Chapter 146

Line Charts

Introduction

Line charts are used to visually compare values to each other. This chapter gives a brief overview and examples of simple line charts and two-factor line charts. The orientation of a line chart may be vertical or horizontal. Below is an example of a vertical line chart with two factors (fruit and month).
**Data Structure**

Data for a line chart are entered in columns. Each numeric data value becomes a dot. The simple line chart procedure gives a line chart for each column of data. The two-factor line 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**

<table>
<thead>
<tr>
<th>Fruit</th>
<th>April</th>
<th>May</th>
<th>June</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apple</td>
<td>82</td>
<td>70</td>
<td>20</td>
<td>172</td>
</tr>
<tr>
<td>Pear</td>
<td>73</td>
<td>50</td>
<td>33</td>
<td>156</td>
</tr>
<tr>
<td>Peach</td>
<td>67</td>
<td>45</td>
<td>28</td>
<td>140</td>
</tr>
<tr>
<td>Orange</td>
<td>85</td>
<td>65</td>
<td>17</td>
<td>167</td>
</tr>
<tr>
<td>Kiwi</td>
<td>54</td>
<td>42</td>
<td>24</td>
<td>120</td>
</tr>
<tr>
<td>Melon</td>
<td>33</td>
<td>58</td>
<td>20</td>
<td>111</td>
</tr>
</tbody>
</table>

**Line Chart Window Options**

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

**Line Chart Tab**

**Plot Type Section**

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

**One Factor**

![One Factor Line Chart](image-url)
Two Factors

Symbols Section
You can specify the format of the symbols using the options in this section.

One Factor

Two Factors
Connecting Lines Section

You can add connecting lines either between or within groups using the options in this section.

One Factor

Two Factors

Reference Line Section

The Reference Line is a horizontal line from which bars (if selected) are drawn. You can specify the value from which the bars originate using the options in this section.
Data Values Section
You can add data values above the bars using the options in this section.

Layout Tab

Orientation Section
You can orient the chart vertically or horizontally.

Object Spacing and Size Section
You can change the size of the gap between subgroups.

Titles, Legend, Numeric Axis, Group Axis, Grid Lines, and Background Tabs
Details on setting the options in these tabs are given in the Graphics Components chapter.
Example 1 – Creating a Simple Line Chart

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

Setup

To run this example, complete the following steps:

1. **Open the Fruit example dataset**
   - From the File menu of the NCSS Data window, select Open Example Data.
   - Select Fruit and click OK.

2. **Specify the Line Charts procedure options**
   - Find and open the Line Charts procedure using the menus or the Procedure Navigator.
   - The settings for this example are listed below and are stored in the Example 1 settings file. To load these settings to the procedure window, click Open Example Settings File in the Help Center or File menu.

<table>
<thead>
<tr>
<th>Variables Tab</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Variables .................... Total</td>
</tr>
<tr>
<td>Label Variable ........................ Fruit</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Report Options (in the Toolbar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable Labels ........................ Column Labels</td>
</tr>
</tbody>
</table>

3. **Run the procedure**
   - Click the Run button to perform the calculations and generate the output.
Line Chart of Total Number Sold

- Apple
- Pear
- Peach
- Orange
- Kiwi
- Melon

Total Number Sold

100
120
140
160
180
Example 2 – Creating a Two-Factor Line Chart

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

Setup

To run this example, complete the following steps:

1. **Open the Fruit example dataset**
   - From the File menu of the NCSS Data window, select *Open Example Data*.
   - Select *Fruit* and click *OK*.

2. **Specify the Line Charts (2 Factors) procedure options**
   - Find and open the *Line Charts (2 Factors)* procedure using the menus or the Procedure Navigator.
   - The settings for this example are listed below and are stored in the *Example 2* settings file. To load these settings to the procedure window, click *Open Example Settings File* in the Help Center or File menu.

   **Variables Tab**
   - Data Variables ................................................... *April-June*
   - Label Variable.................................................. *Fruit*
   - Data Orientation............................................. *Horizontal: Columns as Groups (Axis), Rows as Subgroups (Legend)*

   **Line Chart Format (Click the Button)**

   **Numeric Axis Tab**
   - Lower Axis Label ............................................ *Number Sold*

   **Group Axis Tab**
   - Lower Axis Label ............................................. *Month*

3. **Run the procedure**
   - Click the *Run* button to perform the calculations and generate the output.
You can switch the factors by changing the **Data Orientation** to **Vertical**, changing the **Group Axis Label** to **Fruit**, and changing the **Legend Title** to **Month** *(Example 2b settings file)*. The result is shown below.