IT342-G2
SYSTEMS INTEGRATION AND ARCHITECTURE 1

FUNCTIONAL REQUIREMENTS SPECIFICATION (FRS)

Project Title: Mini App – User Registration & Authentication

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1. Introduction

1.1. Purpose

The purpose of this document is to provide technical specifications for Mini App – User Registration & Authentication System. This document is intended to ensure user flow, system flow and logic are implemented accordingly. The audience is the subject instructor and student developer.

1.2. Scope

The system is intended for user registration and authentication that includes account registration, and correct credential validation. The system boundary is limited to backend API processes and database persistence for user data.

1.3. Definitions, Acronyms, and Abbreviations

ERD - Entity Relationship Diagram
JWT - JSON Web Token
API - Application Programming Interface

2. Overall Description

2.1. System Perspective

The system follows Entiy, Controller, Service, Repository Architecture to ensure that the Database is never accessed directly by the user.

2.2. User Classes and Characteristics

Guest User - An unauthenticated individual who only has access to the registration process only.
Authenticated User - A user who has successfully logged in and can access features like View Profile and Log Out.

2.3. Operating Environment

Backend - Java Spring Boot
Database - SQL-based Relational Database
Tools - Draw.io

2.4. Assumptions and Dependencies

Assumption - The frontend will correctly store and send the JWT Token in the header for protected requests.
Dependency - The system depends on a database connection to correctly perform user registration and 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 by providing their personal details.

Functional Requirements:

- The system shall capture firstname, lastname, email, and password.
- The system shall validate if the data is valid before proceeding.
- The system shall redirect the user to the Login page upon successful registration.
- The system shall persist the user record into the database with a unique userID.

3.2. Feature 2: Login and Log-out

Description: Verifies user identity and manages active sessions.

Functional Requirements:

- The system shall verify credentials against the stored database records.
- The system shall display an error message if the credentials do not match.
- The system shall invalidate the session and redirect to the Login page when the user selects Log Out.
- The system shall Generate a Token upon successful verification of credentials.

3.3. Feature 3: Login and Log-out

Description: Allows an Authenticated User to view their stored information

Functional Requirements:

- The system shall restrict access to the Profile/Dashboard to users with a valid token.
- The system shall retrieve and display the firstname, lastname, and email associated with the logged-in userID.

4. Non-Functional Requirements

Security: Passwords must be encrypted using a PasswordEncoder before being saved to the database.

Usability: The system must provide clear redirection between the registration, login, and dashboard states.

Reliability: The UserRepository must ensure data integrity when performing saveToDatabase() operations.
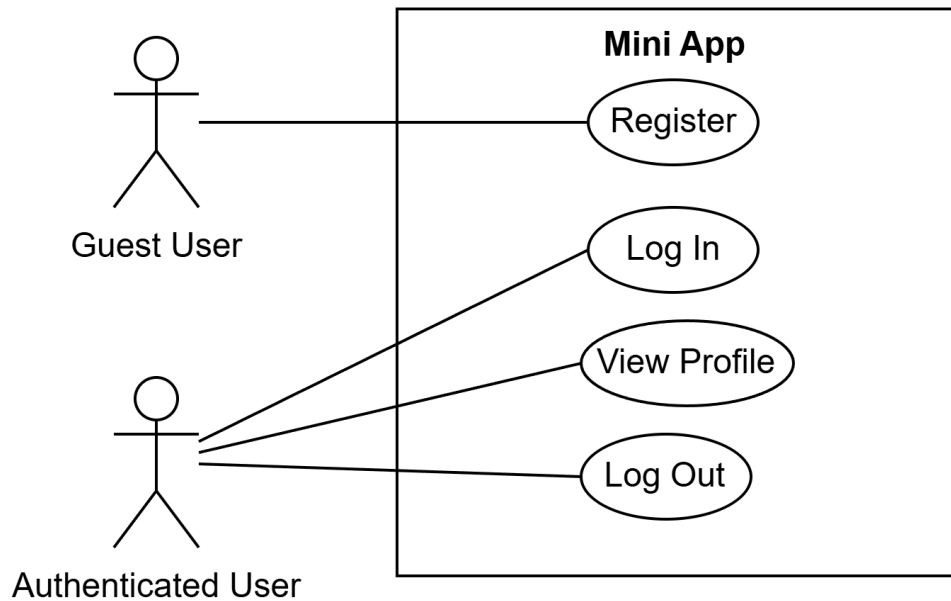
5. System Models (Diagrams)

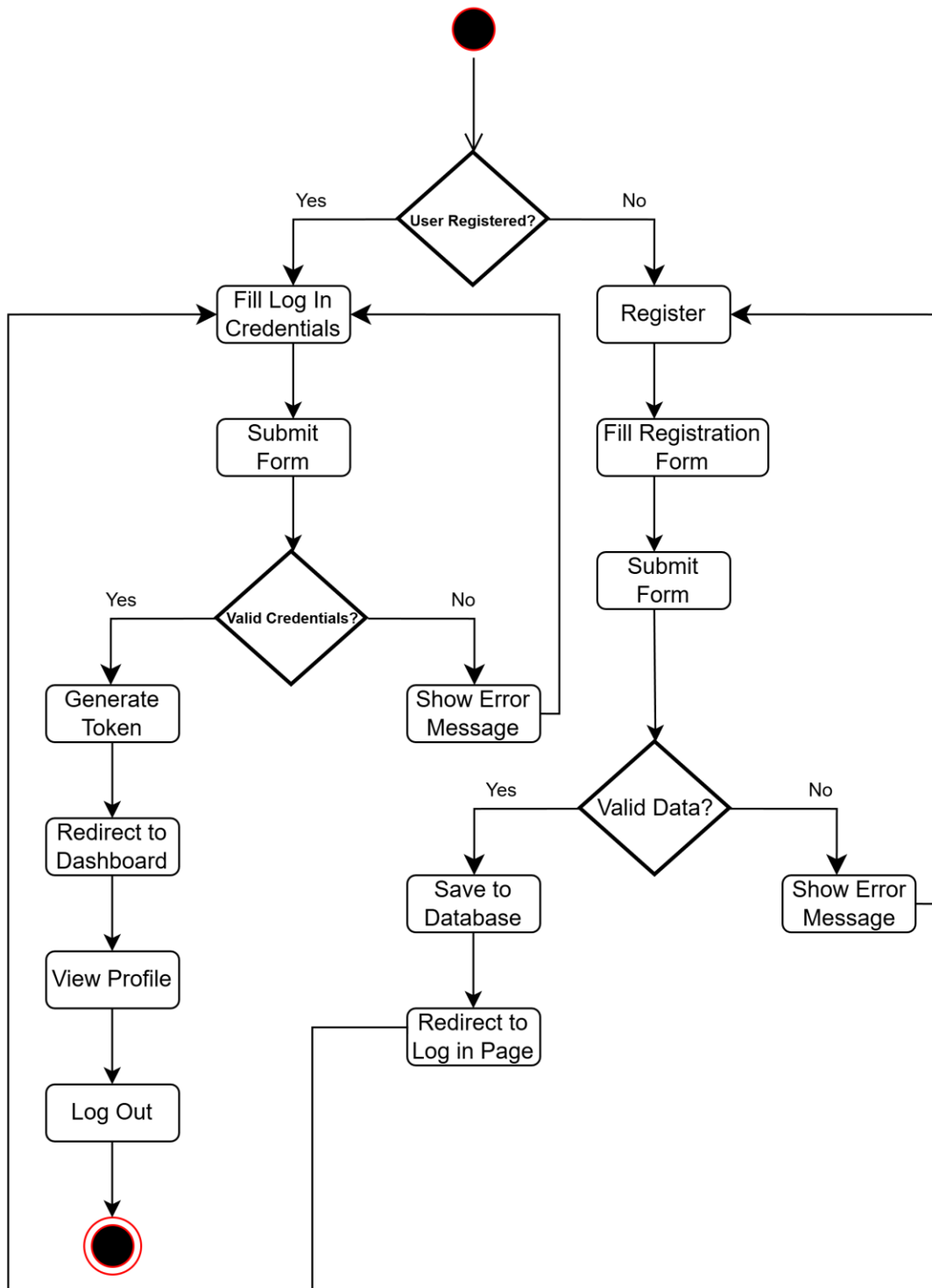*Insert the necessary diagrams for the system:*

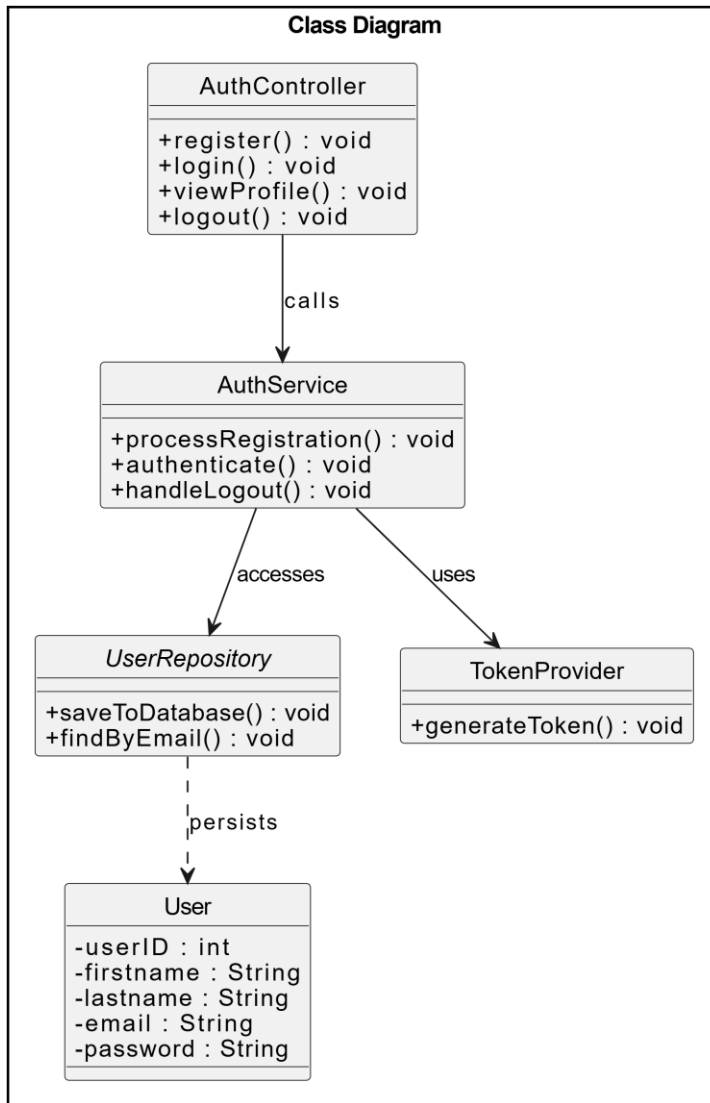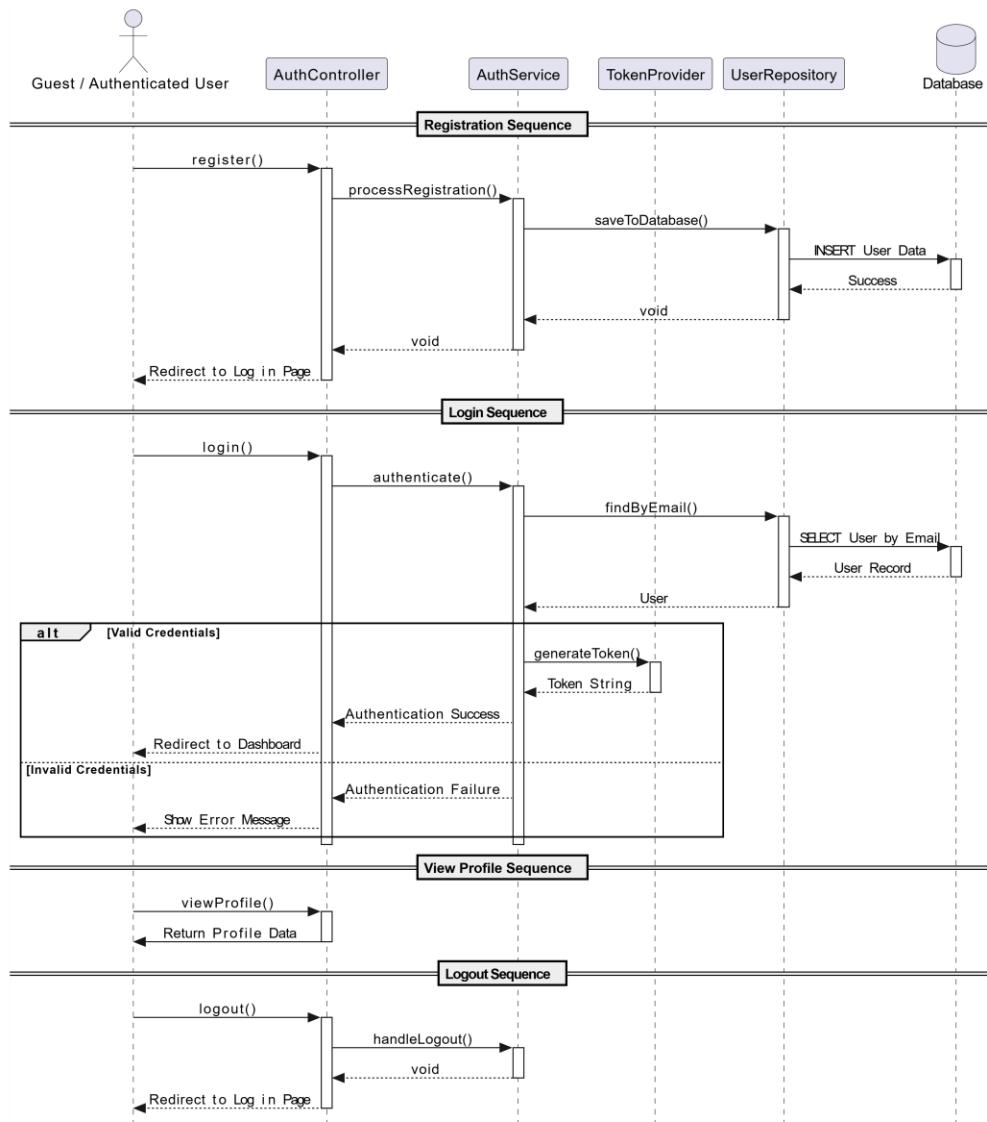| USER		
PK	<u>**userID**</u>	<u>**int**</u>
	firstname	varchar(255)
	lastname	varchar(255)
	email	varchar(255)
	password	varchar(255)

5.2. Use Case Diagram

5.3. Activity Diagram

5.4. Class Diagram

5.5. Sequence Diagram

6. Appendices

Include any additional information, references, or support materials.