CEBU INSTITUTE OF TECHNOLOGY
UNIVERSITY

IT342-Section SYSTEMS INTEGRATION AND ARCHITECTURE 1

FUNCTIONAL REQUIREMENTS SPECIFICATION (FRS)

Project Title: User Registration and Authentication

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1. Introduction

1.1. Purpose

The purpose of this system is to manage user authentication for a web application. The system will allow users to register accounts, log in, access their profile, and log out securely.

1.2. Scope

This system will handle:

- User registration with firstname, lastname, email, username, and password
- Login authentication with email/username and password
- Profile access for authenticated users only
- Logout functionality
- Prevention of unauthorized access to protected pages

Boundaries:

- Does **not** include password recovery/reset
- Does **not** include multi-factor authentication
- Focused on a single web application environment

1.3. Definitions, Acronyms, and Abbreviations

Term & Definition

UI -Interface

ERD -Entity Relationship Diagram

Auth -Authentication

API -Application Programming Interface

JWT -JSON Web Token, for secure session management

React -Frontend library for building UI

Spring Boot -Backend Java framework

2. Overall Description

2.1. System Perspective

The system is a **web-based authentication module** integrated into a larger application. It communicates between:

- **Frontend (React UI)** for user interaction
- **Backend (Spring Boot API)** for authentication logic
- **Database** to store user credentials and session information

2.2. User Classes and Characteristics

User Type	Characteristics
Guest User	Can register and log in; cannot access protected pages
Authenticated User	Has logged in; can view profile and log out

2.3. Operating Environment

- **Frontend:** ReactJS
- **Backend:** Spring Boot
- **Database:** MySQL/PostgreSQL
- **Tools:** Postman (API testing), Git, Maven/Gradle

2.4. Assumptions and Dependencies

- Users have internet access and a modern web browser
- Database is available and properly configured
- Backend and frontend will be hosted on servers accessible to users
- JWT or session management will be used for authentication

3. System Features and Functional Requirements

Describe each major feature of the system and its functional requirements.

3.1. Feature 1: **User Registration**

Description:

Allows a guest user to create a new account with firstname, lastname, email, username, and password.

Functional Requirements:

- User provides firstname, lastname, email, username, and password
- System validates input (email format, password strength)
- System stores hashed password in database
- Confirmation message is displayed

3.2. Feature 2: User Login

Description:
Allows a registered user to authenticate and access protected pages.

Functional Requirements:

- User submits email/username and password
- System validates credentials
- System creates a session or JWT token
- Authenticated user is redirected to profile

3.3 Feature 3: View Profile

Description:
Allows authenticated users to view their personal information and account details.

Functional Requirements:

- Protected route checks authentication
- User information is retrieved from the database
- Dashboard displays username, email, and other relevant data

3.4 Feature 3: Logout

Description:
Allows authenticated users to log out and invalidate their session.

Functional Requirements:

- System terminates the session/JWT
- User is redirected to login page
- Protected pages are inaccessible after logout

1. Non-Functional Requirements

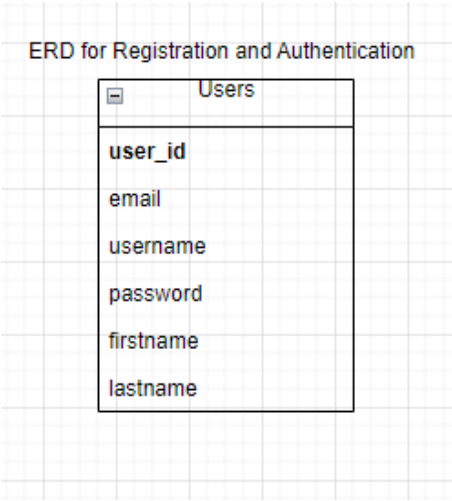
Specify system quality attributes such as performance, security, usability, reliability, etc.

- **Performance:** API responses under 500ms
- **Security:** Passwords hashed, JWT tokens used
- **Usability:** Clear error messages for login/registration failures
- **Reliability:** System available 99% of the time
- **Scalability:** Support for thousands of concurrent users

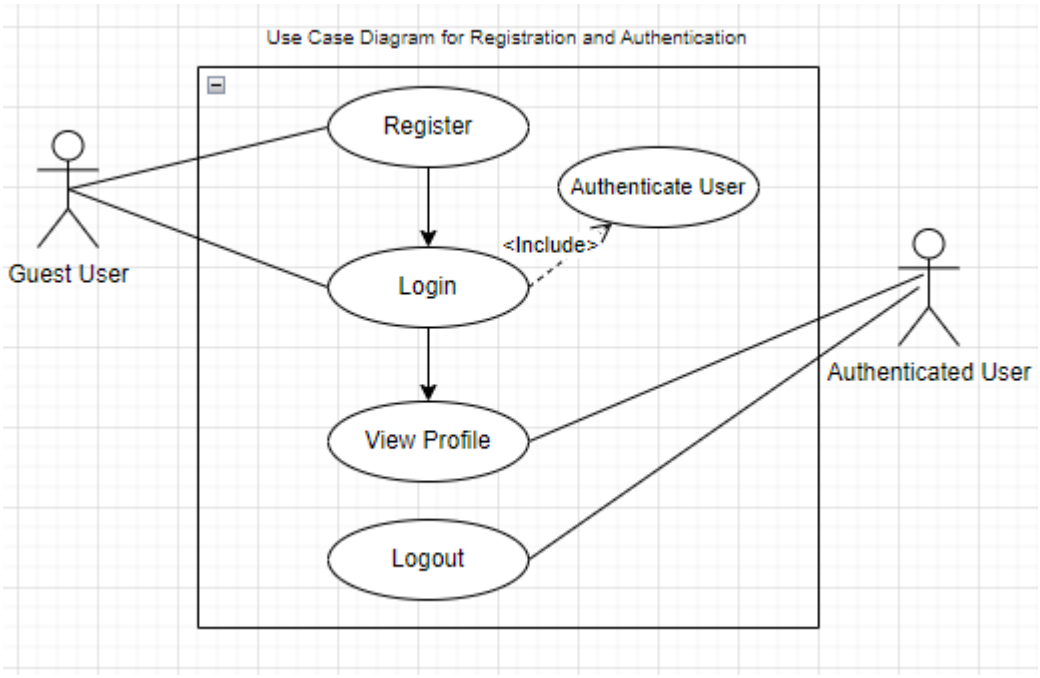
2. System Models (Diagrams)

Insert the necessary diagrams for the system:

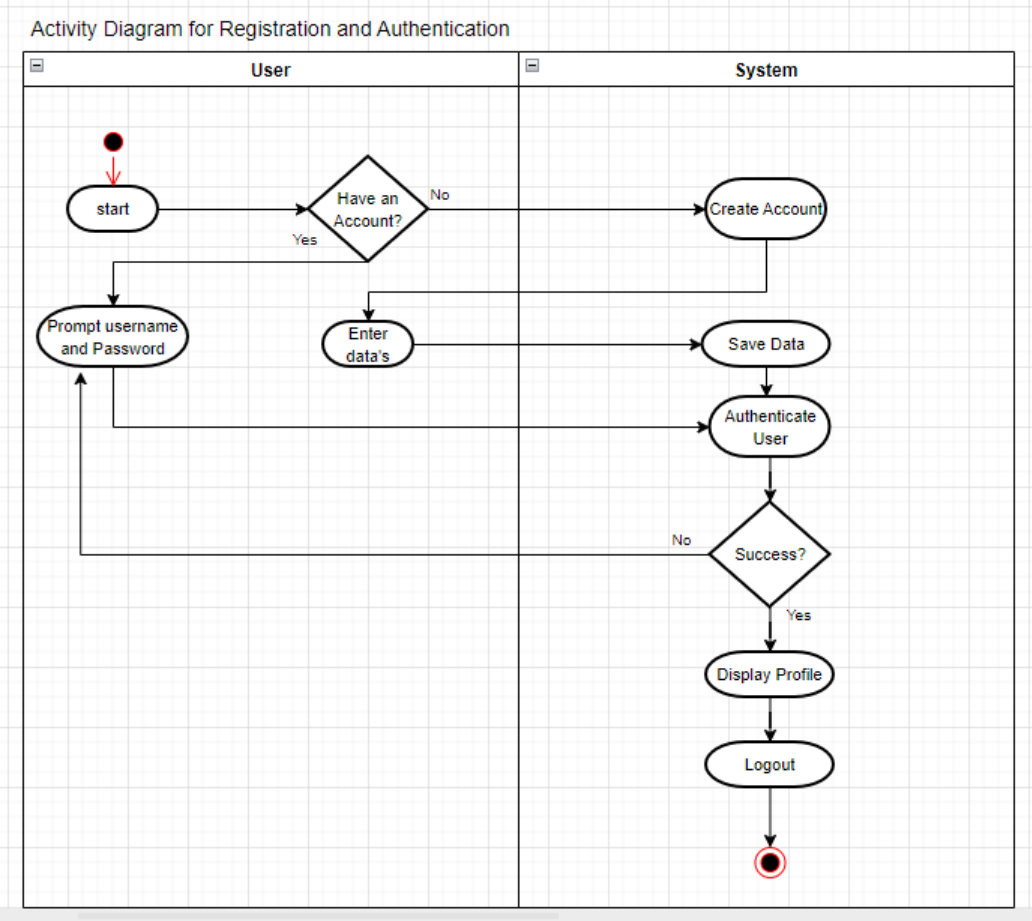
2.1. ERD



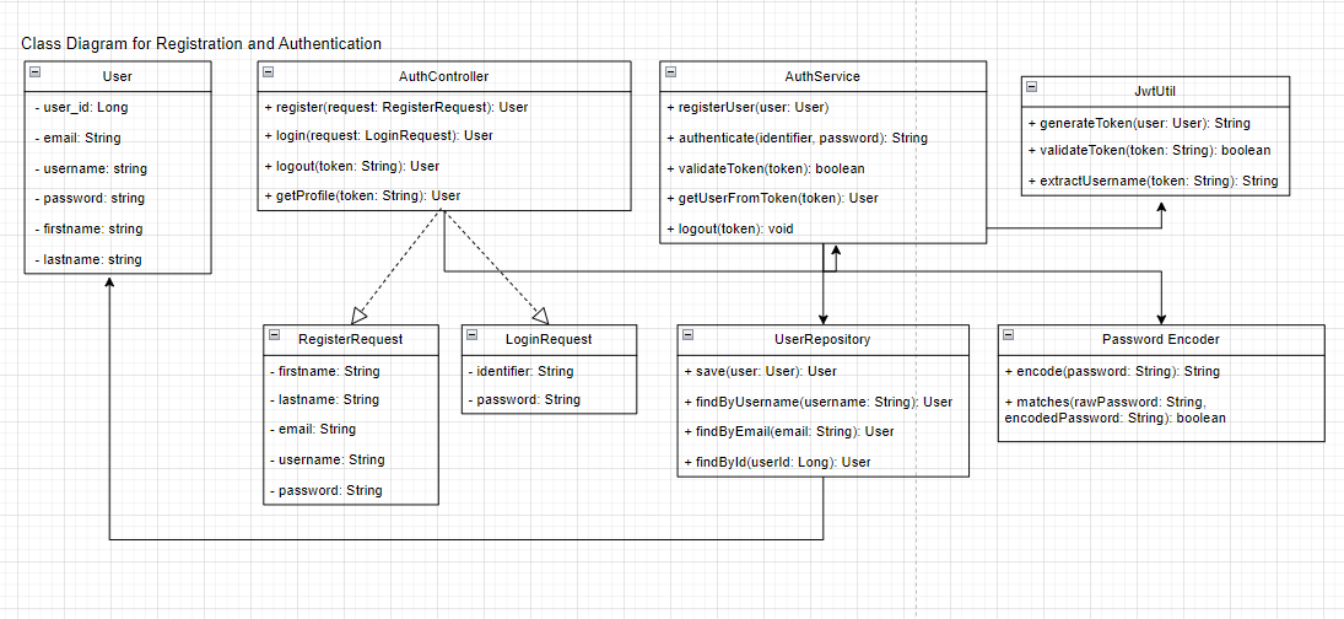
2.2. Use Case Diagram



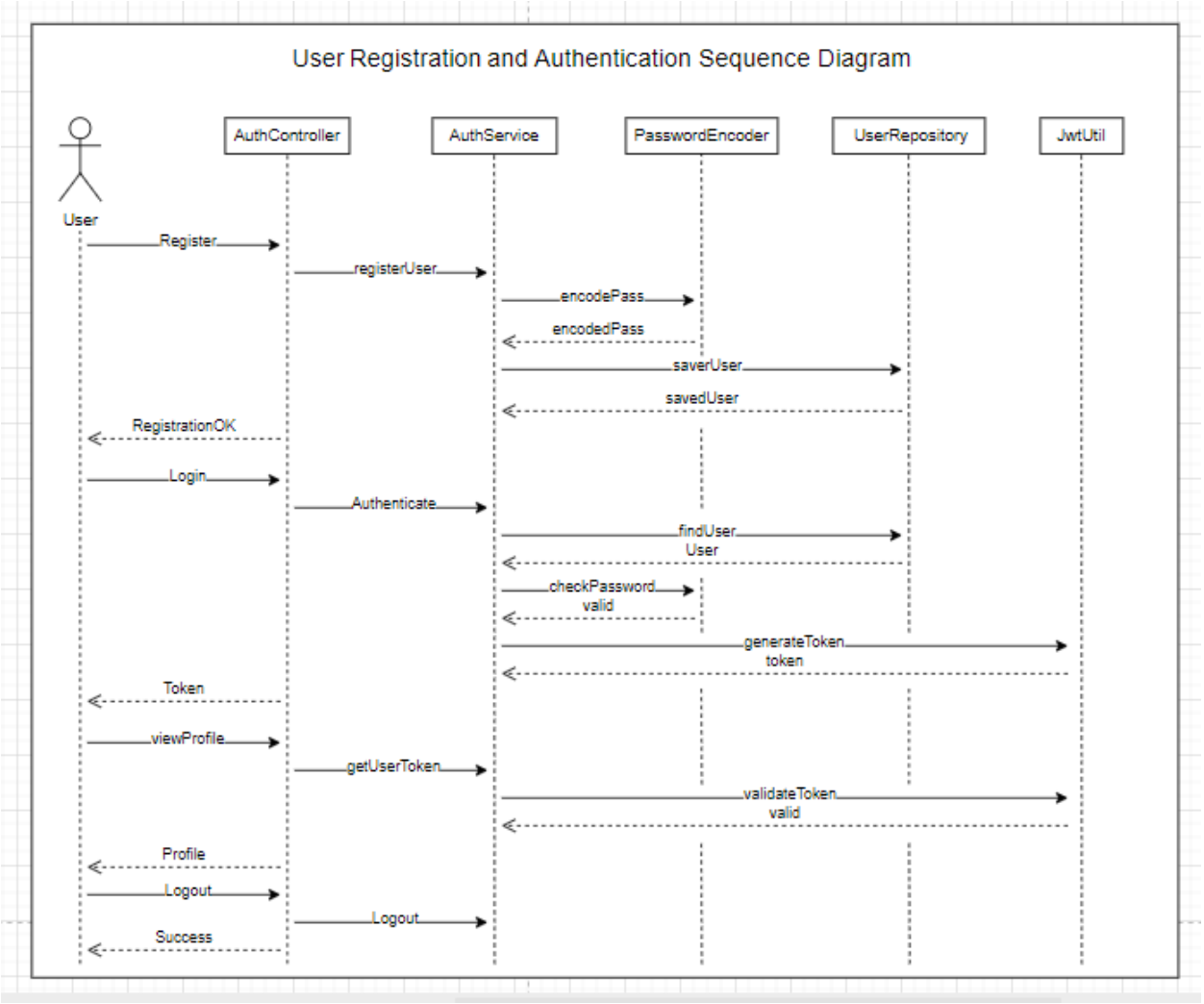
2.3. Activity Diagram



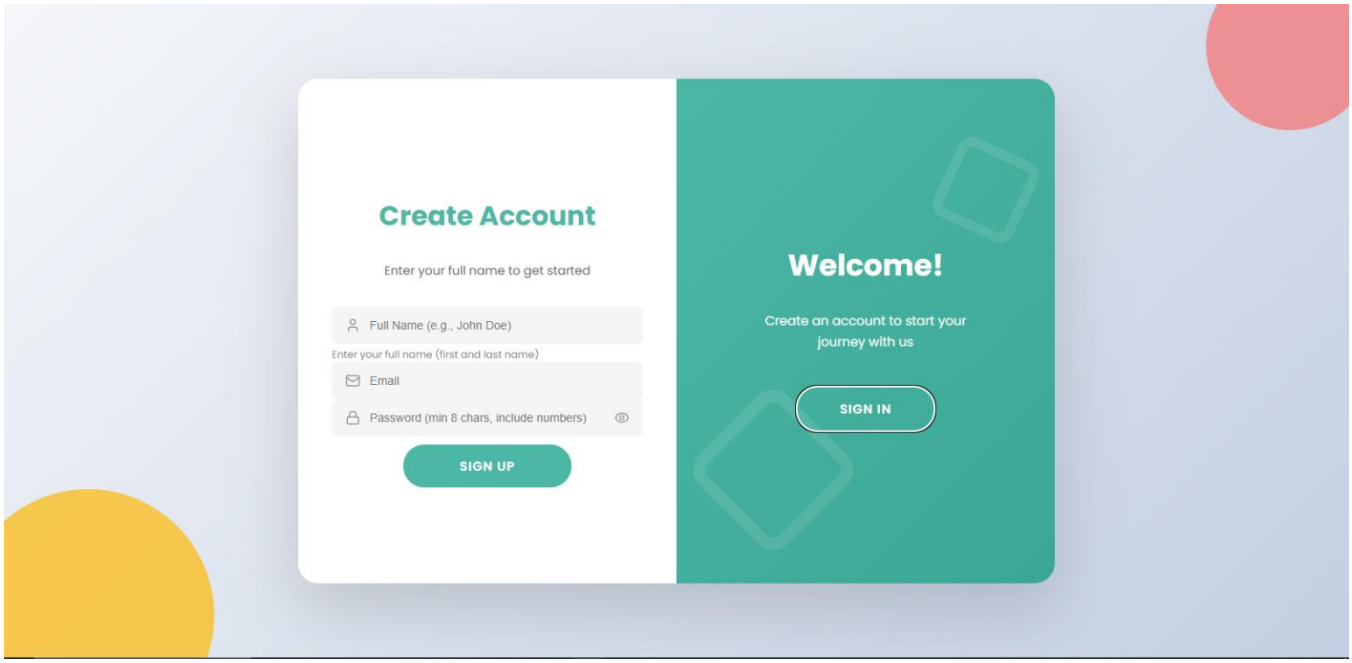
2.4. Class Diagram

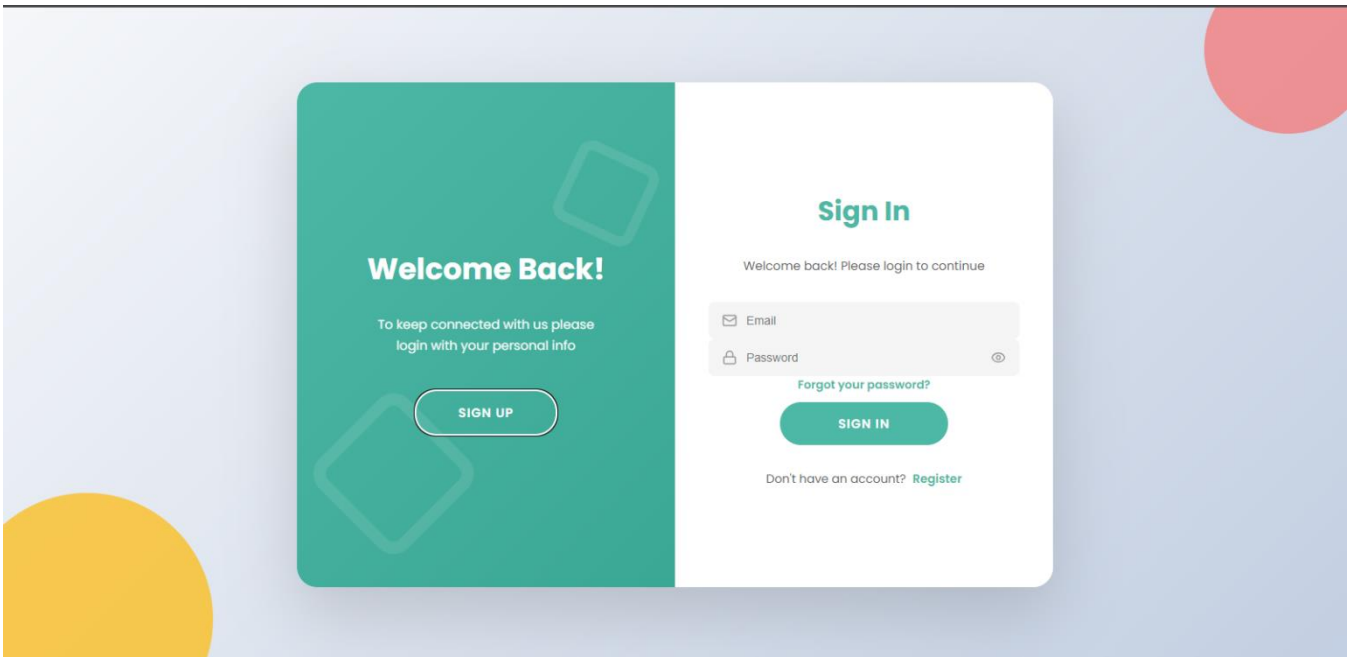


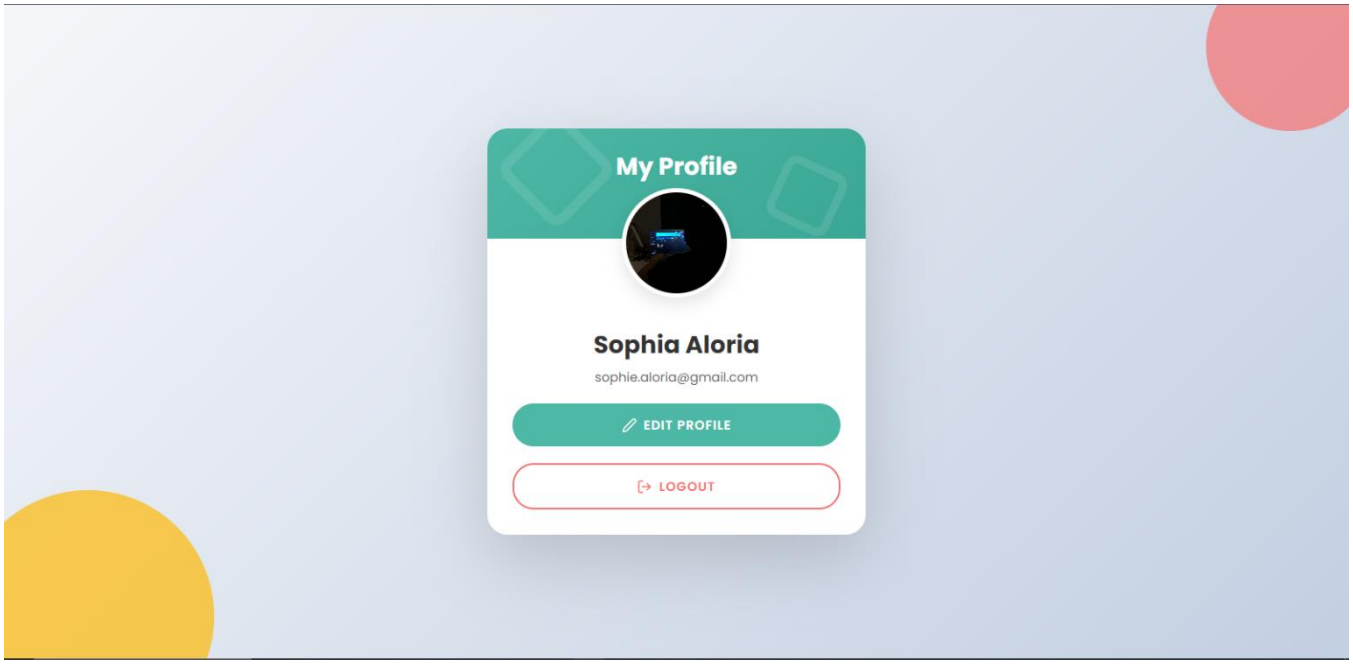
2.5. Sequence Diagram



Screenshots of the WEB UI




Welcome Back!
To keep connected with us please login with your personal info
SIGN UP
Sign In
Welcome back! Please login to continue
Email
Password
Forgot your password?
SIGN IN
Don't have an account? Register


My Profile
Sophia Aloria
sophie.aloria@gmail.com
EDIT PROFILE
LOGOUT

3. Appendices

This section contains supporting materials and references used in the development of the User Authentication System.

A. References

- Spring Boot Official Documentation – https://spring.io/projects/spring-boot
- ReactJS Documentation – https://react.dev
- JSON Web Token (JWT) Introduction – https://jwt.io/introduction
- REST API Design Best Practices – https://restfulapi.net
- OWASP Authentication Guidelines – https://owasp.org

B. Supporting Diagrams

- Use Case Diagram – User Account Management
- Class Diagram – Authentication System Structure
- Sequence Diagram – User Authentication Flow
- ERD – User Database Structure

C. Tools and Technologies

- Frontend: ReactJS
- Backend: Spring Boot
- Database: MySQL / PostgreSQL
- Version Control: Git & GitHub
- API Testing Tool: Postman