10. Mat plotlib module for Plotting in python

Date:- 24/9/25

Aim:- To analyze the performance of students in different subjects using various charts (line, Bar and Pie) with the help mat plotlib in python.

Algorithm:-

1. Start the program
2. Import the matplotlib and numpy libraries
3. Create a dataset for 5 students and their marks in 3 subjects (maths, science, english)
4. Line Chart:-
   - Plot marks of all students for each subjects
   - Add title, labels, legend and right
5. Bar chart:-
   - calculate average marks for each subject
   - plot a bar char comparing the averages.
6. Pie chart:-
   - Select one student.
   - Plot a piechart showing the percentage of marks in each subject.
   - Add title chart using plt.show().
7. End the program.

Program:-

```
import matplotlib.pyplot as plt
import numpy as np.
#Data
students= ['S1','S2','S3','S4','S5']
```

```
maths = [85, 78, 82, 96, 78, 88]
science = [90, 95, 85, 88, 80]
english = [78, 82, 88, 92, 85]

plt.figure(figsize=(10,6))
plt.plot(students, maths, marker='o', label='maths')
plt.plot(students, science, marker='o', label='science')
plt.plot(students, english, marker='o', label='english')
plt.plot('students performance in different subjects')
plt.xlabel('students')
plt.xlabel('maths')
plt.legend()
plt.grid(True)
plt.show()
avg_marks = [np.mean(maths), np.mean(science),
             np.mean(english)]
subjects = ['maths', 'science', 'english']
plt.figure(figsize=(8,5))
plt.bar(subjects, avg_marks, color=['blue', 'green',
                                    'orange'])
plt.title('Average marks of each
          subject')
plt.ylabel('subjects')
plt.xlabel('Average marks')
plt.grid(axis='y')
plt.show()
```

Input :-

students :- S1, S2, S3, S4, S5

Subjects :- maths, science, English

Marks :

maths = [85, 78, 92, 70, 88]

science = [80, 75, 83, 68, 90]

english = [78, 82, 88, 72, 85]

output :-

- Line chart marks of all 5 students across the 3 subjects.
- Bar chart : comparision of average marks for subject.
- Pie chart : distribution of marks across subjects for student.

plt.me.Cstudent -name, labels = subjects, autopct;
= '%.1f%%', startangle = 90).
plt.title('Percentage of mark for students')
plt.show()

VELTECH	
EX No.	10
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VIVA VOCE (5)	5
RECORD (5)	
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Result:- The program successfully visualized the student performance using.

16/10/25