

## Graphs Theory Document

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There are multiple libraries that can be used to develop and show graphic representations within python. The few methods covered in the tutorial will teach the basics for displaying and understanding your data with this document being a guide to the libraries being used.

### What is Matplotlib?

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Matplotlib is a free open source plotting library that can be used with the Python programming language to provide an API for embedding graphical plots into applications. It provides the necessary tools to allow various styles of plots such as Histograms, Bar Charts and Scatter plots.

The most common use of Matplotlib is the module **pyplot** which is a collection of command functions that aim to provide the features of MATLAB within the library. Pyplot works by creating a figure that contains the area in which the plotting is done; once this completed the pyplot function plots lines or points inside the plotting area of the figure to create the graph.

#### What graphs can matplotlib handle?

- Line Charts – single and several lines on one plot
- Bar Charts
- Histograms
- Scatterplots
- Pie Charts
- Equation Curves

### What is Seaborn?

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Seaborn provides an API on top of Matplotlib that offers choices for plot style and colour defaults, defines simple high-level functions for common statistical plot types, and integrates with the functionality provided by Pandas DataFrames.

The main idea of Seaborn is that it provides high-level commands to create a variety of plot types useful for statistical data exploration, and even some statistical model fitting. You will see examples of how Seaborn builds upon and simplifies graphs that may have more parameters or setup in matplotlib.

#### What graphs can seaborn handle?

Seaborn can handle the same as matplotlib and more, with additional functionality in formatting. This includes but is not limited to:

- Boxplots
- Heatmaps
- Categorical Plots
- Logistic Regression plots