ASSIGNMENT - 2

SCHOOL OF ENGINEERING AND TECHNOLOGY

SUBMITTED BY : Khushbu Singh
SUBMITTED TO : Sameer Farooq
ROLL NO. : 2501730161
COURSE : B TECH CSE (AI&ML)
SECTION : B
SUBJECT : PYTHON

Mini Project Report – GradeBook Analyzer

1. Introduction

In this project, I created a simple GradeBook Analyzer using Python. The main idea was to make a tool that can take student marks, calculate important stats like average and median, assign grades, and show everything in a clean table. This helps automate the work that teachers usually do manually.

2. Project Summary

The program works through a CLI menu, where the user can either enter student data manually or load it from a CSV file. All names and marks are stored in a dictionary so they can be processed easily.

3. Work Done

Data Input

The program allows both manual entry and CSV import. Marks are saved in a structure like:

```
{"Alice": 78, "Bob": 92, ...}
```

Statistical Analysis

I created functions to calculate:

- Average

- Median

- Highest score

- Lowest score

These values are displayed together in the summary.

Grade Calculation

Based on score ranges, each student gets a letter grade (A–F).
 I also counted how many students fall into each grade category.

Pass / Fail Filter

With list comprehension, I separated:

- Students who passed (>= 40)

- Students who failed (< 40)

Final Output Table

A formatted table shows each student's name, marks, and grade.
 The program also runs inside a loop so the user can perform multiple analyses.

4. What I Learned

Through this project, I practiced:

- Reading data (manual + CSV)

- Using dictionaries

- Writing functions for calculations

- If–else conditions for grade assignment

- List comprehensions

- Formatting output neatly with f-strings

- Building a simple menu-driven program

5. Conclusion

This project helped me understand how Python can be used to organize and analyze real student data. It improved my confidence in writing clean and modular code and also taught me how to show results in a clear, readable way.