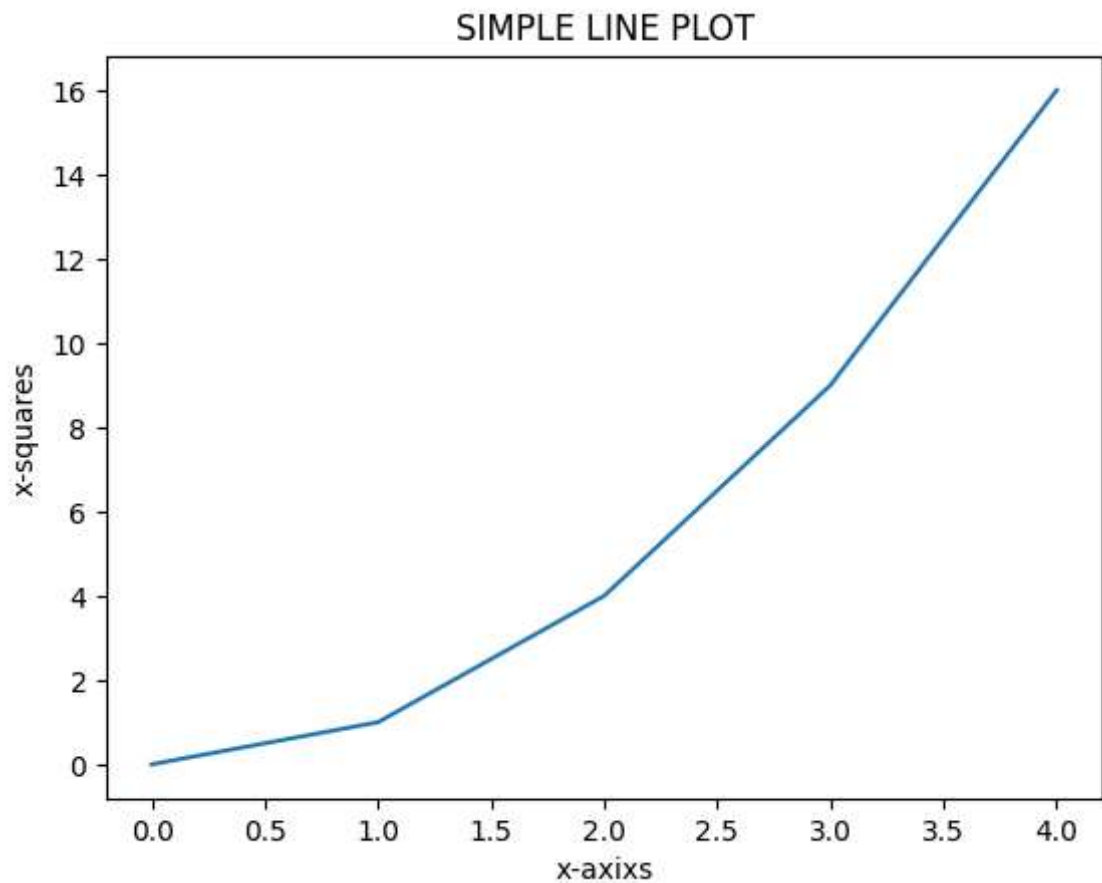


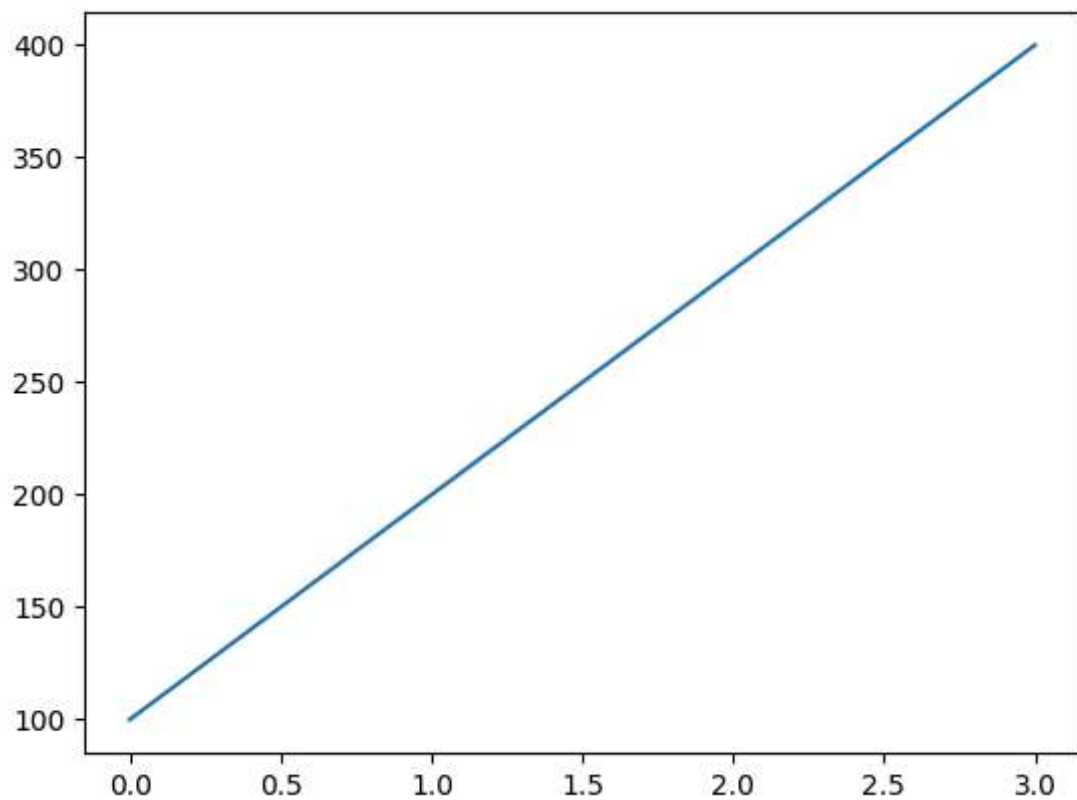
In [1]: `!pip install matplotlib`

```
Defaulting to user installation because normal site-packages is not writeable
Collecting matplotlib
  Using cached matplotlib-3.10.0-cp312-cp312-win_amd64.whl.metadata (11 kB)
Collecting contourpy>=1.0.1 (from matplotlib)
  Using cached contourpy-1.3.1-cp312-cp312-win_amd64.whl.metadata (5.4 kB)
Collecting cycler>=0.10 (from matplotlib)
  Using cached cycler-0.12.1-py3-none-any.whl.metadata (3.8 kB)
Requirement already satisfied: fonttools>=4.22.0 in c:\users\yp901\appdata\roaming\python\python312\site-packages (from matplotlib) (4.55.3)
Requirement already satisfied: kiwisolver>=1.3.1 in c:\users\yp901\appdata\roaming\python\python312\site-packages (from matplotlib) (1.4.7)
Requirement already satisfied: numpy>=1.23 in c:\users\yp901\appdata\roaming\python\python312\site-packages (from matplotlib) (2.2.0)
Requirement already satisfied: packaging>=20.0 in c:\users\yp901\appdata\roaming\python\python312\site-packages (from matplotlib) (24.1)
Requirement already satisfied: pillow>=8 in c:\users\yp901\appdata\roaming\python\python312\site-packages (from matplotlib) (11.0.0)
Requirement already satisfied: pyparsing>=2.3.1 in c:\users\yp901\appdata\roaming\python\python312\site-packages (from matplotlib) (3.2.0)
Requirement already satisfied: python-dateutil>=2.7 in c:\users\yp901\appdata\roaming\python\python312\site-packages (from matplotlib) (2.9.0.post0)
Requirement already satisfied: six>=1.5 in c:\users\yp901\appdata\roaming\python\python312\site-packages (from python-dateutil>=2.7->matplotlib) (1.16.0)
Using cached matplotlib-3.10.0-cp312-cp312-win_amd64.whl (8.0 MB)
Using cached contourpy-1.3.1-cp312-cp312-win_amd64.whl (220 kB)
Using cached cycler-0.12.1-py3-none-any.whl (8.3 kB)
Installing collected packages: cycler, contourpy, matplotlib
Successfully installed contourpy-1.3.1 cycler-0.12.1 matplotlib-3.10.0
```

```
In [4]: from matplotlib import pyplot as plt
import numpy as np
x=np.arange(0,5)
y=x*10
y=[i**2 for i in x]
plt.plot(x,y)
plt.xlabel('x-axixs')
plt.ylabel('x-squares')
plt.title('SIMPLE LINE PLOT')
plt.show()
```

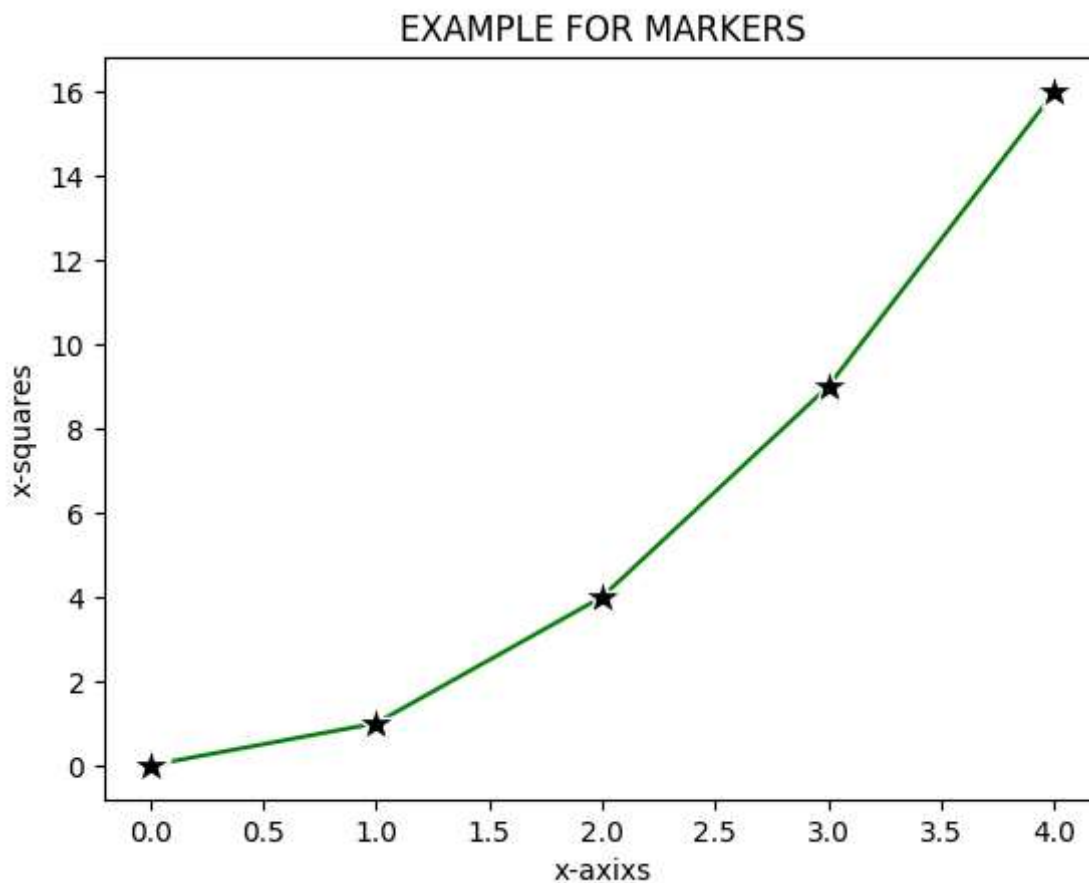


```
In [5]: plt.plot([100,200,300,400])  
plt.show()
```

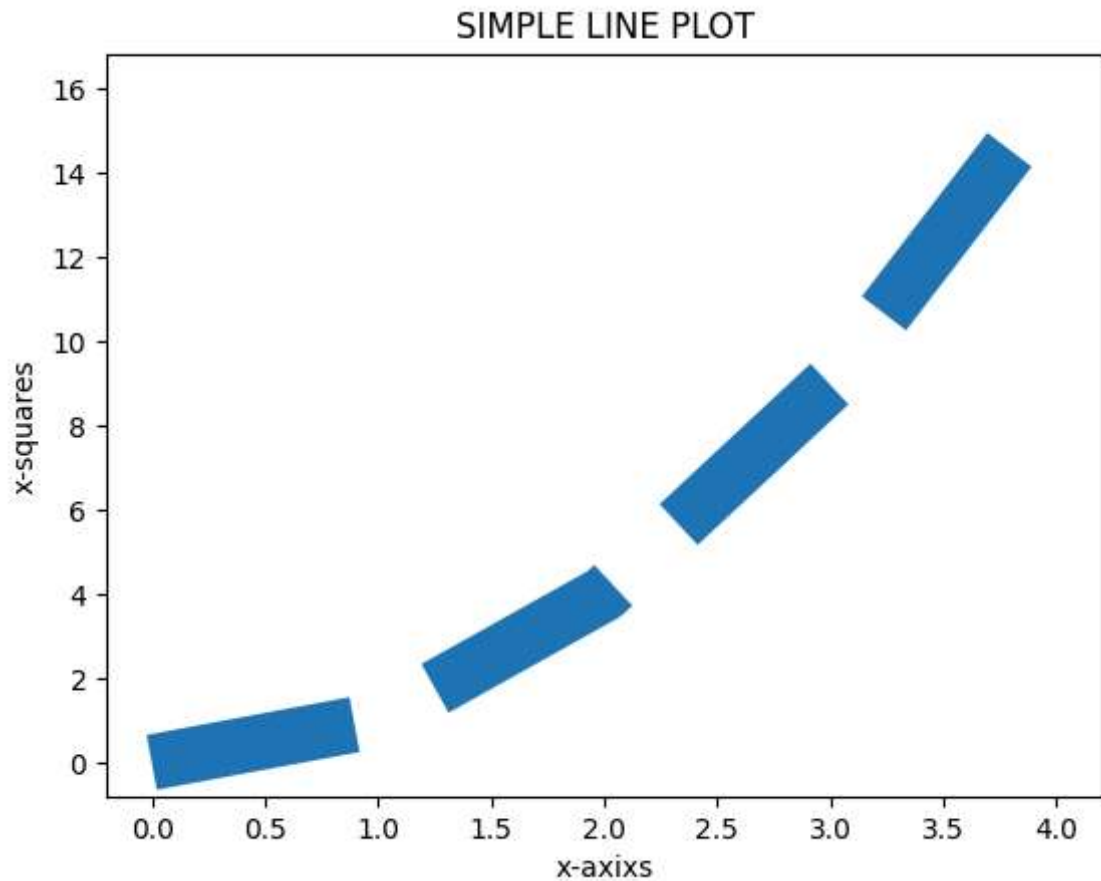


Marker

```
In [9]: from matplotlib import pyplot as plt
import numpy as np
x=np.arange(0,5)
y=x*10
y=[i**2 for i in x]
plt.plot(x,y,marker="*",ms="15",mec="w",mfc="k",c="g") #aaaaaa
plt.xlabel('x-axixs')
plt.ylabel('x-squares')
plt.title('EXAMPLE FOR MARKERS')
plt.show()
```

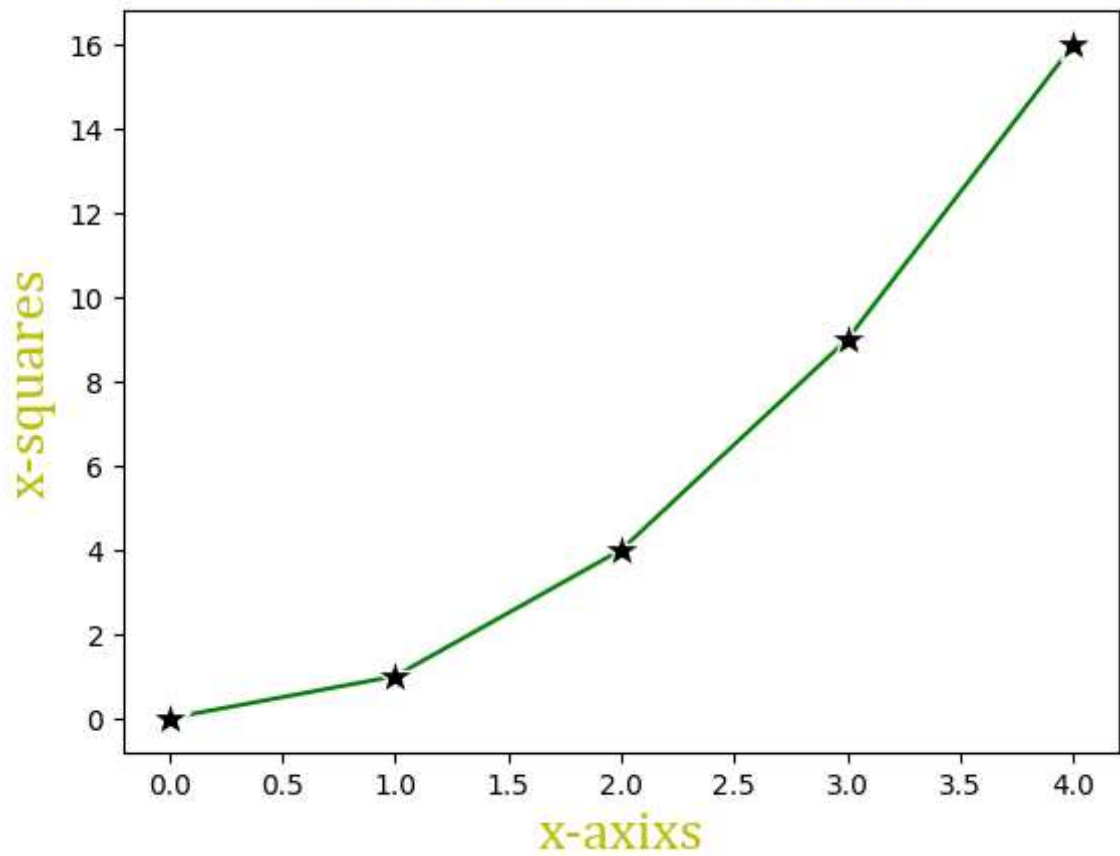


```
In [2]: from matplotlib import pyplot as plt
import numpy as np
x=np.arange(0,5)
y=x*10
y=[i**2 for i in x]
plt.plot(x,y,ls="dashed",lw=20)
plt.xlabel('x-axixs')
plt.ylabel('x-squares')
plt.title('SIMPLE LINE PLOT')
plt.show()
```

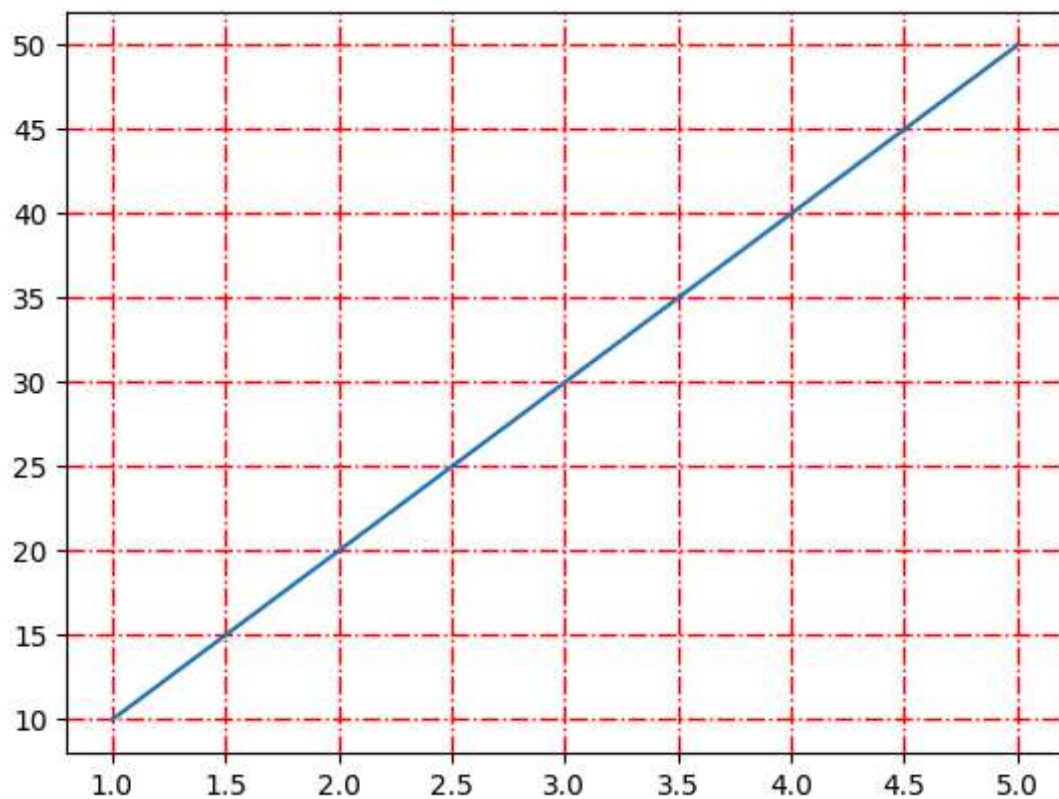


```
In [6]: from matplotlib import pyplot as plt
import numpy as np
x=np.arange(0,5)
y=x*10
y=[i**2 for i in x]
plt.plot(x,y,marker="*",ms="15",mec="w",mfc="k",c="g") #aaaaaa
plt.xlabel('x-axis',fontdict=f1)
plt.ylabel('x-squares',fontdict=f1)
f1={'family':'cambria','size':20,'color':'y'}
plt.title('EXAMPLE FOR MARKERS',fontdict=f1)
plt.show()
```

EXAMPLE FOR MARKERS

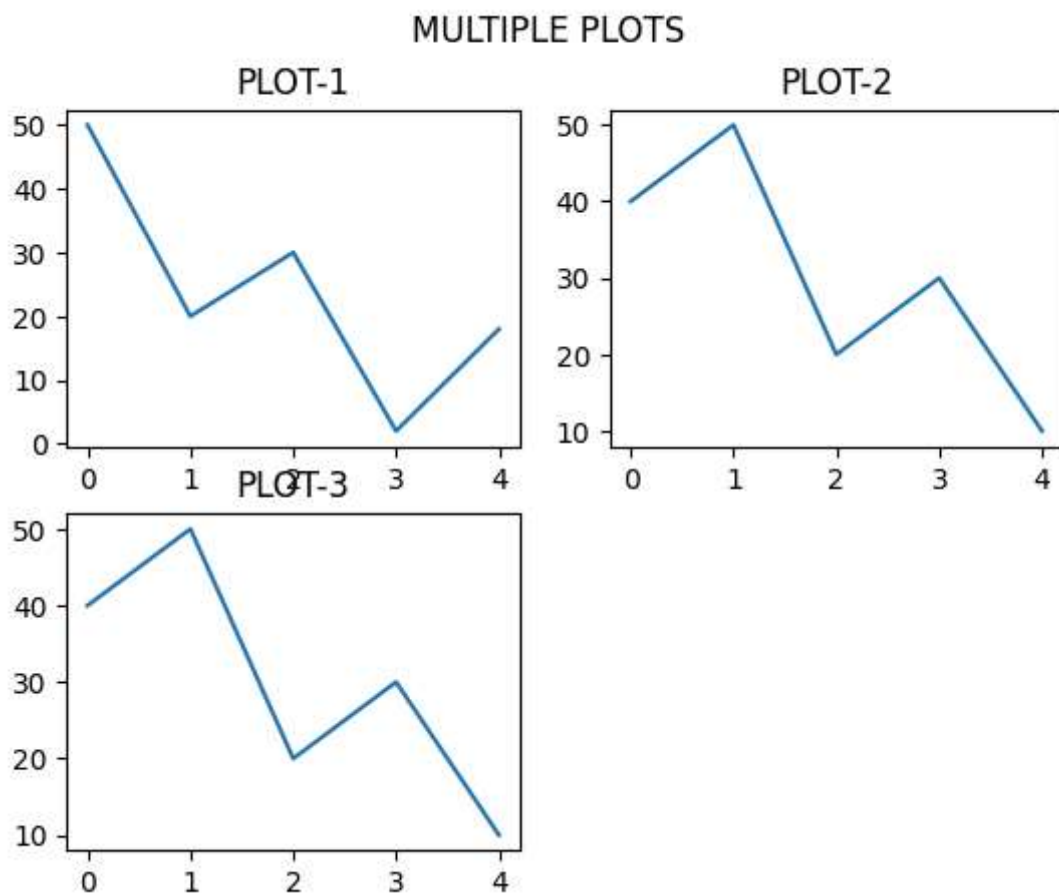


```
In [12]: x=[1,2,3,4,5]
y=[10,20,30,40,50]
plt.plot(x,y)
plt.grid(ls="dashdot",lw=1,c="r")
plt.show()
```

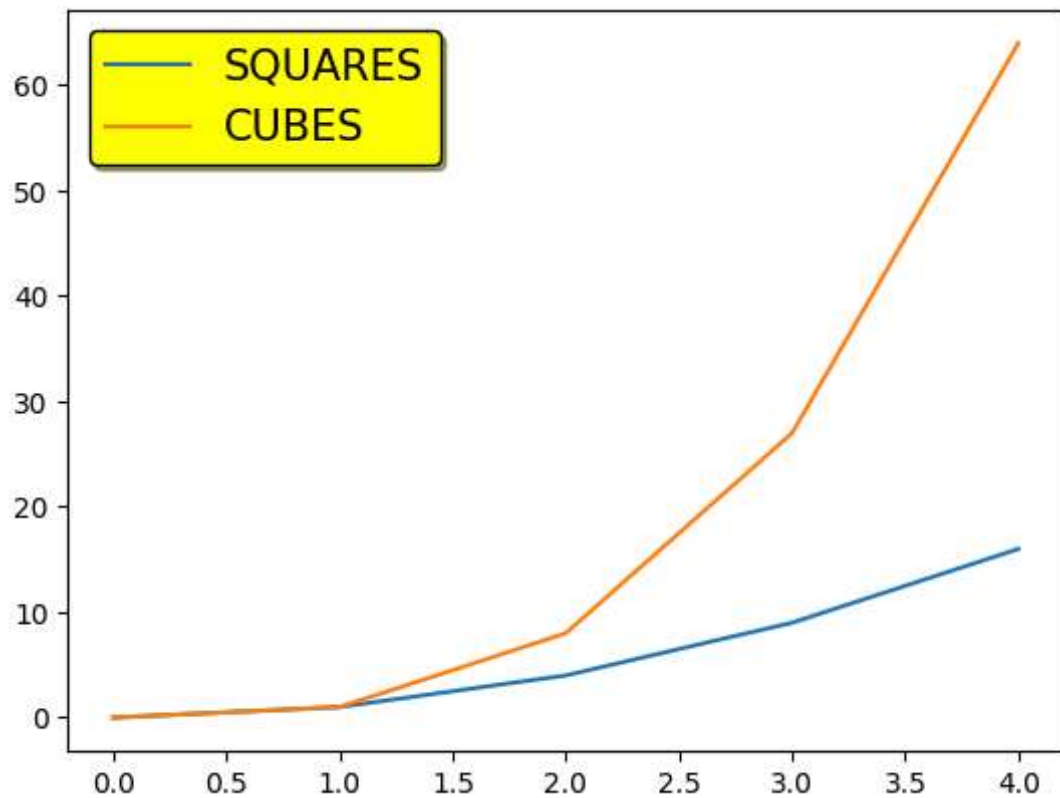


```
In [19]: from matplotlib import pyplot as plt
x=[0,1,2,3,4]
y1=[50,20,30,2,18]
y2=[40,50,20,30,10]
y3=[40,50,20,30,10]
plt.suptitle('MULTIPLE PLOTS')
plt.subplot(2,2,1)
plt.plot(x,y1)
plt.title("PLOT-1")
plt.subplot(2,2,2)
plt.plot(x,y2)
plt.title("PLOT-2")
plt.subplot(2,2,3)
plt.plot(x,y3)
plt.title("PLOT-3")
```

Out[19]: Text(0.5, 1.0, 'PLOT-3')

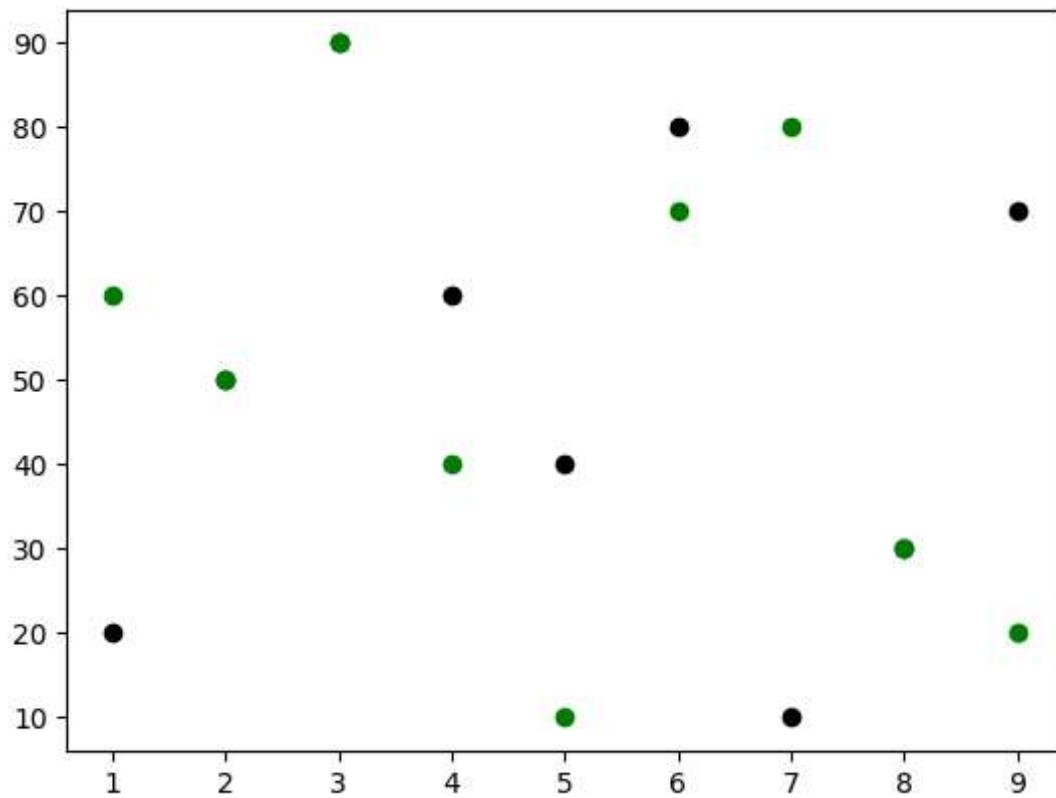


```
In [37]: from matplotlib import pyplot as plt
import numpy as np
x=np.arange(0,5,1)
y1=x**2
y2=x**3
# plt.plot(x,y1,x,y2)
# plt.legend(['SQUARES', 'CUBES'])
plt.plot(x,y1,label='SQUARES')
plt.plot(x,y2,label='CUBES')
plt.legend(loc="upper left",framealpha=1,facecolor="yellow",edgecolor="black",sh
import plt.show()
```

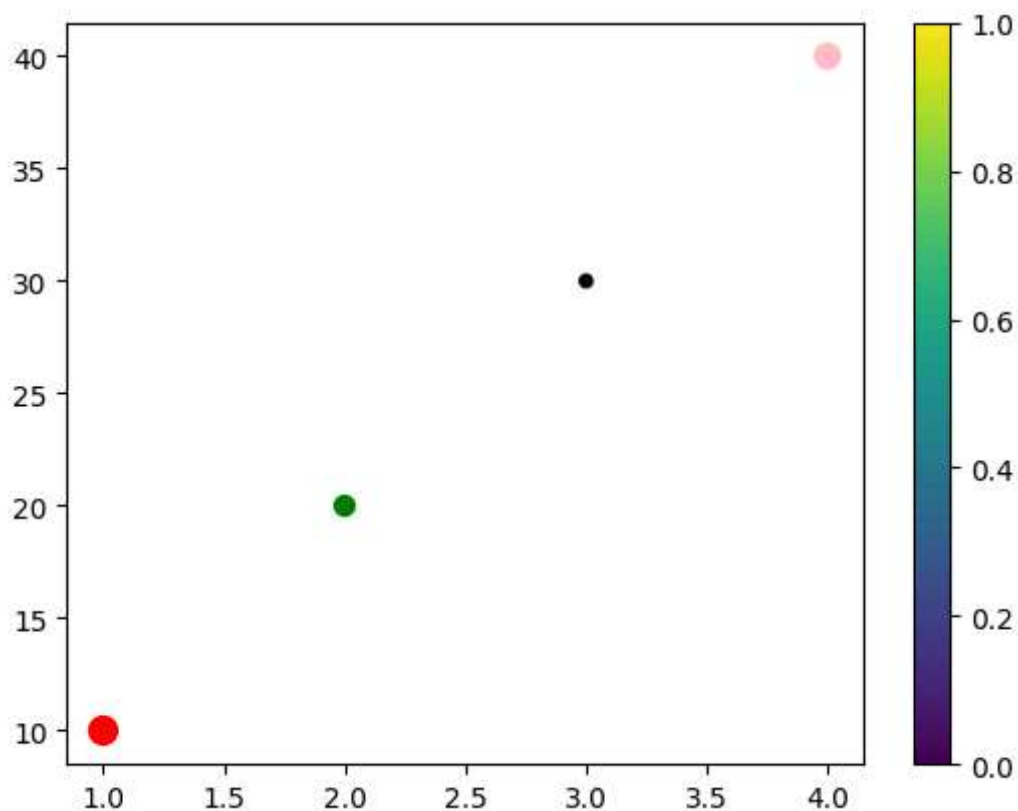


```
In [43]: import random
x=np.arange(1,10)
y=x*10
random.shuffle(y)
plt.scatter(x,y,color="black")

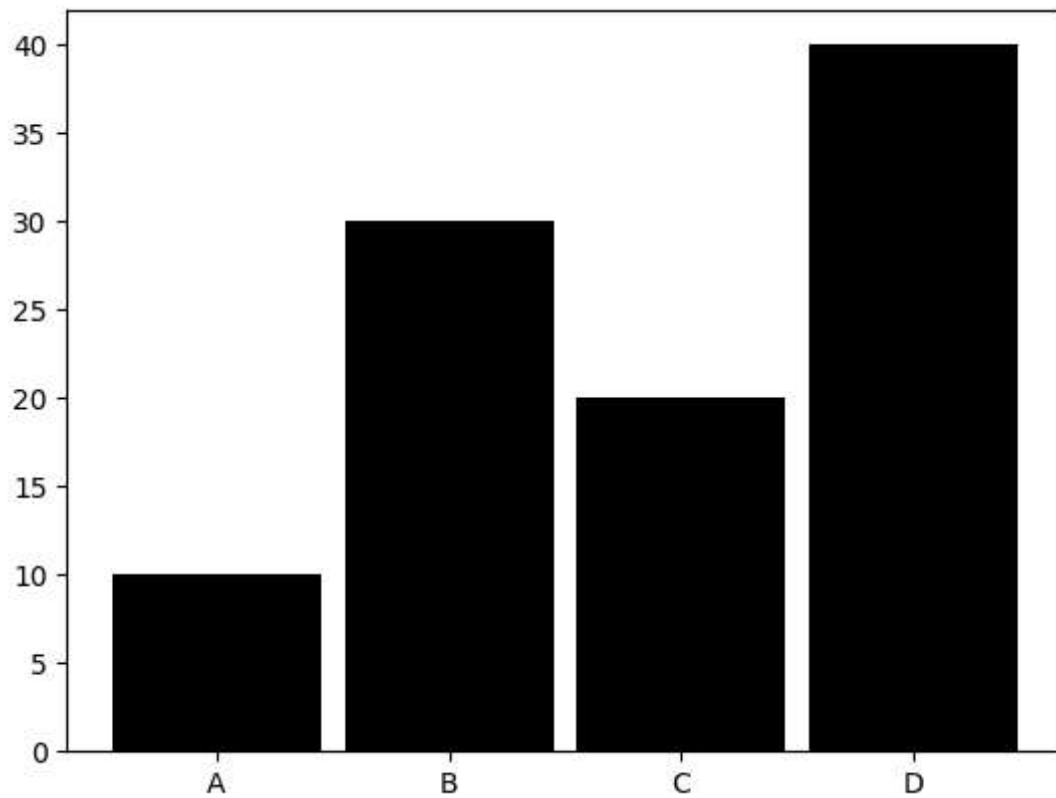
x1=np.arange(1,10)
y1=x1*10
random.shuffle(y1)
plt.scatter(x1,y1,color="green")
plt.show()
```



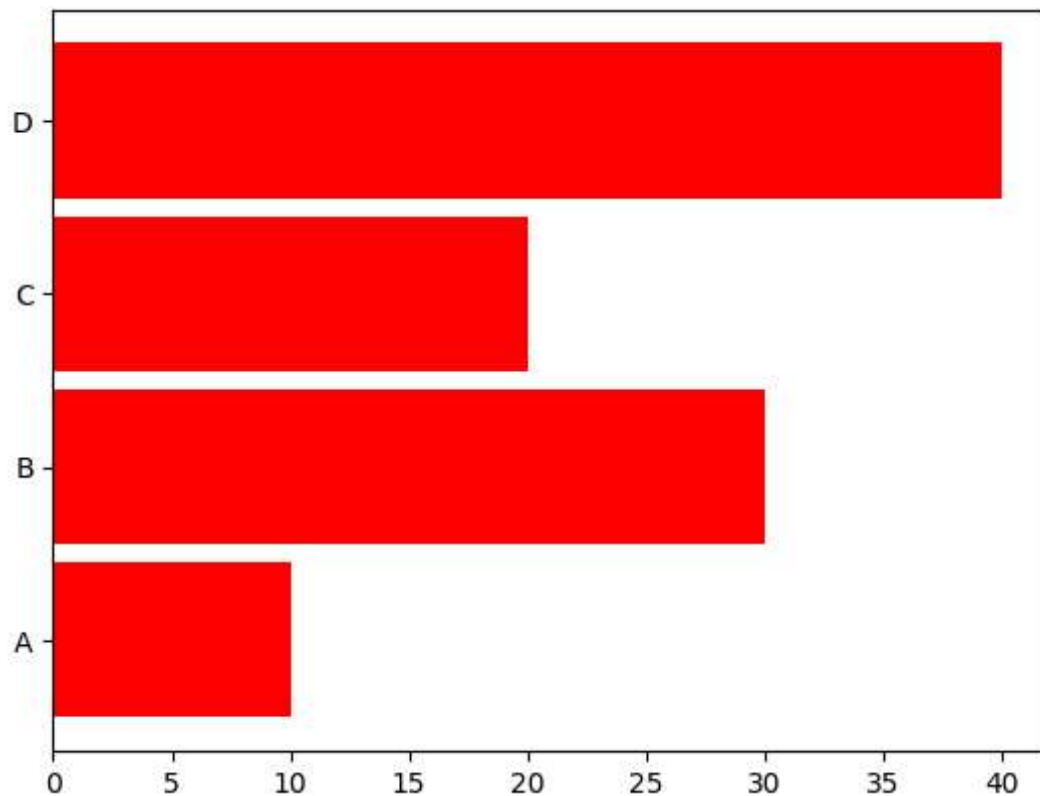
```
In [51]: import random
x=np.arange(1,5)
y=x*10
colors=["red","green","black","pink"]
sizes=[100,50,20,80]
plt.scatter(x,y,c=colors,s=sizes)
plt.colorbar()
plt.show()
```



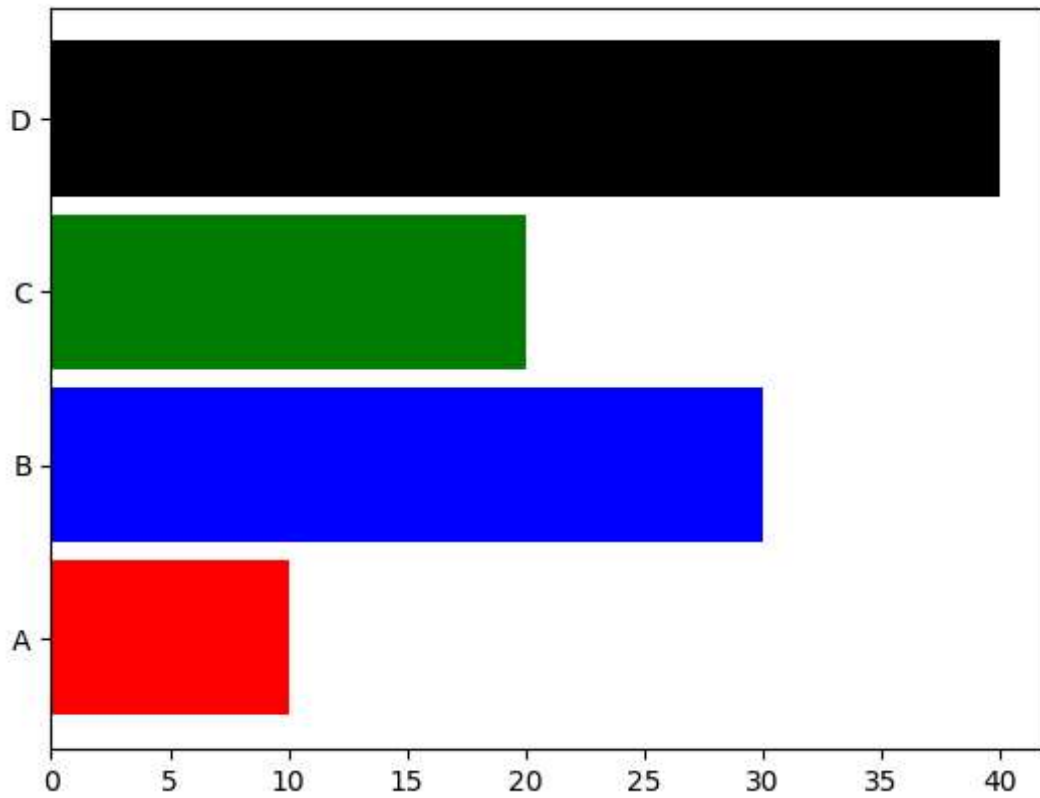

```
In [57]: x=['A','B','C','D']  
y=[10,30,20,40]  
plt.bar(x,y,color="black",width=0.9)  
plt.show()
```



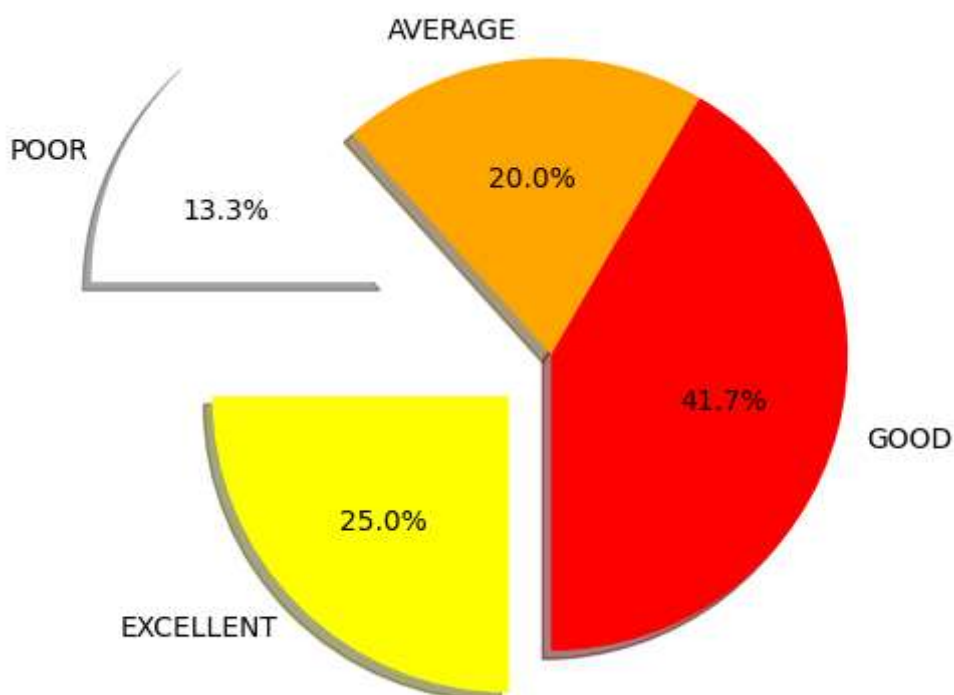
```
In [59]: x=['A','B','C','D']  
y=[10,30,20,40]  
plt.barh(x,y,color="red",height=0.9)  
plt.show()
```



```
In [61]: x=['A','B','C','D']  
y=[10,30,20,40]  
c=["red","blue","green","black"]  
plt.barh(x,y,color=c,height=0.9)  
plt.show()
```

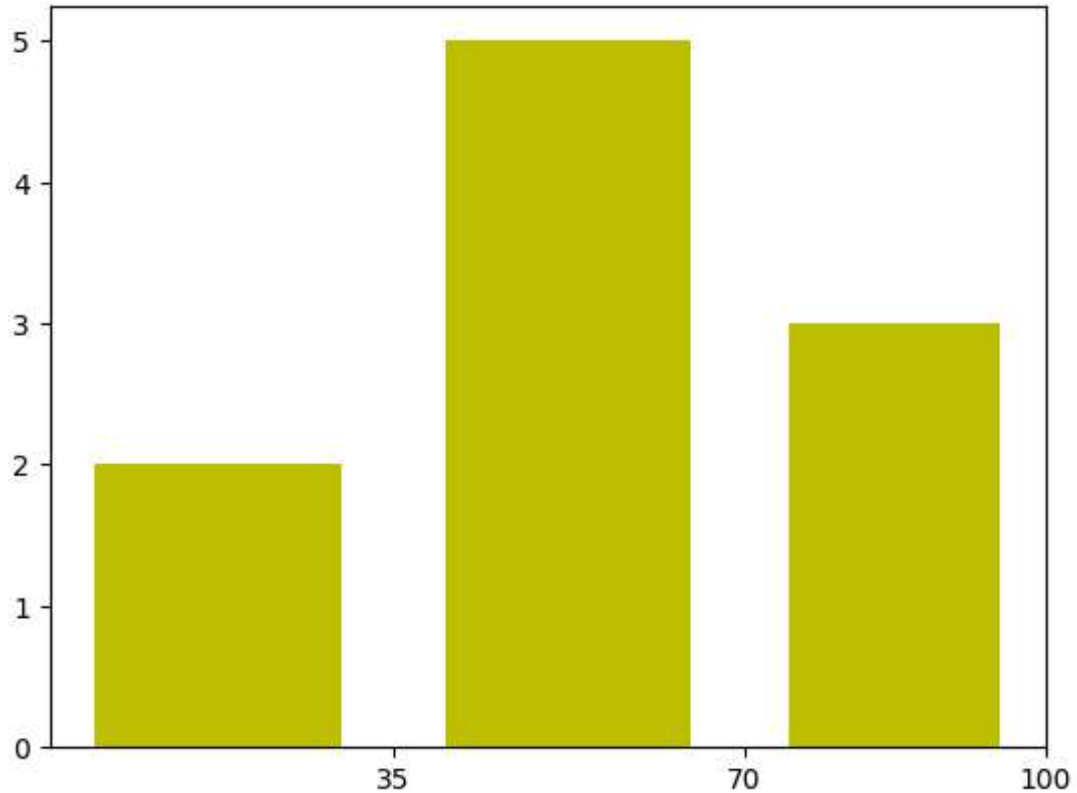


```
In [76]: student_performance=["EXCELLENT","GOOD","AVERAGE","POOR"]  
student_values=[15,25,12,8]  
plt.pie(student_values,labels=student_performance,startangle=180,explode=[0.2,0,  
plt.show()
```



```
In [82]: marks=[90,50,60,44,30,80,70,67,18,56]
grade_intervals=[0,35,70,100]
plt.xticks([0,35,70,100])
plt.hist(marks,grade_intervals,histtype="bar",rwidth=0.7,facecolor="y")
```

```
Out[82]: (array([2., 5., 3.]),
array([ 0., 35., 70., 100.]),
<BarContainer object of 3 artists>)
```



```
In [ ]:
```