231501134
RESHMATHI G

Experiment no: 05

Date: 13.08.2025

EDA - Data Visualization with Matplotlib

AIM:

To understand and implement basic data visualization techniques using **Matplotlib**, including **line charts**, **bar charts**, and **histograms** as part of exploratory data analysis.

Code:

```
# Import necessary libraries import

matplotlib.pyplot as plt


# Sample data for plotting

x = [1, 2, 3, 4, 5] y =

[10, 12, 8, 14, 7]


# -------------------------------
# 1. Line Chart
# -------------------------------

plt.figure(figsize=(6, 4)) plt.plot(x, y, marker='o',

color='blue', linestyle='--') plt.title('Line Chart

Example') plt.xlabel('X-axis') plt.ylabel('Y-axis')

plt.grid(True)
```

231501134

RESHMATHI G

```python
plt.show()


# --------------------------------
# 2. Bar Chart
#        --------------------------------
categories = ['A', 'B', 'C', 'D', 'E']

values = [5, 7, 3, 8, 4]


plt.figure(figsize=(6,                   4))

plt.bar(categories, values, color='green')

plt.title('Bar        Chart        Example')

plt.xlabel('Categories')

plt.ylabel('Values') plt.show()


# --------------------------------
# 3. Histogram
# --------------------------------
import numpy as np


# Generate  random  data  for  histogram  data  =
np.random.normal(50, 10, 1000)  # mean=50, std=10


plt.figure(figsize=(6,     4))     plt.hist(data,     bins=20,
color='purple',   edgecolor='black')   plt.title('Histogram

Example')               plt.xlabel('Value               Range')

plt.ylabel('Frequency') plt.show()
```
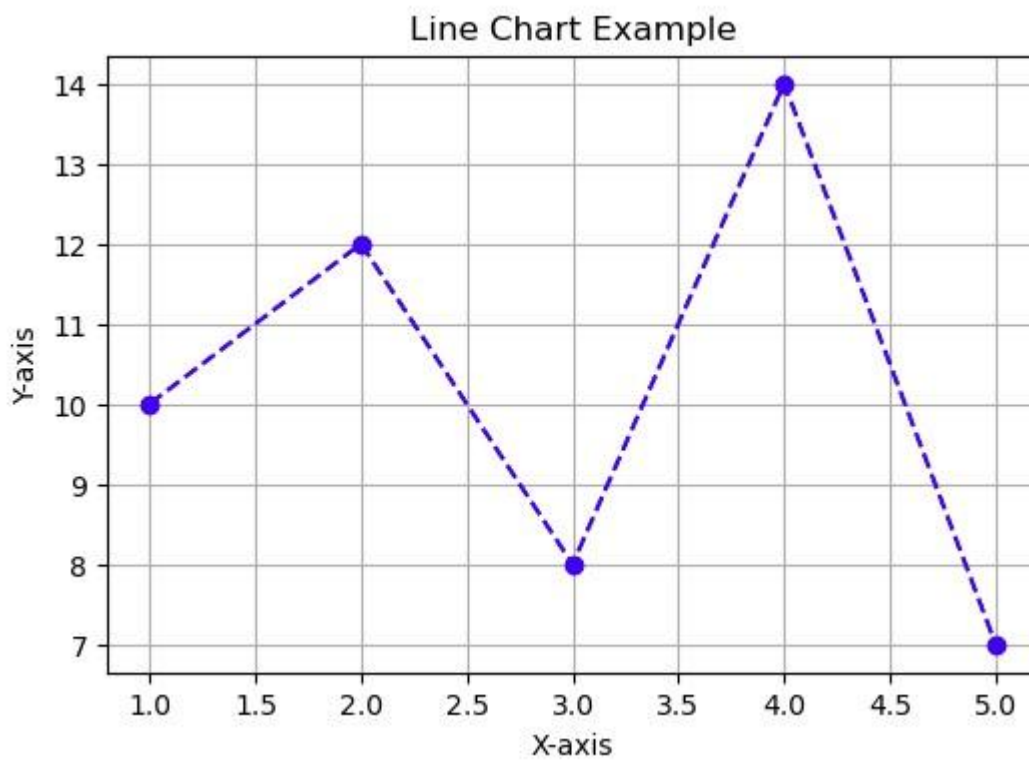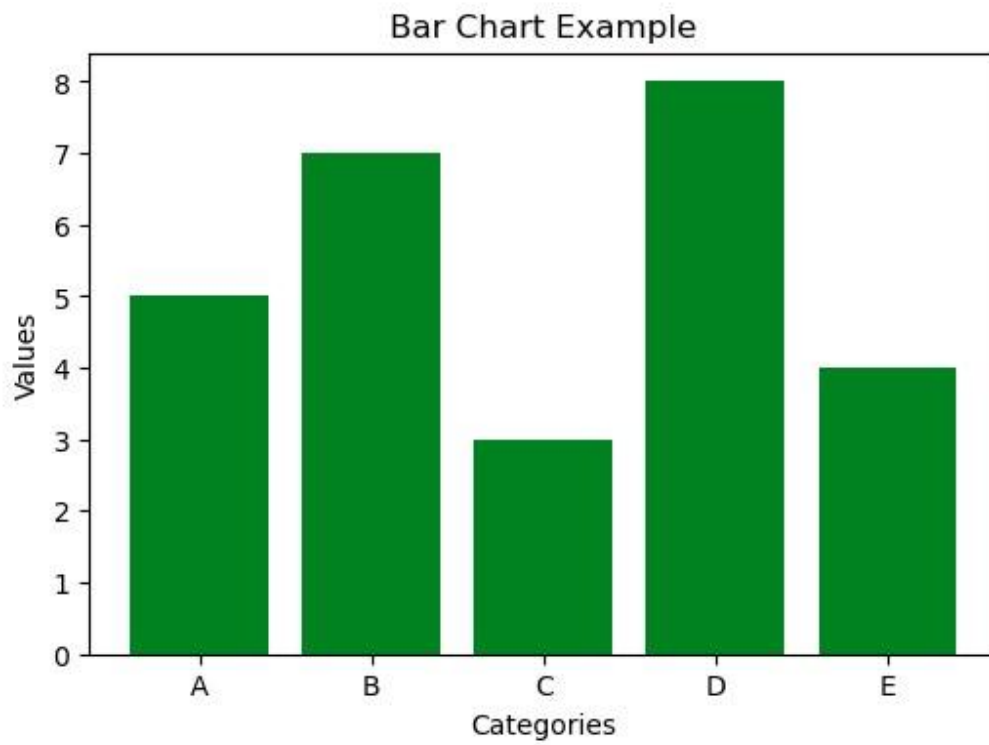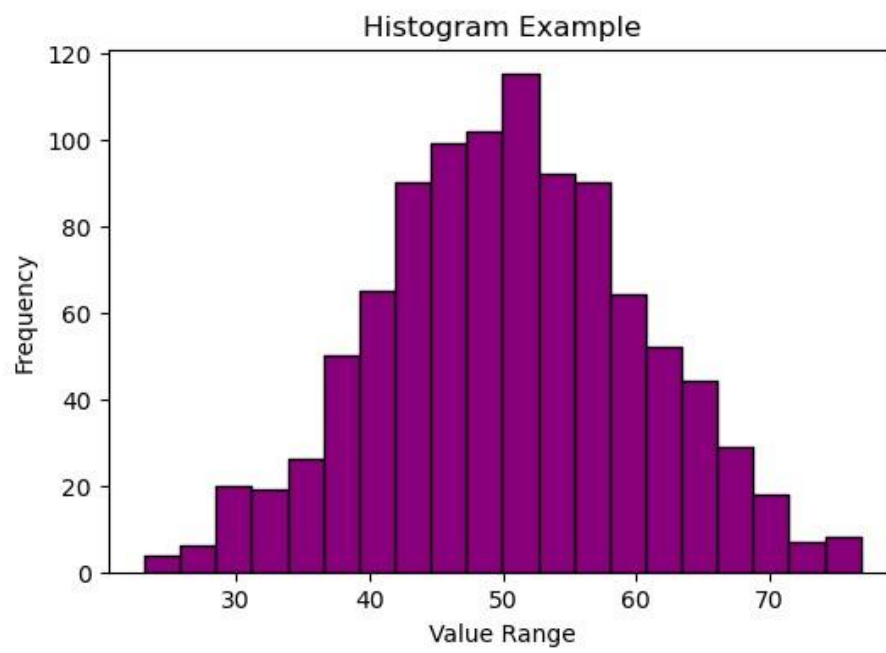
231501134
RESHMATHI G

output:

Bar Chart Example

Line Chart Example

231501134
RESHMATHI G

Histogram Example

Result:

Basic plotting techniques using **Matplotlib** were successfully implemented. The line chart showed trends over a sequence, the bar chart displayed categorical comparisons, and the histogram visualized the distribution of numerical data.