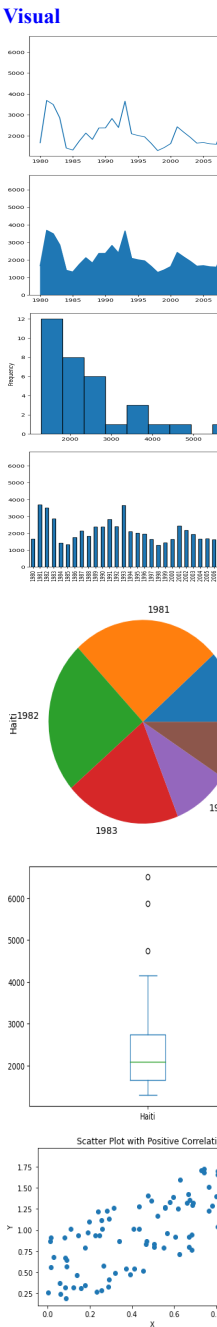




Data Visualization with Python

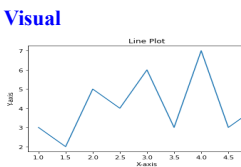
Cheat Sheet : Plotting with Matplotlib using Pandas

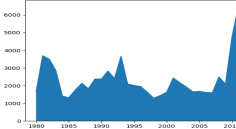
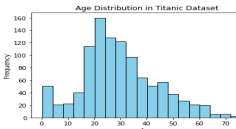
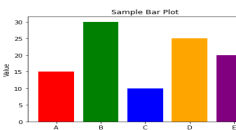
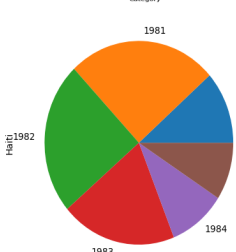
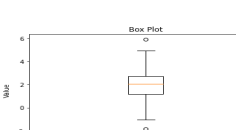
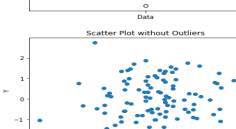
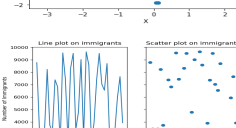
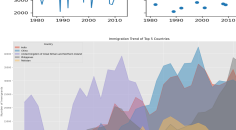
| Plot Type | Description | Pandas Function | Example |
|--------------|--|---|--|
| Line Plot | Shows trends and changes over time | <code>DataFrame.plot.line()</code> <code>DataFrame.plot(kind = 'line')</code> | <code>df.plot(x='year', y='sales', kind='line')</code> |
| Area Plot | Displays data series as filled areas, showing the relationship between them | <code>DataFrame.plot.area()</code> <code>DataFrame.plot(kind = 'area')</code> | <code>df.plot(kind='area')</code> |
| Histogram | Displays bars representing the data count in each interval/bin | <code>Series.plot.hist()</code> <code>Series.plot(kind = 'hist', bins = n)</code> | <code>s.plot(kind='hist', bins=10)</code> <code>df['age'].plot(kind='hist', bins=10)</code> |
| Bar Chart | Displays data using rectangular bars | <code>DataFrame.plot.bar()</code> <code>DataFrame.plot(kind = 'bar')</code> | <code>df.plot(kind='bar')</code> |
| Pie Chart | Displays data as a circular plot divided into slices, representing proportions or percentages of a whole | <code>Series.plot.pie()</code> <code>Series.plot(kind = 'pie')</code> <code>DataFrame.plot.pie(y, labels)</code> <code>DataFrame.plot(kind = 'pie')</code> | <code>s.plot(kind='pie', autopct='%1.1f%%')</code> <code>df.plot(x='Category', y='Percentage', kind='pie')</code> |
| Box Plot | Displays the distribution of a dataset along with key statistical measures | <code>DataFrame.plot.box()</code> <code>DataFrame.plot(kind = 'box')</code> | <code>df_can.plot(kind='box')</code> |
| Scatter Plot | Uses Cartesian coordinates to display values for two variables | <code>DataFrame.plot.scatter()</code> <code>DataFrame.plot(x, y, kind = 'scatter')</code> | <code>df.plot(x='Height', y='Weight', kind='scatter')</code> |



Cheat Sheet : Plotting directly with Matplotlib

| Plot Type | Description | Matplotlib Function | Example |
|-----------|------------------------------------|-------------------------|---|
| Line Plot | Shows trends and changes over time | <code>plt.plot()</code> | <code>plt.plot(x, y, color='red', linewidth=2)</code> |



| Plot Type | Description | Matplotlib Function | Example | Visual |
|---------------|--|---------------------------------|---|---|
| Area Plot | Display data series as filled areas | <code>plt.fill_between()</code> | <code>plt.fill_between(x, y1, y2, color='blue', alpha=0.5)</code> |  |
| Histogram | Displays bars representing the data count in each interval/bin | <code>plt.hist()</code> | <code>plt.hist(data, bins=10, color='orange', edgecolor='black')</code> |  |
| Bar Chart | Displays data using rectangular bars | <code>plt.bar()</code> | <code>plt.bar(x, height, color='green', width=0.5)</code> |  |
| Pie Chart | Displays data as a circular plot divided into slices, representing proportions or percentages of a whole | <code>plt.pie()</code> | <code>plt.pie(sizes, labels=labels, colors=colors, explode=explode)</code> |  |
| Box Plot | Displays the distribution of a dataset along with key statistical measures | <code>plt.boxplot()</code> | <code>plt.boxplot(data, notch=True)</code> |  |
| Scatter Plot | Uses Cartesian coordinates to display values for two variables | <code>plt.scatter()</code> | <code>plt.scatter(x, y, color='purple', marker='o', s=50)</code> |  |
| Subplotting | Creating multiple plots on one figure | <code>plt.subplots()</code> | <code>fig, axes = plt.subplots(nrows=2, ncols=2)</code> |  |
| Customization | Customizing plot: adding labels, title, legend, grid | Various customization | <code>plt.title('Title')</code> <code>plt.xlabel('X Label')</code> <code>plt.ylabel('Y Label')</code> <code>plt.legend()</code> <code>plt.grid(True)</code> |  |

Author(s)

Dr. Pooja

Changelog

| Date | Version | Changed by | Change Description |
|------------|---------|------------|-------------------------|
| 2023-06-10 | 0.1 | Dr. Pooja | Initial version created |