# Data Visualization with Python

## Cheat Sheet : Plotly and Dash

| Function | Description | Syntax | Example |
|---|---|---|---|
| **Plotly Express** | | | |
| **scatter** | Create a scatter plot | `px.scatter(dataframe, x=x_column, y=y_column)` | `px.scatter(df, x=age_array, y=income_array)` |
| **line** | Create a line plot | `px.line( x=x_column, y=y_column,'title')` | `px.line(x=months_array, y=no_bicycle_sold_array)` |
| **bar** | Create a bar plot | `px.bar( x=x_column, y=y_column,title='title')` | `px.bar( x=grade_array, y=score_array, title='Pass Percentage')` |
| **sunburst** | Create a sunbust plot | `px.sunburst(dataframe, path=[col1,col2..], values='column',title='title')` | `px.sunburst(data, path=['Month', 'DestStateName'], values='Flights',title='Flight Distribution Hierarchy')` |
| **histogram** | Create a histogram | `px.histogram(x=x,title="title")` | `px.histogram(x=heights_array,title="Distribution of Heights")` |
| **bubble** | Create a bubble chart | `px.scatter(dataframe, x=x,y=y,size=size,title="title")` | `px.scatter(bub_data, x="City", y="Numberofcrimes", size="Numberofcrimes",hover_name="City", title='Crime Statistics')` |
| **pie** | Create a pie chart | `px.pie(values=x,names=y,title="title")` | `px.pie(values=exp_percent, names=house_holdcategories, title='Household Expenditure')` |
| **Plotly Graph Objects** | | | |
| **Scatter** | Create a scatter | `go.Scatter(x=x, y=y, mode='markers')` | `go.Scatter(x=age_array, y=income_array, mode='markers')` |
| | Create a line plot | `go.Scatter(x=x, y=y, mode='lines')` | `go.Bar(x=months_array, y=no_bicycle_sold_array,mode='lines')` |

| Function | Description | Syntax | Example |
|---|---|---|---|
| **add_trace** | Add additional traces to an existing figure | `fig.add_trace(trace_object)` | `fig.add_trace(go.Scatter(x=months_array, y=no_bicycle_sold_array))` |
| **update_layout** | Update the layout of a figure, such as title, axis labels, and annotations. | `fig.update_layout(layout_object)` | `fig.update_layout(title='Bicycle Sales', xaxis_title='Months', yaxis_title='Number of Bicycles Sold')` |

## Dash

| Function | Description | Syntax | Example |
|---|---|---|---|
| **dash_core_components.Input** | Create an input component | `dcc.Input(value='', type='text')` | `dcc.Input(value='Hello', type='text')` |
| **dash_core_components.Graph** | Create a graph component | `dcc.Graph(figure=fig)` | `dcc.Graph(figure=fig)` |
| **dash_html_components.Div** | Create a div element | `html.Div(children=component_list)` | `html.Div(children=[html.H1('Hello Dash'), html.P('Welcome to Dash')])` |
| **dash_core_components.Dropdown** | Create a dropdown component | `dcc.Dropdown(options=options_list, value=default_value)` | `dcc.Dropdown(options=[{'label': 'Option 1', 'value': '1'}, {'label': 'Option 2', 'value': '2'}], value='1')` |