Task 2: Working with Libraries (NumPy & Matplotlib)

Objective

Understand the usage of **NumPy** for numerical computations and **Matplotlib** for data visualization.
NumPy provides powerful array objects and operations, while Matplotlib helps visualize data through plots and charts.

Implementation

- Create and manipulate arrays using **NumPy**.
- Perform mathematical and statistical operations.
- Use **Matplotlib** to visualize data using line plots, bar charts, histograms, and scatter plots.

Python Code

```
import numpy as np

import matplotlib.pyplot as plt


# Create NumPy arrays

data = np.array([10, 20, 30, 40, 50])

print("Array:", data)


# Basic operations

print("Mean:", np.mean(data))

print("Standard Deviation:", np.std(data))


# Visualization using Matplotlib

x = np.arange(1, 6)

y = data


plt.plot(x, y, marker='o', color='b', label='Line Plot')

plt.xlabel('X-axis')
```

```
plt.ylabel('Y-axis')

plt.title('Simple Line Plot')

plt.legend()

plt.show()
```

Client Project

Use NumPy and Matplotlib to perform **data analysis and visualization** on a small dataset (e.g., sales, temperature, or stock prices).