COURSE GLOSSARY

Introduction to Python

- **Python:** A high-level programming language widely used for data science, machine learning, web development, and automation.
- **Script:** A Python file containing code that can be executed all at once.
- **Variable:** A named reference to a value stored in memory (e.g., x = 5).
- **Assignment (=):** The operation of giving a variable a value.
- **Data Type:** A classification of data in Python, such as integer, float, string, or boolean.
- **Integer (int)**: A whole number without a decimal point (e.g., 10).
- **Float:** A number that contains a decimal point (e.g., 3.14).
- **String (str):** A sequence of characters enclosed in quotes (e.g., 'Hello').
- **Boolean (bool):** A data type with only two possible values: True or False.
- **Type Conversion:** Changing a variable's type using built-in functions such as int(), str(), float(), or bool().
- **Function:** A reusable block of code that performs a specific task, called by name with parentheses (e.g., print()).
- **Method:** A function that is associated with a specific object and called using dot notation (e.g., 'hello'.upper()).
- **Package:** A collection of Python modules containing functions and methods for specific tasks (e.g., math, numpy).
- **Import Statement:** A way to bring external modules or functions into a script using import or from ... import ....
- **List:** An ordered, mutable collection of elements, defined with square brackets (e.g., [1, 2, 3]).
- **List of Lists**: A nested list structure where each element is itself a list.
- **Subsetting:** Accessing specific elements from a list or array using square bracket notation and indices (e.g., my_list[0]).
- **Negative Indexing**: Referring to elements from the end of a list using negative numbers (e.g., my_list[-1]).
- **Slicing**: Selecting a range of elements from a list using the syntax [start:end].
- **List Manipulation**: Modifying a list by replacing, adding, or deleting elements.
- **append():** A list method that adds an element to the end of a list.
- **remove():** A list method that removes the first matching element from a list.
- **reverse():** A list method that reverses the order of elements in place.
- **count():** A method that counts the occurrences of a specific element in a list or string.
- **index():** A method that returns the index of the first occurrence of a specified element in a list.
- **Explicit Copy:** Creating a separate copy of a list using list() or slicing ([:]), preventing changes from affecting the original list.
- **NumPy:** A Python package for numerical computing, providing fast arrays and mathematical functions.
- **NumPy Array:** A grid of values of the same type, offering efficient storage and operations compared to Python lists.
- **2D NumPy Array:** A matrix-like structure where data is stored in rows and columns.
- **Array Shape:** The dimensions of a NumPy array, accessed with .shape.
- **Boolean Indexing (Masking):** Selecting elements from a NumPy array using Boolean conditions.
- **Vectorization:** Performing arithmetic operations directly on arrays without explicit loops.
- **Aggregation (NumPy):** Functions like np.mean(), np.median(), np.std(), np.sum() that summarize data.
- **Correlation (np.corrcoef):** A statistical function in NumPy that measures the relationship between two variables.
- **Outlier:** A data point significantly different from others, which can distort averages.
- **Conversion Factors:** Numbers used to convert data from one unit to another (e.g., inches to meters using 0.0254).
- **Selective Import**: Importing only specific functions or values from a package (e.g., from math import pi).
- **Aliasing:** Assigning a new name to an imported package or function (e.g., import numpy as np).