

# APPENDIX B

## GRAPHICS ANALYSIS WITH EXCEL

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### B-1 INTRODUCTION

This appendix reviews popular types of charts offered by Excel and then walks you through the process of creating a chart. It also explains how you can add titles to a chart, display different views of the same data, and change the chart type.

### B-2 EXCEL CHARTS: AN OVERVIEW

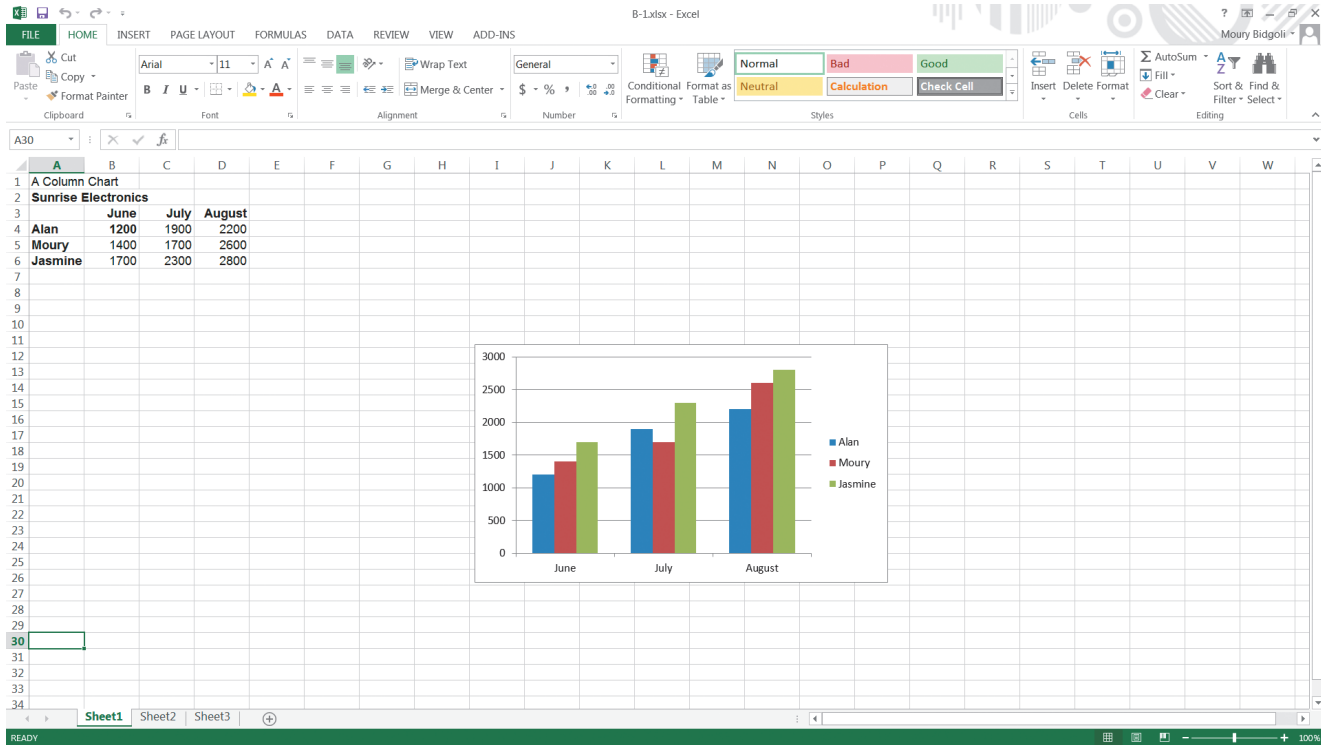
To compete in today's business world, executives and decision makers need to obtain information in the most effective and efficient way. Graphs and charts achieve these goals by condensing massive amounts

of data into a simple form. For example, a chart can quickly indicate a sales trend. It can also quickly tell you if the cost of raw materials is increasing or decreasing. Many other trends in the marketplace (and among your competitors) can be quickly depicted with charts. One appealing feature about the charts in spreadsheet software such as Excel is the what-if analysis that can be performed. For example, as soon as a chart is drawn, you can change certain parameters and generate a new chart to get a different view of the same data. Excel generates several categories of charts (shown on the pages below).

- Column charts are useful for showing data changes over a period of time or for illustrating comparisons among items. For example, you can compare the

performances of three salespersons over three periods of time or compare the sales performances of three products in three different regions (see Exhibit B.1).

Exhibit B.1  
A column chart

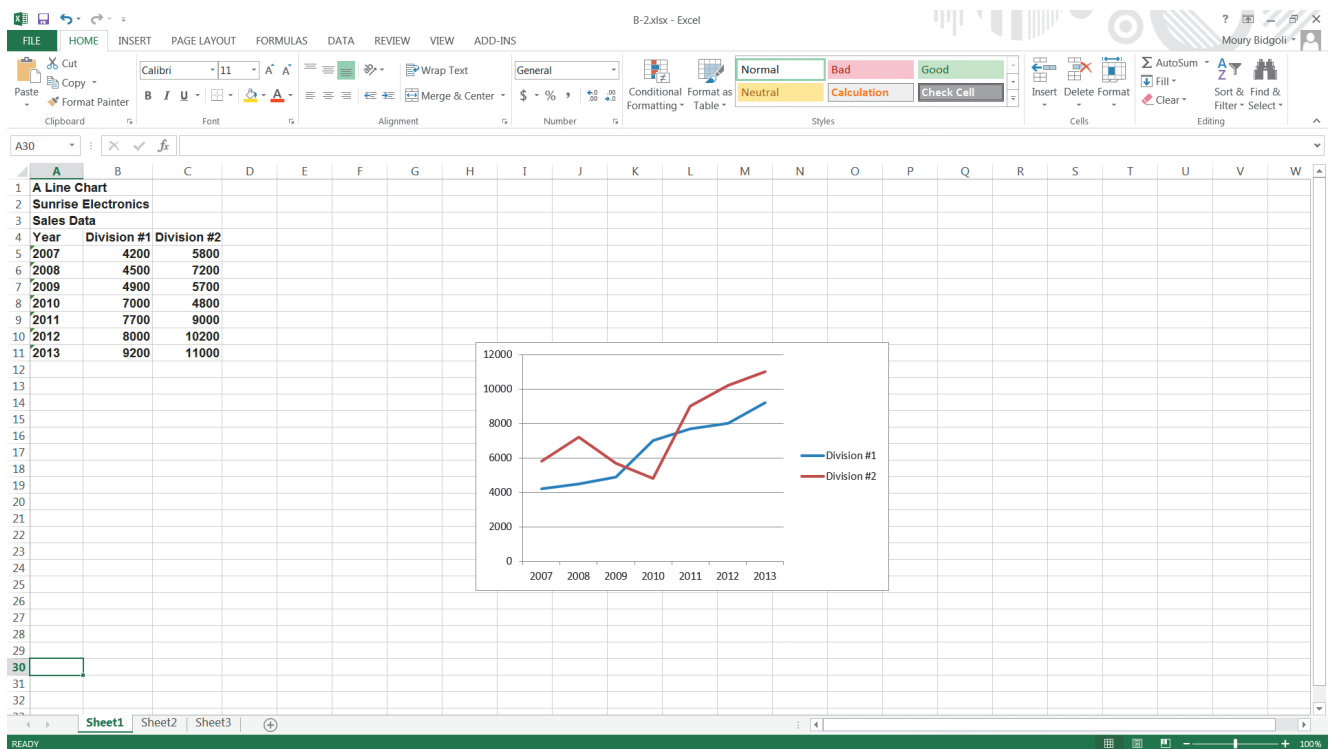


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- **Line charts** show data changes over time. Line charts are suitable for time series analysis. In this type of analysis, one variable is time and the other variable could be total sales, total production cost, total advertising budget, and so forth. By using line charts, you can easily depict advertising budget trends, total sales trends, or administrative cost trends. In Exhibit B.2, we are comparing the total sales of two divisions of

Sunrise Electronics over a 7-year period. Remember the data in the first column must always be nonnumeric, such as years, quarters, months, and so forth. If you enter a number in a column, as we did, you must enter it as a label. To do that, you enter an apostrophe first and then enter the number. Nonnumeric data is always left aligned in the worksheet; numeric data is always right aligned.

Exhibit B.2  
A line chart

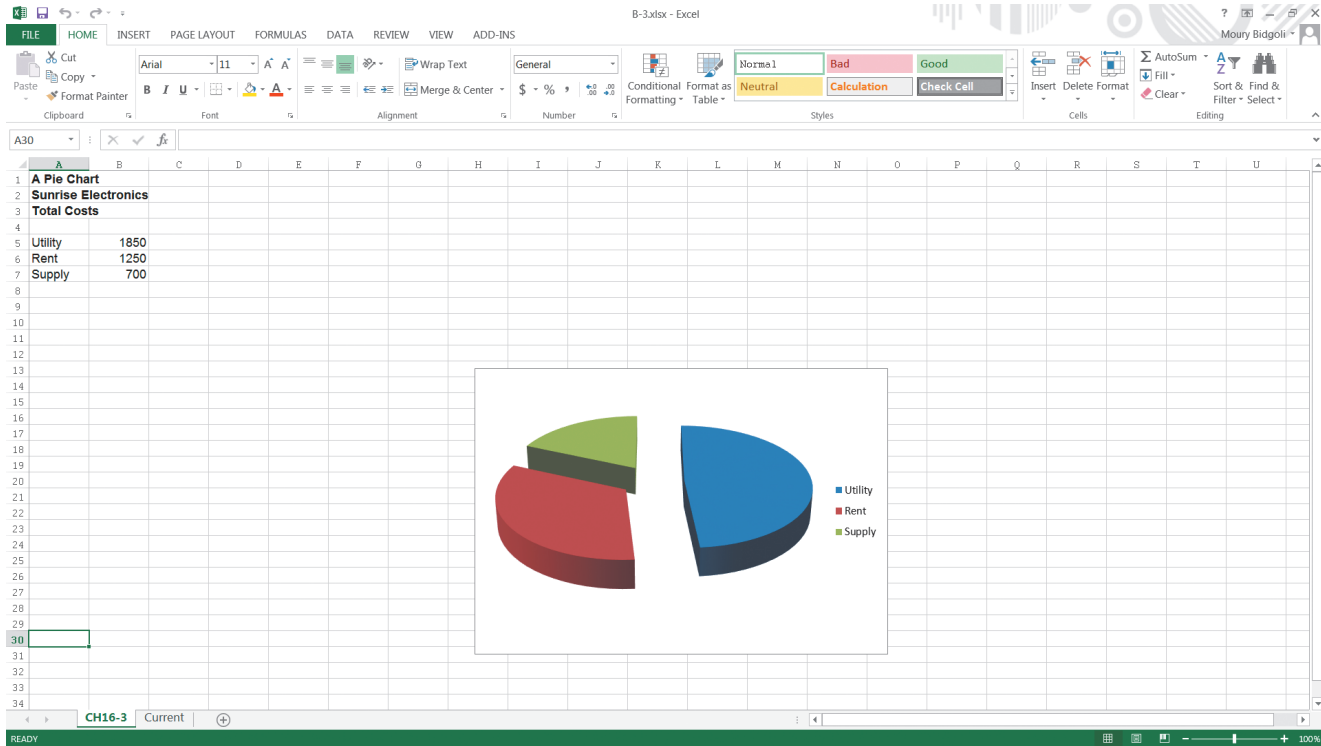


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- Pie charts are used to show the proportions of different data items. For example, you can split the total costs

of production by breaking them down into utility cost, rent cost, and supply cost (see Exhibit B.3).

Exhibit B.3  
A pie chart

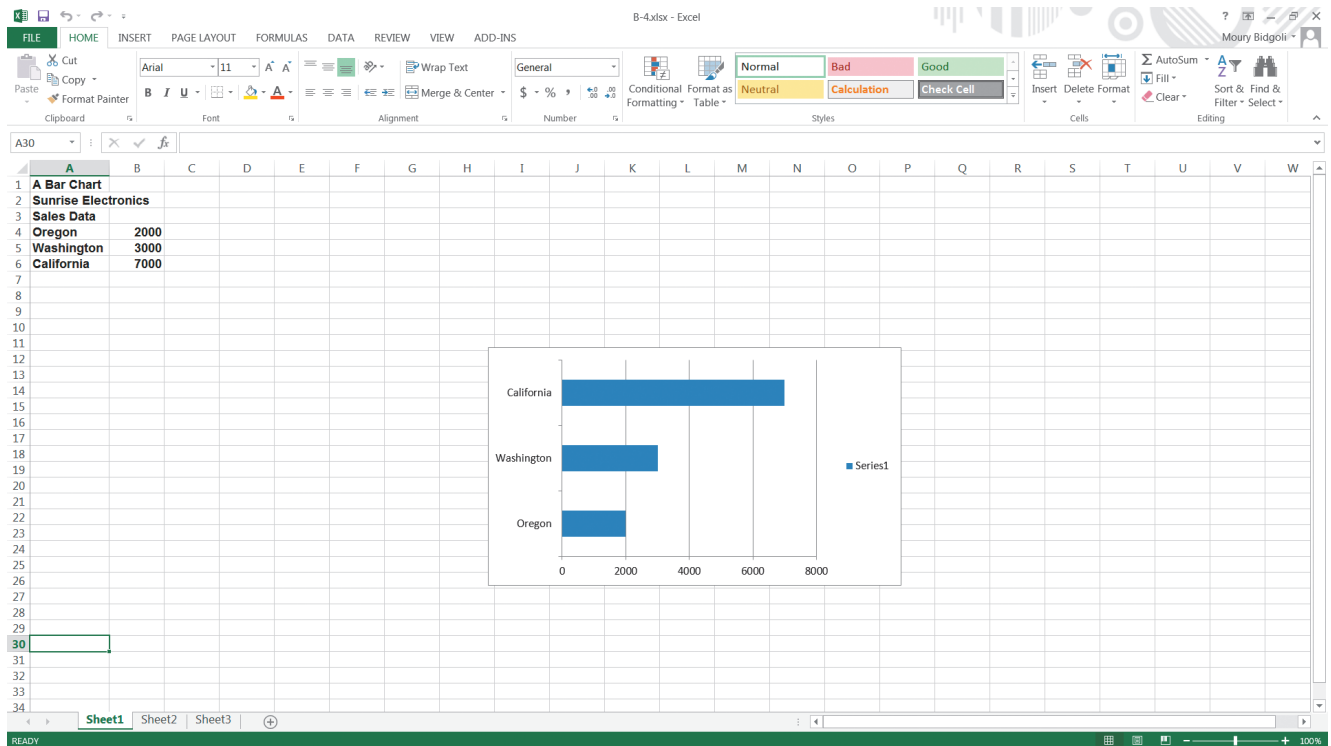


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- **Bar charts** emphasize the differences among data items. As examples, you can use bar charts to compare the total sales figures for five products from a particular company, to compare the oil production levels for

five oil wells, to compare the student populations of six state universities, or to compare sales data in three different regions (see Exhibit B.4).

Exhibit B.4  
A bar chart



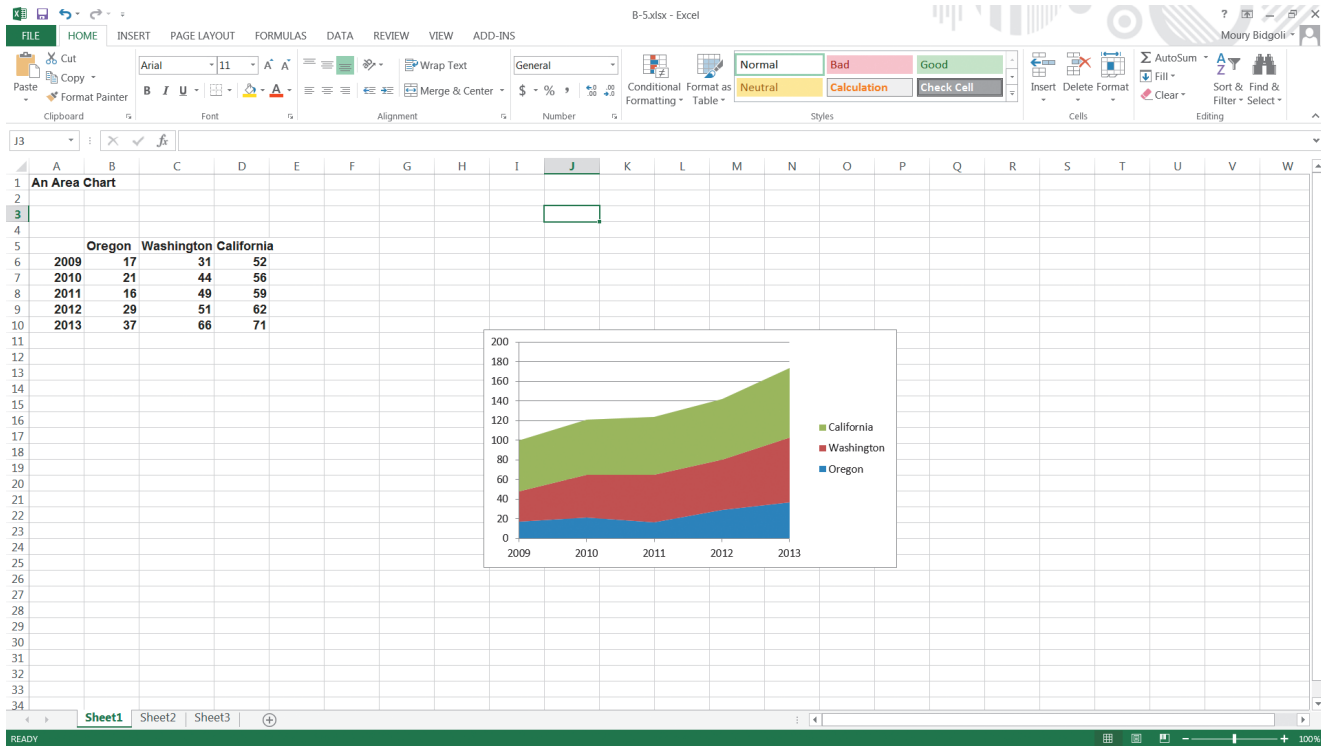
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- **Area charts** emphasize the magnitude of change over time similar to line charts, and can be used to draw attention to the total value over a time period. As examples, you can use area charts to compare the sales

performances of four different products over time, the performances of five different salespersons over time, or the sales performances of a company in three different regions over four time periods (see Exhibit B.5).

### Exhibit B.5

#### An area chart

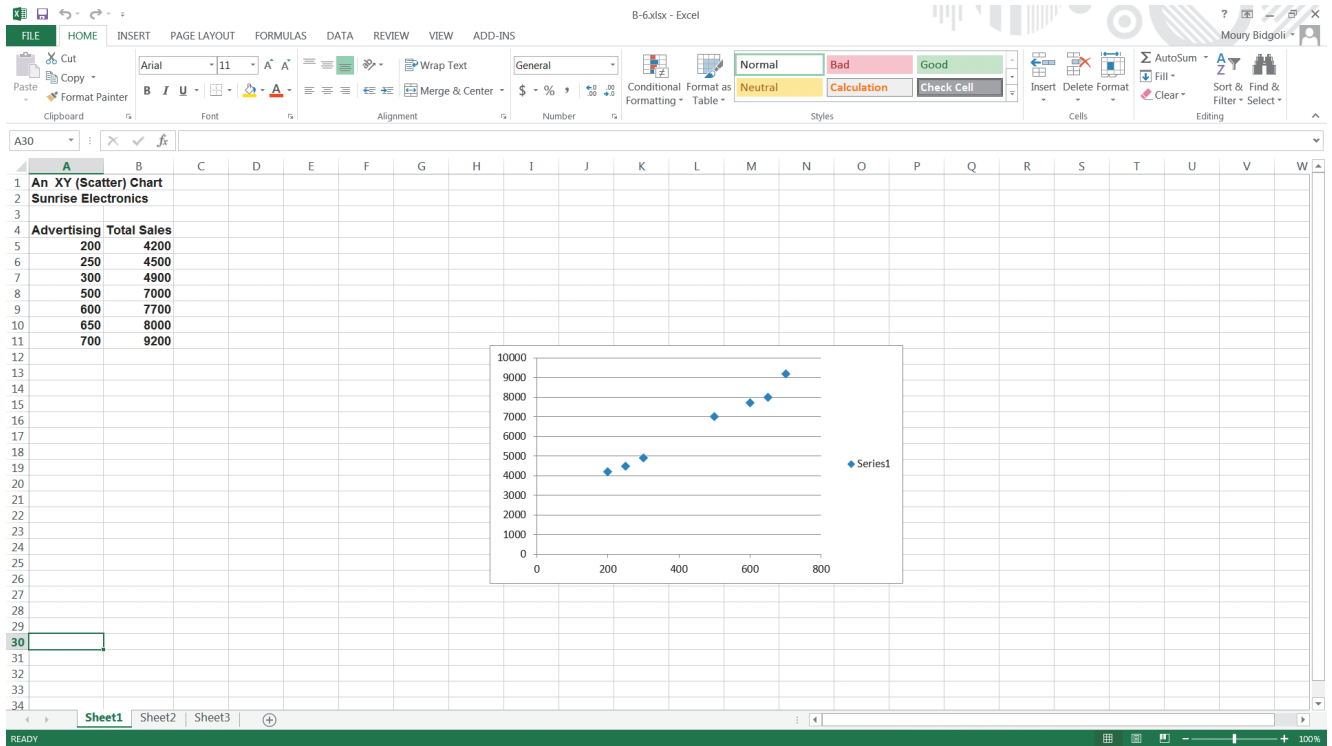


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- XY (scatter) charts show relationships between two sets of data—for example, total sales and advertising

budgets, or years of education and yearly income (see Exhibit B.6).

Exhibit B.6  
An XY (scatter) chart

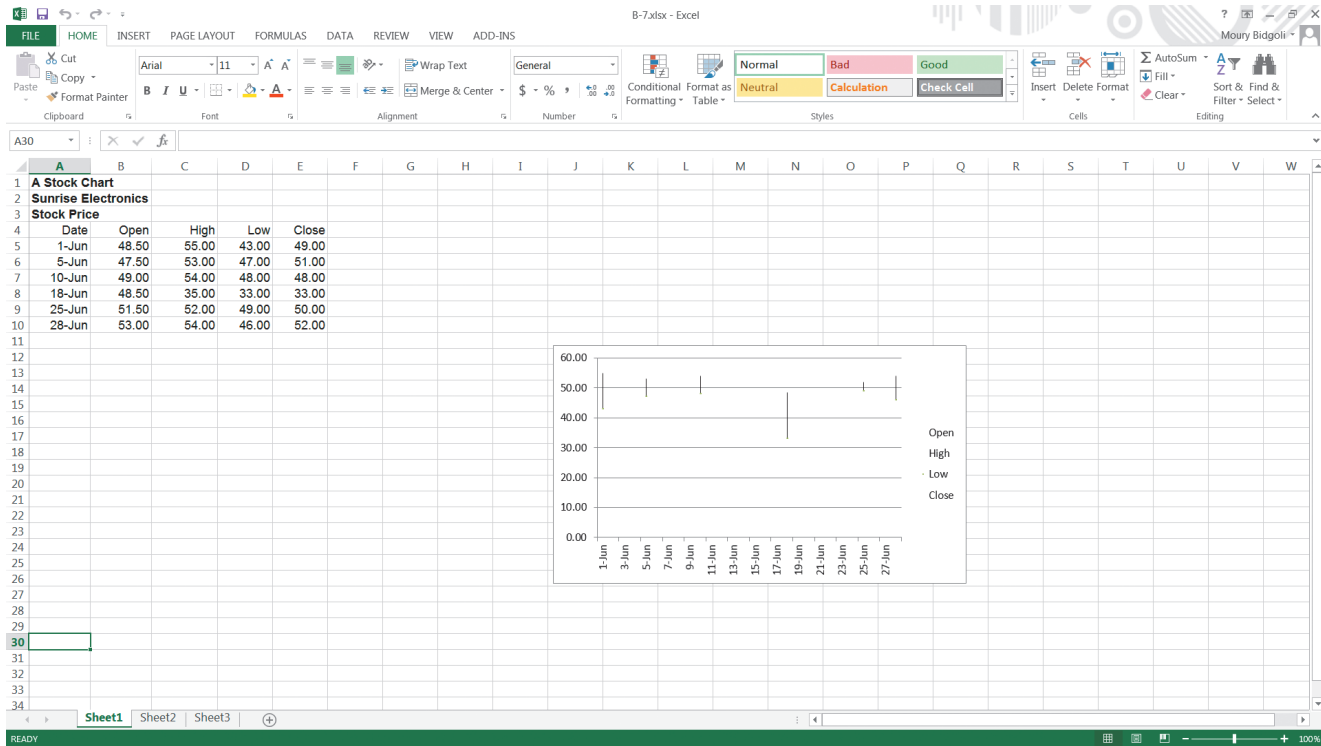


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- Stock charts track changes in data over time. Stock charts are useful for stock market analysis by displaying

fluctuations in the high, low, closing, and opening prices of a stock over time (see Exhibit B.7).

Exhibit B.7  
A stock chart



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### B-3 CREATING A CHART

It is very simple to create a chart by using Excel 2013. Just select the data in the worksheet, then click **Insert**. The commonly used charts that Excel

generates will be displayed (see Exhibit B.8). Simply click the desired chart. Before you choose a chart type, make sure the data in the worksheet is suitable for that particular chart.

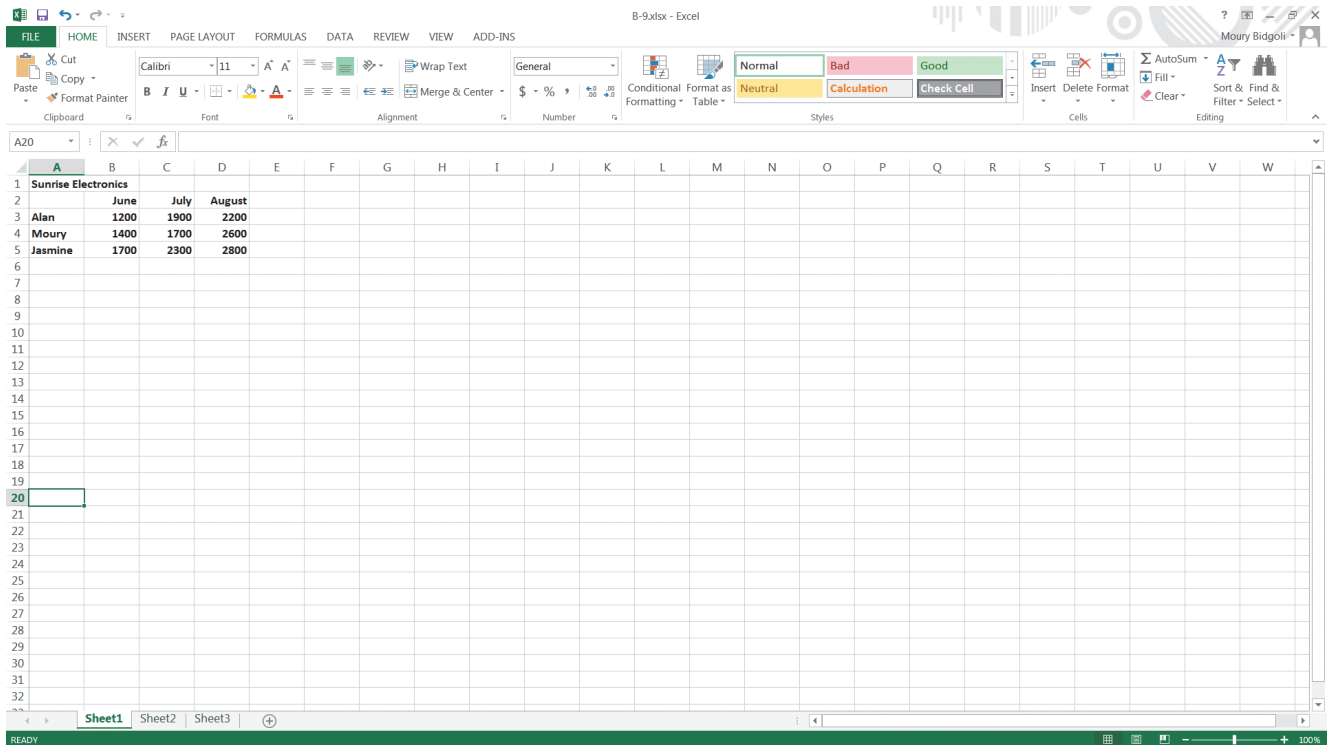
Exhibit B.8  
Excel chart types



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Let's walk through an example using the worksheet presented in Exhibit B.9.

Exhibit B.9  
A sample worksheet

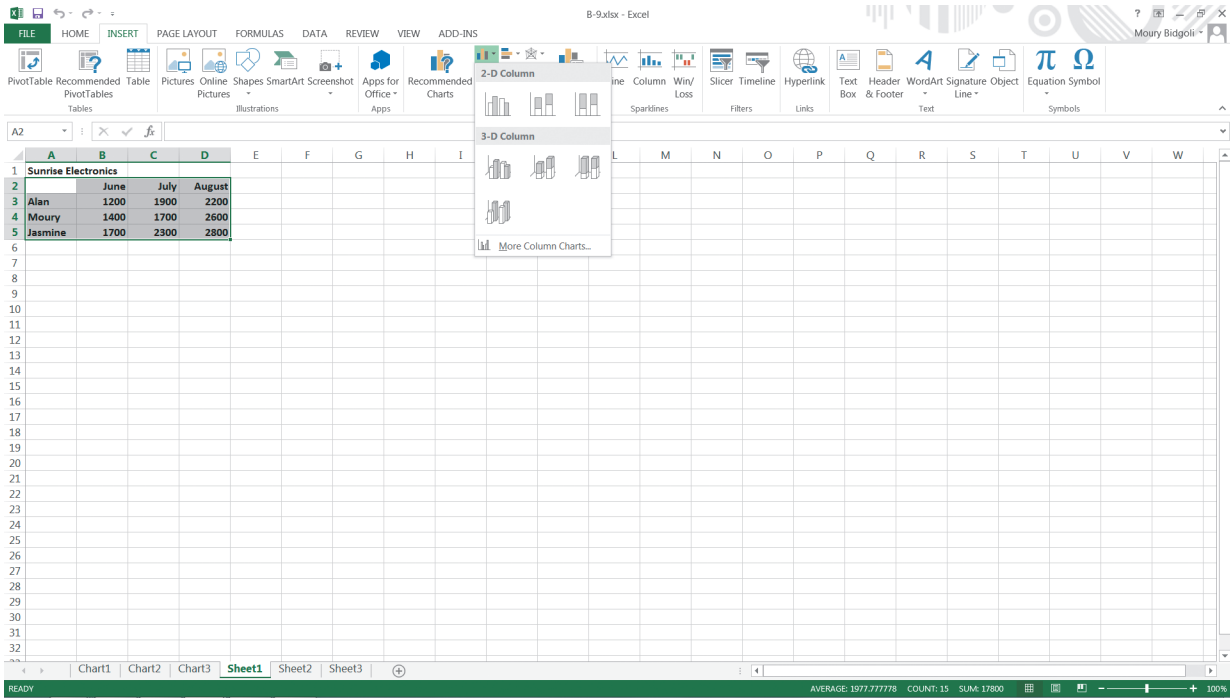


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1. Select the **A2:D5** range.
2. Click **Insert** and then click **Column**. In the pull-down menu (Exhibit B.10), click the **first option** (top left corner). Exhibit B.11 is displayed. As you

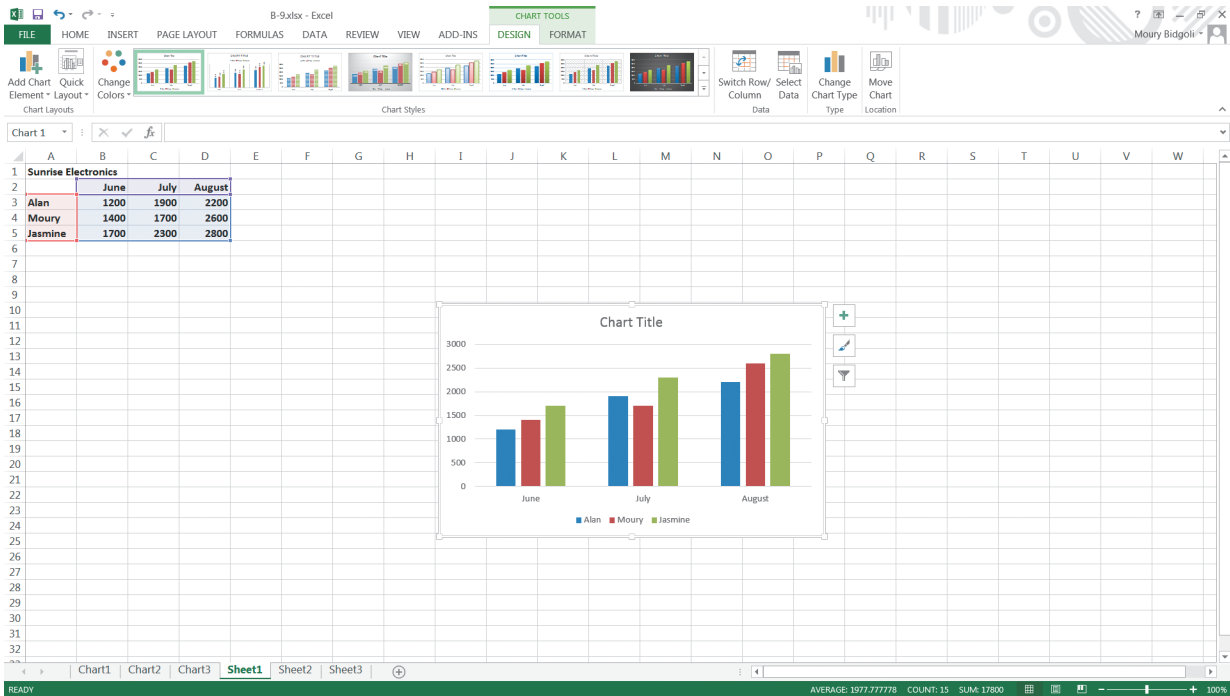
see in this figure, the months of the quarter are displayed on the x-axis and total sales are displayed on the y-axis. If you change any data items, Excel instantly recreates a new chart in order to reflect the change.

## Exhibit B.10 Different types of column charts



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## Exhibit B.11 A column chart for the worksheet shown in Exhibit B.9



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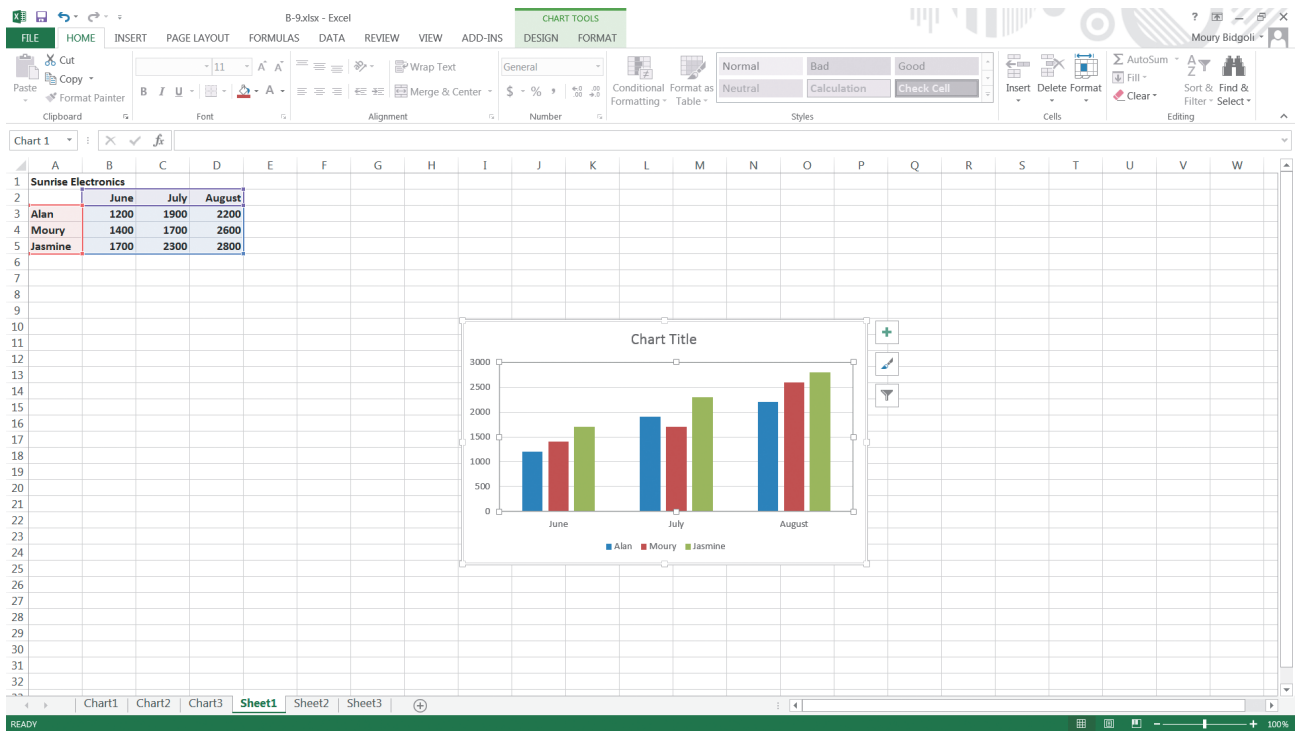
In the following sections, we explain how to add titles and other elements to your chart. You also learn how quickly you can change to a different type of chart.

It includes two options: **Design** and **Format**. If you click outside the chart, the menu disappears. Spend a few minutes with the two options.

## B-4 CHART TOOLS

When you click on the chart you just created, Excel displays the **Chart Tools** menu (Exhibit B.12).

Exhibit B.12  
Chart Tools menu

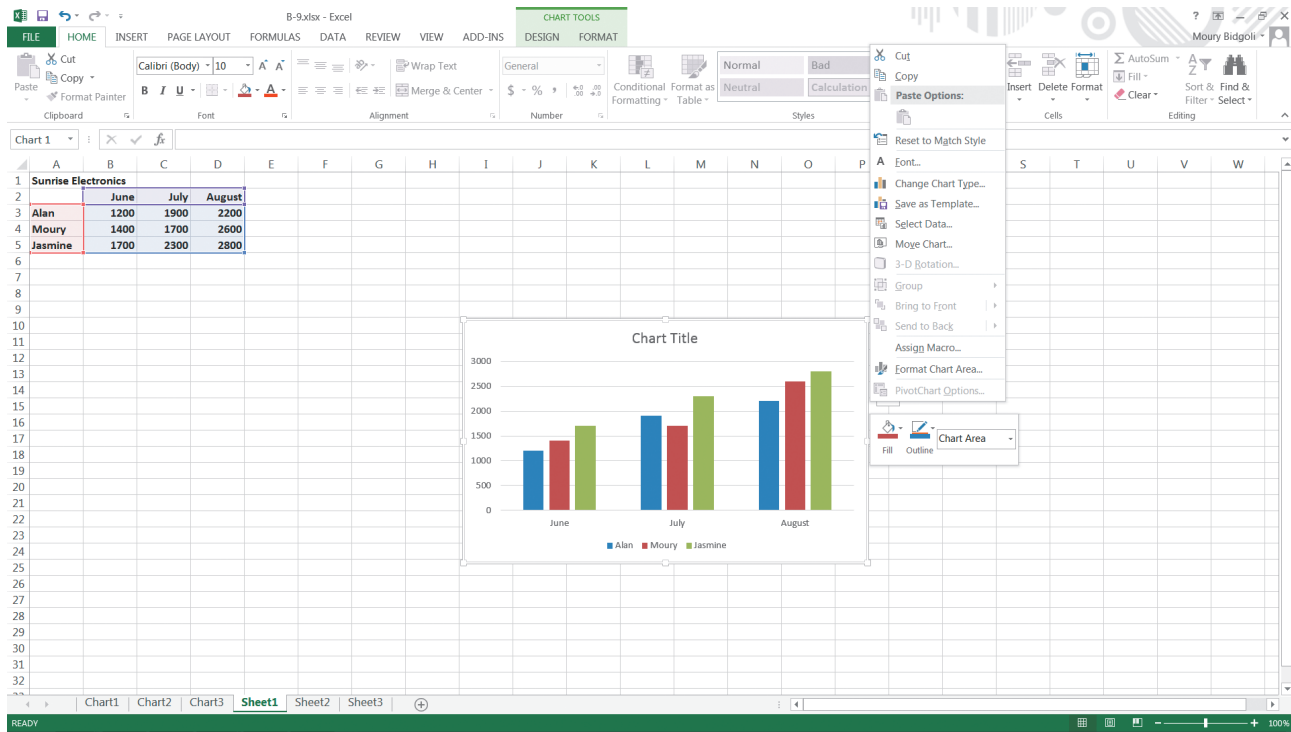


## B-5 CHANGING CHART TYPES

If you right-click the edge of the chart you just created, the menu shown in Exhibit B.13 is displayed. If you then click **Change Chart Type**, you will see the menu

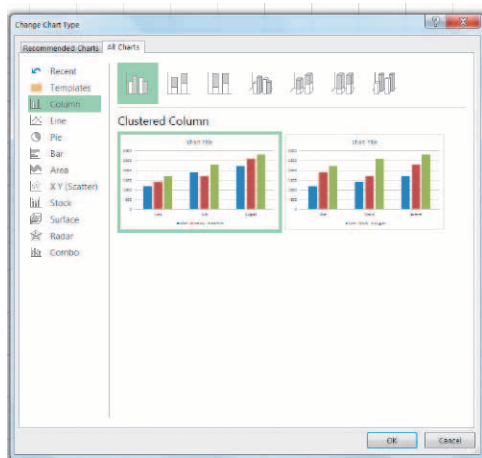
that is shown in Exhibit B.14. These are the chart categories that Excel provides. You can move among them and create different charts for your data.

Exhibit B.13  
Menu for changing chart type



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Exhibit B.14  
The various categories of charts in Excel



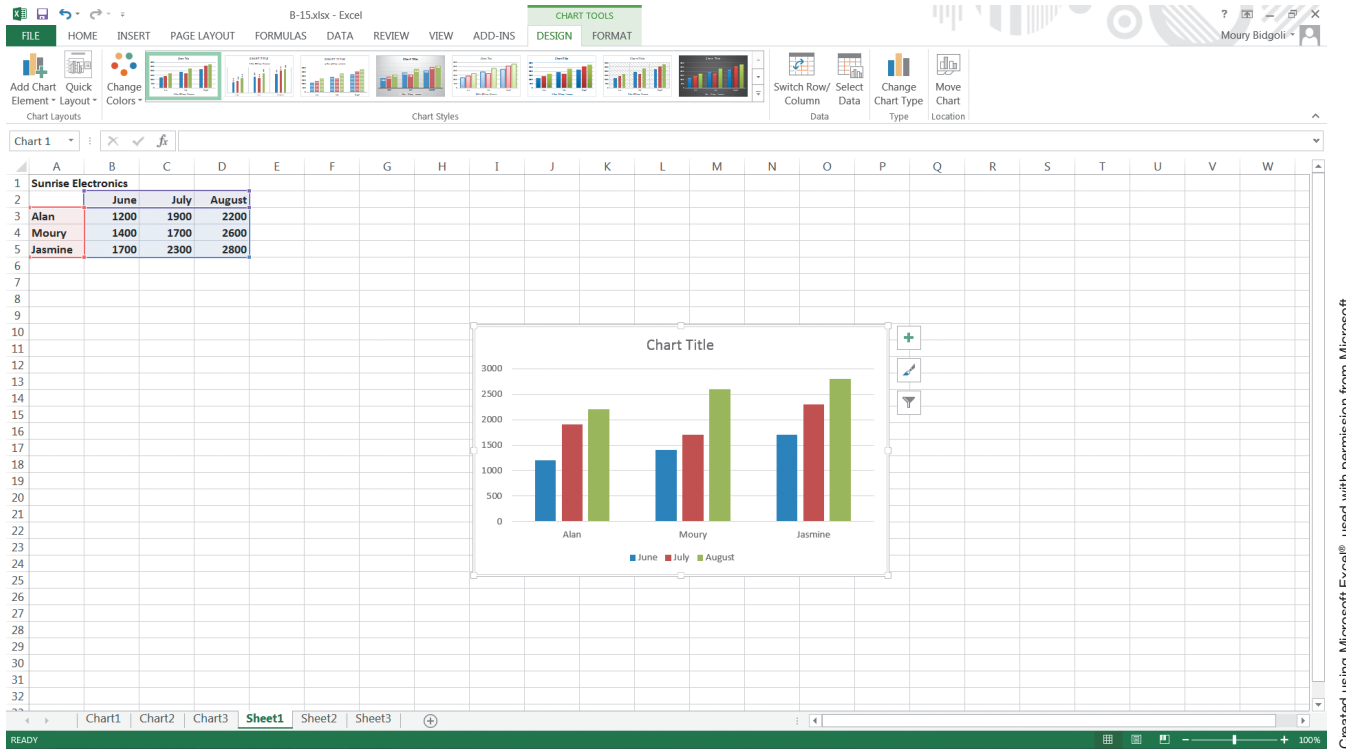
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B-6 DIFFERENT VIEWS OF THE SAME DATA

While your chart is displayed, click **Design**, then click **Switch Row/Column** (see Exhibit B.15). As you see,

the new chart compares each salesperson to himself or herself across the three business quarters. To go back to the original chart, click **Switch Row/Column** again.

## Exhibit B.15 Rows and columns are switched

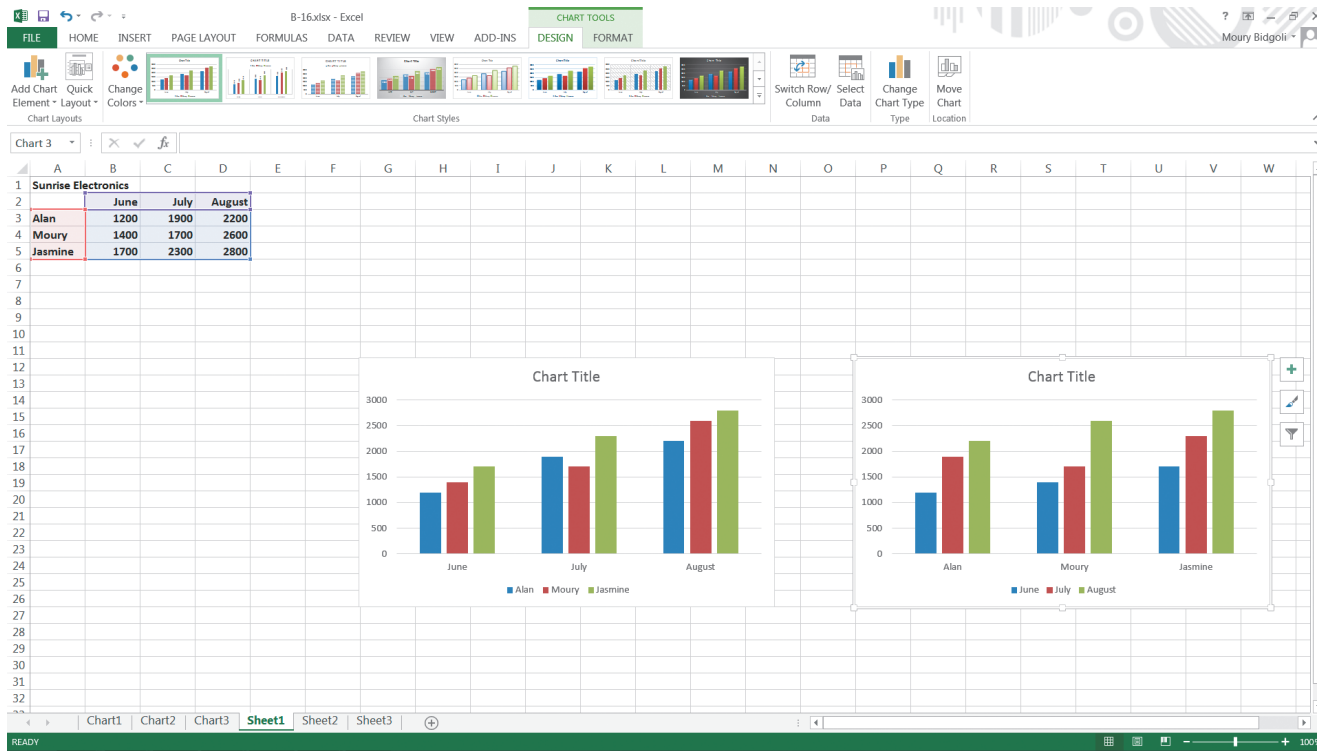


To see both views side by side, copy the new chart and paste it on the other side of the first chart, then change

the first chart back to its initial view by clicking **Switch Row/Column** (see Exhibit B.16).

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## Exhibit B.16 Two views of the same data



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### B-7 ADDING TITLES TO YOUR CHARTS

You can make a chart easier to understand if you add titles and label the x-axis and y-axis. Let's add the following titles to the chart presented in Exhibit B.1:

**Chart title: Sunrise Electronics**

**Y-axis: Amount Sold**

**X-axis: Second Quarter Sales**

To do this, follow the steps below:

1. Click the chart to select it.
2. Click **DESIGN** from **CHART TOOLS**.
3. Click **Add Chart Element**.
4. From the pull-down menu, click **Chart Title**, and then select **Above Chart**.

5. In the place holder provided, type **Sunrise Electronics**.

6. Click **Axis Titles**.

7. Click **Primary Horizontal**.

8. In the place holder provided, type **Second Quarter Sales**.

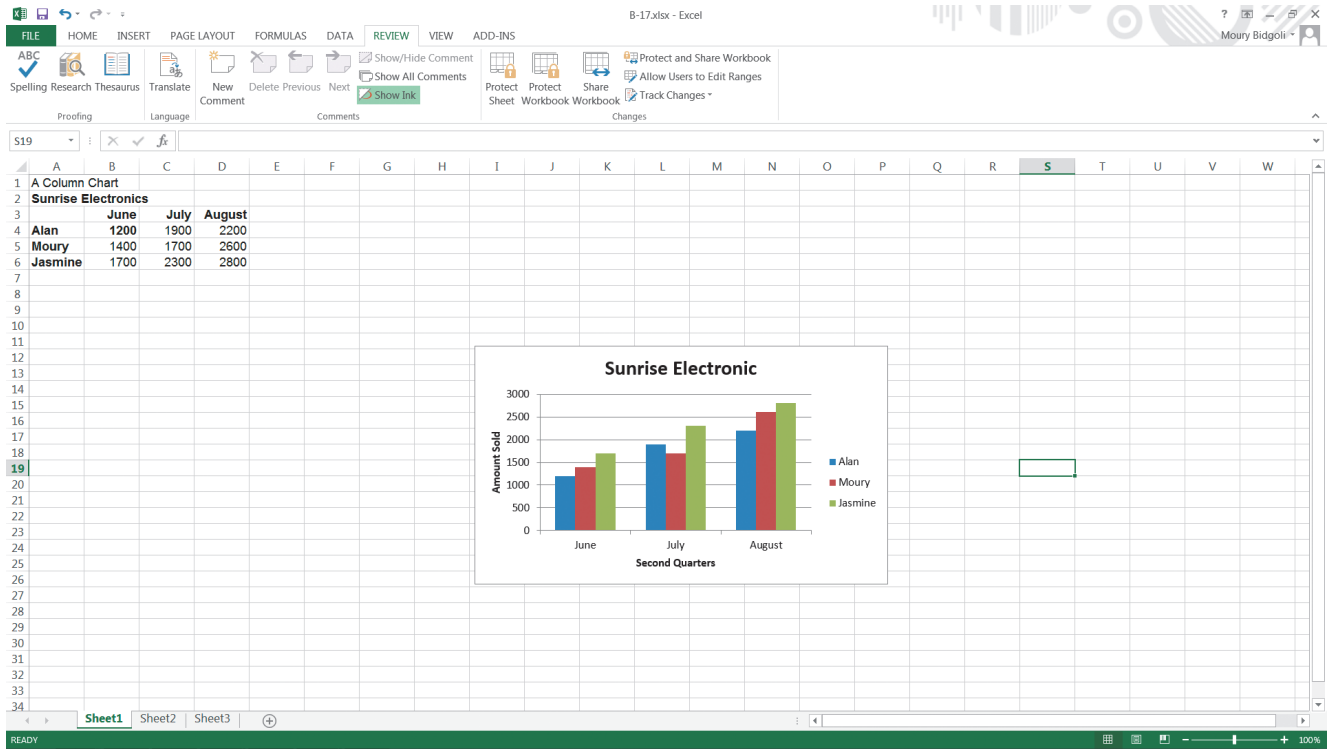
9. Click **Axis Titles**.

10. Click **Primary Vertical**.

11. In the place holder provided, type **Amount Sold**.

The final chart is displayed in Exhibit B.17.

Exhibit B.17  
A chart with titles



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## Problems, Activities, and Discussions

- How do graphs and charts improve the decision-making process?
- What are two business applications of column charts?
- What are two business applications of pie charts?
- Which chart shows relationships between two sets of data—for example, years of education and income?
- The ABC Company generated the following sales data for the first quarter of last year:

The ABC Company

	January	February	March
Alan	2200	3900	4200
Moury	2400	2700	3600
Jasmine	2700	4300	5800

Generate a column chart for this data.

- Two divisions of the ABC Company generated the following sales data for the years 2007 through 2013:

Year	Division #1	Division #2
2007	6200	5800
2008	6500	7200
2009	6900	5700
2010	9000	4800
2011	9700	9000
2012	10000	10200
2013	11200	11000

Generate a line chart for this data.

- The following data shows three cost categories for the ABC Company:

The ABC Company

Utility	1850
Rent	1250
Supply	700

Generate an exploded pie chart for this data.

- The following shows a part of sales data for three regions within the ABC Company:

	Oregon	Washington	California
2009	17	31	52
2010	21	44	56
2011	16	49	59
2012	29	51	62
2013	37	66	71

Generate an area chart for this data.

- The following shows a part of advertising/sales data for the ABC Company:

Advertising	Total Sales
1200	14200
1250	14500
1300	14900
1500	17000
1600	17700
1650	18000
1700	19200

Generate an XY (scatter) chart for this data.

- Add the following titles to the chart presented in #9 above:

Chart title: The ABC Company

Y-axis: Total Sales

X-axis: Advertising Amount

- Generate a column chart for the data below and then, using the Design menu Switch Row/Column feature, switch the rows and columns.

The ABC Company

	January	February	March
Alan	2200	3900	4200
Moury	2400	2700	3600
Jasmine	2700	4300	5800

- Column charts are useful for showing data changes over a period of time or for illustrating comparisons among items. True or False?



13. Pie charts are useful for showing data changes over a period of time. True or False?
14. All of the following are examples of a chart type in Excel except:
  - a. Column
  - b. Graph
  - c. Pie
  - d. Area
15. All of the following are true about Excel charts except:
  - a. Bar charts emphasize the differences among data items.
  - b. XY (scatter) charts show relationships between two sets of data.
  - c. Stock charts track changes in data over time.
  - d. Area charts show the breakdown of data for a given period.