9/11/25

10. Matplotlib Module for plotting in Python.

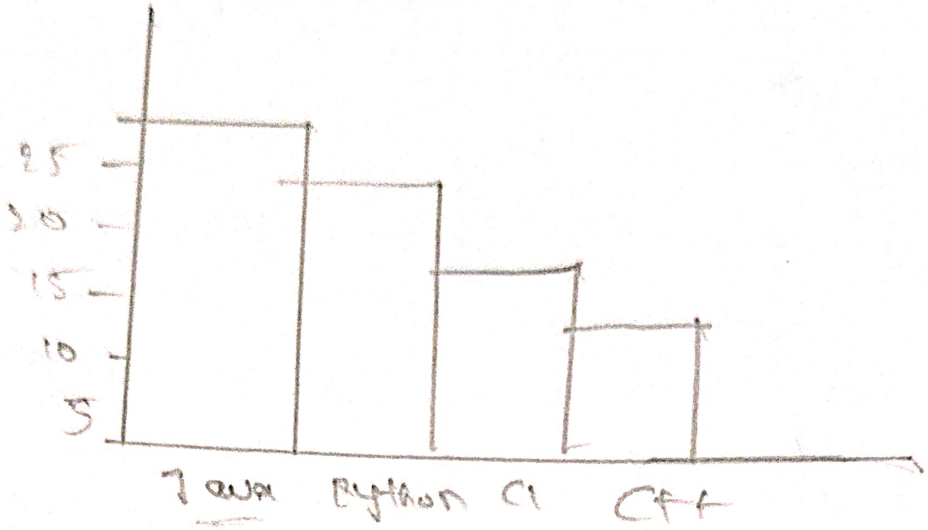
Aim:- To analyze the performance of students in different subjects. using various charts (line, Bar And Pie) with the help matphotlib. in Python.

Algorithm:-

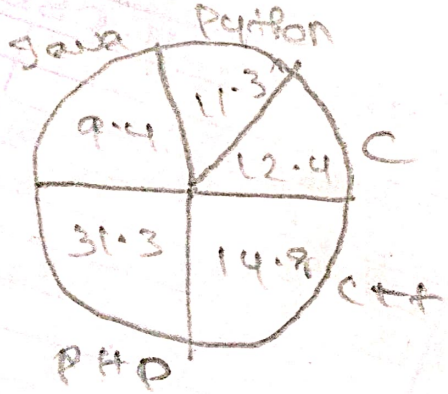
1. Start the Program.
2. Import the matplotlib and numpy libraries.
3. Create a dataset for 5 students and their marks In 3 subjects (Math, Science, English).
4. Line Chart:-
   - Plot Marks of all students for each subject
   - Add little, labels, legend and grid.
5. Bar Chart:-
   - Calculate average marks for each subject.
   - Plot a bar chat comparing the averages.
6. Pie chart:-
   - select one student.
   - Plot a Pie chart showing the percentage of Marks in each subject.
   - Add all 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, 92, 70, 90].
```



Sample Output



```
                    [85, 68, 90]
English = [78, 82, 88, 72, 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('Marks)
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.xlabel('subjects').
plt.xlabel('Average marks').
plt.grid(axis='y').
plt.show().
student1_marks = [maths[0], science[0], english[0]].
plt.figure(figsize=(6,6)).
plt.pie(student_marks, labels=subjects, autopct=
        '%1.1f%%', startangle=90).
```

Input:-

Students : S1, S2, S3, S4, S5

Subjects : Maths, science, English

Marks :

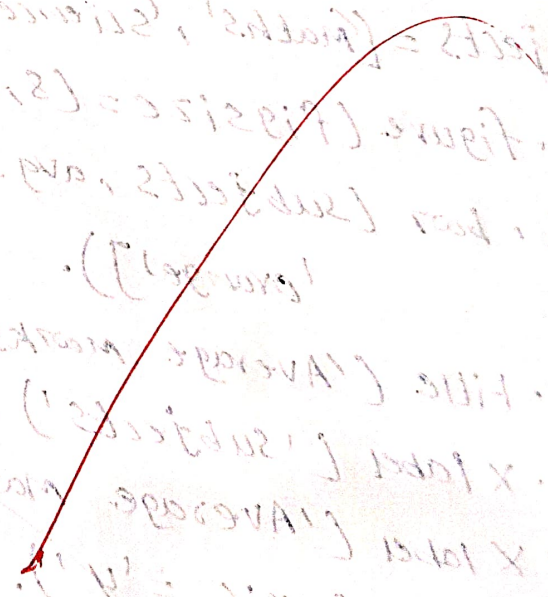
Maths = [85, 78, 92, 70, 88]

Science = [80, 75, 85, 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 per subject.
- Pie chart: Distribution of marks across subjects for student 1.



plt.title('Percentage of marks for student 1')
plt.show().

VLL TECH-CSE	
EX NO.	10
PERFORMANCE (5)	
RESULT AND ANALYSIS (6)	
VIVA VOCE (5)	
R. CORD (3)	
TOTAL (20)	
SIGN WITH DATE	15/10/25

Result:- The program successfully visualized the students performance using:

15/10/25