

Ex. No. 04	VISUALIZING 1D, 2D AND 3D PLOTS
02.08.2024	

AIM:

To visualize 1D, 2D and 3D plot using dataset

ALGORITHM:

Step 1: Start the program

Step 2: Load the dataset

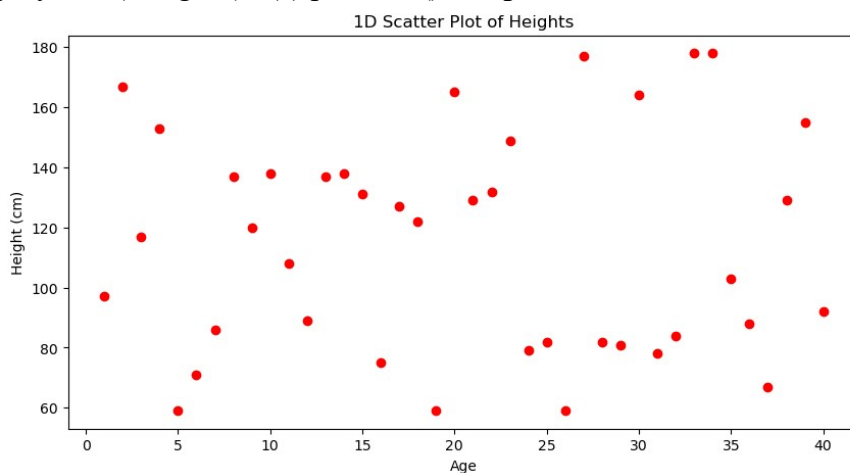
Step 3: Initialize variables

Step 4: Plot the plots

Step 5: Stop the program

PROGRAM:

```
1. 1D - Scatter plot: import pandas
as pd import numpy as np import
matplotlib.pyplot as plt
np.random.seed(0) df =
pd.DataFrame({
    'Index': range(1, 41),
    'Height': np.random.randint(50, 180, 40) }) plt.figure(figsize=(10,
5))
plt.scatter(df['Index'], df['Height'], color='red',
marker='o') plt.title('1D Scatter Plot of Heights') plt.xlabel('Age')
plt.ylabel('Height (cm)') plt.show() Output:
```

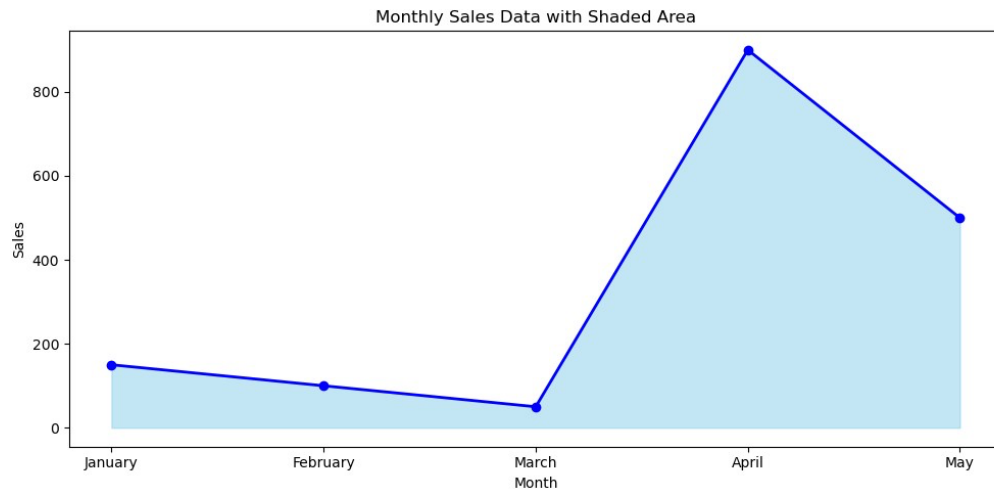


2. 2D – Line plot with shaded area

```

data = {
'Month': ['January', 'February', 'March', 'April', 'May'],
'Sales': [150,100,50,900,500]} df
= pd.DataFrame(data)
plt.figure(figsize=(10, 5)) # Set the figure size
plt.plot(df['Month'], df['Sales'], marker='o', color='blue', linestyle='-', linewidth=2)
plt.fill_between(df['Month'], df['Sales'], color='skyblue', alpha=0.5)
plt.title('Monthly Sales Data with Shaded Area') plt.xlabel('Month')
plt.ylabel('Sales')
plt.tight_layout()# Adjust layout to make room for rotated labels
plt.show() Output:

```

**3. 3D – Scatter plot:** from

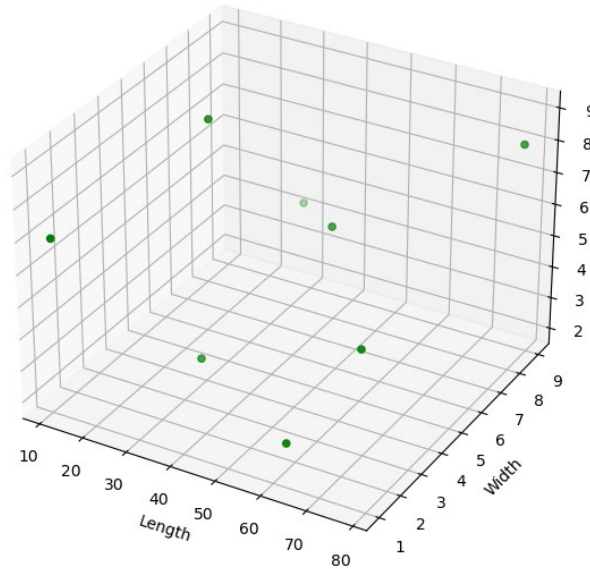
```

mpl_toolkits.mplot3d import Axes3D data =
{ 'Length': [11,26,34,49,58,33,65,78],
  'Width': [1,5,3,6,2,8,4,9], 'Height':
[7,9,3,6,2,5,4,8] } df =
pd.DataFrame(data) fig =
plt.figure(figsize=(10, 7)) ax =
fig.add_subplot(111, projection='3d')
ax.scatter(df['Length'], df['Width'], df['Height'], color='green', marker='o')
ax.set_title('3D Scatter Plot of Object Dimensions')
ax.set_xlabel('Length') ax.set_ylabel('Width') ax.set_zlabel('Height')
plt.show()

```

Output:

3D Scatter Plot of Object Dimensions

**RESULT:**

The above data visualization of 1D,2D and 3D plots are successfully executed using the dataset.