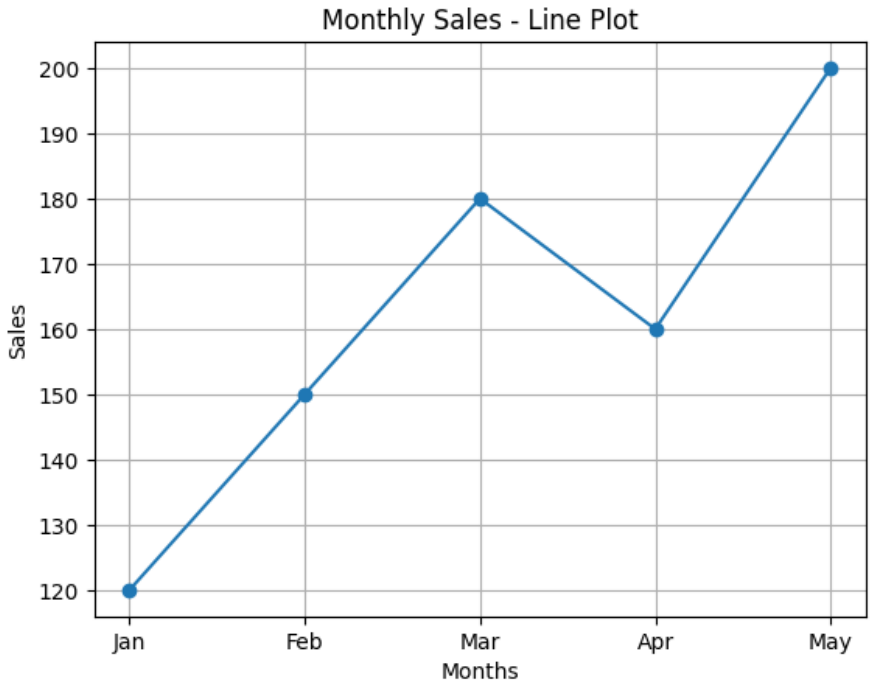
11. Sales Visualization Using Matplotlib

#11)1) Line Plot for Monthly Sales

Program:-

```
import matplotlib.pyplot as plt


months = ["Jan", "Feb", "Mar", "Apr", "May"]
sales = [120, 150, 180, 160, 200]


plt.plot(months, sales, marker='o')
plt.xlabel("Months")
plt.ylabel("Sales")
plt.title("Monthly Sales - Line Plot")
plt.grid(True)
plt.show()
```

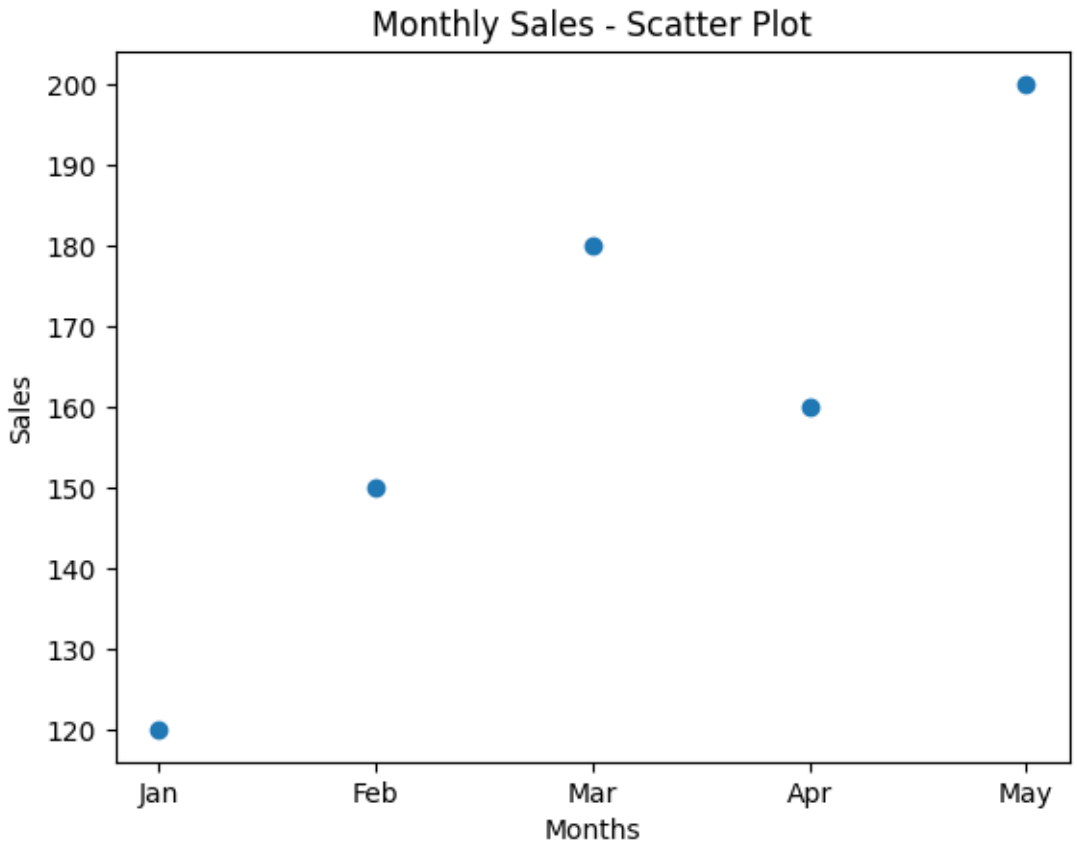
Out put:-



#11)2) Scatter Plot for Monthly Sales**Program:-**

```
import matplotlib.pyplot as plt

months = ["Jan", "Feb", "Mar", "Apr", "May"]
sales = [120, 150, 180, 160, 200]

plt.scatter(months, sales)
plt.xlabel("Months")
plt.ylabel("Sales")
plt.title("Monthly Sales - Scatter Plot")
plt.show()
```

Out put:-

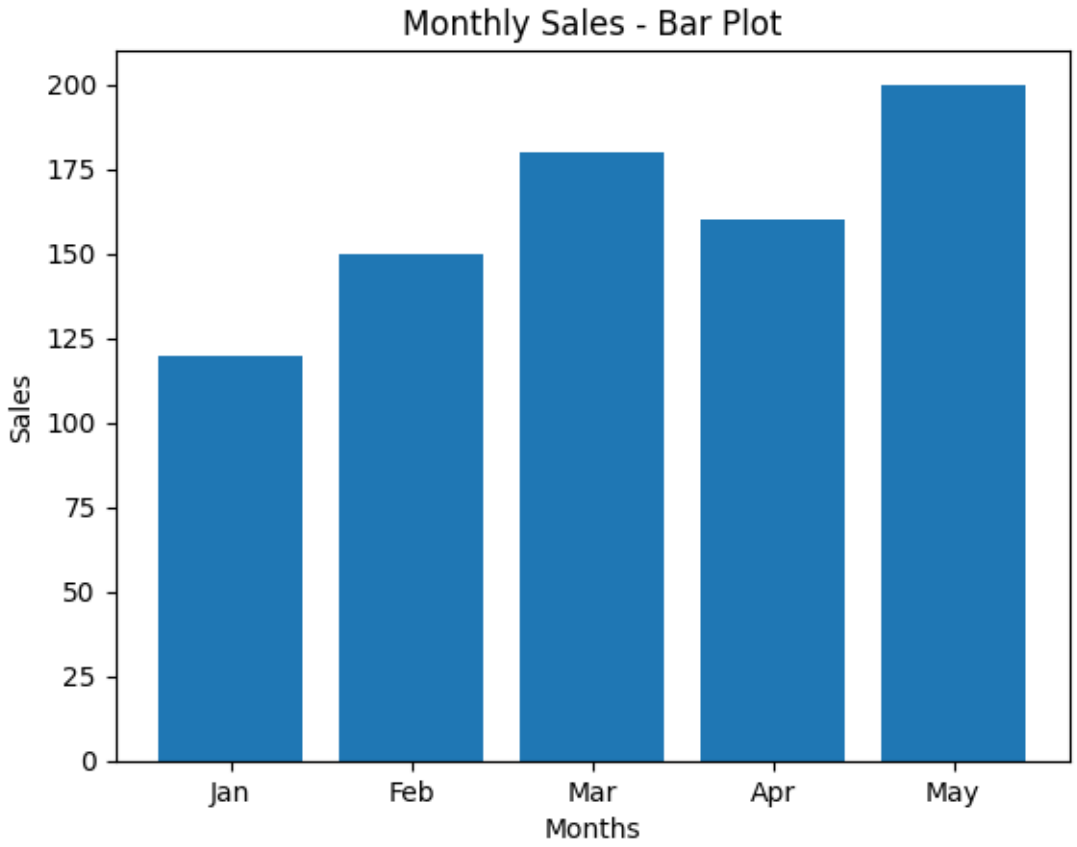


#11)3) Bar Plot for Monthly Sales

Program:-

```
import matplotlib.pyplot as plt

months = ["Jan", "Feb", "Mar", "Apr", "May"]
sales = [120, 150, 180, 160, 200]

plt.bar(months, sales)
plt.xlabel("Months")
plt.ylabel("Sales")
plt.title("Monthly Sales - Bar Plot")
plt.show()
```

Out put:-

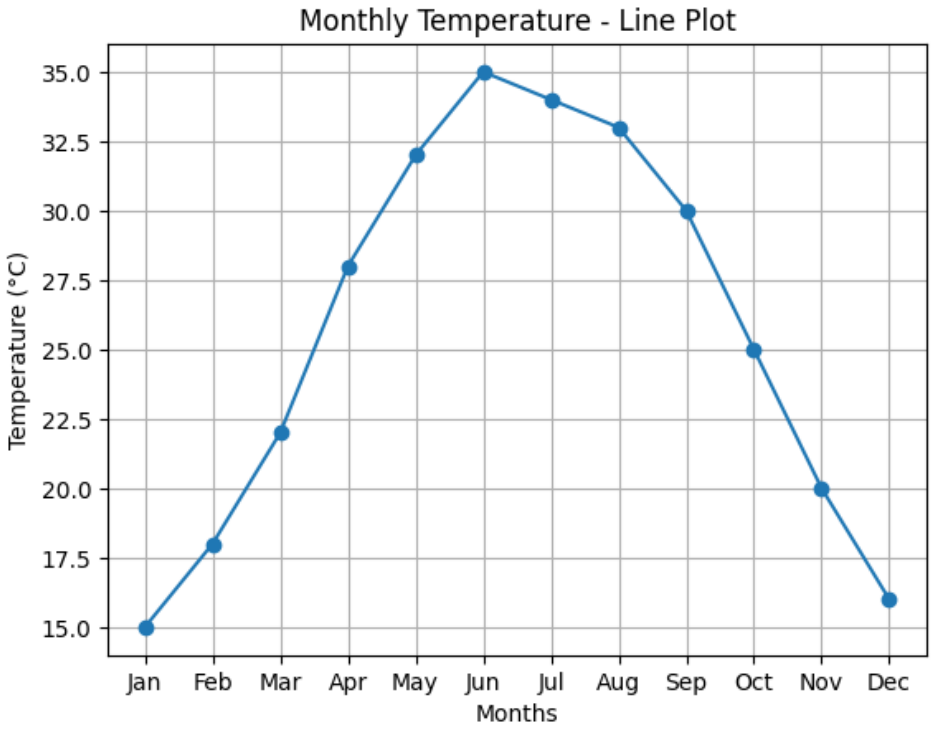


12. Temperature & Rainfall Visualization

#12)1) Line Plot for Monthly Temperature

```
import matplotlib.pyplot as plt

months =
["Jan","Feb","Mar","Apr","May","Jun","Jul","Aug","Sep","Oct","Nov","Dec"]

temperature = [15, 18, 22, 28, 32, 35, 34, 33, 30, 25, 20, 16]


plt.plot(months, temperature, marker='o')

plt.xlabel("Months")

plt.ylabel("Temperature (°C)")

plt.title("Monthly Temperature - Line Plot")

plt.grid(True)

plt.show()
```

Output:-

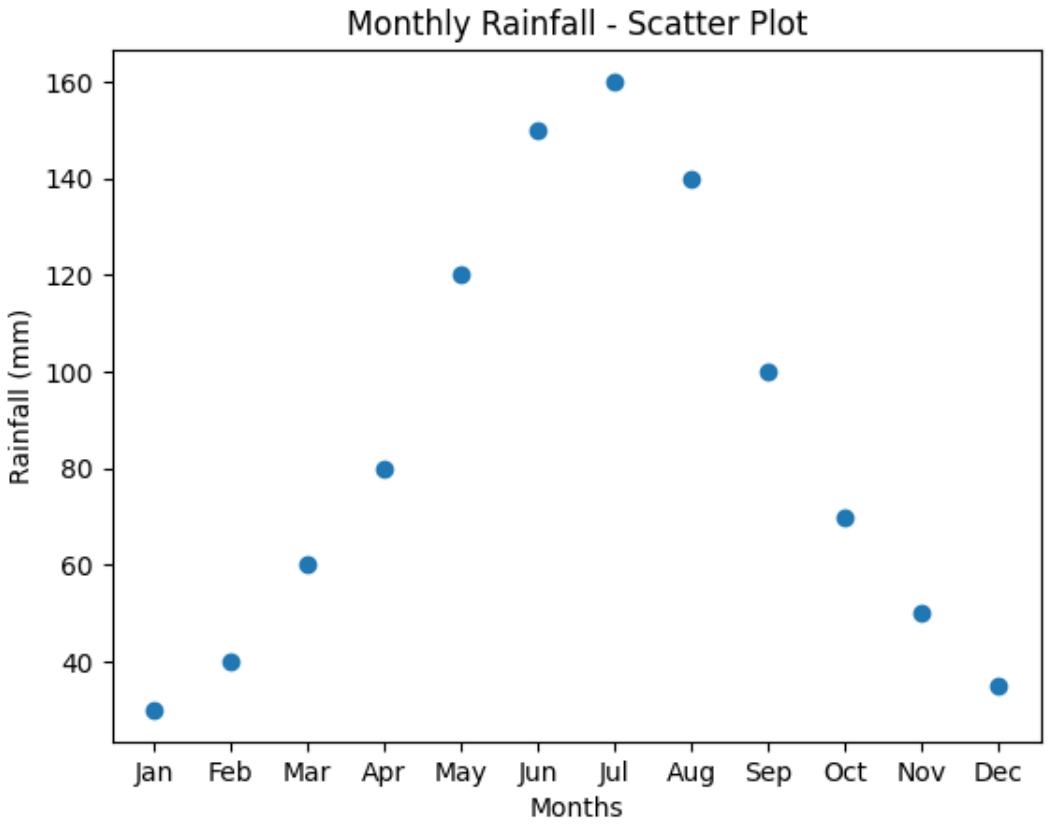


#12)2) Scatter Plot for Monthly Rainfall

Program:

```
import matplotlib.pyplot as plt

rainfall = [30, 40, 60, 80, 120, 150, 160, 140, 100, 70, 50, 35]

plt.scatter(months, rainfall)
plt.xlabel("Months")
plt.ylabel("Rainfall (mm)")
plt.title("Monthly Rainfall - Scatter Plot")
plt.show()
```

Output:-



13. Word Frequency Distribution in Text File

Program:-

```
from collections import Counter
import string
with open("sample_text.txt", "w") as f:
    f.write("This is a sample text file. This file contains sample text.")
file = open("sample_text.txt", "r")
text = file.read().lower()
for p in string.punctuation:
    text = text.replace(p, "")
words = text.split()
freq = Counter(words)
print("Word Frequency Distribution:")
print(freq)
```

Output:-

```
Word Frequency Distribution:
Counter({'this': 2, 'sample': 2, 'text': 2, 'file': 2, 'is': 1, 'a': 1, 'contains': 1})
```

14. Age Frequency Distribution of Customers

Program:-

```
import pandas as pd
customer_data = pd.DataFrame({
    'customer_id': [1,2,3,4,5,6],
    'age': [25, 30, 25, 40, 30, 25]
})
age_frequency = customer_data['age'].value_counts()

print("Age Frequency Distribution:")
print(age_frequency)
```

Output:-

```
Age Frequency Distribution:
age
25    3
30    2
40    1
```

15. Frequency Distribution of Likes on Posts

Program:-

```
import pandas as pd
likes_data = pd.DataFrame({
    'likes': [10, 20, 10, 5, 20, 30, 10, 5]
})
like_frequency = likes_data['likes'].value_counts()

print("Like Frequency Distribution:")
print(like_frequency)
```

Output:-

```
Like Frequency Distribution:
likes
10    3
20    2
5     2
30    1
```