Assignment 1

Basic Python

Task 1: Write a Python program to check if a number is even or odd.

The program should take an integer input from the user and print whether the number is even or odd.

Example: If the user inputs 4, the output should be "4 is even".

Task 2: Write a Python program to find the largest of three numbers.

The program should take three integer inputs from the user and print the largest number.

Example: If the user inputs 3, 7, and 5, the output should be "The largest number is 7".

NumPy

Task 1: Create a NumPy array of shape (3, 3) filled with random numbers.

Then, compute the mean, median, and standard deviation of the array.

Task 2: Perform matrix multiplication using NumPy.

Create two 2x2 matrices and multiply them. Print the result.

Pandas

Task 1: Load a CSV file into a Pandas DataFrame and display its first 5 rows.

Provide basic statistics of the dataset using the describe() method.

Task 2: Filter the DataFrame based on a condition.

For example, filter rows where a specific column value is greater than a threshold. Display the filtered DataFrame.

Matplotlib

Task 1: Create a line plot using Matplotlib.

Plot the function y = x^2 for x values ranging from -10 to 10. Label the axes and give the plot a title.

Task 2: Create a bar chart using Matplotlib.

Use a dataset of your choice (e.g., sales data, number of students in different classes) and plot a bar chart. Label the bars and the axes.

Seaborn

Task 1: Create a histogram using Seaborn.

Use a sample dataset (e.g., tips dataset) to plot the distribution of a numerical column.

Task 2: Create a heatmap using Seaborn.

Use a correlation matrix of a dataset to create a heatmap. Annotate the heatmap for better readability.