8 MORE ON DATABASE USE
Manipulating the Data in the Database

LEARNING OUTCOMES

Lesson 6 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 6 you must have had a clearer idea of what a database is, and can probably now come up with an

272

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 2013 generation USB/flash drive or, even better, a hard disk—not to begin to mention the so-called Cloud[1]— you can store millions of database records);

- One can easily manage all the data—view records, add new records, delete old records, or change existing records.

You learned how to handle tasks such as these in Lesson 6. 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. Practice makes perfect. If, after you complete this lesson, you never use a database again… Well, let's not go there, OK?

> Make sure you have your **Work Files for Office 2013** available on your computer, then open *Access* (**Start** > **All Programs** > **Microsoft Office** > **Access 2013**)

> From the **File menu** select **Open**.

Access will display the **Open** dialog box.

> In the Backstage View, navigate to your **USB Drive** > **Work Files for Office 2013** > **Access Files** folder

You are going to work first with a database similar to the one you created in Lesson 6. The database, called *Students 2013*, has been prepared for you to use with this tutorial in order to standardize the directions that follow.

---

[1] The Cloud, as it's called, is a virtual place which companies such as Apple and Microsoft (to name but two) have configured in such a way that it can handle massive—as in humongous—amounts of data that are actually stored on a large number of computers connected through a real-time communication network such as the Internet. You don't need to think about where your data is; you just use the Cloud to store copies of your data somewhere safe and *off* your own computer.

In the **Access Files** folder open the **Students 2013** database (**NOT** the **Student Roster 2013** database), then, in response to the **SECURITY WARNING**, click on the **Enable Content** button

On the **left frame** of the *Access* window, click on the **down arrow** to bring up the pull down menu of database objects (Fig. 8.1)

Fig. 8.1 Selecting a Form or a Table

Make sure the **Forms** object is selected (Fig. 8.1), then **double click** to open the **Student Records Form**

You should see the Forms View of the Students 2013 database, as illustrated in Fig. 8.2.
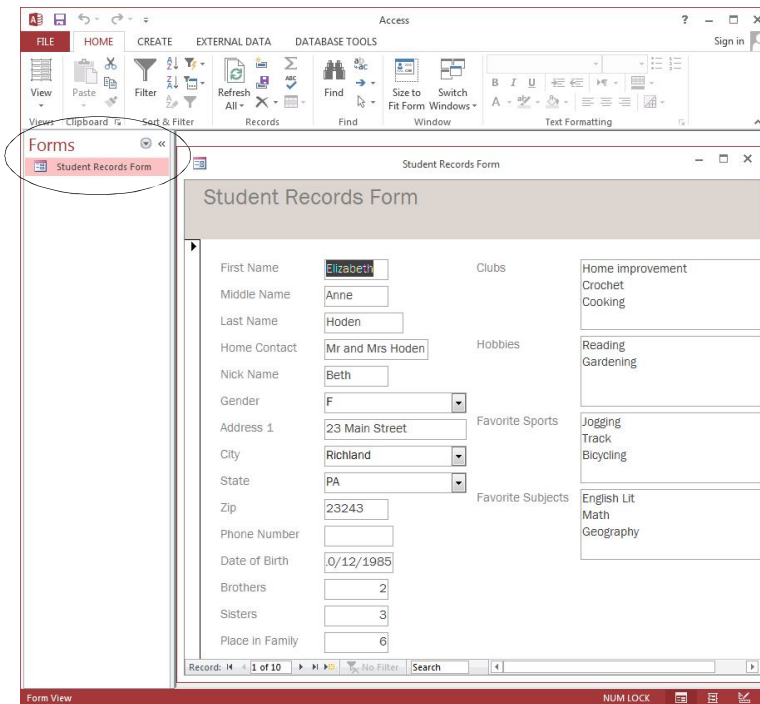
Fig. 8.2 The Forms View of the Students 2013 database

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 6 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).
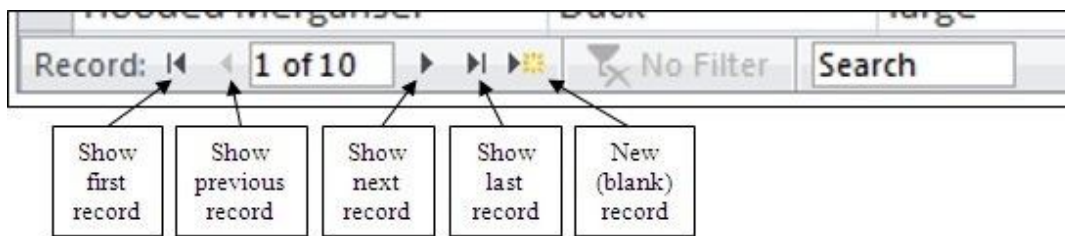

Fig. 8.3 Navigation tools in the *Access* database

Look them over now to re-familiarize yourself with how they work.

> Now, **close** (**ctrl-F4**) the **Student Records Form** and, in the left frame of the database window, in the **Objects menu**, switch to **Tables**, and **double click** on **Student Records Table** to open it

This 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.
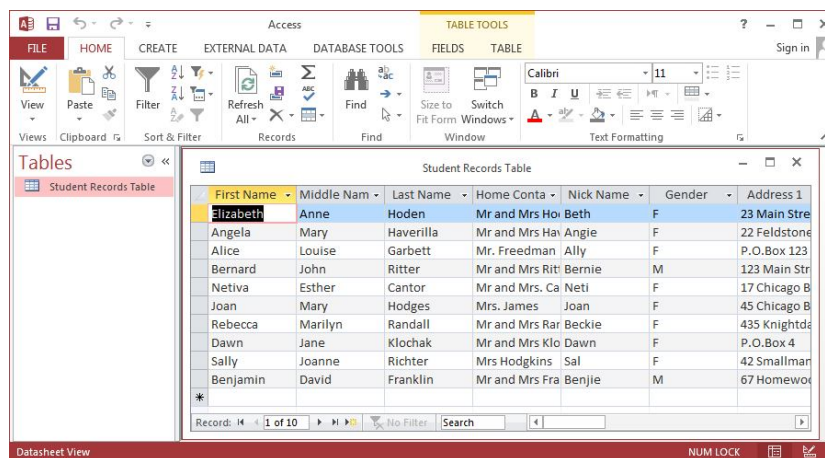

Fig. 8.4 Viewing records in the Datasheet view

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. It's easiest to do this in the Forms view of the database.

> **Close** (**ctrl-F4**) the **Student Records Table**, in the **Objects menu** (left frame of the database window) select **Forms**, and double click on **Student Records Form**

> In the **Home Ribbon** > **Records Group**, click on the **New** button (Fig. 8.5)
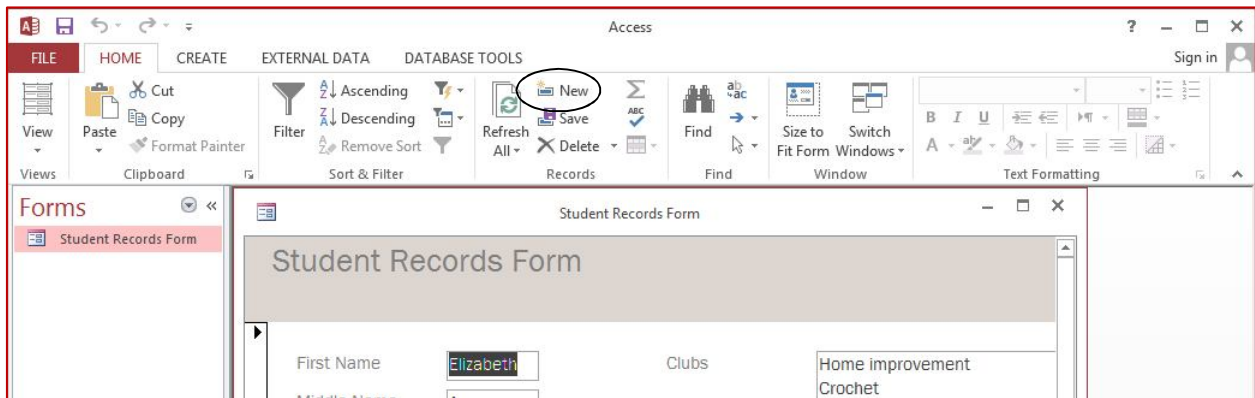

Fig. 8.5 The New button in the Records Group of the Home Ribbon

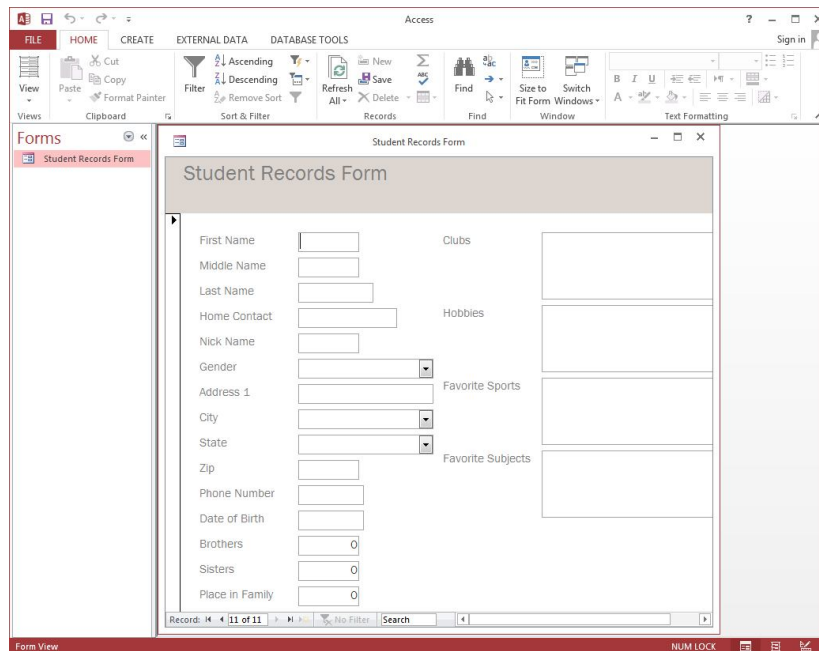This will open up a set of empty fields for the new record (Fig. 8.6)

Fig. 8.6 Entering data for a new record

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

You can put any data in the new records you are adding because you'll delete them in a bit. You can even skip a field, if no data is *required* for that field, 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.

Use the **navigation tools** (see Fig. 8.3 on page 257) to go back to the **first** of the records you added just now

In the **first** of the records you added just now, in the **Nick Name** field, **double click** in the **entry box** (not on the field name) to **highlight** the **data** in the **Nick Name**, then in the **Home Ribbon** > **Clipboard Group** select **Cut** (**ctrl-X**)

Next go to the **second** of the records you added a moment ago, click in the **Clubs** field **entry box** and again select the data in the Clubs field, then in the **Home Ribbon** > **Clipboard Group** select **Cut** (**ctrl-X**)

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

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

Locate one of the records you just added, then in the **Home Ribbon** > **Records Group** > **Delete menu** (Fig. 8.7), select **Delete Record**
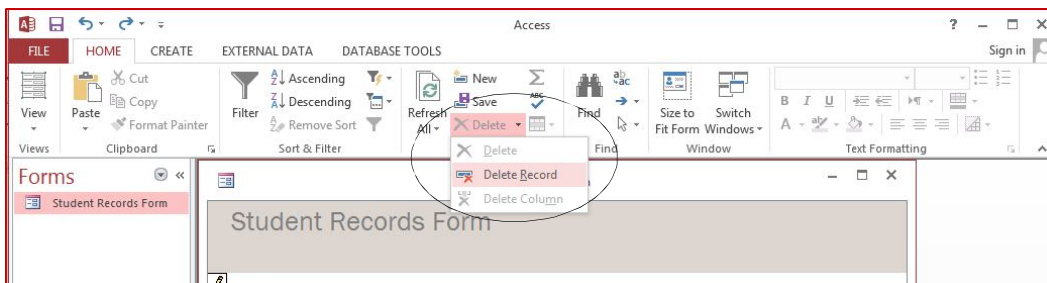

Fig. 8.7 Deleting a Record

Access immediately displays a warning dialog box (Fig. 8.8) to tell you that if you go ahead you will permanently lose the data in the record.
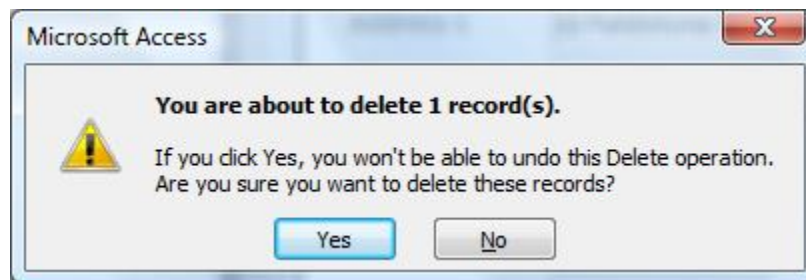

Fig. 8.8 Delete Record warning prompt

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

Notice that this removes the record 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 the record in which you want to make the change (for this exercise select any record you like)

> Click in the entry box for the field name that needs to be changed (use any entry in the **Nick Name** field), then 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 6. Now let's move on to learn some more advanced features of the *Access* database.
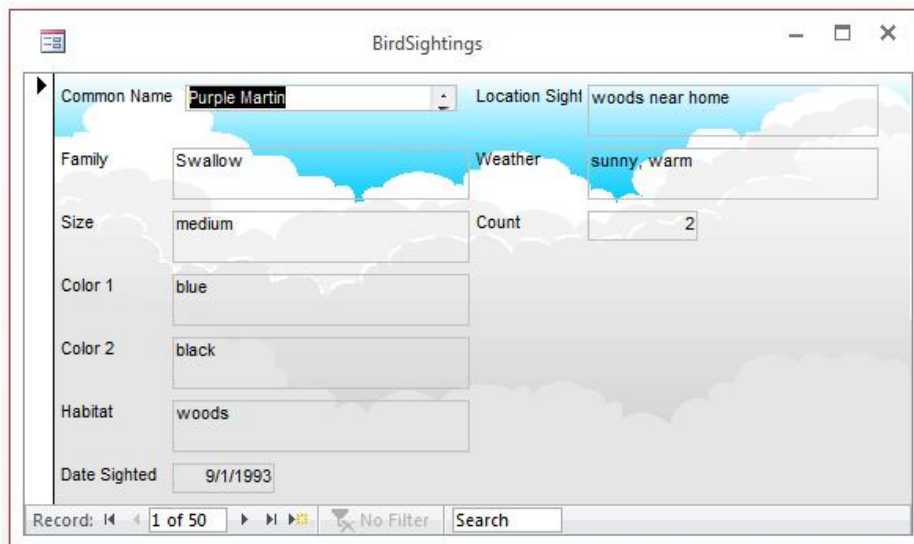

8.3 SEARCHING AND QUERYING A DATABASE

This is a powerful function of the *Access* database. You can find anything in the database if you know what to do.

All you have to do is 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 just a part (a subset) of a larger word or phrase. There are several ways you can do this. But first you need to open another, larger, database onto the *Access* Desktop.

> Close the **Students 2013** database document and from the **File** menu select **Open**

Your USB drive containing your *Work Files for Office 2013* should still be in a USB port on your computer.

> On your **USB drive** > **Work Files for Office 2013** > **Access Files** folder open the **Birds** database, then, in the drop down **Objects menu** on the left side of the database window, open the **BirdSightings** Form (Fig. 8.9)

Fig. 8.9 Bird Sightings Form

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 Find function, which is in the Home Ribbon > Find Group, 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*. Here is how you do this.

In the **Home Ribbon** > **Find Group** click on the **Find** button (Fig. 8.10)
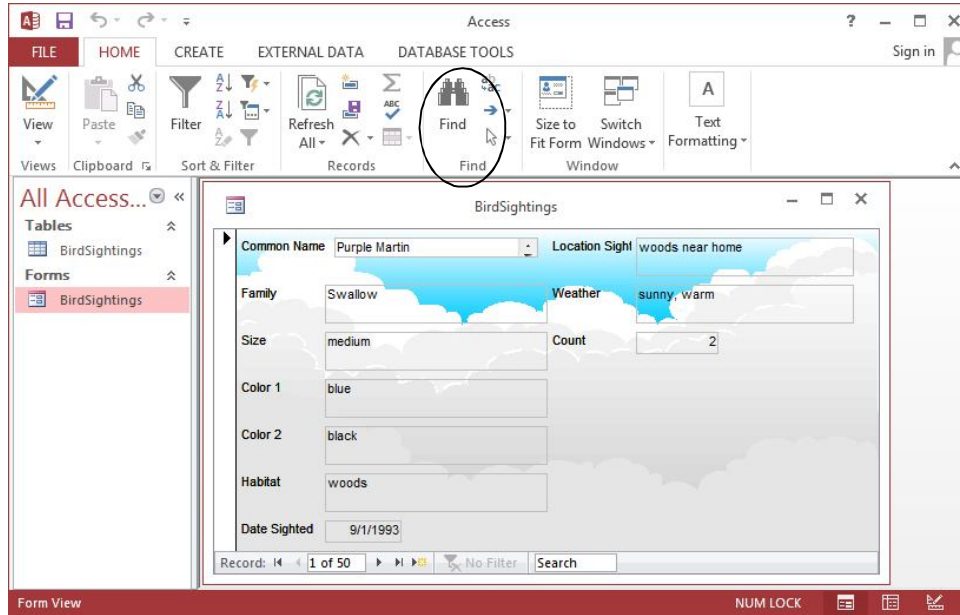

Fig. 8.10 The Find button

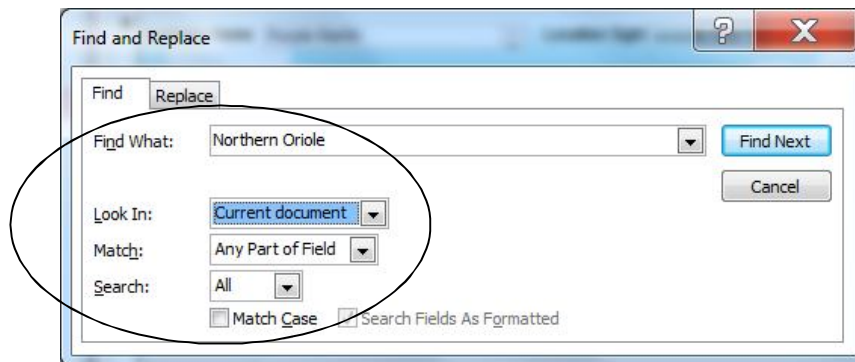*Access* now displays the Find and Replace dialog box (Fig. 8.11)

Fig. 8.11 The Find and Replace dialog box

You need to indicate what data you want found in the database by first typing in the search string (*Northern Oriole*).

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

279

Before clicking on the Find Next button, you need to identify what part of the database you want *Access* to "Look In." You also need to indicate if you want to match the data in a Whole Field or Any Part of a Field.

> Click on the arrow to pull down the **Look In:** options and select **Current document**, then click on the arrow next to the **Match:** options and, from the drop down menu, select **Any Part of Field**

> Now click on **Find Next**, then click on **Cancel**

The record(s) you find with a Find request are called the "found set". As you see, *Access* quickly locates the record containing the name "Northern Oriole." This one record alone is shown in the BirdSightings Form window. Of course, if you typed *Northern Oriole* incorrectly, *Access* would tell you that the search item was not found (Fig. 8.12).

Fig. 8.12 Warning message after unsuccessful search of the database

> **Close** the **Find and Replace** dialog box, then in the **Home Ribbon** > **Views** menu, select **Datasheet View** to see the records following the **Northern Oriole** record

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** (**ctrl-F4** or **X out of**) the **BirdSightings** datasheet table

> **Double click** on the **BirdSightings Form** to open it, and click to put the cursor anywhere in the **Color1** field

> Click on the **Find** button in the Home Ribbon's **Find Group** (looks like a pair of binoculars), type the word **Black** in the **Find What:** box, in the **Look In:** box select the option for **Current Field**, and in the **Match:** box select the option for **Any Part of Field**

> Click on **Find Next**, then move the **Find and Replace dialog box** out of the way, if necessary, so you can see the contents of the record

The search finds the first of 11 records where a bird in the database has the color "black" or even "blackish" in its plumage.

> To see the data in the next record, click on **Find Next** again, and so on

> See if you can count **11 records** of birds with the color **black** or **blackish** in the plumage?

To see a listing of all the records that result from a search such as this, 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." This is best done in the Tables View of the database.

> Close (**ctrl-F4** or **x out of**) the **BirdSightings Form** and, in the **All Access Objects menu** (Fig. 8.13), **double click** on the **BirdSightings Table**
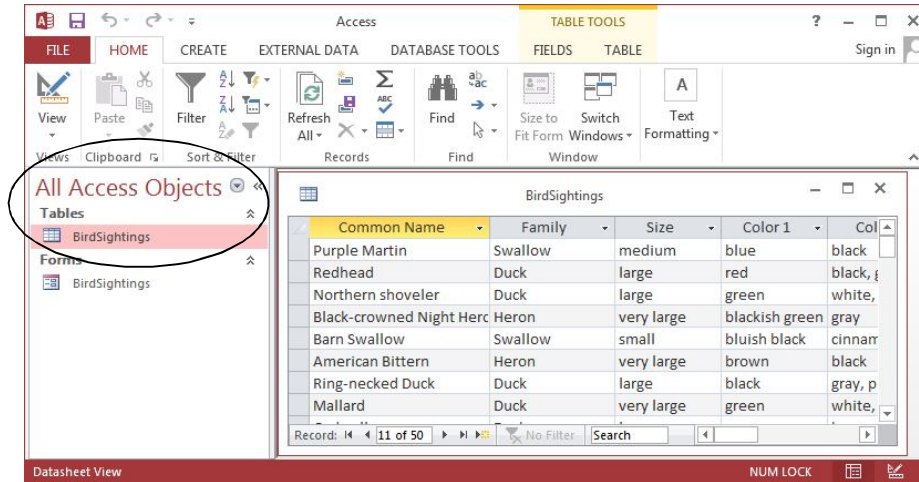

Fig. 8.13 The BirdSightings Table

> In the datasheet table, scroll to the **right** to locate the **Habitat** column

> Now (and this is tricky, so stay focused) position the **mouse arrow** near the **left edge** of one of the **marshes** entries until the **mouse pointer** will become a **hollowed-out plus sign (   )**—and, when it does, click the mouse button

This tells *Access* that you want to filter by selection the set of birds which lives among marshes.

> In the **Home Ribbon** > **Sort & Filter Group**, click on the **Filter by Selection** icon (Fig. 8.14) and, in the menu that pops up, select **Equals "Marshes"**
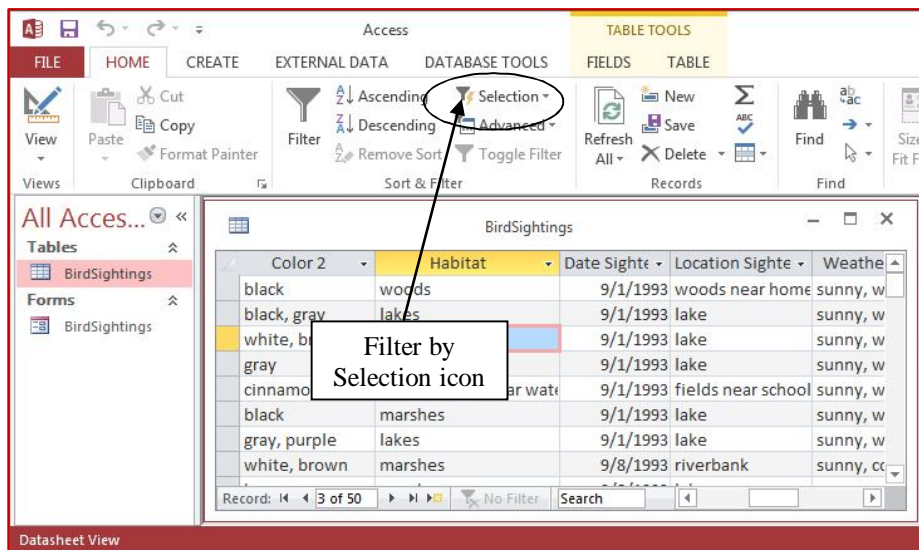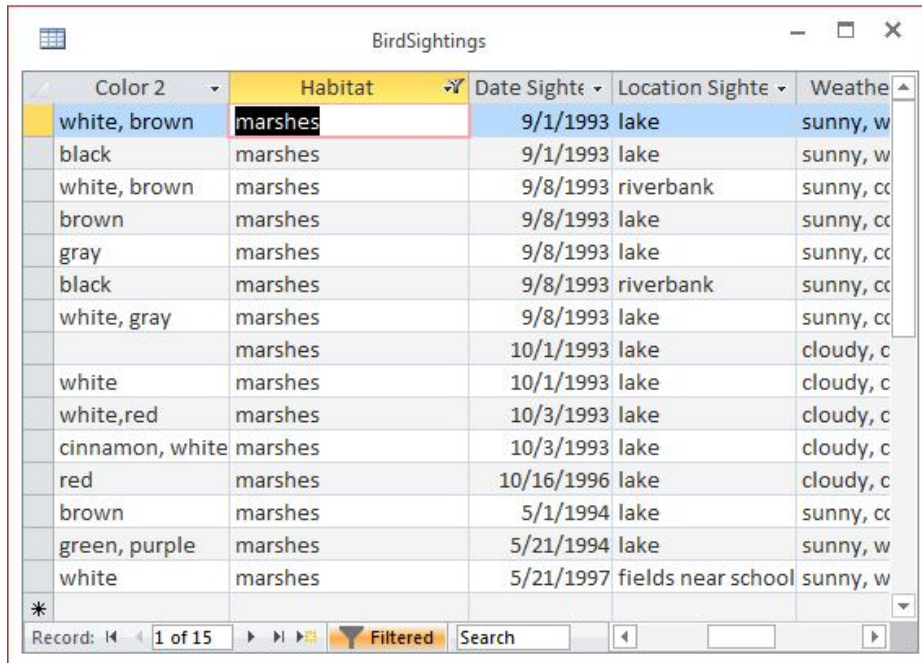

Fig. 8.14 Filter by Selection icon in the Sort & Filter Group

Access now displays a list of 15 birds in the database that live in marshes (Fig. 8.15).

Fig. 8.15 The found set of filtered records

To go back to viewing all the records in the database, click the **Toggle Filter** icon on the toolbar (Fig. 8.16)
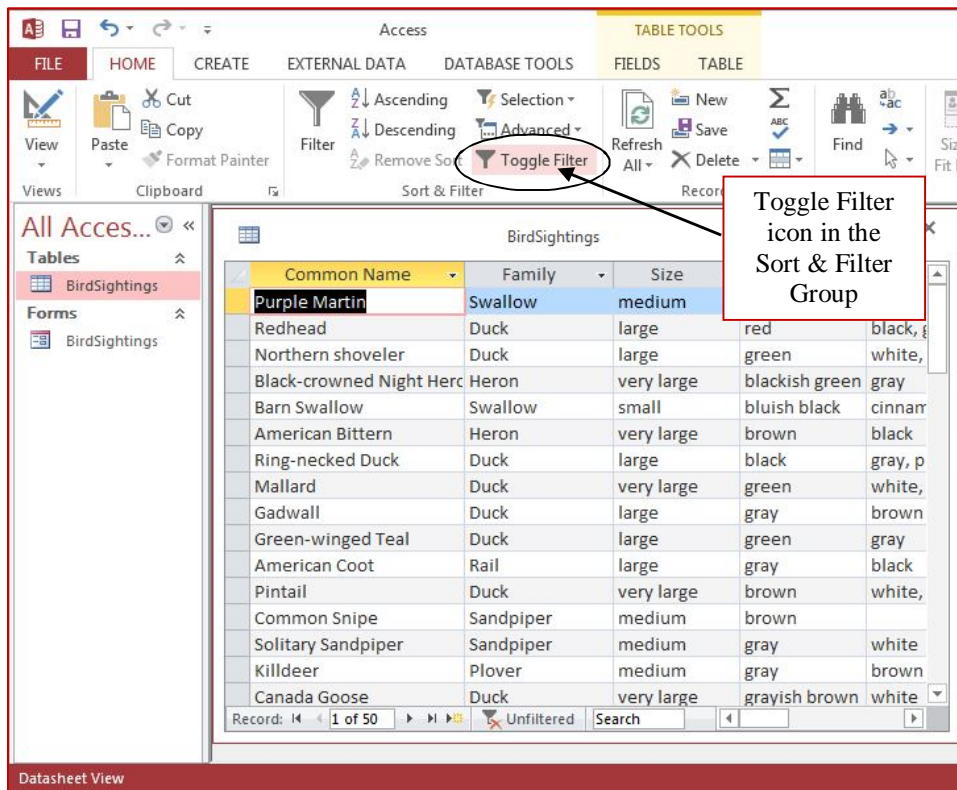
Fig. 8.16 Toggle Filter icon in the Sort & Filter Group

Filter by Form

You also can filter records using a Form. In other words, you can select a set of records no matter what database mode you are in—a Table or a Form. Here's how you do a Filter by Form.

Let's say you want to find all the records in which the birds have either the color "black" or a combination of "black" and some other color in their plumage.

In the **Home Ribbon** > **Sort & Filter Group**, click on the **Advanced Filter Options** icon and, in the drop down menu, select **Filter by Form** (Fig. 8.17)

Fig. 8.17 *Access* Advanced Filter Options

Access presents an empty record for you to select the criteria for the filter (Fig. 8.18).

Fig. 8.18 The Filter by Form window with its *Look For* and *Or* tabs

Notice that *Access* keeps previous search criteria ("marshes" from our previous search) active unless you remove them from the filter. So you need to tell *Access* that the previous filter (for the birds that live among marshes) is no longer relevant. This is easy enough to do.
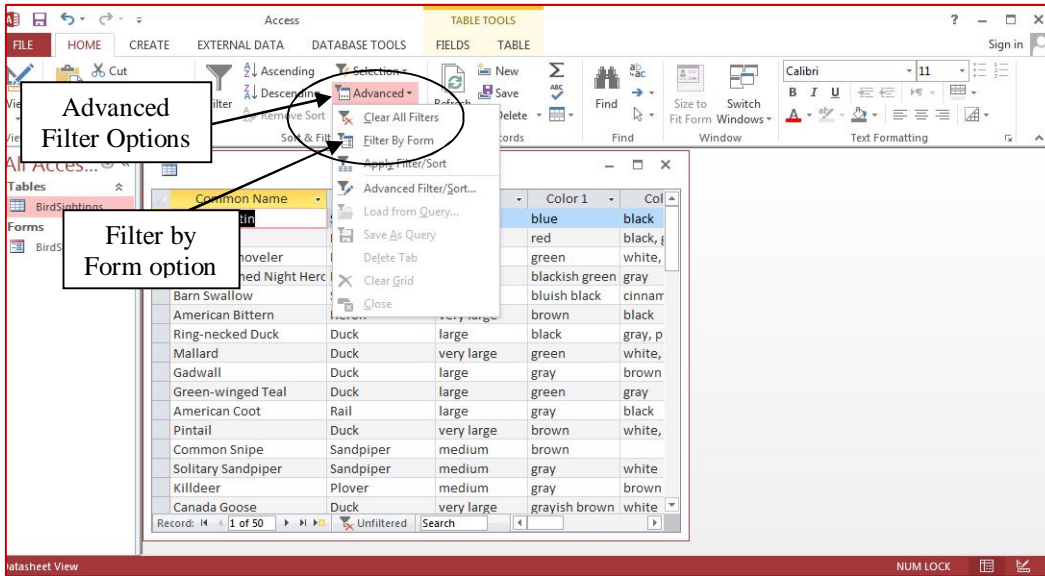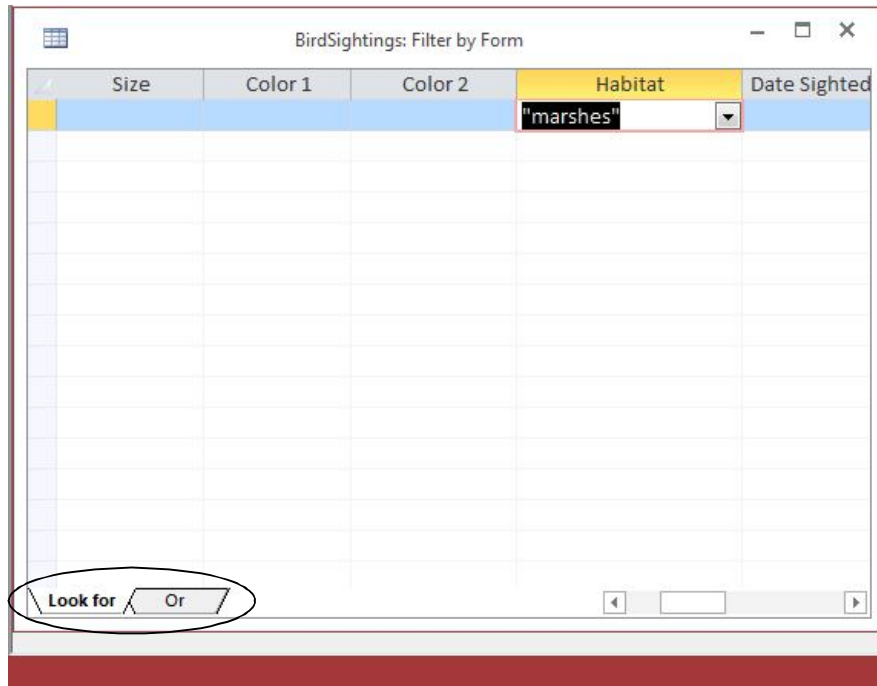
> Drag to highlight the **"marshes"** habitat, if it isn't already highlighted, and hit the **Backspace** key

Now you are going to do a *Filter by Form* using the *Color1* field. You want to find all the birds that have either *black*, or any variation on black, such as *blackish green* or *blackish blue*, in their plumage.

> To do this, first click in the **data entry area** below the **column header** of the **Color1** field

You should now see a small *down arrow* at the right hand edge of the *Color1* data entry box (Fig. 8.19).

> Click on this **down arrow** on the **right edge** of the **Color1** data entry box to see a list of all the possible colors in the **Color1** field of the Birds database (Fig. 8.19)
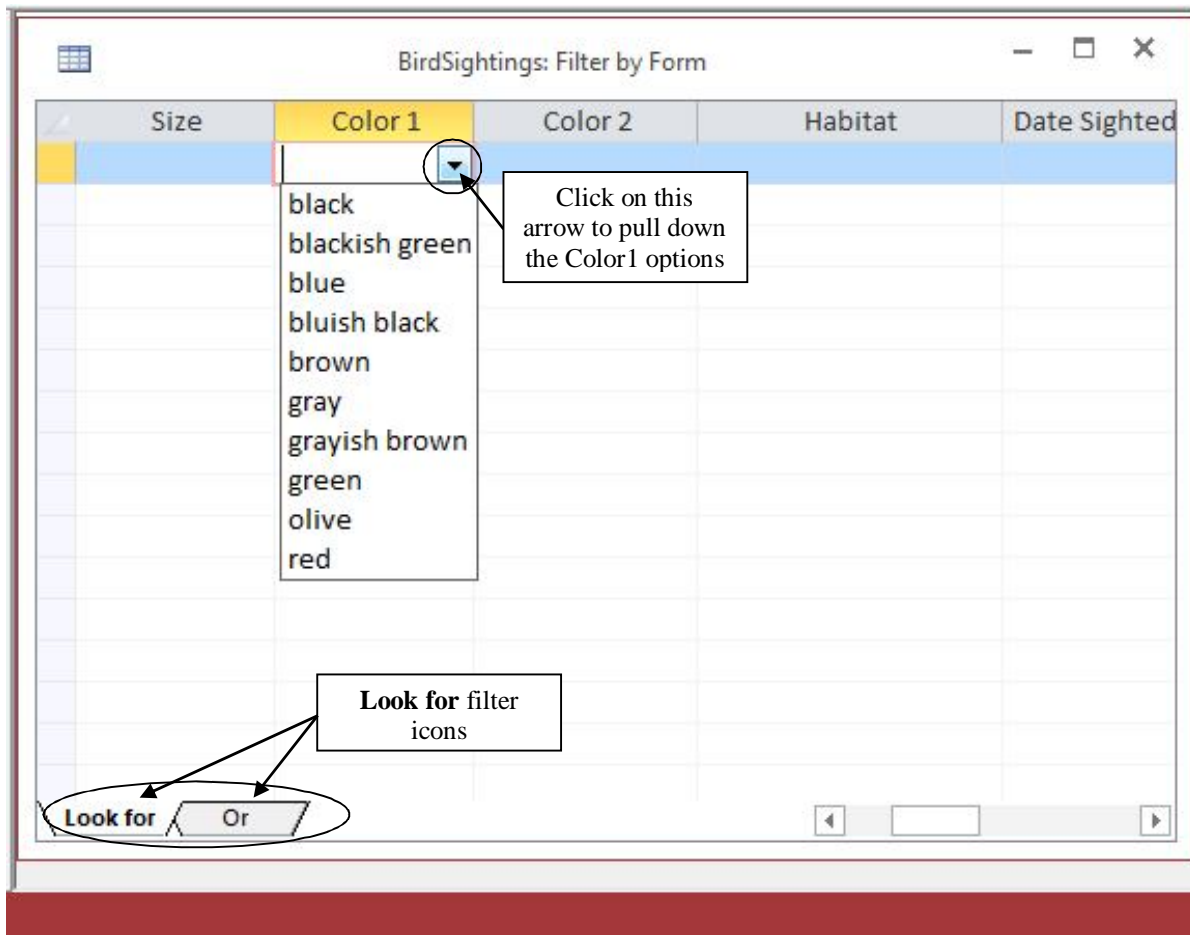

Fig. 8.19 The drop down list of *color1* colors

> 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. 8.19 above)

284

This will bring up a new, empty filter dialog box.

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

> Now, click on the next **Or** in the **Look for** filter icons at the **lower left** of the Form, then, once more, click on the **arrow** on the **right edge** of the **Color1** data entry box to bring up the full list of possible Color1 colors

> This time, in the drop down list of possible colors, click on "**bluish black**"

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

> Now, in the **Home Ribbon** > **Sort & Filter Group**, click on the **Toggle Filter** button (Fig. 8.20)
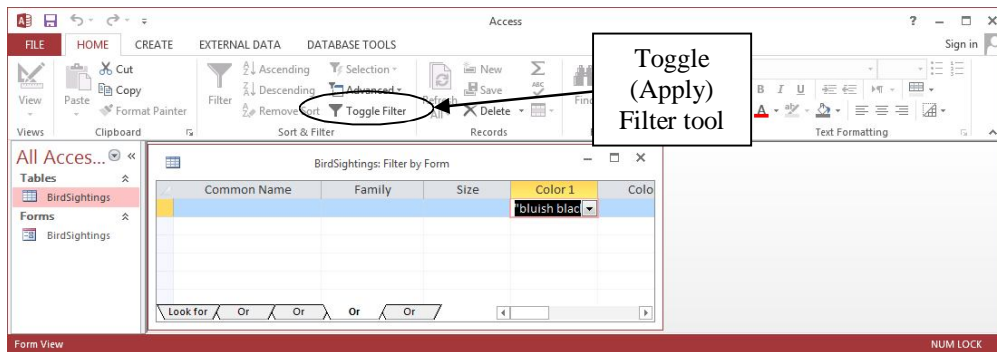
Fig. 8.20 The Toggle Filter button

Immediately *Access* filters out the set of birds (11 records in all) with some kind of *black* in their plumage (Fig. 8.21).

Fig. 8.21 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 only those records that contain the set of characters that make up the search criteria. *Access* will then display the complete contents of all the records that contain the data you're looking for.

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 take to do this.

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

> In the **Home Ribbon** > **Sort & Filter Group**, click on the **Toggle Filter** icon (Fig. 8.22)
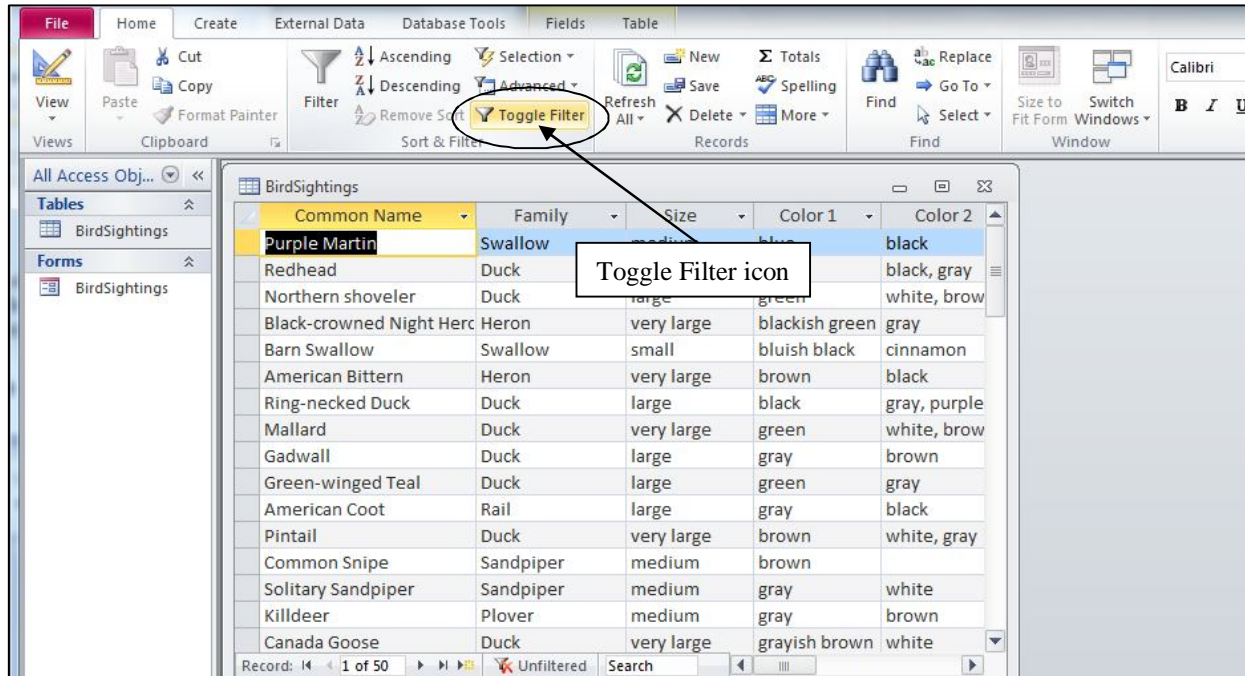
Fig. 8.22 Toggle Filter icon in the Sort & Filter Group

> Now, in the **Home Ribbon** > **Sort & Filter Group** click on the **Advanced Filter Options** icon and, in the drop down menu, select **Filter by Form**

This gives you the opportunity to remove any earlier filters you may have used.

> Remove the "**black**" filter in the **Color1** box by hitting the **Backspace** key

> Now click on the **first Or** tab in the filter search (**Look for**) tools at the bottom left of the window, and hit the **Backspace** key to remove the criterion "**blackish green**"

> Finally, click on the next **Or** tab, and hit the **Backspace** key to remove "**bluish black**"

Now that you have removed any old filters, you are ready to create the new filter.

> First, in the **Filter by Form** window, click on the **Look for** tab in the **lower left corner**, then scroll across if necessary to locate the **Date Sighted** data entry box (the data entry box is immediately below the field name at the top of the column), and **click** in the data entry box to put the cursor there

286

> Click on the **down arrow** on the right side of the data entry box in order 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 the '#' symbol 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 **Toggle Filter** button in the toolbar

Access quickly finds the set of records for birds sighted on the 1st or 8th of September. How many records did you get? There should be 12.

This might seem to you like a silly exercise. Maybe it wouldn't take you long to find the 12 records out of the 50 records in the database. Wouldn't take you a minute or two to do that, right? But suppose you have 500 records, or 5000 records, or, as is common in school districts in large cities, 500,000 records or more. The larger the database, the more you need tools such as these filter tools—and the Sort tools in the next section—to help you quickly find the data you need.

8.4 SORTING RECORDS

The three major advantages of an electronic, digital data storage system over a manual, paper-based filing system are these:

1. Digital, electronically stored data, with its easy ability to quickly access the data you need in any of multiple formats and the easy ability to organize it in any of multiple ways, provides more or less instant *organizational flexibility*, which helps you cope with the inevitable *complexity* that increases as the sheer amount of data grows.
2. Digital, electronically stored data *saves space*—physical space, that is. You don't need a filing cabinet, or oodles of filing cabinets in a storage room, or, for some companies, a whole building for a data repository. For teachers, like you and me, all we need is a few gigabytes of storage on a USB drive, which we can carry on a car key chain or in a pocket (provided we're careful to backup all the data on another computer in the office or at home).
3. Digital, electronically stored data increases the speed of data access and thus *saves time*.

When we use old-fashioned 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. It also assumes that space and time are not at a premium in our day to day operations. Unfortunately, coping with change, making good use of space, and saving 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 you to organize that data more or less on the fly by sorting it any which way you want.

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*.

> Take a look at the **Date Sighted** field now and notice that it is, in fact, sorted from the earliest date (9/1/1993) to the latest date (5/21/1997)

So the ordering is chronological rather than alphabetical. It would therefore be time consuming, if not impossible—especially if the database were very large—for you to visually scan the database to find the record for a particular bird.

This 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 begin by organizing the records alphabetically on the bird names. Fortunately *Access* has a *Sort Records...* function that 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.

> In the **Home Ribbon** > **Sort & Filter Group** click on the **Toggle Filter** tool (which right now should indicate that it will *Remove* an existing *Filter*, but if you don't see **ALL 50** of the records in the Birds database then click on Toggle Filter again)

You can best see the results of a sort if you are in the Datasheet (Table) 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 **Views Group** > **View menu** > **Datasheet View** before proceeding

> Click to put the cursor anywhere in the **Common Name** field, then, in the **Home Ribbon** > **Sort & Filter Group** click on the **Sort Ascending** button (Fig. 8.23)
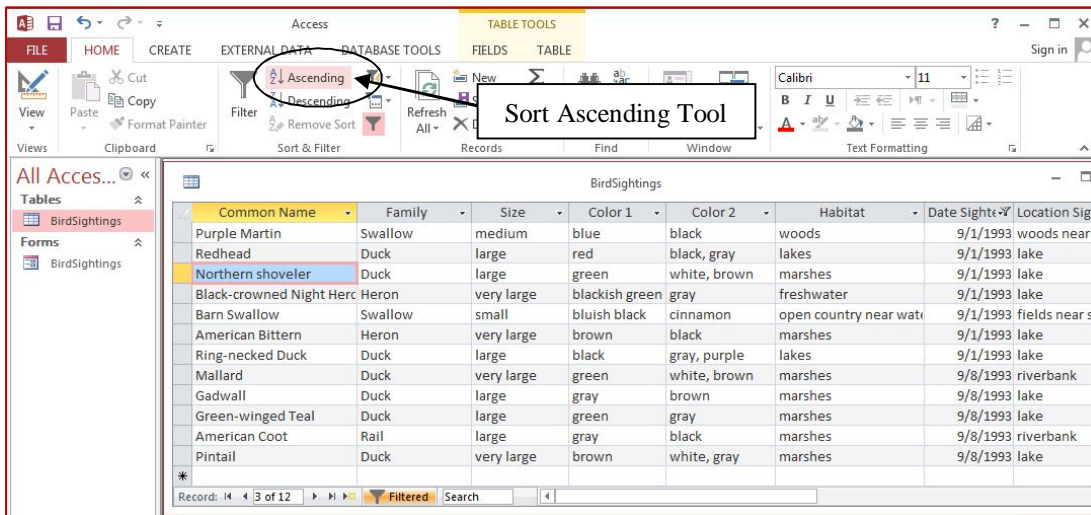

Fig. 8.23 The *Access* Sorting tools

288

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 can 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 again 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
Reports are what we submit to our bosses in response to information that they need. It doesn't matter to anyone why they need the report. All that matters is that they must have it. So we (teachers and others in the chain of command) must produce it. Period.

Access makes it easy to produce reports provided you have gathered any and all information needed for a report into a database. Let us assume that you have done that. What, then, are the criteria for a good report?

- Planning is still an important prerequisite for creating good reports. No matter how tempting it might be, always *resist* creating a report without first thinking and mapping out what you want as the finished version of a report.
- 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 based on the data in 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 family 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.

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 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.[2]

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.

> In the **Home Ribbon** > **Sort & Filter Group** click on the **Advanced Filter Options** tool, then select **Filter by Form** from the menu

> Just **below** the **Family field name at the top of the column**, click in the **Family** field entry box

> Now, click on the **down arrow** in the **Family** field entry box to see the drop down list of all possible **families** of birds, and click on **Duck**

> In the **Home Ribbon** > **Sort & Filter Group** click on the **Toggle Filter** (**Apply Filter**) button

You should now see listed all the birds in the Duck family (there should be 9 of them), which are the records you want for the Report (Fig. 8.24).
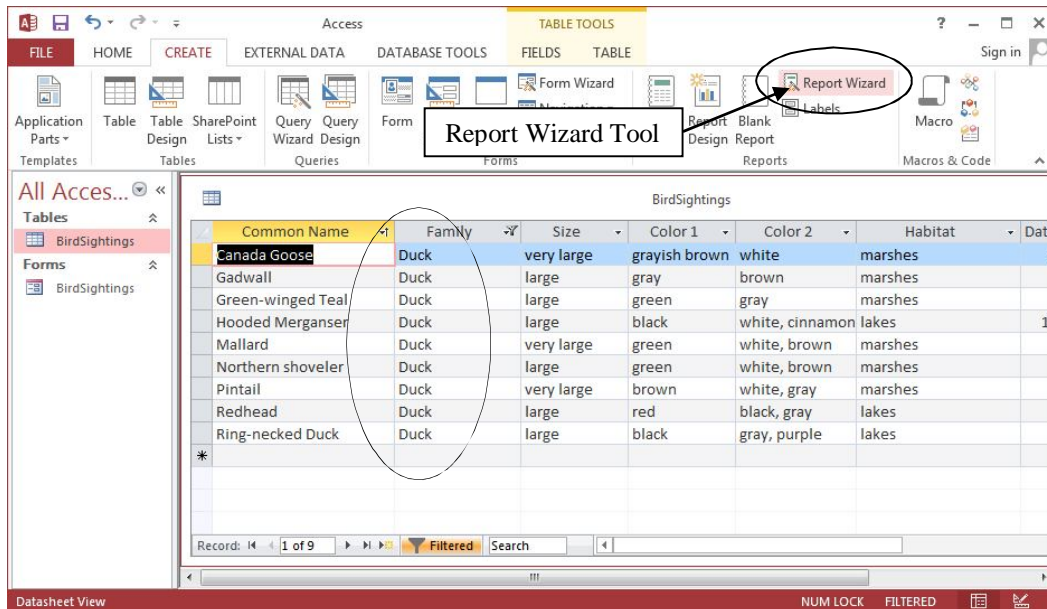

Fig. 8.24 The Report object in the database objects drop down list

> Next, click on the **Create Tab** to show the **Create Ribbon** at the top of the *Access* window and, in the **Create Ribbon** > **Reports Group** click on the **Report Wizard tool** (Fig. 8.24 above)

> A dialog box immediately pops up that asks you if you want to **save the Table** before you can close it and move on to create the report (a new object), so click on **Yes**

---

[2] You can get around this problem is various ways, the simplest of which is to change the font to one which requires less space, or reduce the size of the font you want to use, or consider whether you really need all the fields that you have selected for the report. Often, simpler is better. Simple reports are more likely to make the desired impact on the reader.

This brings up the Report Wizard dialog box (Fig. 8.25).
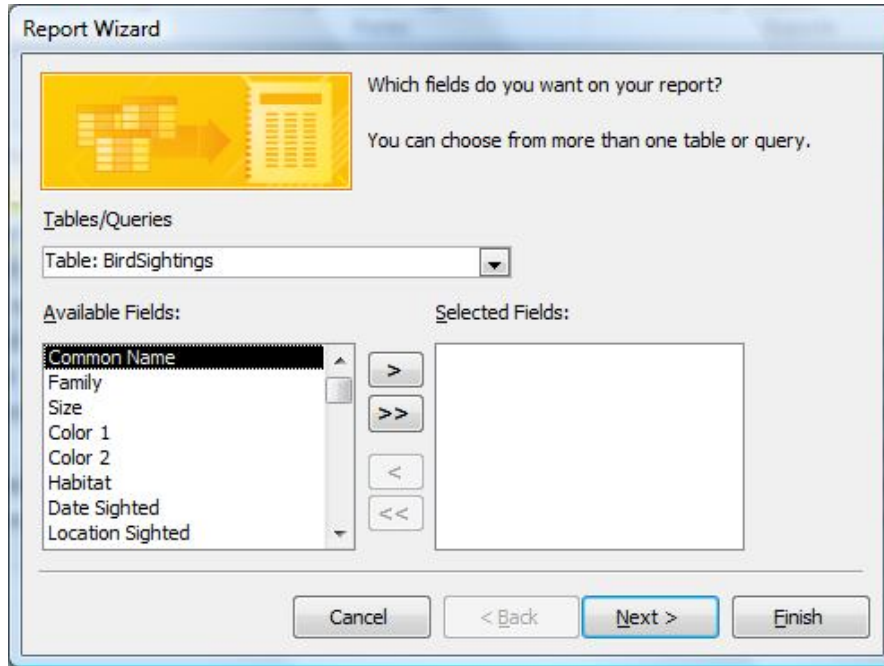
Fig. 8.25 The Report Wizard dialog box

In the **Tables/Queries** data box, leave the default **Table: BirdSightings** table as the source for the report's data

Then, in the list of **Available Fields: double click**, one by one, on the **Common Name**, **Family**, **Date Sighted**, and **Count** fields, in order to move each of these **four fields** to the **Selected Fields:** box (Fig. 8.26)

Fig. 8.26 Selecting the fields for the report

Now click on the **Next** button

Access now asks you if you want to add any grouping levels to the report.
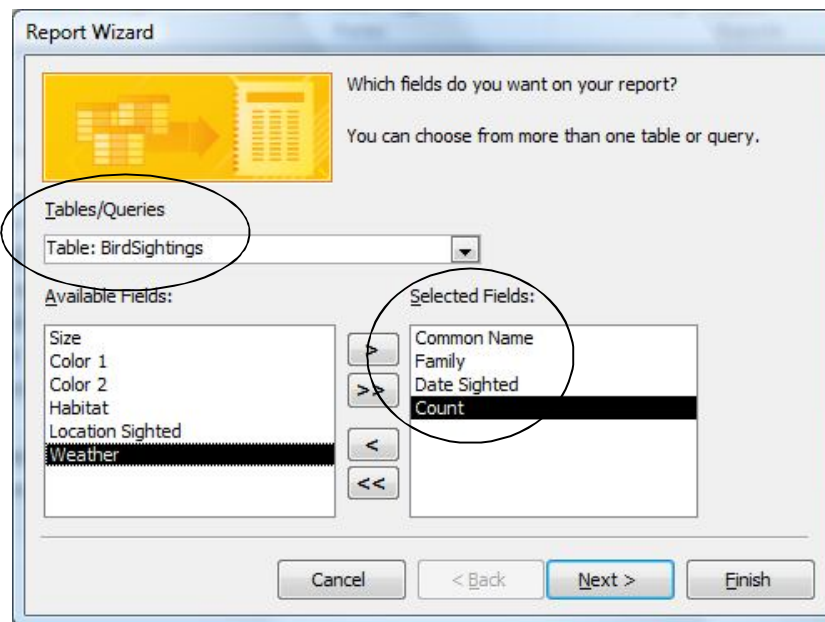
> You don't want to add any grouping levels, so click on the **Next** button to by-pass this dialog box

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 based 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. You are also going to print the report using *Portrait Orientation*, which, again, is the default setting.

> So make sure the radio buttons next to **Tabular** and **Portrait** Orientation are selected, then click on the **Next** button again

In the next step of the Report Wizard you need to enter a new title for the report (Fig. 8.27). The default title is *BirdSightings*, but you want to make a more specific title to describe the contents of the Report.

Fig. 8.27 Entering the title for the report
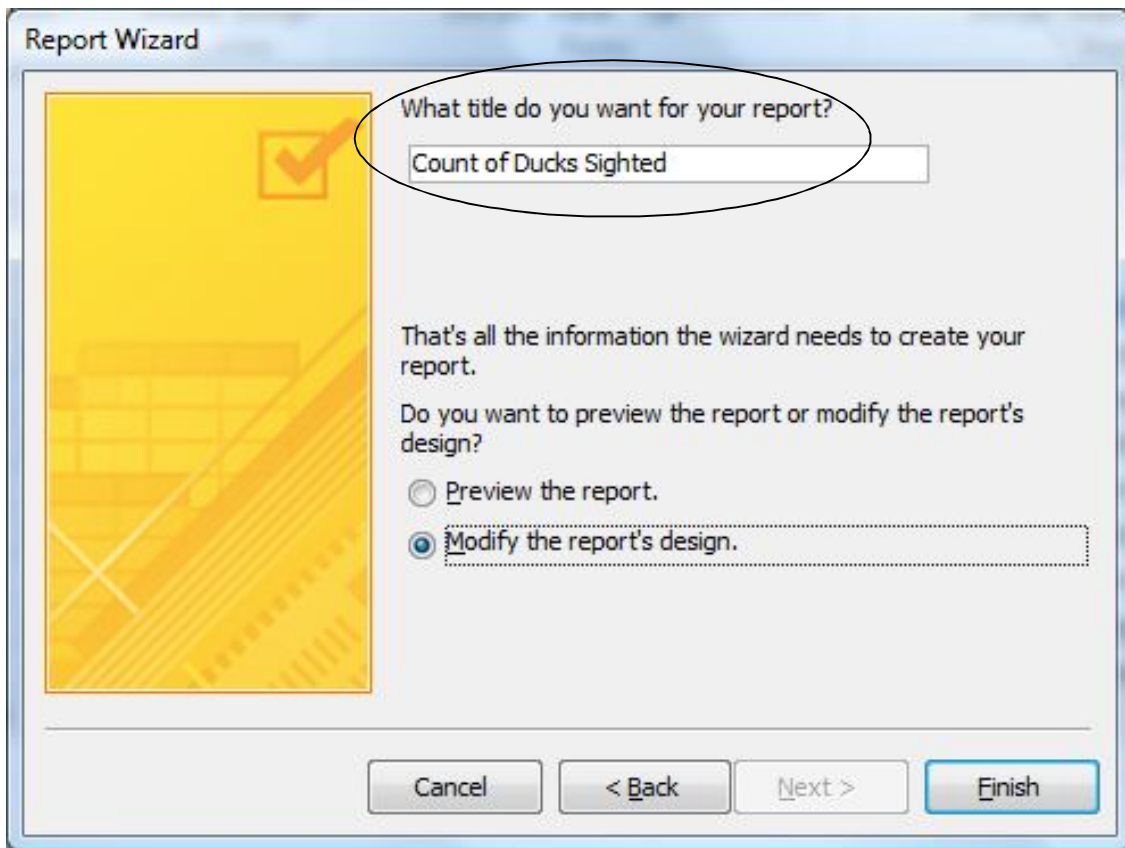
> For the **Title** of the report, type **Count of Ducks Sighted**, then click on the **radio button** next to "**Modify the report's design**" (Fig. 8.27)

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

> Finally, click on **Finish**

292

—

8.6 IMPROVING THE REPORT (MAKING CHANGES)

The default design for the new report (Fig. 8.28), which you named *Count of Ducks Sighted*, needs some work.
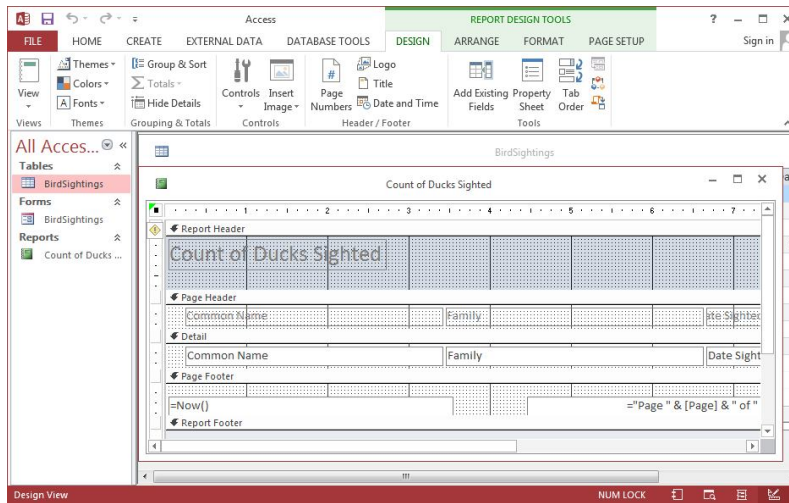

Fig. 8.28 The unmodified report in the Design View

After completing the following exercises, the report layout in the Design View will look like that illustrated in Fig. 8.29.

The Modify window (Design View) 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* section and a *Report Footer* section.

The *Report Header* section is where you have the *Title* for the report (Count of Ducks Sighted), which is usually a larger print than the body of the report and may also be centered at the top of the report.

The *Page Header* section has the column headers for each of the columns in the columnar report and may also include the date.

The *Detail* section is where the data for each record in the report are listed, and the Page Footer and Report Footer sections are for special items such as page numbers.
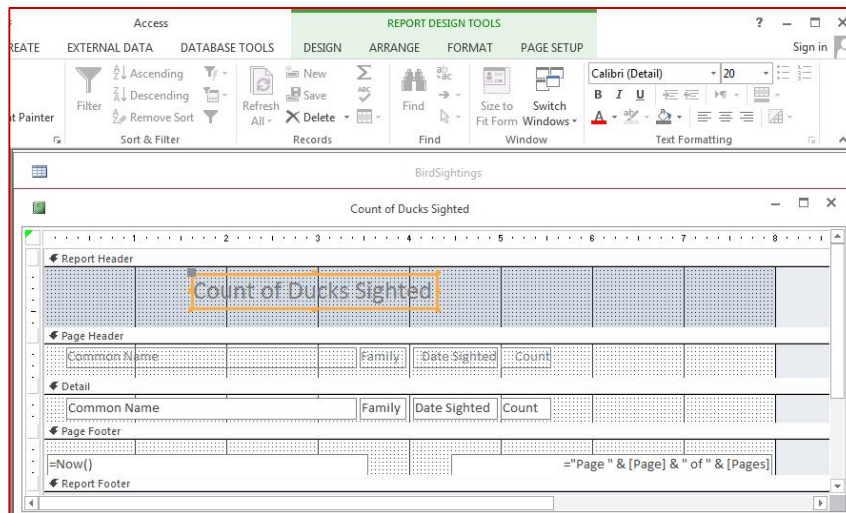

Fig. 8.29 The modified report in the Design View

293

In the Page Header section, the space allowed for the Common Name field is fine, but the Family column is wider than necessary. Here are the steps for you to fix this.

Click once on **Family** to select the box for the Family field

Now grab the **right edge of the box**—the right edge, not the left—and drag the edge of the box **to the left** to **reduce its width** till it is a little more than the width of the word **Family** itself (see Fig. 8.29 on previous page)

The *Date Sighted* Page Header and the *Count* header are fine as is, but they both need to be moved over *to the left* for the report.

Click in the **Date Sighted** box, then grab the upper or lower **border** of the box and drag it over to the **left** till it is close to the Family box (see Fig. 8.29 on previous page)

Do the same for the **Count** box to bring it close to the Date Sighted box (see Fig 8.29 again)

Now you must do the same for the Family, Date Sighted, and Count fields in the Detail section of the report.

Click once, in the Detail section of the report, on **Family** to select the box for the Family field

Now grab the **right edge of the box**—the right edge, not the left—and drag the edge of the box **to the left** to **reduce its width** till it is a little more than the width of the word **Family** itself (see Fig. 8.29 on previous page)

The *Date Sighted* and the *Count* fields in the Detail section of the report are fine as is, but they both need to be moved over *to the left* to match up with the titles above the columns.

Click in the **Date Sighted** box, then grab the upper or lower **border** of the box and drag it over to the **left** till it is close to the Family box (see Fig. 8.29 on previous page)

Do the same for the **Count** box to bring it close to the Date Sighted box (see Fig 8.29 again)

Your last task is to center the report title.

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

Position the mouse arrow on the lower or upper border of the box till the arrow changes to a **crosshair icon**, then drag the title to the right till it is **centered** over the columns of the report (see Fig. 8.29 above)

Now you are ready to Print Preview the report.

From the **View** menu, select **Print Preview**, and check out how your report will look when you send it to the printer (Fig. 8.30 on the next page)

Fig. 8.30 Final version of the Count of Ducks Sighted report

When you later open the *Birds.accdb* database to check the report, you'll need to click in the *Sort & Filter Group* on the *Toggle Filter* button.

The Count of Ducks Sighted report should look similar to that illustrated in Fig. 8.30. If you need to go back and do further modifications to the report, just go back to the *View* menu in the *Views Group* of the *Home Ribbon* 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.

You should still be in the **Print Preview window**, so click on the **Print** button at the **top left** 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 6. Save the template with the set of reports.

2. From the Work Files for Office 2013 folder on your USB drive, open the Roster 2008 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 new database (do not use a database you already created) on any topic of your choosing.
   - Design the fields (at least 10) to be included in the database
   - Save the empty database document
   - Add at least 20 records
   - Save the database document again
   - Prepare a report using just 5 of the fields in the database
   - Save the database with the report and send the database to your professor as an attachment in email
4. Open the Birds database (in the Practice folder on your Work Disk) onto the Desktop.
   - Find all the birds that have *blue*, *grey*, *green*, or *olive* in their *Color1* plumage
   - Arrange (Sort) the birds in *descending order* (reverse alphabetical order—from Z to A)—the *Birds*, not the Colors!
   - Prepare a report using just the following 5 fields in the database: *Common Name*, *Family*, *Color1*, *Habitat*, *Count*
   - Save the *Birds* database with the report and send the database to your professor as an attachment in email