

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	<pre>DataFrame.plot.line() DataFrame.plot(kind = 'line')</pre>	<pre>df.plot(x='year', y='sales', kind='line')</pre>	5000 4000 4000 2000 1980 1985 1990 1999 2000 2009 2010
Area Plot	Displays data series as filled areas, showing the relationship between them	<pre>DataFrame.plot.area() DataFrame.plot(kind = 'area')</pre>	df.plot(kind='area')	6000- 5000 - 4000- 5000 - 2000- 1000 - 0 1980 1985 1990 1999 2090 2095 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 10 10 10 10 10 10 10 10 10 10 10 10
Bar Chart	Displays data using rectangular bars	<pre>DataFrame.plot.bar() DataFrame.plot(kind = 'bar')</pre>	df.plot(kind='bar')	6900- 5000 - 4000- 3000 - 3000 - 300

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>	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>	6000 - O O O O O O O O O O O O O O O O O
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 175 - 150 - 125 - 100 - 125 - 100 - 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 6 7 7 1 8 7 1 8 7 1 8 1 8 1 1 1 1 1 1 1 1

Plot Type	Description	Matplotlib Function	Example	Visual
Area Plot	Display data series as filled areas	plt.fill_between()	<pre>plt.fill_between(x, y1, y2, color='blue', alpha=0.5)</pre>	6000 5000 4000 3000 1000
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 25 20 30 4 B Category Category
Pie Chart	Displays data as a circular plot divided into slices, representing proportions or percentages of a whole	plt.pie()	<pre>plt.pie(sizes, labels=labels, colors=colors, explode=explode)</pre>	1981 1980 1985 1984
Box Plot	Displays the distribution of a dataset along with key statistical measures	plt.boxplot()	plt.boxplot(data, notch=True)	Box Plot 6 4 4 5 7 0 0 0 0 0 Data
Scatter Plot	Uses Cartesian coordinates to display values for two variables	plt.scatter()	<pre>plt.scatter(x, y, color='purple', marker='o', s=50)</pre>	Scatter Plot without Outliers 2 3

Plot Type	Description	Matplotlib Function	Example	Visual
Subplotting	Creating multiple plots on one figure	plt.subplots()	<pre>fig, axes = plt.subplots(nrows=2, ncols=2)</pre>	10000 Line plot on involgrants 9000 9000 9000 9010 1000 1000 1000 1000
Customization	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>	Margarith Nat at 10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

Author(s)

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