

Project Proposal

Student Management System

Group No 42

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Introduction

This initiative is a Student Management System created in Java that assists educational institutions in securely storing and easily accessing student information. This system would enable the addition, modification, and verification of information regarding and teachers, students, their details, courses subjects, grades, and attendance records. The system allows easy storage and retrieval of information with appropriate speed.

Motivation:

Many educational institutions still write student information by hand. This takes a long time and mistakes can happen easily. To solve this problem, we made a computer program that can manage student records faster and better. We also made this project to learn important Java concepts like OOP. These ideas help us build programs in a neat and smart way.

Important Aspects of Design:

Multiple Java classes are employed to denote objects like a Teachers, Courses, and Students.

The principles of OOP are applied for code reuse and modularity.

Basic text-oriented console interface for straightforward user engagement.

Requirements Analysis and Design

The Student Management System consists of six classes. Each class specify each task in the system.

CLASS 01: Student

Data Requirements

- Data requirements: Student ID, Name, Email, Age, Enrolled Courses

Functional Requirements

- Functional Requirement 1: Add new student
- Functional Requirement 2: Update student information
- Functional Requirement 3: Display student details

CLASS 02: Course

Data Requirements

- Data requirements: Course ID, Course Name, Credit Hours

Functional Requirements

- Functional Requirement 1: Add and remove courses
- Functional Requirement 2: Display course list
- Functional Requirement 3: Assign students to courses

CLASS 03: Teacher

Data Requirements

- Data requirements: Teacher ID, Name, Assigned Courses

Functional Requirements

- Functional Requirement 1: Add teacher details
- Functional Requirement 2: Assign teacher to course
- Functional Requirement 3: View teacher information

CLASS 04: Grade

Data Requirements

- Data requirements: Student ID, Course ID, Marks

Functional Requirements

- Functional Requirement 1: Add student grades
- Functional Requirement 2: Calculate and display average marks
- Functional Requirement 3: Display student performance report

CLASS 05: Attendance

Data Requirements

- Data requirements: Student ID, Course ID, Attendance Percentage

Functional Requirements

- Functional Requirement 1: Record attendance
- Functional Requirement 2: View attendance by course
- Functional Requirement 3: Display student attendance summary

CLASS 06: Main

Functional Requirements

- Functional Requirement 1: Display main menu options
- Functional Requirement 2: Handle user inputs
- Functional Requirement 3: Connect all other classes and their functions

Teamwork

Members	Tasks Description
Member 1	Designed and implemented Student and Course
Member 2	Developed Teacher and Grade functionalities
Member 3	Created Attendance and Main classes, integrated all feature

All the members are participating in coding, developing and testing this design project and understanding very well.