Software Requirements Specification (SRS)

1. Functional Requirements

These define the core functionalities the system must provide.

	Requirement	Description
	User Authentication	Users (faculty, students) must log in with email & password.
	Role-Based Access	Faculty and students should have different dashboards with specific functionalities.
	Faculty Dashboard	Faculty should be able to see their assigned classes and mark attendance.
	Student Dashboard	Students should be able to view their attendance history and percentage.
	Attendance Marking	Faculty should be able to mark students as present, absent, or late for each class.
	Attendance Editing	The faculty should be able to edit attendance records within a specified timeframe.
	Attendance Notifications	Students should receive alerts if attendance falls below a certain threshold.
	Attendance Reports	Students should be able to download attendance reports.
	Logout	Users should be able to log out securely.
	Error Handling	The system should handle invalid inputs and errors properly.

2. Non-Functional Requirements (NFRs)

These define system quality, performance, security, and external dependencies.

A. Product Requirements

	Requirement	Description
	Performance	The system should respond within 2 seconds for login and attendance actions.

	Security	User data must be encrypted, and authentication should use JWT tokens.
	Availability	The system should be available 24/7 with 99.9% uptime.
	Usability	The system should have a user-friendly UI with clear navigation.

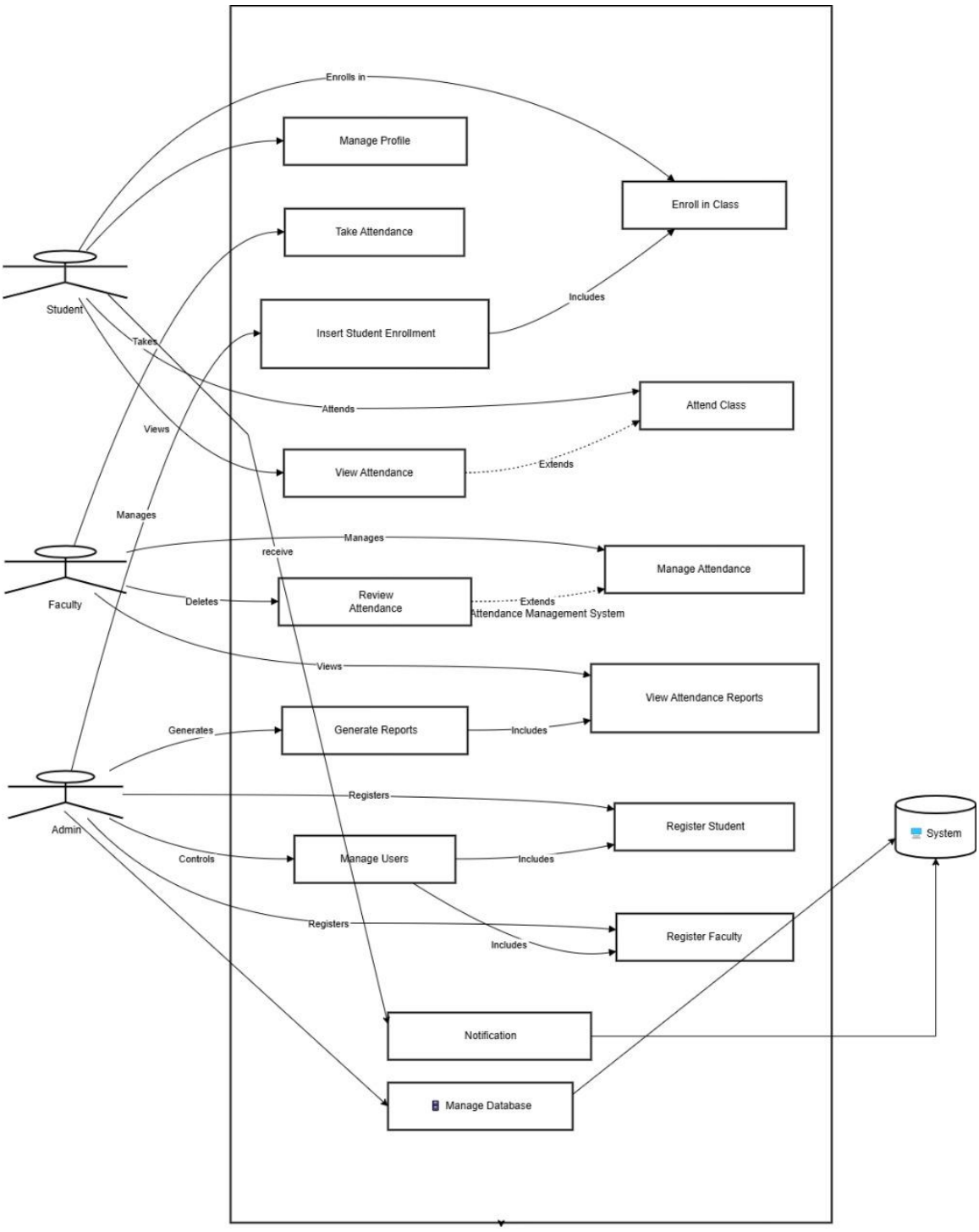
B. Organizational Requirements

	Requirement	**Description**
	Development Framework	The system should be built using MERN (MongoDB, Express.js, React.js, Node.js).
	Hosting	The system should be deployed on AWS, Firebase

C. External Requirements

	Requirement	**Description**
	Third-Party APIs	If real-time notifications are needed, Firebase/SendGrid should be used.
	Data Backup	Attendance records should be backed up daily.
	Browser Support	The system must work on Chrome, Firefox, Edge, and Safari.

3. Use Case Diagram



4. User Story

 As a Student, I want to enrol in a class, so that I can attend lectures and be included in the attendance records.

 As a Student, I want to view my attendance records, so that I can track my attendance performance.

 As a Student, I want to attend a class, so that my presence is recorded in the system.

 As a Faculty Member, I want to take attendance, so that I can track which students are present or absent.

 As a Faculty Member, I want to manage student attendance, so that I can make corrections in case of errors or absences.

 As a Faculty Member, I want to delete incorrect attendance records, so that the system maintains accurate data.

 As an Admin, I want to register students in the system, so that they can be assigned to classes and have attendance recorded.

 As an Admin, I want to register faculty members, so that they can take attendance and mnage student records.

 As an Admin, I want to manage users, so that I can control access and ensure the right permissions are assigned.

 As an Admin, I want to generate attendance reports, so that I can analyze student performance and faculty efficiency.

 As a System, I want to store attendance data, so that faculty and students can retrieve attendance records when needed.

 As a System, I want to send attendance notifications, so that students are aware of their attendance status.

 As a User, I want to sign up, so that I can access the system with a unique account.

 As a User, I want to log in, so that I can securely access my account.

 As a User, I want to log out, so that I can securely end my session.

 As a User, I want to change my password, so that I can maintain account security.

5. Pre and Post Conditions

Take Attendance

Preconditions:

- The faculty must be logged into the system.
- The class session must be active.
- The enrolled student list must be available.

Postconditions:

- Attendance for the session is successfully recorded.
- The system updates attendance records for each student.
- Notifications may be sent to absent students.

Manage Attendance

Preconditions:

- The faculty must be logged in.
- Attendance records must exist.
- The faculty must have editing permissions.

Postconditions:

- Attendance records may be updated, corrected, or removed.
- The system saves changes and maintains a history of modifications.

Generate Reports

Preconditions:

- The admin or faculty must be logged in.
- Attendance data must be available in the system.

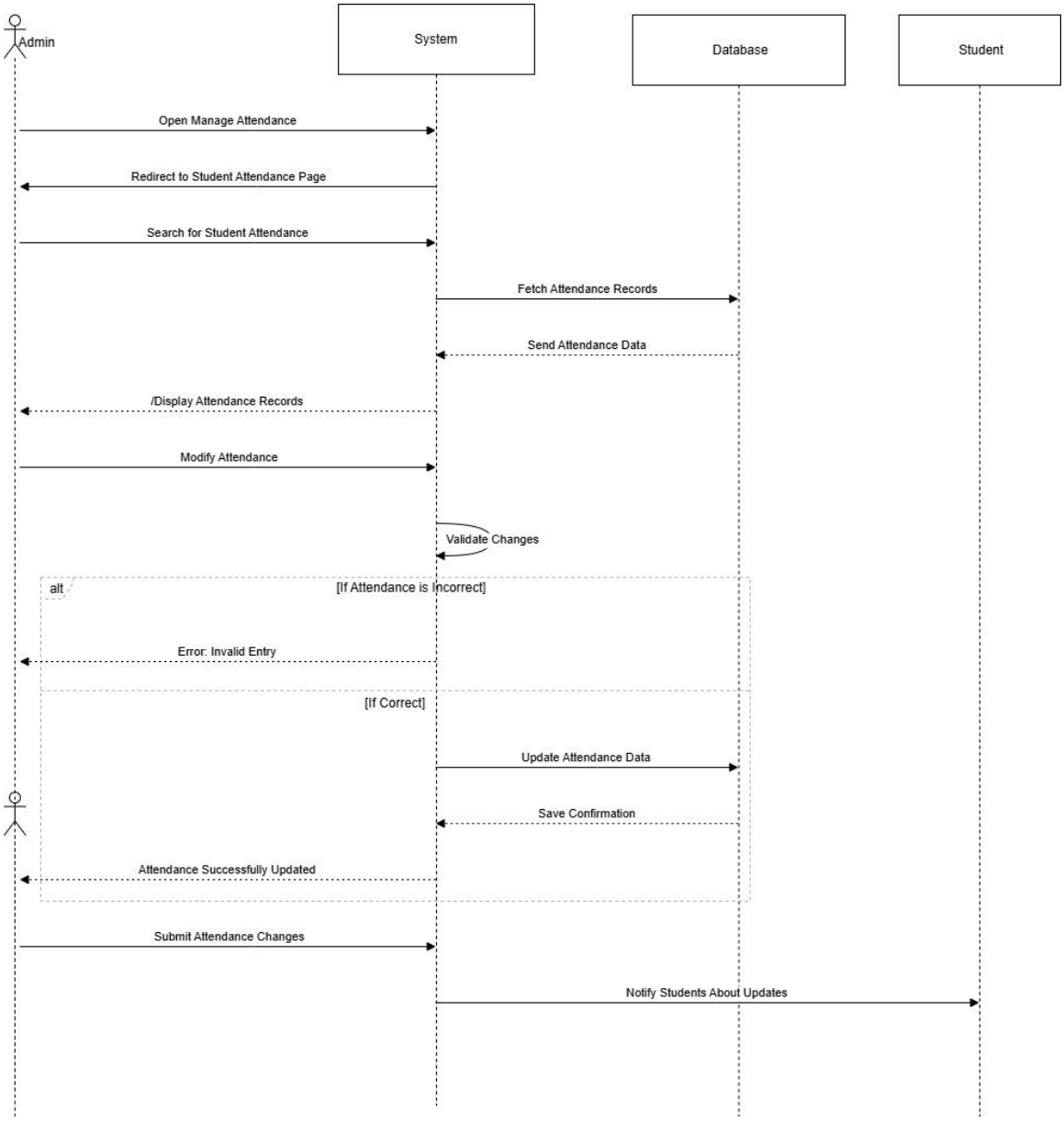
Postconditions:

- A report is generated successfully.
- The report is available for download or viewing.

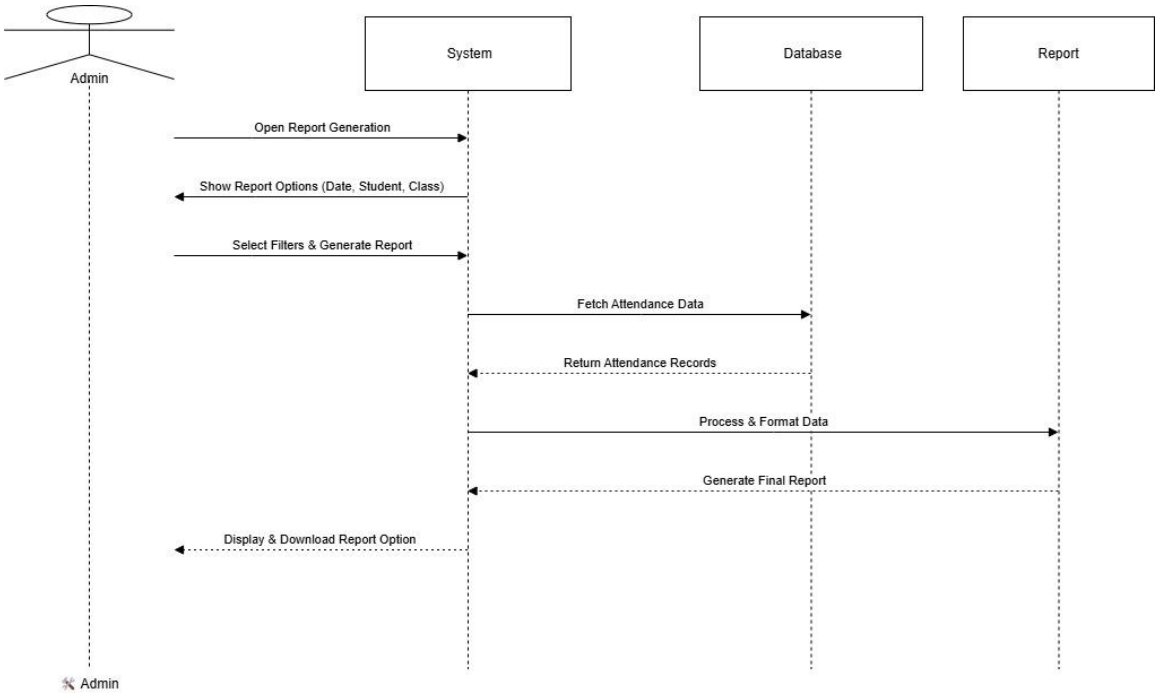
- The system logs the report generation request for auditing purposes.

6. Sequence Diagram

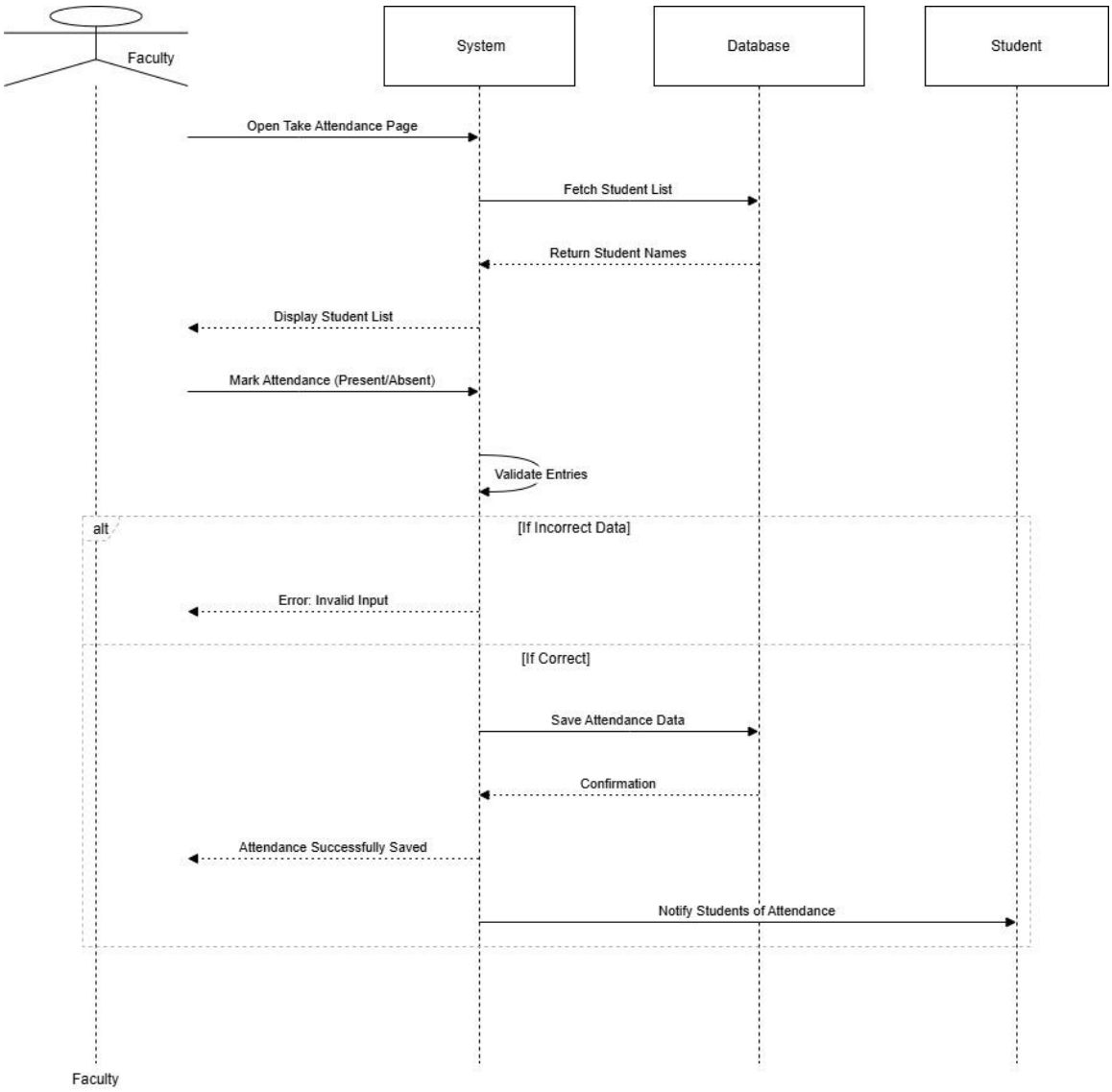
1. Manage Attendance



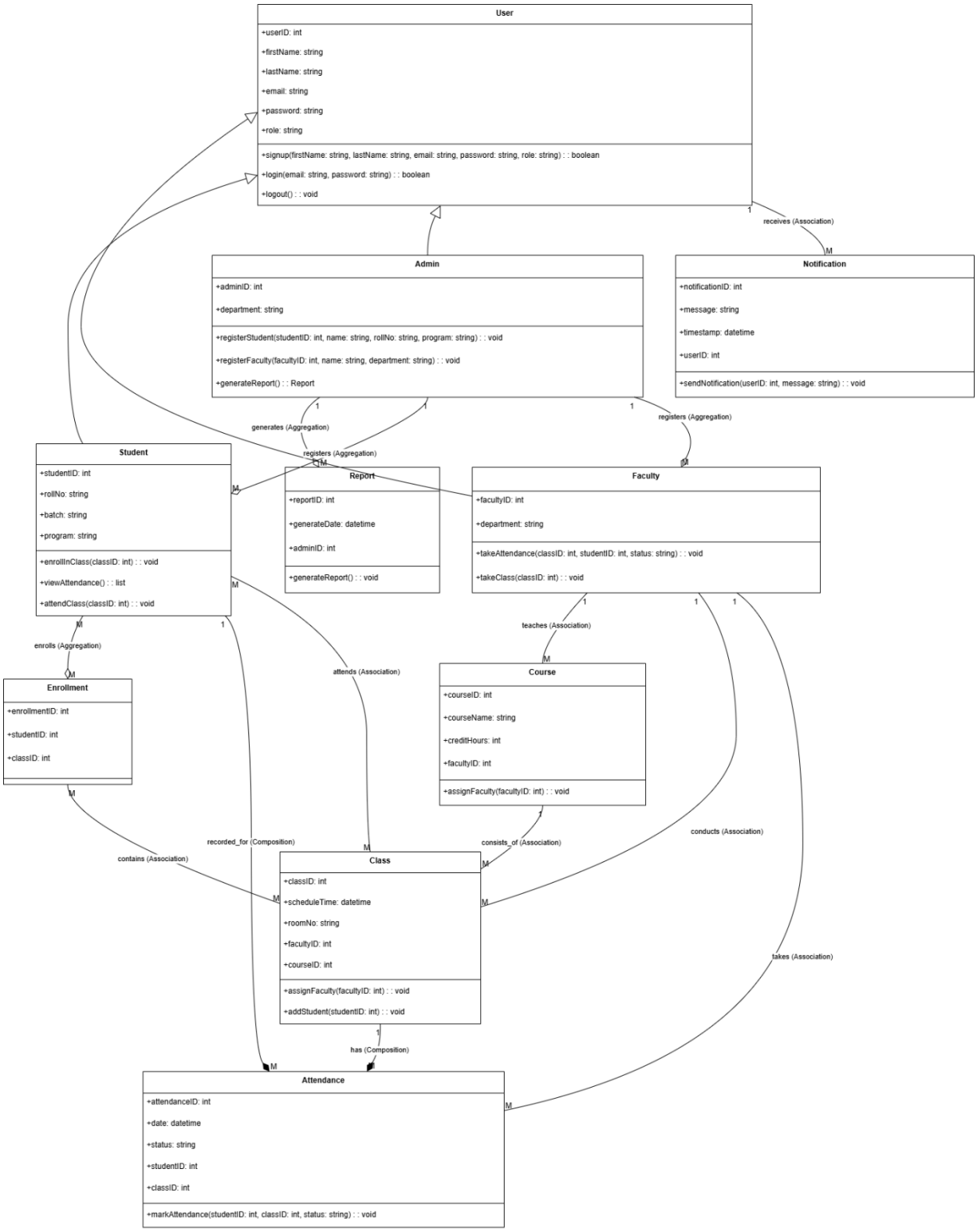
2. Report Generation



3. Take Attendance

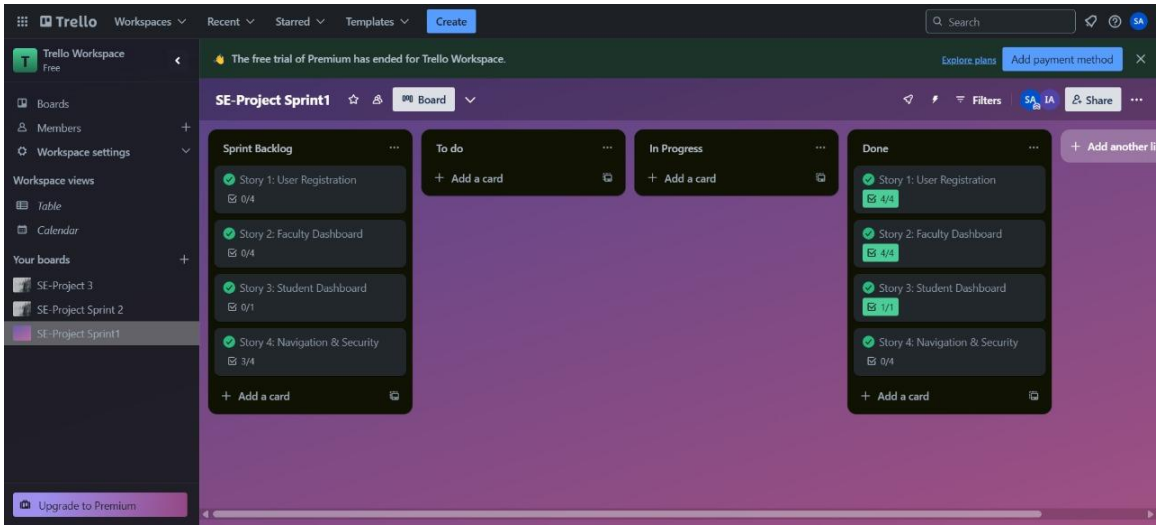


7. Class Diagram



8. Trello Board

Sprint 1



Sprint 2