Highcharts

Interactive map charts

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About the Tutorial

Highcharts is a pure JavaScript based charting library meant to enhance web applications by adding interactive charting capability. Highcharts provides a wide variety of charts. For example, line charts, spline charts, area charts, bar charts, pie charts and so on.

This tutorial will teach you the basics of Highcharts. There are chapters discussing all the basic components of Highcharts with suitable examples.

Audience

This tutorial is designed for Software Professionals who are willing to learn Highcharts in simple and easy steps. This tutorial will give you an understanding of the Highcharts concepts and after completing this tutorial you will be at an intermediate level of expertise from where you can take yourself to a higher level of expertise.

Prerequisites

Before proceeding with this tutorial, you need to be familiar with JavaScript, HTML, CSS, and any text editor.

Copyright & Disclaimer

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1. HIGHCHARTS – OVERVIEW

Highcharts is a pure JavaScript based charting library meant to enhance web applications by adding interactive charting capability. It supports a wide range of charts. Charts are drawn using SVG in standard browsers like Chrome, Firefox, Safari, Internet Explorer(IE). In legacy IE 6, VML is used to draw the graphics.

Features of Highcharts Library

Let us now discuss a few important features of the Highcharts Library.

- **Compatability** - Works seemlessly on all major browsers and mobile platforms like android and iOS.
- **Multitouch Support** - Supports multitouch on touch screen based platforms like android and iOS.Ideal for iPhone/iPad and android based smart phones/ tablets.
- **Free to Use** - Open source and is free to use for non-commercial purpose.
- **Lightweight** - highcharts.js core library with size nearly 35KB, is an extremely lightweight library.
- **Simple Configurations** - Uses json to define various configurations of the charts and very easy to learn and use.
- **Dynamic** - Allows to modify chart even after chart generation.
- **Multiple axes** - Not restricted to x, y axis. Supports multiple axis on the charts.
- **Configurable tooltips** - Tooltip comes when a user hovers over any point on a chart. Highcharts provides tooltip inbuilt formatter or callback formatter to control the tooltip programmatically.
- **DateTime support** - Handle date time specially. Provides numerous inbuilt controls over date wise categories.
- **Export** - Export chart to PDF/ PNG/ JPG / SVG format by enabling export feature.
- **Print** - Print chart using web page.
- **Zoomablity** - Supports zooming chart to view data more precisely.
- **External data** - Supports loading data dynamically from server. Provides control over data using callback functions.
- **Text Rotation** - Supports rotation of labels in any direction.

Supported Chart Types

Highcharts library provides the following types of charts:

S.No.	Chart Type / Description
1	**Line Charts** Used to draw line/spline based charts.
2	**Area Charts** Used to draw area wise charts.
3	**Pie Charts** Used to draw pie charts.
4	**Scatter Charts** Used to draw scattered charts.
5	**Bubble Charts** Used to draw bubble based charts.
6	**Dynamic Charts** Used to draw dynamic charts where user can modify charts.
7	**Combinations** Used to draw combinations of variety of charts.
8	**3D Charts** Used to draw 3D charts.
9	**Angular Gauges** Used to draw speedometer type charts.
10	**Heat Maps** Used to draw heat maps.
11	**Tree Maps** Used to draw tree maps.

In our subsequent chapters, we will discuss each type of above mentioned charts in details with examples.

Licence

Highcharts is open source and is free to use for non-commercial purpose. In order to use Highcharts in commercial projects, follow the link: License and Pricing.

2. HIGHCHARTS – ENVIRONMENT SETUP

In this chapter, we will discuss how to set up the Highcharts library to be used in web application development.

Highcharts requires jQuery as a dependency. First, we will install the jQuery library and then the Highcharts library.

Install jQuery

There are two ways to use jQuery.

- **Download:** Download it locally from jQuery.com and use it.
- **CDN access**: You also have access to a CDN. The CDN will give you access around the world to regional data centers; in this case, Google host. This means using CDN moves the responsibility of hosting files from your own servers to a series of external ones. This also offers an advantage that if the visitor to your webpage has already downloaded a copy of jQuery from the same CDN, it will not have to be re-downloaded.

Using Downloaded jQuery

Include the jQuery JavaScript file in the HTML page using the following script:

```
<head>
   <script src="/jquery/jquery.min.js"></script>
</head>
```

Using CDN

We are using the CDN versions of the jQuery library throughout this tutorial. Include the jQuery JavaScript file in the HTML page using the following script:

```
<head>
   <script
src="https://ajax.googleapis.com/ajax/libs/jquery/2.1.3/jquery.min.js"></script>
</head>
```

Install Highcharts

The following are the two ways to use Highcharts.

- **Download:** Download it locally from highcharts.com and use it.

- **CDN access**: You also have access to a CDN. The CDN will give you access around the world to regional data centers; in this case, the Highcharts host - Code.Highcharts.Com.

Using Downloaded Highcharts

Include the Highcharts JavaScript file in the HTML page using the following script:

```
<head>
   <script src="/highcharts/highcharts.js"></script>
</head>
```

Using CDN

We are using the CDN versions of the Highcharts library throughout this tutorial. Include the Highcharts JavaScript file in the HTML page using the following script:

```
<head>
   <script src="https://code.highcharts.com/highcharts.js"></script>
</head>
```

3. HIGHCHARTS – CONFIGURATION SYNTAX

In this chapter, we will showcase the configuration required to draw a chart using the Highcharts API.

Step 1: Create HTML Page

Create an HTML page with the jQuery and Highcharts javascript libraries.

HighchartsTestHarness.htm

```
<html>
<head>
<title>Highcharts Tutorial</title>
   <script
src="https://ajax.googleapis.com/ajax/libs/jquery/2.1.3/jquery.min.js"></script>
   <script src="https://code.highcharts.com/highcharts.js"></script>
</head>
<body>
<div id="container" style="width: 550px; height: 400px; margin: 0 auto"></div>
<script language="JavaScript">
$(document).ready(function() {

});
</script>
</body>
</html>
```

Here the **container** div is used to contain the chart drawn using the Highcharts library.

Step 2: Create Configurations

Highcharts library uses very simple configurations using json syntax.

```
$('#container').highcharts(json);
```

Here json represents the json data and configuration which the Highcharts library uses to draw a chart within the container div using the highcharts() method. Now, we will configure the various parameters to create the required json string.

title

Configure the title of the chart.

```
var title = {
  text: 'Monthly Average Temperature'
};
```

subtitle

Configure the subtitle of the chart.

```
var subtitle = {
  text: 'Source: WorldClimate.com'
};
```

xAxis

Configure the ticker to be displayed on the X-Axis.

```
var xAxis = {
   categories: ['Jan', 'Feb', 'Mar', 'Apr', 'May', 'Jun'
      ,'Jul', 'Aug', 'Sep', 'Oct', 'Nov', 'Dec']
};
```

yAxis

Configure the title, plot lines to be displayed on the Y-Axis.

```
var yAxis = {
   title: {
      text: 'Temperature (\xB0C)'
   },
   plotLines: [{
      value: 0,
      width: 1,
      color: '#808080'
   }]
```

```
};
```

tooltip

Configure the tooltip. Put suffix to be added after value (y-axis).

```
var tooltip = {
   valueSuffix: '\xB0C'
}
```

legend

Configure the legend to be displayed on the right side of the chart along with other properties.

```
var legend = {
   layout: 'vertical',
   align: 'right',
   verticalAlign: 'middle',
   borderWidth: 0
};
```

series

Configure the data to be displayed on the chart. Series is an array where each element of this array represents a single line on the chart.

```
var series =  [
   {
      name: 'Tokyo',
      data: [7.0, 6.9, 9.5, 14.5, 18.2, 21.5, 25.2,
         26.5, 23.3, 18.3, 13.9, 9.6]
   },
   {
      name: 'New York',
      data: [-0.2, 0.8, 5.7, 11.3, 17.0, 22.0, 24.8,
         24.1, 20.1, 14.1, 8.6, 2.5]
   },
```

```
   {
      name: 'Berlin',
      data: [-0.9, 0.6, 3.5, 8.4, 13.5, 17.0, 18.6,
         17.9, 14.3, 9.0, 3.9, 1.0]
   },
   {
      name: 'London',
      data: [3.9, 4.2, 5.7, 8.5, 11.9, 15.2, 17.0,
         16.6, 14.2, 10.3, 6.6, 4.8]
   }
];
```

Step 3: Build the json data

Combine all the configurations.

```
var json = {};

json.title = title;
json.subtitle = subtitle;
json.xAxis = xAxis;
json.yAxis = yAxis;
json.tooltip = tooltip;
json.legend = legend;
json.series = series;
```

Step 4: Draw the chart

```
$('#container').highcharts(json);
```

Example

Consider the following example to further understand the Configuration Syntax:

highcharts_configuration.htm

```
<html>
<head>
<title>Highcharts Tutorial</title>
```

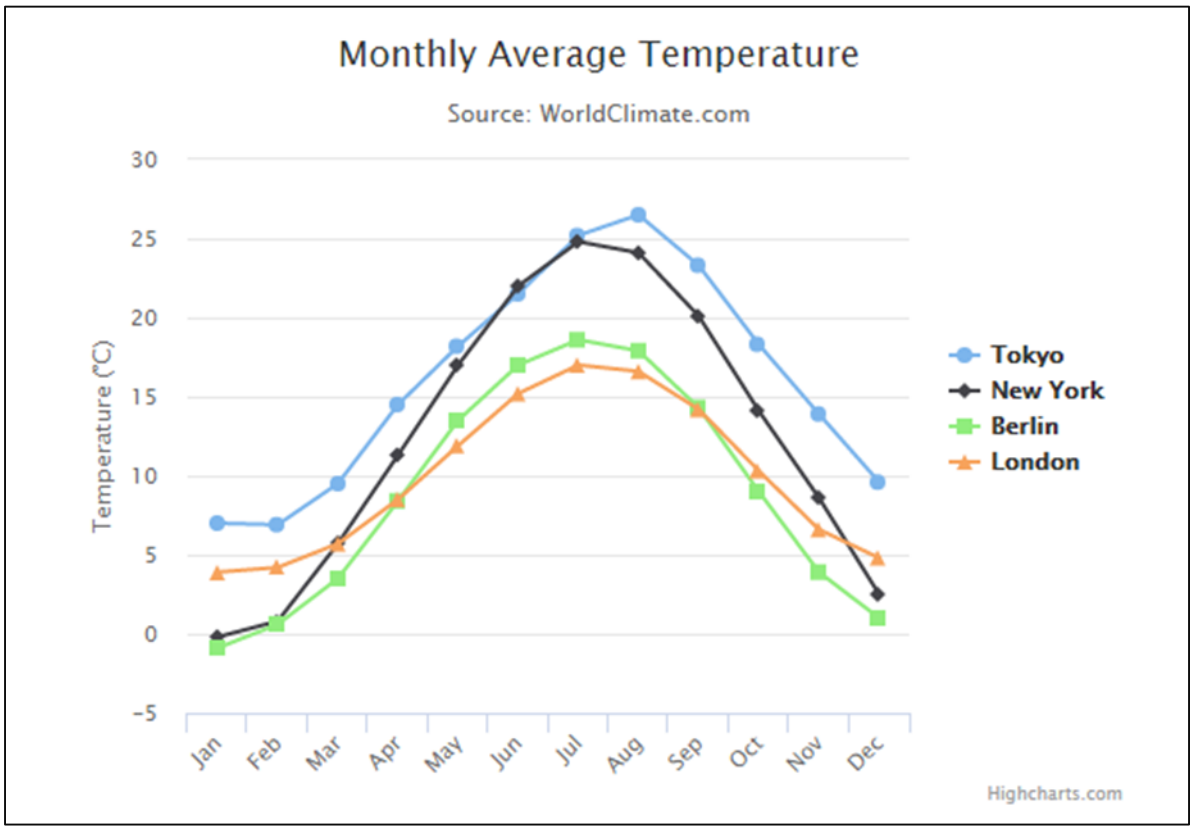
```
   <script
src="https://ajax.googleapis.com/ajax/libs/jquery/2.1.3/jquery.min.js"></script>
   <script src="https://code.highcharts.com/highcharts.js"></script>
</head>
<body>
<div id="container" style="width: 550px; height: 400px; margin: 0 auto"></div>
<script language="JavaScript">
$(document).ready(function() {
   var title = {
      text: 'Monthly Average Temperature'
   };
   var subtitle = {
      text: 'Source: WorldClimate.com'
   };
   var xAxis = {
      categories: ['Jan', 'Feb', 'Mar', 'Apr', 'May', 'Jun',
         'Jul', 'Aug', 'Sep', 'Oct', 'Nov', 'Dec']
   };
   var yAxis = {
      title: {
         text: 'Temperature (\xB0C)'
      },
      plotLines: [{
         value: 0,
         width: 1,
         color: '#808080'
      }]
   };

   var tooltip = {
      valueSuffix: '\xB0C'
   }

   var legend = {
      layout: 'vertical',
```

```
      align: 'right',
      verticalAlign: 'middle',
      borderWidth: 0
   };

   var series =  [
      {
         name: 'Tokyo',
         data: [7.0, 6.9, 9.5, 14.5, 18.2, 21.5, 25.2,
            26.5, 23.3, 18.3, 13.9, 9.6]
      },
      {
         name: 'New York',
         data: [-0.2, 0.8, 5.7, 11.3, 17.0, 22.0, 24.8,
            24.1, 20.1, 14.1, 8.6, 2.5]
      },
      {
         name: 'Berlin',
         data: [-0.9, 0.6, 3.5, 8.4, 13.5, 17.0, 18.6,
            17.9, 14.3, 9.0, 3.9, 1.0]
      },
      {
         name: 'London',
         data: [3.9, 4.2, 5.7, 8.5, 11.9, 15.2, 17.0,
            16.6, 14.2, 10.3, 6.6, 4.8]
      }
   ];

   var json = {};

   json.title = title;
   json.subtitle = subtitle;
   json.xAxis = xAxis;
   json.yAxis = yAxis;
   json.tooltip = tooltip;
```


```
   json.legend = legend;
   json.series = series;

   $('#container').highcharts(json);
});
</script>
</body>
</html>
```

Result

Verify the result.



4. HIGHCHARTS – LINE CHARTS

Line charts are used to draw line/spline based charts. In this section, we will discuss the different types of line and spline based charts.

S.No.	Chart Type / Description
1	**Basic line** Basic line chart.
2	**With data labels** Chart with data labels.
3	**Ajax loaded data, clickable points** Chart drawn after retrieving data from server.
4	**Time series, zoomable** Chart with time series.
5	**Spline with inverted axes** Spline chart having inverted axes.
6	**Spline with symbols** Spline chart using symbols for heat/rain.
7	**Spline with plot bands** Spline chart with plot bands.
8	**Time data with irregular intervals** Chart of a large set of time based data.
9	**Logarithmic axis** Chart depicting the logarithmic axis.

Highcharts – Basic Line Chart

We have already seen the configuration used to draw this chart in Highcharts Configuration Syntax chapter. Let us now consider the following example to further understand a basic line chart.

Example

highcharts_line_basic.htm

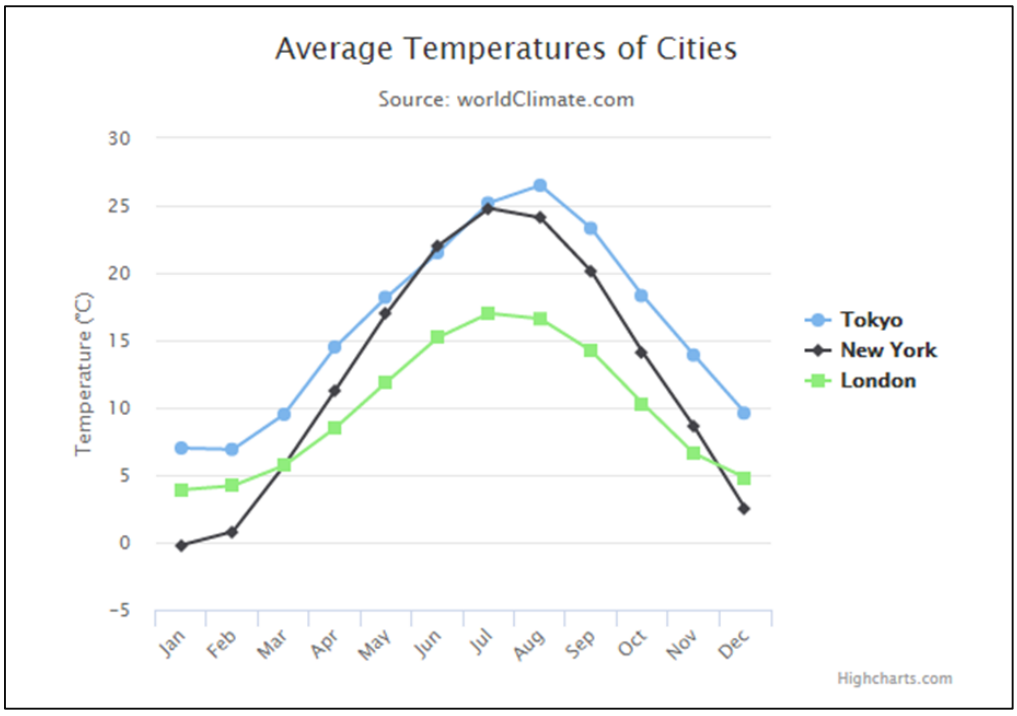
```
<html>
<head>
<title>Highcharts Tutorial</title>
   <script
src="https://ajax.googleapis.com/ajax/libs/jquery/2.1.3/jquery.min.js"></script>
   <script src="https://code.highcharts.com/highcharts.js"></script>
</head>
<body>
<div id="container" style="width: 550px; height: 400px; margin: 0 auto"></div>
<script language="JavaScript">
$(document).ready(function() {
   var title = {
      text: 'Average Temperatures of Cities'
   };
   var subtitle = {
      text: 'Source: worldClimate.com'
   };
   var xAxis = {
      categories: ['Jan', 'Feb', 'Mar', 'Apr', 'May', 'Jun',
         'Jul', 'Aug', 'Sep', 'Oct', 'Nov', 'Dec']
   };
   var yAxis = {
      title: {
         text: 'Temperature (\xB0C)'
      },
      plotLines: [{
         value: 0,
         width: 1,
```

```
      color: '#808080'
   }]
};

var tooltip = {
   valueSuffix: '\xB0C'
}

var legend = {
   layout: 'vertical',
   align: 'right',
   verticalAlign: 'middle',
   borderWidth: 0
};

var series =  [
   {
      name: 'Tokyo',
      data: [7.0, 6.9, 9.5, 14.5, 18.2, 21.5, 25.2,
         26.5, 23.3, 18.3, 13.9, 9.6]
   },
   {
      name: 'New York',
      data: [-0.2, 0.8, 5.7, 11.3, 17.0, 22.0, 24.8,
         24.1, 20.1, 14.1, 8.6, 2.5]
   },
   {
      name: 'London',
      data: [3.9, 4.2, 5.7, 8.5, 11.9, 15.2, 17.0,
         16.6, 14.2, 10.3, 6.6, 4.8]
   }
];

var json = {};
```

```
   json.title = title;
   json.subtitle = subtitle;
   json.xAxis = xAxis;
   json.yAxis = yAxis;
   json.tooltip = tooltip;
   json.legend = legend;
   json.series = series;

   $('#container').highcharts(json);
});
</script>
</body>
</html>
```

Result

Verify the result.



Highcharts – Chart with Data Labels

We have already seen the configuration used to draw this chart in Highcharts Configuration Syntax chapter. Now, we will discuss an example of a line chart with data labels.

Example

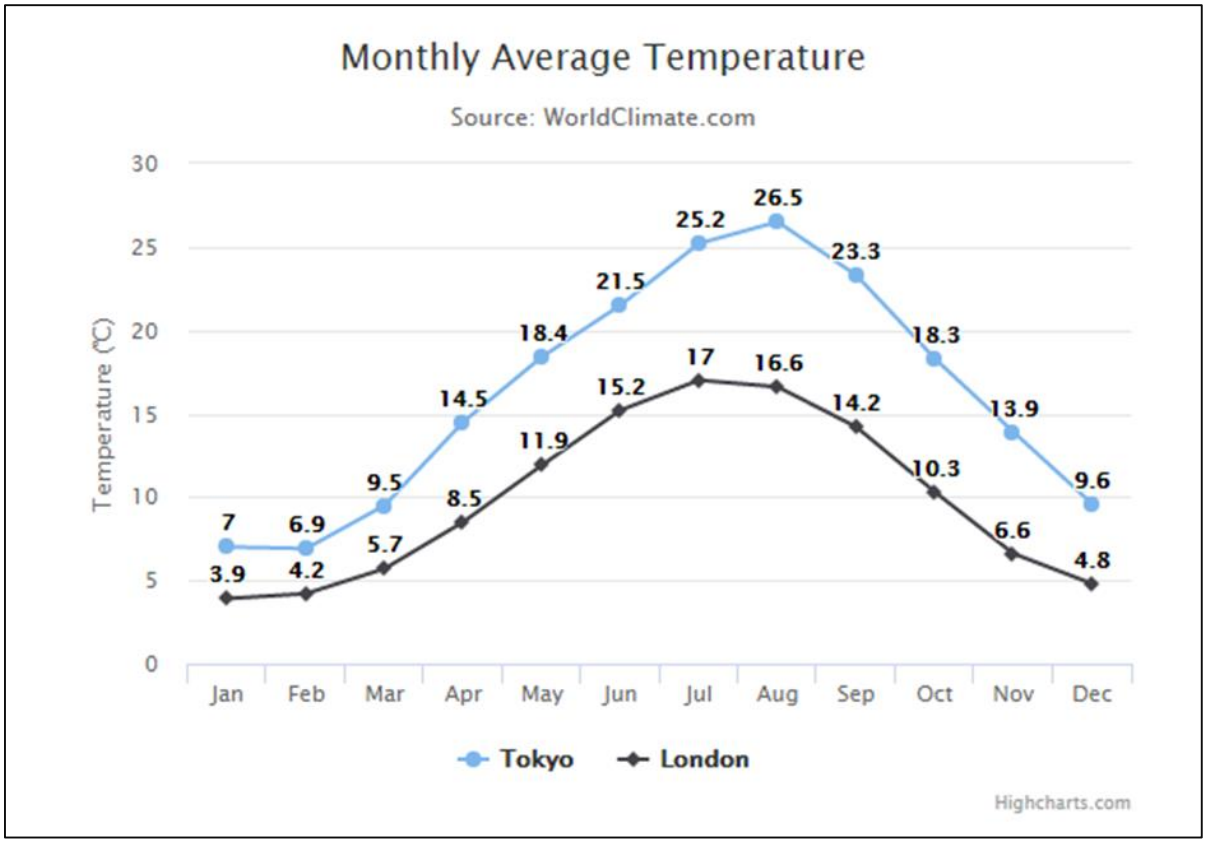
highcharts_line_labels.htm

```
<html>
<head>
<title>Highcharts Tutorial</title>
   <script
src="https://ajax.googleapis.com/ajax/libs/jquery/2.1.3/jquery.min.js"></script>
   <script src="https://code.highcharts.com/highcharts.js"></script>
</head>
<body>
<div id="container" style="width: 550px; height: 400px; margin: 0 auto"></div>
<script language="JavaScript">
$(document).ready(function() {
   var title = {
      text: 'Monthly Average Temperature'
   };
   var subtitle = {
      text: 'Source: WorldClimate.com'
   };
   var xAxis = {
      categories: ['Jan', 'Feb', 'Mar', 'Apr', 'May', 'Jun',
         'Jul', 'Aug', 'Sep', 'Oct', 'Nov', 'Dec']
   };
   var yAxis = {
      title: {
         text: 'Temperature (\xB0C)'
      }
   };
   var plotOptions = {
      line: {
         dataLabels: {
```

```
            enabled: true
         },
         enableMouseTracking: false
      }
   };
   var series= [{
         name: 'Tokyo',
         data: [7.0, 6.9, 9.5, 14.5, 18.4, 21.5, 25.2, 26.5, 23.3, 18.3, 13.9, 9.6]
      }, {
         name: 'London',
         data: [3.9, 4.2, 5.7, 8.5, 11.9, 15.2, 17.0, 16.6, 14.2, 10.3, 6.6, 4.8]
      }
   ];

   var json = {};

   json.title = title;
   json.subtitle = subtitle;
   json.xAxis = xAxis;
   json.yAxis = yAxis;
   json.series = series;
   json.plotOptions = plotOptions;
   $('#container').highcharts(json);
});
</script>
</body>
</html>
```

Result

Verify the result.



Highcharts – Ajax Loaded Data Chart

Here, we will discuss an example of an ajax loaded data chart. To begin with, we will make an ajax call to load a csv file from HighCharts.Com using the **jQuery.getJSON()** method and when the data gets retrieved, we will populate the chart with received data and draw the chart.

We have understood most of the configuration used to draw a chart in Highcharts Configuration Syntax chapter.

Import data.js

In order to work with ajax data, import the following script.

```
<script src="https://code.highcharts.com/modules/data.js"></script>
```

Configurations

Let us now understand additional configurations/step taken.

xAxis

Configure the tick intervals to be based on weekly basis on the X-Axis.

```
var xAxis = {
   tickInterval: 7 * 24 * 3600 * 1000, // one week
   tickWidth: 0,
   gridLineWidth: 1,
   labels: {
      align: 'left',
      x: 3,
      y: -3
   }
};
yAxis
```

Configure two axes on the y-Axis.

```
var yAxis = [{ // left y axis
      title: {
         text: null
      },
      labels: {
         align: 'left',
         x: 3,
         y: 16,
         format: '{value:.,0f}'
      },
      showFirstLabel: false
  },{ // right y axis
      linkedTo: 0,
      gridLineWidth: 0,
      opposite: true,
      title: {
         text: null
      },
      labels: {
         align: 'right',
         x: -3,
```

```
         y: 16,
         format: '{value:.,0f}'
      },
      showFirstLabel: false
   }
];
```

plotOptions

plotOptions is used to control the formatting of various parts of chart like series, marker on series.

```
var plotOptions = {
   series: {
      cursor: 'pointer',
      point: {
         events: {
            click: function (e) {
               hs.htmlExpand(null, {
                  pageOrigin: {
                     x: e.pageX || e.clientX,
                     y: e.pageY || e.clientY
                  },
                  headingText: this.series.name,
                  maincontentText: Highcharts.dateFormat('%A, %b %e, %Y', this.x)
                     + ':<br/> ' + this.y + ' visits',
                  width: 200
               });
            }
         }
      },
      marker: {
        lineWidth: 1
      }
   }
}
```

Example

highcharts_line_ajax.htm

```
<html>
<head>
<title>Highcharts Tutorial</title>
   <script
src="https://ajax.googleapis.com/ajax/libs/jquery/2.1.3/jquery.min.js"></script>
   <script src="https://code.highcharts.com/highcharts.js"></script>
   <script src="https://code.highcharts.com/highcharts-more.js"></script>
   <script src="https://code.highcharts.com/modules/data.js"></script>
</head>
<body>
<div id="container" style="width: 550px; height: 400px; margin: 0 auto"></div>
<script language="JavaScript">
$(document).ready(function() {
   var title = {
      text: 'Daily visits at www.highcharts.com'
   };
   var subtitle = {
      text: 'Source: Google Analytics'
   };
   var xAxis = {
      tickInterval: 7 * 24 * 3600 * 1000, // one week
      tickWidth: 0,
      gridLineWidth: 1,
      labels: {
         align: 'left',
         x: 3,
         y: -3
      }
   };
   var yAxis = [{ // left y axis
         title: {
            text: null
```

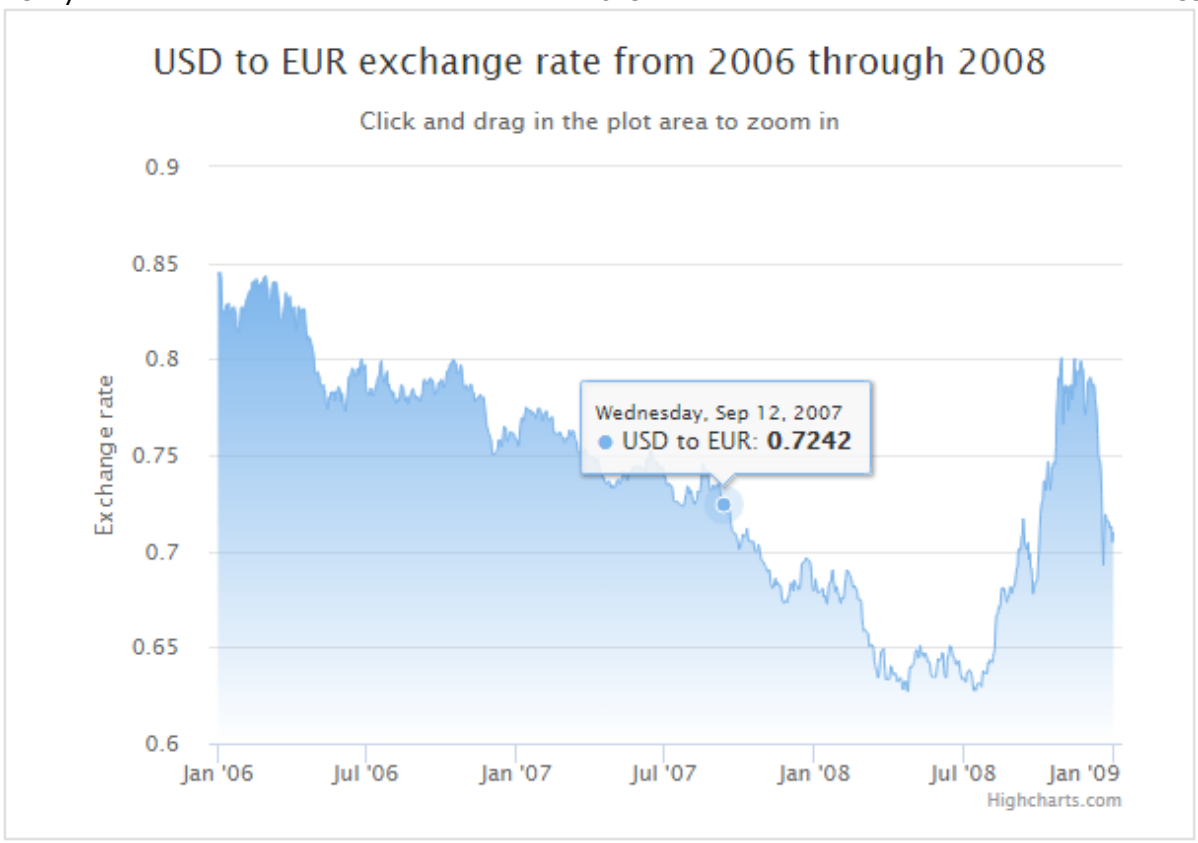
```
      },
      labels: {
         align: 'left',
         x: 3,
         y: 16,
         format: '{value:.,0f}'
      },
      showFirstLabel: false
   },{ // right y axis
      linkedTo: 0,
      gridLineWidth: 0,
      opposite: true,
      title: {
         text: null
      },
      labels: {
         align: 'right',
         x: -3,
         y: 16,
         format: '{value:.,0f}'
      },
      showFirstLabel: false
   }
];

var tooltip = {
   shared: true,
   crosshairs: true
}

var legend = {
   align: 'left',
   verticalAlign: 'top',
   y: 20,
   floating: true,
```

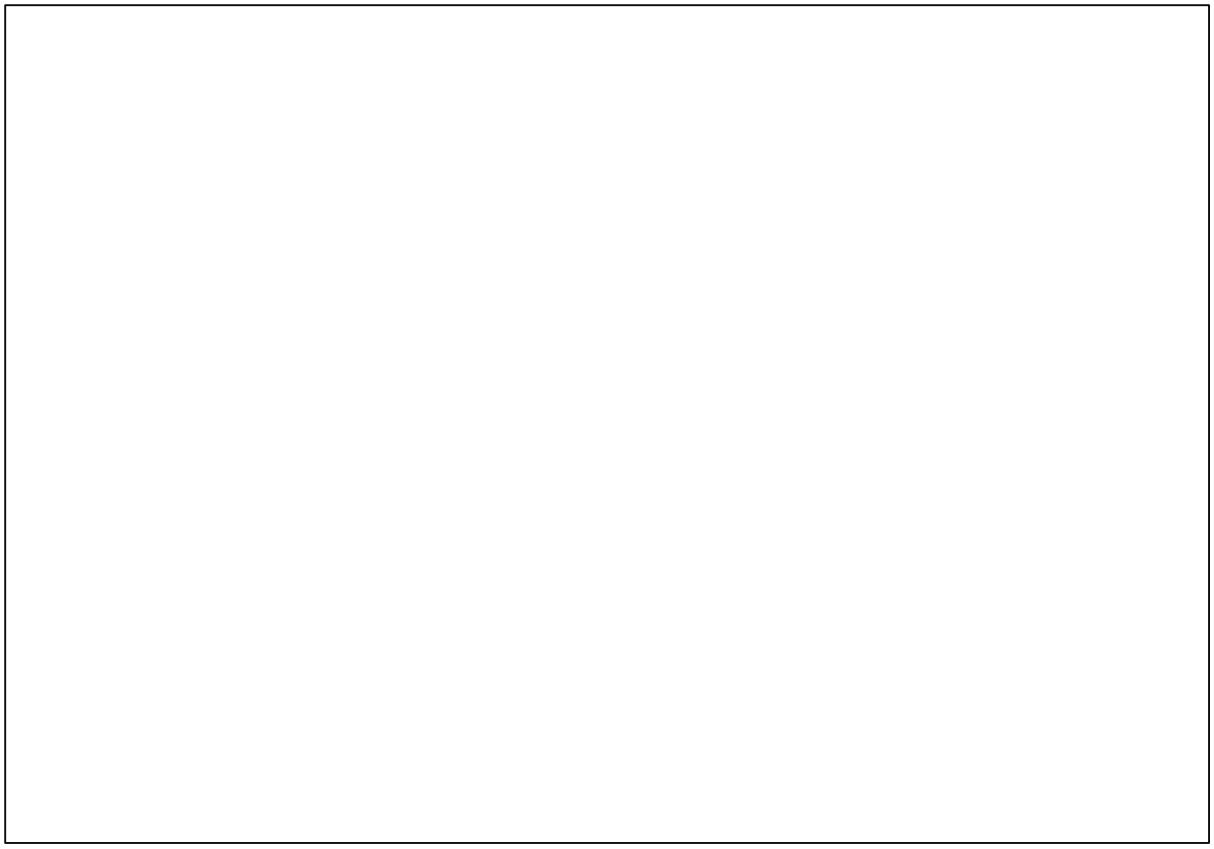
```
      borderWidth: 0
   };

   var plotOptions = {
      series: {
         cursor: 'pointer',
         point: {
            events: {
               click: function (e) {
                  hs.htmlExpand(null, {
                     pageOrigin: {
                        x: e.pageX || e.clientX,
                        y: e.pageY || e.clientY
                     },
                     headingText: this.series.name,
                     maincontentText: Highcharts.dateFormat('%A, %b %e, %Y', this.x)
                        + ':<br/> ' + this.y + ' visits',
                     width: 200
                  });
               }
            }
         },
         marker: {
            lineWidth: 1
         }
      }
   }

   var series =  [{
         name: 'All visits',
         lineWidth: 4,
         marker: {
            radius: 4
         }
      }, {
```

```
         name: 'New visitors'
      }]

   var json = {};

   json.title = title;
   json.subtitle = subtitle;
   json.xAxis = xAxis;
   json.yAxis = yAxis;
   json.tooltip = tooltip;
   json.legend = legend;
   json.series = series;
   json.plotOptions = plotOptions;
$.getJSON('http://www.highcharts.com/samples/data/jsonp.php?filename=analytics.csv
&callback=?', function (csv) {
      var data = {
         csv: csv
      };
       json.data = data;
       $('#container').highcharts(json);
   });
});
</script>
</body>
</html>
```

Result

Verify the result.





Highcharts – Time Series, Zoomable Chart

We have already seen the configuration used to draw a chart in Highcharts Configuration Syntax chapter. Now, we will discuss an example of a time based data chart.

Configurations

Let us now discuss the additional configurations/steps taken.

chart

Configure the chart to make it zoomable. **chart.zoomType** decides the dimensions by which the user can zoom by dragging the mouse. The possible values for this are x, y or xy.

```
var chart = {
   zoomType: 'x'
};
```

plotOptions

Configure the area of chart using plotOptions.

```
var plotOptions = {
   area: {
      fillColor: {
         linearGradient: { x1: 0, y1: 0, x2: 0, y2: 1},
         stops: [
            [0, Highcharts.getOptions().colors[0]],
            [1, Highcharts.Color(Highcharts.getOptions().colors[0]).setOpacity(0).get('rgba')]
         ]
      },
      marker: {
         radius: 2
      },
      lineWidth: 1,
      states: {
         hover: {
            lineWidth: 1
         }
      },
      threshold: null
   }
};
```

Example

highcharts_line_time.htm

```
<html>
<head>
<title>Highcharts Tutorial</title>
   <script
src="https://ajax.googleapis.com/ajax/libs/jquery/2.1.3/jquery.min.js"></script>
   <script src="https://code.highcharts.com/highcharts.js"></script>
</head>
<body>
<div id="container" style="width: 550px; height: 400px; margin: 0 auto"></div>
```

```
<script language="JavaScript">
$(document).ready(function() {
   var chart = {
      zoomType: 'x'
   };
   var title = {
      text: 'USD to EUR exchange rate from 2006 through 2008'
   };
   var subtitle = {
      text: document.ontouchstart === undefined ?
                  'Click and drag in the plot area to zoom in' :
                  'Pinch the chart to zoom in'
   };
   var xAxis = {
      type: 'datetime',
      minRange: 14 * 24 * 3600000 // fourteen days
   };
   var yAxis = {
      title: {
         text: 'Exchange rate'
      }
   };
   var legend = {
      enabled: false
   };
   var plotOptions = {
      area: {
         fillColor: {
            linearGradient: { x1: 0, y1: 0, x2: 0, y2: 1},
            stops: [
               [0, Highcharts.getOptions().colors[0]],
               [1,
Highcharts.Color(Highcharts.getOptions().colors[0]).setOpacity(0).get('rgba')]
            ]
         },
```

```
        marker: {
           radius: 2
        },
        lineWidth: 1,
        states: {
           hover: {
              lineWidth: 1
           }
        },
        threshold: null
     }
  };
  var series= [{
     type: 'area',
     name: 'USD to EUR',
     pointInterval: 24 * 3600 * 1000,
     pointStart: Date.UTC(2006, 0, 1),
     data: [
      0.8446, 0.8445, 0.8444, 0.8451,    0.8418, 0.8264,    0.8258, 0.8232,    0.8233, 0.8258,
      0.8283, 0.8278, 0.8256, 0.8292,    0.8239, 0.8239,    0.8245, 0.8265,    0.8261, 0.8269,
      0.8273, 0.8244, 0.8244, 0.8172,    0.8139, 0.8146,    0.8164, 0.82,    0.8269, 0.8269,
      0.8269, 0.8258, 0.8247, 0.8286,    0.8289, 0.8316,    0.832, 0.8333,    0.8352, 0.8357,
      0.8355, 0.8354, 0.8403, 0.8403,    0.8406, 0.8403,    0.8396, 0.8418,    0.8409, 0.8384,
      0.8386, 0.8372, 0.839, 0.84, 0.8389, 0.84, 0.8423, 0.8423, 0.8435, 0.8422,
      0.838, 0.8373, 0.8316, 0.8303,    0.8303, 0.8302,    0.8369, 0.84, 0.8385, 0.84,
      0.8401, 0.8402, 0.8381, 0.8351,    0.8314, 0.8273,    0.8213, 0.8207,    0.8207, 0.8215,
      0.8242, 0.8273, 0.8301, 0.8346,    0.8312, 0.8312,    0.8312, 0.8306,    0.8327, 0.8282,
      0.824, 0.8255, 0.8256, 0.8273, 0.8209, 0.8151, 0.8149, 0.8213, 0.8273, 0.8273,
      0.8261, 0.8252, 0.824, 0.8262, 0.8258, 0.8261, 0.826, 0.8199, 0.8153, 0.8097,
      0.8101, 0.8119, 0.8107, 0.8105,    0.8084, 0.8069,    0.8047, 0.8023,    0.7965, 0.7919,
      0.7921, 0.7922, 0.7934, 0.7918,    0.7915, 0.787, 0.7861, 0.7861, 0.7853, 0.7867,
       0.7827, 0.7834, 0.7766, 0.7751, 0.7739, 0.7767, 0.7802, 0.7788, 0.7828, 0.7816,
       0.7829, 0.783, 0.7829, 0.7781, 0.7811, 0.7831, 0.7826, 0.7855, 0.7855, 0.7845,
       0.7798, 0.7777, 0.7822, 0.7785, 0.7744, 0.7743, 0.7726, 0.7766, 0.7806, 0.785,
       0.7907, 0.7912, 0.7913, 0.7931, 0.7952, 0.7951, 0.7928, 0.791, 0.7913, 0.7912,
       0.7941, 0.7953, 0.7921, 0.7919, 0.7968, 0.7999, 0.7999, 0.7974, 0.7942, 0.796,
       0.7969, 0.7862, 0.7821, 0.7821, 0.7821, 0.7811, 0.7833, 0.7849, 0.7819, 0.7809,
```

```
0.7809, 0.7827, 0.7848, 0.785, 0.7873, 0.7894, 0.7907, 0.7909, 0.7947, 0.7987,
0.799, 0.7927, 0.79, 0.7878, 0.7878, 0.7907, 0.7922, 0.7937, 0.786, 0.787,
0.7838, 0.7838, 0.7837, 0.7836, 0.7806, 0.7825, 0.7798, 0.777, 0.777, 0.7772,
0.7793, 0.7788, 0.7785, 0.7832, 0.7865, 0.7865, 0.7853, 0.7847, 0.7809, 0.778,
0.7799, 0.78, 0.7801, 0.7765, 0.7785, 0.7811, 0.782, 0.7835, 0.7845, 0.7844,
0.782, 0.7811, 0.7795, 0.7794, 0.7806, 0.7794, 0.7794, 0.7778, 0.7793, 0.7808,
0.7824, 0.787, 0.7894, 0.7893, 0.7882, 0.7871, 0.7882, 0.7871, 0.7878, 0.79,
0.7901, 0.7898, 0.7879, 0.7886, 0.7858, 0.7814, 0.7825, 0.7826, 0.7826, 0.786,
0.7878, 0.7868, 0.7883, 0.7893, 0.7892, 0.7876, 0.785, 0.787, 0.7873, 0.7901,
0.7936, 0.7939, 0.7938, 0.7956, 0.7975, 0.7978, 0.7972, 0.7995, 0.7995, 0.7994,
0.7976, 0.7977, 0.796, 0.7922, 0.7928, 0.7929, 0.7948, 0.797, 0.7953, 0.7907,
0.7872, 0.7852, 0.7852, 0.786, 0.7862, 0.7836, 0.7837, 0.784, 0.7867, 0.7867,
0.7869, 0.7837, 0.7827, 0.7825, 0.7779, 0.7791, 0.779, 0.7787, 0.78, 0.7807,
0.7803, 0.7817, 0.7799, 0.7799, 0.7795, 0.7801, 0.7765, 0.7725, 0.7683, 0.7641,
0.7639, 0.7616, 0.7608, 0.759, 0.7582, 0.7539, 0.75, 0.75, 0.7507, 0.7505,
0.7516, 0.7522, 0.7531, 0.7577, 0.7577, 0.7582, 0.755, 0.7542, 0.7576, 0.7616,
0.7648, 0.7648, 0.7641, 0.7614, 0.757, 0.7587, 0.7588, 0.762, 0.762, 0.7617,
0.7618, 0.7615, 0.7612, 0.7596, 0.758, 0.758, 0.758, 0.7547, 0.7549, 0.7613,
0.7655, 0.7693, 0.7694, 0.7688, 0.7678, 0.7708, 0.7727, 0.7749, 0.7741, 0.7741,
0.7732, 0.7727, 0.7737, 0.7724, 0.7712, 0.772, 0.7721, 0.7717, 0.7704, 0.769,
0.7711, 0.774, 0.7745, 0.7745, 0.774, 0.7716, 0.7713, 0.7678, 0.7688, 0.7718,
0.7718, 0.7728, 0.7729, 0.7698, 0.7685, 0.7681, 0.769, 0.769, 0.7698, 0.7699,
0.7651, 0.7613, 0.7616, 0.7614, 0.7614, 0.7607, 0.7602, 0.7611, 0.7622, 0.7615,
0.7598, 0.7598, 0.7592, 0.7573, 0.7566, 0.7567, 0.7591, 0.7582, 0.7585, 0.7613,
0.7631, 0.7615, 0.76, 0.7613, 0.7627, 0.7627, 0.7608, 0.7583, 0.7575, 0.7562,
0.752, 0.7512, 0.7512, 0.7517, 0.752, 0.7511, 0.748, 0.7509, 0.7531, 0.7531,
0.7527, 0.7498, 0.7493, 0.7504, 0.75, 0.7491, 0.7491, 0.7485, 0.7484, 0.7492,
0.7471, 0.7459, 0.7477, 0.7477, 0.7483, 0.7458, 0.7448, 0.743, 0.7399, 0.7395,
0.7395, 0.7378, 0.7382, 0.7362, 0.7355, 0.7348, 0.7361, 0.7361, 0.7365, 0.7362,
0.7331, 0.7339, 0.7344, 0.7327, 0.7327, 0.7336, 0.7333, 0.7359, 0.7359, 0.7372,
0.736, 0.736, 0.735, 0.7365, 0.7384, 0.7395, 0.7413, 0.7397, 0.7396, 0.7385,
0.7378, 0.7366, 0.74, 0.7411, 0.7406, 0.7405, 0.7414, 0.7431, 0.7431, 0.7438,
0.7443, 0.7443, 0.7443, 0.7434, 0.7429, 0.7442, 0.744, 0.7439, 0.7437, 0.7437,
0.7429, 0.7403, 0.7399, 0.7418, 0.7468, 0.748, 0.748, 0.749, 0.7494, 0.7522,
0.7515, 0.7502, 0.7472, 0.7472, 0.7462, 0.7455, 0.7449, 0.7467, 0.7458, 0.7427,
0.7427, 0.743, 0.7429, 0.744, 0.743, 0.7422, 0.7388, 0.7388, 0.7369, 0.7345,
0.7345, 0.7345, 0.7352, 0.7341, 0.7341, 0.734, 0.7324, 0.7272, 0.7264, 0.7255,
```

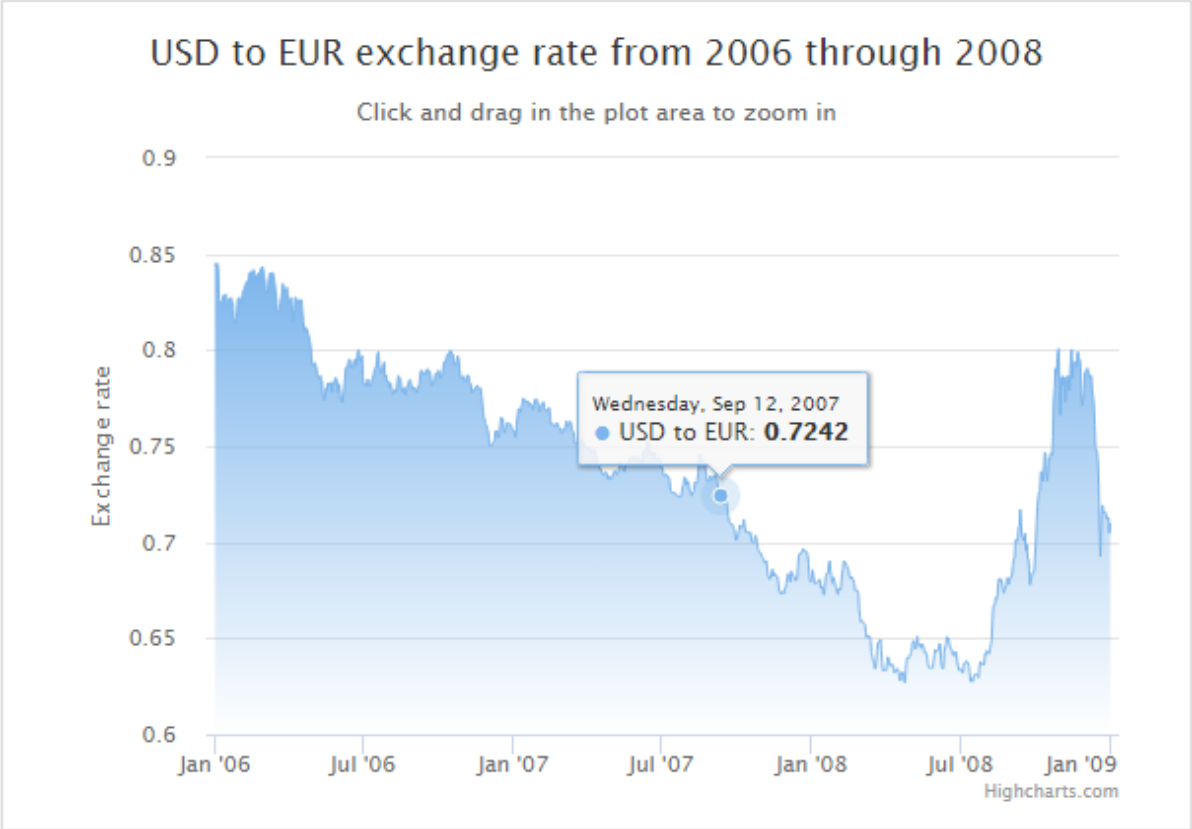
```
0.7258, 0.7258, 0.7256, 0.7257, 0.7247, 0.7243, 0.7244, 0.7235, 0.7235, 0.7235,
0.7235, 0.7262, 0.7288, 0.7301, 0.7337, 0.7337, 0.7324, 0.7297, 0.7317, 0.7315,
0.7288, 0.7263, 0.7263, 0.7242, 0.7253, 0.7264, 0.727, 0.7312, 0.7305, 0.7305,
0.7318, 0.7358, 0.7409, 0.7454, 0.7437, 0.7424, 0.7424, 0.7415, 0.7419, 0.7414,
0.7377, 0.7355, 0.7315, 0.7315, 0.732, 0.7332, 0.7346, 0.7328, 0.7323, 0.734,
0.734, 0.7336, 0.7351, 0.7346, 0.7321, 0.7294, 0.7266, 0.7266, 0.7254, 0.7242,
0.7213, 0.7197, 0.7209, 0.721, 0.721, 0.721, 0.7209, 0.7159, 0.7133, 0.7105,
0.7099, 0.7099, 0.7093, 0.7093, 0.7076, 0.707, 0.7049, 0.7012, 0.7011, 0.7019,
0.7046, 0.7063, 0.7089, 0.7077, 0.7077, 0.7077, 0.7091, 0.7118, 0.7079, 0.7053,
0.705, 0.7055, 0.7055, 0.7045, 0.7051, 0.7051, 0.7017, 0.7, 0.6995, 0.6994,
0.7014, 0.7036, 0.7021, 0.7002, 0.6967, 0.695, 0.695, 0.6939, 0.694, 0.6922,
0.6919, 0.6914, 0.6894, 0.6891, 0.6904, 0.689, 0.6834, 0.6823, 0.6807, 0.6815,
0.6815, 0.6847, 0.6859, 0.6822, 0.6827, 0.6837, 0.6823, 0.6822, 0.6822, 0.6792,
0.6746, 0.6735, 0.6731, 0.6742, 0.6744, 0.6739, 0.6731, 0.6761, 0.6761, 0.6785,
0.6818, 0.6836, 0.6823, 0.6805, 0.6793, 0.6849, 0.6833, 0.6825, 0.6825, 0.6816,
0.6799, 0.6813, 0.6809, 0.6868, 0.6933, 0.6933, 0.6945, 0.6944, 0.6946, 0.6964,
0.6965, 0.6956, 0.6956, 0.695, 0.6948, 0.6928, 0.6887, 0.6824, 0.6794, 0.6794,
0.6803, 0.6855, 0.6824, 0.6791, 0.6783, 0.6785, 0.6785, 0.6797, 0.68, 0.6803,
0.6805, 0.676, 0.677, 0.677, 0.6736, 0.6726, 0.6764, 0.6821, 0.6831, 0.6842,
0.6842, 0.6887, 0.6903, 0.6848, 0.6824, 0.6788, 0.6814, 0.6814, 0.6797, 0.6769,
0.6765, 0.6733, 0.6729, 0.6758, 0.6758, 0.675, 0.678, 0.6833, 0.6856, 0.6903,
0.6896, 0.6896, 0.6882, 0.6879, 0.6862, 0.6852, 0.6823, 0.6813, 0.6813, 0.6822,
0.6802, 0.6802, 0.6784, 0.6748, 0.6747, 0.6747, 0.6748, 0.6733, 0.665, 0.6611,
0.6583, 0.659, 0.659, 0.6581, 0.6578, 0.6574, 0.6532, 0.6502, 0.6514, 0.6514,
0.6507, 0.651, 0.6489, 0.6424, 0.6406, 0.6382, 0.6382, 0.6341, 0.6344, 0.6378,
0.6439, 0.6478, 0.6481, 0.6481, 0.6494, 0.6438, 0.6377, 0.6329, 0.6336, 0.6333,
0.6333, 0.633, 0.6371, 0.6403, 0.6396, 0.6364, 0.6356, 0.6356, 0.6368, 0.6357,
0.6354, 0.632, 0.6332, 0.6328, 0.6331, 0.6342, 0.6321, 0.6302, 0.6278, 0.6308,
0.6324, 0.6324, 0.6307, 0.6277, 0.6269, 0.6335, 0.6392, 0.64, 0.6401, 0.6396,
0.6407, 0.6423, 0.6429, 0.6472, 0.6485, 0.6486, 0.6467, 0.6444, 0.6467, 0.6509,
0.6478, 0.6461, 0.6461, 0.6468, 0.6449, 0.647, 0.6461, 0.6452, 0.6422, 0.6422,
0.6425, 0.6414, 0.6366, 0.6346, 0.635, 0.6346, 0.6346, 0.6343, 0.6346, 0.6379,
0.6416, 0.6442, 0.6431, 0.6431, 0.6435, 0.644, 0.6473, 0.6469, 0.6386, 0.6356,
0.634, 0.6346, 0.643, 0.6452, 0.6467, 0.6506, 0.6504, 0.6503, 0.6481, 0.6451,
0.645, 0.6441, 0.6414, 0.6409, 0.6409, 0.6428, 0.6431, 0.6418, 0.6371, 0.6349,
0.6333, 0.6334, 0.6338, 0.6342, 0.632, 0.6318, 0.637, 0.6368, 0.6368, 0.6383,
0.6371, 0.6371, 0.6355, 0.632, 0.6277, 0.6276, 0.6291, 0.6274, 0.6293, 0.6311,
```

```
         0.631, 0.6312, 0.6312, 0.6304, 0.6294, 0.6348, 0.6378, 0.6368, 0.6368, 0.6368,
         0.636, 0.637, 0.6418, 0.6411, 0.6435, 0.6427, 0.6427, 0.6419, 0.6446, 0.6468,
         0.6487, 0.6594, 0.6666, 0.6666, 0.6678, 0.6712, 0.6705, 0.6718, 0.6784, 0.6811,
         0.6811, 0.6794, 0.6804, 0.6781, 0.6756, 0.6735, 0.6763, 0.6762, 0.6777, 0.6815,
         0.6802, 0.678, 0.6796, 0.6817, 0.6817, 0.6832, 0.6877, 0.6912, 0.6914, 0.7009,
         0.7012, 0.701, 0.7005, 0.7076, 0.7087, 0.717, 0.7105, 0.7031, 0.7029, 0.7006,
         0.7035, 0.7045, 0.6956, 0.6988, 0.6915, 0.6914, 0.6859, 0.6778, 0.6815, 0.6815,
         0.6843, 0.6846, 0.6846, 0.6923, 0.6997, 0.7098, 0.7188, 0.7232, 0.7262, 0.7266,
         0.7359, 0.7368, 0.7337, 0.7317, 0.7387, 0.7467, 0.7461, 0.7366, 0.7319, 0.7361,
         0.7437, 0.7432, 0.7461, 0.7461, 0.7454, 0.7549, 0.7742, 0.7801, 0.7903, 0.7876,
         0.7928, 0.7991, 0.8007, 0.7823, 0.7661, 0.785, 0.7863, 0.7862, 0.7821, 0.7858,
         0.7731, 0.7779, 0.7844, 0.7866, 0.7864, 0.7788, 0.7875, 0.7971, 0.8004, 0.7857,
         0.7932, 0.7938, 0.7927, 0.7918, 0.7919, 0.7989, 0.7988, 0.7949, 0.7948, 0.7882,
         0.7745, 0.771, 0.775, 0.7791, 0.7882, 0.7882, 0.7899, 0.7905, 0.7889, 0.7879,
         0.7855, 0.7866, 0.7865, 0.7795, 0.7758, 0.7717, 0.761, 0.7497, 0.7471, 0.7473,
         0.7407, 0.7288, 0.7074, 0.6927, 0.7083, 0.7191, 0.719, 0.7153, 0.7156, 0.7158,
         0.714, 0.7119, 0.7129, 0.7129, 0.7049, 0.7095
         ]
      }
   ];

   var json = {};
   json.chart = chart;
   json.title = title;
   json.subtitle = subtitle;
   json.legend = legend;
   json.xAxis = xAxis;
   json.yAxis = yAxis;
   json.series = series;
   json.plotOptions = plotOptions;
   $('#container').highcharts(json);

});
</script>
</body>
```

```
</html>
```

Result

Verify the result.



Highcharts – Spline Chart with Inverted Axes

We have already seen configuration used to draw a chart in Highcharts Configuration Syntax chapter. Now, we will discuss an example of a spline chart with inverted axes.

Configurations

Configure the chart type to be spline based. **chart.type** decides the series type for the chart. Here, the default value is "line".

Configure the axes to be inverted. When **true x axis** is vertical and **y axis** is horizontal – if a bar series is present in the chart, the same will be inverted. Here, the default value is false.

chart

```
var chart = {
   type: 'spline',
   inverted: true
};
```

Example

highcharts_spline_inverted.htm

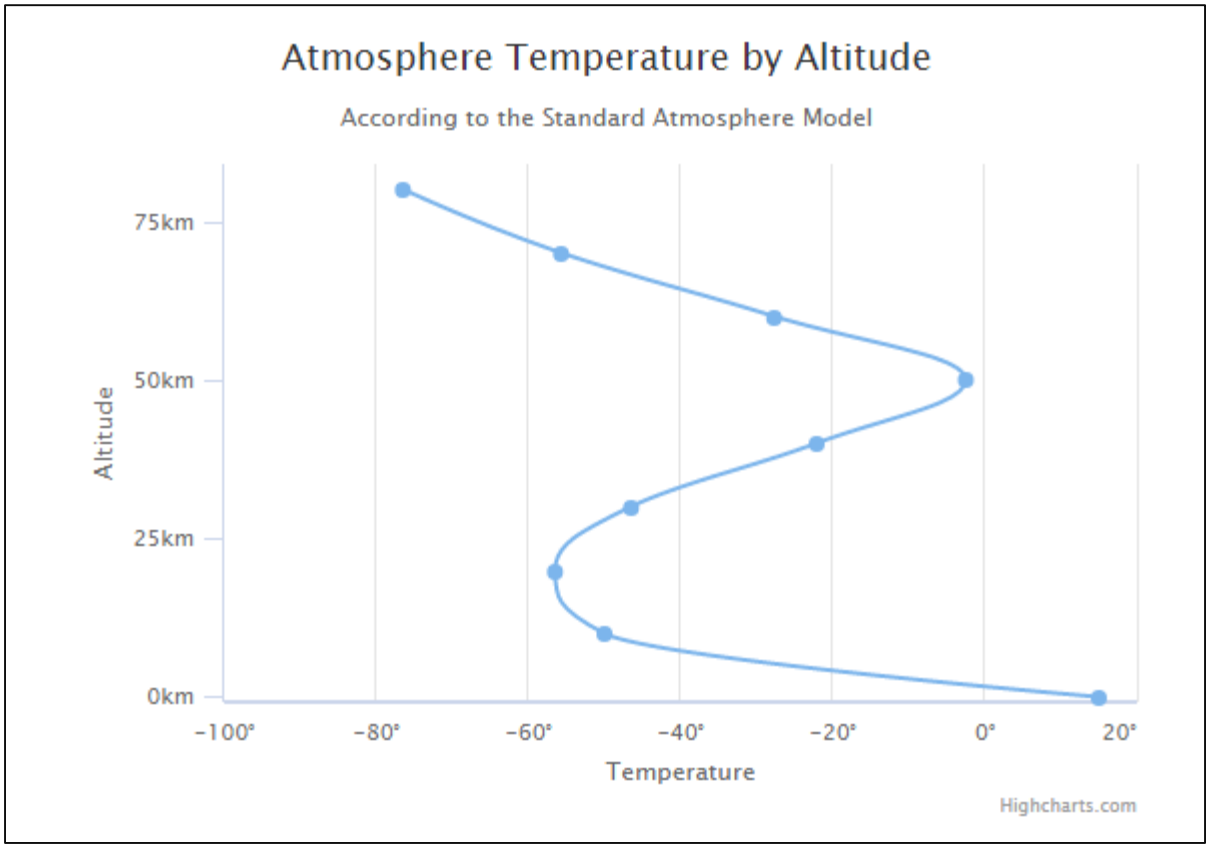
```
<html>
<head>
<title>Highcharts Tutorial</title>
   <script
src="https://ajax.googleapis.com/ajax/libs/jquery/2.1.3/jquery.min.js"></script>
   <script src="https://code.highcharts.com/highcharts.js"></script>
</head>
<body>
<div id="container" style="width: 550px; height: 400px; margin: 0 auto"></div>
<script language="JavaScript">
$(document).ready(function() {
   var chart = {
      type: 'spline',
      inverted: true
   };
   var title = {
      text: 'Atmosphere Temperature by Altitude'
   };
   var subtitle = {
      text: 'According to the Standard Atmosphere Model'
   };
   var xAxis = {
```

```
      reversed: false,
      title: {
         enabled: true,
         text: 'Altitude'
      },
      labels: {
         formatter: function () {
            return this.value + 'km';
         }
      },
      maxPadding: 0.05,
      showLastLabel: true
   };
   var yAxis = {
      title: {
         text: 'Temperature'
      },
      labels: {
         formatter: function () {
            return this.value + '\xB0';
         }
      },
      lineWidth: 2
   };
   var legend = {
      enabled: false
   };
   var tooltip = {
      headerFormat: '<b>{series.name}</b><br/>',
      pointFormat: '{point.x} km: {point.y}\xB0C'
   };
   var plotOptions = {
      spline: {
         marker: {
            enable: false
```

```
         }
      }
   };
   var series= [{
      name: 'Temperature',
      data: [[0, 15], [10, -50], [20, -56.5], [30, -46.5], [40, -22.1],
            [50, -2.5], [60, -27.7], [70, -55.7], [80, -76.5]]
   }];

   var json = {};
   json.chart = chart;
   json.title = title;
   json.subtitle = subtitle;
   json.legend = legend;
   json.tooltip = tooltip;
   json.xAxis = xAxis;
   json.yAxis = yAxis;
   json.series = series;
   json.plotOptions = plotOptions;
   $('#container').highcharts(json);

});
</script>
</body>
</html>
```

Result

Verify the result.



Highcharts – Spline Chart with Symbols

We have already seen the configuration used to draw a chart in Highcharts Configuration Syntax chapter. Now, we will discuss an example of a spline chart with symbols. We will also understand the additional configurations/steps taken.

Configurations

Add symbols to a series of a chart using the **marker.symbol** property. It can be a preconfigured symbol like 'square', 'diamond' or a url to an image. Marker can be added at any point in the data of series as well.

series

```
var series= [{
      name: 'Tokyo',
      marker: {
         symbol: 'square'
      },
      data: [7.0, 6.9, 9.5, 14.5, 18.2, 21.5, 25.2, {
```

```
         y: 26.5,
         marker: {
            symbol: 'url(http://www.highcharts.com/demo/gfx/sun.png)'
         }
      }, 23.3, 18.3, 13.9, 9.6]
   }, {
      name: 'London',
      marker: {
         symbol: 'diamond'
      },
      data: [{
         y: 3.9,
         marker: {
            symbol: 'url(http://www.highcharts.com/demo/gfx/snow.png)'
         }
      }, 4.2, 5.7, 8.5, 11.9, 15.2, 17.0, 16.6, 14.2, 10.3, 6.6, 4.8]
   }
];
```

Example

highcharts_spline_symbols.htm

```
<html>
<head>
<title>Highcharts Tutorial</title>
   <script
src=“https://ajax.googleapis.com/ajax/libs/jquery/2.1.3/jquery.min.js”></script>
   <script src="https://code.highcharts.com/highcharts.js"></script>
</head>
<body>
<div id="container" style="width: 550px; height: 400px; margin: 0 auto"></div>
<script language="JavaScript">
$(document).ready(function() {
```

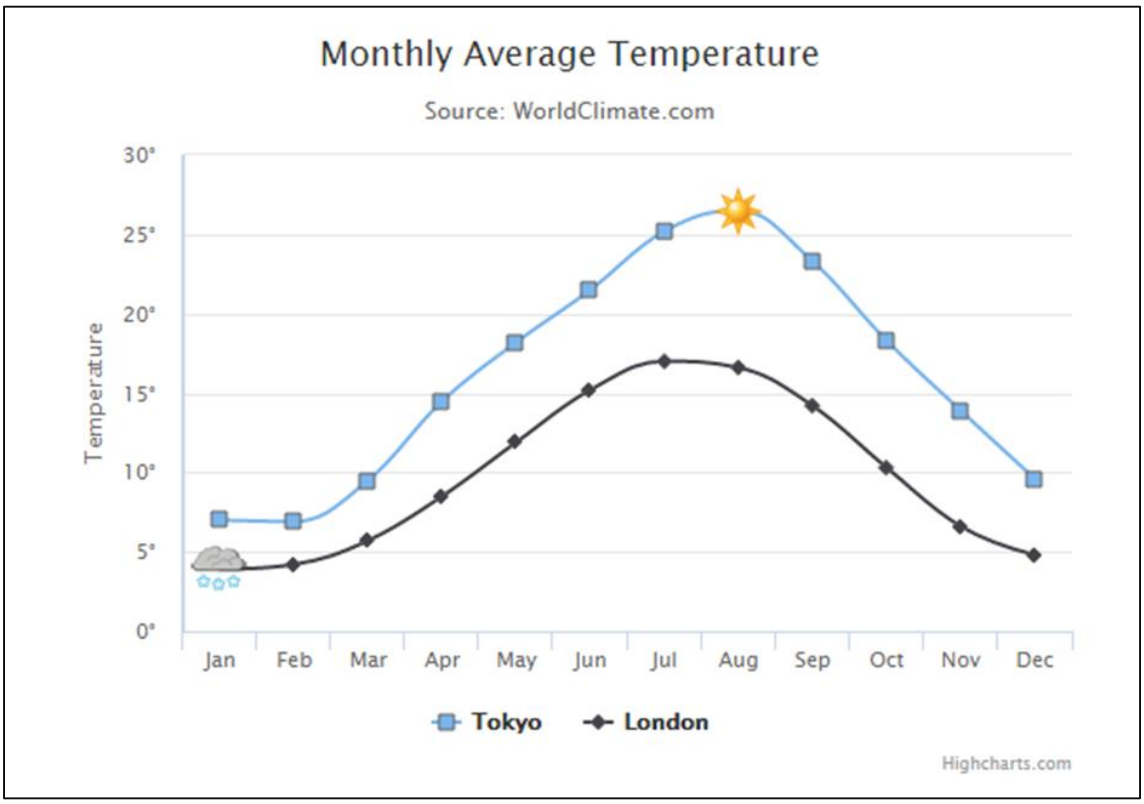
```
var chart = {
   type: 'spline'
};
var title = {
   text: 'Monthly Average Temperature'
};
var subtitle = {
   text: 'Source: WorldClimate.com'
};
var xAxis = {
   categories: ['Jan', 'Feb', 'Mar', 'Apr', 'May', 'Jun',
      'Jul', 'Aug', 'Sep', 'Oct', 'Nov', 'Dec']
};
var yAxis = {
   title: {
      text: 'Temperature'
   },
   labels: {
      formatter: function () {
         return this.value + '\xB0';
      }
   },
   lineWidth: 2
};
var tooltip = {
   crosshairs: true,
   shared: true
};
var plotOptions = {
   spline: {
      marker: {
         radius: 4,
         lineColor: '#666666',
         lineWidth: 1
      }
```

```
      }
   };
   var series= [{
         name: 'Tokyo',
         marker: {
            symbol: 'square'
         },
         data: [7.0, 6.9, 9.5, 14.5, 18.2, 21.5, 25.2, {
            y: 26.5,
            marker: {
               symbol: 'url(http://www.highcharts.com/demo/gfx/sun.png)'
            }
         }, 23.3, 18.3, 13.9, 9.6]
      }, {
         name: 'London',
         marker: {
            symbol: 'diamond'
         },
         data: [{
            y: 3.9,
            marker: {
               symbol: 'url(http://www.highcharts.com/demo/gfx/snow.png)'
            }
         }, 4.2, 5.7, 8.5, 11.9, 15.2, 17.0, 16.6, 14.2, 10.3, 6.6, 4.8]
      }
   ];
   var json = {};
   json.chart = chart;
   json.title = title;
   json.subtitle = subtitle;
   json.tooltip = tooltip;
   json.xAxis = xAxis;
   json.yAxis = yAxis;
   json.series = series;
   json.plotOptions = plotOptions;
```

```
   $('#container').highcharts(json);
});
</script>
</body>
</html>
```

Result

Verify the result.



Highcharts – Spline Chart with Plot Bands

We have seen most of the configuration used to draw a chart in Highcharts Configuration Syntax chapter. Now, let us understand an example of a spline chart with plot bands where additional configurations/steps are taken.

Configurations

Configure the bands using the yAxis.plotBands property. Set the band range using the 'from' and 'to' property. Set the color of band using the 'color' property. Style the label of band using the 'label' property.

yAxis

```
var yAxis = {
   title: {
      text: 'Wind speed (m/s)'
   },
   min: 0,
   minorGridLineWidth: 0,
   gridLineWidth: 0,
   alternateGridColor: null,
   plotBands: [{ // Light air
      from: 0.3,
      to: 1.5,
      color: 'rgba(68, 170, 213, 0.1)',
      label: {
         text: 'Light air',
         style: {
            color: '#606060'
         }
      }
   }, { // Light breeze
      from: 1.5,
      to: 3.3,
      color: 'rgba(0, 0, 0, 0)',
      label: {
         text: 'Light breeze',
         style: {
            color: '#606060'
         }
      }
   }, { // Gentle breeze
      from: 3.3,
      to: 5.5,
      color: 'rgba(68, 170, 213, 0.1)',
      label: {
```

```
         text: 'Gentle breeze',
         style: {
            color: '#606060'
         }
      }
   }, { // Moderate breeze
      from: 5.5,
      to: 8,
      color: 'rgba(0, 0, 0, 0)',
      label: {
         text: 'Moderate breeze',
         style: {
            color: '#606060'
         }
      }
   }, { // Fresh breeze
      from: 8,
      to: 11,
      color: 'rgba(68, 170, 213, 0.1)',
      label: {
         text: 'Fresh breeze',
         style: {
            color: '#606060'
         }
      }
   }, { // Strong breeze
      from: 11,
      to: 14,
      color: 'rgba(0, 0, 0, 0)',
      label: {
         text: 'Strong breeze',
         style: {
            color: '#606060'
         }
      }
```

```
   }, { // High wind
      from: 14,
      to: 15,
      color: 'rgba(68, 170, 213, 0.1)',
      label: {
         text: 'High wind',
         style: {
            color: '#606060'
         }
      }
   }]
};
```

Example

highcharts_spline_bands.htm

```
<html>
<head>
<title>Highcharts Tutorial</title>
   <script
src="https://ajax.googleapis.com/ajax/libs/jquery/2.1.3/jquery.min.js"></script>
   <script src="https://code.highcharts.com/highcharts.js"></script>
</head>
<body>
<div id="container" style="width: 550px; height: 400px; margin: 0 auto"></div>
<script language="JavaScript">
$(document).ready(function() {
   var chart = {
      type: 'spline'
   };
   var title = {
      text: 'Wind speed during two days'
   };
   var subtitle = {
      text: 'October 6th and 7th 2009 at two locations in Vik i Sogn, Norway'
```

```
};
var xAxis = {
   type: 'datetime',
   labels: {
      overflow: 'justify'
   }
};
var yAxis = {
   title: {
      text: 'Wind speed (m/s)'
   },
   min: 0,
   minorGridLineWidth: 0,
   gridLineWidth: 0,
   alternateGridColor: null,
   plotBands: [{ // Light air
      from: 0.3,
      to: 1.5,
      color: 'rgba(68, 170, 213, 0.1)',
      label: {
         text: 'Light air',
         style: {
            color: '#606060'
         }
      }
   }, { // Light breeze
      from: 1.5,
      to: 3.3,
      color: 'rgba(0, 0, 0, 0)',
      label: {
         text: 'Light breeze',
         style: {
            color: '#606060'
         }
      }
```

```
      }, { // Gentle breeze
         from: 3.3,
         to: 5.5,
         color: 'rgba(68, 170, 213, 0.1)',
         label: {
            text: 'Gentle breeze',
            style: {
               color: '#606060'
            }
         }
      }, { // Moderate breeze
         from: 5.5,
         to: 8,
         color: 'rgba(0, 0, 0, 0)',
         label: {
            text: 'Moderate breeze',
            style: {
               color: '#606060'
            }
         }
      }, { // Fresh breeze
         from: 8,
         to: 11,
         color: 'rgba(68, 170, 213, 0.1)',
         label: {
            text: 'Fresh breeze',
            style: {
               color: '#606060'
            }
         }
      }, { // Strong breeze
         from: 11,
         to: 14,
         color: 'rgba(0, 0, 0, 0)',
         label: {
```

```
            text: 'Strong breeze',
            style: {
               color: '#606060'
            }
         }
      }, { // High wind
         from: 14,
         to: 15,
         color: 'rgba(68, 170, 213, 0.1)',
         label: {
            text: 'High wind',
            style: {
               color: '#606060'
            }
         }
      }]
   };
   var tooltip = {
      valueSuffix: ' m/s'
   };
   var plotOptions = {
      spline: {
         lineWidth: 4,
         states: {
            hover: {
               lineWidth: 5
            }
         },
         marker: {
            enabled: false
         },
         pointInterval: 3600000, // one hour
         pointStart: Date.UTC(2009, 9, 6, 0, 0, 0)
      }
   };
```

```
var series= [{
      name: 'Vik i Sogn',
      data: [4.3, 5.1, 4.3, 5.2, 5.4, 4.7, 3.5, 4.1, 5.6, 7.4, 6.9, 7.1,
      7.9, 7.9, 7.5, 6.7, 7.7, 7.7, 7.4, 7.0, 7.1, 5.8, 5.9, 7.4,
      8.2, 8.5, 9.4, 8.1, 10.9, 10.4, 10.9, 12.4, 12.1, 9.5, 7.5,
      7.1, 7.5, 8.1, 6.8, 3.4, 2.1, 1.9, 2.8, 2.9, 1.3, 4.4, 4.2,
      3.0, 3.0]
   }, {
      name: 'Norway',
      data: [0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.1, 0.0, 0.3, 0.0,
      0.0, 0.4, 0.0, 0.1, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0, 0.0,
      0.0, 0.6, 1.2, 1.7, 0.7, 2.9, 4.1, 2.6, 3.7, 3.9, 1.7, 2.3,
      3.0, 3.3, 4.8, 5.0, 4.8, 5.0, 3.2, 2.0, 0.9, 0.4, 0.3, 0.5, 0.4]
}];
var navigation = {
   menuItemStyle: {
      fontSize: '10px'
   }
}
   var json = {};
json.chart = chart;
json.title = title;
json.subtitle = subtitle;
json.tooltip = tooltip;
json.xAxis = xAxis;
json.yAxis = yAxis;
json.series = series;
json.plotOptions = plotOptions;
json.navigation = navigation;
$('#container').highcharts(json);});
```

End of ebook preview

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