NAVIGATION

PROBLEM STATEMENT →

CONSTRAINTS & PRECONDITIONS →

PLAN OF USE FOR SOFTWARE →

SUB GROUP DETAILS →

Problem Statement

We will develop a website that can help the average person calculate their calorie intake and the corresponding weight gain/loss and then make logical suggestions to optimise their workout and daily exercise regime
Users could check this website frequently to see how on-track they are with their fitness goals.

Just reading the nutritional label of our food is not enough to determine if our caloric and health goals are being met. At the same it is also difficult to calculate energy expenditure based on daily activities and what fitness plan is best for us.

With our website, we set the groundwork for current technologies to assist current calorie counters better. It can also convince new people to pursue a healthier lifestyle by getting an easy and clear picture of what their daily diet and activity does to their weight.

Constraints & Preconditions

CONSTRAINTS	PRECONDITIONS
To recommend accurate fitness and excercise regime we require the user to enter details like age, height, weight, gender, physique etc to the best of his/her knowledge. We cannot work without this.	User knows and correctly enters the amount and type of food he/she ate in the past 5 days before getting work out suggestions. Our system will depend on this quantitative data.
We assume that the user periodically updates weight, height, and other physical changes.	The user provides the purpose and goal. Eg: exercising for weight loss, muscle and body shaping, general fitness etc.
We assume that the user enters food intake data for all meals he/she takes. Our system will not account for missing data.	

Plan of Use for Software

Our software can be used by anyone aged 13+ to keep their fitness on track. Other than personal use, our software can also be deployed by fitness centres and gyms to help their customers reach their goals faster and efficiently. The trainers can use our software to suggest their clients better fitness regimes.

In future we hope that a large number of users use our software regularly which will in turn improve our prediction algorithm for everyone.

Sub-Group Details

Version 0

This team will build a basic implementation of the software (MVP) using files as inputs and basic class inheritance system to get the technical aspects of the software started.

- Developing basic class hierarchy system
- Preliminary predictions based on simple algorithms and data banks
- Data input using excel and processing in Java

User Interface

This team will work on creating input forms and interactive user components. In future they will enhance user experience and make calorie tracking smooth and simple.

- Designing the Website UI and UX
- Prototypes to assist development
- Figma designing tool

Frontend

This team will build the client side of the website. They will create interactive forms based on the guidelines of the UI team. They will also write the code to pass the data to the backend.

- Easy-to-use interface for the user.
- Implement CSS Libraries like Tailwind, Bootstrap
- HTML, CSS, JavaScript

Database

This team will build a database management system by leveraging the power and speed of cloud storage. This data will be accessible to the analytics team for their work.

- FireBase Realtime Database.
- Implement CRUD operations for user data
- Javascript

Analytics

This team will be taking the input data and process it, plotting graphs and recommending workouts. They will work in collaboration with the research team.

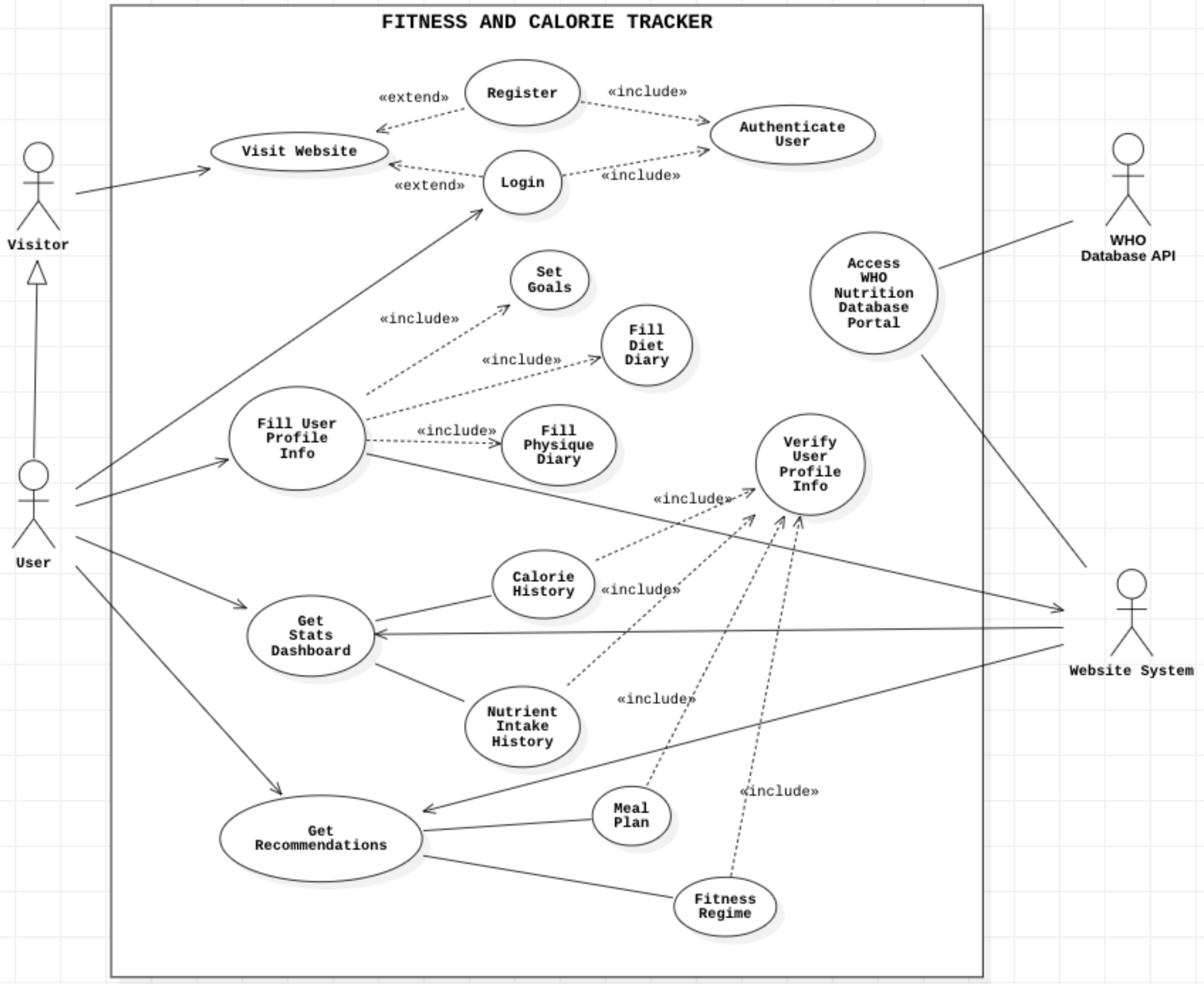
- Algos using python
- Predicting workouts based on input data
- Implement matplotlib to give graph outputs

Research

This team will be responsible for going through the different apps similar to ours and suggesting us on improvements. They will also make vital contributions in finding direct relations between calorie intake and type of exercise

- Brainstorming about calories and diets
- Suggesting workouts based on the calories intake
- Getting the list of Calorie intake and different worko

Use Case Diagram



Use Case Details

Number	**1**
Name	Get Recommendations
Summary	User requests for fitness and/or meal recommendations
Preconditions	User has successfully logged into his/her account on the website.
Postconditions	User requests for recommendations and receives suggestions for excercise and food intake.
Primary Actor	Registered User
Secondary Actor	WHO Nutrition Database (for recommendation system)

Continued...

Trigger	User navigates to the the *Recommendations* Webpage	
Main Scenario	**Step**	**Action**
	1	System displays 2 recommendation types - Exercise and Food
	2	User choses recommendation type
	3	The client code sends recommendation request to the server side code
	4	Server fetches user data from database
	5	Algorithm receives user data and and nutrition data from global databases.
	6	Algorithm uses a recommendation system to generate suggestions.
	7	Client side code receives the suggestions from the algorithm.
	8	Recommendations are displayed on the webpage.
	9	User can navigate back to the Recommendations webpage.
	10	User can generate more recommendations, navigate elsewhere or log out of the account.

Continued...

	Step	Branching Action
Extensions	5a	System notifies user - "At least 5 days of food intake data needed for generating recommendations" when User profile diary verification fails.
	5b	Website gives option to go to diet diary page to enter food intake data.
	6a	Recommendations system generates suggestions that cannot be executed Eg: Food suggestions below the minimum permitted / Exercise suggestions beyond physical capacity.
	6b	Algorithm discards suggestions and returns default suggestions.

Continued...

Use Case Details

Number	**2**
Name	Register/ Log in User
Summary	User visits website. New users register and old users login (using email and password) to their existing accounts
Preconditions	The website has successfully loaded and user is continuously connected to the internet.
Postconditions	User registers a new account or logs into an existing account and sees the home page of the account
Primary Actor	Any Visitor

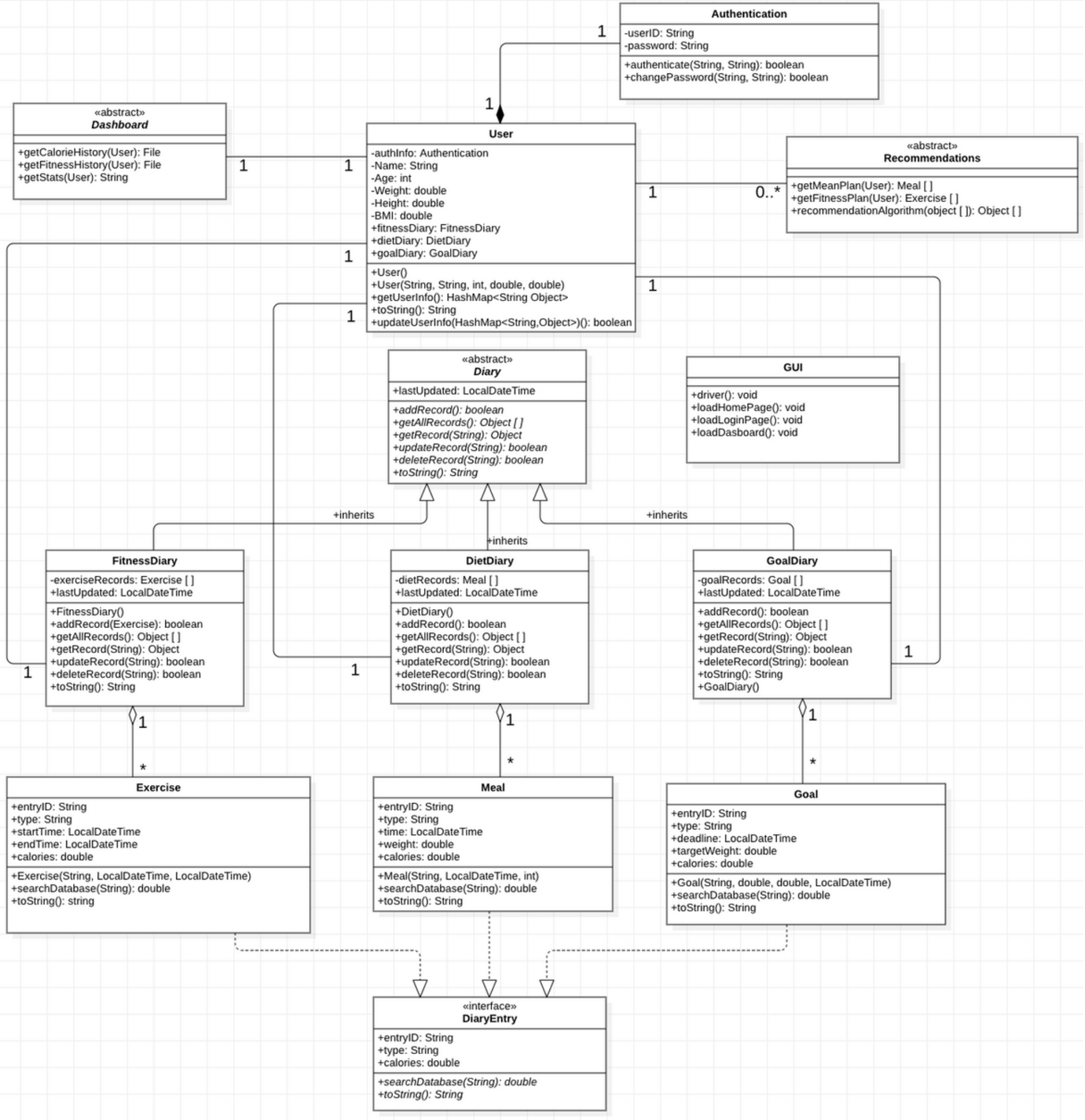
Continued...

Trigger	User lands on the website using search engine or direct URL	
Main Scenario	**Step**	**Action**
	1	Website displays 2 options - Sign Up (Register) and Log In
	2	User Choses the appropriate option
	3a	With login selected, website asks for email and password. User enters email and password.
	3b	With Sign Up selected, website takes user to registration page. User fills all the information and signs up.
	5	User now enters his/her account, lands on the home page.
	6	User reads information on homepage or navigates to another webpage.
	7	When user is done, user logs out

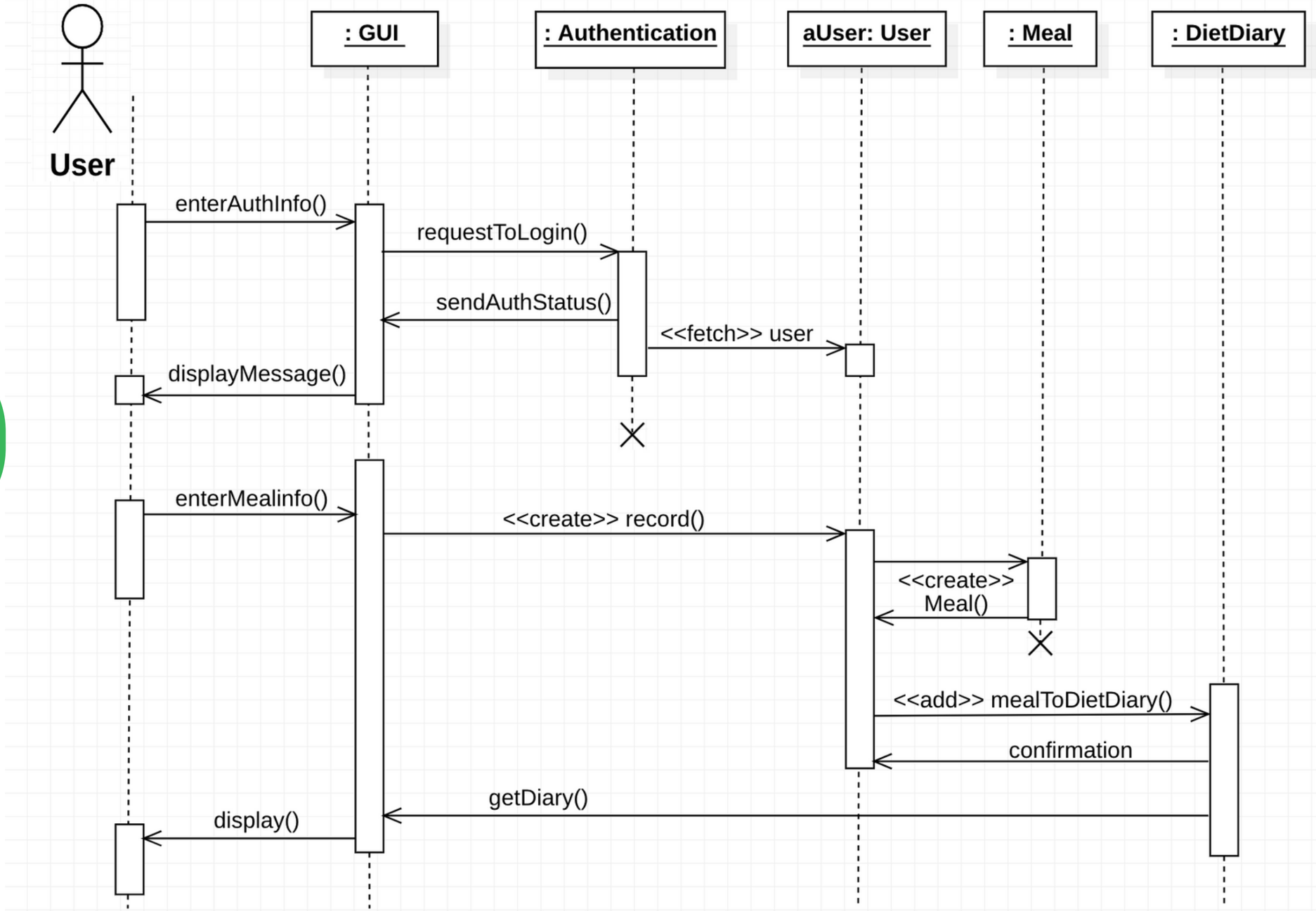
Continued...

	Step	Branching Action
Extensions	3a(1)	System notifies user that the password and email combination is incorrect. User is asked to enter again.
	3a(2)	System notifies user that no account with given email exists. User is asked to enter details again or go to SignUp.
	3b(1)	System notifies user that the form validation was unsuccesfull. Error displayed to user
	3b(2)	User is asked to enter correct details.

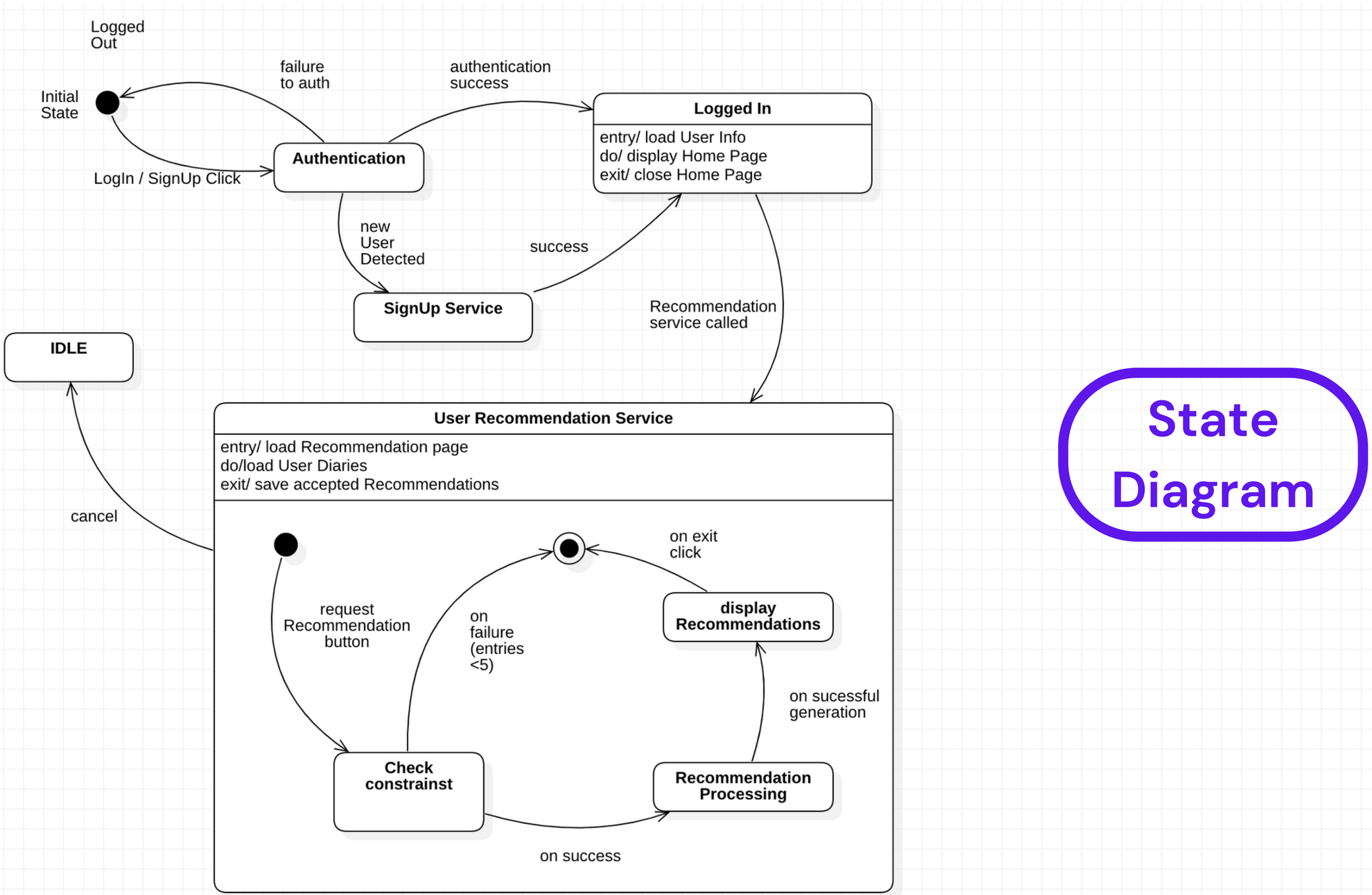
Class Diagram



Sequence Diagram



The sequence diagram can continue similarly for other functionalities in our project.



State Diagram