



Building Charts

The Insert Tab

The Insert tab contains the command groups you'll use to create charts in Excel (see Figure1). To create a basic chart in Excel that you can modify and format later, start by entering the data for the chart on a worksheet. Then, you select that data and choose a chart type to graphically display the data. Simply by choosing a chart type, a chart layout, and a chart style—all of which are within easy reach on the ribbon's Insert and Chart Tools tabs—you will have instant professional results every time you create a chart.

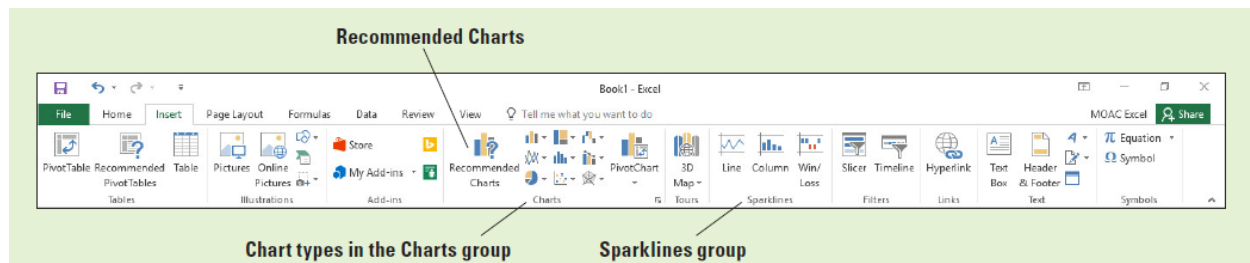


Figure 1: The insert tab.

A **chart** is a graphical representation of numeric data in a worksheet. Data values are represented by graphs with combinations of lines, vertical or horizontal rectangles (columns and bars), points, and other shapes. When you want to create a chart or change an existing chart, you can choose from 16 chart types with numerous subtypes and combo charts. These include five new chart types offered in Excel 2016—Treemap, Sunburst, Histogram, Box & Whisker, and Waterfall. Table 1. gives a brief description of the most commonly used Excel chart types.



Chart Type	Description	Usual Data Arrangement
Column	Useful for comparing values across categories or a time period. Data points are vertical rectangles.	Categories (in any order) or time are usually on horizontal axis and values are on vertical axis.
Line	Useful for showing trends in data at equal intervals. Displays continuous data over time set against a common scale. Values are represented as points along a line.	Time in equal units on horizontal axis and values on vertical axis.
Pie	Useful for comparing the size of items in one data series and how each slice compares with the whole. Data points are displayed as a percentage of a circular pie.	Only one data series and none of the values are negative or are zero.
Doughnut	Useful for displaying the relationship of parts to a whole. Can contain more than one data series. Values are represented as sections of a circular band.	Categories are colors of circular bands and the size of the bands are the values of each band.
Bar	Useful for illustrating comparisons among individual items when axis labels are long. Values are represented as horizontal rectangles.	Categories or time are along the vertical axis and values are along the horizontal axis.
Area	Useful for emphasizing magnitude of change over time. Shows relationships of parts to the whole. Values represented as shaded areas.	Categories or time are on the horizontal axis and values are on the vertical axis.
XY (Scatter)	Useful for showing relationships of one numeric set of data against another numeric set of data to see whether there is a correlation between two variables.	The independent variable is usually on the horizontal axis and the dependent variable is on the vertical axis.

Selecting Data to Include in a Chart

You can begin creating one of Excel's common chart types by clicking its image on the Insert tab of the ribbon. More important than the chart type, however, is the selection of the data you want to display graphically. What aspects of the data do you want viewers to notice?

There are two approaches to identifying the data for your chart. If you lay out your worksheet efficiently, you can select multiple ranges at one time that will become the different chart elements. The second way is to identify the chart type and then select the data for each chart element. The first part of this lecture walks you through choosing the ranges first and the second part of the lecture walks you through adding and removing certain chart elements. Below, the main steps that should be used to include data in a chart:



Click the **Insert** tab, and in the Charts group, click the **Pie** button. Click the **first 2-D Pie** chart in the drop-down menu. A color-coded pie chart with sections identified by number is displayed.

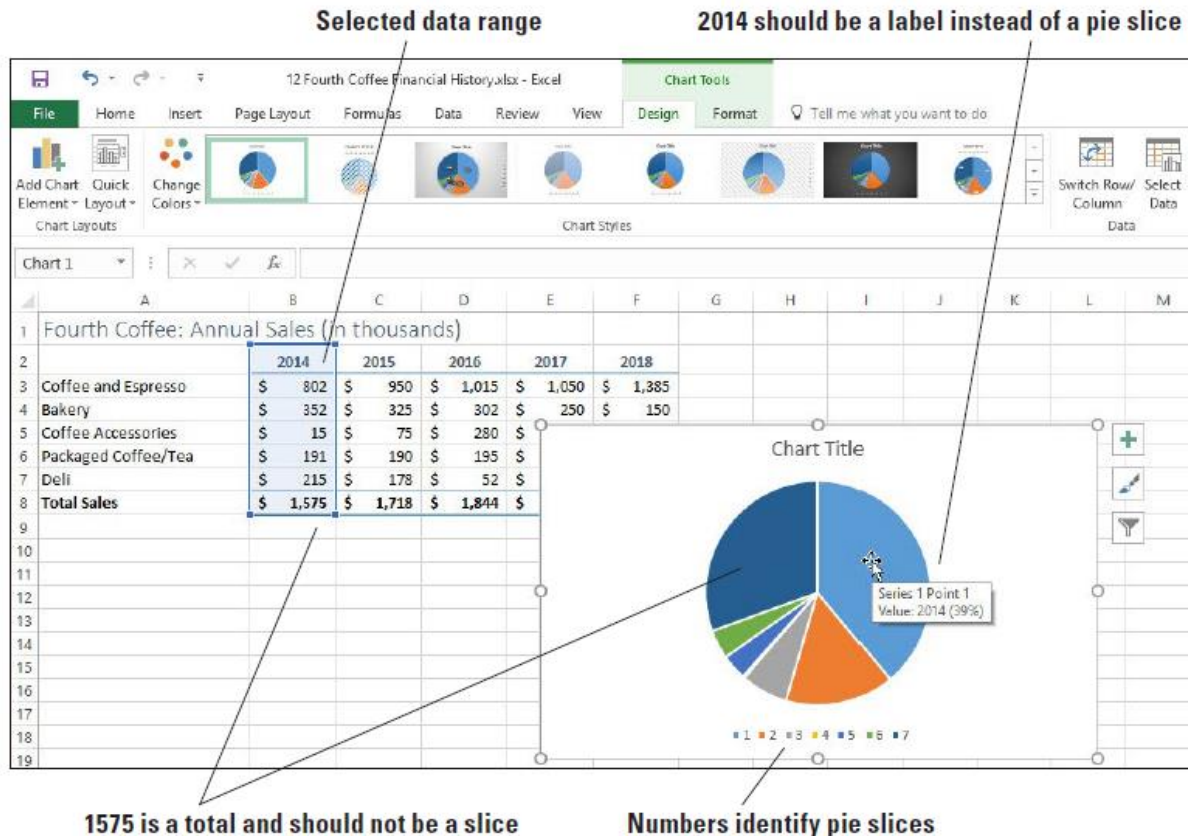


Figure 2: Selecting data to include in chart.

To delete a chart, click in the white space then press the Delete key on your keyboard. If you click on the graphic or another chart element and press Delete, only the selected element will be deleted.

When you insert a chart into your worksheet, the Chart Tools tabs (Design and Format) become available in Excel's ribbon with the Design tab active by default. You must select the Insert tab on the ribbon each time you want to insert a chart.

When you select data and create a pie chart, the chart is placed on the worksheet. This is referred to as an **embedded chart**, meaning it is placed on the worksheet rather than on a separate **chart sheet**, a sheet that contains only a chart.

Choosing the Right Chart for Your Data

You can create most charts, such as column and bar charts, from data that you have arranged in rows or columns in a worksheet. Some charts, such as pie and bubble charts, require a specific data arrangement. **A single pie chart cannot be used for comparisons across periods of time or for analyzing trends.** The column chart works well for comparisons. In a 2-D or 3-D column chart, each data marker is represented by a column. In a stacked column, data markers are stacked so that the top of the column is the total of the same category (or time) from each data series. A line chart shows points connected by a line for each value.

Using Recommended Charts

If you are new to charting, the number of chart types to choose from can be overwhelming. Excel 2016 has a feature to help narrow the choices depending on the data that you select. It is the Recommended Charts button.

FORMATTING A CHART WITH A QUICK STYLE OR LAYOUT

After you create a chart, you can instantly change its appearance by applying a predefined style or layout. **Excel provides a variety of useful quick styles and quick layouts from which you can choose.** As shown in Figure 3, when you create a chart, the Chart Tools tab becomes available and the Design and Format tabs and Quick Layout button appear on the ribbon.

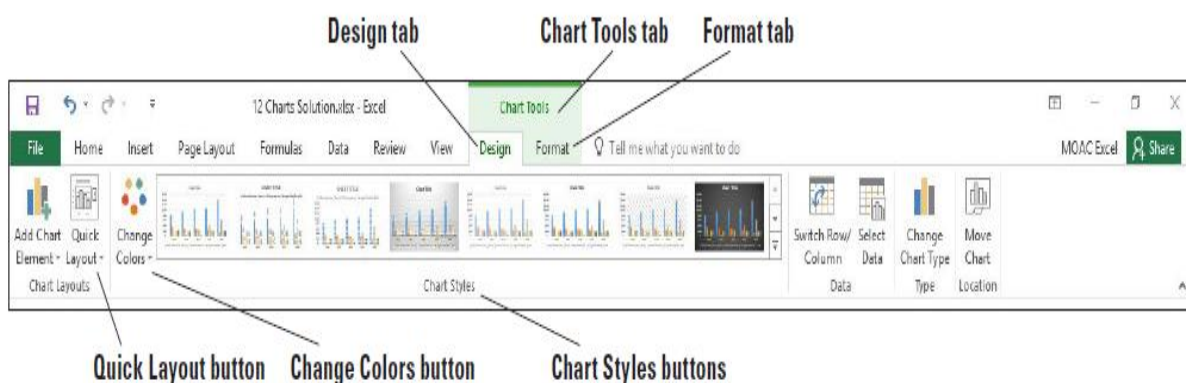


Figure 3: The Chart Tools tab displays when a chart is inserted.

Formatting a Chart with a Quick Style

Predefined layouts and styles are timesaving features that you can use to enhance the appearance of your charts.

One of the Chart Styles is already selected. Click each of the styles until you come to the style shown in Figure 4. with the labels and percentages shown next to each pie slice. If necessary, click the down arrow to select more styles.

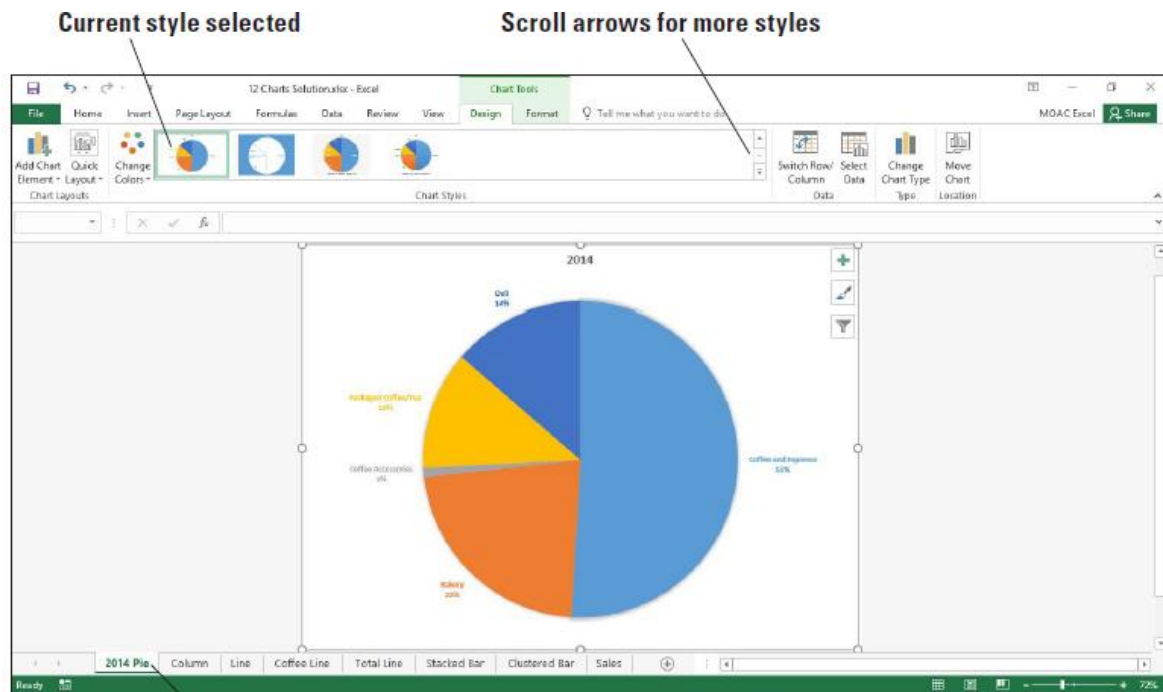
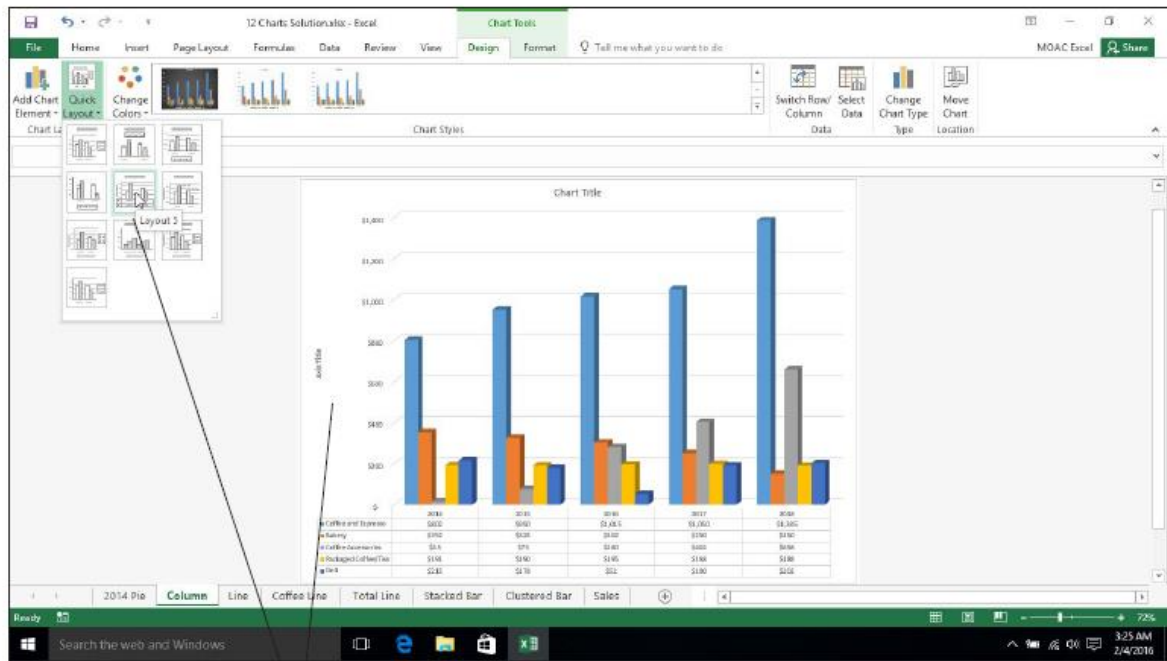


Figure 4: Pie chart with labels next to each slice

Formatting a Chart with a Quick Layout

In addition to the colors and patterns, you can change which elements appear on your chart and where they appear. This includes items such as axis titles, data tables, and the position of the legend.

1. Click the **Column** chart tab.
2. Click the **Design** tab, and then click the **Quick Layout** button. As you move to each of the options, the chart changes to preview what it will look like if you select the option (see Figure 5).



Layout 5 preview shown on the chart

Figure 5: Quick Layout choices.

1. Click **Layout 5**. The data table appears under the chart. The years (2014–2018) act as both the x-axis labels and column headers of the data table.
2. **SAVE** the workbook.

You can also use the design buttons on the right of a selected chart to change the style and color and select which elements appear on the chart. Click on the chart and click the first button, the Chart Elements button, to select which items appear on the chart as shown in Figure 6.

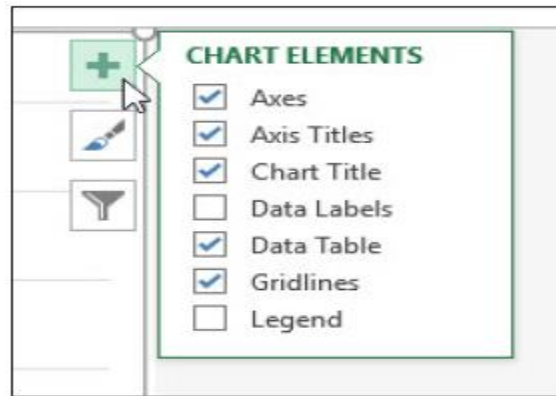


Figure 6: Chart Elements options.