Deliverable 2 Report SENG2021 – MSLJ

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Introduction

Many of us find it difficult to build and maintain a healthy lifestyle. Some find it difficult to track and monitor their daily intakes and activity levels. And some lack the support of a partner who is willing to tag along in this journey. Many of us have browsed the internet looking for healthy recipes and healthy food products we can buy until we have lost interest. And sometimes when we are busy in our daily life we forget that our body needs to drink water or simply have a break.

Fitamagochi is a mobile application that will help you to resolve all the issues mentioned above. Fitamagochi consists of an avatar who will be your partner in this journey. By logging in your daily information, you will be able to track your daily food, water intake, activity levels, and personal habits. This will help you to have an overview of your progress which will keep you motivated. You will also be able to track your emotions in order to take care of your wellbeing. Fitamagochi also has a wide range of healthy recipes, and healthy food products recommendations that you can buy on the go in order to increase the choices of healthy food that you can consume on a daily basis.

Fitamagochi will motivate you to build your healthy habits, track your fitness progress, and allow you to live a consistently healthy lifestyle alongside your Fitmoji. Your Fitmoji is a representation of your current physical and emotional state which motivates you to make positive changes to your life, and ensure you have a healthy lifestyle.

Part 1: Software Architecture

1) External Data Sources:

We will be making use of APIs in order to create a more enhanced and personalised experience for our users.

Bitmoji API

The Bitmoji API is provided as part of SnapKit from the creators of Snapchat and will allow us to integrate Bitmojis into our app for “more expressive communication” of the user’s current wellbeing. It will allow our users to make use of their already much-loved and carefully created Bitmoji avatar and allow us to make subtle changes for it depending on their water/food intake, logged exercise, good/bad personal habits, and many other things that are tracked within our app. This will make our app feel more personal to the user and keep them coming back to keep their avatar happy and healthy!

2) Software Components – Webstack:

3) Choice of Language and Technology Components:

We made our decisions regarding the choice of language and technology components of our Frontend and Backend with respect to the learning curve of technologies/languages we are not familiar with, the usefulness of acquiring knowledge of these technologies/languages, the efficiency of app-building that they facilitate, the ease of maintenance of the app over time, and the level of quality that can be attained through their usage.

Frontend

React Native

We will be using React Native as it is an open-source mobile application framework which will allow us to build cross-platform mobile apps, as required for our project. It is a fast growing platform continuing to be utilised by many software developers so it is in our best interest to become familiar with its environment. It allows for an aesthetic user interface and has a significantly reduced load time and most importantly, allows the application to be used across devices without sacrificing the quality of the product.

BootStrap

We will also be using BootStrap as it is an open-source framework for front-end mobile development. It is efficient to use as it includes HTML and CSS based templates for common app/web-page components allowing for a seamless design that is easy to modify. It is also compatible across many devices.

JavaScript

The primary language for our frontend will be JavaScript since a few of our team members are already familiar with it and the rest of us know it would be worthwhile to put in the extra effort to learn it. It allows for the creation of dynamic applications and is compatible across the devices we are developing this application for.

Backend And DataBase

Node JS

We will be using Node Js as the backend end language. However we will be mainly using the Express JS framework which simplifies the CRUD processes as well as routing. Furthermore, it is highly compatible with our frontend which also uses Javascript as well as the database MongoDB. In-addition Node Js is simple to learn, which will allow us to utilize our time effectively.

MongoDB

We will be using MongoDB primarily since it is highly compatible with Node JS and possibly the easiest No SQL database management software, which means we can become proficient at using it in a short period of time. We will be using the Mongoose framework which allows for the creation of re-usable schemas and data structures easily and intuitively.

5) Choice of Platform:

The platforms our application will be available on are handheld Android and IOS devices. We have decided that mobile platforms are the most viable for our application due to their accessibility and already necessitated position in a majority of our target audience's lives. To get the most out of our app, users should do their best to use it at least once a day and thus, it is logical that we make it available on a platform that they already make daily use of. In addition to this, the desired layout and visual frame-work of our application would be most intuitive to navigate on a touch-screen mobile device.

As mentioned above, our decision to use React Native to build the front-end of our app should eliminate any issues with creating an app that is visually appealing and easy to use across multiple platforms. It will ensure that objects, text, and layout is consistent across devices which we will be able to test on our own personal devices also.

6) Summary of The Key Benefits of The Architectural Choices:

APIs -
We chose to make use of the Bitmoji API because it will create a personalised experience for the user and allow us to motivate them by making subtle changes to their avatar as they improve (or not).

Frontend Framework -
We are using React Native, JavaScript, and BootStrap because they are simple to use and quick to learn. Collectively these frameworks boost productivity and will facilitate the maintenance of our system.

Backend Framework -
We are using Node JS as it yields high performance and includes great libraries. We had at one point considered using the Django frame-work using Python but felt that Node JS would be simpler and more compatible with our front-end implementation.

Database -
We are using MongoDB because it is schema less hence easy and simple to use. We had initially decided to use MySQL for our data management, however, decided against this as MongoDB's Mongoose framework allows us to create reusable schemas and data structures which is incredibly helpful for our intended use.

Platform -
Despite it being a challenge and requiring us to learn to use many new tools, we decided to make use of a mobile app platform as it is more intuitive for our app's desired purpose and audience.

Part 2: Initial Software Design

1) Updated User Stories:

Requirement 1: Health enthusiast wants to create an avatar representing their physical attributes.

ID	US1a
Feature	Create an avatar.
Description	**As a** health enthusiast, **I want** to create an avatar that represents myself, **So that** I am more connected to the app.
Given that I have signed up and clicked on the link to use Bitmoji to create my avatar, **Then** I can link it to my account, **When** I update my goals or log new information, **Then** my avatar is automatically updated to reflect my current state.	

Requirement 2: Health enthusiast wants to view their overall health progress.

ID	US2a
Feature	View personal health information, and progress.
Description	**As a** health enthusiast, **I want to** view my overall progress. This includes: weight, BMI, overall caloric intake, overall water intake, emotions over time and habits progress, **So** that I can have an overview of my progress.
Given that I am on the home page, **When** I press on the progress button and select the relevant section, **Then** I can view a chart that visualises changes in my weight, BMI, caloric intake, water intake, emotions over time and habits progress.	

Requirement 3: Health enthusiast wants to log their food and water intake, and view recipe recommendations, or healthy food products.

ID	US3a
Feature	Login food intake.
Description	**As a** health enthusiast, **I want to** log my food intake, **So that** I can have an overview of the food I consume daily.
Given that I am on the home page, **When** I press on the "Food" button, **Then** I can add my daily food intake.	

ID	US3b
Feature	Login water intake.
Description	**As a** health enthusiast, **I want to** log water intake, **So that** I can stay hydrated, and have an overview of how much liters I have drank in a day.
Given that I am on the home page, **When** I press on the “Water” button, **Then** I can add my daily water intake.	

ID	US3c
Feature	View recipes, and healthy food products.
Description	**As a** health enthusiast, **I want to** view recommended recipes, and healthy food products, **So that** I can have new recommendations, and wider food variety.
Given that I am on the home page, **When** I press on the "Food" button, **Then** I can view recipes, and food products recommendations.	

Requirement 4: Health enthusiast wants to log the time spent on an exercise, and view total calories burnt.

ID	US4a
Feature	Log time spent on an exercise.
Description	**As a** health enthusiast, **I want to** log my exercise and view how many calories I have burnt, **So that** I can track my exercise and burnt calories.
Given that I am on the home page, **When** I press on the "Exercise" button, **Then** I can log the time I spent on a type of exercise and view my total calories burnt.	

Requirement 5: Health enthusiast wants to add their personal habits, and categorise them either as good or bad habits in order to track them.

ID	US5a
Feature	Add a good or bad personal habit.
Description	**As a** health enthusiast, **I want to** add my own habits and categorise them as good or bad habits, **So that** I maintain a healthy lifestyle through tracking my habits.
Given that I am on the home page, **When** I press on the "Personal Habits" button, **Then** I can add or select the habits that I wish to track.	

Requirement 6: Health enthusiast wants to set goals, and receive rewards when they achieve the goal.

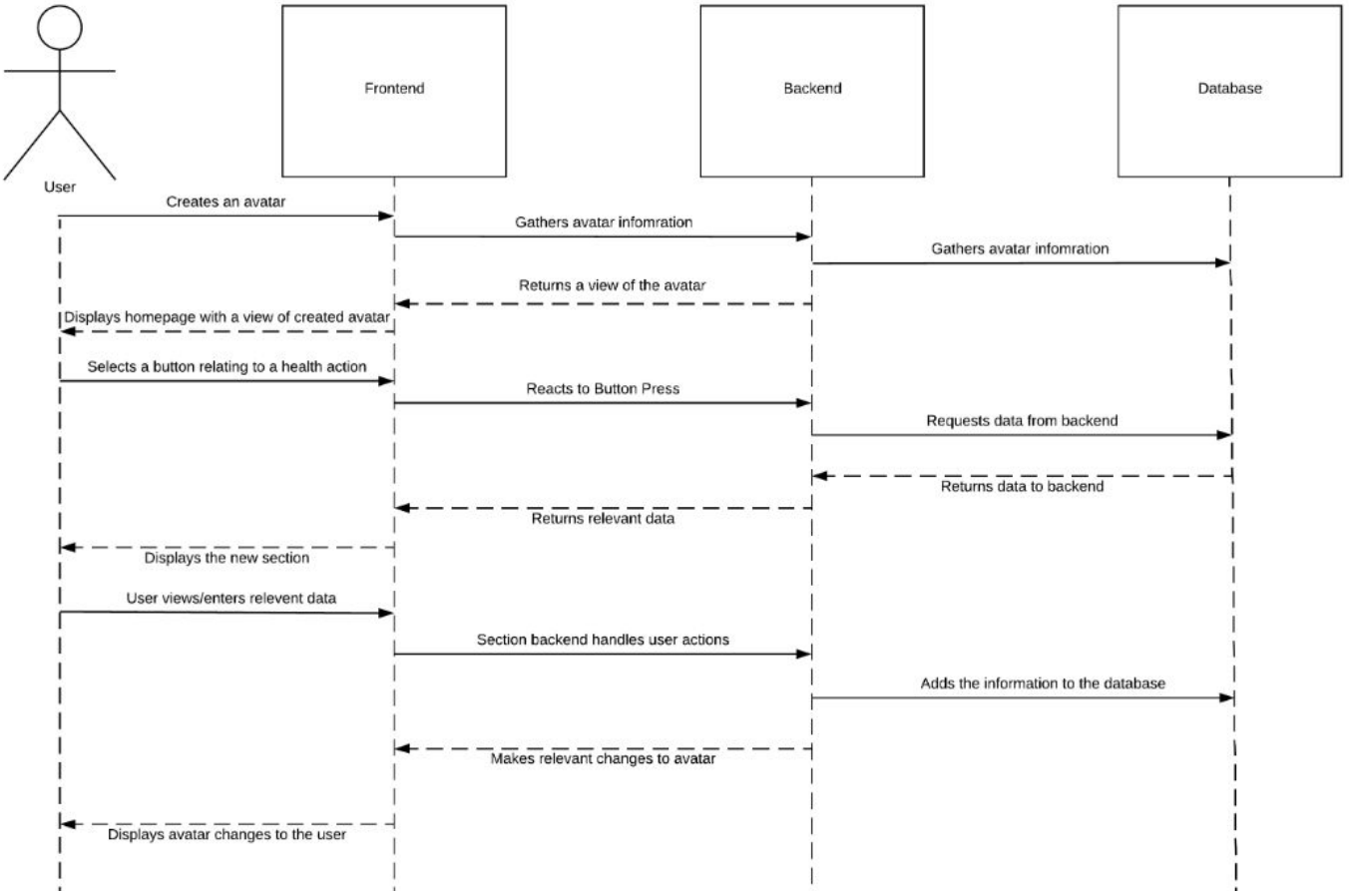
ID	US6a
Feature	Add goals.
Description	**As a** health enthusiast, **I want** to set goals, **So that** I maintain a healthy and fit lifestyle.
Given that I am on the goals page **When** I press on "Set Goals", **Then when** I press on “Rewards”, **Then** I can view my current balance, and view my rewards.	

Requirement 7: Health enthusiasts want to receive reminders for performing their personal habits, to perform a workout, and log in intakes.

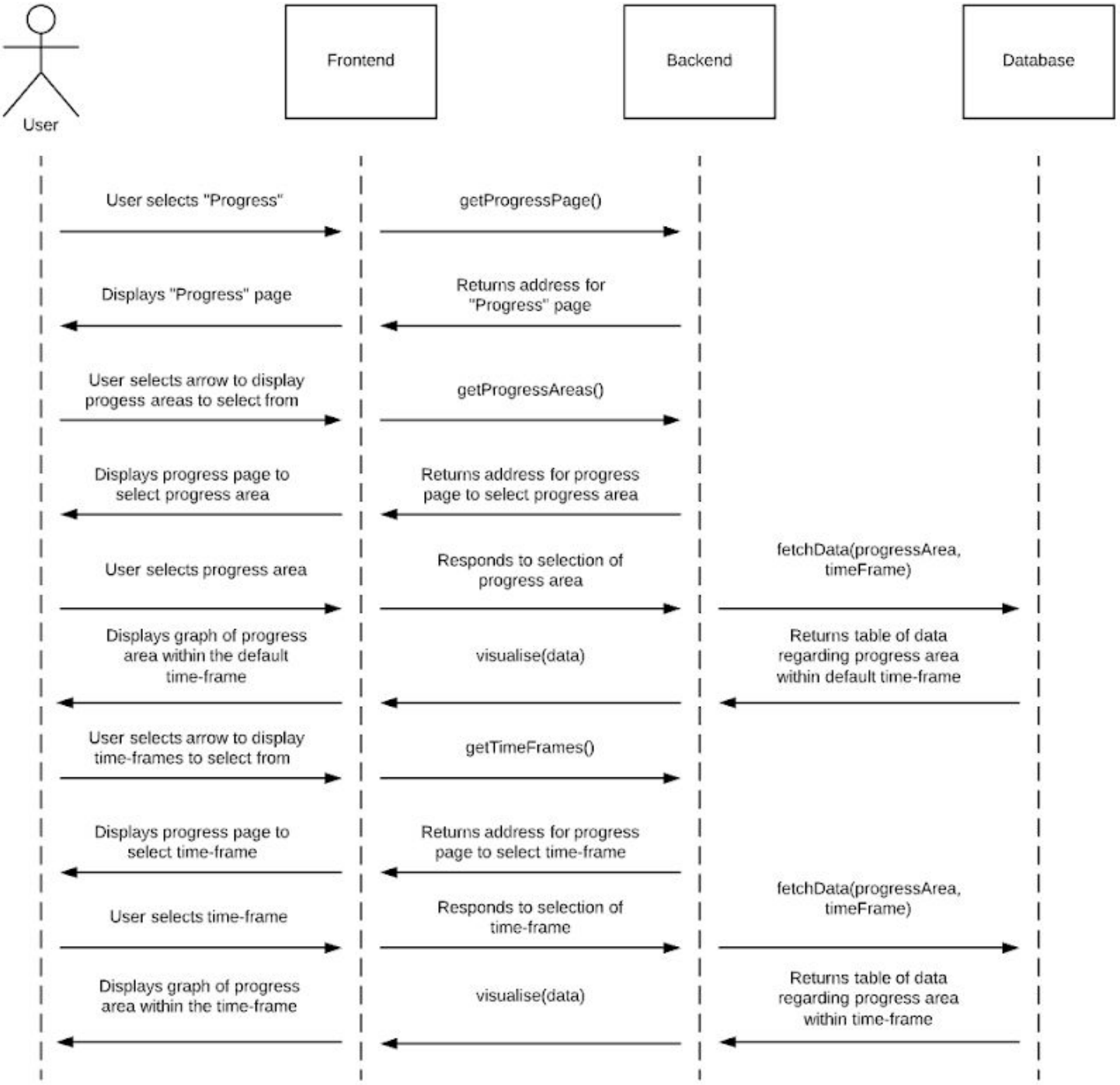
ID	US7a
Feature	Receive reminders.
Description	**As a** health enthusiast, **I want to** receive notifications and view the avatar in the status of the notification, **So that** I am consistently tracking my progress and to stay motivated.
Given that my phone is closed, **When** I receive a notification, **Then** I press on the notification it takes me to, **Where** the home page where my avatar is seen in the state of the notification, **Then** I can respond to the notification by taking the action required, **Then** I log the action that was taken.	

2) Sequence Diagrams for Each Use Case:

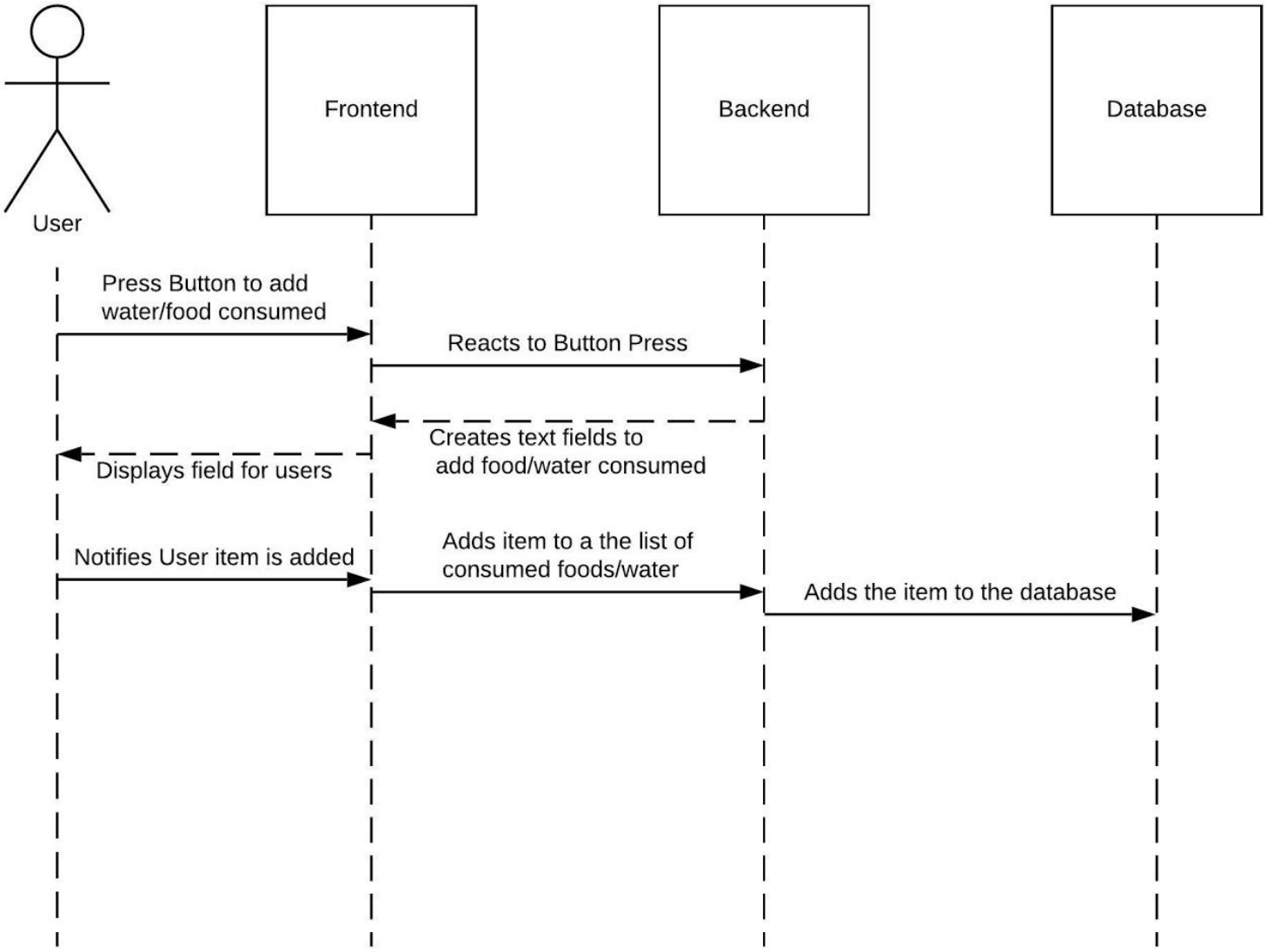
Requirement 1: Health enthusiast wants to create an avatar representing their physical attributes.



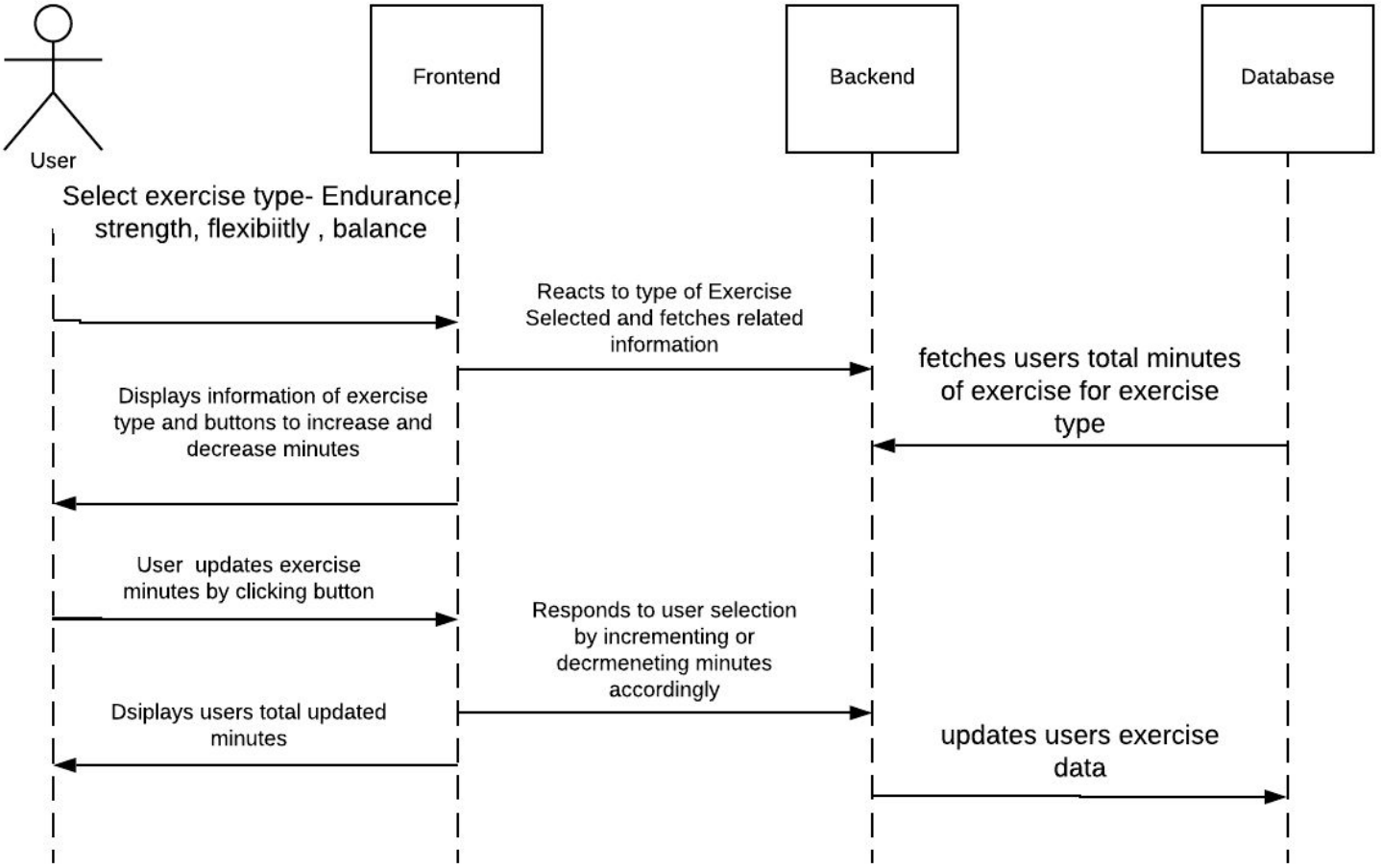
Requirement 2: User wants to view their progress in select areas over various time-frames.



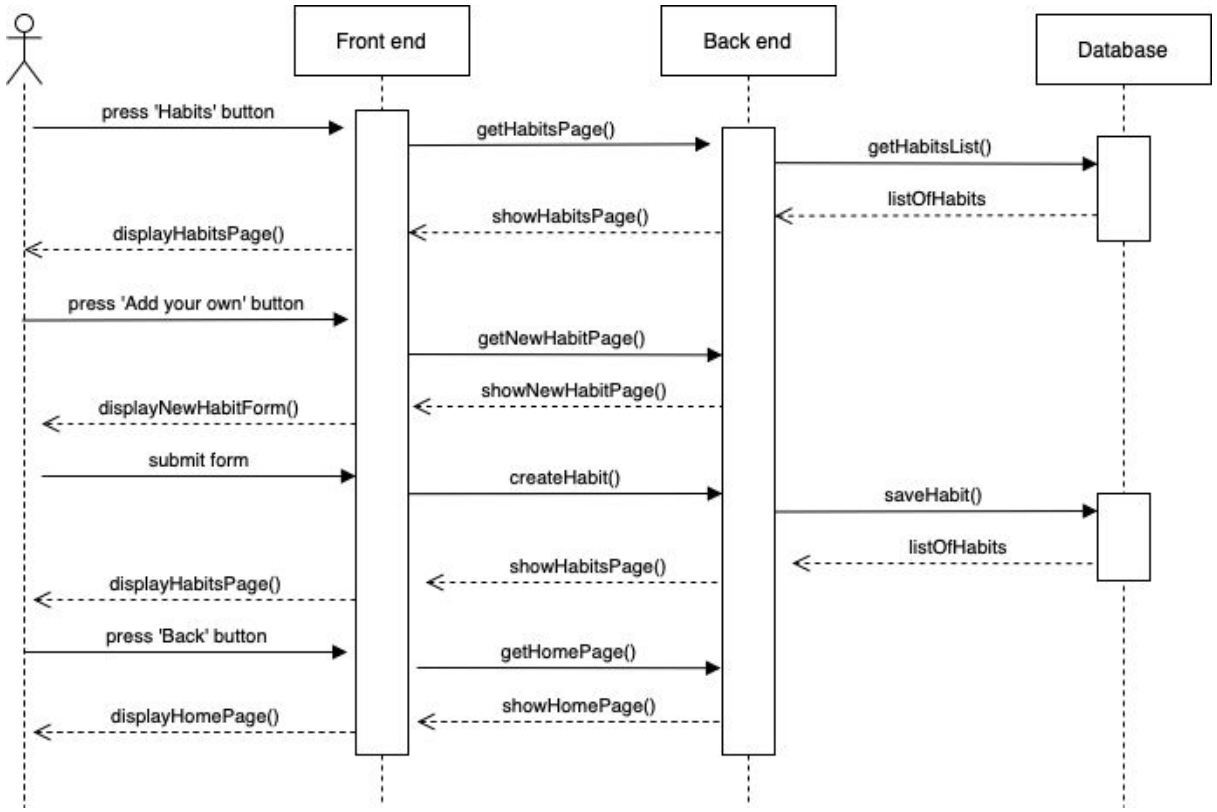
Requirement 3: Health enthusiasts want to log their food and water intake, and view recipe recommendations, or healthy food products.



Requirement 4: Health enthusiast wants to log the time spent on an exercise, and view total calories burnt.



Requirement 5: Health enthusiast wants to add their personal habits, and categorise them either as good or bad habits in order to track them



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