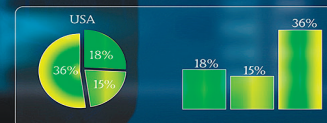
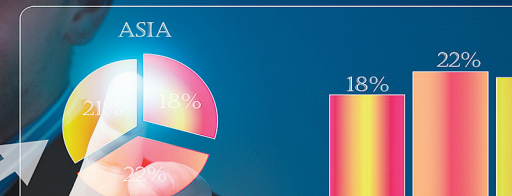


EXCEL

3

Data Visualization
and Images

| DAT | BID | ASK | PRO | QUA | DAT | BID | ASK | PRO | QUA |
|-----|----------|----------|----------|-----|-----|-----------|----------|----------|-----|
| JAN | € 241,00 | € 558,00 | € 104,00 | 339 | JAN | € 942,00 | € 348,00 | € 820,00 | 820 |
| FEB | € 955,00 | € 348,00 | € 374,00 | 223 | FEB | € 685,00 | € 920,00 | € 784,00 | 784 |
| MAR | € 116,00 | € 415,00 | € 930,00 | 269 | MAR | € 993,00 | € 604,00 | € 934,00 | 934 |
| APR | € 262,00 | € 146,00 | € 107,00 | 437 | APR | € 228,00 | € 202,00 | € 555,00 | 555 |
| MAY | € 839,00 | € 890,00 | € 801,00 | 934 | MAY | € 468,00 | € 685,00 | € 386,00 | 386 |
| JUN | € 706,00 | € 579,00 | € 691,00 | 933 | JUN | € 499,00 | € 963,00 | € 974,00 | 974 |
| JUL | € 622,00 | € 870,00 | € 933,00 | 691 | JUL | € 617,00 | € 240,00 | € 575,00 | 575 |
| AUG | € 557,00 | € 775,00 | € 934,00 | 801 | AUG | € 630,00 | € 853,00 | € 645,00 | 645 |
| SEP | € 50,00 | € 300,00 | € 437,00 | 107 | SEP | € 652,00 | € 248,00 | € 941,00 | 941 |
| OCT | € 817,00 | € 518,00 | € 269,00 | 930 | OCT | € 1017,00 | € 952,00 | € 802,00 | 802 |
| NOV | € 173,00 | € 331,00 | € 223,00 | 934 | NOV | € 845,00 | € 715,00 | € 715,00 | 715 |
| DEC | € 608,00 | € 599,00 | € 339,00 | 104 | DEC | € 748,00 | € 542,00 | € 557,00 | 557 |



In this chapter, you will learn a variety of ways to create visually interesting worksheets. This chapter will help you understand when to create charts, which chart types to use, and how they are useful in understanding relationships between numbers in a worksheet. You will also learn about formatting data based on desired conditions and inserting pictures and shapes.

LEARNING OBJECTIVES

- ▶ Insert charts
- ▶ Use chart tools to modify charts
- ▶ Move and size charts
- ▶ Edit chart data
- ▶ Add images to a worksheet
- ▶ Apply conditional formatting

Project: Reporting Company Sales Data

Airspace Travel has put together a report of sales figures for the year and has asked you to help create some charts. You have to decide what data to use to create the charts and the chart types that will best help the company understand how it is performing. You want to show sales comparisons month by month, illustrate the contributions of each travel agent to compare them side by side, and highlight the top and bottom performers throughout the year.

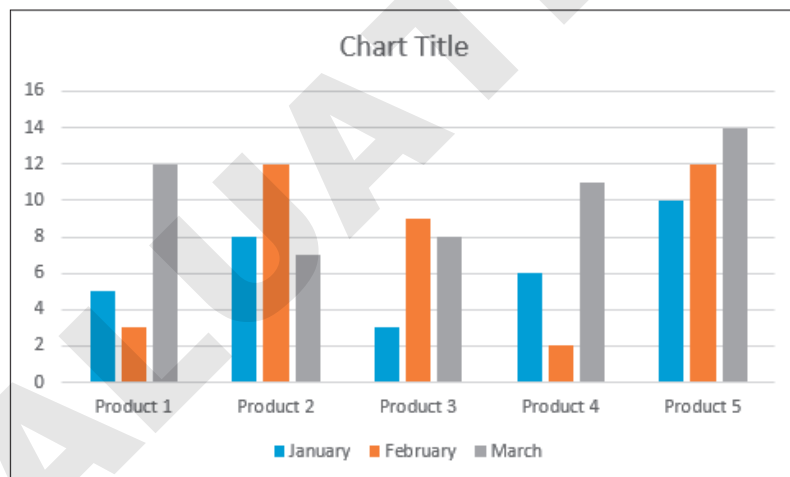
Create Charts to Compare Data

There are many situations in which we are presented with numerical data, and it would be easier to interpret the data if we could visualize it in chart form. Charts are created from worksheet data, and similar to a formula the data is linked so that if the data changes, the chart changes as well. Creating a chart is as easy as selecting the data and chart type, and Excel does the rest. After the chart is created, you can add or modify chart elements to change the way your chart looks.

Choosing a Chart Type

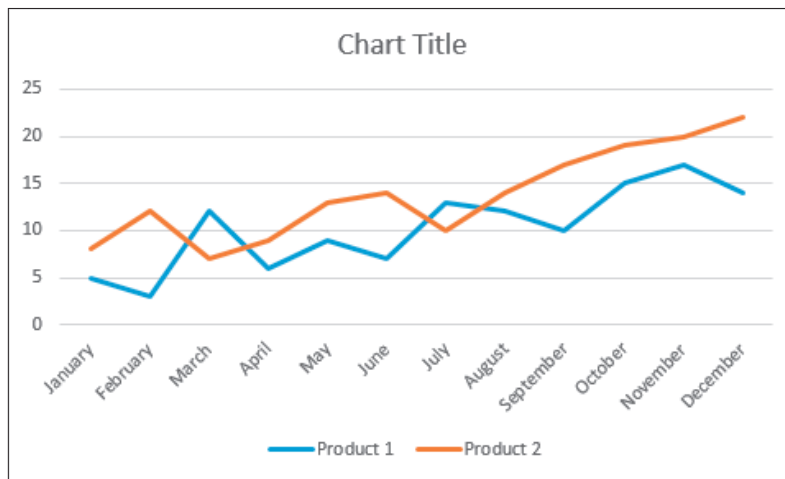
Excel has more than a dozen different types of charts to choose from, with variations of each chart type as well. However, it is important to remember that the purpose of a chart is to simplify data and not make it more complicated. The most common options to use are a column or bar chart, a line chart, or a pie chart.

Column Chart and Bar Chart



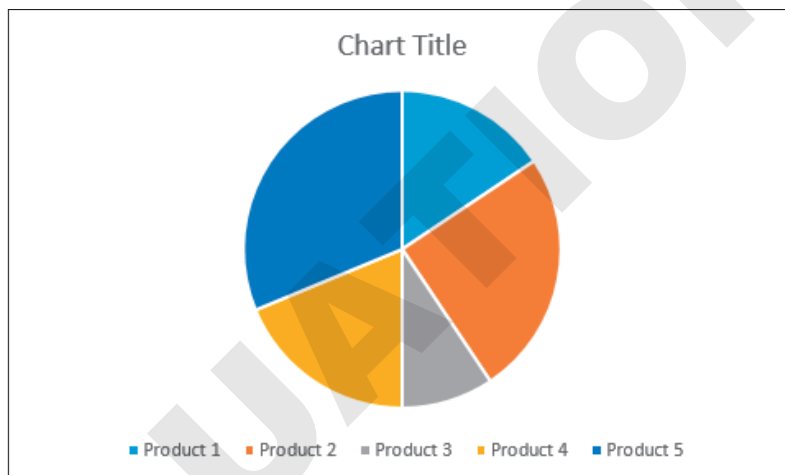
A column chart displays data in columns across the horizontal axis. A bar chart displays data in bars across the vertical axis, so they are basically the same chart, simply vertical up and down or horizontal left to right. Column charts are useful to compare data across several categories.

Line Chart



A line chart displays your series of data in a line or several lines and is useful for showing trends in data over time, such as days, months, or years. Line charts are best for a large amount of data and when the order of data, for example chronological, is important. Line charts are very similar to column charts and have most of the same features.

Pie Chart



A pie chart shows a comparison of your data as parts of the whole. Pie charts are best for a small amount of data; too many pieces will be hard to see in a pie chart. Pie charts can contain only one series of data, and they do not have a horizontal or vertical axis like column charts and line charts.

Excel also has a Recommended Charts option that will list the top chart options for you based on the data you have selected. The Insert Chart window shows a preview of what your chart will look like before you decide which one to use.

≡ Insert→Charts

≡ Insert→Charts→Recommended Charts 

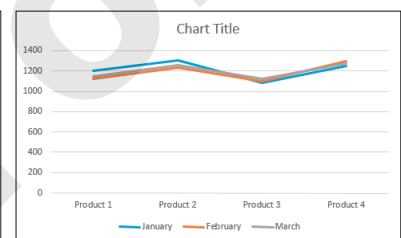
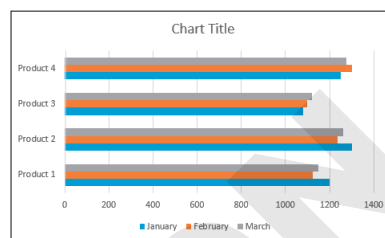
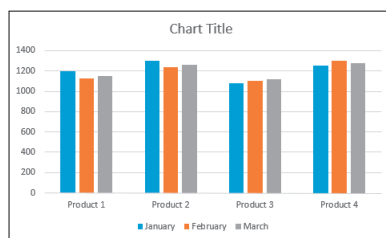
Selecting Chart Data

Choosing the right data is very important to make sure Excel can create the chart correctly. The best method is to always select the data and include the appropriate row and column headings.

To create a column, bar, or line chart, the data selection is the same.

| Q1 Revenue | | | |
|------------|---------|----------|-------|
| | January | February | March |
| Product 1 | 1200 | 1123 | 1150 |
| Product 2 | 1301 | 1235 | 1260 |
| Product 3 | 1080 | 1100 | 1120 |
| Product 4 | 1250 | 1300 | 1275 |

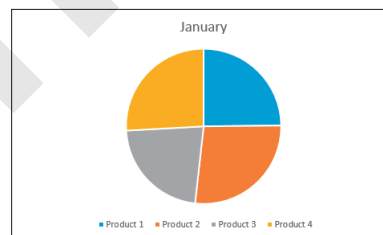
The data, including row and column headings, is selected to create your chart; notice the blank cell in the top-left corner is also included.



These three charts result from the same selection of data.

To create a pie chart, you can only select one data series.

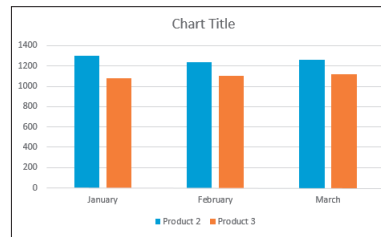
| Q1 Revenue | | | |
|------------|---------|----------|-------|
| | January | February | March |
| Product 1 | 1200 | 1123 | 1150 |
| Product 2 | 1301 | 1235 | 1260 |
| Product 3 | 1080 | 1100 | 1120 |
| Product 4 | 1250 | 1300 | 1275 |



Only the January data series is selected to create the pie chart.

If you want to create charts showing only some of the data, use the **Ctrl** key to select the desired data.

| Q1 Revenue | | | |
|------------|---------|----------|-------|
| | January | February | March |
| Product 1 | 1200 | 1123 | 1150 |
| Product 2 | 1301 | 1235 | 1260 |
| Product 3 | 1080 | 1100 | 1120 |
| Product 4 | 1250 | 1300 | 1275 |

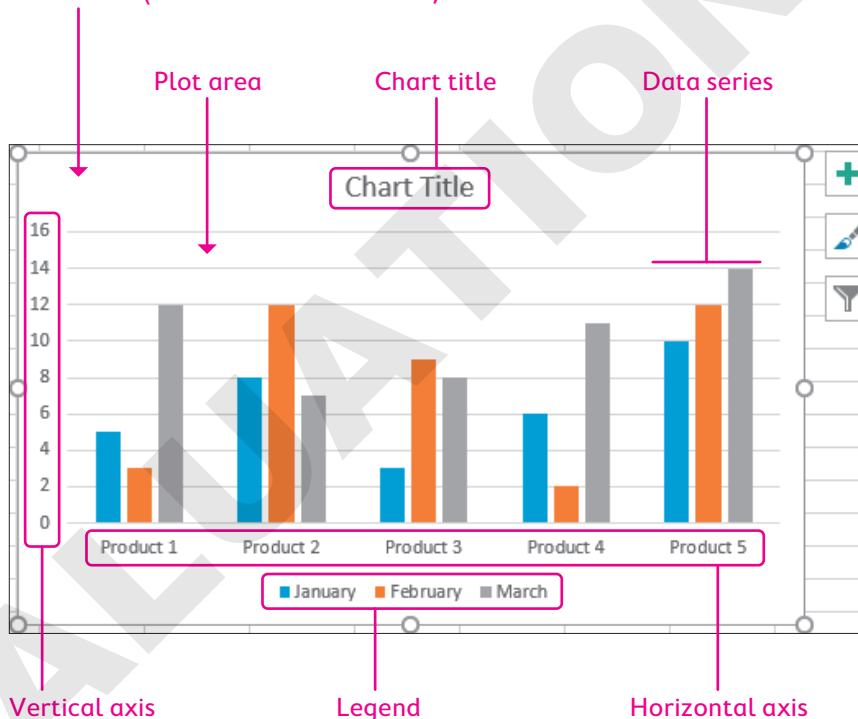


For a column, bar, or line chart showing only Products 2 and 3, you would select the three rows of data as shown, again including the blank cell.

Chart Elements

A chart is made up of different elements that can be added, removed, or modified. These elements can help others understand the information on the chart or accentuate certain aspects of the data. There is a wide range of options for changing the look and style of your chart with each of the chart elements.

Chart area (the whole chart window, where the chart elements are located)



DEVELOP YOUR SKILLS: E3-D1

In this exercise, you will select data and use it to create a chart.

1. Start Excel, open **E3-D1-Sales** from the **Excel Chapter 3** folder, and save it as **E3-D1-SalesCharts**.

2. Follow these steps to insert a column chart:

The screenshot shows the Excel interface with the 'Insert' ribbon selected. The 'Charts' group is active, and the 'Recommended Charts' task pane is open on the right. The task pane shows a preview of a clustered column chart. The worksheet contains a table titled 'Airspace Travel Company Agent Sales by Month' with columns for Agent, JAN, FEB, MAR, APR, and MAY. The range A3:D8 is selected, which is highlighted by a pink circle 'A'. The 'Recommended Charts' task pane is open, showing a preview of a clustered column chart, with a pink circle 'B' pointing to the 'Recommended Charts' tab and a pink circle 'C' pointing to the 'OK' button.

| Agent | JAN | FEB | MAR | APR | MAY |
|-----------------|--------|--------|--------|--------|--------|
| Adam Landry | 13,629 | 14,841 | 19,611 | 19,737 | 15,000 |
| Debra Cutler | 13,904 | 17,040 | 12,207 | 9,044 | 18,000 |
| Elizabeth Betts | 11,907 | 12,685 | 23,329 | 15,208 | 20,000 |
| Hope Mooney | 12,083 | 14,490 | 22,446 | 12,670 | 16,000 |
| Tim McKay | 23,272 | 20,287 | 12,161 | 21,237 | 16,000 |

- A** Select the **range A3:D8** to compare the results for all agents for the first three months of the year.
- B** Choose **Recommended Charts** from the Ribbon.
- C** Excel recommends a clustered column chart. Click **OK** to accept and insert the chart.

Your chart will be inserted as a floating object onto your worksheet, meaning it can be moved easily by dragging.

After creating your chart, notice that resting the mouse pointer over a chart element will display a ScreenTip with the name of the element and pointing to your data will tell you the data series, point, and value.

3. Save the workbook.

Working with Chart Tools

There are countless ways of formatting a chart; your chart can be as simple or as creative as you like. The way you format it will likely depend on your purpose and how much time you want to spend working on it. The Chart Tools are **contextual tabs**, meaning they are only available while a chart is selected. You can also use the Format pane on the right side of the screen to format chart elements, and the formatting options change for each chart element.

Chart Tools→Format→Current Selection→Format Selection | Right-click→Format (Selection)

Chart Design Tools

You can use Design Tools to quickly and easily change the way your chart looks, using features like Chart Styles and Layouts. Styles modify the colors, shading, and layout of the various chart elements in one easy step. To change the appearance of a chart, there are many other design options, including changing the chart type, changing colors, or adding and removing the various chart elements.



View the Video “Using the Chart Design Tools.”

Using the Chart Formatting Buttons

The chart formatting buttons can add elements to your chart, change the style, or filter the data visible on the chart.

One of the great new features of Excel charts is the ability to filter your data without changing the data selection or creating a new chart. You can simply filter the data to focus on the sets of data you want to compare and then add or remove the other series or categories as desired.

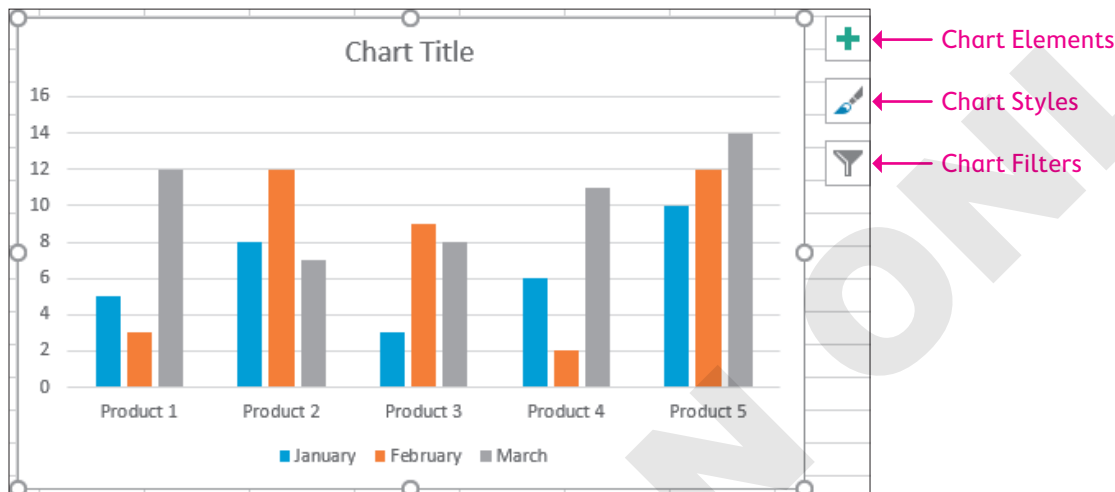
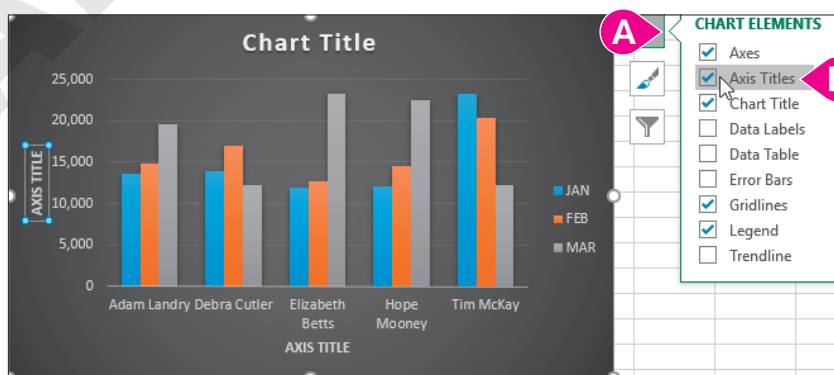


Chart Tools→Design

DEVELOP YOUR SKILLS: E3-D2

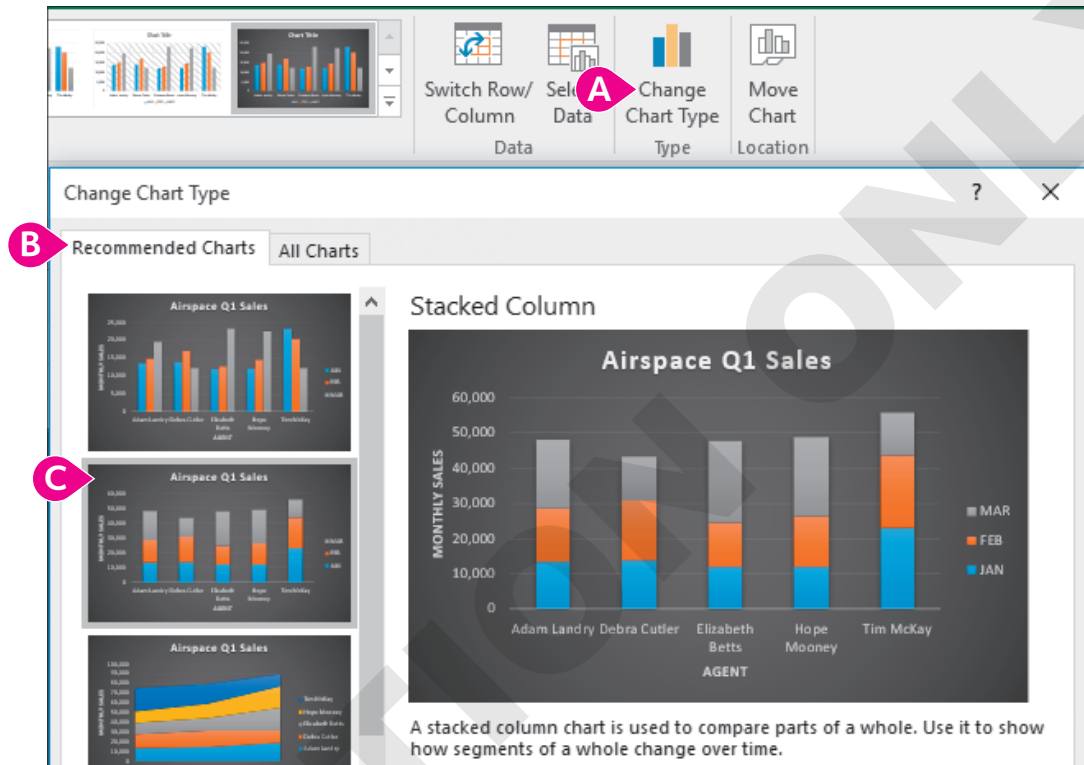
In this exercise, you will adjust the appearance of your chart using the style, layout, and other chart design tools.

1. Save your workbook as **E3-D2-SalesCharts**.
2. If necessary, click anywhere on the column chart to select it, which displays the Chart Tools on the Ribbon.
3. Choose **Chart Tools→Design→Chart Styles→Style 8** to apply the new style.
4. Choose **Chart Tools→Design→Chart Layouts→Quick Layout→Layout 1** to apply the layout, which moves the Legend to the right side of the chart.
5. Follow these steps to add axis titles to your chart:



- A Click on the **Chart Elements** button.
- B Click to check the box beside **Axis Titles**.

6. Point to the **Vertical Axis Title** you just added and triple-click to select the entire text.
7. Type **Monthly Sales** for the axis title.
8. Select the **Horizontal Axis Title** and replace the text with **Agent** for the title.
9. Replace the **Chart Title** with the title **Airspace Q1 Sales**.
10. Follow these steps to change the chart type:



- A Select **Change Chart Type** from the Ribbon to open the dialog box.
- B Go to **Recommended Charts**.
- C Choose the second option, **Stacked Column**, and then click **OK**.

This chart more clearly shows a comparison of the total for each Agent during the three months, as well as the sales for each individual month.

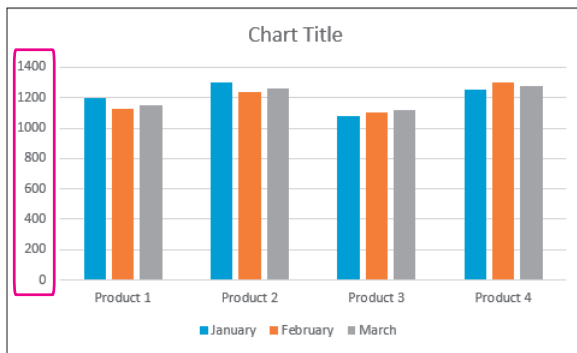
11. Save the workbook.

Chart Format Tools

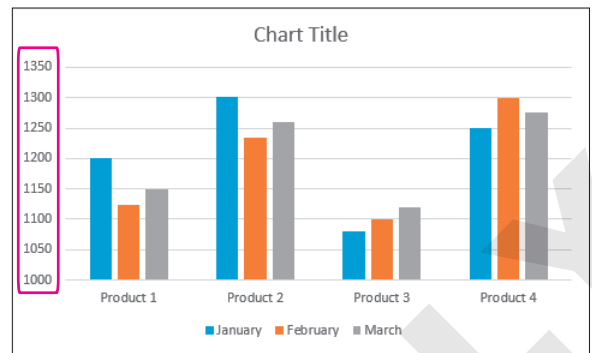
Beyond changing the basic style of a chart you may want to choose your own colors for the chart area, plot area, or data series. This can be done by modifying the Fill or Outline of a specific chart element. The Fill could be a color, gradient, texture, or even a picture. Other possibilities include adding shapes or WordArt to a chart.

Axis Options

You may want to adjust your axes to focus your data on significant differences or to simply adjust the appearance of the axes. One of the axis options is the minimum and maximum value displayed on the axis. For example, if the data you are charting all falls between 1000 and 1300, you can set your minimum at 1000 to highlight the differences because the first 1000 units are the same for all the data points. Another useful option is to change the Number Format for the axis; for example, to Currency.



The data looks very similar with the axis values ranging from 0 to 1400.



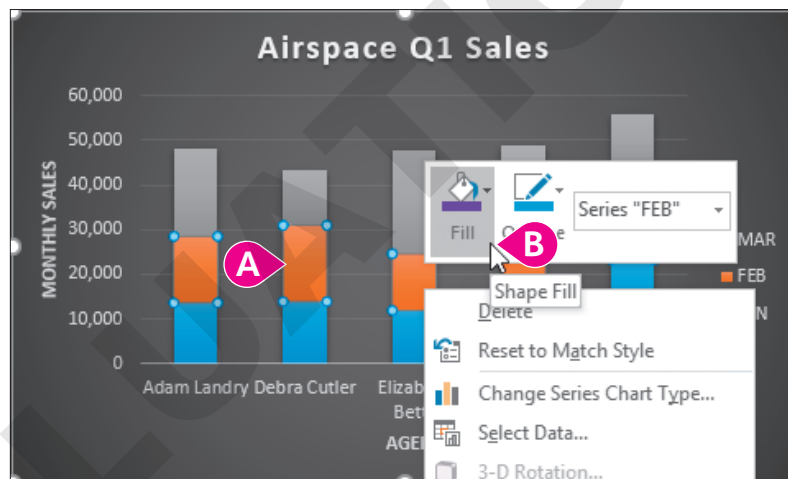
The Product differences are much easier to see with the axis values starting at 1000.

Chart Tools→Format→Current Selection→Format Selection Right-click axis→Format Axis

DEVELOP YOUR SKILLS: E3-D3

In this exercise, you will adjust the chart colors and axis numbering.

1. Save your workbook as **E3-D3-SalesCharts**.
2. Continuing with the **Airspace Q1 Sales** column chart, follow these steps to adjust the color of the FEB series:



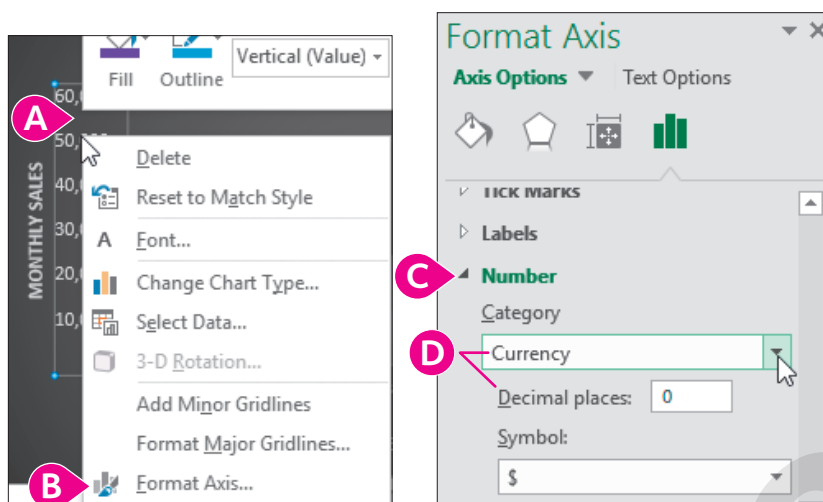
- Click once on any orange block to select the FEB Data series.

It is important to click only once. The first click selects the whole series, and clicking a second time would select only one data point from the series to modify.

- Right-click, click on **Fill** in the shortcut menu, and then choose **Red** from the Standard Colors.

3. Adjust the Fill Color for the MAR series to **Standard Color Purple**.

4. Follow these steps to adjust the vertical axis:



- A** Point to a number on the vertical axis and then right-click to display the shortcut menu.
It is important to point to a number to get the right menu, if you are between the numbers, the Chart Area shortcut menu will appear, which has different options.
- B** Choose the **Format Axis** command.
- C** In the Format Axis pane, scroll to the bottom and click on **Number** to expand (then you may need to scroll down to see Number options).
- D** Choose **Currency** from the Category list using the menu button ▼ and, if necessary, change the Decimal places to **0**.

The Number Format is changed for the vertical axis. You can either leave the Format pane open or close it by clicking the close button in the top-right corner.

5. Save the workbook.

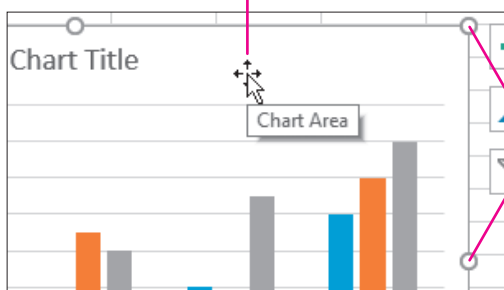
Move and Size Charts

Charts can be moved around on a worksheet or moved to a different worksheet. A chart can be moved on the same sheet by a simple drag, but be sure you click the chart area and not another chart element, or you will be moving that element.

Because charts take up a lot of space, and you may want more than one chart in your workbook, it's often a good idea to move charts onto a separate sheet. Charts that are moved onto their own sheet are referred to as Chart Sheets because they don't contain any rows, columns, or cells—just the chart itself.

To resize a chart, the chart must first be selected. Then you can drag any of the sizing handles to resize appropriately. You can also resize the chart from the Ribbon to specify the exact height and width. Charts on a chart sheet, however, can't be resized.

The mouse pointer over the chart area displays the four-pointed arrow; drag to move the chart.




The sizing handles can be used to increase or decrease the chart size.

Chart Tools→Design→Location→Move Chart | Right-click chart area→Move Chart

Chart Tools→Format→Size

DEVELOP YOUR SKILLS: E3-D4

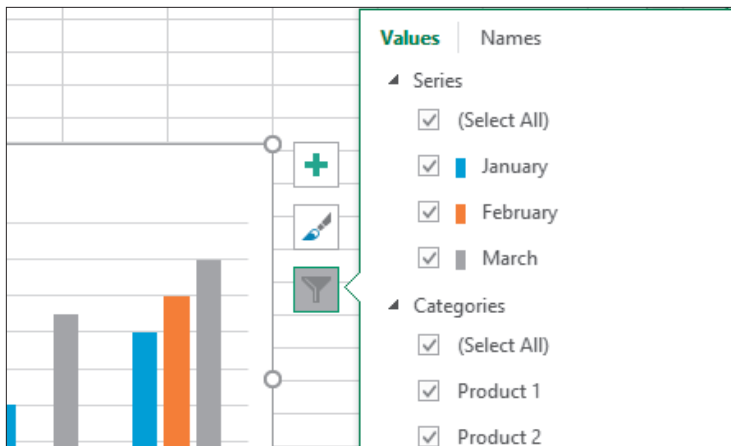
In this exercise, you will move the existing chart, create another chart, and resize it.

1. Save your workbook as **E3-D4-SalesCharts**.
2. With the **Airspace Q1 Sales** chart selected, choose **Chart Tools→Design→Location→Move Chart** to open the Move Chart dialog box.
The chart must be selected to display the Chart Tools on the Ribbon.
3. In the dialog box choose **New Sheet**, in the New Sheet box type **Q1 Sales** for the name of the new sheet, and then click **OK**.
This moves the chart to a chart sheet, which has no cells, and resizes the chart to fit your screen.
4. Go to the **Sales** worksheet to create a new chart.
5. Select the **range A3:G6**, which holds the data for Adam, Debra, and Elizabeth.
6. Choose **Insert→Charts→Insert Line or Area Chart**  menu button ▼→**Line** (the first option on the top row in the 2-D Line group).
7. Drag the chart so it is directly below the data.
8. Rename the Chart Title **Semiannual Sales**.
9. Save the workbook.

Edit Chart Data

After a chart has been created, the data is linked, so that if you change the data in the worksheet source, the chart is automatically updated. You can also add or remove data from the chart or filter the chart to change which data is displayed. The easiest way to change the chart data is to reselect the entire range to be used, but you can also add or remove individual data series, points, or labels. You can also modify your chart data by swapping the Horizontal Axis and the Legend categories using the Switch Row/Column button.

Sometimes a better option is to keep all existing data in the chart but use a filter to display only the data you want to see. The Chart Filters feature allows you to quickly filter specific series and category values and then remove the filter later to display all the data again.



The Chart Filter feature lets you check off the Series or Category you wish to display and uncheck the ones to hide.

DEVELOP YOUR SKILLS: E3-D5


In this exercise, you will edit the chart to include all five Sales Agents and then filter the data in the chart.

1. Save your workbook as **E3-D5-SalesCharts**.
2. Ensure the **Semiannual Sales** chart is selected on the **Sales** worksheet.
3. Right-click anywhere in the chart and choose **Select Data**.

The Select Data Source dialog box appears, and the current data has an animated border around it on the worksheet.

4. The Chart data range is already selected, so drag across the worksheet **range A3:G8** to select the new data and click **OK**.

The new data displays five lines, one for each of the five agents.

5. Click the **Chart Filters**  button; click the checkbox next to **Adam**, **Elizabeth**, and **Tim** to remove the check and filter out their data; and then click **Apply**.

You should now see only Debra and Hope's data on the chart and only their names in the legend.

6. Adjust the Number format for the vertical axis to display **Currency** with no decimals.
7. Save the workbook.

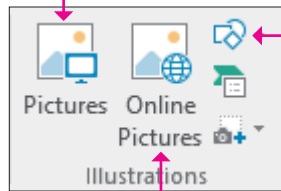
Add Images to a Worksheet

For the most part Excel is used for text and data; however, it is also possible to add pictures and shapes to a worksheet. Pictures might be used to display a company logo, add information to a spreadsheet, or simply add a little excitement to an otherwise plain set of data.

Pictures can be added from your computer or from an online search, and many types of shapes can be added via the menu button.

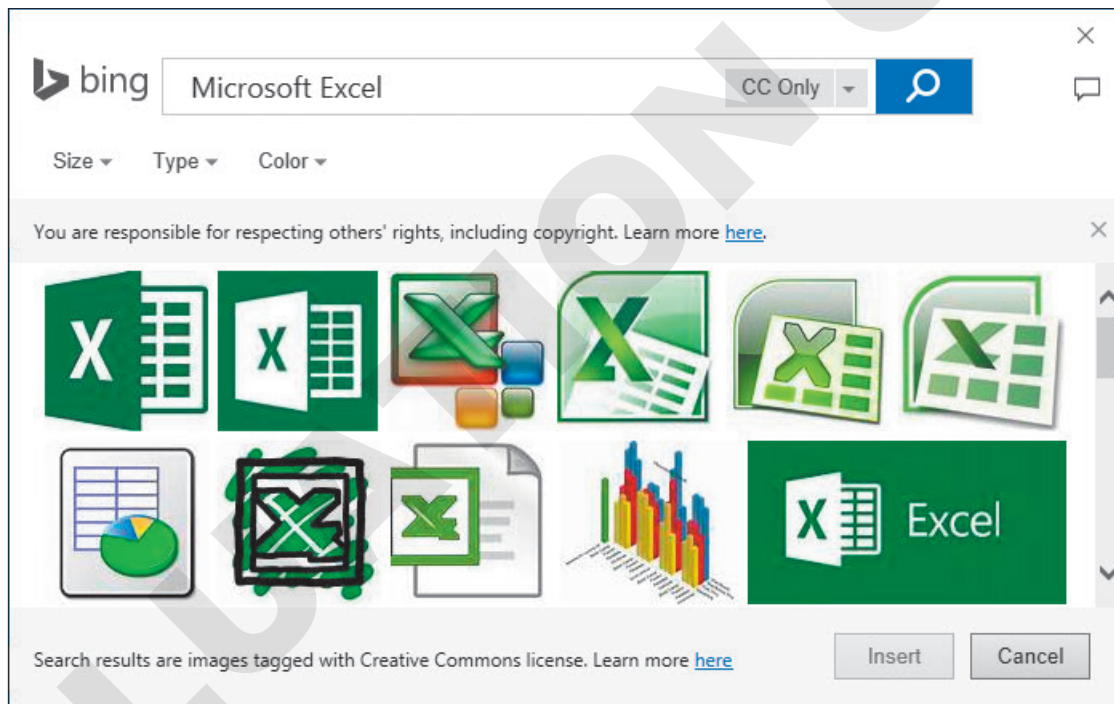
Adding a picture lets you access the Picture Tools features on the Ribbon, and adding a shape allows you to access the Drawing Tools. Both of these contextual tabs give you a great number of options for changing the style, shape, color, and size and for modifying many other aspects of the image as well.

Allows you to add pictures you have already saved on your computer



Accesses the shapes library

Will insert pictures from OneDrive or Bing, a web search engine from Microsoft that lets you browse an endless supply of images from the Internet




Using Online Pictures to do a Bing Search for Microsoft Excel returns many variations of the Excel logo.

≡ Insert→Illustrations

≡ Picture Tools→Format | Drawing Tools→Format



DEVELOP YOUR SKILLS: E3-D6


In this exercise, you will add a picture to the worksheet and make some modifications.

1. Save your workbook as **E3-D6-SalesCharts**.
2. Select **cell J1** on the **Sales** sheet and then choose **Insert→Illustrations→Online Pictures**  to open the dialog box.

3. Search for **air travel** in the Bing Search, choose a suitable image with a plane, and then click **Insert**.

Because this is an online search, the results will frequently change, and you may not see the same images from one search to the next.

4. With the image selected, go to **Picture Tools**→**Format**→**Size**→**Height** , type **1** in the box, and then tap **Enter**.
5. Select **cell I1** and choose **Insert**→**Illustrations**→**Online Pictures**  again.
6. Search for **space** in the Bing Search, choose an appropriate image of a spaceship, and then click **Insert**.
7. Resize this image to be **1"** in height to match the first image.
8. Choose **Picture Tools**→**Format**→**Adjust**→**Color**→**Blue, Accent color 1 Light** (in the Recolor group).

| | | | | | | | | | |
|-------------------------|--------|--------|--------|--------|--------|----------|---|---|---|
| B | C | D | E | F | G | H | I | J | K |
| Airspace Travel Company | | | | | | |  | | |
| Agent Sales by Month | | | | | | | | | |
| AN | FEB | MAR | APR | MAY | JUN | Total | | | |
| 13,629 | 14,841 | 19,611 | 19,737 | 15,325 | 16,248 | \$99,391 | | | |

9. Save the workbook.

Use Conditional Formatting



View the video “Highlighting Data with Conditional Formatting.”

Another way to better visualize your data is to use **conditional formatting**. Conditional formatting takes a set of data, applies a rule or rules, and modifies the formatting of the cells that match the rule. For example, you may have a large set of data containing student grades and want to quickly find the top three marks in the class. Or you may have sales data for a group of products and want to find which product sells the most and which one sells the least. Conditional formatting applies formatting of your choice to the cells that meet these criteria so that you can quickly find them.

Rules can be created to draw attention to the top, or bottom, or to numbers greater than or less than a specific number. You can also highlight a cell with a number equal to a specific amount or a cell that contains certain text; there are so many options!

To apply conditional formatting, the first step is always to select the entire range of data to apply the rule to. For conditional formatting, unlike with charts, you do not include any labels and generally don't include any totals unless you set up a separate rule for total rows or columns. Different rule options are available from the Conditional Formatting drop-down menu, but the criteria and formatting can also be modified to suit your needs. After a rule has been created, you can Clear Rules or Manage Rules to see all existing rules for either the current selection or the entire worksheet.

| | A | B | C | D |
|---|-----------|---------|----------|-------|
| 1 | | January | February | March |
| 2 | Product 1 | 5 | 3 | 12 |
| 3 | Product 2 | 8 | 12 | 7 |
| 4 | Product 3 | 3 | 9 | 8 |
| 5 | Product 4 | 6 | 2 | 11 |
| 6 | Product 5 | 10 | 12 | 14 |

The worksheet before creating conditional formatting, with the range selected

| | A | B | C | D |
|---|-----------|---------|----------|-------|
| 1 | | January | February | March |
| 2 | Product 1 | 5 | 3 | 12 |
| 3 | Product 2 | 8 | 12 | 7 |
| 4 | Product 3 | 3 | 9 | 8 |
| 5 | Product 4 | 6 | 2 | 11 |
| 6 | Product 5 | 10 | 12 | 14 |

The worksheet after the conditional formatting rule is applied to the range, highlighting the top five items with Light Red Fill and Dark Red Text

Note!

When a conditional formatting rule is created for the top five items, if two or more items are tied for fifth highest, six or more items could be included in the conditional formatting.

After a conditional formatting rule is created, if the data changes, the formatting is automatically updated to reflect the new data.

Home→Styles→Conditional Formatting

DEVELOP YOUR SKILLS: E3-D7

In this exercise, you will alter the appearance of the data using conditional formatting to show some of the top and bottom sales numbers for the agents.

1. Save your workbook as **E3-D7-SalesCharts**.
2. Select the **range B4:G8** and choose **Home→Styles→Conditional Formatting** → **Highlight Cells Rules**.
3. Choose **Greater Than**, and then in the dialog box that opens, adjust the GREATER THAN value to **20000** (that is 20,000, with no comma needed).

The preview shows which data this will apply to.

| | JAN | FEB | MAR | APR | MAY | JUN | Total |
|--|--------|--------|--------|--------|--------|--------|-------|
| | 13,629 | 14,841 | 19,611 | 19,737 | 15,325 | 16,248 | \$9 |
| | 13,904 | 17,040 | 12,207 | 9,044 | 18,848 | 13,322 | \$8 |
| | 11,907 | 12,685 | 23,329 | 15,208 | 20,050 | 17,030 | \$10 |
| | 12,083 | 14,490 | 22,446 | 12,670 | 16,211 | 15,581 | \$9 |
| | 23,272 | 20,287 | 12,161 | 21,237 | 16,247 | 11,548 | \$10 |

Greater Than

Format cells that are GREATER THAN:

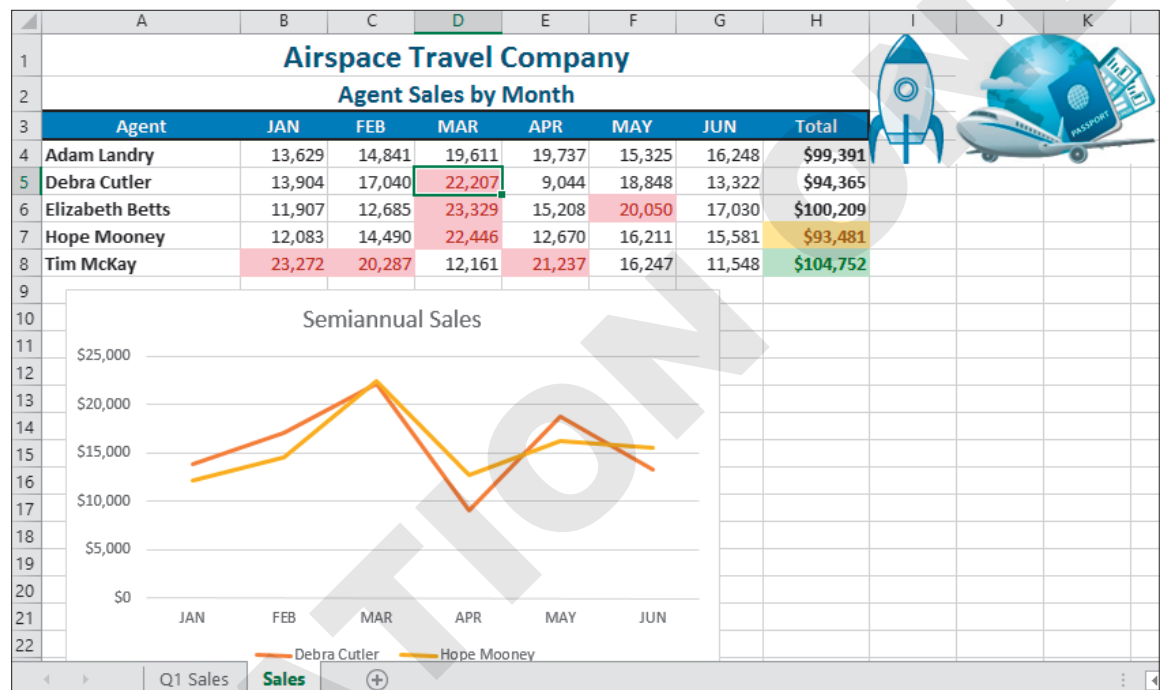
20000 with Light Red Fill with Dark Red Text

OK Cancel

4. Click **OK** to apply the format and close the dialog box.
For the six-month total you want to see the top and bottom agents, so you will apply two new rules to the data in column H under Total.
5. Select the **range H4:H8** and choose **Home→Styles→Conditional Formatting→Top/Bottom Rules→Top 10 Items**.
6. Change the 10 to **1**, change the format to **Green Fill with Dark Green Text**, and click **OK**.

7. With the **range H4:H8** still selected, choose **Home→Styles→Conditional Formatting→Top/Bottom Rules→Bottom 10 Items**.
8. Change the **10** to **1**, change the format to **Yellow Fill with Dark Yellow Text**, and click **OK**.
Now the data needs to be updated. A sale was missed for Debra in March, so the number should be higher.
9. Select **cell D5** and edit the number 12,207 to be **22,207**.

Notice that the formatting for cell D7 changes to red fill and red text, the formatting in the Total column also changes because Debra is no longer the lowest Total, and your Semiannual Sales chart below the data updates as well. Your worksheet should now look like this.



10. Save the workbook.

Self-Assessment



Check your knowledge of this chapter's key concepts and skills using the Self-Assessment in your ebook or eLab course.



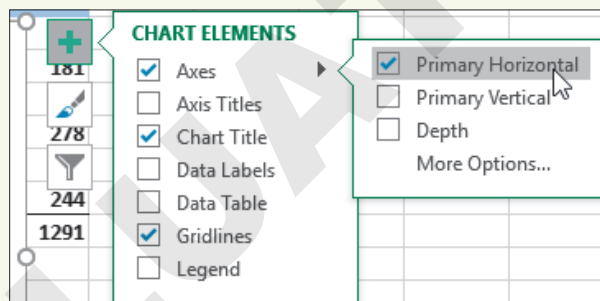
Reinforce Your Skills

REINFORCE YOUR SKILLS: E3-R1

Create and Modify Charts

In this exercise, you will create several charts to compare volunteer hours for the Kids for Change volunteers and then make some changes to the charts.

1. Start Excel, open **E3-R1-VHours** from your **Excel Chapter 3** folder, and save it as **E3-R1-VHoursSummary**.
2. Select the **ranges A4:A10** and **N4:N10**.
*Remember to use the **Ctrl** button to select nonadjacent ranges.*
3. Choose **Insert**→**Charts**→**Recommended Charts** .
4. Select the third option, the **Pie** chart, then click **OK**.
5. Edit the Chart Title from *Total* to **Annual Total**.
6. Move the chart to its own sheet and name the new sheet **Hours by Volunteer**.
7. Return to the **Summary** sheet and select the **ranges A4:M4** and **A11:M11**.
8. Choose **Insert**→**Charts**→**Insert Line or Area Chart** menu button ▼→**3-D Area** (the first option on the bottom row in the 3-D Area group).
9. Edit the Chart Title from *Total* to **Monthly Total**.
10. Click the **Chart Elements** button.
11. Place your mouse over **Axes** and then click the **menu** button ► that appears beside **Axes** to expand the options.



12. Uncheck the box beside **Primary Vertical** and **Depth** to remove those axes from the chart.
13. Right-click the data series and change the Fill to a **Texture**→**Purple Mesh**.
14. Modify the Chart Area Fill to **Blue-Gray, Text 2, Darker 50%** (under Theme Colors).
15. Move the chart to its own sheet and name the new sheet **Hours by Month**.
16. Go to the **Hours by Volunteer** sheet and change the Annual Total chart type from a Pie Chart to a **3-D Clustered Bar**.
17. Change the Layout to **Layout 5**, which includes a data table below the chart.
18. Save the workbook.

REINFORCE YOUR SKILLS: E3-R2

Format Charts and Add Conditional Formatting

In this exercise, you will make some further changes to your charts and then add conditional formatting rules to your data.

1. Save your workbook as **E3-R2-VHoursSummary**.
2. Go to the **Hours by Month** sheet and select the **Horizontal Axis**.
3. Increase the Font Size to **12** and then right-click and choose **Format Axis**.
4. Click to select **Text Options**. If necessary, expand the Text Fill options and then change the Color to **White, Background 1**.
5. Leave the Format Pane open, select the **Chart Title**, and change the Text Fill to **White, Background 1**, and then close the Format Pane.
6. Use the **Chart Filters** button to remove the first six months from the chart, leaving only the data for July to December.
7. Go back to the **Summary** worksheet and select the **range B5:M10**.
8. Apply a Conditional Formatting Rule to Highlight Cells that are Greater than **29** with **Light Red Fill and Dark Red Text**.
9. Select the **range N5:N10**.
10. Apply a Conditional Formatting Rule to show the top three cells with **Green Fill and Dark Green Text**.
11. Select the **range B11:M11**.
12. Apply a Conditional Formatting Rule to show the top three cells with **Green Fill and Dark Green Text**.
13. Save the workbook and close Excel.

REINFORCE YOUR SKILLS: E3-R3**Add Visual Aids for a Financial Summary**

In this exercise, you will use data from the Kids for Change Summer Fundraising results and will create charts, edit charts, add pictures, and use conditional formatting.

1. Start Excel, open **E3-R3-SummerFunds** from your **Excel Chapter 3** folder, and save it as **E3-R3-SummerFundsResults**.
2. Select the **range A4:D8**.
3. Insert a **2-D Clustered Column** chart.
4. Change the Chart Style to **Style 8**.
5. Modify the Chart Area by changing the Fill to **Dark Blue**.
6. Change the June Series Fill to **Purple**, and for the July Series change the Fill to **White, Background 1**.
7. Change the Chart Title to **Results**.
8. Move the chart to a new sheet named **Results**.
9. Go back to the **Summary** sheet and select the **ranges B4:D4** and **B9:D9**.
10. Insert a **3-D Pie** chart and then remove the title and the legend elements from the chart.
11. Move the chart as an object to the **Results** sheet.
12. Remove the Chart Area Fill from the Pie Chart you just moved (choose **Fill** and then **No Fill**) and then remove the Outline in the same way.
13. Change the June Series Fill to **Purple**, and for the July Series change the Fill to **White, Background 1**.
14. Move the Pie Chart to the top-right corner of the column chart and change the size to **2.5"** tall.
15. Edit the vertical axis to be **Currency with no decimal places, Bold**, and in **10** pt font size.
16. Edit the horizontal axis to also be **Bold** and **10** pt font size.
17. Increase the Title to **20** pt font size.
18. Go back to the summary sheet and create a conditional formatting rule that will apply red text to the top three numbers in the **range B5:D8**.
19. Search for Online Pictures of *running* and *barbecue* and insert the images below the Total in **cell A9**.
20. Resize both images to **0.75"** tall.
21. Save the workbook and close Excel.

Apply Your Skills

APPLY YOUR SKILLS: E3-A1

Create Charts and Use Chart Tools

In this exercise, you will use the expense data and revenue data for Universal Corporate Events to create two charts and then edit the charts.

1. Start Excel, open **E3-A1-Profit** from your **Excel Chapter 3** folder, and save it as **E3-A1-ProfitSummary**.
2. Go to the **Profit Q1&Q2** sheet.
3. Select the **ranges A6:G6** and **A10:G13** and then insert a **2-D Clustered Column** chart.
4. Change the chart layout to **Layout 11**.
5. Choose **Chart Tools**→**Design**→**Data**→**Switch Row/Column** to switch the Months to the Legend and the categories to the Horizontal Axis.
6. Choose **Chart Tools**→**Design**→**Chart Styles**→**Change Colors**→**Monochromatic Color 8** to make all series different shades of yellow.
7. Change the Chart Style to **Style 8**.
8. Move the chart to a new sheet and name the sheet **Expenses**.
9. Go back to the **Profit Q1&Q2** sheet and select the **range A6:G7**.
10. Insert a **2-D line** chart and adjust the style and colors to **Monochromatic Color 8** and **Style 7**.
11. Move the chart to a new sheet and name the sheet **Revenue**.
12. Adjust the vertical axis format to display the Minimum value as **15,000** rather than zero.
13. Remove the Chart Title from the **Revenue** chart.
14. Save the workbook.

APPLY YOUR SKILLS: E3-A2

Apply Conditional Formatting Rules

In this exercise, you will use conditional formatting rules to identify the month with the highest revenue or expense for each category.

1. Save your workbook as **E3-A2-ProfitSummary**.
2. If necessary, go to the **Profit Q1&Q2** sheet.
3. Select the **range B7:G7** (the six months of data in row 7 for Revenue); do not include the total.
4. Create a conditional formatting rule to format the TOP 1 cell with **Red Text**.
5. Select the cells with the six months of data in row 10 for Employee Wages and again create a conditional formatting rule to format the TOP 1 cell with **Red Text**.
Notice that because the numbers are identical, the formatting applies to all of them.
6. Repeat this process again, five separate times, one time for each of the rows of data for Capital Expenditures, Material Costs, Marketing & Sales, Total Expenses, and Profit/Loss.
7. Select **cell D17** and insert a picture of an **up arrow** using an Online Picture.

8. Resize the inserted picture to **1"** tall.
9. Save the workbook and close Excel.

APPLY YOUR SKILLS: E3-A3

Create Visual Tools for a Financial Forecast

In this exercise, you will create and modify a chart displaying the long-term financial forecast for Universal Corporate Events.

1. Start Excel, open **E3-A3-LTForecast** from your **Excel Chapter 3** folder, and save it as **E3-A3-5yrForecast**.
2. Create a **3-D Column** chart using the data from Revenue and Expenses for all five years. (Be sure to include the year headings.)
3. Change the Fill for Revenue to **Gold, Accent 4** and the Fill for Expenses to **Standard Dark Red**.
4. Remove the Chart Title completely.
5. Move the chart so it is directly below Profit/Loss in **row 8** and roughly centered below the data.
6. Edit the Chart Data to include Profit/Loss in **row 8**.
7. Change the Chart Type to a **Combo Chart**, with Revenue and Total Expenses being a Clustered Column Chart Type and Profit/Loss being a Line Chart.
8. Modify the Outline for Profit/Loss to **Standard Dark Blue**.
9. Edit the Number Format for the Vertical Axis to be **Currency** format with no decimals.
10. Create a Conditional Formatting rule to show the Profit/Loss cells that are greater than **\$100,000** with **Yellow Fill** and **Dark Yellow Text**.
11. Insert the **UniversalCorporateEvents.jpg** logo file from the **Excel Chapter 3** folder in **cell E1** to the right of the sheet title and resize the logo to **1"** tall.
12. Save the workbook and close Excel.

Extend Your Skills

These exercises challenge you to think critically and apply your new skills. You will be evaluated on your ability to follow directions, completeness, creativity, and the use of proper grammar and mechanics. Save files to your chapter folder. Submit assignments as directed.

E3-E1 That's the Way I See It

As a student who prides yourself on achieving top grades, you want to create a chart of your achievements. Create a new blank worksheet and set up headings so that you can list your recent classes in one column and the grades for those classes in the next. List your classes in chronological order, oldest to newest (at least 10 classes), and then insert your grades in the next column (if you don't have access to your grades, just make up numbers). Create a line chart from the data to show the trend in grades over time. Modify the chart to use your favorite colors and use conditional formatting to highlight the top three grades and the lowest three grades you received. Save your workbook as **E3-E1-ClassGrades**.

E3-E2 Be Your Own Boss

You are looking to acquire more funding to expand Blue Jean Landscaping after a very successful year. You are preparing a report on last year's financial statements, and you want to include some charts to emphasize your revenue growth and expense reduction. Open **E3-E2-RevandExp**, select the data, and then choose the best chart to show this trend. Insert the **BlueJeanLandscaping.jpg** logo and modify the chart as you see fit so that it looks professional and presentable. Apply conditional formatting to highlight the top three Revenue months and the bottom three Expense months. Save your workbook as **E3-E2-RevandExpCharts**.

E3-E3 Demonstrate Proficiency

The BBQ sauce sales were very encouraging for their two new flavors last year, and Stormy BBQ has asked you to create some charts that represent a comparison of its three sauces. Open the file **E3-E3-SauceSales** and use the data to create both a column chart and a line chart for the year. Move both of these charts to new sheets. Then add a total at the bottom for each sauce and create a pie chart comparing the three totals. Be sure to include the Stormy BBQ logo (**StormyBBQ.jpg**) on each chart and adjust the styles, layouts, and formatting in the charts appropriately. Try and use the corporate colors, red and gold, where possible. Save your workbook as **E3-E3-SauceSalesCharts**.