Plotly Express Cheatsheet

Plotly is a graphing library for interactive, publication-quality graphs. It is *free* and *open source*.

1. **Install** plotly express

```
$ pip install plotly[express]
```

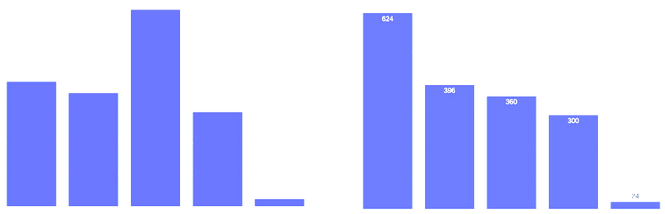
2. **Import** plotly express

```
import plotly.express as px
```

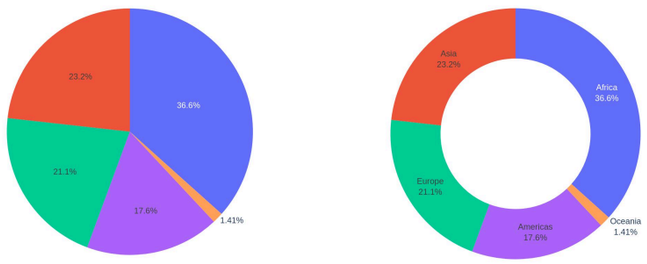
One Variable

DISCRETE

```
px.histogram(df, <column>)
px.histogram(df, <column>, text_auto=True)\
 .update_xaxes(categoryorder="total
 descending")
```



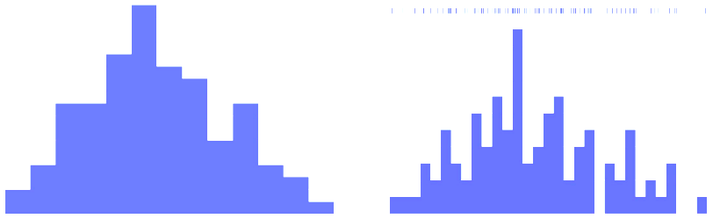

```
px.pie(df, <column>)
px.pie(df, <column>, hole=0.6)\
  .update_traces(textinfo='percent+label')
```



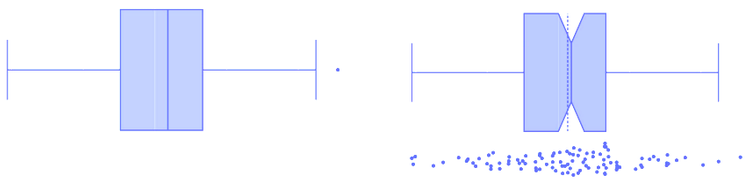
One Variable

CONTINUOUS

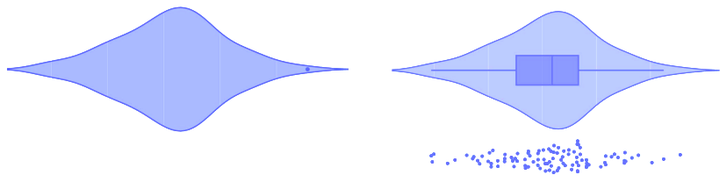
```
px.histogram(df, <column>)
px.histogram(df, <column>, nbins=50, \
             marginal='rug')
```



```
px.box(df, <column>)
px.box(df, <column>, notched=True,
 points='all').update_traces(boxmean=True)
```



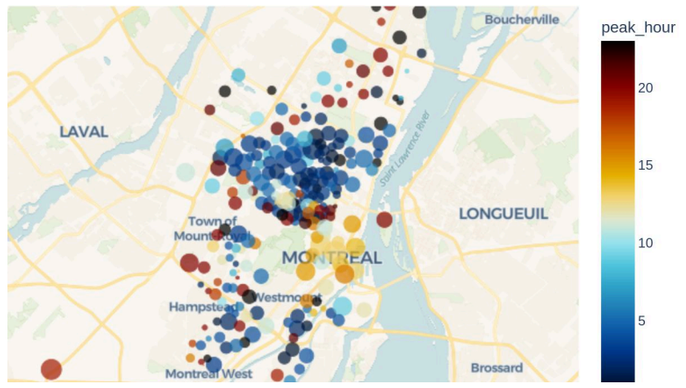
```
px.violin(df, <column>)
px.violin(df, <column>, box=True, points='all')
```



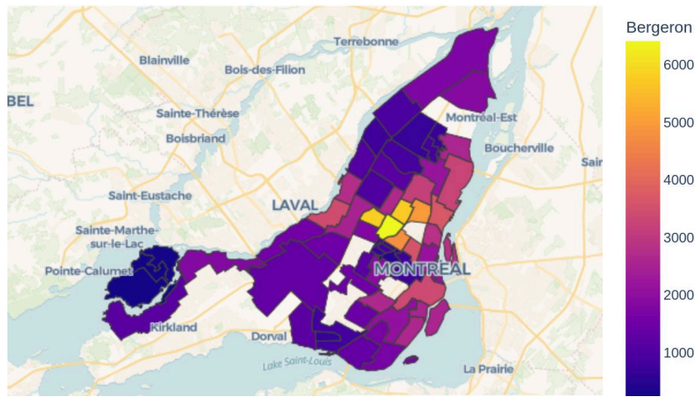
Spatial

MAPS

```
px.scatter_map(px.data.carshare(),
lat='centroid_lat', lon='centroid_lon',
color='peak_hour', size='car_hours')
```




```
px.choropleth_map(px.data.election(),
   geojson=px.data.election_geojson(),
   color='Bergeron', locations='district',
   featureidkey='properties.district',
   center={'lat': 45.551, 'lon': -73.707},
   zoom=9)
```



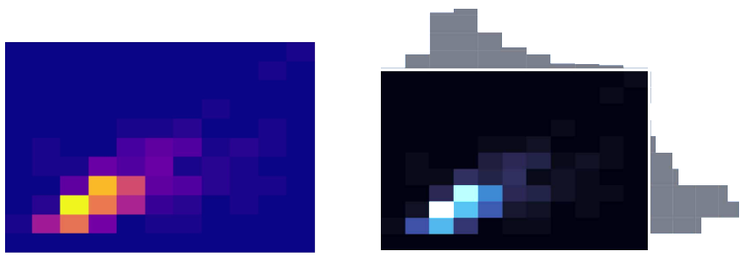
Plotly Express produces **interactive plots,** with controls like *download* , *zoom* in and out / , *autozoom* , *select* or reset to original state

Two Variables

BOTH CONTINUOUS

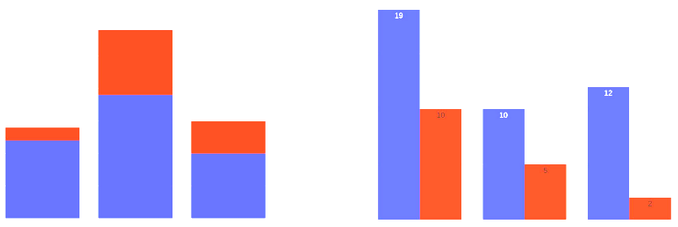
```
px.scatter(df, <x_col>, <y_col>)
px.scatter(df, <x_col>, <y_col>, \
    color=<y_col>)
```

```
px.density_heatmap(df, <x_col>, <y_col>)
px.density_heatmap(df, <x_col>, <y_col>, \
 marginal_x='histogram', marginal_y='histogram',\
 color_continuous_scale=px.colors.sequential.ice)
```



BOTH DISCRETE

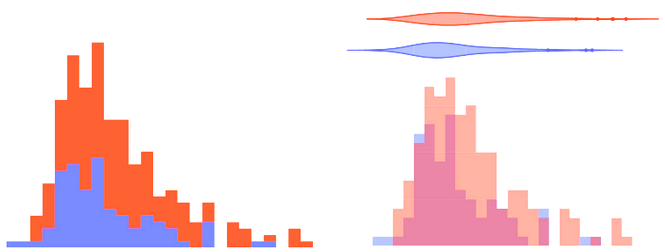
```
px.histogram(df, <x_col>, color=<y_col>)
px.histogram(df, <x_col>, color=<y_col>, \
  barmode='group', text_auto=True)\
  .update_xaxes(categoryorder='total descending')
```



Two Variables

ONE CONTINUOUS ONE DISCRETE

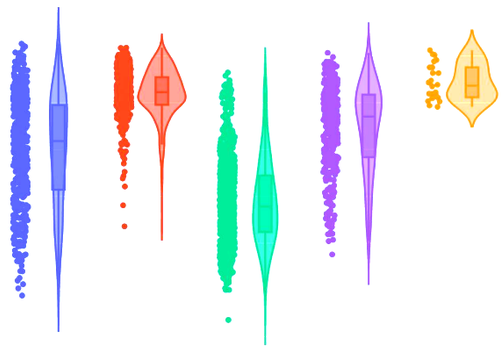
```
px.histogram(df, <continuous_col>, \
   color=<discrete_col>)
px.histogram(df, <continuous_col>, \
   color=<discrete_col>, marginal='violin' \
   barmode='overlay')
```



```
px.box(df, <x_col>, <y_col>)
px.box(df, <x_col>, <y_col>, \
   points='all', notched=True)
```



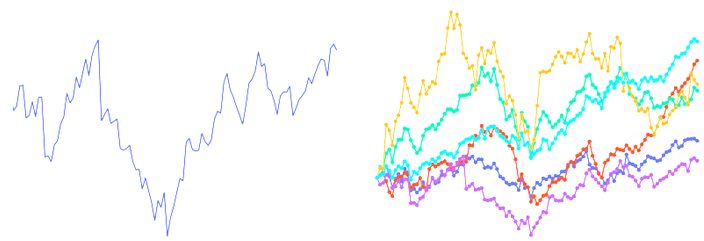
```
px.violin(px.data.gapminder(), \
 x='continent', y='lifeExp', \
 color='continent', points='all', box=True)
```



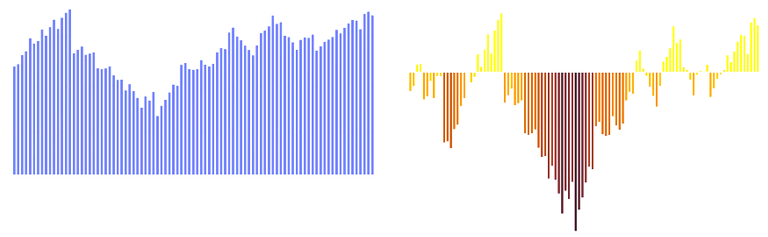
Temporal

TIME SERIES

```
px.line(px.data.stocks(), x='date', y='FB')
px.line(px.data.stocks(), x='date',
  y=px.data.stocks().columns, markers=True)
```



```
px.bar(px.data.stocks(), x=df.index, y='FB')
df = px.data.stocks(indexed=True)-1
px.bar(df, x=df.index, y='FB', color='FB',\
color_continuous_scale=px.colors.sequential.solar)
```



Plotly Express plots can be easily **customized**:

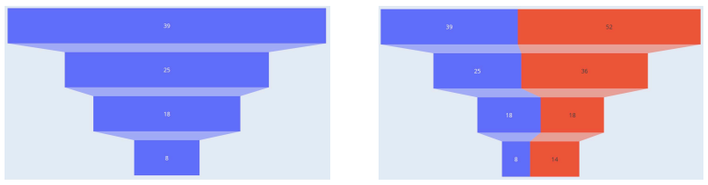
- Control common parameters like width & height, titles, labeling and colors using built-in function arguments
- Update figure attributes using update methods
- Use **Plotly**'s theming/templating mechanism via the *template* function argument
- Set default values for common parameters using *px.defaults*

Plotly Express produces **interactive plots,** with controls like *download* , *zoom* in and out / , *autozoom* , *select* or reset to original state

Funnel

FREQUENCIES

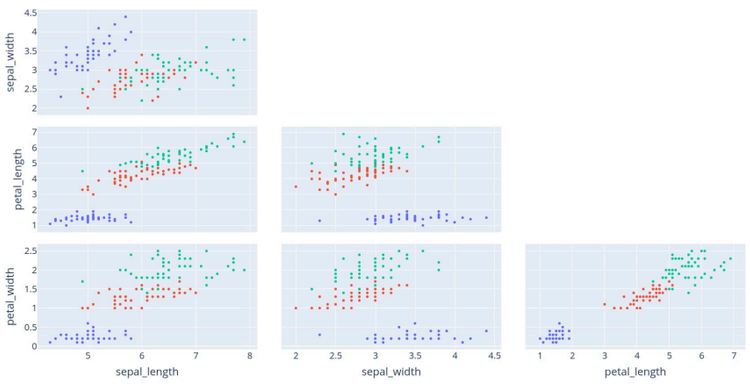
```
s = ['Impressions', 'Clicks', 'Downloads']
a = DataFrame(dict(c=[10, 9, 7], s=s, g='a'))
b = DataFrame(dict(c=[15, 8, 4], s=s, g='b'))
px.funnel(a, x='c', y='s')
px.funnel(concat([a, b]),x='c',y='s',color='g')
```



Multivariate

MULTIDIMENSIONAL

```
px.scatter_matrix(px.data.iris(), \
  dimensions=['sepal_length', 'sepal_width', \
  'petal_length', 'petal_width'], \
  color='species').
  .update_traces(diagonal_visible=False, \
  showupperhalf=False)
```

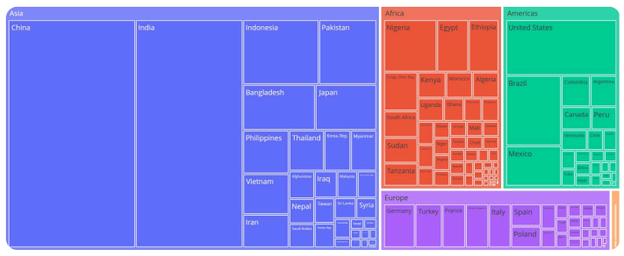


Prototype fast with px.**data** sample datasets, perfect for testing plot settings.

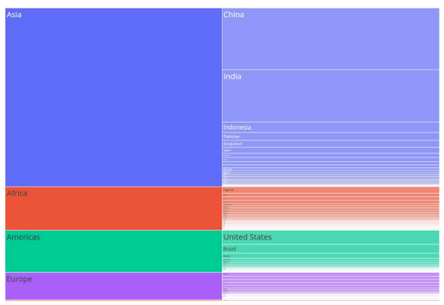
Hierarchy

TWO DISCRETE

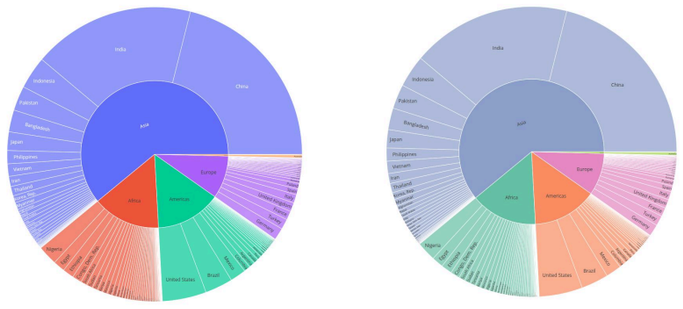
```
df = px.data.gapminder().query('year == 2007')
px.treemap(df, path=['continent', 'country'],\
  values='pop')
```




```
px.icicle(df, path=['continent', 'country'], \
  values='pop')
```



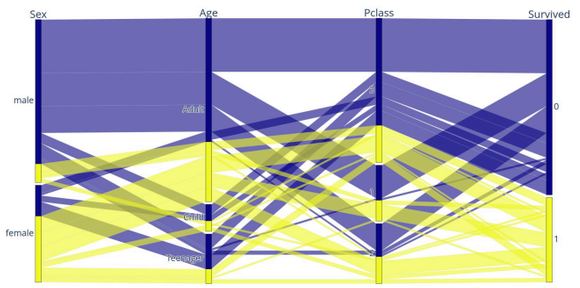

```
px.sunburst(df, path=['continent', 'country'], \
  values='pop')
colors = px.colors.qualitative.Set2
px.sunburst(df, path=['continent', 'country'], \
  values='pop', color_discrete_sequence=colors)
```



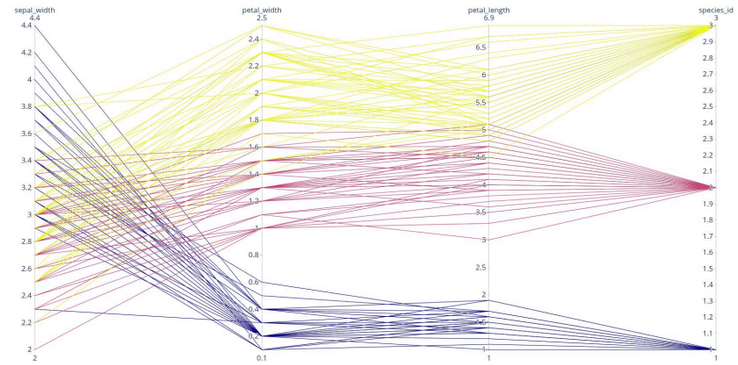
Flow Diagrams

MULTIDIMENSIONAL

```
px.parallel_categories(titanic_df, \
  ['Sex', 'Age', 'Class', 'Survived'], \
  color='Survived')
```




```
df_iris = px.data.iris()
px.parallel_coordinates(df_iris, \
  color='species_id')
```



TIPS for readable **flow-diagrams** plots:

- Limit to 4–6 numeric variables
- Mostly categorical? Use 'parallel_categories' and bin numeric variables
- Order axes logically to reveal patterns
- Tweak colors with color scales (color_continuous_scale)

Plotly Express produces **interactive plots,** with controls like *download* , *zoom* in and out / , *autozoom* , *select* or reset to original state