COMSATS University Islamabad

Student Grade Management System

Project Report

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Program:

BDS-1A

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1. Introduction

The **Student Grade Management System** is a simple Python-based program designed to calculate and display a student's academic performance. It allows users to input subjects, total marks, and obtained marks, and then generates a summary with the **percentage** and **grade**. The program also provides an option to save the result in a text file for future reference.

2. Purpose of the Project

The purpose of this project is:

- To automate the process of calculating student grades.
- To reduce errors in manual calculations.
- To maintain a record of student results in text files.
- To practice basic Python programming concepts like loops, conditionals, functions, and file handling.

3. Features of the Project

- User-friendly interface with input validation.
- Supports multiple subjects for each student.
- Calculates **total marks**, **percentage**, and **grade**.
- Prevents invalid entries (e.g., negative marks, wrong data types).
- Option to save results as a text file.

4. Functions/Modules Used

- **input()** – To take input from the user.
- **float() / int()** – To convert input into numbers.
- **while loops** – To validate user input.
- **if-elif-else** – To assign grades based on percentage.
- **open() / write()** – To save results in a text file.
- **round()** – To round the percentage to 2 decimal places.

5. Working of the Program

1. **Start the program** – The program displays a welcome message.
2. **Input Student Details** – Name and Roll Number are entered.
3. **Input Subjects & Marks** –
    - User enters the number of subjects.
    - For each subject:
        - Enter subject name (only letters allowed).
        - Enter total marks (positive numbers only).
        - Enter obtained marks (must be between 0 and total marks).
4. **Calculate Results** –
    - Total marks, obtained marks, and percentage are calculated.
    - Grade is assigned based on the percentage:

Percentage	Grade
≥ 90%	A+
≥ 80%	A
≥ 70%	B
≥ 60%	C
≥ 50%	D
< 50%	F

5. **Display Results** – Shows subject-wise marks, total marks, percentage, and grade.
6. **Save Option** – User can choose to save the results as a text file.

6. Menu / Screenshots

6.1 Program Star

```
===== STUDENT GRADE MANAGEMENT SYSTEM =====
Enter Student Name: John Doe
Enter Roll Number: 101
Enter number of subjects: 3
```

6.2 Subject Entry

```
--- Subject 1 ---
Enter Subject Name: Math
Enter Total Marks: 100
Enter Obtained Marks: 90
```

6.3 Result Summary

```
===== RESULT SUMMARY =====
Name: John Doe
Roll No: 101

Subject-wise Marks:
Math : 90 / 100
Physics : 85 / 100
Chemistry : 78 / 100

Total Marks Obtained: 253 / 300
Percentage: 84.33 %
Grade: A
```

6.4 Save Result

```
Do you want to save result in a text file? (yes/no): yes
Result saved in file: 101_result.txt
```

7. Conclusion

The **Student Grade Management System** is an effective tool to calculate student grades and maintain academic records efficiently. It demonstrates basic programming concepts like loops, conditionals, input validation, and file handling. This project can be further enhanced to include:

- GUI interface with Python Tkinter.
- Database support to save multiple student records.
- Automated grade statistics and charts.
