In [3]:

```
pip install matplotlib
```

```
Requirement already satisfied: matplotlib in c:\users\user\anaconda3\lib\site-packages (3.4.3)
Requirement already satisfied: pillow>=6.2.0 in c:\users\user\anaconda3\lib\site-packages (from matplotlib) (8.4.0)
Requirement already satisfied: python-dateutil>=2.7 in c:\users\user\anaconda3\lib\site-packages (from matplotlib) (2.8.2)
Requirement already satisfied: kiwisolver>=1.0.1 in c:\users\user\anaconda3\lib\site-packages (from matplotlib) (1.3.1)
Requirement already satisfied: numpy>=1.16 in c:\users\user\anaconda3\lib\site-packages (from matplotlib) (1.20.3)
Requirement already satisfied: pyparsing>=2.2.1 in c:\users\user\anaconda3\lib\site-packages (from matplotlib) (3.0.4)
Requirement already satisfied: cycler>=0.10 in c:\users\user\anaconda3\lib\site-packages (from matplotlib) (0.10.0)
Requirement already satisfied: six in c:\users\user\anaconda3\lib\site-packages (from cycler>=0.10->matplotlib) (1.16.0)
Note: you may need to restart the kernel to use updated packages.
```

In [4]:

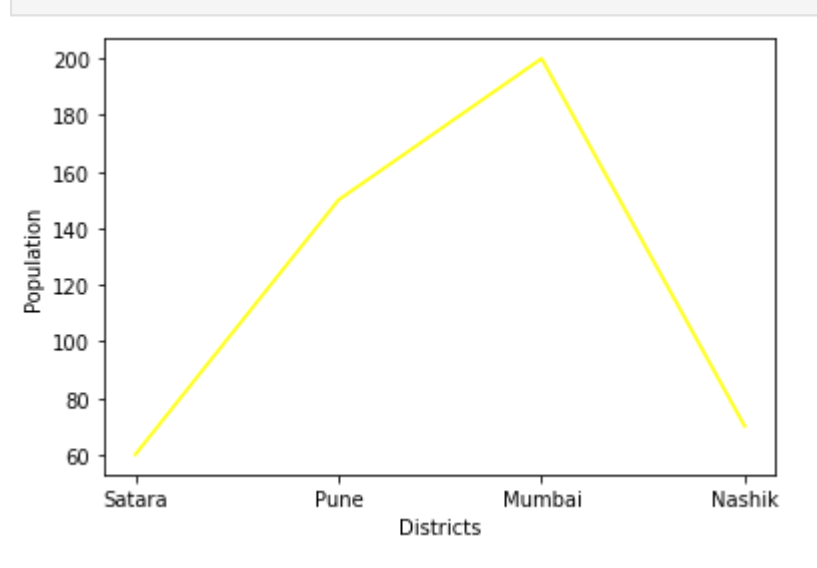
```
from matplotlib import pyplot as plt
```

In [5]:

```
import numpy as np
```

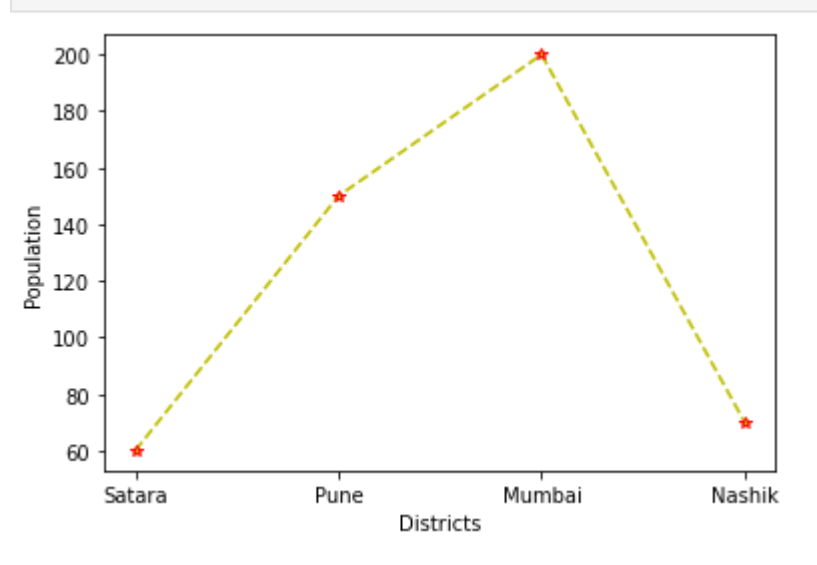
In [16]:

```
dn=['Satara','Pune','Mumbai','Nashik']
pop=[60,150,200,70]
plt.plot(dn,pop,color="Yellow",)
plt.xlabel("Districts")
plt.ylabel("Population")
plt.show()
```



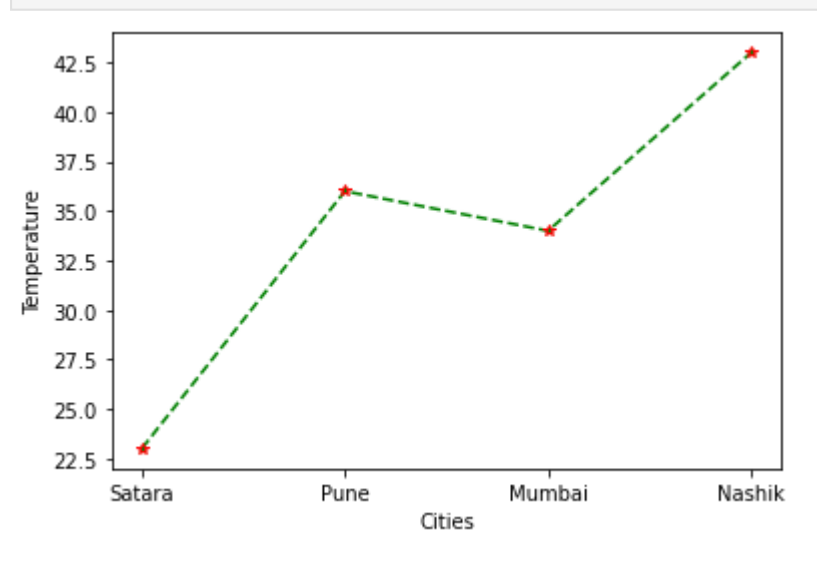
In [22]:

```
dn=['Satara','Pune','Mumbai','Nashik']
pop=[60,150,200,70]
plt.plot(dn,pop,"y*--",markeredgecolor='red')
plt.xlabel("Districts")
plt.ylabel("Population")
plt.show()
```



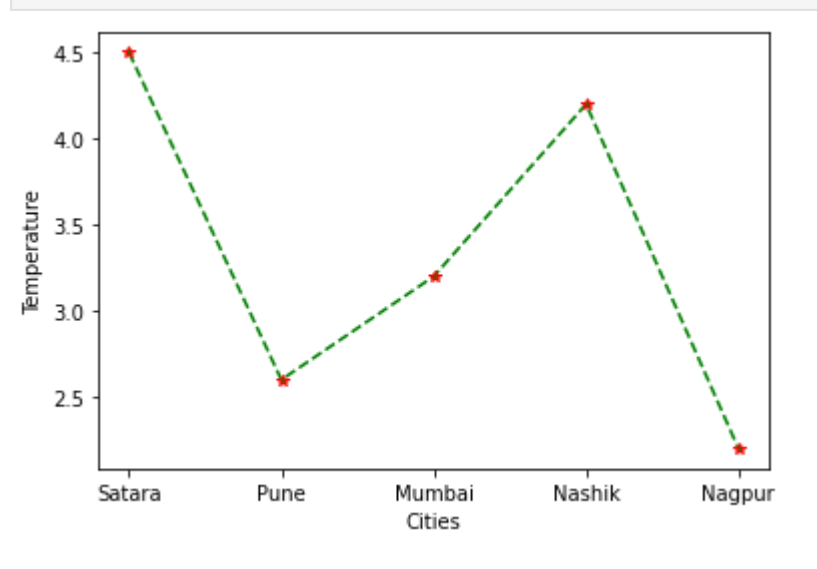
In [29]:

```
cn=['Satara','Pune','Mumbai','Nashik']
temp=[23,36,34,43]
plt.plot(cn,temp,"g*--",markeredgecolor='red')
plt.xlabel("Cities")
plt.ylabel("Temperature")
plt.show()
```



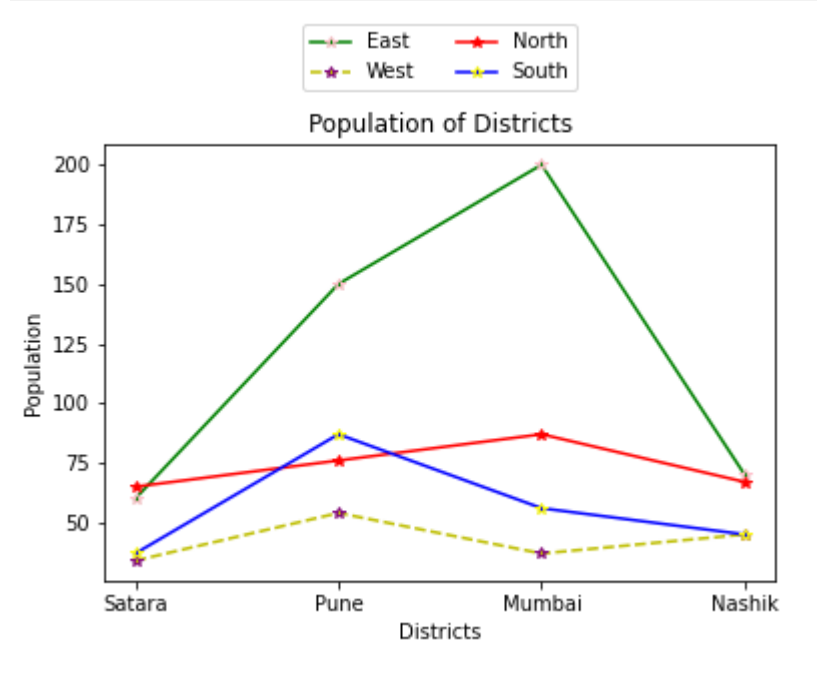
In [30]:

```
cn=['Satara','Pune','Mumbai','Nashik','Nagpur']
temp=[4.5,2.6,3.2,4.2,2.2]
plt.plot(cn,temp,"g*--",markeredgecolor='red')
plt.xlabel("Cities")
plt.ylabel("Temperature")
plt.show()
```



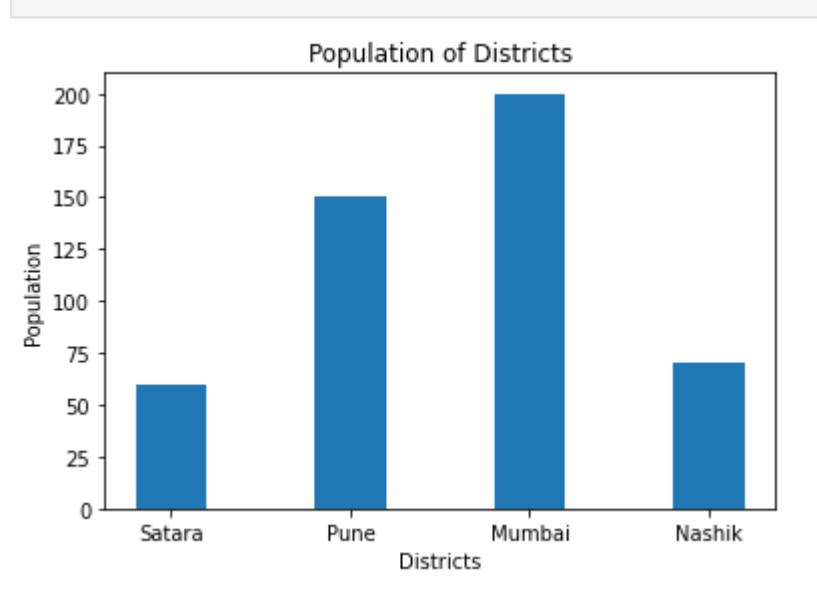
In [51]:

```
dn=['Satara','Pune','Mumbai','Nashik']
pofE=[60,150,200,70]
pofW=[34,54,37,45]
pofN=[65,76,87,67]
pofS=[37,87,56,45]
plt.plot(dn,pofE,"g*-",markeredgecolor='pink',label="East")
plt.plot(dn,pofW,"y*--",markeredgecolor='purple',label='West')
plt.plot(dn,pofN,"r*-",markeredgecolor='red',label='North')
plt.plot(dn,pofS,"b*-",markeredgecolor='yellow',label='South')
plt.xlabel("Districts")
plt.ylabel("Population")
plt.title('Population of Districts')
# plt.legend()
# plt.legend(loc="upper left")
plt.legend(bbox_to_anchor=(0.72,1.3),ncol=2)
plt.show()
```



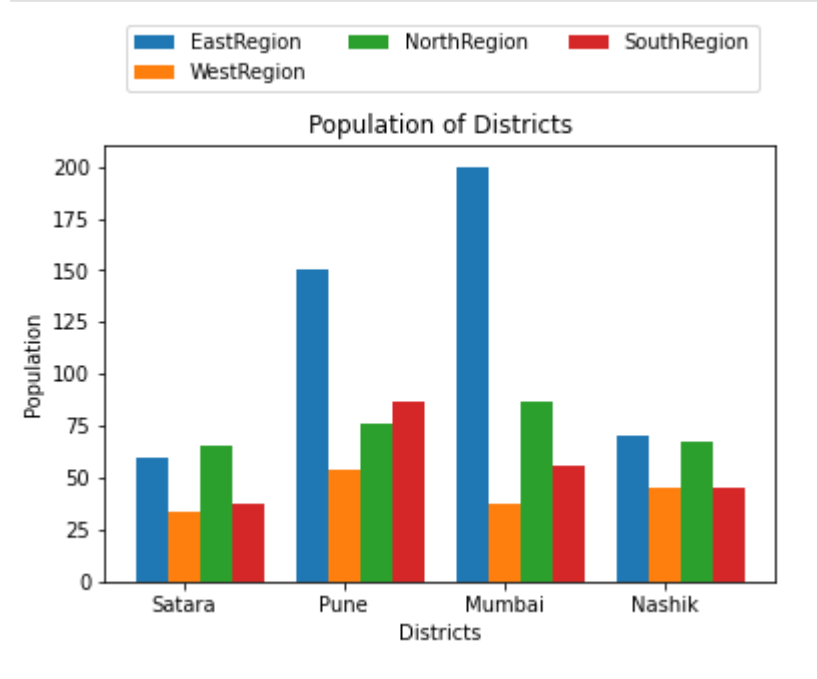
In [61]:

```
# bar plot
dn=['Satara','Pune','Mumbai','Nashik']
pofE=[60,150,200,70]
pofW=[34,54,37,45]
pofN=[65,76,87,67]
pofS=[37,87,56,45]
plt.xlabel("Districts")
plt.ylabel("Population")
plt.title('Population of Districts')
# plt.legend(bbox_to_anchor=(0.72,1.3),ncol=2)
# plt.bar(dn,pofE)
# plt.bar(dn,pofE,align='edge')
plt.bar(dn,pofE,width=0.4)
plt.show()
```



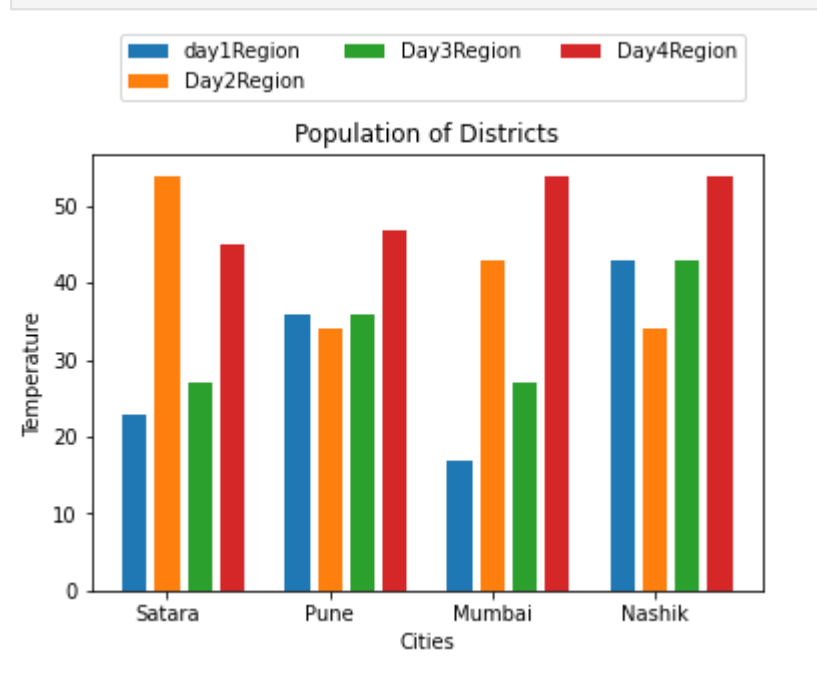
In [80]:

```
dn=['Satara','Pune','Mumbai','Nashik']
pofE=[60,150,200,70]
pofW=[34,54,37,45]
pofN=[65,76,87,67]
pofS=[37,87,56,45]
plt.xlabel("Districts")
plt.ylabel("Population")
plt.title('Population of Districts')
bar1=[2,4,6,8]
plt.bar(bar1,pofE,width=0.4,label='EastRegion')
#for i in bar1:
#    bar2.append(i+0.4)
bar2=[i+0.4 for i in bar1]
plt.bar(bar2,pofW,width=0.4,label='WestRegion')
bar3=[i+0.4 for i in bar2]
plt.bar(bar3,pofN,width=0.4,label='NorthRegion')
bar4=[i+0.4 for i in bar3]
plt.bar(bar4,pofS,width=0.4,label='SouthRegion')
plt.legend(bbox_to_anchor=(0.99,1.3),ncol=3)
plt.xticks(bar2,dn)
plt.show()
```



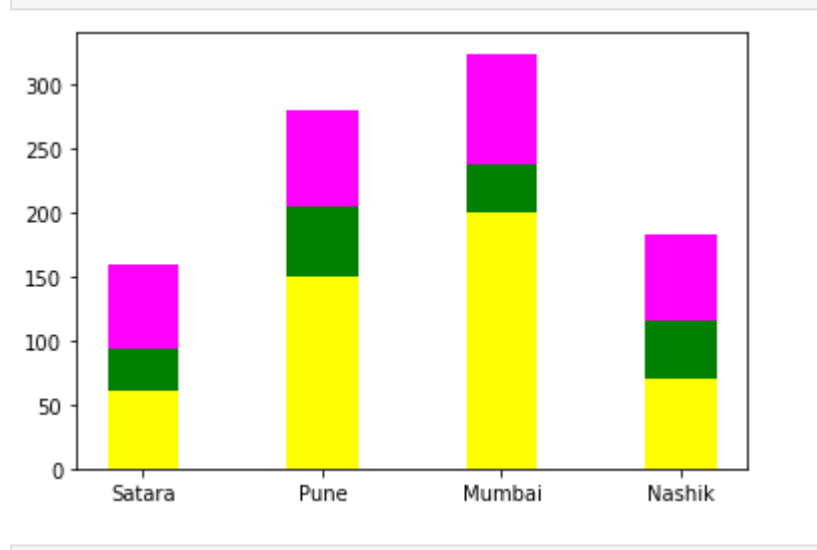
In [90]:

```
cn=['Satara','Pune','Mumbai','Nashik']
day1=[23,36,17,43]
day2=[54,34,43,34]
day3=[27,36,27,43]
day4=[45,47,54,54]
plt.xlabel("Cities")
plt.ylabel("Temperature")
plt.title('Population of Districts')
bar1=[2,4,6,8]
plt.bar(bar1,day1,width=0.3,label='day1Region')
bar2=[i+0.4 for i in bar1]
plt.bar(bar2,day2,width=0.3,label='Day2Region')
bar3=[i+0.4 for i in bar2]
plt.bar(bar3,day3,width=0.3,label='Day3Region')
bar4=[i+0.4 for i in bar3]
plt.bar(bar4,day4,width=0.3,label='Day4Region')
plt.legend(bbox_to_anchor=(0.99,1.3),ncol=3)
plt.xticks(bar2,cn)
plt.show()
```



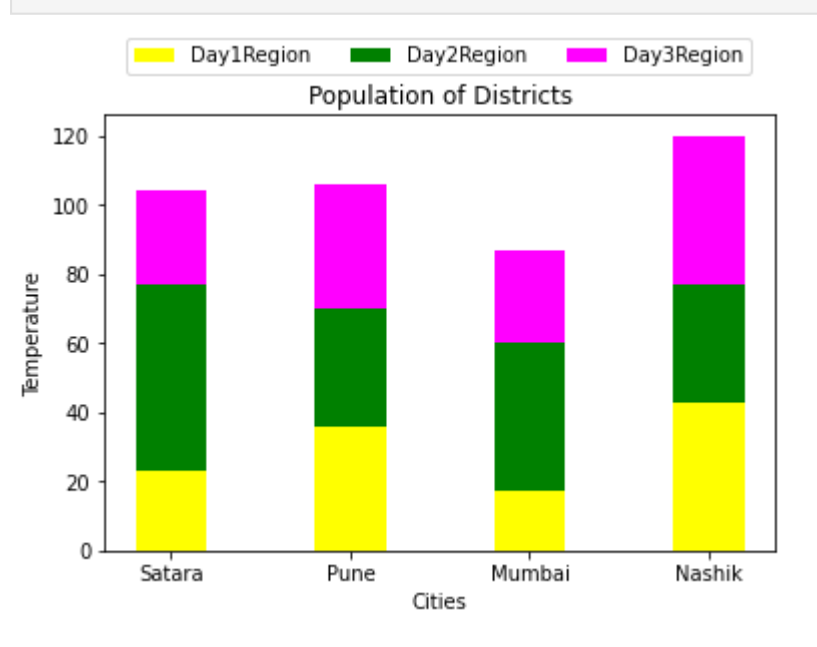
In [98]:

```
# Stacked bar plot
dn=['Satara','Pune','Mumbai','Nashik']
pofE=[60,150,200,70]
pofW=[34,54,37,45]
pofN=[65,76,87,67]
plt.bar(dn,pofE,color='yellow',width=0.4,label='EastRegion')
plt.bar(dn,pofW,bottom=pofE,color='green',width=0.4,label='WestRegion')
bot3=[i+j for i,j in zip(pofE,pofW)]
plt.bar(dn,pofN,bottom=bot3,color='magenta',width=0.4,label='NorthRegion')
plt.show()
```



In [6]:

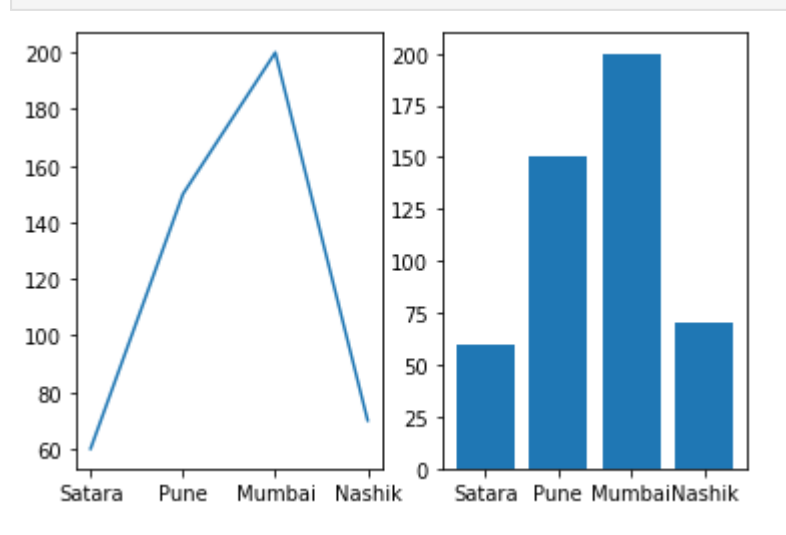
```
cn=['Satara','Pune','Mumbai','Nashik']
day1=[23,36,17,43]
day2=[54,34,43,34]
day3=[27,36,27,43]
plt.xlabel("Cities")
plt.ylabel("Temperature")
plt.title('Population of Districts')
plt.bar(cn,day1,color='yellow',width=0.4,label='Day1Region')
plt.bar(cn,day2,bottom=day1,color='green',width=0.4,label='Day2Region')
bot3=[i+j for i,j in zip(day1,day2)]
plt.bar(cn,day3,bottom=bot3,color='magenta',width=0.4,label='Day3Region')
plt.legend(bbox_to_anchor=(0.98,1.2),ncol=3)
plt.show()
```



In [12]:

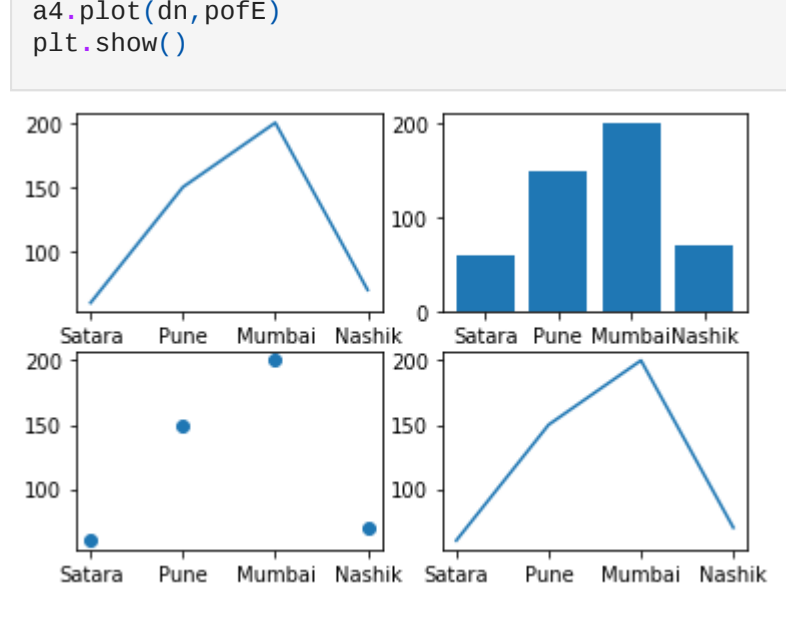
```
dn=['Satara','Pune','Mumbai','Nashik']
pofE=[60,150,200,70]

figure,((a1,a2))=plt.subplots(1,2)
a1.plot(dn,pofE)
a2.bar(dn,pofE)
plt.show()
```



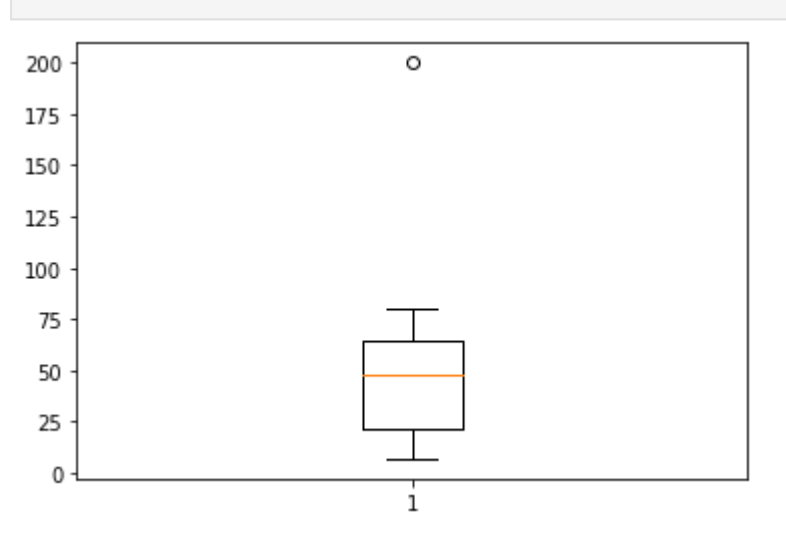
In [14]:

```
# Scatter plot
dn=['Satara','Pune','Mumbai','Nashik']
pofE=[60,150,200,70]
# plt.figure(figsize=(6,8))
figure,((a1,a2),(a3,a4))=plt.subplots(2,2)
a1.plot(dn,pofE)
a2.bar(dn,pofE)
a3.scatter(dn,pofE)
a4.plot(dn,pofE)
plt.show()
```



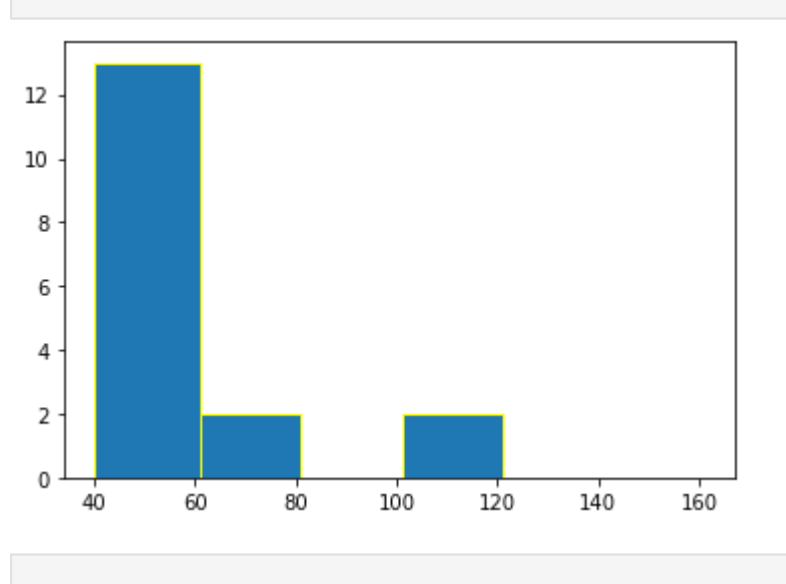
In [25]:

```
# Box plot
values=[50,60,10,25,45,80,7,200]
plt.boxplot(values)
plt.show()
```



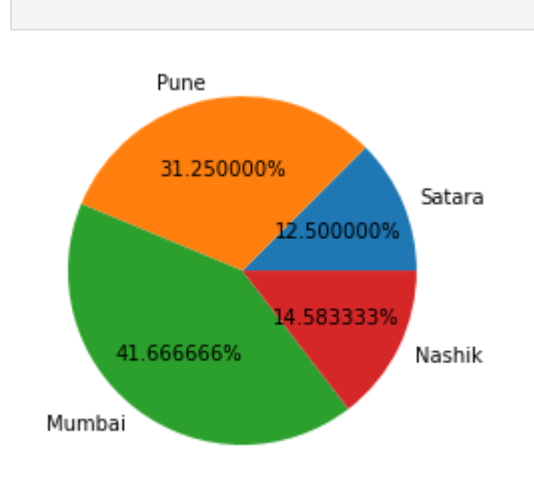
In [36]:

```
# Mode
# Histogram
values=[65,60,56,56,56,40,48,45,60,80,60,110,110,45,45,45,45]
plt.hist(values,ec='yellow',bins=[40,61,81,101,121,141,161])
plt.show()
```



In [40]:

```
# piechart/ peiplot
dn=['Satara','Pune','Mumbai','Nashik']
pofE=[60,150,200,70]
plt.pie(pofE,labels=dn,autopct="%f%%")
plt.show()
```



In [ ]: