

## **Functional Requirements**

### **1. UC001 Account Registration**

- 1.1. Users must be able to create a new user account if they do not possess one at the application's login page.
  - 1.1.1. Users must input a username.
    - 1.1.1.1. The username must be of string data type containing alphanumeric characters.
    - 1.1.1.2. The username must have at least 4 characters and at most 20 characters.
  - 1.1.2. Users must input their password.
    - 1.1.2.1. The password must meet the following requirements:
      - 1.1.2.1.1. The password must be of minimum 8 characters and at most 20 characters.
      - 1.1.2.1.2. The password must include at least 1 capital letter (A-Z).
      - 1.1.2.1.3. The password must include at least 1 number (0-9).
    - 1.1.2.2. If the password does not meet all the requirements of 1.1.2.1., the application will prompt a message: "Password must be between 8-20 characters long!!!" or "At least 1 capital [A-Z] and 1 number [0-9]!!!".
  - 1.1.3. Users must input their email address.
    - 1.1.3.1. The email address must be of string data type.
    - 1.1.3.2. The email address must include "@" and ".".
    - 1.1.3.3. If the email address is already registered, the application will prompt a message: "Email Taken".
  - 1.1.4. The application must allow users to register for an account upon pressing the **<Register>** button.
    - 1.1.4.1. If there are input fields left blank, the application will prompt a message: "Username/Email/Password cannot be Empty!!!".
    - 1.1.4.2. If conditions 1.1.1. to 1.1.3. are met and there are no empty input fields, the application must store the user's login details into the cloud database.
      - 1.1.4.2.1. The user must be given a default profile picture.
      - 1.1.4.2.2. The application will prompt a message: "Account successfully registered".
      - 1.1.4.2.3. The application must redirect users to the application's home page.
  - 1.1.5. The application must hashed the password before storing it in the database.

### **2. UC002 Login Account**

- 2.1. Users must be able to log into their accounts which they have previously registered by inputting a registered email and its associated password at the application's login page.
  - 2.1.1. The application must check the validity of the username and password.
    - 2.1.1.1. If the email and password are valid, the user will be directed to the application's home page.
    - 2.1.1.2. If either the email or password is invalid, the application will prompt a message: "Invalid Email" or "Invalid Password"

### **3. UC003 Manage Profile**

- 3.1. Users must be able to manage their personal details at the application's profile page.
- 3.2. The application's profile page must display the following information about the user:
  - 3.2.1. Profile picture
    - 3.2.1.1. Default picture is given.
  - 3.2.2. Username
  - 3.2.3. Email
  - 3.2.4. Goal Progress
  - 3.2.5. Goal and Goal Completion Status
    - 3.2.5.1. Default value for Goal is given
- 3.3. Users must be able to edit their account details at the application's edit profile page.

- 3.3.1. Users must be able to edit their profile picture.
- 3.3.2. Users must be able to edit their username.
  - 3.3.2.1. Username provided must meet condition 1.1.2.
- 3.3.3. The application must allow users to save their edited account details.
  - 3.3.3.1. The application must update the user's account details on MongoDB.
- 3.3.4. The application must allow users to reset their goal progress.
  - 3.3.4.1. The application will prompt the user to confirm the decision to reset the goal progress.
- 3.3.5. The application must allow users to cancel the current changes to their account details.

#### **4. UC004 Display Map**

- 4.1. Users must be able to view a map display on the application's home page using Google Maps API.
- 4.2. The user's current location must be centralized on the map display by default and a marker is placed on the user's location.
- 4.3. The application must allow users to zoom in, zoom out and pan around the map.

#### **5. UC005 Manage Tracking**

- 5.1. Users must be able to track their current session on the application's session page.
  - 5.1.1. The application's session page must display and continuous update the following information:
    - 5.1.1.1. The user's current location on the map.
      - 5.1.1.1.1. Default value is given if location permission is not given.
    - 5.1.1.2. Total distance traveled (in kilometers, to 2 decimal points of accuracy) during the current session.
    - 5.1.1.3. Time taken (in HH:mm:ss format) since start of current session.
    - 5.1.1.4. The average speed (in meters per second, to 2 decimal points of accuracy) of the current session.
  - 5.1.2. A pre-set value will be assigned as the default for the session title and session type if the user does not make any changes.
  - 5.1.3. Users must be able to pause their current session.
  - 5.1.4. Users must be able to resume a paused current session.
  - 5.1.5. Users must be able to stop a current session.
    - 5.1.5.1. The session must be added to the user's history.

#### **6. UC006 View Session**

- 6.1. Users must be able to view the details of their past sessions at the application's session history page.
- 6.2. The application must sort the past sessions by recency (from newest to oldest session).
- 6.3. The application must display the following details of past sessions on the application's session history page:
  - 6.3.1. The date of the session (in month/day/year).
  - 6.3.2. The end time of the session (in 24 hour format).
  - 6.3.3. Distance traveled (in kilometers, to two decimal points of accuracy).
  - 6.3.4. The total timing of the session (in HH:mm:ss).
  - 6.3.5. The name of the session.
  - 6.3.6. the type of the session.
- 6.4. The user must be able to click on the session to view the following additional information:
  - 6.4.1. The route, traced on a map.
  - 6.4.2. The average speed (in m/s).

#### **7. UC007 Edit Goal**

- 7.1. The application must allow users to set goals at the application's session history page.
  - 7.1.1. Users must input the following information:
    - 7.1.1.1. Goal (in kilometers, to zero decimal points of accuracy)

7.1.1.1.1. The goal value is between 10 - 999.

7.1.2. The user goal must display the following information:

7.1.2.1. Goal (in kilometers, to zero decimal points of accuracy)

7.1.2.2. Current total distance of sessions for the month (in kilometers, to two decimal points of accuracy)

7.1.2.3. Percentage of completion (in percent, to 3 decimal points of accuracy)

7.1.2.3.1. When completed, the system shows the date of completion in Month/Day/Year format.

7.1.3. Users must be able to edit their goal.

7.1.3.1. Users will not be able to edit their goal to lower than their current distance completed.

## **Non-Functional Requirements**

### **1. Performance Requirements**

- 1.1. The application requires a device that supports a stable network connection.
- 1.2. The application must be able to continue a session in the background.
- 1.3. The application must be able to track the user's location in the background.
- 1.4. If network connection is lost, the application must be able to continue updating the session once network connection is up.
- 1.5. The application must meet or exceed 99% uptime.
- 1.6. 80% of users must be able to start recording a session in less than 3 seconds.
- 1.7. 80% of users must be able to login in less than 3 seconds.

### **2. Safety Requirements**

- 2.1. The application must not prompt user interaction, including notifications, during a session.

### **3. Security Requirements**

- 3.1. Data must be protected in accordance with PDPA.
- 3.2. Users must not be able to see the following information about other users:
  - 3.2.1. Email
  - 3.2.2. Password
- 3.3. Password is hashed before stored in database
- 3.4. JSON web token is used for login/register

### **4. Usability Requirements**

- 4.1. The application must be available in english.
- 4.2. The application must notify users of new updates when new updates are available.
- 4.3. The application must give first-time users a quick and intuitive tutorial.
  - 4.3.1. Each instruction must not exceed 20 words.
  - 4.3.2. 90% of users must be able to complete the tutorial in less than 2 minutes.
- 4.4. The map display in 5.1 will make use of Google Maps API.
- 4.5. The application must display up-to-date information about the user.