

Practical – 6 : Data Visualization

Python for Data Visualization Library: pylab, matplotlib, seaborn , Consider Suitable Data

1. Bar Graph
2. Histogram
3. Pie-Chart
4. Line Chart
5. Bubble Chart
6. Scatter Chart

Code:

1. Bar Graph

```
import matplotlib.pyplot as plt

cid=[1,2,3,4,5,6,7,8,9,10]

tick_label=['rahul','ram','shyam','gita','sita','sonal','mehul','zeel','dev',
            '','ronak']

cmark=[25,27,36,40,55,38,35,12,10,40]

y1=[1,2,3,4,5,6,7,8,9,10]

cage=[19,20,18,25,30,18,16,19,20,15]

plt.bar(cid,cmark,tick_label=tick_label,color='red' )

plt.bar(y1,cage,color='blue')

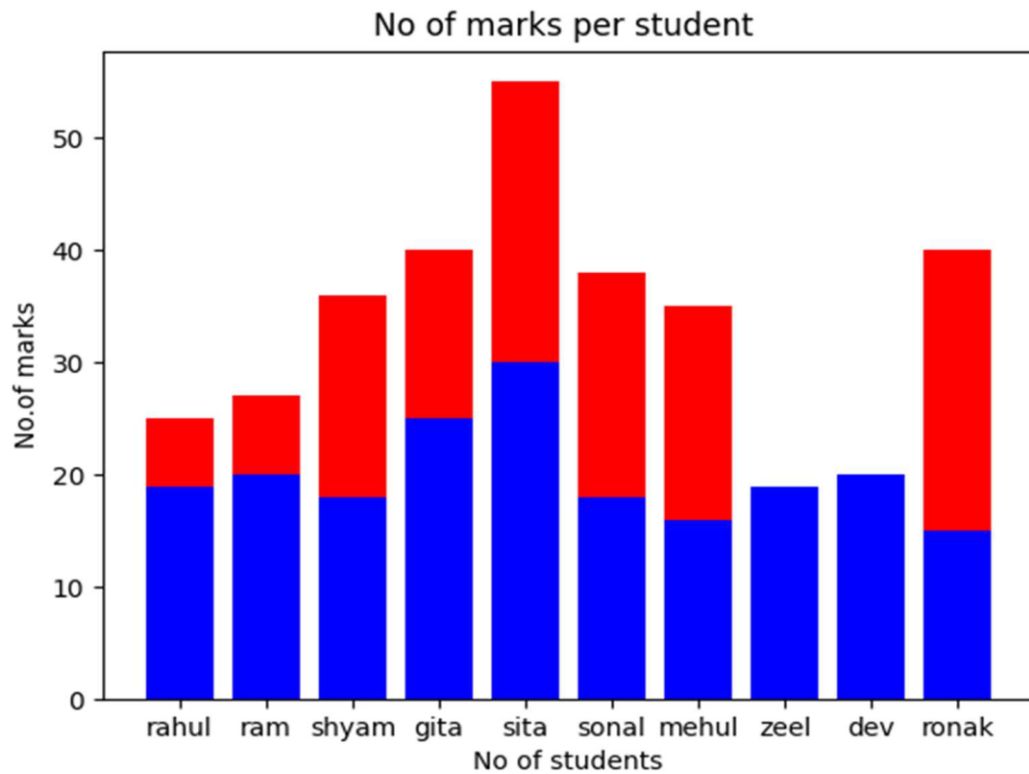
plt.title("No of marks per student ")

plt.ylabel('No.of marks')

plt.xlabel('No of students')

plt.show()
```

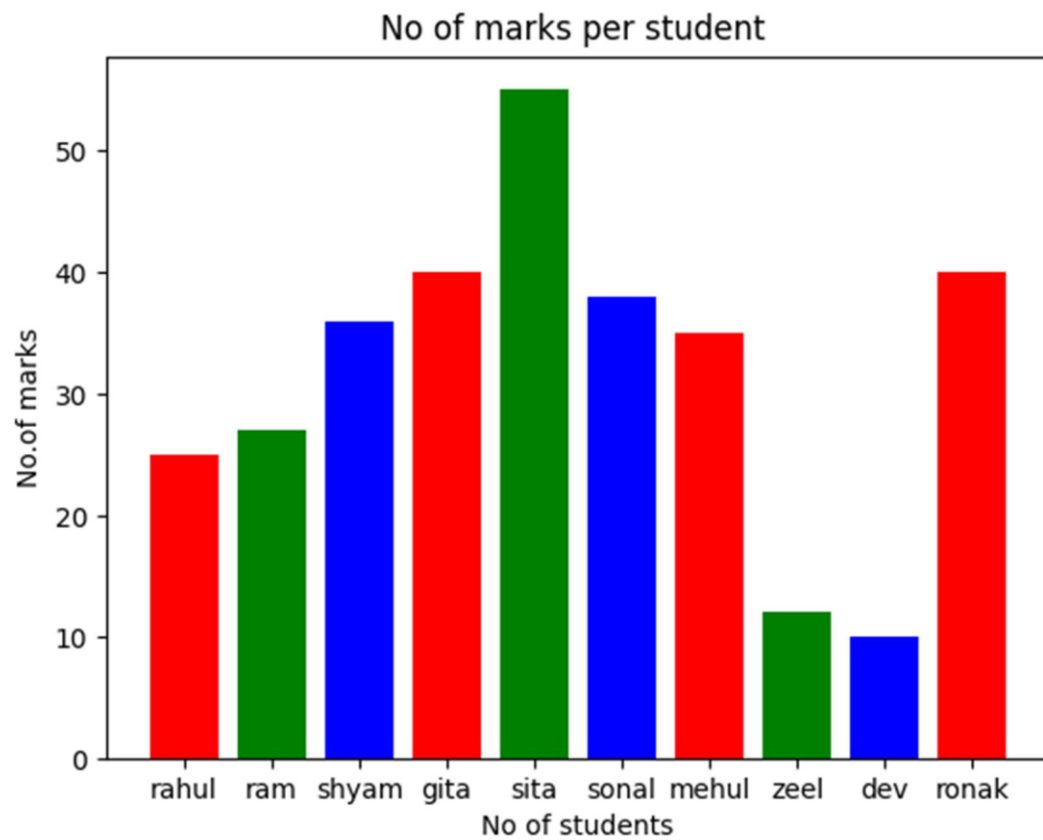
Output:



2. Histogram :

```
import matplotlib.pyplot as plt
cid=[1,2,3,4,5,6,7,8,9,10]
tick_label=['rahul','ram','shyam','gita','sita','sonal','mehul','zeel','dev','ronak']
cmark=[25,27,36,40,55,38,35,12,10,40]
plt.bar(cid,cmark,tick_label=tick_label,color=['r','g','b'] )
plt.title("No of marks per student ")
plt.ylabel('No. of marks')
plt.xlabel('No of students')
plt.show()
```

Output:



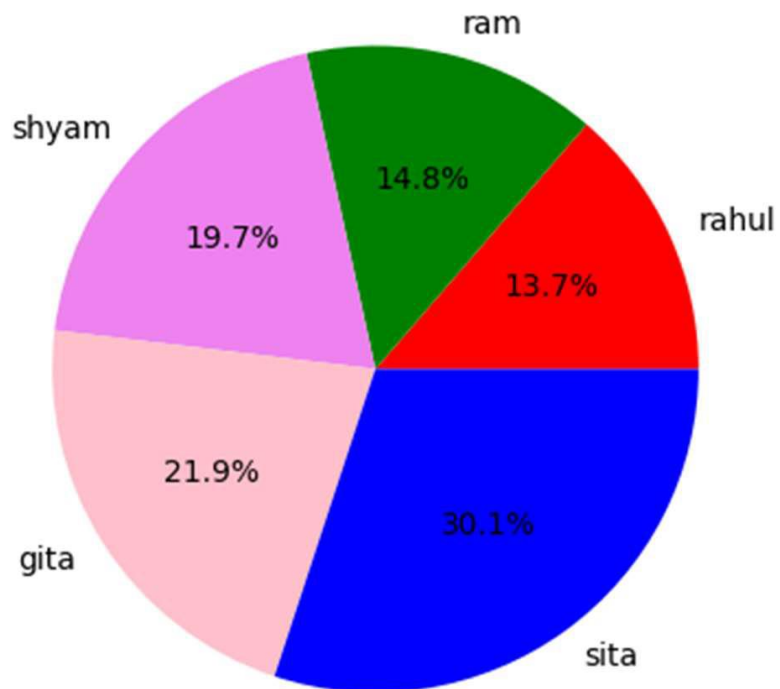
3. Pie Chart :

```
import matplotlib.pyplot as plt
cname=['rahul','ram','shyam','gita','sita']
cmark=[25,27,36,40,55]
clr=['r','g','violet','pink','blue']
plt.pie(cmark,labels=cname,colors=clr,autopct="%1.1f%%")
plt.show()
```

Output:



Figure 1

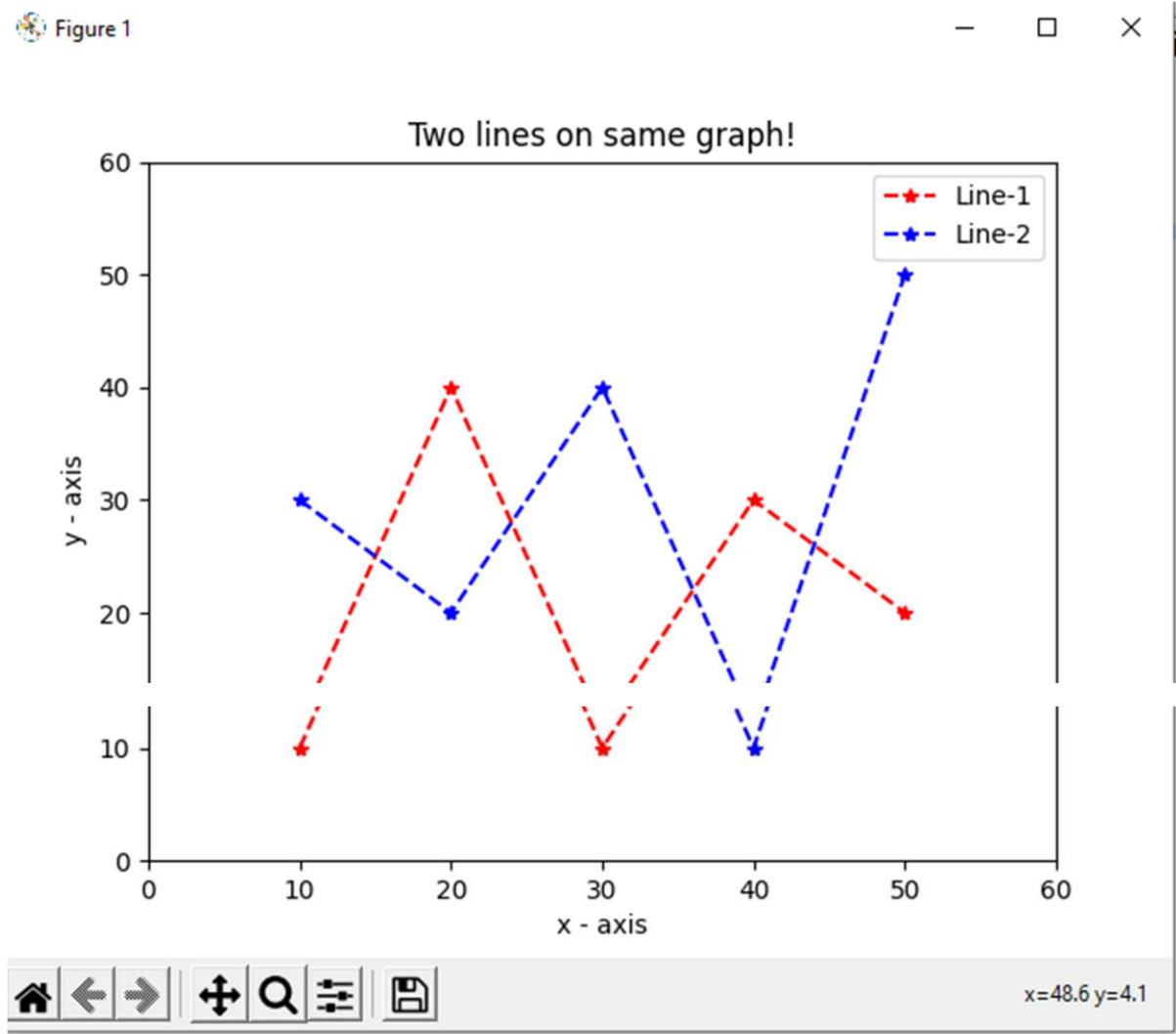


4. Line Graph :

```
import matplotlib.pyplot as plt
x1=[10,20,30,40,50]
y1=[10,40,10,30,20]
plt.plot(x1,y1,linestyle='dashed',marker='*',label='Line-1',color='red')
x2=[10,20,30,40,50]
y2=[30,20,40,10,50]
plt.plot(x2,y2,label='Line-2',linestyle='dashed',marker='*',color='blue')
# setting x and y axis range
plt.ylim(0,60)
plt.xlim(0,60)
plt.xlabel('x - axis')
plt.ylabel('y - axis')
plt.title('Two lines on same graph!')
```

```
plt.legend()
plt.show()
```

Output:



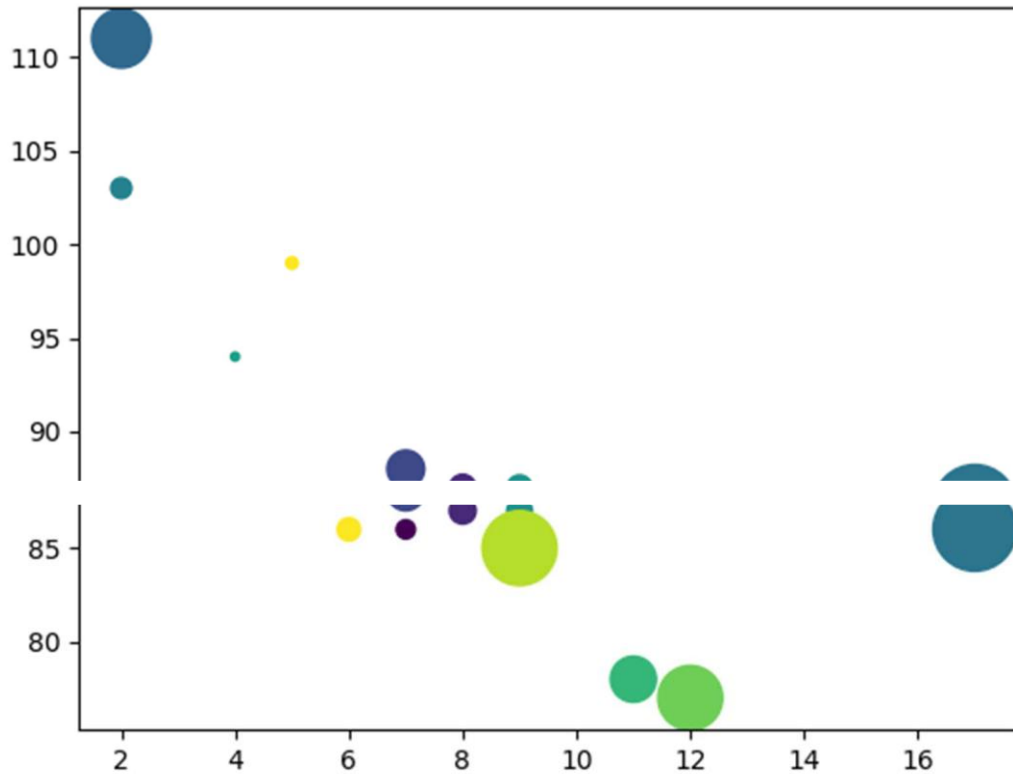
5. Bubble Graph :

```
import matplotlib.pyplot as plt
import numpy as np

x = np.array([5,7,8,7,2,17,2,9,4,11,12,9,6])
y = np.array([99,86,87,88,111,86,103,87,94,78,77,85,86])
sizes = np.array([20,50,100,200,500,1000,60,90,10,300,600,800,75])
colors = np.array([100, 10, 20, 30, 40, 45, 50, 55, 60, 70, 80, 90, 100])
plt.scatter(x, y, c=colors,s=sizes)
plt.show()
```

Output:

Figure 1



6. Scatter Chart

```
import matplotlib.pyplot as plt
cid=[1,2,3,4,5,6,7,8,9,10]
tick_label=['rahul','ram','shyam','gita','sita','sonal','mehul','zeel','dev','ronak']
cmark=[25,27,36,40,55,38,35,12,10,40]
rcolor=[10,20,40,50,60,10,70,80,10,10]
plt.scatter(cid,cmark,c=rcolor)
plt.title("No of marks per student ")
plt.ylabel('No.of marks')
plt.xlabel('No of students')
plt.colorbar()
plt.show()
```

Output:

