Angular Highcharts - Quick Guide

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Angular Highcharts - Overview

HighChart Angular Wrapper is a open source angular based component to provides an elegant and feature rich Highcharts visualizations within an Angular application and can be used along with Angular components seamlessly. There are chapters discussing all the basic components of Highcharts with suitable examples within a Angular application.

Features

Compatible – All modern browsers are supported along with iPhone/iPad browsers and Internet Explorer 6 onwards. Modern browsers use SVG for the graphics rendering and in legacy Internet Explorer graphics are drawn using VML.

Pure TypeScript – No JavaScript is required as complete Highcharts API is available in TypeScript.

No Flash – No requirement of client side plug-ins like Flash player or Java as Highcharts is uses native browser technologies and charts can run without modification on modern mobile devices.

Clean Syntax – Most of the methods are chain-able thus configuration options of the chart can be managed using syntax as tight as JSON.

Dynamic – Series and points can be added dynamically any time after chart creation. Event hooks supported. Server interactions are supported.

Documented – Highcharts APIs are thoroughly documented with numerous code and syntax examples.

Angular Highcharts - Environment Setup

This tutorial will guide you on how to prepare a development environment to start your work with Highcharts and Angular Framework. In this chapter, we will discuss the Environment Setup required for Angular 6. To install Angular 6, we require the following –

- Nodejs
- Npm
- Angular CLI
- IDE for writing your code

Nodejs has to be greater than 8.11 and npm has to be greater than 5.6.

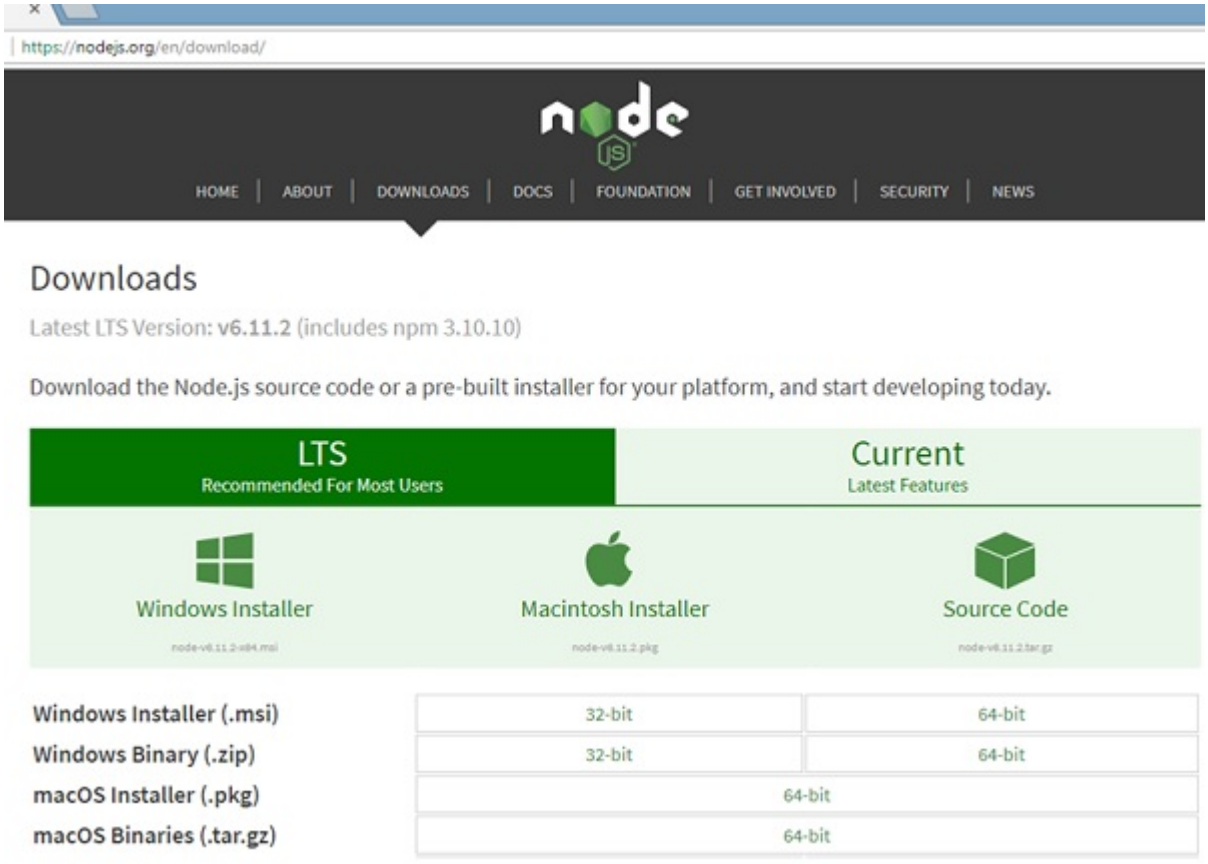
Nodejs

To check if nodejs is installed on your system, type **node -v** in the terminal. This will help you see the version of nodejs currently installed on your system.

```
C:\>node -v
v8.11.3
```

If it does not print anything, install nodejs on your system. To install nodejs, go the homepage https://nodejs.org/en/download/ of nodejs and install the package based on your OS.

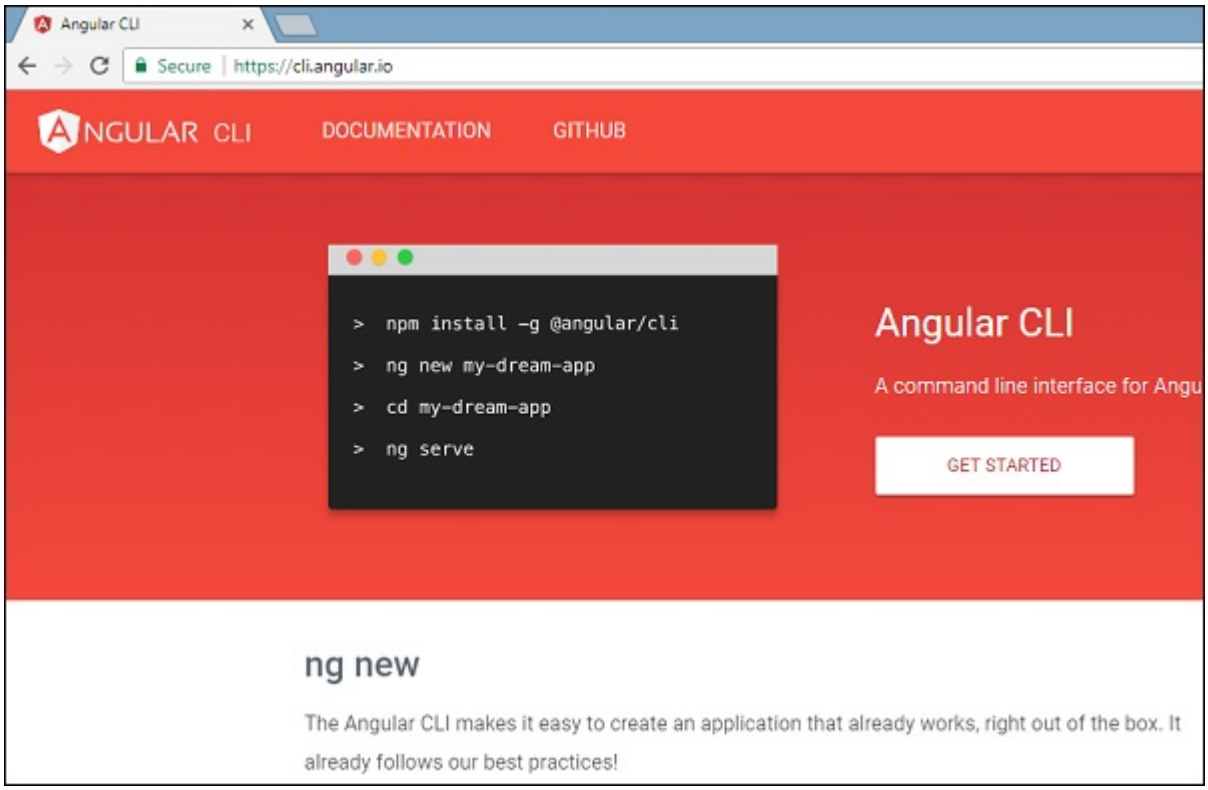
The homepage of nodejs will look like the following –



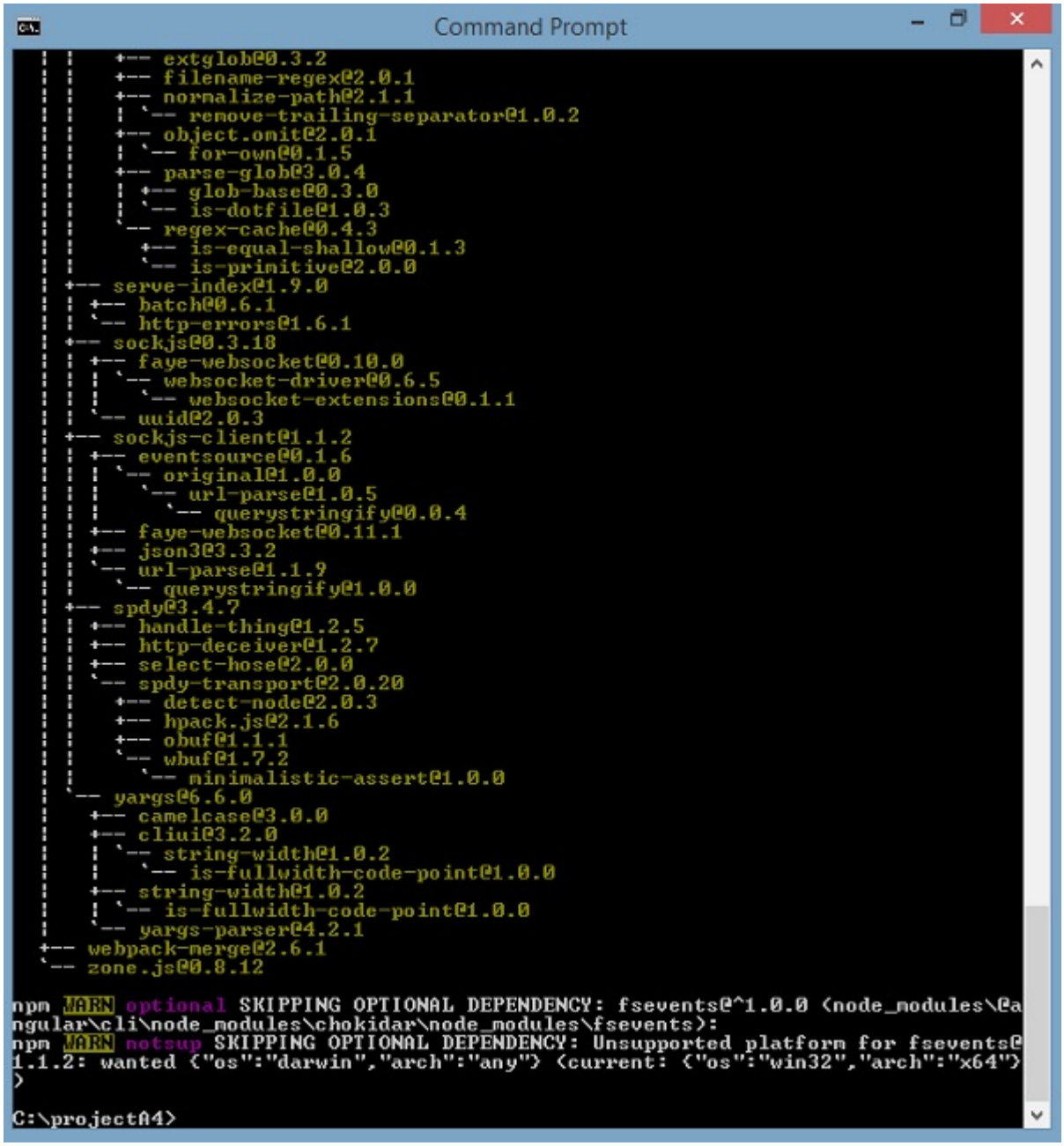
Based on your OS, install the required package. Once nodejs is installed, npm will also get installed along with it. To check if npm is installed or not, type npm -v in the terminal. It should display the version of the npm.

```
C:\>npm -v
5.6.0
```

Angular 6 installations are very simple with the help of angular CLI. Visit the homepage https://cli.angular.io/ of angular to get the reference of the command.



Type **npm install -g @angular/cli**, to install angular cli on your system.



You will get the above installation in your terminal, once Angular CLI is installed. You can use any IDE of your choice, i.e., WebStorm, Atom, Visual Studio Code, etc.

Install Highcharts

Run the following command to install highchart module in the project created.

```
highchartsApp>npm install highcharts --save
+ highcharts@6.2.0
added 1 package in 137.534s
```

Run the following command to install highchart wrapper module in the project created.

```
highchartsApp>npm install highcharts-angular --save
+ highcharts-angular@2.3.1
added 1 package in 20.93s
```

Add the following entry in highchartsApp.module.ts file

```
import { HighchartsChartComponent } from 'highcharts-angular';
declarations: [
   ...
   HighchartsChartComponent
],
```

Angular Highcharts - Configuration Syntax

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

Step 1 - Create Angular Application

Follow the following steps to update the Angular application we created in *Angular 6 - Project Setup* chapter –

Step	Description
1	Create a project with a name *highchartsApp* as explained in the *Angular 6 - Project Setup* chapter.
2	Modify *app.module.ts*, *app.component.ts* and *app.component.html* as explained below. Keep rest of the files unchanged.
3	Compile and run the application to verify the result of the implemented logic.

Following is the content of the modified module descriptor **app.module.ts**.

```
import { BrowserModule } from '@angular/platform-browser';
import { NgModule } from '@angular/core';
import { AppComponent } from './app.component';
import { HighchartsChartComponent } from 'highcharts-angular';
@NgModule({
   declarations: [
      AppComponent,
      HighchartsChartComponent
   ],
   imports: [
      BrowserModule,
   ],
   providers: [],
   bootstrap: [AppComponent]
})
export class AppModule { }
```

Following is the content of the modified HTML host file **app.component.html**.

```
<highcharts-chart>
   [Highcharts] = "highcharts"
   [options] = "chartOptions"
```

```
   style = "width: 100%; height: 400px; display: block;"
</highcharts-chart>
```

We'll see the updated app.component.ts in the end after understanding configurations.

Step 2 – Use Configurations

Create Highcharts and create chartOptions

```
highcharts = Highcharts;
chartOptions = {
}
```

Create Chart

Configure the type, title and sub-title of the chart using chartOptions.

```
chart: {
   type: "spline"
},
```

xAxis

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

```
xAxis:{
   categories:["Jan", "Feb", "Mar", "Apr", "May", "Jun", "Jul", "Aug", "Sep", "Oct", "Nov", "Dec"
},
```

yAxis

Configure the title to be displayed on the Y-Axis using chartOptions.

```
yAxis: {
   title:{
      text:"Temperature °C"
   }
},
```

tooltip

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

```
tooltip: {
   valueSuffix:" °C"
},
```

series

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

```
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]
   }
]
```

Example

Consider the following example to further understand the Configuration Syntax –

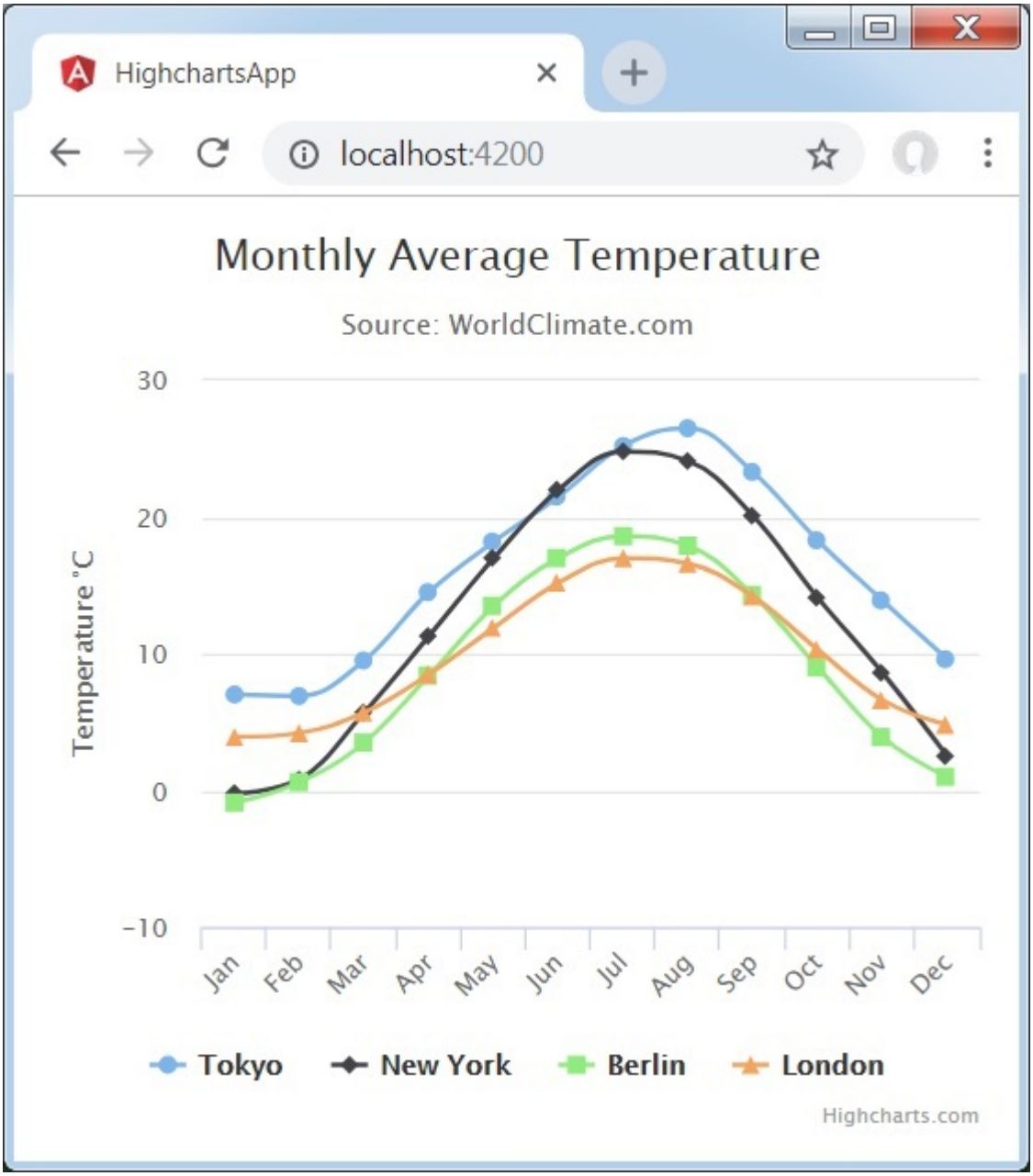
app.component.ts

```
import { Component } from '@angular/core';
import * as Highcharts from 'highcharts';
@Component({
   selector: 'app-root',
   templateUrl: './app.component.html',
   styleUrls: ['./app.component.css']
})
export class AppComponent {
   highcharts = Highcharts;
   chartOptions = {
      chart: {
         type: "spline"
      },
      title: {
         text: "Monthly Average Temperature"
      },
      subtitle: {
         text: "Source: WorldClimate.com"
      },
      xAxis:{
         categories:["Jan", "Feb", "Mar", "Apr", "May", "Jun",
            "Jul", "Aug", "Sep", "Oct", "Nov", "Dec"]
      },
      yAxis: {
         title:{
            text:"Temperature °C"
         }
      },
      tooltip: {
         valueSuffix:" °C"
```

```
      },
      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]
         }
      ]
   };
}
```

Result

Verify the result.



Angular 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.

Sr.No	Chart Type & Description
1	**Basic line** Basic line chart.
2	**With data labels** Chart with data labels.
3	**Time series, zoomable** Chart with time series.

4	**Spline with inverted axes** Spline chart having inverted axes.
5	**Spline with symbols** Spline chart using symbols for heat/rain.
6	**Spline with plot bands** Spline chart with plot bands.

Angular Highcharts - Area Charts

Area charts are used to draw area based charts. In this section, we will discuss the different types of area based charts.

Sr.No.	Chart Type & Description
1	**Basic Area** Basic area chart.
2	**Area with negative values** Area chart having negative values.
3	**Stacked area** Chart having areas stacked over one another.
4	**Percentage area** Chart with data in percentage terms.
5	**Area with missing points** Chart with missing points in the data.
6	**Inverted axes** Area using inverted axes.
7	**Area-spline** Area chart using spline.

Angular Highcharts - Bar Charts

Bar charts are used to draw bar based charts. In this section, we will discuss the different types of bar based charts.

Sr.No.	Chart Type & Description
1	**Basic Bar** Basic bar chart.
2	**Stacked Bar** Bar chart having bar stacked over one another.
3	**Bar Chart with negative values** Bar Chart with negative values.

Angular Highcharts - Column Charts

Column charts are used to draw column based charts. In this section, we will discuss the different types of column based charts.

Sr.No.	Chart Type & Description
1	**Basic Column** Basic column chart.
2	**Column with negative values** Column chart having negative values.
3	**Stacked column** Chart having column stacked over one another.
4	**Stacked and Grouped column** Chart with column in stacked and grouped form.
5	**Column with stacked percentage** Chart with stacked percentage.
6	**Column with rotated labels** Column Chart with rotated labels in columns.
7	**Column Range** Column Chart using ranges.

Angular Highcharts - Pie Charts

GWP Highcharts - Pie Charts

Pie charts are used to draw pie based charts. In this section, we will discuss the different types of pie based charts.

Sr.No.	Chart Type & Description
1	**Basic Pie** Basic pie chart.
2	**Pie with Legends** Pie chart with Legends.
3	**Donut Chart** Donut Chart.

Angular Highcharts - Scatter Charts

Following is an example of a basic scatter chart.

We have already seen the configuration used to draw a chart in Highcharts Configuration Syntax chapter.

An example of a basic scatter chart is given below.

Configurations

Let us now see the additional configurations/steps taken.

series

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

```
var chart = {
   type: 'scatter',
   zoomType: 'xy'
};
```

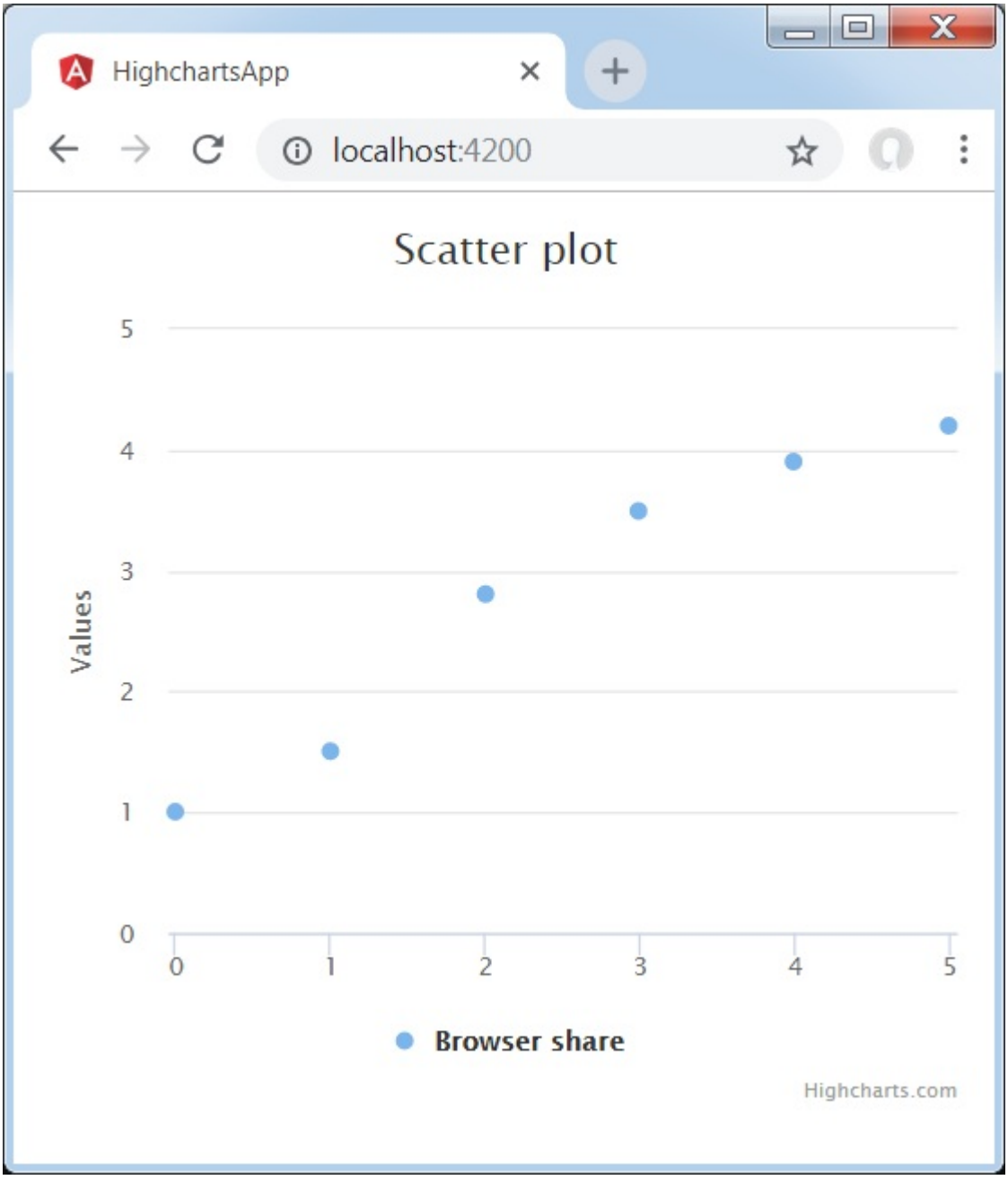
Example

app.component.ts

```
import { Component } from '@angular/core';
import * as Highcharts from 'highcharts';
@Component({
  selector: 'app-root',
  templateUrl: './app.component.html',
  styleUrls: ['./app.component.css']
})
export class AppComponent {
   highcharts = Highcharts;
   chartOptions = {
      title : {
         text: 'Scatter plot'
      },
      series : [{
         type: 'scatter',
         zoomType:'xy',
         name: 'Browser share',
         data: [ 1, 1.5, 2.8, 3.5, 3.9, 4.2 ]
      }]
   };
}
```

Result

Verify the result.



Angular Highcharts - Dynamic Charts

Dynamic charts are used to draw data based charts where data can change after rendering of chart. In this section, we will discuss the different types of dynamic chart.

Sr.No.	Chart Type & Description
1	**Spline updating each second** Spline Chart updating each second.
2	**Click to add a point** Chart with point addition capability.

Angular Highcharts - Combinations

Combination charts are used to draw mixed charts; for example, bar chart with pie chart. In this section, we will discuss the different types of combinations charts.

Sr.No.	Chart Type & Description
1	**Column, Line and Pie** Chart with Column, Line and Pie.
2	**Dual Axes, Line and Column** Chart with Dual Axes, Line and Column.
3	**Multiple Axes** Chart having Multiple Axes.
4	**Scatter with regression line** Scatter chart with regression line.

Angular Highcharts - 3D Charts

3D charts are used to draw 3-dimensional charts. In this section, we will discuss the different types of 3D charts.

Sr.No.	Chart Type & Description
1	**3D Column** 3D Column Chart.
2	**3D Scatter** 3D Scatter Chart.
3	**3D Pie** 3D Pie Chart.

Angular Highcharts - Map Charts

Map charts are used to draw heat map or Tree map charts. In this section, we will discuss the different types of Map charts.

Sr.No.	Chart Type & Description
1	**Heat Map**

	Heat Map.
2	**Tree Map** Tree Map.

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