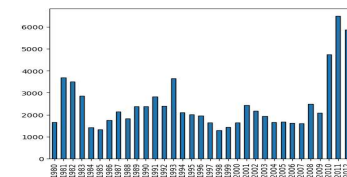
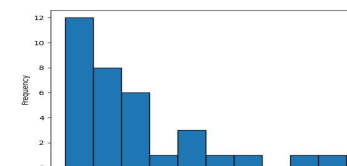
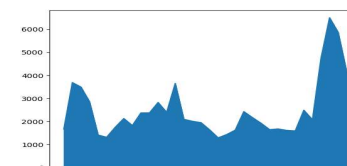
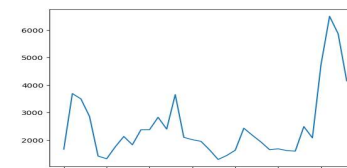


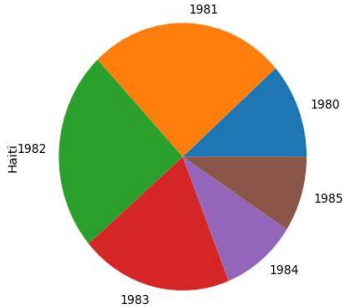
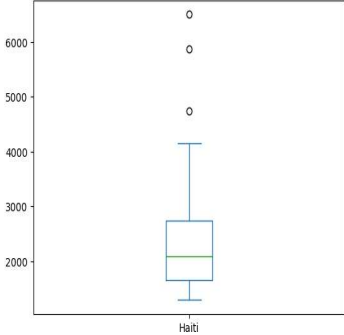
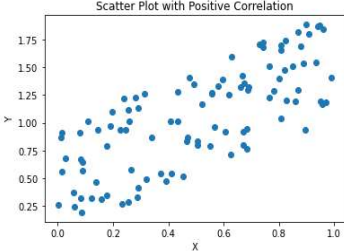
## Data Visualization with Python

### Cheat Sheet : Plotting with Matplotlib using Pandas

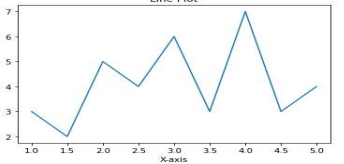
Plot Type	Description	Pandas Function	Example
Line Plot	Shows trends and changes over time	<code>DataFrame.plot.line()</code> <code>DataFrame.plot(kind = 'line')</code>	<code>df.plot(x='year', y='sales', kind='line')</code>
Area Plot	Displays data series as filled areas, showing the relationship between 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>

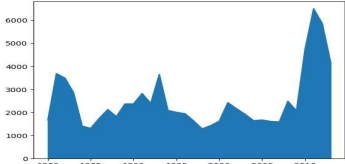
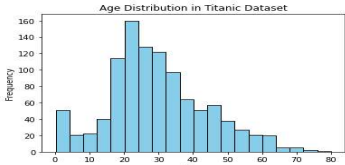
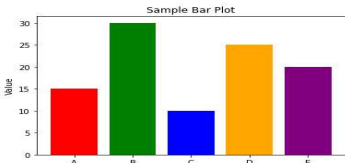
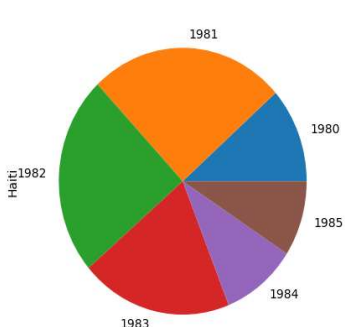
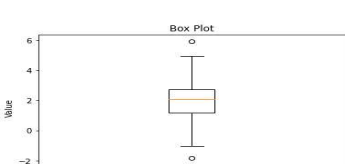
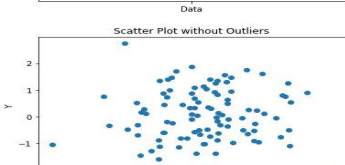
#### Visual



Plot Type	Description	Pandas Function	Example	Visual
Pie Chart	Displays data as a circular plot divided into slices, representing proportions or percentages of a whole	<pre>Series.plot.pie() Series.plot(kind = 'pie') DataFrame.plot.pie(y, labels) DataFrame.plot(kind = 'pie')</pre>	<pre>s.plot(kind='pie', autopct='%1.1f%%') df.plot(x='Category', y='Percentage', kind='pie')</pre>	
Box Plot	Displays the distribution of a dataset along with key statistical measures	<pre>DataFrame.plot.box() DataFrame.plot(kind = 'box')</pre>	<pre>df_can.plot(kind='box')</pre>	
Scatter Plot	Uses Cartesian coordinates to display values for two variables	<pre>DataFrame.plot.scatter() DataFrame.plot(x, y, kind = 'scatter')</pre>	<pre>df.plot(x='Height', y='Weight', kind='scatter')</pre>	

## 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>	

Plot Type	Description	Matplotlib Function	Example	Visual
Area Plot	Display data series as filled areas	<code>plt.fill_between()</code>	<pre>plt.fill_between(x, y1, y2, color='blue', alpha=0.5)</pre>	
Histogram	Displays bars representing the data count in each interval/bin	<code>plt.hist()</code>	<pre>plt.hist(data, bins=10, color='orange', edgecolor='black')</pre>	
Bar Chart	Displays data using rectangular bars	<code>plt.bar()</code>	<pre>plt.bar(x, height, color='green', width=0.5)</pre>	
Pie Chart	Displays data as a circular plot divided into slices, representing proportions or percentages of a whole	<code>plt.pie()</code>	<pre>plt.pie(sizes, labels=labels, colors=colors, explode=explode)</pre>	
Box Plot	Displays the distribution of a dataset along with key statistical measures	<code>plt.boxplot()</code>	<pre>plt.boxplot(data, notch=True)</pre>	
Scatter Plot	Uses Cartesian coordinates to display values for two variables	<code>plt.scatter()</code>	<pre>plt.scatter(x, y, color='purple', marker='o', s=50)</pre>	

Plot Type

Description

Matplotlib Function

Subplotting

Creating multiple plots on one figure

plt.subplots()

Customization

Customizing plot: adding labels, title, legend, grid

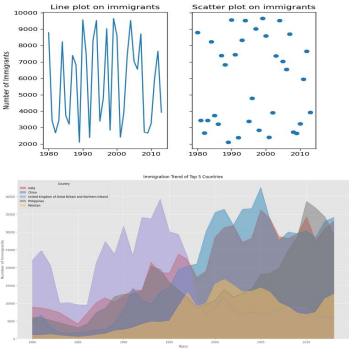
Various customization

Example

```
fig, axes = plt.subplots(nrows=2, ncols=2)

plt.title('Title')
plt.xlabel('X Label')
plt.ylabel('Y Label')
plt.legend()
plt.grid(True)
```

Visual



Author(s)

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Changelog

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