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**Matplotlib Library**

```
#matplotlib
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt

#create array
x=np.array([5,8,15,69,80])
y=np.array([3,9,25,37,90])
plt.plot(x,y)

#1stmethod
#2nd create array
x1=np.array([4,5,8,73])
y1=np.array([9,12,4,56])
plt.plot(x1,y1)
plt.plot(x,y)

#2nd method
x1=np.array([4,5,8,73])
y1=np.array([9,12,4,56])
plt.plot(x,y,x1,y1)

#o wil specify only the dots
plt.plot(x,y,'o')

#marker will highlight the dot(o) of the chart
plt.plot(x,y,marker='*')

#mfc=Marker fill color
#ms=MArker star size
#mec=marker end color
plt.plot(x,y,marker='*',ms=20,mec='r',mfc='y')
```

```
#linestyle will give the dashed line
#linesyle will also give the dot line
#linestyle will also give the dashdot line
#also form 2 array in one plot diagram
plt.plot(x,y,linestyle='dashdot',color='r',linewidth=2)
plt.plot(x1,y1,linestyle='dashed',color='g',linewidth=5)
font={'size':15,'color':'b'}
plt.title("Demo chart",fontdict=font,loc='right')
#location(loc) means title changes the location
plt.xlabel("x-axis")
plt.ylabel("y-axis")
plt.plot(x,y,linestyle='dashdot',color='g')
plt.plot(x1,y1,linestyle='dotted',color='m')
plt.grid(axis='x',linestyle='-',color='b')
#plt.grid(axis='y')
#grid function give the grid lines graph
#subplot means 2 graph in one plot
#number of 1row and 2column
#no of 2row 1column
plt.subplot(1,2,1)
plt.title("p1")
plt.plot(x,y)
plt.subplot(1,2,2)
plt.title("p2")
plt.plot(x1,y1)
plt.suptitle("SuperTitle")

import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
#array creation
```

```

x1=["10","20","30","40"]
y1=["50","40","20","70"]
x=["25","34","15","32"]
y=["10","32","65","48"]
#scatter plot
plt.scatter(x1,y1,s=100,marker='*')
plt.scatter(x,y,color='r',s=200,alpha=1,marker='.')
plt.show()
#bar plot
#barh means horizontal
plt.barh(x,y,color='b')
plt.barh(x1,y1,color='r')
plt.show()
#histogram
plt.hist(x,color='g')
#pie chart
track_stud=np.array([20,50,40,35,15])
track_name=np.array(["AIML","CS","CCN","WS","MLP"])
ex=[0.2,0,0,0.3,0]
c=["r","pink","m","g","b"]
#ex means explode and any angle we take outside form the pie chart
plt.pie(track_stud,labels=track_name,startangle=90,explode=ex,shadow=True,colors=c)
plt.legend(title="Track Selection",loc="right")
plt.show()
Data=pd.read_csv('Student.csv')
print(Data)
Data['total']=Data["AIML"]+Data["CS"]+Data["CCN"]+Data["Flutter"]+Data["PHP"]
print(Data)
Data['percentage']=Data['total']/5
print(Data)
plt.scatter(Data.name,Data.percentage)

```