

**UNIVERSITY OF BUEA**

**FACULTY OF ENGINEERING AND TECHNOLOGY**

**DEPARTMENT OF COMPUTER ENGINEERING**

**CEF 691 - ADVANCED OOP**

**DESIGN AND IMPLEMENTATION OF  
ATTENDANCE MANAGEMENT SYSTEM**

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## Class Diagram Implementation

The attendance management system consists of three main users; Administrator, Instructor and Students. Administrators are responsible of managing courses and course schedules(timetable). Instructors on the other hand can lecture in one or more courses while a student enrolls in one or more courses. Each course has a schedule which specifies the time of the lecture, the location and the course being scheduled. Each schedule has a list of students who attended and the instructor can generate an attendance report from this. The attendance report is generated from the list of students enrolled in a course and the list of students who attended the lecture. This is described in the class diagram below

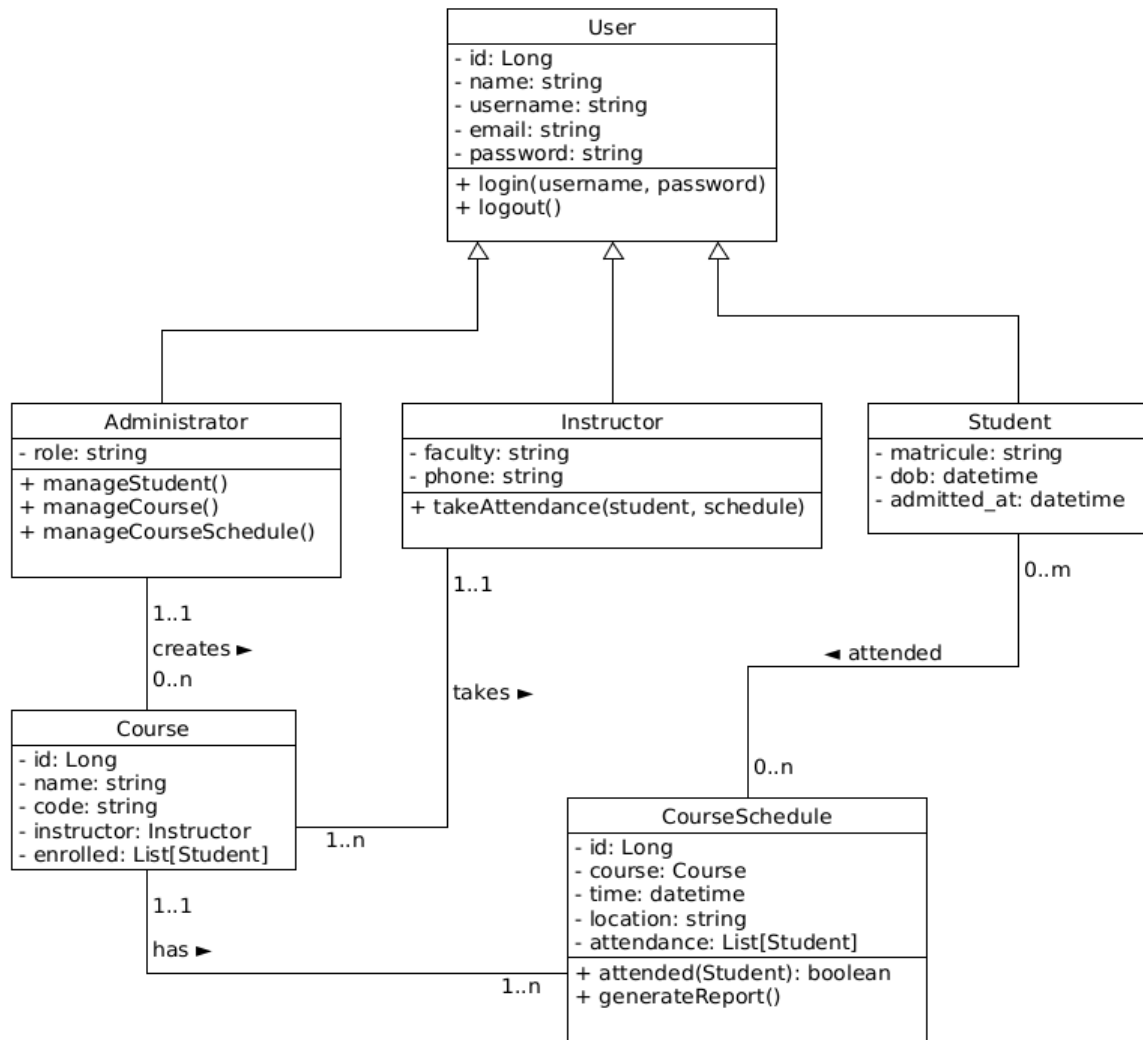


Figure 1: Class Diagram of Attendance Management System

## Implementation in Java

Below are code spinets of the class diagram in Figure 1 above implemented in Java:

```
public class User {  
    private String name, username, email, password;  
    public User(String name) { this.name = name; }  
}  
  
public class Student extends User {  
    private String matricule; private Date dob;  
    public Student(String name) { super(name); }  
}  
  
public class Instructor extends User {  
    private String phone;  
    public Instructor(String name) { super(name); }  
    public void takeAttendance(Student student, CourseSchedule schedule) { }  
}  
  
public class Course {  
    private String name, code; private Instructor instructor;  
    private ArrayList<CourseSchedule> schedules;  
    private ArrayList<Student> enrolledStudents;  
    public Course(String name, String code, Instructor instructor) { }  
}  
  
public class CourseSchedule {  
    private Course course;  
    private Date date;  
    private String location;  
    private ArrayList<Student> students; // students who were present for the course  
    public CourseSchedule(Course course, Date date, String location) { }  
    public boolean attended(Student student) { // check if student attended this class }  
    public void generateReport() { // shows students who we present and absent }  
}
```