

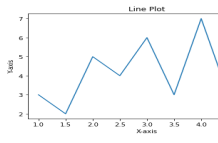
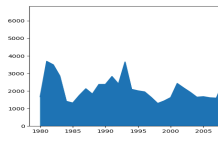
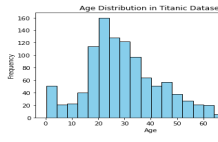
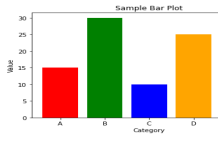
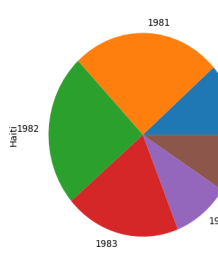
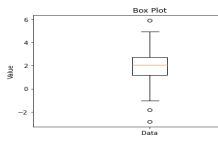
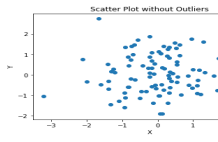
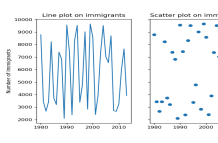
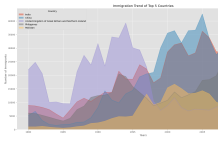


## Data Visualization with Python

### Cheat Sheet : Plotting with Matplotlib using Pandas

| Plot Type    | Description  | Pandas Function   | Example  | Visual |
|--------------|--|---|--|--------|
| Line Plot    | Shows trends and changes over time   | <code>DataFrame.plot.line()</code><br><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><br><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><br><code>Series.plot(kind = 'hist', bins = n)</code>  | <code>s.plot(kind='hist', bins=10)</code><br><code>df['age'].plot(kind='hist', bins=10)</code>                       |        |
| Bar Chart    | Displays data using rectangular bars   | <code>DataFrame.plot.bar()</code><br><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><br><code>Series.plot(kind = 'pie')</code><br><code>DataFrame.plot.pie(y, labels)</code><br><code>DataFrame.plot(kind = 'pie')</code> | <code>s.plot(kind='pie', autopct='%1.1f%%')</code><br><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><br><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><br><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   | Visual  |
|---------------|--|---------------------------------|---|---|
| Line Plot     | Shows trends and changes over time   | <code>plt.plot()</code>         | <code>plt.plot(x, y, color='red', linewidth=2)</code>   |    |
| 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><br><code>plt.xlabel('X Label')</code><br><code>plt.ylabel('Y Label')</code><br><code>plt.legend()</code><br><code>plt.grid(True)</code> |  |

Author(s)

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