COURSE GLOSSARY

Intermediate Python

- **Matplotlib**: A Python library for creating visualizations such as line plots, scatter plots, and histograms.
- **Line Plot**: A graph that uses lines to show changes in data over time or continuous variables.
- **Scatter Plot**: A type of plot that shows the relationship between two variables by placing points in a coordinate system.
- **Histogram**: A graphical representation of the distribution of data, showing the frequency of values within bins.
- **Customization (Matplotlib):** Adjusting plot features such as labels, titles, ticks, sizes, colors, transparency, and gridlines to make plots more informative.
- **Dictionaries:** A Python data structure that stores key-value pairs, enabling fast lookups.
- **Dictionary Manipulation**: Updating, adding, or removing key-value pairs in a dictionary using assignment or the del statement.
- **Nested Dictionary**: A dictionary that contains other dictionaries as values, useful for storing structured information.
- **Pandas**: A Python library for data analysis, providing the DataFrame and Series data structures for handling tabular data.
- **DataFrame**: A 2D tabular data structure in pandas with labeled rows and columns.
- **Series**: A one-dimensional labeled array in pandas, representing a single column of data.
- **read_csv():** A pandas function used to load data from a CSV file into a DataFrame.
- **index_col:** An argument of read_csv() that specifies which column to use as row labels in a DataFrame.
- **Square Brackets (pandas):** A selection method in pandas used to extract columns (by label) or rows (by slicing) from a DataFrame.
- **loc[ ]:** A pandas method for selecting rows and columns by label.
- **iloc[ ]**: A pandas method for selecting rows and columns by integer index.
- **Comparison Operators:** Operators such as ==, !=, <, >, <=, and >= used to compare values in Python.
- **Boolean Operators**: Logical operators and, or, and not, used to combine Boolean expressions.
- **NumPy Boolean Functions**: np.logical_and(), np.logical_or(), and np.logical_not()—functions used for element-wise logical operations on arrays.
- **Control Flow (if, elif, else):** Conditional statements in Python that control the execution of code based on logical conditions.
- **Filtering DataFrames:** Using Boolean conditions in pandas to subset rows that meet specific criteria.
- **while Loop:** A control flow statement that repeatedly executes code as long as a condition is True.
- **for Loop**: A control flow statement that iterates over items in a sequence such as lists, dictionaries, NumPy arrays, or pandas DataFrames.
- **enumerate():** A function that returns both the index and value when looping over a sequence.
- **iterrows():** A pandas DataFrame method that allows iteration over rows, yielding index and row data.
- **apply():** A pandas method that applies a function to each element in a Series or across a DataFrame column.
- **Random Numbers (NumPy):** Values generated using functions such as np.random.rand() (random float between 0 and 1) or np.random.randint() (random integers within a range).
- **Seed (Randomness):** A fixed value set with np.random.seed() to ensure reproducibility of random number generation.
- **Random Walk:** A simulation where each step is determined randomly, often used in probability and statistics.
- **max() Function:** A built-in Python function used to ensure a value does not go below a defined threshold, often applied in random walk simulations.
- **Simulation:** Running multiple iterations of a process (e.g., random walks) to estimate probabilities or outcomes.
- **plt.plot():** A Matplotlib function for creating line plots.
- **plt.scatter():** A Matplotlib function for creating scatter plots.
- **plt.hist():** A Matplotlib function for creating histograms.
- **plt.xlabel() / plt.ylabel():** Functions to label the x-axis and y-axis of a plot.
- **plt.title():** A function to set the title of a plot.
- **plt.xticks() / plt.yticks():** Functions to customize axis ticks and labels.
- **plt.grid():** A function to add gridlines to a plot for better readability.