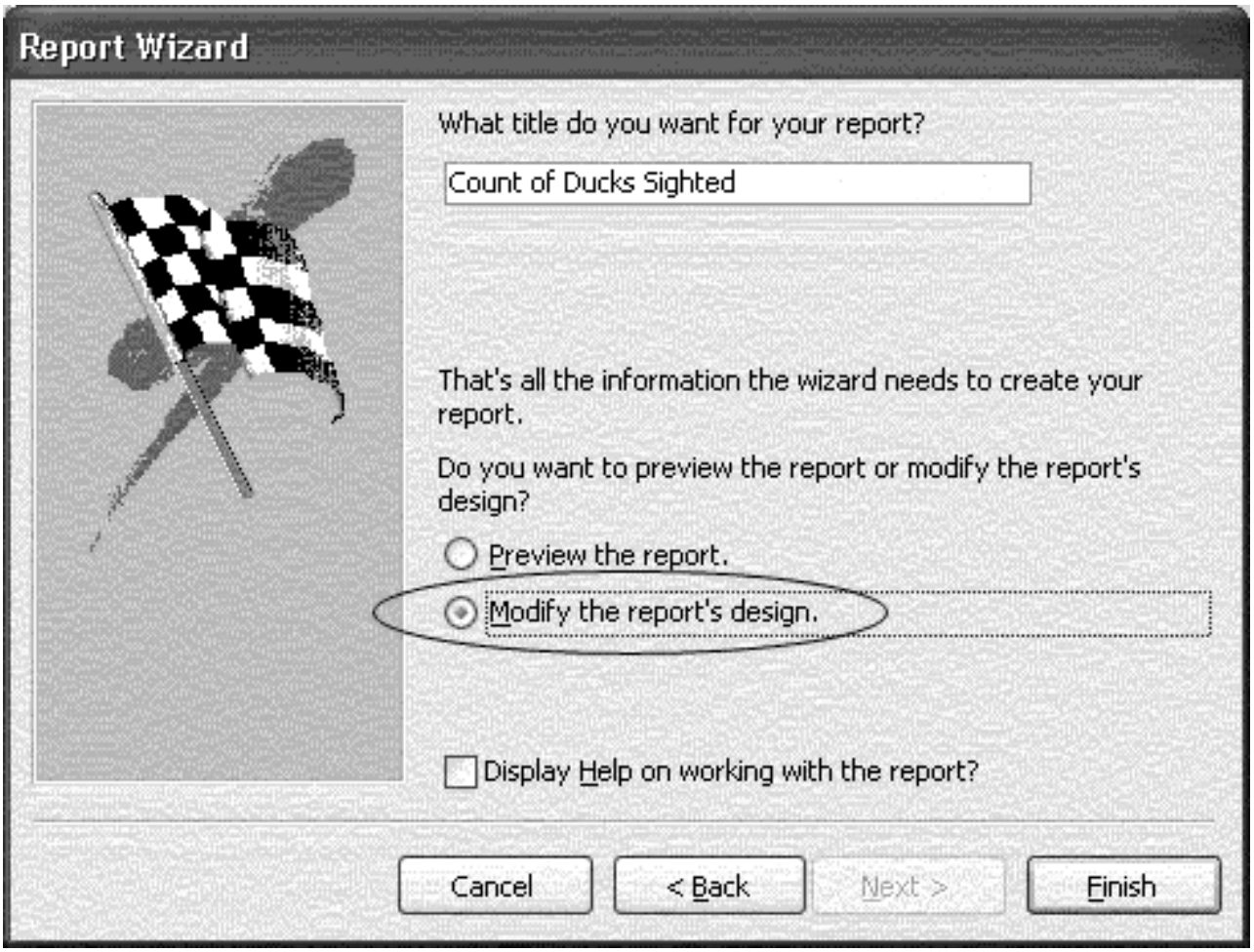


Fig. 8.18 Entering the title for the report

8.6 IMPROVING THE REPORT (MAKING CHANGES)

As you can see from Fig. 8.19 on the next page, the new layout which you named *Count of Ducks Sighted* needs some work.

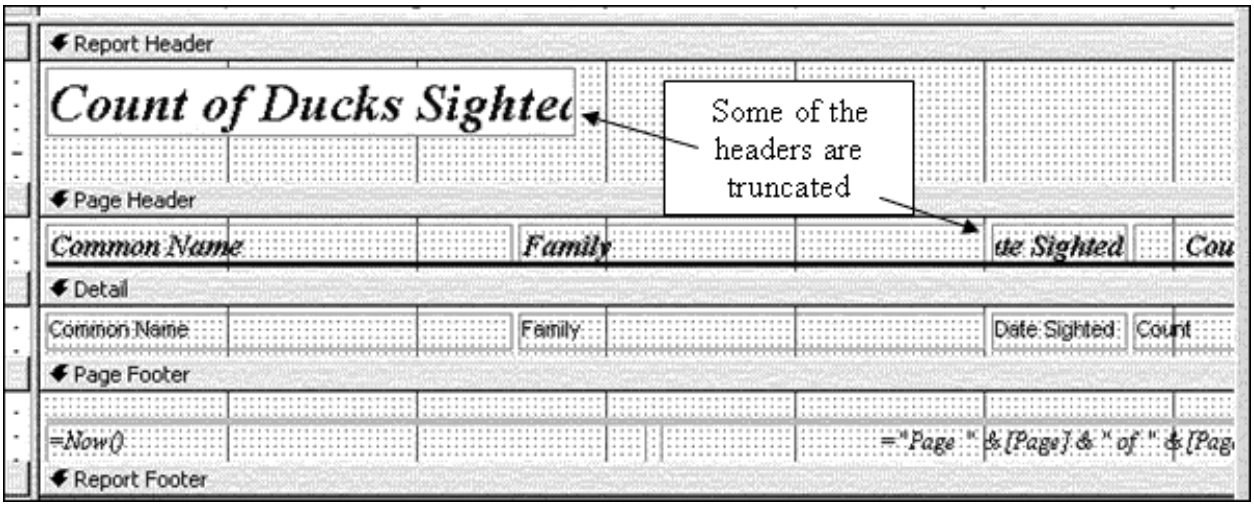


Fig. 8.19 The unmodified report in the Design View

After completing the following exercises, the report will look like Fig. 8.20.

Count of Ducks Sighted

Common Name	Family	Date Sighted	Count
Purple Martin	Swallow	9/1/1993	2
Redhead	Duck	9/1/1993	6
Northern shoveler	Duck	9/1/1993	8
Black-crowned Night Heron	Heron	9/1/1993	2
Barn Swallow	Swallow	9/1/1993	3
American Bittern	Heron	9/1/1993	5
Ring-necked Duck	Duck	9/1/1993	2
Mallard	Duck	9/8/1993	4
Gadwall	Duck	9/8/1993	10
Green-winged Teal	Duck	9/8/1993	3

Fig. 8.20 Final version of the Count of Ducks Sighted report

The Modify window for the report has five sections to it: a Report Header section, a Page Header section, a Detail section (where the data will be listed), a Page Footer and a Report Footer.

In the Page Header section, the Common Name column looks about right, so there's no need to change it. The space allowed for the Family column, however, is much wider than necessary.

Click once on the **Family** Page Header so you get the handles around it

Now grab one of the handles on the right edge and drag the box to the left till it is only a little wider than the word **Family** itself

Do the same with the **Family** box in the **Detail** section of the report

Click now on the **Date Sighted** Page Header (part of the header is truncated), grab one of the handles on the left, and stretch the box so it is wide enough to show the whole **Date Sighted** Page Header

Next position the mouse arrow along the bottom edge of the **Date Sighted** Page Header box so the arrow changes to a **small black hand**, and drag the box to the left so it ends up close to the **Family** Header box

Now do the same to the **Date Sighted** Detail box

Next, grab the **Count** Page Header box and the **Count** Detail box and slide them over so they are next to the **Date Sighted** boxes

Your last task is to center the report title.

Click on the title **Count of Ducks Sighted**

Position the mouse arrow along the lower edge of the box till the arrow changes to a **small black hand**, then drag the title to the right till it is centered over the columns of the report

When you are done, the Design View for the report should look like Fig. 8.21.

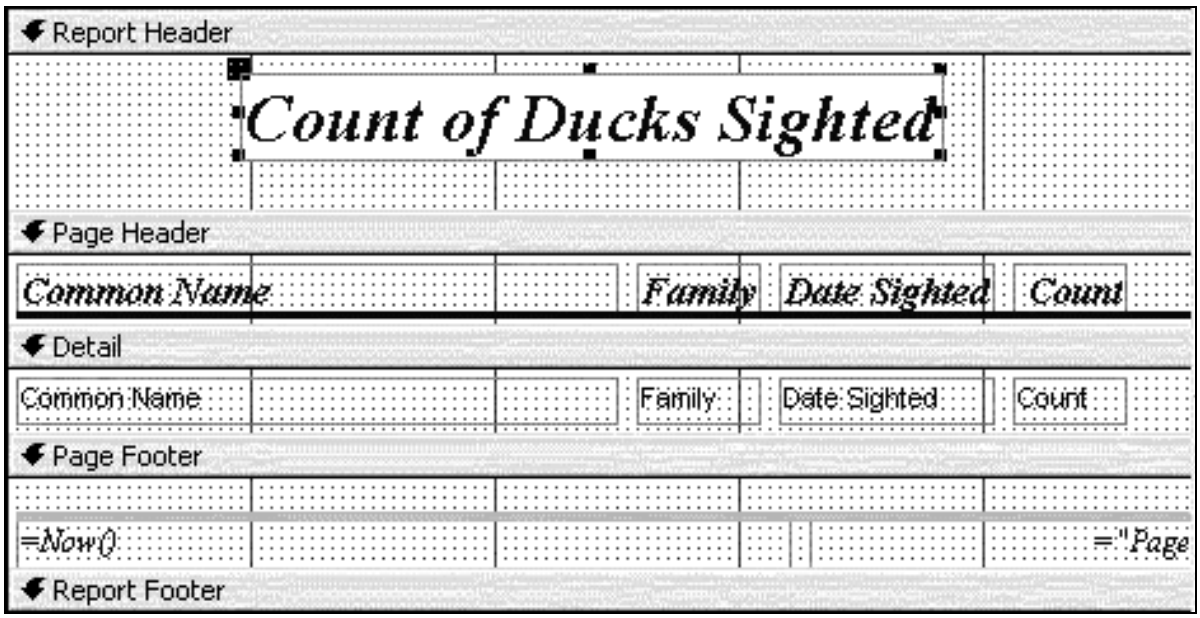


Fig. 8.21 The final Design View of the report after modifications

From the **View** menu select **Print Preview** to check out the appearance of your report.

It should look similar to that illustrated in Fig. 8.20. If you need to go back and do some more modifications to the report, just go back to the View menu and select Design View.

8.7 PRINTING REPORTS

Once you have prepared the new report, it is a straightforward process to print the report. The command to do this is the same as you have used to print any other documents from within Microsoft *Office*, whether you have been working in Word Processing or the Spreadsheet.

> Click on the **Print** button at the top of the **Print Preview** window to print the **Count of Ducks Sighted** report

Remove the report from the printer and take a closer look at its contents. Notice that the only records in the report are those relating to ducks in the Family field. These are just a small subset of records drawn from the larger Birds database.

LOOKING BACK

The *Access* database is a sophisticated tool for managing data. The key to success, as in so many activities, is PLANNING. Computers are wonderful tools to assist us in our professional lives, but only if we bring our intelligence to bear. The more skillful the user, the more powerful the impact of the computer on our professional and non-professional productivity.

You practiced three important skills of database management in this tutorial:

1. You learned how to search and query a database so that, no matter how large it might be, you could easily and quickly get the answers to any questions you might have. Getting answers to questions, research and so forth, is what creating electronic databases is all about.
2. You learned how to sort a database, and select out subsets of records.
3. You learned how to create and print new layouts or reports based on the data in a database.

Perhaps you have already learned about the value of database management systems such as *Access* in the educational process. databases are the electronic storage bins for knowledge. Today they are both local and global in scope. More and more data is becoming available for on-line research. In time, maybe 50 years from now, maybe less, all knowledge will be accessible electronically. In the meantime, as teachers we should become aware of just what is available to our students, and do what we can to educate them to take advantage of information services of all kinds.

The role of teachers is changing. We are no longer the source of all knowledge. Rather, we are "knowledge brokers," intermediaries between our students and the source of the data they need so that they can "grow in wisdom and knowledge." As someone has observed, "Teachers should move away from being sages on the stage, and become, instead, the guides at the side."

LOOKING FORWARD

There is more to learn about the *Access* database. It is beyond the scope of this book to cover all of the features of the software. However you have certainly learned the fundamentals and have the tools now to make a database work for you and for your students. The exercises that follow in the SKILL CONSOLIDATION section will help you reinforce the knowledge you have gained.

"Practice makes perfect" is as true of computer use as it is of any other skill-based activity like playing tennis or baking a cake. So is that other saying: "Use it, or lose it." You can

probably identify many examples from your own experience where skills you were once proud to have mastered have become 'rusty' for lack of use. Likewise, you will quickly forget what you are learning in these tutorials unless you resolve to continue to apply the lessons learned on a regular basis, either for your own work or in the context of the classroom.

The best teachers will use all the help they can get. The purpose of these tutorials continues to be to sharpen your skills in the use of one of the most powerful classroom tools yet devised—the electronic computer. You are to be congratulated for having persevered thus far. The remaining two tutorials will help you integrate the skills you have learned, and hopefully spur you on to a commitment to continue to incorporate the computer into your professional life both for your own sake and for that of your students.

SKILL CONSOLIDATION

Complete as many of these exercises as you can to reinforce what you learned in Lesson 8.

1. Work with a group of your colleagues or classmates to specify and create a series of reports to accompany a database of student data such as the Roster Template database that you created in Lesson 7. Save the template with the set of reports.
2. Open the Roster 2004 database onto the Desktop.
   - Add a record
   - Change the address and phone # in an existing field
   - Arrange the records chronologically on date of birth
3. Create a database of your choosing.
   - Design the fields (at least 5) to be included in the database
   - Save the empty database document
   - Add at least 6 records
   - Save the database document again
   - Prepare a report using just 3 of the fields
   - Print the report on paper
4. Open the database Birds (in the Practice folder on your Work Disk) onto the Desktop.
   - Find all the birds that are blue and white
   - Find all the birds that have orange in their plumage
   - Arrange the birds in descending order (reverse alphabetical order—from Z to A)