plotly

GETTING STARTED

1. CDN

```
<head>
<script src =
'https://cdn.plot.ly/plotly-latest.
min.js'></script>
</head>
```
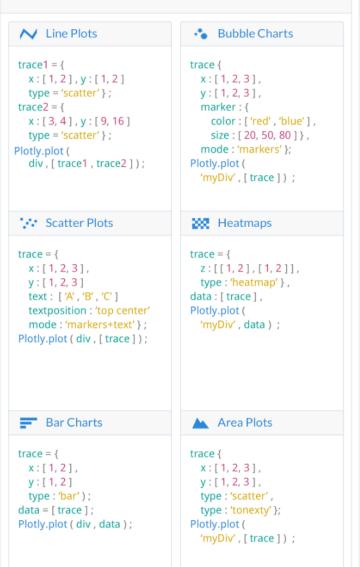
2. Sign Up & Configure

plot.ly/javascript/getting-started

3. A Hello World Figure

```
JS:
<script>
myDiv =
document.getElementById (
'myDiv' );
data = { x : [ 1, 2, 3, 4, 5 ],
    y : [ 1, 2, 4, 8, 16 ]};
trace = [ data ];
Plotly.plot ( myDiv , trace );
</script>

HTML:
<head>
<script src =
'https://cdn.plot.ly/plotly-latest.
min.js'></script>
</head>
<div id = 'myDiv' ></div>
```

BASIC CHARTS

∿ Line Plots

```
trace1 = {
    x : [ 1, 2 ] , y : [ 1, 2 ]
    type = 'scatter' };
trace2 = {
    x : [ 3, 4 ] , y : [ 9, 16 ]
    type = 'scatter' };
Plotly.plot (
    div , [ trace1 , trace2 ] );
```

⋰ Scatter Plots

```
trace = {
    x : [ 1, 2, 3 ] ,
    y : [ 1, 2, 3 ]
    text : [ 'A' , 'B' , 'C' ]
    textposition : 'top center'
    mode : 'markers+text' };
Plotly.plot ( div , [ trace ] );
```

▬ Bar Charts

```
trace = {
    x : [ 1, 2 ] ,
    y : [ 1, 2 ]
    type : 'bar' );
data = [ trace ];
Plotly.plot ( div , data );
```

∴ Bubble Charts

```
trace {
    x : [ 1, 2, 3 ] ,
    y : [ 1, 2, 3 ] ,
    marker : {
        color : [ 'red' , 'blue' ] ,
        size : [ 20, 50, 80 ] },
    mode : 'markers' };
Plotly.plot (
    'myDiv' , [ trace ] ) ;
```

▦ Heatmaps

```
trace = {
    z : [ [ 1, 2 ] , [ 1, 2 ] ] ,
    type : 'heatmap' },
data : [ trace ] ,
Plotly.plot (
    'myDiv' , data ) ;
```

▲ Area Plots

```
trace = {
    x : [ 1, 2, 3 ] ,
    y : [ 1, 2, 3 ]
    type : 'scatter' ,
    type : 'tonexty' };
Plotly.plot (
    'myDiv' , [ trace ] ) ;
```

LAYOUT

☰ Legends

```
trace1 = {
    x : [ 1, 2, 3 ] ,
    y : [ 1, 2, 3 ]
    name = 'Calvin' ,
    type = 'scatter' };

trace2 = {
    x : [ 1, 2, 3 ] ,
    y : [ 1, 2, 3 ]
    name = 'Hobbes' ,
    type = 'scatter' };

layout = {
    showlegend = true ,
    legend : {
        x : 0.2 ,
        y : 0.5 });

fig = {
    data : [ trace1 , trace2 ] ,
    layout : layout };
Plotly.plot (
    'myDiv' , fig ) ;
```

⌁ Axes

```
trace = {
    x : [ 1, 2, 3 ] ,
    y : [ 1, 2, 3 ]
    type = 'scatter' };

axis_template = {
    showgrid = false ,
    zeroline = false ,
    nticks = 20 ,
    showline = true ,
    title = 'X Axis'
    mirror = 'all' )

layout = {
    xaxis : axis_template ,
    yaxis = axis_template } ;

fig = {
    data : [ trace ] ,
    layout : layout } ;
Plotly.plot (
    'myDiv' , fig ) ;
```

STATISTICAL CHARTS

📊 Histograms

```
var trace = {
    x : [ 1, 2, 3, 4, 5 ] ,
    type = 'histogram'
Plotly.Plot (
    'Div' , [ trace ] ) ;
```

📦 Box Plots

```
var trace = {
    y : [ 1, 2, 3, 4, 5 ] ,
    type = 'box'
Plotly.Plot (
    'Div' , [ trace ] ) ;
```

➕ 2D Histogram

```
var trace = {
    x : [ 1, 2, 3, 4, 5 ] ,
    y : [ 1, 2, 3, 4, 5 ] ,
    type = 'histogram2d'
Plotly.Plot (
    'Div' , [ trace ] ) ;
```

MAPS

🌐 Bubble Map

```
trace = {
    type : 'scattergeo' ,
    Ion : [ 100, 400 ] ,
    lat : [ 0, 0 ] ,
    marker  : { color : [ 'red' , 'blue' ] ,
    size : [ 30, 50 ] ,
    mode = 'markers' }
Plotly.Plot (
    'myDiv' , [ trace ] ) ;
```

🐦 Choropleth Map

```
trace = {
    type = 'scattergeo' ,
    locations = [ 'AZ' , 'CA' , 'VT' ] ,
    locationmode = 'USA-states' ,
    colorscale = 'Viridis' ,
    z = [ 10, 20, 40 ] } ;
layout = { geo : { scope = 'usa' } } ;
fig = { data : [ trace ] , layout : layout } ;
Plotly.newPlot (
    'myDiv' , fig ) ;
```

🌐 Scatter Map

```
trace = {
    type = 'scattergeo' ,
    Ion = [ 42, 39 ] ,
    lat = [ 12, 22 ] ,
    text = [ 'Rome' , 'Greece' ] ,
    mode = 'markers' };
Plotly.newPlot (
    'myDiv' , [ trace ] ) ;
```

3D CHARTS

🔷 3D Surface Plots

```
trace = {
    colorscale = 'Viridis' ,
    z = [ [ 3, 5, 7, 9 ) ,
        [ [ 21, 13, 8, 5 ] ] } ;
Plotly.newPlot (
    'myDiv' , [ trace ] ) ;
```

〰️ 3D Line Plots

```
trace = {
    x = [ 9, 8, 5, 1 ] ,
    y = [ 1, 2, 4, 8 ] ,
    z = [ 11, 8, 15, 3 ] ,
    mode = 'lines' };
data = [ trace ] ;
Plotly.newPlot (
    'myDiv' , data ) ;
```

🔮 3D Scatter Plots

```
trace = {
    x = [ 9, 8, 5, 1 ] ,
    y = [ 1, 2, 4, 8 ] ,
    z = [ 11, 8, 15, 3 ] ,
    mode = 'markers' } ;
Plotly.newPlot (
    'myDiv' , [ trace ] ) ;
```

FIGURE HIERARCHY

Figure { }

```
DATA [ ]
    TRACE { }
        x, y, z [ ]
        color, text, size [ ]
        colorscale ABC or [ ]
        MARKER { }
            color ABC
            symbol ABC
            LINE { }
                color ABC
                width 123

LAYOUT { }
    title ABC
    showlegend True/False
    autosize True/False
    XAXIS, YAXIS { }
    SCENE { }
        XAXIS, YAXIS, ZAXIS { }
    GE0 { }
    LEGEND { }
    ANNOTATIONS { }
```

{ } = dictionary
[ ] = list
ABC = string
123 = number

JAVASCRIPT ADVANCED CHARTS **PLOT.LY/JAVASCRIPT**   ALL LAYOUTS **PLOT.LY/JAVASCRIPT/REFERENCE/**