

12

WORKING WITH LISTS

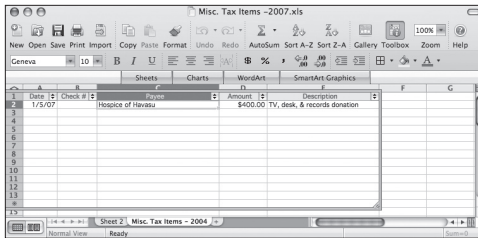


Figure 12.1 When you transform a data range into a list or create a list from scratch, Excel displays it with a special frame and attaches a drop-down menu to each column heading.

Many worksheets are simply lists of information, such as address data and club membership rosters. Such lists typically include few calculations, if any. A spreadsheet program is very adept at managing lists—considerably more so than a word processing program (the formerly preferred program for list management).

In recognition of the fact that people use spreadsheets to create and manage lists, Microsoft introduced the List Manager in Excel 2001. By creating a list (**Figure 12.1**), you can simplify cumbersome tasks such as sorting, filtering, and totaling data. This chapter explains how to use the List Manager to create and maintain lists.

Excel lists are essentially databases. If you intend to create lists in Excel, you'll also want to learn about Excel's database features, discussed in Chapter 14. Note that in Office 2007 (Windows), lists are called *tables*.

Creating a List

You can create a list by converting an existing data range or by using the List Manager to guide the list's creation.

To create a list:

1. *Do one of the following:*
 - ▲ To create a list in a new worksheet, choose File > Project Gallery, select the Blank Documents group, click the List Wizard icon, and click Open.
 - ▲ To create a new list in an existing worksheet, click the cell where you want the list to begin and choose Insert > List.
 - ▲ To convert an existing data range into a list, click any cell within the range and choose Insert > List.
 - ▲ Display the List toolbar (**Figure 12.2**) by choosing View > Toolbars > List. To convert an existing data range into a list, click any cell within the range. To create a list from scratch, click the starting cell. Then click the List Wizard icon on the List toolbar.

The List Wizard appears (**Figure 12.3**).

2. In Step 1, select one of these options for the data source:
 - ▲ **None.** The list will be created from scratch.
 - ▲ **In an open workbook.** Use existing data from the specified range, converting it into a list. If the data already has column labels, be sure to check My list has headers.
 - ▲ **External data source.** Select this option and click the Get Data button to import the list data from an external file. (This option requires installed ODBC drivers.)

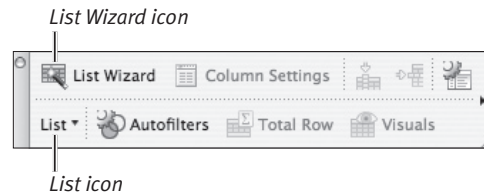


Figure 12.2 To create a list using the List toolbar, you can click the List Wizard icon or click the List icon's drop-down menu and choose List Wizard.



Figure 12.3 In Step 1, tell the List Manager where the data (if any) resides and where to create the list.

Moving a List

You can relocate any list. Move the cursor over any edge of the list. When it turns into an open hand, click and drag the list to its new location.

You can also use cut-and-paste to move a list—to another workbook or sheet, for example. Move the cursor over any edge of the list. When it turns into an open hand, click to select the list, and choose Edit > Cut (**⌘X**). Select a destination cell for the list, and choose Edit > Paste (**⌘V**).

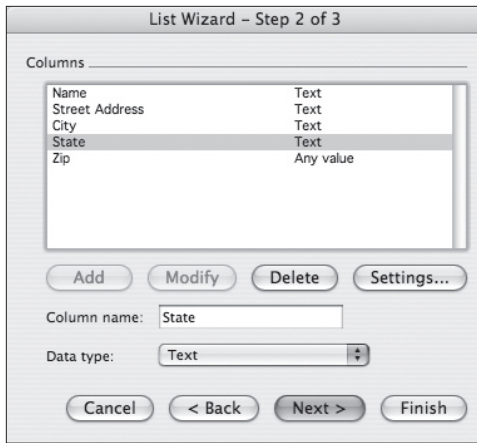


Figure 12.4 Specify column names and data types.

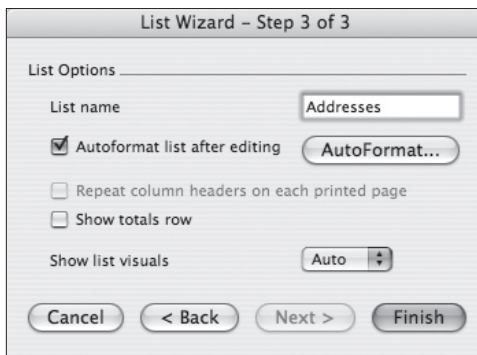


Figure 12.5 Name the list, indicate whether to add a totals row, and pick an AutoFormat style.

Name	Street Address	City	Stat	Zip
James Anderson	18 Birchmont Dr.	Bemidji	MN	56601
Mary Morton	273 Cedar Lane	Crookston	MN	58902
Simon Bolivar	453 Johns Rd.	Jamestown	NY	1702
Mark Abrams	67 Henderson Lane	Las Vegas	NV	70994
Julie Johnson	3456 Jones Dr.	Fredericks	WV	20338
Sarah Kendricks	237 Indian School	Phoenix	AZ	85022
Joan Thompson	786 Lian Street	San Francisco	CA	90023

Figure 12.6 This is an example of an existing data range converted to a named, formatted list.

3. Indicate where the list should be placed:

- ▲ **New sheet.** Create the list in a new, blank worksheet.
- ▲ **On existing sheet.** The upper-left corner of the list will begin at the specified cell.

Click Next. Step 2 appears (Figure 12.4).

4. Do one of the following:

- ▲ If the list is based on existing data, select each column, select a data type from the drop-down Data type list, edit the column name (optional), and click Modify after each column change.
- ▲ If the list is being created from scratch, enter each column name, select a data type from the drop-down Data type list, and click Add. (The order in which columns are added will match their order in the list.)

5. *Optional:* To set formatting, conditional formatting, or validation options for the currently selected field, click Settings. Repeat for other fields as necessary. Click Next to continue.

6. In Step 3 (Figure 12.5), name the list and indicate whether you want a totals row. You can also choose an AutoFormat style.

7. Click Finish.

The list appears on the worksheet, starting at the designated cell (Figure 12.6).

✓ **Tips**

- When your list appears, the List toolbar also appears (see Figure 12.2). You can use it to modify any list element.
- When converting existing data to a list, you can still add, delete, and modify columns (Figure 12.4).
- To convert a list back to normal data, click the List icon on the List toolbar and choose Remove List Manager.

Entering and Editing Data

Cells in a list are the same as other worksheet cells. You can use normal editing techniques to enter, delete, and modify list cell contents. In addition, you may find the following editing procedures useful.

To edit list data:

- ◆ To add new data to a list, you can use any of the following techniques:
 - ▲ Type data into each cell as you would in any worksheet. Press **Tab** or **(Shift) Tab** to move to the next or previous cell.
 - ▲ Choose **Data > Form**, or click the List icon on the List toolbar and choose **Form** (Figure 12.7). Use the Form dialog box to edit existing records, enter new records, or delete records (Figure 12.8).
 - ▲ To create a new *record* (list row), enter data in the row marked with an asterisk (*) at the bottom of the list.
- ◆ To delete a list row, select a cell in the row and *do one of the following*:
 - ▲ Choose **Edit > Delete Row**.
 - ▲ Click the List icon in the List toolbar and choose **List > Delete > Row**.

✓ Tips

- As you begin typing a cell entry, a list of previous entries for the column that begin with the same characters appears. You can select one of these items as a data-entry shortcut.
- To clear the contents of a row without deleting it, select the entire row. Choose **Edit > Clear > Contents**, or click the List toolbar icon and choose **Clear Contents**.
- See Chapter 14 for information on using forms for data entry and editing.

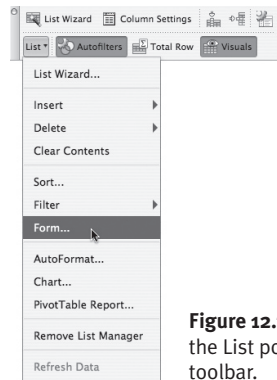


Figure 12.7 Choose Form from the List pop-up menu on the List toolbar.

 A screenshot of the 'Form' dialog box for 'Sheet1'. The dialog has a title bar 'Sheet1' and a scroll bar on the right. It contains five input fields: 'Name:' with 'James Anderson', 'Street Address:' with '18 Birchmont Dr.', 'City:' with 'Bemidji', 'State:' with 'MN', and 'Zip:' with '56601'. To the right of these fields are several buttons: 'New', 'Delete', 'Restore', 'Find Prev', 'Find Next', 'Criteria', and 'Close'. The text '1 of 8' is displayed in the top right corner.

Figure 12.8 You can optionally use a form to enter new records, edit existing records, or delete records.

Adding New Columns

To add a new column to an existing list, click a cell where you want to insert the column. Then click the **Insert Column** icon on the List toolbar or choose **Insert > Columns**. To complete the process, edit the column name.

To add a blank column to the end of a list, widen the list frame by dragging its lower-right corner. A blank, gray area appears. Click the **(New Column)** text and name the new column.

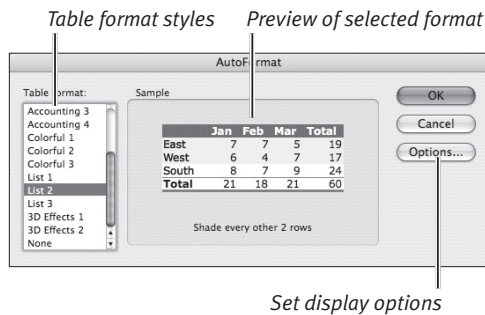


Figure 12.9 Select a format to apply to the list.

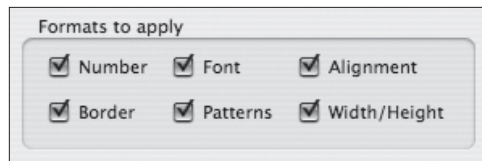


Figure 12.10 Click Options to reveal this section at the bottom of the AutoFormat dialog box, enabling you to specify formatting options to apply to the list.

Formatting a List

After you've entered the list data (or at least several records), you may want to format the list. In addition to standard cell-formatting options (such as bold, italic, font, size, borders, and shading), there are formats that you can apply to the entire list.

To format an entire list:

1. Click any cell in the list.
2. Do either of the following:
 - ▲ Choose Format > AutoFormat.
 - ▲ Click the List icon on the List toolbar and choose AutoFormat.

The AutoFormat dialog box appears (**Figure 12.9**).

3. Select any of the Table format styles in the left pane to see a preview of the format. To apply the selected format to the list (see Figure 12.6), click OK.

✓ Tips

- If you click the Options button in the AutoFormat dialog box, you can selectively enable or disable AutoFormat elements, such as borders and cell patterns (**Figure 12.10**).
- After formatting a list with AutoFormat, you can still apply normal cell and text formatting.
- To get the full effect of your list's new appearance, click the Visuals icon on the List toolbar to hide the frame. Click the icon again to restore the list frame.
- To learn how to format individual cells, cell ranges, and particular columns or rows, see Chapter 10.

Filtering a List

As your list grows, you may occasionally want to view only rows that match certain criteria. You can *filter* a list in this manner to generate a data subset for printing, charting, or record deletion, for example.

To apply an AutoFilter to a list:

1. Set the list for AutoFilter by choosing Data > Filter > AutoFilter or by clicking the Autofilters icon on the List toolbar. When enabled, every column title is accompanied by a pair of arrows and the Autofilters toolbar icon is darkened.
2. Click the AutoFilter arrows beside the column on which you want to filter and choose a filtering option from the drop-down menu (**Figure 12.11**). Only records that match the criterion are shown. The others are temporarily hidden.
3. *Optional:* To further filter the list, choose additional criteria from other columns.
4. To restore all or some of the currently hidden records, *do one of the following*:
 - ▲ To show all list records, choose Data > Filter > Show All or choose Filter > Show All from the List toolbar icon.
 - ▲ If you've applied multiple filters, click the AutoFilter arrows for the filter you wish to remove and choose Show All.

✓ Tips

- If you want to edit records with missing data for a given column, choose Show Blanks.
- Any column to which a filter has been applied displays blue AutoFilter arrows.
- For additional filtering techniques and tips, see Chapter 14.

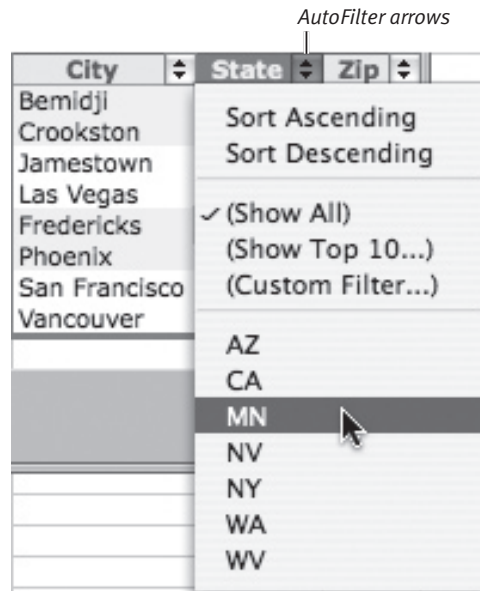


Figure 12.11 To apply or remove a filter, click a column's AutoFilter arrows and choose an option from the drop-down menu that appears.

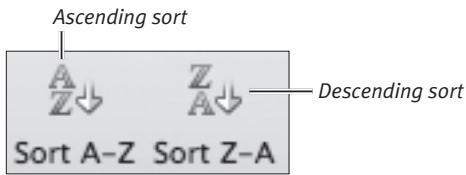


Figure 12.12 The Standard toolbar has icons for ascending and descending sorts.

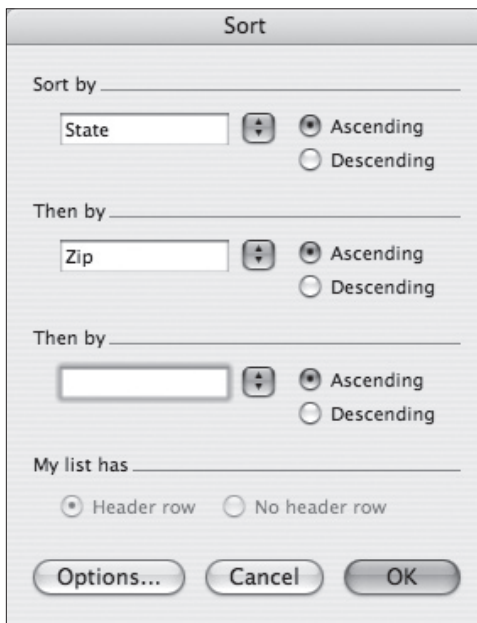


Figure 12.13 Specify fields by which you want to sort, and whether each one is ascending or descending.

Sorting a List

You can sort a list by the values in one or more columns. When sorting on multiple columns, each additional column serves as a tie-breaker. For instance, you could sort on State and on Zip Code. This would group each state's records together, while breaking them into subgroups for each Zip Code.

To perform a simple sort:

- ◆ *Do one of the following:*
 - ▲ Click any cell within the column on which you want to sort. Click the Sort A-Z or Sort Z-A icon on the Standard toolbar (**Figure 12.12**).
 - ▲ With AutoFilter enabled, click the AutoFilter arrows of the column on which you want to sort. Choose Sort Ascending or Sort Descending from the drop-down menu (see Figure 12.11).

The list rows are reordered.

To perform a complex sort:

1. Click any cell in the list.
2. Choose Data > Sort, or click the List toolbar icon and choose Sort. The Sort dialog box appears (**Figure 12.13**).
3. Select the primary sort field from the Sort by drop-down list and click the Ascending or Descending radio button.
4. Select additional sort columns from the Then by drop-down lists, and set each one to Ascending or Descending.
5. Click OK to perform the specified sorts.

✓ Tips

- When sorting by day or month, you can sort in calendar order instead of alphabetically. Click Options in the Sort dialog box. In the Sort Options dialog box that appears (**Figure 12.14**), select a day or month format from the First key sort order drop-down list. (Note that such a custom sort can only be applied to the *primary* sort field.)
- The Sort Options dialog box is also where you can specify column sorts (rather than the usual row sorts). In the Orientation section of the dialog box (Figure 12.14), select Sort left to right and then click OK. In the Sort dialog box, the Sort by and Then by drop-down lists will now contain row identifiers.

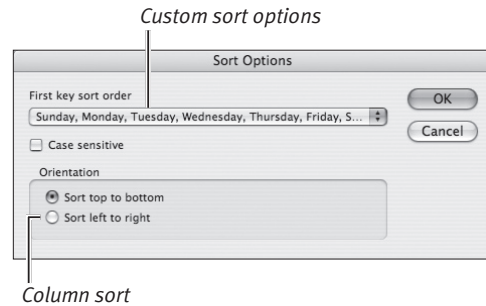


Figure 12.14 Use the Sort Options dialog box to specify a custom sort or to execute a column-based sort.

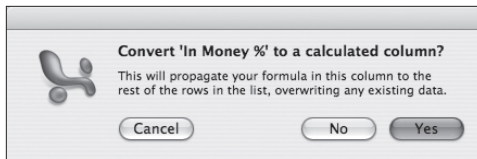


Figure 12.15 This dialog box appears whenever you enter a formula in a list cell.

Races	Wins	Places	Shows	Win %	Place %	Show %	In Money %
11	4	0	0	36%	0%	0%	36%
18	4	1	1	22%	6%	6%	33%
13	3	2	2	23%	15%	15%	54%
4	1	0	1	25%	0%	25%	50%
10	2	1	4	20%	10%	40%	70%
8	3	0	3	38%	0%	38%	75%
7	1	1	1	14%	14%	14%	43%

Figure 12.16 The last four columns in this list are calculated columns.

Calculated Columns

Formulas in a list work differently than ones elsewhere in the worksheet. Any column can contain a mixture of formulas and data. However, you also can insert the *same* formula into every cell of a column. This is known as a *calculated column*. If you later add rows to the list, the formula is automatically copied to the new cells in the column.

To create a calculated column:

1. If necessary, insert a new column in the list in which to place the formula.
A calculated column can be defined in a column that contains data, but the column's cells will be overwritten by the formula results. It's usually more desirable to start with a new or empty column.
2. Select a cell in the column, and type or paste the formula into the cell. Complete the formula by pressing **Return**.
A dialog box appears (**Figure 12.15**).
3. *Do one of the following:*
 - ▲ Click **Yes** to create a calculated column. The formula is copied to all other cells in the column (**Figure 12.16**).
 - ▲ Click **No** to apply the formula only to the current cell.
 - ▲ Click **Cancel** to resume editing the cell.

✓ Tips

- You can replace the formula in a calculated column with a new one. Click **Yes** in the dialog box that appears (Figure 12.15). Like the original formula, the new formula will propagate to every cell in the column.
- You can also create calculated columns using the List Wizard. Select **Calculated Column** as the data type for the column (see Figure 12.4), and enter the formula.

Adding a Total Row

A list can optionally have a single *total row* at its bottom, enabling you to calculate summary statistics across all records in the list. Each column can display a different statistic or none at all. In a donations list, for example, you could compute total donations, the average of the most recent donations, and a count of the number of donor records.

To add a total row to a list:

1. Select a cell in the list to make the list active.
2. Click the Total Row icon on the List toolbar.
The total row appears at the bottom of the list (**Figure 12.17**).
3. *Optional:* Edit or delete the *Total* label in the left-most cell of the total row.
4. To display a summary statistic for a column, click the total row cell beneath the column. Click the arrows that appear beside the cell, and choose a statistic from the drop-down menu (**Figure 12.18**).
5. Repeat Step 4 for each additional column you want to summarize (**Figure 12.19**).
6. Format the total row cells as desired.

✓ Tips

- If the function you need isn't listed in the drop-down menu, choose Other.
- To eliminate the summary statistic for a column, choose (No Formula) from the drop-down menu.
- If you disable the total row by clicking the Total Row icon again, all assigned summary statistics will be removed. Clicking the icon again will *not* restore them (as it does in Office 2007).

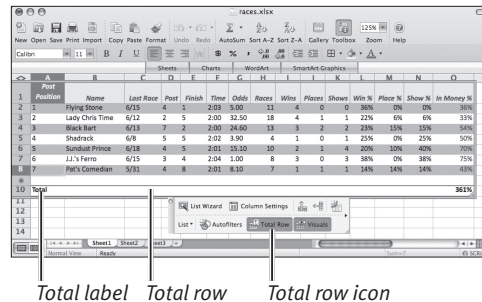


Figure 12.17 When enabled, the total row appears at the bottom of the list.

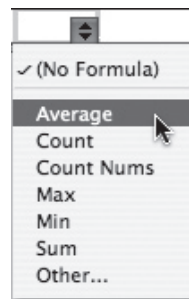


Figure 12.18 Each cell in the total row has a drop-down menu from which you can choose a statistical function.

	A	B	C	D	E	F	G
	Post						
1	Position	Name	Last Race	Post	Finish	Time	Odds
2	1	Flying Stone	6/15	4	1	2:03	5.00
3	2	Lady Chris Time	6/12	2	5	2:00	32.50
4	3	Black Bart	6/13	7	2	2:00	24.60
5	4	Shadrack	6/8	5	5	2:02	3.90
6	5	Sundust Prince	6/18	4	5	2:01	15.10
7	6	J.J.'s Ferro	6/15	3	4	2:04	1.00
8	7	Pat's Comedian	5/31	4	8	2:01	8.10
9	Averages			4	2:01	12.89	

Averages

Figure 12.19 In this harness racing list, the total row displays averages for all appropriate columns.

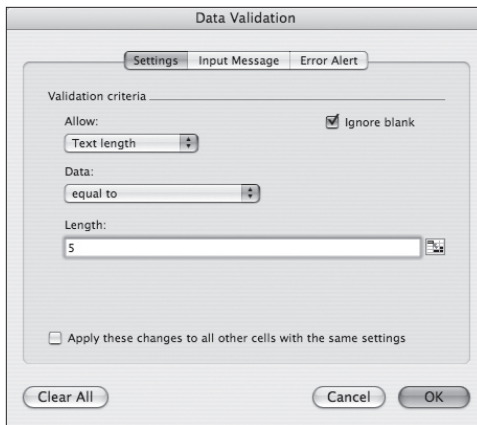


Figure 12.20 Specify a validation criterion on the Settings tab of the dialog box.

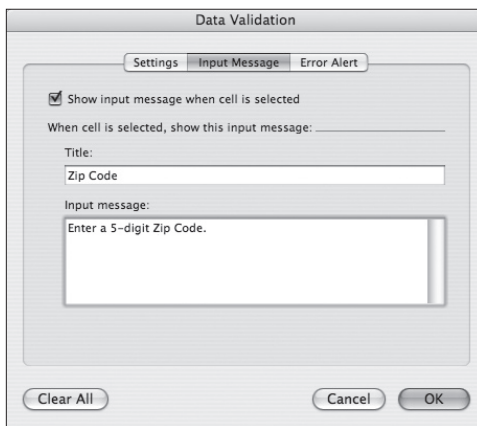


Figure 12.21 Enter an optional pop-up message for users who tab or click into a cell in this column.

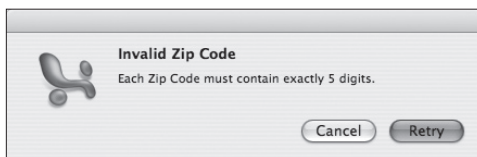


Figure 12.22 When a Stop error message appears, the user can click Retry to correct the error or Cancel to delete the errant cell entry.

Data Validation

Excel allows you to set a validation criterion for any column to ensure that only valid data is entered. For example, a Zip Code column could be restricted to entries of exactly five digits. Validation tests are automatically applied as you add items to the list. You can set validation options when creating a list or afterwards (described in the following steps).

To set validation options:

1. Click a cell in the column for which you'd like to set a validation criterion.
 2. Choose Data > Validation.
The Data Validation dialog box appears (**Figure 12.20**).
 3. On the Settings tab, set a validation criterion by making choices from the drop-down lists and typing in the text box(es).
 4. *Optional:* To prevent blank entries in the column, remove the check mark from Ignore blank.
 5. *Optional:* If you want a pop-up box to appear whenever you select a cell in the column, click the Input Message tab. Enter a title and message text (**Figure 12.21**).
 6. *Optional:* To enter an error message that will appear whenever validation fails, click the Error Alert tab. Enter a title and message text, and choose a message style from the Style drop-down menu:
 - ▲ **Stop.** Prevent further work until the error is corrected.
 - ▲ **Warning.** Offer a choice of correcting or accepting the entered data.
 - ▲ **Information.** Display only explanatory text.
- Click OK when you're done. If an incorrect value is later entered into a cell in this column, the error message appears (**Figure 12.22**).

✓ Tips

- You can also set validation criteria in the List Wizard.
- If you can't remember which columns have validation criteria, choose Edit > Go To. In the Go To dialog box, click Special. In the Go To Special dialog box that appears (**Figure 12.23**), select Data Validation and All. Click OK. Excel highlights the letters of all columns for which a data validation criterion has been set.

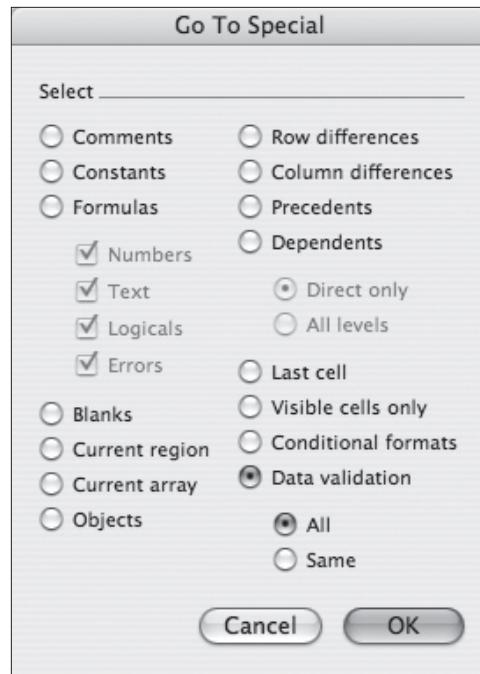


Figure 12.23 Click Data Validation and All to identify columns for which you've set validation criteria.