Project Title

Learning Management System

Project By:

Saman (23K-6078)

Introduction

Background:

In today's digital age, education systems are evolving rapidly. E-learning platforms provide an alternative to traditional classroom learning by offering flexibility, accessibility, and enhanced student-teacher interaction. This project focuses on developing a simple Learning Management System (LMS) using C++, which applies Object-Oriented Programming (OOP) principles.

Problem Statement:

Traditional classroom systems struggle with limitations such as fixed schedules, limited access to educational content, and lack of interactivity. The challenge lies

in designing an LMS that uses core OOP concepts—encapsulation, inheritance, and polymorphism—to create a scalable, maintainable platform.

Objectives:

- To design and build a C++ console-based application that simulates an LMS.
- To implement OOP concepts practically in the system's development.
- To demonstrate core functionalities like user registration, and quizzes.

Scope of the Project

Inclusions:

- Dual interface system for Students and Teachers.
- Registration and login functionality.
- User authentication system
- Online quiz system with basic evaluation.
- Course selection
- File handling
- Role-based access

Exclusions:

- Real-time video/audio communication.
- Full graphical user interface (GUI).
- Integration with third-party systems or databases.

Project Description

Overview:

This project will develop a basic LMS in C++ that models a two-user system (students and educators) and supports basic learning functions. It will showcase how OOP concepts can be applied to solve real-world problems in education.

Technical Requirements:

- Programming Language: C++
- Tools: Embarcadero Dev C++, Microsoft Visual Studio
- Supporting Material: YouTube tutorials, online OOP documentation

Project Phases:

Research: Study LMS design patterns and features.

Planning: Draft application layout and identify modules.

Design: Use OOP to design classes and inheritance structures.

Implementation: Code each feature iteratively with testing.

Methodology

Approach:

The project will be executed in short weekly iterations. Each stage will be planned and reviewed, focusing on achieving small, testable goals. Agile-like principles will be used to adapt and improve as development progresses.

Team Responsibilities:

- **Saman (23K-6078):**
  - Research LMS structure and user needs
  - Develop registration/login and content management system
  - Implement quizzes and evaluations
  - Test the final application
  - Prepare documentation and presentation

Expected Outcomes

Deliverables:

- A working console-based LMS application in C++
- A final project report documenting all phases
- Simple user instructions for operating the LMS

Relevance:

The project emphasizes basic ICT concepts including digital content management, user access control, and simple programming logic. It supports educational goals by demonstrating how technology can enhance the learning process.

Resources Needed

Software:

- Embarcadero Dev C++
- Microsoft Visual Studio
- Microsoft Word (for documentation)

Other Resources:

- YouTube channels (MUMINJOON, Simplilearn) for coding guidance
- Instructor guidance for C++ implementation queries
- Online C++ reference material (e.g., cppreference.com)