### **Project 5: Data Visualization**

#### **Objective:**

Load a dataset from a CSV file (e.g., sales or weather data) and create various charts (bar, line, scatter) using Matplotlib or Plotly.

### **Instructions**

#### **Step 1: Set Up the Environment**

1. Create a new Python file called data\_visualization.py.

Install the required libraries:  
Copy code  
pip install pandas matplotlib

#### **Step 2: Import Necessary Libraries**

Import the required libraries at the top of your script:  
python  
Copy code  
import pandas as pd

import matplotlib.pyplot as plt

#### **Step 3: Load the Dataset**

Use pandas to load the dataset from a CSV file.  
python  
Copy code  
data = pd.read\_csv("your\_dataset.csv")

#### **Step 4: Create Different Visualizations**

Create a line chart to show trends over time:  
python  
Copy code  
plt.figure(figsize=(10, 6))

plt.plot(data["Date"], data["Sales"])

plt.title("Sales Over Time")

plt.xlabel("Date")

plt.ylabel("Sales")

plt.show()

Create a bar chart to compare categories:  
python  
Copy code  
plt.figure(figsize=(10, 6))

plt.bar(data["Category"], data["Revenue"])

plt.title("Revenue by Category")

plt.xlabel("Category")

plt.ylabel("Revenue")

plt.show()

Create a scatter plot to show correlations:  
python  
Copy code  
plt.figure(figsize=(10, 6))

plt.scatter(data["Sales"], data["Profit"])

plt.title("Sales vs. Profit")

plt.xlabel("Sales")

plt.ylabel("Profit")

plt.show()

#### **Step 5: Customize and Save the Charts**

Save the charts as images:  
python  
Copy code  
plt.savefig("sales\_trend.png")

#### **Step 6: Run and Test**

* Run the script and generate visualizations to ensure the data is correctly represented.