University of Central Punjab

FACULTY OF INFORMATION TECHNOLOGY

Introduction to Computing-LAB

Term Project: Fall-2024

Project Title:

"UCP-Class Timetable & Exam Management System"

Project Overview:

The UCP-Class Timetable & Exam Management System is designed to simulate a system for managing class schedules, exam timetables, and student academic planning. This system provides a comprehensive solution for entering and managing class schedules, exam dates, and ensuring smooth coordination of academic activities.

Develop a comprehensive C++ program to simulate and manage various aspects of the **UCP-Class Timetable & Exam 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. **Class Timetable Management**:
    - Allow the entry of course details and class timings, including:
        - **Course Code, Course Name, Instructor Name, Day, Time, and Room Number**.
    - Maintain a timetable for at least **5 courses**.
    - Display the complete class timetable in a user-friendly format.
2. **Exam Schedule Management**:
    - Allow the entry of exam details, including:
        - **Course Code, Exam Date, Start Time, End Time, and Exam Hall Number**.
    - Store and display the exam schedule for all courses.

3. **Update Class or Exam Details**:
    - Allow updating of class timings, room numbers, or instructors for a course.
    - Allow updating of exam dates, times, or exam halls for a specific course.
4. **Search and Filter Options**:
    - **Search the timetable** by course code or instructor name.
    - **Filter the exam schedule** by date or room number.
5. **Clash Detection**:
    - Detect and notify if there is a conflict in class timings (e.g., two courses scheduled in the same room at the same time).
    - Detect and notify if there is a clash in exam timings for a student.
6. **Generate Reports**:
    - Display the complete class timetable.
    - Display the complete exam schedule.
    - Show a summary of available rooms and instructors.
7. **Exit**:
    - Provide an option to exit the program gracefully.

Additional Details:

Constraints:

- Use **simple arrays** to store course details, class schedules, and exam details.
- Use **character arrays** for strings such as course names, instructor names, and room numbers.
- Implement all logic using **loops** and **if-else statements only**.
- **No built-in or user-defined functions** are allowed.

Expected Output:

- List of all courses and their class timings.
- List of all exams with their schedules and venues.
- Notifications of schedule clashes for classes or exams.
- Search results for specific courses, instructors, or exam schedule.

Deliverables:

- Complete C++ source code for the UCP Class Timetable & Exam 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:

Welcome to UCP-Class Timetable & Exam Management System

1. Display Class Timetable
2. Display Exam Schedule
3. Add/Update Class Timetable
4. Add/Update Exam Schedule
5. Search Timetable or Exam Schedule
6. Detect Schedule Clash
7. Generate Reports
8. Exit

Project Marking:

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

Best of Luck!