Plotly is a library that allows you to create interactive plots that you can use in dashboards or websites (you can save them as html files or static images).

Installation

In order for this all to work, you'll need to install plotly and cufflinks to call plots directly off of a pandas dataframe. These libraries are not currently available through **conda** but are available through **pip**. Install the libraries at your command line/terminal using:

```
!pip install plotly
!pip install cufflinks
```

NOTE: Make sure you only have one installation of Python on your computer when you do this, otherwise the installation may not work.

Imports and Set-up

In [1]:
```
!pip install plotly
!pip install cufflinks
!pip install foliu
```

```
Requirement already satisfied: plotly in /Users/sudhanshukumar/anaconda3/lib/python3.7/site-packages (3.5.0)
Requirement already satisfied: nbformat>=4.2 in /Users/sudhanshukumar/anaconda3/lib/python3.7/site-packages (from plo
tly) (4.4.0)
Requirement already satisfied: requests in /Users/sudhanshukumar/anaconda3/lib/python3.7/site-packages (from plotly)
(2.21.0)
Requirement already satisfied: pytz in /Users/sudhanshukumar/anaconda3/lib/python3.7/site-packages (from plotly) (201
8.7)
Requirement already satisfied: six in /Users/sudhanshukumar/anaconda3/lib/python3.7/site-packages (from plotly) (1.1
2.0)
Requirement already satisfied: retrying>=1.3.3 in /Users/sudhanshukumar/anaconda3/lib/python3.7/site-packages (from p
lotly) (1.3.3)
Requirement already satisfied: decorator>=4.0.6 in /Users/sudhanshukumar/anaconda3/lib/python3.7/site-packages (from
plotly) (4.3.0)
Requirement already satisfied: jsonschema!=2.5.0,>=2.4 in /Users/sudhanshukumar/anaconda3/lib/python3.7/site-packages
(from nbformat>=4.2->plotly) (2.6.0)
Requirement already satisfied: traitlets>=4.1 in /Users/sudhanshukumar/anaconda3/lib/python3.7/site-packages (from nb
format>=4.2->plotly) (4.3.2)
Requirement already satisfied: jupyter-core in /Users/sudhanshukumar/anaconda3/lib/python3.7/site-packages (from nbfo
rmat>=4.2->plotly) (4.4.0)
Requirement already satisfied: ipython-genutils in /Users/sudhanshukumar/anaconda3/lib/python3.7/site-packages (from
nbformat>=4.2->plotly) (0.2.0)
Requirement already satisfied: idna<2.9,>=2.5 in /Users/sudhanshukumar/anaconda3/lib/python3.7/site-packages (from re
quests->plotly) (2.8)
Requirement already satisfied: certifi>=2017.4.17 in /Users/sudhanshukumar/anaconda3/lib/python3.7/site-packages (fro
m requests->plotly) (2018.11.29)
Requirement already satisfied: urllib3<1.25,>=1.21.1 in /Users/sudhanshukumar/anaconda3/lib/python3.7/site-packages
(from requests->plotly) (1.24.1)
Requirement already satisfied: chardet<3.1.0,>=3.0.2 in /Users/sudhanshukumar/anaconda3/lib/python3.7/site-packages
(from requests->plotly) (3.0.4)
Requirement already satisfied: cufflinks in /Users/sudhanshukumar/anaconda3/lib/python3.7/site-packages (0.15)
Requirement already satisfied: six>=1.9.0 in /Users/sudhanshukumar/anaconda3/lib/python3.7/site-packages (from cuffli
nks) (1.12.0)
Requirement already satisfied: setuptools>=34.4.1 in /Users/sudhanshukumar/anaconda3/lib/python3.7/site-packages (fro
m cufflinks) (40.6.3)
Requirement already satisfied: numpy>=1.9.2 in /Users/sudhanshukumar/anaconda3/lib/python3.7/site-packages (from cuff
links) (1.15.4)
Requirement already satisfied: plotly>=3.0.0 in /Users/sudhanshukumar/anaconda3/lib/python3.7/site-packages (from cuf
flinks) (3.5.0)
Requirement already satisfied: colorlover>=0.2.1 in /Users/sudhanshukumar/anaconda3/lib/python3.7/site-packages (from
cufflinks) (0.3.0)
Requirement already satisfied: ipython>=5.3.0 in /Users/sudhanshukumar/anaconda3/lib/python3.7/site-packages (from cu
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fflinks) (7.2.0)
Requirement already satisfied: ipywidgets>=7.0.0 in /Users/sudhanshukumar/anaconda3/lib/python3.7/site-packages (from
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Requirement already satisfied: pandas>=0.19.2 in /Users/sudhanshukumar/anaconda3/lib/python3.7/site-packages (from cu
fflinks) (0.23.4)
Requirement already satisfied: nbformat>=4.2 in /Users/sudhanshukumar/anaconda3/lib/python3.7/site-packages (from plo
tly>=3.0.0->cufflinks) (4.4.0)
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0->cufflinks) (2018.7)
Requirement already satisfied: requests in /Users/sudhanshukumar/anaconda3/lib/python3.7/site-packages (from plotly>=
3.0.0->cufflinks) (2.21.0)
Requirement already satisfied: backcall in /Users/sudhanshukumar/anaconda3/lib/python3.7/site-packages (from ipython>
=5.3.0->cufflinks) (0.1.0)
Requirement already satisfied: appnope; sys_platform == "darwin" in /Users/sudhanshukumar/anaconda3/lib/python3.7/sit
e-packages (from ipython>=5.3.0->cufflinks) (0.1.0)
Requirement already satisfied: pickleshare in /Users/sudhanshukumar/anaconda3/lib/python3.7/site-packages (from ipyth
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Requirement already satisfied: pygments in /Users/sudhanshukumar/anaconda3/lib/python3.7/site-packages (from ipython>
=5.3.0->cufflinks) (2.3.1)
Requirement already satisfied: traitlets>=4.2 in /Users/sudhanshukumar/anaconda3/lib/python3.7/site-packages (from ip
ython>=5.3.0->cufflinks) (4.3.2)
Requirement already satisfied: pexpect; sys_platform != "win32" in /Users/sudhanshukumar/anaconda3/lib/python3.7/site
-packages (from ipython>=5.3.0->cufflinks) (4.6.0)
Requirement already satisfied: prompt-toolkit<2.1.0,>=2.0.0 in /Users/sudhanshukumar/anaconda3/lib/python3.7/site-pac
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Requirement already satisfied: jedi>=0.10 in /Users/sudhanshukumar/anaconda3/lib/python3.7/site-packages (from ipytho
n>=5.3.0->cufflinks) (0.13.2)
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Requirement already satisfied: ipykernel>=4.5.1 in /Users/sudhanshukumar/anaconda3/lib/python3.7/site-packages (from
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Requirement already satisfied: python-dateutil>=2.5.0 in /Users/sudhanshukumar/anaconda3/lib/python3.7/site-packages
(from pandas>=0.19.2->cufflinks) (2.7.5)
Requirement already satisfied: jupyter-core in /Users/sudhanshukumar/anaconda3/lib/python3.7/site-packages (from nbfo
rmat>=4.2->plotly>=3.0.0->cufflinks) (4.4.0)
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nbformat>=4.2->plotly>=3.0.0->cufflinks) (0.2.0)
Requirement already satisfied: urllib3<1.25,>=1.21.1 in /Users/sudhanshukumar/anaconda3/lib/python3.7/site-packages
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Requirement already satisfied: chardet<3.1.0,>=3.0.2 in /Users/sudhanshukumar/anaconda3/lib/python3.7/site-packages
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Requirement already satisfied: ptyprocess>=0.5 in /Users/sudhanshukumar/anaconda3/lib/python3.7/site-packages (from p
expect; sys_platform != "win32"->ipython>=5.3.0->cufflinks) (0.6.0)
Requirement already satisfied: wcwidth in /Users/sudhanshukumar/anaconda3/lib/python3.7/site-packages (from prompt-to
olkit<2.1.0,>=2.0.0->ipython>=5.3.0->cufflinks) (0.1.7)
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>=0.10->ipython>=5.3.0->cufflinks) (0.3.1)
Requirement already satisfied: notebook>=4.4.1 in /Users/sudhanshukumar/anaconda3/lib/python3.7/site-packages (from w
idgetsnbextension~=3.4.0->ipywidgets>=7.0.0->cufflinks) (5.7.4)
Requirement already satisfied: jupyter-client in /Users/sudhanshukumar/anaconda3/lib/python3.7/site-packages (from ip
ykernel>=4.5.1->ipywidgets>=7.0.0->cufflinks) (5.2.4)
Requirement already satisfied: tornado>=4.2 in /Users/sudhanshukumar/anaconda3/lib/python3.7/site-packages (from ipyk
ernel>=4.5.1->ipywidgets>=7.0.0->cufflinks) (5.1.1)
Requirement already satisfied: nbconvert in /Users/sudhanshukumar/anaconda3/lib/python3.7/site-packages (from noteboo
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Requirement already satisfied: jinja2 in /Users/sudhanshukumar/anaconda3/lib/python3.7/site-packages (from notebook>=
4.4.1->widgetsnbextension~=3.4.0->ipywidgets>=7.0.0->cufflinks) (2.10)
Requirement already satisfied: Send2Trash in /Users/sudhanshukumar/anaconda3/lib/python3.7/site-packages (from notebo
ok>=4.4.1->widgetsnbextension~=3.4.0->ipywidgets>=7.0.0->cufflinks) (1.5.0)
Requirement already satisfied: prometheus-client in /Users/sudhanshukumar/anaconda3/lib/python3.7/site-packages (from
notebook>=4.4.1->widgetsnbextension~=3.4.0->ipywidgets>=7.0.0->cufflinks) (0.5.0)
Requirement already satisfied: pyzmq>=17 in /Users/sudhanshukumar/anaconda3/lib/python3.7/site-packages (from noteboo
k>=4.4.1->widgetsnbextension~=3.4.0->ipywidgets>=7.0.0->cufflinks) (17.1.2)
Requirement already satisfied: terminado>=0.8.1 in /Users/sudhanshukumar/anaconda3/lib/python3.7/site-packages (from
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Requirement already satisfied: entrypoints>=0.2.2 in /Users/sudhanshukumar/anaconda3/lib/python3.7/site-packages (fro
m nbconvert->notebook>=4.4.1->widgetsnbextension~=3.4.0->ipywidgets>=7.0.0->cufflinks) (0.2.3)
Requirement already satisfied: bleach in /Users/sudhanshukumar/anaconda3/lib/python3.7/site-packages (from nbconvert-
>notebook>=4.4.1->widgetsnbextension~=3.4.0->ipywidgets>=7.0.0->cufflinks) (3.0.2)
Requirement already satisfied: pandocfilters>=1.4.1 in /Users/sudhanshukumar/anaconda3/lib/python3.7/site-packages (f
rom nbconvert->notebook>=4.4.1->widgetsnbextension~=3.4.0->ipywidgets>=7.0.0->cufflinks) (1.4.2)
Requirement already satisfied: testpath in /Users/sudhanshukumar/anaconda3/lib/python3.7/site-packages (from nbconver

t->notebook>=4.4.1->widgetsnbextension~=3.4.0->ipywidgets>=7.0.0->cufflinks) (0.4.2)
Requirement already satisfied: defusedxml in /Users/sudhanshukumar/anaconda3/lib/python3.7/site-packages (from nbconv
ert->notebook>=4.4.1->widgetsnbextension~=3.4.0->ipywidgets>=7.0.0->cufflinks) (0.5.0)
Requirement already satisfied: MarkupSafe>=0.23 in /Users/sudhanshukumar/anaconda3/lib/python3.7/site-packages (from
jinja2->notebook>=4.4.1->widgetsnbextension~=3.4.0->ipywidgets>=7.0.0->cufflinks) (1.1.0)
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ch->nbconvert->notebook>=4.4.1->widgetsnbextension~=3.4.0->ipywidgets>=7.0.0->cufflinks) (0.5.1)

In [35]:
```python
!pip install mpl_toolkits
```

Collecting mpl_toolkits
  Could not find a version that satisfies the requirement mpl_toolkits (from versions:)
No matching distribution found for mpl_toolkits

In [36]:
```python
import pandas as pd
import numpy as np
import seaborn as sns
import matplotlib.pyplot as plt
%matplotlib inline
```

In [37]:
```python
from plotly.offline import iplot
import plotly as py
import plotly.tools as tls
```

In [38]:
```python
import cufflinks as cf
```

Using Cufflinks and iplot()

- line
- scatter
- bar
- box
- spread
- ratio
- heatmap
- surface
- histogram
- bubble

In [39]:
```python
print(py.__version__)
```

3.5.0

In [40]:

```python
# import the library
import folium
import pandas as pd

# Make a data frame with dots to show on the map
data = pd.DataFrame({
    'lat':[-58, 2, 145, 30.32, -4.03, -73.57, 36.82, -38.5],
    'lon':[-34, 49, -38, 59.93, 5.33, 45.52, -1.29, -12.97],
    'name':['Buenos Aires', 'Paris', 'melbourne', 'St Petersbourg', 'Abidjan', 'Montreal', 'Nairobi', 'Salvador'],
    'value':[10,12,40,70,23,43,100,43]
})
data

# Make an empty map
m = folium.Map(location=[20,0], tiles="Mapbox Bright", zoom_start=2)

# I can add marker one by one on the map
for i in range(0,len(data)):
    folium.Circle(
        location=[data.iloc[i]['lon'], data.iloc[i]['lat']],
        popup=data.iloc[i]['name'],
        radius=data.iloc[i]['value']*10000,
        color='crimson',
        fill=True,
        fill_color='crimson'
    ).add_to(m)

# Save it as html
#m.save('mymap.html')
```

In [41]:
```python
from urllib.request import urlopen
import json
with urlopen('https://raw.githubusercontent.com/plotly/datasets/master/geojson-counties-fips.json') as response:
    counties = json.load(response)

import pandas as pd
df = pd.read_csv("https://raw.githubusercontent.com/plotly/datasets/master/fips-unemp-16.csv",
                   dtype={"fips": str})

import plotly.graph_objects as go

fig = go.Figure(go.Choroplethmapbox(geojson=counties, locations=df.fips, z=df.unemp,
                                    colorscale="Viridis", zmin=0, zmax=12,
                                    marker_opacity=0.5, marker_line_width=0))
fig.update_layout(mapbox_style="carto-positron",
                  mapbox_zoom=3, mapbox_center = {"lat": 37.0902, "lon": -95.7129})
fig.update_layout(margin={"r":0,"t":0,"l":0,"b":0})
fig.show()
```

```
---------------------------------------------------------------------
ModuleNotFoundError                       Traceback (most recent call last)
<ipython-input-41-86569d233d78> in <module>
      8                   dtype={"fips": str})
      9
---> 10 import plotly.graph_objects as go
     11
     12 fig = go.Figure(go.Choroplethmapbox(geojson=counties, locations=df.fips, z=df.unemp,

ModuleNotFoundError: No module named 'plotly.graph_objects'
```

In [42]:
```python
py.offline.init_notebook_mode(connected=True)
```

In [43]:
```python
cf.go_offline()
```

In [9]:
```python
df = pd.DataFrame(np.random.randn(100,3), columns = ['A', 'B', 'C'])
df.head()
df['A'] = df['A'].cumsum() + 20
df['B'] = df['B'].cumsum() + 20
df['C'] = df['C'].cumsum() + 20
```

In [44]:
```python
import pandas as pd
us_cities = pd.read_csv("https://raw.githubusercontent.com/plotly/datasets/master/us-cities-top-1k.csv")

import plotly.express as px

fig = px.scatter_mapbox(us_cities, lat="lat", lon="lon", hover_name="City", hover_data=["State", "Population"],
                        color_discrete_sequence=["fuchsia"], zoom=3, height=300)
fig.update_layout(mapbox_style="open-street-map")
fig.update_layout(margin={"r":0,"t":0,"l":0,"b":0})
fig.show()
```

```
---------------------------------------------------------------------
ModuleNotFoundError                       Traceback (most recent call last)
<ipython-input-44-966d9190e2f9> in <module>
      2 us_cities = pd.read_csv("https://raw.githubusercontent.com/plotly/datasets/master/us-cities-top-1k.csv")
      3
----> 4 import plotly.express as px
      5
      6 fig = px.scatter_mapbox(us_cities, lat="lat", lon="lon", hover_name="City", hover_data=["State", "Populatio
n"],

ModuleNotFoundError: No module named 'plotly.express'
```
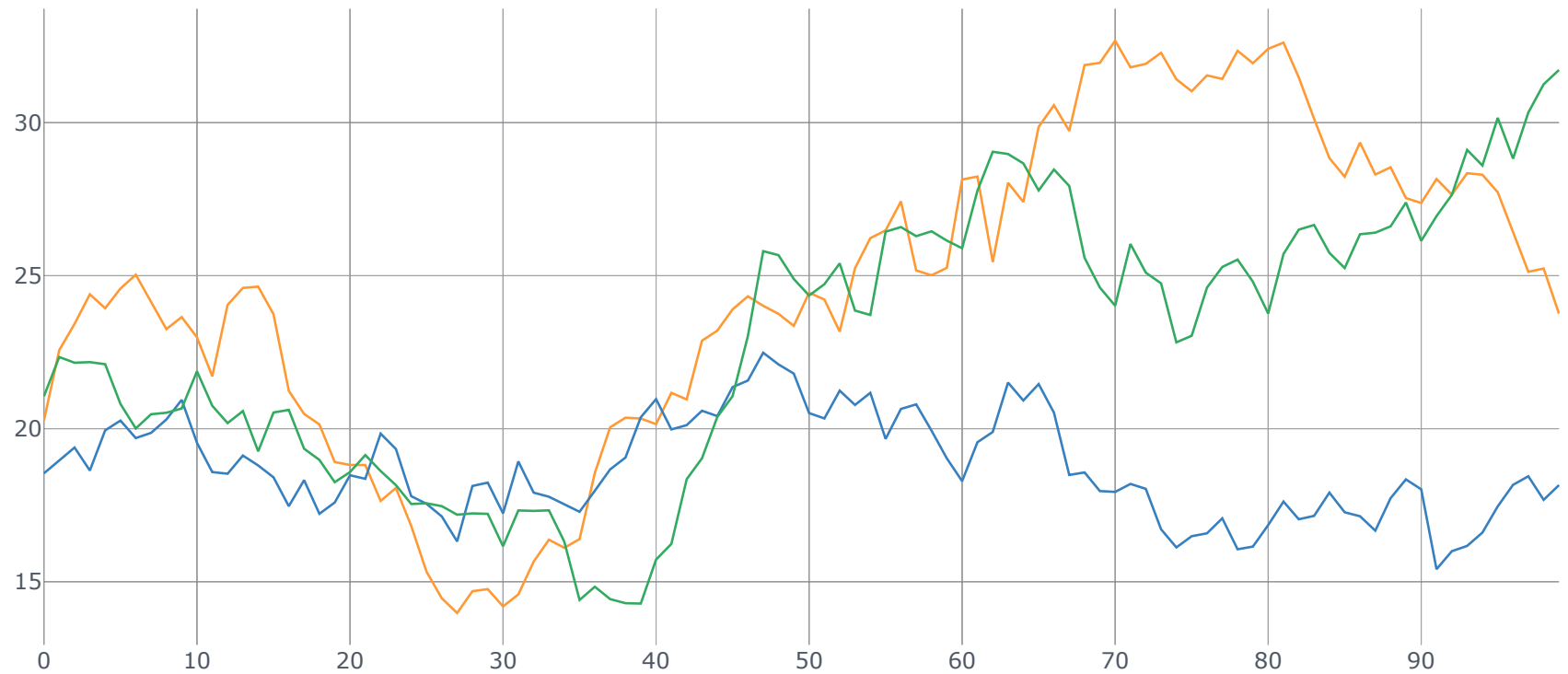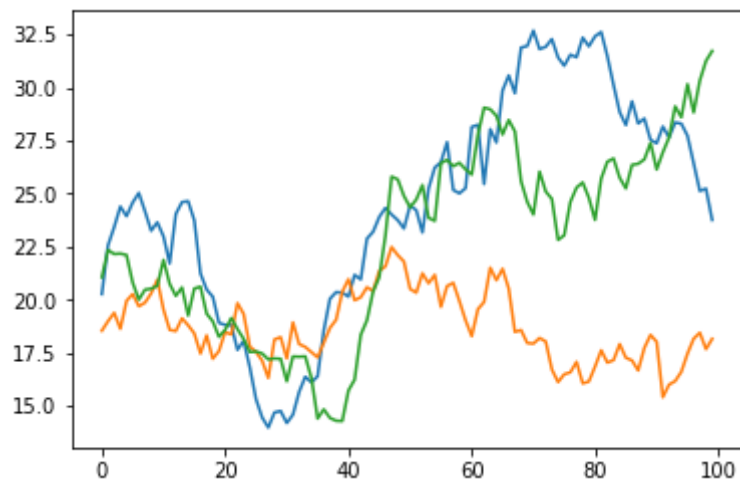
In [10]: `df.head()`

Out[10]:

	A	B	C
0	20.268711	18.542643	21.062314
1	22.566511	18.990649	22.342033
2	23.425514	19.384489	22.155410
3	24.391043	18.633868	22.175383
4	23.936587	19.946516	22.107627

In [11]: `df.iplot()`

Expor

In [12]: `plt.plot(df)`

Out[12]:
```
[<matplotlib.lines.Line2D at 0x1a1d0fc358>,
 <matplotlib.lines.Line2D at 0x1a1d0fc4a8>,
 <matplotlib.lines.Line2D at 0x1a1d0fc5f8>]
```
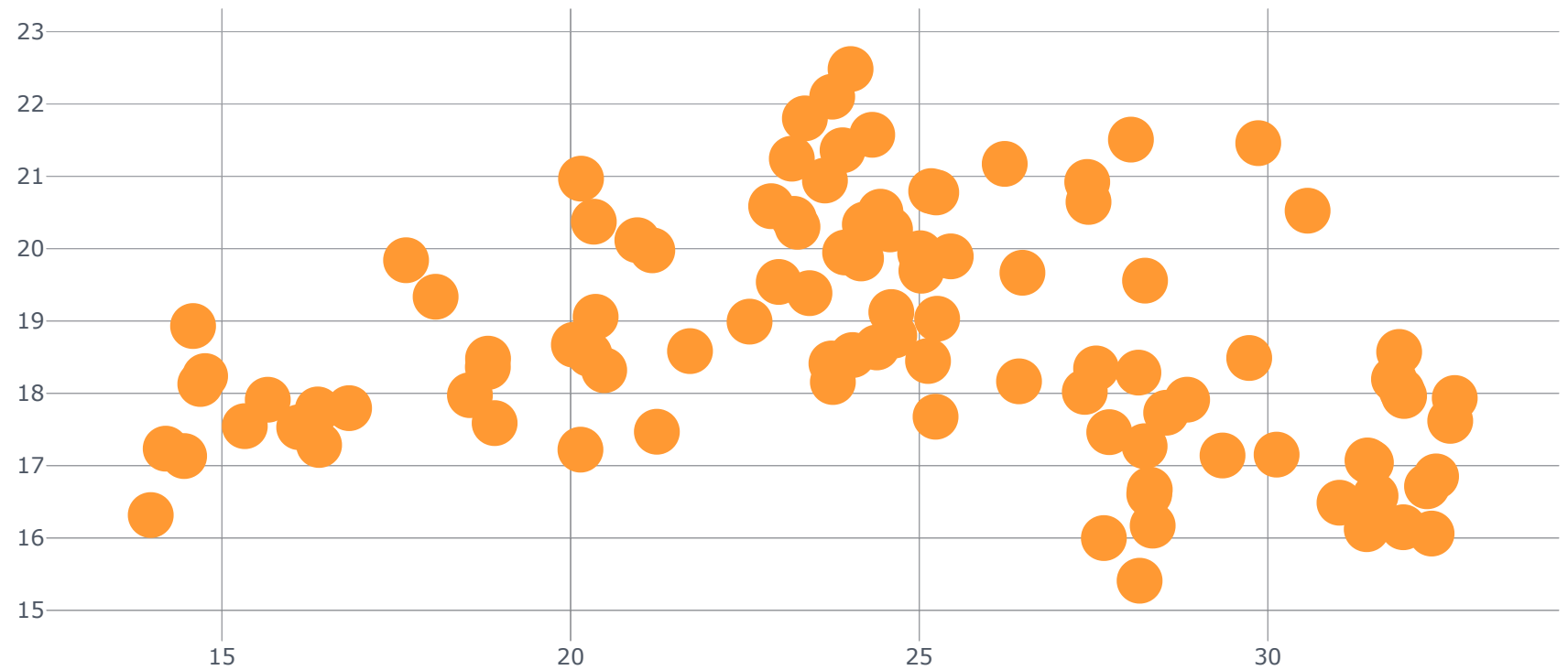

In [13]: `df.plot()`

Out[13]: `<matplotlib.axes._subplots.AxesSubplot at 0x1a1d15de48>`
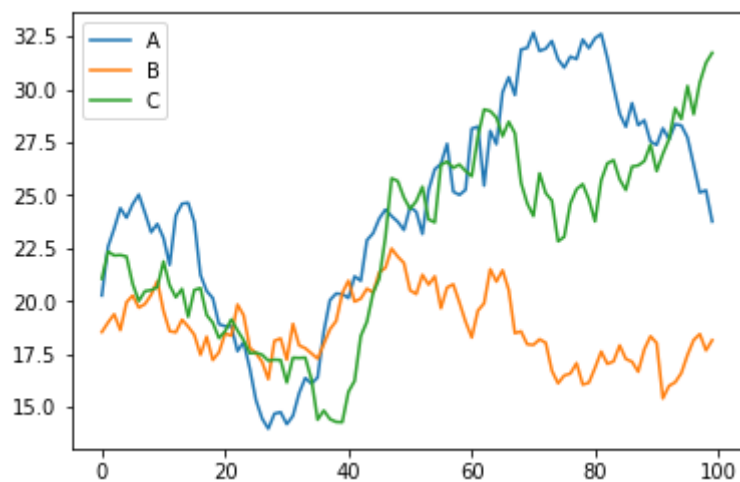
In [14]: `df.iplot(x = 'A', y = 'B', mode = 'markers', size = 25)`

Expor

In [15]:
```python
titanic = sns.load_dataset('titanic')
titanic.head()
```

Out[15]:

	survived	pclass	sex	age	sibsp	parch	fare	embarked	class	who	adult_male	deck	embark_town	alive	alone
0	0	3	male	22.0	1	0	7.2500	S	Third	man	True	NaN	Southampton	no	False
1	1	1	female	38.0	1	0	71.2833	C	First	woman	False	C	Cherbourg	yes	False
2	1	3	female	26.0	0	0	7.9250	S	Third	woman	False	NaN	Southampton	yes	True
3	1	1	female	35.0	1	0	53.1000	S	First	woman	False	C	Southampton	yes	False
4	0	3	male	35.0	0	0	8.0500	S	Third	man	True	NaN	Southampton	no	True

In [16]: `titanic.iplot(kind = 'bar', x = 'sex', y = 'survived', title = 'Survived', xTitle='Sex', yTitle='#Survived')`

Survived
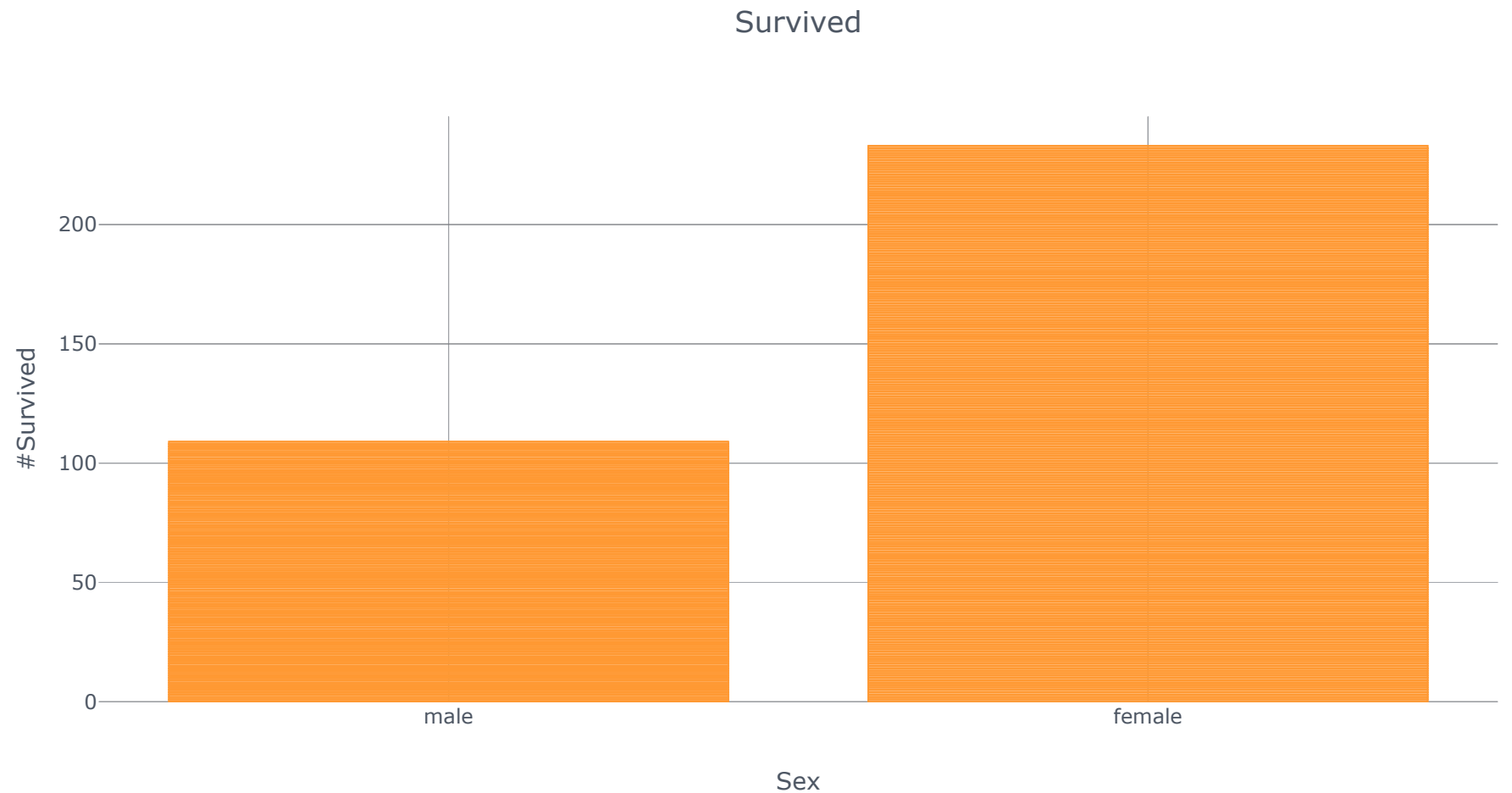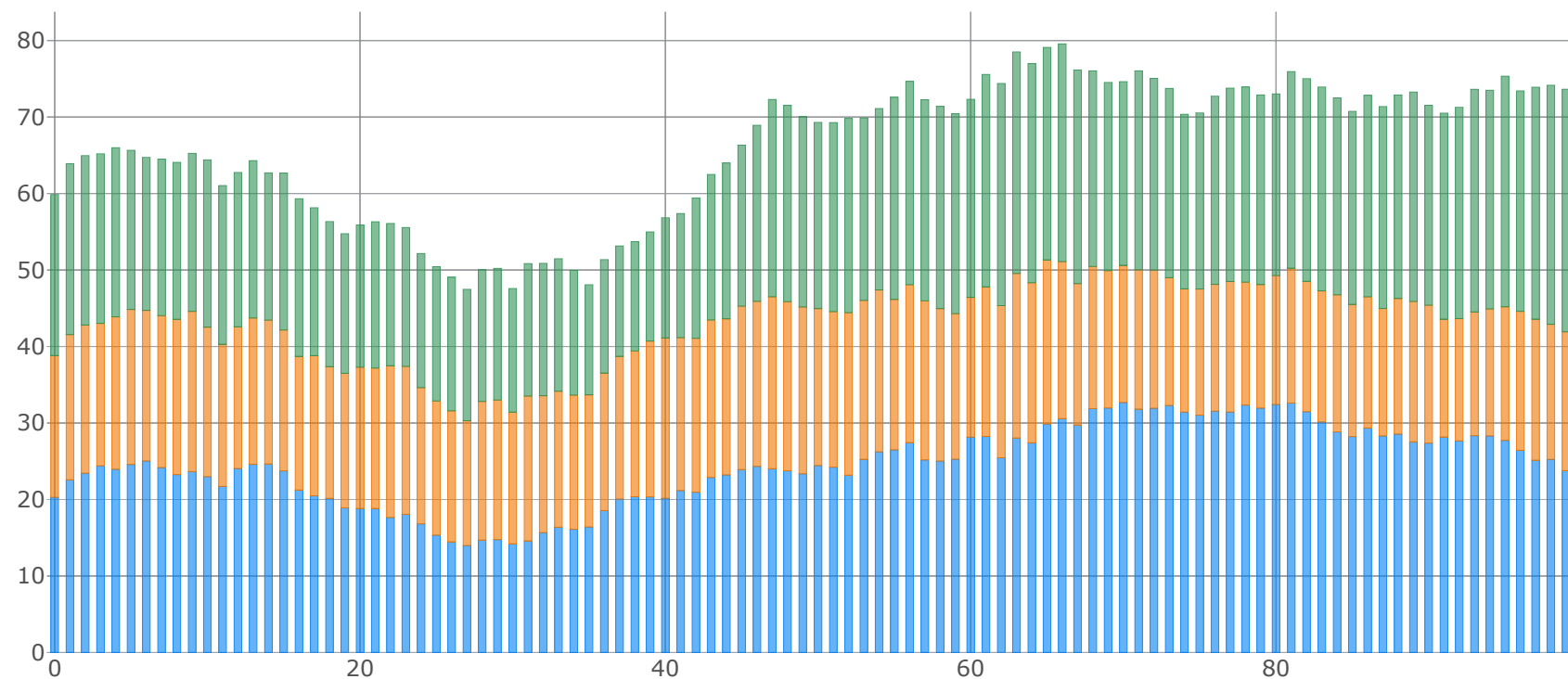

Expor

In [17]: `titanic['sex'].value_counts()`

Out[17]:
```
male      577
female    314
Name: sex, dtype: int64
```

In [19]: `cf.getThemes()`

Out[19]: `['ggplot', 'pearl', 'solar', 'space', 'white', 'polar', 'henanigans']`

In [21]:
```
cf.set_config_file(theme='polar')
df.iplot(kind = 'bar', barmode='stack', bargap=0.5)
```


Expor

In [22]: `df.iplot(kind = 'bar', barmode='stack', bargap=0.5)`
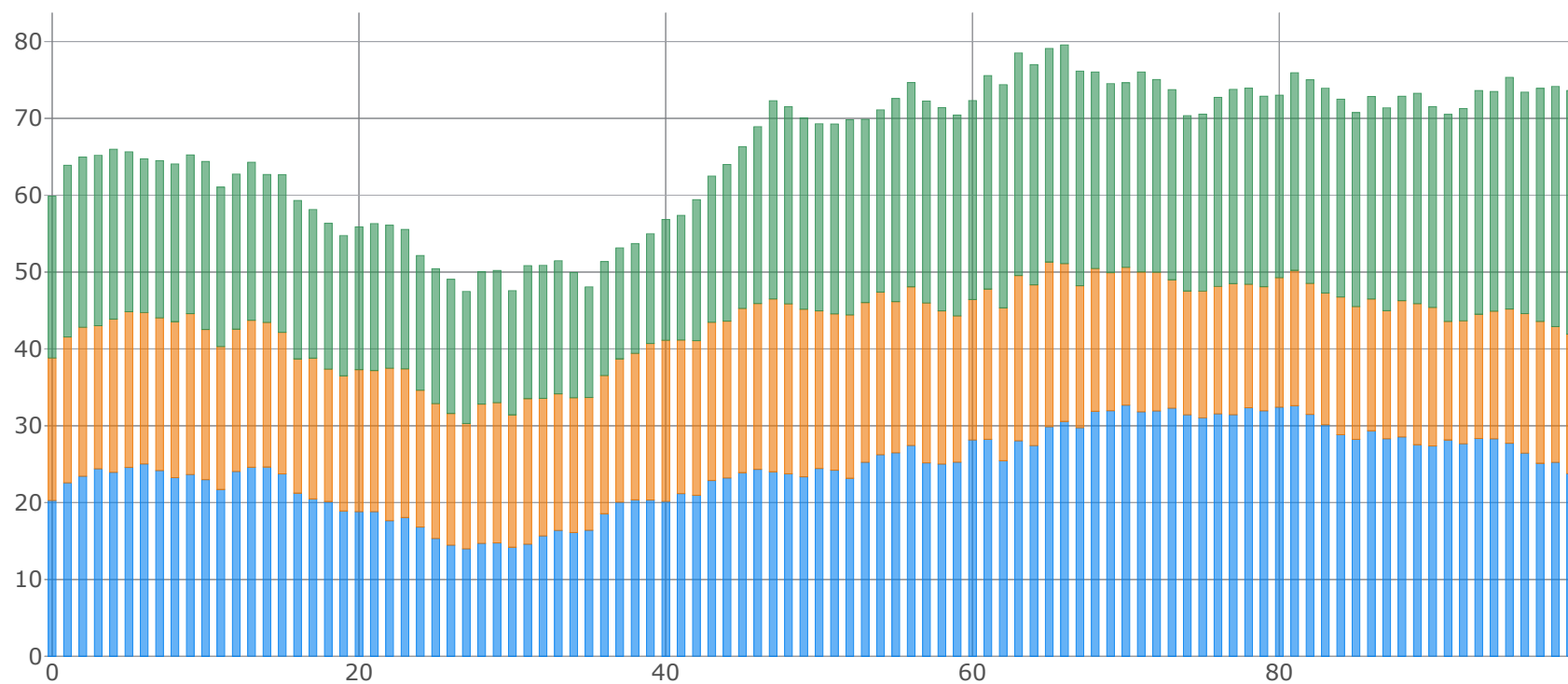
Expor

In [22]:
```python
df.iplot(kind = 'barh', barmode='stack', bargap=0.5)
```
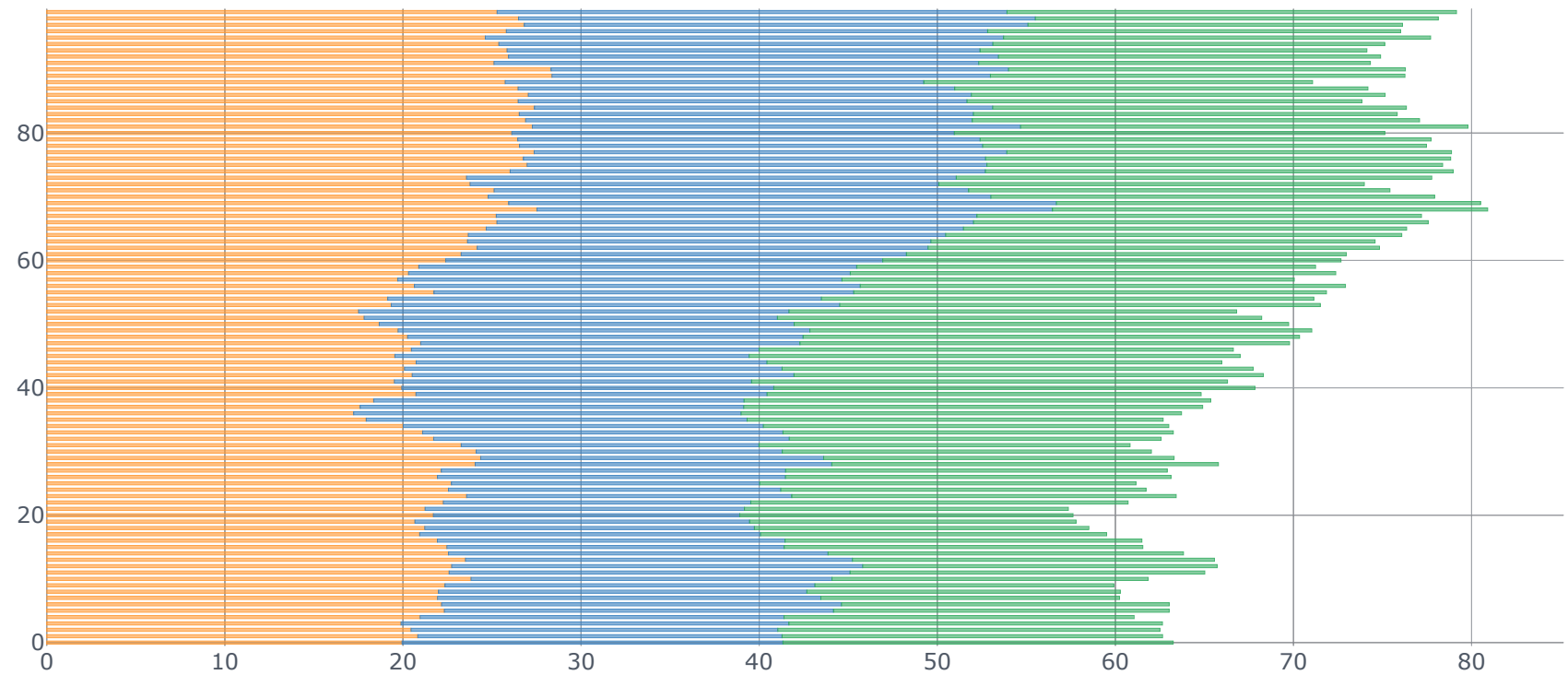

Expor

In [ ]:
```
1,2,3,4,5,6,7
```

In [23]: `df.iplot(kind = 'box')`
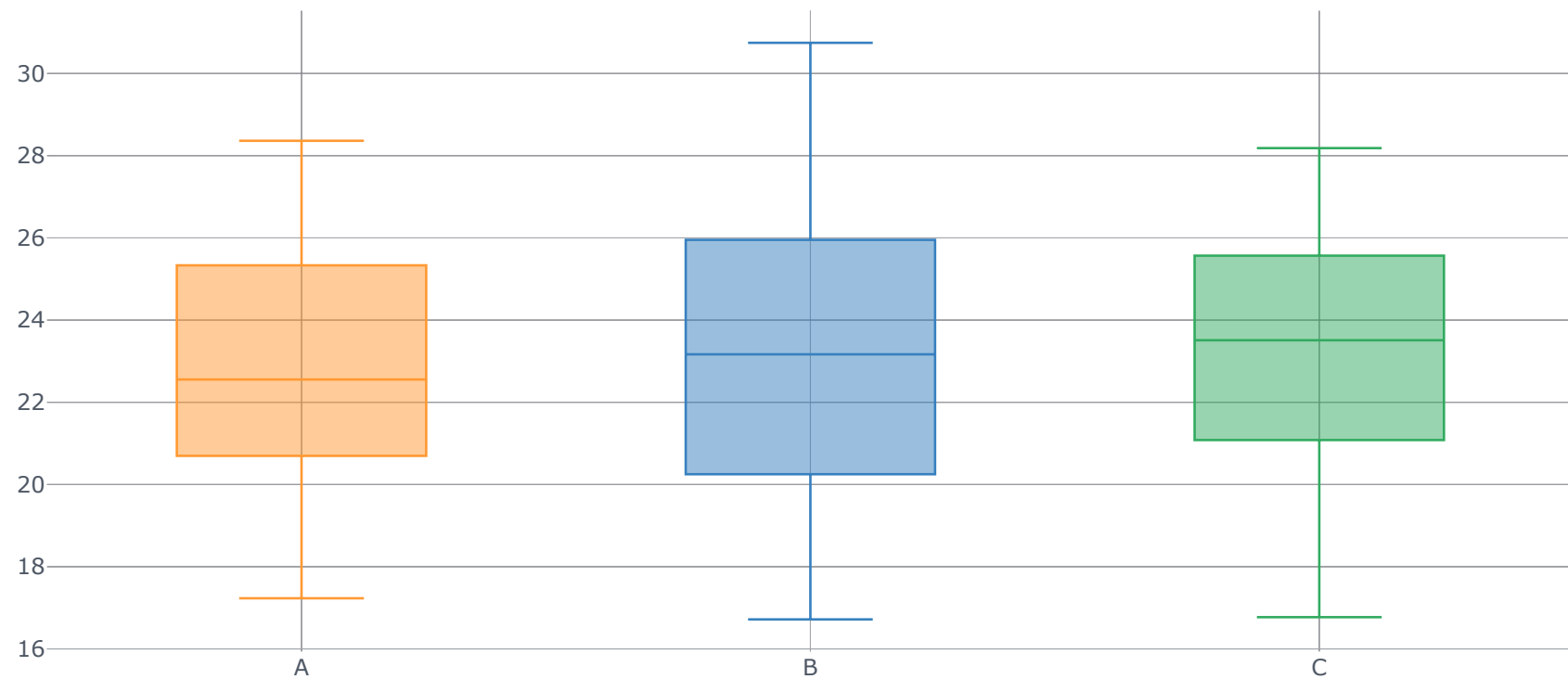
Expor

In [24]: `df.iplot()`
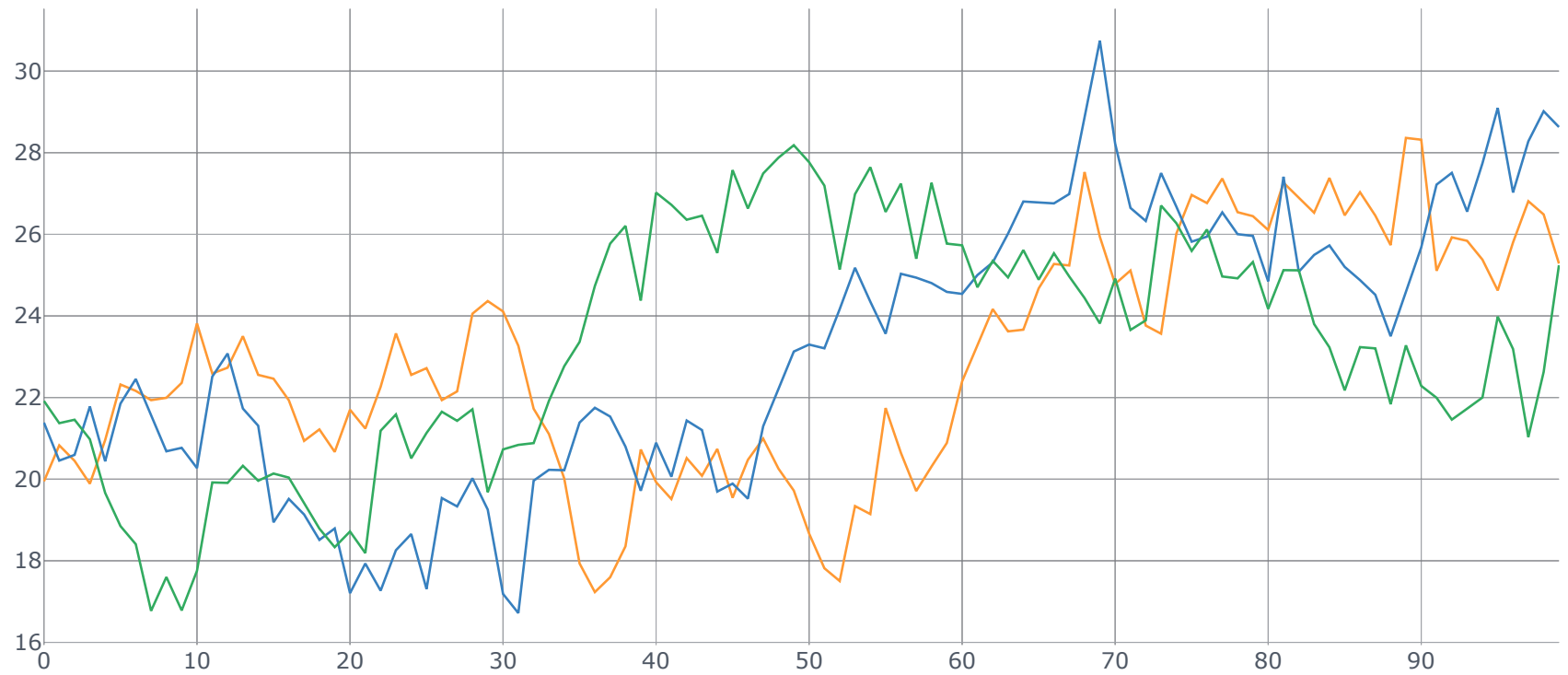
Expor

In [25]: `df.iplot(kind = 'area')`
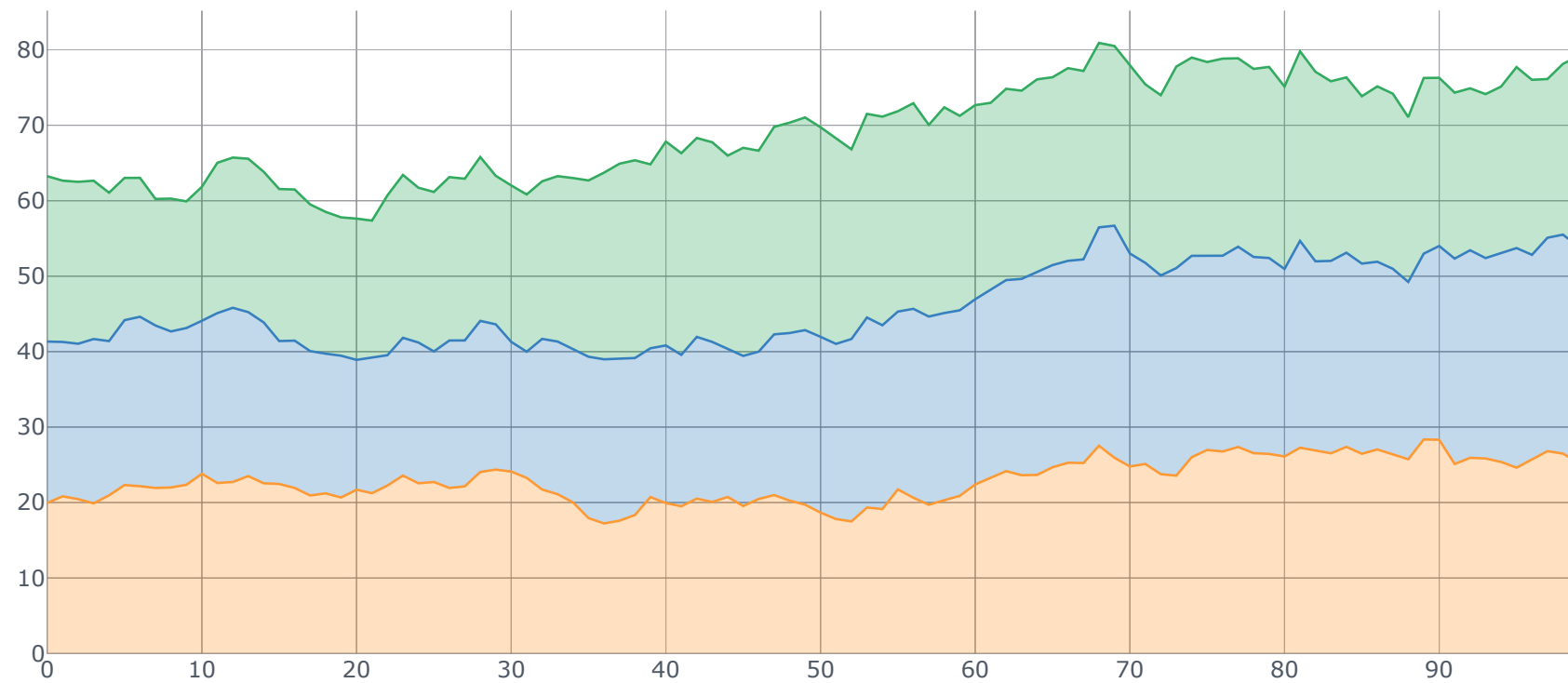
Expor

In [26]:
```python
df3 = pd.DataFrame({'X': [10,20,30,20,10], 'Y': [10, 20, 30, 20, 10], 'Z': [10, 20, 30, 20, 10]})
df3.head()
```

Out[26]:

	X	Y	Z
0	10	10	10
1	20	20	20
2	30	30	30
3	20	20	20
4	10	10	10

In [27]:
```python
df3.iplot(kind='surface', colorscale='rdylbu')
```


Expor

In [28]:
```
help(cf.datagen)
```

```
Help on module cufflinks.datagen in cufflinks:

NAME
    cufflinks.datagen

FUNCTIONS
    bars(n=3, n_categories=3, prefix='category', columns=None, mode='abc')
        Returns a DataFrame with the required format for
        a bar plot

        Parameters:
        -----------
                n : int
                        Number of points for each trace
                n_categories : int
                        Number of categories for each point
                prefix : string
                        Name for each category
                columns : [str]
                        List of column names
                mode : string
                        Format for each item
                                'abc' for alphabet columns
                                'stocks' for random stock names

    box(n_traces=5, n=100, mode=None)
        Returns a DataFrame with the required format for
        a box plot

        Parameters:
        -----------
                n_traces : int
                        Number of traces
                n : int
                        Number of points for each trace
                mode : string
                        Format for each item
                                'abc' for alphabet columns
                                'stocks' for random stock names

    bubble(n_categories=5, n=10, prefix='category', mode=None)
```
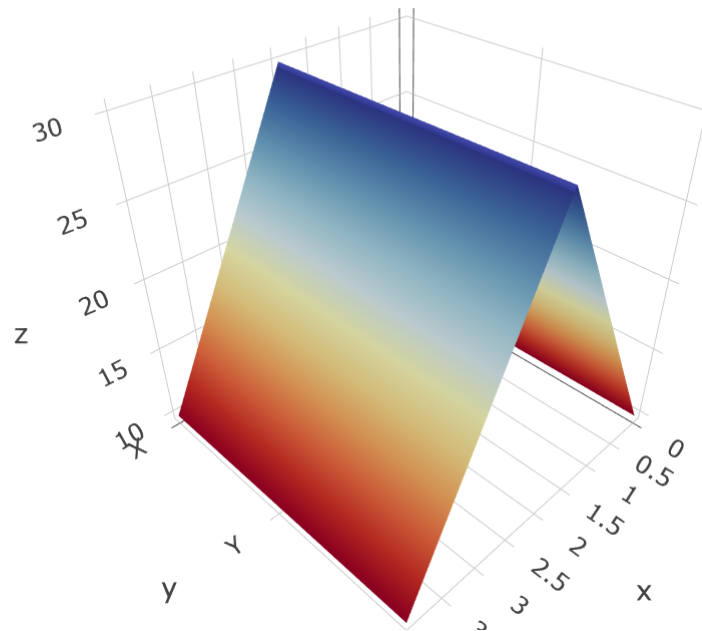
```
        Returns a DataFrame with the required format for
        a bubble plot

        Parameters:
        -----------
                n_categories : int
                        Number of categories
                n : int
                        Number of points for each category
                prefix : string
                        Name for each category
                mode : string
                        Format for each item
                                'abc' for alphabet columns
                                'stocks' for random stock names

    bubble3d(n_categories=5, n=10, prefix='category', mode=None)
        Returns a DataFrame with the required format for
        a bubble3d plot

        Parameters:
        -----------
                n_categories : int
                        Number of categories
                n : int
                        Number of points for each trace
                prefix : string
                        Name for each trace
                mode : string
                        Format for each item
                                'abc' for alphabet columns
                                'stocks' for random stock names

    choropleth()
        Returns

    distplot(n_traces=1, n=500, dispersion=3, mode=None)
        Returns a DataFrame with the required format for
        a distribution plot (distplot)

        Parameters:
        -----------
```

```
                n_traces : int
                        Number of traces
                n : int
                        Number of points for each trace
                mode : string
                        Format for each item
                                'abc' for alphabet columns
                                'stocks' for random stock names

        getName(n=1, name=3, exchange=2, columns=None, mode='abc')

        heatmap(n_x=5, n_y=10)
            Returns a DataFrame with the required format for
            a heatmap plot

            Parameters:
            -----------
                n_x : int
                        Number of x categories
                n_y : int
                        Number of y categories

        histogram(n_traces=1, n=500, dispersion=2, mode=None)
            Returns a DataFrame with the required format for
            a histogram plot

            Parameters:
            -----------
                n_traces : int
                        Number of traces
                n : int
                        Number of points for each trace
                mode : string
                        Format for each item
                                'abc' for alphabet columns
                                'stocks' for random stock names

        lines(n_traces=5, n=100, columns=None, dateIndex=True, mode=None)
            Returns a DataFrame with the required format for
            a scatter (lines) plot

            Parameters:
```

```
                -----------
                n_traces : int
                        Number of traces
                n : int
                        Number of points for each trace
                columns : [str]
                        List of column names
                dateIndex : bool
                        If True it will return a datetime index
                        if False it will return a enumerated index
                mode : string
                        Format for each item
                                'abc' for alphabet columns
                                'stocks' for random stock names

    ohlc(n=100)
        Returns a DataFrame with the required format for
        a candlestick or ohlc plot
        df[['open','high','low','close']]

        Parameters:
        -----------
                n : int
                        Number of ohlc points

    ohlcv(n=100)
        Returns a DataFrame with the required format for
        a candlestick or ohlc plot
        df[['open','high','low','close','volume']

        Parameters:
        -----------
                n : int
                        Number of ohlc points

    pie(n_labels=5, mode=None)
        Returns a DataFrame with the required format for
        a pie plot

        Parameters:
        -----------
                n_labels : int
```

```
                        Number of labels
             mode : string
                     Format for each item
                             'abc' for alphabet columns
                             'stocks' for random stock names

    scatter(n_categories=5, n=10, prefix='category', mode=None)
        Returns a DataFrame with the required format for
        a scatter plot

        Parameters:
        -----------
                n_categories : int
                        Number of categories
                n : int
                        Number of points for each category
                prefix : string
                        Name for each category
                mode : string
                        Format for each item
                                'abc' for alphabet columns
                                'stocks' for random stock names

    scatter3d(n_categories=5, n=10, prefix='category', mode=None)
        Returns a DataFrame with the required format for
        a scatter3d plot

        Parameters:
        -----------
                n_categories : int
                        Number of categories
                n : int
                        Number of points for each trace
                prefix : string
                        Name for each trace
                mode : string
                        Format for each item
                                'abc' for alphabet columns
                                'stocks' for random stock names

    scattergeo()
        Returns
```

```
sinwave(n=4, inc=0.25)
    Returns a DataFrame with the required format for
    a surface (sine wave) plot

    Parameters:
    -----------
            n : int
                    Ranges for X and Y axis (-n,n)
            n_y : int
                    Size of increment along the axis

surface(n_x=20, n_y=20)
    Returns a DataFrame with the required format for
    a surface plot

    Parameters:
    -----------
            n_x : int
                    Number of points along the X axis
            n_y : int
                    Number of points along the Y axis

violin(n=500, dispersion=3, categories=True, n_categories=5)
    Returns a DataFrame with the required format for
    a distribution plot (distplot)

    Parameters:
    -----------
            n : int
                    Number of points
            categories : bool or int
                    If True, then a column with categories is added
            n_categories : int
                    Number of categories

FILE
    /Users/sudhanshukumar/anaconda3/lib/python3.7/site-packages/cufflinks/datagen.py
```

In [29]:
```python
cf.datagen.sinwave(10, 0.25).iplot(kind = 'surface')
```

```
/Users/sudhanshukumar/anaconda3/lib/python3.7/site-packages/cufflinks/datagen.py:380: RuntimeWarning:

invalid value encountered in true_divide

/Users/sudhanshukumar/anaconda3/lib/python3.7/site-packages/numpy/core/_methods.py:32: RuntimeWarning:

invalid value encountered in reduce

/Users/sudhanshukumar/anaconda3/lib/python3.7/site-packages/numpy/core/_methods.py:28: RuntimeWarning:

invalid value encountered in reduce
```
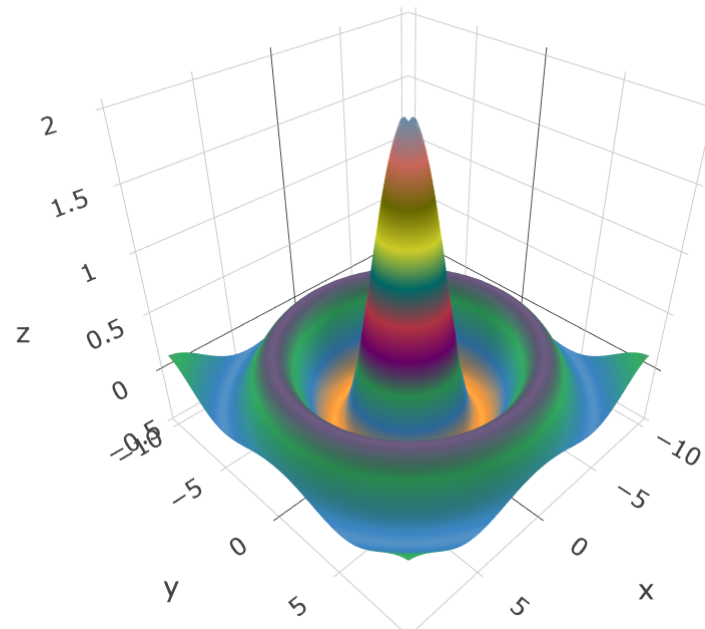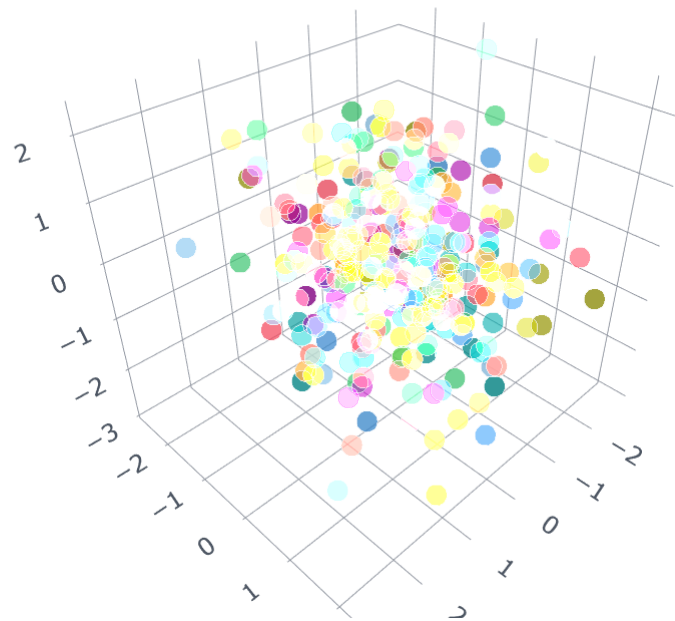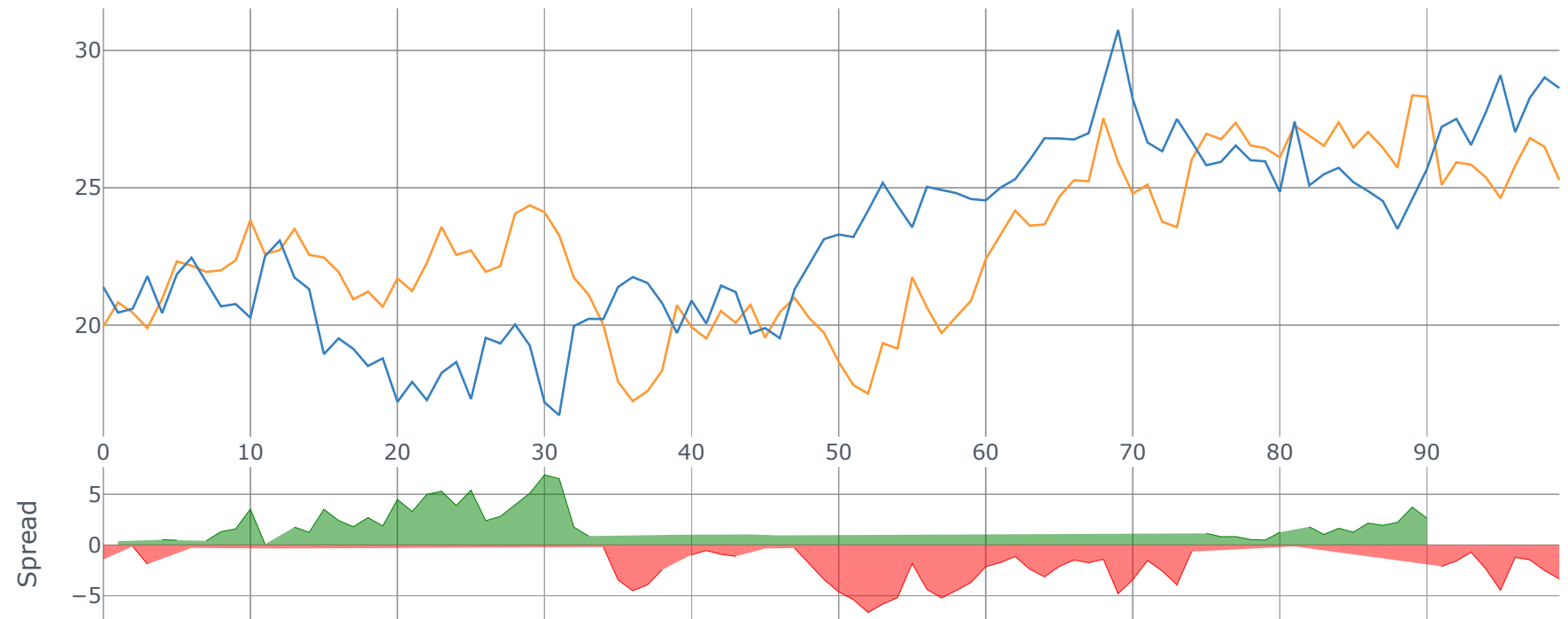
Expor

In [ ]:

In [30]: `cf.datagen.scatter3d(2, 150, mode = 'stocks').iplot(kind = 'scatter3d', x = 'x', y= 'y', z = 'z')`
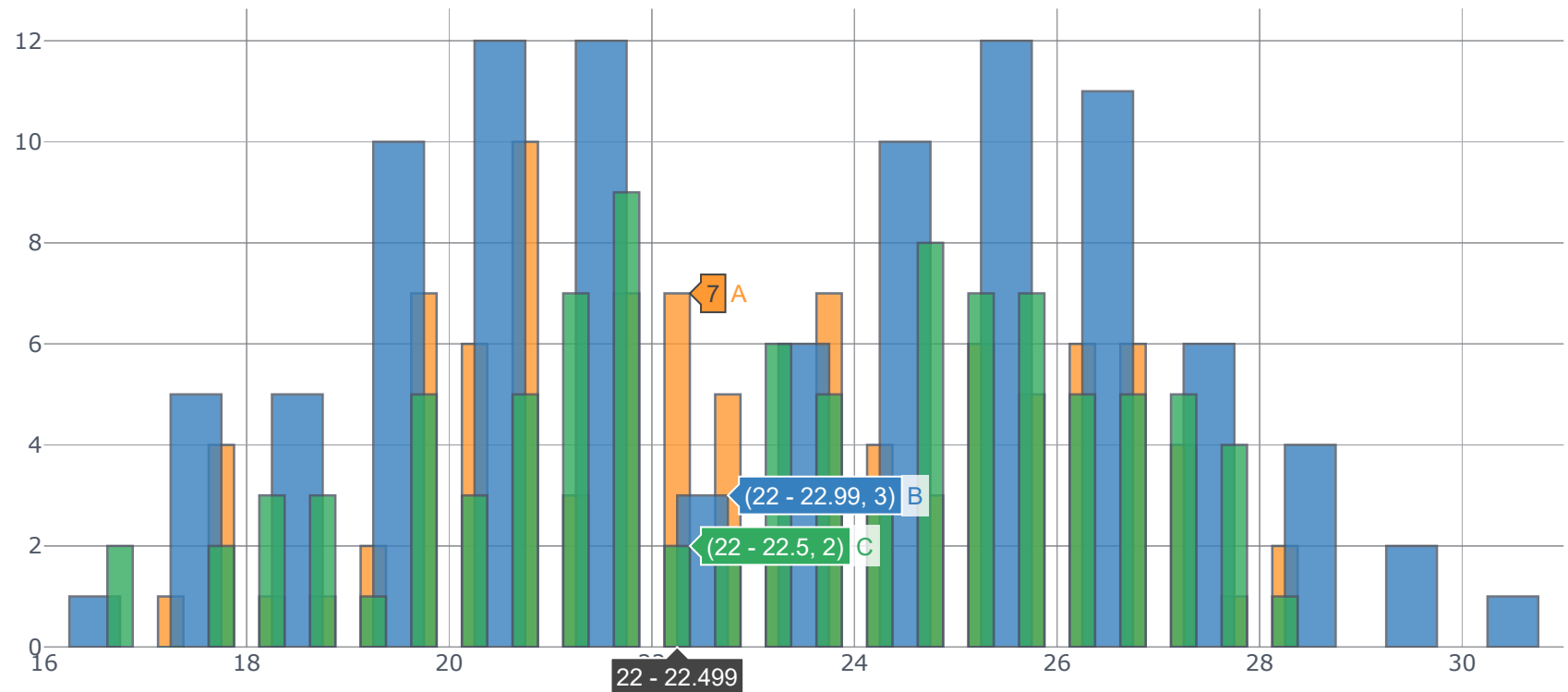

Expor

In [ ]:

```
In [31]: df[['A', 'B']].iplot(kind = 'spread')
```
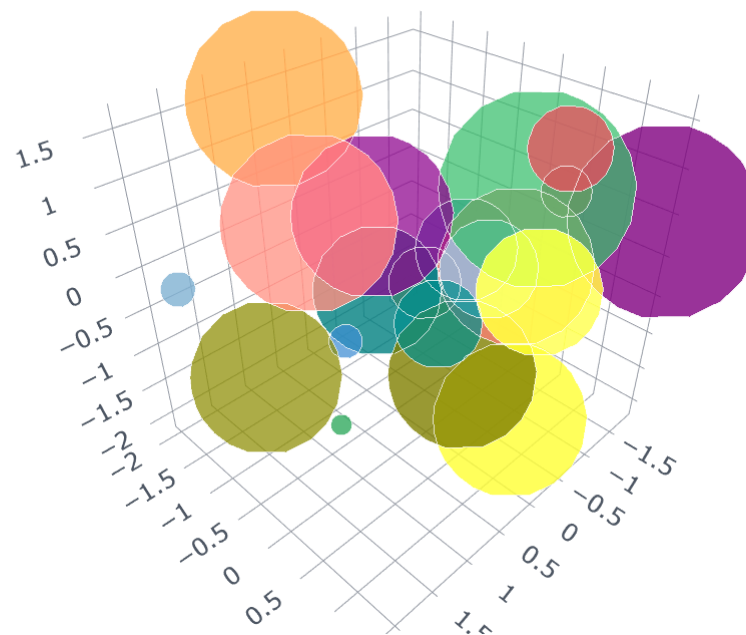

Expor

```
In [ ]:
```

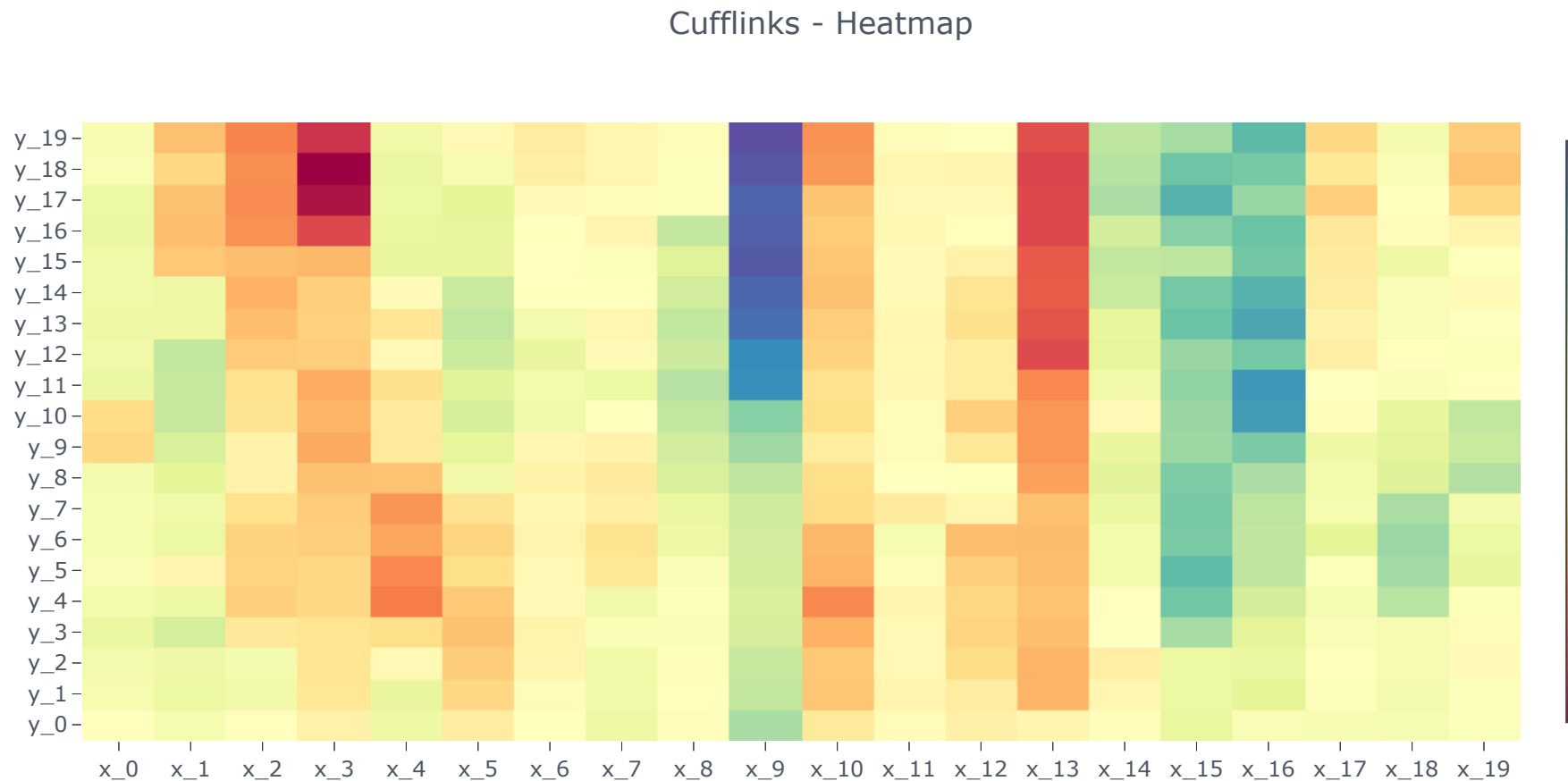In [32]: `df.iplot(kind='hist', bins = 25, barmode = 'overlay', bargap=0.5)`

Expor

In [ ]:

In [33]: `cf.datagen.bubble3d(5,4,mode='stocks').iplot(kind='bubble3d',x='x',y='y',z='z', size='size')`

Expor

In [ ]:

In [34]:
```python
cf.datagen.heatmap(20,20).iplot(kind = 'heatmap', colorscale='spectral', title='Cufflinks - Heatmap')
```

Cufflinks - Heatmap

Expor

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