**✅ MATPLOTLIB – COMMONLY USED METHODS AND FUNCTIONS**

**🔹 Basic Plotting**

* matplotlib.pyplot.plot(): Plots y vs x as lines and/or markers.
* matplotlib.pyplot.show(): Displays all open figures.
* matplotlib.pyplot.figure(): Creates a new figure.
* matplotlib.pyplot.subplot(): Adds a subplot to the current figure.
* matplotlib.pyplot.subplots(): Creates a figure and a set of subplots.
* matplotlib.pyplot.title(): Sets the title of the current axes.
* matplotlib.pyplot.xlabel(): Sets the label for the x-axis.
* matplotlib.pyplot.ylabel(): Sets the label for the y-axis.
* matplotlib.pyplot.legend(): Displays a legend on the plot.
* matplotlib.pyplot.grid(): Adds gridlines to the plot.

**🔹 Line & Marker Customization**

* linestyle='--': Dashed line.
* linewidth=2: Sets the width of the line.
* color='r': Red color line.
* marker='o': Adds circle markers.
* markersize=6: Sets the marker size.

**🔹 Plot Types**

* plt.plot(): Line plot.
* plt.scatter(): Scatter plot.
* plt.bar(): Vertical bar chart.
* plt.barh(): Horizontal bar chart.
* plt.hist(): Histogram.
* plt.boxplot(): Box plot.
* plt.pie(): Pie chart.
* plt.errorbar(): Plot with error bars.
* plt.fill\_between(): Fills area between two curves.

**🔹 Figure Customization**

* plt.xlim() / plt.ylim(): Sets the limit for x or y axes.
* plt.xticks() / plt.yticks(): Sets custom ticks for axes.
* plt.axhline() / plt.axvline(): Adds horizontal/vertical reference lines.
* plt.axhspan() / plt.axvspan(): Fills horizontal/vertical span.

**🔹 Multiple Plots**

* plt.subplot(rows, cols, index): Places multiple plots in a grid.
* plt.subplots(nrows, ncols): Creates a figure and subplots in one step.
* fig, ax = plt.subplots(): Allows object-oriented access to subplots.

**🔹 Saving Figures**

* plt.savefig("filename.png"): Saves the figure to a file.
* Parameters include: dpi=300, transparent=True, bbox\_inches='tight'.

**🔹 Working with Axes (OO-style)**

* fig, ax = plt.subplots(): Create a figure and axes object.
* ax.plot(), ax.scatter(), ax.set\_title(), ax.set\_xlabel() etc.: Object-oriented plotting.