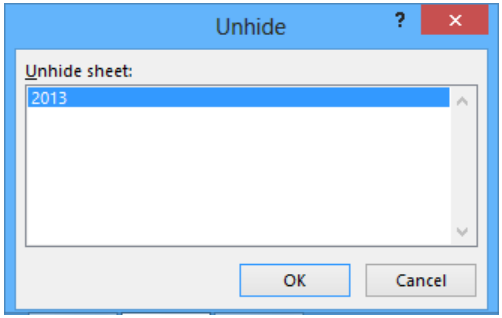

18 Click **2013**, and then click **OK** to close the **Unhide** dialog box and display the **2013** worksheet in the workbook.

CLEAN UP **Close the ExceptionTracking workbook and the 2012 Archive workbook, saving your changes if you want to.**

Modifying worksheets

After you put up the signposts that make your data easy to find, you can take other steps to make the data in your workbooks easier to work with. For example, you can change the width of a column or the height of a row in a worksheet by dragging the column's right border or the row's bottom border to the position you want. Increasing a column's width or a row's height increases the space between cell contents, making your data easier to read and work with.

TIP You can apply the same change to more than one row or column by selecting the rows or columns you want to change and then dragging the border of one of the selected rows or columns to the location you want. When you release the mouse button, all the selected rows or columns change to the new height or width.

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Inserting rows, columns, and cells

Modifying column width and row height can make a workbook's contents easier to work with, but you can also insert a row or column between cells that contain data to make your data easier to read. Adding space between the edge of a worksheet and cells that contain data, or perhaps between a label and the data to which it refers, makes the workbook's contents less crowded. You insert rows by clicking a cell and clicking the Home tab on the ribbon. Then, in the Cells group, in the Insert list, click Insert Sheet Rows. Excel inserts a row above the row that contains the active cell. You insert a column in much the same way, by choosing Insert Sheet Columns from the Insert list. When you do this, Excel inserts a column to the left of the active cell.

When you insert a row, column, or cell in a worksheet that has had formatting applied, the Insert Options button appears. When you click the Insert Options button, Excel displays a list of choices you can make about how the inserted row or column should be formatted, as described in the following table.

Option	Action
Format Same As Above	Applies the formatting of the row above the inserted row to the new row
Format Same As Below	Applies the formatting of the row below the inserted row to the new row
Format Same As Left	Applies the formatting of the column to the left of the inserted column to the new column
Format Same As Right	Applies the formatting of the column to the right of the inserted column to the new column
Clear Formatting	Applies the default format to the new row or column

If you want to delete a row or column, right-click the row or column head and then, on the shortcut menu that appears, click Delete. You can temporarily hide rows or columns by selecting those rows or columns and then, on the Home tab, in the Cells group, clicking the Format button, pointing to Hide & Unhide, and then clicking either Hide Rows or Hide Columns. The rows or columns you selected disappear, but they aren't gone for good as they would be if you'd used Delete. Instead, they have just been removed from the display until you call them back. To return the hidden rows to the display, select the row or column headers on either side of the hidden rows or columns. Then, on the Home tab, in the Cells group, click the Format button, point to Hide & Unhide, and then click either Unhide Rows or Unhide Columns.

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IMPORTANT If you hide the first row or column in a worksheet, you must click the Select All button in the upper-left corner of the worksheet (above the first row header and to the left of the first column header) or press Ctrl+A to select the entire worksheet. Then, on the Home tab, in the Cells group, click Format, point to Hide & Unhide, and then click either Unhide Rows or Unhide Columns to make the hidden data visible again.

Just as you can insert rows or columns, you can insert individual cells into a worksheet. To insert a cell, click the cell that is currently in the position where you want the new cell to appear. On the Home tab, in the Cells group, in the Insert list, click Insert Cells to open the Insert dialog box. In the Insert dialog box, you can choose whether to shift the cells surrounding the inserted cell down (if your data is arranged as a column) or to the right (if your data is arranged as a row). When you click OK, the new cell appears, and the contents of affected cells shift down or to the right, as appropriate. Similarly, if you want to delete a block of cells, select the cells, and on the Home tab, in the Cells group, in the Delete list, click Delete Cells to open the Delete dialog box—complete with options that you can use to choose how to shift the position of the cells around the deleted cells.

TIP The Insert dialog box also includes options you can click to insert a new row or column; the Delete dialog box has similar options for deleting an entire row or column.

If you want to move the data in a group of cells to another location in your worksheet, select the cells you want to move and point to the selection's border. When the pointer changes to a four-pointed arrow, you can drag the selected cells to the desired location on the worksheet. If the destination cells contain data, Excel displays a dialog box asking whether you want to overwrite the destination cells' contents. If you want to replace the existing values, click OK. If you don't want to overwrite the existing values, click Cancel and insert the required number of cells to accommodate the data you want to move.

In this exercise, you'll insert a column and row into a worksheet, specify insert options, hide a column, insert a cell into a worksheet, delete a cell from a worksheet, and move a group of cells within the worksheet.

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SET UP **You need the RouteVolume workbook located in the Chapter01 practice file folder to complete this exercise. Open the workbook, and then follow the steps.**

1. On the **May 12** worksheet, select cell **A1**.
2. On the **Home** tab, in the **Cells** group, click the **Insert** arrow, and then in the list, click **Insert Sheet Columns** to create a new column **A**.
3. In the **Insert** list, click **Insert Sheet Rows** to create a new row **1**.
4. Click the **Insert Options** button that appears below the lower-right corner of the selected cell, and then click **Clear Formatting** to remove the formatting from the new row **1**.
5. Right-click the column header of column **E**, and then click **Hide** to remove column **E** from the display.

	A	B	C	D	F
1					
2		**Route**	**Volume**		
3		1	6413		
4		2	2208		
5		3	7052		
6		4	9229		
7		5	1425		
8		6	4329		
9		7	8410		
10		8	8785		
11		9	5812		
12		10	1112		
13					

6. On the tab bar, click the **May 13** sheet tab to display the worksheet of the same name.
7. Click cell **B6**.
8. On the **Home** tab, in the **Cells** group, click the **Delete** arrow, and then in the list, click **Delete Cells** to open the **Delete** dialog box.

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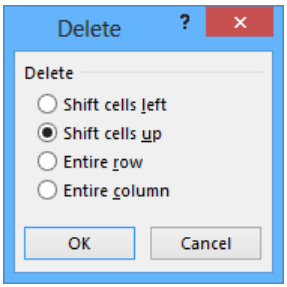

9 If necessary, click **Shift cells up**, and then click **OK**. Excel deletes cell **B6**, moving the cells below it up to fill in the gap.

10 Click cell **C6**.

11 In the **Cells** group, in the **Insert** list, click **Insert Cells** to open the **Insert** dialog box.

12 If necessary, click **Shift cells down**, and then click **OK** to close the **Insert** dialog box, create a new cell **C6**, and move cells **C6:C11** down to accommodate the inserted cell.

13 In cell **C6**, enter 4499, and then press **Enter**.

14 Select cells **E13:F13**.

15 Point to the border of the selected cells. When the pointer changes to a four-pointed arrow, drag the selected cells to cells **B13:C13**. The dragged cells replace cells **B13:C13**.

	A	B	C	D
1				
2		Route	Volume	
3		1	6413	
4		2	2208	
5		3	7052	
6		4	4499	
7		5	9229	
8		6	1425	
9		7	4329	
10		8	8410	
11		9	8785	
12		10	5812	
13		11	5509	
14				

CLEAN UP **Close the RouteVolume workbook, saving your changes if you want to.**

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Merging and unmerging cells

Most Excel worksheets contain data about a specific subject, such as packages shipped, revenue, or operating costs. One of the best ways to communicate the contents of a worksheet is to use a label. For example, you might create a list of Consolidated Messenger's delivery regions with the city where the region's distribution hub is located.

	A	B	C
1			
2		**Distribution Center Hubs**	
3		**Listed by region name and city**	
4			
5		Northeast	Boston
6		Atlantic	Baltimore
7		Southeast	Atlanta
8		North Central	Cleveland
9		Midwest	St. Louis
10		Southwest	Albuquerque
11		Mountain West	Denver
12		Northwest	Portland
13		Central	Omaha
14			

The text *Distribution Center Hubs* appears to span two cells, B2 and C2, but is in fact contained within cell B2. If you select cell B2, Excel highlights the cell's border, which obscures the text. If you want to combine cells B2 and C2 into a single cell, you can do so by merging the cells into a single cell.

To merge two or more cells, you select the cells, click the Home tab, click Merge & Center, and then click Merge Cells. Now when you click cell B2, the selection border extends along the entire merged cell without blocking the text.

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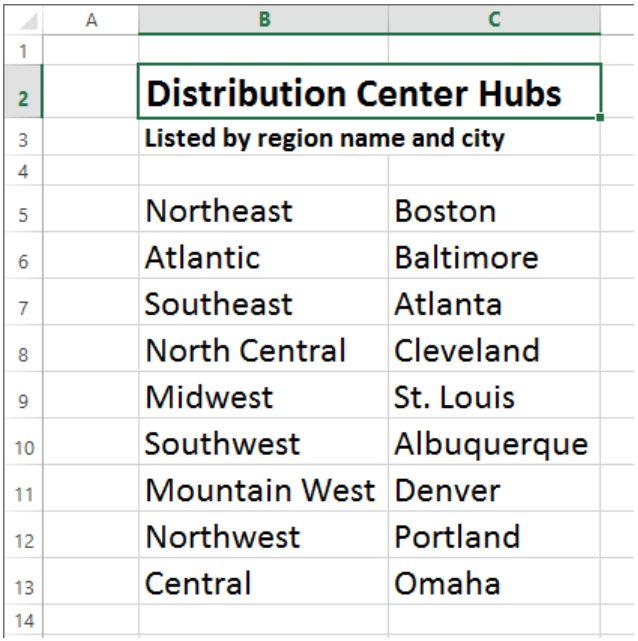

	A	B	C
1			
2		**Distribution Center Hubs**	
3		**Listed by region name and city**	
4			
5		Northeast	Boston
6		Atlantic	Baltimore
7		Southeast	Atlanta
8		North Central	Cleveland
9		Midwest	St. Louis
10		Southwest	Albuquerque
11		Mountain West	Denver
12		Northwest	Portland
13		Central	Omaha
14			

IMPORTANT When you merge two or more cells, Excel retains just the text in the range's top left cell. All other text is deleted.

When you click the Merge & Center button, a list of options appears. In addition to merging cells, you can click Merge & Center to combine the selected cells into a single cell and center the text within the merged cell. You should strongly consider using the Merge & Center option for label text, such as above a list of data where the title spans more than one column.

You can also merge the cells in multiple rows at the same time. For example, suppose your list has a main heading and a subheading. You can merge the cells in the two rows that contain headings by clicking the Home tab, clicking Merge & Center, and then clicking Merge Across.

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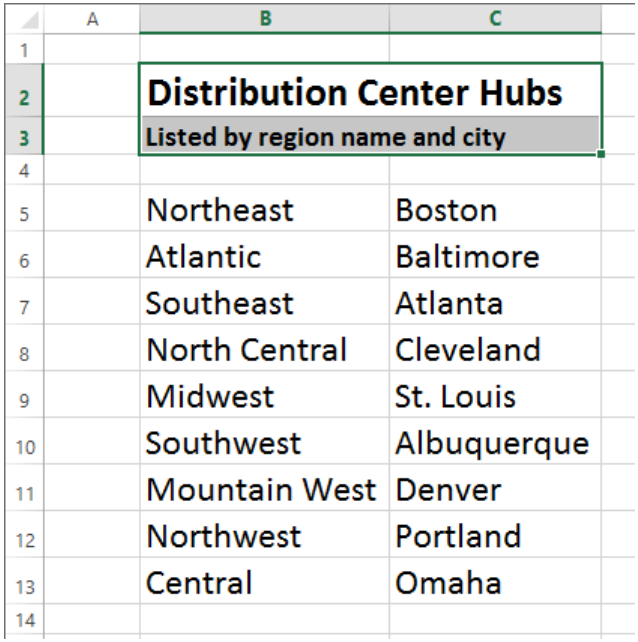

	A	B	C
1			
2		**Distribution Center Hubs**	
3		**Listed by region name and city**	
4			
5		Northeast	Boston
6		Atlantic	Baltimore
7		Southeast	Atlanta
8		North Central	Cleveland
9		Midwest	St. Louis
10		Southwest	Albuquerque
11		Mountain West	Denver
12		Northwest	Portland
13		Central	Omaha
14			

IMPORTANT When you select the header cells, click the Home tab, click Merge & Center, and then click either Merge & Center or Merge Cells, Excel deletes any text that's not in the top-left cell of the selected range.

If you want to split merged cells into their individual cells, click the Home tab, click Merge & Center, and then click Unmerge Cells.

In this exercise, you will merge cells, unmerge cells, merge and center cells, and use Merge Across to combine cells in several rows into one merged cell per row.

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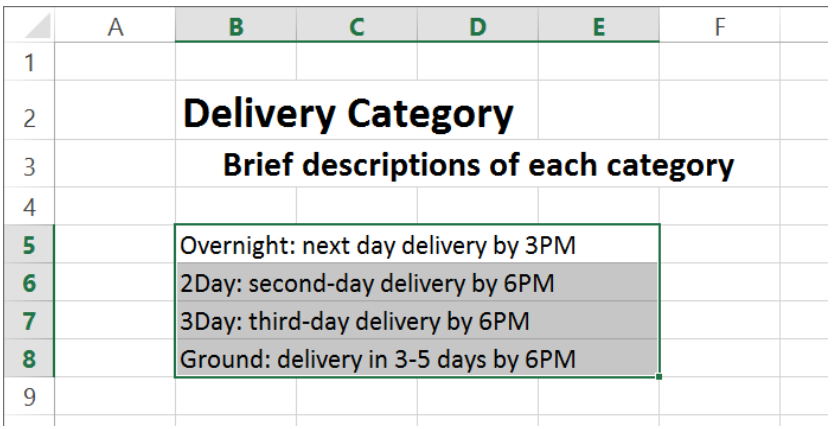
SET UP **You need the DataLabels workbook located in the Chapter01 practice file folder to complete this exercise. Open the workbook, and then follow the steps.**

1. Select cells **B2:D2**.
2. Click the **Home** tab, click the **Merge & Center** arrow, and then click **Merge Cells** to merge the cells into a single cell.
3. Select cells **B3:F3**.
4. Click the **Home** tab, click the **Merge & Center** arrow, and then click **Merge & Center** to merge the cells into a single cell and center its contents.
5. Select cells **B5:E8**.
6. Click the **Home** tab, click the **Merge & Center** arrow, and then click **Merge Across** to merge the cells in each row into a single cell. The operation creates four merged cells.



7. Select cell **B2**.
8. Click the **Home** tab, click the **Merge & Center** arrow, and then click **Unmerge Cells** to split the merged cell into its original cells.
9. Select cells **B2:D2**.
10. Click the **Home** tab, click the **Merge & Center** arrow, and then click **Merge & Center** to merge the cells into a single cell and center its contents.

CLEAN UP **Close the DataLabels workbook, saving your changes if you want to.**

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Key points

- Save your work whenever you do something you'd hate to have to do again.
- Assigning values to a workbook's properties makes it easier to find your workbook by searching in File Explorer or by using Windows 8 Search.
- Be sure to give your worksheets descriptive names.
- If you want to use a worksheet's data in another workbook, you can send a copy of the worksheet to that other workbook without deleting the original worksheet.
- You can delete a worksheet you no longer need, but you can also hide a worksheet in a workbook. When you need the data on the worksheet, you can unhide it.
- You can save yourself a lot of cutting and pasting by inserting and deleting worksheet cells, columns, and rows.
- By merging cells, you can add data labels that span multiple columns.
- Customize your Excel 2013 program window by changing how it displays your workbooks, zooming in on data, adding frequently used buttons to the Quick Access Toolbar, and rearranging or customizing the ribbon to meet your needs.

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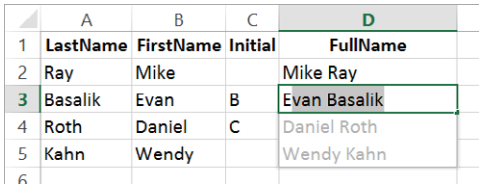
Chapter at a glance

Manage

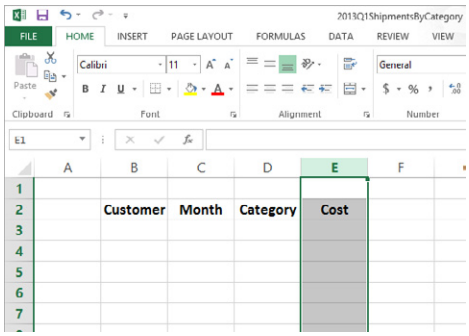
Manage data by using Flash Fill, page 50



	A	B	C	D
1	LastName	FirstName	Initial	FullName
2	Ray	Mike		Mike Ray
3	Basalik	Evan	B	Evan Basalik
4	Roth	Daniel	C	Daniel Roth
5	Kahn	Wendy		Wendy Kahn
6				

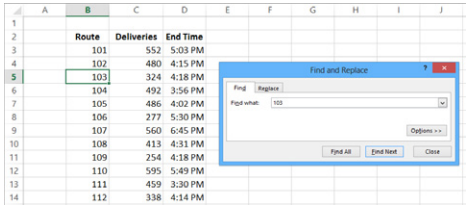
Rearrange

Move data within a workbook, page 54



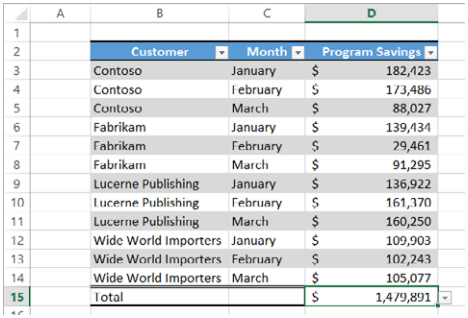
Find

Find and replace data, page 58



Define

Define Excel tables, page 67



	A	B	C	D
1				
2		Customer	Month	Program Savings
3		Contoso	January	$ 182,423
4		Contoso	February	$ 173,486
5		Contoso	March	$ 88,027
6		Fabrikam	January	$ 139,434
7		Fabrikam	February	$ 29,461
8		Fabrikam	March	$ 91,295
9		Lucerne Publishing	January	$ 136,922
10		Lucerne Publishing	February	$ 161,370
11		Lucerne Publishing	March	$ 160,250
12		Wide World Importers	January	$ 109,903
13		Wide World Importers	February	$ 102,243
14		Wide World Importers	March	$ 105,077
15		Total		$ 1,479,891

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Working with data and Excel tables

2

IN THIS CHAPTER, YOU WILL LEARN HOW TO

- Enter and revise data.
- Manage data by using Flash Fill.
- Move data within a workbook.
- Find and replace data.
- Correct and expand upon worksheet data.
- Define Excel tables.

With Microsoft Excel 2013, you can visualize and present information effectively by using charts, graphics, and formatting, but the data is the most important part of any workbook. By learning to enter data efficiently, you will make fewer data entry errors and give yourself more time to analyze your data so you can make decisions about your organization's performance and direction.

Excel provides a wide variety of tools you can use to enter and manage worksheet data effectively. For example, you can organize your data into Excel tables, which enables you to store and analyze your data quickly and efficiently. Also, you can enter a data series quickly, repeat one or more values, and control how Excel formats cells, columns, and rows moved from one part of a worksheet to another with a minimum of effort. With Excel, you can check the spelling of worksheet text, look up alternative words by using the Thesaurus, and translate words to foreign languages.

In this chapter, you'll enter and revise Excel data, manage data by using Flash Fill, move data within a workbook, find and replace existing data, use proofing and reference tools to enhance your data, and organize your data by defining Excel tables.

PRACTICE FILES To complete the exercises in this chapter, you need the practice files contained in the Chapter02 practice file folder. For more information, see "Download the practice files" in this book's Introduction.

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Entering and revising data

After you create a workbook, you can begin entering data. The simplest way to enter data is to click a cell and enter a value. This method works very well when you're entering a few pieces of data, but it is less than ideal when you're entering long sequences or series of values. For example, Craig Dewar, the VP of Marketing for Consolidated Messenger, might want to create a worksheet that lists the monthly program savings that large customers can realize if they sign exclusive delivery contracts with Consolidated Messenger. To record those numbers, he would need to create a worksheet tracking each customer's monthly program savings.

	A	B	C	D	E
1					
2		**Customer**	**Month**	**Program Savings**	
3		Contoso	January	$ 182,423	
4		Contoso	February	$ 173,486	
5		Contoso	March	$ 88,027	
6		Fabrikam	January	$ 139,434	
7		Fabrikam	February	$ 29,461	
8		Fabrikam	March	$ 91,295	
9		Lucerne Publishing	January	$ 136,922	
10		Lucerne Publishing	February	$ 161,370	
11		Lucerne Publishing	March	$ 160,250	
12		Wide World Importers	January	$ 109,903	
13		Wide World Importers	February	$ 102,243	
14		Wide World Importers	March	$ 105,077	
15					

Repeatedly entering the sequence January, February, March, and so on can be handled by copying and pasting the first occurrence of the sequence, but there's an easier way to do it: use AutoFill. With AutoFill, you enter the first element in a recognized series, click the fill handle at the lower-right corner of the cell, and drag the fill handle until the series extends far enough to accommodate your data. By using a similar tool, FillSeries, you can enter two values in a series and use the fill handle to extend the series in your worksheet. For example, if you want to create a series starting at 2 and increasing by 2, you can enter 2 in the first cell and 4 in the second cell, select both cells, and then use the fill handle to extend the series to the end value you want.

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You do have some control over how Excel extends the values in a series when you drag the fill handle. For example, if you drag the fill handle up (or to the left), Excel extends the series to include previous values. If you enter January in a cell and then drag that cell's fill handle up (or to the left), Excel places December in the first cell, November in the second cell, and so on.

Another way to control how Excel extends a data series is by pressing the Ctrl key while you drag the fill handle. For example, if you press the Ctrl key while you drag the fill handle, Excel repeats the value January in each cell you add to the series.

TIP Be sure to experiment with how the fill handle extends your series and how pressing the Ctrl key changes that behavior. Using the fill handle can save you a lot of time entering data.

Other data entry techniques you'll use in this section are AutoComplete, which detects when a value you're entering is similar to previously entered values; Pick From Drop-Down List, from which you can choose a value from among the existing values in the active cell's worksheet column; and Ctrl+Enter, which you can use to enter a value in multiple cells simultaneously.

TROUBLESHOOTING If an AutoComplete suggestion doesn't appear as you begin entering a cell value, the option might be turned off. To turn on AutoComplete, click the File tab, and then click Options. In the Excel Options dialog box, display the Advanced page. In the Editing Options area of the page, select the Enable AutoComplete For Cell Values check box, and then click OK.

The following table summarizes these data entry techniques.

Method	Action
AutoFill	Enter the first value in a recognized series and use the fill handle to extend the series.
FillSeries	Enter the first two values in a series and use the fill handle to extend the series.
AutoComplete	Enter the first few letters in a cell, and if a similar value exists in the same column, Excel suggests the existing value.
Pick From Drop-Down List	Right-click a cell, and then click Pick From Drop-Down List. A list of existing values in the cell's column is displayed. Click the value you want to enter into the cell.
Ctrl+Enter	Select a range of cells, each of which you want to contain the same data, enter the data in the active cell, and press Ctrl+Enter.

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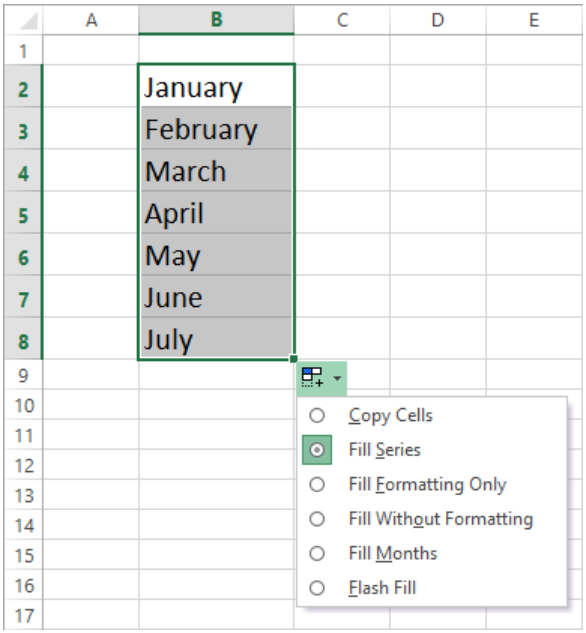
Another handy feature in Excel is the AutoFill Options button that appears next to data you add to a worksheet by using the fill handle.



Clicking the AutoFill Options button displays a list of actions Excel can take regarding the cells affected by your fill operation. The options in the list are summarized in the following table.

Option	Action
Copy Cells	This copies the contents of the selected cells to the cells indicated by the fill operation.
Fill Series	This action fills the cells indicated by the fill operation with the next items in the series.
Fill Formatting Only	This copies the format of the selected cell to the cells indicated by the fill operation, but does not place any values in the target cells.
Fill Without Formatting	This action fills the cells indicated by the fill operation with the next items in the series, but ignores any formatting applied to the source cells.
Fill Days (or Fill Weekdays, Fill Months, and so on)	The appearance of this option changes according to the series you extend. For example, if you extend the values Wed, Thu, and Fri, Excel presents two options, Fill Days and Fill Weekdays, and you can select which one you intended. If you do not use a recognized sequence, this option does not appear.
Flash Fill	This action fills the cells by using the Flash Fill capability, which fills the values by identifying a pattern in the worksheet's data.

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In this exercise, you'll enter data by using multiple methods and control how Excel formats an extended data series.

SET UP **You need the Series workbook located in the Chapter02 practice file folder to complete this exercise. Start Excel, and open the workbook. Then follow the steps.**

1. On the **Monthly** worksheet, select cell **B3**, and then drag the fill handle down through **B7** to repeat the value **Fabrikam** in cells **B4:B7**.
2. Select cell **C3**, and while pressing the **Ctrl** key, drag the fill handle down through **C7** to repeat the value **January** in cells **C4:C7**.
3. Select cell **B8**, and then enter the letter F, which causes Excel to display the characters **abrikam** highlighted in gray.

	A	B	C	D	E	F
1						
2		**Customer**	**Month**	**Category**	**Amount**	
3		Fabrikam	January	Ground	$ 14,501.98	
4		Fabrikam	January	3Day	$ 3,501.75	
5		Fabrikam	January	2Day	$ 5,599.10	
6		Fabrikam	January	Overnight	$ 35,907.82	
7		Fabrikam	January	Priority Overnight	$ 17,333.25	
8		Fabrikam				
9						

4. Press **Tab** to accept the value **Fabrikam** for the cell.
5. In cell **C8**, enter **February**.
6. Right-click cell **D8**, and then click **Pick From Drop-down List** to display a list of values in column **D**.

	A	B	C	D	E	F
1						
2		**Customer**	**Month**	**Category**	**Amount**	
3		Fabrikam	January	Ground	$ 14,501.98	
4		Fabrikam	January	3Day	$ 3,501.75	
5		Fabrikam	January	2Day	$ 5,599.10	
6		Fabrikam	January	Overnight	$ 35,907.82	
7		Fabrikam	January	Priority Overnight	$ 17,333.25	
8		Fabrikam	February			
9				2Day		
10				3Day		
11				Ground		
12				Overnight		
				Priority Overnight		

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7 From the list, click **2Day**, which then appears in cell **D8**.

8 In cell **E8**, enter **11802.14**, and then press **Tab** or **Enter** to enter the value into the cell.

9 Select cell **B2**, and then drag the fill handle through cells **C2:E2** to fill the cells with the value **Customer**.

10 Click the **AutoFill Options** button, and then click **Fill Formatting Only** to restore the original values in cells **C2:E2** and apply the formatting of cell **B2** to those cells.

CLEAN UP **Close the Series workbook, saving your changes if you want to.**

Managing data by using Flash Fill

When you manage data in Excel, you will often find that you want to combine values from several cells into a single value. For example, Consolidated Messenger might have a list of individuals to contact about arranging bulk shipping contracts for their companies.

	A	B	C	D
1	**LastName**	**FirstName**	**Initial**	**FullName**
2	Ray	Mike		
3	Basalik	Evan	B	
4	Roth	Daniel	C	
5	Kahn	Wendy		

The contacts' names appear in three columns: LastName, FirstName, and Initial. Note that not every contact has a middle initial. If you want to combine each row's LastName, FirstName, and Initial value into a single name, you click in the blank cell to the right of the first row's Initial column and enter the combination as you want it to appear. When you're done, press Enter to move down a row and enter the second row's value. After you start typing, Flash Fill, which is new in Excel 2013, displays suggestions based on how it predicts you want to fill in the rest of the values.

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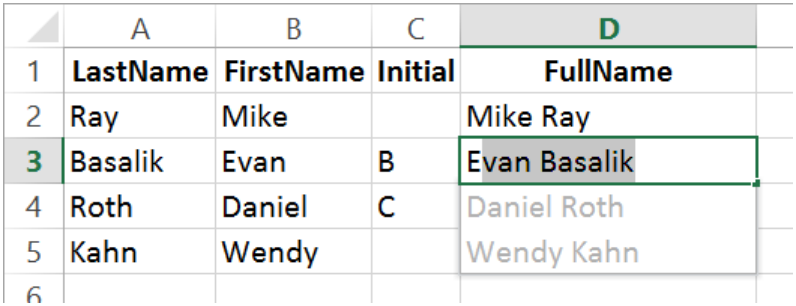
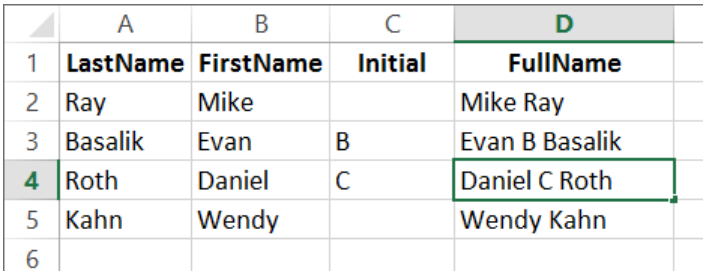


	A	B	C	D
1	**LastName**	**FirstName**	**Initial**	**FullName**
2	Ray	Mike		Mike Ray
3	Basalik	Evan	B	Evan Basalik
4	Roth	Daniel	C	Daniel Roth
5	Kahn	Wendy		Wendy Kahn
6				

Note that the Flash Fill suggestions did not include Initial values for rows that have a value in that cell. You can correct that omission by clicking in the FullName cell next to a row that does contain an Initial value and then entering the name as you would like it to appear. When you do, Flash Fill recognizes the new pattern for this subset of the data and offers to fill in the values.



	A	B	C	D
1	**LastName**	**FirstName**	**Initial**	**FullName**
2	Ray	Mike		Mike Ray
3	Basalik	Evan	B	Evan B Basalik
4	Roth	Daniel	C	Daniel C Roth
5	Kahn	Wendy		Wendy Kahn
6				

IMPORTANT For Flash Fill to function, you must enter the desired value in a cell next to the data you based your list on and make two consecutive edits. "Two consecutive edits" means that you must enter the desired value in one cell and then immediately start entering a value in a cell in the range you want Flash Fill to populate.

With Flash Fill, you can also pull data segments out of a larger, compound value. For example, suppose you received a customer database where the city, state, and postal code of each mailing address was combined in a single cell.

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	A	B	C
1	CityStateZip	State	
2	Vienna, VA 22180		
3	Portland, OR 97220		
4	Mt. Crawford, VA 22841		
5	Syracuse, NY 13214		
6			

This data follows a consistent pattern, with the city followed by a comma before the two-letter state abbreviation. Because Flash Fill can detect this pattern, you can perform two consecutive edits to have the program suggest values for the remaining cells to the right of the existing data.

	A	B	C
1	CityStateZip	State	
2	Vienna, VA 22180	VA	
3	Portland, OR 97220	OR	
4	Mt. Crawford, VA 22841	VA	
5	Syracuse, NY 13214	NY	
6			

TIP If for some reason Flash Fill doesn't offer to complete the values in a data range, click a cell in the range you want Flash Fill to populate and then, on the Data tab of the ribbon, click Flash Fill.

In this exercise, you'll combine and correct data by using Flash Fill.

SET UP **You need the MailingNames workbook located in the Chapter02 practice file folder to complete this exercise. Open the workbook, and then follow the steps.**

1 On the **Names** worksheet, enter **Mark Hassall** in cell **D2** and press **Enter**.

2 In cell **D3**, start entering the first name **Justin**. As you do, the Flash Fill logic suggests a series of values to fill in cells **D3:D5**.

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3 Press **Enter** to accept the suggestions, even though some of them don't include the individual's middle initial.

4 Edit the value in cell **D3** so it reads **Justin K. Harrison**, and press **Enter** to have Flash Fill update the name in cell **D3** and the name in **D4**.

	A	B	C	D
1	**LastName**	**FirstName**	**Initial**	**FullName**
2	Hassall	Mark		Mark Hassall
3	Harrison	Justin	K	Justin K. Harrison
4	Pionsky	Idan	L	Idan L. Pionsky
5	Preston	Chris		Chris Preston

5 On the tab bar, click the **Addresses** sheet tab to display the **Addresses** worksheet.

6 Select cells **E2:F5** and then, on the **Home** tab, click the **Number Format** arrow. Then click **Text**.

7 In cell **F2**, enter **03214**, and then press **Enter**.

8 In cell **F3**, start entering **07921** to have Flash Fill suggest values for the corrected series.

9 Press **Enter** to accept the suggested values.

10 Edit the value in cell **F4** so it reads **98012**.

CLEAN UP **Close the MailingNames workbook, saving your changes if you want to.**

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Moving data within a workbook

You can move to a specific cell in lots of ways, but the most direct method is to click the desired cell. The cell you click will be outlined in black, and its contents, if any, will appear in the formula bar. When a cell is outlined, it is the active cell, meaning that you can modify its contents. You use a similar method to select multiple cells (referred to as a *cell range*)—just click the first cell in the range, and drag the mouse pointer over the remaining cells you want to select. After you select the cell or cells you want to work with, you can cut, copy, delete, or change the format of the contents of the cell or cells. For instance, Gregory Weber, the Northwest Distribution Center Manager for Consolidated Messenger, might want to copy the cells that contain a set of column labels to a new page that summarizes similar data.

IMPORTANT If you select a group of cells, the first cell you click is designated as the active cell.

You're not limited to selecting cells individually or as part of a range. For example, you might need to move a column of price data one column to the right to make room for a column of headings that indicate to which service category (ground, three-day express, two-day express, overnight, or priority overnight) a set of numbers belongs. To move an entire column (or entire columns) of data at a time, you click the column's header, located at the top of the worksheet. Clicking a column header highlights every cell in that column and enables you to copy or cut the column and paste it elsewhere in the workbook. Similarly, clicking a row's header highlights every cell in that row, enabling you to copy or cut the row and paste it elsewhere in the workbook.

When you copy a cell, cell range, row, or column, Excel copies the cells' contents and formatting. In versions prior to Excel 2010, you would paste the cut or copied items and then click the Paste Options button to select which aspects of the cut or copied cells to paste into the target cells. The problem with using the Paste Options button was that there was no way to tell what your pasted data would look like until you completed the paste operation. If you didn't like the way the pasted data looked, you had to click the Paste Options button again and try another option.

With the Paste Live Preview capability in Excel, you can view what your pasted data will look like before committing to the paste operation. To preview your data by using Paste Live Preview, cut or copy worksheet data and then, on the Home tab of the ribbon, in the Clipboard group, click the Paste button's arrow to display a menu containing the Paste gal-

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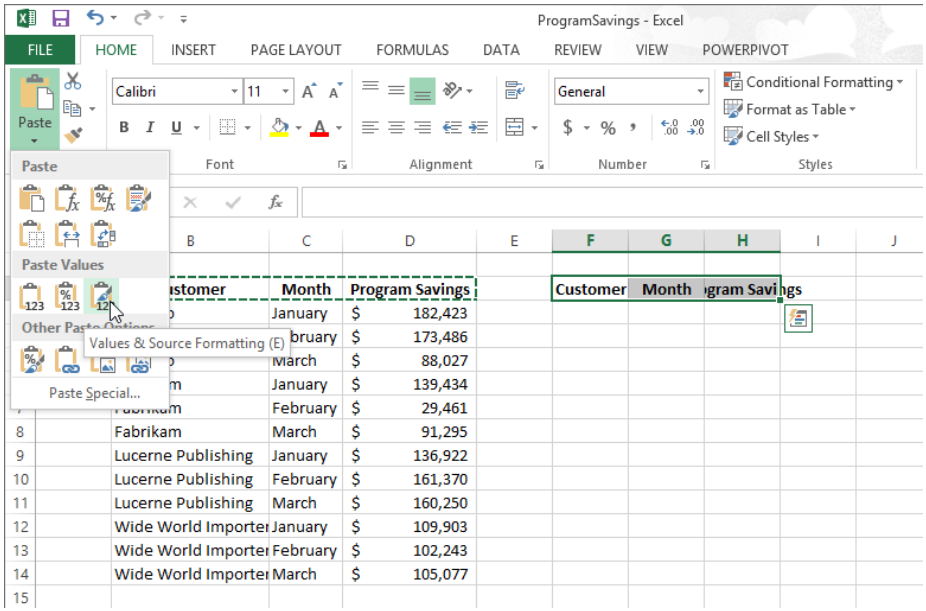
lery, and point to one of the icons. When you do, Excel displays a preview of how your data will appear if you click that paste option.



If you position the pointer over one icon in the Paste gallery and then move it over another icon without clicking, Excel will update the preview to reflect the new option. Depending on the cells' contents, two or more of the paste options might lead to the same result.

TROUBLESHOOTING If pointing to an icon in the Paste gallery doesn't result in a live preview, that option might be turned off. To turn Paste Live Preview on, click the File tab, and then click Options to open the Excel Options dialog box. Click General, select the Enable Live Preview check box, and click OK.

After you click an icon to complete the paste operation, Excel displays the Paste Options button next to the pasted cells. Clicking the Paste Options button displays the Paste Options gallery as well, but pointing to one of those icons doesn't generate a preview. If you want to display Paste Live Preview again, you will need to press Ctrl+Z to undo the paste operation and, if necessary, cut or copy the data again to use the icons in the Home tab's Clipboard group.

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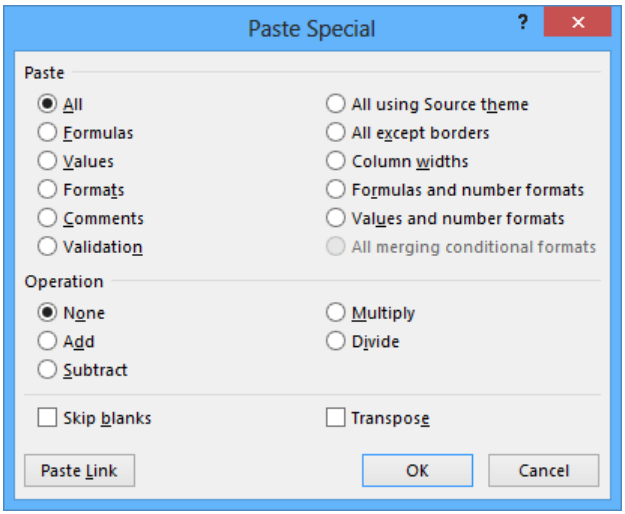
TROUBLESHOOTING If the Paste Options button doesn't appear, you can turn the feature on by clicking the File tab and then clicking Options to open the Excel Options dialog box. In the Excel Options dialog box, display the Advanced page and then, in the Cut, Copy, And Paste area, select the Show Paste Options Buttons When Content Is Pasted check box. Click OK to close the dialog box and save your setting.

After cutting or copying data to the Microsoft Office Clipboard, you can access additional paste options from the Paste gallery and from the Paste Special dialog box, which you display by clicking Paste Special at the bottom of the Paste menu.



In the Paste Special dialog box, you can specify the aspect of the Clipboard contents you want to paste, restricting the pasted data to values, formats, comments, or one of several other options. You can perform mathematical operations involving the cut or copied data and the existing data in the cells you paste the content into. You can transpose data—change rows to columns and columns to rows—when you paste it, by clicking the Transpose thumbnail in the Paste gallery or by selecting the Transpose check box in the Paste Special dialog box.

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In this exercise, you'll copy a set of data headers to another worksheet, move a column of data within a worksheet, and use Paste Live Preview to control the appearance of copied data.

SET UP **You need the 2013Q1ShipmentsByCategory workbook located in the Chapter02 practice file folder to complete this exercise. Open the workbook, and then follow the steps.**

1. On the **Count** worksheet, select cells **B2:D2**.
2. On the **Home** tab, in the **Clipboard** group, click the **Copy** button to copy the contents of cells **B2:D2** to the Clipboard.

   KEYBOARD SHORTCUT Press Ctrl+C to copy worksheet contents to the Clipboard. For a complete list of keyboard shortcuts, see "Keyboard shortcuts" at the end of this book.

3. On the tab bar, click the **Sales** tab to display that worksheet.
4. Select cell **B2**.
5. On the **Home** tab, in the **Clipboard** group, click the **Paste** button's arrow, point to the first icon in the **Paste** group, and then click the **Keep Source Formatting** icon (the final icon in the first row of the **Paste** gallery). Notice that Excel displays how the data would look if you pasted the copied values without formatting, and then pastes the header values into cells **B2:D2**, retaining the original cells' formatting.
6. Right-click the column header of column **I**, and then click **Cut**, which causes Excel to outline column **I** with a marquee.
7. Right-click the header of column **E**, and then, in the **Paste Options** area, click **Paste** to paste the contents of column **I** into column **E**.

   KEYBOARD SHORTCUT Press Ctrl+V to paste worksheet contents exactly as they appear in the original cell.

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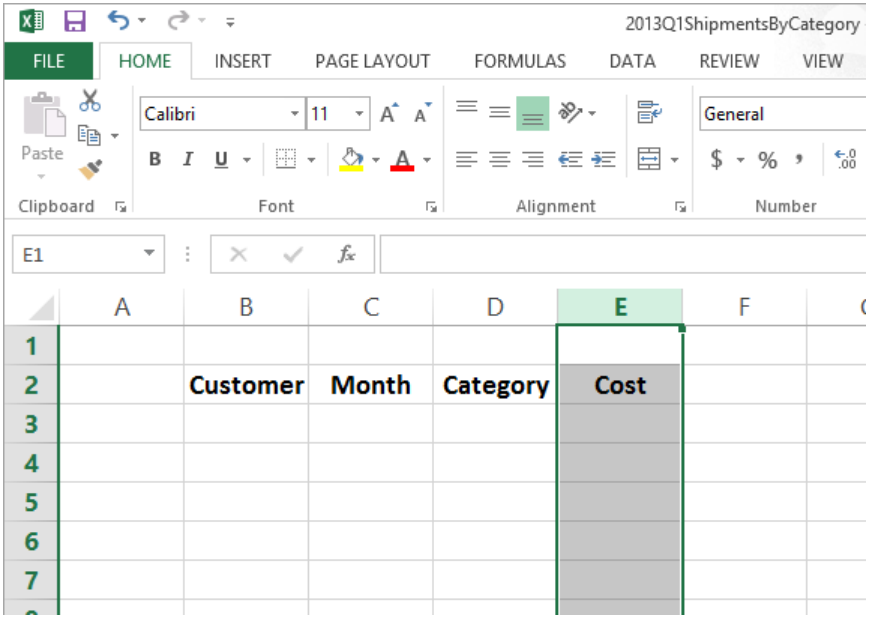

CLEAN UP **Close the 2013Q1ShipmentsByCategory workbook, saving your changes if you want to.**

Finding and replacing data

Excel worksheets can hold more than one million rows of data, so in large data collections, it's unlikely that you would have the time to move through a worksheet one row at a time to locate the data you want to find. You can locate specific data in an Excel worksheet by using the Find And Replace dialog box, which has two pages (one named Find, the other named Replace) that you can use to search for cells that contain particular values. Using the controls on the Find page identifies cells that contain the data you specify; by using the controls on the Replace page, you can substitute one value for another. For example, if one of Consolidated Messenger's customers changes its company name, you can change every instance of the old name to the new name by using the Replace functionality.

When you need more control over the data that you find and replace—for instance, if you want to find cells in which the entire cell value matches the value you're searching for—you can click the Options button to expand the Find And Replace dialog box.

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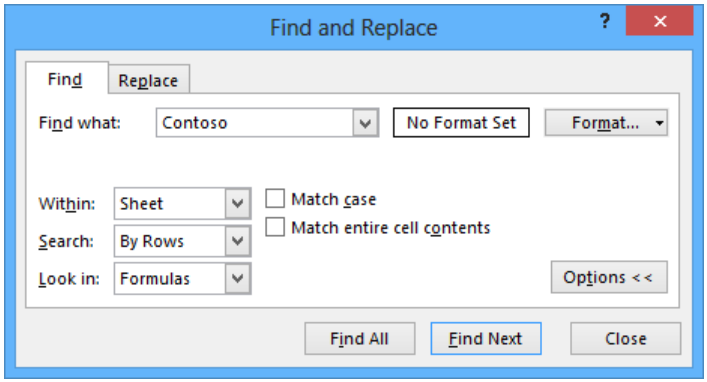

One way you can use the extra options in the Find And Replace dialog box is to use a specific format to identify data that requires review. As an example, Consolidated Messenger VP of Marketing Craig Dewar could make corporate sales plans based on a projected budget for the next year and mark his trial figures by using a specific format. After the executive board finalizes the numbers, he could use the Find Format capability in the Find And Replace dialog box to locate the old values and change them by hand.

The following table summarizes the Find And Replace dialog box controls' functions.

Control	Function
Find What field	Contains the value you want to find or replace
Find All button	Identifies every cell that contains the value in the Find What field
Find Next button	Selects the next cell that contains the value in the Find What field
Replace With field	Contains the value to overwrite the value in the Find What field
Replace All button	Replaces every instance of the value in the Find What field with the value in the Replace With field
Replace button	Replaces the highlighted occurrence of the value in the Find What field and highlights the next cell that contains that value
Options button	Expands the Find And Replace dialog box to display additional capabilities
Format button	Opens the Find Format dialog box, which you can use to specify the format of values to be found or values to be replaced
Within box	Enables you to select whether to search the active worksheet or the entire workbook
Search box	Enables you to select whether to search by rows or by columns
Look In box	Enables you to select whether to search cell formulas or values

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Control	Function
Match Case check box	When selected, requires that all matches have the same capitalization as the text in the Find What field (for example, cat doesn't match Cat)
Match Entire Cell Contents check box	Requires that the cell contain exactly the same value as in the Find What field (for example, Cat doesn't match Catherine)
Close button	Closes the Find And Replace dialog box

To change a value by hand, select the cell, and then either enter a new value in the cell or, in the formula bar, select the value you want to replace and enter the new value. You can also double-click a cell and edit its contents within the cell.

In this exercise, you'll find a specific value in a worksheet, replace every occurrence of a company name in a worksheet, and find a cell that has a specific formatting.

SET UP **You need the AverageDeliveries workbook located in the Chapter02 practice file folder to complete this exercise. Open the workbook, and then follow the steps.**

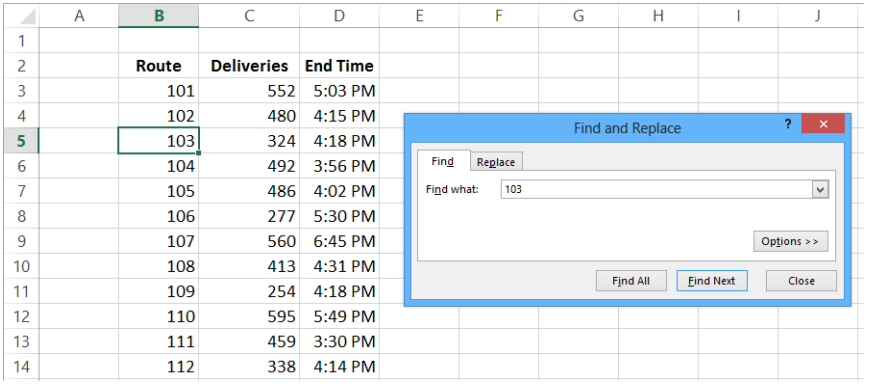
1 If necessary, click the **Time Summary** sheet tab to display the **Time Summary** worksheet.

2 On the **Home** tab, in the **Editing** group, click **Find & Select**, and then click **Find** to display the **Find** page of the **Find and Replace** dialog box.

KEYBOARD SHORTCUT Press Ctrl+F to display the Find page of the Find And Replace dialog box.

3 In the **Find what** field, enter **103**.

4 Click **Find Next** to have Excel select cell **B5**, which contains the value **103**.



	A	B	C	D
1				
2		Route	Deliveries	End Time
3		101	552	5:03 PM
4		102	480	4:15 PM
5		103	324	4:18 PM
6		104	492	3:56 PM
7		105	486	4:02 PM
8		106	277	5:30 PM
9		107	560	6:45 PM
10		108	413	4:31 PM
11		109	254	4:18 PM
12		110	595	5:49 PM
13		111	459	3:30 PM
14		112	338	4:14 PM

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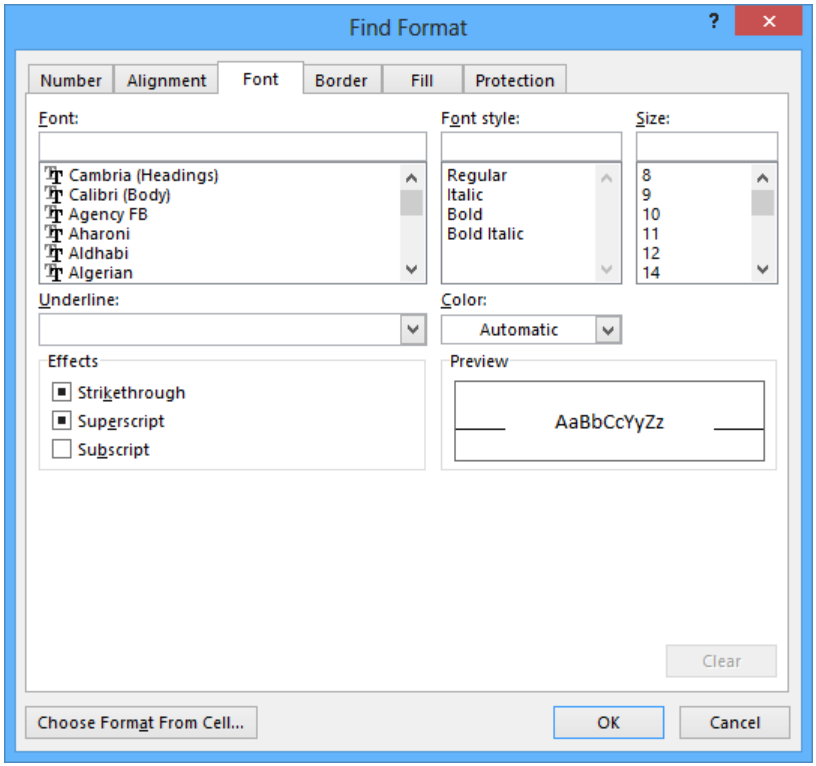
5 Delete the value in the **Find what** field, and then click the **Options** button to display additional search options.

6 Click **Format** to open the **Find Format** dialog box.

7 Click the **Font** tab to display the **Font** page of the dialog box.



8 In the **Font style** list, click **Italic**, and then click **OK** to close the **Find Format** dialog box.

9 Click **Find Next**, which causes Excel to select cell **D25**.

10 Click **Close** to close the **Find and Replace** dialog box.

11 On the tab bar, click the **Customer Summary** sheet tab to display the **Customer Summary** worksheet.

12 On the **Home** tab, in the **Editing** group, click **Find & Select**, and then click **Replace** to open the **Find and Replace** dialog box with the **Replace** page displayed.

KEYBOARD SHORTCUT Press Ctrl+H to display the Replace page of the Find And Replace dialog box.

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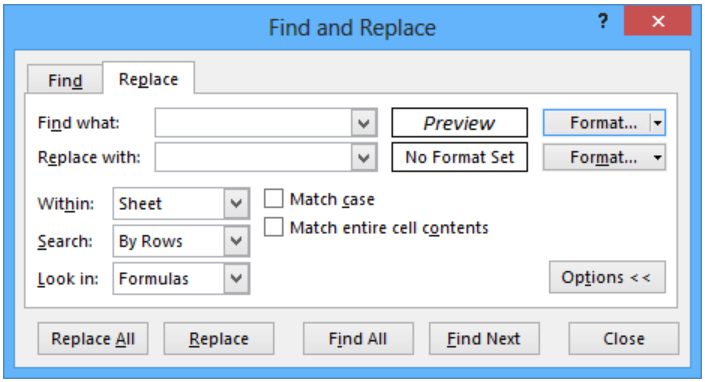

13 Click the **Format** arrow to the right of the **Find what** field, and then in the list, click **Clear Find Format** to remove the format from the **Find What** field.

14 In the **Find what** field, enter **Contoso**.

15 In the **Replace with** field, enter **Northwind Traders**.

16 Click **Replace All**, which causes Excel to display a message box indicating that Excel made three replacements.

17 Click **OK** to close the message box.

18 Click **Close** to close the **Find and Replace** dialog box.

CLEAN UP **Close the AverageDeliveries workbook, saving your changes if you want to.**

Correcting and expanding upon worksheet data

After you enter your data, you should take the time to check and correct it. You do need to verify visually that each piece of numeric data is correct, but you can make sure that your worksheet's text is spelled correctly by using the Excel spelling checker. When the spelling checker encounters a word it doesn't recognize, it highlights the word and offers suggestions representing its best guess of the correct word. You can then edit the word directly, pick the proper word from the list of suggestions, or have the spelling checker ignore the misspelling. You can also use the spelling checker to add new words to a custom dictionary

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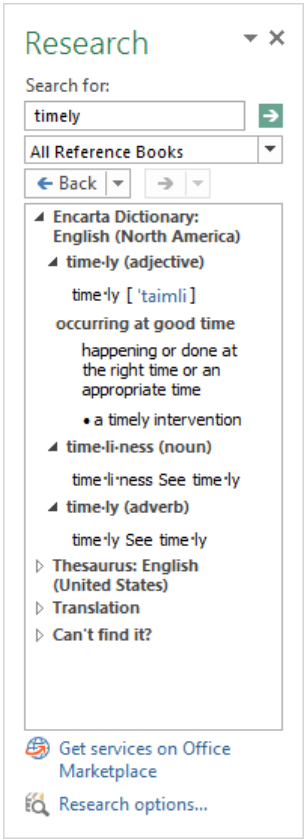
so that Excel will recognize them later, saving you time by not requiring you to identify the words as correct every time they occur in your worksheets.

TIP After you make a change in a workbook, you can usually remove the change as long as you haven't closed the workbook. To undo a change, click the Undo button on the Quick Access Toolbar. If you decide you want to keep a change, you can use the Redo command to restore it.

If you're not sure of your word choice, or if you use a word that is almost but not quite right for your intended meaning, you can check for alternative words by using the Thesaurus. Several other research tools are also available, such as the Bing search engine and the Microsoft Encarta dictionary, to which you can refer as you create your workbooks. To display those tools, on the Review tab, in the Proofing group, click Research to display the Research pane.



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Finally, if you want to translate a word from one language to another, you can do so by selecting the cell that contains the value you want to translate, displaying the Review tab, and then, in the Language group, clicking Translate. The Research pane opens (or changes if it's already open) and displays controls you can use to select the original and destination languages.

IMPORTANT Excel translates a sentence by using word substitutions, which means that the translation routine doesn't always pick the best word for a given context. The translated sentence might not capture your exact meaning.

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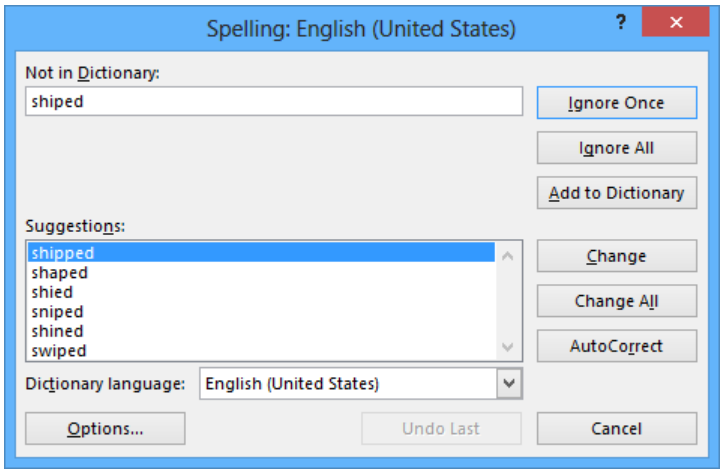
In this exercise, you'll check a worksheet's spelling, add two new terms to a dictionary, search for an alternative word by using the Thesaurus, and translate a word from English into French.

SET UP **You need the ServiceLevels workbook located in the Chapter02 practice file folder to complete this exercise. Open the workbook, and then follow the steps.**

1 On the **Review** tab, in the **Proofing** group, click **Spelling** to open the **Spelling** dialog box with the first misspelled word in the worksheet displayed in the **Not in Dictionary** field.



2 Verify that the word **shipped** is highlighted in the **Suggestions** pane, and then click **Change** to correct the word and display the next questioned word: **withn**.

3 Click **Change** to correct the word and display the next questioned word: **TwoDay**.

4 Click **Add to Dictionary** to add the word to the dictionary and display the next questioned word: **ThreeDay**.

5 Click **Add to Dictionary** to add the word to the dictionary.

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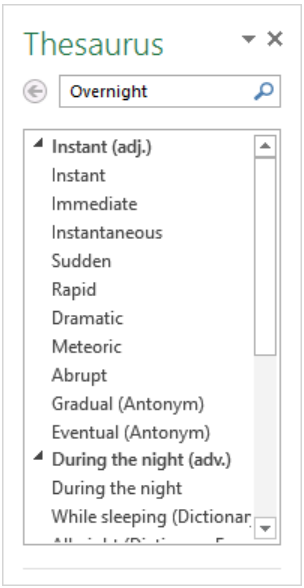
6 If necessary, click **Close** to close the **Spelling** dialog box. When you do, the **Spelling** dialog box closes and a message box appears, indicating that the spelling check is complete for the worksheet.

7 Click **OK** to close the message box.

8 Click cell **B6** and then, on the **Review** tab, in the **Proofing** group, click **Thesaurus** to display a list of synonyms for the word **Overnight**.



9 On the **Review** tab, in the **Language** group, click **Translate** to display the translation tools in the **Research** pane.

10 If necessary, in the **From** list, click **English (U.S.)**.

11 In the **To** list, click **French (France)**. The **Research** pane displays French words that mean *overnight*.

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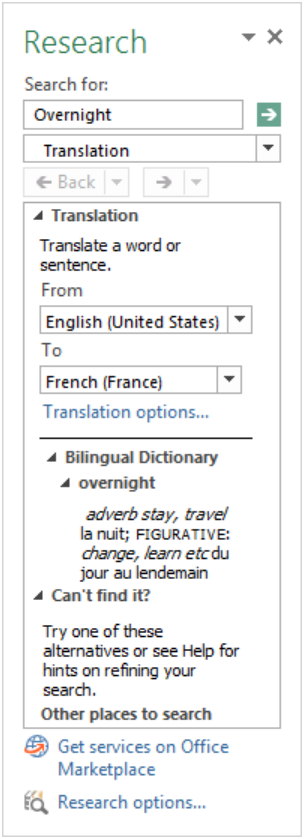

CLEAN UP **Close the ServiceLevels workbook, saving your changes if you want to.**

Defining Excel tables

With Excel, you've always been able to manage lists of data effectively, enabling you to sort your worksheet data based on the values in one or more columns, limit the data displayed by using criteria (for example, show only those routes with fewer than 100 stops), and create formulas that summarize the values in visible (that is, unfiltered) cells. In Excel 2007, the Excel product team extended your ability to manage your data by introducing Excel tables. Excel 2013 offers you the same capability.

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	A	B	C	D
1				
2		Customer	Month	Program Savings
3		Contoso	January	$ 182,423
4		Contoso	February	$ 173,486
5		Contoso	March	$ 88,027
6		Fabrikam	January	$ 139,434
7		Fabrikam	February	$ 29,461
8		Fabrikam	March	$ 91,295
9		Lucerne Publishing	January	$ 136,922
10		Lucerne Publishing	February	$ 161,370
11		Lucerne Publishing	March	$ 160,250
12		Wide World Importers	January	$ 109,903
13		Wide World Importers	February	$ 102,243
14		Wide World Importers	March	$ 105,077

To create an Excel table, enter a series of column headers in adjacent cells, and then enter a row of data below the headers. Click any header or data cell into which you just entered, and then, on the Home tab, in the Styles group, click Format As Table. Then, from the gallery that appears, click the style you want to apply to the table. When the Format As Table dialog box opens, verify that the cells in the Where Is The Data For Your Table? field reflect your current selection and that the My Table Has Headers check box is selected, and then click OK.

Excel can also create an Excel table from an existing cell range as long as the range has no blank rows or columns within the data and there is no extraneous data in cells immediately below or next to the list. To create the Excel table, click any cell in the range and then, on the Home tab, in the Styles group, click the Format As Table button and select a table style. If your existing data has formatting applied to it, that formatting remains applied to those cells when you create the Excel table. If you want Excel to replace the existing formatting with the Excel table's formatting, right-click the table style you want to apply and then click Apply And Clear Formatting.

When you want to add data to an Excel table, click the rightmost cell in the bottom row of the Excel table and press the Tab key to create a new row. You can also select a cell in the row immediately below the last row in the table or a cell in the column immediately to the right of the table and enter a value into the cell. After you enter the value and move out of the cell, the AutoCorrect Options action button appears. If you didn't mean to include the data in the Excel table, you can click Undo Table AutoExpansion to exclude the cells from

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the Excel table. If you never want Excel to include adjacent data in an Excel table again, click Stop Automatically Expanding Tables.

TIP To stop Table AutoExpansion before it starts, click the File tab, and then click Options. In the Excel Options dialog box, click Proofing, and then click the AutoCorrect Options button to open the AutoCorrect dialog box. Click the AutoFormat As You Type tab, clear the Include New Rows And Columns In Table check box, and then click OK twice.

You can add rows and columns to an Excel table, or remove them from an Excel table without deleting the cells' contents, by dragging the resize handle at the Excel table's lower-right corner. If your Excel table's headers contain a recognizable series of values (such as Region1, Region2, and Region3), and you drag the resize handle to create a fourth column, Excel creates the column with the label *Region4*—the next value in the series.

Excel tables often contain data that you can summarize by calculating a sum or average, or by finding the maximum or minimum value in a column. To summarize one or more columns of data, you can add a Total row to your Excel table.

	A	B	C	D
1				
2		Customer	Month	Program Savings
3		Contoso	January	$ 182,423
4		Contoso	February	$ 173,486
5		Contoso	March	$ 88,027
6		Fabrikam	January	$ 139,434
7		Fabrikam	February	$ 29,461
8		Fabrikam	March	$ 91,295
9		Lucerne Publishing	January	$ 136,922
10		Lucerne Publishing	February	$ 161,370
11		Lucerne Publishing	March	$ 160,250
12		Wide World Importers	January	$ 109,903
13		Wide World Importers	February	$ 102,243
14		Wide World Importers	March	$ 105,077
15		Total		$ 1,479,891

When you add the Total row, Excel creates a formula that summarizes the values in the rightmost Excel table column. To change that summary operation, or to add a summary operation to any other cell in the Total row, click the cell, click the arrow that appears, and then click the summary operation you want to apply. Clicking the More Functions menu

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item opens the Insert Function dialog box, from which you can select any of the functions available in Excel.

Much as it does when you create a new worksheet, Excel gives your Excel tables generic names such as Table1 and Table2. You can change an Excel table's name to something easier to recognize by clicking any cell in the table, clicking the Design tool tab, and then, in the Properties group, editing the value in the Table Name box. Changing an Excel table name might not seem important, but it helps make formulas that summarize Excel table data much easier to understand. You should make a habit of renaming your Excel tables so you can recognize the data they contain.

SEE ALSO For more information about using the Insert Function dialog box and about referring to tables in formulas, see "Creating formulas to calculate values" in Chapter 3, "Performing calculations on data."

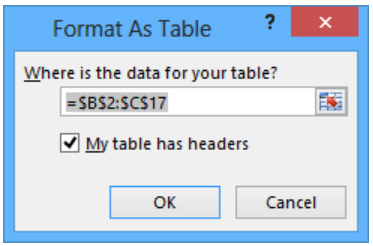
If for any reason you want to convert your Excel table back to a normal range of cells, click any cell in the Excel table and then, on the Design tool tab, in the Tools group, click Convert To Range. When Excel displays a message box asking if you're sure you want to convert the table to a range, click OK.

In this exercise, you'll create an Excel table from existing data, add data to an Excel table, add a Total row, change that row's summary operation, and rename the Excel table.

SET UP **You need the DriverSortTimes workbook located in the Chapter02 practice file folder to complete this exercise. Open the workbook, and then follow the steps.**

1 Select cell **B2**.

2 On the **Home** tab, in the **Styles** group, click **Format as Table**, and then select a table style to open the **Format As Table** dialog box.



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3 Verify that the range **=$B$2:$C$17** is displayed in the **Where is the data for your table?** field and that the **My table has headers** check box is selected, and then click **OK** to create an Excel table from your data and display the **Design** tool tab.

4 In cell **B18**, enter **D116**, press **Tab**, enter **100** in cell **C18**, and then press **Enter** to have Excel include the data in your Excel table.

5 Select a cell in the table. Then on the **Design** tool tab, in the **Table Style Options** group, select the **Total Row** check box to add a **Total** row to the bottom of your Excel table.

6 Select cell **C19**, click the arrow that appears at the right edge of the cell, and then click **Average** to change the summary operation to **Average**.

Driver	Sorting Minutes
D101	102
D102	162
D103	165
D104	91
D105	103
D106	127
D107	112
D108	137
D109	102
D110	147
D111	163
D112	109
D113	91
D114	107
D115	93
D116	100
Total	**119.4375**

7 On the **Design** tool tab, in the **Properties** group, enter the value **SortTimes** in the **Table Name** field, and then press **Enter** to rename your Excel table.

CLEAN UP **Close the DriverSortTimes workbook, saving your changes if you want to.**

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Key points

- You can enter a series of data quickly by entering one or more values in adjacent cells, selecting the cells, and then dragging the fill handle. To change how dragging the fill handle extends a data series, hold down the Ctrl key.
- Dragging a fill handle displays the Auto Fill Options button, which you can use to specify whether to copy the selected cells' values, extend a recognized series, or apply the selected cells' formatting to the new cells.
- Managing data by using Flash Fill enables you to separate cell entries into their components, apply formatting, and fix values such as postal codes that have had their leading zeros removed.
- With Excel, you can enter data by selecting items from a list, using AutoComplete, or pressing Ctrl+Enter. You should experiment with these techniques and use the one that best fits your circumstances.
- When you copy (or cut) and paste cells, columns, or rows, you can use the Paste Live Preview capability to preview how your data will appear before you commit to the paste operation.
- After you paste cells, rows, or columns into your worksheet, Excel displays the Paste Options action button. You can use its controls to change which aspects of the cut or copied elements Excel applies to the pasted elements.
- By using the options in the Paste Special dialog box, you can paste only specific aspects of cut or copied data, perform mathematical operations, transpose data, or delete blank cells when pasting.

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- You can find and replace data within a worksheet by searching for specific values or by searching for cells that have a particular format applied.
- Excel provides a variety of powerful proofing and research tools, enabling you to check your workbook's spelling, find alternative words by using the Thesaurus, and translate words between languages.
- With Excel tables, you can organize and summarize your data effectively.

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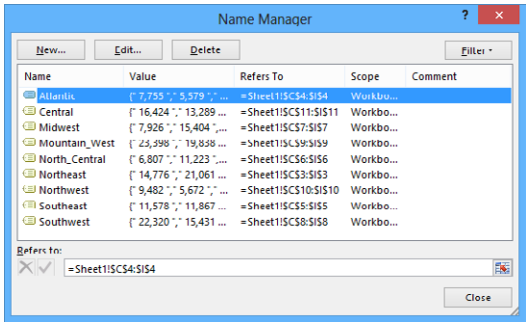
Chapter at a glance

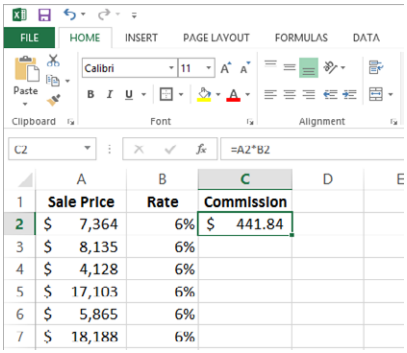
Name

Name groups of data, page 76



Summarize

Summarize data that meets specific conditions, page 90



Calculate

Use array formulas, page 96

	A	B	C
1	**Insurance Rate**	2.5%	
2			
3	**PackageID**	**Value**	**Premium**
4	PK000352	$ 591.00	=B1*B4:B6
5	PK000353	$ 1,713.00	
6	PK000354	$ 3,039.00	
7			

Correct

Find and correct errors in calculations, page 99

	A	B	C	D
1				
2		**Conveyer**		
3		350' track	$ 14,012.00	
4		Catch bin	$ 895.00	
5		Motor	$ 1,249.00	
6		Chain drive	$ 1,495.00	
7		Sorting table	$ 675.00	
8		*Subtotal*		$ 18,326.00
9				

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Performing calculations on data

3

IN THIS CHAPTER, YOU WILL LEARN HOW TO

- Name groups of data.
- Create formulas to calculate values.
- Summarize data that meets specific conditions.
- Work with iterative calculation options and automatic workbook calculation.
- Use array formulas.
- Find and correct errors in calculations.

Microsoft Excel 2013 workbooks give you a handy place to store and organize your data, but you can also do a lot more with your data in Excel. One important task you can perform is to calculate totals for the values in a series of related cells. You can also use Excel to discover other information about the data you select, such as the maximum or minimum value in a group of cells. By finding the maximum or minimum value in a group, you can identify your best salesperson, product categories you might need to pay more attention to, or suppliers that consistently give you the best deal. Regardless of your bookkeeping needs, Excel gives you the ability to find the information you want. And if you make an error, you can find the cause and correct it quickly.

Many times, you can't access the information you want without referencing more than one cell, and it's also often true that you'll use the data in the same group of cells for more than one calculation. Excel makes it easy to reference a number of cells at once, enabling you to define your calculations quickly.

In this chapter, you'll streamline references to groups of data on your worksheets and create and correct formulas that summarize an organization's business operations.

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PRACTICE FILES To complete the exercises in this chapter, you need the practice files contained in the Chapter03 practice file folder. For more information, see "Download the practice files" in this book's Introduction.

Naming groups of data

When you work with large amounts of data, it's often useful to identify groups of cells that contain related data. For example, you can create a worksheet in which cells C3:I3 hold the number of packages Consolidated Messenger's Northeast processing facility handled from 5:00 P.M. to 12:00 A.M. on the previous day.

	A	B	C	D	E	F	G	H	I	J
1										
2			5:00 PM	6:00 PM	7:00 PM	8:00 PM	9:00 PM	10:00 PM	11:00 PM	
3		Northeast	14,776	21,061	22,111	13,412	11,459	11,038	5,732	
4		Atlantic	7,755	5,579	13,778	13,774	5,352	17,209	15,822	
5		Southeast	11,578	11,867	5,627	5,625	7,148	24,487	20,262	
6		North Central	6,807	11,223	12,136	24,653	23,876	9,817	7,410	
7		Midwest	7,926	15,404	7,702	10,338	10,734	14,021	20,557	
8		Southwest	22,320	15,431	24,276	8,968	10,066	23,602	11,216	
9		Mountain West	23,398	19,838	21,591	24,305	21,431	8,338	6,941	
10		Northwest	9,482	5,672	14,689	18,795	9,388	8,069	19,776	
11		Central	16,424	13,289	18,546	19,762	20,770	11,202	6,403	
12										

Instead of specifying the cells individually every time you want to use the data they contain, you can define those cells as a range (also called a *named range*). For example, you can group the items from the cells described in the preceding paragraph into a range named *NortheastPreviousDay*. Whenever you want to use the contents of that range in a calculation, you can simply use the name of the range instead of specifying each cell individually.

TIP Yes, you could just name the range *Northeast*, but if you use the range's values in a formula in another worksheet, the more descriptive range name tells you and your colleagues exactly what data is used in the calculation.

To create a named range, select the cells you want to include in your range, click the Formulas tab, and then, in the Defined Names group, click Define Name to display the New Name dialog box. In the New Name dialog box, enter a name in the Name field, verify that the cells you selected appear in the Refers To field, and then click OK. You can also add a comment about the range in the Comment field and select whether you want to make the name available for formulas in the entire workbook or just on an individual worksheet.

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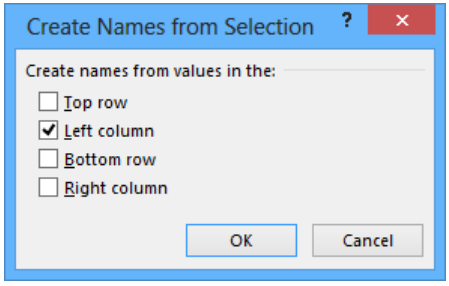
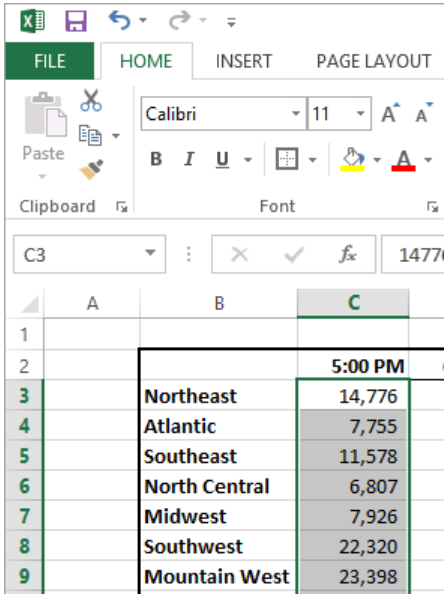
If the cells you want to define as a named range have labels in a row or column that's part of the cell group, you can use those labels as the names of the named ranges. For example, if your data appears in worksheet cells B4:I12 and the values in column B are the row labels, you can make each row its own named range. To create a series of named ranges from a group of cells, select all of the data cells, including the labels, click the Formulas tab and then, in the Defined Names group, click Create From Selection to open the Create Names From Selection dialog box. In the Create Names From Selection dialog box, select the check box that represents the labels' position in the selected range, and then click OK.



A final way to create a named range is to select the cells you want in the range, click in the Name box next to the formula box, and then enter the name for the range. You can display the ranges available in a workbook by clicking the Name arrow.



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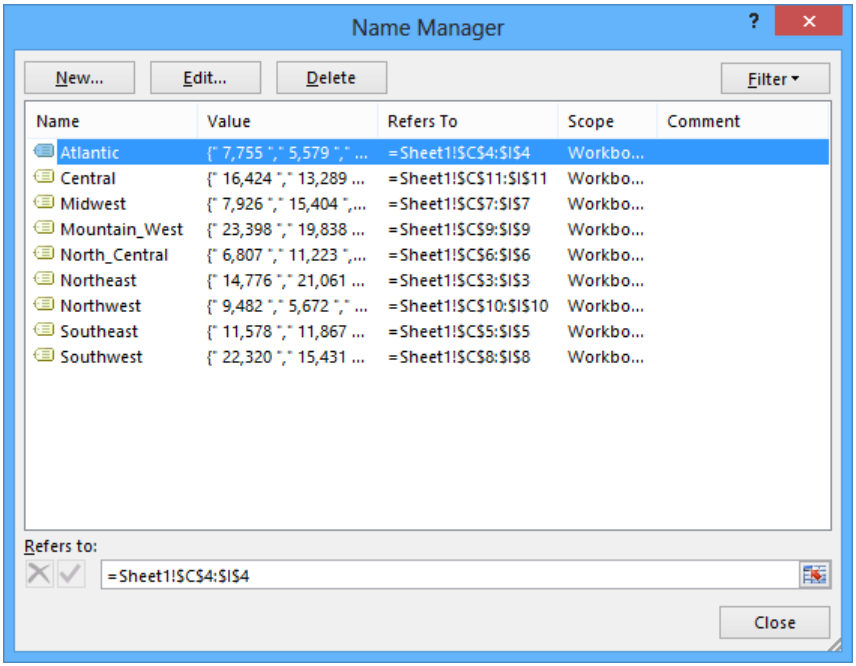
To manage the named ranges in a workbook, click the Formulas tab, and then, in the Defined Names group, click Name Manager to open the Name Manager dialog box.



When you click a named range, Excel displays the cells it encompasses in the Refers To field. Clicking the Edit button opens the Edit Name dialog box, which is a version of the New Name dialog box, enabling you to change a named range's definition; for example, by adding a column. You can also use the controls in the Name Manager dialog box to delete a named range (the range, not the data) by clicking it, clicking the Delete button, and then clicking OK in the confirmation dialog box that opens.

TIP If your workbook contains a lot of named ranges, you can click the Filter button in the Name Manager dialog box and select a criterion to limit the names displayed in the Name Manager dialog box.

In this exercise, you'll create a named range to streamline references to a group of cells. You'll also edit a named range and use a named range in a formula.

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SET UP **You need the VehicleMiles workbook located in the Chapter03 practice file folder to complete this exercise. Open the workbook, and then follow the steps.**

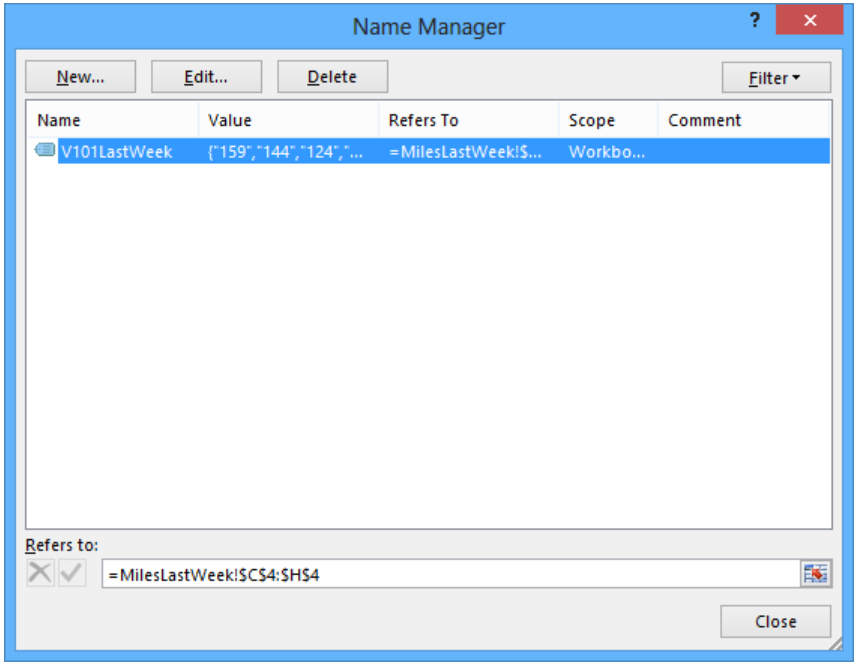
1 Select cells **C4:G4**, intentionally leaving cell H4 out of this selection. You will edit the named range later in this exercise.

2 In the **Name** box at the left end of the formula bar, enter **V101LastWeek**, and then press **Enter** to create a named range named *V101LastWeek*.

3 On the **Formulas** tab, in the **Defined Names** group, click **Name Manager** to open the **Name Manager** dialog box.

4 Click the **V101LastWeek** name. The cell range to which the **V101LastWeek** name refers appears in the **Refers to** box at the bottom of the **Name Manager** dialog box.

5 Edit the cell range in the **Refers to** box to **=MilesLastWeek!$C$4:$H$4** (change the **G** to an **H**), and then click the check mark button to the left of the box to finalize the update.



6 Click **Close** to close the **Name Manager** dialog box.

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7 Select the cell range **C5:H5**.

8 On the **Formulas** tab, in the **Defined Names** group, click **Define Name** to open the **New Name** dialog box.

9 In the **Name** field, enter **V102LastWeek**.

10 Verify that the definition in the **Refers to** field is **=MilesLastWeek!$C$5:$H$5**.

11 Click **OK** to create the name and close the **New Name** dialog box.

12 In cell **A1**, enter the formula **=SUM(V102LastWeek)** and press **Enter**. When you do, the total of all miles for vehicle V102 appears in the cell.

CLEAN UP **Close the VehicleMiles workbook, saving your changes if you want to.**

Operators and precedence

When you create an Excel formula, you use the built-in functions and arithmetic operators that define operations such as addition and multiplication. In Excel, mathematical operators are evaluated in the order shown in the following table.

Operator	Description
–	Negation (e.g., –1)
%	Percentage
^	Exponentiation
* and /	Multiplication and Division
+ and –	Addition and Subtraction
&	Concatenation (adding two strings together)
=, >, <, >=, <=, and <>	Equals, Greater Than, Less Than, Greater Than or Equal To, Less Than or Equal To, and Not Equal To

If two operators at the same level, such as + and –, occur in the same equation, Excel evaluates them in left-to-right order. For example, the operations in the formula = *4 + 8 * 3 – 6* would be evaluated in this order:

1 *8 * 3*, with a result of 24

2 *4 + 24*, with a result of 28

3 *28 – 6*, with a final result of 22

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You can control the order in which operations are evaluated by using parentheses. Operations in parentheses are always evaluated first. For example, if the previous equation were rewritten as *= (4 + 8) * 3 – 6*, the operations would be evaluated in this order:

1. *(4 + 8)*, with a result of 12
2. *12 * 3*, with a result of 36
3. *36 – 6*, with a final result of 30

If you have multiple levels of parentheses, Excel evaluates the expressions within the innermost set of parentheses first and works its way out. As with operations on the same level, such as + and –, expressions in the same parenthetical level are evaluated in left-to-right order.

For example, the formula *= 4 + (3 + 8 * (2 + 5)) – 7* would be evaluated in this order:

1. *(2 + 5)*, with a result of 7
2. *7 * 8*, with a result of 56
3. *56 + 3*, with a result of 59
4. *4 + 59*, with a result of 63
5. *63 – 7*, with a final result of 56

Creating formulas to calculate values

After you add your data to a worksheet and define ranges to simplify data references, you can create a formula, which is an expression that performs calculations on your data. For example, you can calculate the total cost of a customer's shipments, figure the average number of packages for all Wednesdays in the month of January, or find the highest and lowest daily package volumes for a week, month, or year.

To write an Excel formula, you begin the cell's contents with an equal (=) sign; when Excel identifies it, it knows that the expression following it should be interpreted as a calculation, not text. After the equal sign, enter the formula. For example, you can find the sum of the numbers in cells C2 and C3 by using the formula *=C2+C3*. After you have entered a formula

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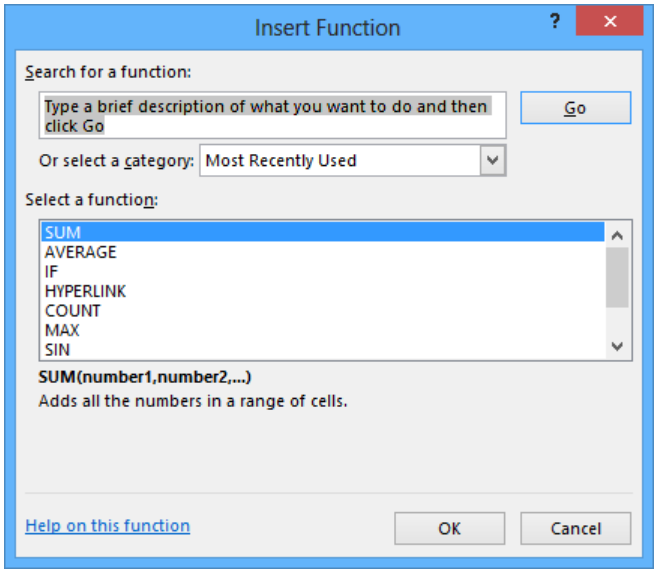
into a cell, you can revise it by clicking the cell and then editing the formula in the formula box. For example, you can change the preceding formula to *=C3-C2*, which calculates the difference between the contents of cells C2 and C3.

TROUBLESHOOTING If Excel treats your formula as text, make sure the equal sign is the first character. If Excel still displays your formula as text, check whether the cell has the Text format applied to it. If it does, change the cell's format to a format that suits the value you want to calculate.

Entering the cell references for 15 or 20 cells in a calculation would be tedious, but Excel makes it easy to enter complex calculations. To create a new calculation, click the Formulas tab, and then in the Function Library group, click Insert Function. The Insert Function dialog box opens, with a list of functions, or predefined formulas, from which you can choose.



The following table describes some of the most useful functions in the list.

Function	Description
SUM	Finds the sum of the numbers in the specified cells
AVERAGE	Finds the average of the numbers in the specified cells
COUNT	Finds the number of cells in the specified range that contain numbers
MAX	Finds the largest value in the specified cells
MIN	Finds the smallest value in the specified cells

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Two other functions you might use are the *NOW* and *PMT* functions. The *NOW* function displays the time Excel updated the workbook's formulas, so the value will change every time the workbook recalculates. The proper form for this function is *=NOW()*. To update the value to the current date and time, press the F9 key or display the Formulas tab and then, in the Calculation group, click the Calculate Now button.

The *PMT* function is a bit more complex. It calculates payments due on a loan, assuming a constant interest rate and constant payments. To perform its calculations, the *PMT* function requires an interest rate, the number of payments, and the starting balance. The elements to be entered into the function are called *arguments* and must be entered in a certain order. That order is written as *PMT(rate, nper, pv, fv, type)*. The following table summarizes the arguments in the *PMT* function.

Argument	Description
rate	The interest rate, to be divided by 12 for a loan with monthly payments, by 4 for quarterly payments, and so on
nper	The total number of payments for the loan
pv	The amount loaned (pv is short for present value, or principal)
fv	The amount to be left over at the end of the payment cycle (usually left blank, which indicates 0)
type	0 or 1, indicating whether payments are made at the beginning or at the end of the month (usually left blank, which indicates 0, or the end of the month)

If Consolidated Messenger wanted to borrow $2,000,000 at a 6 percent interest rate and pay the loan back over 24 months, you could use the *PMT* function to figure out the monthly payments. In this case, the function would be written *=PMT(6%/12, 24, 2000000)*, which calculates a monthly payment of $88,641.22.

TIP Because the payment calculated by the *PMT* function represents money that flows out of your bank account, the result is a negative number. If you want the result to be expressed as a positive number, multiply the formula's result by -1.

You can also use the names of any ranges you defined to supply values for a formula. For example, if the named range NortheastLastDay refers to cells C4:I4, you can calculate the average of cells C4:I4 with the formula *=AVERAGE(NortheastLastDay)*. With Excel, you can add functions, named ranges, and table references to your formulas more efficiently by using the Formula AutoComplete capability. Just as AutoComplete offers to fill in a cell's text value when Excel recognizes that the value you're entering matches a previous entry, Formula AutoComplete offers to help you fill in a function, named range, or table reference while you create a formula.

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