Charts Using Matplotlib

Tabish Ahmad

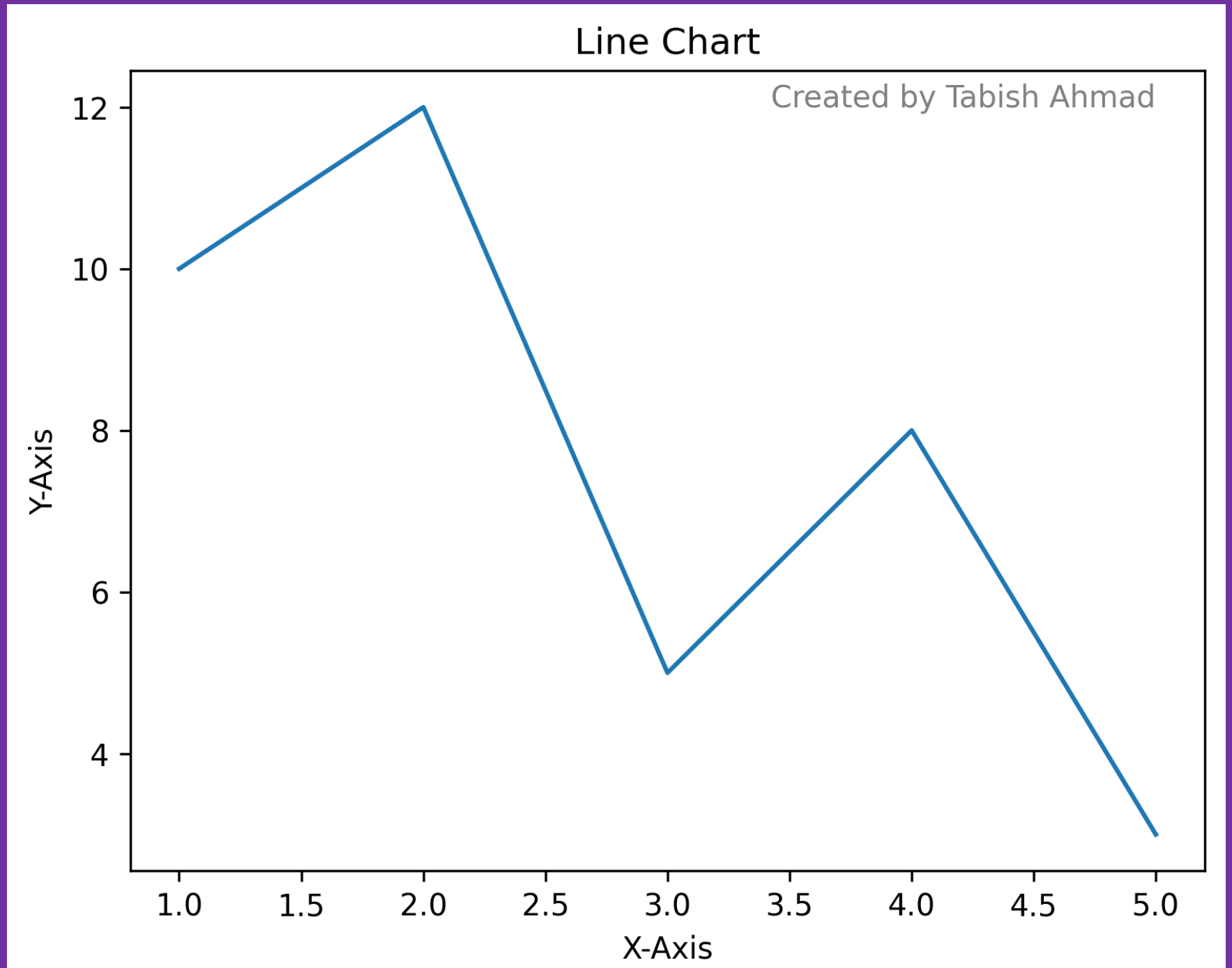
Line Chart

```
import matplotlib.pyplot as plt

x= [1,2,3,4,5]
y =[10,12,5,8,3]

plt.plot(x,y)
plt.title('Line Chart')
plt.xlabel('X-Axis')
plt.ylabel('Y-Axis')

plt.savefig('line_chart.png', dpi=300, bbox_inches='tight')
plt.show()
```

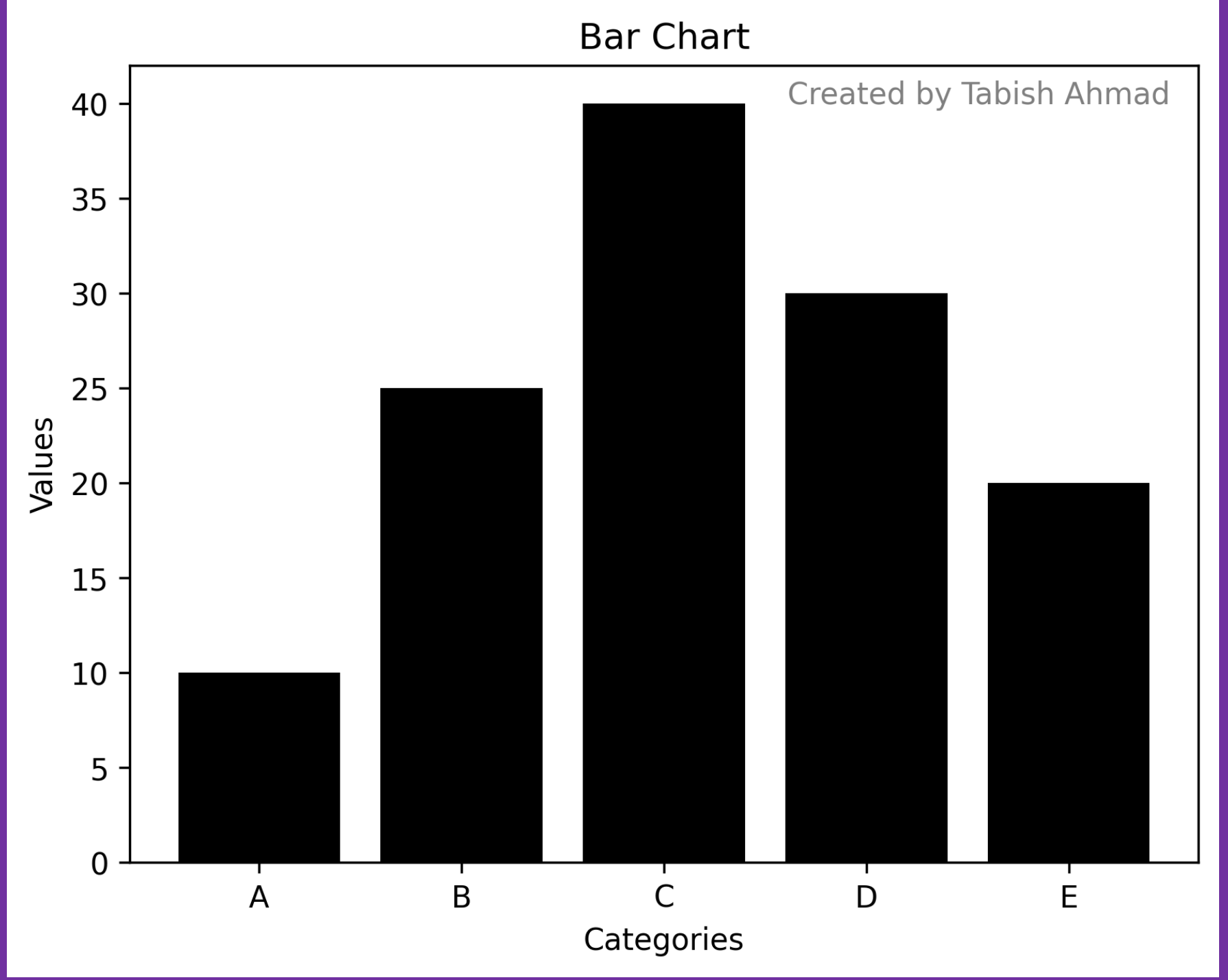

Line Chart
Created by Tabish Ahmad
12
10
8
6
4
Y-Axis
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
X-Axis

Bar Graph

```
categories = ['A','B','C','D','E']
values = [10,25,40,30,20]

plt.bar(categories, values , color = 'black')
plt.title('Bar Chart')
plt.xlabel('Categories')
plt.ylabel('Values')


plt.savefig('Bar_chart.png', dpi=300,
bbox_inches='tight')
plt.show()
```


Bar Chart
Created by Tabish Ahmad
Values
0
5
10
15
20
25
30
35
40
A
B
C
D
E
Categories

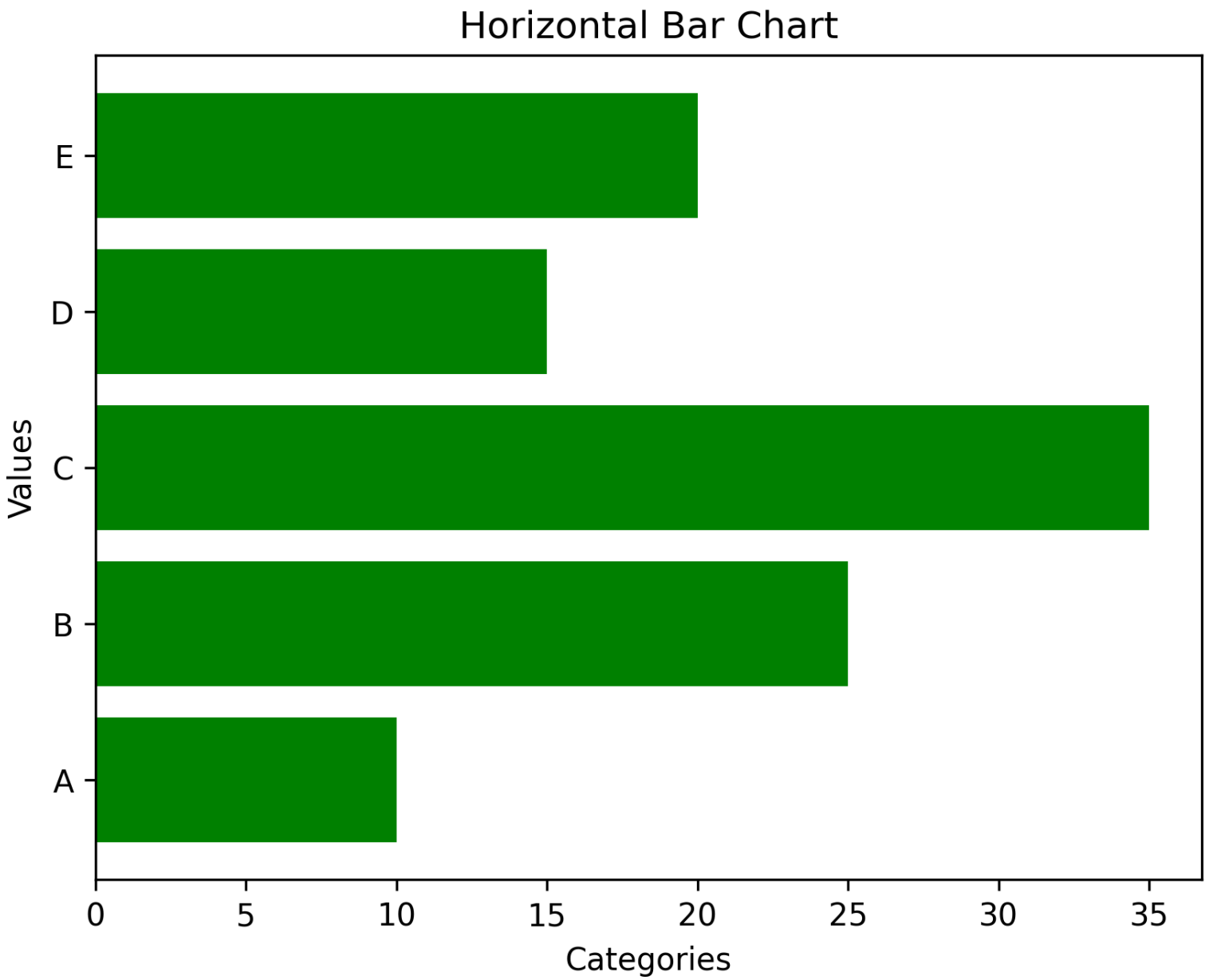
Horizontal Bar Chart

```
category = ['A','B','C','D','E']
values = [10,25,35,15,20]

plt.barh(category, values, color= 'green')
plt.title('Horizontal Bar Chart')
plt.xlabel('Categories')
plt.ylabel('Values')


plt.savefig('Horozontal_Bar_chart.png',dpi=300,
bbox_inches='tight')
plt.show()
```

Created by Tabish Ahmad

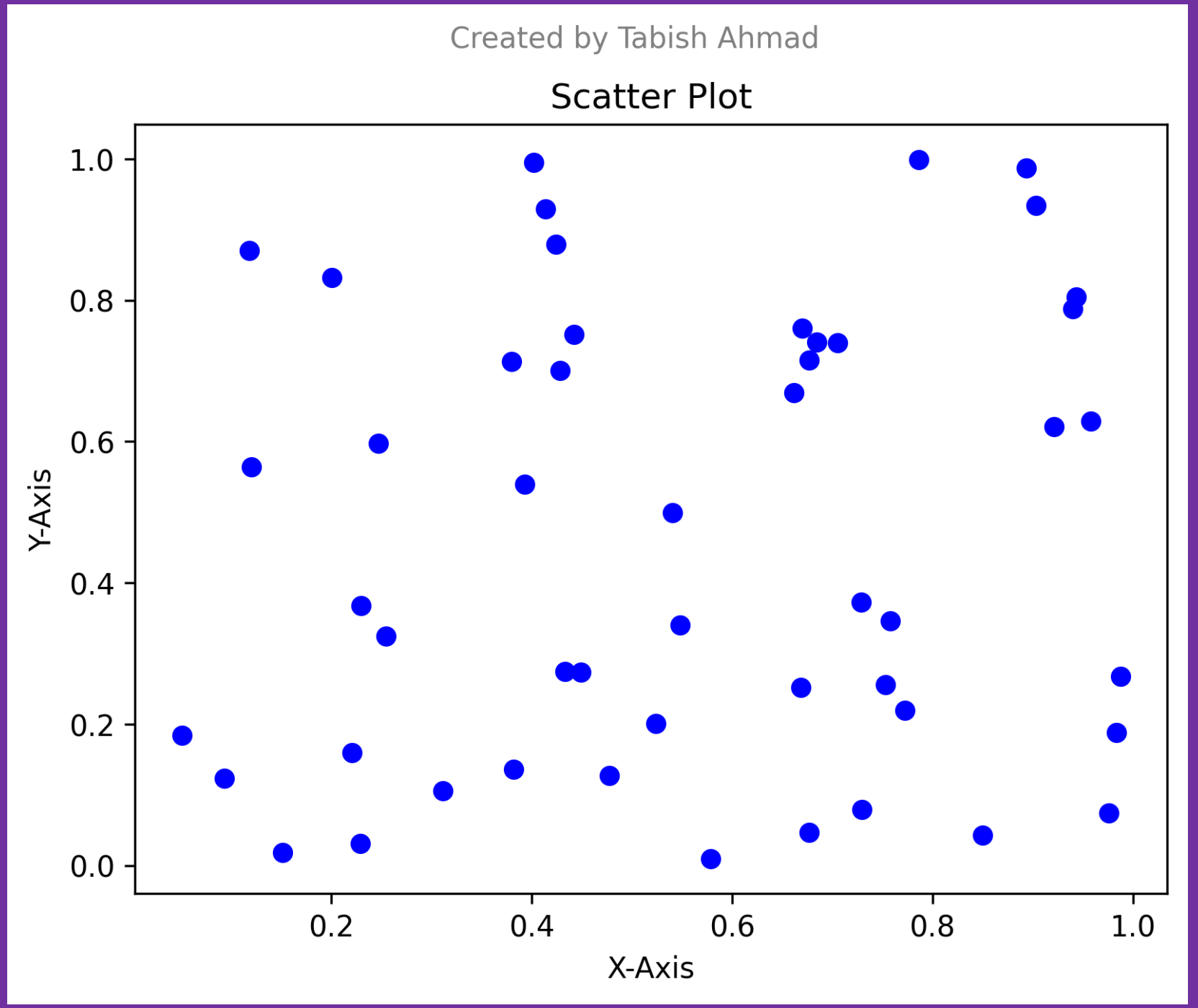


Scatter Plot

```
import numpy as np
x = np.random.rand(50)
y = np.random.rand(50)

plt.scatter(x,y,color = 'blue', marker = 'o')
plt.title('Scatter Plot')
plt.xlabel('X-Axis')
plt.ylabel('Y-Axis')

plt.savefig('Scatter_plot.png', dpi=300,
bbox_inches='tight')
plt.show()
```


Created by Tabish Ahmad
Scatter Plot
Y-Axis
X-Axis
0.0
0.2
0.4
0.6
0.8
1.0
0.2
0.4
0.6
0.8
1.0

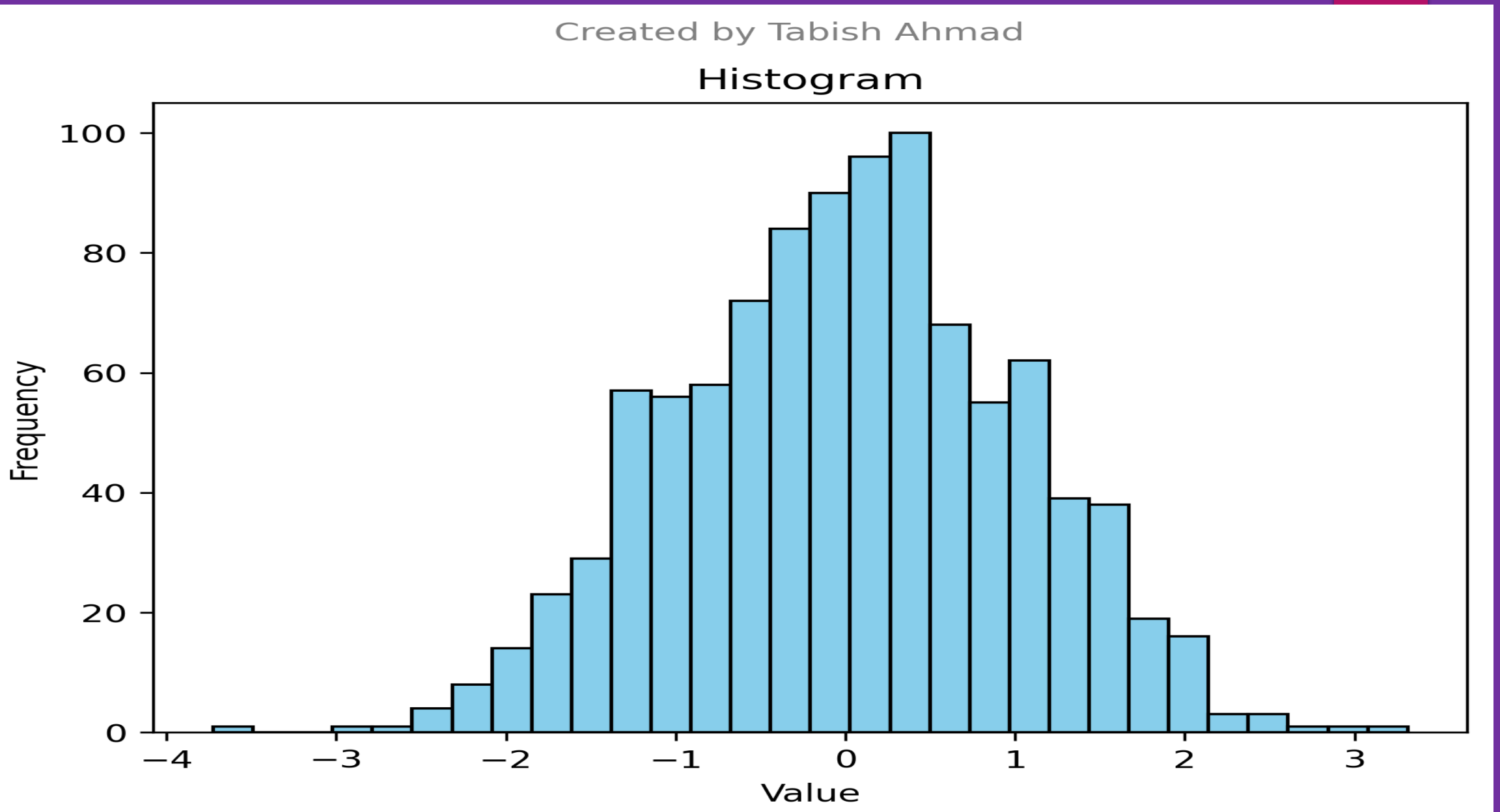
Histogram

```
data = np.random.randn(1000)

plt.hist(data, bins= 30, color= 'skyblue', edgecolor = 'black')
plt.title('Histogram')
plt.xlabel('Value')
plt.ylabel('Frequency')


plt.savefig('Histogram.png', dpi=300, bbox_inches='tight')
plt.show()
```

Created by Tabish Ahmad



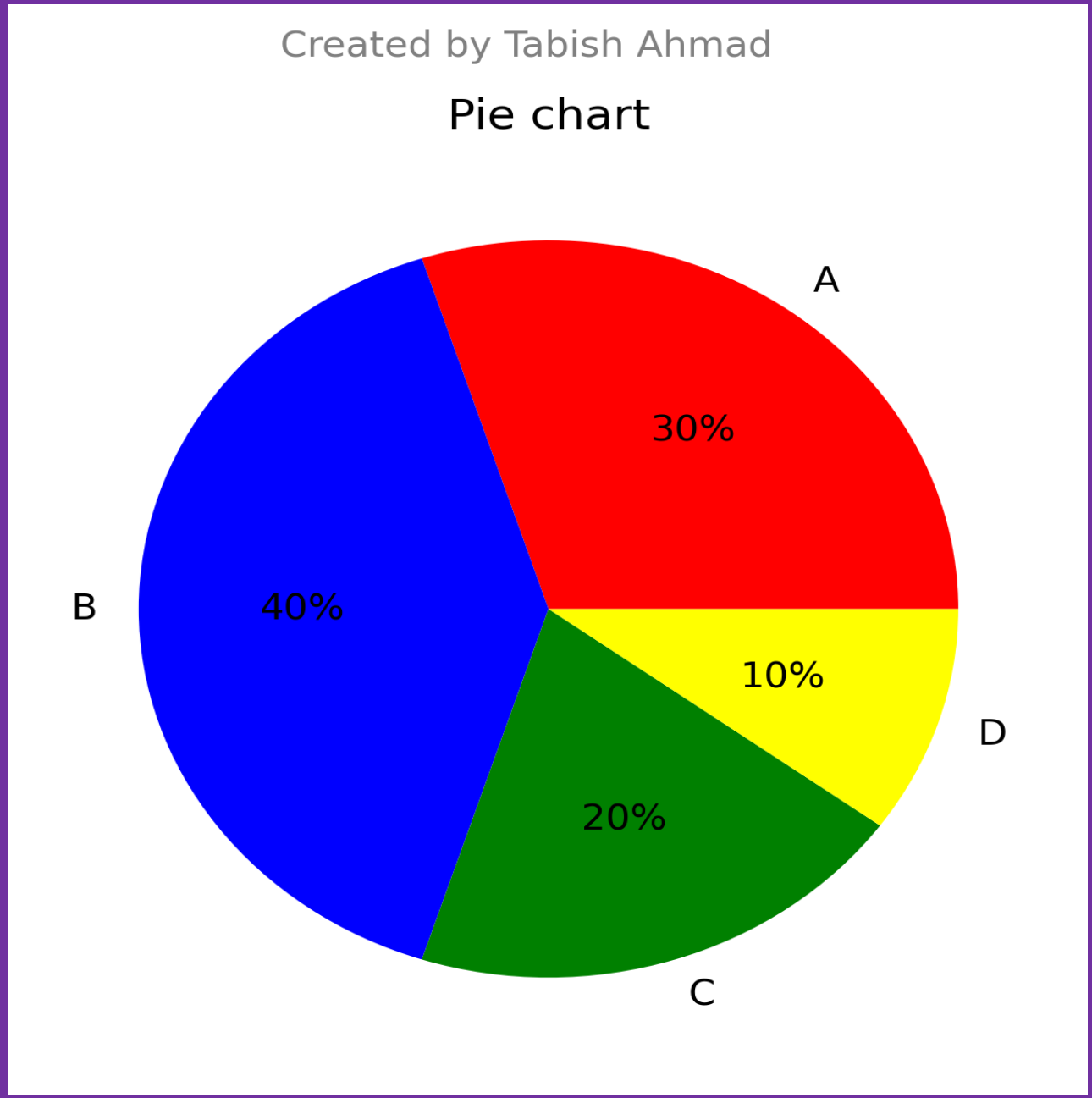
Pie Chart

```
sizes = [30,40,20,10]
labels = ['A','B','C','D']
colors = ['red','blue','green','yellow']

plt.pie(sizes, labels = labels, colors = colors, autopct ='%1.0f%%')
plt.title('Pie chart')


plt.savefig('Pie_Chart.png', dpi=300, bbox_inches='tight')
plt.show()
```

Created by Tabish Ahmad



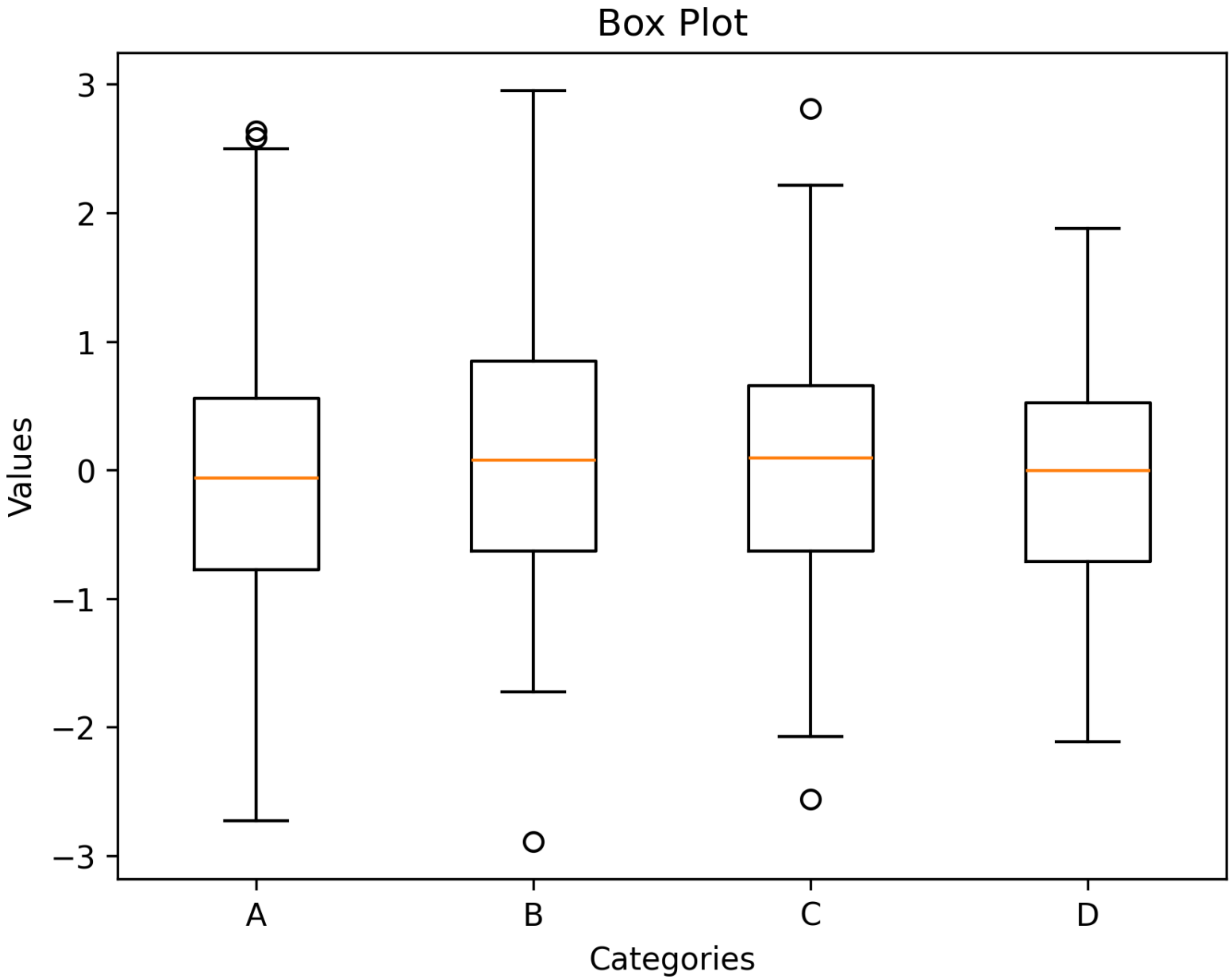
Box Plot

```
data = [np.random.randn(100) for _ in range(4)]

plt.boxplot(data, labels=['A', 'B', 'C', 'D'])
plt.xlabel('Categories')
plt.ylabel('Values')
plt.title('Box Plot')


plt.savefig('Box_Plot.png', dpi=300, bbox_inches='tight')
plt.show()
```

Created by Tabish Ahmad

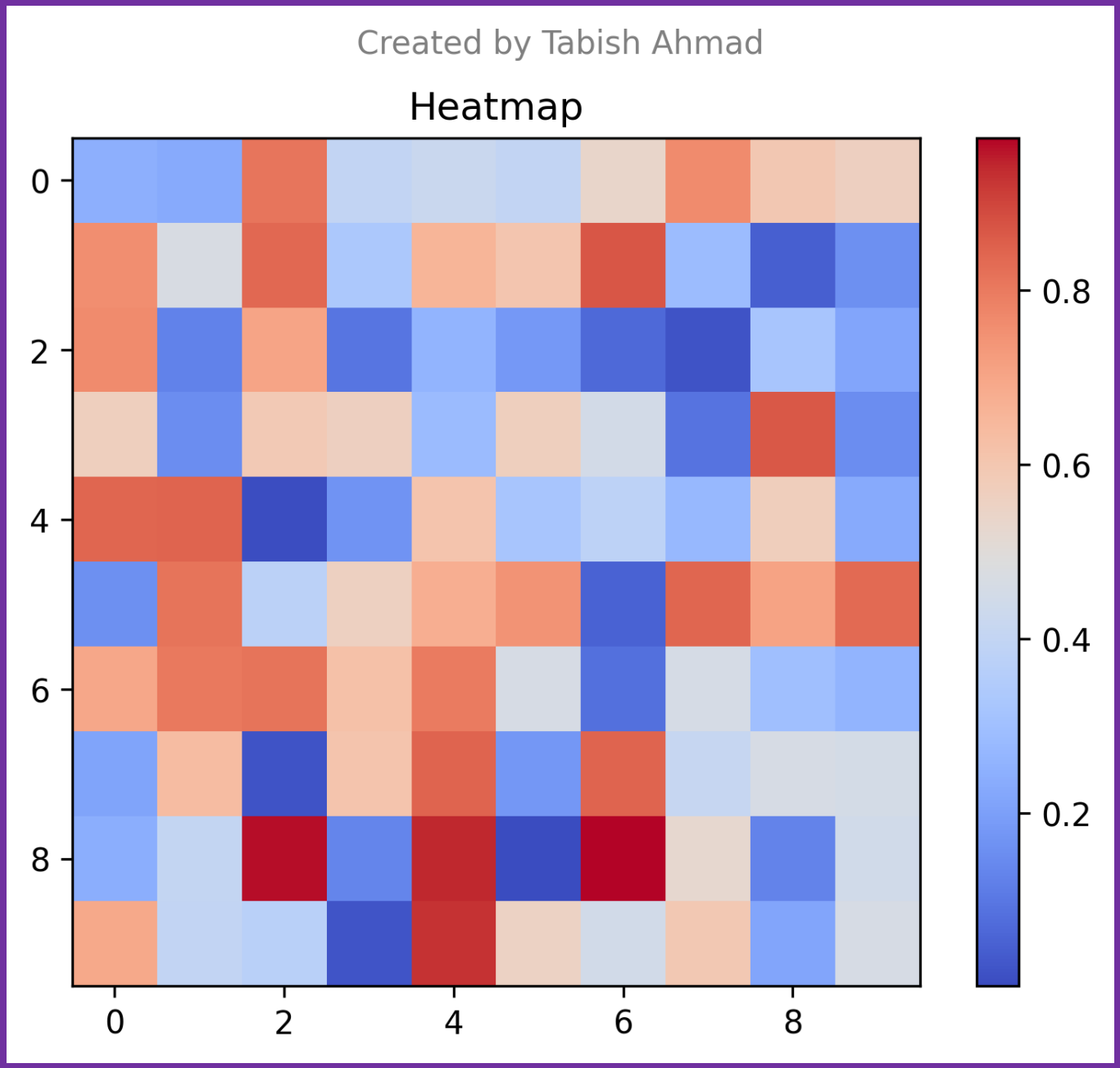


Heat Map

```
data = np.random.rand(10, 10)

plt.imshow(data, cmap='coolwarm', interpolation='nearest')
plt.colorbar()
plt.title('Heatmap')

plt.savefig('Heat_Map.png', dpi=300, bbox_inches='tight')
plt.show()
```

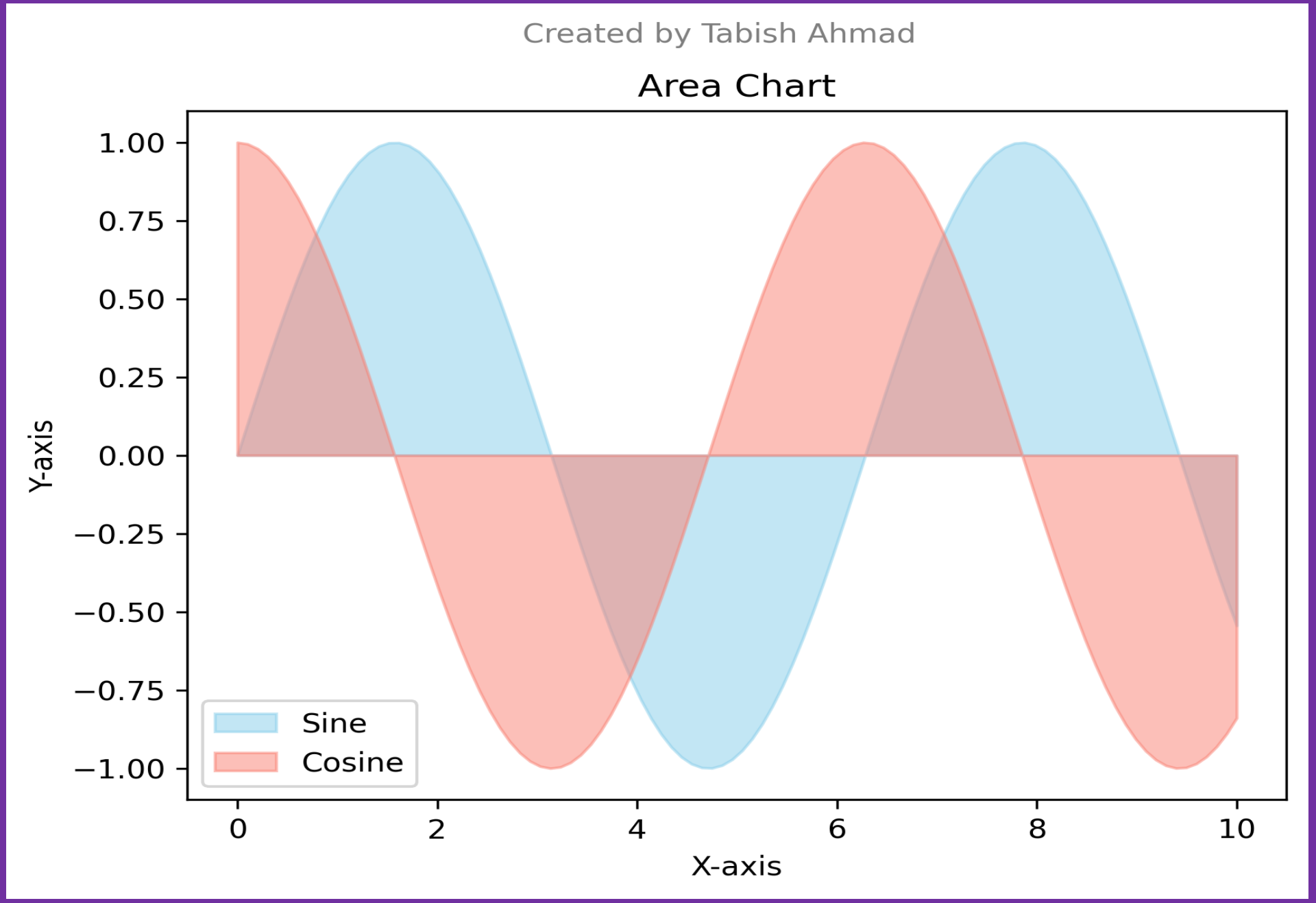

Created by Tabish Ahmad
Heatmap
0
2
4
6
8
0
2
4
6
8
0.8
0.6
0.4
0.2

Area Chart

```
x = np.linspace(0, 10, 100)
y1 = np.sin(x)
y2 = np.cos(x)

plt.fill_between(x, y1, color='skyblue', alpha=0.5, label='Sine')
plt.fill_between(x, y2, color='salmon', alpha=0.5, label='Cosine')
plt.xlabel('X-axis')
plt.ylabel('Y-axis')
plt.title('Area Chart')
plt.legend()


plt.savefig('Area_Chart.png', dpi=300, bbox_inches='tight')
plt.show()
```


Created by Tabish Ahmad
Area Chart
1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
Y-axis
0
2
4
6
8
10
X-axis
Sine
Cosine