

Part 0: Team Basics

No changes.

Part 1: Project Overview

We intend to develop a website that offers easy health tracking/management service to users. There are mainly four components of our service: diet tracking, exercise tracking, weight tracking, and health advice based on records mentioned above.

We aim at users who would like to keep a record of their health related metrics and seek advice on staying fit/building muscles. Users need to register and sign in to use our services. There will be a time out which logs time of inactivity after a user signs in so that we can sign the user out if he/she/it has been inactive for a certain period of time.

The final product will include a frontend website with GUI which spares users from interacting with our system using command line.

We plan to host our server and store our data in database using services provided by AWS so that the access to services and data is more flexible. We also plan to build a predictive model that predicts weights based on historical input data.

We will expose APIs for record insertion and retrieval as well as advice generation for users based on the records.

The project will need two major data sources, calories burn for common workout like pushup and nutrition breakdown for food. We did not find any useful open-source dataset regarding workout, so collecting data manually is the only option. For nutrition data, we intend to take advantage a publicly-available API.

Part 2: User Stories

1. As a user, I want to record my daily diet in the app so that I can see my diet history and get some statistics about my past diet records.

My conditions of satisfaction are:

- a. The app supports at least 5 types of food for me to choose from for each record
 - b. I can modify or delete the created diet record in case I made a mistake
 - c. The records are available on any device as long as I am logged in to the account.
 - d. The app can provide me with accurate statistics on the food I eat
 - e. I can see my history in a different time period (1 week, 1 month, 1 year)
2. As a user, I want to record my weight and on a daily basis so that I can track the changes in my weight throughout any period.

My conditions of satisfaction are:

- a. I can record my weight in either pound or kilograms.
 - b. I can view my weight in either pound or kilograms no matter which unit I used when entering it.
 - c. I can modify or delete the created weight record in case I made a mistake
 - d. The records are available on any device as long as I am logged in to the account.
3. As a user, I want to record my workout history so that I can keep track of the time and intensity of my past workouts.

My conditions of satisfaction are:

- a. The app can recognize different types of workout from the records I input
 - b. The app can provide me with statistics of my workout based on workout type and duration.
 - c. I can modify or delete the created workout record in case I made a mistake
 - d. I should receive a warning when I am trying to delete a record or modify sensitive attributes of the record like date
4. As a user, I want to see a visualized report of my past records so that I can understand the statistics better

My conditions of satisfaction are:

- a. I should be able to select different durations to visualize (1 week, 1 month, 3 months, 6 months, 1 year)
 - b. The display of data should be easy to understand. e.g. I can see the change of my weights in a curve chart.
 - c. The overall display should be visually appealing.
 - d. The statistics should always be up-to-date and reflect the most recent input
5. As an intensive user, I want to get some suggestions from the app about my life habit so that I can become more healthy by following them.

My conditions of satisfaction are:

- a. The suggestions are based specifically on the different records I input to the application, instead of just general health advice
- b. The suggestions should be easy to understand and follow
- c. The suggestions should be beneficial to my health instead of damaging it

- d. I can obtain suggestions based on my different personal needs (reduce fat, increase fitness, build shape)

Part 3: Acceptance Test

Test cases w.r.t. user stories and conditions of satisfaction

1. Diet record.
 - a. Choose 1, 2, 3, 4, and 5 types of foods and log the record. The test passes if all the information is correctly recorded in the database, and otherwise fails.
 - b. Modify the record of a day by changing the amount of food, remove a type of food, add a type of food, and delete the whole record. The test passes if all the information is correctly recorded in the database, and otherwise fails.
 - c. After entering the record of a whole month of a user, retrieve the record over 1 day, 1 week, and 1 month. The test passes if the curve matches the record in the database, and otherwise fails.
2. Weight record.
 - a. Enter weight in the pound and then kilogram. The test passes if all the information is correctly recorded in the database, and otherwise fails.
 - b. Retrieve a record from the database and display in both pound and kilogram. The test passes if all the two displayed values is equal after unit conversion and otherwise fails.
 - c. Modify the record of a day by changing the value of the weight and delete the whole record. The test passes if all the information is correctly recorded in the database, and otherwise fails.
3. Exercise record.
 - a. Exhaustively enter each type of exercise and enter the record. The test passes if all the information is correctly recorded in the database, and otherwise fails.
 - b. Modify the record of a day by changing the duration of exercise, type of exercise, add/remove an exercise, and delete the whole record. The test passes if all the information is correctly recorded in the database, and otherwise fails.
 - c. Modify each of the entries classified as sensitive. The test passes if a warning is given, and otherwise fails.
4. Visualization.
 - a. Display the data up-to-date. The test passes if the displayed record includes all the up-to-date data, and otherwise fails.
5. Health suggestions.
 - a. Manually create accounts with a single of the following characteristics (a) there is few recorded exercises, (2) the diet is extremely unbalanced, (3) weight goes up/down quickly while keeping the rest normal. The test passes if the given advice can help address the problem based on human judgments and otherwise fails.
6. General
 - a. Access the record of diet, weight and exercise from chrome, Firefox, and Safari on Windows, macOS, and Linux. The test passes if records can be displayed correctly, and otherwise fails.

Part 4: Tech Stack

IDE: IntelliJ

Build Tool: Maven

Style Checker: CheckStyle-IDEA

Unit Testing: Mockito

Testing Coverage Tracking: Coverage(built-in)

Bug Finder: SpotBug

Frontend: React

Backend: Java, Spring,

Database: AWS MySQL