

Customizing a Pivot Table

3

Although pivot tables provide an extremely fast way to summarize data, sometimes the pivot table defaults aren't exactly what you need. You can use many powerful settings to tweak the information in your pivot table. These tweaks range from making cosmetic changes to changing the underlying calculation used in the pivot table.

In Excel 2007, controls to customize the pivot table are found in a myriad of places: the Options ribbon, the Design ribbon, the Field Settings dialog box, the Data Field Settings dialog box, the PivotTable Options dialog box, and context menus. Rather than cover each set of controls sequentially, this chapter seeks to cover functional areas in customizing pivot table customization:

- **Minor Cosmetic Changes**—Changing blanks to zeros, adjusting the number format, renaming a field. Although these changes are minor, they are annoying and affect almost every pivot table that you create.
- **Layout Changes**—Comparing three possible layouts, showing/hiding subtotals and totals.
- **Major Cosmetic Changes**—Using table styles to quickly format your table.
- **Summary Calculation**—Changing from Sum to Count, Min, Max, and more. If you have a table that defaults to Count of Revenue instead of Sum of Revenue, you need to visit this section.
- **Advanced Calculation**—Using settings to show data as a running total, % of total, and more.
- **Other Options**—Quickly reviewing more obscure options found throughout the Excel interface.

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Making Common Cosmetic Changes

A few changes need to be made to almost every pivot table. These changes make your pivot table easier to understand and interpret.

Figure 3.1 shows a typical pivot table. This pivot table has two fields in the Row Labels area and one field in the Column Labels area.

Figure 3.1
A default pivot table.

The screenshot shows an Excel pivot table with the following data:

State	(All)							
Sum of Revenue	Column Labels							
Row Labels	101313	101419	102516	103516	173901	201605	201709	201714
MIDWEST			63228.54	101663.15				
DENVER								
KANSAS CITY								
TULSA			63228.54	101663.15				
NORTH		124596.75						
BUFFALO								
CANADA								
MICHIGAN		124596.75						
NEW YORK								
SOUTH		444630.94						
CHARLOTTE								
DALLAS								
FLORIDA		444630.94						
NEW ORLEANS								
WEST								
CALIFORNIA								
PHOENIX								
SEATTLE								
Grand Total	444630.94	124596.75	63228.54	101663.15				

The PivotTable Field List task pane is open, showing the following configuration:

- Choose fields to add to report:
 - Region
 - Market
 - Branch
 - Account
 - Customer
 - City
 - State
 - SKU
 - Product
 - Product Line
 - Service Date
- Drag fields between areas below:
 - Report Filter: State
 - Column Labels: Branch
 - Row Labels: Region, Market
 - Values: Sum of Revenue
- Buttons: Defer Layout Update, Update

This pivot table contains several annoying items that you might want to change quickly:

- The default table style uses no gridlines. This makes it difficult to follow the rows and columns across.
- Numbers in the values area are in a general number format. There are no commas, currency symbols, and so on.
- For sparse datasets, there are many blanks in the values area. The blank cell in B6 indicates that there were no sales in Denver for branch 101313. Most people would prefer to see a zero instead of blanks.
- Excel renames fields in the values area with the unimaginative name Sum of Revenue. You can change this name.

You can correct each of these annoyances with just a few mouse clicks. The following sections address each issue.

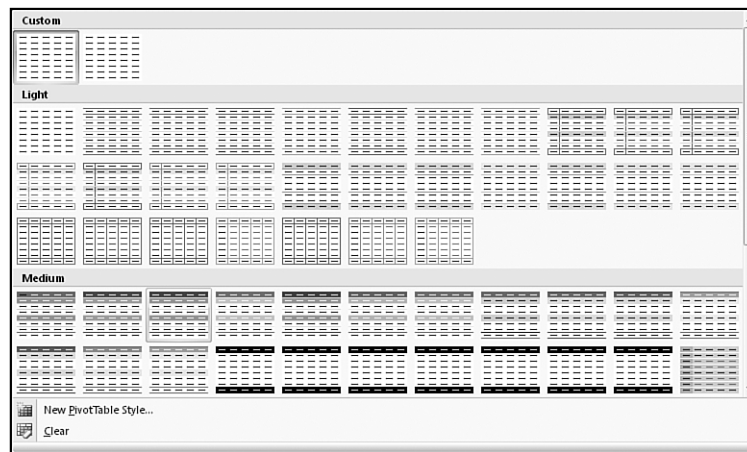
Applying a Table Style to Restore Gridlines

The default pivot table layout contains no gridlines. This format is annoying and a giant step backward. Luckily, you can easily apply a table style. Any table style that you choose will be better than the default.

Follow these steps to apply a table style:

1. Make sure that the active cell is in the pivot table.
2. From the Ribbon, choose the Design tab.
3. Three arrows appear at the right side of the PivotTable Style gallery. Click the bottom arrow to open the complete gallery, as shown in Figure 3.2.
4. Choose any style other than the first style from the drop-down. Styles toward the bottom of the gallery tend to have more formatting.

Figure 3.2
The gallery contains 75 styles to choose from.



It doesn't matter which style you choose from the gallery; any of the 74 other styles are better than the default style.

→ For more details about customizing styles, see “Customizing the Pivot Table Appearance with Styles and Themes,” p. 61.

Changing the Number Format to Add Thousands Separators

If you've gone to the trouble of formatting your underlying data, you might expect that the pivot table would capture some of this formatting. Unfortunately, it does not.

Even if your underlying data fields were formatted with a certain numeric format, the default pivot table presents values formatted with a general format.

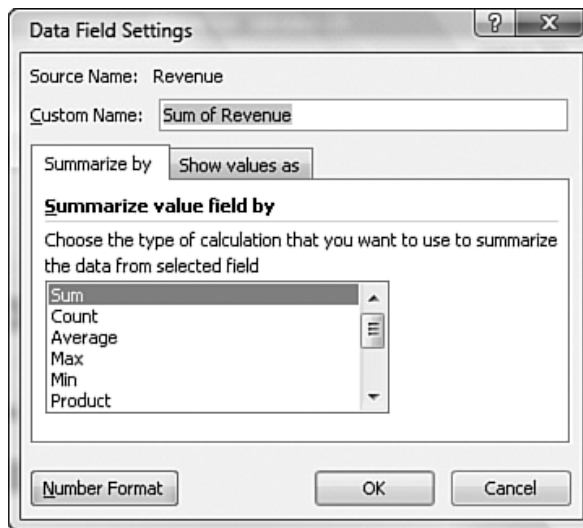
For example, in the figures in this chapter, the numbers are in the hundreds of thousands. At this level of sales, you would normally have a thousands separator and probably no decimal places. Although the original data had a numeric format applied, the pivot table routinely formats your numbers in an ugly general style.

You access the numeric format for a field in the Data Field Settings dialog box. There are four ways to display this dialog box:

- Right-click a number in the values area of the pivot table and choose Value Field Settings.
- Double-click the Sum of Revenue cell in cell A3 of Figure 3.3.
- Click the drop-down arrow on the Sum of Revenue field in the drop zones of the PivotTable Field List. Then choose Field Settings from the context menu.
- Select any cell in the values area of the pivot table. From the Options ribbon, choose Field Settings from the Active Field group.

As shown in Figure 3.3, the Data Field Settings dialog box is displayed. To change the numeric format, click the Number Format button in the lower-left corner.

Figure 3.3
Display the Data Field Settings dialog box and then click Number Format.

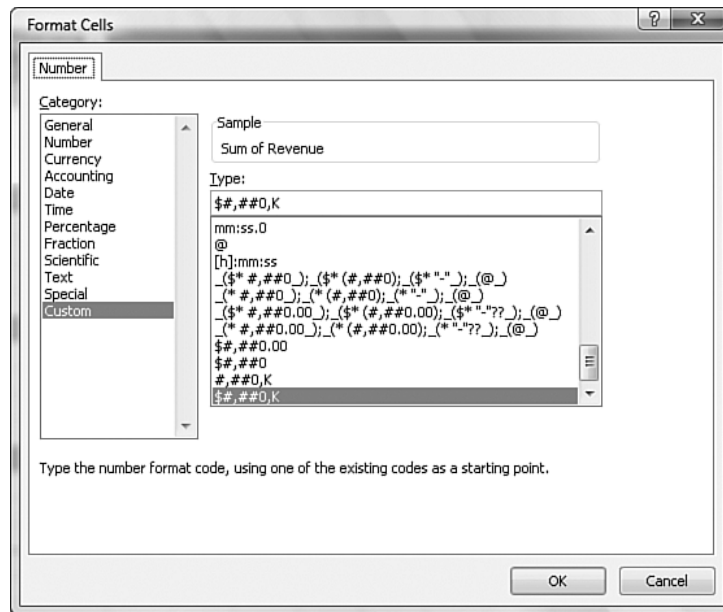


In the Format Cells dialog box, you can choose any built-in number format or choose a custom format. The custom number format shown in Figure 3.4 displays numbers in thousands with a *K* abbreviation after the number.

NOTE

Although Excel 2007 offers a Live Preview feature for many dialog boxes, the Format Cells dialog box does not offer one. You must assign the number format and then click OK twice to see the changes.

Figure 3.4
Choose an easier-to-read
number format from the
Format Cells dialog box.



Replacing Blanks with Zeros

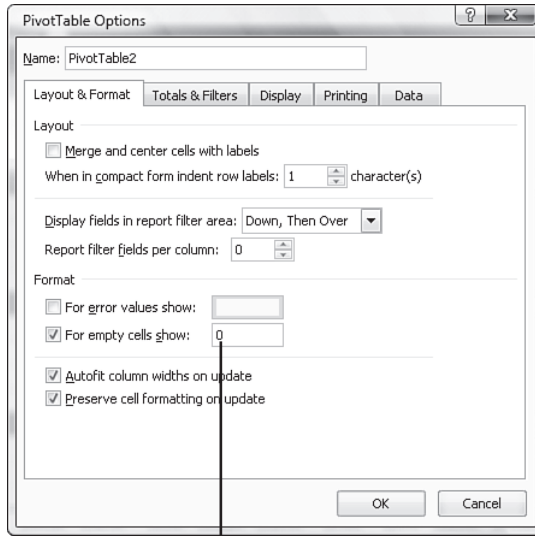
One of the elements of good spreadsheet design is that you should never leave blank cells in a numeric section of the worksheet. Even Microsoft believes in this rule; if your source data for a pivot table contains 1 million numeric cells and 1 blank cell, Excel 2007 treats the entire column as if it were text. This is why it is incredibly annoying that the default setting for a pivot table leaves many blanks in the values area of some pivot tables.

The blank tells you that there were no sales for that particular combination of labels. In the default view, an actual zero is used to indicate that there was activity, but the total sales were zero. This value might mean that a customer bought something and then returned it, resulting in net sales of zero. Although there are limited applications in which you would want to differentiate between having no sales and having net zero sales, this seems rare. In 99% of the cases, you should fill in the blank cells with zeros.

Follow these steps to change this setting for the current pivot table:

1. Select a cell inside the pivot table.
2. On the Options ribbon, choose the Options icon from the Pivot Table Options group to display the PivotTable Options dialog box.
3. On the Layout & Format tab, in the Format section, type **0** next to the field labeled For Empty Cells Show (see Figure 3.5).
4. Click OK to accept the change.

Figure 3.5
Enter a zero here to replace the blank cells with zero.



Enter a zero here

The result is that the pivot table is filled with zeros instead of blanks, as shown in Figure 3.6.

Figure 3.6
Your report is now a solid contiguous block of non-blank cells.

Sum of Revenue	Column Labels				
Row Labels	101313	101419	102516	103516	173901
MIDWEST	\$0K	\$0K	\$63K	\$102K	\$0K
DENVER	\$0K	\$0K	\$0K	\$0K	\$0K
KANSAS CITY	\$0K	\$0K	\$0K	\$0K	\$0K
TULSA	\$0K	\$0K	\$63K	\$102K	\$0K
NORTH	\$0K	\$125K	\$0K	\$0K	\$0K
BUFFALO	\$0K	\$0K	\$0K	\$0K	\$0K
CANADA	\$0K	\$0K	\$0K	\$0K	\$0K
MICHIGAN	\$0K	\$125K	\$0K	\$0K	\$0K
NEW YORK	\$0K	\$0K	\$0K	\$0K	\$0K
SOUTH	\$445K	\$0K	\$0K	\$0K	\$107K
CHARLOTTE	\$0K	\$0K	\$0K	\$0K	\$107K
DALLAS	\$0K	\$0K	\$0K	\$0K	\$0K
FLORIDA	\$445K	\$0K	\$0K	\$0K	\$0K
NEW ORLEANS	\$0K	\$0K	\$0K	\$0K	\$0K
WEST	\$0K	\$0K	\$0K	\$0K	\$0K
CALIFORNIA	\$0K	\$0K	\$0K	\$0K	\$0K

Changing a Field Name

Every field in the final pivot table has a name. Fields in the row, column, and filter areas inherit their names from the heading in the source data. Fields in the data section are given names such as Sum of Revenue. In some instances, you may prefer to print a different name in the pivot table. You might prefer Total Revenue instead of the default name. In these situations, the capability to change your field names comes in quite handy.

Although many of the names are inherited from headings in the original dataset, when your data is from an external data source, you might not have control over field names. In these cases, you might want to change the names of the fields as well.

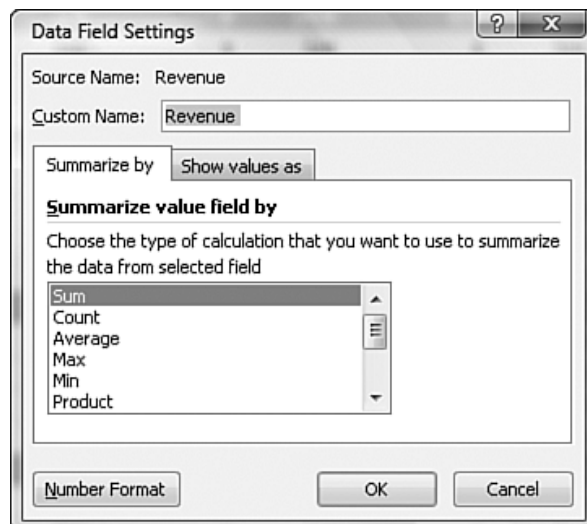
To change a field name in the values area, follow these steps:

1. Select a cell in the pivot table that contains the appropriate value. In Figure 3.7, the values area contains both hours and revenue. If you want to rename Sum of Revenue, select any cell from B5:B24.
2. On the Options ribbon, select the Field Settings icon from the Active Field group.
3. In the Data Field Settings dialog box, type a new name in the Custom Name field. You can enter any unique name you like. One common frustration occurs when you would like to rename Sum of Revenue to Revenue. The problem is that this name is not allowed because it is not unique; you already have a Revenue field in the source data. To work around this limitation, you can name the field and add a space to the end of the name. Excel considers “Revenue ” (with a space) to be different from “Revenue” (with no space). Because this change is cosmetic, the readers of your spreadsheet will not notice the space after the name.

The new name appears in the pivot table. Now look at cell B5 in Figure 3.7. The name Revenue (with a space) is less awkward than the default Sum of Revenue.

Figure 3.7

The name typed in the Custom Name box appears in the pivot table. Although names should be unique, you can trick Excel into accepting a similar name by adding a space to the end of it.



TIP

If you rename a field in the row, column, or filter areas, the dialog box that opens in response to Field Settings is called Field Settings instead of Data Field Settings. This dialog box has different options, but the Custom Name field is located in the same place as shown in Figure 3.7.

Making Layout Changes

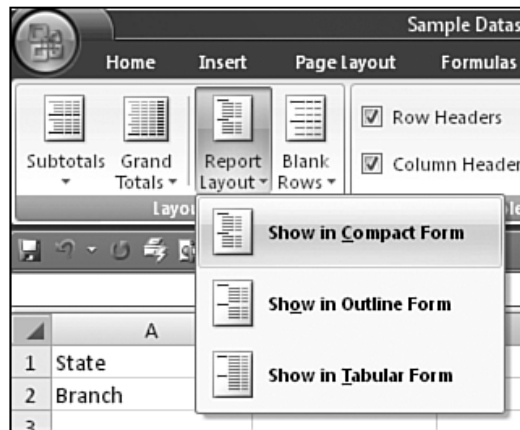
Excel 2007 offers three layout styles instead of the two styles available in previous versions of Excel. The new style—Compact Layout—is promoted to be the default layout for your pivot tables.

Layout changes are controlled in the Layout group of the Design ribbon, as shown in Figure 3.8. This group offers four icons:

- **Subtotals**—Moves subtotals to the top or bottom of each group, or turns them off.
- **Grand Totals**—Turns the grand totals on or off for rows and columns.
- **Report Layout**—Uses the Compact, Outline, or Tabular forms.
- **Blank Rows**—Inserts or removes blank lines after each group.

Figure 3.8

The Layout group on the Design ribbon offers different layouts and options for totals.

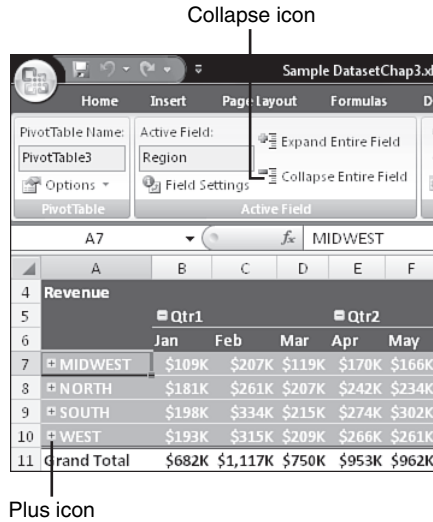


Using the New Compact Layout

By default, all new pivot tables use the compact layout shown in Figure 3.6. In this layout, multiple fields in the row area are stacked up in column A. Note in the figure that the Denver market and Midwest region are both in column A.

The compact form is suited for using the Expand and Collapse icons. Select one of the market cells—A7 as an example—and click the Collapse Entire Field icon on the Options ribbon. Excel hides all the detail below this field and shows only the regions, as shown in Figure 3.9.

Figure 3.9
Click the Collapse Entire Field icon to hide levels of detail.

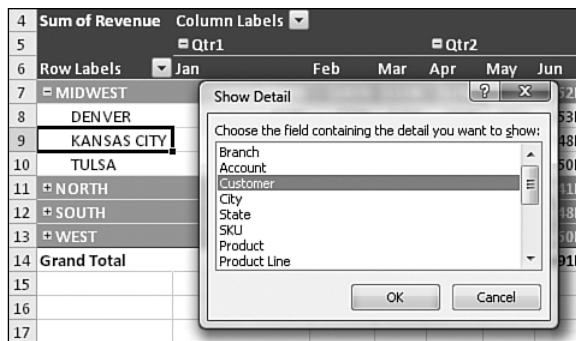


After a field is collapsed, you can show detail for individual regions by using the plus icons in column A, or you can click Expand Entire Field on the Options ribbon to see the detail again.

TIP

If you select a cell in the innermost row field and click Expand Entire Field, Excel displays the Show Detail dialog box, as shown in Figure 3.10, to allow you to add a new innermost row field.

Figure 3.10
When you attempt to expand the innermost field, Excel offers to add a new innermost field.



Using the Outline Form Layout

When you select Design, Layout, Report Layout, Show in Outline Form, Excel fills column A with the outermost row field. Additional row fields occupy columns B, C, and so on.

Figure 3.11 shows the pivot table in Outline form.

Figure 3.11
The Outline layout puts each row field in a separate column.

Sum of Revenue		Quarters	Invoice
		Qtr1	
Region	Market	Jan	Feb
MIDWEST			\$109K
	DENVER		\$38K
	KANSAS CITY		\$35K
	TULSA		\$37K
NORTH			\$181K
	BUFFALO		\$33K
	CANADA		\$52K
	MICHIGAN		\$41K
	NEW YORK		\$54K
SOUTH			\$198K
	CHARLOTTE		\$61K

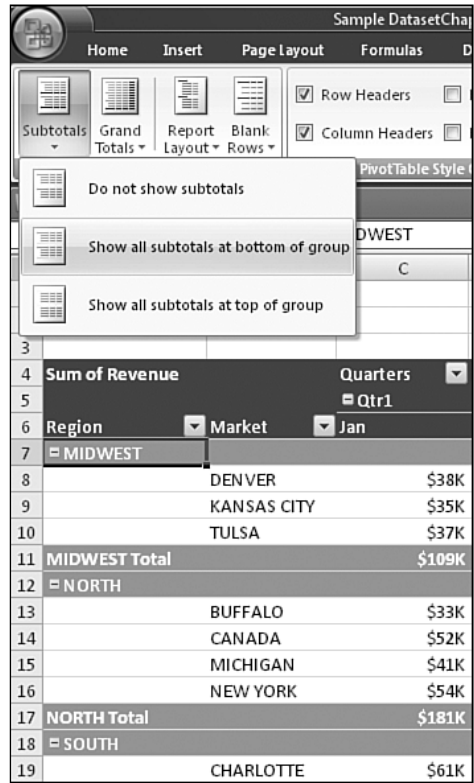
This layout is better suited if you plan to copy the values from the pivot table to a new location for further analysis. Although the Compact layout offers a clever approach by squeezing multiple fields in one column, it is not ideal for reusing the data later.

By default, both the Compact and Outline layouts put the subtotals at the top of each group. You can use the Subtotals drop-down on the Design ribbon to move the totals to the bottom of each group, as shown in Figure 3.12.

Using the Traditional Tabular Layout

Pivot table veterans will recognize the tabular layout shown in Figure 3.13. This layout is similar to the one that has been used in pivot tables since their invention. In this layout, the subtotals can never appear at the top of the group.

Figure 3.12
 With subtotals at the bottom of each group, the pivot table occupies several more rows.



The tabular layout is probably the best layout if you hope to later use the resulting summary data in a subsequent analysis.

Figure 3.13
The tabular layout is similar to pivot tables in prior versions of Excel.

Region	Market	Qtr1	Qtr2	Qtr3	Qtr4	Grand Total
MIDWEST	DENVER	\$153K	\$167K	\$165K	\$161K	\$646K
MIDWEST	KANSAS CITY	\$137K	\$154K	\$149K	\$135K	\$575K
MIDWEST	TULSA	\$146K	\$166K	\$160K	\$156K	\$628K
MIDWEST Total		\$436K	\$487K	\$475K	\$451K	\$1,849K
NORTH	BUFFALO	\$106K	\$115K	\$114K	\$115K	\$450K
NORTH	CANADA	\$192K	\$203K	\$194K	\$187K	\$776K
NORTH	MICHIGAN	\$146K	\$172K	\$183K	\$177K	\$679K
NORTH	NEW YORK	\$204K	\$227K	\$220K	\$221K	\$874K
NORTH Total		\$649K	\$718K	\$712K	\$701K	\$2,779K
SOUTH	CHARLOTTE	\$216K	\$232K	\$223K	\$219K	\$891K
SOUTH	DALLAS	\$106K	\$120K	\$125K	\$116K	\$467K
SOUTH	FLORIDA	\$341K	\$383K	\$356K	\$370K	\$1,450K
SOUTH	NEW ORLEANS	\$84K	\$89K	\$83K	\$77K	\$333K
SOUTH Total		\$747K	\$825K	\$787K	\$783K	\$3,141K
WEST	CALIFORNIA	\$540K	\$573K	\$587K	\$555K	\$2,255K
WEST	PHOENIX	\$135K	\$157K	\$151K	\$127K	\$570K
WEST	SEATTLE	\$43K	\$46K	\$46K	\$45K	\$180K
WEST Total		\$717K	\$777K	\$784K	\$726K	\$3,005K
Grand Total		\$2,549K	\$2,807K	\$2,758K	\$2,661K	\$10,774K

CASE STUDY

Converting a Pivot Table to Values

Say that you want to summarize your dataset to show sales by Region, Market, and Quarter. Your goal is to export this data for use by another system.

The result in Figure 3.13 is close to the desired output, with a few exceptions:

- The subtotals in rows 9, 14, 19, and 23 should be removed.
- The blank cells in A7:A8, A11:A13, A16:A18, and A21:A22 should be filled in.
- The grand total should be removed from row 24 and column G.
- The pivot table should be converted from a live pivot table to static values.

To make these changes, follow these steps:

1. Select any cell in the pivot table.
2. From the Design ribbon, choose Grand Totals, Off for Rows and Columns.

3. Select Design, Subtotals, Do Not Show Subtotals.
4. Select A5:F19, as shown in Figure 3.14.

Figure 3.14
After removing the total and subtotal information, select the data and one row of headings.

Sum of Revenue		Quarters			
Region	Market	Qtr1	Qtr2	Qtr3	Qtr4
MIDWEST	DENVER	\$153K	\$167K	\$165K	\$161K
	KANSAS CITY	\$137K	\$154K	\$149K	\$135K
	TULSA	\$146K	\$166K	\$160K	\$156K
NORTH	BUFFALO	\$106K	\$115K	\$114K	\$115K
	CANADA	\$192K	\$203K	\$194K	\$187K
	MICHIGAN	\$146K	\$172K	\$183K	\$177K
SOUTH	NEW YORK	\$204K	\$227K	\$220K	\$221K
	CHARLOTTE	\$216K	\$232K	\$223K	\$219K
	DALLAS	\$106K	\$120K	\$125K	\$116K
	FLORIDA	\$341K	\$383K	\$356K	\$370K
WEST	NEW ORLEANS	\$84K	\$89K	\$83K	\$77K
	CALIFORNIA	\$540K	\$573K	\$587K	\$555K
	PHOENIX	\$135K	\$157K	\$151K	\$127K
	SEATTLE	\$43K	\$46K	\$46K	\$45K

5. Press Ctrl+C to copy the data from the pivot table.
6. In a blank section of the workbook, choose Home, Clipboard, Paste, Paste Values to make a static copy of the data. The final step is filling in the blank cells in the first column of the table.
7. Select column A of the dataset.
8. In the Editing group of the Home ribbon, choose the Find & Select drop-down and then choose Go To Special.
9. In the Go To Special dialog box, as shown in Figure 3.15, select Blanks and click OK.
10. Type the equal sign (=), press the up-arrow key, and then press Ctrl+Enter to accept this formula for all the blank cells. This combination enters a formula in which each blank cell inherits the value from the cell above it, as shown in Figure 3.16.

CAUTION

If you attempt to choose Copy and then Paste Values, Excel complains that you cannot use this command on nonadjacent cells. Instead, follow steps 11–13.

11. Reselect the cells in column A.
12. Click the Copy icon in the Clipboard group on the Home ribbon.
13. Choose Paste Values from the Paste drop-down on the Home ribbon.

Figure 3.15

Choosing Blanks from the Go To Special dialog box selects only the blank cells in column A.

**Figure 3.16**

The last step is changing the formulas in column A to values.

	A3		fx =A2			
	A	B	C	D	E	F
1	Region	Market	Qtr1	Qtr2	Qtr3	Qtr4
2	MIDWEST	DENVER	152765.3	166664.4	165395.1	160758.5
3	MIDWEST	KANSAS CITY	136665.2	154095.8	149462	134676
4	MIDWEST	TULSA	146153.9	166451.2	159978.8	155821
5	NORTH	BUFFALO	106007.1	114995.1	114101.4	115374.7
6	NORTH	CANADA	192128.2	203268.4	194148.3	186700.4
7	NORTH	MICHIGAN	146055.7	172088.1	183393.4	177167.7
8	NORTH	NEW YORK	204326.6	227364.4	220464.5	221425.4
9	SOUTH	CHARLOTTE	215948.3	232195.5	223124.8	219253.9
10	SOUTH	DALLAS	105561.7	120483.6	124672.2	116371.9
11	SOUTH	FLORIDA	341442.1	382833.5	355618.1	370498.4
12	SOUTH	NEW ORLEANS	84270.91	89273.93	83194.94	76713.87
13	WEST	CALIFORNIA	539932.3	573288.1	586729.8	554785.2
14	WEST	PHOENIX	134711.2	157080.3	151470.6	126993
15	WEST	SEATTLE	42662.6	46484.11	46151.79	44528.71
16						

The result is a solid block of summary data, as shown in Figure 3.17. These 90 cells are a summary of the 1.1 million cells in the original dataset, but they also are suitable for exporting to other systems.

Figure 3.17
The final dataset is suitable for exporting to another system.

	A	B	C	D	E	F
1	Region	Market	Qtr1	Qtr2	Qtr3	Qtr4
2	MIDWEST	DENVER	152765.3	166664.4	165395.1	160758.5
3	MIDWEST	KANSAS CITY	136665.2	154095.8	149462	134676
4	MIDWEST	TULSA	146153.9	166451.2	159978.8	155821
5	NORTH	BUFFALO	106007.1	114995.1	114101.4	115374.7
6	NORTH	CANADA	192128.2	203268.4	194148.3	186700.4
7	NORTH	MICHIGAN	146055.7	172088.1	183393.4	177167.7
8	NORTH	NEW YORK	204326.6	227364.4	220464.5	221425.4
9	SOUTH	CHARLOTTE	215948.3	232195.5	223124.8	219253.9
10	SOUTH	DALLAS	105561.7	120483.6	124672.2	116371.9
11	SOUTH	FLORIDA	341442.1	382833.5	355618.1	370498.4
12	SOUTH	NEW ORLEANS	84270.91	89273.93	83194.94	76713.87
13	WEST	CALIFORNIA	539932.3	573288.1	586729.8	554785.2
14	WEST	PHOENIX	134711.2	157080.3	151470.6	126993
15	WEST	SEATTLE	42662.6	46484.11	46151.79	44528.71
16						

Controlling Blank Lines, Grand Totals, Subtotals, and Other Settings

Additional settings in the pivot table allow you to toggle various elements.

Subtotals can be moved to the top or bottom of the group or turned off entirely. As noted previously, moving the subtotals to the top of the group saves a few rows in the pivot table. However, top subtotals are available only when the layout is set to Compact or Outline. Use the Subtotals icon on the Design ribbon to choose the subtotals option. Figure 3.18 shows the subtotals at the top of each group.

Grand totals can appear at the bottom of each column and/or at the end of each row, or they can be turned off altogether. Settings for grand totals appear in the Grand Totals drop-down of the Layout group on the Design ribbon. The wording in this drop-down seems just a bit confusing.

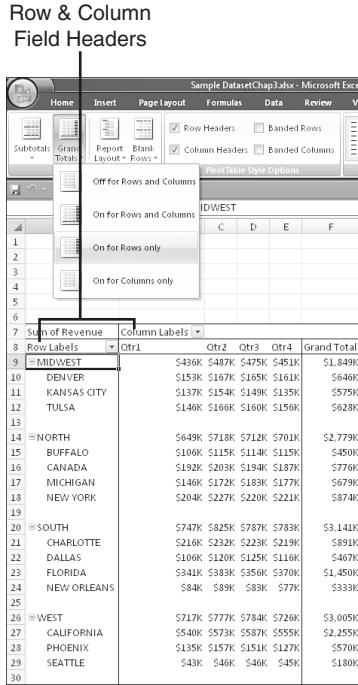
If you would like a grand total column on the right side of the table, you need to select On for Rows only. Even though it is a grand total column, each total is totaling a single row.

Similarly, to add a grand total row, you need to select On for Rows Columns only. Each individual grand total in the total row is totaling the cells in a column.

In Figure 3.18, the grand total column appears because the Grand Totals drop-down is set to On For Rows Only.

The Blank Rows drop-down allows you to insert blank lines between groups. In Figure 3.18, the blank lines in rows 13, 19, and 25 appear because Insert Blank Line After Each Item was selected in the Blank Rows drop-down.

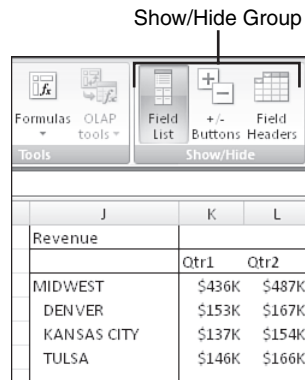
Figure 3.18 Subtotals at the top, grand totals for the rows, and blank lines between groups are controlled through icons in the Layout group on the Design ribbon.



As you examine the pivot table in Figure 3.18, you might think the area around B8:B9 appears strange. Whereas the sales figures for columns C, D, and E are closely aligned with the headings, the Qtr1 heading in B8 appears far away from the sales figures in B9:B29. This happens because all the headings in B8:E8 are left-aligned. Something is causing column B to be too wide. That something is the text Column Labels in B7. This text, plus Row Labels in A8, is a new feature in Excel 2007. Although this feature might have been designed to improve readability, it is annoying that the text makes column B too wide.

To remove these text entries, click the Field Headers icon in the Show/Hide group on the Options ribbon. This group also has icons to turn off the plus and minus buttons or to hide the PivotTable Field List. Figure 3.19 shows this section of the Ribbon, as well as the pivot table with all three items turned off.

Figure 3.19
In Excel 2007, field headers serve little purpose.



Customizing the Pivot Table Appearance with Styles and Themes

The PivotTable Styles gallery on the Design ribbon offers 84 built-in styles. Grouped into 28 styles each of Light, Medium, and Dark, the gallery offers variations on the accent colors used in the current theme.

Note that you can modify the thumbnails for the 84 styles shown in the gallery by using the four check boxes in the PivotTable Style Options group. In Figure 3.20, the 84 styles are shown with all four of the option buttons unchecked.

In Figure 3.21, the 84 styles are shown with accents for row headers, column headers, and alternating colors in the columns.

The PivotTable Style Options group appears to the left of the PivotTable Styles gallery. If you want banded rows or columns, it is best to choose this option before opening the gallery. Some of the 84 themes do not support banded columns or banded rows.

TIP

By checking the Banded Columns check box prior to opening the gallery, you can see which styles support the banded columns. If the Banded Columns or Rows check box is selected and the thumbnail in the gallery does not show the effect, you know to avoid that style.

Excel 2007's Live Preview feature works in the styles gallery. As you hover your mouse cursor over style thumbnails, the worksheet shows a preview of the style.

Figure 3.20
The 84 thumbnails appear one way when no style options are checked.

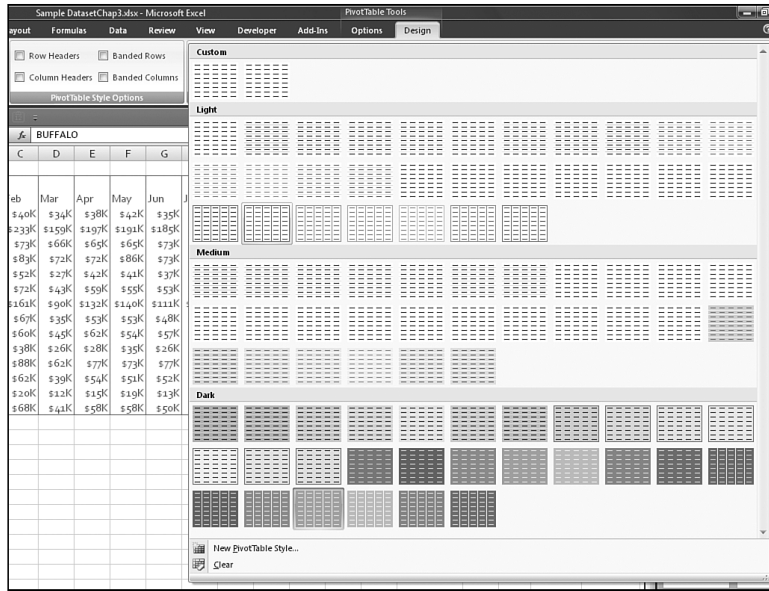
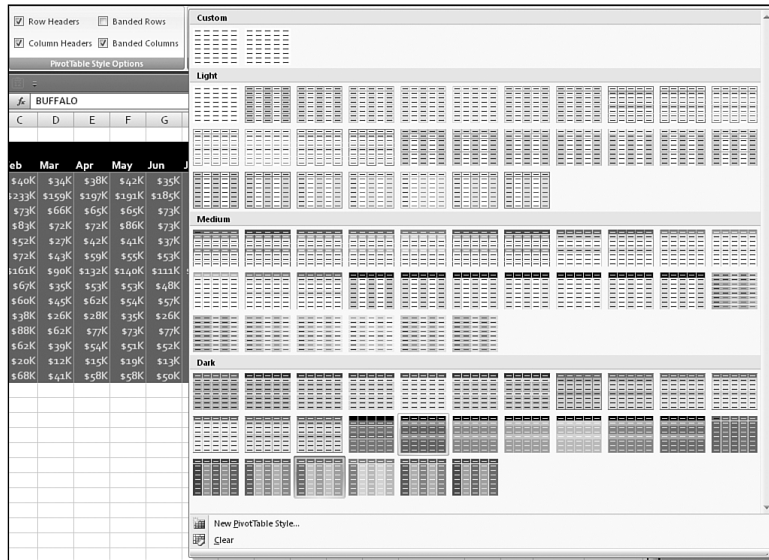


Figure 3.21
The 84 thumbnails appear differently with three style options checked. You can see that many of the styles do not support banded columns, even though this option is chosen.



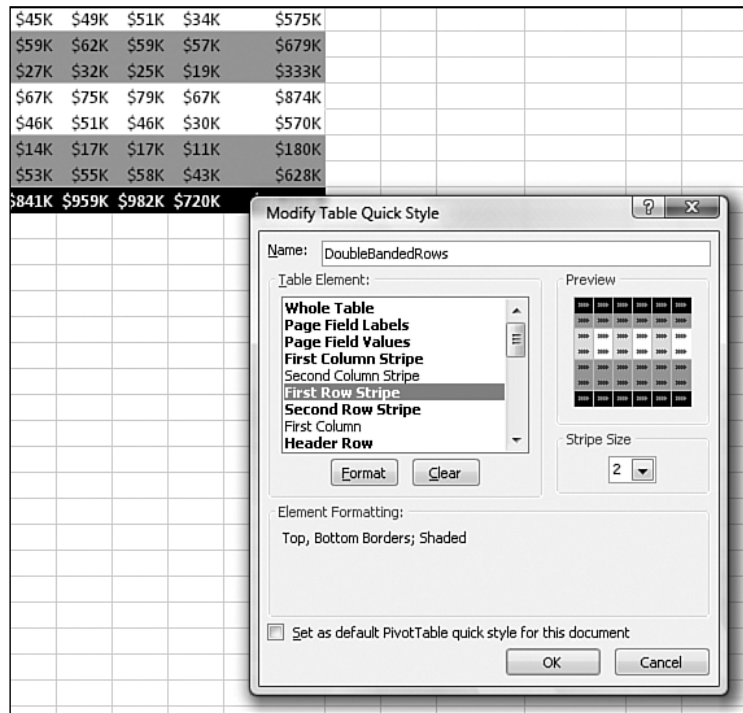
Customizing a Style

You can create your own pivot table styles. The new styles are added to the gallery and will be available on every new pivot table created on your computer.

Say that you want to create a pivot table style in which the banded colors are two rows high. Follow these steps to create the new style:

1. Find an existing style in the PivotTable Styles gallery that supports banded rows. Right-click the style in the gallery and choose Duplicate. Excel displays the Modify Table Quick Style dialog box.
2. Choose a new name for the style. Excel initially appends a 2 to the existing style name, so you have a name like PivotStyleMedium16 2.
3. In the Table Element list, click on First Row Stripe. A new section called Stripe Size appears in the dialog box.
4. Choose 2 from the Stripe Size drop-down, as shown in Figure 3.22.

Figure 3.22
Customize the style in the Modify Table Quick Style dialog box.



5. If you want to change the stripe color, click the Format button. The Format Cells dialog box appears. Here, click the Fill tab and then choose a fill color. Click OK to accept the color and return to the Modify Table Quick Style dialog box.
6. In the Table Element List, click on Second Row Stripe. Change the Stripe Size drop-down to 2.
7. Click OK. Prepare to be disappointed that the change didn't work. It's okay, though. When you modified table style Medium 16, you actually created a brand new style. The pivot table is still formatted in the original style.
8. Open the PivotTable Styles gallery. Your new style is added to the top of the gallery in the Custom section. Choose the style to apply the formatting, as shown in Figure 3.23.

Figure 3.23

Your new style is available at the top of the gallery.



Choosing a Default Style for Future Pivot Tables

You can control which style is the default style to use for all future pivot tables on the computer. The default can either be one of the built-in styles or a new custom style that you modified.

In the PivotTable Styles gallery on the Design ribbon, right-click the style and choose Set as Default.

Modifying Styles with Document Themes

The formatting options for pivot tables in Excel 2007 are impressive. The 84 styles, combined with 8 combinations of the Style options, make for hundreds of possible format combinations.

In case you ever become tired of these combinations, you can visit the Themes drop-down on the Page Layout ribbon. Twenty built-in themes are available here. Each theme has a new combination of accent colors, fonts, and shape effects. Choosing a new theme affects the fonts and colors in your pivot table styles.

To change a document theme, open the Themes drop-down on the Page Layout ribbon. As you hover the mouse cursor over the themes in the drop-down, Live Preview shows you the colors and fonts in your table, as shown in Figure 3.24. To select a theme, click on it.

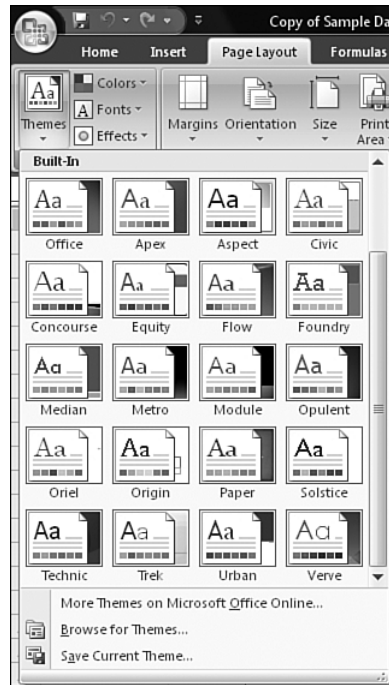
CAUTION

Changing the theme affects the entire workbook. It changes the colors, fonts, and effects of all charts, shapes, tables, and pivot tables on all worksheets of the active workbook.

TIP

Some of the themes have contemporary fonts. You can apply the colors from a new theme without changing the fonts in your document by using the Colors drop-down in the Themes group on the Page Layout ribbon.

Figure 3.24
Choose a document theme to modify the colors and fonts in the built-in styles.



Changing Summary Calculations

When creating your pivot table report, Excel, by default, summarizes your data by either counting or summing the items. Instead of Sum or Count, you might want to choose functions such as Min, Max, and Count Numeric. In all, 11 options are available. However, the common reason to change a summary calculation is that Excel incorrectly chose to count instead of sum your data.

Understanding Why One Blank Cell Causes a Count

If all the cells in a column contain numeric data, Excel chooses to sum. If just one cell is either blank or contains text, Excel chooses to count.

In Figure 3.25, the worksheet contains more than 60,000 numeric entries in column N and a single blank cell in N2. The one blank cell is enough to cause Excel to count the data instead of summing.

In Excel 2007, the first clue that you have a problem appears when you click the check box for Revenue in the Fields section of the PivotTable Field List. If Excel moves the Revenue field to the Row Labels drop zone, you know that Excel considers the field to be text instead of numeric.

Figure 3.25
The single blank cell in N2 causes problems in the default pivot table.

N2		fx			
	K	L	M	N	O
1	Service Date	Invoice	Invoice Date	Revenue	Hours
2	1/14/2007	25207118	1/15/2007		3
3	2/11/2007	25405302	2/12/2007	\$157.52	3
4	3/9/2007	25606405	3/10/2007	\$157.52	3
5	4/27/2007	26027333	4/28/2007	\$157.52	3
6	4/27/2007	26027497	4/28/2007	\$157.52	3
7	6/18/2007	26454936	6/18/2007	\$157.52	3

Be vigilant while dragging fields into the Values drop zone. If a calculation appears to be dramatically too low, check to see whether the field name reads Count of Revenue instead of Sum of Revenue. When you created the pivot table in Figure 3.26, you should have noticed that your company had only \$68,613 in revenue instead of \$10 million. This should be a hint to notice that the heading in B3 reads Count of Revenue instead of Sum of Revenue. In fact, 68,613 is the number of records in the dataset.

Figure 3.26
Your revenue numbers look anemic. Notice in cell B3 that Excel chose to count instead of sum the revenue. This often happens if you inadvertently have one blank cell in your Revenue column.

	A	B	C
1			
2			
3	Row Labels	Count of Revenue	
4	MIDWEST	12432	
5	NORTH	16103	
6	SOUTH	22186	
7	WEST	17892	
8	Grand Total	68613	
9			
10			

You can easily override the incorrect Count calculation. Activate the Data Field Settings dialog box by double-clicking on Count of Revenue and then change the Summarize Value Field By setting from Count to Sum, as shown in Figure 3.27.

Using Functions Other Than Count or Sum

Excel offers a total of 11 functions in the Summarize By section of the PivotTable Field dialog box. The options available are as follows:

- **Sum**—Provides a total of all numeric data.
- **Count**—Counts all cells, including numeric, text, and error cells. This is equivalent to the Excel function =COUNTA().
- **Average**—Provides an average. Figure 3.28 shows a report detailing average sales per region and product line. An analyst might wonder why the average housekeeping sale in the West is \$152 higher than in the Midwest.

Figure 3.27
Change the function from Count to Sum in the Data Field Settings dialog box.

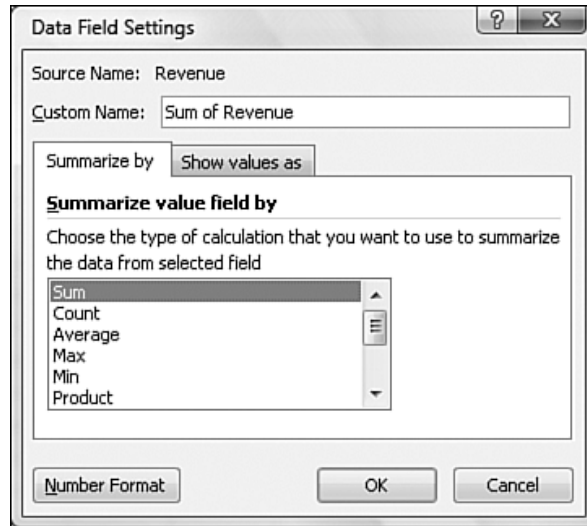


Figure 3.28
Average sales per region and product line.

Average of Revenue					
	MIDWEST	NORTH	SOUTH	WEST	Grand Total
Housekeeping	401	417	512	553	449
Landscaping	180	161	174	172	171
Maintenance	133	149	126	156	139
Grand Total	149	173	142	168	157

- **Max**—Shows the largest value.
- **Min**—Shows the smallest value.
- **Product**—Multiplies all the cells together. For example, if your dataset has cells with values of 3, 4, and 5, the product would be 60.
- **Count Nums**—Counts only the numeric cells. This is equivalent to the Excel function =COUNT().
- **StdDev** and **StdDevP**—Calculate the standard deviation. Use StdDevP if your dataset contains the complete population. Use StdDev if your dataset contains a sample of the population. Figure 3.29 shows the results of two tests. Although the students averaged 87% on both tests, the math test had a higher standard deviation. Standard deviations explain how tightly results are grouped around the mean.
- **Var** and **VarP**—Calculate the statistical variance. Use VarP if your data contains a complete population. If your data contains only a sampling of the complete population, use Var to estimate the variance.

Figure 3.29

A low standard deviation on the science test means that all the students understand the concepts equally well. A higher standard deviation on the math test indicates that student scores were spread over a wider range.

	Average of Grade	StdDevp of Grade2
Math	87.0%	3.7%
Science	87.0%	0.6%
Grand Total	87.0%	2.7%

Adding and Removing Subtotals

Subtotals are undeniably an essential feature of pivot table reporting. Sometimes you may want to suppress the display of subtotals, and other times you may want to show more than one subtotal per field.

Suppress Subtotals When You Have Many Row Fields

When you have many row fields in your report, subtotals can mire your view. Take the example in Figure 3.30. You might want to suppress the subtotals for the Market and Product Line fields.

Figure 3.30

Sometimes you don't need subtotals at every level.

Region	Market	Product Line	Product	Sum of Revenue
MIDWEST	DENVER	Housekeepin	Cleaning & Housekeeping Services	12,564
			Housekeeping Total	12,564
		Landscaping	Green Plants and Foliage Care	42,409
			Landscaping/Grounds Care	73,622
		Landscaping Total	116,030	
		Maintenance	Facility Maintenance and Repair	160,324
			Fleet Maintenance	170,190
			Predictive Maintenance/Preventative Maintenance	186,475
			Maintenance Total	516,989
		DENVER Total		645,583
	KANSAS CITY	Housekeepin	Cleaning & Housekeeping Services	65,439
			Housekeeping Total	65,439
		Landscaping	Green Plants and Foliage Care	35,315
			Landscaping/Grounds Care	52,442
		Landscaping Total	87,757	
		Maintenance	Facility Maintenance and Repair	132,120
			Fleet Maintenance	133,170
			Predictive Maintenance/Preventative Maintenance	156,412
			Maintenance Total	421,703
		KANSAS CITY Total		574,899
TULSA	Housekeepin	Cleaning & Housekeeping Services	96,515	

To remove subtotals for the Product Line field, click on the Product Line field in the drop zone section of the PivotTable Field List. Choose Field Settings. In the Field Settings dialog box, choose None under Subtotals, as shown in Figure 3.31.

Repeat this step for other row fields. After repeating these steps for Market, you'll find the report in Figure 3.32 to be much easier on the eyes.

Figure 3.31
Choose None to remove subtotals at the Product Line level.

The screenshot shows the 'Field Settings' dialog box with the following configuration:

- Source Name: Product Line
- Custom Name: Product Line
- Subtotals & Filters tab is selected.
- Subtotals section:
 - Automatic:
 - None:
 - Custom:
- Select one or more functions:
 - Sum
 - Count
 - Average
 - Max
 - Min
 - Product
- Filter section:
 - Include new items in manual filter:

Figure 3.32
After specifying None for two fields, you give the report a cleaner look.

Region	Market	Product Line	Product	Sum of Revenue	
MIDWEST	DENVER	Housekeeping	Cleaning & Housekeeping Services	12,564	
		Landscaping	Green Plants and Foliage Care	42,409	
			Landscaping/Grounds Care	73,624	
		Maintenance		Facility Maintenance and Repair	160,324
				Fleet Maintenance	170,190
				Predictive Maintenance/Preventative Maintenance	186,475
	KANSAS CITY	Housekeeping	Cleaning & Housekeeping Services	65,439	
		Landscaping	Green Plants and Foliage Care	35,315	
			Landscaping/Grounds Care	52,442	
		Maintenance		Facility Maintenance and Repair	132,120
				Fleet Maintenance	133,170
				Predictive Maintenance/Preventative Maintenance	156,412
TULSA	Housekeeping	Cleaning & Housekeeping Services	96,515		
	Landscaping	Green Plants and Foliage Care	15,838		
		Landscaping/Grounds Care	63,939		
	Maintenance		Facility Maintenance and Repair	170,632	
			Fleet Maintenance	145,440	
			Predictive Maintenance/Preventative Maintenance	136,041	
MIDWEST Total				1,848,887	

TIP

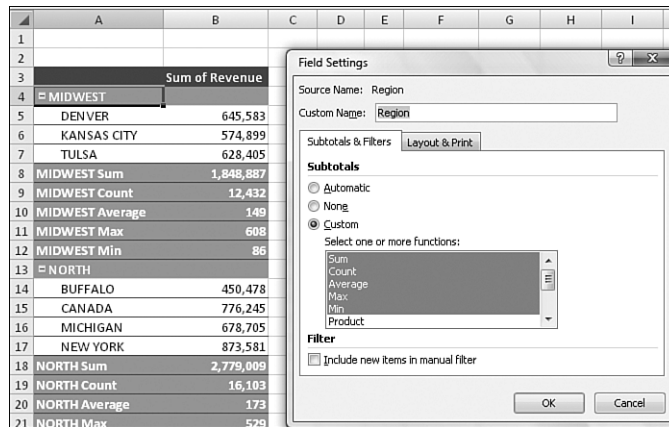
If you want to suppress the subtotals for all the row fields, it is easier to choose Design, Layout, Subtotals, Do Not Show Subtotals.

Adding Multiple Subtotals for One Field

You can add customized subtotals to a row or column label field. Select the Region field in the drop zone of the PivotTable Field List and choose Field Settings.

In the Field Settings dialog box, choose Custom and select the types of subtotals you would like to see. The dialog box in Figure 3.33 shows five subtotals selected for the Region field.

Figure 3.33
By selecting the Custom option in the Subtotals section, you can specify multiple subtotals for one field.



Using Running Total Options

So far, every pivot table created has used the Normal option. When you want to create running totals or compare an item to another item, you have eight choices other than Normal.

The nine options are on the second tab of the Data Field Settings dialog box. To access them, follow these steps:

1. Select a cell in the values area of your pivot table. Or, select the Sum of Revenue cell.
2. On the Options ribbon, click the Field Settings icon in the Active Group field.
3. Click the Show Values As tab in the Data Field Settings dialog box.

Initially, the Show Values As drop-down is set to Normal, and the Base Field and Base Item list boxes are grayed out, as shown in Figure 3.34.

The capability to create custom calculations is another example of the unique flexibility of pivot table reports. With the Show Data As setting, you can change the calculation for a particular data field to be based on other cells in the values area.

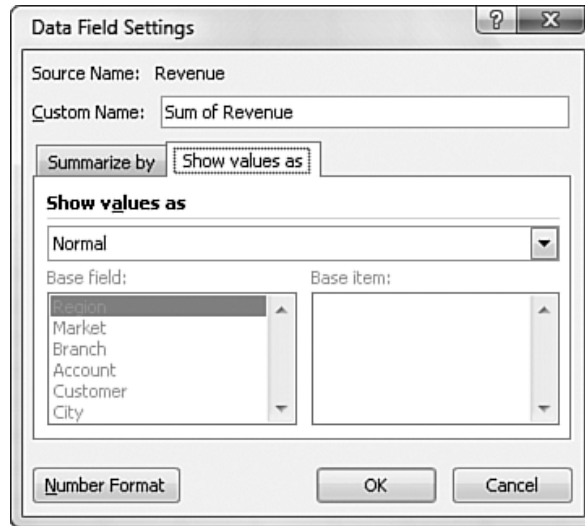
When you click the Show Values As drop-down, you have eight choices other than Normal. The choices are

- **% of Row**—Shows percentages that total across the pivot table to 100%.
- **% of Column**—Shows percentages that total up and down the pivot table to 100%.
- **% of Total**—Shows percentages such that all the detail cells in the pivot table total to 100%.
- **Difference From**—Shows the difference of one item compared to another item or to the previous item.

- **% of**—Expresses the values for one item as a percentage of another item.
- **% Difference From**—Expresses the percentage change from one item to another item.
- **Running Total In**—Calculates a running total.
- **Index**—Calculates the relative importance of items.

The following sections illustrate a number of these options.

Figure 3.34
Access the second tab of the Data Field Settings dialog box to see the running total options.



Display Change from Year to Year with Difference From

Companies always want to know how they are doing this month compared to last month. Or, if their business is seasonal, they want to know how they are doing this month versus the same month of last year.

To set up such a report, double-click the Sum of Revenue field and click the Show Values As tab. In the Show Data As drop-down list, select Difference From. Because you want to compare one year to another, select Years from the Base Field option. In the Base Item field are several viable options. If you always want to compare one year to the prior year, select the (Previous) option, as shown in Figure 3.35. If you have several years' worth of data and want to always compare to a base year of 2007, you could select 2007.

Figure 3.35 shows both the dialog box settings and the report that results from the settings. The report shows that January 2008 revenue was \$55K higher than the same month in 2007.

Figure 3.35

The Difference From option allows you to compare two different time periods.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2007												
2008		55K	130K	75K	38K	131K	62K	44K	109K	86K	96K	92K
Grand Total												

NOTE

When you use an option from the Show Data As drop-down list, Excel does not change the headings in any way to indicate that the data is in something other than normal view. It is helpful to manually add a title above the pivot table to inform the readers what they are looking at.

Compare One Year to a Prior Year with % Difference From

The % Difference From option is similar to Difference From. This option displays the change as a percentage of the base item. In Figure 3.36, the report shows 2008 as a percentage change from 2007.

Track YTD Numbers with Running Total In

If you need to compare a year-to-date (YTD) total revenue by month, you can do so with the Running Total In option. In Figure 3.37, the Revenue field is set up to show a Running Total In with a base field of Invoice Date. With this report, you can see that the company earned a total of \$2.6 million through March 2007.

Determine How Much Each Line of Business Contributes to the Total

The head of the company is often interested in what percentage of the revenue each division of the company is contributing. You can use the % of Row option, as in Figure 3.38, to show such a report. Each row totals to 100%. You can see that Maintenance contributed 70.97% of the revenue in February, but only 59.82% in December.

Figure 3.36
The % Difference From option shows that revenue from January 2008 is up 8.02% over January 2007.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Grand Total
2007													
2008	8.02%	11.64%	9.47%	3.97%	13.99%	6.73%	4.68%	11.25%	10.10%	9.94%	9.32%	-1.05%	8.45%
Grand Total													

Figure 3.37
The Running Total In option is great for calculating YTD totals.

	2007	2008	Grand Total
Jan	685K	740K	1,426K
Feb	1,802K	1,987K	3,789K
Mar	2,598K	2,858K	5,456K
Apr	3,542K	3,840K	7,382K
May	4,477K	4,905K	9,382K
Jun	5,397K	5,887K	11,284K
Jul	6,339K	6,874K	13,213K
Aug	7,308K	7,951K	15,259K
Sep	8,162K	8,892K	17,054K
Oct	9,129K	9,956K	19,085K
Nov	10,114K	11,032K	21,147K
Dec	10,776K	11,687K	22,463K
Grand Total			

Create Seasonality Reports

A seasonality report is great for seeing the seasonality of your business. The % of Column option produces percentages that total to 100% in each column. Figure 3.39 shows a report in which Jan+Feb+Mar+...+Dec add to 100% for each year.

Measure Percentage for Two Fields with % of Total

The option % of Total can be used for a myriad of reports. Figure 3.40 shows a report by Region and Product Line. The values in each cell show the percentage of revenue contribution from that region and line. Cell F8 shows that sales from Maintenance account for 66.53% of the total revenue. The South region's sales of Maintenance account for 21.95% of total sales.

Figure 3.38
The % of Row option produces percentages that total to 100% in each row.

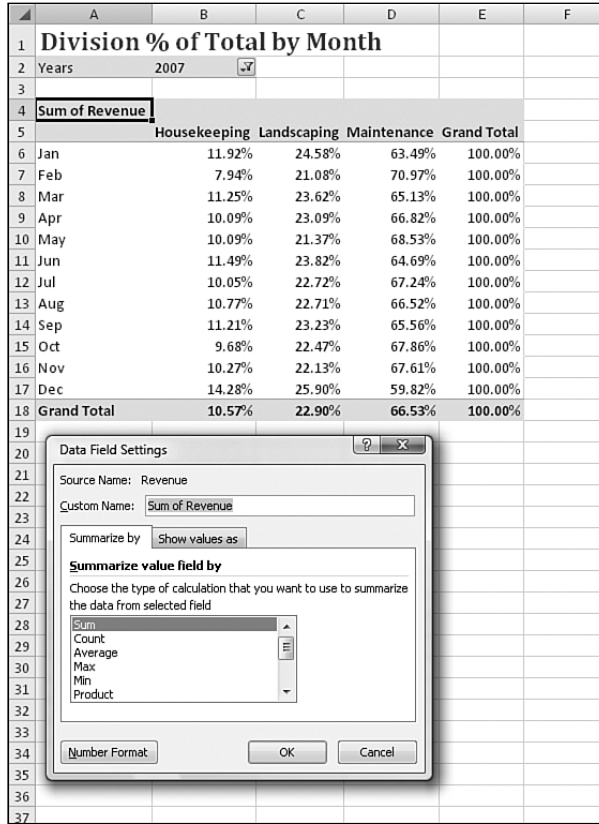


Figure 3.39
The % of Column option produces percentages that total to 100% in each column. This option is great for measuring seasonality.

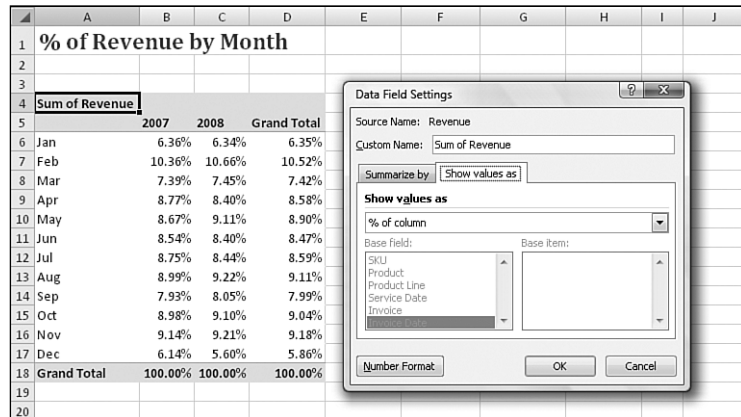


Figure 3.40

The % of Total option produces a report in which every cell is a percentage of total sales. The manager of the South Region Maintenance department can use this report to explain why his department should get a raise this year.

	A	B	C	D	E	F
1	% of Total Sales					
2						
3						
4	Sum of Revenue					
5		MIDWEST	NORTH	SOUTH	WEST	Grand Total
6	Housekeeping	1.62%	4.96%	2.63%	1.36%	10.56%
7	Landscaping	2.63%	4.22%	4.58%	11.48%	22.91%
8	Maintenance	12.91%	16.62%	21.95%	15.05%	66.53%
9	Grand Total	17.16%	25.79%	29.16%	27.89%	100.00%
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						

Data Field Settings

Source Name: Revenue

Custom Name: Sum of Revenue

Summarize by: Show values as

Show values as

% of total

Base field: SKU, Product, Product Line, Service Date, Invoice, Invoice Date

Base item:

Number Format OK Cancel

Compare One Line to Another Line Using % Of

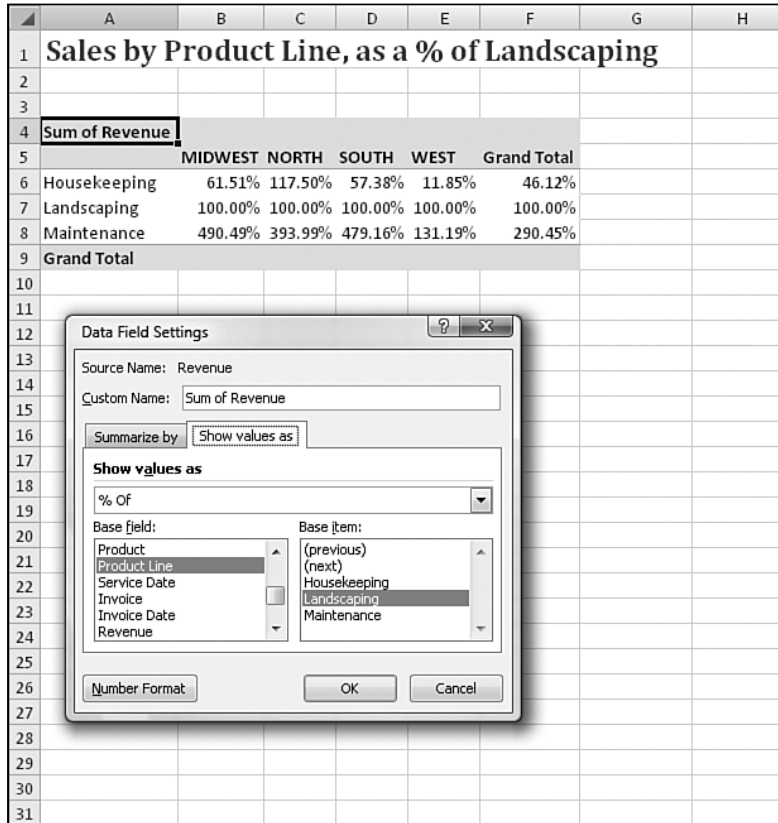
The % Of option allows you to compare one item to another item. This comparison might be relevant if you believe that housekeeping and landscaping should be related. You can set up a pivot table that compares each product line to landscaping revenue. The result is shown in Figure 3.41.

Track Relative Importance with the Index Option

The final option, Index, creates a fairly obscure calculation. Microsoft claims that this calculation describes the relative importance of a cell within a column.

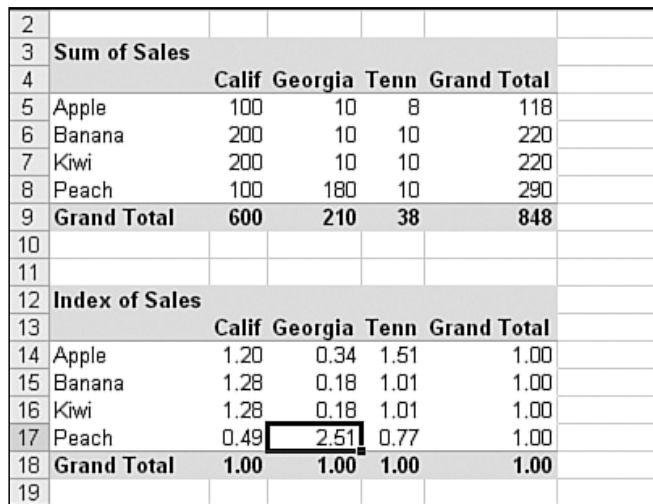
Look at the normal data at the top of Figure 3.42. To calculate the index for Georgia Peaches, Excel first calculates Georgia Peaches x Grand Total Sales. This would be \$180 x \$848. Next, Excel calculates Georgia Sales x Peach Sales. This would be \$210 x \$290. It then divides the first result by the second result to come up with a relative importance index of 2.51.

Figure 3.41
This report is created using the % Of option with Landscaping as the base item.



3

Figure 3.42
Using the Index function, Excel shows that peach sales are more important in Georgia than in Tennessee.



The index report is shown at the bottom of Figure 3.42. Excel explains that peaches are more important to Georgia (with an index of 2.51) than they are to California (with an index of 0.49).

Even though Georgia sold more apples than Tennessee, apples are more important to Tennessee (index of 1.51) than to Georgia (index of 0.34). Relatively, an apple shortage will cause more problems in Tennessee than in Georgia.

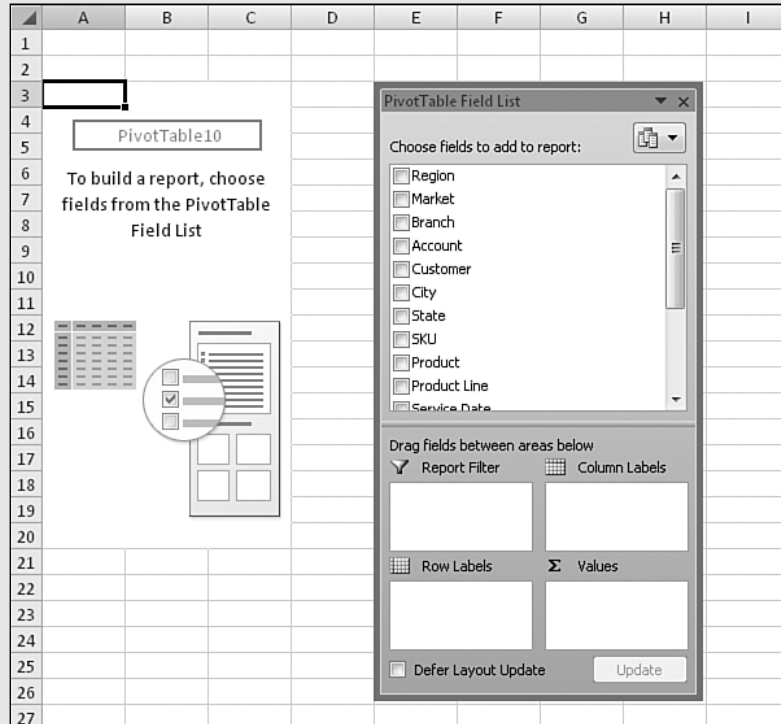
CASE STUDY

Producing Revenue by Line of Business Report

You have been asked to produce a report that provides a comprehensive look at revenue by product line. This analysis needs to include revenue dollars by product line for each market, the percent of revenue that each product line represents within the markets, and the percent total company dollars that each market represents within the product lines. Here are the steps to follow:

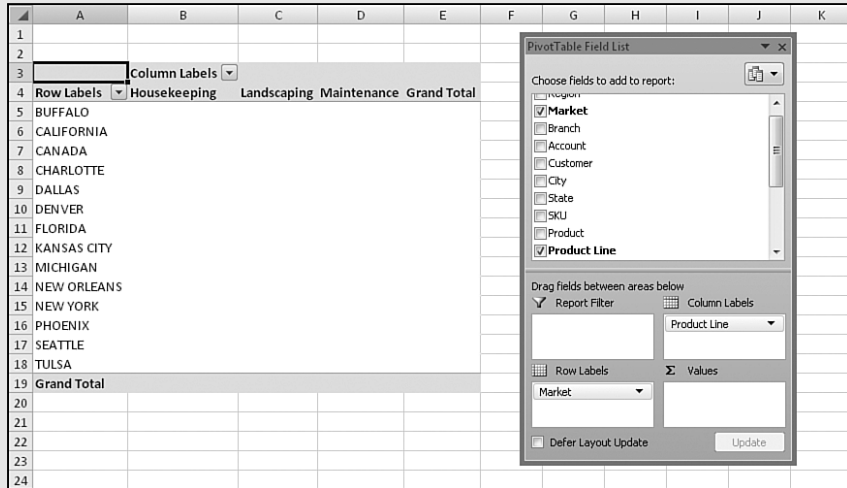
1. Place your cursor inside your data source. Choose the Insert ribbon and then click the Pivot Table icon.
2. When the Create PivotTable dialog box appears, simply choose OK. A new worksheet is created with the beginnings of a pivot table report and the PivotTable Field List, as shown in Figure 3.43.

Figure 3.43
After clicking OK, you get this blank pivot table report.



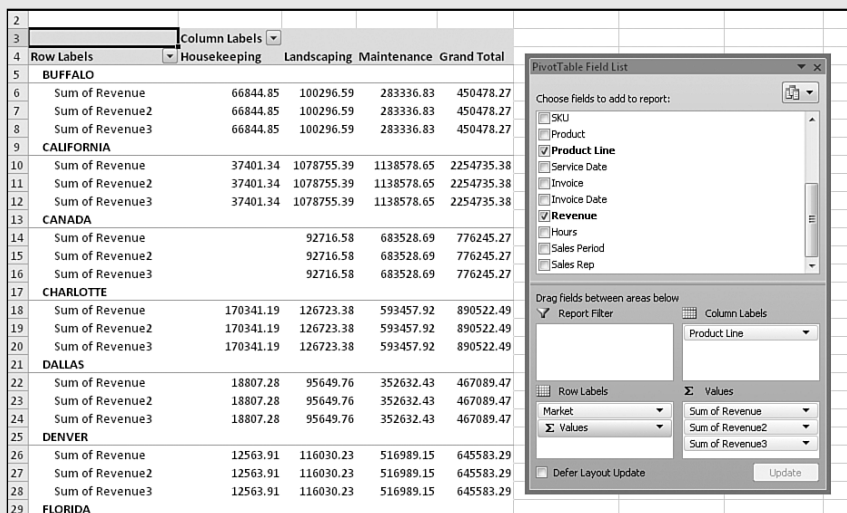
- Click the Market field in the fields section of the PivotTable Field List to automatically move Market to the Row Labels drop zone. Then drag the Product Line field into the Column Labels drop zone, as shown in Figure 3.44.

Figure 3.44
Setting up the row and column fields.



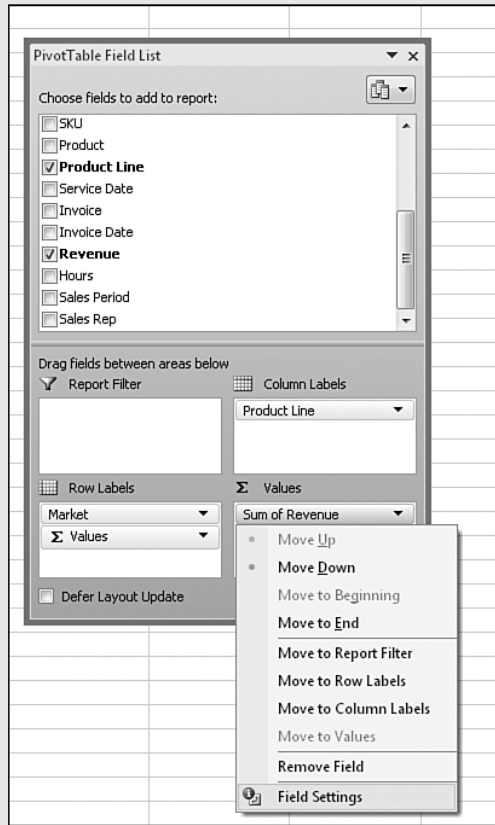
- Drag the Revenue field into the Values drop zone three times to create three separate revenue data items. There is a new Sum Values item in the Column Labels drop zone. Move this to the Row Labels drop zone, as shown in Figure 3.45.

Figure 3.45
Having three copies of Sum of Revenue doesn't look useful...yet.



- In the Values drop zone, click on the first Sum of Revenue field and select Field Settings, as shown in Figure 3.46.

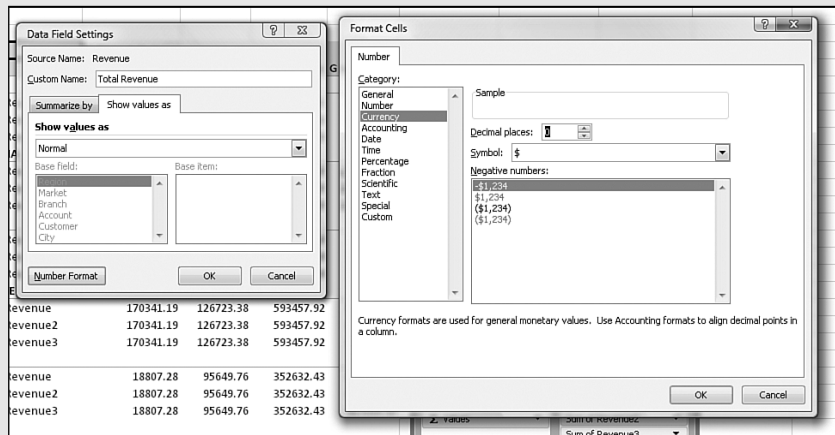
Figure 3.46
Use the drop-down in the Values drop zone in the PivotTable Field List to access Field Settings for a particular data field.



3

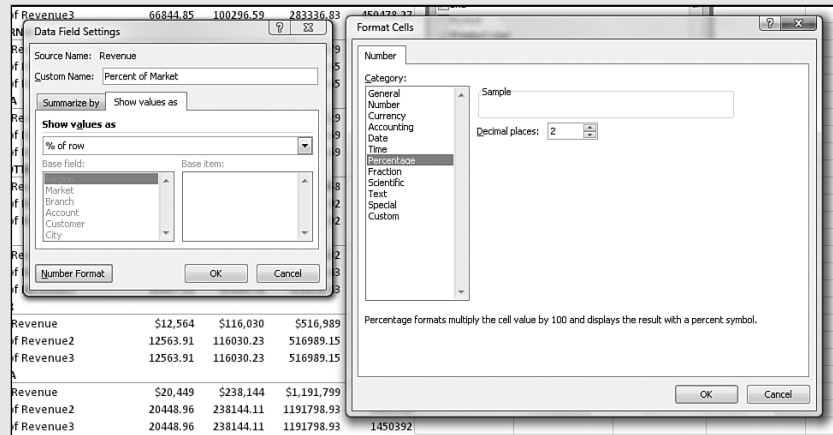
- Change the name of the data field to **Total Revenue**, as shown in Figure 3.47. Then click the Number Format button to open the Format Cells dialog box. Change the format of the data item to Currency and then close both dialog boxes by clicking OK.

Figure 3.47
Set up the first Revenue item as normal.



7. Open the Data Field Settings for the Sum of Revenue2 field.
8. Change the name of the data field to **Percent of Market**. On the Show Values As tab, in the Show Values As drop-down, select the % of Row option. After you do that, choose the Number Format button to open the Format Cells dialog box. Change the format of the cells to Percentage, as shown in Figure 3.48. Close both dialog boxes by clicking OK twice.

Figure 3.48
Use % of Row to get the Percentage of Market.

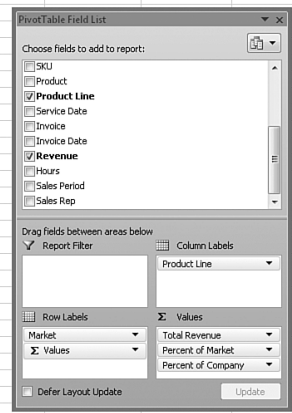


9. Open the Data Field Settings dialog box for Sum of Revenue3.
10. Change the name of the data field to **Percent of Company**. On the Show Values As tab, choose the % of Column option. After you do that, choose the Number button to open the Format Cells dialog box. Change the format of the cells to Percentage and then close both dialog boxes by clicking OK.

As shown in Figure 3.49, your product line analysis is complete! You have the Total Revenue field, which gives you the revenue dollars by product line for each market. Then you have the Percent of Market field, which shows you the percent of revenue that each line represents within the markets. Finally, you have the Percent of Company field, which shows line of business revenue as a percentage of total company dollars.

Figure 3.49
The completed report shows three calculations for every data cell.

2					
3		Column Labels			
4	Row Labels	Housekeeping	Landscaping	Maintenance	Grand Total
5	BUFFALO				
6	Total Revenue	\$66,845	\$100,297	\$283,337	\$450,478
7	Percent of Market	14.84%	22.26%	62.90%	100.00%
8	Percent of Company	5.87%	4.06%	3.95%	4.18%
9	CALIFORNIA				
10	Total Revenue	\$37,401	\$1,078,755	\$1,138,579	\$2,254,735
11	Percent of Market	1.66%	47.84%	50.50%	100.00%
12	Percent of Company	3.28%	43.72%	15.88%	20.93%
13	CANADA				
14	Total Revenue		\$92,717	\$683,529	\$776,245
15	Percent of Market	0.00%	11.94%	88.06%	100.00%
16	Percent of Company	0.00%	3.76%	9.54%	7.20%
17	CHARLOTTE				
18	Total Revenue	\$170,341	\$126,723	\$593,458	\$890,522
19	Percent of Market	19.13%	14.23%	66.64%	100.00%
20	Percent of Company	14.96%	5.14%	8.28%	8.27%
21	DALLAS				
22	Total Revenue	\$18,807	\$95,650	\$352,632	\$467,089
23	Percent of Market	4.03%	20.48%	75.50%	100.00%
24	Percent of Company	1.65%	3.88%	4.92%	4.34%
25	DENVER				
26	Total Revenue	\$12,564	\$116,030	\$516,989	\$645,583
27	Percent of Market	1.95%	17.97%	80.08%	100.00%
28	Percent of Company	1.10%	4.70%	7.21%	5.99%



3

Next Steps

Note that other pivot table customizations are covered in subsequent chapters:

- Sorting a pivot table is covered in Chapter 4.
- Filtering records in a pivot table is covered in Chapter 4.
- Grouping daily dates up to months or years is covered in Chapter 4.
- Adding new calculated fields is covered in Chapter 5.
- Using data visualizations and conditional formatting in a pivot table is covered in Chapter 4.

In the next chapter, we discuss the filtering, sorting, and data visualization options available in Excel 2007. Using these tools is a great way to focus your pivot table on the largest drivers of success for your business.

