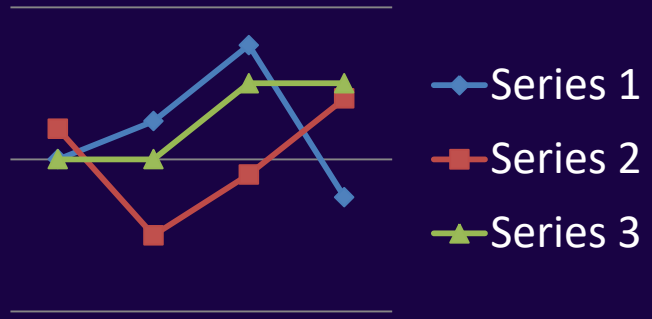
Visualizing Data with Python

Matplotlib

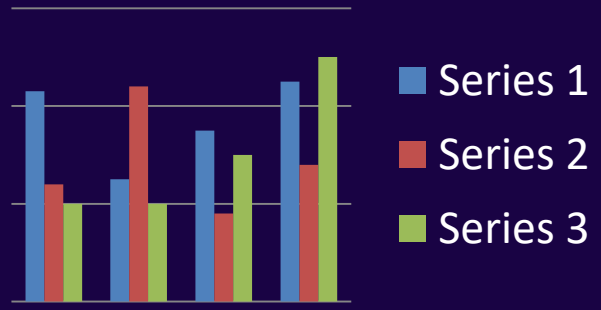
By Armita Razavi

In This Video

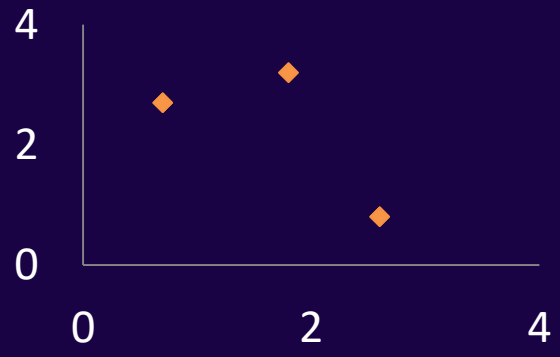
Line Chart



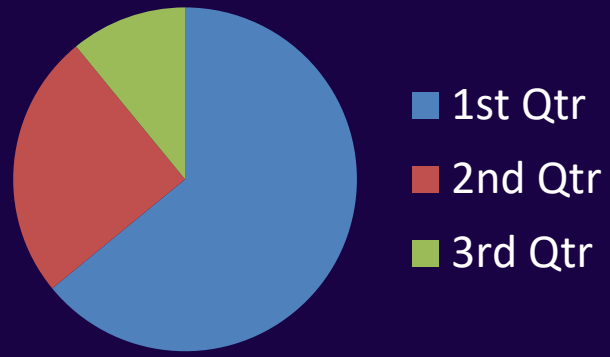
Bar Chart



Scatter Plot



Pie Chart



What is Matplotlib?

A Python library to visualize data using chart like Bar, Line and Pie chart and also scatter Plot.

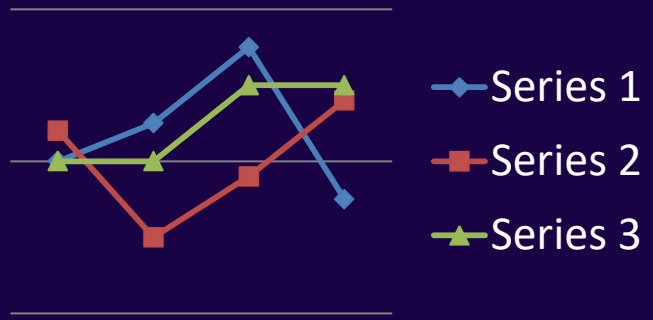
It's easy to use for simple and non-interactive visualization

It should be installed and be imported in order to use.

Installation: python -m pip install matplotlib

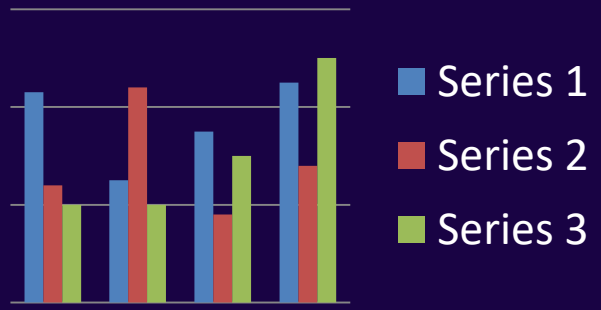
Import: from matplotlib import pyplot as plt

Line Chart



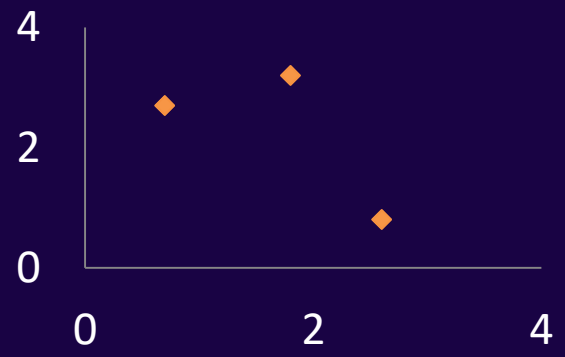
- For monitoring behavior in a set of data
- Useful for more than tracking change over time (time-series data)
- Makes predictions about what might happen next

Bar Chart



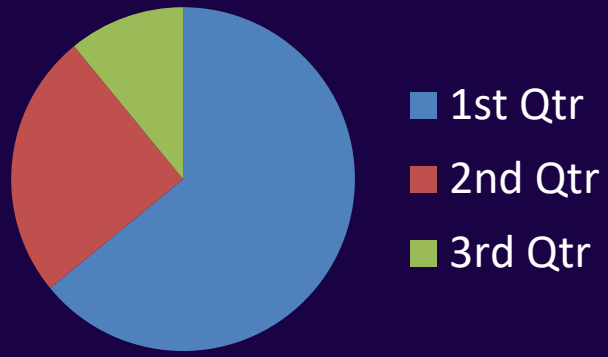
- Show how some quantity varies among some discrete set of items
- Show a distribution of data or perform a comparison of values across different subgroups
- From a bar chart, we can see which groups are highest or most common, and how other groups compare against the others

Scatter Plot



- Visualizing the relationship between two paired sets of data
- Identification of correlational relationships are common with scatter plots

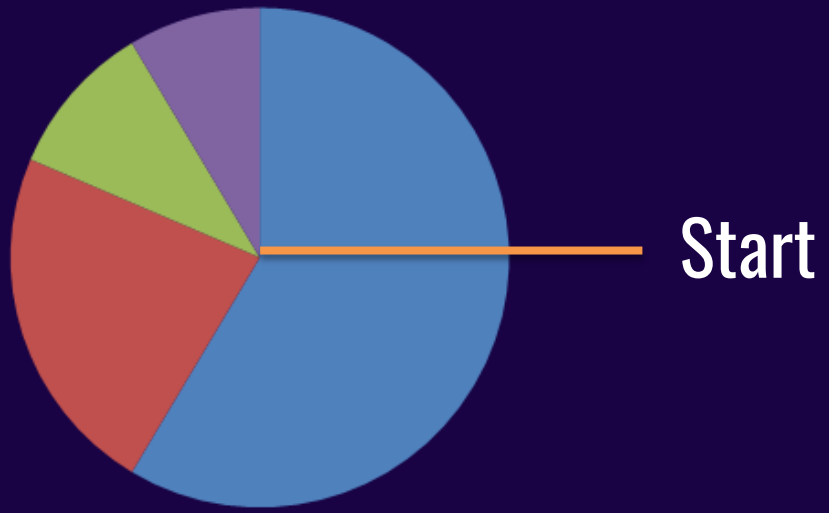
Pie Chart

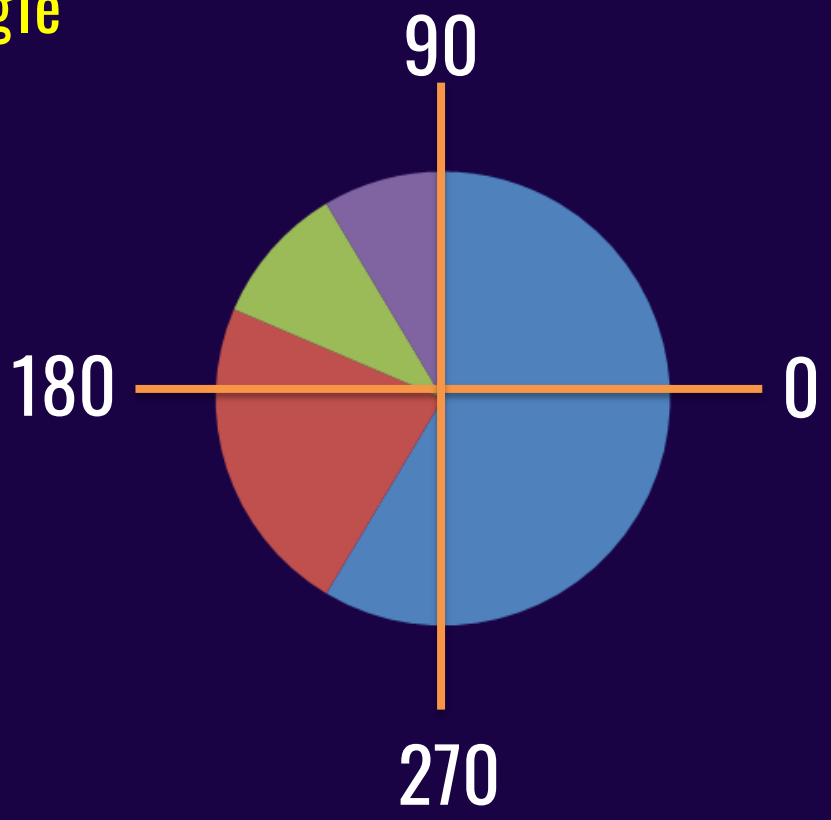


- Show data as a percentage of a whole
- To represent categories that compose the whole

Pie Chart

Start Angle





Warm Up Practice

Line chart

Search over the Internet. Find the GDP of “USA” and “England” from 2013-2023 and plot them side by side in one frame. Compare the result. Then show them as one Multi-line Chart

Search over the Internet. Go to your local weather website and plot the day temperature of the last week (Mon-Sun).

Warm Up Practice

Bar chart

Search in the IMDB website. Find Box-Office price for the top 10 movies and plot the Bar Chart for this.

For these top 10 movies, create a list of their IMDB rating stars (0-10) and plot the Histogram for frequency distributions of the ratings.

Warm Up Practice

Scatter Plot

response_time = [10, 3, 6, 20, 7, 12, 8]
Satisfaction = [2, 10, 4, 3, 8, 0, 5]

Use Color map

temperature = [30, 27, 34, 23, 28]
Ice_cream_sales = [1000, 930, 1850, 45, 79]

Warm Up Practice

Pie Chart

Choose 5 activities/sports you love, set your interest to each of them as a score between 0 to 50. Plot them in a pie chart

Search one movie you like in IMDB and go to its ratings section. Plot it’s rating amount for 1 to 10 labels.