Microsoft®

Understanding Field Properties in Access 2002
Student Edition

The Richard Stockton College of New Jersey
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Chapter One:
Working with Tables and Fields

Chapter Objectives:
• Understand and modify a table’s field properties
• Index a field and add a primary key to a table
• Change a field’s data type
• Format how information is displayed in a field
• Specify data validation options for a field
• Create a lookup field that lets you pick a field’s entry from a list of values

Chapter Task: Modify a table’s fields and join two related tables

Tables are by far the most important part of any database. Tables are where a database stores all of its information. All the other database objects—queries, forms, reports, pages, and macros—are merely tools to analyze, manipulate, and display the information stored in a table. Any of these other database objects are optional—but without tables, a database wouldn’t be a database.

If you are interested in creating your own databases, this may be the one of the most important chapters in the entire book. Why? Because, at their heart, the most useful and efficient databases use well-structured tables to store their information.

This chapter explains just about everything you will ever need to know about tables and fields: how to link two or more related tables, how to create indexes for faster performance, and how to create a primary key field, which uniquely identifies each record in a table. This chapter also explains how to change all the properties and settings for your tables’ fields, such as how they are formatted and what kind of information they can store.

Prerequisites
• How to use menus, toolbars, dialog boxes, and shortcut keystrokes.
• How to open and modify database objects.
• How to add and edit database records.
Lesson 1-1: Understanding Field Properties

A property is an attribute that defines an object’s appearance, behavior, or characteristics. For example, a car’s properties would include its color, make and model, and shape. A property for a numeric field might be the number of decimal places displayed or the maximum number of characters a field can hold.

Just about every object in Access—every heading on a report, every label on a form, every field in a table—has its own set of properties that you can view and change. This property concept might seem a little confusing at first, but it’s something you have to learn if you want to become proficient at using Microsoft Access. Because you can almost always change object properties, you can also sometimes think of an object’s properties as its settings.

Over half of this chapter is devoted to working with a table’s field properties so consider this your introduction to field properties and to properties in general.
1. Start Microsoft Access, if necessary, and the open the Lesson 4 database.
   To view and modify the Field Properties for a table you need to open the table in Design view.

2. Select the tblCustomers table and click the Database window’s Design button.
   As you can see in Figure 1-2, the table design window is broken into two sections. The top section contains the table’s field names and the bottom section displays the properties for the selected field. Simply click the field name whose field properties you want to view.

3. Click the LastName field name.
   The lower Field Properties section of the window displays the properties for the LastName field. To change a field property, simply click the property box you want to change and enter the new settings—simple.

Table 1-1: Important Field Properties describes all the field properties. Don’t worry if some of them seem confusing—you will get a lot of practice adjusting each and every one of these properties in this chapter. It’s important to note that certain types of fields have their own sets of properties. For example, number fields have a Decimal Places property while text fields do not.

<table>
<thead>
<tr>
<th>Field Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field Size</td>
<td>Text fields: The maximum number of characters (up to 255) that can be entered in the field. The default setting is 50. Number / Currency fields: Stores the number as a Byte, Integer, Long Integer, Single, Double, or Replication ID. The default setting is Long Integer.</td>
</tr>
<tr>
<td>Format</td>
<td>How the data in the field will be displayed on the screen.</td>
</tr>
<tr>
<td>Input Mask</td>
<td>Creates a format or pattern in which data must be entered.</td>
</tr>
<tr>
<td>Decimal Places</td>
<td>The number of decimal places in Number and Currency fields.</td>
</tr>
<tr>
<td>Caption</td>
<td>A label for the field that will appear on forms. If you don’t enter a caption, Access will use the field name as the caption.</td>
</tr>
<tr>
<td>Default Value</td>
<td>A value that Access enters automatically in the field for new records.</td>
</tr>
<tr>
<td>Validation Rule</td>
<td>An expression that limits the values that can be entered in the field.</td>
</tr>
<tr>
<td>Validation Text</td>
<td>The error message that appears when an incorrect or restricted value is entered in a field with a validation rule.</td>
</tr>
<tr>
<td>Required</td>
<td>Specify if a value must be entered in the field. The default is No.</td>
</tr>
<tr>
<td>Allow Zero Length</td>
<td>Specify if the field allows zero-length text strings (a string containing no characters). Zero-length text strings are useful if you must enter data in a field, but no data exists. For example, if a Social Security field requires data, but you don’t know the social security number, you enter a zero-length text string in the field. To enter a zero-length text string type &quot;&quot; in the cell. The cell will appear empty. The default is No.</td>
</tr>
<tr>
<td>Indexed</td>
<td>Specify if you want to index the field to speed up searches and sorts performed on the field. The default is No.</td>
</tr>
</tbody>
</table>
Lesson 1-2: Indexing a Field

1. Make sure you have the tblCustomers table open in Design View.
   Indexing a field is a simple one- or two-step operation. First you need to click the name of the field you want to index. The LastName field is a great index candidate because it is frequently used to find and sort information.

2. Click the LastName field name.
   The blinking cursor should appear in the LastName field name. Here’s how to index the selected field.

Just like an index in a book, when you index a field, it helps Access find and sort information quickly, especially in large tables. You can index any field in a table to dramatically speed up queries and sorts. When you sort or query a large table using an indexed field, Access finds or sorts the information by consulting the index instead of sifting through the entire table.

Here are some more important notes about indexes:

- Since indexes speed up searching and sorting, you should index the fields you frequently use to search or sort. For example, if you often search for specific last names, you should create an index for the LastName field.
- Don’t index too many of a table’s fields. The more fields you index, the slower your searches and sorts will be—defeating the entire purpose of indexes. Only index the fields you use to search and sort data.
- Any field can be indexed except memo, OLE, and hyperlink fields.
- Primary key fields are indexed automatically (we’ll discuss primary keys more in future lessons).
- If you choose, indexes can prevent duplicate entries in your table (for example, if you don’t want to allow two customers to have the same social security number).

This lesson will give you some practice adding indexes to your tables.
3. **Click the Indexed drop-down list in the Field Properties section, as shown in Figure 1-3.**

   The Indexed list gives you three choices:
   - **No**: The field is not indexed. This is the default setting.
   - **Yes (Duplicates OK)**: The field is indexed and Access will allow records in this field to have the same value.
   - **Yes (No Duplicates)**: The field is indexed and Access won’t allow records in this field to have the same value (for example, if you don’t want to allow two customers to have the same social security number).

   Most of the time you will want to choose the Yes (Duplicates OK) option. Since people may have the same last name the Yes (Duplicates OK) option is what you’ll want to use here.

4. **Select the Yes (Duplicates OK) option from the Indexed list.**

   Most of the time Access creates the index in a matter of seconds. If you have a huge table with thousands of records, it will take longer to create the index.

   Let’s try indexing another field. Since you do a lot of sorting by Zip Codes, you decide to index the ZipCode field as well.

5. **Click the ZipCode field name and then click the Indexed drop-down list.**

   Since people can (and do) live in the same Zip Code, you want to select the Yes (Duplicates OK) option.

6. **Select the Yes (Duplicates OK) option from the Indexed list.**

   You don’t need to index any of the other fields in this table, since you don’t use them as frequently in your sorts and queries. You do need to save the changes you’ve made to your table, however.

7. **Click the Save button on the toolbar to save the changes you’ve made to the table.**

   If you need to remove an index from a field, select the field, click the Indexed drop-down list and select the No option. Access will delete the field’s index.

---

### Quick Reference

**To Index a Field:**

1. Display the table in [Design View](#), and click a field you want as an index.
2. Click the Indexed box.
3. Click the drop-down arrow and select one of the following:
   - **Yes (Duplicates OK)** if you want to allow multiple records to have the same data in this field.
   - **Yes (No Duplicates)** if you want to ensure that no two records have the same data in this field.
Lesson 1-3: Adding a Primary Key to a Table

A primary key is a special kind of indexed field that uniquely identifies each record in a table. When you think about primary key fields, think unique—each primary key value must be the only one of its kind in a table. A customer ID or invoice number would be two good examples of fields that could be used as a table’s primary key.

Here are some things you need to know about primary keys:

- A table can have only one primary key.
- The values in the primary key fields must be unique. For this reason, many people use an AutoNumber field as their primary key. AutoNumber fields automatically add a new, unique number to each record in a table.
- Every table you create should have a primary key because it helps keep your data organized and easy to work with. In fact, if you create a table without a primary key, Access will ask if you want to add one. If you answer Yes, Access will create an AutoNumber field at the beginning of the table and set it as the primary key.
- The primary key field is automatically indexed.
- Yes/No, OLE, and hyperlink fields can’t be used as the primary key.
- The primary key is normally a single field, but two or more fields can act together as the primary key, so long as their combined values are unique. Such multifield keys are usually difficult and confusing to work with, however.
- Primary keys are especially important in creating relationships between tables.

So what makes a good primary key field? The most important consideration for a primary key is its uniqueness. A primary key field must always be different in every record, so you might be able use a Customer ID, Invoice Number, or Social Security Number field as your table’s primary key.
If a table doesn’t have a unique field that is suitable as the primary key (and most tables don’t), you can add an AutoNumber field to your table. The AutoNumber field will automatically add a new, unique number to each of the records in a table.

This lesson explains how to add a primary key to a table.

1. **Make sure the tblCustomers table is open in Design View.**
   First you need to click the name of the field you want to use as your primary key. If your table doesn’t have a natural primary key field, you will need to add one. AutoNumber fields make great primary keys.
   For this exercise we’ll use the CustomerID AutoNumber field as the table’s primary key.

2. **Click the CustomerID field name.**
   Now you can set the CustomerID field as the table’s primary key.

3. **Click the Primary Key button on the toolbar.**
   A key symbol (キー) appears next to the CustomerID field, indicating that it is the table’s primary key. Notice that Access also sets the Indexed field to “Yes (No Duplicates).” Access automatically indexes the CustomerID field so that sorts and queries using the field will be faster and so that you cannot enter duplicate values in the field.

4. **Click the Save button on the toolbar to save the changes you’ve made to the table.**
Lesson 1-4: Inserting, Deleting, and Reordering Fields

Figure 1-5
The procedure for changing the order of fields in a table.

You can insert, delete, and reorder fields in your tables in Design View. Remember that in Design View, for tables, each row corresponds to a field. You add a field by inserting a new row and delete a field by deleting its corresponding row.

1. **Open the tblCustomers table in Design View.**
   To insert a new field, you must first click the row selector for the field that will appear below the new field you want to insert.

2. **Click the row selector for the Phone field. Press <Insert> to add a blank field.**
   Now all you have to do is give the new row a name and specify its data type.

3. **Click the Field Name box for the new row and type MI.**
   You’ve added a new field. Now let’s see how to rearrange the order of fields in a table.

4. **Click the MI row selector to select the MI field.**
   Now you can move the selected MI row.

5. **Click and drag the MI row selector down before the City row, as shown in Figure 1-5.**
   Finally, here’s how to delete a field:

6. **With the MI field still selected, press <Delete> to delete the selected field.**
   Access deletes the MI field from the tblCustomers table.
Great! In a very short lesson you’ve learned three new table skills.

Quick Reference

To Insert a Row:
1. Click the row selector for the field that will be below the new field you want to insert.
2. Press <Insert>.

To Change the Order of Fields in a Table:
1. Click the row selector for the field you want to move.
2. Click and drag the selected row to the desired location.

To Delete a Field from a Table:
1. Click the row selector for the field and press <Delete>.
Lesson 1-5: Changing a Field's Data Type

Because there are so many different types of data, Access offers several different types of fields. A field’s data type determines the type of information that can be stored in a field. Table 1-2: Data Types lists the various data types available in Access. A field’s data type helps prevent data-entry errors because it restricts what type of information you can enter in a field. For example, you cannot enter text in a number data-type field.

If you’ve been working with Access for a while, you probably already know some of this stuff. Just consider this lesson a quick review.

1. Make sure the tblCustomers table is open in Design View.
   First you need to select the field whose data type you want to change.

2. Click the DOB field name.
   The blinking cursor should appear in the DOB field name. Since the DOB field stores the employee’s date of birth, it should be a Date/Time field instead of a Text field.
   Here’s how to change a field’s data type:

3. Click the Data Type area next to the DOB field.
   A down arrow appears on the right side of the DOB Data Type box.

4. Click the DOB Data Type arrow and select Date/Time from the list.
   The DOB field will now only accept date and time information. The new Date/Time data type also makes your database more flexible and powerful because now you can sort birthdays by date or use a person’s birthday in a calculation—for example, to determine a person’s age.

Once you have finished modifying a table, you have to save your changes.
5. Click the Save button on the toolbar to save your changes.

Table 1-2: Data Types

<table>
<thead>
<tr>
<th>Data Type</th>
<th>Example</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text</td>
<td>Legal Name: John Doe</td>
<td>Stores text, numbers, or a combination of both, up to 255 characters long. Text fields are the most common of all data types.</td>
</tr>
<tr>
<td>Memo</td>
<td>Notes: Sally displays a high amount of...</td>
<td>Stores long text entries—up to 64,000 characters long (the equivalent of 18 pages of text!). Use memo fields to store notes or anything else that requires lots of space.</td>
</tr>
<tr>
<td>Number</td>
<td>Age: 31</td>
<td>Stores numbers that can be used in calculations.</td>
</tr>
<tr>
<td>Date/Time</td>
<td>Birthday: April 7, 1969</td>
<td>Stores dates, times, or both.</td>
</tr>
<tr>
<td>Currency</td>
<td>Price: $84.95</td>
<td>Stores numbers and symbols that represent money.</td>
</tr>
<tr>
<td>AutoNumber</td>
<td>Invoice Number: 187001</td>
<td>Automatically fills in a unique number for each record. Many tables often contain an AutoNumber field that is also used as their primary key.</td>
</tr>
<tr>
<td>Yes/No</td>
<td>Smoker?: Yes</td>
<td>Stores only one of two values, such as Yes or No, True or False, etc.</td>
</tr>
<tr>
<td>OLE Object</td>
<td>Photo:</td>
<td>Stores objects created in other programs such as a graphic, Excel spreadsheet, or Word document.</td>
</tr>
<tr>
<td>Hyperlink</td>
<td>Web Site: <a href="http://www.amazon.com">www.amazon.com</a></td>
<td>Stores clickable links to files on your computer, on the network, or to Web pages on the Internet.</td>
</tr>
<tr>
<td>Lookup Wizard</td>
<td>Purpose of Trip:</td>
<td>A wizard that helps you create a field whose values are selected from another table, query, or a preset list of values.</td>
</tr>
</tbody>
</table>

Quick Reference

To Change the Data Type for a Field:
1. Display the table in Design View.
2. Click the field’s Data Type box, click the Data Type list arrow, and select the data type.
Lesson 1-6: Using Field Descriptions

1. Make sure the tblCustomers table is open in Design View.
   First you need to select the field where you want to add a description.

2. Click the Description box for the LastName field.
   Now you can add description to the LastName field that will appear in the Status bar whenever the LastName field is selected.

3. Type Enter the Customer’s Last Name.
   Let’s add a description to the FirstName field as well.

4. Click the Description box for the FirstName field and type Enter the Customer’s First Name.
   Let’s see how the new captions look.

5. Click the Save button on the toolbar to save your changes, then click the View button to display the table in Datasheet View.
   You will need to scroll to the right to see the captions.

6. Click anywhere in the LastName field.
   The Status bar displays the field’s description, as shown in Figure 1-8.

Quick Reference
To Add a Description to a Field:
- Display the table in Design View, click the field’s Description box, and type the description.

Figure 1-7
A field’s description lets you provide your database users with onscreen prompts and instructions.

Figure 1-8
A field’s description appears in the Status bar whenever you select the field.

Descriptions make your database fields easier to fill out and use by providing users with onscreen instructions and help. Whenever a user selects a field, anything you type in that field’s Description box will appear in the Status bar. There really isn’t anything to adding a description to a field—just type the text you want to appear in the field’s Description box.
Lesson 1-7: Adding a Caption

Think of the Caption property as a field’s pseudonym or stage name. When you create forms and reports, Access uses the field’s Field Name as the field’s heading. When you add a caption to a field, however, it appears as the heading for the field instead of the field name. Captions are useful when you want to provide more detailed headings for your field names. For example, instead of displaying the rather unclear DOB field name, you could add a more meaningful “Date of Birth” caption to the DOB field to make your forms and reports easier to read and understand. The original DOB field name is not affected in any way.

This lesson explains how to add a Caption to a field.

1. Make sure the tblCustomers table is open in Design View.
   The tblCustomers table contains two unclearly labeled fields that could use captions: the DOB (date of birth) and SSN (social security number) fields. You probably already know the first step by now—click the name of the field where you want to add the caption.

2. Click the DOB field name.
   Now you can add a more meaningful caption to the DOB field that will appear as the field’s heading.

3. Click the Caption box in the Field Properties section and type Date of Birth.
   Next add a caption to the SSN field.

4. Click the SSN field name, click the Caption box in the Field Properties section, and type Social Security No.
   Let’s see how the new captions look.

5. Click the Save button on the toolbar to save your changes, then click the View button to display the table in Datasheet View.
   You will need to scroll to the right to see the captions.
Lesson 1-8: Changing the Field Size

The Field Size property determines the maximum number of characters the field will accept.

Field sizes work a little differently for text and number fields. In text fields, the Field Size property determines the maximum number of characters the field can accept, as shown in Figure 1-11. In numbers fields, the Field Size property determines what type of number the field will accept.

In this lesson you will change the size of a table’s fields.

1. **Make sure the tblCustomers table is open in Design View.**
   You probably already know the first step by now—click the name of the field whose property you want to change.

2. **Click the State field name.**
   Now change the State’s field size.

3. **Click the Field Size box in the Field Properties section and type 2.**
   The State field can now only accept a maximum of two characters so that users will have to enter standard two-digit state abbreviations.
   Let’s try changing the size of another field.

4. **Click the ZipCode field name.**
   Notice that the ZipCode’s field size is set at 50. We probably won’t have any 50-digit Zip Codes for at least a few more years so you can safely change the field size to a smaller number.

5. Click the **Field Size box** in the Field Properties section and type **11**.

The ZipCode field will now accept no more than 11 digits.

**NOTE:** Be very careful when you’re changing the Field Size of a field that already contains data. Access will truncate or delete data that is larger than the new field size.

6. Click the **Save button** on the toolbar to save your changes, click **Yes** to confirm the change, and close the table.

If you are working with a number field, the Field Size property determines the type and size of the number that a field will accept, as shown in the following table.

### Table 1-3: Available Number Field Sizes

<table>
<thead>
<tr>
<th>Heading</th>
<th>Number Range</th>
<th>Decimal Places</th>
<th>Storage Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Byte</td>
<td>0 to 255</td>
<td>None</td>
<td>1 byte</td>
</tr>
<tr>
<td>Integer</td>
<td>-32,768 to 32,767</td>
<td>None</td>
<td>2 bytes</td>
</tr>
<tr>
<td>Long Integer</td>
<td>-2.1×10^{38} to 2.1×10^{38}</td>
<td>None</td>
<td>4 bytes</td>
</tr>
<tr>
<td>Single</td>
<td>-3.4×10^{38} to 3.4×10^{38}</td>
<td>7</td>
<td>4 bytes</td>
</tr>
<tr>
<td>Double</td>
<td>-1.8×10^{308} to 1.8×10^{308}</td>
<td>15</td>
<td>8 bytes</td>
</tr>
<tr>
<td>Replication ID</td>
<td>N/A</td>
<td>N/A</td>
<td>16 bytes</td>
</tr>
</tbody>
</table>

**Quick Reference**

To Change the Field Size:

1. Display the table in **Design View** and click the field in the field list.
2. Click the **Field Size box** in the Field Properties section.
3. **For Text Fields:** Type the Field Size value.
   **For Number Fields:** Choose the value from the drop-down list.
Lesson 1-9: Formatting Number, Currency, and Date/Time Fields

A field’s Format property changes how information appears in the field. The Format property only changes how data is displayed on the screen, not how the data is actually stored in the field. For example, a date field could be formatted to display the same value as 6/10/2000; Saturday, June 10, 2000; or 10-Jun-00. Each field type has its own set of formats. For example, number fields have a different set of formats than date/time or text fields.

This lesson explains how to format number, currency, and date/time fields. There are two ways to format a number, currency and date/time field:

- By selecting a ready-made format from the Format drop-down list (the easy way).
- By typing a series of formatting characters in the Format box (the hard way).

Hopefully, the ready-made formats listed in Table 1-4: Number, Currency, and Date/Time Formats will be all you will ever need to format your fields. This lesson explains how to format number, currency, and date/time fields by selecting a ready-made format.

1. Open the tblCustomerTours table.

   Let’s take a look at how the number and date fields in this table are currently formatted. Notice that the Cost currency field has two decimal places and that the Date field displays its dates in the 1/1/2000 format.

   **NOTE:** If you haven’t installed any Year 2000 updates, such as the Microsoft Office 97 Service Pack 2, your dates may be displayed in 1/1/00 format. If this is the case, you should visit the Microsoft Office Update Web site, located at www.officeupdate.com, and download Microsoft Office 97 Service Pack 2.

2. Switch to Design View by clicking the View button on the toolbar.

   Now you can change the formats of the fields in the tblCustomerTours table.
3. Click the **Date field name** and click the **Format box** in the Field Properties section.

A downward-pointing arrow appears in the Date Format box. You can format this field the easy way by clicking the arrow to select from one of the ready-made number formats shown in Table 1-4: Number, Currency, and Date/Time Formats.

4. Click the **Format drop-down list** and select **Medium Date**.

The Date field will now display its dates in 1-Jan-00 format instead of the 1/1/2000 format.

You can also specify how many decimal places you want numbers in a field to display. To change the number of decimal places in a number field, you enter the number of decimal places you want displayed in the Decimal Places box.

5. Click the **Cost field**, click the **Decimal Places drop-down list**, and select **0**.

The Cost field will not display any decimal places. Access will round any decimals equal to or greater than five to the next number.

**NOTE:** The Decimal Places property setting has no effect if the Format property is blank or is set to General Number.

**NOTE:** The Decimal Places property affects only the number of decimal places that are displayed, not how many decimal places are stored.

You’ll need to save the table before you can view your new Format settings.

6. Click the **Save button** on the toolbar to save your changes.

Now let’s see how the fields look with their new formats.

7. **Switch to Datasheet View** by clicking the **View button** on the toolbar.

Notice the Date field now displays dates in a 1-Jan-00 format and the Cost field no longer has any decimal places.

Here’s a list of ready-made number, currency, and date/time formats you can choose from. These standard formats should be all that you’ll ever need—if not, take a look at the lesson on formatting number, currency, and date/time fields by hand.

### Table 1-4: Number, Currency, and Date/Time Formats

<table>
<thead>
<tr>
<th><strong>Number Format</strong></th>
<th><strong>Example</strong></th>
<th><strong>Date/Time Format</strong></th>
<th><strong>Example</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>General Number</td>
<td>1234.567</td>
<td>General Date</td>
<td>6/10/2000 6:35:21 PM</td>
</tr>
<tr>
<td>Currency</td>
<td>$1,234.57</td>
<td>Long Date</td>
<td>Saturday, June 10, 2000</td>
</tr>
<tr>
<td>Euro</td>
<td>€1,234.57</td>
<td>Medium Date</td>
<td>10-Jun-00</td>
</tr>
<tr>
<td>Fixed</td>
<td>1234.57</td>
<td>Short Date</td>
<td>6/10/2000</td>
</tr>
<tr>
<td>Standard</td>
<td>1,234.57</td>
<td>Long Time</td>
<td>6:35:21 PM</td>
</tr>
<tr>
<td>Percent</td>
<td>123456.70%</td>
<td>Medium Time</td>
<td>6:35 PM</td>
</tr>
<tr>
<td>Scientific</td>
<td>1.23E+03</td>
<td>Short Time</td>
<td>18:35</td>
</tr>
</tbody>
</table>

---

### Quick Reference

**To Format Number and Currency Fields:**

1. Display the table in **Design View** and click the field in the field list.
2. Click the **Format box** in the Field Properties section.
3. Click the **Format drop-down arrow** and select a number format.

**To Change the Number of Decimal Places:**

1. Display the table in **Design View** and click the field in the field list.
2. Click the **Decimal Places box** in the Field Properties section.
3. Click the **Decimal Places drop-down arrow** and select the number of decimal places you want to display.
Lesson 1-10: Formatting Number, Currency, and Date/Time Fields by Hand

If none of the ready-made number, currency, or date/time formats meets your needs, you can format your number, currency, and date/time fields the old-fashioned way—by hand. Formatting fields by hand is a laborious and confusing process—you tell Access how you want the field to be formatted by typing the formatting characters listed in Table 1-5: Number, Currency, and Date/Time Formatting Characters. On the other hand, manually formatting a number, currency, or date/time field gives you complete flexibility on how the field displays its information.

In this lesson you will learn how to format number, currency, and date/time fields by hand.

1. **Make sure the tblCustomerTours table is open in Design View.**
   First you have to click the name of the field you want to format.

2. **Click the Date field name.**
   This time we will specify our own date/time format instead of using one of the Format Property box’s ready-made data formats. Formatting number, currency, and date/time fields by hand isn’t exactly a difficult process, but you will probably need to use the reference on the next page to know which formatting characters to enter.

3. **Click the Format box in the Field Properties section and type `ddd mmm d`.**
   This will display the date in Sun Mar 8 format. Look at Table 1-5: Number, Currency, and Date/Time Formatting Characters for a description of the characters you just entered.

4. **Click the Save button on the toolbar to save your changes, and then switch to Datasheet View by clicking the View button on the toolbar.**
   Notice the Date field now displays its days using the Date format you specified.
5. Close the tblCustomerTours table.

Use the following characters when you want to format number, currency, or date/time characters by hand. You can mix and match any of the following characters. For example, you could add “mmmm” (full name of month) to “yy” (last two digits of the year) to get January 00.

Table 1-5: Number, Currency, and Date/Time Formatting Characters

<table>
<thead>
<tr>
<th>Date/Time Formatting Characters</th>
<th>Character</th>
<th>Description</th>
<th>Format</th>
<th>Display</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time separator</td>
<td>:</td>
<td>h:nn</td>
<td>8:45</td>
<td></td>
</tr>
<tr>
<td>Date separator</td>
<td>/</td>
<td>m/d/yy</td>
<td>10/8/00</td>
<td></td>
</tr>
<tr>
<td>Date separator</td>
<td>-</td>
<td>m-d-yy</td>
<td>10-8-00</td>
<td></td>
</tr>
<tr>
<td>Day in one or two numeric digits</td>
<td>d</td>
<td>m/d/yy</td>
<td>10/8/00</td>
<td></td>
</tr>
<tr>
<td>Day in two numeric digits</td>
<td>dd</td>
<td>m/dd/yy</td>
<td>10/08/00</td>
<td></td>
</tr>
<tr>
<td>First three letters of the weekday</td>
<td>dddd</td>
<td>ddd, m/dd/yy</td>
<td>Sun, 3/8/00</td>
<td></td>
</tr>
<tr>
<td>Full name of the weekday</td>
<td>ddddd</td>
<td>dddd, m/dd/yy</td>
<td>Sunday, 3/8/00</td>
<td></td>
</tr>
<tr>
<td>Month in one or two digits</td>
<td>m</td>
<td>m/d/yy</td>
<td>3/15/00</td>
<td></td>
</tr>
<tr>
<td>Month in two digits</td>
<td>mm</td>
<td>mm/dd/yy</td>
<td>03/15/00</td>
<td></td>
</tr>
<tr>
<td>First three letters of the month</td>
<td>mmm</td>
<td>mmm-d-yy</td>
<td>Mar-15-00</td>
<td></td>
</tr>
<tr>
<td>Full name of the month</td>
<td>mmmm</td>
<td>mmmm d, yyyy</td>
<td>March 15, 2000</td>
<td></td>
</tr>
<tr>
<td>Last two digits of the year</td>
<td>yyyy</td>
<td>m/dd/yy</td>
<td>3/15/00</td>
<td></td>
</tr>
<tr>
<td>Full year</td>
<td>yyyy</td>
<td>mmmm d, yyyy</td>
<td>March 15, 2000</td>
<td></td>
</tr>
<tr>
<td>Hour in one or two digits</td>
<td>h</td>
<td>h:n</td>
<td>8:45</td>
<td></td>
</tr>
<tr>
<td>Hour in two digits</td>
<td>hh</td>
<td>hh:nn</td>
<td>08:45</td>
<td></td>
</tr>
<tr>
<td>Minute in two digits</td>
<td>nn</td>
<td>hh:nn</td>
<td>13:09</td>
<td></td>
</tr>
<tr>
<td>Second in two digits</td>
<td>ss</td>
<td>hh:nn:ss</td>
<td>10:45:07</td>
<td></td>
</tr>
<tr>
<td>Twelve-hour clock (uppercase)</td>
<td>AM/PM</td>
<td>hh:mm AM/PM</td>
<td>08:45 AM</td>
<td></td>
</tr>
<tr>
<td>Twelve-hour clock (lowercase)</td>
<td>am/pm</td>
<td>hh:mm am/pm</td>
<td>08:45 am</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number Formatting Symbols</th>
<th>Character</th>
<th>Description</th>
<th>Data</th>
<th>Format</th>
<th>Display</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display a digit or nothing</td>
<td>#</td>
<td>#</td>
<td>50</td>
<td>#</td>
<td>50</td>
</tr>
<tr>
<td>Display a digit or 0</td>
<td>0</td>
<td>.00</td>
<td>50</td>
<td>.00</td>
<td>50.00</td>
</tr>
<tr>
<td>Display a decimal separator</td>
<td>,</td>
<td>.</td>
<td>50</td>
<td>.</td>
<td>50.</td>
</tr>
<tr>
<td>Display thousands separator</td>
<td>,</td>
<td>.####</td>
<td>5000</td>
<td>.####</td>
<td>5,000</td>
</tr>
<tr>
<td>Display the $ currency symbol</td>
<td>$</td>
<td>$#.00</td>
<td>50</td>
<td>$#.00</td>
<td>$50.00</td>
</tr>
<tr>
<td>Multiply the value by 100 and add a percent sign</td>
<td>%</td>
<td>%</td>
<td>0.5</td>
<td>%</td>
<td>50%</td>
</tr>
<tr>
<td>Scientific notation</td>
<td>E, E+, e, e+</td>
<td>#.00E+00</td>
<td>500000</td>
<td>#.00E+00</td>
<td>5.00E+05</td>
</tr>
</tbody>
</table>

Quick Reference

To Manually Format a Number, Date, or Currency Field:
1. Display the table in Design View and click the field in the field list.
2. Click the Format box in the Field Properties section.
3. Enter the appropriate formatting codes for how you want the date or number to be formatted.
Lesson 1-11: Formatting Text Fields

Just like number, currency, and date/time fields, a text field’s Format property changes how information appears in the field. The Format property only changes how data is displayed on screen, not how the data is actually stored in the field.

Unfortunately, unlike number fields, text fields don’t have any ready-made settings built into them and must be formatted manually. Luckily, text fields don’t have nearly as many formatting options as number, currency, and date/time fields. The most common of these text formatting characters are the greater than symbol (>), which makes all text in the field appear in uppercase, and the less than symbol (<), which makes all text in the field appear in lowercase, regardless of how it was entered. In both cases, Access actually stores the data exactly as it was typed.

This lesson will give you some practice formatting text fields.

1. **Open the tblCustomers table in Datasheet View.**
   First enter a sample record.

2. **Add a new record to the Customers table that contains your own personal information. When you reach the State field, enter the state abbreviation in lowercase letters.**
   Move on to the next step when you have finished entering your record into the table.

3. **Click the View button on the toolbar to display the table in Design View.**
   Access displays the tblCustomers table in Design View. First you have to click the name of the field you want to format.

4. **Click the State field name.**
   You can make sure that the contents of the State field are always capitalized by adding a greater than symbol (>) to the Format box.
5. Click the Format box in the Field Properties section and type a greater than symbol (>).
   Access will display the contents of the State field in uppercase, even if it was entered in lowercase.
   
   **NOTE:** Remember that the Format property only changes how data is displayed on screen, not how the data is actually stored in the field.

6. Click the Save button on the toolbar to save your changes.

7. Switch to Datasheet View by clicking the View button on the toolbar.
   Notice that the lowercase state abbreviation you entered back in Step 2 now appears in uppercase.

The table below contains formatting options for text fields.

### Table 1-6: General and Text Formatting Symbols

<table>
<thead>
<tr>
<th>Character</th>
<th>Description</th>
<th>Text</th>
<th>Format</th>
<th>Display</th>
</tr>
</thead>
<tbody>
<tr>
<td>!</td>
<td>Aligns text from the right</td>
<td>Hello</td>
<td>!</td>
<td>Hello</td>
</tr>
<tr>
<td>&lt;</td>
<td>Lowercase</td>
<td>Hello</td>
<td>&lt;</td>
<td>hello</td>
</tr>
<tr>
<td>&gt;</td>
<td>Uppercase</td>
<td>Hello</td>
<td>&gt;</td>
<td>HELLO</td>
</tr>
<tr>
<td>&quot;ABC&quot;</td>
<td>Always displays quoted text</td>
<td>4</td>
<td>&amp;&quot; oz.&quot;</td>
<td>4 oz.</td>
</tr>
<tr>
<td>@</td>
<td>Character is required</td>
<td>5558000</td>
<td>@@@-@@@</td>
<td>555-8000</td>
</tr>
<tr>
<td>*</td>
<td>Fill available space with next character</td>
<td>Alert</td>
<td>&amp;!*</td>
<td>Alert!!!!!!!!!</td>
</tr>
<tr>
<td>[color]</td>
<td>Displays value in color</td>
<td>Hello</td>
<td>[red]</td>
<td>Hello</td>
</tr>
</tbody>
</table>
Lesson 1-12: Setting a Default Value

Figure 1-15
A field's default value is automatically entered in the field whenever you add a new record.

Figure 1-16
The default value for the State field automatically appears in a new record.

You can enter a default value to specify a value that is automatically entered in a field when a new record is created. For example, if most of your clients are from Texas, you could set the default value for the State field to “TX.” When a user adds a record to the table, they can either accept the “TX” default value for the State field or enter their own value.

1. Make sure the tblCustomers table is open in Design View.
   Since the majority of your customers are from Minnesota, you decide to add “MN” as the default value for the State field.

2. Click the State field name.
   Now you can add a default value to the State field.

3. Click the Default Value box and type MN, as shown in Figure 1-15.
   Let’s see how the new default value works.

4. Click the Save button on the toolbar to save your changes, and then click the View button to display the table in Datasheet View.
   You will need to add a new record in order to see any default values.

5. Click the New Record button on the Record Navigation bar.
   Access adds a new blank record to the table. Notice that the State field already contains the “MN” default value. If the customer is from another state, you can simply replace the default value with your own data.

Quick Reference
To Enter a Default Value for a Field:
1. Display the table in Design View and click the field in the field list.
2. Click the Default Value box in the Field Properties section.
3. Enter the default value you want to appear in the field for new records.
Lesson 1-13: Requiring Data Entry

In most tables, there are usually at least a few fields that absolutely must contain data in order for the record to be meaningful. For example, at the absolute minimum, a customer record needs to have the customer’s first and last name—otherwise, why bother entering it? You can specify that a field must contain data to prevent users from leaving out important information when they are entering data.

This lesson explains how you can make sure that a field has a value for each record.

1. **Make sure the tblCustomers table is open in Design View.**
   You decide to specify that the LastName field must contain data for each record.

2. **Click the LastName field name.**
   Here’s how to prevent a user from leaving out a data in a field.

3. **Click the Required drop-down list and select Yes.**
   Let’s see how the new default value works.

4. **Click the Save button on the toolbar to save your changes, click No to close message about testing existing data, and then click the View button to display the table in Datasheet View.**
   You will need to add a new record in order to see any default values.

5. **Click the New Record button on the Record Navigation bar.**
   Access adds a new blank record to the table.

6. **Enter a new record with your own information. Leave the LastName field blank, however.**
   Let’s see what happens…

7. **When you have finished entering the record, click in any other record or press <Ctrl> + <Enter> to save the record.**
   Access displays a dialog box that states that the LastName field cannot contain a null value.

8. **Click OK and press <Esc> to cancel the new record.**
Lesson 1-14: Validating Data

Without a doubt, data validation is the most powerful tool you can use to prevent data-entry errors. With data validation, Access actually tests data to make sure that it conforms to what you want to appear in the table. If the incoming data doesn’t meet your requirements, Access kicks it out and displays an error message.

Data validation works best in number, currency, and date/time fields. You can create a validation rule for text entries, but doing so can be complicated—especially if you want to test a lot of text variables.

There are actually two boxes that relate to data validation. They are the:

- **Validation Rule box**: Use to specify the requirements for data entered into the field.
- **Validation Text box**: Use to specify the message to be displayed to the user when data is entered that violates the validation rule.

Creating data validation rules can be a little tricky—you create a data validation using the same hard-to-remember operators that you use in filters and queries. Table 1-7: Data Validation Examples contains some data validations that you can modify and use in your tables.

1. **Make sure the tblCustomers table is open in Design View.**
   
   You decide to specify that the DOB field cannot be later than today’s date. (We can’t have any people with birthdays in the future, can we?)

2. **Click the DOB field name.**

   Before we get started, you need to make sure that the DOB is a Date/Time field—you should have changed this in a previous lesson.
3. Verify that the DOB field’s Data Type is set to Date/Time.
   First you need to enter a validation rule.

4. Click the Validation Rule box and type `<Date()`.
   The validation rule you just entered will prevent users from entering dates later than
   today’s date in the DOB field. Next you have to specify the error message that Access
   will display if someone tries to break your validation rule by entering a future date.

5. Click the Validation Text box and type `Date must not be later
   than today’s date`.
   Let’s test our new data validation rule.

6. Click the Save button on the toolbar to save your changes, click No to
   close message about testing existing data, and then click the View
   button to display the table in Datasheet View.
   Data validation rules apply to both new and existing records. Move on to the next step
   and try modifying a record so that it breaks our data-validation rule.

7. Click the DOB field for any record. Try changing the date to a future date
   that falls after today.
   When you try to violate the validation rule, Access displays the Validation Text you
   entered back in Step 5, as shown in Figure 1-19.

8. Click OK and press <Esc> to cancel the change.
   Consider the following table your data-validation “cheat sheet.” It contains samples of the
   most common types of validation rules. Feel free to copy, modify, or mix and match these
   examples to create your own validation rules.

### Table 1-7: Data Validation Examples

<table>
<thead>
<tr>
<th>Validation Rule</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>&lt;100</code></td>
<td>Must be less than 100.</td>
</tr>
<tr>
<td><code>&lt;=100</code></td>
<td>Must be equal to or less than 100.</td>
</tr>
<tr>
<td>Between 1 and 10</td>
<td>Must be between 1 and 10.</td>
</tr>
<tr>
<td><code>&lt;0</code></td>
<td>Must not equal 0.</td>
</tr>
<tr>
<td><code>&lt;1/1/95</code></td>
<td>Must be a date before 1/1/95.</td>
</tr>
<tr>
<td><code>&gt;= Date()</code></td>
<td>Must be today’s date or later.</td>
</tr>
<tr>
<td><code>&lt;= Date()</code></td>
<td>Must be today’s date or earlier.</td>
</tr>
<tr>
<td>&quot;Business&quot; Or &quot;Pleasure&quot; Or &quot;Other&quot;</td>
<td>Must be “Business” or “Pleasure” or “Other.”</td>
</tr>
<tr>
<td>Like &quot;??&quot;</td>
<td>Must have two characters.</td>
</tr>
<tr>
<td>Like &quot;####&quot;</td>
<td>Must have four numbers.</td>
</tr>
</tbody>
</table>

Quick Reference

To Validate Field Data:
1. Display the table in Design View and click the field in the field list.
2. Click the Validation Rule box in the Field Properties section.
3. Enter an expression you want to use to validate the field’s data (see Table 1-7: Data Validation Examples).
4. Click the Validation Text box in the Field Properties section.
5. Type the text that Access will display when the user tries to enter incorrect data for the field.
Lesson 1-15: Creating an Input Mask

An **Input Mask** limits the amount and type of information that can be entered in a field. You have probably already seen an example of an input mask on an ordinary paper form—the type of form that assumes you're too dimwitted to know how to write down your phone number or social security number and thus provides you with a guide like ___-___-_____ or ____-____-_____. Look familiar? That's an input mask, pure and simple.

There are two ways to create an input mask:

- Click the **Build button** and have the Input Mask Wizard create the input mask for you (the fast and easy way). The only problem with the Input Mask Wizard is that it can only help you create input masks for phone numbers, social security numbers, Zip Codes, and date and time fields.
- Create the input mask yourself by typing a series of characters in the Input Mask box (the hard way). If you want to use this brutal method, refer to Table 1-8: **Input Mask Characters** to see what you have to enter to create an input mask.

In this lesson you will learn how to use the Input Mask Wizard to add an input mask to a field.

1. **Make sure the tblCustomers table is open in Design view.**
   You decide to create an input mask for the Phone field to reduce data entry errors and to remind users to enter the area code.

2. **Click the Phone field name.**
   A button appears next to the Input Mask box—click this button to start the Input Mask Wizard.
   Now let's look at the Input mask property…

3. **Click the Input Mask box.**
   A button appears next to the Input Mask box—click this button to start the Input Mask Wizard.

4. **Click Build button to start the Input Mask Wizard.**
   The first step of the Input Mask Wizard appears, as shown in Figure 1-20. All you need to do here is select the input mask you want to choose.

---

**Note:** Depending on your configuration, the Input Mask Wizard may not be installed on your computer. To install it, reinstall Microsoft Access and ensure that you select the **Additional Wizards** option.
If you want to try an input mask to see how it works, click the input mask you want to use and then type some sample text in the Try It box.

5. **Click the Phone Number input mask and then try typing a phone number in the Try It box. Click Next when you're finished.**

The next step of the Input Wizard appears. If you want, you can select a different placeholder to use than the default underscore (__) character.

6. **Click Next.**

The next step of the Input Wizard is quite important—you have to specify how Access should store your data. You have two choices:

- **With the Symbols in the Mask**
  This will store only the text you type in the field and the input mask symbols. For example, if you enter 5555555555 in a Phone field, Access will save the input mask symbols with the text you enter, so (555) 555-5555 would be saved.

- **Without the Symbols in the Mask**
  This will store only the text you type in the field. For example, if you enter 5555555555 in a Phone field, Access will display (555) 555-5555 but only store the numbers you typed (5555555555).

This may not seem like much of an issue, and it’s not unless you want to export your table. Then you will have to work with the results of the decision you made here: the phone numbers will be in either 5555555555 or (555) 555-5555 format.

7. **Select the With the Symbols in the Mask option and click Next.**

That’s it! You’re ready to create your input mask!

8. **Click Finish to create the input mask.**

The Input Mask Wizard creates an input mask for the field.

Creating an input mask by hand is difficult, but it can be done. You need to create the input mask by entering the characters shown in the following table in the Input Mask box.

<table>
<thead>
<tr>
<th>Character</th>
<th>Description</th>
<th>Character</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Numbers 0 to 9 required; plus and minus signs not allowed.</td>
<td>&amp;</td>
<td>Character or space required.</td>
</tr>
<tr>
<td>9</td>
<td>Number or space optional; plus and minus signs not allowed.</td>
<td>C</td>
<td>Character or space optional.</td>
</tr>
<tr>
<td>#</td>
<td>Number or space optional; plus and minus signs not allowed.</td>
<td>&lt;</td>
<td>Converts the following characters to lowercase.</td>
</tr>
<tr>
<td>, ; : ; /</td>
<td>Decimal point, thousands, date, and time separators.</td>
<td>&gt;</td>
<td>Converts the following characters to uppercase.</td>
</tr>
<tr>
<td>A</td>
<td>Letter or number required.</td>
<td>!</td>
<td>Displays characters from right to left, rather than left to right.</td>
</tr>
<tr>
<td>a</td>
<td>Letter or number optional.</td>
<td>\</td>
<td>Displays the following input mask character. For example, \ would display *.</td>
</tr>
<tr>
<td>L</td>
<td>Letters A to Z required.</td>
<td>Password</td>
<td>Displays an asterisk( *) for each character you type.</td>
</tr>
<tr>
<td>?</td>
<td>Letter or number optional.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Quick Reference**

To Create an Input Mask for a Field:

1. Display the table in **Design View** and click the field in the field list.
2. Click the **Input Mask box** in the Field Properties section.
3. Click the **Build button** to start the Input Wizard and select an input mask from the predefined list.

Or...

Manually create the Input Mask by entering the appropriate formatting codes (see Table 1-8: *Input Mask Characters*).
Lesson 1-16: Creating a Lookup Field

Lookup fields are definitely one of the coolest and most powerful features in Access. A lookup field lets you pick a field’s entry from a list of values. There are two ways that a lookup field can get its list of values:

- From a list of values or options that you enter yourself. For example, you could add the values “FedEx,” “UPS,” and “AirBorne” to a Shipping field.
- From a list of values in a table or query. For example, instead of entering a CustomerID number, you could select the CustomerID from a list of names.

Tip: You can also select an option from a lookup field by typing the first few letters of the entry.
Chapter One: Working with Tables and Fields

You can see an example of a lookup field in Figure 1-22. Instead of you having to type a hard-to-remember CustomerID number, the lookup field displays more meaningful information, such as the customer’s name, yet still stores the CustomerID number in the field. Lookup fields make more sense once you have actually worked with them, so let’s jump right into this lesson’s exercise.

1. Close the tblCustomers table if it’s still open, and then open the tblCustomerTours table in Design View.
   You decide to use a lookup field to make the CustomerID field easier to view and add data to. Here’s how to create a lookup field.

2. Click the Data Type area next to the CustomerID field, click the down arrow and select Lookup Wizard, as shown in Figure 1-23.
   The Lookup Wizard dialog box appears, as shown in Figure 1-24, and asks if you want your lookup field to get its values from another table or query or if you want to type a list of options yourself. Since you want your lookup field to get its values from the tblCustomers table, you will select the first option.

3. Click Next.
   The next step in the Lookup Wizard is to select the table or query that contains the values for your lookup field. You want to look up customer names, so you would select the tblCustomers table.

4. Select the tblCustomers table and click Next.
   Next you have to select the fields that contain the values you want to display in your lookup field. The Lookup Wizard displays the field names in tblCustomers table that you can add to your lookup field. To add a field to your lookup field, double-click the field or select the field and click the button.
   This step can be a little confusing at first. You will need to add the field that contains the value you want to enter—the CustomerID field—but you also want to add some fields to display some more meaningful information in the value list, such as the LastName and FirstName fields.

5. Double-click the CustomerID, LastName, and FirstName fields to add them to the lookup field. Click Next when you’re finished.
   The next step in the Lookup Wizard dialog box is to specify which fields you want to actually display in the lookup list. The first field, CustomerID, is the key field, or the value that will actually be stored in the field. Any primary key fields will be hidden by default to make the lookup field less confusing.
   
   NOTE: Because you can use queries to sort and filter information, consider using them as the source for your lookup fields.

6. Click Next. Complete the Lookup Wizard by clicking Finish.
   You’ve finished creating the lookup field! Let’s test it out….

7. Click Yes to save your changes and then click the View button to display the table in Datasheet View.
   The CustomerID field still contains CustomerID numbers, but now it looks up and displays the customer’s LastName field—much easier to understand.

8. Click the CustomerID field for any record. Click the down arrow that appears in the field.
   Out pops a list of all the customers in the tblCustomers table—neat, huh? All you have to do is click a customer’s name to add their CustomerID number to the CustomerID field.

9. Press <Esc> to close the list without selecting any options.

Quick Reference

To Create a Lookup Field:
1. Display the table in Design View.
2. Click the field’s Data Type box, click the Data Type list arrow, and select Lookup Wizard.
3. Click the I want the lookup column to look up the values in a table or query option and click Next.
4. Select the table or query you want to use for the lookup list and click Next.
5. Resize the column width and indicate whether or not to include the primary key in the column. If the table or query doesn’t have a primary key, you will be prompted for the column that will act as the bound column.
6. Click Next.
7. Enter a label for the Lookup column and click Finish.
Lesson 1-17: Creating a Value List

Similar to its cousin the lookup list, a value list displays a list of values in a drop-down list. Unlike a lookup list, which displays data in a table or query, a value list displays a list of options that you manually enter. A value list is useful if you enter the same data in a field again and again. For example, if you ship a product using three different courier services, you could create a value list that displays the three courier services, such as AirBorne, FedEx, and UPS.

Although it’s possible to change the options displayed in a value list, doing so is a rather cumbersome process, and for that reason, you should only use value lists for values that will not change very often. If you want to display a lot of options, such as a list of state abbreviations, or values that may change frequently, you should create a table to store those values and then display them with a lookup list instead. It’s a lot easier to change values in a table than it is to change options in a value list.

This lesson will show you how to create a value list that contains several static options.

1. Make sure the tblCustomersTours table is open in Design View.

You decide to create a value list to make it easier to enter data into the Ship Via field.
2. Click the **Data Type box** next to the **Ship Via field**, click the down arrow, and select **Lookup Wizard**, as shown in Figure 1-29.

   The Lookup Wizard dialog box appears, as shown in Figure 1-30, and asks if you want your lookup field to get its values from another table or query or if you want to type a list of options yourself. Since you want to enter the options that appear in the value list, you will want to select the second option.

3. **Click the I will type in the values that I want option** and click **Next**.

   The next step of the Lookup Wizard appears, as shown in Figure 1-31. This step is pretty easy—you simply enter the options you want to be displayed in the value list.

4. Click in the **Col1 box**, type **Airborne**, press **<Tab>**, type **FedEx**, press **<Tab>**, and type **UPS**.

   The value list will display these three values.

   **NOTE:** If you want to add a lot of options (ten or more) to your value list or if the values in the list will change, consider creating a table to store the values and display them with a lookup list instead. Adding the initial options to a value list is easy, but adding, changing, or deleting these values is a non-intuitive process.

5. **Click Next**.

   You’ve finished creating the value list!

6. **Complete the Lookup Wizard by clicking Finish**.

7. **Click the Save button** on the toolbar to save your changes and then click the **View button** to display the table in Datasheet View.

   To display the value list for the **Ship Via field**, simply click the **Ship Via field** and click the down arrow.

8. **Click the **Ship Via field** for any record. Click the down arrow that appears in the field.**

   Out pops the value list with the three couriers you entered in Step 4.

9. **Select FedEx from the lookup list.**

---

### Quick Reference

**To Create a Value List:**

1. Display the table in **Design View**.

2. Click the field's **Data Type box**, click the **Data Type list arrow**, and select **Lookup Wizard**.

3. **Click the I will type in the values that I want option** and click **Next**.

4. Specify the number of columns you want to appear in the Value list.

5. Enter the values in the list. Resize the column widths if necessary. Click **Next** when you’re finished.

6. Enter a label for the Lookup column and click **Finish**.
Lesson 1-18: Modifying a Lookup List

Modifying an existing lookup field isn’t nearly as straightforward as creating one. You can display and modify the properties for a lookup field by clicking on the Lookup tab in the Field Properties section. There are several reasons why you would want to modify a lookup field:

- To sort the records in a lookup list. For example, to sort the records in a lookup list alphabetically by last name.
- To add, change, or delete the static options in a value list. For example, you could add “U.S. Postal Service” to a Ship Via value list.

In this lesson you will learn how to view and modify an existing lookup field.

1. **Make sure the tblCustomerTours table is open in Design View.**

   The CustomerID lookup field we created in an earlier lesson is neat, but its list of names isn’t displayed in alphabetical order. Not a problem—we can change this by modifying the lookup field. You can display and change the properties for a lookup field by clicking the Lookup tab in the Field Properties section.
2. Click the CustomerID field name, then click the Lookup tab in the Field Properties section.

The properties for the CustomerID lookup field are displayed, as shown in Figure 1-32. You can learn more about these properties in Table 1-9: Lookup Field Properties.

3. Click the Row Source box.

That technical SELECT [tblCustomers].[CustomerID] stuff in the Row Source box is a SQL statement. SQL (Structured Query Language) is a language most database programs use to create queries—and it tells lookup fields where to get their values. Fortunately, you don’t have to know how to write SQL to modify a lookup field—you can use the familiar query grid to create the SQL statement for you.

4. Click the Row Source button to display the SQL Statement: Query Builder window.

The SQL Statement: Query Builder window appears as shown in Figure 1-33. Yep—it’s the same query grid that you’re already familiar with.

5. Click the LastName field’s Sort row’s drop-down list and select Ascending, as shown in Figure 1-33.

This will sort the CustomerID lookup field by the LastName field.

6. Close the SQL Statement: Query Builder window and click Yes when you are prompted to save your changes.

Access updates the SQL statement for the CustomerID lookup field. You can also view, change, or delete options from a value list using the Lookup tab.

7. Click the Ship Via field name.

The Row Source box contains the value-list options.

8. Click the Row Source box.

The Row Source box contains the text "Airbone";"FedEx";"UPS". You can add options to the value list by typing them into the Row Source box—just make sure that the options are enclosed by quotation marks ("), and separated by a semi colon (;).

9. Type; "US Mail" so that the Row Source reads "Airbone";"FedEx";"UPS";"US Mail".

That’s it—you’ve finished modifying the lookup fields in the tblCustomers Tours table.

10. Save your changes, close the tblCustomers Tours table and the database.

<table>
<thead>
<tr>
<th>Table 1-9: Lookup Field Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Property</strong></td>
</tr>
<tr>
<td>Display Control</td>
</tr>
<tr>
<td>Row Source Type</td>
</tr>
<tr>
<td>Row Source</td>
</tr>
<tr>
<td>Bound Column</td>
</tr>
<tr>
<td>Column Count</td>
</tr>
<tr>
<td>Column Widths</td>
</tr>
<tr>
<td>Limit to List</td>
</tr>
</tbody>
</table>

**Quick Reference**

To Modify a Lookup List:

1. Display the table in Design View.

2. Click the lookup list’s field name box, then click the Lookup tab in the Field Properties section.

3. Click the Row Source button to display the SQL Statement: Query Builder window.

4. Make the desired changes and then close the SQL Statement: Query Builder window.
Chapter One Review

Lesson Summary

Understanding Field Properties

- To Display a Table in Design View: Open the table and click the View button on the toolbar, or from the Database window, click the Tables icon in the Objects bar, select the table, and click the Design button.

Indexing a Field

- To Index a Field: Display the table in Design View. Click the field you want as an index, click the Indexed box, click the drop-down arrow, and select Yes (Duplicates OK) if you want to allow multiple records to have the same data in this field or select Yes (No Duplicates) if you want to ensure that no two records have the same data in this field.

Adding a Primary Key to a Table

- To Add a Primary Key to a Table: Display the table in Design View and click the field that you want to set as the primary key. If such a field doesn’t exist, you will have to create it. Click the Primary Key button on the toolbar or right-click the field you want to use as the primary key and select Primary Key from the shortcut menu.

Inserting, Deleting, and Reordering Fields

- To Insert a Row: Click the row selector for the field that will be below the new field you want to insert and press <Insert>.
- To Change the Order of Fields in a Table: Click the row selector for the field you want to move and click and drag the selected row to the desired location.
- To Delete a Field from a Table: Click the row selector for the field and press <Delete>.

Changing a Field’s Data Type

- To Change the Data Type for a Field: Display the table in Design View, click the field’s Data Type box, click the Data Type list arrow, and select the data type.

Using Field Descriptions

- To Add a Description to a Field: Display the table in Design View, click the field’s Description box, and type the description you want to appear in the Status bar whenever a user selects that field.

Adding a Caption

- To Add a Caption to a Field: Display the table in Design View, click the field in the field list, click the Caption box in the Field Properties section, and type the caption.
Changing the Field Size

- **To Change the Field Size**: Display the table in **Design View**, click the field in the field list, click the **Field Size box** in the Field Properties section, and either type the Field Size value (for text fields) or choose the value from the drop-down list (for number fields).

Formatting Number, Currency, and Date/Time Fields

- **To Format Number and Currency Fields**: Display the table in **Design View**, click the field in the field list, click the **Format box** in the Field Properties section, click the **Format drop-down arrow**, and select a number format.

- **To Change the Number of Decimal Places**: Display the table in **Design View**, click the field in the field list, click the **Decimal Places box** in the Field Properties section, click the **Decimal Places drop-down arrow**, and select the number of decimal places you want to display.

Formatting Number, Currency, and Date/Time Fields by Hand

- **To Manually Format a Number, Date, or Currency Field**: Display the table in **Design View**, click the field in the field list, click the **Format box** in the Field Properties section, and enter the appropriate formatting symbols.

Formatting Text Fields

- **To Manually Format a Text Field**: Display the table in **Design View**, click the field in the field list, click the **Format box** in the Field Properties section, and enter the appropriate text formatting symbols.

Setting a Default Value

- **To Enter a Default Value for a Field**: Display the table in **Design View**, click the field in the field list, click the **Default Value box** in the Field Properties section, and enter the default value you want to appear in the field for new records.

Requiring Data Entry

- **To Require Data Entry for a Field**: Display the table in **Design View**, click the field in the field list, click the **Required box** in the Field Properties section, click the **Required drop-down arrow**, and select **Yes**.

Validating Data

- **To Validate Field Data**: Display the table in **Design View**, click the field in the field list, click the **Validation Rule box** in the Field Properties section, enter an expression you want to use to validate the field’s data, click the **Validation Text box** in the Field Properties section, and then type the text that Access will display when the user tries to enter incorrect data for the field.

Creating an Input Mask

- **To Create an Input Mask for a Field**: Display the table in **Design View**, click the field in the field list, click the **Input Mask box** in the Field Properties section, click the **Build button** to start the Input Wizard, and select an input mask from the predefined list or manually create the Input Mask by entering the appropriate formatting codes.
Creating a Lookup Field

- **To Create a Lookup Field:** Display the table in Design View, click the field's Data Type box, click the Data Type list arrow, and select Lookup Wizard. Click the I want the lookup column to look up the values in a table or query option, click Next, select the table or query you want to use for the look up list, and click Next. Resize the column width and indicate whether or not to include the primary key in the column. If the table or query doesn't have a primary key, you will be prompted for the column that will act as the bound column. Click Next, enter a label for the Lookup column, and click Finish.

Creating a Value List

- **To Create a Value List:** Display the table in Design View, click the field's Data Type box, click the Data Type list arrow, and select Lookup Wizard. Click the I will type in the values that I want option and click Next. Specify the number of columns you want to appear in the Value list, enter the values in the list, resize the column widths, if necessary, and click Next when you're finished. Enter a label for the Lookup column and click Finish.

Modifying a Lookup List

- **To Modify a Lookup List:** Display the table in Design View, click the lookup list's field name box, then click the Lookup tab in the Field Properties section, click the Row Source button to display the SQL Statement: Query Builder window, make the desired changes, and then close the SQL Statement: Query Builder window.

**Quiz**

1. Which of the following is NOT a field property?
   A. Field Size.
   B. Format.
   C. Color.
   D. Indexed.

2. Indexing a field dramatically speeds up queries and sorts performed on the field, therefore you should always index every field in a table. (True or False?)

3. Which of the following statements is NOT true?
   A. The Indexed property has three settings: No, Yes (Duplicates OK), and Yes (No Duplicates).
   B. Primary key fields are automatically indexed.
   C. The Yes (No Duplicates) index option prevents duplicate entries in your table.
   D. You can index any type of field: text, date/time, AutoNumber, number, currency, yes/no, memo, OLE object, and hyperlink fields.

4. Which of the following fields would NOT make a suitable primary key?
   A. An AutoNumber field.
   B. A customer’s social security number.
   C. An invoice number.
   D. A date field.
5. Text entered in the field Description box will appear in a pop-up window whenever a user selects that field. (True or False?)

6. The Field Size property works differently, depending on whether the field is a text or number field. (True or False?)

7. Which of the following Format properties would display the full name of the month?
   A. MONTH.
   B. FULLMONTH.
   C. mm.
   D. mmmm.

8. Which of the following statements is NOT true?
   A. The Default Value property is automatically entered in a field when a new record is created.
   B. The Required property determines if a user must enter a value in a field or not.
   C. A lookup field lets you pick a field’s entry from a list of values, which often comes from another table or query.
   D. (___) ___ - _____ is an example of a Required property.

9. What does adding a > into the Format box of a text field do?
   A. Requires all characters entered in the field to be in uppercase.
   B. Displays the characters in the field in uppercase.
   C. Requires all characters entered in the field to be numbers.
   D. Displays the characters in the field in a larger font.

10. Which of the following statements is NOT true?
    A. The Default Value box lets you specify a value that is automatically entered in a field when a new record is created.
    B. The Required box lets you specify if data entry is required for a field.
    C. The maximum length of a memo field is 255 characters.
    D. The Validation Rule box lets you test data to make sure that it conforms to what you want to appear in the table. For example, entering <100 would require that a number be less than 100.

11. You want to create a field that lets you add a customer’s name by picking it from a drop-down list. Which of the following fields would let you do this?
    A. A memo field.
    B. A lookup field.
    C. An OLE field.
    D. A hyperlink field.

12. What is the corresponding text for the <#1/1/95# Validation Rule Setting?
    A. Enter a date before 1995.
    B. Enter a value less than 1,195.
    C. Enter a value greater than 1,195.
    D. Value must be less than 95 characters.
13. You can set a field as the primary key by selecting the field and clicking the Primary Key button on the toolbar. (True or False?)

Homework

1. Open the Homework database.
2. Open the Customers table in Design View.
3. Limit the Field Size of the LastName and FirstName fields to 15 characters.
4. Specify a format for the State field that will display all entries in uppercase.
5. Create an Input Mask for the SSN field so that users must enter information in a ___-__-____ format and make the SSN field a required field.
6. Index both the LastName and FirstName fields (duplicates OK).
7. Make the SSN field the table’s primary key.
8. Save your changes to the Customers table and close the Homework database.

Quiz Answers

1. C. There are Color properties for other database objects, but not for fields in a table.
2. False. Only index those fields that you frequently use to filter or sort information. Indexing too many fields in a table slows down filters and sorts, defeating the whole idea behind the index property.
3. D. This was a tricky question—you can’t index memo, OLE object, or hyperlink fields.
4. D. Because the date isn’t usually a unique value (the same date might appear more than once in the same table), it wouldn’t normally make a good candidate for a table’s primary key.
5. False. Text in the field Description box will appear in the Status bar when a user selects that field.
6. True. Text fields and Number/Currency fields have a different set of Field Size properties.
7. D. Another difficult question—“mmmm” would display the full name of the month.
8. D. (___) ___ - _____ is an example of an Input Mask property, not a Required property.
9. B. Adding a > to a text field’s Format box displays all characters in uppercase.
10. C. Memo fields have a maximum length of 64,000 characters.
11. B. A lookup field lets you select a value from a drop-down list.
12. A.
13. True. This is the procedure for setting a field as a table’s primary key.