Summary

Matplotlib and pyplot

Matplotlib is a python library that has a lot of inbuilt functions and modules that simplify drawing graphs like in MATLAB. Pyplot is module in matplotlib is commonly used to plot graphs.

Types of plots/Graphs

- Scatter plot

  Scatter plots are plots that use dots or markers to show that a certain value of x has a value of y

  Scatter plots are commonly used for showing correlations between two variables.

  Plt.scatter(x_values,y_values,optional parameters)

- Stack plots or Area plots

  Stack plots or Area plots consist of vertically filled area and are usually stacked on top of one another.

  Stack plots are used to show a variable contribution to the whole e.g y = x1 + x2 + x3

  It is used to show x1/y and x2/y and x3/y.

  Plt.stackplot(x_values,y_values,optional parameters

- Line plots

  Line plots are plots that consist of a line to show a relation between every value of the x-axis to the y-axis

  Plt.plot(x_values,y_values,optional parameters)

- Bar graphs

  Bar graphs are graphs that consist of vertical or horizontal bars to show a relationship between categorical values and numeric values.

  Plt.bar(x_values,y_values,optional parameters)

- Histograms

  Histograms consist of vertical bars that fall between an interval.

  Histograms are used to show a frequency of values falling between a specific interval.

  Plt.hist(values,optional parameters)

- Pie charts

  Pie charts are circular charts used to convey a part contribution to a whole.Ideally pie charts show not consist of more than 5 pies, the data tends to get crowded and unclear with more than 5 values.

  Plt.pie(values,labels,optional parameters)

Plotting live data using animate

For plotting live data an object used called FuncAnimation is used . it calls a function every n milliseconds that plots in a figure.

FuncAnimation(figure,function,interval)

Stateful vs Object oriented API

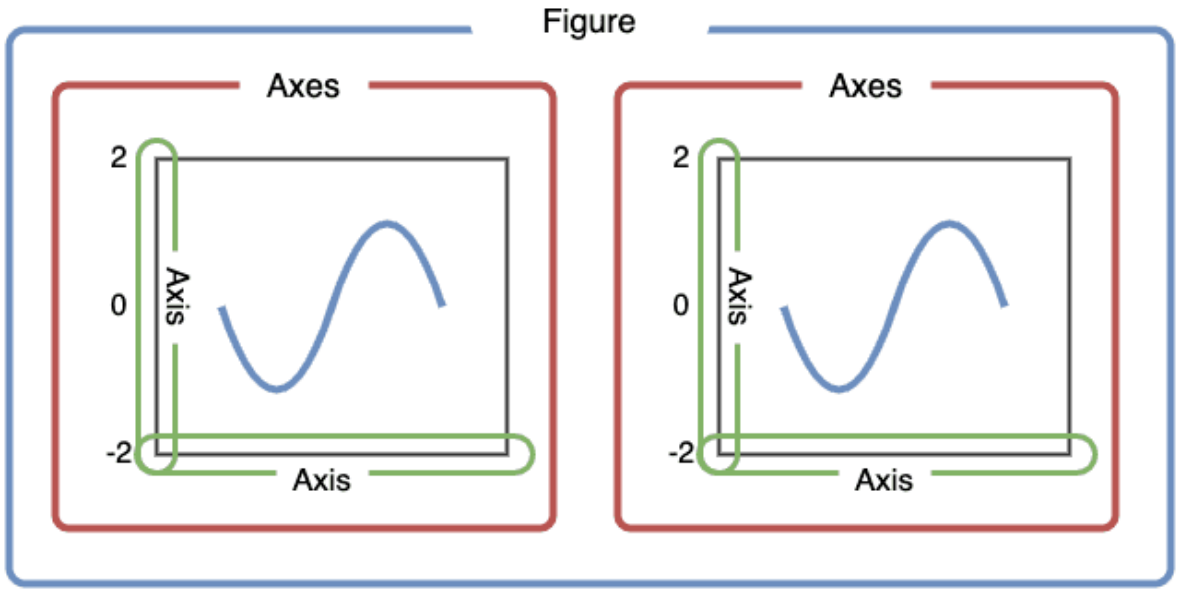
Stateful API is based on objects that are currently in a created state. OO api is based on oop in which objects are first created and every object is dealt with in an isolated manner.

OO API

Fig , ax = Plt.subplots(nrows,ncolumns)

Figures vs axes

A figure is the window in which the plot is made, the axes are the axes in which a plot is plotted



It is useful to have multiple axes if you want to plot related data on separate graphs, that way each graph has its separate labels,x values,y values…etc.

Saving pictures

Stateful API: Plt.figure.savefig(path)

OO API: fig.savefig()