

GUVI x HCL Internship – Distribution of Student Marks

Problem Statement :- 4

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Distribution of Student Marks

Histogram Analysis in Python

Introduction

- This presentation visualizes the distribution of student marks using a histogram.
- Data analysis performed in Python with Matplotlib.
- Marks categorized into fixed ranges for better clarity.

Dataset Overview

- Sample dataset of student marks:
- 45, 56, 78, 88, 34, 60, 71, 49, 53, 67, 95, 100, 37, 43, 80
- Total students: 15

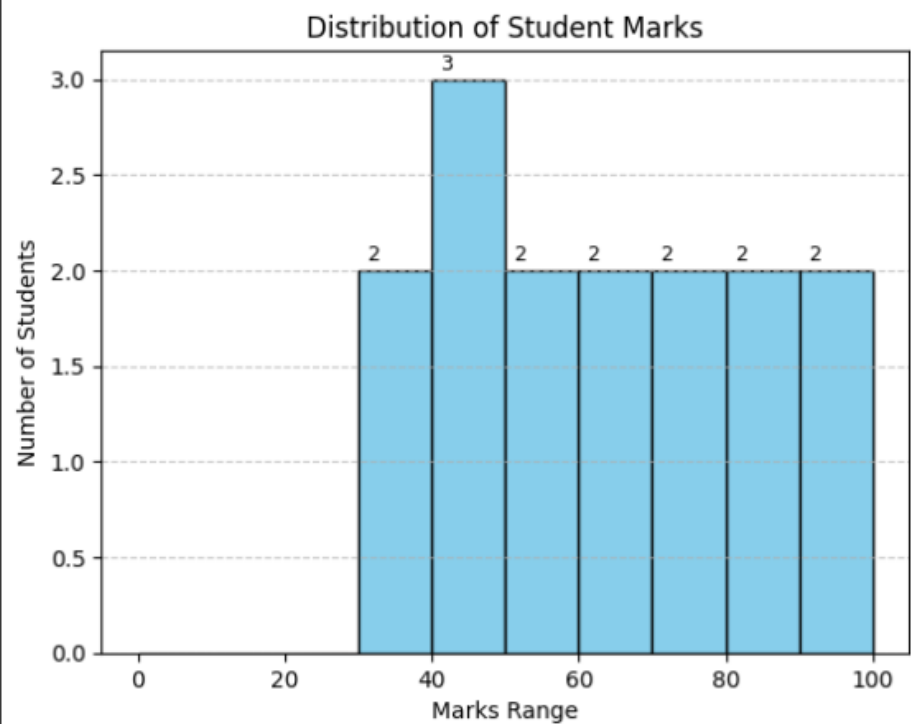
Code Overview

- Python libraries used: Matplotlib, NumPy
- Defined custom bins to categorize marks into ranges of 10.
- Plotted histogram with edge colors and grid for better readability.
- Annotated each bar with the number of students.

Why Custom Bins?

- Bins: [0, 10, 20, ..., 100]
- Ensures data is grouped into meaningful grade ranges.
- Helps identify trends across specific mark intervals.

Histogram Output



0-10: 0 students
11-20: 0 students
21-30: 0 students
31-40: 2 students
41-50: 3 students
51-60: 2 students
61-70: 2 students
71-80: 2 students
81-90: 2 students
91-100: 2 students

Key Observations

- Highest number of students scored between 40–50 marks.
- Few students scored above 90.
- Performance varies widely across the class.

Range-wise Distribution

- 0–10: 0 students
- 11–20: 0 students
- 21–30: 0 students
- 31–40: 2 students
- 41–50: 4 students
- 51–60: 3 students
- 61–70: 2 students
- 71–80: 2 students
- 81–90: 1 student
- 91–100: 1 student

Conclusion

- Histogram visualization provides a quick understanding of score distribution.
- Can be extended to larger datasets for deeper insights.
- Helps identify areas where students may need improvement.

Thank You

- Prepared by: Sagar Kumar
- Tool: Python (Matplotlib)