Microsoft

Microsoft Excel 2019

Data Analysis and Business Modeling

SIXTH EDITION

Wayne L. Winston

Practice and solution files on the web

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To create a custom list, proceed as follows:

■ Click the **File** tab on the ribbon, click **Options** near the bottom of the left pane, click **Advanced** in the left pane of the **Excel Options** dialog box, scroll down, and, then in the bottom of the **General** section, click the **Edit Custom List** button.

■ You will see the **Custom Lists** dialog box in Figure 25-12. Click in the **Import List From Cells** box (near the bottom), select the range (G6:G13) containing the list, and then click **Import**. You will see your list of cities join the collection of built-in custom lists on the left. Click **OK** to close the **Custom Lists** dialog box, and then click **OK** to close the **Excel Options** dialog box.
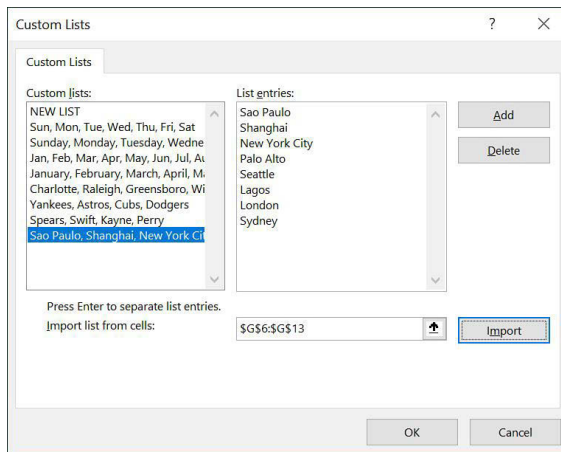

FIGURE 25-12 The custom list of cities has been created.

Now if you type **Sao Paulo** in any cell, hover over the square in the bottom-right corner of the cell, and drag the cursor down, you will see the cities listed in the order Sao Paulo, Shanghai, and so on. If you drag the cursor down far enough, the list will repeat. Of course, if you want to drag down copies of Sao Paulo, just type **Sao Paulo** in two cells and then drag down the two cells.

Problems

1. In the Makeupsort.xlsx file, sort the sales data alphabetically by location, then by product type, then by name, then by date of sale, and finally by units sold.

2. The Sortday.xlsx file contains hours worked on different days of the week. Sort the data so that the Monday data is followed by the Tuesday data, and so on.

3. The Sorticons.xlsx file contains annual investment returns with an up arrow used to indicate good years, a horizontal arrow used to indicate average years, and a red arrow used to indicate bad years. Sort the data by the icons in the Stock column with the up arrows on top, followed by the horizontal arrows, and then the red arrows.

4. The file named Makeupsortfont.xlsx contains our makeup data with certain dates shown in blue, red, or brown font. Sort the data so that the brown dates are on top, followed by the red dates, and then the blue dates.

Excel tables and table slicers

Questions answered in this chapter:

- I have entered in a worksheet the number of units sold and the total revenue for each salesperson, and I can easily compute the average price per unit for each salesperson. How can I create a nice format that is automatically copied if I enter new data? Also, is there an easy way to automatically copy my formulas when new data is added?

- I have entered in my worksheet several years of natural gas prices, and I created a nice line chart displaying the monthly variation in prices. Can I set things up so that when I add new gas price data, my chart automatically updates?

- For each sales transaction, I have the salesperson, date, product, location, and size of the transaction. Can I easily summarize, for example, the total lipstick sales in the East made by Ashley or Hallagan?

- How do table slicers (added in Excel 2013) help us "slice and dice" data in an Excel table?

- How can I easily refer to portions of a table in other parts of my workbook?

- Do conditional formats automatically apply to new data added to a table?

When most of us use Microsoft Excel, we often enter new data. Then we manually update our formulas, formats, and charts. What a drag! The Excel table capabilities make this drudgery a thing of the past.

Answers to this chapter's questions

I have entered in a worksheet the number of units sold and the total revenue for each salesperson, and I can easily compute the average price per unit for each salesperson. How can I create a nice format that is automatically copied if I enter new data? Also, is there an easy way to automatically copy my formulas when new data is added?

The file Tableexampletemp.xlsx in the Templates folder for this chapter (see Figure 26-1) contains the units sold and revenue data for each of six salespersons. You know that new data will be added, beginning in row 12. Also, in column H, you would like to calculate the average price (`Units/Revenue`) earned by each salesperson. You would like to create an attractive format for the data and have the formula for average price copied down automatically as new data is added.

FIGURE 26-1 The data for creating a table.

Creating a table allows your analysis and formatting to be automatically updated when you add data. Begin by selecting the current range of data (E5:G11), including the headers. Next, click **Table** on the **Insert** tab of the ribbon, or press Ctrl+T. After selecting the **My Table Has Headers** check box (it might be selected by default) and clicking **OK**, you will see that the table range (E5:G11) is formatted beautifully. This formatting will continue automatically whenever new data is entered into the table. When you are working in a table, many styles and options are available on the **Design** tab (see Figure 26-2). The **Design** tab is visible only when the active cell is within a table. You can select a formatting style that will be applied as new data is added to the table.
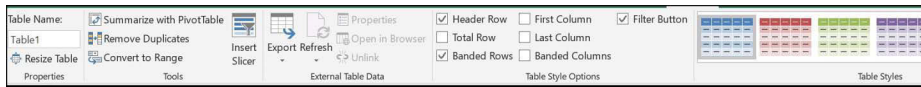

FIGURE 26-2 The table design options.

Note that the column headings have drop-down menu arrows, as you can see in Figure 26-3. These arrows work as filters that can be used to sort or filter the table. (I discuss filtering in more detail later in this chapter.)

FIGURE 26-3 Column headings with drop-down menu arrows.

The cells in the selected table (excluding the headers) are given the name **Table1** by default. I changed the name to **Sales** in the **Properties** group on the **Design** tab. If you click the **Formulas** tab and then click **Name Manager** (in the **Defined Names** group), you can see that range E6:G11 is

named **Sales**. The beauty of this range concept (and the table) is that the range dynamically expands to include new rows added to the bottom of the table and new columns added to the right of the table. In Chapter 22, "The OFFSET function," I used the **OFFSET** function to create a dynamic range, but table capabilities make the creation of a dynamic range a snap.

Suppose that in D15 you want to compute the total revenue. Begin by typing =**SUM(S**. Excel then offers you the option to automatically complete the entry with the table range **Sales**. I implemented **AutoComplete** by double-clicking the range name. You can also implement **AutoComplete** by selecting **Sales** (by clicking it once or pressing the Down arrow key) and pressing the **Tab** key. Then, when you see =**SUM(Sales** and type an opening bracket (**[**), **Formula AutoComplete** offers the option to complete the formula with column headings from the Sales table. You can complete your formula as =**SUM(Sales[Revenue])** and calculate the total revenue as $155,480, as you can see in Figure 26-4. Later in this chapter, you will see an example of selecting the entries in the **AutoComplete** box that begin with number signs (#).

	B	C	D	E	F	G
5				Name	Units	Revenue
6				John	814	39886
7				Adam	594	26136
8				Dixie	528	13200
9				Tad	806	20956
10				Erica	826	27258
11				Gabrielle	779	28044
12						
13						
14						
15	revenue	155480				
16		=SUM(Table1[Revenue])				

FIGURE 26-4 The total revenue for the original data.

If new rows of data are added, the data in these rows is automatically accounted for in the formula. To illustrate this idea, you can add new data in row 12: Amanda sold 400 units for $5,000, as shown in Figure 26-5. Note that total revenue has increased by $5,000 to $160,480.

The formatting has been extended to row 12 as well, and the total revenue formula has been updated to include Amanda's data. Even if data is added within the table (instead of at the bottom), everything will be updated in a consistent fashion.

FIGURE 26-5 New data is added to the table in row 12.

Now, suppose that you want to compute in column H the price per unit earned by each salesperson. Simply type **Unit Price** in H5 as the column heading, and then in cell H6 type **=Sales[**. In the **AutoComplete** list, double-click **Revenue** and type a closing bracket (**]**). The formula is now **=SALES[Revenue]**. Type a slash (**/**), and use **Formula AutoComplete** to complete the formula as **=SALES[Revenue]/Sales[Units]**. An amazing thing happens. Excel automatically copies the formula down to the bottom of the table in cell H12, as shown in Figure 26-6. If you go to any cell in column H, the formula appears as **[@Revenue]/[@Units]**. Of course, **=[@Revenue]/[@Units]** is a lot easier to understand than **=G6/F6**. This formula can be interpreted as taking whatever is in the current row in the **Revenue** column and dividing it by whatever is in the current row in the **Units** column.

FIGURE 26-6 Automatically copying the unit price formula.

If you click anywhere in a table, the **Table Tools Design** tab appears on the ribbon and offers choices (see Figure 26-2), including the following:

- **Change Table Name** Can be used to rename a table. I changed the name from `Table1` (the default) to `Sales`. Found in the **Properties** group.

- **Resize Table** Adds or subtracts rows and/or columns to the defined table range. Found in the **Properties** group.

- **Remove Duplicates** Removes rows that contain duplicates. For example, selecting only the **Name** column in the **Remove Duplicates** dialog box ensures that a name will not occur more than once. Checking both the **Names** and **Units** columns ensures that no rows in the table will match both **Name** and **Units**, and so on. Found in the **Tools** group.

- **Convert to Range** Converts the table range to normal cells and removes the table structure. Found in the **Tools** group.

- **Header Row** If selected, displays the header row. If cleared, the header row is not displayed. Found in the **Table Style Options** group.

- **Total Row** I discuss the Total Row later in this chapter.

- **First Column** If selected, applies a special format to the first column of the table.

- **Last Column** If selected, assigns a special format to the last column of the table.

- **Banded Rows** If selected, gives the even-numbered rows in the table a different format than odd-numbered rows.

- **Banded Columns** If selected, gives odd-numbered columns in the table a format different than even-numbered columns.

- **Table Styles** Select from any of the table formats shown in this group. Of course, if the table expands or contracts, the format will adjust appropriately.

I have entered in my worksheet several years of natural gas prices, and I created a nice line chart displaying the monthly variation in prices. Can I set things up so that when I add new gas price data, my chart automatically updates?

In the file named Gasprices507.xlsx, the worksheet Original contains natural gas prices per thousand feet from July 2002 through December 2004 (see Figure 26-7). As I previously described, you can select B5:C34 (containing months and prices) and press Ctrl+T to create a table from this range. Then you can create a line graph to display this data by clicking **Insert Line Or Area Chart** in the **Charts** group on the **Insert** tab and selecting the fourth type of line graph, **Line With Markers**. The line graph I created is shown in Figure 26-8.