



(<https://www.darshan.ac.in/>)

Python Programming - 2101CS405

Lab - 11

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Graphs

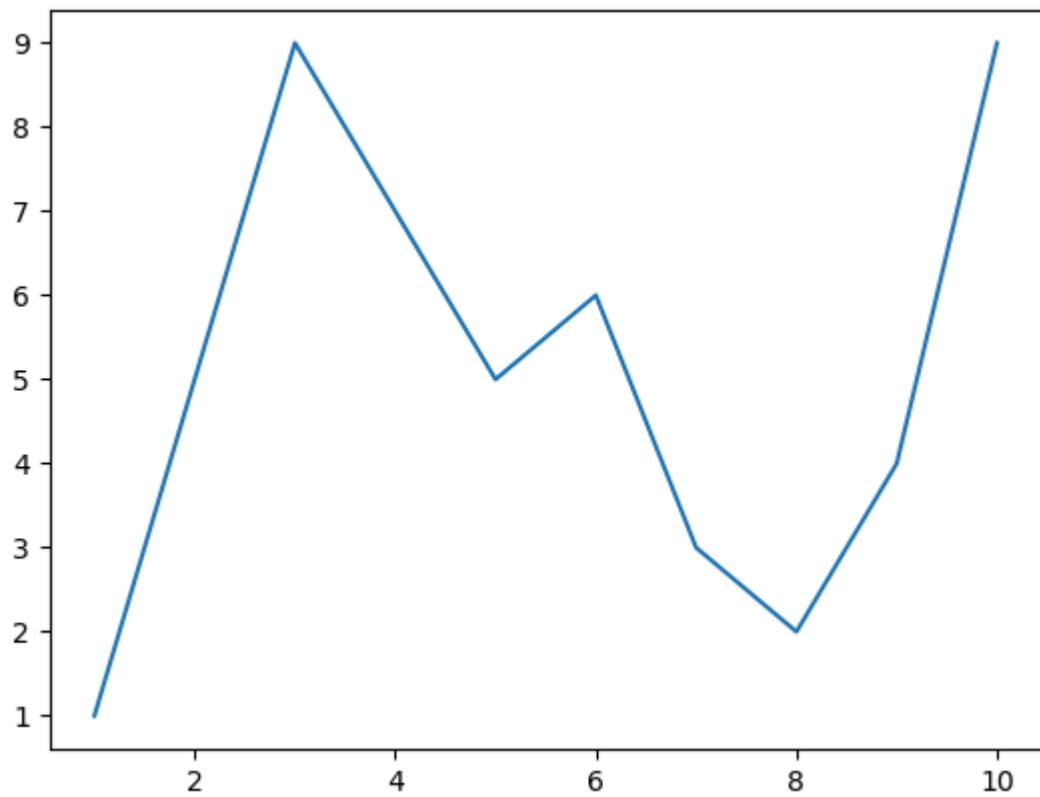
A

```
In [2]: import matplotlib.pyplot as plt
```

```
In [3]: %matplotlib inline
```

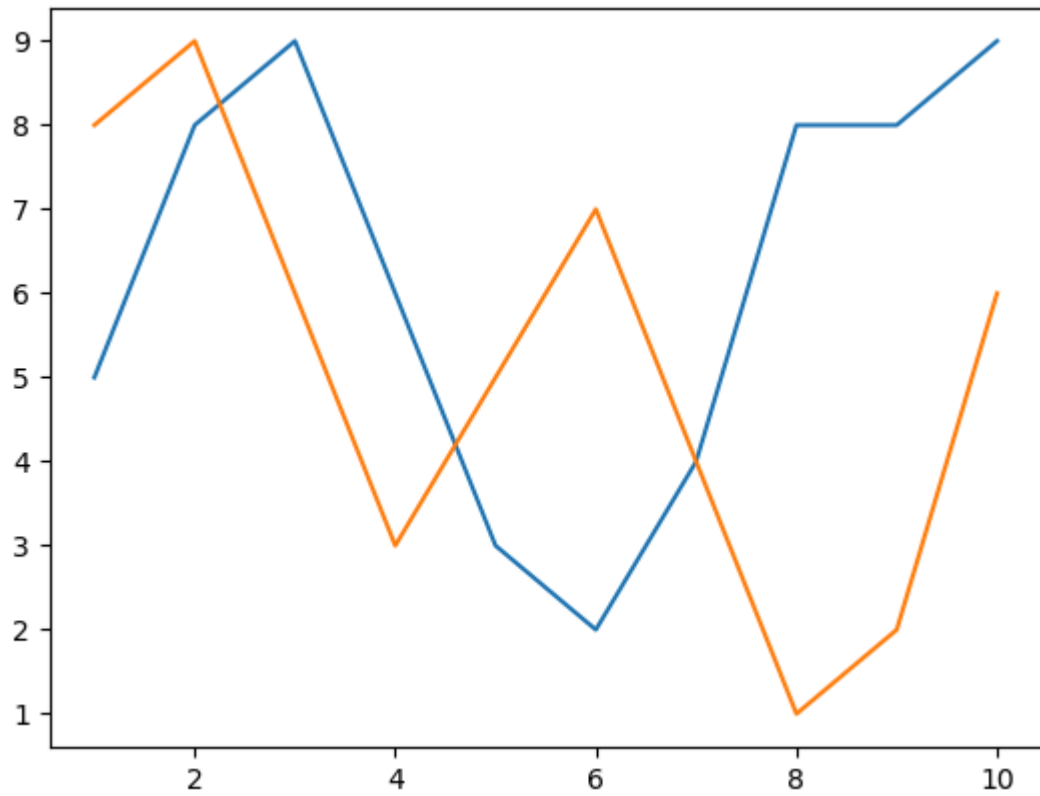
```
In [94]: x = range(1,11)
y = [1,5,9,7,5,6,3,2,4,9]

# write a code to display the line chart of above x & y
plt.plot(x,y)
plt.show()
```



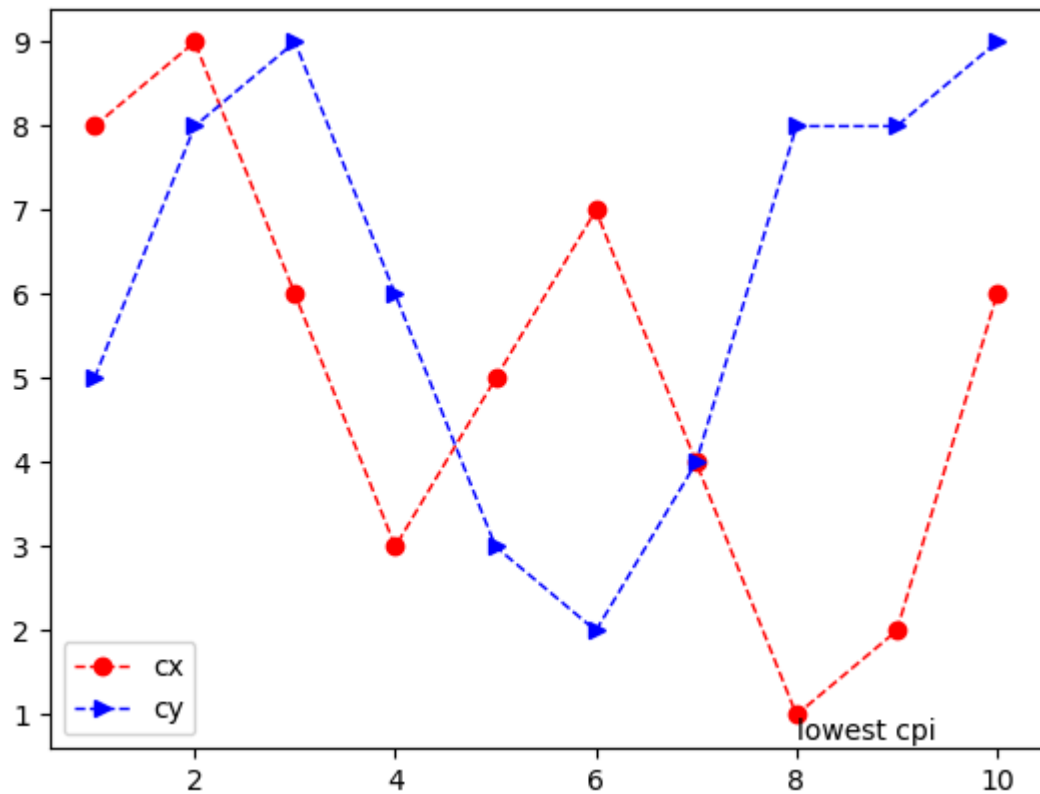
```
In [95]: x = [1,2,3,4,5,6,7,8,9,10]
cxMarks = [5,8,9,6,3,2,4,8,8,9]
cyMarks = [8,9,6,3,5,7,4,1,2,6]

plt.plot(x,cxMarks)
plt.plot(x,cyMarks)
plt.show()
# write a code to display two lines in a line chart (data given above)
```



```
In [96]: x = range(1,11,1)
cxMarks= [8,9,6,3,5,7,4,1,2,6]
cyMarks= [5,8,9,6,3,2,4,8,8,9]

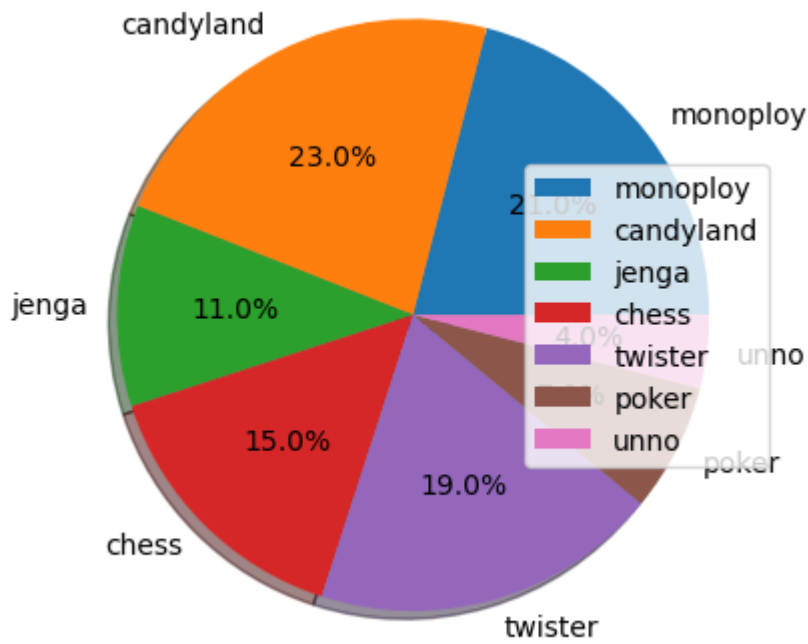
plt.plot(x,cxMarks,c="r",lw=1,ls="--",marker="o")
plt.plot(x,cyMarks,c="b",lw=1,ls="--",marker=">")
plt.legend(["cx","cy"],loc=3)
plt.annotate(xy=[8,0.7],text="lowest cpi")
plt.show()
# write a code to generate below graph
```



In []:

01) WAP to demonstrate the use of Pie chart.

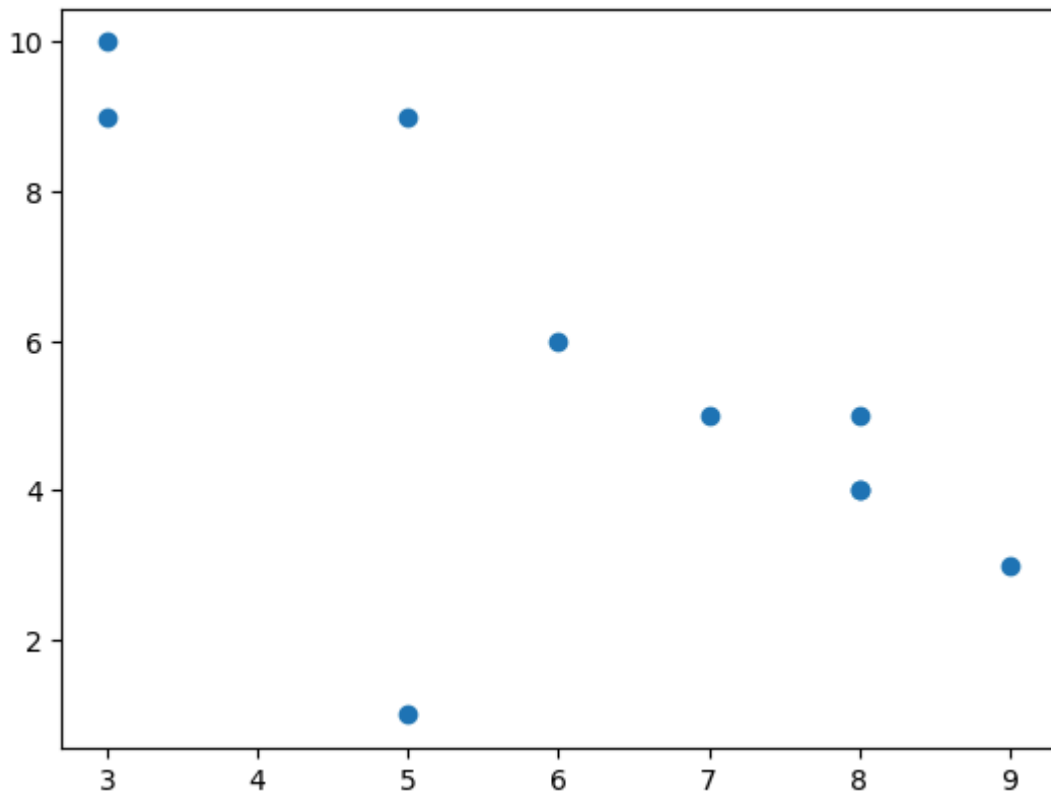
```
In [97]: values=[21,23,11,15,19,7,4]
labels=["monopoly", "candyland", "jenga", "chess", "twister", "poker", "unno"]
plt.pie(values, labels=labels, autopct="%1.1f%%", shadow=True)
plt.legend(loc=5)
plt.show()
```



02) WAP to to Plot List random of X, Y Coordinates in Matplotlib.

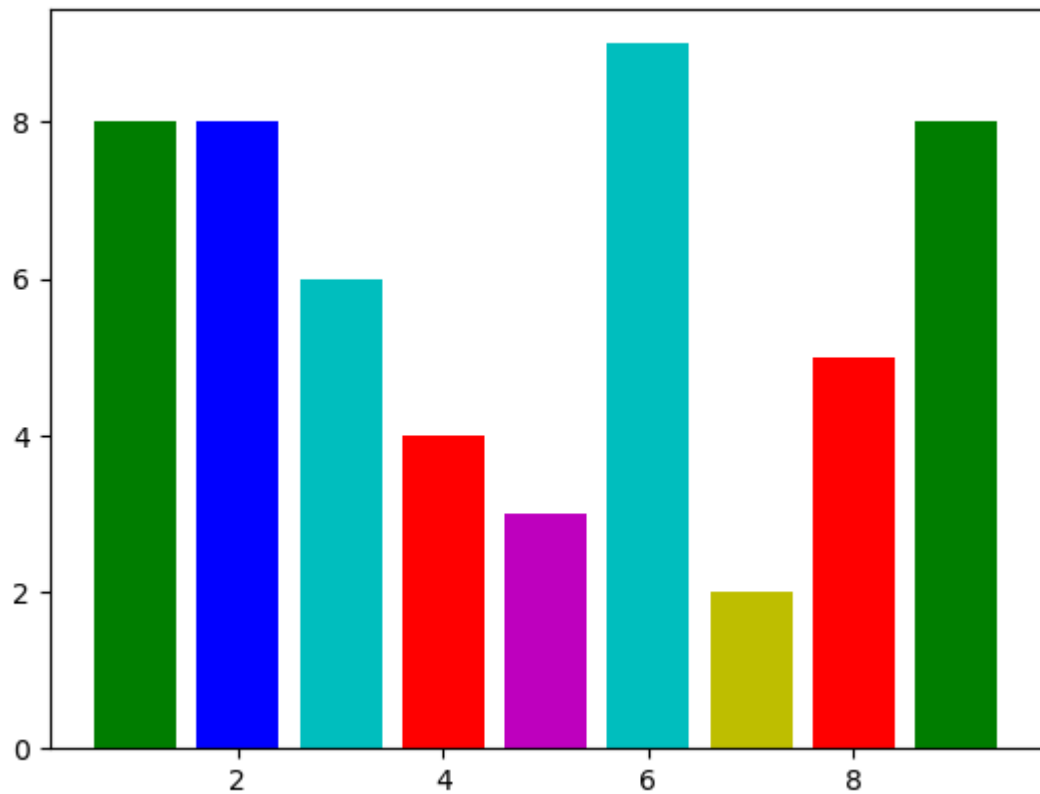
```
In [98]: import random
val1=[random.randint(1,10) for i in range(1,11)]
val2=[random.randint(1,10) for j in range(1,11)]

plt.scatter(val1,val2)
plt.show()
```



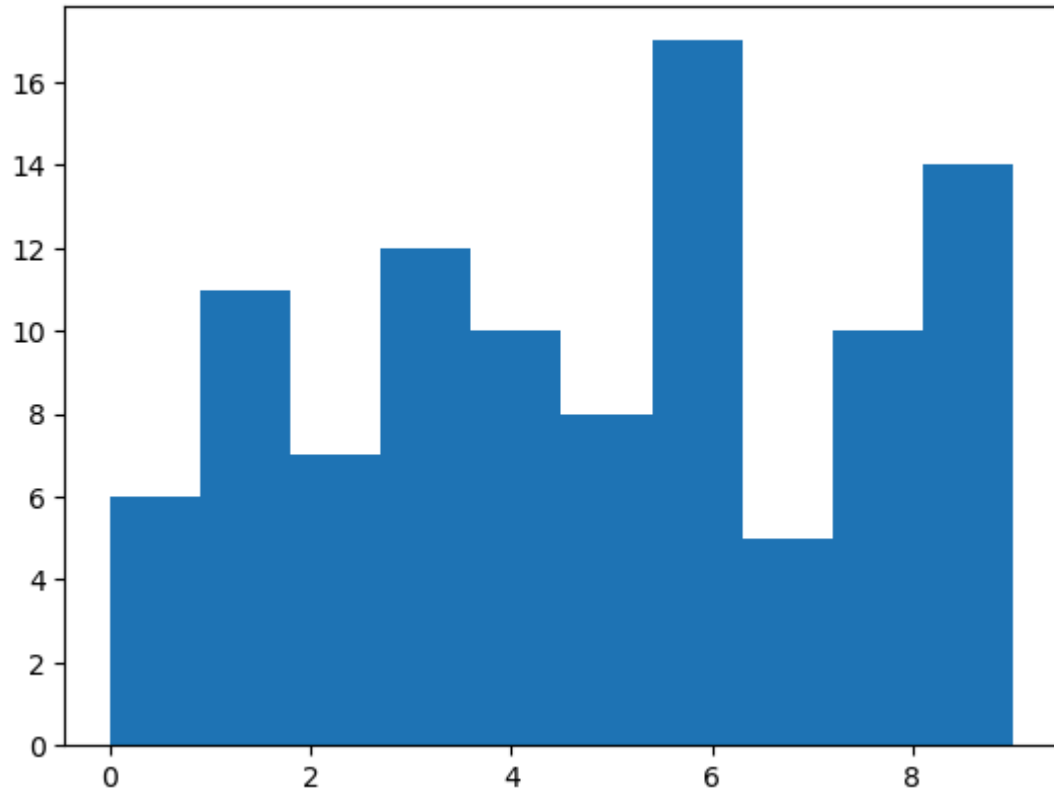
03) WAP to demonstrate the use of Bar chart.

```
In [102]: import random
x= [8,9,6,3,5,7,4,1,2,6]
y= [5,8,9,6,3,2,4,8,8,9]
c=["r","g","b","c","m","y"]
plt.bar(x,y,color=c)
plt.show()
```



04) WAP to demonstrate the use of Histogram.

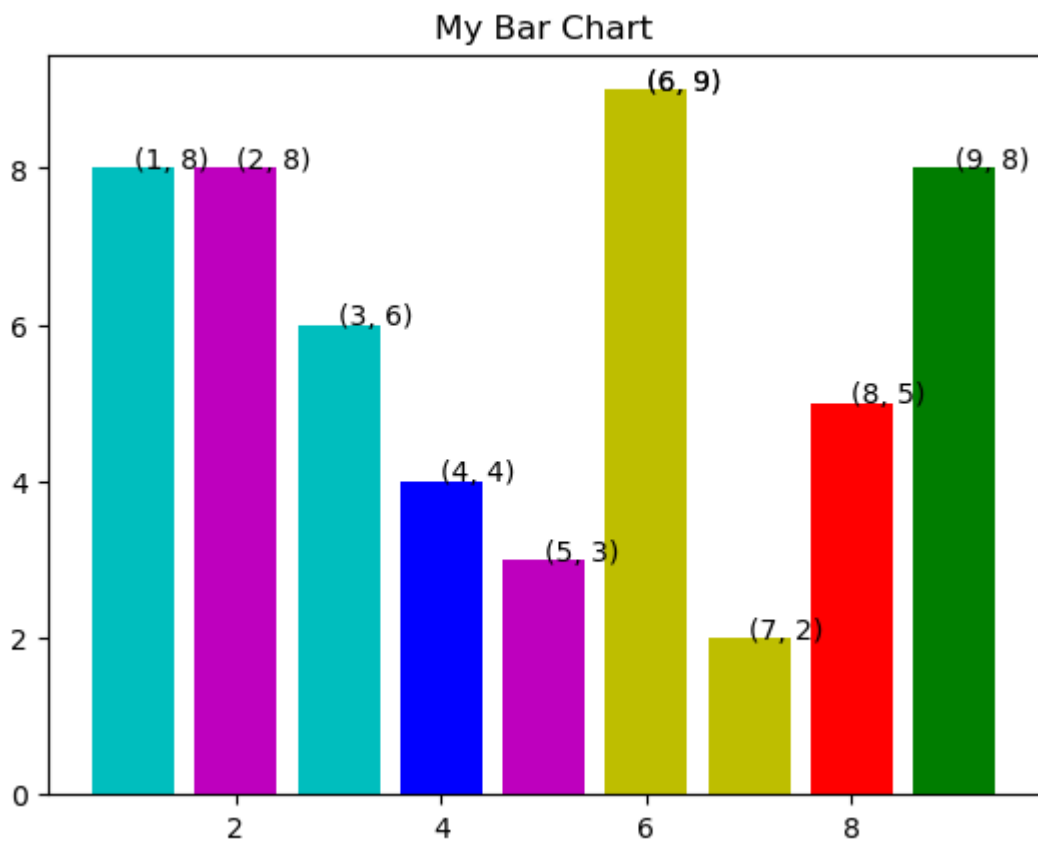
```
In [121]: import numpy as np  
cpis=np.random.randint(0,10,100)  
plt.hist(cpis,bins=10,histtype='stepfilled',align="mid",label="cpi hist")  
plt.show()
```



B

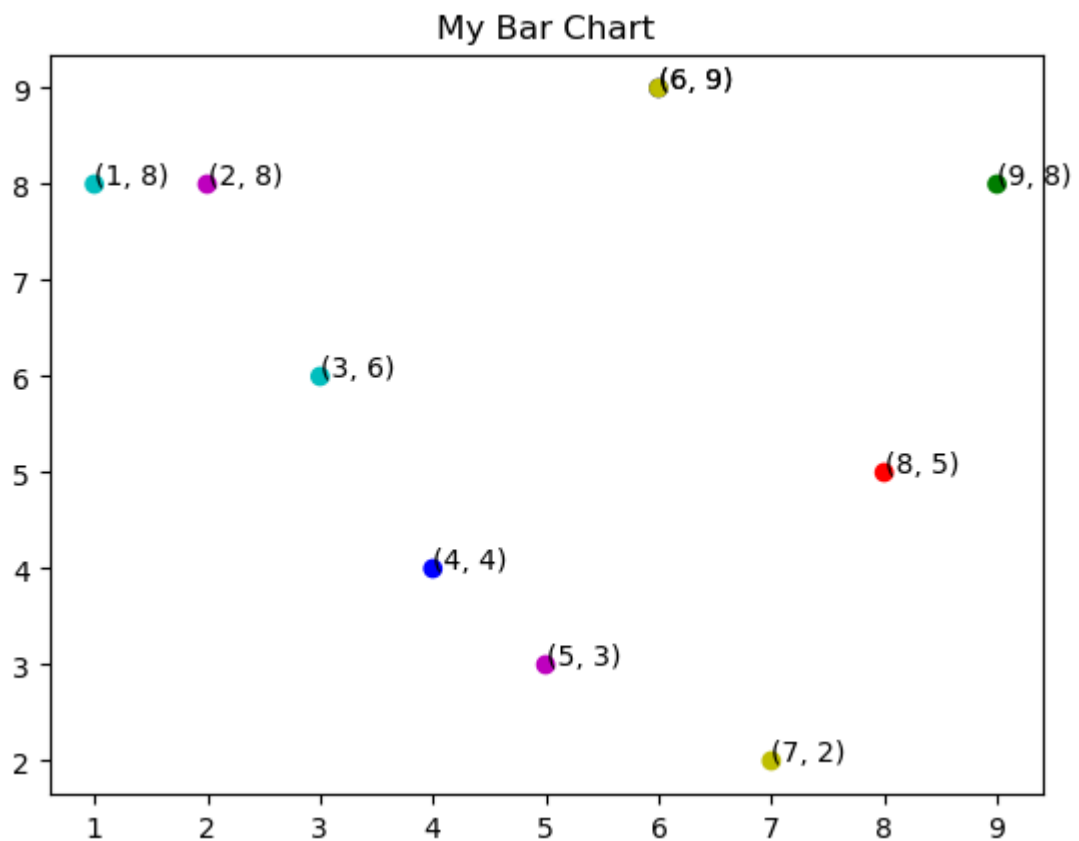
01) WAP to display the value of each bar in a bar chart using Matplotlib.

```
In [141]: import matplotlib.pyplot as plt
x= [8,9,6,3,5,7,4,1,2,6]
y= [5,8,9,6,3,2,4,8,8,9]
c=["r","g","b","c","m","y","b","c","m","y"]
for i in range(0,10):
    plt.text(x[i],y[i],s=f"{x[i],y[i]}")
plt.bar(x,y,color=c)
plt.title('My Bar Chart')
plt.show()
```



02) WAP create a Scatter Plot with several colors in Matplotlib?

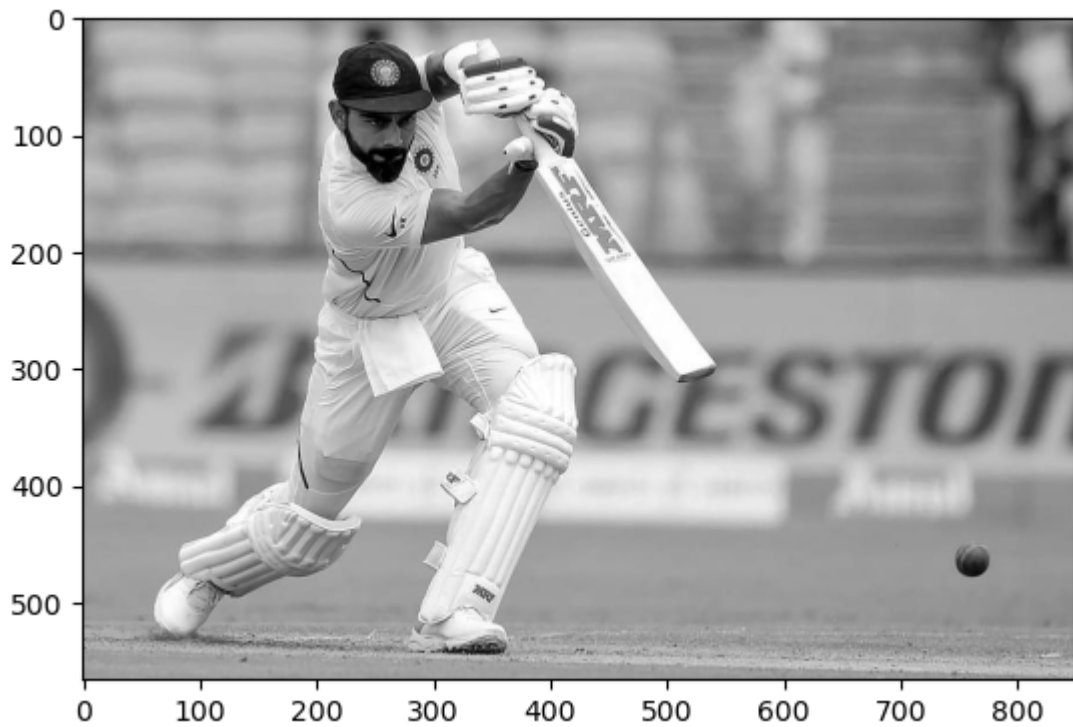
```
In [142]: import matplotlib.pyplot as plt
x= [8,9,6,3,5,7,4,1,2,6]
y= [5,8,9,6,3,2,4,8,8,9]
c=["r","g","b","c","m","y","b","c","m","y"]
for i in range(0,10):
    plt.text(x[i],y[i],s=f"{x[i],y[i]}")
plt.scatter(x,y,color=c)
plt.title('My Bar Chart')
plt.show()
```



03) WAP to Display an Image in Grayscale in Matplotlib.

```
In [5]: from PIL import Image  
img = Image.open('desktop-wallpaper-cricket-blog-virat-kohli-cover-drive.jpg')  
gray_image=img.convert('L')  
plt.imshow(gray_image,cmap="gray")
```

Out[5]: <matplotlib.image.AxesImage at 0x17e70749190>



In []: