University of Central Punjab

FACULTY OF INFORMATION TECHNOLOGY

Introduction to Computing-LAB

Term Project: Fall-2024

Project Title:

"Student Grade/Results Management System"

Project Overview:

The Student Grade Report Management System (SGRMS) is designed to simulate a system for managing student academic performance, allowing users to efficiently handle various aspects of student records and grades. This system provides a comprehensive solution for entering student information, managing course marks, calculating grades, and maintaining accurate academic records.
Develop a comprehensive C++ program to simulate and manage various aspects of a Student Grade Report Management System. This project will enable students to practice and reinforce their understanding of fundamental programming concepts, including arrays, loops, character arrays, and conditional statements. The system must provide a user-friendly, menu-driven interface to interact with various functionalities.

Objectives and goals:

Our primary goal is to enable you to effectively apply basic programming concepts to create a functional and interactive system. By the end of this project, you will learn;

- How to design and implement a menu-driven system using arrays, loops, and conditional statements.
- Managing and organizing data using simple arrays and character arrays.
- Enhancing problem-solving and debugging skills through hands-on practice.

Features to Implement:

1. **Student Record Management**:
   - Allow students to **enter their roll number** and marks for the following courses:
     - **CS, Math, English, and Physics**.
   - Store the data using arrays and display the entered records.

2. **Update Marks**:
   - Provide an option to **update all course marks** for a student.

- Allow **updating individual course marks** (e.g., CS, Math, English, or Physics).

3. **Delete Marks**:
   - Allow the deletion of a student's marks to reset their record.
4. **Update Roll Number**:
   - Enable the update of a student's roll number while keeping their records intact.
5. **Sort the Data**:
   - Provide an option to sort student data by roll number or total marks.
6. **Search the Data**:
   - Allow searching for a student's record by their roll number.
7. **Find the Grade**:
   - Calculate grades based on the following marks criteria:
     - **90-100**: A
     - **80-89**: B
     - **70-79**: C
     - **60-69**: D
     - **Below 60**: F
   - Display the grades along with the total marks.
8. **Exit**:
   - Provide an option to exit the program gracefully.

Additional Details:

Constraints:

- Use **simple arrays** to store student data (roll numbers, marks, grades).
- Use **character arrays** for strings such as student names or course names if required.
- Implement all logic using **loops** and **if-else statements only**.
- **No built-in or user-defined functions** are allowed.

Expected Output:

- List of students with their roll numbers, marks, total marks, and grades.
- Search results for individual students based on their roll number.
- Updated records after modifying or deleting data.
- Sorted list of students based on roll numbers or total marks.

Deliverables:

- Complete C++ source code for the Student Grade Management System.
- A report explaining the program's structure and functionality.

Evaluation Criteria:

- Completeness and correctness of the implemented features.
- Efficient and readable use of arrays, loops, and conditional statements.
- Creativity in presenting outputs (e.g., tables, neat formatting).
- 20% Marks for submission and 70% Marks for the Viva/Presentation.

Sample Output:

Main Menu

1. Enter Student Record
2. Display All Records
3. Update All Course Marks
4. Update Individual Course Marks
5. Update Roll Number
6. Delete Student Marks
7. Sort Records (by Roll Number or Total Marks)
8. Search Student Record (by Roll Number)
9. Calculate Grade for All Students
10. Exit

Project Marking:

Evaluation Criteria	
Project Submission	**Viva / Presentation**
20%	80%

Best of Luck!