## **Cheat Sheet: Plotting with**

## Matplotlib using Pandas

Plot Type	Description	Pandas Function	Example	Visual
Line Plot	Shows trends and changes over time	<pre>DataFrame.plot.line() DataFrame.plot(kind = 'line')</pre>	<pre>df.plot(x='year', y='sales', kind='line')</pre>	9000 - 4000 - 3000 - 2000 - 1980 1983 1990 1995 2000 2005 2010

Area Plot	Displays data series as filled areas, showing the relationship between them	<pre>DataFrame.plot.area() DataFrame.plot(kind = 'area')</pre>	<pre>df.plot(kind='area')</pre>	6000 4000 3000 1000 0 1980 1985 1990 1995 2000 2003 2010
Histogram	Displays bars representing the data count in each interval/bin	<pre>Series.plot.hist() Series.plot(kind = 'hist', bins = n)</pre>	<pre>s.plot(kind='hist', bins=10)  df['age'].plot(kind='hist' , bins=10)</pre>	12 10 8 4 2 2 000 3000 4000 5000 6000

Bar Chart	Displays data using rectangular bars	<pre>DataFrame.plot.bar() DataFrame.plot(kind = 'bar')</pre>	df.plot(kind='bar')	6000 - 5000 - 4000 - 3000 - 2000 - 10
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='Pe rcentage',kind='pie')</pre>	1981 1980 1985 1983

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>	0 0 0 5000 - 0 0 0 0 0 0 0 0 0 0 0 0 0 0
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>	Scatter Plot with Positive Correlation  1.75 1.50 1.25 > 1.00 0.75 0.50 0.25 0.0 0.2 0.4 0.6 0.8 10

## **Cheat Sheet: Plotting**

## directly with Matplotlib

Plot Type	Description	Matplotlib Function	Example	Visual
Line Plot	Shows trends and changes over time	plt.plot()	<pre>plt.plot(x, y, color='red', linewidth=2)</pre>	Line Plot  7  6

Area Plot	Display data series as filled areas	<pre>plt.fill_betwee n()</pre>	<pre>plt.fill_between(x, y1, y2, color='blue', alpha=0.5)</pre>	6000 - 5000 - 4000 - 2000 - 1000 - 0 1980 1985 1990 1995 2000 2005 2010
Histogram	Displays bars representing the data count in each interval/bin	plt.hist()	<pre>plt.hist(data, bins=10, color='orange', edgecolor='black')</pre>	Age Distribution in Titanic Dataset
Bar Chart	Displays data using rectangular bars	plt.bar()	<pre>plt.bar(x, height, color='green', width=0.5)</pre>	Sample Bar Plot  30  25  20  30  30  4  B  Category

Pie Chart	Displays data as a circular plot divided into slices, representing proportions or percentages of a whole	<pre>plt.pie()</pre>	<pre>plt.pie(sizes, labels=labels, colors=colors, explode=explode)</pre>	1981 1980 1985 1983
Box Plot	Displays the distribution of a dataset along with key statistical measures	plt.boxplot()	<pre>plt.boxplot(data, notch=True)</pre>	Box Plot  0  4-  10  0-  -2-  0  Data
Scatter Plot	Uses Cartesian coordinates to display values	plt.scatter()	<pre>plt.scatter(x, y, color='purple', marker='o', s=50)</pre>	Scatter Plot without Outliers  2 1 0 -1 -2 -3 -2 -1 X 1 2 3

	for two variables			
Subplottin	Creating multiple plots on one figure	plt.subplots()	<pre>fig, axes = plt.subplots(nrows=2, ncols=2)</pre>	10000 Line plot on immigrants 9000 -
Customiz ation	Customizing plot: adding labels, title, legend, grid	Various customization	<pre>plt.title('Title') plt.xlabel('X Label') plt.ylabel('Y Label') plt.legend() plt.grid(True)</pre>	Intergration has of tigs Countries  The state of the stat