Product Requirements for Food Journal App

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Version: 1.0

Introduction

The ECE651 client Belinda Wisdom needs an Android mobile application named Food Journal. The purpose of the app is to maintain a food journal that is permanent and accessible. In the food journal, the user can track and monitor calories, calculate calories burned by entering daily activities and track nutritional information (if possible). The Food Journal is an independent app which should be released to the client by the end of the 2019 spring semester. It may have the potential for expansion (connection to DukeMyChart or linkage to Activity Trackers).

Glossary

Index	Name	Explanation
1	danger food	The food that is unhealthy based on personal health condition.
2	activity tracker	The app that can track exercise activity.

Functional Requirements

1. Personal Profile
   1.1. Create a personal, private profile form including gender, age, weight and height in the sign-up interface.
   1.2. Pop-up agreement contract to the user at the last step of registration regarding security & privacy, license, and restrictions.
   1.3. Login/logout interface, store login information, name and password in database.
   1.4. Make a health target such as weight loss/gain, etc.
   1.5. Input specific health conditions such as high blood pressure/hypertension, high cholesterol, diabetes, cardiovascular disease, etc.
   1.6. Record long-term consumption history (calories/nutrition) in personal database.
   1.7. Modify personal profile in the settings page.

2. Available Keyboard & Audio Input
   2.1. Keyboard input includes quantity and name of food.
   2.2. (optional) Audio input in the format of “quantity” + (“quantifier”) + “food name”. E.g. “1” “apple”, “1/2” “cup” “rice”.

3. Food Calories & Nutrition Database
   3.1. Provide calories and nutritional information for common foods. Will include meals from restaurants. E.g. apple, Whopper at Burger King.
   3.2. The nutritional information includes grams for sodium, sugar, carbs and fat.
   3.3. Search foods in local database according to user’s entries. The calorie and nutritional information of the food is selected and reported to user.
   3.4. The actual intake is calculated by quantity and stored in personal database.
   3.5. User can tag “danger” food according to personal weight target and health conditions.

4. Monitor health according to the local health data.
    4.1. User exercise input
        4.1.1. Record walking and running distance (in steps) if possible.
    4.2. Record the body mass index including height and weight.
    4.3. Calculate the burned calories based on daily exercise data.
    4.4. Calculate daily calorie consumption based on daily BMI index.

5. Real-Time Computation
    5.1. Report the real time calorie consumption based on food consumption and burned calories.
    5.2. Illustrate the gradient and percentage of client's Food Diary, like fats, carbs, protein, sodium, etc., according to food consumption.

6. Real-Time/Customized Reminder
    6.1. Reminder/Alerts when time has elapsed with no entries for food/snacks and water.
    6.2. Warn the user about food that is tagged "danger".

7. Recipe Suggestion & Planning
    7.1. Propose food recipes based on general daily consumption (Very difficult to implement: Would need a very complex algorithm to put together recipes without a human inputting them in individually. Beyond that, we do not know what food they have, what their price range is, what they enjoy eating, allergies).
    7.2. Advise on how many calories to burn (how much exercise) based on fitness target such as weight loss.

8. Some functions which would be better to have ("stretch" goals):
    8.1. Audio input (Difficulty: parsing, language/accent, synonyms for the same food i.e. burger/patty).
    8.2. Connect to DukeMyChart.
    8.3. Possible linkage to Activity Trackers.

Non-functional Requirements

Performance (Speed, Size)

NF 1. Performance should meet the requirement for the app store, including memory, resources management, and battery consumption.

Security

NF 2. Absolute privacy between users.

Ease of Use

NF 3. The function should be presented on user interface in an easy and intuitive way for most of the new users.

NF 4. The functions are easy and simple to use for most of the new users.
NF 5. Easy access to electronic food journal, calories consumed, calories remaining, weight history.

Reliability

NF 6. If the server turns off, the data won't be lost.
NF 7. (optional) If phone is not connected to internet, will store recent entries locally and send them to the server when it next connects.

Portability, Platforms supported, etc.

NF 8. The app operates on Android platform.
NF 9. The app supports latest version of the Android and is compatible with older versions.

System Architecture

1. Display system module
   The application should be well designed in UI which needs the designer to draw or collect images to use and give a user-friendly interface.
2. Personal profile module
   a) Login, logout and register, including username, password, phone and email.
   b) Personal profile information display.
3. Algorithm module
   a) Algorithm is applied in calculation so that the user could use this application to monitor their daily calorie consumption to reach a healthy goal.
   b) The application should remind the user when time has elapsed with no entries for food/snacks or water intake.
4. Data system module
   a) The data should include the information of the user's real time information, consumption history, and profile information stored on a local server (Duke VM)
   b) Food calorie and nutrient information lookup.
   c) Food information, exercise information, and possibly recipes will be stored on local server.
5. Network system module
   Send and retrieve data from the server.
6. (optional) Audio system module
   The application should allow users to use audio to record their meals by quantity and ask questions for clarity.