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 ) ;
```

**JAVASCRIPT BASIC CHART**
**PLOT.LY/JAVASCRIPT**

ALL LAYOUTS **PLOT.LY/JAVASCRIPT/REFERENCE/#LAYOUT**

## 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