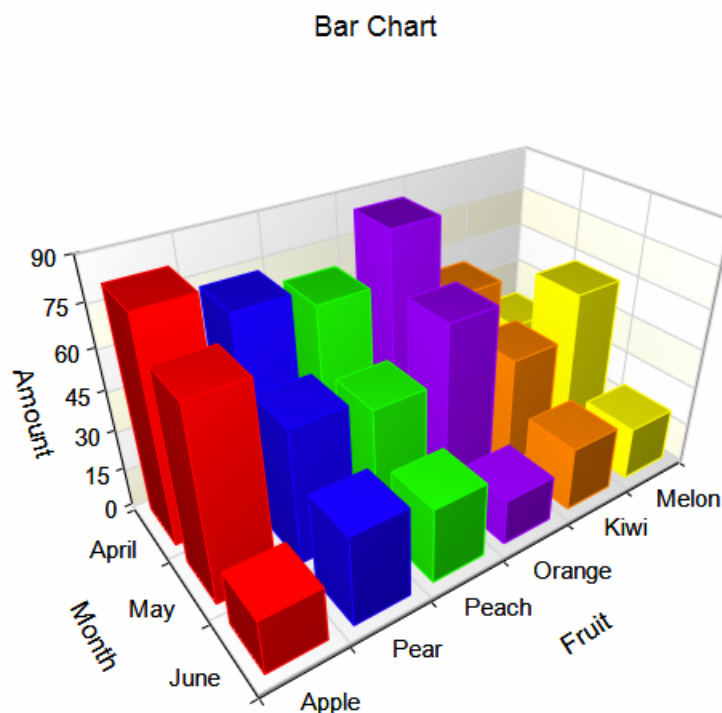


Chapter 148

3D Bar Charts

Introduction

Bar charts are used to visually compare values to each other. This chapter gives a brief overview and examples of simple 3D bar charts and two-factor 3D bar charts. Below is an example of a 3D bar chart with two factors (Month and Fruit).



Data Structure

Data for a 3D bar chart are entered in columns. Each numeric data value becomes a bar. The simple 3D bar chart procedure gives a 3D bar chart for each column of data. The two-factor 3D bar chart combines columns of data into a single chart. Below is an example of data ready to be charted. These data are stored in the Fruit dataset.

Fruit dataset

Fruit	April	May	June	Total
Apple	82	70	20	172
Pear	73	50	33	156
Peach	67	45	28	140
Orange	85	65	17	167
Kiwi	54	42	24	120
Melon	33	58	20	111

Procedure Options (3D Bar Charts and Two-Factor 3D Bar Charts)

This section describes the options available in the two 3D bar chart procedures.

Variables Tab – 3D Bar Charts

Specify the variables (columns) used to make a simple 3D bar chart.

Variables

Data Variables

These are columns of data with numeric values. The length of the bars is given by these numeric values.

Label Variable

Specify an optional variable containing the labels for each bar.

Data Orientation

The orientation controls whether values for the bars go down a column (Vertical) or across a row (Horizontal).

Variable Names

Variable Names

This option specifies whether the column names or column labels are used on the chart.

Variables Tab – Two-Factor 3D Bar Charts

Specify the variables (columns) used to make a two-factor 3D bar chart.

Variables

Data Variables

These are columns of data with numeric values. The length of the bars is given by these numeric values. If the Data Orientation is Vertical, each column specified here will produce a sub-grouping of bars on the chart. If the Data Orientation is Horizontal, each row specified here will produce a sub-grouping of bars on the chart.

Label Variable

Specify an optional variable containing the legend labels for each bar.

Data Orientation

The orientation controls whether sub-groupings for the bars go down a column (Vertical) or across a row (Horizontal).

Variable Names

Variable Names

This option specifies whether the column names or column labels are used on the chart.

3D Bar Charts

3D Bar Chart Format

Format

Click the format button to change the plot settings (see 3D Bar Chart Window Options below).

Edit During Run

Checking this option will cause the bar chart format window to appear when the procedure is run. This allows you to modify the format of the graph with the actual data.

3D Bar Chart Window Options

This section describes the specific options available on the 3D Bar Chart window, which is displayed when the 3D Bar Chart button is clicked. Common options, such as axes, labels, legends, and titles are documented in the Graphics Components chapter.

3D Bar Chart Tab

Plot Type Section

You can create a chart that displays either bars or symbols using the options in this section.

One Factor

Chart using Bars

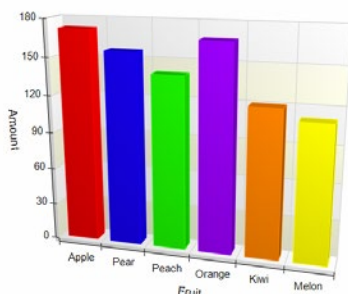
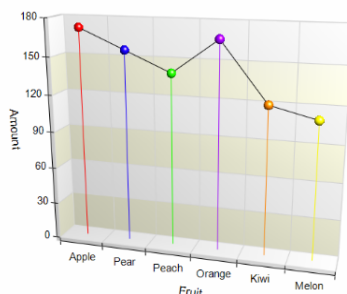
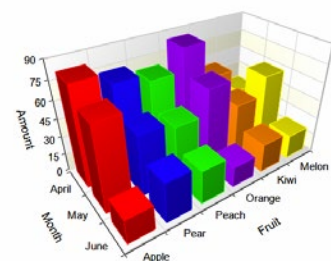


Chart using Symbols

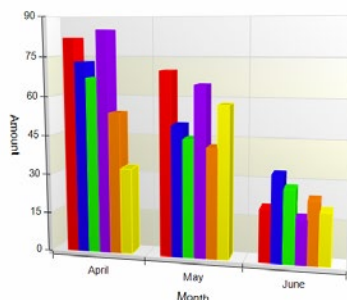


Two Factors

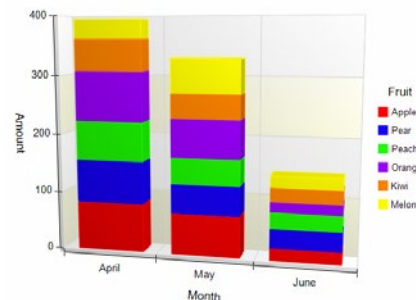
Series Chart



Side-by-Side Chart



Stacked Bars Chart



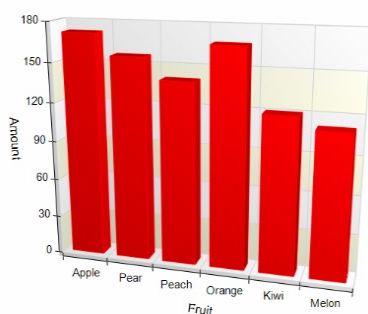
3D Bar Charts

Bars or Symbols and Lines Section

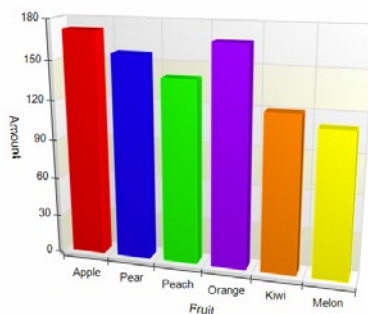
You can specify the format of either the bars or symbols using the options in this section.

One Factor

Single Color

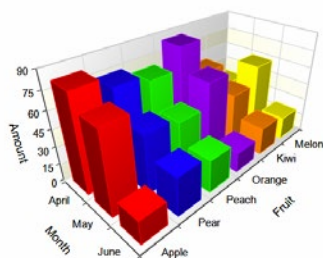


Multiple Colors

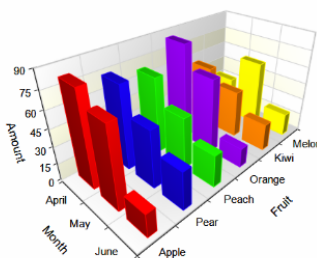


Two Factors

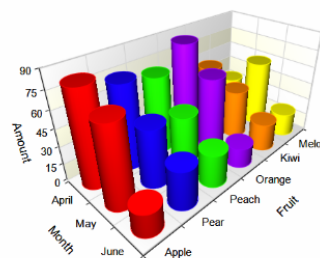
Multiple Colors



Narrow Bars



Cylinder-Shaped Bars

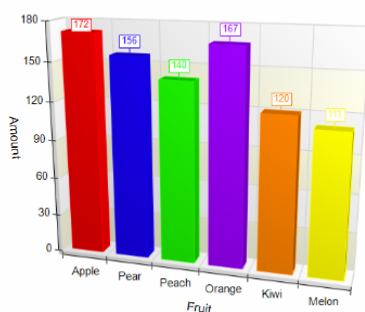


Data Labels Section

You can add and format data labels using the options in this section.

One Factor

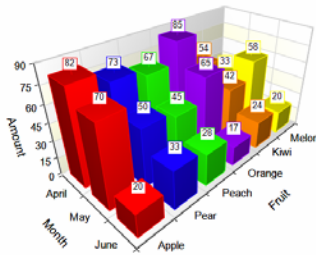
Data Labels



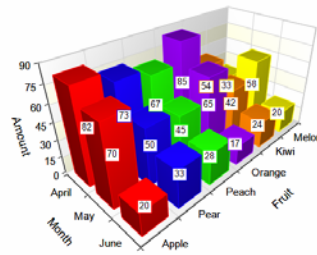
3D Bar Charts

Two Factors

Data Labels - Automatic



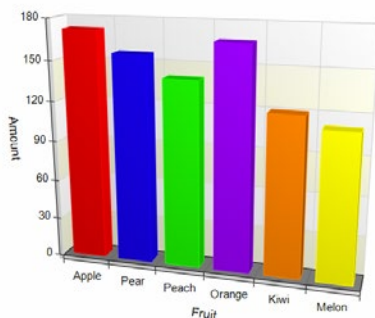
Data Labels - Center



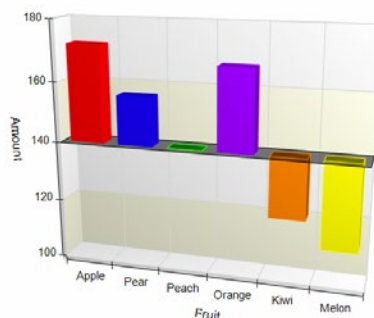
Reference Value Section

The Reference Value is the plane from which the bars are drawn. You can specify the value from which the bars originate using the options in this section.

Reference Value at 0



Reference Value at 140



3D Layout Tab

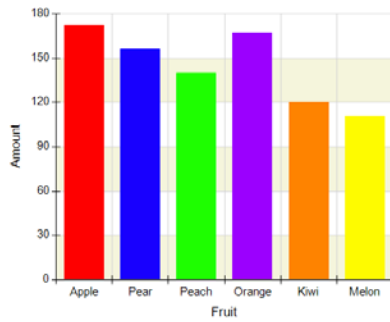
Use this tab to control the 3D viewing aspects of the plot. Click on **Show in New Window** beneath the 3D Plot Preview display to show the plot in a separate window where you can auto-spin the plot and interact with the 3D orientation on the fly. All of the options on this tab are also available on the 3D Plot Preview window.

Display Section

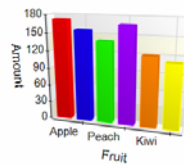
Control the display of the plot. Make the plot 2D or 3D using these options, as well as the zoom and the perspective angle. When using 2D, only the X and Y axes are displayed; the Z axis is not displayed.

3D Bar Charts

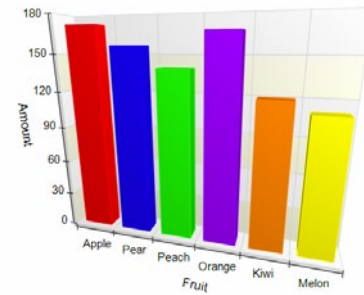
2D Display



No Autofit, Zoom = 50%



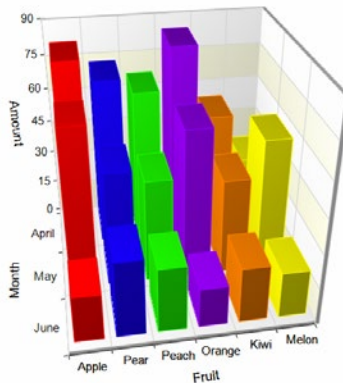
Perspective Angle



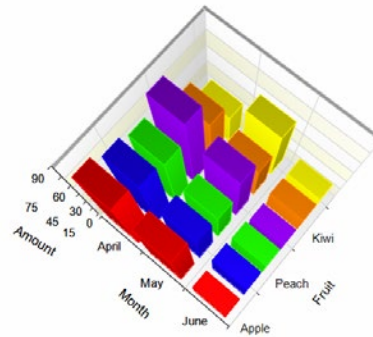
3D Orientation Section

Control rotation, elevation, and viewer rotation of the 3D plot. You can modify the rotation and elevation interactively by left-clicking on the plot in the 3D Plot Preview display and dragging your mouse.

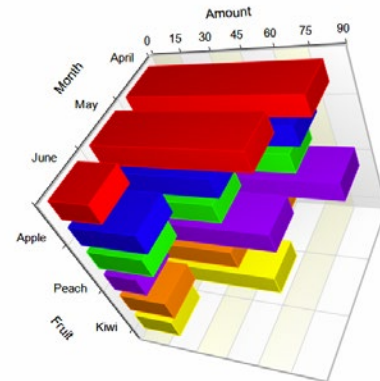
Rotation



Elevation



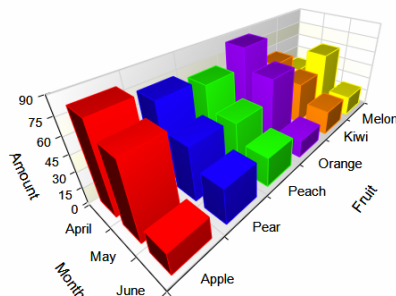
Viewer Rotation



Relative Dimensions Section

Control the relative display dimensions for the X, Y, and Z axes of the plot.

Relative Dimensions

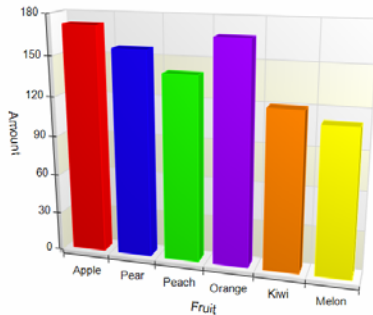


3D Bar Charts

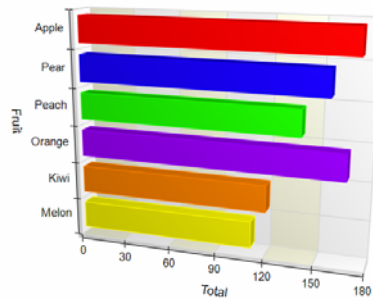
Quick Layout Tools Section

Use these tools to quickly change multiple plot settings simultaneously to achieve a 3D display result.

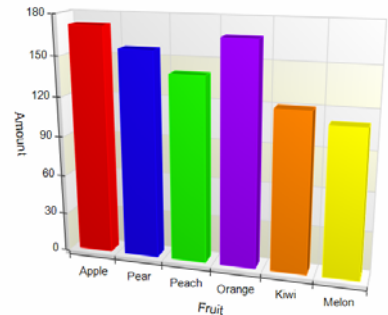
Result of Clicking "Reset Zoom, 3D Orientation, and Dimensions"



Result of Clicking "Optimize for Horizontal Layout"



Result of Clicking "Optimize for Vertical Layout"



Load the Interactive 3D Plot Preview Window

Click this button to show the plot in a separate window where you can auto-spin the plot and interact with the 3D orientation on the fly. All of the options on this tab are also available on the 3D Plot Preview window.

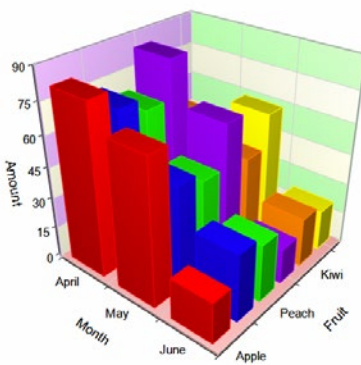
Walls Tab

Use this tab to control the display of walls on the plot.

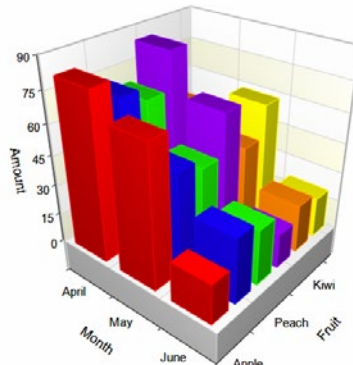
XY Walls, YZ Walls, and XZ Walls Section

Control how walls are displayed on the plot.

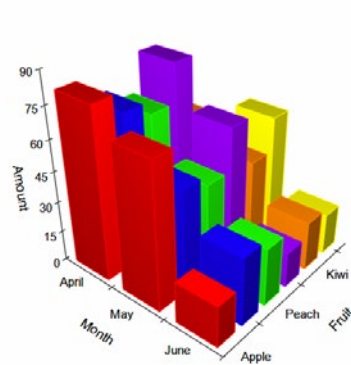
Wall Colors



Wall Width



No Walls



3D Bar Charts

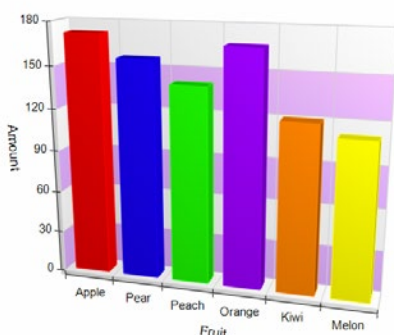
Titles, Legend, X Axis, Y Axis, Z Axis, Grid Lines, and Background Tabs

Details on setting the options in these tabs are given in the Graphics Components chapter. A few specific options are described below.

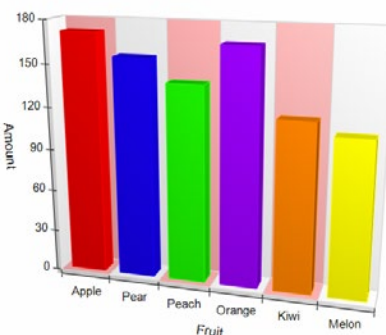
Fill Between Major Grid Lines (on Grid Lines Tab)

Controls the appearance of reference bands on the plot.

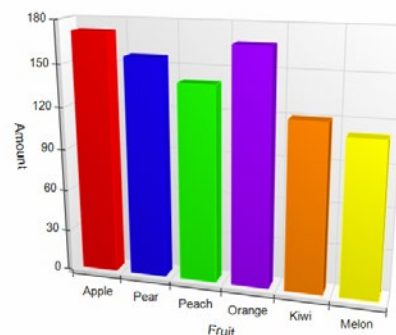
Major Grid Fill Color



Major Grid Fill Location



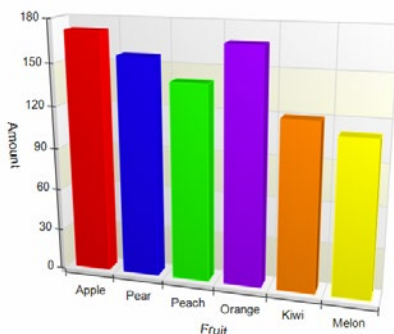
No Major Grid Fill



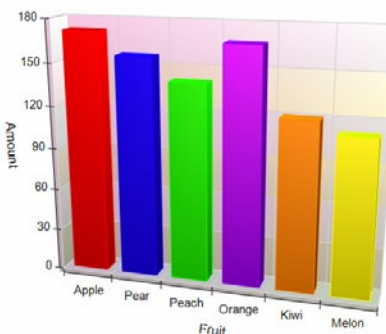
Lighting Scheme (on Background Tab)

Control the ambient lighting on the plot. Choose from a number of present lighting schemes. These schemes change the way colors and 3D items appear in the plot.

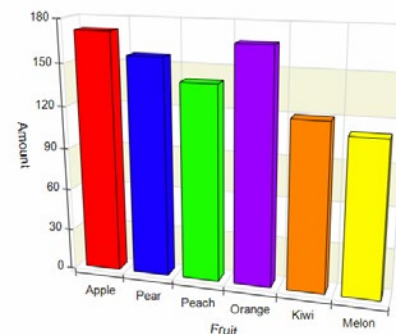
Glitter Left Lighting



Arena Lighting



No Lighting



Example 1 – Creating a Simple 3D Bar Chart

This section presents an example of how to create a 3D bar chart of the data stored in the Fruit dataset.

You may follow along here by making the appropriate entries or load the completed template **Example 1** by clicking on Open Example Template from the File menu of the 3D Bar Charts window.

1 Open the Fruit dataset.

- From the File menu of the NCSS Data window, select **Open Example Data**.
- Click on the file **Fruit.NCSS**.
- Click **Open**.

2 Open the 3D Bar Charts window.

- Using the Graphics menu or the Procedure Navigator, find and select the **3D Bar Charts** procedure.
- On the menus, select **File**, then **New Template**. This will fill the procedure with the default template.

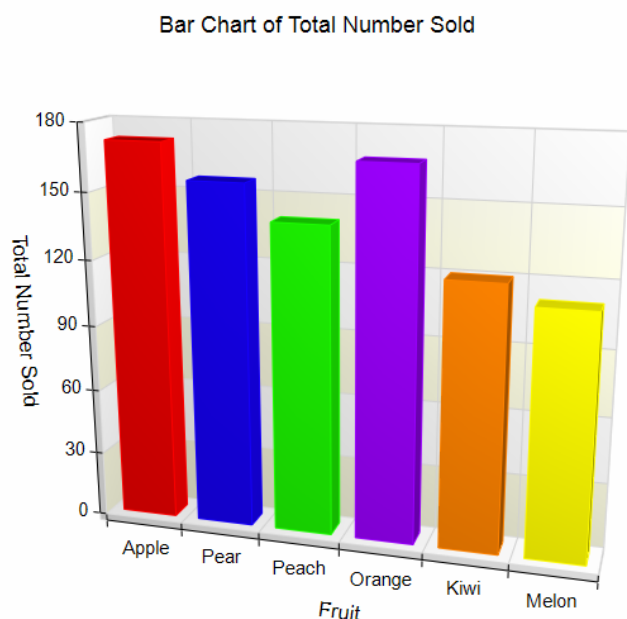
3 Specify the variables.

- On the 3D Bar Charts window, select the **Variables tab**.
- Double-click in the **Data Variables** text box. This will bring up the variable selection window.
- Select **Total** from the list of variables and then click **Ok**. “Total” will appear in the Data Variables box.
- Double-click in the **Label Variable** text box. This will bring up the variable selection window.
- Select **Fruit** from the list of variables and then click **Ok**. “Fruit” will appear in the Label Variable box.
- Set **Variable Names** to **Labels**.

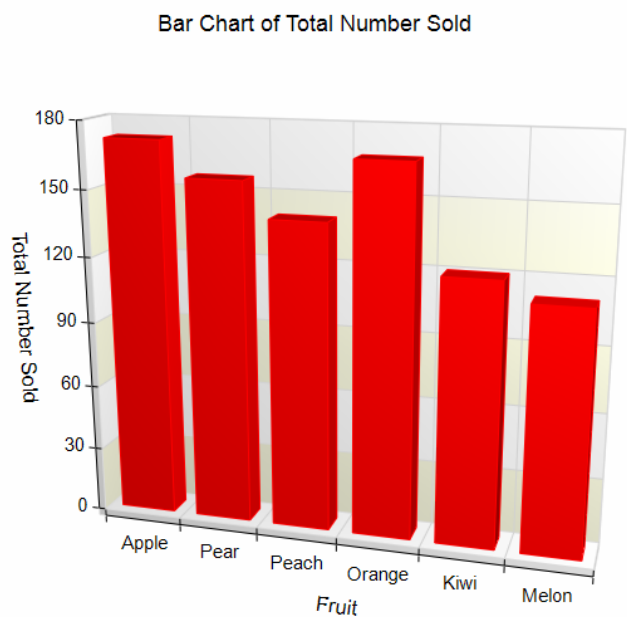
4 Run the procedure.

- From the Run menu, select **Run Procedure**. Alternatively, just click the green Run button.

3D Bar Chart Output



You could make all the bars the same color by clicking on the 3D Bar Chart Format button. There you would click on the Bar Fill format button and change the Fill Mode from Multiple Fills to Single Fill. The result is shown below.



Example 2 – Creating a Two-Factor 3D Bar Chart

This section presents an example of how to create a two-factor 3D bar chart of the data stored in the Fruit dataset.

You may follow along here by making the appropriate entries or load the completed template **Example 2** by clicking on Open Example Template from the File menu of the 3D Bar Charts (2 Factors) window.

1 Open the Fruit dataset.

- From the File menu of the NCSS Data window, select **Open Example Data**.
- Click on the file **Fruit.NCSS**.
- Click **Open**.

2 Open the 3D Bar Charts (2 Factors) window.

- Using the Graphics menu or the Procedure Navigator, find and select the **3D Bar Charts (2 Factors)** procedure.
- On the menus, select **File**, then **New Template**. This will fill the procedure with the default template.

3 Specify the variables.

- On the 3D Bar Charts window, select the **Variables tab**.
- Double-click in the **Data Variables** text box. This will bring up the variable selection window.
- Select **April, May, and June** from the list of variables and then click **Ok**. “April-June” will appear in the Data Variables box.
- Double-click in the **Label Variable** text box. This will bring up the variable selection window.
- Select **Fruit** from the list of variables and then click **Ok**. “Fruit” will appear in the Label Variable box.

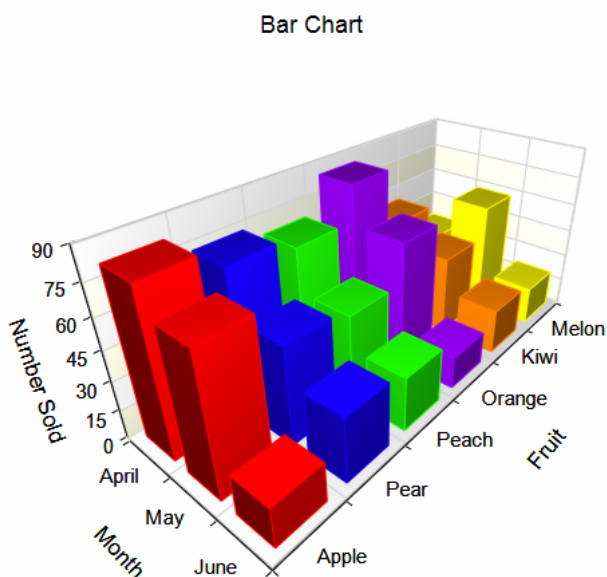
4 Specify the Axis Labels and 3D Layout.

- On the 3D Bar Charts window, click on the **3D Bar Chart Format** button.
- On the **Numeric Axis (Y)** tab, change the **Front Axis Label** to **Number Sold**.
- On the **Group 1 Axis (X)** tab, change the **Front Axis Label** to **Month**.
- On the **3D Layout** tab, change the **Z (Depth) Relative Dimension** to **240%**.
- Click **OK**.

5 Run the procedure.

- From the Run menu, select **Run Procedure**. Alternatively, just click the green Run button.

3D Bar Chart Output



You can switch the factors by changing the **Data Orientation** to **Vertical**, the **Group 1 Axis Label** to **{X}**, the **Group 2 Axis Label** to **Month**, the **Z (Depth) Relative Dimension** to **100%**, and the **X (Width) Relative Dimension** to **200%**. The result is shown below.

