

Problem Statement: Educational Institution Management System

The project overview is to develop a Java application to manage individuals in an educational institution.

The system should handle the following roles of the institution.

Functionalities like addition, id-duplication, specific format of id between teacher and staff ,displaying the role-specific functionalities.

Creating 4 different classes for each roles like student, teacher ,staff and management to access all entities.

CLASS STUDENT

The student class consists of its attributes like

- | | |
|----------|-------------|
| 1.name | 4. Subjects |
| 2.id | 5.grades |
| 3.course | 6. Credits |

The student id is checked for duplication in the arraylist if yes duplicate message displayed.

The functionality also include calculating the gpa by taking grades and corresponding credits for each subject . The score is converted into a grade point which is then multiplied by the subject's credit which in turn is divided by the total credits of all subjects to derive the GPA. If no credits are assigned, the GPA defaults to 0.

Displaying the all student details.

CLASS TEACHER

The teacher class consists of its attributes like:

1. Name
2. ID
3. Salary
4. Subjects taught

The teacher ID is validated to ensure it is unique and follows a specific format. Like teacher id begins with “t” in the front and It should be between 1-500. More than , “teacher id doesn’t exist message displayed”.

The functionality includes assigning multiple subjects to the teacher. The class also provides a method to display all the teacher's details, including their ID, name, salary, and the list of subjects they teach.

CLASS STAFF

The staff class consists of its attributes like:

1. **Name**
2. **ID**
3. **Role**
4. **Department**

The staff ID is validated to by checking the conditions like

Must begin with , ‘s’ should be between 1-300 .when a teacher id given or a number it gives a error message.

Duplication of id is also checked .

The functionality includes storing staff-specific details and providing a method to display their ID, name, role, and department.

CLASS MANAGEMENT

The Management class is the main controller for the educational institution system. It manages the above classes.