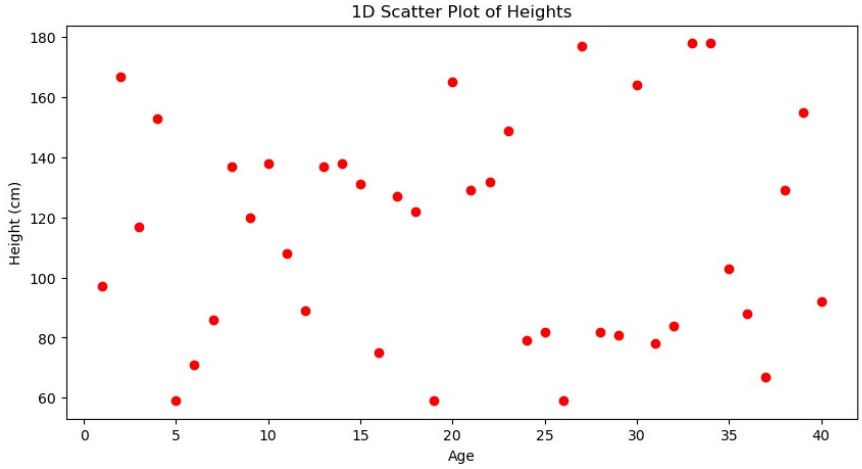
Ex. No. 04	VISUALIZING 1D, 2D AND 3D PLOTS
02.08.2024	

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:

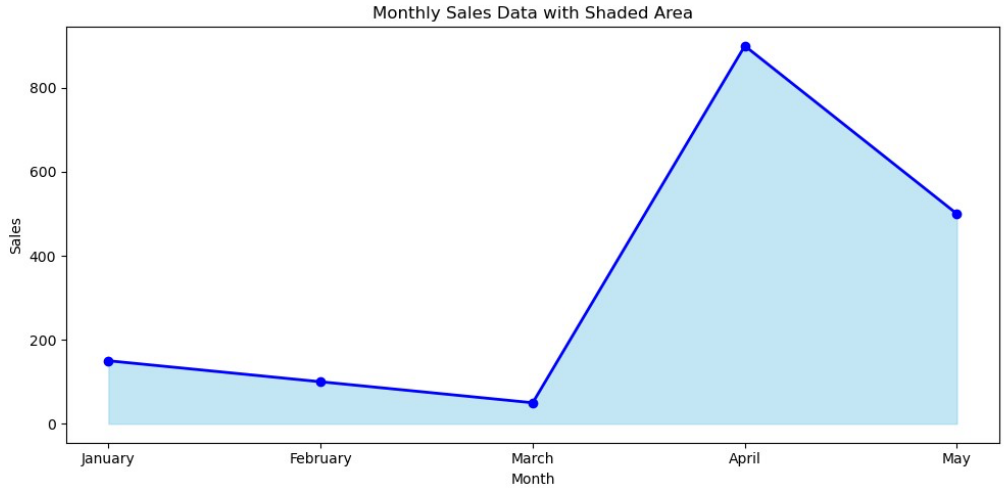
1. **1D - Scatter plot:** import pandas as pd import numpy as np import matplotlib.pyplot as plt np.random.seed(0) df = pd.DataFrame({ 'Index': range(1, 41), 'Height': np.random.randint(50, 180, 40) }) plt.figure(figsize=(10, 5)) plt.scatter(df['Index'], df['Height'], color='red', marker='o') plt.title('1D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

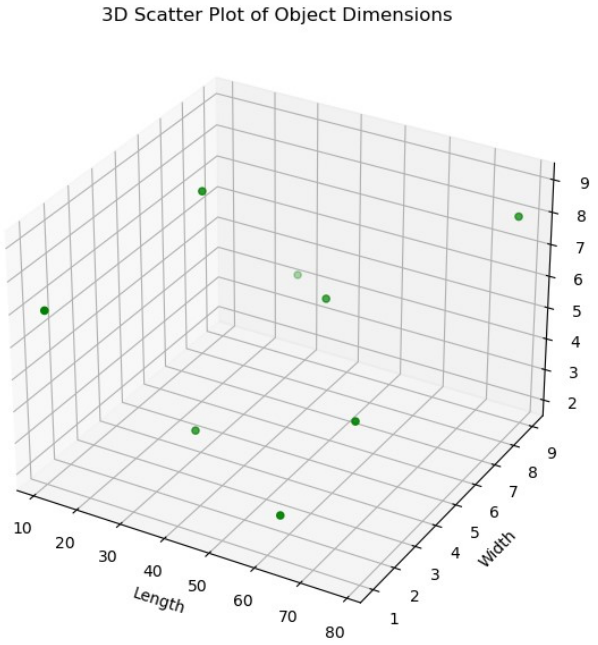
Output:



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:



RESULT:

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