

# *o2-chart-lib* Chart Library for Angular5 by TypeScript2

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build passing

*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 consumer project, run simply:

```
$ npm install
```

## Start project

If you start local server as follows, you can get many kinds of charts in your browser by accessing **http://localhost:4200**.

```
$ ng serve
```

## Version

- o2-chart-lib-consumer : 1.0
- 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",  
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[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](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](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](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](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=ISBN978-1-78439-848-4&rh=i%3Aaps%2Ck%3AISBN978-1-78439-848-4](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)

[alias%3Daps&field-keywords=ISBN978-1-78439-966-5&rh=i%3Aaps%2Ck%3AISBN978-1-78439-966-5](https://leanpub.com/d3-t-and-t-v4/read)

- "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 of *o2-chart-lib*

*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*



# Welcome to app!



Here are some links to help you start:

- [Tour of Heroes](#)
- [CLI Documentation](#)
- [Angular blog](#)

## 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,
    HttpClientModule
  ],
  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/master",
        "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"
        },
    ]
};

```



```
    "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
```

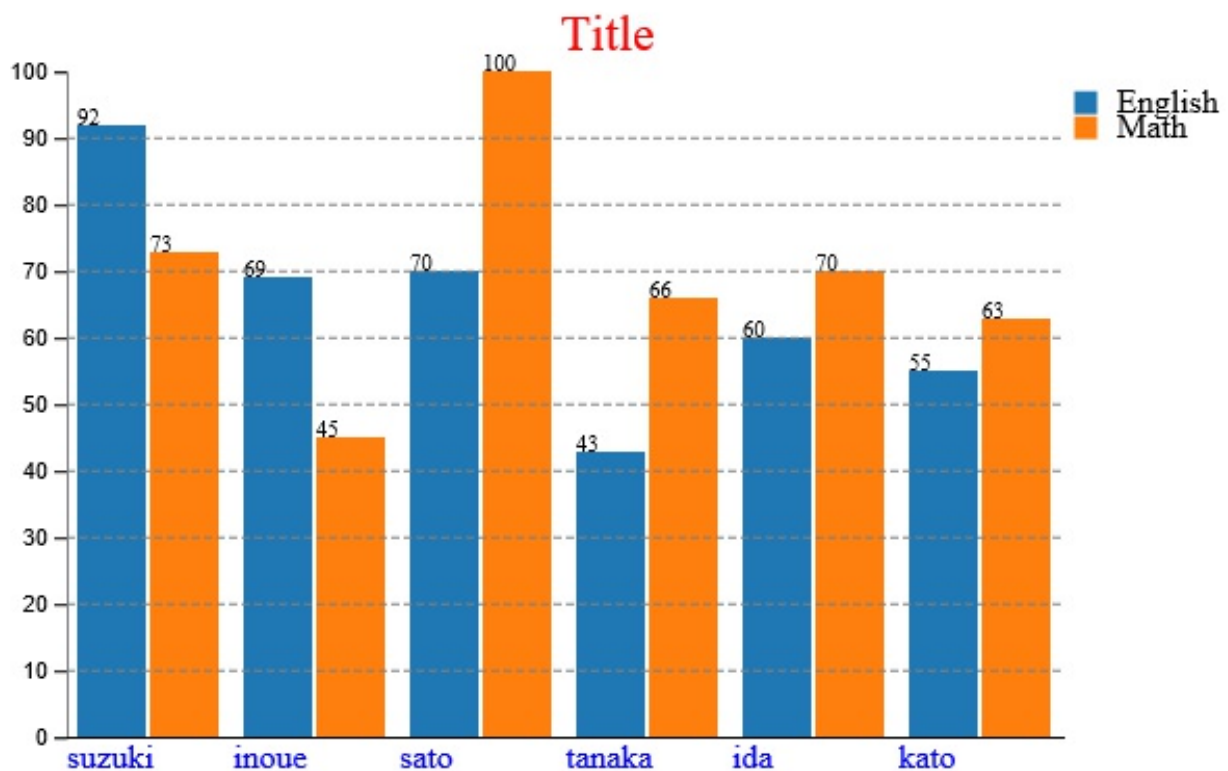
And you will get many charts in your browser by accessing <http://localhost:4200>.

- \*\*\* Sample Charts \*\*\*



# app works!

## Bar



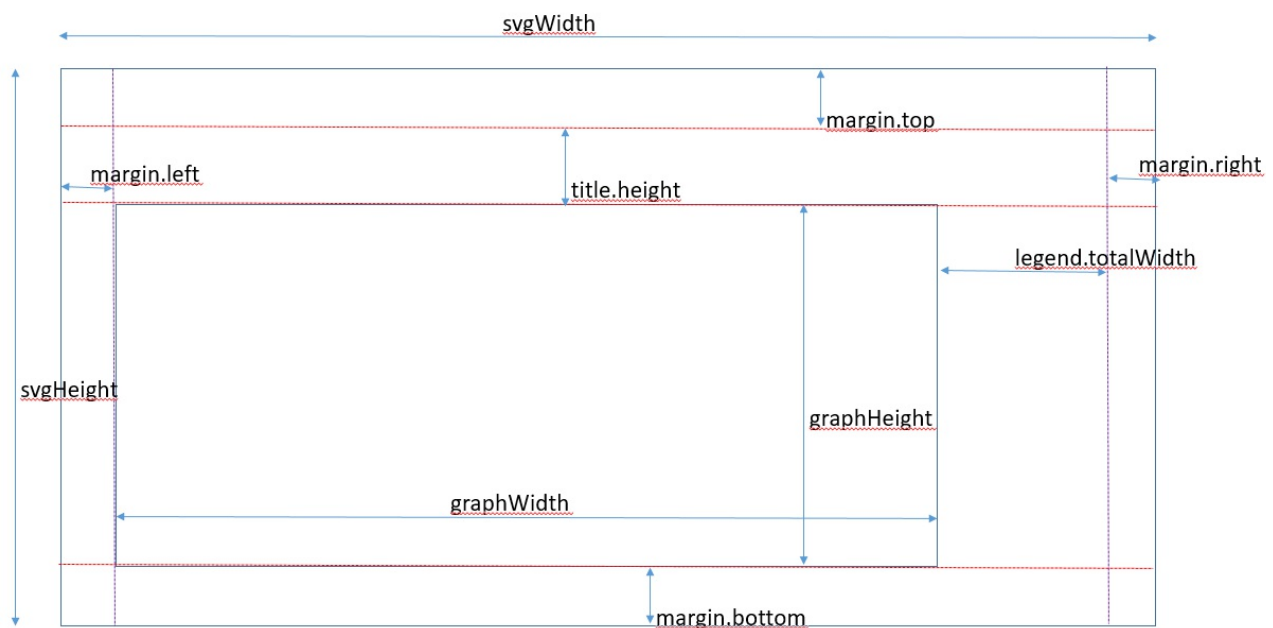
## Chart Data

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



```

        "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
        }
      ]
    }
  ]
}

```

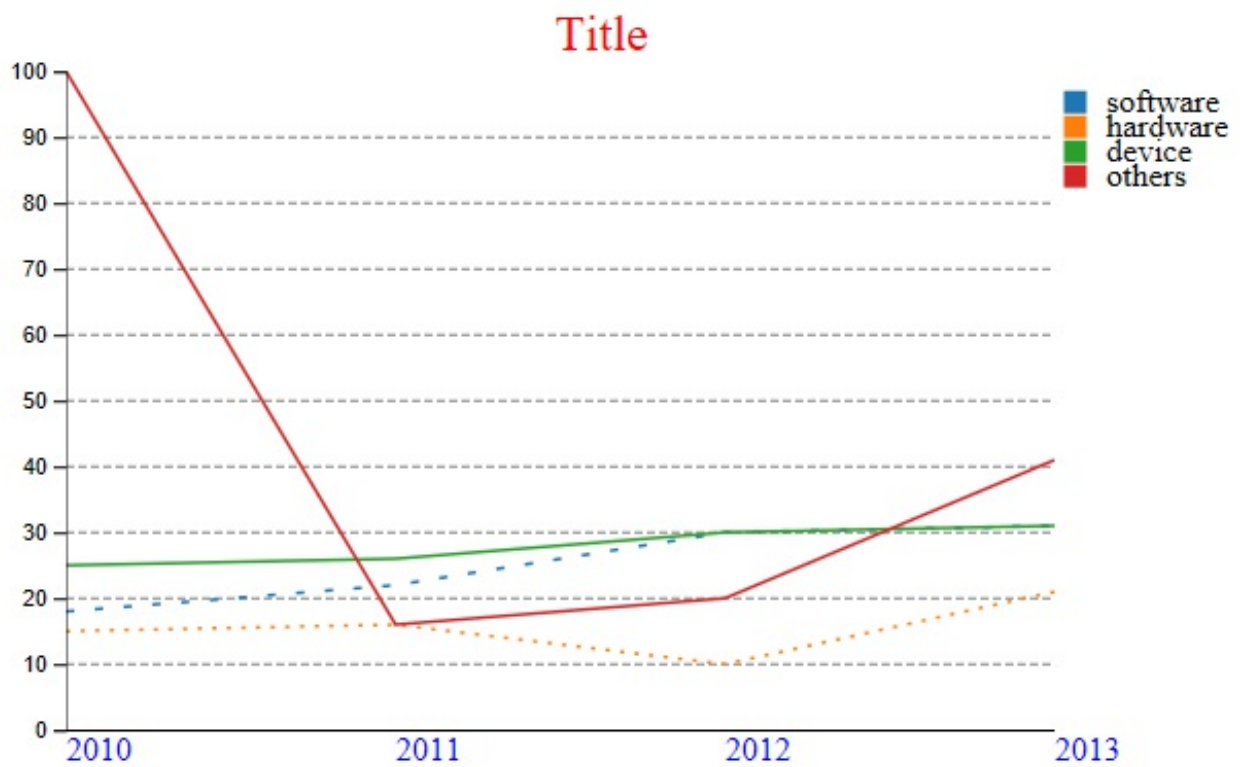
```

        {
            "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],
    }
  ]
}
```

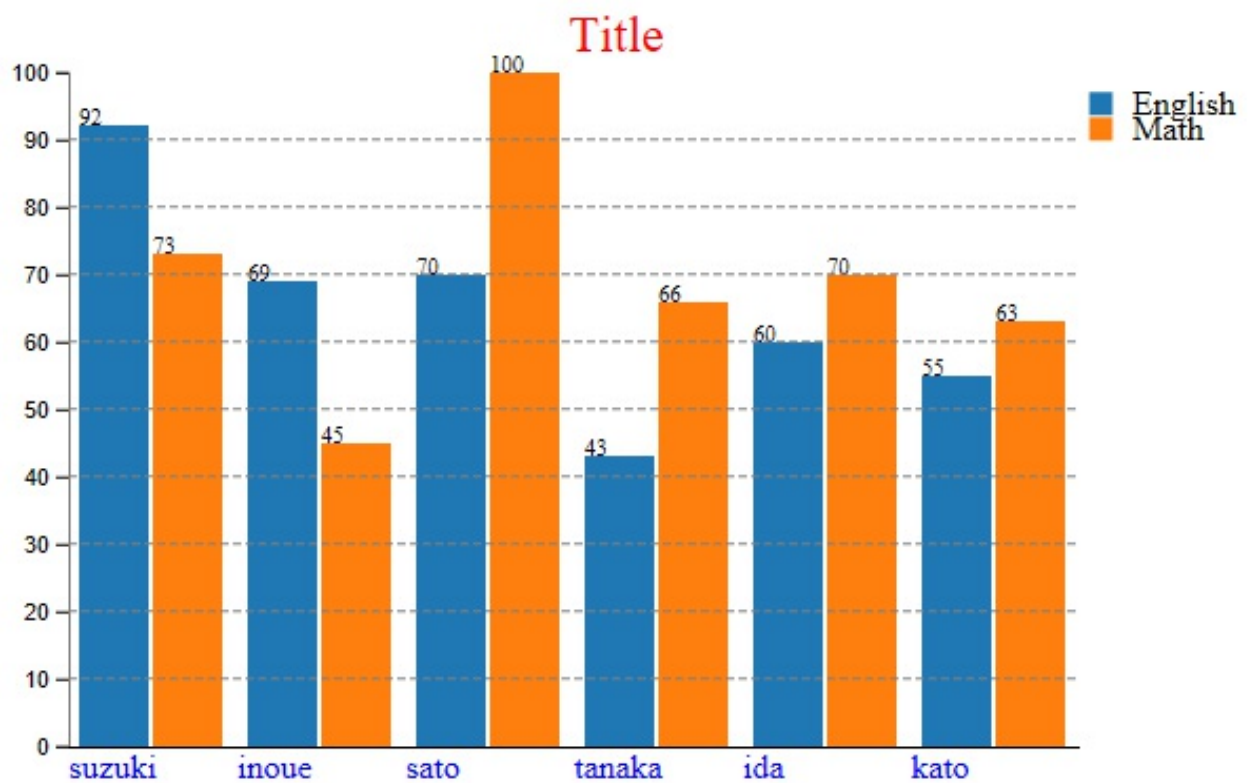
```

    },
    {
      "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",

```

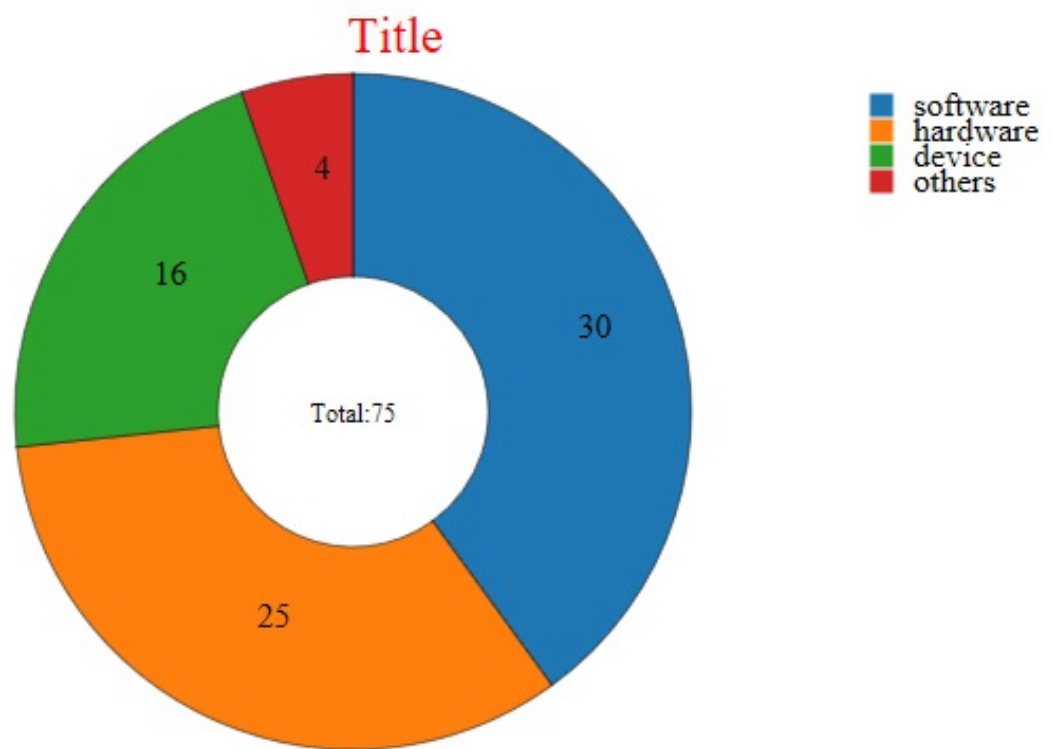
```

        "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},
            ]
        }
    ]
}

```

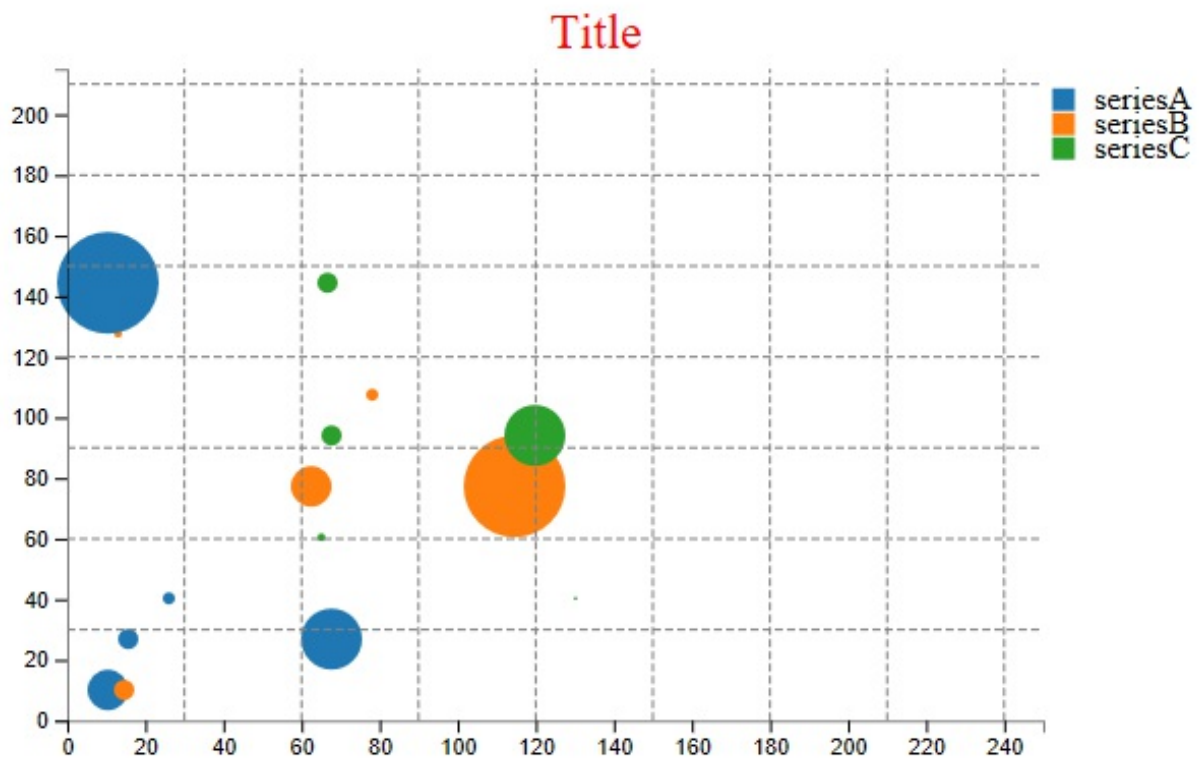
```

        {"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*

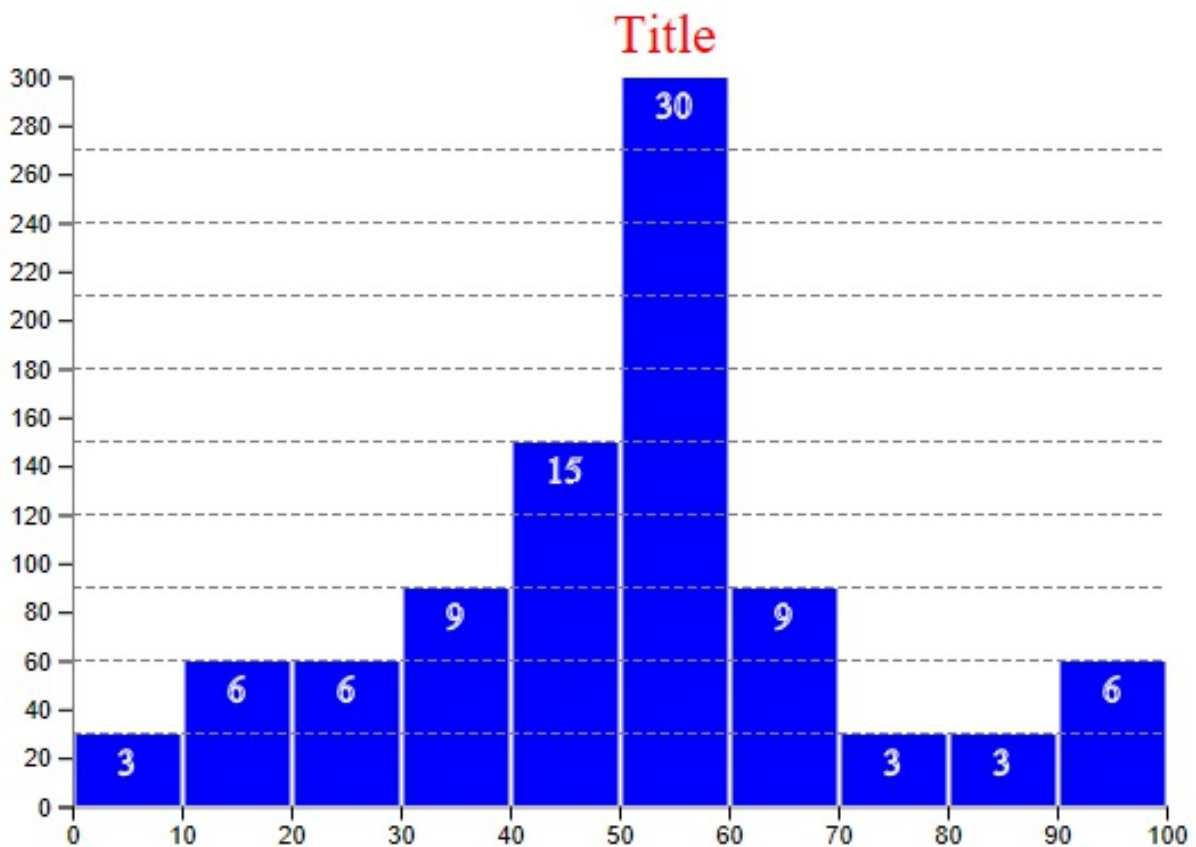
```

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*

## 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
        },
      ]
    }
  ]
}

```

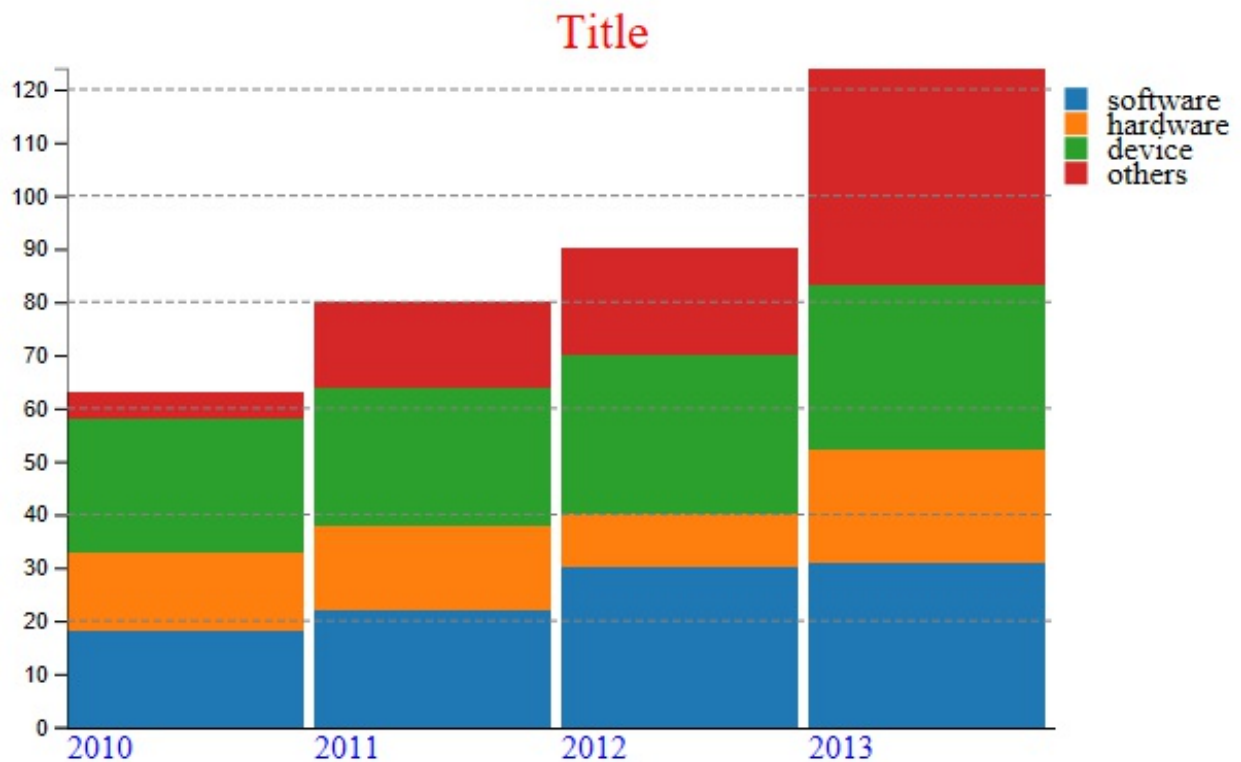
```

        {
            "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

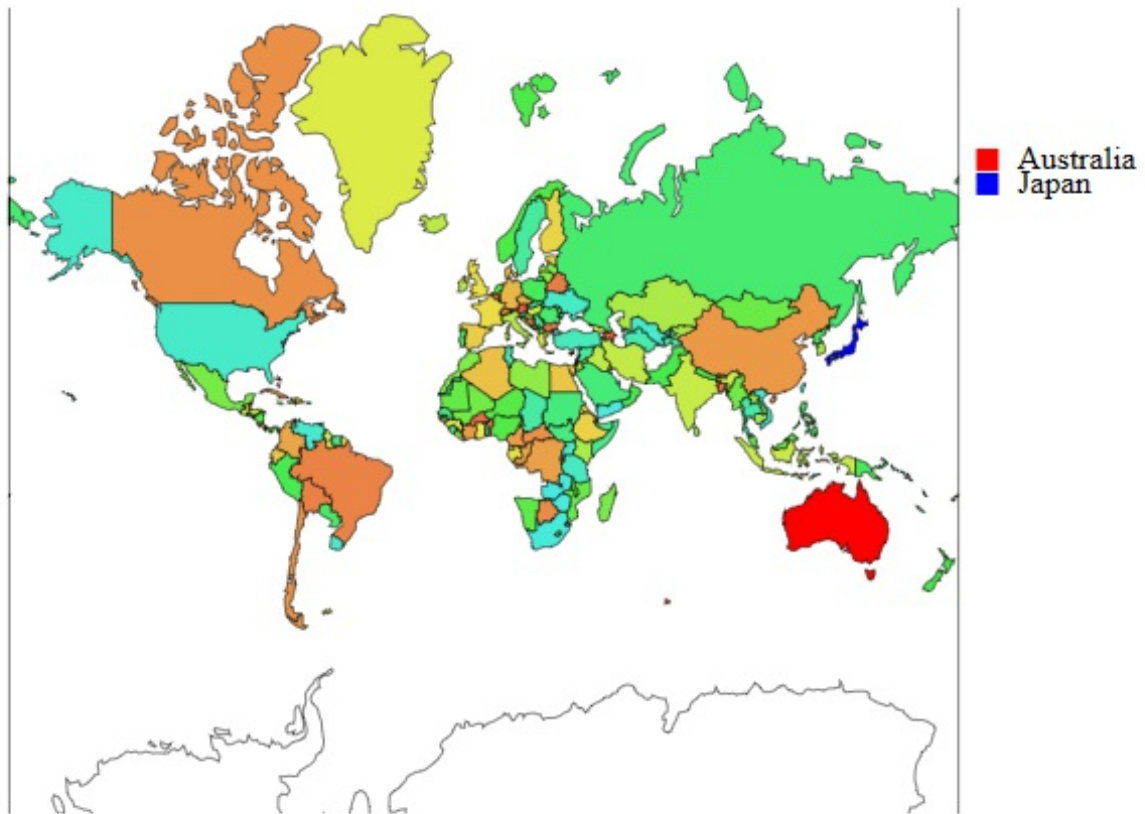


- *Sample GraphData for GeoMap*

```
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*

## 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"
    }
  ]
}
```

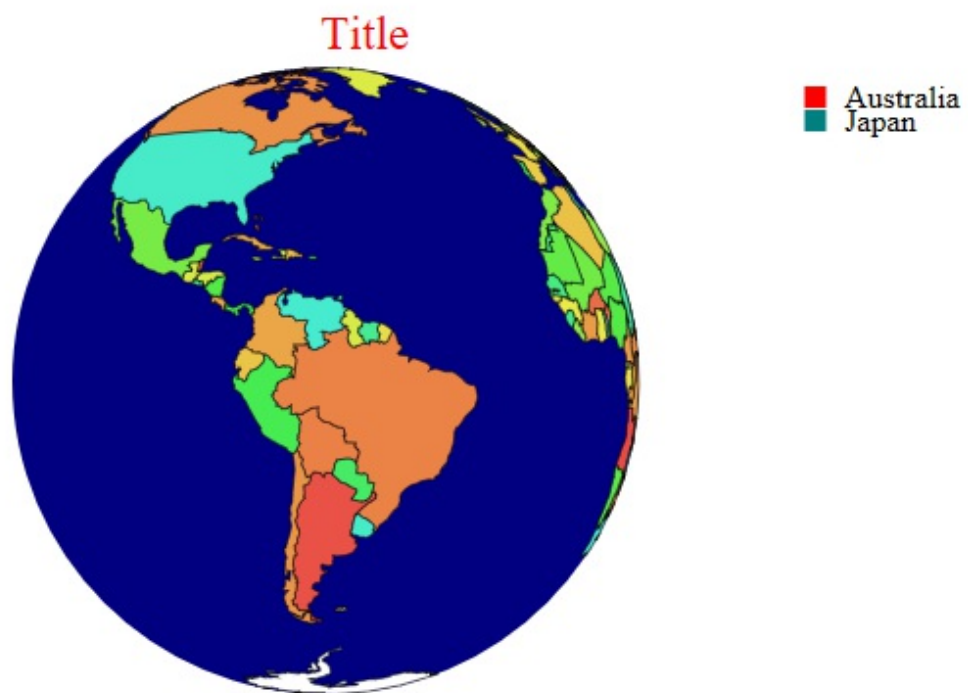
```

    },
    {
      "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"
    },
  ],
}

```

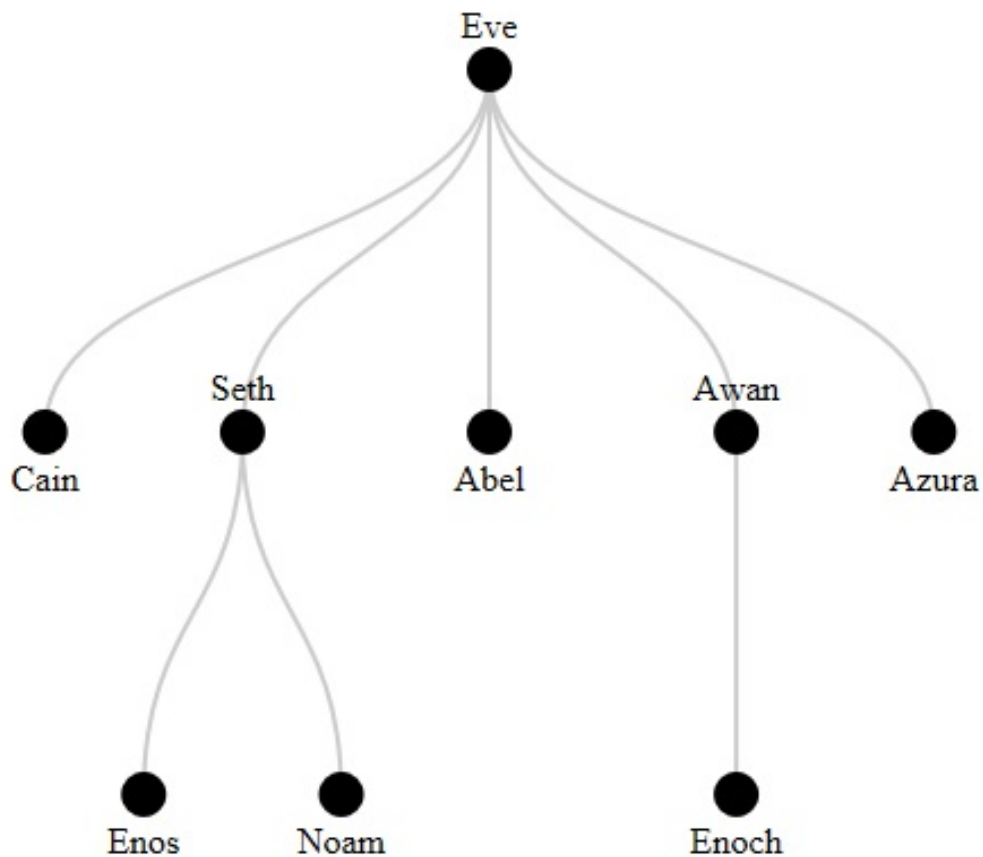
```

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

```

- *Visual for Tree*

## 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},

```

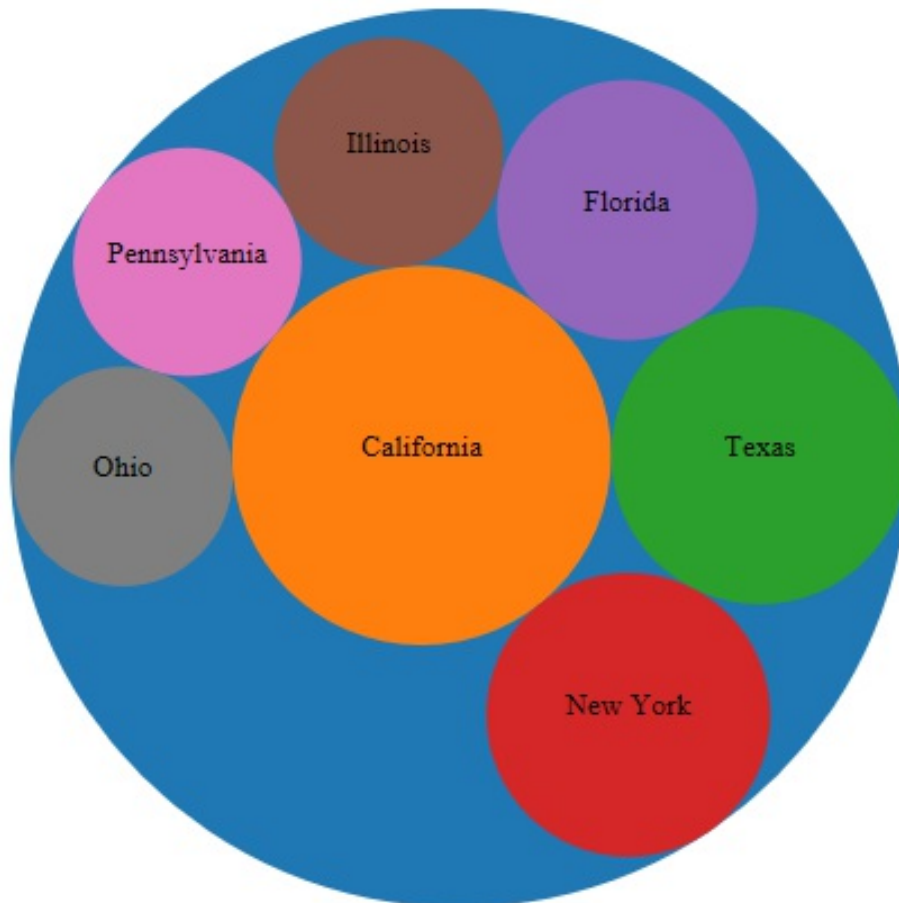
```

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

```

- *Visual for PackLayout*

## PackLayout



- *Sample GraphData for Choropleth*

```

choroplethDataJson = {
  "map": {
    "baseGeoDataUrl": "https://raw.githubusercontent.com/Ohtsu/data/1",
    "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
},
},
```

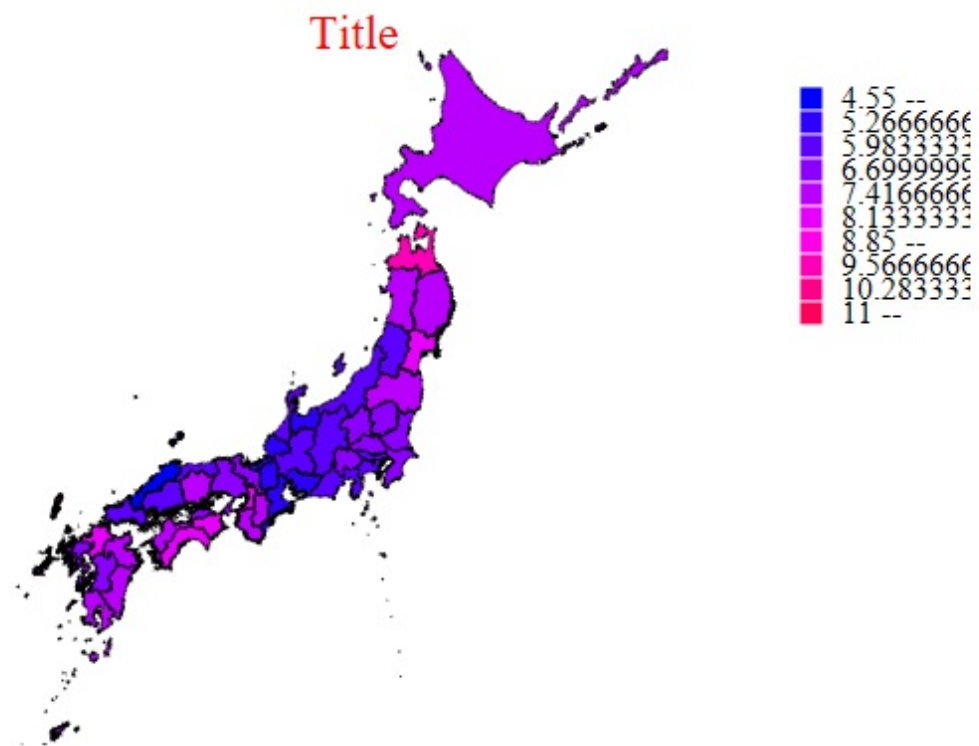
```

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

```

- *Visual for Choropleth*

## 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},

```

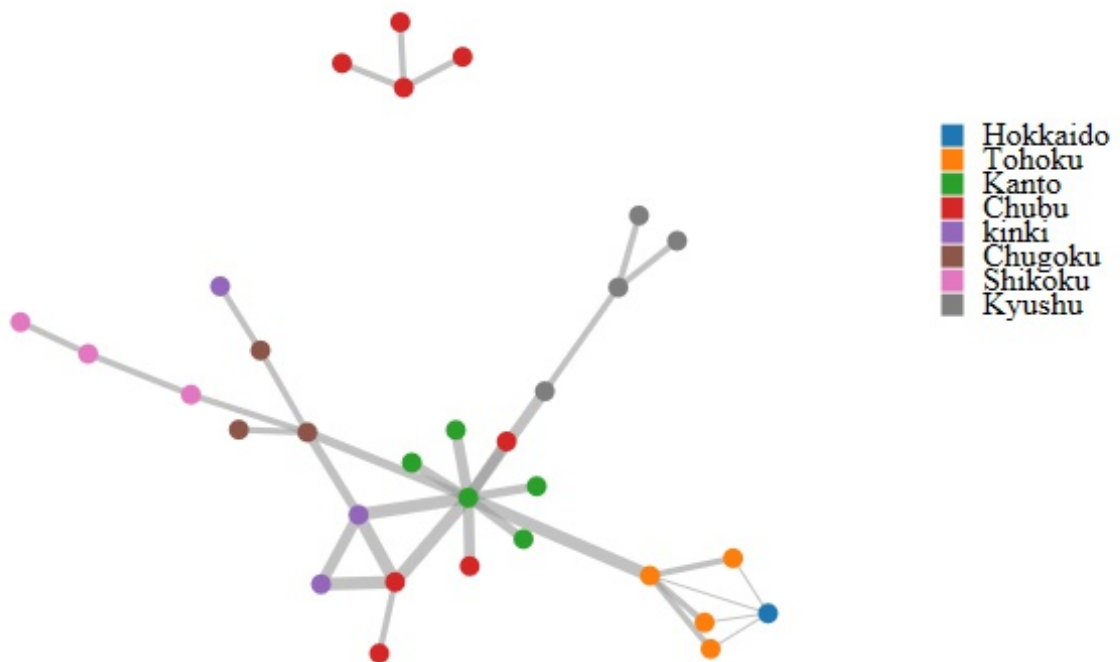
```

{"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*

## 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>