



IT-314: Software Engineering

Software Requirements Specifications

Group-7 Online Scholarship Portal

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Introduction

The Online Scholarship Portal (OSP) is an innovative digital platform designed to revolutionize the scholarship application and management ecosystem. OSP (Online Scholarship Portal) represents a comprehensive technological solution that bridges the critical gap between students seeking educational funding and scholarship providers looking to support academic potential.

In today's complex educational landscape, students face significant challenges in discovering, applying for, and managing scholarship opportunities. Traditional scholarship application processes are often fragmented, time-consuming, and inefficient. The OSP aims to address these fundamental challenges by creating a centralized, transparent, and user-friendly digital ecosystem that simplifies the entire scholarship journey.

Project Background

Educational funding remains a critical barrier for many students pursuing higher education. Scholarships represent a vital mechanism for supporting academic aspirations, yet the existing mechanisms for scholarship discovery and application are frequently:

- ❖ Decentralized across multiple platforms
- ❖ Complex and difficult to navigate
- ❖ Lacking in transparency
- ❖ Administratively intensive for both applicants and providers

Purpose of OSP

The primary purpose of the Online Scholarship Portal is to:

- ❖ Democratize access to scholarship opportunities
- ❖ Streamline the scholarship application process
- ❖ Enhance scholarship allocation
- ❖ Reduce administrative overhead for educational institutions
- ❖ Provide a comprehensive, user-centric platform for scholarship management

Project Objectives

The OSP will deliver a holistic solution that addresses the multifaceted needs of scholarship ecosystems through:

1. Student-Centric Features

- Unified scholarship discovery platform
- Personalized scholarship recommendations
- Easy application submission
- Real-time application status tracking

2. Admin-Centric Features

- Centralized scholarship management
- Data and Document for scholarship allocation
- Efficient application status update capable

Exclusions

To maintain clarity and focus, the following are explicitly outside the current project scope:

- Financial transaction processing

Specific Requirements

Functional Requirements:

1. Student Registrations

- The portal should allow students to register with their personal email, enabling access to scholarships they are eligible for.

2. Admin Login

- Admins should have a login feature to manage and oversee scholarship programs and student applications.

3. Student Profile Section

- Admins should have a login feature to manage and oversee scholarship programs and student applications.

4. View/Edit Scholarships

- Users, especially admins, must have the functionality to view, update, and edit existing scholarship details.

5. Application

- Students should be able to submit scholarship applications directly through the portal.

6. Status

- The portal must provide real-time status updates on scholarship applications, allowing students to track their progress.

7. FAQ Section

- An FAQ section should address common queries related to the portal and scholarship applications to assist users.

Non-Functional Requirements

1. User-Friendly Interface

- The portal must have an intuitive and simple user interface to enhance accessibility for users with minimal technical expertise.
- 2. Security**
 - The portal should ensure data privacy and protection using encryption, secure login mechanisms, and role-based access control.
 - 3. Efficient Database Management System (DBMS)**
 - The system should maintain organized data storage and retrieval processes, enabling quick and accurate access to information.
 - 4. Performance**
 - The system must provide a responsive experience, with minimal loading times for all pages and processes.
 - 5. Reliability**
 - The portal should maintain a high uptime with minimal disruptions to ensure consistent availability for users.
 - 6. Maintainability**
 - The portal should allow for easy updates, debugging, and addition of new features as per evolving requirements.
 - 7. Availability:**
 - Maintain a 24/7 operational status with minimal downtime for necessary maintenance
 - 8. Scalability**
 - The platform should be capable of handling an increasing number of users, applications, and data without performance degradation.

User Stories

ID	User Story	Acceptance Criteria
1	As an unregistered student, I want to sign up for the scholarship portal so that I can apply for scholarships.	<ul style="list-style-type: none">• The system provides a sign-up form requiring basic details (name, email, phone number).• An OTP is sent to the student's phone number or email for verification.• The student must enter the OTP to complete registration.

2	As a registered student, I want to log in to the scholarship portal so that I can access my application and other features.	<ul style="list-style-type: none"> • The system requires valid credentials (email and password) for login. • The student receives an error message for incorrect credentials. • Implement a 'Forgot Password' feature to recover lost passwords.
3	As an admin, I want to log in to the portal so that I can manage scholarships and student applications.	<ul style="list-style-type: none"> • The admin login requires valid credentials (username and password). • Admin access should be restricted to authorized personnel only.
4	As a registered student, I want to view available scholarships and apply for them.	<ul style="list-style-type: none"> • Students can browse a list of available scholarships. • Students can view detailed descriptions of each scholarship. • Students can submit applications for scholarships.
5	As a student, I want to check the status of my scholarship application so that I can track its progress.	<ul style="list-style-type: none"> • Students can view the current status of their applications. • Status updates should be visible (e.g., 'Under Review,' 'Accepted,' 'Rejected').
6	As a student, I want to edit my application before submission to correct any mistakes.	<ul style="list-style-type: none"> • Students can make changes to their application before the final submission. • Changes should be saved and updated in real time.
7	As a student, I want to upload required documents for my scholarship application so that my application is complete.	<ul style="list-style-type: none"> • Students can upload various document types (PDF, JPG, etc.). • The system should validate file size and format. • Uploaded documents should be securely stored and accessible.
8	As a student, I want to view detailed information about a scholarship to determine if I meet the criteria.	<ul style="list-style-type: none"> • Detailed information about the scholarship is available (criteria, deadlines, benefits).

		<ul style="list-style-type: none"> Information should be up-to-date and accurate.
9	As a student, I want to receive notifications about the status of my application and upcoming deadlines.	<ul style="list-style-type: none"> Notifications are sent for important updates (status changes, deadlines). Users can customize notification preferences (email/Notification section).
10	As an admin, I want to add new scholarships to the portal so that students can apply for them.	<ul style="list-style-type: none"> Admins can enter scholarship details (name, description, criteria). The new scholarship should be visible to students immediately after addition.
11	As an admin, I want to update the details of an existing scholarship to ensure the information is accurate.	<ul style="list-style-type: none"> Admins can modify scholarship details. Updated information should be reflected on the portal immediately.
12	As an admin, I want to remove scholarships that are no longer available.	<ul style="list-style-type: none"> Admins can delete scholarships. Removed scholarships should no longer be visible to students.
13	As an admin, I want to update the status of scholarships (e.g., open, closed) to keep students informed.	<ul style="list-style-type: none"> Admins can change the status of scholarships. The updated status should be immediately visible to students.
14	As a student, I want to access the FAQ section to get answers to common questions.	<ul style="list-style-type: none"> The FAQ section should contain frequently asked questions and their answers. The section should be easily accessible from the main navigation.
15	As a student, I want to manage my profile information so that my details are current.	<ul style="list-style-type: none"> Students can update personal details (name, contact information).

		<ul style="list-style-type: none"> • Profile updates are saved and visible to the student immediately.
16	As an admin, I want a dashboard to view and manage all scholarship applications and student activities.	<ul style="list-style-type: none"> • The dashboard provides an overview of pending applications, scholarships, and system activity. • Admins can access detailed reports and analytics.
17	As an admin, I want to review and manage student applications to ensure they meet the scholarship criteria.	<ul style="list-style-type: none"> • Admins can view application details and associated documents. • Admins can update application status and provide feedback.
18	As an student, I want to change my password as I have forgot the previous password.	<ul style="list-style-type: none"> • Student can use the forgot password feature. • They get an OTP in mailbox and enter it to change the password.

PRODUCT BACKLOG

- The product backlog for OSP contains the user stories sorted in prioritized manner with highest or core user features and technical requirements at the top

Sprint 1: User Registration & Authentication

Goal: Implement core user registration and authentication features.

1. Sign Up for Unregistered Students
 - As an unregistered student, I want to sign up for the scholarship portal so that I can apply for scholarships.
2. Login for Registered Students
 - As a registered student, I want to log in to the scholarship portal so that I can access my application and other features.

3. Login for Admin

- As an admin, I want to log in to the portal so that I can manage scholarships and student applications.

4. Forgot Password

- As a student , I want to change my password as I have forgot the previous password.

Sprint 2: Admin Add,Remove,Edit Scholarships

Goal: Implement scholarship management features for admins.

1. Admin Add Scholarship

- As an admin, I want to add new scholarships to the portal so that students can apply for them.

2. Admin Update Scholarship

- As an admin, I want to update the details of an existing scholarship to ensure the information is accurate.

3. Admin Remove Scholarship

- As an admin, I want to remove scholarships that are no longer available.

Sprint 3: Profile Management, View and Apply for scholarships

Goal: Develop features for viewing and applying for scholarship, Profile management with document upload section.

1. View and Apply for Scholarships

- As a registered student, I want to view available scholarships and apply for them.

2. Profile Management

- As a student, I want to manage my profile information so that I can have my details up to date.

3. Upload Documents

- As a student, I want to upload required documents for my scholarship application so that my application is complete.

4. View Scholarship Details

- As a student, I want to view detailed information about a scholarship to determine if I meet the criteria.

Sprint 4: View and Updates for Application history.

Goal: Give features to students to view the history of scholarship applied and check status of them.

1. View Applications and update

- As an admin, I want to view student applications so that I can check the documents and verify them and other criteria.

2. Check Application Status

- As a student, I want to check the status of my scholarship application so that I can track its progress.

3. View Application History

- As a student, I want to view my application history so that I can keep track of my previous applications and statuses.

Sprint 5: Admin Dashboard & Update Status, FAQs

Goal: Develop an admin dashboard and features for reviewing applications and assigning status to them, add FAQs on the student side.

1. Admin Dashboard

- As an admin, I want a dashboard to manage all scholarship applications and student activities.

2. Update Status of Scholarship

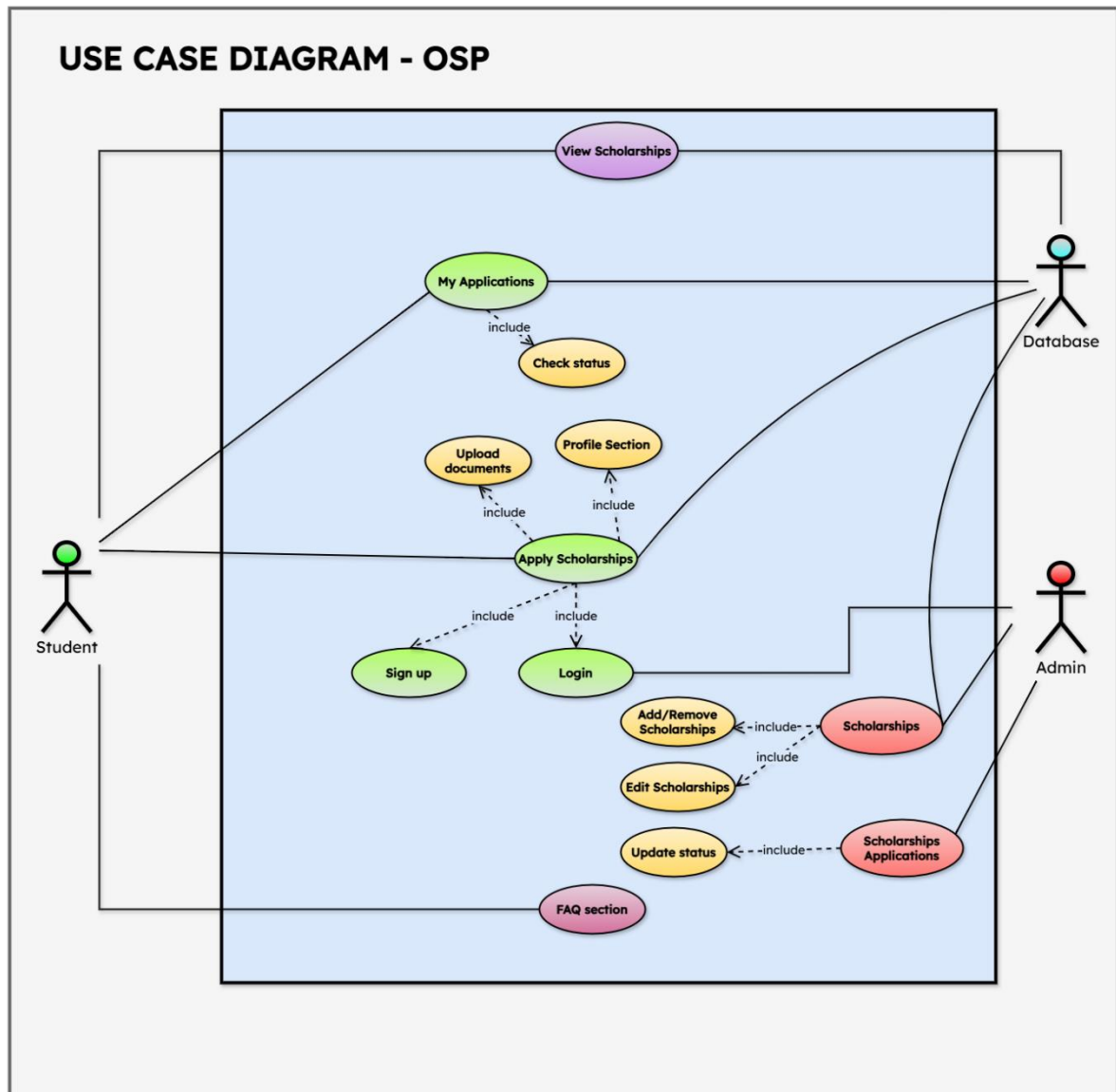
- As an admin, I want to update the status of scholarships to keep students informed.

3. FAQs on the Student side

- As a student, I want to access the FAQ section to get answers to common questions.

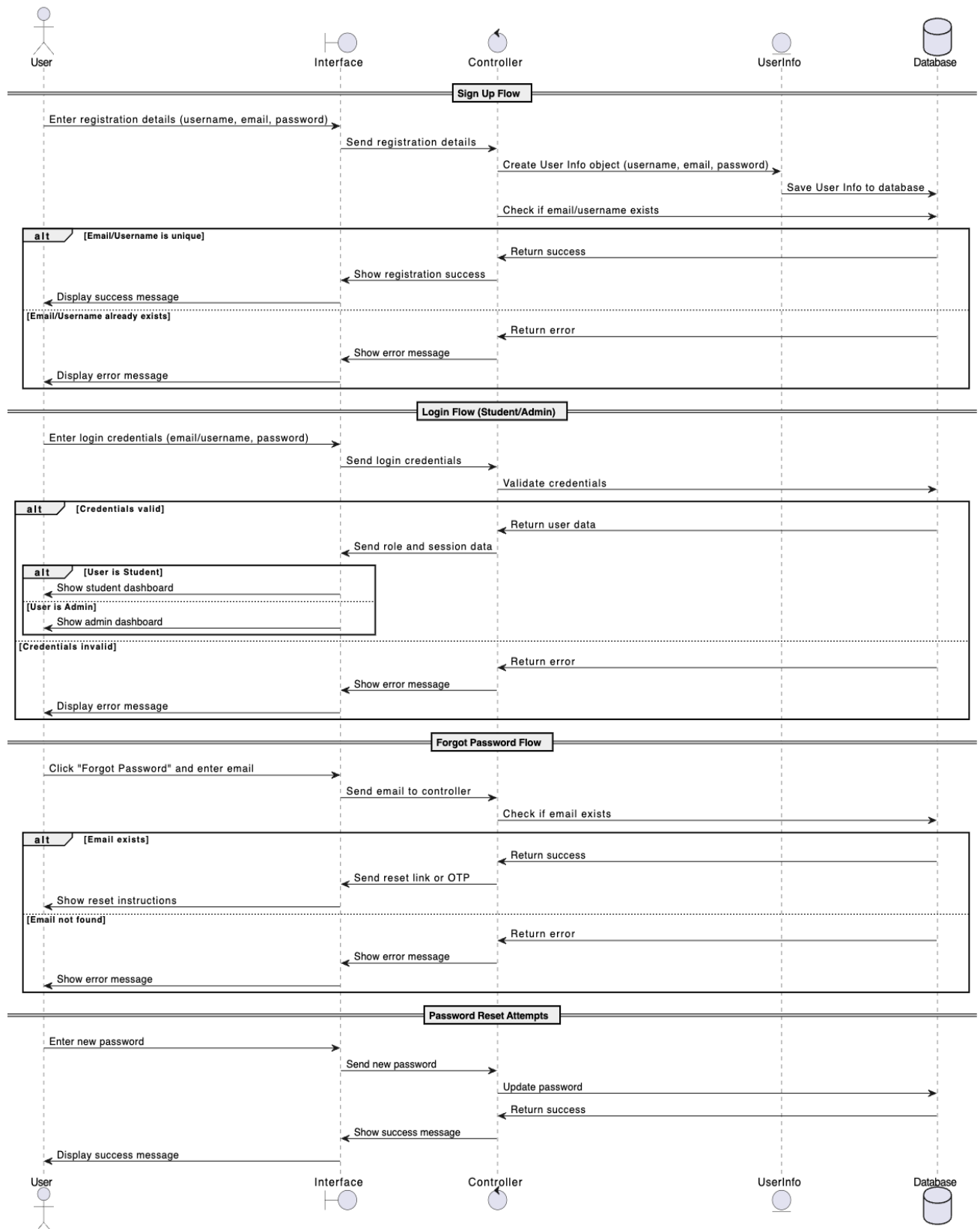
5. System Behaviour

Use Case Diagram

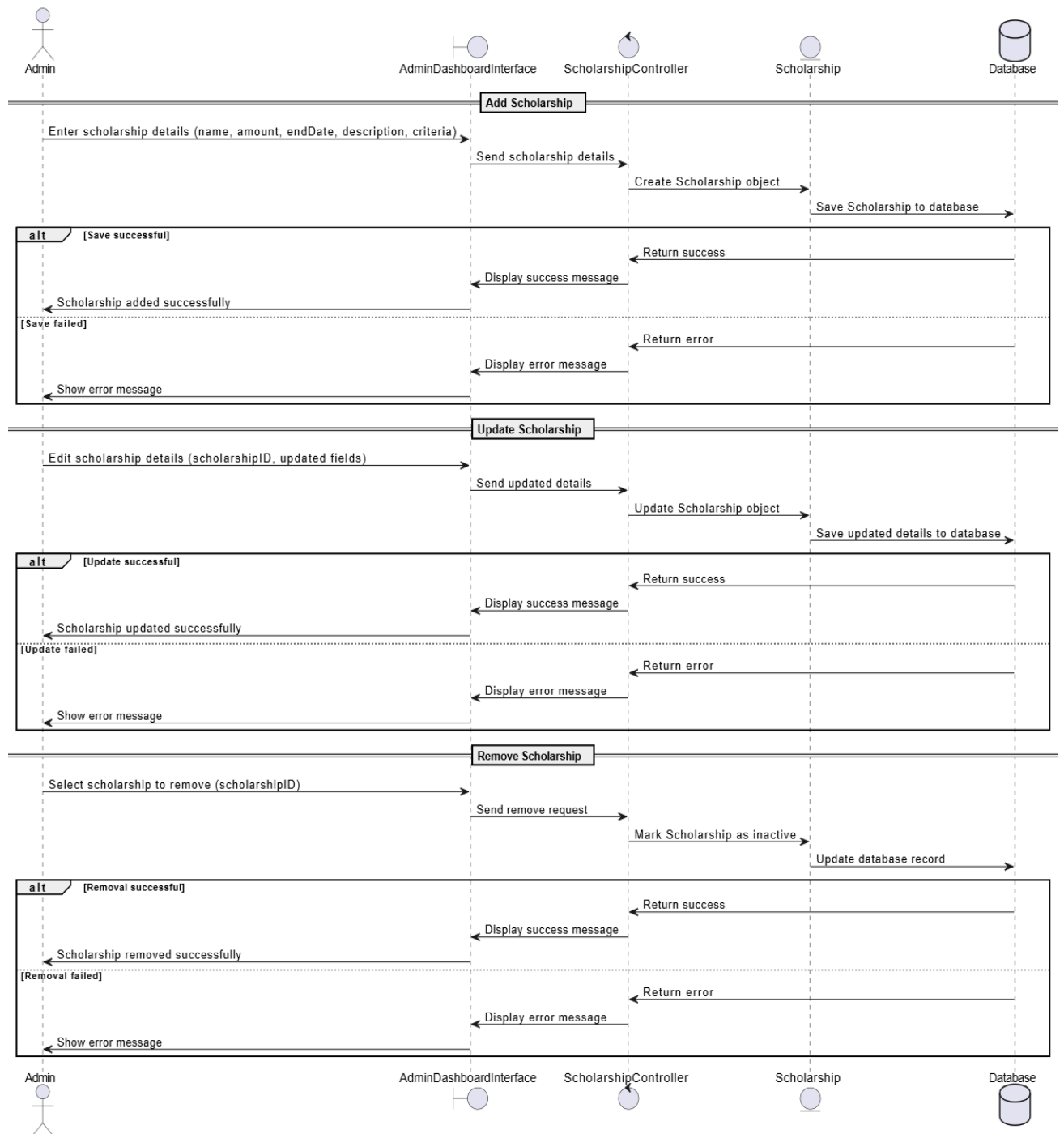


Sequence Diagrams

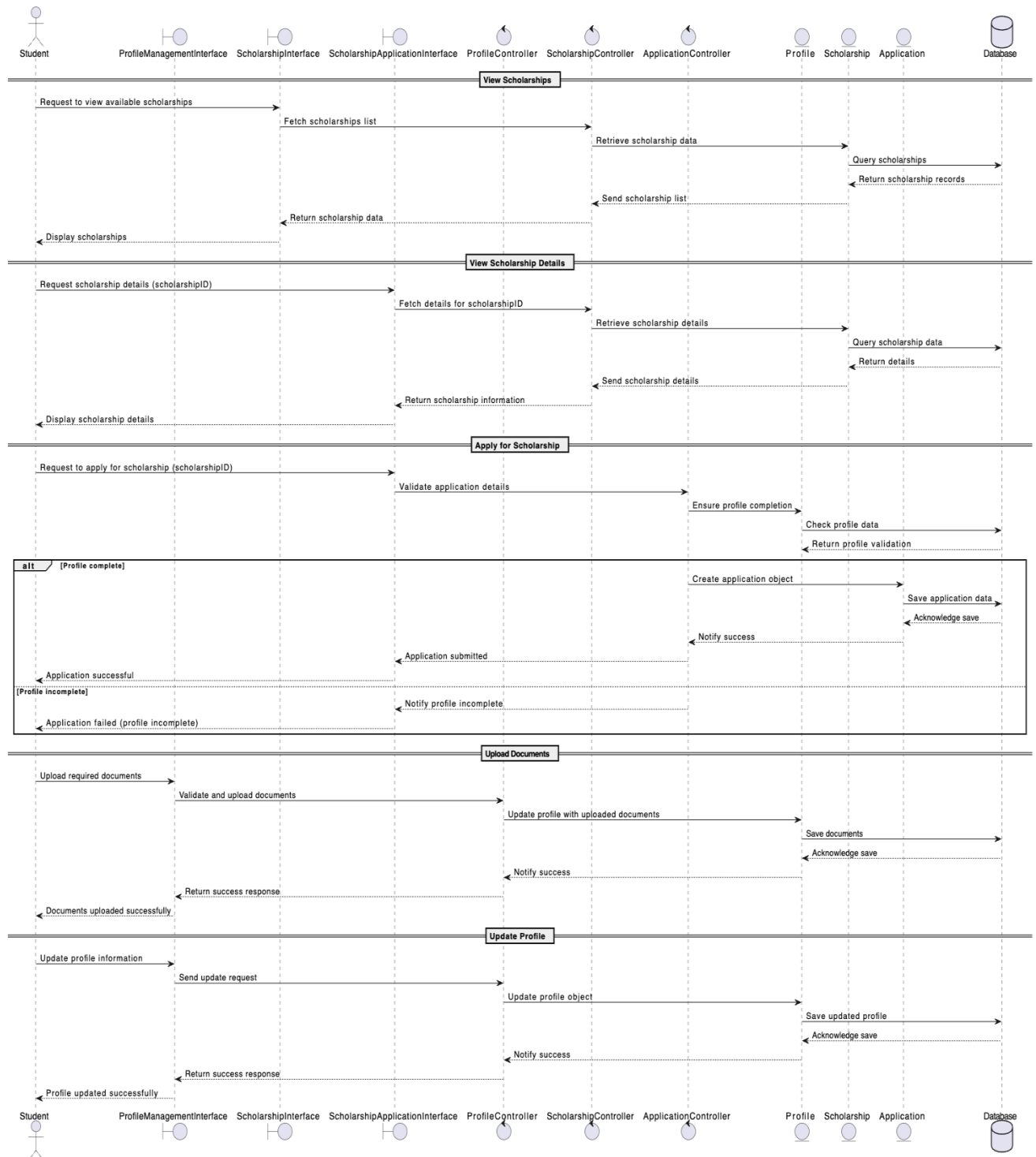
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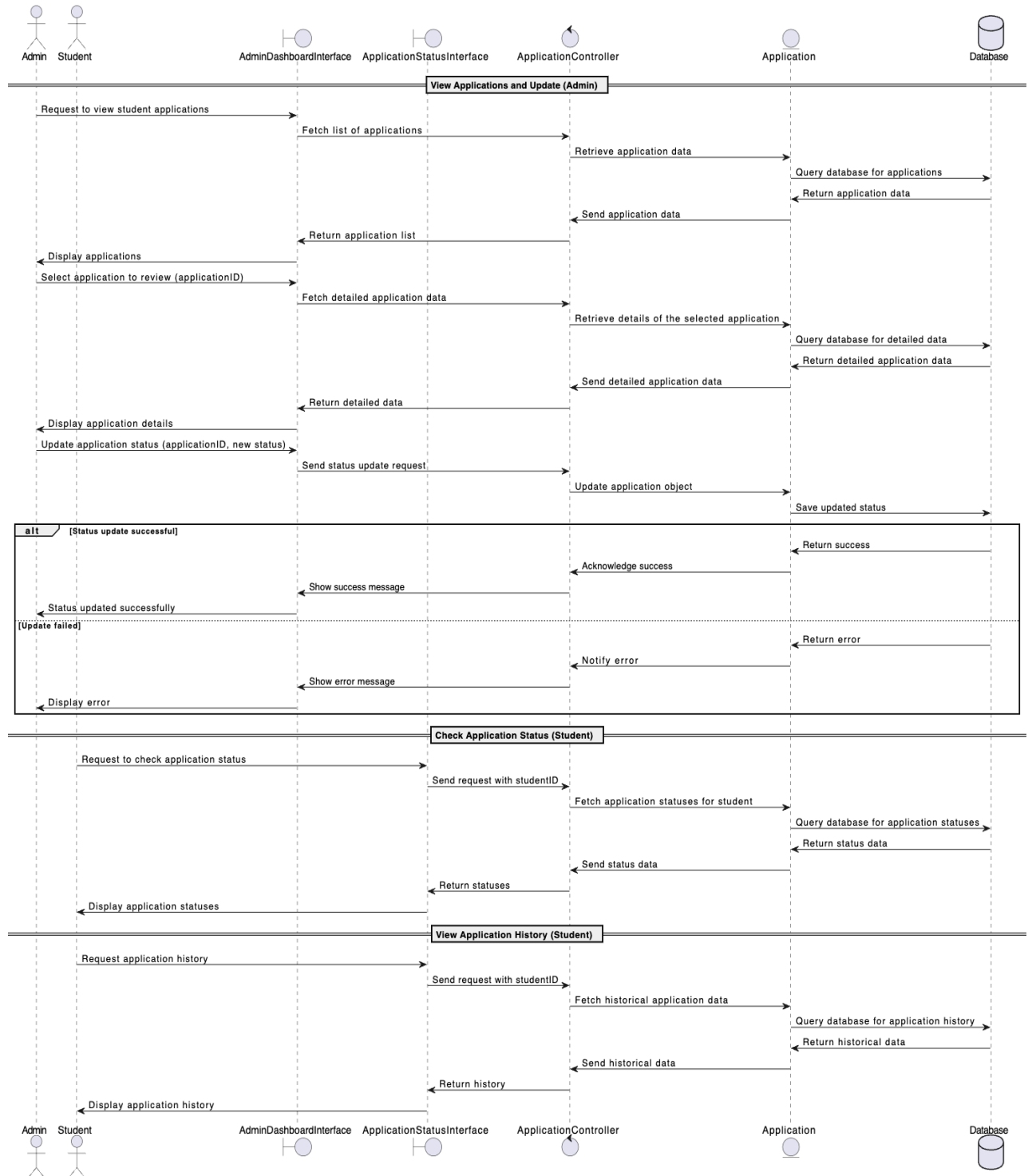
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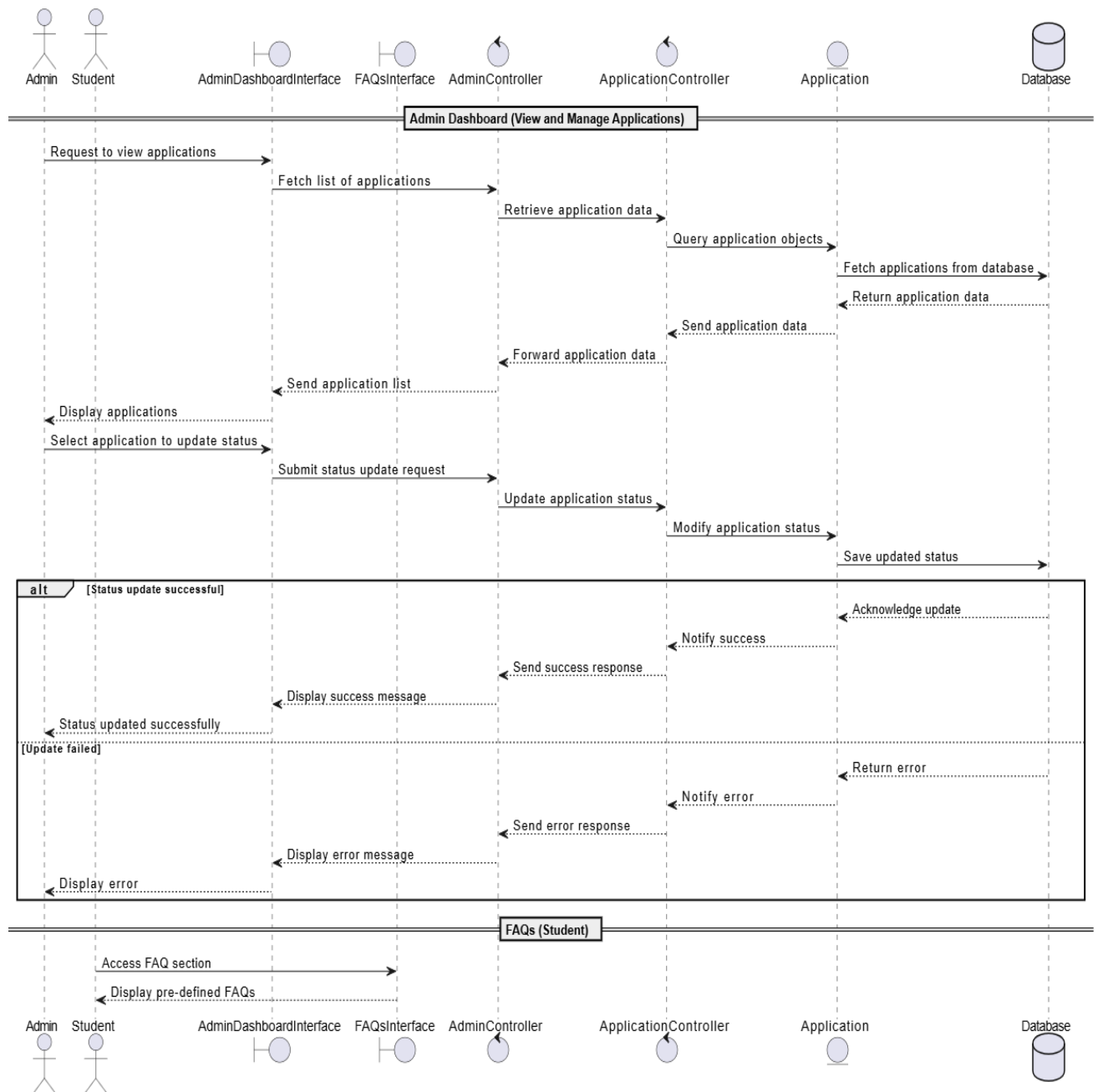
SPRINT: 3



SPRINT: 4

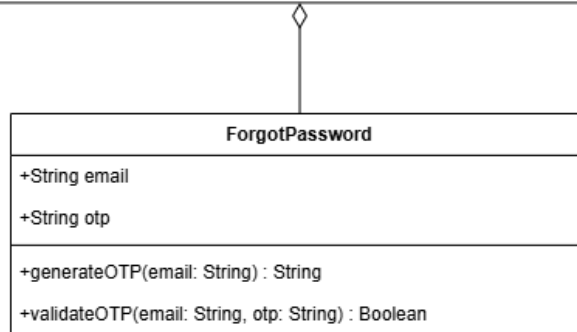
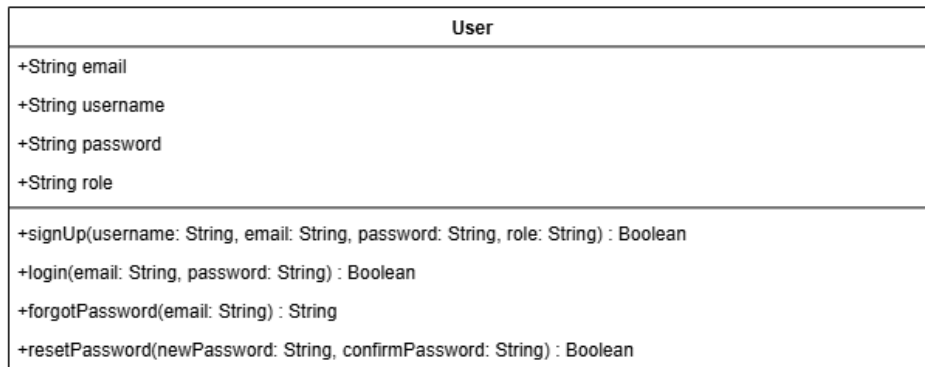


SPRINT: 5

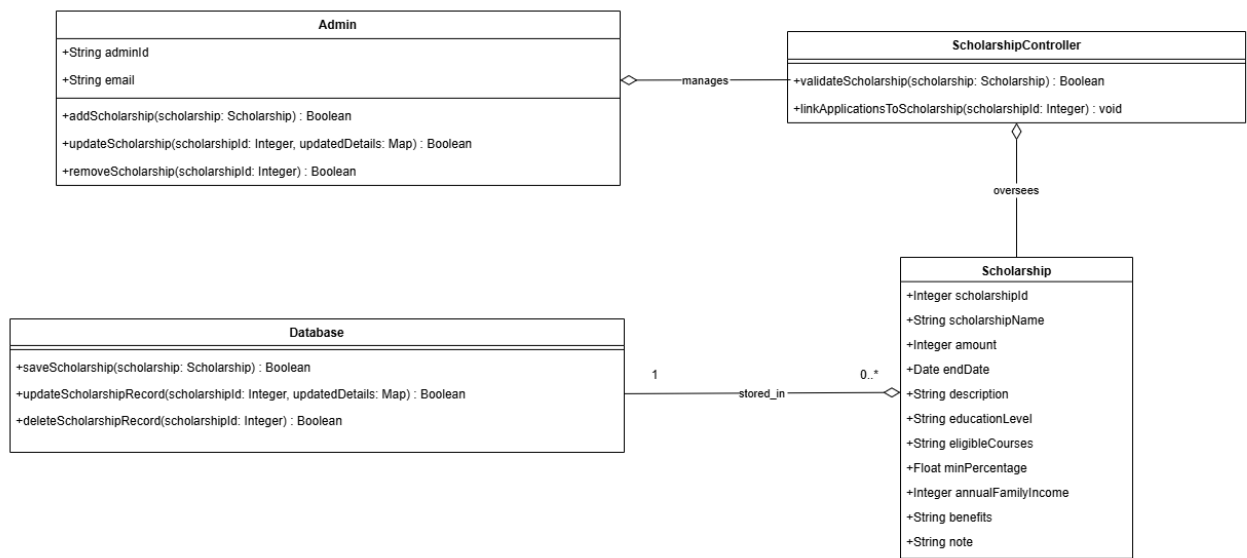


Class Diagrams

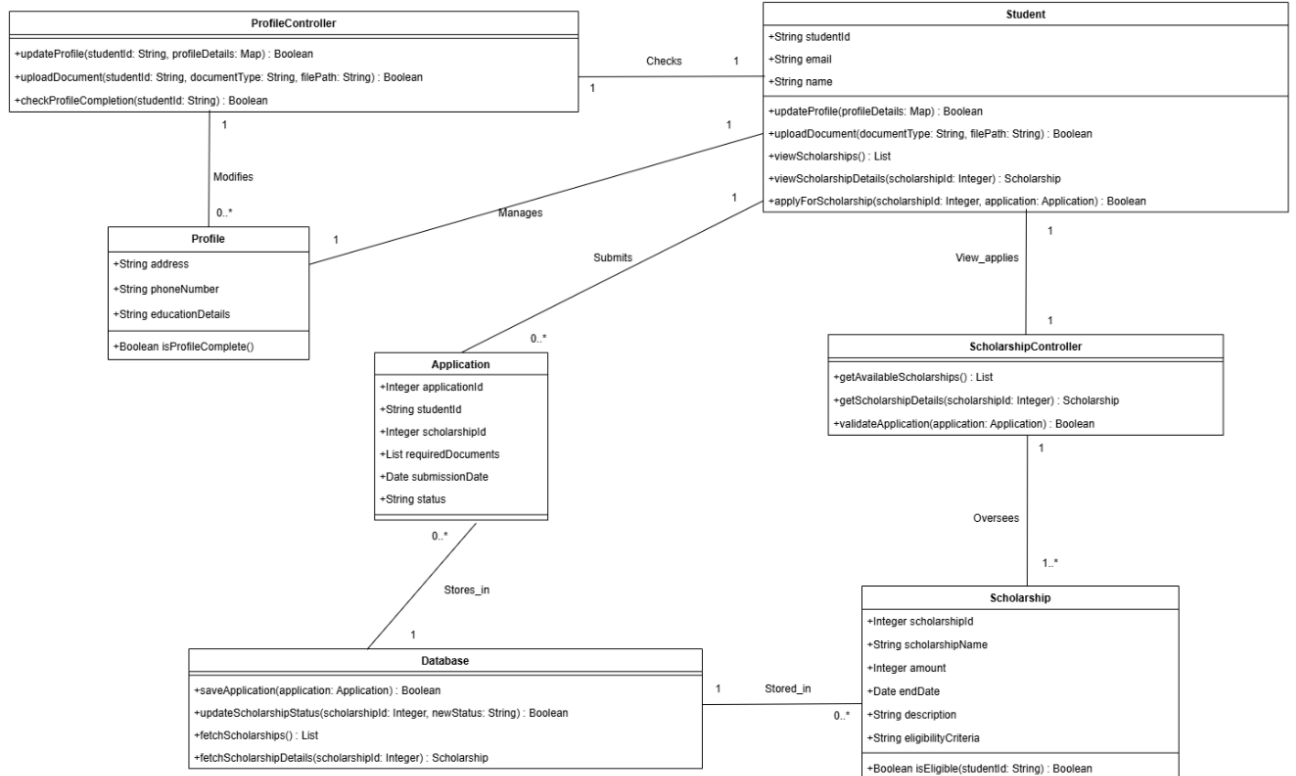
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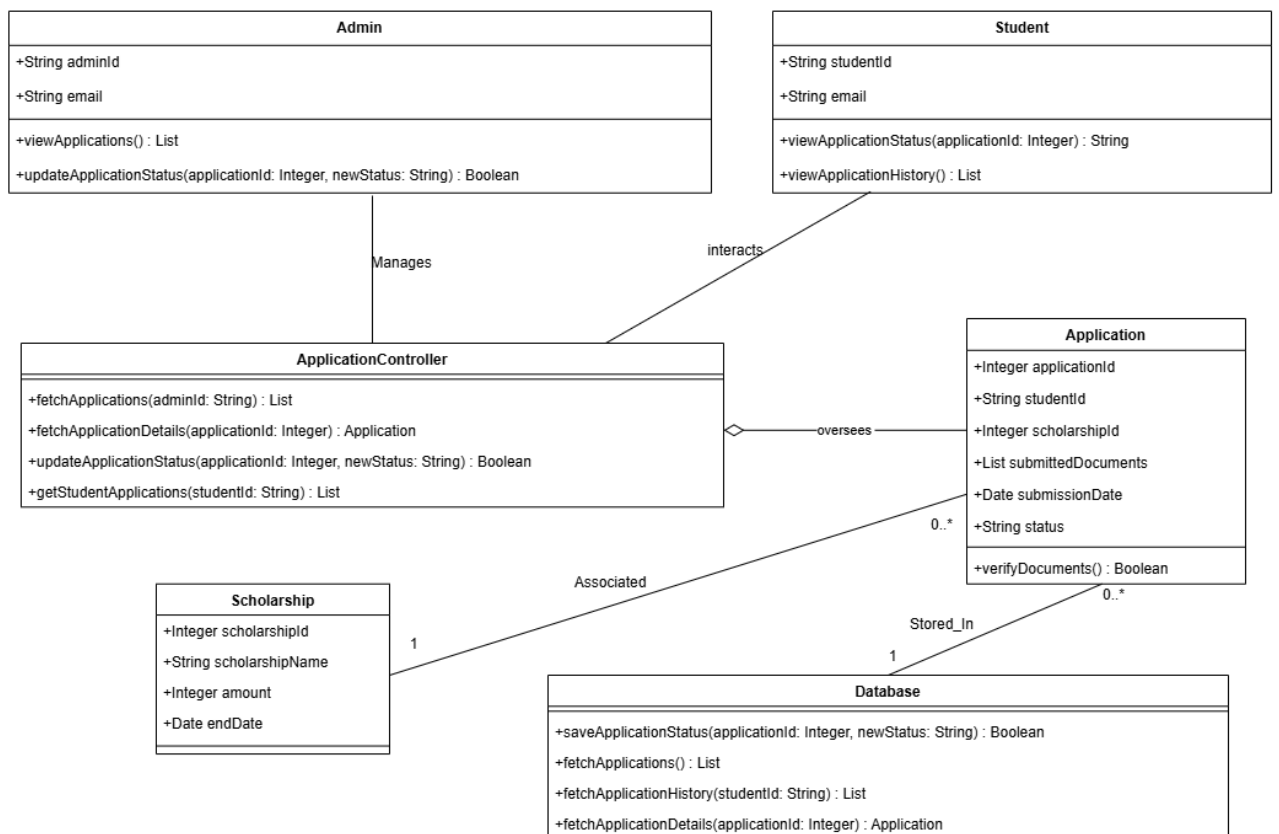
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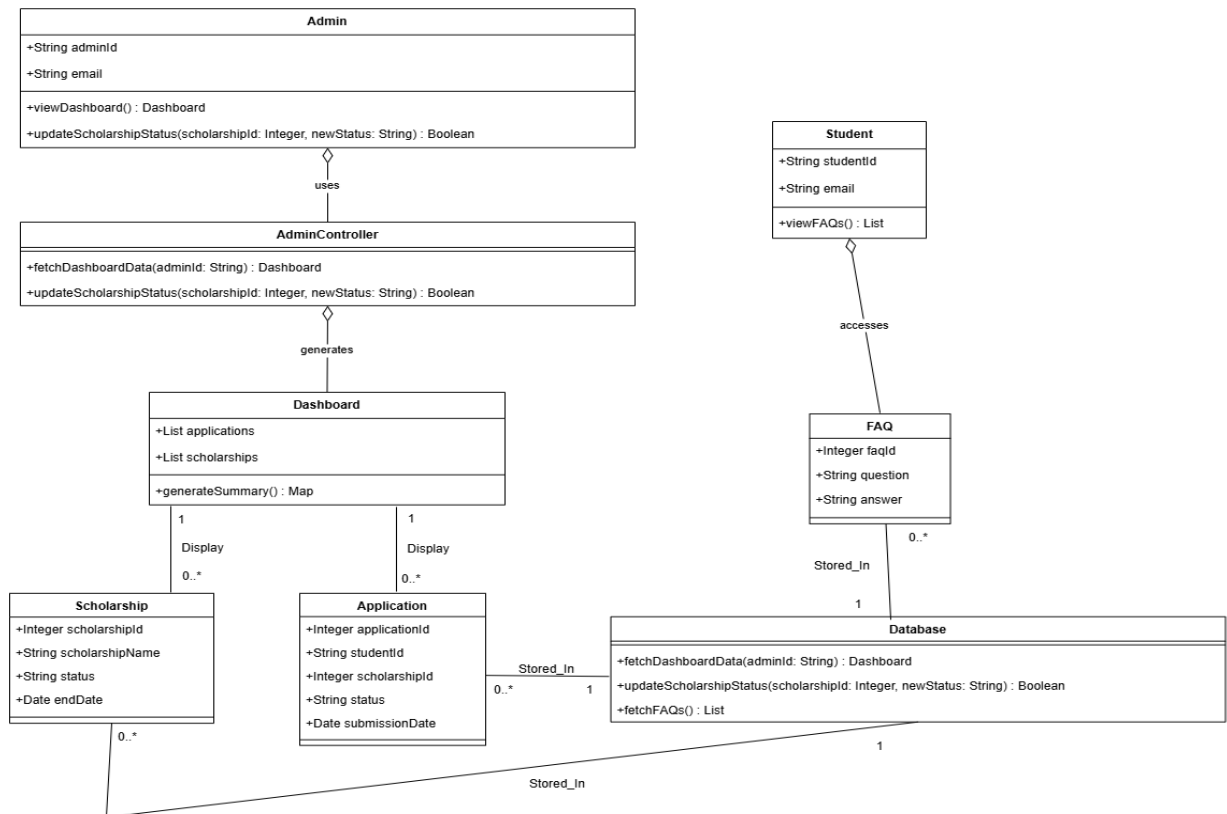
SPRINT: 3



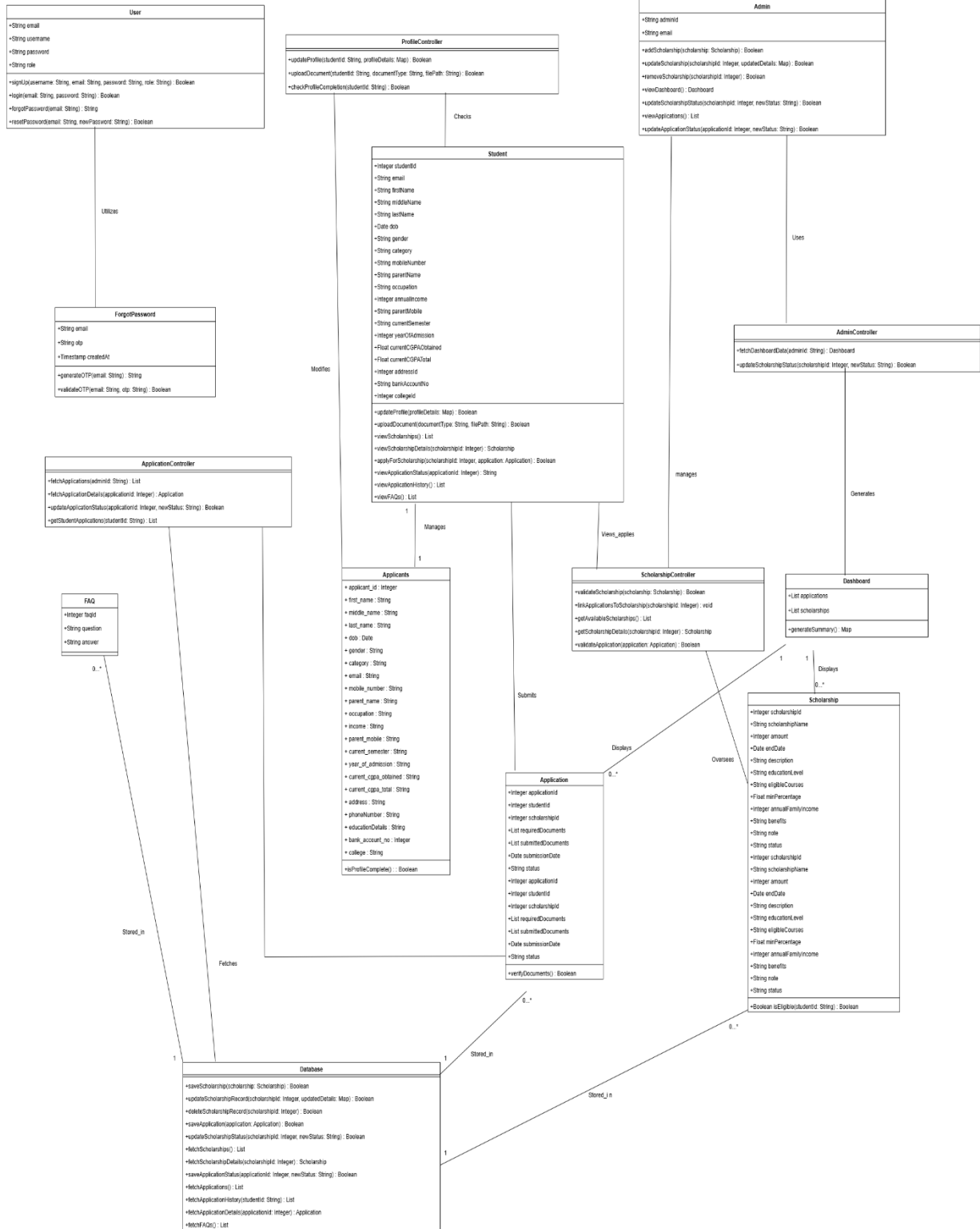
SPRINT: 4



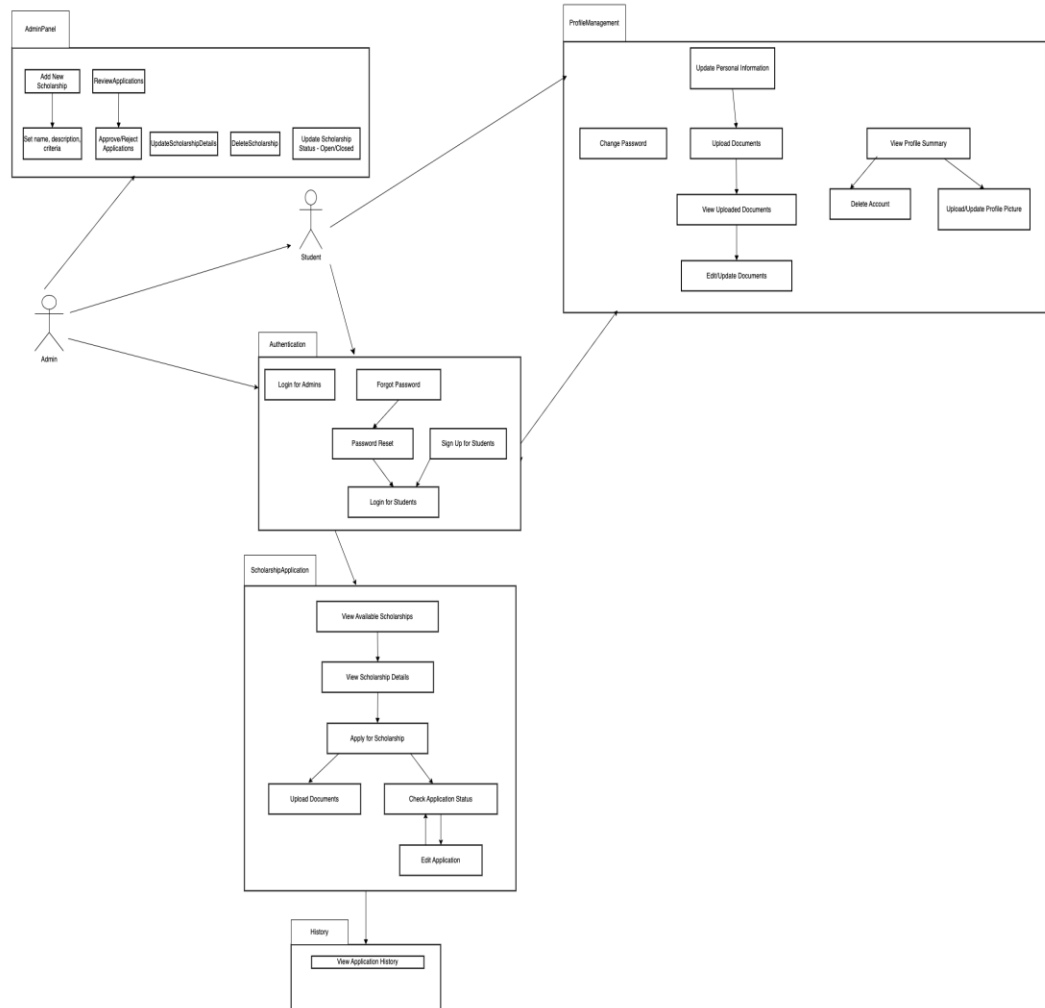
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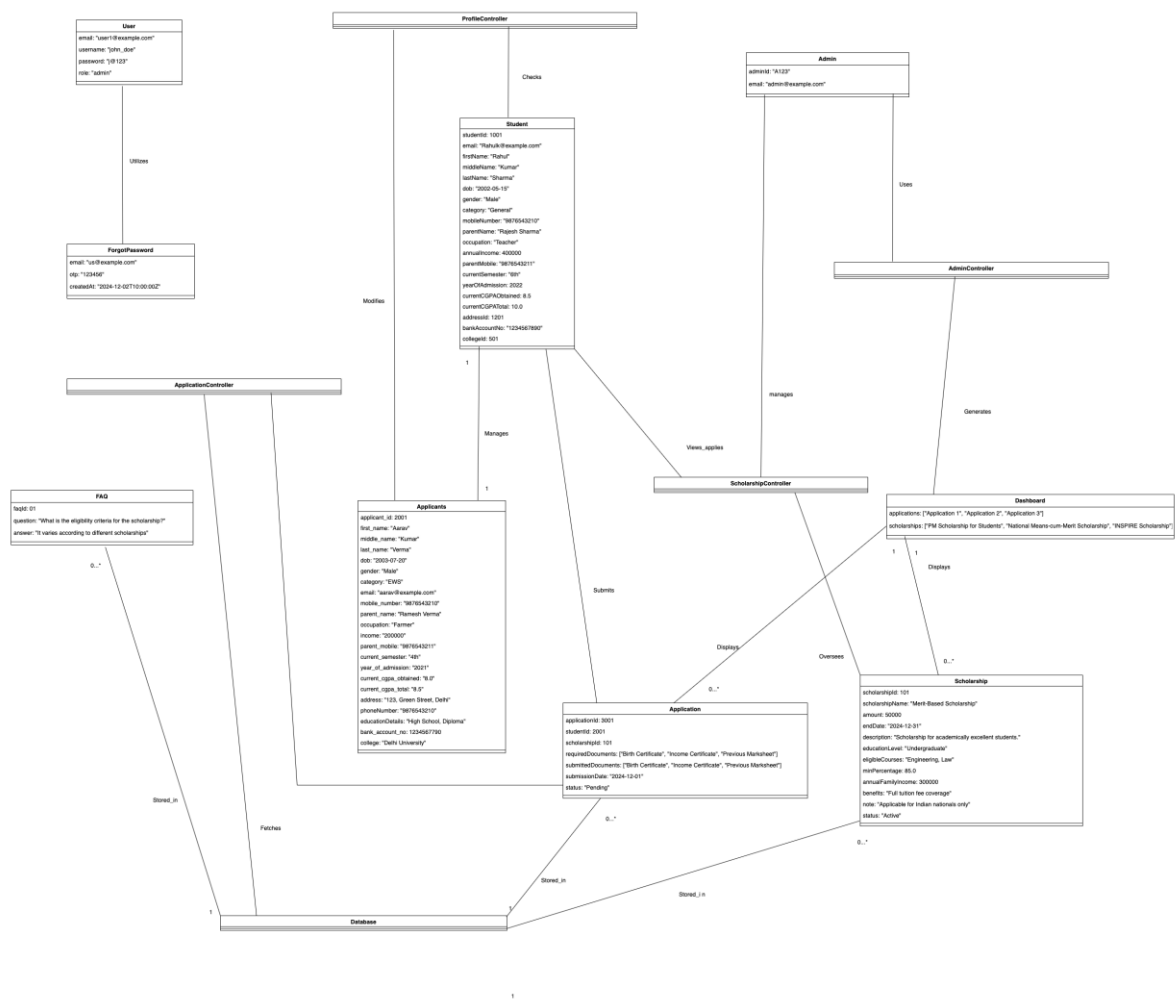
COMBINED CLASS DIAGRAM



System Design



Object Design



6. Domain Analysis

Entity Objects

- User**
 - Represents a user (Student or Admin) with attributes like email, username, password, and role.
 - Students can update profiles, upload documents, apply for scholarships, and track application statuses.

- Admins can manage scholarships, review applications, and update statuses.
- 2. Scholarship**
 - Represents a scholarship with fields like scholarshipID, name, amount, endDate, and description.
 - Includes eligibility criteria and other necessary details.
 - 3. Application**
 - Represents a student's application for a scholarship.
 - Includes applicationID, studentID, scholarshipID, documents, submissionDate, and status.
 - 4. Profile**
 - Represents student profile details like address, phone number, and education details.
 - Tracks profile completion status.
 - 5. FAQ**
 - Represents a frequently asked question with fields like faqID, question, and answer.
 - 6. Dashboard**
 - Represents an admin's dashboard for managing scholarships and applications.
 - Displays lists of scholarships and applications with summary generation functionality.
 - 7. Database**
 - Represents the storage and management of all data entities.
 - Manages operations such as saving, updating, and retrieving records for users, scholarships, applications, profiles, FAQs, and dashboards.

Boundary Objects

- 1. Authentication Interface**
 - For creating student accounts, verifying email addresses, and completing initial setup. For user authentication (students and admins), including options for password reset and two-factor authentication.
- 2. Profile Management Interface**
 - Allows students to update their profile information (e.g., name, contact details, and academic records and documents).
- 3. Scholarship Interface**
 - Displays a list of scholarships for students to browse
- 4. Scholarship Application Interface**
 - Enables students to view details of a scholarship, apply for it.
- 5. Application Status**

- Displays application progress for students (e.g., submitted, under review, approved, or rejected).

6. Admin Dashboard Interface

- Provides a consolidated view for admins to manage scholarships, view applications.

7. FAQs Interface

- Allows students to ask view some pre-answers in the FAQ section to resolve common queries.

Control Objects

1. User Controller

- Handles student and admin-related operations, such as registration, login, and logout.
- Manages password reset operations (ForgotPassword and ResetPassword).
- Differentiates user roles (Admin or Student) for appropriate access and permissions.

2. Profile Controller

- Handles creation, modification, and deletion of student profiles.
- Checks whether the student's profile section is completed or not.
- Manages file uploads, storage, and retrieval for scholarship applications.

3. Scholarship Controller

- Coordinates the creation, modification, and deletion of scholarships by admins.
- Enforces validation rules (e.g., eligibility criteria, deadlines, and completeness).
- Oversees the application submission process, including document validation and tracking application status.
- Ensures applications are linked to the correct scholarships and student profiles.
- Tracks and updates the status of scholarship applications.

4. Application Controller

- Fetches applications for admins to review and manage.

- Allows admins to update the status of applications (e.g., approved, rejected, pending).
- Retrieves student-specific application histories and statuses.
- Provides application details for both students and admins.

5. Admin Controller

- Fetches and organizes data for the admin dashboard, such as:
 - List of applications and their statuses.
 - Overview of available scholarships and associated data.
- Manages the filtering and sorting of application data based on admin-defined criteria.
- Coordinates updates to scholarship statuses (e.g., active, inactive).

7. Technologies Used

The Scholarship Portal system is designed to streamline the process of applying for and managing scholarships for students and administrators. Built with modern web technologies, the portal features a responsive and intuitive user interface, coupled with a robust backend to ensure efficient operations. The system leverages [React](#), [Node.js](#), [Express.js](#), [PostgreSQL](#), and [Tailwind CSS](#), [Visual Studio Code \(VSCode\)](#) offering reliability, performance, and a polished user experience.

The **frontend**, developed using [React](#), provides a dynamic and interactive user interface. React's component-based architecture allows for reusable and maintainable UI components, facilitating rapid development and consistent design. Styling is enhanced with [Tailwind CSS](#), a utility-first CSS framework that ensures a streamlined design process. Tailwind CSS allows for creating modern, responsive, and visually appealing layouts with minimal effort, ensuring a seamless experience across devices for students and admins.

The **backend**, powered by [Node.js](#) and [Express.js](#), manages server-side logic and APIs. Node.js ensures a fast runtime environment, while Express.js simplifies the creation of RESTful APIs, enabling smooth communication between the frontend and the database. The backend handles critical functionalities such as user authentication, application submission, document management, and admin controls.

The database layer is powered by [PostgreSQL](#), a reliable relational database system. [PostgreSQL](#) ensures secure and efficient storage of structured data, such as user profiles, scholarship details, applications, and associated documents. Its robust querying capabilities and ACID compliance make it a suitable choice for managing complex data relationships and ensuring data integrity.

For development, [GitHub](#) and [Git](#) are used for version control, enabling seamless collaboration among team members. These tools provide features such as branching, pull requests, and issue tracking, ensuring a well-organized and efficient development workflow.

By integrating [Tailwind CSS](#), [PostgreSQL](#), and a modern tech stack, the Scholarship Portal delivers a scalable, secure, and user-friendly platform, making scholarship management simple and efficient for both students and administrators.

In the OSP, [Visual Studio Code \(VSCode\)](#) serves as the integrated development environment (IDE). VSCode's features, including debugging and source control integration, accelerate development. Github is employed for version control, enhancing collaboration.

8. Requirements not implemented

- **Receive Notifications:**
A notification system that allows admins and students to stay informed about important updates, such as new scholarship opportunities, application status changes, or deadlines. This feature was not implemented, limiting proactive communication within the portal.
- **Admin Manage FAQ Section:**
A feature for admins to create, edit, or organize Frequently Asked Questions (FAQs) to address common queries from students. Its absence may result in less clarity and more manual inquiries to admins.
- **Payment of Amount to Students Awarded Scholarships:**
A functionality to facilitate direct payment processing to scholarship recipients through the portal. Since this was not implemented, payment management needs to be handled externally.

9. Assumptions

- Users have access to compatible devices (computers, tablets, or smartphones) with a stable internet connection.
- All users possess a valid and accessible email ID for account registration and communication.

- Users provide accurate and authentic personal and academic information during registration and application.
- Users upload documents in acceptable formats (PDF, JPEG, etc.), adhering to the portal's guidelines.
- The admin users managing scholarships are appropriately trained to use the portal efficiently.
- Users respect copyright and community guidelines while sharing information or documents on the portal.
- The platform's accessibility is assumed to meet the technological capabilities of the target audience.

10. References

- ChatGPT- <https://chat.openai.com/chat>
- Bootstrap- <https://getbootstrap.com/>
- Tailwind CSS- <https://tailwindcss.com/>
- Render- <https://render.com/>
- Postman API- <https://www.postman.com/>