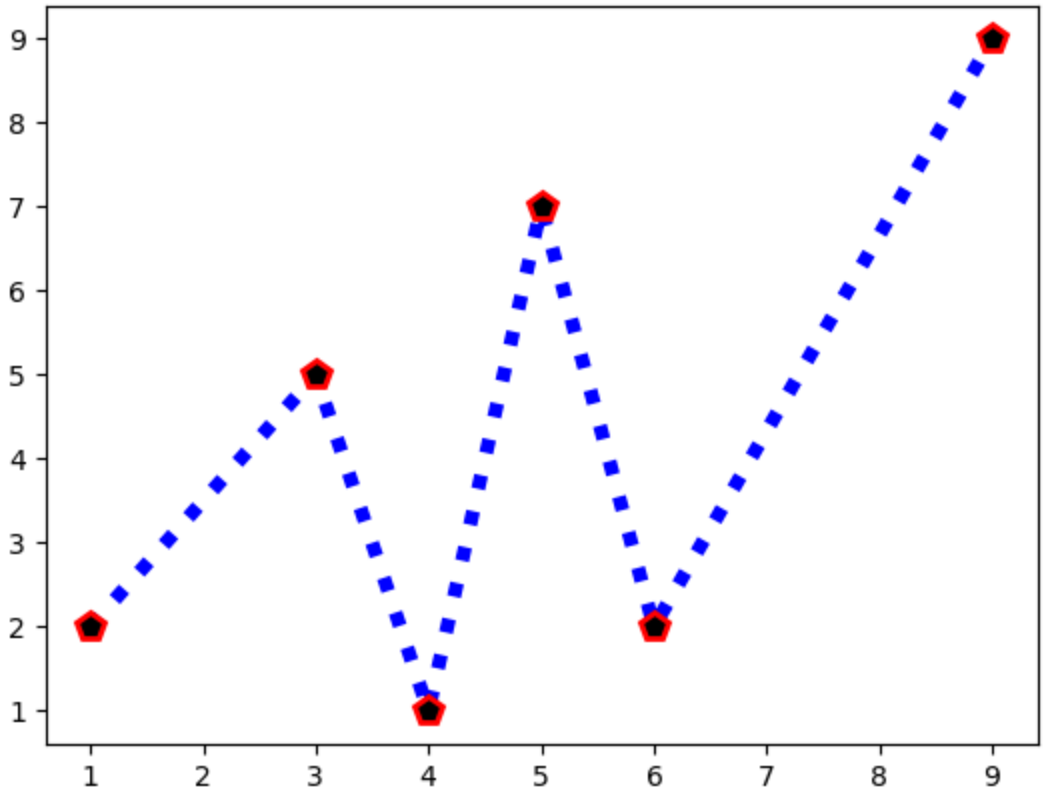
In [1]:
```
import matplotlib.pyplot as plt
```

In [2]:
```
x=[1,3,4,5,6,9]
y=[2,5,1,7,2,9]
```

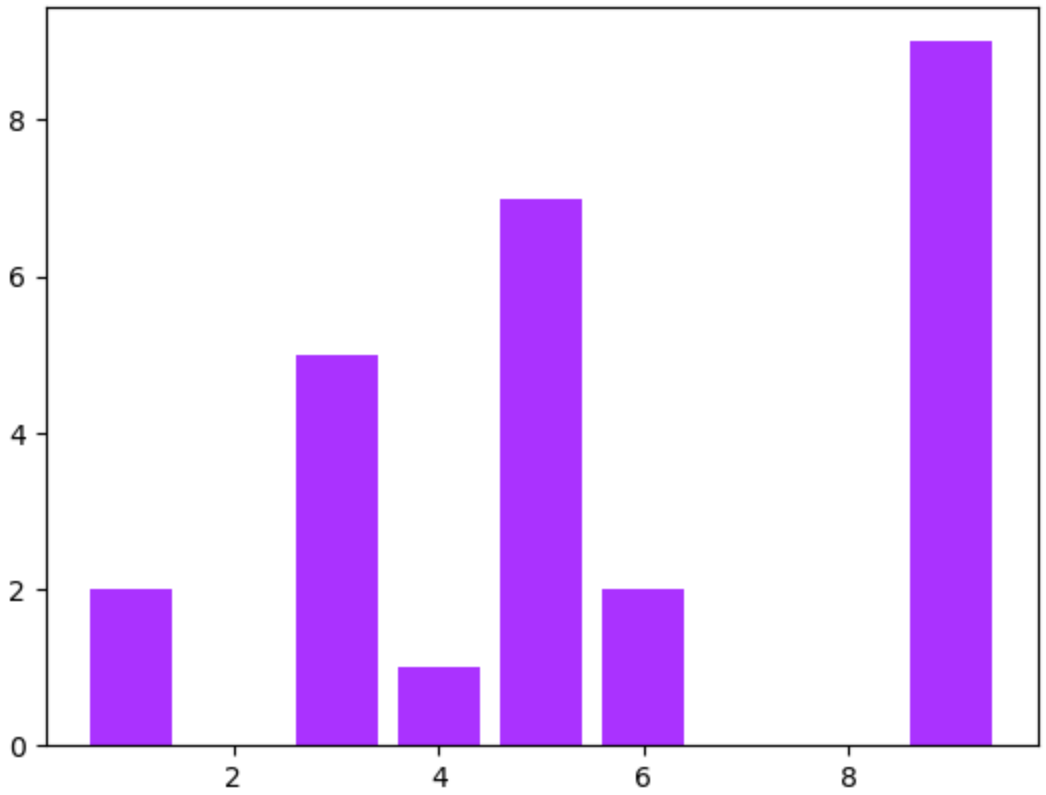
In [3]:
```
plt.plot(x,y,linestyle=":",marker="p",ms=10,linewidth=5,color="blue",mfc="black",mec="red",mew="2")
```

Out[3]:
```
[<matplotlib.lines.Line2D at 0x1dded3b04d0>]
```



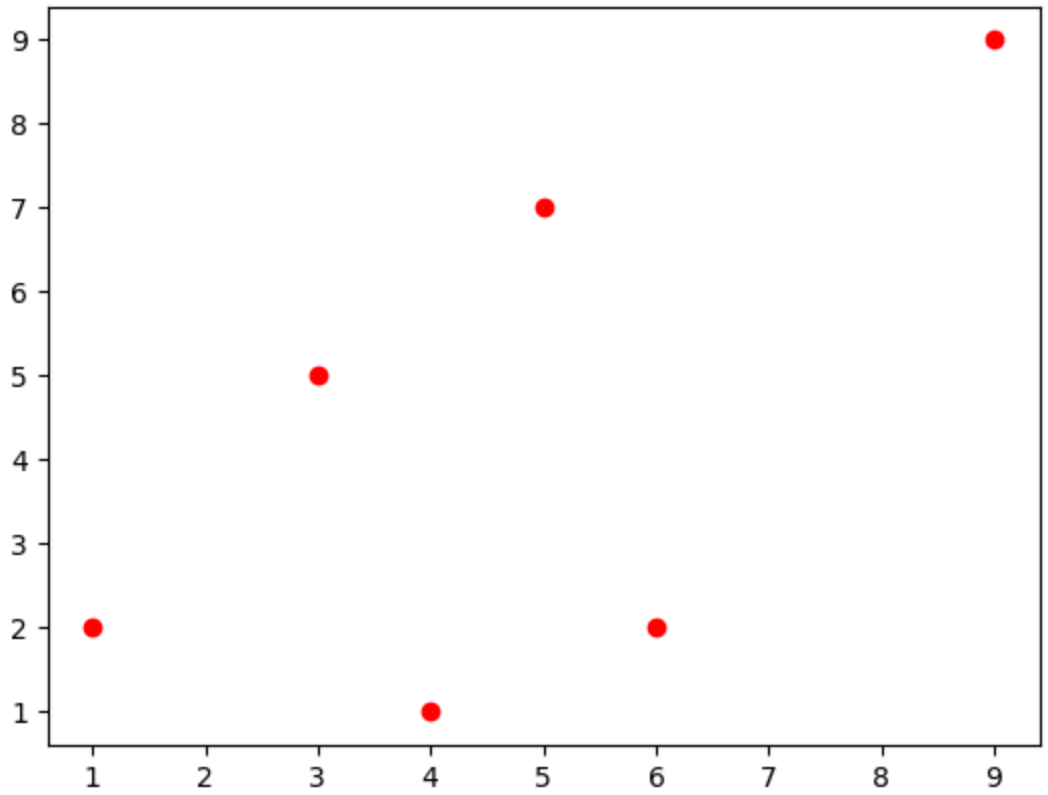
In [4]:
```
plt.bar(x,y,color="#ad33ff")
```

Out[4]: <BarContainer object of 6 artists>



In [5]:
```
plt.scatter(x,y,color="red")
```

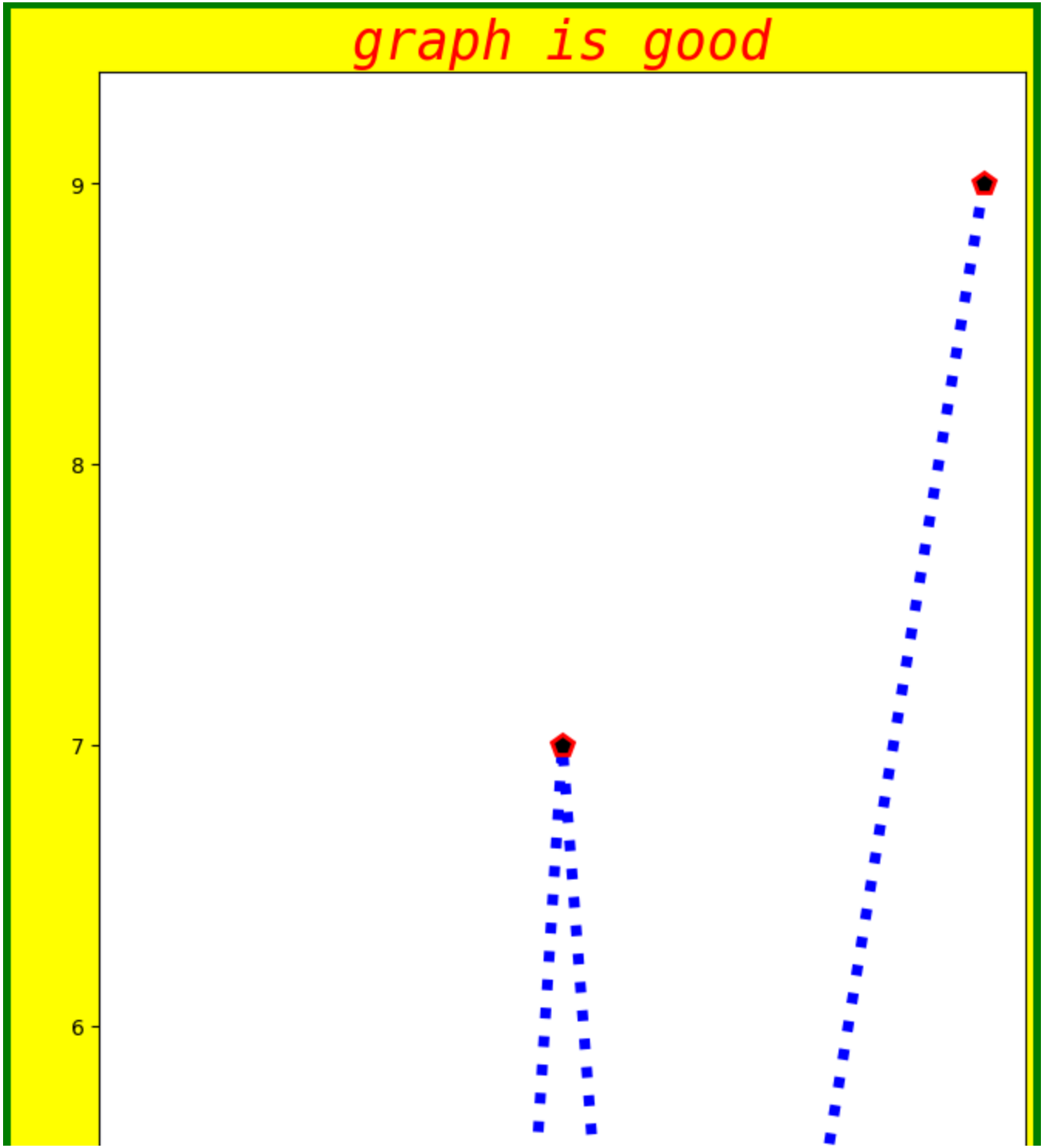
Out[5]:
```
<matplotlib.collections.PathCollection at 0x1ddee353c50>
```

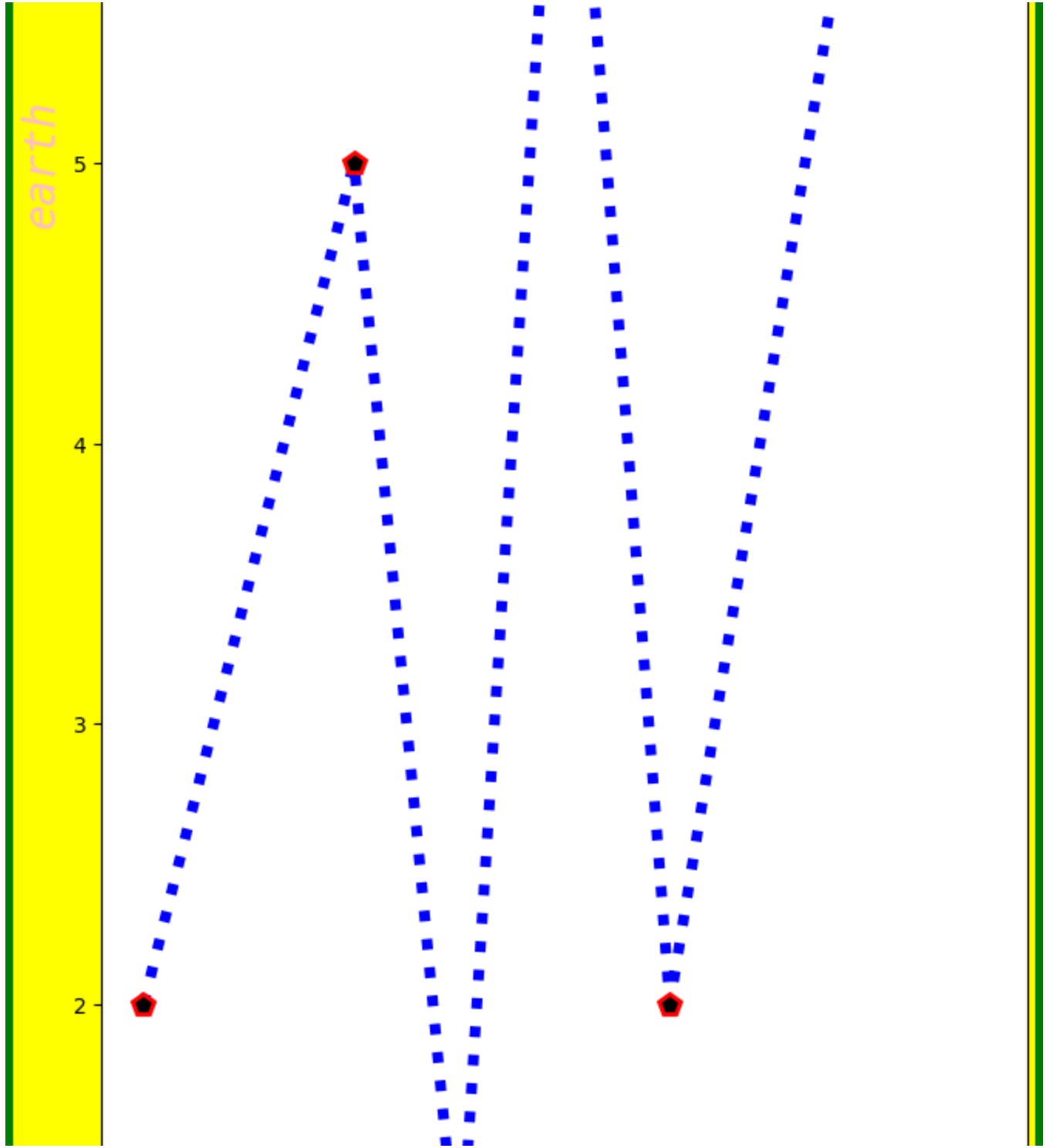


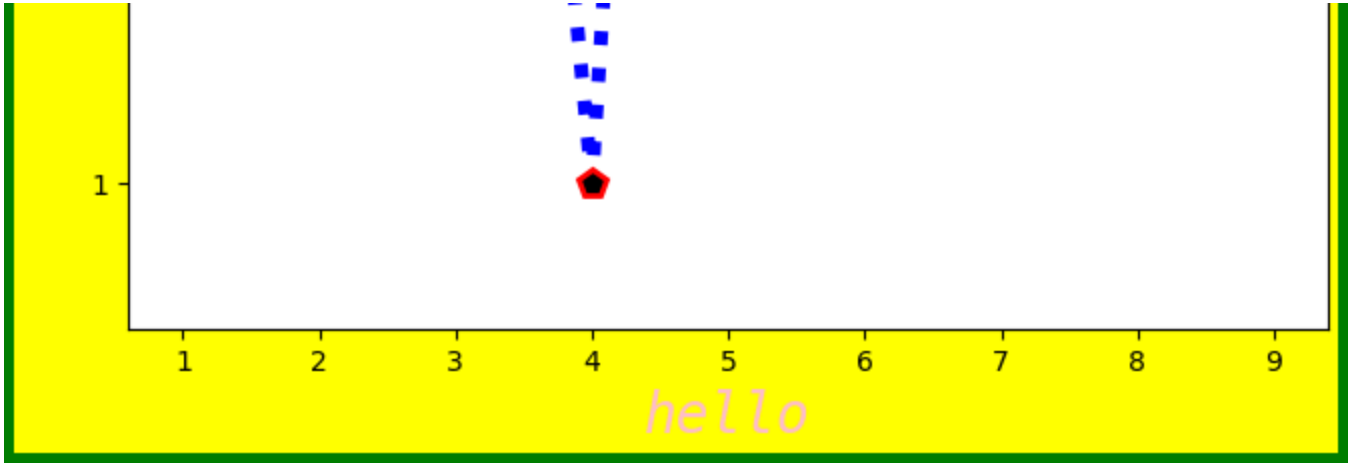
In [6]:
```
#ms=marker size
#mfc=mrker face color
#mec=marker edge color
#mew=marker edge width
```

In [7]:
```
plt.figure(figsize=(6,8),facecolor="yellow",edgecolor="green",linewidth=7)
plt.axes([1,2,1,2])
plt.plot(x,y,linestyle=":",marker="p",ms=10,linewidth=5,color="blue",mfc="black",mec="red",mew="2")
plt.xlabel("hello",color="pink",fontsize="20",family='monospace',style="oblique")
plt.ylabel("earth",color="pink",fontsize="20",family='monospace',style="oblique")
plt.title("graph is good",color="red",fontsize="25",family='monospace',style="italic")

plt.show()
```


graph is good
9
8
7
6


earth
5
4
3
2



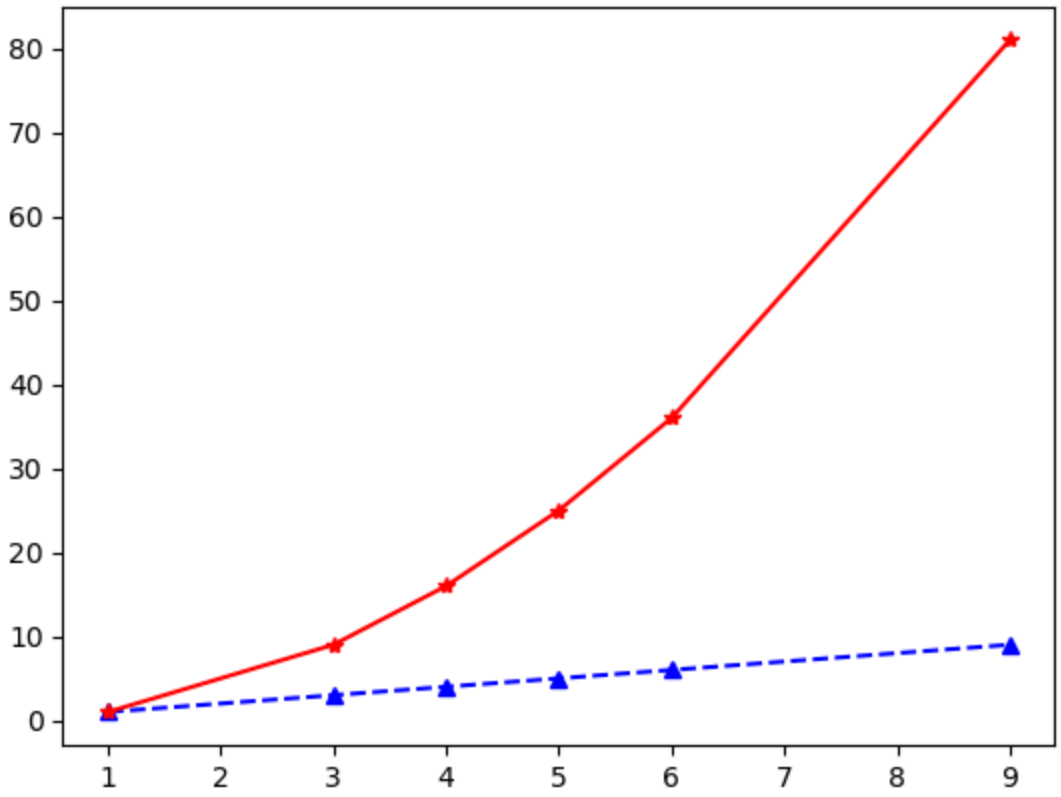
In [8]:
```
import numpy as np
```

In [9]:
```
x=np.array(x)
```

In [10]:
```
y=np.array(y)
```

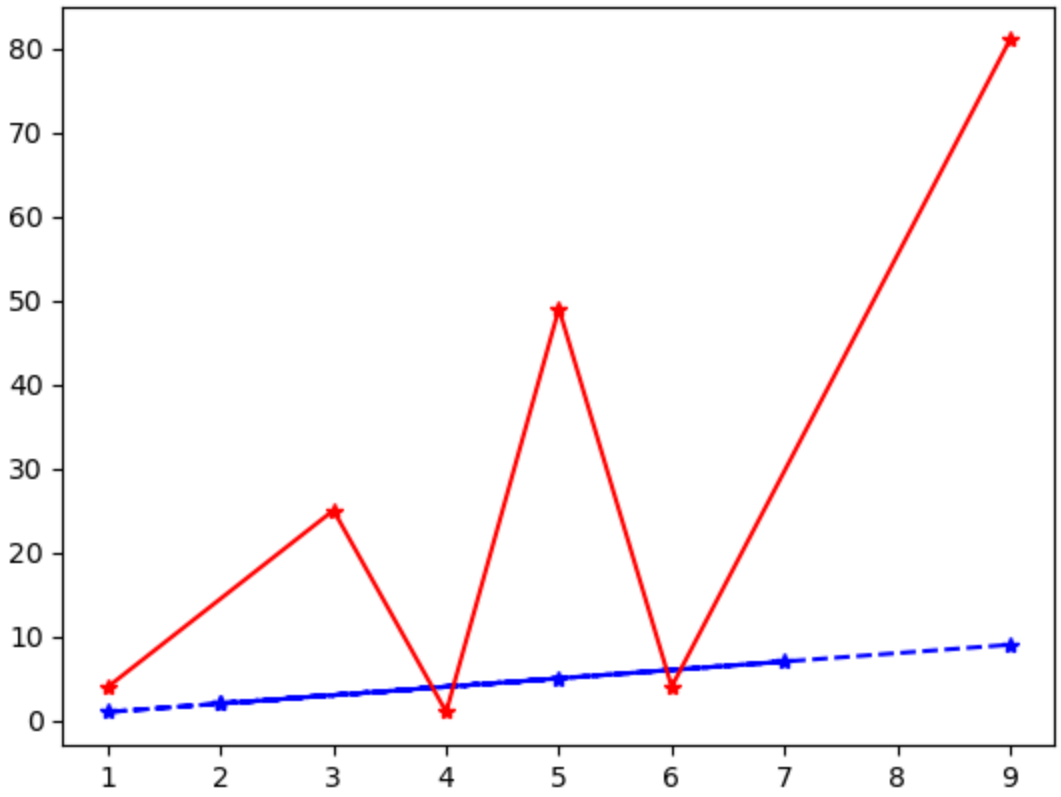
In [48]:
```
plt.plot(x,x,"b--^",x,(x**2),"r-*")
```

Out[48]:
```
[<matplotlib.lines.Line2D at 0x2d13fde8d90>,
 <matplotlib.lines.Line2D at 0x2d13f9f65d0>]
```



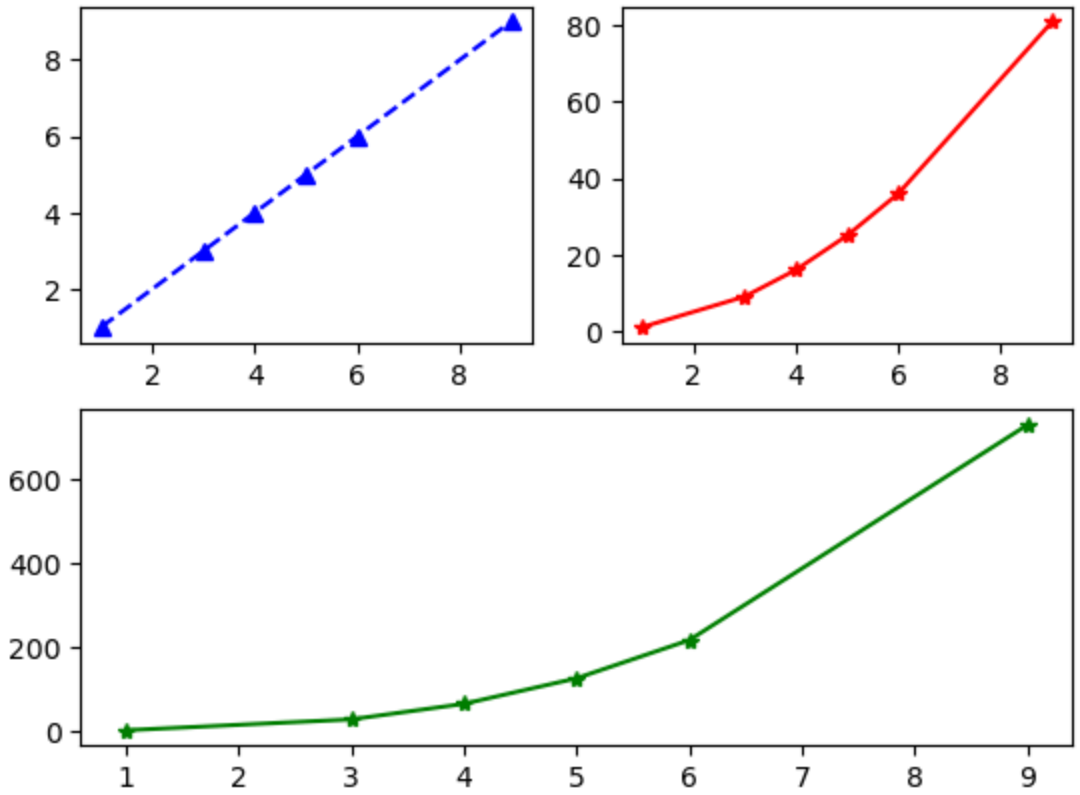
In [53]:
```
plt.plot(y,y,"b--*",x,(y**2),"r-*")
```

Out[53]:
```
[<matplotlib.lines.Line2D at 0x2d140f35950>,
 <matplotlib.lines.Line2D at 0x2d140f35610>]
```



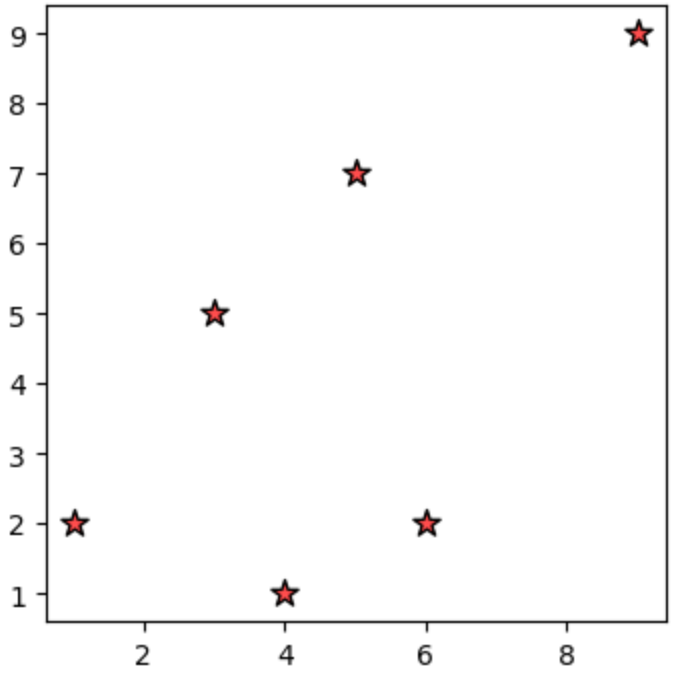
In [60]:
```
plt.subplot(2,2,1)
plt.plot(x,x,"b--^")
plt.subplot(2,2,2)
plt.plot(x,(x**2),"r-*")
#
plt.subplot(2,1,2)
plt.plot(x,(x**3),"g-*")
```

Out[60]: [<matplotlib.lines.Line2D at 0x2d1412aa7d0>]



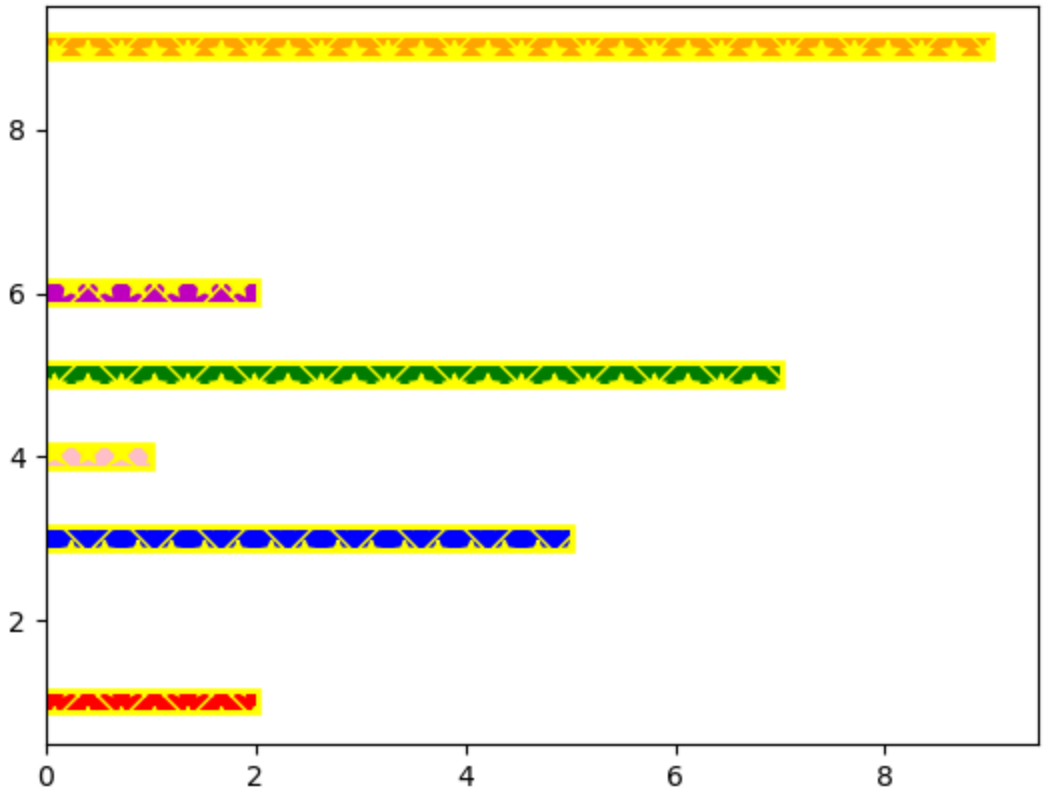
In [67]:
```
plt.figure(figsize=(4,4))
plt.scatter(x,y,marker="*",color="#ff4d4d",edgecolor="black",s=100)
```

Out[67]:
```
<matplotlib.collections.PathCollection at 0x2d144525450>
```



In [35]:
```
x=[1,3,4,5,6,9]
y=[2,5,1,7,2,9]
plt.barh(y=x,width=y,color=["red","blue","pink","g","m","orange"],height=0.2,edgecolor="yellow",lw=4)
plt.barh(y=x,width=y,color=["red","blue","pink","g","m","orange"],height=0.2,edgecolor="yellow",hatch="*\/",
# hatch: {'/','*','0','+','-','x','.'}
```

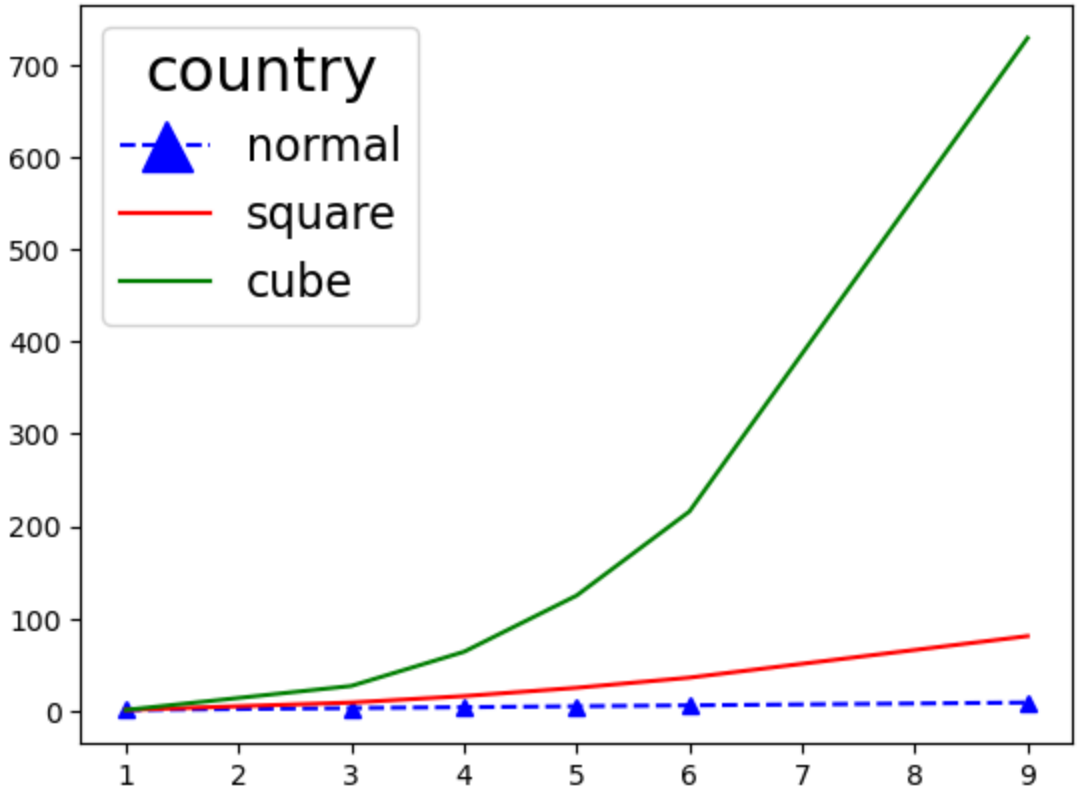
Out[35]: <BarContainer object of 6 artists>



In [37]:
```
x=np.array(x)
y=np.array(y)
```

In [38]:
```
plt.plot(x,x,"b--^",label="normal")
plt.plot(x,(x**2),"r-",label="square")
plt.plot(x,(x**3),"g-",label="cube")
plt.legend(title="country",fontsize=16,title_fontsize=22,markerscale=3)
```

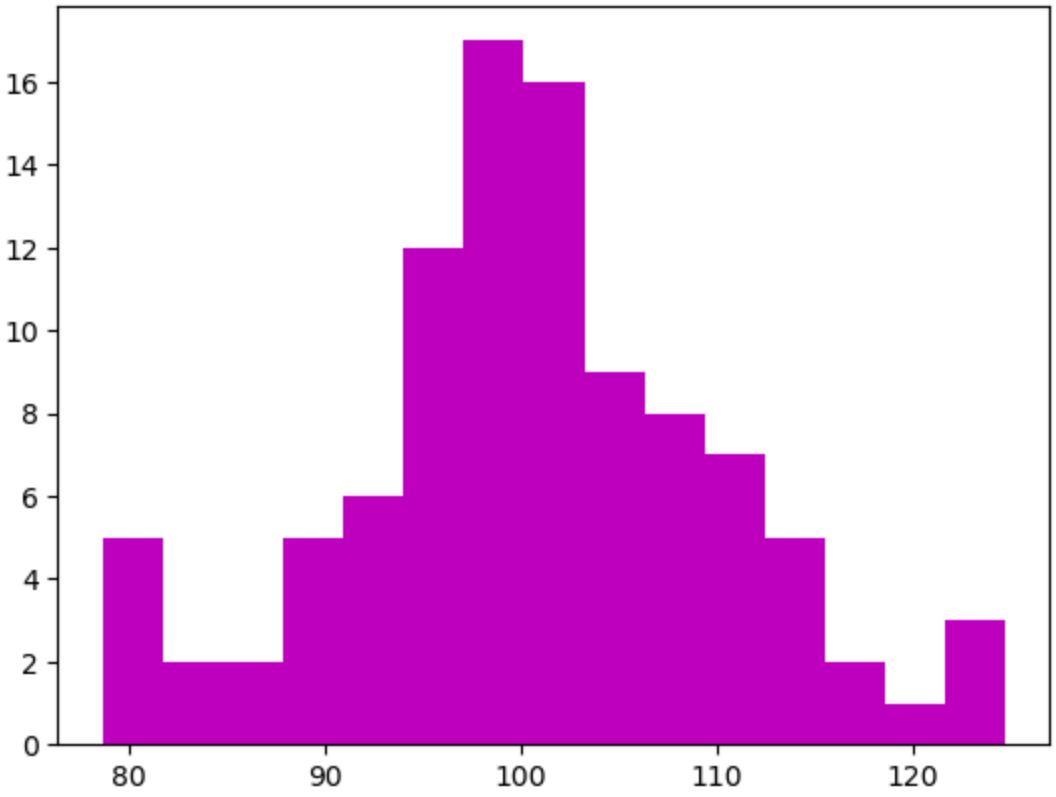
Out[38]:
```
<matplotlib.legend.Legend at 0x1ddf42d7010>
```



In [51]:
```
np.random.seed(10)
arr1=np.random.normal(100,10,100)
arr1
```

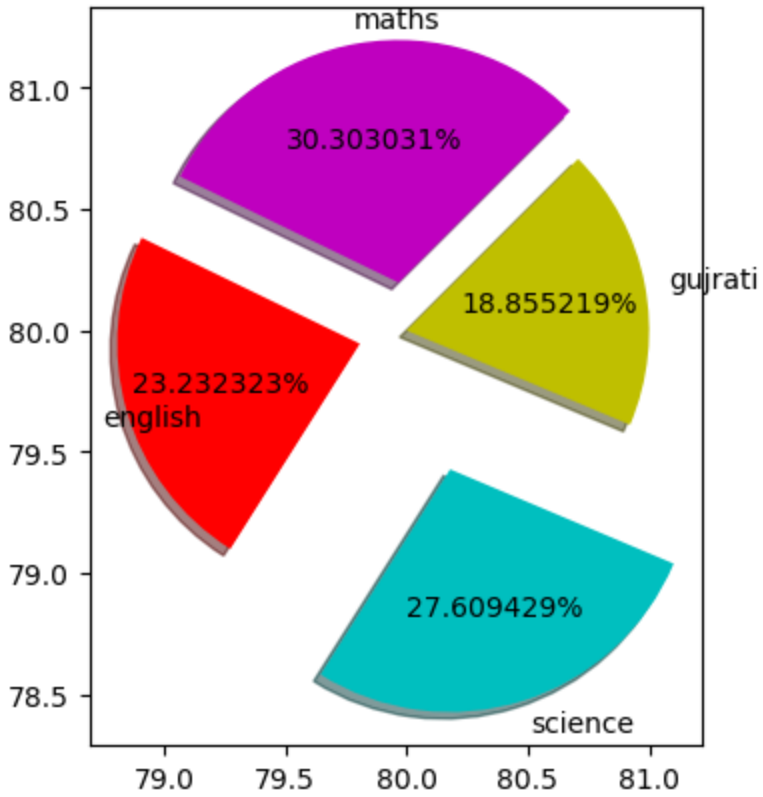
Out[51]:
```
array([113.31586504, 107.15278974,  84.54599708,  99.9161615 ,
       106.21335974,  92.79914439, 102.65511586, 101.08548526,
       100.04291431,  98.25399789, 104.3302619 , 112.03037374,
        90.34934329, 110.28274078, 102.2863013 , 104.45137613,
        88.63397788, 101.35136878, 114.84537002,  89.20195114,
        80.22271719,  82.56627704, 102.66070164, 123.84967331,
       111.23691253, 116.72622213, 100.99149216, 113.97996377,
        97.28752012, 106.13204185,  97.32682811,  94.50690986,
       101.32708296,  95.23857985, 113.08473081, 101.95013279,
       104.00209988,  96.62367663, 112.56472264,  92.68030498,
       106.60231551,  96.49128109,  90.6056664 ,  95.10662783,
        91.95408858,  97.87302361,  96.60859754, 103.12169936,
       105.6515267 ,  98.52579742,  99.74094663, 102.89094204,
        94.60120929, 107.0816002 , 108.42224738, 102.03580797,
       123.94703665, 109.17458938,  98.87727529,  96.37819553,
        97.67817744,  94.982711  , 111.28785153,  93.0218997 ,
        99.18877816,  94.70703919, 110.46182857,  85.81443971,
        96.37500817,  98.78094309, 103.19356421, 104.60902902,
        97.84210108, 109.89072457, 103.14753779, 124.67651056,
        84.91678513, 106.20600663,  89.54867462,  92.01991182,
       119.85084591, 117.44814148,  81.43814519,  97.77226301,
        99.34152152,  78.68287892,  99.51169489, 103.93341217,
       102.17265145,  80.0560623 , 111.07708235, 102.44543977,
        99.38087971,  92.46107039, 107.11959017, 109.18269151,
        95.17906861, 100.89587613, 108.26998623,  80.4548788 ])
```

In [52]:
```
plt.hist(arr1,color="m",bins=15);
```



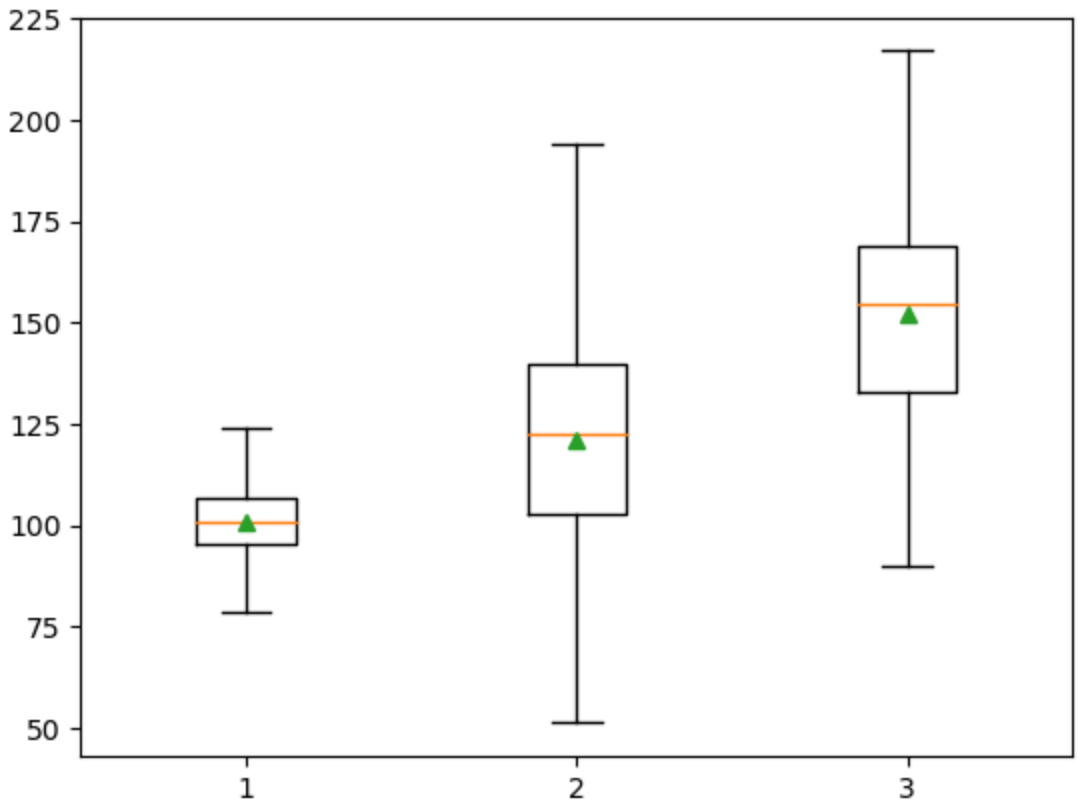
In [53]:
```
y=[90,69,82,56]
```

In [64]:
```
plt.pie(y,autopct="%1.6f%%",labels=["maths","english","science","gujrati"],colors=["m","r","c","y"],shadow=Tr
```



In [66]:
```
np.random.seed(10)
arr1=np.random.normal(100,10,100)
arr2=np.random.normal(120,30,130)
arr3=np.random.normal(150,25,120)
```

In [72]:
```
plt.boxplot([arr1,arr2,arr3],showbox=True,showfliers=False,showmeans=True);
```



In [ ]:
```
#samapt
```