o2-chart-lib Chart Library for Angular5 by TypeScript2

o2-chart-lib is a chart library using d3.js (version 4) for Angular5 written by TypeScript2.

Demo Page,
https://github.com/Ohtsu/o2-chart-lib-consumer

Sample Program for setting config data,
https://github.com/ohtsu/o2-chart/

Overview

- *o2-chart-lib* is a wrapper library of d3.js (version 4) for Angular5
- 12 main charts are supported

```
(Line,Bar,Pie,ScatterPlot,Histogram,Stack Bar, Geo Map, Geo Orthographic, Tree,
```

- Axis

```
You can include axis automatically by the configuration file.
```

- Legend

```
You can include legend automatically by the configuration file.
```

- Animation

```
You can animate such charts as Bar, Pie, Histogram, Stack Bar,Geo Orthographic
```

Prerequisite

- node.js
- Typescript2
- Angular5

Installation

To install this library, run:

```
$ npm install d3@4.3.0 --save
$ npm install o2-chart-lib --save
```

Version

- o2-chart-lib : 1.0
- Angular5 : 5.2.0
- TypeScript : 2.5.3
- d3.js : 4.3.0

Reference

- "Angular5 Custom Library: The definitive, step-by-step guide", https://www.udemy.com/draft/1461368/learn/v4/content

- "Angular5用 カスタムライブラリの作成", https://www.udemy.com/draft/1450138/learn/v4/content

- "データビジュアライゼーションのためのD3.js徹底入門 Webで魅せるグラフ&チャートの作り方",2014/6/6,by 古籏 一浩, http://www.amazon.co.jp/s/ref=nb_sb_noss?__mk_ja_JP=%E3%82%AB%E3%82%BF%E3%82%AB%E3%83%8A&url=search-alias%3Daps&field-keywords=ISBN978-4-7973-6886-4&rh=i%3Aaps%2Ck%3AISBN978-4-7973-6886-4

- "D3.js by Example",2015/12/29,by Michael Heydt http://www.amazon.co.jp/s/ref=nb_sb_noss?__mk_ja_JP=%E3%82%AB%E3%82%BF%E3%82%AB%E3%83%8A&url=search-alias%3Daps&field-keywords=ISBN978-1-78528-008-5&rh=i%3Aaps%2Ck%3AISBN978-1-78528-008-5

- "Mastering D3.js",2014/8/25,by Pablo Navarro, http://www.amazon.co.jp/s/ref=nb_sb_noss?__mk_ja_JP=%E3%82%AB%E3%82%BF%E3%82%AB%E3%83%8A&url=search-alias%3Daps&field-keywords=ISBN978-1-78328-627-0&rh=i%3Aaps%2Ck%3AISBN978-1-78328-627-0

- "Data Visualization With D3 and Angularjs",2015/4/27,by Christoph Korner, http://www.amazon.co.jp/s/ref=nb_sb_noss?__mk_ja_JP=%E3%82%AB%E3%82%BF%E3%82%AB%E3%83%8A&url=search-alias%3Daps&field-keywords=ISBN978-1-78439-848-4&rh=i%3Aaps%2Ck%3AISBN978-1-78439-848-4

- "Mastering TypeScript",2015/4/23,by Nathan Rozentals, http://www.amazon.co.jp/s/ref=nb_sb_noss?__mk_ja_JP=%E3%82%AB%E3%82%BF%E3%82%AB%E3%83%8A&url=search-alias%3Daps&field-keywords=ISBN978-1-78439-966-5&rh=i%3Aaps%2Ck%3AISBN978-1-78439-966-5

- "D3 Tips and Tricks v4.x",by Malcolm Maclean,Leanpub, https://leanpub.com/d3-t-and-t-v4/read

Change Log

- 2016.12.5 version 0.1 uploaded
- 2018.3.5 version 1.0 uploaded

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Step by Step Intallation for Angular-CLI

Video,
https://youtu.be/

Install @angular/cli

```
$ npm install -g @angular/cli
```

Create New Project

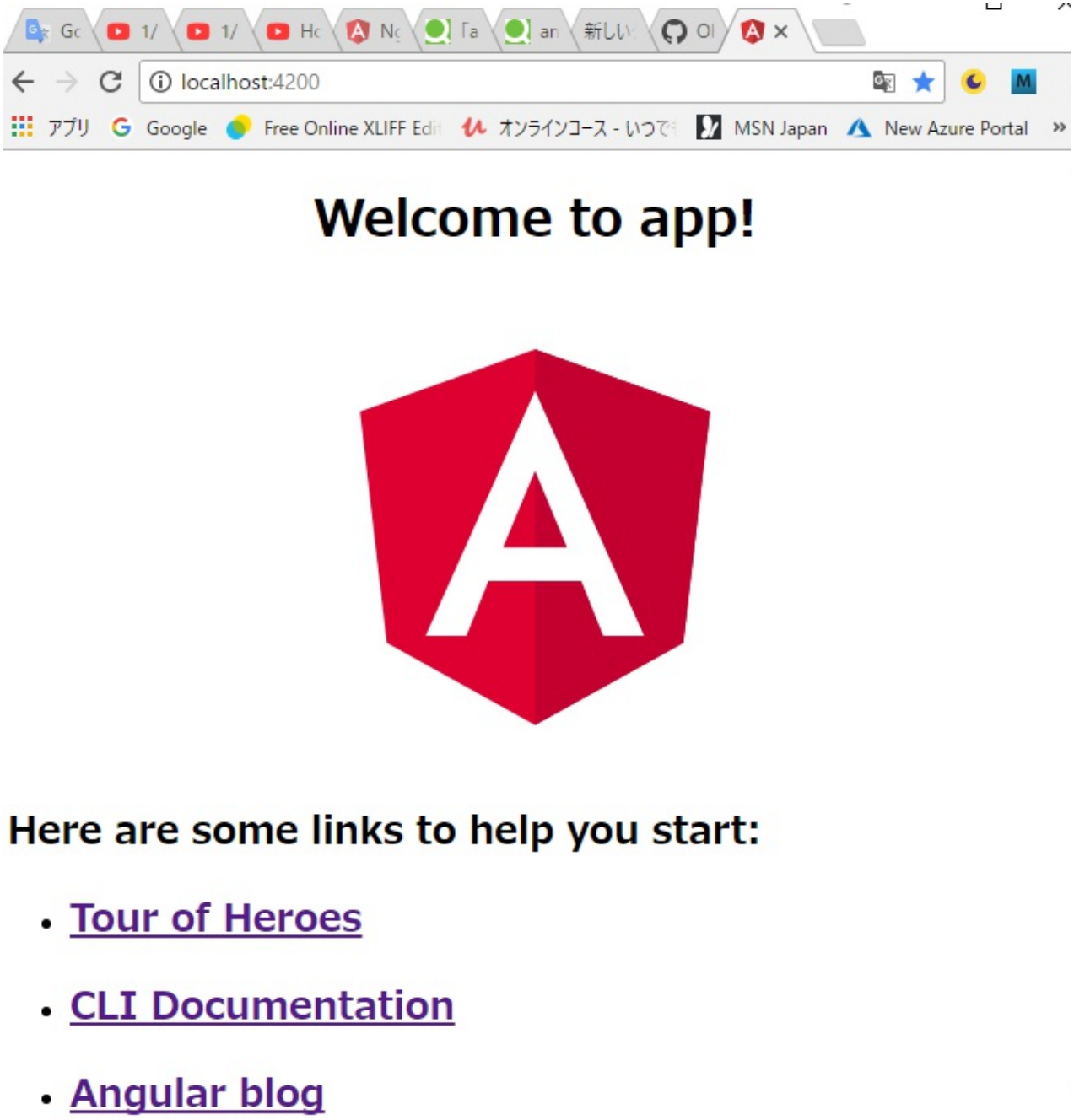
```
$ ng new sample-chart (Your project name)
$ cd sample-chart
```

Check Your Program

If you start local server as follows, you can get the first page in your browser by accessing **http://localhost:4200**.

```
$ ng serve
```

- ***First Page***



Stop Local Server

Input **Ctrl+C** and **y+Return** to stop the local server.

Install o2-chart-lib

```
$ npm install d3@4.3.0 --save
$ npm install o2-chart-lib --save
```

Modify app.module.ts

```
$ cd src/app
```

Change directory to "src/app", you will find **app.module.ts**.

Modify this file as follows.

```
import { BrowserModule } from '@angular/platform-browser';
import { NgModule } from '@angular/core';



import { AppComponent } from './app.component';
import { O2ChartComponent,ChartConst } from 'o2-chart-lib'; // <= Add


@NgModule({
  declarations: [
    O2ChartComponent,  // <= Add
    AppComponent
  ],
  imports: [
    BrowserModule,
    FormsModule,
    HttpModule
  ],
  providers: [ChartConst], // <= Add
  bootstrap: [AppComponent]
})
export class AppModule { }
```

Modify app.component.ts

In the same directory, modify **app.component.ts** as follows.

```
import { Component } from '@angular/core';
import { ChartConst } from 'O2-chart-lib'; // <= Add

@Component({
  selector: 'app-root',
  templateUrl: './app.component.html',
  styleUrls: ['./app.component.css']
})
export class AppComponent {
  title = 'app works!';

  // Add Start ------------------------------------------
  chartType:string;
  configData:any;
  barDataJson:any;

  geoMapDataJson:any;
  geoOrthographicDataJson:any;
  choroplethDataJson:any;
  scatterPlotDataJson:any;
  lineDataJson:any;
  histogramDataJson:any;
  pieDataJson:any;
  packLayoutDataJson:any;
  treeMapDataJson:any;
  stackBarDataJson:any;
  treeDataJson:any;
  forceDataJson:any;
  DataSetJson:string;
```

```
lineTypeName:string;
barTypeName:string;
pieTypeName:string;
scatterPlotTypeName:string;
histogramTypeName:string;
stackBarTypeName:string;
geoMapTypeName:string;
geoOrthographicTypeName:string;
treeMapTypeName:string;
packLayoutTypeName:string;
choroplethTypeName:string;
treeTypeName:string;
forceTypeName:string;


constructor(private chartConst: ChartConst) {
  this.barTypeName       = this.chartConst.LINE_CHART_TYPE_NAME;
  this.lineTypeName       = this.chartConst.LINE_CHART_TYPE_NAME;
  this.barTypeName        = this.chartConst.BAR_CHART_TYPE_NAME;
  this.pieTypeName        = this.chartConst.PIE_CHART_TYPE_NAME;
  this.scatterPlotTypeName    = this.chartConst.SCATTER_PLOT_CHART_TYPE_NAME;
  this.histogramTypeName     = this.chartConst.HISTOGRAM_CHART_TYPE_NAME;
  this.stackBarTypeName     = this.chartConst.STACK_BAR_CHART_TYPE_NAME;
  this.geoMapTypeName     = this.chartConst.GEO_MAP_CHART_TYPE_NAME;
  this.geoOrthographicTypeName= this.chartConst.GEO_ORTHOGRAPHIC_CHART_TYPE_N
  this.treeMapTypeName     = this.chartConst.TREE_MAP_CHART_TYPE_NAME;
  this.packLayoutTypeName     = this.chartConst.PACK_LAYOUT_CHART_TYPE_NAME;
  this.choroplethTypeName     = this.chartConst.CHOROPLETH_CHART_TYPE_NAME;
  this.treeTypeName       = this.chartConst.TREE_CHART_TYPE_NAME;
  this.forceTypeName      = this.chartConst.FORCE_CHART_TYPE_NAME;

  this.initilizeData();
}

private initilizeData() {
  // this.configData = this.httpClient.get('assets/json/ConfigData.json');
  this.configData = {
    "className": {
      "axis": "axis",
      "axisXBorder": "axis_x",
      "axisXText": "axis-x-text",
      "bar": "bar",
      "barValue": "bar-value",
      "line": "line",
      "multiLinePrefix": "line-",
      "grid": "grid",
      "pie": "pie",
      "pieInnerTitle": "pie-inner-title",
      "pieInnerRadius": "total",
      "histogram": "histogram",
      "histogramBar": "histogram-bar",
      "treemap": "treemap",
      "treemapLabel": "treemap-label",
      "packlayout": "packlayout",
      "packlayoutLabel": "packlayout-label",
    },
    "label": {
        "display": true,
    },
```

```
"title": {
  "display": true,
  "name": "Title",
  "className": "chart-title",
  "height": 30,
  "leftMargin": -20,
  "bottomMargin": 10
},
"maxValue": {
  "auto": true,
  "x": 100,
  "y": 100,
},
"legend": {
  "display": true,
  "position":           "right",
  "totalWidth": 80,
  "initXPos": 5,
  "initYPos": 10,
  "rectWidth": 10,
  "rectHeight": 10,
  "xSpacing": 2,
  "ySpacing": 2
},
"color": {
  "auto": true, //
  "defaultColorNumber": 10,
  "opacity": 1.0,
  "userColors": [
    "blue",
    "red",
    "green",
    "yellow",
    "PaleGoldenrod",
    "Khaki",
    "DarkKhaki",
    "Gold",
    "Cornsilk",
    "BlanchedAlmond",
    "Bisque",
    "NavajoWhite",
    "Wheat",
    "BurlyWood",
    "Tan",
    "RosyBrown",
    "SandyBrown",
    "Goldenrod",
    "DarkGoldenrod",
    "Peru",
    "Chocolate"
  ],
  "focusColor": "red",
},
"pie": {
  "innerRadius": {
    "percent": 20,
    "title": "Total"
  },
  "value": {
    "display": true,
```

```
    },
    "percent":{
      "display": false,
    }
  },
  "line": {
    "legend": "lineEnd",
    "interpolate" : "linear",
  },
  "grid": {
    "x": {
      "display": true,
    },
    "y":{
      "display": true,
    },
  },
  "margin": {
    "top": 30,
    "left": 30,
    "right": 10,
    "bottom": 20,
    "between": 5
  },
  "axis": {
    "rotation": 0,
    "borderLineWidth": 1,
    "xLabel": {
      "leftMargin": 0,
      "bottomMargin": 5
    },
    "yLabel":{
      "leftMargin": 0,
      "bottomMargin": 0
    },
  },
  "animation":{
    "enable":true,
    "duration":4000,
  },
};

this.barDataJson =
{
  "series":[
    "English",
    "Math"
  ],
  "data":[
    {
      "x": "suzuki",
      "y": [92,73],
    },
    {
      "x": "inoue",
      "y": [69,45],
    },
    {
      "x": "sato",
      "y": [70,100],
```

```
    },
    {
      "x": "tanaka",
      "y": [43,66],
    },
    {
      "x": "ida",
      "y": [60,70],
    },
    {
      "x": "kato",
      "y": [55,63],
    },
  ],
};

this.lineDataJson = {
  "series":[
    "year",
    "sell",
  ],
  "data":[
    {
      "name": "software",
      "value":[
        {
          "x":"2010",
          "y":18
        },
        {
          "x":"2011",
          "y":22
        },
        {
          "x":"2012",
          "y":30
        },
        {
          "x":"2013",
          "y":31
        },
      ]
    },
    {
      "name": "hardware",
      "value":[
        {
          "x":"2010",
          "y":15
        },
        {
          "x":"2011",
          "y":16
        },
        {
          "x":"2012",
          "y":10
        },
        {
          "x":"2013",
```

```
          "y":21
        },
      ]
    },
    {
      "name": "device",
      "value":[
        {
          "x":"2010",
          "y":25
        },
        {
          "x":"2011",
          "y":26
        },
        {
          "x":"2012",
          "y":30
        },
        {
          "x":"2013",
          "y":31
        },
      ]
    },
    {
      "name": "others",
      "value":[
        {
          "x":"2010",
          "y":100
        },
        {
          "x":"2011",
          "y":16
        },
        {
          "x":"2012",
          "y":20
        },
        {
          "x":"2013",
          "y":41
        },
      ]
    },
  ],
};


this.geoOrthographicDataJson =
{
"map":{
      "baseGeoDataUrl": "https://raw.githubusercontent.com/Ohtsu/data/maste
      "keyDataName":"features",
      "targetPropertyName":"properties.name",
      "scale":160,
      "colorNumber":10,
      "rotate":{
        "horizontal":210,
```

```
        "vertical":5
      },
      "clipAngle":90,
      "oceanColor":"navy",
      "antarcticaColor":"white",
    },
    "data":[
    {
      "name":"Australia",
      "color":"red"
    },
    {
      "name":"Antarctica",
      "color":"white"
    },
    {
      "name":"Japan",
      "color":"teal"
    },
    ]
}

this.geoMapDataJson =
{
    "map":{
      "baseGeoDataUrl":"https://raw.githubusercontent.com/Ohtsu/data/master
      "scale":75,
      "keyDataName":"features",
      "targetPropertyName":"properties.name",
    },
    "data":[
    {
      "name":"Australia",
      "color":"red"
    },
    {
      "name":"Antarctica",
      "color":"white"
    },
    {
      "name":"Japan",
      "color":"blue"
    },
    ],
};


this.stackBarDataJson =
{
    "config":{
    "timeFormat":"%Y",
    },
    "series":[
    "year",
    "sell",
    ],
    "data":[
    {
      "name": "software",
      "value":[
```

```
      {
        "x":"2010",
        "y":18
      },
      {
        "x":"2011",
        "y":22
      },
      {
        "x":"2012",
        "y":30
      },
      {
        "x":"2013",
        "y":31
      },
    ]
  },
  {
    "name": "hardware",
    "value":[
      {
        "x":"2010",
        "y":15
      },
      {
        "x":"2011",
        "y":16
      },
      {
        "x":"2012",
        "y":10
      },
      {
        "x":"2013",
        "y":21
      },
    ]
  },
  {
    "name": "device",
    "value":[
      {
        "x":"2010",
        "y":25
      },
      {
        "x":"2011",
        "y":26
      },
      {
        "x":"2012",
        "y":30
      },
      {
        "x":"2013",
        "y":31
      },
    ]
  },
```

```
    {
      "name": "others",
      "value":[
        {
          "x":"2010",
          "y":5
        },
        {
          "x":"2011",
          "y":16
        },
        {
          "x":"2012",
          "y":20
        },
        {
          "x":"2013",
          "y":41
        },
      ]
    },
    ],
};



this.scatterPlotDataJson =
{
    "series":[
    "seriesA",
    "seriesB",
    "seriesC"
    ],
    "data":[
    {
      "name": "suzuki",
      "value":[
        {"x":30,"y":40,"r":5},
        {"x":120,"y":115,"r":10},
        {"x":125,"y":90,"r":2},
        {"x":150,"y":160,"r":1},
        {"x":150,"y":160,"r":3},
        {"x":128,"y":215,"r":5},
        {"x":130,"y":40,"r":15},
        {"x":220,"y":115,"r":25},
      ]
    },
    {
      "name": "inoue",
      "value":[
        {"x":130,"y":140,"r":5},
        {"x":20,"y":15,"r":10},
        {"x":25,"y":190,"r":2},
        {"x":250,"y":60,"r":1},
        {"x":50,"y":60,"r":3},
        {"x":28,"y":15,"r":5},
        {"x":230,"y":140,"r":15},
        {"x":20,"y":215,"r":25},
      ]
    },
```

```
    ],
};

this.histogramDataJson =
{
    "range":[0,100],
    "bins": [0,10,20,30,40,50,60,70,80,90,100],
    "data":[
    50,95,60,44,60,50,35,20,10,8,
    56,70,65,42,22,33,40,53,52,89,
    90,55,50,55,65,72,45,35,15,45,
    50,95,60,44,60,50,35,20,10,8,
    56,70,65,42,22,33,40,53,52,89,
    90,55,50,55,65,72,45,35,15,45,
    50,95,60,44,60,50,35,20,10,8,
    56,70,65,42,22,33,40,53,52,89,
    90,55,50,55,65,72,45,35,15,45,
    ],
};


this.packLayoutDataJson = {
    "name":"United States", "value" :281421906,
    "children" : [
    {"name":"California", "value" :33871648},
    {"name":"Texas", "value" :20851820},
    {"name":"New York", "value" :18976457},
    {"name":"Florida", "value" :15982378},
    {"name":"Illinois", "value" :12419293},
    {"name":"Pennsylvania", "value" :12281054},
    {"name":"Ohio", "value" :11353140},
    ]
}

    this.treeDataJson =
    {
        "name": "Eve",
        "children": [
            { "name": "Cain"
            },
            {
                "name": "Seth",
                "children": [
                    { "name": "Enos" },
                    { "name": "Noam" }
                ]
            },
            { "name": "Abel"
            },
            {
                "name": "Awan",
                "children": [
                    { "name": "Enoch" }
                ]
            },
            { "name": "Azura"
            },
        ]
    };
```

```
this.treeMapDataJson = {
    "name": "Root",
    "children": [
    { "name": "Dir1", "children": [
        { "name": "Dir2", "children": [
            { "name": "FileA", value: 5000 },
            { "name": "FileB", value: 3000 },
            { "name": "Dir3", "children": [
                { "name": "FileC", value: 2000 },
                { "name": "Dir4", "children": [
                    { "name": "FileD", value: 1000 },
                    { "name": "FileE", value: 1500 }
                ]
                }
            ]
            }
        ]
        }
    ]
    }
    ]
}


this.choroplethDataJson = {
    "map":{
    "baseGeoDataUrl":"https://raw.githubusercontent.com/Ohtsu/data/master/o
    "scale":900,
    "center":[137.571,37.500],
    "startColor":"blue",
    "endColor":"red",
    "colorNumber":10,
    "keyDataName":"features",
    "targetPropertyName":"properties.id"
    },

    "data":
    [
    {
      "id":1,
      "value":7.12
    },
    {
      "id":2,
      "value":8.97
    },
    {
      "id":3,
      "value":7.07
    },
    {
      "id":4,
      "value":7.78
    },
    {
      "id":5,
      "value":6.97
    },
    {
```

```
  "id":6,
  "value":5.79
},
{
  "id":7,
  "value":7.14
},
{
  "id":8,
  "value":6.68
},
{
  "id":9,
  "value":6.28
},
{
  "id":10,
  "value":6.32
},
{
  "id":11,
  "value":6.29
},
{
  "id":12,
  "value":6.14
},
{
  "id":13,
  "value":5.87
},
{
  "id":14,
  "value":5.75
},
{
  "id":15,
  "value":5.50
},
{
  "id":16,
  "value":5.21
},
{
  "id":17,
  "value":5.37
},
{
  "id":18,
  "value":5.23
},
{
  "id":19,
  "value":6.18
},
{
  "id":20,
  "value":5.44
},
{
```

```
  "id":21,
  "value":5.57
},
{
  "id":22,
  "value":5.81
},
{
  "id":23,
  "value":5.09
},
{
  "id":24,
  "value":5.08
},
{
  "id":25,
  "value":5.07
},
{
  "id":26,
  "value":6.21
},
{
  "id":27,
  "value":7.97
},
{
  "id":28,
  "value":6.54
},
{
  "id":29,
  "value":7.41
},
{
  "id":30,
  "value":6.74
},
{
  "id":31,
  "value":5.90
},
{
  "id":32,
  "value":4.55
},
{
  "id":33,
  "value":7.24
},
{
  "id":34,
  "value":5.35
},
{
  "id":35,
  "value":5.93
},
{
```

```
      "id":36,
      "value":7.62
    },
    {
      "id":37,
      "value":6.25
    },
    {
      "id":38,
      "value":7.26
    },
    {
      "id":39,
      "value":7.70
    },
    {
      "id":40,
      "value":7.84
    },
    {
      "id":41,
      "value":6.32
    },
    {
      "id":42,
      "value":6.64
    },
    {
      "id":43,
      "value":6.67
    },
    {
      "id":44,
      "value":7.07
    },
    {
      "id":45,
      "value":7.01
    },
    {
      "id":46,
      "value":6.84
    },
    {
      "id":47,
      "value":11.0
    }
    ]
};

this.pieDataJson =
{
    "data":[
    {
      "name": "software",
      "value":30,
    },
    {
      "name": "hardware",
      "value":25
```

```
    },
    {
      "name": "device",
      "value":16
    },
    {
      "name": "others",
      "value":4
    },
    ],
};


this.forceDataJson =
{
    "groups": [
    {"id": 1, "name": "Hokkaido"},
    {"id": 2, "name": "Tohoku"},
    {"id": 3, "name": "Kanto"},
    {"id": 4, "name": "Chubu"},
    {"id": 5, "name": "kinki"},
    {"id": 6, "name": "Chugoku"},
    {"id": 7, "name": "Shikoku"},
    {"id": 8, "name": "Kyushu"},
    ],
    "nodes": [
    {"id": "Sapporo", "group": 1},
    {"id": "Sendai", "group": 2},
    {"id": "Morioka", "group": 2},
    {"id": "Akita", "group": 2},
    {"id": "Fukushima", "group": 2},
    {"id": "Mito", "group": 3},
    {"id": "Utsunomiya", "group": 3},
    {"id": "Saitama", "group": 3},
    {"id": "Chiba", "group": 3},
    {"id": "Tokyo", "group": 3},
    {"id": "Kofu", "group": 4},
    {"id": "Nagano", "group": 4},
    {"id": "Niigata", "group": 4},
    {"id": "Toyama", "group": 4},
    {"id": "Kanazawa", "group": 4},
    {"id": "Fukui", "group": 4},
    {"id": "Shizuoka", "group": 4},
    {"id": "Nagoya", "group": 4},
    {"id": "Gifu", "group": 4},
    {"id": "Otsu", "group": 5},
    {"id": "Kyoto", "group": 5},
    {"id": "Osaka", "group": 5},
    {"id": "Kobe", "group": 5},
    {"id": "Nara", "group": 5},
    {"id": "Kyoto", "group": 5},
    {"id": "Tottori", "group": 6},
    {"id": "Hiroshima", "group": 6},
    {"id": "Matsue", "group": 6},
    {"id": "Matsuyama", "group": 7},
    {"id": "Tokushima", "group": 7},
    {"id": "Kochi", "group": 7},
    {"id": "Fukuoka", "group": 8},
    {"id": "Nagasaki", "group": 8},
    {"id": "Kumamoto", "group": 8},
```

```
        {"id": "Naha", "group": 8},
        ],
        "links": [
            {"source": "Sendai", "target": "Sapporo", "value": 1},
            {"source": "Morioka", "target": "Sapporo", "value": 1},
            {"source": "Akita", "target": "Sapporo", "value": 1},
            {"source": "Fukushima", "target": "Sapporo", "value": 1},
            {"source": "Morioka", "target": "Sendai", "value": 10},
            {"source": "Akita", "target": "Sendai", "value": 10},
            {"source": "Fukushima", "target": "Sendai", "value": 10},
            {"source": "Chiba", "target": "Tokyo", "value": 20},
            {"source": "Utsunomiya", "target": "Tokyo", "value": 20},
            {"source": "Mito", "target": "Tokyo", "value": 20},
            {"source": "Saitama", "target": "Tokyo", "value": 30},
            {"source": "Kofu", "target": "Tokyo", "value": 30},
            {"source": "Nagano", "target": "Tokyo", "value": 30},
            {"source": "Naha", "target": "Tokyo", "value": 30},
            {"source": "Osaka", "target": "Tokyo", "value": 40},
            {"source": "Sendai", "target": "Tokyo", "value": 40},
            {"source": "Hiroshima", "target": "Tokyo", "value": 20},
            {"source": "Shizuoka", "target": "Nagoya", "value": 10},
            {"source": "Tokyo", "target": "Nagoya", "value": 40},
            {"source": "Osaka", "target": "Nagoya", "value": 40},
            {"source": "Kyoto", "target": "Nagoya", "value": 40},
            {"source": "Kyoto", "target": "Osaka", "value": 30},
            {"source": "Hiroshima", "target": "Osaka", "value": 20},
            {"source": "Toyama", "target": "Kanazawa", "value": 10},
            {"source": "Fukui", "target": "Kanazawa", "value": 10},
            {"source": "Niigata", "target": "Kanazawa", "value": 10},
            {"source": "Tottori", "target": "Kobe", "value": 10},
            {"source": "Tottori", "target": "Hiroshima", "value": 10},
            {"source": "Matsue", "target": "Hiroshima", "value": 10},
            {"source": "Matsuyama", "target": "Hiroshima", "value": 10},
            {"source": "Tokushima", "target": "Kochi", "value": 10},
            {"source": "Matsuyama", "target": "Kochi", "value": 10},
            {"source": "Nagasaki", "target": "Fukuoka", "value": 10},
            {"source": "Kumamoto", "target": "Fukuoka", "value": 10},
            {"source": "Naha", "target": "Fukuoka", "value": 10},
               ]
        };

  }


  // Add End -----------------------------------------

}
```

Modify app.component.html

In the same directory, modify **app.component.html** as follows.

```
<h1>
  {{title}}
</h1>
<!-- Add Start -->
<div style="text-align:center">
```

```
  <hr>
  <h2>GeoOrthographic</h2>
  <o2-chart-lib-o2-chart [chartType]="geoOrthographicTypeName" [configData]="co
  <hr>
  <h2>Bar</h2>
  <o2-chart-lib-o2-chart [chartType]="barTypeName" [configData]="configData"  [
  <hr>
  <h2>Pie</h2>
  <o2-chart-lib-o2-chart [chartType]="pieTypeName" [configData]="configData"  [
  <hr>
  <h2>ScatterPlot</h2>
  <o2-chart-lib-o2-chart [chartType]="scatterPlotTypeName" [configData]="config
  <hr>
  <h2>Histogram</h2>
  <o2-chart-lib-o2-chart [chartType]="histogramTypeName" [configData]="configDa
  <hr>
  <h2>PackLayout</h2>
  <o2-chart-lib-o2-chart [chartType]="packLayoutTypeName" [configData]="configD
  <hr>
  <h2>Tree</h2>
  <o2-chart-lib-o2-chart [chartType]="treeTypeName" [configData]="configData"
  <hr>
  <h2>Line</h2>
  <o2-chart-lib-o2-chart [chartType]="lineTypeName" [configData]="configData"
  <hr>
  <h2>GeoMap</h2>
  <o2-chart-lib-o2-chart [chartType]="geoMapTypeName" [configData]="configData"
  <hr>
  <h2>StackBar</h2>
  <o2-chart-lib-o2-chart [chartType]="stackBarTypeName" [configData]="configDat
  <hr>
  <h2>Choropleth</h2>
  <o2-chart-lib-o2-chart [chartType]="choroplethTypeName" [configData]="configD
  <hr>
  <h2>Force</h2>
  <o2-chart-lib-o2-chart [chartType]="forceTypeName" [configData]="configData"

</div>

<!-- Add End -->
```

Modify styles.css

Change to the parent directory, you will find **styles.css**. Add the following script into the file.

```
        .line {fill:none; stroke:black;stroke-width: 1.5;}
        .line-0 {fill:none; stroke:#1f77b4;stroke-width: 1.5;stroke-dasharray:4
        .line-1 {fill:none; stroke:#ff7f0e;stroke-width: 1.5;stroke-dasharray:2
        .line-2 {fill:none; stroke:#2ca02c;stroke-width: 1.5;}
        .line-3 {fill:none; stroke:#d62728;stroke-width: 1.5;}
        .line-4 {fill:none; stroke:#9467bd;stroke-width: 1.5;}
        .line-5 {fill:none; stroke:#8c564b;stroke-width: 1.5;}
        .line-6 {fill:none; stroke:#e377c2;stroke-width: 1.5;}
        .line-7 {fill:none; stroke:#7f7f7f;stroke-width: 1.5;}
        .line-8 {fill:none; stroke:#bcbd22;stroke-width: 1.5;}
```

```
.line-9 {fill:none; stroke:b#17becf;stroke-width: 1.5;}

.bar { fill:#aaa; stroke:white;stroke-width: 1;}
.bar-value { fill:black;font-size: 8pt;}
.name { font-size: 10pt;text-anchor: middle}
path {fill:white;stroke:black;stroke-width:0.5;}
.axis text {
    font-family: sans-serif;
    font-size: 11px;
}
.axis path,
.axis line {
    fill: none;
    stroke: black;
}
.axis_x line {
    fill: none;
    stroke: black;
}
.chart-title { fill:red;font-size: 18pt;text-anchor: middle;}
.histogram-bar{fill:blue; stroke:white;stroke-width: 1;}
.axis-x-text{ fill:blue;font-size: 12pt;}
.treemap { stroke:black;fill:#777}
.treemap-label { font-size: 10pt;text-anchor: middle}
.packlayout{ stroke:black;}
.packlayout-label{ font-size: 10pt;text-anchor: middle}
.pie-inner-title {font-size:9pt;text-anchor:middle;}
.pieNum {font-size:10pt;text-anchor:middle;}
.grid {stroke:gray;stroke-dasharray: 4,2;shape-rendering:crispEdges}

.tree-node circle {
    fill: #fff;
    stroke: steelblue;
    stroke-width: 3px;
}
.tree-node text {
    font: 12px sans-serif;
}
.tree-node-internal text {
    text-shadow: 0 1px 0 #fff, 0 -1px 0 #fff, 1px 0 0 #fff, -1px 0 0 #f
}
.tree-node-link {
    fill: none;
    stroke: #ccc;
    stroke-width: 2px;
}
.force-links line {
stroke: #999;
stroke-opacity: 0.6;
}

.force-nodes circle {
stroke: #fff;
stroke-width: 1.5px;
}
```

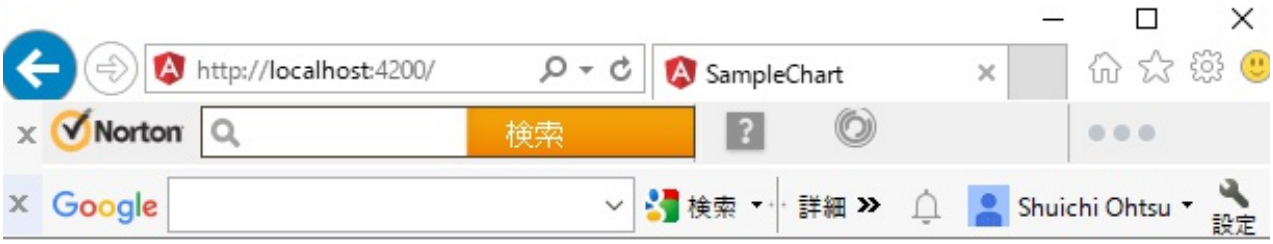
Restart local server

Restart the local server as follows.

```
$ ng serve
```

And you will get many charts in your browser by accessing **http://localhost:4200**.

- *** Sample Charts ***



app works!

Bar

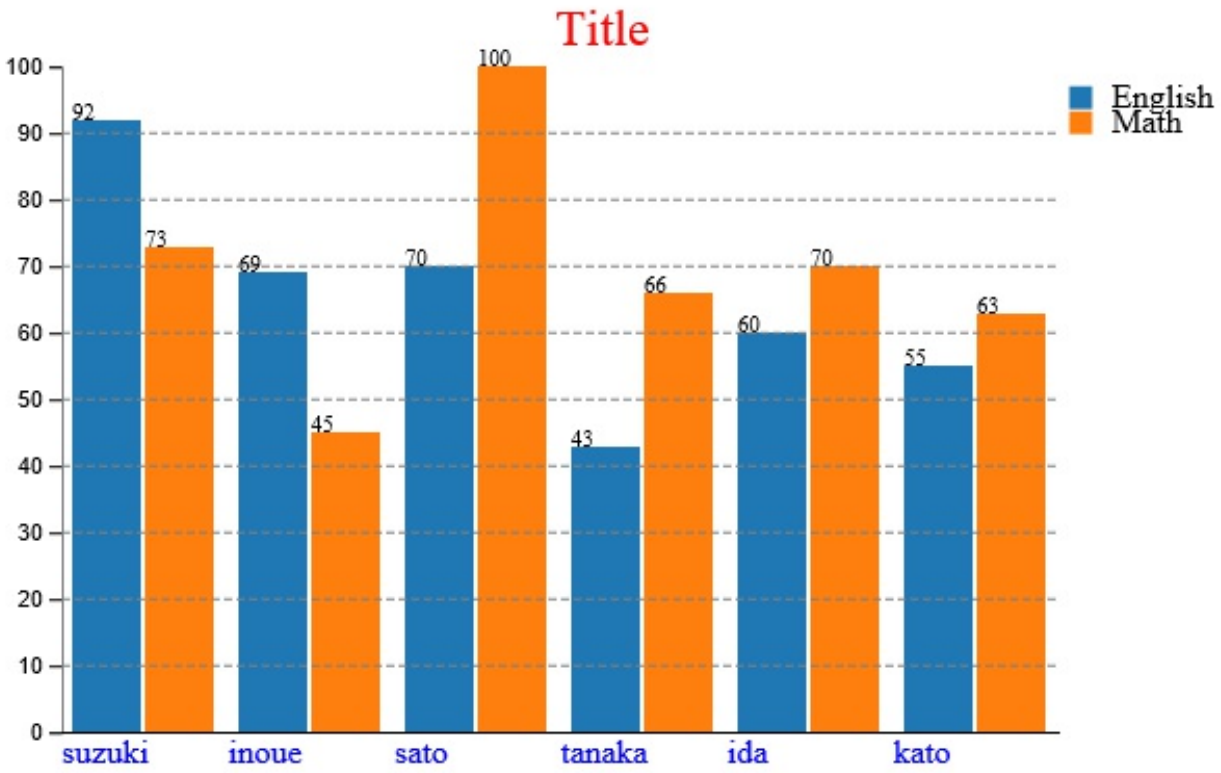


Chart Data

There are two types of data:**configData**,**graphData**.

- **configData**

This is a common setting data of all charts. In this file, you can set info as follows.

-Class name defined by "html" file

-Title Name

-Legend (display or not, position, size)

-Color (Auto color number: 10 or 20, Opacity)

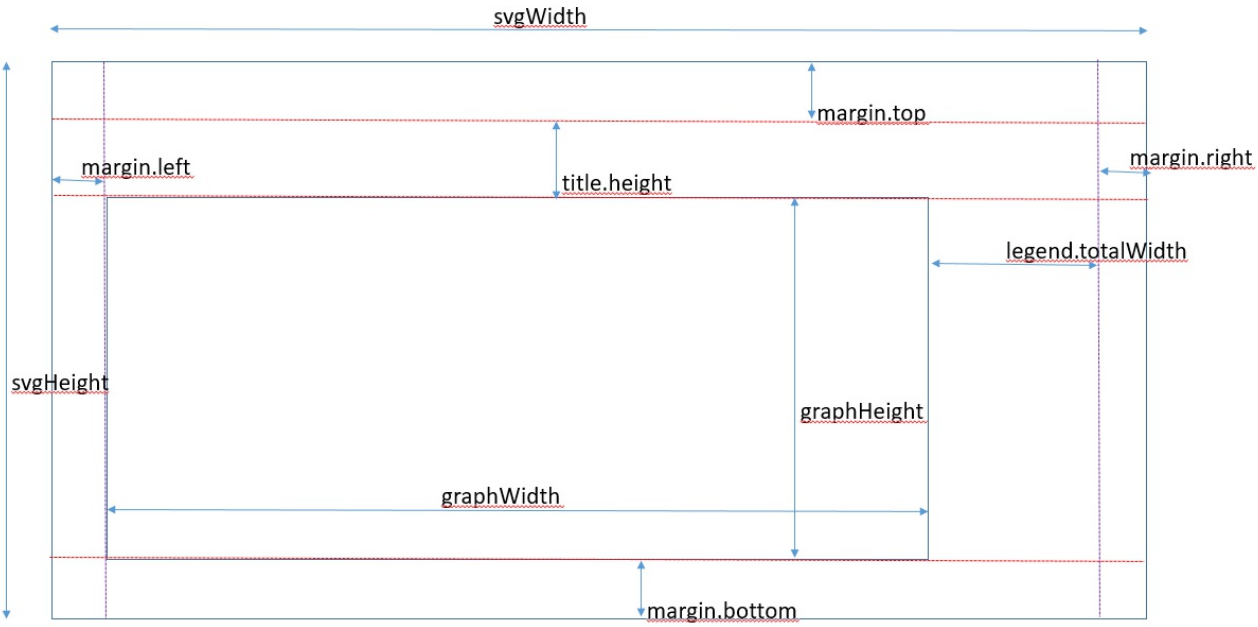
-Line (interpolate)

-Grid (display or not, position, size)

-Animation (enable or not, duration)

-Margin (top, left, right,bottom,between)

-Axis (left margin, bottom mergin)



- ***Sample configData***

```
configData ={
    "className":{
        "axis":"axis",
        "axisXBorder":"axis_x",
        "axisXText":"axis-x-text",
        "bar":"bar",
        "barValue":"bar-value",
        "line":"line",
        "multiLinePrefix":"line-",
        "grid":"grid",
        "pie":"pie",
        "pieInnerTitle": "pie-inner-title",
        "pieInnerRadius":"total",
```

```
    "histogram":"histogram",
    "histogramBar":"histogram-bar",
    "treemap":"treemap",
    "treemapLabel":"treemap-label",
    "packlayout":"packlayout",
    "packlayoutLabel":"packlayout-label",
},
"label": {
        "display":true,
},
"title": {
    "display": true,
    "name":"Title",
    "className":"chart-title",
    "height":30,
    "leftMargin":-20,
    "bottomMargin":10
},
"maxValue":{
    "auto":true,
    "x":100,
    "y":100,
},
"legend": {
    "display": true,
    "position": "right",
    "totalWidth":80,
    "initXPos":5,
    "initYPos":10,
    "rectWidth":10,
    "rectHeight":10,
    "xSpacing":2,
    "ySpacing":2
},
"color":{
    "auto":true, //
    "defaultColorNumber":10,
    "opacity":1.0,
    "userColors":[
        "blue",
        "red",
        "green",
        "yellow",
        "PaleGoldenrod",
        "Khaki",
        "DarkKhaki",
        "Gold",
        "Cornsilk",
        "BlanchedAlmond",
        "Bisque",
        "NavajoWhite",
        "Wheat",
        "BurlyWood",
        "Tan",
        "RosyBrown",
        "SandyBrown",
        "Goldenrod",
        "DarkGoldenrod",
        "Peru",
        "Chocolate"
```

```
            ],
            "focusColor":"red",
        },
        "pie":{
            "innerRadius": {
                "percent":20,
                "title":"Total"
            },
            "value":{
                "display":true,
            },
            "percent":{
                "display":false,
            }
        },
        "line": {
            "legend":"lineEnd",
            "interpolate" :"linear",
        },
        "grid":{
            "x":{
                "display":true,
            },
            "y":{
                "display":true,
            },
        },
        "margin":{
            "top":30,
            "left":30,
            "right":10,
            "bottom":20,
            "between":5
        },
        "axis":{
            "rotation":0,
            "borderLineWidth":1,
            "xLabel":{
                "leftMargin":0,
                "bottomMargin":5
            },
            "yLabel":{
                "leftMargin":0,
                "bottomMargin":0
            },

        },
        "animation":{
            "enable":true,
            "duration":4000,
        },
    };
```

- **graphData**

Each chart needs its own data in Json format.

- ***Sample GraphData for Line***

```
lineDataJson =
{
    "series":[
        "year",
        "sell",
    ],
    "data":[
        {
            "name": "software",
            "value":[
                {
                    "x":"2010",
                    "y":18
                },
                {
                    "x":"2011",
                    "y":22
                },
                {
                    "x":"2012",
                    "y":30
                },
                {
                    "x":"2013",
                    "y":31
                },
            ]
        },
        {
            "name": "hardware",
            "value":[
                {
                    "x":"2010",
                    "y":15
                },
                {
                    "x":"2011",
                    "y":16
                },
                {
                    "x":"2012",
                    "y":10
                },
                {
                    "x":"2013",
                    "y":21
                },
            ]
        },
        {
            "name": "device",
            "value":[
                {
                    "x":"2010",
                    "y":25
                },
                {
                    "x":"2011",
                    "y":26
                },
```

```
                {
                    "x":"2012",
                    "y":30
                },
                {
                    "x":"2013",
                    "y":31
                },
            ]
        },
        {
            "name": "others",
            "value":[
                {
                    "x":"2010",
                    "y":100
                },
                {
                    "x":"2011",
                    "y":16
                },
                {
                    "x":"2012",
                    "y":20
                },
                {
                    "x":"2013",
                    "y":41
                },
            ]
        },
    ],
};
```

- ***Visual for Line***

Line

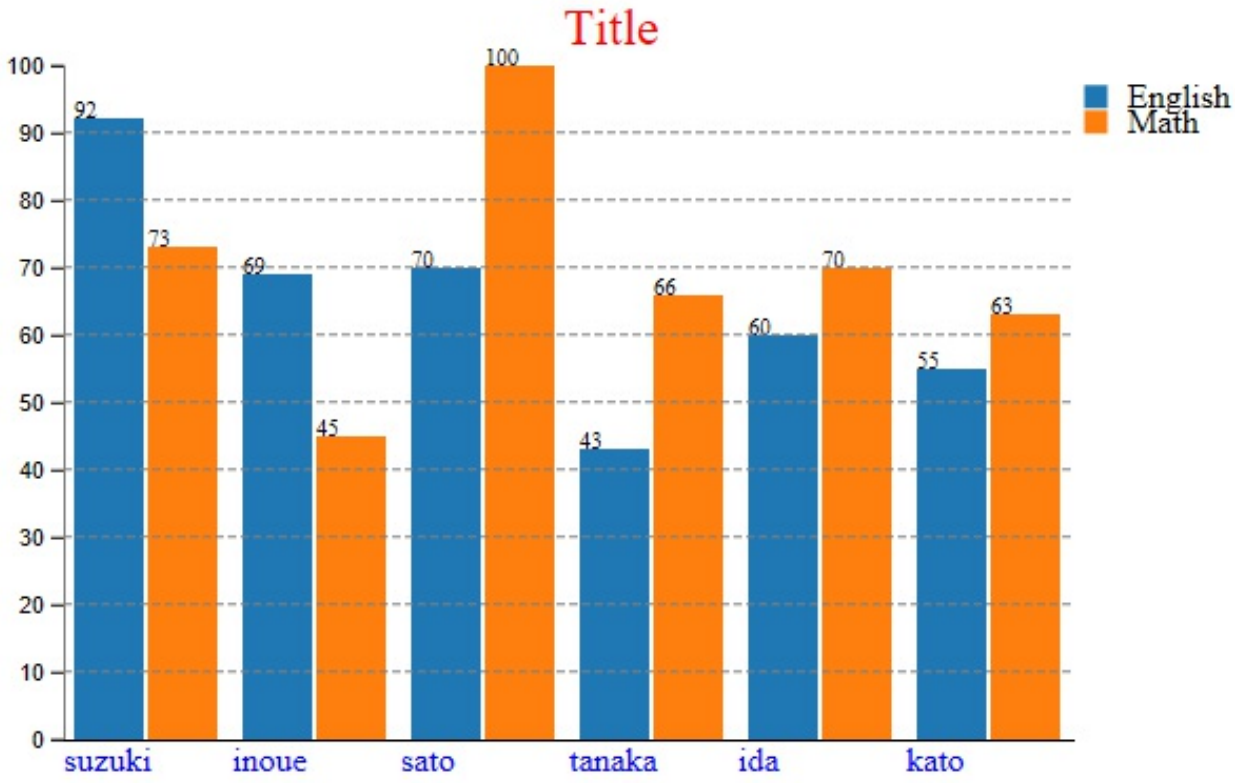
- ***Sample GraphData for Bar***

```
barDataJson =
{
    "series":[
        "English",
        "Math"
    ],
    "data":[
        {
            "x": "suzuki",
            "y": [92,73],
        },
        {
            "x": "inoue",
            "y": [69,45],
        },
        {
            "x": "sato",
            "y": [70,100],
        },
        {
            "x": "tanaka",
            "y": [43,66],
        },
        {
            "x": "ida",
            "y": [60,70],
```

```
            },
            {
                "x": "kato",
                "y": [55,63],
            },
        ],
};
```

- ***Visual for Bar***

Bar



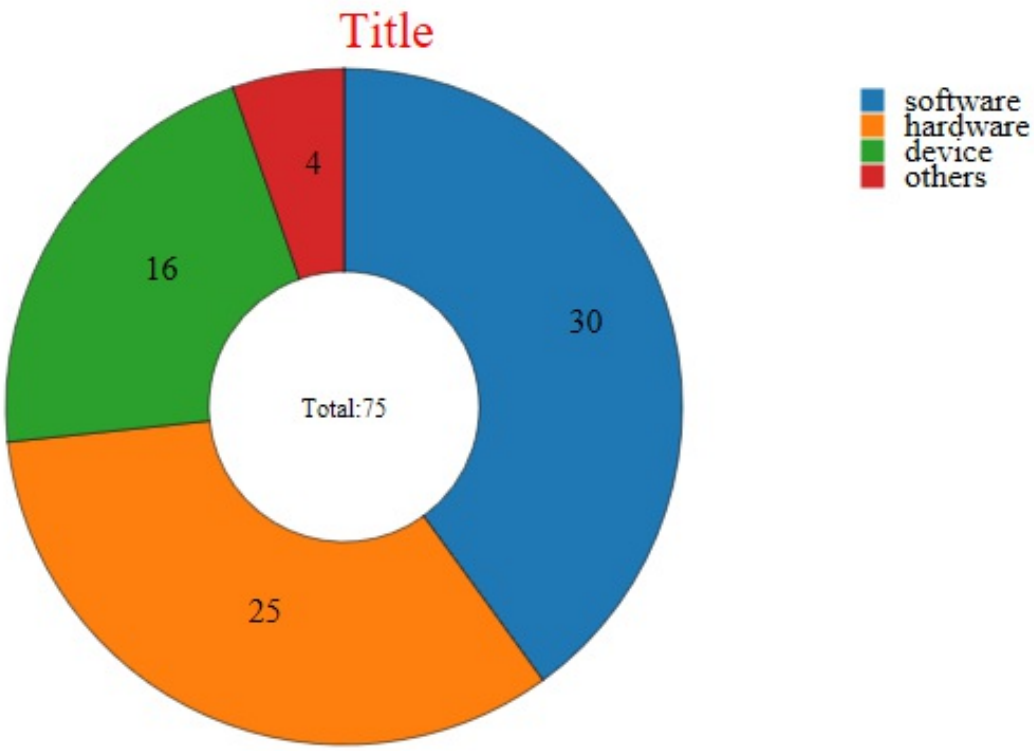
- ***Sample GraphData for Pie***

```
pieDataJson =
{
    "data":[
        {
            "name": "software",
            "value":30,
        },
        {
            "name": "hardware",
            "value":25
        },
        {
            "name": "device",
```

```
            "value":16
        },
        {
            "name": "others",
            "value":4
        },
    ],
};
```

- ***Visual for Pie***

Pie



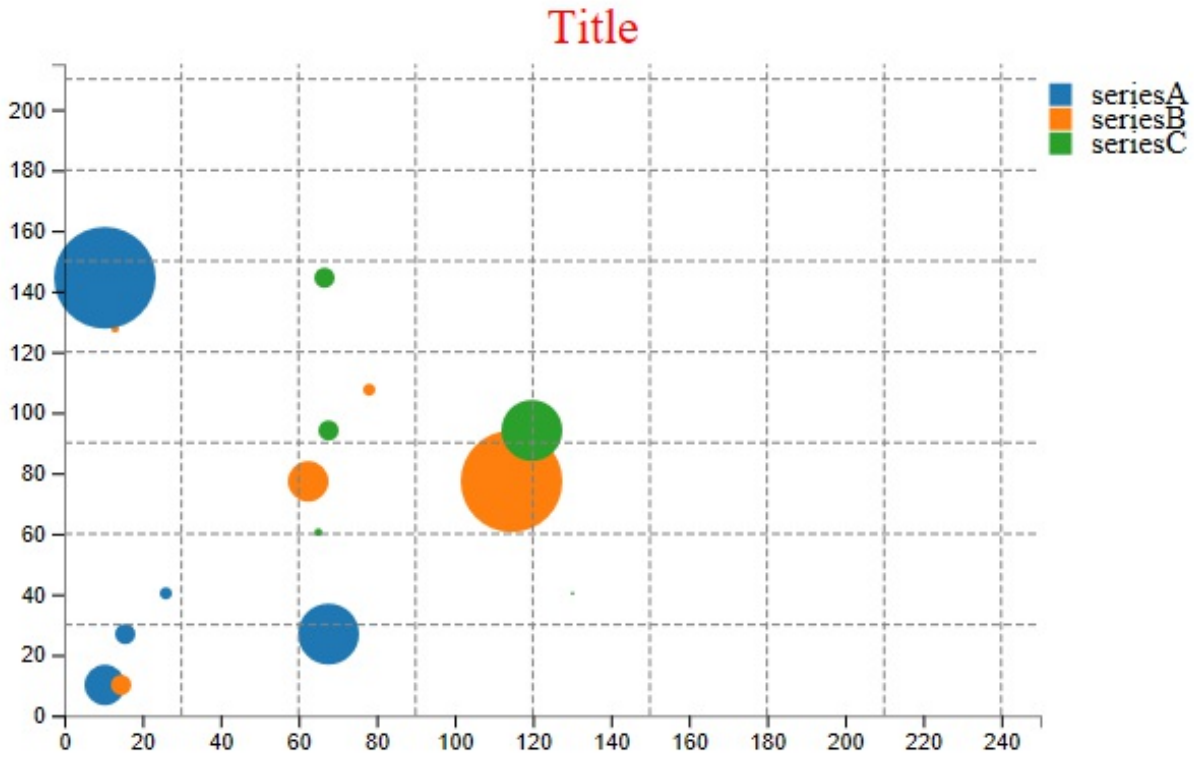
- ***Sample GraphData for ScatterPlot***

```
scatterPlotDataJson =
{
    "series":[
        "seriesA",
        "seriesB",
        "seriesC"
    ],
    "data":[
        {
            "name": "suzuki",
            "value":[
                {"x":30,"y":40,"r":5},
                {"x":120,"y":115,"r":10},
```

```
                {"x":125,"y":90,"r":2},
                {"x":150,"y":160,"r":1},
                {"x":150,"y":160,"r":3},
                {"x":128,"y":215,"r":5},
                {"x":130,"y":40,"r":15},
                {"x":220,"y":115,"r":25},
            ]
        },
        {
            "name": "inoue",
            "value":[
                {"x":130,"y":140,"r":5},
                {"x":20,"y":15,"r":10},
                {"x":25,"y":190,"r":2},
                {"x":250,"y":60,"r":1},
                {"x":50,"y":60,"r":3},
                {"x":28,"y":15,"r":5},
                {"x":230,"y":140,"r":15},
                {"x":20,"y":215,"r":25},
            ]
        },
    ],
};
```

- ***Visual for ScatterPlot***

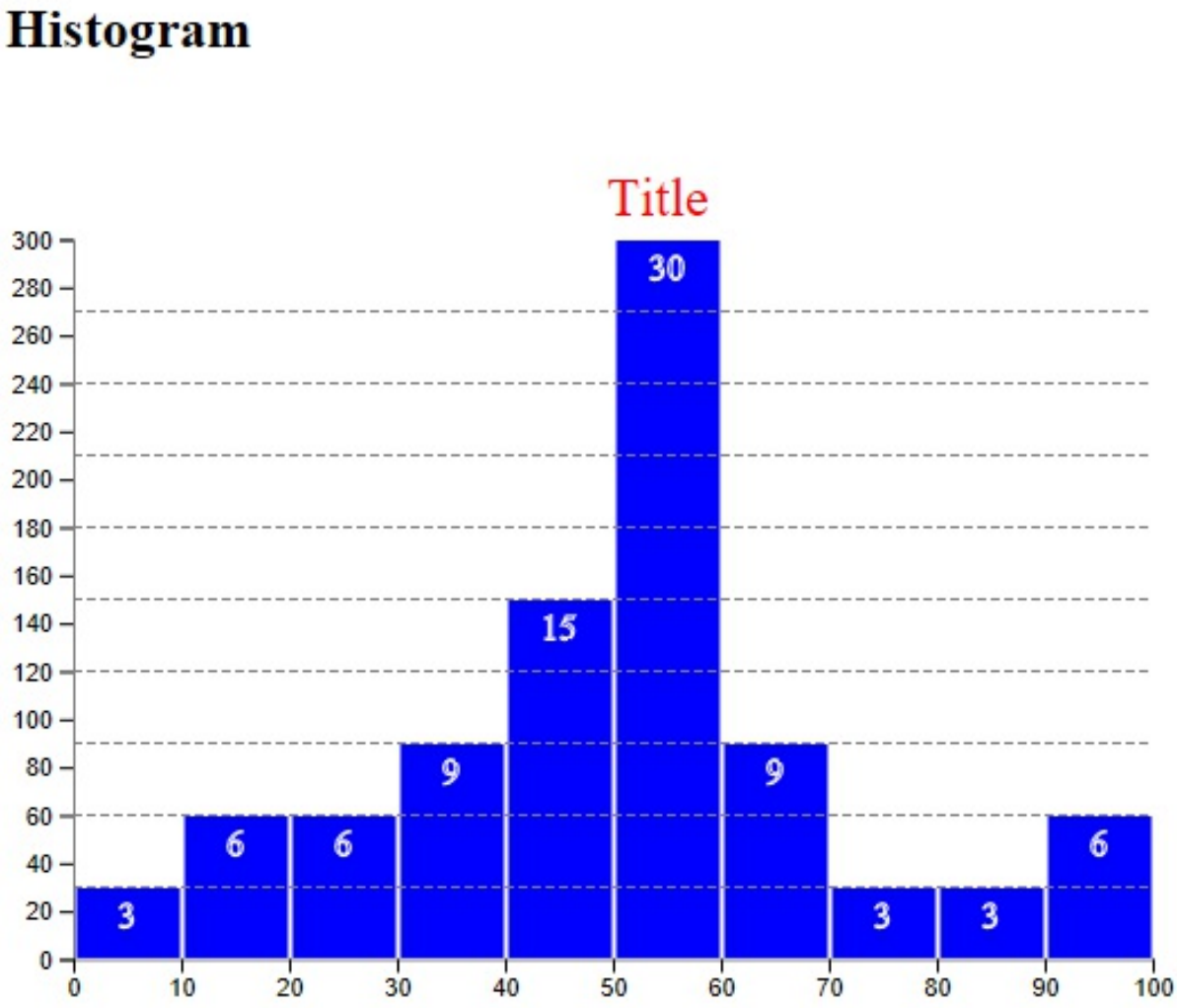
ScatterPlot



- ***Sample GraphData for Histogram***

```
histogramDataJson =
{
    "range":[0,100],
    "bins": [0,10,20,30,40,50,60,70,80,90,100],
    "data":[
        50,95,60,44,60,50,35,20,10,8,
        56,70,65,42,22,33,40,53,52,89,
        90,55,50,55,65,72,45,35,15,45,
        50,95,60,44,60,50,35,20,10,8,
        56,70,65,42,22,33,40,53,52,89,
        90,55,50,55,65,72,45,35,15,45,
        50,95,60,44,60,50,35,20,10,8,
        56,70,65,42,22,33,40,53,52,89,
        90,55,50,55,65,72,45,35,15,45,
    ],
};
```

- ***Visual for Histogram***



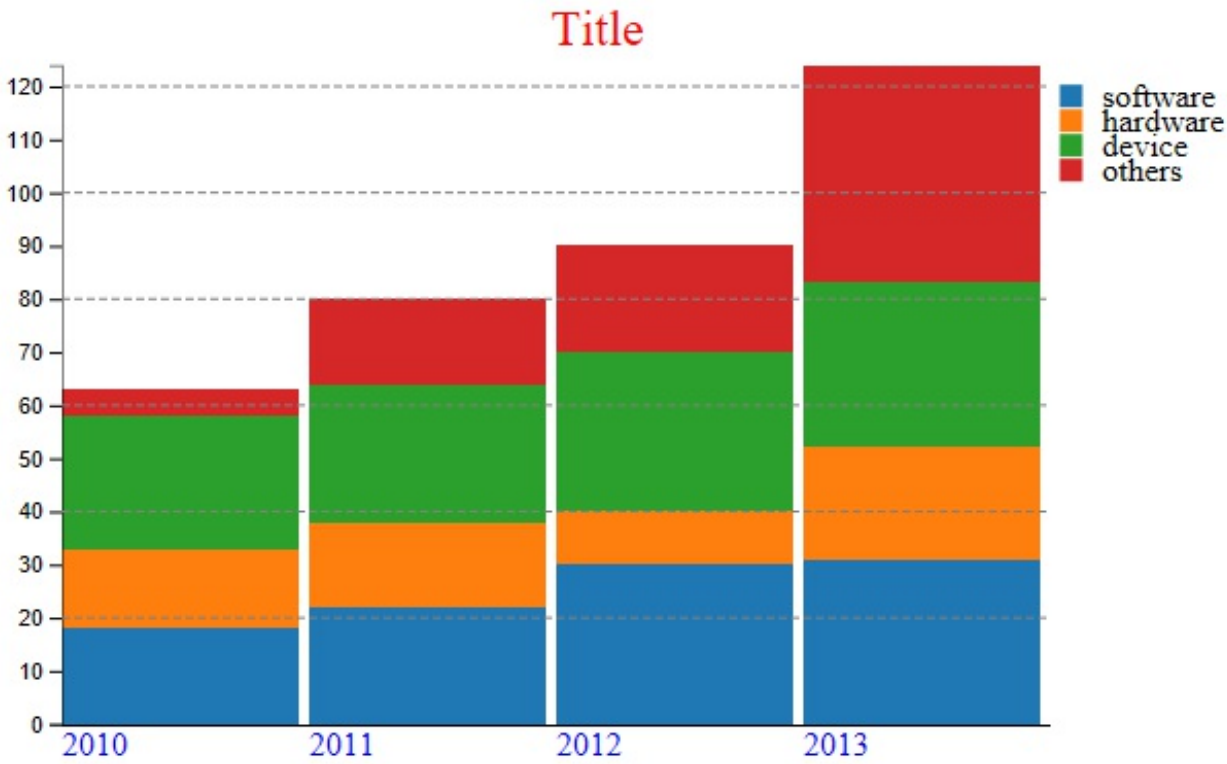
- ***Sample GraphData for StackBar***

```
stackBarDataJson =
{
    "config":{
        "timeFormat":"%Y",
    },
    "series":[
        "year",
        "sell",
    ],
    "data":[
        {
            "name": "software",
            "value":[
                {
                    "x":"2010",
                    "y":18
                },
                {
                    "x":"2011",
                    "y":22
                },
                {
                    "x":"2012",
                    "y":30
                },
                {
                    "x":"2013",
                    "y":31
                },
            ]
        },
        {
            "name": "hardware",
            "value":[
                {
                    "x":"2010",
                    "y":15
                },
                {
                    "x":"2011",
                    "y":16
                },
                {
                    "x":"2012",
                    "y":10
                },
                {
                    "x":"2013",
                    "y":21
                },
            ]
        },
        {
            "name": "device",
            "value":[
                {
                    "x":"2010",
                    "y":25
                },
```

```
                {
                    "x":"2011",
                    "y":26
                },
                {
                    "x":"2012",
                    "y":30
                },
                {
                    "x":"2013",
                    "y":31
                },
            ]
        },
        {
            "name": "others",
            "value":[
                {
                    "x":"2010",
                    "y":5
                },
                {
                    "x":"2011",
                    "y":16
                },
                {
                    "x":"2012",
                    "y":20
                },
                {
                    "x":"2013",
                    "y":41
                },
            ]
        },
    ],
};
```

- ***Visual for StackBar***

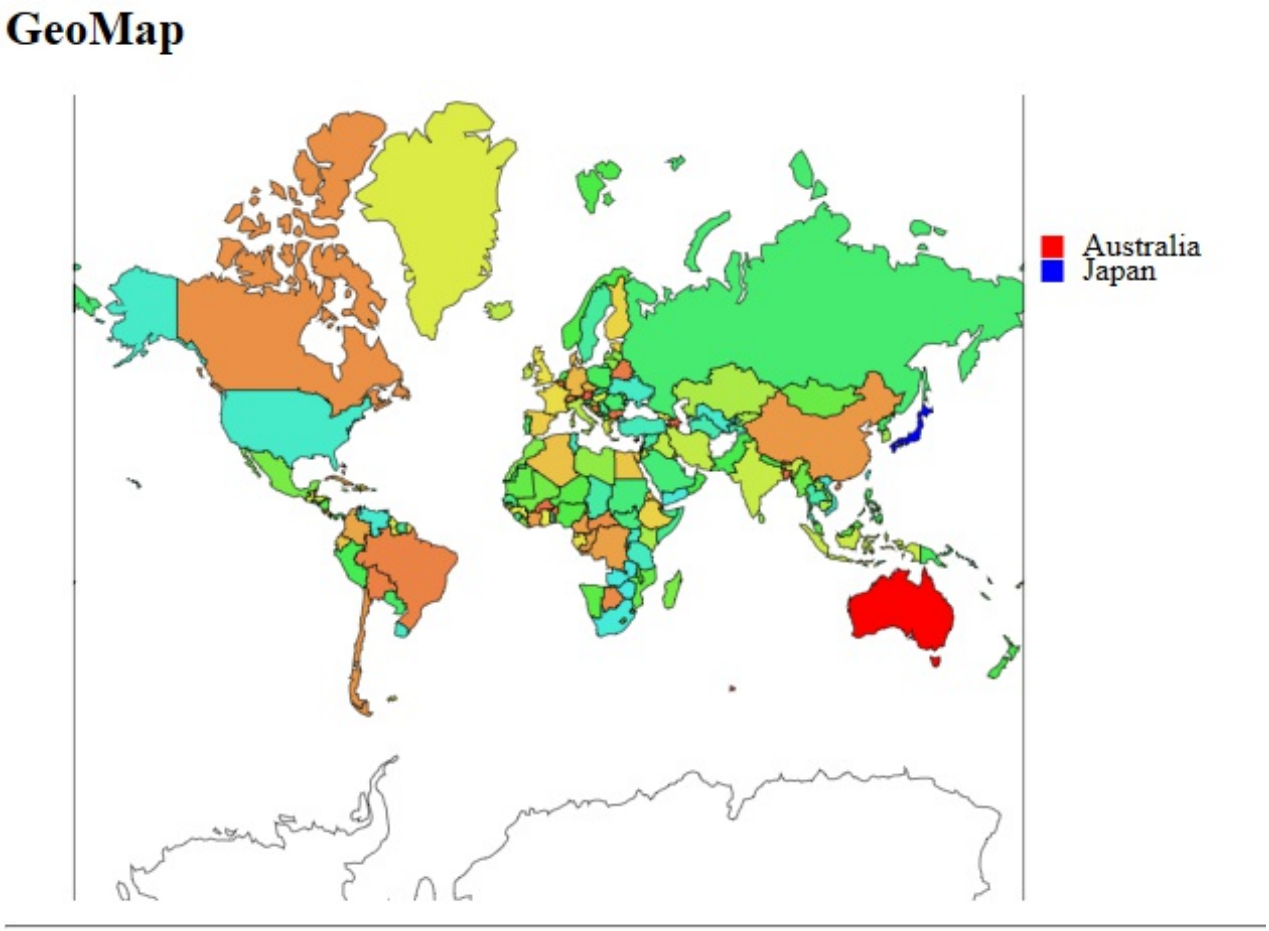
StackBar



- ***Sample GraphData for GeoMap***

```
geoMapDataJson =
{
    "map":{
            "baseGeoDataUrl":"https://raw.githubusercontent.com/Ohtsu/d
            "scale":75,
            "keyDataName":"features",
            "targetPropertyName":"properties.name",
    },
    "data":[
        {
            "name":"Australia",
            "color":"red"
        },
        {
            "name":"Antarctica",
            "color":"white"
        },
        {
            "name":"Japan",
            "color":"blue"
        },
    ],
};
```

- ***Visual for GeoMap***



- ***Sample GraphData for GeoOrthographic***

```
geoOrthographicDataJson =
{
    "map":{
            "baseGeoDataUrl":"https://raw.githubusercontent.com/Ohtsu/d
            "keyDataName":"features",
            "targetPropertyName":"properties.name",
            "scale":160,
            "colorNumber":10,
            "rotate":{
                "horizontal":210,
                "vertical":5
            },
            "clipAngle":90,
            "oceanColor":"navy",
            "antarcticaColor":"white",
    },
    "data":[
        {
            "name":"Australia",
            "color":"red"
        },
        {
            "name":"Antarctica",
            "color":"white"
```

```
            },
            {
                "name":"Japan",
                "color":"teal"
            },
        ]
    }
```

- ***Visual for GeoOrthographic***

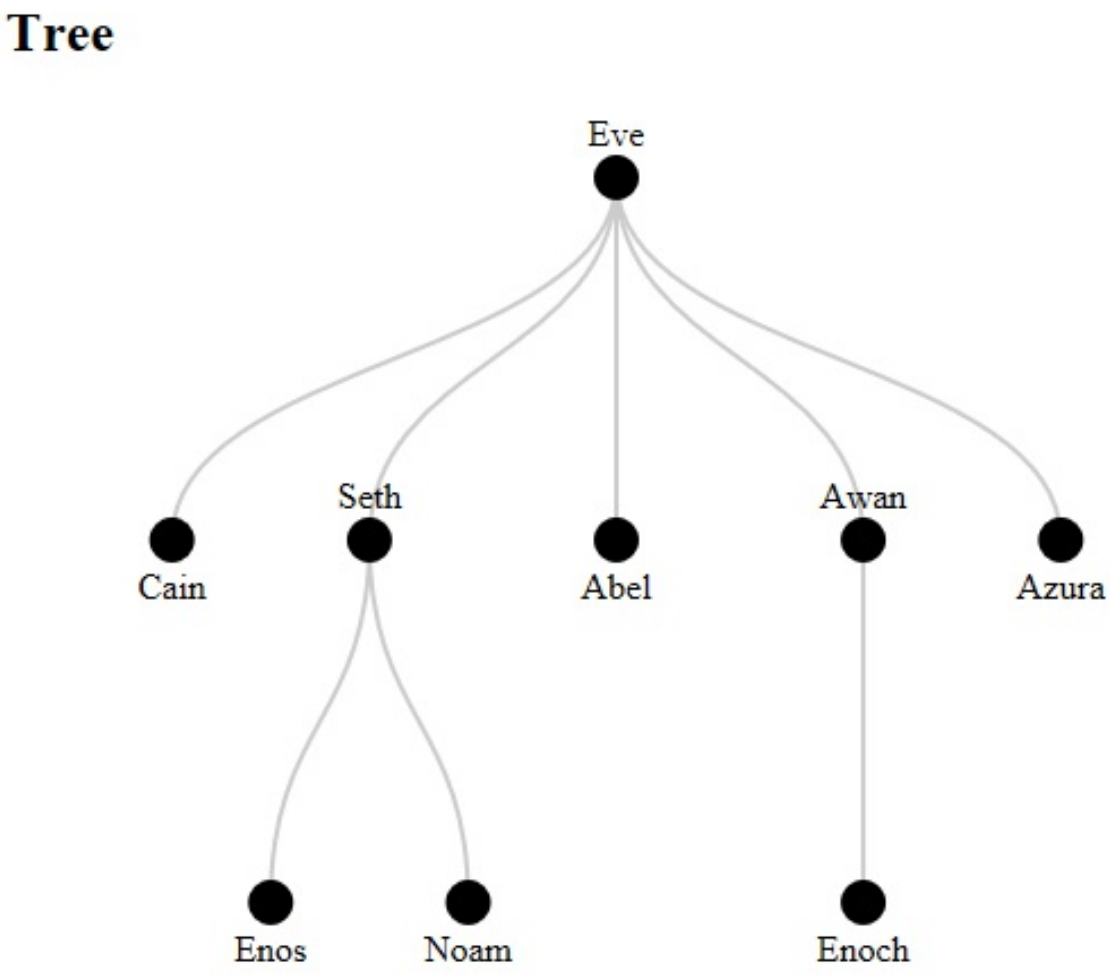
GeoOrthographic

- ***Sample GraphData for Tree***

```
treeDataJson =
{
    "name": "Eve",
    "children": [
        { "name": "Cain"
        },
        {
            "name": "Seth",
            "children": [
                { "name": "Enos" },
                { "name": "Noam" }
            ]
        },
        { "name": "Abel"
        },
```

```
            {
                "name": "Awan",
                "children": [
                    { "name": "Enoch" }
                ]
            },
            { "name": "Azura"
            },
        ]
    };
```

- ***Visual for Tree***

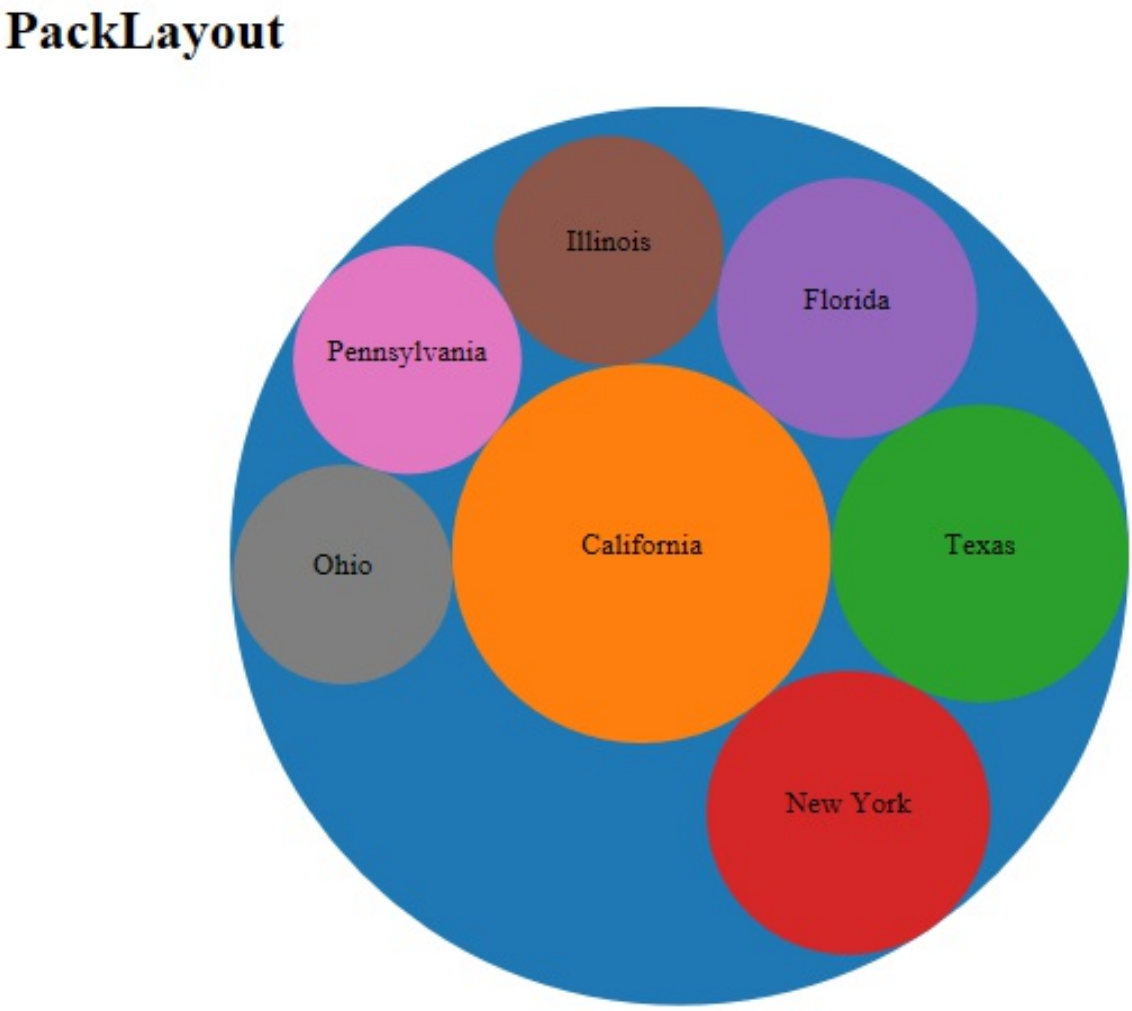


- ***Sample GraphData for PackLayout***

```
packLayoutDataJson = {
    "name":"United States", "value" :281421906,
    "children" : [
        {"name":"California", "value" :33871648},
        {"name":"Texas", "value" :20851820},
        {"name":"New York", "value" :18976457},
        {"name":"Florida", "value" :15982378},
        {"name":"Illinois", "value" :12419293},
```

```
            {"name":"Pennsylvania", "value" :12281054},
            {"name":"Ohio", "value" :11353140},
            ]
    }
```

- ***Visual for PackLayout***



- ***Sample GraphData for Choropleth***

```
choroplethDataJson = {
    "map":{
        "baseGeoDataUrl":"https://raw.githubusercontent.com/Ohtsu/data/
        "scale":900,
        "center":[137.571,37.500],
        "startColor":"blue",
        "endColor":"red",
        "colorNumber":10,
        "keyDataName":"features",
        "targetPropertyName":"properties.id"
    },

    "data":
    [
```

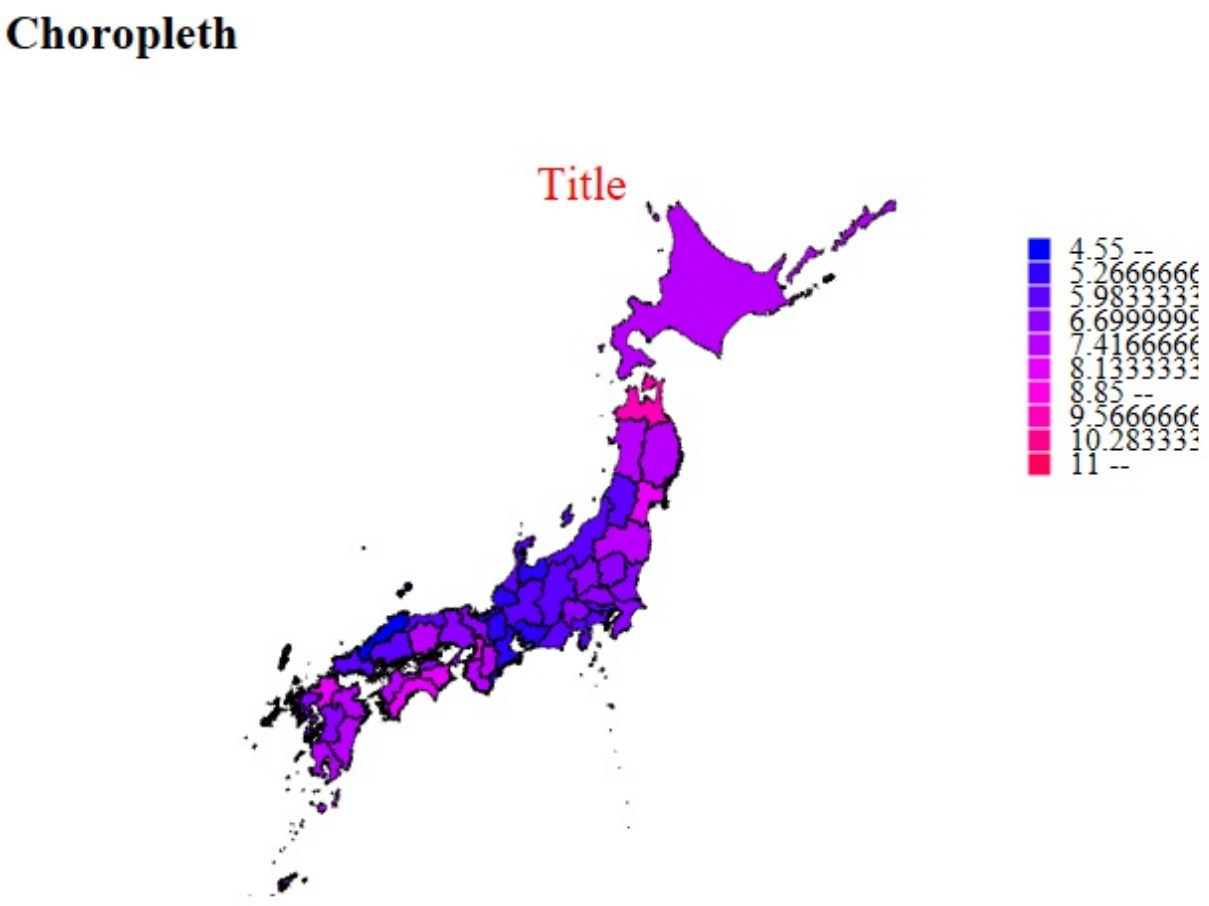
```
{
    "id":1,
    "value":7.12
},
{
    "id":2,
    "value":8.97
},
{
    "id":3,
    "value":7.07
},
{
    "id":4,
    "value":7.78
},
{
    "id":5,
    "value":6.97
},
{
    "id":6,
    "value":5.79
},
{
    "id":7,
    "value":7.14
},
{
    "id":8,
    "value":6.68
},
{
    "id":9,
    "value":6.28
},
{
    "id":10,
    "value":6.32
},
{
    "id":11,
    "value":6.29
},
{
    "id":12,
    "value":6.14
},
{
    "id":13,
    "value":5.87
},
{
    "id":14,
    "value":5.75
},
{
    "id":15,
    "value":5.50
},
```

```
{
    "id":16,
    "value":5.21
},
{
    "id":17,
    "value":5.37
},
{
    "id":18,
    "value":5.23
},
{
    "id":19,
    "value":6.18
},
{
    "id":20,
    "value":5.44
},
{
    "id":21,
    "value":5.57
},
{
    "id":22,
    "value":5.81
},
{
    "id":23,
    "value":5.09
},
{
    "id":24,
    "value":5.08
},
{
    "id":25,
    "value":5.07
},
{
    "id":26,
    "value":6.21
},
{
    "id":27,
    "value":7.97
},
{
    "id":28,
    "value":6.54
},
{
    "id":29,
    "value":7.41
},
{
    "id":30,
    "value":6.74
},
```

```
{
    "id":31,
    "value":5.90
},
{
    "id":32,
    "value":4.55
},
{
    "id":33,
    "value":7.24
},
{
    "id":34,
    "value":5.35
},
{
    "id":35,
    "value":5.93
},
{
    "id":36,
    "value":7.62
},
{
    "id":37,
    "value":6.25
},
{
    "id":38,
    "value":7.26
},
{
    "id":39,
    "value":7.70
},
{
    "id":40,
    "value":7.84
},
{
    "id":41,
    "value":6.32
},
{
    "id":42,
    "value":6.64
},
{
    "id":43,
    "value":6.67
},
{
    "id":44,
    "value":7.07
},
{
    "id":45,
    "value":7.01
},
```

```
            {
                "id":46,
                "value":6.84
            },
            {
                "id":47,
                "value":11.0
            }
        ]
    };
```

- ***Visual for Choropleth***



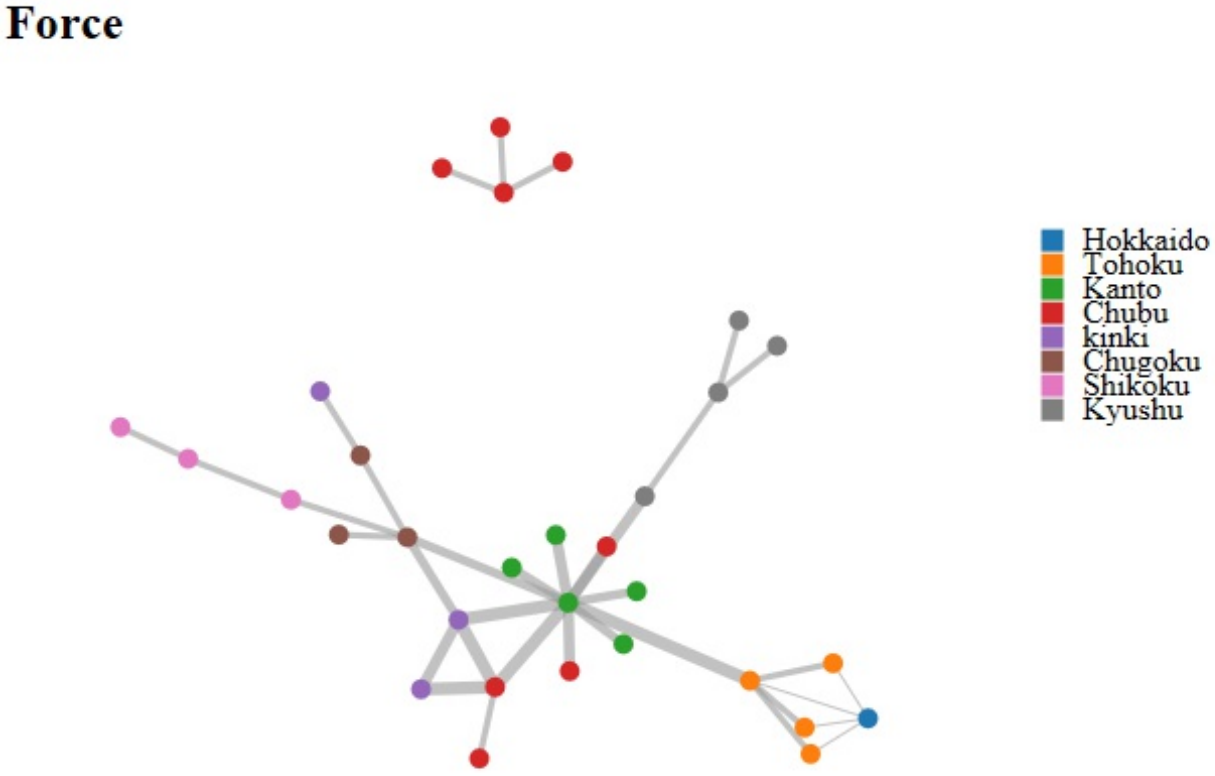
- ***Sample GraphData for Force***

```
forceDataJson =
    {
        "groups": [
            {"id": 1, "name": "Hokkaido"},
            {"id": 2, "name": "Tohoku"},
            {"id": 3, "name": "Kanto"},
            {"id": 4, "name": "Chubu"},
            {"id": 5, "name": "kinki"},
            {"id": 6, "name": "Chugoku"},
            {"id": 7, "name": "Shikoku"},
            {"id": 8, "name": "Kyushu"},
```

```
],
"nodes": [
    {"id": "Sapporo", "group": 1},
    {"id": "Sendai", "group": 2},
    {"id": "Morioka", "group": 2},
    {"id": "Akita", "group": 2},
    {"id": "Fukushima", "group": 2},
    {"id": "Mito", "group": 3},
    {"id": "Utsunomiya", "group": 3},
    {"id": "Saitama", "group": 3},
    {"id": "Chiba", "group": 3},
    {"id": "Tokyo", "group": 3},
    {"id": "Kofu", "group": 4},
    {"id": "Nagano", "group": 4},
    {"id": "Niigata", "group": 4},
    {"id": "Toyama", "group": 4},
    {"id": "Kanazawa", "group": 4},
    {"id": "Fukui", "group": 4},
    {"id": "Shizuoka", "group": 4},
    {"id": "Nagoya", "group": 4},
    {"id": "Gifu", "group": 4},
    {"id": "Otsu", "group": 5},
    {"id": "Kyoto", "group": 5},
    {"id": "Osaka", "group": 5},
    {"id": "Kobe", "group": 5},
    {"id": "Nara", "group": 5},
    {"id": "Kyoto", "group": 5},
    {"id": "Tottori", "group": 6},
    {"id": "Hiroshima", "group": 6},
    {"id": "Matsue", "group": 6},
    {"id": "Matsuyama", "group": 7},
    {"id": "Tokushima", "group": 7},
    {"id": "Kochi", "group": 7},
    {"id": "Fukuoka", "group": 8},
    {"id": "Nagasaki", "group": 8},
    {"id": "Kumamoto", "group": 8},
    {"id": "Naha", "group": 8},
],
"links": [
{"source": "Sendai", "target": "Sapporo", "value": 1},
{"source": "Morioka", "target": "Sapporo", "value": 1},
{"source": "Akita", "target": "Sapporo", "value": 1},
{"source": "Fukushima", "target": "Sapporo", "value": 1},
{"source": "Morioka", "target": "Sendai", "value": 10},
{"source": "Akita", "target": "Sendai", "value": 10},
{"source": "Fukushima", "target": "Sendai", "value": 10},
{"source": "Chiba", "target": "Tokyo", "value": 20},
{"source": "Utsunomiya", "target": "Tokyo", "value": 20},
{"source": "Mito", "target": "Tokyo", "value": 20},
{"source": "Saitama", "target": "Tokyo", "value": 30},
{"source": "Kofu", "target": "Tokyo", "value": 30},
{"source": "Nagano", "target": "Tokyo", "value": 30},
{"source": "Naha", "target": "Tokyo", "value": 30},
{"source": "Osaka", "target": "Tokyo", "value": 40},
{"source": "Sendai", "target": "Tokyo", "value": 40},
{"source": "Hiroshima", "target": "Tokyo", "value": 20},
{"source": "Shizuoka", "target": "Nagoya", "value": 10},
{"source": "Tokyo", "target": "Nagoya", "value": 40},
{"source": "Osaka", "target": "Nagoya", "value": 40},
{"source": "Kyoto", "target": "Nagoya", "value": 40},
```

```
        {"source": "Kyoto", "target": "Osaka", "value": 30},
        {"source": "Hiroshima", "target": "Osaka", "value": 20},
        {"source": "Toyama", "target": "Kanazawa", "value": 10},
        {"source": "Fukui", "target": "Kanazawa", "value": 10},
        {"source": "Niigata", "target": "Kanazawa", "value": 10},
        {"source": "Tottori", "target": "Kobe", "value": 10},
        {"source": "Tottori", "target": "Hiroshima", "value": 10},
        {"source": "Matsue", "target": "Hiroshima", "value": 10},
        {"source": "Matsuyama", "target": "Hiroshima", "value": 10},
        {"source": "Tokushima", "target": "Kochi", "value": 10},
        {"source": "Matsuyama", "target": "Kochi", "value": 10},
        {"source": "Nagasaki", "target": "Fukuoka", "value": 10},
        {"source": "Kumamoto", "target": "Fukuoka", "value": 10},
        {"source": "Naha", "target": "Fukuoka", "value": 10},
           ]
};
```

- ***Visual for Force***



- ***Sample Style Sheet for index.html***

```
<style>
    .line {fill:none; stroke:black;stroke-width: 1.5;}
    .line-0 {fill:none; stroke:#1f77b4;stroke-width: 1.5;stroke-dasharray:4
    .line-1 {fill:none; stroke:#ff7f0e;stroke-width: 1.5;stroke-dasharray:2
    .line-2 {fill:none; stroke:#2ca02c;stroke-width: 1.5;}
```

```
.line-3 {fill:none; stroke:#d62728;stroke-width: 1.5;}
.line-4 {fill:none; stroke:#9467bd;stroke-width: 1.5;}
.line-5 {fill:none; stroke:#8c564b;stroke-width: 1.5;}
.line-6 {fill:none; stroke:#e377c2;stroke-width: 1.5;}
.line-7 {fill:none; stroke:#7f7f7f;stroke-width: 1.5;}
.line-8 {fill:none; stroke:#bcbd22;stroke-width: 1.5;}
.line-9 {fill:none; stroke:b#17becf;stroke-width: 1.5;}

.bar { fill:#aaa; stroke:white;stroke-width: 1;}
.bar-value { fill:black;font-size: 8pt;}
.name { font-size: 10pt;text-anchor: middle}
path {fill:white;stroke:black;stroke-width:0.5;}
.axis text {
    font-family: sans-serif;
    font-size: 11px;
}
.axis path,
.axis line {
    fill: none;
    stroke: black;
}
.axis_x line {
    fill: none;
    stroke: black;
}
.chart-title { fill:red;font-size: 18pt;text-anchor: middle;}
.histogram-bar{fill:blue; stroke:white;stroke-width: 1;}
.axis-x-text{ fill:blue;font-size: 12pt;}
.treemap { stroke:black;fill:#777}
.treemap-label { font-size: 10pt;text-anchor: middle}
.packlayout{ stroke:black;}
.packlayout-label{ font-size: 10pt;text-anchor: middle}
.pie-inner-title {font-size:9pt;text-anchor:middle;}
.pieNum {font-size:10pt;text-anchor:middle;}
.grid {stroke:gray;stroke-dasharray: 4,2;shape-rendering:crispEdges}

.tree-node circle {
    fill: #fff;
    stroke: steelblue;
    stroke-width: 3px;
}
.tree-node text {
    font: 12px sans-serif;
}
.tree-node-internal text {
    text-shadow: 0 1px 0 #fff, 0 -1px 0 #fff, 1px 0 0 #fff, -1px 0 0 #f
}
.tree-node-link {
    fill: none;
    stroke: #ccc;
    stroke-width: 2px;
}
.force-links line {
stroke: #999;
stroke-opacity: 0.6;
}

.force-nodes circle {
stroke: #fff;
stroke-width: 1.5px;
```

```
    }

</style>
```