Functional Requirement Documentation

1. Initialization of the product (Description of User Interface)
   1. Product Description

The product is an android application integrating various governmental datasets (including air-quality, weather information, car-park availability, food nutrition’s data and other health-related data) to provide beneficial and accessible information to target users who care about personal health conditions and need convenient application to perform certain task.

* 1. UI description

The sections 3-6 each stand for a relatively independent subsection of the application.

* 1. Each subsection shall be accessed by touching a button representing itself on a bar containing all the icons of the subsections at the left side of the application.
  2. The bar of icons shall be displayed by swiping right and shall be hidden when any of the button is touched.

1. User Registration
   1. User Registration Process
      1. Upon initialization of the application, the user shall be asked to create his/her own account by providing required information.
      2. The following information shall be collected, and the completeness of the information shall be tested to ensure an account to be created successfully:
         1. Username can be a string of lowercase English letters or an email-address.
         2. The string shall only contain English letters with length between 6 – 18.
         3. If the user decides to use email-address as the user name, the user input shall be checked to ensure the format is correct.
         4. Password: shall contain as least one lowercase letter, one uppercase letter, one special character (!@#$%^&\*) and with a length of 6 – 18 characters.
         5. TBC (may have userID (to be seen and displayed by the application), birthday (to calculate age and be used by other health advisory section), Country and Location (not necessary))
      3. The Information provided by users shall be protected and not accessible by other users. (Privacy Protection)

1. Workout Section

The workout section intends to suggest the user suitable exercises regarding to the user’s preferences and purposes and record the amount of exercises that has been performed and the energy consumed (measured in calories) by the user. More importantly the major functionality of this section is to track the exercise records of the user, for instance the duration and distance of a running/cycling/walking exercise. The information of energy consumed can be shared with other sections of the application, for example body health section.

* 1. User Preference
     1. The login status of the user will be checked when the user intends to use the functionality in this section.
     2. If the user is not logged in, the user will be directed to the login page.
     3. Upon initialization, the user shall go through several preference selections, including indoor-outdoor activities, past workout experiences, purpose of exercise, and estimated intensity of everyday workout.
     4. The data shall be used to generate recommended exercise time, activities, and estimated calorie consumption of each activity. (The fitness plan part, I don’t know if we are going to include this)
  2. Record functions

The subsection shall provide the user his/her workout records, exercise type, duration, and calories burnt.

* + 1. In this section, the system shall provide three kinds of activities to be recorded, running, walking, and cycling.
    2. All three activities can by selected on a toolbar at the top, and each shall be having an independent page.
    3. The user must be able touch the corresponding button to select the function the user wants to use.
    4. The system shall use GPS for location and distance records.
    5. If GPS is not available for user or the signal is not enough for the GPS tracking to function properly, then the vibration censor in the phone shall be used instead to estimate the distance, location is omitted.
    6. When the user clicks “Start” button, the recording shall start and the time, the distance, and the calories burnt shall be displayed on the screen.
    7. When the user clicks “End” button, the recording shall end. The time will stop running and distance shall stop growing.
    8. The calories burnt will be synchronized with “daily calories burnt” function in the health section.
    9. The user shall see a bar chart displaying the duration, distance and calories burnt information of exercises on a daily, weekly or monthly basis.
  1. After the user has finished the exercise, the application will suggest a suitable water intake according to the exercise intensity (the detailed algorithm shall be developed later)
  2. Extensions
     1. Cycling Paths (Cycling Path Network && LTA Bicycle Rack)
        1. When the user starts a cycling exercise, a map of Singapore’s available cycling path shall be displayed along with the distance and duration etc. information. The data shall be extracted from Cycling Path Network.

1. Body Health Section
   1. User Input Body Information
      1. The login status of the user will be checked when the user intends to use the functionality in this section. If the user is not logged in, the user will be directed to the login page.
      2. To use the functions in this section, the user shall be asked to input the body weight, height, and expected body weight to the system. And the system will recommend daily calories intake.
   2. Calorie Tracker
      1. User shall be able to input the weight and type of food to record the calorie intake. (There’s no such dataset on gov data but there are other available datasets)
      2. When user input the weight and type for one kind of food, the records shall be added to the daily consumption data and corresponding calorie will be accumulated.
      3. User must be able to see how much calories he/she have intake for the day.
      4. At the end of the day, by comparing the recommended calorie intake and actual calorie data, the application shall notify the user whether he/she has fulfilled the daily goal.
   3. Weight Tracker
      1. User shall be able to input the body weight at any point of time, and a line-chart demonstrating the body weight trend shall be displayed.
      2. User can choose to display weekly, monthly or yearly trend.
   4. Water Consumption Recommendation
      1. The application shall suggest the suitable water intake based on a certain algorithm regarding temperature, exercise intensity, age, and body weight.
      2. The application shall remind the user to drink enough water to stay hydrated for a designated period of time.
2. Discover Section
   1. Comprehensive Environment Condition Analysis

Information collected and analysed from datasets including PM2.5, UV lights and air pollutants will provide suggest the user whether it’s suitable for outdoor activities. (Ultra-violet Index (UVI), PM2.5, Pollutant Standards Index (PSI), Weather Forecast, Relative Humidity)

* + 1. The application shall give a rating for the appropriateness of going out and shall give information for suggested clothing.
    2. The information and rating from this section shall be used by other sections, for instance eatery and gym recommendations, to provide more comprehensive suggestions.
  1. Healthier Eatery Recommendation (Healthier Eateries)

User shall acquire suggested healthier eatery locations and food preferences. Healthier Eateries doesn’t really provide signature dish information, but I think we could apply web crawler to get it.

* 1. Healthier Food Recommendation (Healthier Choice Symbol (HCS) Product List)

The Products listed on “Healthier Choice Symbol (HCS) Product List” shall be displayed in this page. A filter that can select foods according to the foods category and a search bar that can search for the name of the food shall be available to user. User can type in the name to check whether the product is on the list.

(One limitation is that the database does not provide nutrition info)

* 1. Gym Location Suggestion (Might integrate with parking availability)

Gym Location shall be suggested based on distance, weather, operating hour (gyms that passed their operating hour shall not be highlighted or marked by another colour) and possibly parking availability. I think we could add-on images of gyms if possible.

Gym name, location and contact info will be displayed.

* 1. Park Suggestion (Parks@SG SportsFields@SG)

Parks shall be shall be suggested based on distance, “Comprehensive Environment Condition Analysis”, and available activities.

(Besides suggestions, what more could we provide to users based on data manipulation?)

* + 1. Water Activities

Water activities shall be a subsection of outdoor activity.

1. General Health Section
   1. Pharmacy / Clinics Location (CHAS Clinics)

For injury or illness concerns.

1. User Options

What settings could the user change based on personal preferences.