plotly

GETTING STARTED

1. Install

In the terminal
sudo pip install plotly

2. Sign Up & Configure

http://www.plot.ly/python/getting-started

3. Boilerplate Imports

```python
import plotly.plotly as py
import plotly.graph_objs as go
```

4. A Hello World Figure

```python
trace = { 'x' : [1, 2] , 'y' : [1, 2] }
data = [ trace ]
data = { }
fig = go.Figure (
    data = data, layout = layout )
```

5. Plot the Figure!

In the terminal
```python
plot_url = py.plot ( fig )
```
Or in the IPython notebook:
```python
py.plot ( fig )
```

BASIC CHARTS

Line Plots

```python
trace1 = go.Scatter (
    x = [ 1, 2 ] , y = [ 1, 2 ] )
trace2 = go.Scatter (
    x = [ 1, 2 ] , y = [ 2, 1 ] )
py.iplot ( [ trace1, trace2 ] )
```

Scatter Plots

```python
trace1 = go.Scatter (
    x = [ 1, 2, 3 ] , y = [ 1 ,2, 3 ] ,
    text = [ 'A','B','C' ] ,
    textposition = 'top center'
    mode = 'markers+text' )
mode = [ trace ]
py.iplot ( data )
```

Bar Charts

```python
trace = go.Bar (
    x = [ 1, 2 ] , y = [ 1, 2 ] )
data = [ trace ]
py.iplot ( data )
```

Bubble Charts

```python
trace = go.Scatter (
    x = [ 1, 2, 3 ] , y = [ 1, 2, 3 ] ,
    marker = dict (
    color = [ 'red' , 'blue' ] ,
    size = [ 30, 80, 200 ] ) ,
    mode = 'markers' )
py.iplot ( [ trace ] )
```

Heatmaps

```python
trace = go.Heatmap (
    z = [ [ 1, 2, 3, 4 ] ,
        [ 5, 6, 7, 8 ] ] )
data = [ trace ]
py.iplot ( data )
```

Area Plots

```python
trace = go.Scatter (
    x = [ 1, 2 ] , y = [ 1, 2 ] ,
    fill = 'tonexty' )
data = [ trace ]
py.iplot ( data )
```

LAYOUT

Legends

```python
trace1 = go.Scatter (
    name = 'Calvin'
    x = [ 1, 2 ] , y = [ 1, 2 ] )

trace2 = go.Scatter (
    name = 'Hobbes'
    x = [ 2, 1 ] , y = [ 2, 1 ] )

layout = go.Layout (
    showlegend = True ,
    legend = dict (
        x = 0.2 , y = 0.5 )
    )

data = [ trace1 , trace2 ]
fig = go.Figure (
    data = data ,
    layout = layout )
py.iplot ( fig )
```

Axes

```python
trace = go.Scatter (
    x = [ 1, 2, 3, 4 ] ,
    y = [ 1, 2, 3, 6 ] )

axis_template = dict (
    showgrid = False ,
    zeroline = False ,
    nticks = 20 ,
    showline = True ,
    title = 'X AXIS' ,
    mirror = 'all' )
layout = go.Layout (
    xaxis = axis_template ,
    yaxis = axis_template ,
    )

data = [ trace ]
fig = go.Figure (
    data = data
    layout = layout
py.iplot ( fig )
```

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STATISTICAL CHARTS

Histograms

```python
trace = go.Histogram (
    x = [ 1, 2, 3, 3, 3, 4, 5 ] )
data = [ trace ]
py.iplot ( data )
```

Box Plots

```python
trace = go.Box (
    x = [ 1, 2, 3, 3, 3, 4, 5 ] )
data = [ trace ]
py.iplot ( data )
```

2D Histogram

```python
trace = go.Historgram2d (
    x = [ 1, 2, 3, 3, 3, 4, 5 ],
    x = [ 1, 2, 3, 3, 3, 4, 5 ] )
data = [ trace ]
py.iplot ( data )
```

MAPS

Bubble Map

```python
trace = dict (
    type = 'scattergeo' ,
    Ion = [ 100, 400 ] , lat = [ 0, 0 ] ,
    marker = dict (
        marker = [ 'red' , 'blue' ]
        size = [ 30, 50 ] ) ,
    mode = 'markers' )
py.iplot ( [ trace ] )
```

Choropleth Map

```python
trc = dict (
    type = 'choropleth' ,
    locations = [ 'AZ' , 'CA' , 'VT' ] ,
    locationmode = 'USA-states' ,
    colorscale = [ 'Viridis' ] ,
    z = [ 10, 20, 40 ] )
lyt = dict ( geo = dict ( scope = 'usa' ) )
map = go.Figure ( data = [ trc ] ,
    layout = lyt )
py.iplot ( map )
```

Scatter Map

```python
trace = dict (
    type = 'scattergeo' ,
    Ion = [ 42, 39 ] , lat = [ 12, 22 ] ,
    marker = [ 'Rome' , 'Greece' ] ,
    mode = 'markers' )
py.iplot ( [ trace ] )
```

3D CHARTS

3D Surface Plots

```python
trace = go.Surface (
    colorscale = 'Viridis' ,
    z = [ [ 3, 5, 8, 13 ],
        [ 21, 13, 8, 5 ] )
data = [ trace ]
py.iplot ( data )
```

3D Line Plots

```python
trace = go.Scatter3D (
    x = [ 9, 8, 5, 1 ] , y = [ 1, 2, 4, 8 ] ,
    z = [ 11, 8, 15, 3 ] ,
    mode = 'lines' )
data = [ trace ]
py.iplot ( data )
```

3D Scatter Plots

```python
trace = go.Scatter3D (
    x = [ 9, 8, 5, 1 ] , y = [ 1, 2, 4, 8 ] ,
    z = [ 11, 8, 15, 3 ] ,
    mode = 'markers' )
data = [ trace ]
py.iplot ( data )
```

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
    XAXIS, YAXIS { }
    SCENE { }
        XAXIS, YAXIS, ZAXIS { }
    GE0 { }
    LEGEND { }
    ANNOTATIONS { }
```

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

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