

Calorie 2 Grocery

ASE Project Plan Document

Project Group #12

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**Introduction**

Diet plays a major role in leading a healthy life style. Due to busy schedules, it has become difficult to plan for a healthy and nutritious diet. Diet is nothing but a pattern of eating food. It is important to concentrate on diet to stay healthy and happy. Proper diet reduces the risk of many diseases.

Obesity and weight gain are the most common problems today. Irregular and improper diet leads to obesity. So it is important to plan our meal to include necessary ingredients and avoid over consumption of food. Calorie information gives the energy content of food. Hence, Calorie intake is a good measure to check on weight gain.

Another common problem in day to day life is grocery management. Now-a-days, it is common to forget the groceries available at home. Not keeping track of the expiry dates leads to wastage of food. There are many web apps/Android apps which give the calorie information for different varieties of food items. Also, there are apps which aid in grocery management. But there is no single application that handles both the functionalities. An integrated app is much more useful to the user because it helps in proper planning of the meal based on calories per serving and groceries available.

**Overall Goal & Objectives**

Taste wins over health for most of the people. Also, after a day of work it is natural to prepare meal based on the ingredients that are available at home. Sometimes if vegetables are not available at home, people tend to eat junk food to fulfill their hunger. Hence it is important to plan for proper meal to maintain healthy life style.

Mobile apps are fun to use. Our endeavor is to develop an application that can be very useful in maintaining proper diet along with managing groceries efficiently. Our project aims to fulfill two main objectives:

* Firstly to provide calorie information about the ingredients used in preparing a recipe. This helps the user to take healthy choices about their meal.
* Secondly, to automatically generate a shopping list so that the user doesn’t miss something he needs to buy.

Users can create a recipe/search for a recipe and get the calorie count of the ingredients in the recipe. Based on the calorie information, user can chose to add or remove some of the ingredients in the recipe. Thus the app helps in planning for a healthy meal.

Our app provides the flexibility to log the groceries available at home as well as prepare a shopping list. Our app will generate alerts & notifications about the expiry date of the groceries, thus it helps in reduction of wastage of food. Also, based on the recipe chosen, our app prepares the list of ingredients to buy in order to prepare the recipe. Thus the app functions as a unified meal planner which takes care of grocery management as well as provide calorie information to plan for a healthy meal.

**Significance**

Our project focuses on providing all the required information for the user to plan for a healthy meal. A user can have a clear view of the groceries available at home from anywhere. This helps the user to plan his/her meal, search for the recipe and buy the required ingredients before reaching home. The app also gives the calorie information for each ingredient in the recipe thus providing nutritional information to the user. This information could drive the user to go for healthier meal options. Also, the app provides flexibility to add/remove ingredients in the recipe or create his/her own recipes. Our app works as follows:

Suppose a user would like to have vegetable sandwich for dinner. Say, he has tomatoes, onions and bread at home. Using our app he can do the following:

1. User can add tomatoes and onions to his currently available groceries list. User can update the list every time he purchases groceries.
2. User can search for a recipe of veg sandwich
3. The app displays the ingredients for the sandwich. Eg : Bread, Potatoes, Onions, Cucumber, Tomatoes, Lettuce
4. Based on the calorie information, user decides to remove potatoes from the sandwich and add olives. The app then updates the overall calorie count of the sandwich.
5. Once the user is satisfied with the recipe he can click ok, the app then displays the groceries he/she needs to buy to prepare the sandwich. Also, the quantity of tomatoes and onions will be decreased in the backend to reflect the usage. In this example, the app shows that the user needs to buy Cucumber, lettuce and olives.

**Project Background & Related Work**

There are few applications that gives calorie information of the particular item that could help the user to maintain proper diet, but this does not include the grocery information. Some of the other apps that are developed provides user with only grocery management and recipe information. Our idea is to facilitate the user with both the calorie information and grocery management. In this project, we are going to implement this idea which combines both the functionalities.

The Grocery management application titled “Fresh Box” addresses the mundane task by allowing users to simply snap a photo and upload it into their own virtual ice box. They call this their "what you see is what you get" feature, and the beautifully illustrated interface makes stocking the fridge a fun process similar to updating your Instagram. Once photos are uploaded, users can set an expiration date so the milk doesn't go sour, produce doesn't go bad. The following are the features of this application:

* Take snapshots of the items purchased
* Upload the photos in virtual ice box
* Set expiry date for the items

The Calorie intake application named “Fooducate” is helpful in making choices at the grocery store. You can scan an item’s barcode and the app will share nutritional highlights, compare it to similar items, and provide alternatives. But this app doesn’t provide the option to log the groceries available at home. Using this app, we can only compare the calorie count of similar products. Main features:

* The user gets the calorie details of the product
* Similar items are retrieved as alternatives which are having same count of calories

One of the Grocery shopping list application “Anylist” is specifically designed for grocery lists and recipes. When we start typing to add a new item, AnyList displays an auto-complete list. Tap an item to add it, and AnyList groups items in your list by store sections: Bakery, dairy, meat, frozen food, and so on. We can create multiple lists—one for each store and we can share them with others who use the app. You can also add recipes, so each item needed gets added to your grocery list. But this app doesn’t give the calorie information about the ingredients. The features of this application:

* Search for the particular recipe and get the ingredients
* Categorize the groceries into different groups
* Share the list with others

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| --- | --- | --- | --- |
| **Fresh Box** | **Fooducate** | **Anylist** | **Proposed System** |
| User can add the items along with expiration date and get notifications whenever the product expired. | User can add the items based on barcodes but cannot add products which doesn’t have barcodes. | User can just add the groceries list depending upon the category. | User can add the items along with expiration date and get notifications whenever the product expired.  Expiration date will be automatically calculated if not entered. |
| Does not provide calorie information | Provides calorie information for a particular product but not for a recipe. | Calorie information is not evaluated for a recipe. | User can get the calorie count for each ingredient and can edit the quantity of ingredients depending on his/her choice and get the overall calorie count per serving. |
| No option to create and save recipes | No option to create and save recipes | User can search for a recipe but cannot save it for future reference | User can search for recipes/create his own recipe and save it. |
| Does not provide information regarding nearest grocery stores. | Does not provide information regarding nearest grocery stores. | Does not provide the information regarding nearest grocery stores. | Whenever ingredient is not available for the recipe the user can search for the nearest grocery store based on current location. |

**Proposed System**

**Requirement Specification**

**Functional:**

The goal of the project is to develop an application that allows the user to

1. Register or login securely through Facebook
2. Maintain a list of groceries available in their home
3. Search for recipes and save them for quick reference
4. Get the detailed information of calories per each ingredient required for the recipe
5. Add/remove the ingredients and adjust the quantity of the ingredients
6. Get the final count of calories per serving of the recipe
7. Based on the ingredients, get a list of groceries to buy in order to prepare the recipe.
8. Get the nearest grocery stores based on the current location
9. Get alerts/notifications about the expiry date of the groceries in home.

**Non-Functional:**

* Security: The app doesn’t require access to any sensitive information of the users. The app requests access for only the current location of the user. Also, users can login securely using Facebook.
* Stability: The app is designed to function as expected on any device with android version 4.0 and above.
* Visual Quality: The app displays all the text blocks and forms in acceptable formats.
* Performance: The app needs to load quickly and respond within 3-5 seconds.

**Technological and architectural requirements:**

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| **Requirement** | **Tools** |
| Operating System | Android 4.0 or above |
| Development Operating System | Windows |
| Platform | Android Studio/Eclipse |
| UML Diagrams | Microsoft Visio |
| Languages | Java, C# , ASP.Net |
| Database | SQL Lite |
| Planning | ScrumDo |
| Version Control System | GIT |
| Rest Services | Facebook API |
| Google Places API |
| NDB API |

**Web Services:**

* Google Places API: <https://developers.google.com/places/>
* Google Maps API: <https://developers.google.com/maps/documentation/android/>
* Facebook API: <https://developers.facebook.com/docs/facebook-login/v2.2>
* Google Plus API: <https://developers.google.com/+/web/signin/>
* USDA NDB API: <http://ndb.nal.usda.gov/ndb/api/doc>

**Class Diagram:**



Figure 1.1 Class Diagram

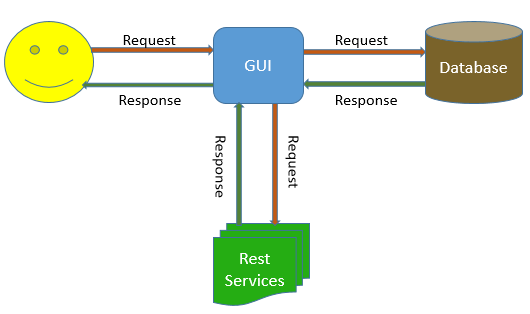
**System Architecture Diagram:**

The overall system architecture can be represented as below: Users interact with the application through GUI. Based on the user input, a request will be sent to the database/rest services. The response is then redirected to the user through the GUI.



Figure 1.2 System Model

**System Architecture Diagram:**



**Workflow Analysis ( Activity Diagram):**



Figure 1.4 Activity Diagram

**Sequence diagram:**

Figure 1.4 Sequence Diagram

**Task Planning**

We are planning to implement the project by using latest technology & tools. The project is divided into four iterations.

**Increment#1:**

* Create a home page for the application.
* Create a function to login with facebook/google plus by using rest services.
* Create a register page.
* Create a feature to search nearby grocery stores using google places api.

**Increment#2:**

* Add functionality to add groceries to the database
* Add a browser to the app to be able to search recipes.

**Increment#3:**

* Add functionality to import ingredients from the recipe
* Add functionality to get calorie information using NDB api for the imported ingredients

**Increment#4:**

* Add functionality to enable the user to add/remove ingredients from the recipe
* Automatically generate shopping list

In brief each iteration consists of following tasks:

1. Designing graphical user interface.
2. Connecting to the database and implementing web services.
3. Testing the entire application and bug fixing.

The whole process of development and tasks division has been completely displayed in the scrum Do tool and below is the link for the Scrum DO action of our project.

<https://www.scrumdo.com/projects/project/calorie2grocery2/summary>

**Risk Management**

**Technological & Architectural Requirements:**

* User should be having a smart phone with Android version 4.0 and above
* GPS should be turned on to get the current location

**Bibilography**

<https://developer.android.com/training/index.html>

<http://www.apartmenttherapy.com/whats-for-dinner-6-fridge-management-apps-weekly-smartphone-app-roundup-189441>

<http://www.snaptohealth.org/nutrition-hub/nutrition-on-the-go/>

<http://www.techhive.com/article/2455133/six-grocery-shopping-apps-to-replace-your-paper-list.html>

<http://www.groceryiq.com/>

<https://www.anylistapp.com/>