Data Visualization (Python Assignment)

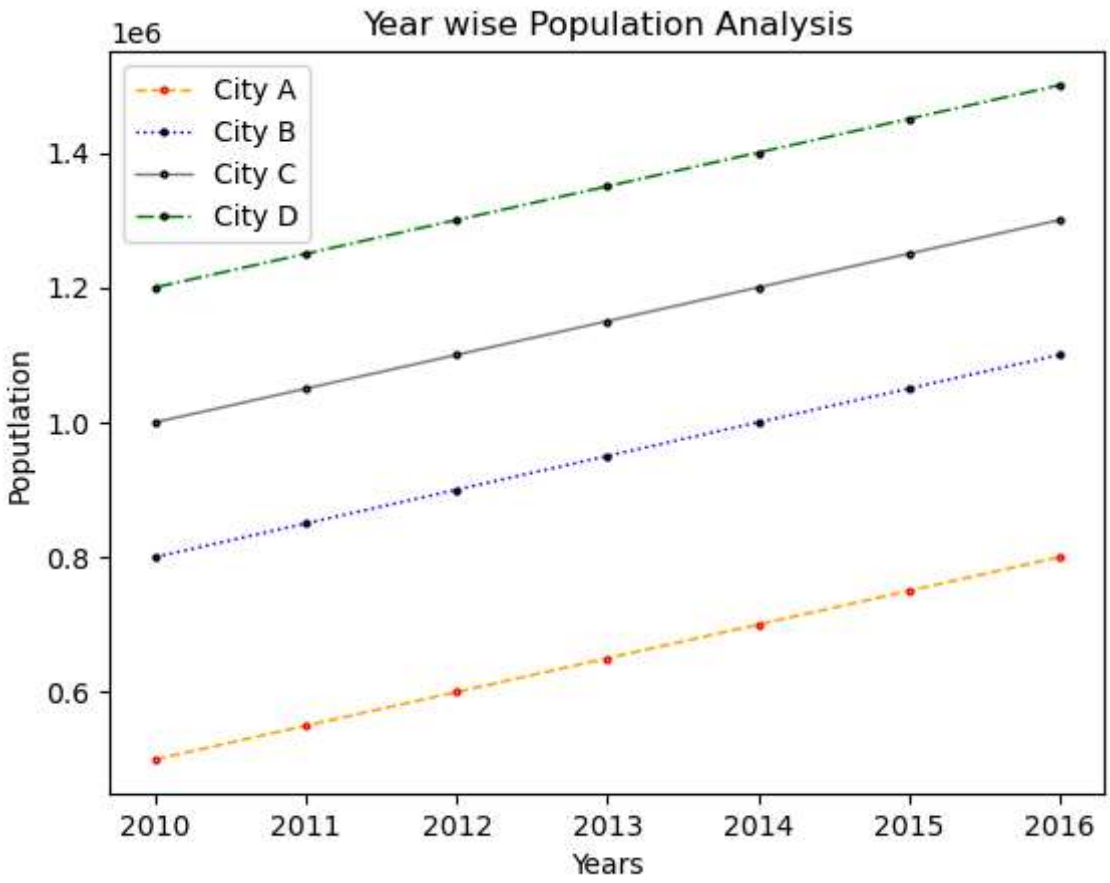
Exercise 1: (Score : 4)

Create a line plot using matplotlib pyplot that displays the population of four different cities over time. Each city should have its own line, and the x-axis should represent years (e.g. 2010, 2011, 2012, etc.) while the y-axis should represent the population.

In [3]:
```
import matplotlib.pyplot as plt
import numpy as np
```

In [5]:
```
CityA=np.array([500000, 550000, 600000, 650000, 700000, 750000, 800000])
CityB=np.array([800000, 850000, 900000, 950000, 1000000, 1050000, 1100000])
CityC=np.array([1000000, 1050000, 1100000, 1150000, 1200000, 1250000, 1300000])
CityD=np.array([1200000, 1250000, 1300000, 1350000, 1400000, 1450000, 1500000])
years=np.array([2010,2011,2012,2013,2014,2015,2016])
```

In [41]:
```
plt.plot(years,CityA,color="orange",label="City A",linewidth=1,linestyle='--', markers
plt.plot(years,CityB,color="Blue",label="City B",linewidth=1,linestyle='dotted', marke
plt.plot(years,CityC,color="Grey",label="City C",linewidth=1,linestyle='-', markersize
plt.plot(years,CityD,color="Green",label="City D",linewidth=1,linestyle='dashdot', mar
plt.xlabel('Years')
plt.ylabel("Poputlation")
plt.title("Year wise Population Analysis")
plt.legend()
plt.show()
```



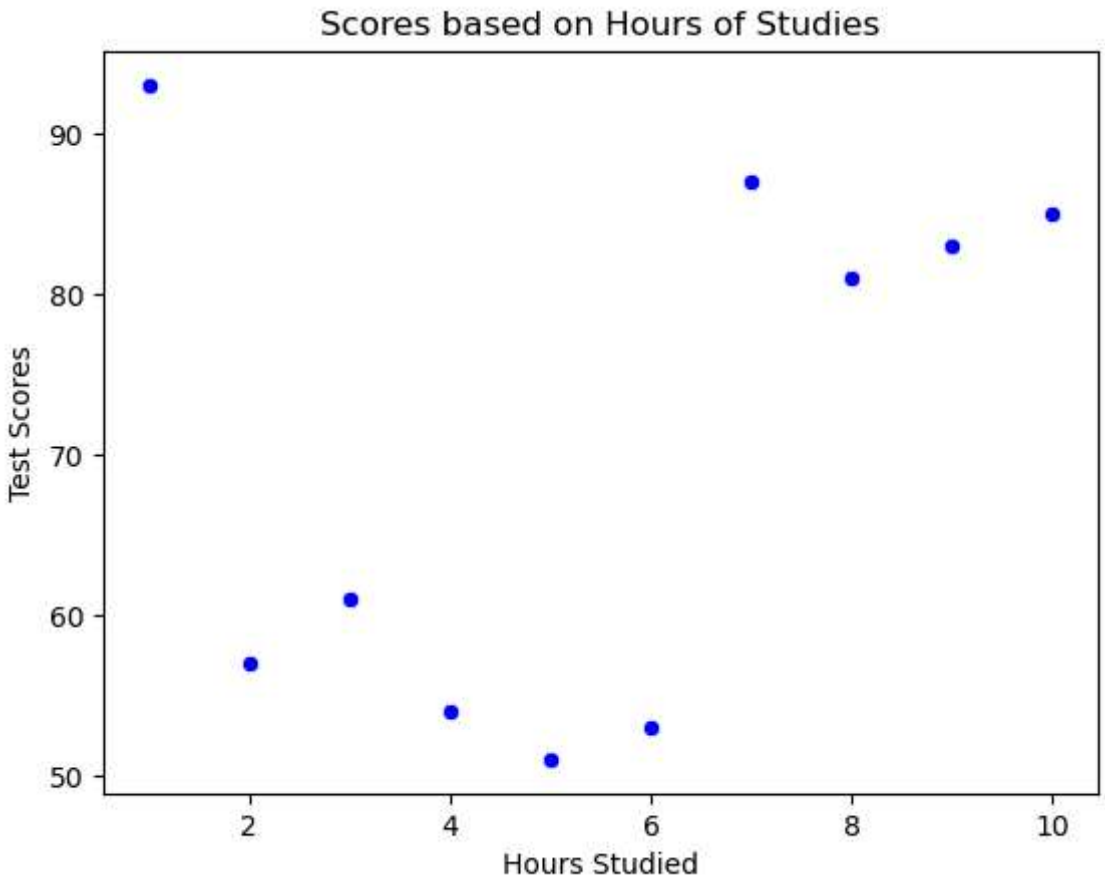
Exercise 2: (Score : 3)

Create a scatter plot using seaborn that shows the relationship between the number of hours studied and the test scores obtained by a group of students. Use the following data:
Hours Studied: [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]
Test Scores: [93, 57, 61, 54, 51, 53, 87, 81, 83, 85]

In [72]:
```
import seaborn as sns
```

In [88]:
```
import seaborn as sns
HS=np.array([1, 2, 3, 4, 5, 6, 7, 8, 9, 10])
TS=np.array([93, 57, 61, 54, 51, 53, 87, 81, 83, 85])
sns.scatterplot(x=HS, y=TS, color="blue")
plt.xlabel("Hours Studied")
plt.ylabel("Test Scores")
plt.title("Scores based on Hours of Studies")
```

Out[88]:
```
Text(0.5, 1.0, 'Scores based on Hours of Studies')
```



Exercise 3: (Score : 3)

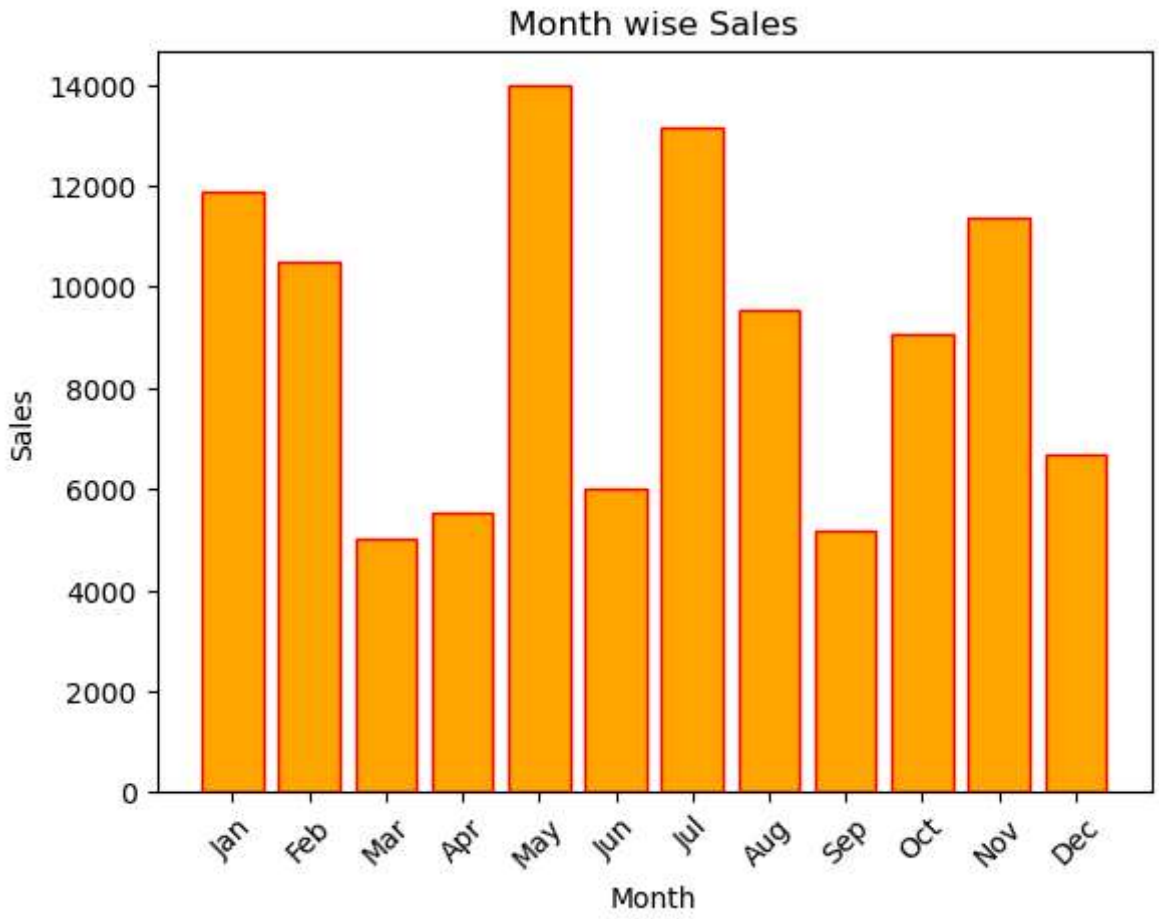
Create a bar chart using matplotlib pyplot that shows the total sales for each month of the year.
Use the following data:
Month: ["Jan", "Feb", "Mar", "Apr", "May", "Jun", "Jul", "Aug", "Sep", "Oct", "Nov", "Dec"]
Sales: [11860, 10480, 4997, 5523, 13965, 6011, 13158, 9533, 5158, 9058, 11346, 6675]

In [116…

```
M= np.array(["Jan", "Feb", "Mar", "Apr", "May", "Jun", "Jul", "Aug", "Sep", "Oct", "No
S=np.array([11860, 10480, 4997, 5523, 13965, 6011, 13158, 9533, 5158, 9058, 11346, 667
plt.bar(M,S,color="Orange",edgecolor='red')
plt.ylabel("Sales")
plt.xticks(rotation=45)
plt.xlabel("Month")
plt.title("Month wise Sales")
```

Out[116]:

```
Text(0.5, 1.0, 'Month wise Sales')
```


Month wise Sales
Sales
14000
12000
10000
8000
6000
4000
2000
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Month

In [ ]: