Software Requirements and Design Document

for

SHAPE OF YOU

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1. Introduction

1.1 Purpose

Shape of You, a health and fitness management application designed to assist users and fitness professionals in achieving health-related goals.

1.2 Product Scope

The application caters to both the general public and fitness professionals, offering features such as progress tracking, personalized workout and diet plans, fitness education, and seamless communication between users and professionals.

1.3 Title

Shape of You

1.4 Objectives

- Enable users to monitor and manage their health and fitness goals.
- Provide fitness professionals with tools to manage client queries and fitness resources.
- Offer tailored workout and diet plans for personalized fitness journeys.
- Promote education through lectures and health tips for better awareness.
- Allows users to monitor and update their progress.

1.5 Problem Statement

Many individuals struggle with managing their health and fitness goals due to a lack of structured guidance and accessible resources. Shape of You addresses these challenges by providing a digital platform that bridges the gap between users and fitness professionals. The application reduces manual effort, ensures personalized fitness solutions, and promotes health awareness.

2.   Overall Description

2.1   Product Perspective

Shape of You is a **new, self-contained product** designed to provide a reliable solution for health and fitness management. Unlike existing fitness applications that may focus on isolated features such as workout tracking or meal planning, this platform integrates multiple functionalities, offering users a comprehensive experience that encompasses personalized plans, progress analytics, fitness education, and direct access to professional advice.

2.2   Product Functions

- User and fitness professional account creation.
- Tracking progress and generating detailed health reports.
- Providing personalized workout and diet plans based on user stats.
- Offering educational resources, including fitness lectures and health tips.
- Facilitating communication between users and fitness professionals for advice.
- Notifications and reminders for workouts, meals, and other health-related tasks.
- Feedback and ratings for continuous service improvement.

2.3   List of Use Cases

Umer Farooq: (Use Case 1-5)
- Create Account (User)
- Create Account (Fitness Professionals / Trainers)
- Track Progress and Reports
- Generate Personalized Workout Plan
- Generate Personalized Diet Plan

Muhammad Khan: (Use Case 6-10)
- Update Stats
- Access Fitness Lectures
- Ask Professionals:
- Manage Notifications and Alarms
- Submit Feedback and Ratings

Hussain Waseem: (Use Case 11-15)
- Respond to Queries (for Fitness Professionals)
- Send Notifications
- Access Health Tips
- Generate Progress Reports
- Manage Trainer

2.4   Extended Use Cases

Use Case 1: Create Account (User)

· **Primary Actor:** User

· **Scope:** Shape of You Fitness App

· **Level:** User goal

· **Stakeholders and Interests:**

1. User: Wants to create an account to access personalized fitness plans and track progress.

2. System Admin: Needs to validate and store user data and ensures that accounts are created successfully and securely stored.

· **Preconditions:**

1. The user must have the app installed.

2. The user must have access to the internet.

· **Post Conditions:**

1. The system successfully creates and stores the user account.

2. The user has access to personalized fitness goals and plans.

·   **Main Success Scenario (Basic Flow):**

Primary Actor	System
The user opens the app and selects "Create Account."	
	The system prompts the user to enter personal details (name, email, age, height, weight).
The user provides valid input.	
	The system validates the details and creates the account.
The user sets their fitness goals (e.g., weight loss, muscle gain).	
	The system confirms the account creation and provides access to fitness plans.

·   **Extensions (Alternate Flows):** *6. User already has an account:*

The system informs the user and suggests logging in.

·   **Special Requirements:**

   1. The process should be quick and secure.

   2. All input validation must follow standard security practices.

Use Case 2: Create Account (Fitness Professionals)

·   **Primary Actor:** Fitness Professional

·   **Scope:** Shape of You Fitness App

·   **Level:** User goal

·   **Stakeholders and Interests:**

   1. Fitness Professional: Wants to create an account to provide expert advice, fitness plans, and consultations to users.

   2. System Admin: Needs to validate and store user data and ensures that accounts are created successfully and securely stored.

·   **Preconditions:**

   2. The fitness professional must have credentials to verify their expertise (e.g., certifications).

·   **Post Conditions:**

   1. The system successfully creates and stores the fitness professional's account.

2. The professional is now able to provide consultations, share fitness content, and interact with users.

· **Main Success Scenario (Basic Flow):**

Primary Actor	System
The fitness professional opens the app and selects "Create Professional Account."	
	The system prompts the professional to enter personal details (name, email, specialization, qualifications, etc.)
The fitness professional provides valid details and uploads relevant certifications.	
	The system validates the data
	The account is successfully created.
	The professional gains access to the platform and can offer services such as fitness consultations, workout plans, and advice to users.

·

Extensions (Alternate Flows):

5. User already has an account:

> The system informs the user and suggests logging in.

·   **Special Requirements:**

> 1. The process should be quick and secure.
>
> 2. All input validation must follow standard security practices.

Use Case 3: Progress Reports

·   **Primary Actor:** User

·   **Scope:** Shape of You Fitness App

·   **Level:** User goal

·   **Stakeholders and Interests:**

> 1. User: Wants to track fitness progress and view health reports.
>
> 2. System Admin: Ensures data is logged correctly and securely.

·   **Preconditions:** The user must have an account and logged workout data.

·   **Post Conditions:** The user successfully views their fitness history and health reports.

·   **Main Success Scenario (Basic Flow):**

Primary Actor	System
The user logs into their account	
The user selects Progress Report	
	The system generates and displays the selected report

·   **Extensions (Alternate Flows):**

3. Report fails to generate:

The system shows an error and logs the issue for support.

Use Case 4: Generate Personalized Workout Plan

·   **Primary Actor:** User

·   **Scope:** Shape of You Fitness App

·   **Level:** User goal

·   **Stakeholders and Interests:**

1. User: Wants a workout plan tailored to their fitness profile.

2. System Admin: Ensures that generated plans meet user requirements.

·   **Preconditions:** The user must have an active account with personal details and fitness goals.

·   **Post Conditions:** The user receives a customized workout plan and sleep schedule.

·   **Main Success Scenario (Basic Flow):**

Primary Actor	System
User Create Account and login.	
	The system retrieves the user's profile data (age, height, weight, fitness goals)
	The system generates a personalized workout plan and sleep schedule

·   **Special Requirements:**

1. Diet plans should account for user goals.

Use Case 5: Generate Personalized Diet Plan

·   **Primary Actor:** User

·   **Scope:** Shape of You Fitness App

·   **Level:** User goal

·   **Stakeholders and Interests:**

        1. User: Wants a diet plan suited to their nutritional needs and fitness goals.

        2. Admin: Ensures diet plans are appropriate and fit user goals.

·   **Preconditions:** The user must have provided personal details such as age, weight, and fitness goals.

·   **Post Conditions:** The user receives a personalized diet plan.

·   **Main Success Scenario (Basic Flow):**

Primary Actor	System
User Create Account and login	
	The system retrieves the user's profile (age, height, weight, fitness goals)

	The system generates a tailored diet plan based on nutritional requirements

·   **Special Requirements:**

1. Diet plans should account for user goals.

Use Case 6: Access Fitness Lectures

·   **Primary Actor:** User

·   **Scope:** Shape of You Fitness App

·   **Level:** User goal

·   **Stakeholders and Interests:**

1. **User:** Wants to watch fitness lectures and videos to improve their fitness.

2. **Content Creators:** Need a system to deliver and track the success of fitness lectures.

·   **Preconditions:**

1. The user must have an existing account.

· **Post conditions:**

    1. The user successfully watches or participates in a fitness lecture.

Main Success Scenario (Basic Flow):

Primary Actor	System
The user selects "Fitness Lectures" from the app menu.	
	The system displays available fitness lectures.
The user selects a lecture to watch.	
	The system streams the selected lecture.

· **Extensions (Alternate Flows):**

3b. **Lecture fails to load:**

The system informs the user of the error and suggests trying later.

· **Special Requirements:**

    1. The system must support high-quality video streaming.

    2. Lectures should be accessible on multiple devices.

Use Case 7: Ask Professionals

- **Primary Actor:** User

- **Scope:** Shape of You Fitness App

- **Level:** User goal

- **Stakeholders and Interests:**

  1. **User:** Wants to ask questions regarding fitness, health, or diet and receive guidance from professionals.

  2. **Fitness Professionals:** Must be able to respond to queries accurately and in a timely manner.

- **Preconditions:**

  1. The user must have an existing account.

- **Post conditions:**

  1. The user's question is posted in the Q/A section.

  2. A fitness professional provides a response.

- **Main Success Scenario (Basic Flow):**

Primary Actor	System
The user navigates to the "Ask Professionals" section.	

	The system prompts the user to type their question.
The user submits the question.	
	The system posts the question in the Q/A section

- **Special Requirements:**

    1. The system must maintain data privacy for user questions.

Use Case 8: Submit Feedback and Ratings

- **Primary Actor:** User

- **Scope:** Shape of You Fitness App

- **Level:** User goal

- **Stakeholders and Interests:**

    1. **User:** Wants to share feedback or rate lectures, features, or overall experience.

    2. **System Admin:** Collects feedback to improve app features and content.

· **Preconditions:**

    1. The user must have an existing account.

· **Post conditions:**

    1. The feedback or rating is submitted and stored in the system.

    2. The system may use the feedback for improving features or content.

· **Main Success Scenario (Basic Flow):**

Primary Actor	System
The user navigates to the "Submit Feedback" section.	
	The system prompts the user to enter their feedback or rate content.
The user provides their input and submits it.	
	The system saves the feedback and confirms submission.

· **Special Requirements:**

    1. The system must process feedback securely.

Use Case 9: Respond to Queries

·   **Scope:** Shape of You Desktop Application

·   **Level**: User goal

·   **Primary actor:** Fitness Professional

·   **Stakeholders and interests**:

     1. Fitness Professional: Want to answer user queries and engage with users.

     2. User: Need their health and fitness queries resolved.

·   **Preconditions:**

     1. Fitness Professionals must be registered and logged in.

     2. User has posted a query in the Query section.

·   **Post conditions**: The user's query is answered.

·   **Main success scenario**:

Primary Actor	System
Fitness Professional navigates to the Q/A section.	
Fitness Professional views unanswered questions.	

Fitness Professional selects a query.	
Fitness Professional responds to the query with accurate information.	
	System marks query as resolved.

· **Extensions:**

1. 2a: Fitness Professional sees no new questions and exits the session.

2. 4a: Fitness Professional does not know the answer and leaves it for other professionals.

Use Case 10:

· **Use case name:** Send Notifications

· **Scope:** Shape of You Desktop Application

· **Level**: System Goal

· **Primary actor**: System

· **Stakeholders and interests**:

1. User: Needs timely reminders about fitness activities.

2. System Admin: Ensures notifications are delivered correctly.

· **Preconditions:**

1. System is operational and has the capability to deliver notifications.

· **Post conditions**:

1. Notifications are successfully delivered to the user.

· **Main success scenario:**

Primary Actor	User
System checks the user's info.	
System sends a notification alert to the user if necessary.	
	User receives the notification and takes the desired action.

Use Case 11: Access Health Tips

· **Scope**: Shape of You Desktop Application

· **Level**: User goal

· **Primary actor**: User

· **Stakeholders and interests**: - User: Wants to receive relevant and valuable health tips to improve overall fitness and nutrition.

·   **Preconditions**: User is logged in.

·   **Post conditions**: User views health tips.

·   **Main success scenario**:

Primary Actor	System
User navigates to the Health Tips section.	
	Health tips displayed in the health tips section.
Users view health tips.	

·   **Extensions**: 3a. Users are unable to view health tips as the Health Tips section is empty.

Use Case 12:

·   **Use case name**: Generate Progress Reports

·   **Scope**: Shape of You Desktop Application

·   **Level**: System goal

·   **Primary actor**: System

·   **Stakeholders and interests**: - User: Needs clear reports on fitness.

· **Preconditions**:

1. User has recorded workout and health data in the system.

2. System has capabilities to generate reports.

· **Post conditions**: The system provides an accurate progress report based on the user's historical data.

· **Main success scenario**:

Primary Actor	User
The system monitors the user's workout and health data in real-time or after each session.	
	User Clicks Progress Report
The system processes the data.	
The system generates and displays a progress report with relevant data.	

· **Extensions:**

1. 4a. System unable to generate report, as system does not have the necessary data.

2.5   Use Case Diagram
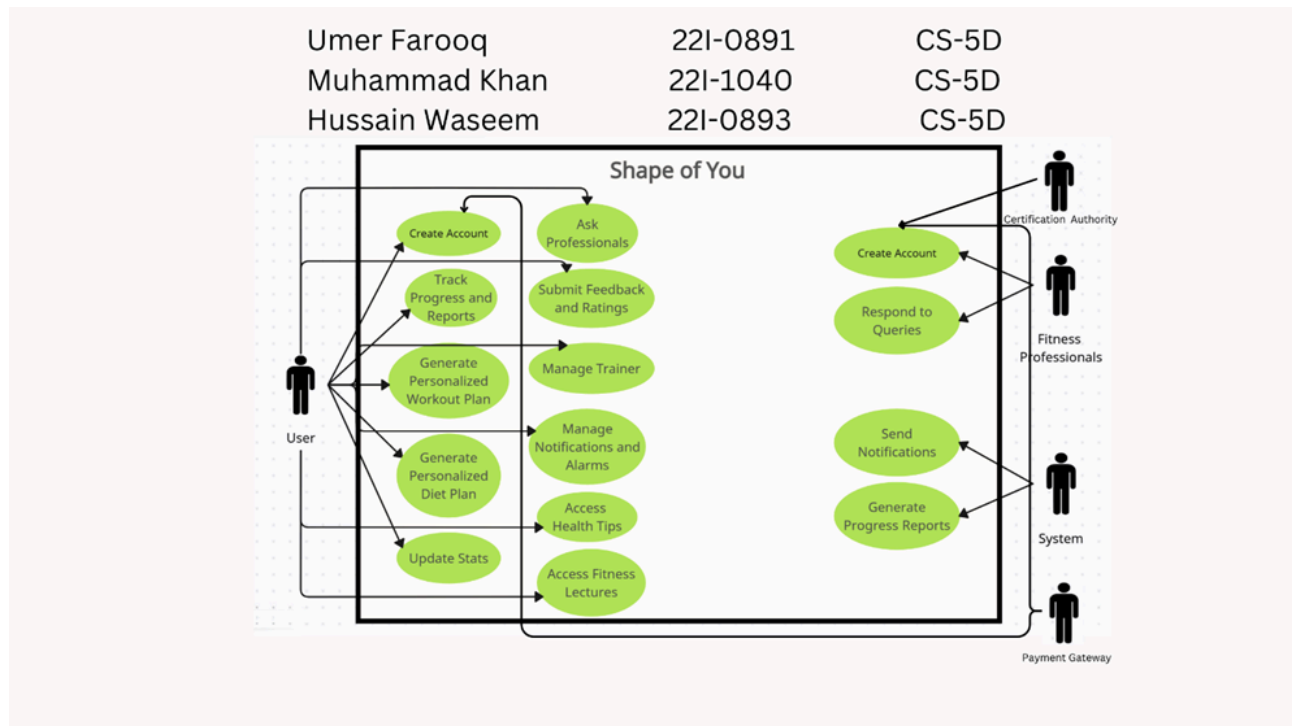
3.   Other Nonfunctional Requirements

3.1   Performance Requirements

- Users must input correct data to obtain the best possible personalized plans to achieve their fitness goals.
- All user interactions, including page loads and feature access, should have a response time of less than **2 seconds** under normal conditions.
- System should be able to support at least 100 users.

3.2   Safety Requirements

- The application must not recommend extreme or unsafe workout or diet plans.

3.3   Security Requirements

- Users must possess a unique username and password.

- User data will not be accessible or shared with any third party.

3.4   Software Quality Attributes

- Designed to require minimal learning, with no more than **5 minutes** needed for a new user to understand the basic functions.
- Chances of Data sync errors are **improbable** in typical usage scenarios.
- The system architecture allows **updates and fixes**.

3.5   Business Rules

- General users can only access their own stats, plans, and reports.
- Trainers can not view user data. They can only respond to queries and upload fitness resources.
- System ensures Data Integrity.

3.6   Operating Environment

Hardware Platform:

- 4GB RAM, 4GB storage (8 GB recommended for smooth experience).

Operating Systems:

- Microsoft Windows 10/11.

Software Requirements:

- **IDE:** Spring Suite Tool 4 (STS).
- **JDK:** Java Development Kit (JDK) version 11 or above.
- **Spring Framework:** Spring Boot 2.7.
- **Database:** MySQL (version 8.0).
- **Scene builder**: version 23
- **Java FX:** version 23.

3.7   User Interfaces

The *Shape of You* application will feature a user-friendly, responsive and visually appealing interface that caters to both general users and fitness professionals.
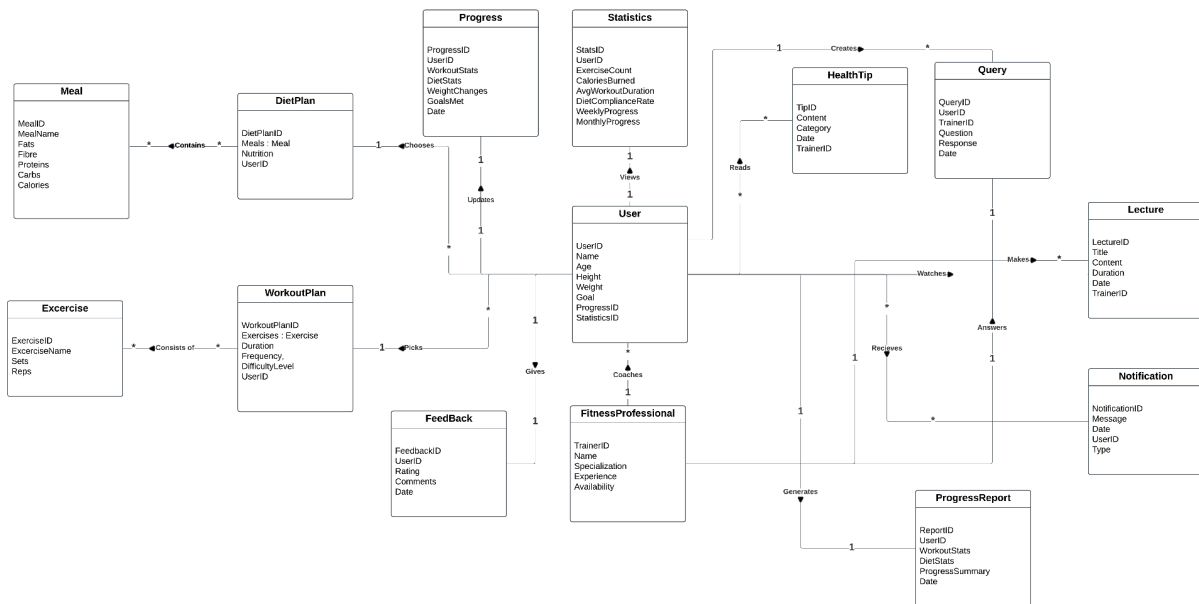
Interfaces

- **Home Screen**: A dynamic dashboard displaying user-specific metrics such as daily calorie count, upcoming workouts, and quick access to reports.
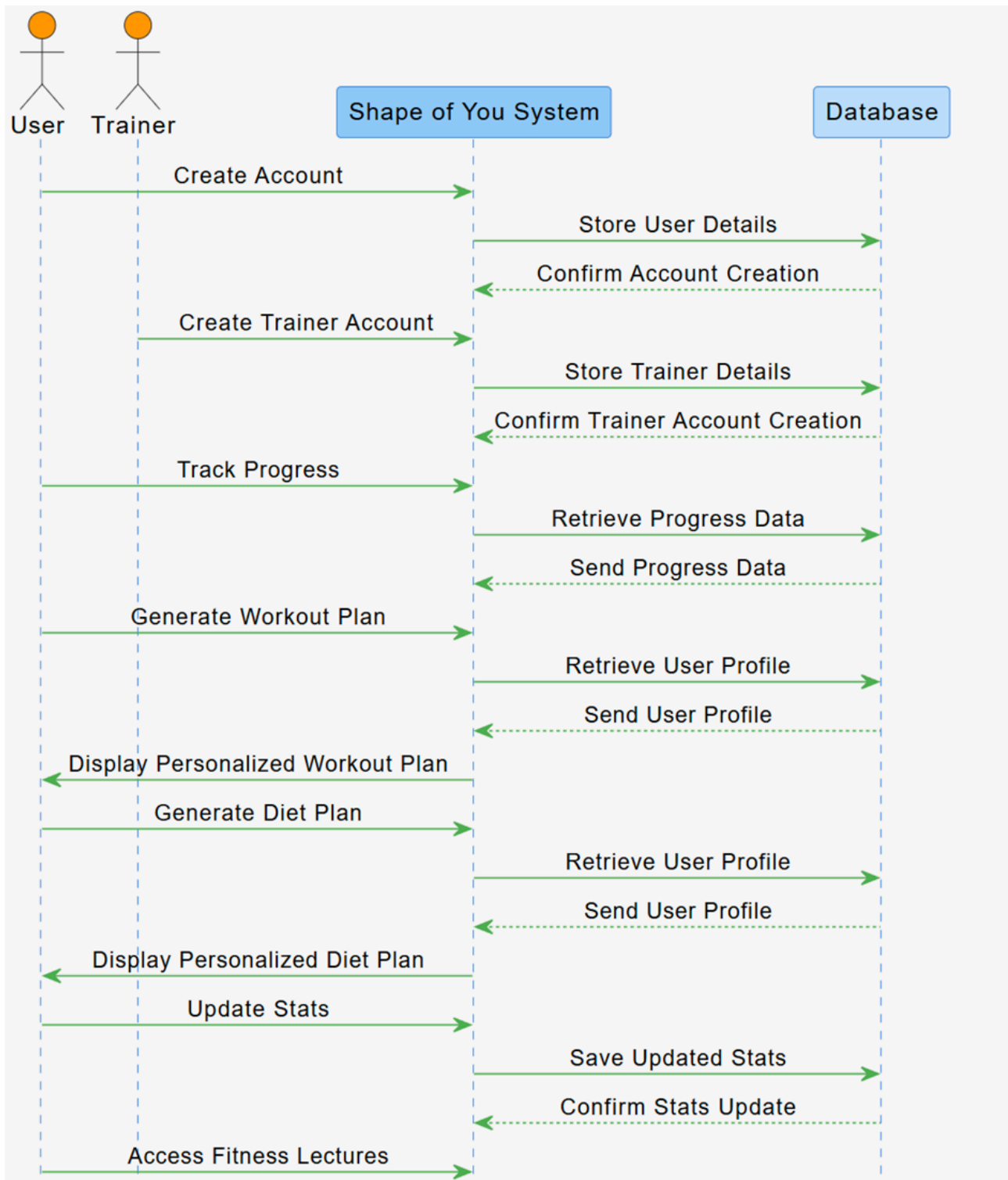
- **Account Creation Screens**: Simple forms for user and professional account registration.
- **Workout and Diet Plan Screens:** Viewer friendly interfaces to choose and view plans.
- **Professional Interaction:** A messaging interface for users to submit queries and receive responses from professionals.
- **User Info:** Easily accessible and editable.
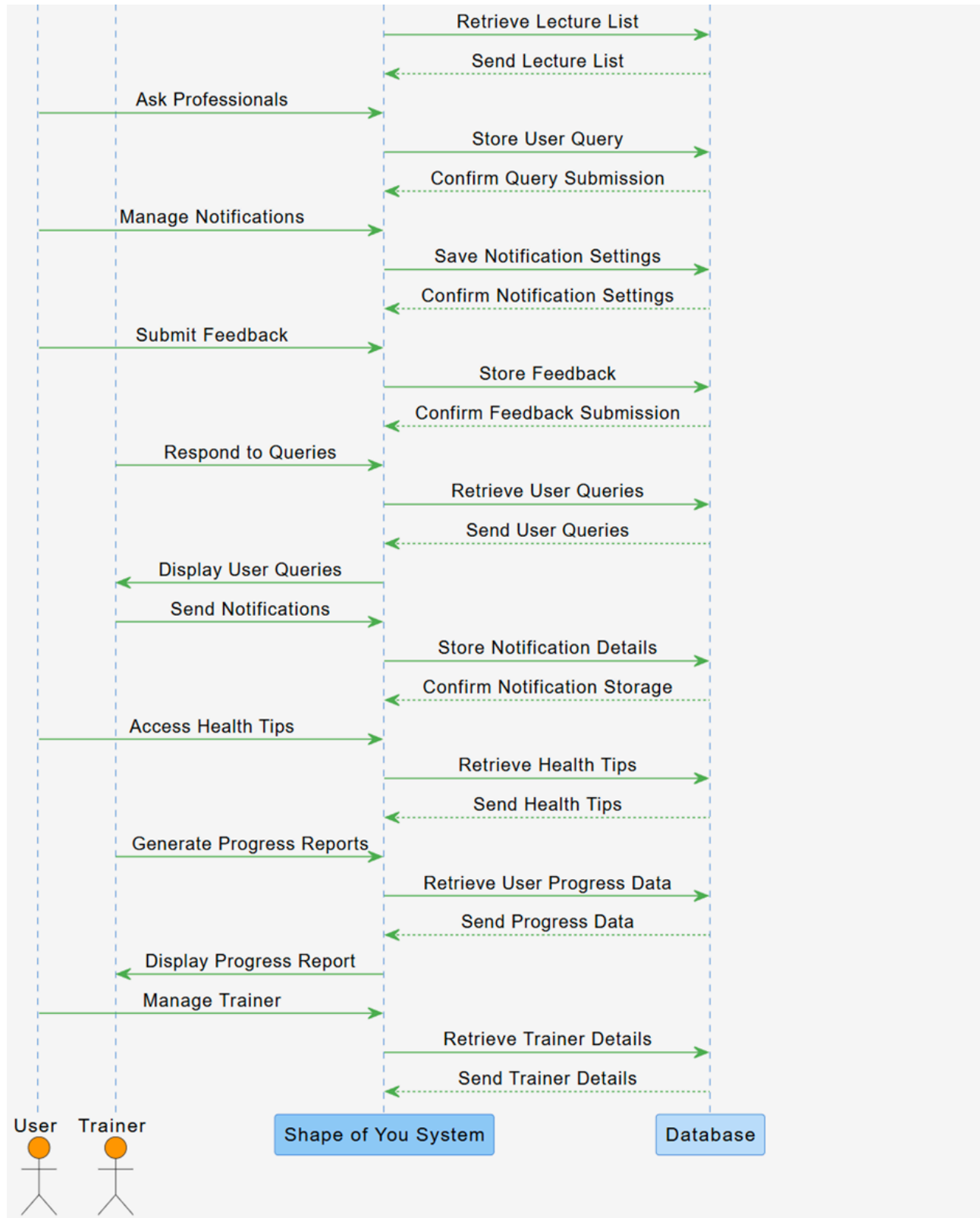- **Resources Screens:** Easy to view and upload Health tips and lectures.
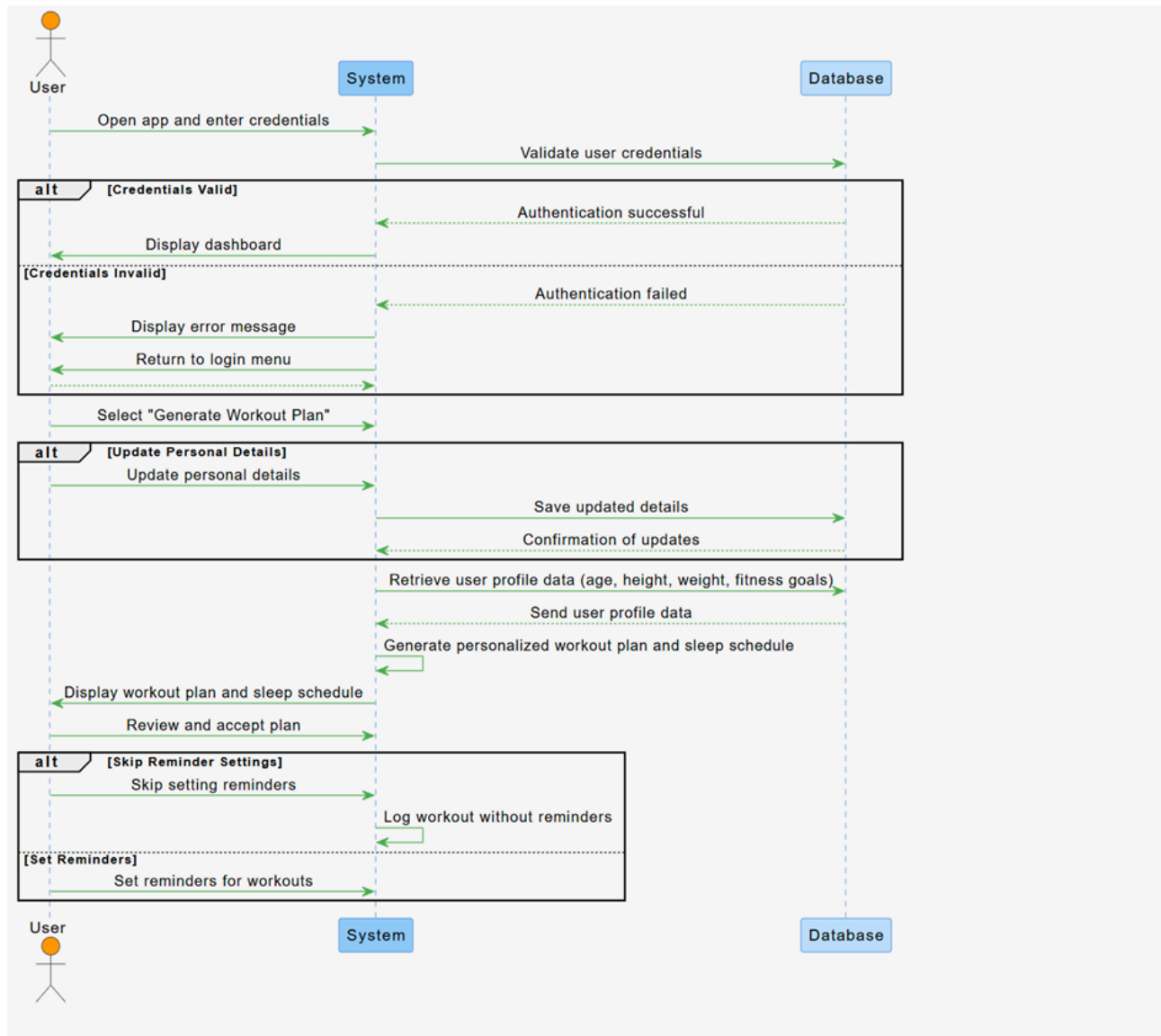
4. Domain Model

DOMAIN MODEL
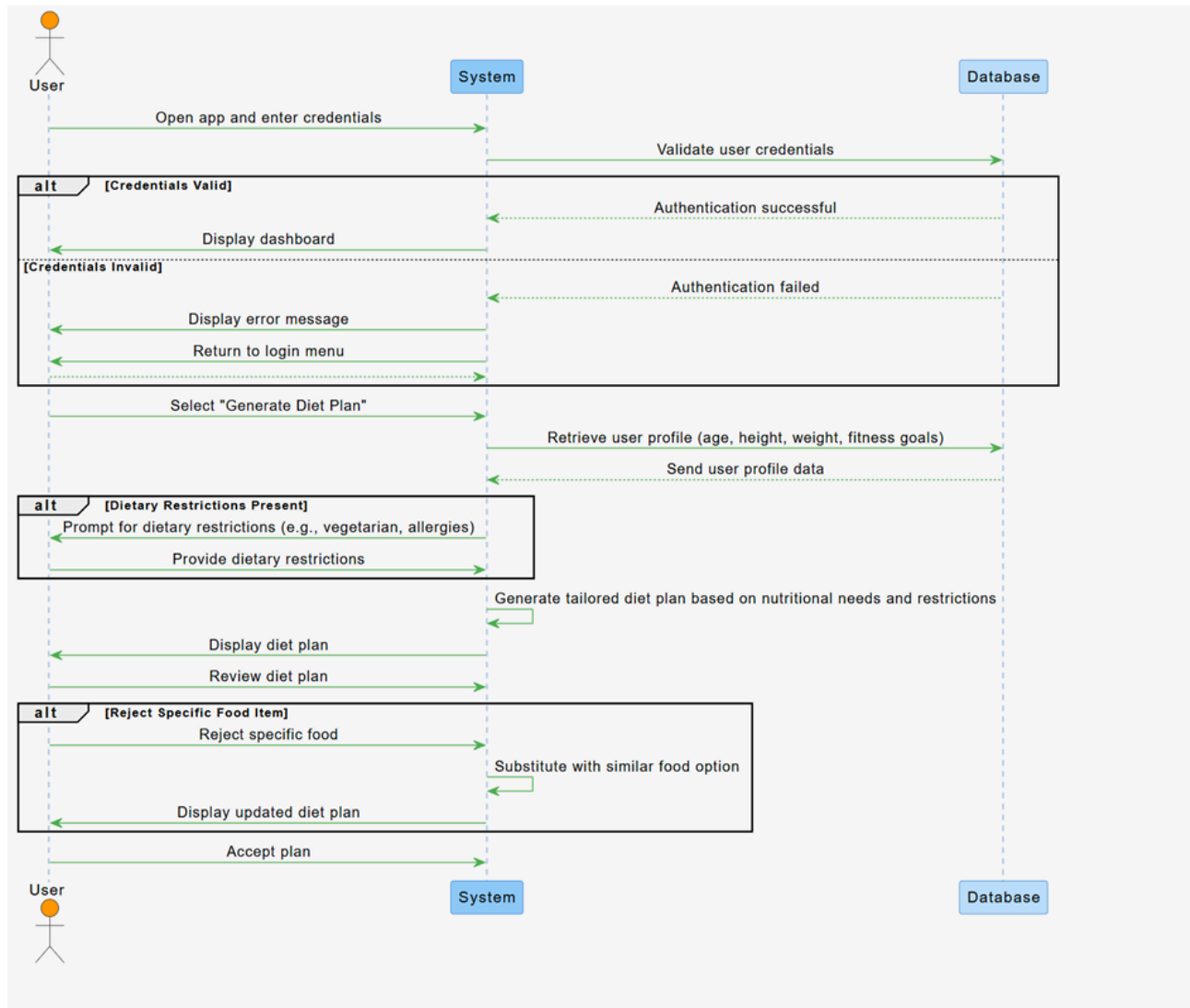
5. System Sequence Diagram

User   Trainer   Shape of You System   Database

Create Account

Store User Details

Confirm Account Creation

Create Trainer Account

Store Trainer Details

Confirm Trainer Account Creation

Track Progress

Retrieve Progress Data

Send Progress Data

Generate Workout Plan

Retrieve User Profile

Send User Profile

Display Personalized Workout Plan

Generate Diet Plan

Retrieve User Profile

Send User Profile

Display Personalized Diet Plan

Update Stats

Save Updated Stats

Confirm Stats Update

Access Fitness Lectures

Retrieve Lecture List

Send Lecture List

Ask Professionals

Store User Query

Confirm Query Submission

Manage Notifications

Save Notification Settings

Confirm Notification Settings

Submit Feedback

Store Feedback

Confirm Feedback Submission

Respond to Queries

Retrieve User Queries

Send User Queries

Display User Queries

Send Notifications

Store Notification Details

Confirm Notification Storage

Access Health Tips

Retrieve Health Tips

Send Health Tips

Generate Progress Reports

Retrieve User Progress Data

Send Progress Data

Display Progress Report

Manage Trainer

Retrieve Trainer Details

Send Trainer Details

User   Trainer   Shape of You System   Database

6. Sequence Diagram

1. Generate Personalized Workout Plan:
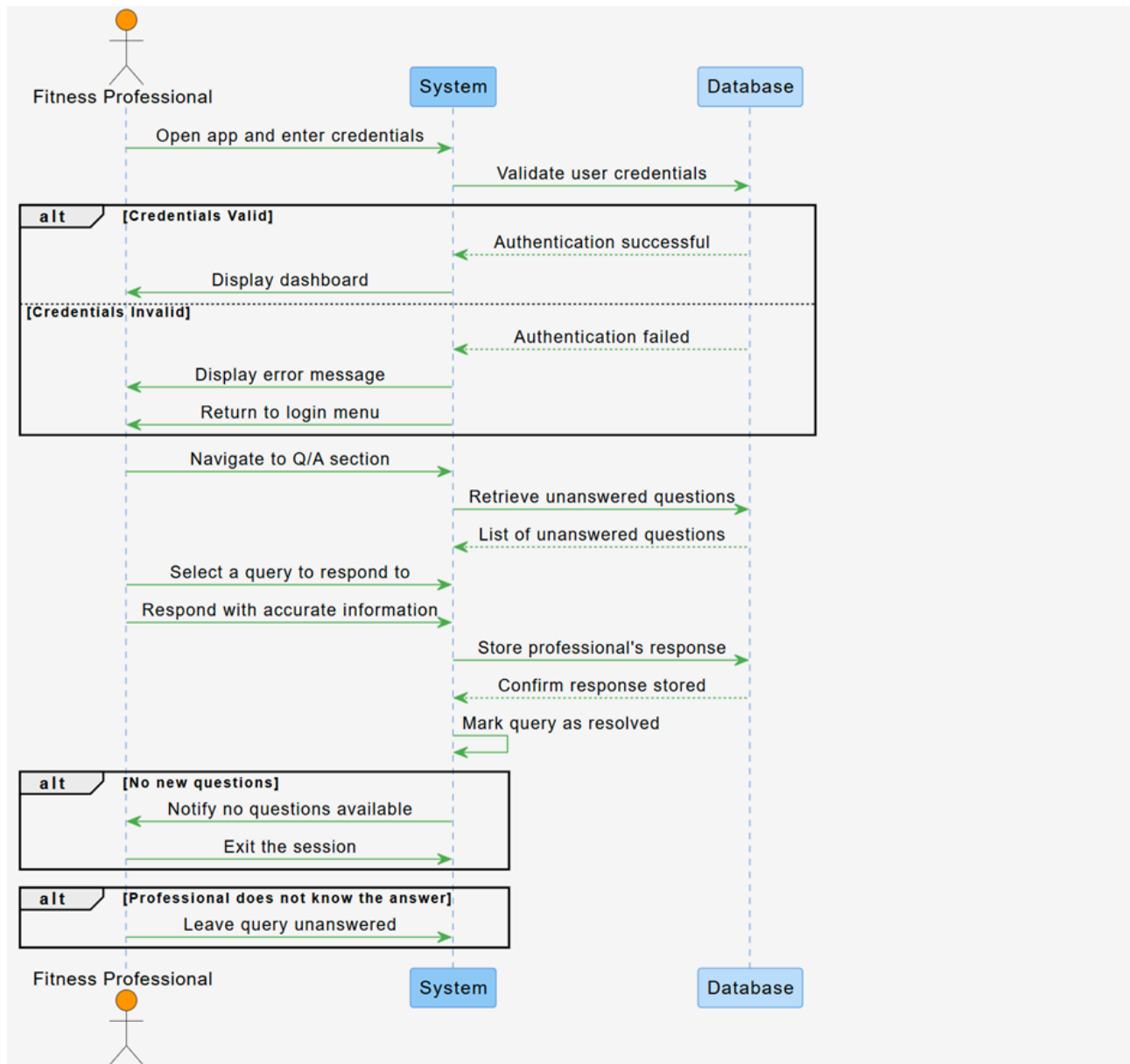
2. Generate Personalized Diet Plan:

3. Access Fitness Lectures:
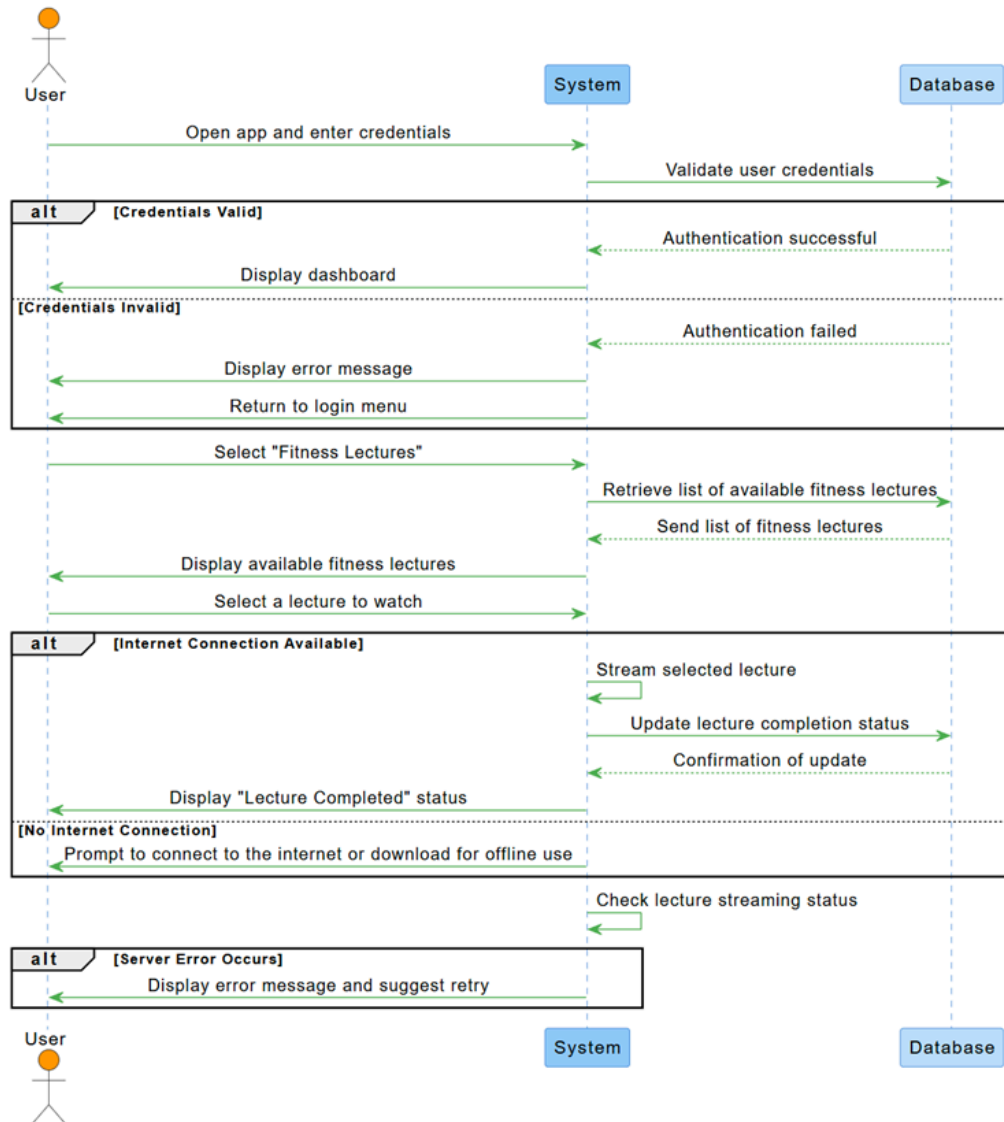
4. Ask Professionals:
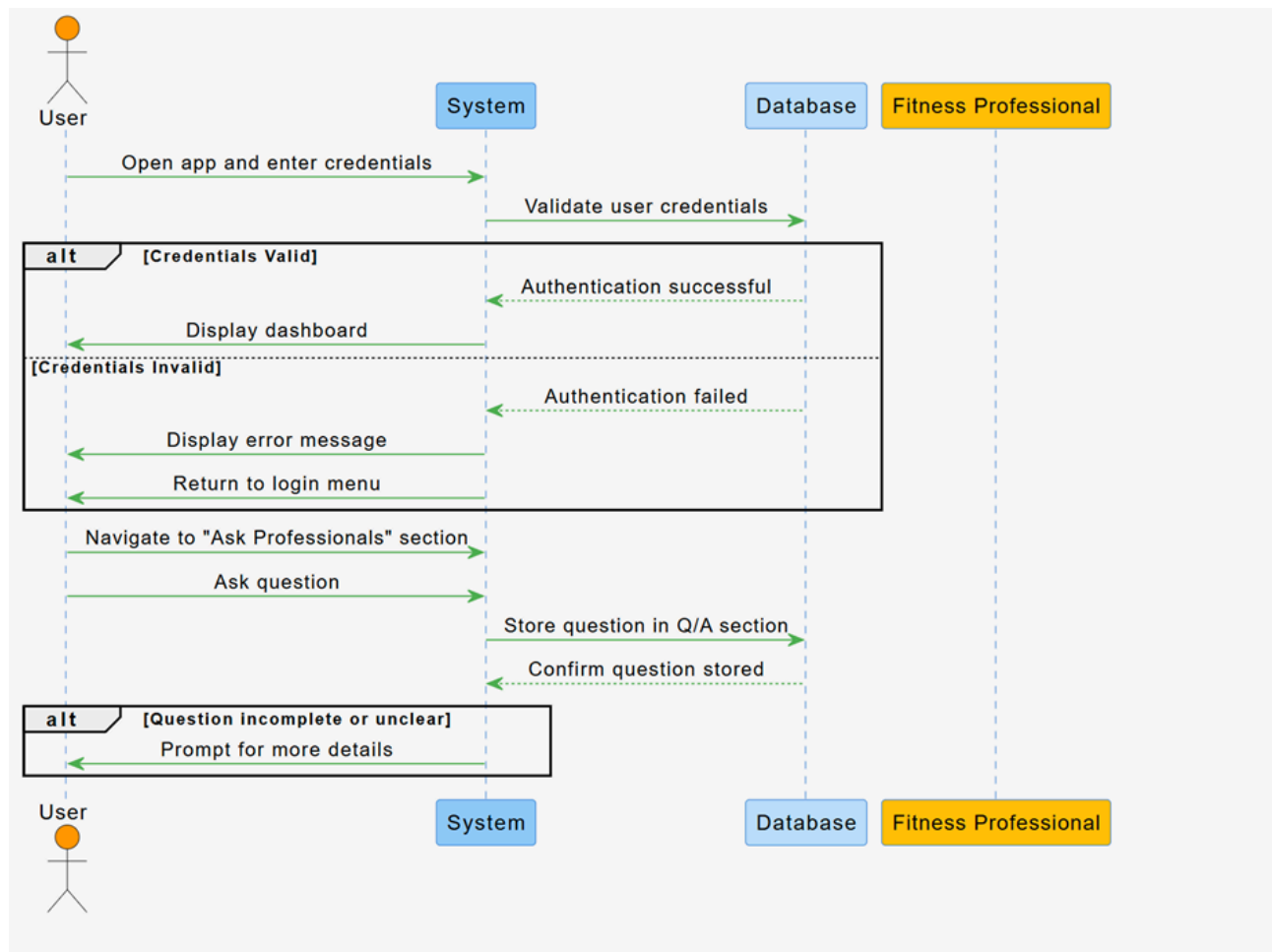
5. Respond to Queries:

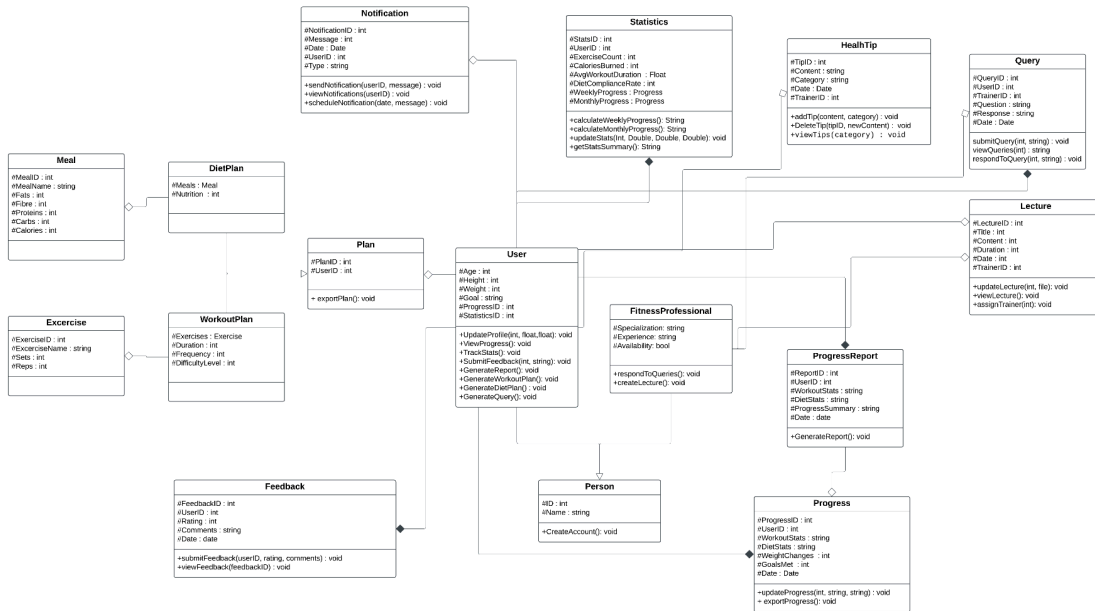# 7.   Class Diagram

CLASS DIAGRAM

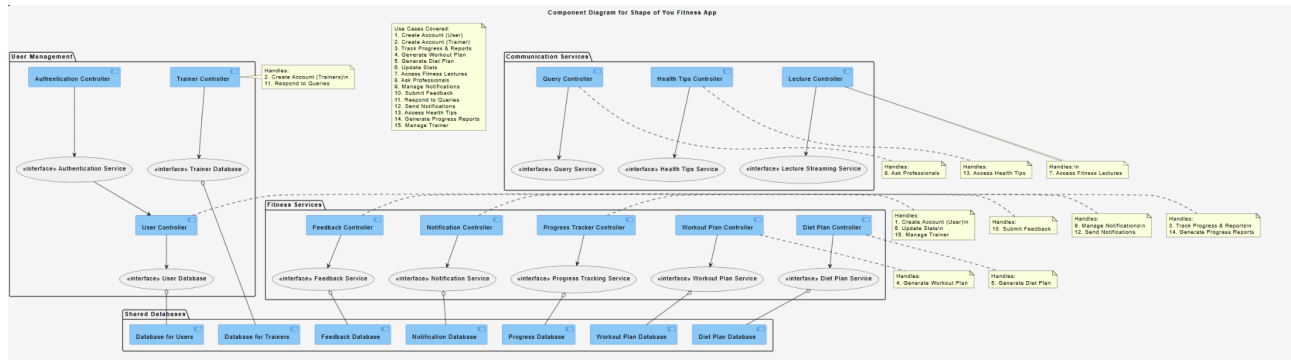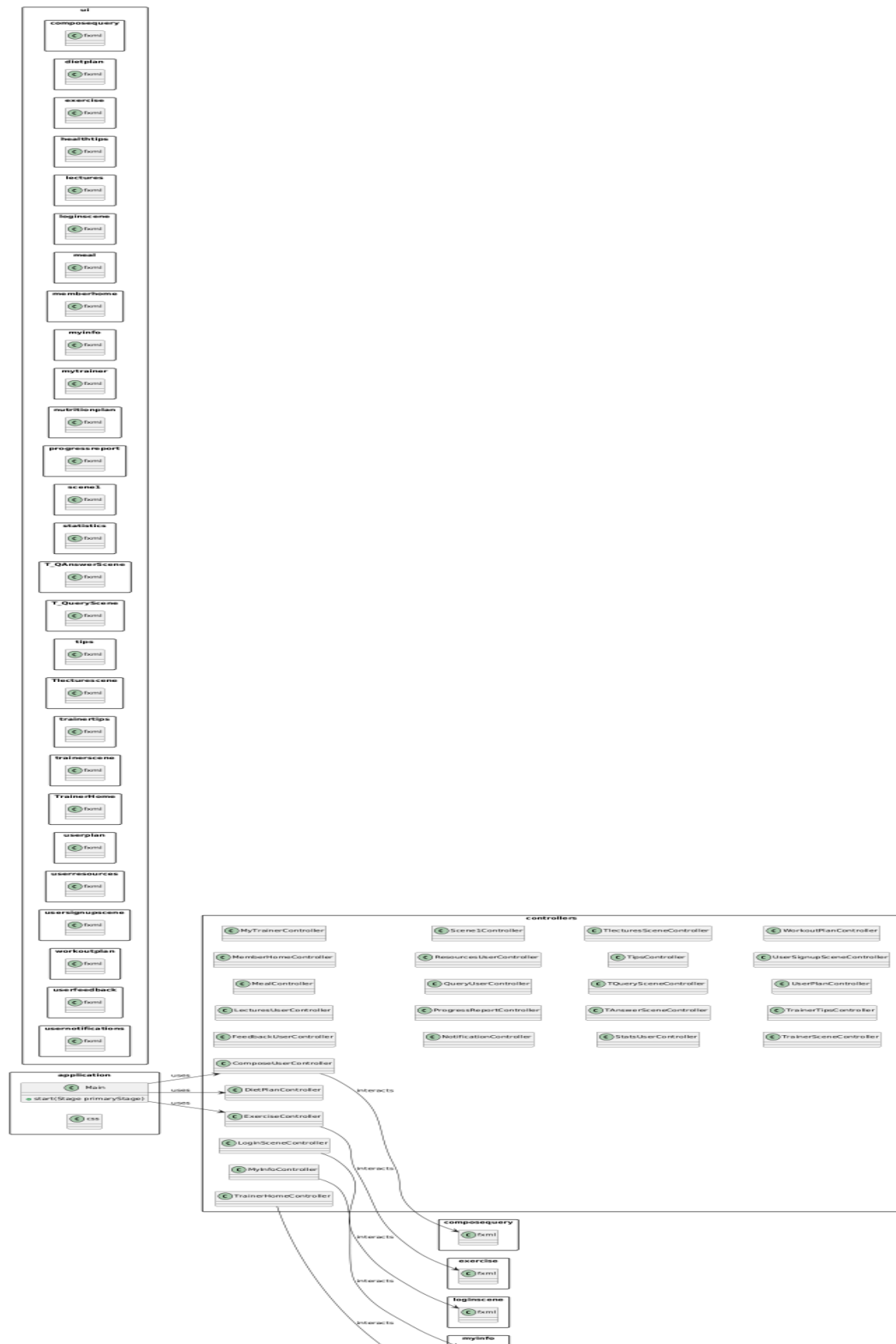# 8.   Component Diagram

9. Component Diagram

10. Deployment Diagram