Book VI

Access

"Once I told Mona that Access was an 'argument' based program, she seemed to warm up to it."

Chapter 1: Introducing Access

In This Chapter

- **Understanding how databases work**
- **Looking at tables, queries, forms, and other database objects**
- **Creating a database**
- **Opening and closing tables**
- **Designing the tables, queries, forms, and the other parts of a database**

The word *database* is prone to making most people feel kind of queasy. Can you blame them? Database terminology — record, field, and filter — is the worst of the worst. It even puts other computer terminology to shame. Databases intimidate most people. Even brave souls with a considerable amount of experience in Word and Excel shy away from *Access,* the Office 2010 database program. However, Access can be invaluable for storing and organizing customer lists, inventories, addresses, payment histories, donor lists, and volunteer lists. What's more, Access is easy to use, after you get the hang of it. No kidding!

This chapter starts you down the road to the Land of Oz. In truth, it introduces databases and the concepts behind databases. It shows you how to create a database and database tables for storing information. The second half of this chapter explains how to design databases. Sorry, but you have to know about database design before you can start fooling with databases. You can't jump right in as you can with the other Office programs.

Access offers a practice database called Northwind Traders that you can experiment with as you get to know your way around databases. To open this database, start Access and select Sample Templates in the Available Templates window. Then scroll in the list of sample templates, select Northwind, and click the Create button.

What Is a Database, Anyway?

Whether you know it or not, you're no stranger to databases. The address book on your computer is a database. The telephone directory in the desk drawer is, too. A recipe book is also a database in that recipes are categorized under different headings. If you ever arranged a CD collection in a certain way — in alphabetical order or by musical genre, for example — you

created a database of CDs, one that makes finding a particular CD easier. Any place where information is stored in a systematic way can be considered a *database.* The only difference between a computerized database and a conventional database, such as a telephone directory, is that storing, finding, and manipulating data is much easier in a computerized database.

Imagine how long it would take to find all the New York addresses in an address list with 10,000 entries. In Access, you can query a 10,000-entry database and find all New York addresses in a matter of seconds. For that matter, you can query to find all the addresses in a certain ZIP Code. You can put the list in alphabetical order by last name or in numerical order by ZIP Code. Doing these chores without a computer requires many hours of dreary, monotonous labor.

Tables, Queries, Forms, and Other Objects

One problem with getting to know a database program — and the primary reason that people are intimidated by databases — is that you can't jump right in. You have to know how data is stored in a database and how it is extracted, to use programmer terminology. You have to know about *objects,* Access's bland word for database tables, queries, forms, and all else that makes a database a database. To help you get going, these pages offer a crash course in databases. They explain the different *objects* — tables, queries, forms, and reports — that make up a database. Fasten your seat belt. If you complete the crash course without crashing, you're ready to create your first database.

Database tables for storing information

Information in databases is stored in *database tables* like the one in Figure 1-1. In a database table, you include one field for each category of information you want to keep on hand. *Fields* are the equivalent of columns in a table. Your first duty when you create a database table is to name the fields and tell Access what kind of information you propose to store in each field. The database table in Figure 1-1 is for storing employee information. It has seven fields: ID, First Name, Last Name, E-mail Address, Business Phone, Company, and Job Title.

A database can comprise one database table or many different tables that are linked together. If you're dealing with a lot of information, storing data in more than one table is to your advantage. Later in this chapter, "Separating information into different database tables" explains why storing data across several database tables is advantageous.

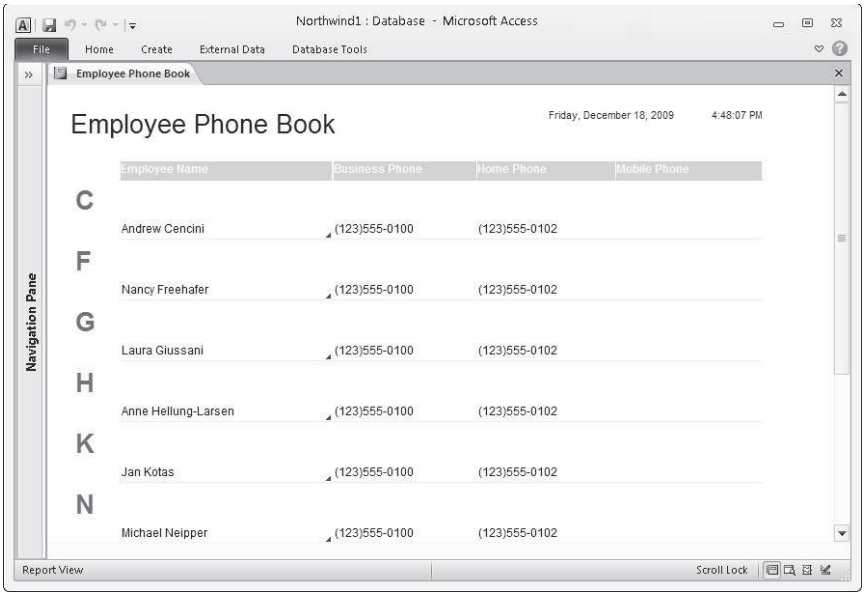


Figure 1-4: A report gathers data for scrutiny and analysis.

Creating a Database File

Creating a database is a lot of work, at least in the beginning. You have to design the database (a subject that I explain shortly). You have to enter the raw information into the tables. You have to construct queries that allow yourself and others to read meaning into the data (see Chapter 4 of this mini-book). By contrast, creating a database file for storing the information is the easy part.

Access offers two ways to create a new database file. You can do it from scratch or get the help of a template. With a template, some of the work is done already for you. The template comes with prefabricated queries, forms, and reports. However, templates are for people who already know their way around Access databases. To make use of a template, you have to know how to modify a preexisting database.

Before you create a database file, start by deciding where in your computer to store it. Unlike other Office programs, Access requires you to save and name a new file as soon as you create it.

Creating a blank database file

Follow these instructions to create a blank database file:

1. **Start Access (if it isn't already running), or go to the File tab and choose New.**

   The Available Templates window appears.

2. **Click the Blank Database icon.**
3. **Click the folder icon (it's in the lower-right corner of the window beside the File Name text box), and in the File New Database dialog box, select the folder where you want to keep the database file, enter a name in the File Name text box, and click OK.**
4. **Click the Create button.**

   The Navigation pane and a blank table appear. Later in this chapter, "Finding Your Way Around the Navigation Pane" explains what this pane is all about. I suggest you go there without delay or deferral.

Getting the help of a template

As I explain earlier, templates are wonderful if you have the wherewithal to modify them. Access offers prefabricated databases for tracking assets, keeping inventory, scheduling resources, and doing other things. Unfortunately, the only way to find out whether one of the templates is worthwhile is to go to the trouble to create a database from a template, open up the database file, and look around.

Follow these steps to create a database file from a template:

1. **Start Access or go to the File tab and choose New.**

   The Available Template window opens.
2. **Click the Sample Templates icon.**
3. **Select a template.**

   The template name appears on the right side of the window.
4. **Click the folder icon (it's in the lower-right corner of the window beside the File Name text box), and in the File New Database dialog box, select the folder where you want to keep the database file, enter a name in the File Name text box, and click OK.**
5. **Click the Create button.**

Finding Your Way Around the Navigation Pane

The first thing you see when you open most database files is a Navigation pane like the one in Figure 1-5. This is the starting point for doing all your work in Access. From here, you can select an object — that horrible word again! — and begin working. Tables, queries, and other objects you create are added to the Navigation pane when you create them.

- **Finding objects:** Use the Search bar (located at the top of the Navigation pane) to search for objects.
- **Opening and closing the Navigation pane:** Click the Shutter Bar Open/Close button on the upper-right corner of the Navigation pane (or press F11) when you want to shrink it and get it out of the way. You can also resize this pane by clicking the far-right edge and dragging it left or right.

Designing a Database

Being a database designer isn't nearly as glamorous as being a fashion designer, but it has its rewards. If you design your database carefully and correctly, it can be very useful to you and others. You can enter information accurately. When the time comes to draw information from the database, you get precisely the information you need. These pages explain everything you need to consider when designing a database. Pay close attention to "Separating information into different database tables," later in this chapter, because the hardest part about designing a database is deciding how to distribute information across database tables and how many database tables to have.

Deciding what information you need

The first question to ask yourself is about the kind of information you want to get out of the database. Customer names and addresses? Sales information? Information for inventory tracking? Interview your co-workers to find out what information could be helpful to them. Give this matter some serious thought. Your goal is to set up the database so that every tidbit of information your organization needs can be recorded.

A good way to find out what kind of information matters to an organization is to examine the paper forms that the organization uses to solicit or record information. These forms show precisely what the organization deems worthy of tracking in a database. Figure 1-6, for example, shows the paper form that players fill out to sign up for a baseball league whose database tables appear in Figure 1-7. Compare Figure 1-6 with Figure 1-7, and you can see that the Players, Teams, and Divisions database tables all have fields for entering information from this form.

Separating information into different database tables

After you know the information you want to record in the database, think about how to separate the information into database tables. Many are tempted to put all the information into a single database table, but because Access is a *relational database,* you can query more than one table at a time, and in so doing, assemble information from different tables.

Chapter 2: Building Your Database Tables

In This Chapter

- **Creating database tables**
- **Creating fields for a database table**
- **Choosing a primary key field**
- **Using field properties to make data entries more accurate**
- **Indexing fields in a table**
- **Forming relationships between tables**

Database tables are the building blocks of a database. They hold the raw data. Relationships between the tables permit you to query and generate reports from several different tables. How well your database tables are put together and how accurately data is entered in the tables determine whether your database is a thing of beauty or a wilted flower.

This chapter explains how to create database tables and fields for the tables. It explains what primary key fields are and how primary key fields and indexed fields make it easier for Access to sort, search, and query a database. This chapter describes how to forge relationships between tables. Fasten your seat belts. In this chapter, you find numerous tips and tricks for making sure that data is entered accurately in your database tables.

Creating a Database Table

Raw data is stored in database tables (or in a single table if you decide to keep all the data in one place). The first and most important part of setting up a database is creating the tables and entering the data. After you enter the data, you can harass your database for information about the things and people your database keeps track of. If you haven't done so already, read the sections in Chapter 1 of this mini-book that pertain to storing information and designing a database before you create a database table. Chapter 1 of this mini-book explains what database tables are and how to fashion a splendid one.

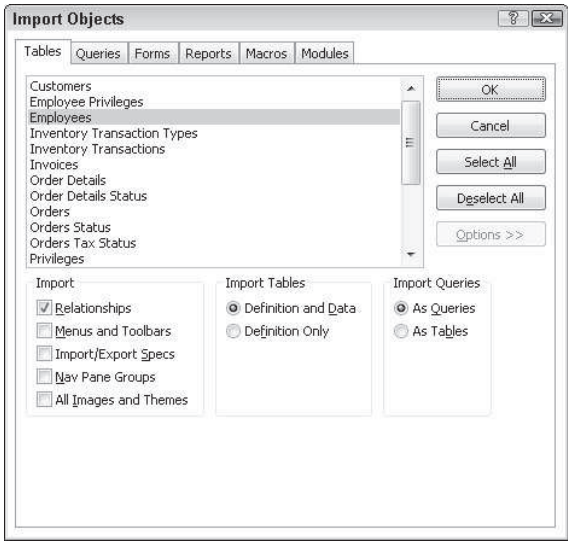


Figure 2-1: Fetching a table from another database.

5. **On the Tables tab, select the database table you want.**

   You can import more than one database table by clicking several table names or clicking the Select All button.

   You can import a table structure — its field names and formats — without importing the data in the table. To do so, click the Options button in the Import Objects dialog box, and under Import Tables, select the Definition Only option button.

6. **Click OK.**

If the table you want to import includes lookup fields, import the tables or queries that the lookup fields refer to as well as the table itself. Without those tables or queries, the lookup fields won't be able to obtain any values. Later in this chapter, "Creating a lookup data-entry list" explains what lookup fields are.

Opening and Viewing Tables

To open a table, start in the Navigation pane and select the Tables group to view the names of database tables you created. How you open a table depends on whether you want to open it in Datasheet view or Design view. Figure 2-2 illustrates the difference between these views. Datasheet view is for entering and examining data in a table; Design view is for creating fields and describing their parameters.

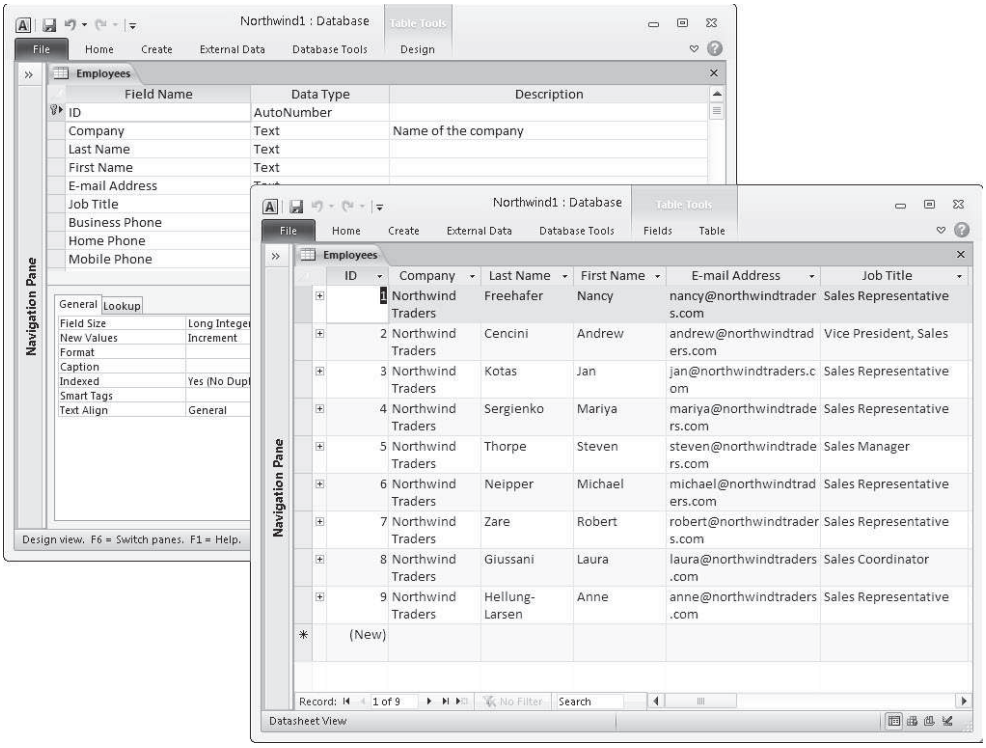


Figure 2-2: A table in Design view (top) and Datasheet view (bottom).

Select a table on the Navigation pane and use one of these techniques to open and view it:

- **Opening in Design view:** Right-click the table's name in the Navigation pane and choose Design View on the shortcut menu.
- **Opening in Datasheet view:** On the Navigation pane, double-click the table's name or right-click its name and choose Open on the shortcut menu.

- **Switching between views with the View button:** On the Home tab, click the View button. This button changes appearance, depending on whether you're in Design view or Datasheet view.
- **Switching between views on the status bar:** Click the Datasheet View or Design View button on the right side of the status bar.
- **Switching between views by right-clicking:** Right-click the table's title bar and choose Datasheet View or Design View.

Entering and Altering Table Fields

After you create a database table, the next task is to enter the fields, or if Access created the table for you, alter the fields to your liking. As Chapter 1 of this mini-book explains, fields represent categories of information in a

To remove a primary key, click its row selector and then click the Primary Key button all over again.

Moving, renaming, and deleting fields

Suppose that you need to move, rename, or delete a field. To do so, switch to Design view and follow these instructions:

- **Moving a field:** Select the field's row selector (the box to its left) and release the mouse button. Then click again and drag the selector up or down to a new location.
- **Renaming a field:** Click in the Field Name box where the name is, delete the name that's there, and type a new name.
- **Deleting a field:** Click in the Field Name box, go to the (Table Tools) Design tab, and click the Delete Rows button. You can also right-click the field and choose Delete Rows on the shortcut menu.

Field Properties for Making Sure That Data Entries Are Accurate

Unfortunately, entering the data in a database table is one of the most tedious activities known to humankind. And because the activity is so dull, people are prone to make mistakes when they enter data in a database table. One way to cut down on mistakes is to take advantage of the Field Properties settings on the General tab in the Design view window. Figure 2-4 shows the General tab.

Figure 2-4: Establishing field properties.

These properties determine what can and can't be entered in the different fields of a database table. Some of the settings are invaluable. The Field Size property, for example, determines how many characters can be entered in a field. In a State field where two-letter state abbreviations are to be entered,

3. **Select the table with the data you need and click the Next button.**

   The dialog box shows you a list of available fields in the table.

4. **Select the field where the data for your list is stored.**

5. **Click the > button.**

   The name of the list appears on the right side of the dialog box, under Selected Fields.

6. **Click the Next button.**

   Normally, lists are displayed in ascending order, but you can select a field and click the Ascending button to reverse the order of the list. (Note that the button turns into the Descending button.)

7. **Click the Finish button.**

   If you're so inclined, you can change the width of the list before clicking Finish, but you can always do that on the datasheet, as Chapter 3 of this mini-book explains.

Suppose that you obtain the items from the wrong field or wrong database table? To fix that problem, select the field for which you created the list, and in Design view, select the Lookup tab (refer to Figure 2-8). Choose Text Box rather than Combo Box on the Display Control drop-down list and start all over.

Indexing for Faster Sorts, Searches, and Queries

Indexing means to instruct Access to keep information about the data in a field or combination of fields. Because Access keeps this information on hand, it doesn't have to actually search through every record in a database table to sort data, search for data, or run a query. In a large database table, indexes make sorting, searching, and querying go considerably faster because Access looks through its own data rather than the data in tables. The performance difference between querying a database table that has and has not been indexed is astonishing. That's the good news. The bad news is that indexes inflate the size of Access files.

By default, the field you choose as the primary key field is indexed. I recommend choosing other fields for indexing if you often conduct queries and searches. When you choose a field to index, choose one with data that varies from record to record and is likely to be the subject of searches, sorts, and queries. That way, the index means something. However, a field with data that is mostly the same from record to record is a waste of a good index, not to mention hard drive space. By the way, Access automatically indexes fields whose names include the words *ID, Code, Num,* and *Key*, the idea being that these fields are likely to store essential information worthy of indexing.

2. **On a blank line in the dialog box, enter a name for the index in the Index Name column.**
3. **In the Field Name column, open the drop-down list and choose the first field you want for the multifield index.**

   Access sorts the records first on this field and then on the second field you choose.
4. **In the next row, leave the Index Name blank and choose another field name from the drop-down list.**

   This field is the second field in the index. You can use as many as ten different fields in a multifield index. In Figure 2-9, two fields are in a multifield index: First Name and Last Name.
5. **Choose Descending in the Sort Order column if you want the field sorted in descending order.**

   Most of the time, you want leave the Sort Order set to Ascending because most people read from A to Z.
6. **Click the Close button.**

   Click the Indexes button in Design view if you need to return to the Indexes dialog box and change how fields are indexed.

Establishing Relationships between Database Tables

As Chapter 1 of this mini-book explains, you have to establish relationships between tables if you want to query or generate reports with data from more than one database table. Relationships define the field that two different tables have in common. To understand why relationships between tables are necessary, consider the query shown in Figure 2-10. The purpose of this query is to list all companies that ordered items in 2009, list the companies by name, and list the city and country where each company is located.

Consider what Access does to run this query:

- Access deals with two database tables, Customers and Orders.
- In the Orders table, Access looks in the Order Date field to isolate all records that describe orders made in the year 2009. The expression for finding these records is shown on the Criteria line in Figure 2-10: `Between #1/1/2009# And #12/31/2009#`.
- Because there is a relationship between the ID field in the Customers table and the Customer ID field in the Orders table — because the two fields hold the same type of information — Access can match the 2009 records it finds in the Orders table with corresponding records in the Customers table. Where the Customer ID of a 2009 record in the Orders table and an ID in the Customers table match, Access assembles a new record and places it in the query results.

Chapter 3: Entering the Data

In This Chapter

- **Entering data on a datasheet**
- **Changing the look of a datasheet**
- **Creating a form for entering data**
- **Finding records in a field or database table**
- **Finding and replacing your data**

At last — you can start entering the data. If you set up your database tables, named the fields, and established relationships between the tables, you're ready to go. This short chapter explains how to enter the data in a database table. It shows you how to enter data on a datasheet or enter data by way of a form. This chapter also describes how to find missing records in case one goes astray.

There's no getting around it: Entering data is truly a tedious activity. But if you set up the fields well and take advantage of input masks and other field properties, it isn't so bad. It's better than stepping on a shovel blade, anyway.

The Two Ways to Enter Data

When it comes to entering data in a database table, you can take your pick between Datasheet view and a form. Figure 3-1 compares and contrasts the two. Here are the advantages of entering data in Datasheet view:

- Many records appear simultaneously.
- You can compare data easily between records.
- You can sort by column with the commands in the Sort and Filter group on the Home tab (as discussed in Chapter 4 of this mini-book).
- You can scroll up or down to locate records.

Here are the advantages of entering the data in a form:

- You don't have to scroll left or right to see all the fields.
- Getting from field to field is easier.
- Fields are clearly labeled so that you always know what to enter.

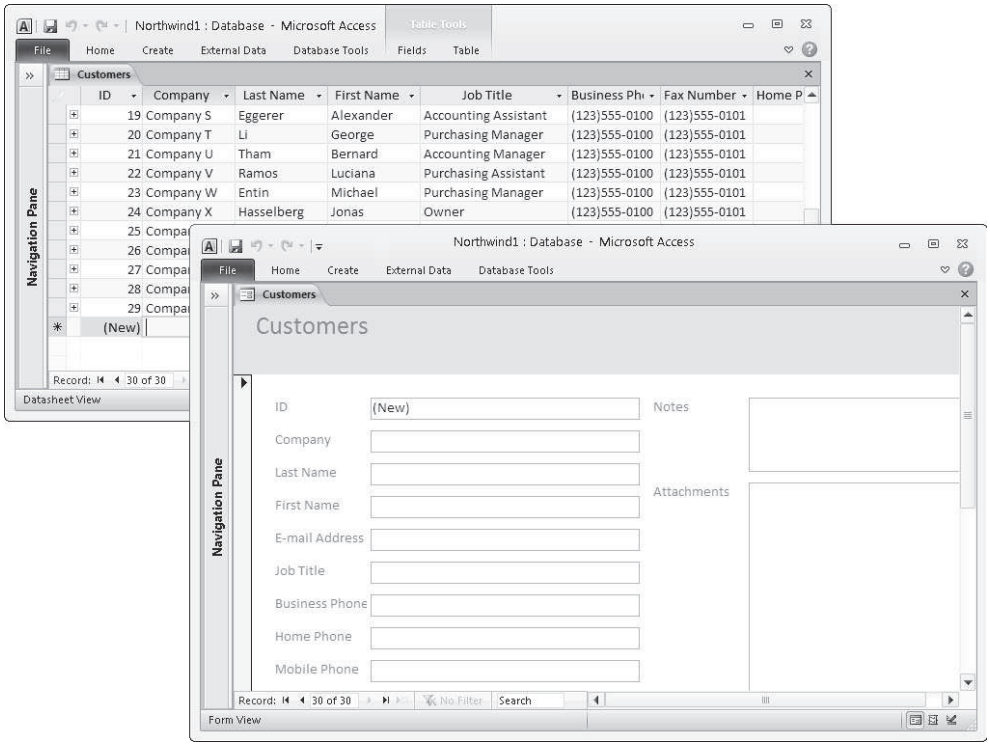


Figure 3-1: Entering records in Datasheet view (left) and in a form (right).

Entering the Data in Datasheet View

Entering data in Datasheet view is like entering data in a conventional table. As with a table, a datasheet has columns and rows. Records are entered in rows, and each column represents a field. Fans of Datasheet view like being able to look at a dozen records simultaneously. They like being able to open subdatasheets. (Chapter 2 of this mini-book explains what those are.) For fans of Datasheet view, these pages explain how to enter data in a datasheet and change a datasheet's appearance.

Database tables open in Datasheet view when you double-click their names in the Navigation pane. But if you happen to be gazing at a table in Design view, click the View command on the Home tab or the Datasheet View button on the status bar.

Entering data

In Datasheet view, the bottom of the window tells you how many records are entered in the database table and which record the cursor is in. To enter a new record, move to a new, empty row and start entering the data. To create a new row, do one of the following:

- **Resizing columns:** Move the pointer between column names at the top of the datasheet, and when you see the double-headed arrow, click and start dragging. To make a column just large enough to fit its widest entry, move the pointer between column names and double-click when you see the double-headed arrow.
- **Changing fonts:** The default font for a datasheet is Calibri 11-point, but the Home tab offers commands for changing fonts and font sizes. Look for these commands in the Text Formatting group.

- **Changing the look of gridlines:** On the Home tab, open the drop-down list on the Gridlines button and choose options to change the number and thickness of gridlines.

- **Alternate row colors:** Open the drop-down list on the Alternate Row Color button and choose a color for alternating rows on the datasheet.

To experiment all at one time with the many options for changing a datasheet's appearance, go to the Home tab and click the Text Formatting group button. You see the Datasheet Formatting dialog box, as shown in Figure 3-2. If you want a customized look for all the datasheets you work on, click the File tab and select Options. Then go to the Datasheet category in the Options dialog box and go to town.

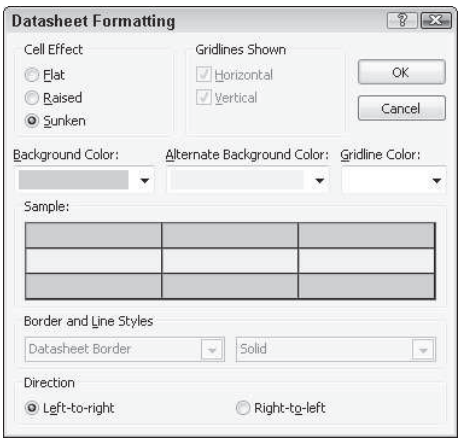


Figure 3-2: The Datasheet Formatting dialog box.

Entering the Data in a Form

Forms like the one shown in Figure 3-3 are very convenient for entering data. The labels tell you exactly what to enter. Personally, I prefer entering data in a form to entering data on a datasheet. On a form, you take it one step — make that one record — at a time. Not looking at a dozen records makes the task of entering data a little easier. These pages explain how to create a form for entering information in a database table. You also get tried-and-true advice for moving around with the Navigation buttons.

Entering the data

To open a form and begin entering data in its database table, display the form's name in the Navigation pane and then double-click the form's name. You can also right-click the name of the form and choose Open.

To enter data in a form, click the New (Blank) Record button. This button is located with the Navigation buttons at the bottom of the form window. A new, empty form appears. Start typing. Press the Tab key, press the Enter key, or click to move from field to field. You can move backward through the fields by pressing Shift+Tab. If you enter half a record and want to start over, press the Esc key to empty the current field. Press Esc again to empty all the fields.

The Navigation buttons at the bottom of the form window tell you how many records are in the database table and which record you're looking at. From left to right, the Navigation buttons take you to the first record, previous record, next record, and last record.

Finding a Missing Record

Sometimes data goes astray. You scroll through a datasheet but simply can't find the item or record you need so bad. For times like those, Access offers the Find command. Use the command to scour a database for errant information.

Open the database table with the data that needs finding. If you know in which field the data is located, click in the field. You can save a little time that way. Then, on the Home tab, click the Find button (or press Ctrl+F). You see the Find and Replace dialog box, as shown in Figure 3-4. Fill in the dialog box as follows:

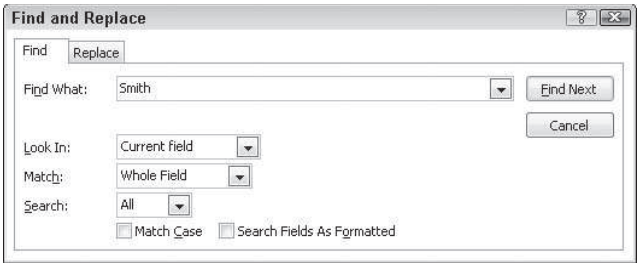


Figure 3-4: Finding data.

- **Find What:** Enter the item you're looking for. If you're looking for a null value, enter **null** in this text box. Enter **""** (two double-quotation marks) to find zero-length strings. Table 3-2 describes the wildcard characters you can use in searches.

To quickly find the first value of a search term, start typing in the Search box in the form window or in Datasheet view. As soon as you start typing, the cursor moves to the first instance of the data you enter.

Finding and Replacing Data

Finding and replacing data is remarkably similar to finding data. The difference is that you enter data in the Replace With text box as well as the familiar Find What text box and other option boxes. Figure 3-5 shows the Replace tab of the Find and Replace dialog box. Does it look familiar? If it doesn't, read the preceding topic in this chapter.

Figure 3-5: Replacing data.

To find and replace data, go to the Home tab and click the Replace button (or press Ctrl+H). You see the Replace tab of the Find and Replace dialog box. After you enter the replacement data in the Replace With text box, make sure that Whole Field is selected in the Match drop-down list. Conducting a find-and-replace operation with Any Part of Field or Start of Field selected in the Match drop-down list can have unintended consequences. For example, a search for *Brook* also finds *Brooklyn, Middlebrook,* and other words that include *brook.* Blindly replacing the *brook* text string with *stream* produces, for example, *Streamlyn* and *Middlestream.*

Unless you're as confident as a gambler with four aces, don't click the Replace All button to replace all instances of the text or numbers in the database table or field you're searching in. Instead, click the Replace button to find and replace text or numbers one instance at a time.

You can also find and replace data with an update query. Chapter 4 of this mini-book covers update queries.

Chapter 4: Sorting, Querying, and Filtering for Data

In This Chapter

- **Sorting, or rearranging, records in a database table**
- **Filtering records in a table to see only the records you need**
- **Querying to collect and examine information stored in a database**
- **Looking at different kinds of queries**

Now that you've laid the groundwork, you can put your database through its paces and make it do what databases are meant to do — provide information of one kind or another. This chapter explains how to pester a database for names, addresses, dates, statistical averages, and what not. It shows how to sort records and filter a database table to see records of a certain kind. You also find out how to query a database to get it to yield its dirty little secrets and invaluable information.

Sorting Records in a Database Table

Sorting rearranges records in a database table (or subdatasheet) so that the records appear in alphabetical, numerical, or date order in one field. By sorting the records in a database, you can locate records faster. What's more, being able to sort data means that you don't have to bother about the order in which you enter records because you can always sort them later to put them in a particular order.

Ascending versus descending sorts

Records can be sorted in ascending or descending order:

- **Ascending order:** Arranges records in alphabetical order from A to Z, numbers from smallest to largest, and dates chronologically from earliest to latest.
- **Descending order:** Arranges text from Z to A, numbers from largest to smallest, and dates chronologically from latest to earliest.

Sorting records

Follow these steps to sort the records in a database table:

1. **In Datasheet view, click anywhere in the field by which you want to sort the records.**

2. **On the Home tab, click the Ascending or Descending button.**

   You can also right-click a field name at the top of a column and choose Sort A to Z or Sort Z to A on the shortcut menu. The menu choices change based on the type of data. For Number fields, you can sort smallest to largest and vice versa; for Date fields, choose to sort oldest to newest, or vice versa.

You can sort on more than one field by clicking a field and sorting it, and then clicking a second field and sorting it. Just make sure that you sort the fields in reverse order. For example, to sort the database by the Employee, Customer, and Order ID fields, click in Order ID and sort it in ascending order; click in Customer and sort it in ascending order; click in Employee and sort it in ascending order. If you mess up and forget how the table is sorted, click the Remove Sort button. This button is located on the Home tab underneath the Sort A to Z and Sort Z to A buttons.

Filtering to Find Information

Filtering isolates all the records in a database table that have the same field values or nearly the same field values. Instead of all the records in the table appearing on the datasheet, only records that meet the filtering criteria appear, as shown in Figure 4-1.

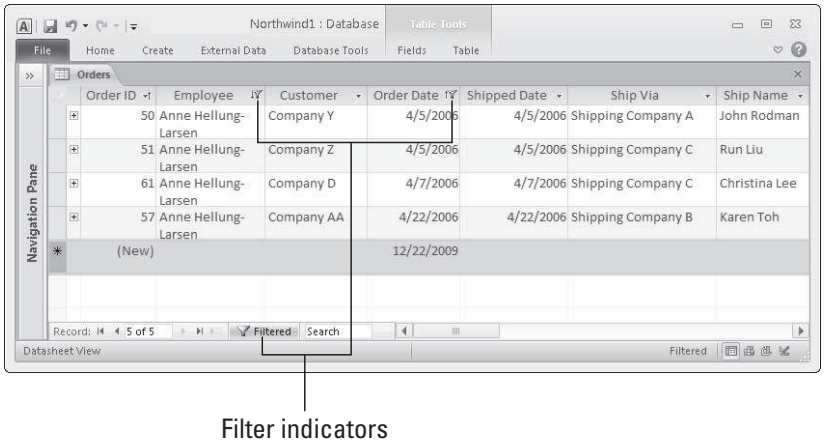


Figure 4-1: Results of a filtering operation.

Querying: The Basics

Querying means to ask a question of a database and get an answer in the form of records that meet the query criteria. Query when you want to ask a detailed question of a database. "Who lives in Los Angeles and donated more than $500 last year?" is an example of a query. So is "Which orders were purchased by people who live in California and therefore, have to pay sales tax, and how much sales tax was charged with these orders?" A query can search for information in more than one database table. For that matter, you can query other queries for information. A query can be as sophisticated or as simple as you need it to be. In the results of the query, you can show all the fields in a database table or only a few necessary fields.

Access offers several different ways to query a database (the different techniques are described later in this chapter in "Six Kinds of Queries"). Still, no matter which kind of query you're dealing with, the basics of creating and running a query are the same. You start on the Create tab to build new queries. To open a query you already created, double-click its name on the Navigation pane. The following pages introduce you to queries, how to create them, and how to modify them.

Creating a new query

To create a new query, start on the Create tab and click the Query Design or Query Wizard button.

- **Create the query in Design view:** Click the Query Design button to see the Query Design window, shown in Figure 4-4, as well as the Show Table dialog box for telling Access which database tables to query. Construct your query in the Design window (the following pages explain how).

- **Create the query with a wizard:** Click the Query Wizard button to display the New Query dialog box and then choose a wizard option (four possible Query Wizards are available) and answer the questions that the Query Wizard asks. You're asked which table or tables to query, which fields to include in the query, and which fields to include in the query results (the following pages explain these issues).

To run a query, open the query in the Query window, go to the (Query Tools) Design tab, and click the Run button. The results of the query appear in Datasheet view.

Access places number signs (#) around date criteria after you enter it. You can enter dates in these formats:

- 11/22/10
- 11/22/2010
- 22-Nov-10
- November 22, 2010

For the purpose of entering two-digit years in dates, the digits 30 through 99 belong to the 20th Century (1930–1999), but the digits 00 through 29 belong to the 21st Century (2000–2029). For example, *>4/1/24* refers to April 1, 2024, not April 1, 1924. To enter a date in 1929 or earlier, enter four digits rather than two to describe the year: >4/1/1929. To enter a date in 2030, or later, enter four digits rather than two: >4/1/2038. To avoid any confusion, enter four-digit years all the time.

The Date() function can come in very handy when you want to retrieve data relative to today's date, whatever it happens to be. For example, to retrieve purchase orders made between January 1, 2007, and today's date, enter this expression: **Between 1/1/2007 And Date()**.

At last — saving and running a query

To save a query and inscribe its name forever in the Navigation pane, click the Save button on the Quick Access toolbar and enter a descriptive name in the Save As dialog box. The name you enter appears in the Queries group in the Navigation pane.

After you laboriously construct your query, take it for a test drive. To run a query:

- **Starting from the Query Design window:** Click the Run button on the (Query Tools) Design tab.
- **Starting from the Navigation pane:** Double-click an existing query's name, or right-click its name and choose Open on the shortcut menu.

Six Kinds of Queries

For your pleasure and entertainment, the rest of this chapter describes six useful types of queries. Access offers a handful of other queries, but I won't go there. Those queries are pretty complicated. If you become adept at querying, however, you're invited to look into the Help system for advice about running the query types that aren't explained here.

Chapter 5: Presenting Data in a Report

In This Chapter

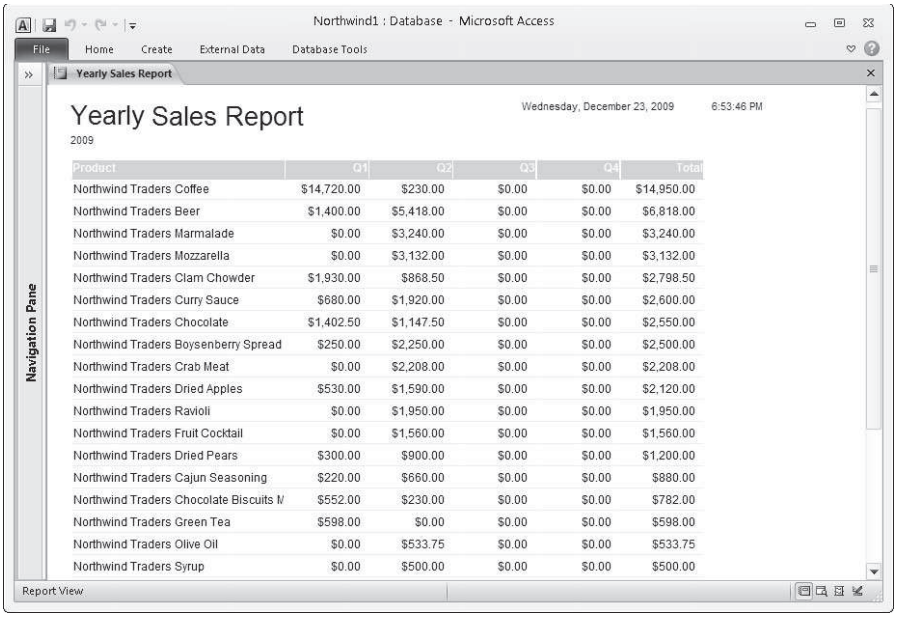
- **Creating a new report**
- **Opening a report**
- **Changing the look of a report**

The prettiest way to present data in a database table or query is to present it in a report. Even people who are allergic to databases can put up with database material in a report. Reports are easy to read and understand. They succinctly present the data so that you and others can interpret it. This brief chapter explains how to create reports, open them, and edit them.

Creating a Report

Access comes with all kinds of complicated tools for fashioning your own report — for laying out the pages in different ways and making data fields show up in different parts of the page. If ever a task called for relying on a wizard, creating a report is it. You can save yourself a lot of trouble, and fashion sophisticated-looking reports as well, by dispensing with the fancy report-making tools and letting the wizard do the job.

What's more, the easiest and best way to make a report is to base your report on a query. As part of fashioning a report with a wizard, you can tell Access which database tables and which fields to get the data from — in other words, you can query your database from inside the Report Wizard. However, doing that requires turning somersaults and cartwheels. It's far easier to run a query to produce the results you want in your report, save your query, and then fashion a report from the query results. Chapter 4 in this mini-book explains how to create a query.



Product	Q1	Q2	Q3	Q4	Total
Northwind Traders Coffee	$14,720.00	$230.00	$0.00	$0.00	$14,950.00
Northwind Traders Beer	$1,400.00	$5,418.00	$0.00	$0.00	$6,818.00
Northwind Traders Marmalade	$0.00	$3,240.00	$0.00	$0.00	$3,240.00
Northwind Traders Mozzarella	$0.00	$3,132.00	$0.00	$0.00	$3,132.00
Northwind Traders Clam Chowder	$1,930.00	$868.50	$0.00	$0.00	$2,798.50
Northwind Traders Curry Sauce	$680.00	$1,920.00	$0.00	$0.00	$2,600.00
Northwind Traders Chocolate	$1,402.50	$1,147.50	$0.00	$0.00	$2,550.00
Northwind Traders Boysenberry Spread	$250.00	$2,250.00	$0.00	$0.00	$2,500.00
Northwind Traders Crab Meat	$0.00	$2,208.00	$0.00	$0.00	$2,208.00
Northwind Traders Dried Apples	$530.00	$1,590.00	$0.00	$0.00	$2,120.00
Northwind Traders Ravioli	$0.00	$1,950.00	$0.00	$0.00	$1,950.00
Northwind Traders Fruit Cocktail	$0.00	$1,560.00	$0.00	$0.00	$1,560.00
Northwind Traders Dried Pears	$300.00	$900.00	$0.00	$0.00	$1,200.00
Northwind Traders Cajun Seasoning	$220.00	$660.00	$0.00	$0.00	$880.00
Northwind Traders Chocolate Biscuits M	$552.00	$230.00	$0.00	$0.00	$782.00
Northwind Traders Green Tea	$598.00	$0.00	$0.00	$0.00	$598.00
Northwind Traders Olive Oil	$0.00	$533.75	$0.00	$0.00	$533.75
Northwind Traders Syrup	$0.00	$500.00	$0.00	$0.00	$500.00

Figure 5-1: An example of a report.

Opening and Viewing Reports

If you've spent any time whatsoever in Access, you know the drill for opening a so-called object. Follow these steps to open a report:

1. **In the Navigation pane, select the Reports group.**

   You see the names of reports you created.

2. **Double-click a report name or right-click a name and choose Open from the shortcut menu.**

   The report appears in Report view.

To update a report so that it includes recently added data, go to the Home tab and click the Refresh All button.

Tweaking a Report

As I mention at the start of this chapter, Access offers a bunch of complex tools for changing the layout and appearance of a report. If you're courageous and have lots of time on your hands, you're invited to take these tools in hand and go to it. In the Reports group of the Navigation pane, right-click a report and choose Layout View on the shortcut menu. Your report appears in Layout view, as shown in Figure 5-2. In this view, using tools on the Report Layout Tools tabs, you can tweak your report's appearance.