9.	24/09/25	Implement Exceptions and Exception Handling in python		
10.	24/09/25	Use the Matplotlib Module for plotting in Python		
11.	08/10/25	Use the Tkinter Module for UI design		
12.	08/10/25	Simulate gaming concepts Using pygame		

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15/10

Task-10. Matplotlib module for plotting in Python

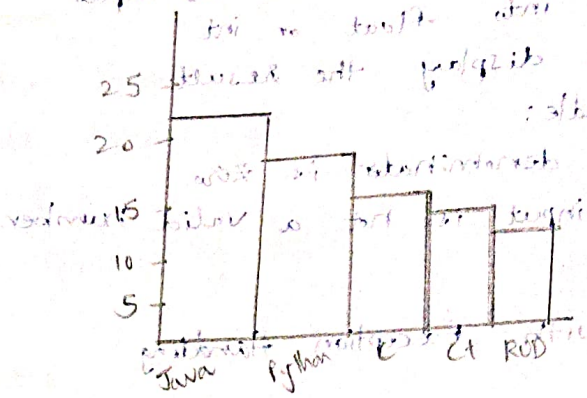
Aim:- To analyze the performance of students in different subjects using various Charts (line, Bar and Pie) with the help matplotlib in python.

Algorithm:-

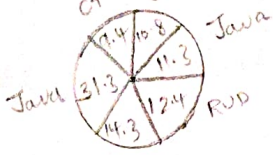
1. Start the program
2. Import the matplotlib and numpy libraries.
3. Create a dataset for 5 students and their marks in 3 subjects (math, science, english).
4. Line chart:
   - Plot marks of all students for each subject
   - Add little, labels, legend and grid
5. Bar chart:
   - Calculate average marks for each subject
   - Plot a bar chart comparing the averages
6. Pie chart:
   - Select one student
   - Plot a pie chart showing the pericentages 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]
science = [80, 75, 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')
```



Sample output:



Input:

Students: S1, S2, S3, S4, S5

Subjects: Maths, Science, English

Marks:

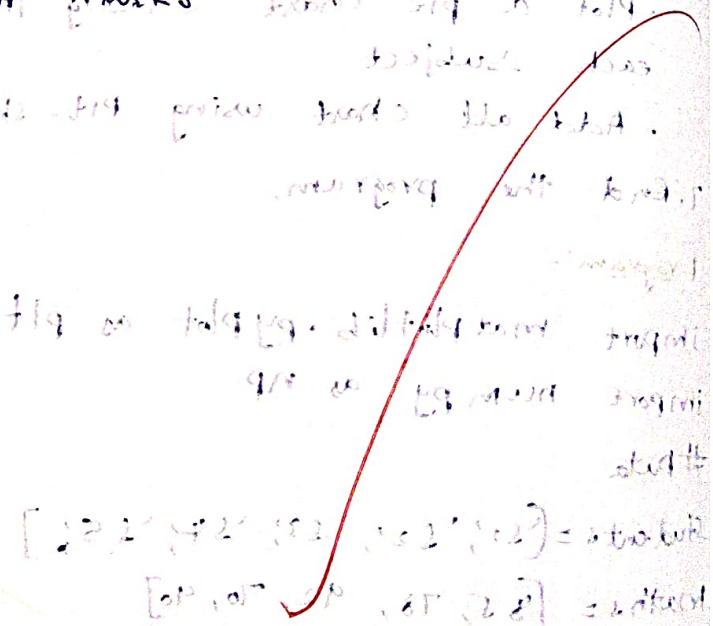
Maths = [85, 78, 92, 70, 88]

Science = [80, 75, 85, 68, 90]

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

Output:

- Line Chart: Marks of all 3 students across the 3 subjec
- Bar chart: Comparison of average marks per subject
- Pie Chart: Distribution of marks across subjects for student 1.



```
plt.xlabel('students')
plt.xlabel('Marks')
plt.legand()
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, label=students, output='%1.1f%%', startangle=90)
plt.title('percentage of marks for students:')
plt.show()
```

VEL TECH - CSE	
EX NO.	10
PERFORMANCE (5)	5
RESULT AND ANALYSIS (5)	5
VIVA VOCE (5)	5
RECORD (5)	—
TOTAL (20)	15
SIGN WITH DATE	

Result:

The program successfully visualized the students performance using matplotlib module.

15/6/25

15/6/25