

Next-Gen Student Management System

Batch no: 02

Project Guide:

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Abstract

The Next-Gen Student Management System (Next-Gen SMS) is an essential tool for modern educational institutions seeking to optimize their learning operations and provide students with a seamless, technology-driven academic journey. It serves as a centralized hub where students can create, update, and manage their profiles efficiently. The system provides a user-friendly interface for students to register and access personal information, enrolled courses, and learning progress etc.

Project Title Justification

The Next-Gen Student Management System enhances the learning experience by providing a streamlined interface for accessing courses and efficiently managing student data. It gives Enhanced Learning experience with access to learning resources like ebooks and course materials, students can engage in self paced learning.

Introduction

- Educational institutions handle vast amounts of student data, including personal information, academic records, attendance, assignments, and exam results.
- Effective management ensures smooth academic operations, accurate data handling, and improved decision-making.
- A dedicated system enhances communication between students, teachers, and administrators.
- It also helps track student progress, generate reports, and maintain a secure database.

Object and Scope of the Project

Object of the Project

- Monitor Attendance Analytics
- Track Marks and Performance
- Stay Updated on Upcoming Exams & Tasks
- Manage Course Journey
- Showcase Achievements
- Update Profile & Skills

Scope of the Project

- Complex AI-based recommendations for course selection
- Financial management, including fee payments and invoices.
- Offline access to the platform.

Basic concepts related to your Project

Key features include:

- **Course Enrollment** – Students can browse and enroll in courses.
- **Internship Certificate Submission** – Upload and manage certificates for verification.
- **Achievements Showcase** – Display awards, certifications, and extracurricular accomplishments.
- **Profile Management** – Update personal and academic details independently.

Analysis and Explanation of the Identified Problem

- Many portals have complex, non-intuitive interfaces that are difficult for students to navigate.
- Students waste valuable time searching for course materials, assignments, or announcements.
- Other LMS portals often provide delayed feedback on assignments and assessments.
- Without immediate feedback, students cannot learn from their mistakes in a timely manner.

Technology Stack

- Backend: Django (Python)
- Frontend: Django Templates
- Database: MySQL
- API Integration: Django REST Framework
- Analytics: Recharts
- UI/UX: Bootstrap, CSS

Software Requirement Analysis

Functional requirements:

For a Next-Gen Student Management System project, functional requirements include functionalities like student registration, course management, attendance tracking, grade management, and report generation, ensuring the system effectively manages student data and academic processes.

Here's a more detailed breakdown of functional requirements for a Student Management System:

1. Core Student Management:

- **Student Registration/Enrollment:** Allowing administrators to register new students with necessary details (name, ID, contact information, etc.). Enabling students to register for courses and programs.
- **Student Information Management:** Storing and updating student personal information. Managing student address, contact details, and other relevant data.

- **Course Management:** Assigning students to specific courses.
- **Attendance Tracking:** Recording and managing student attendance for each course. Generating attendance reports.
- **Grade Management:** Entering and updating student grades for each course. Generating and displaying grade reports.
- **Reporting:** Generating various reports, including student lists, attendance records, grade reports, and other relevant data.

2. Exam Management:

- **Exam Scheduling:** Allowing administrators to schedule exams for different courses and programs. Assigning exams to specific students.
- **Mark Evaluation:** Entering and managing exam marks for each student. Calculating and displaying final grades.

3. Fees Management:

- **Fee Structure:** Managing fee structures for different programs and courses. Allowing students to view their fee dues.
- **Payment Processing:** Enabling students to make fee payments online or offline. Tracking fee payments and generating receipts.

4. User Roles and Permissions:

- **Administrator:** Managing users, roles, and permissions. Accessing all system functionalities.
- **Faculty/Teachers:** Accessing and managing their assigned courses. Entering grades and attendance.
- **Students:** Accessing their personal information and grades. Registering for courses.

5. Additional Features:

- **Communication:** Allowing communication between students, teachers, and administrators (e.g., through announcements, emails, or a messaging system).
- **Library Management:** Managing library resources and student access.
- **Event Management:** Managing school events and activities.
- **User Authentication:** Providing secure login and authentication for users.

Nonfunctional requirements

1. Performance

It can handle at least 1000 concurrent users without performance degradation.

2. Security

Passwords must be encrypted using secure hashing

3. Scalability

Increasing number of students, teachers, and courses.

4. Data Integrity

Prevent duplicate entries and invalid relationships.

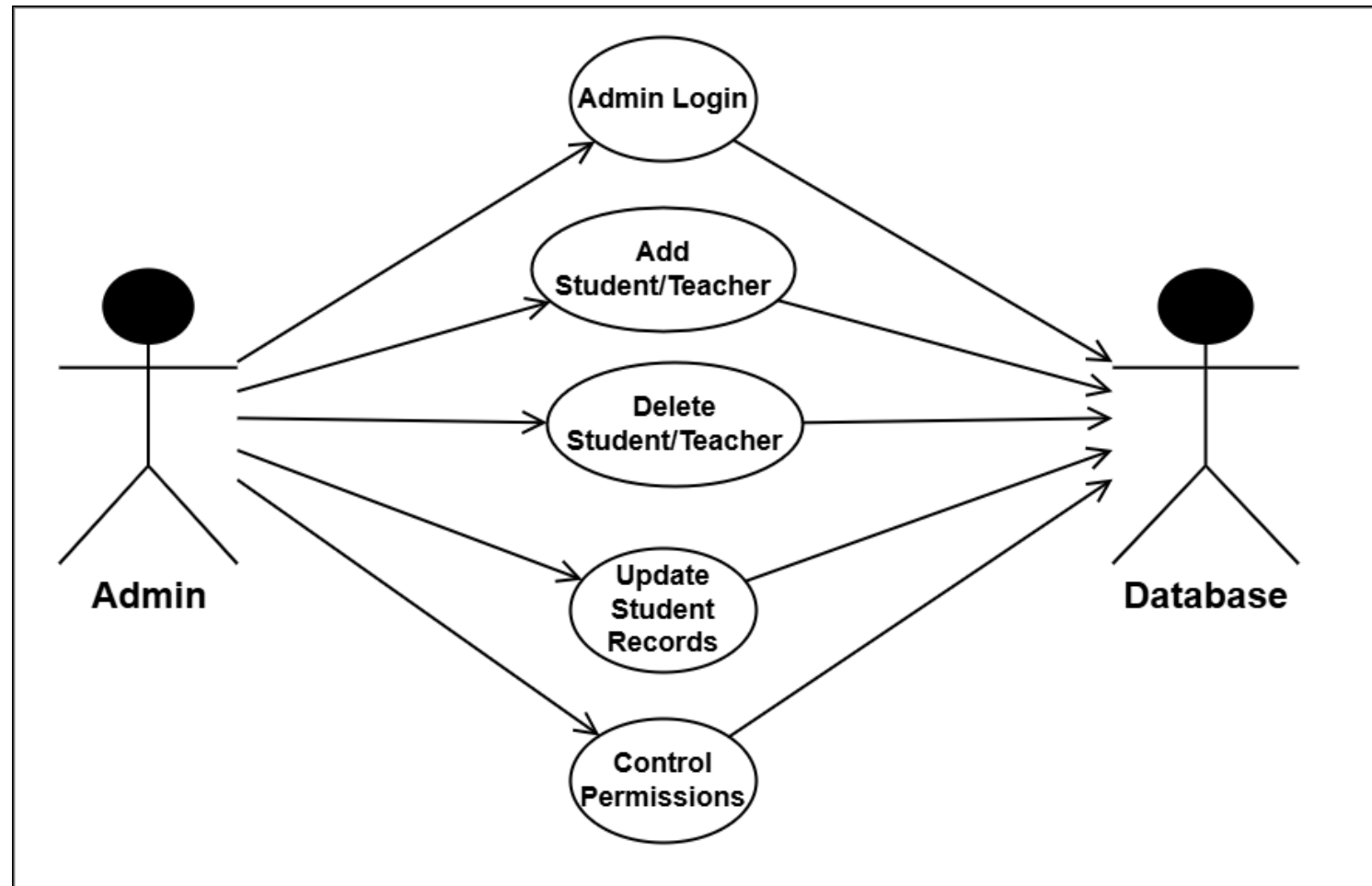
5. Backup and Recovery

Enable automated backups.

Software Design

**Use Case
Diagram:**

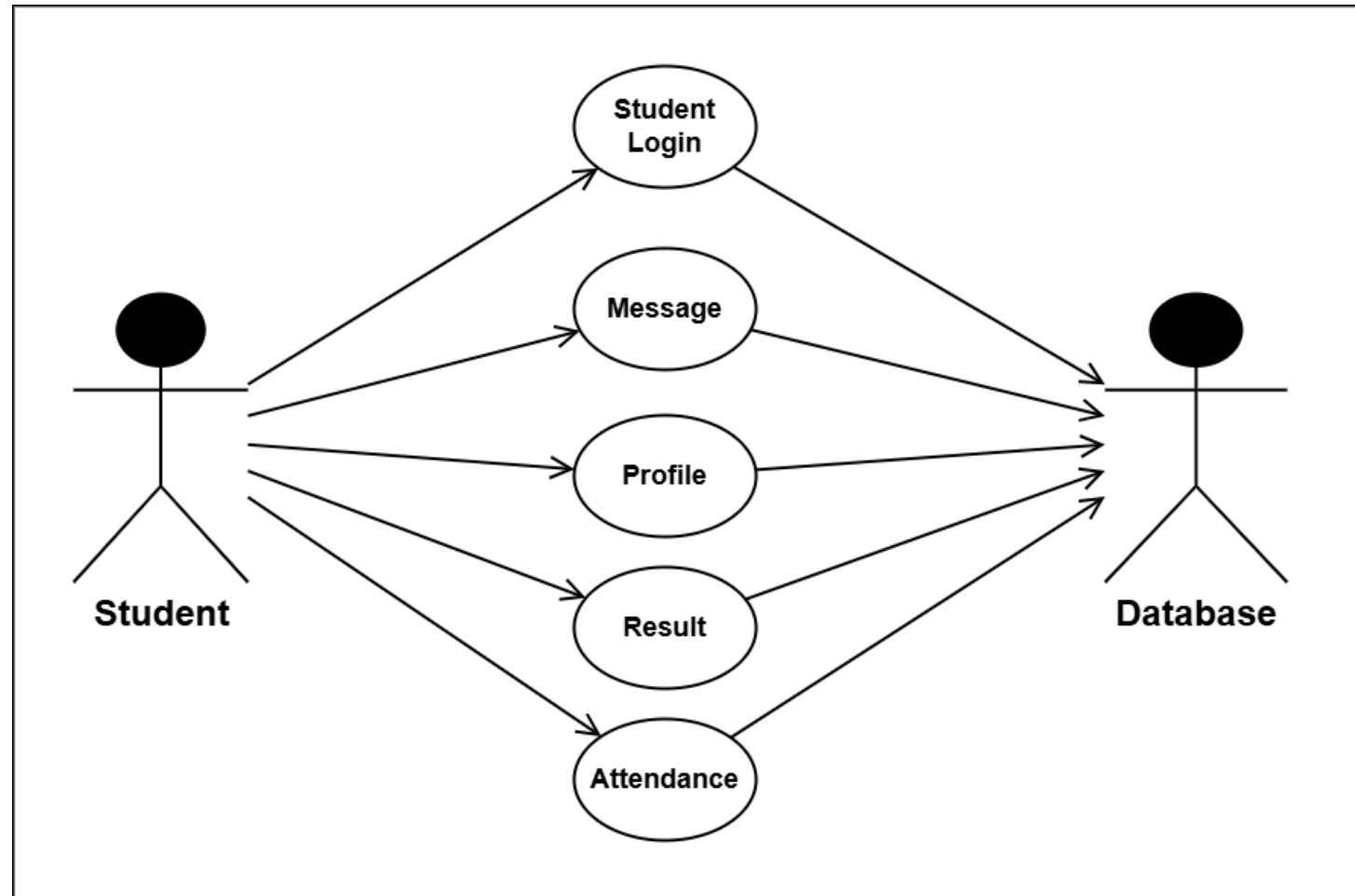
**For
Admin:**



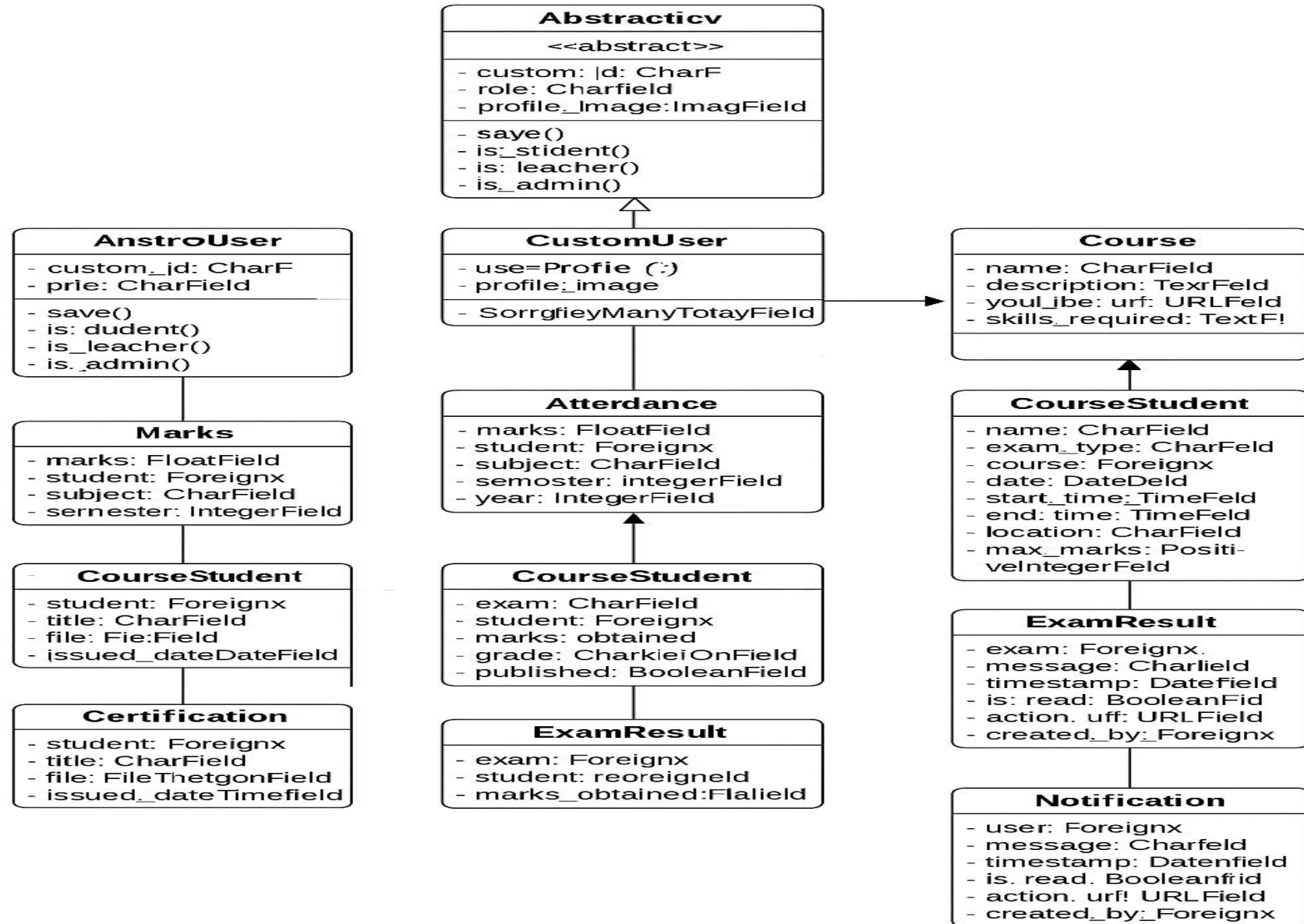
Software Design

**Use Case
Diagram:**

**For
Student:**

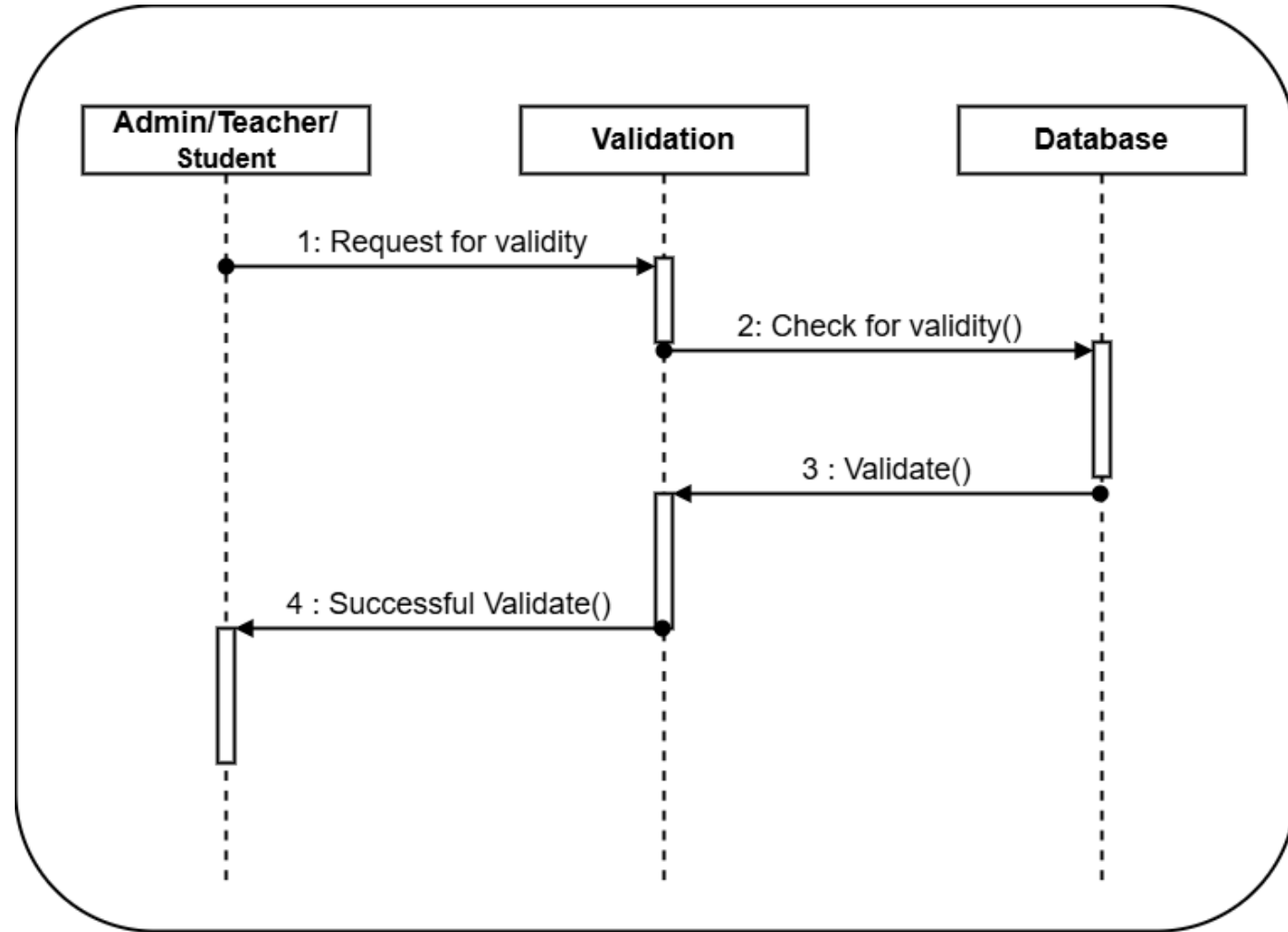


Class Diagram:



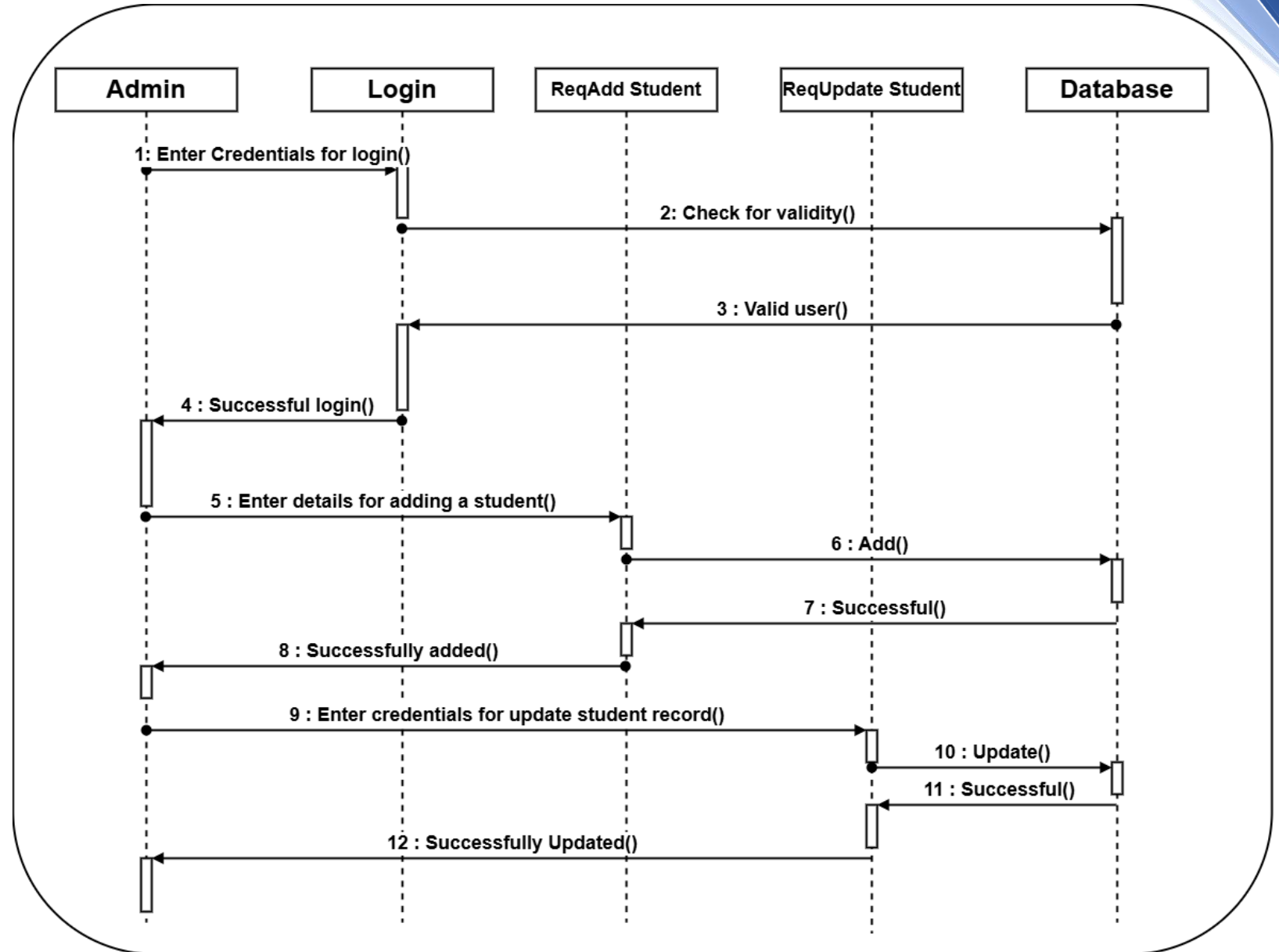
Sequence Diagram:

For Validity:



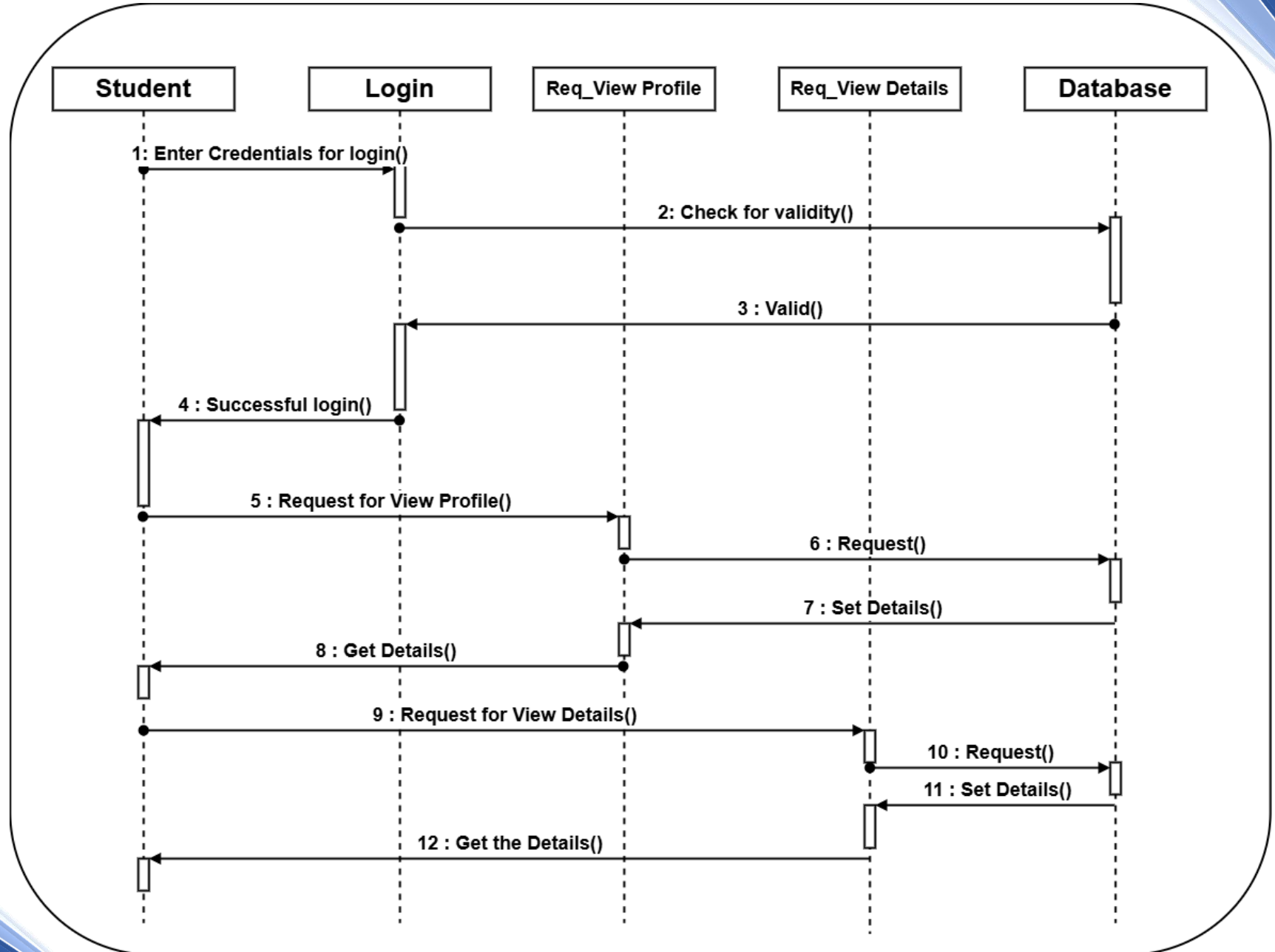
Sequence Diagram:

For Admin:

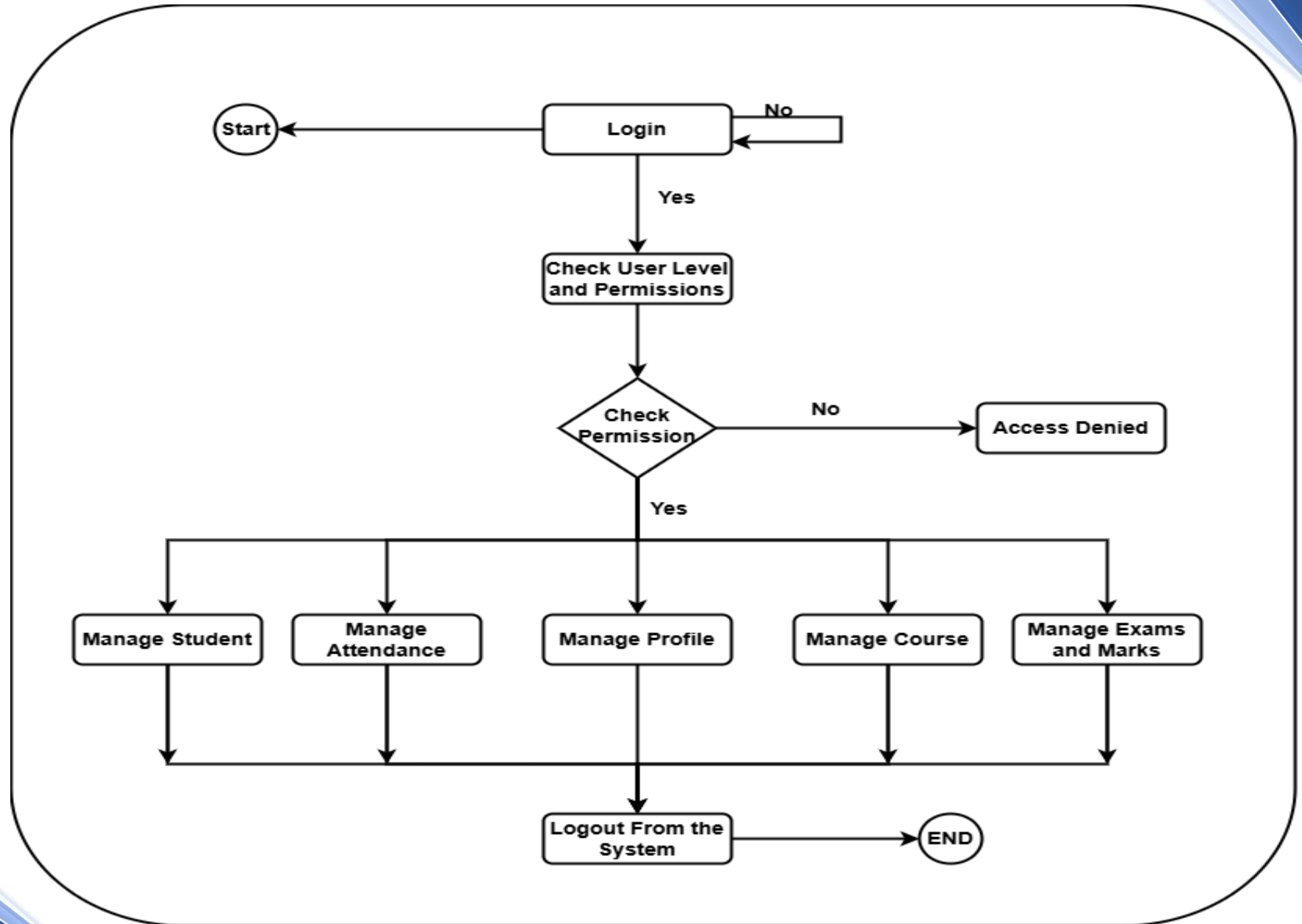


Sequence Diagram:

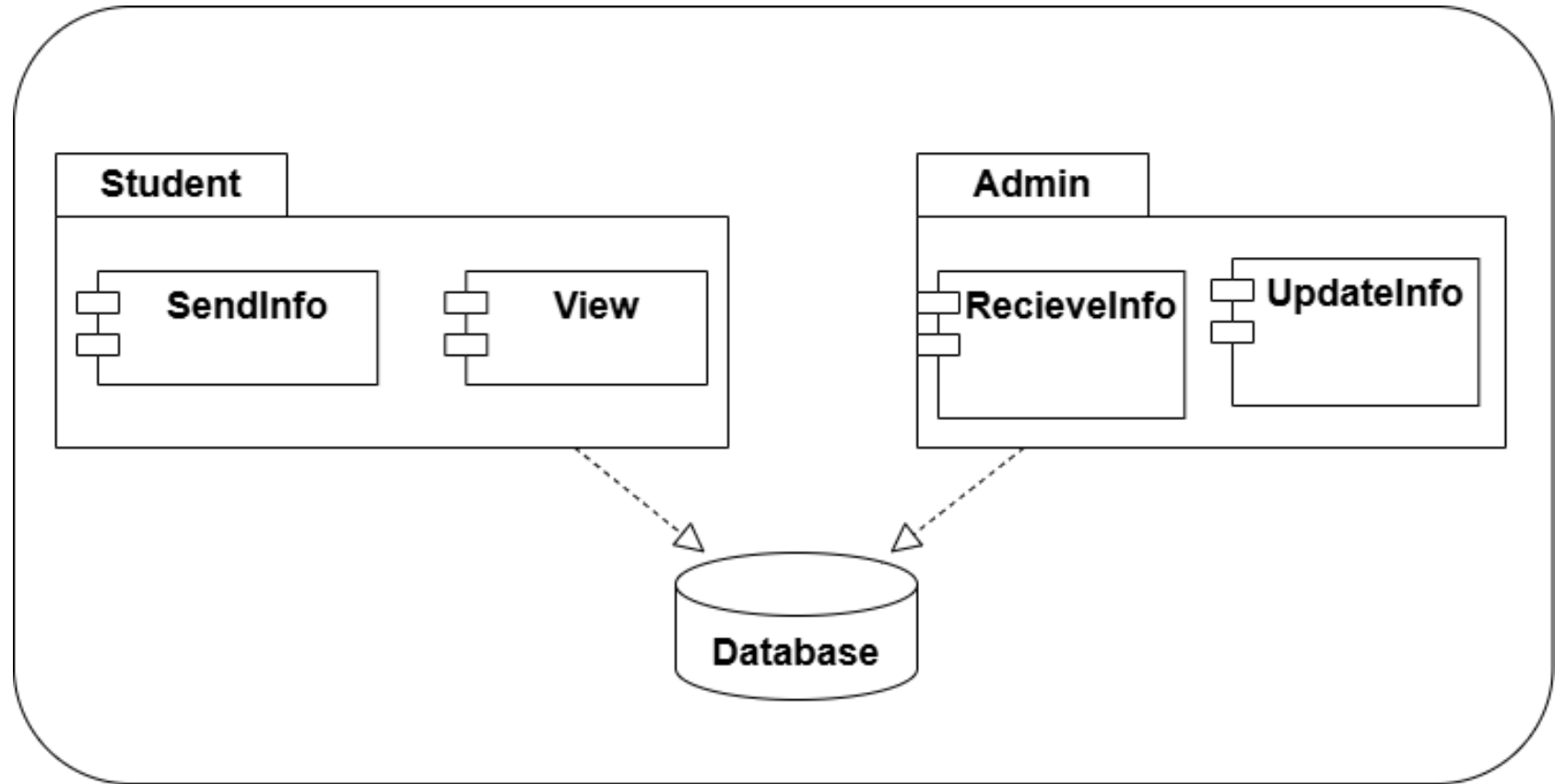
For Student:



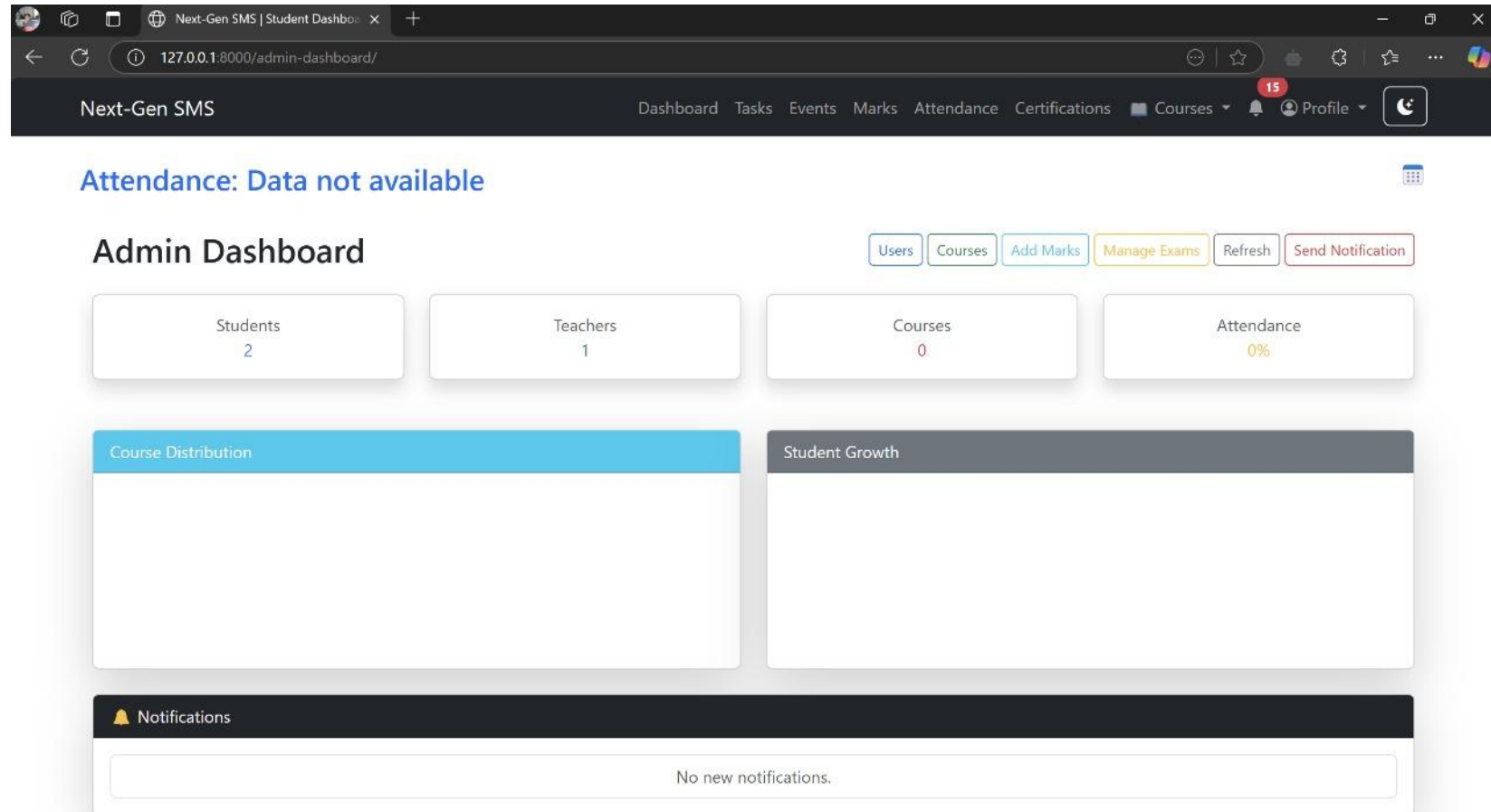
Activity Diagram:



Component Diagram:



User Interface Overview



THANK YOU