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# Software Requirements Specification

for

## MyPantry

**Version 1.0 approved**

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## Revision History

Name	Date	Reason For Changes	Version

# **1. Introduction**

## **1.1 Purpose**

This Software Requirement Specification (SRS) document provides an in-depth description of our mobile application, MyPantry. It describes the purpose of the application, its features, implementation constraints, interfaces and the software requirements.

## **1.2 Document Conventions**

Title: Arial, Size 18, Bold

Subtitle: Arial, Size 14, Bold

Body: Arial, Size 11, Normal

## **1.3 Intended Audience and Reading Suggestions**

This document is intended for developers, managers, users and testers.

Developers may review this document to analyse the features of this application through the documentation of the functional and non-functional requirements. This would allow them to have a better understanding of the application thus allowing them to develop new features and provide proper maintenance for the application.

Users who view this document will gain a better understanding of how the application works and all the features and functions it offers.

Testers may use this document to identify the previous unit testing that has been done on the application. This will allow them to ensure all future testing will provide an outcome of similar standard.

## **1.4 Product Scope**

MyPantry is a mobile application that will generate recipes which can be made using the ingredients selected by the user. This feature brings convenience to users as users will be presented with options on the meals they could cook with the limited ingredients they have. This application also provides an additional feature that allows users to locate grocery stores near them.

## **2. Overall Description**

### **2.1 Product Perspective**

MyPantry is a standalone mobile application that will be used on Android devices.

### **2.2 Product Functions**

Major functions:

- Registration of new account
- Logging in of existing account
- Allows users to add ingredients into their virtual pantry
- Generate recipes that use at least 60% of the selected ingredients in the user's virtual pantry and displays its meal preparation time and nutritional information,
- Locates grocery stores that are nearby the user and display its details such as distance from the user, address, opening hours and contact number.
- Customisation of the user's profile page
- Displays recipes that have been saved by the user

Minor functions:

- Filter view for ingredients in MyPantry
- Sort view for ingredients in MyPantry
- "Select all" option for selection of ingredients in MyPantry
- Sort view for saved recipes

### **2.3 User Classes and Characteristics**

The main user class would be users who wish to use this application to identify the meals they could possibly make with the limited ingredients they currently have.

Other possible user class could be users who wish to locate nearby groceries stores in their area.

### **2.4 Operating Environment**

MyPantry application will be running on Android OS. External API such as Google Maps API and recipe API will provide supporting information.

### **2.5 Design and Implementation Constraints**

The MyPantry application only runs on Android and the application is only in English.

## **2.6 User Documentation**

A simple guide explaining the features of the application will be included in the application description when it is published to the app store.

## **2.7 Assumptions and Dependencies**

Users should have an android device that is able to run the MyPantry application.

Users should have basic knowledge on how to use an application on a mobile phone.

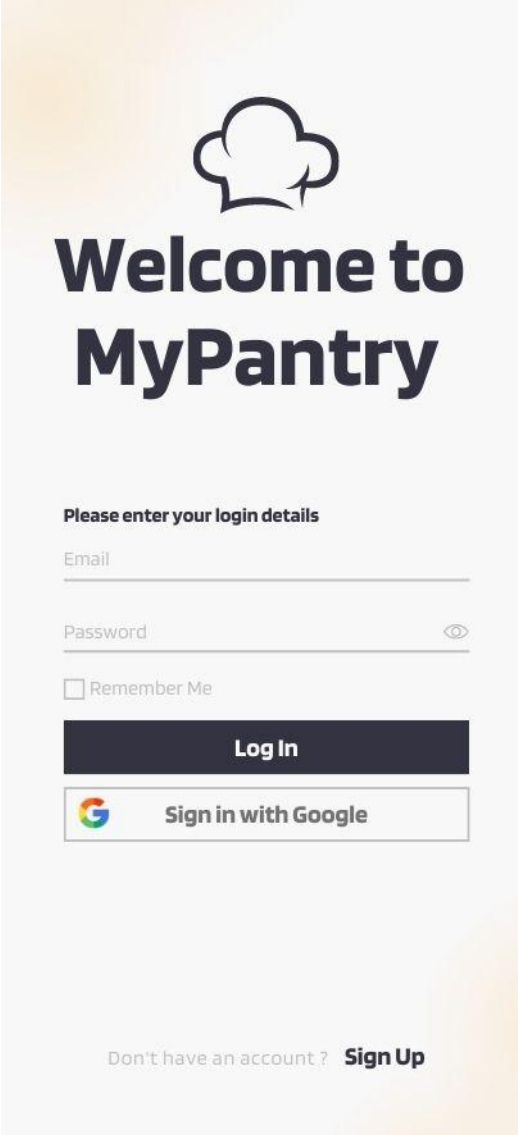
Users have an internet connection that allows them to use the application.

## 3. External Interface Requirements

### 3.1 User Interfaces

#### 3.1.1 Login page

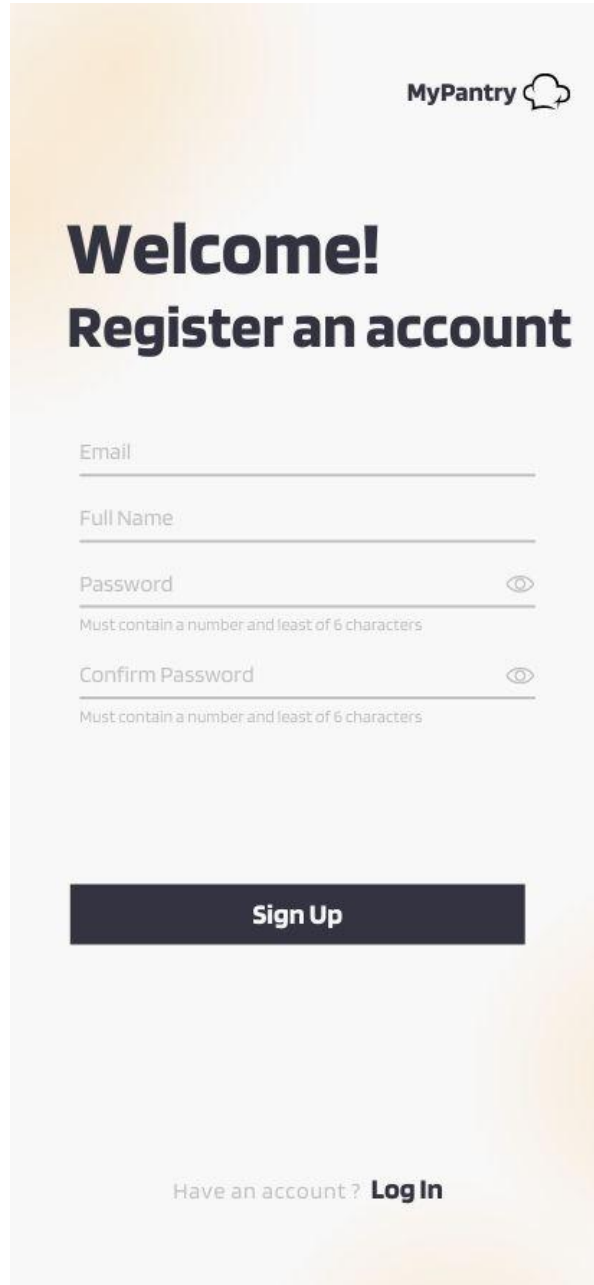
Allows users to login into their registered account if they have an existing account. Users may log in using their email and corresponding password.




The image shows a mobile app login screen for 'MyPantry'. At the top is a cloud-shaped logo with a star. Below it, the text 'Welcome to MyPantry' is displayed in a large, bold, dark font. Underneath, a prompt 'Please enter your login details' is followed by two input fields: 'Email' and 'Password'. The 'Password' field has a toggle icon (an eye) to its right. Below the password field is a checkbox labeled 'Remember Me'. A dark blue 'Log In' button is positioned below the checkbox. At the bottom of the login section is a button with the Google logo and the text 'Sign in with Google'. At the very bottom of the screen, there is a link that says 'Don't have an account ? Sign Up'.

### 3.1.2 Registration Page

Allows users to register for a new account using their email address.  
Users will set their account details such as full name and password.




The image shows a mobile app registration screen for 'MyPantry'. The header features the 'MyPantry' logo with a cloud icon. The main heading reads 'Welcome! Register an account'. Below this, there are four input fields: 'Email', 'Full Name', 'Password', and 'Confirm Password'. Each field has a placeholder text and a validation message below it. The 'Password' and 'Confirm Password' fields include an eye icon for toggling visibility. A dark blue 'Sign Up' button is positioned below the form. At the bottom, there is a link that says 'Have an account? Log In'.


MyPantry 

## Welcome! Register an account

Email

Full Name

Password    
Must contain a number and least of 6 characters

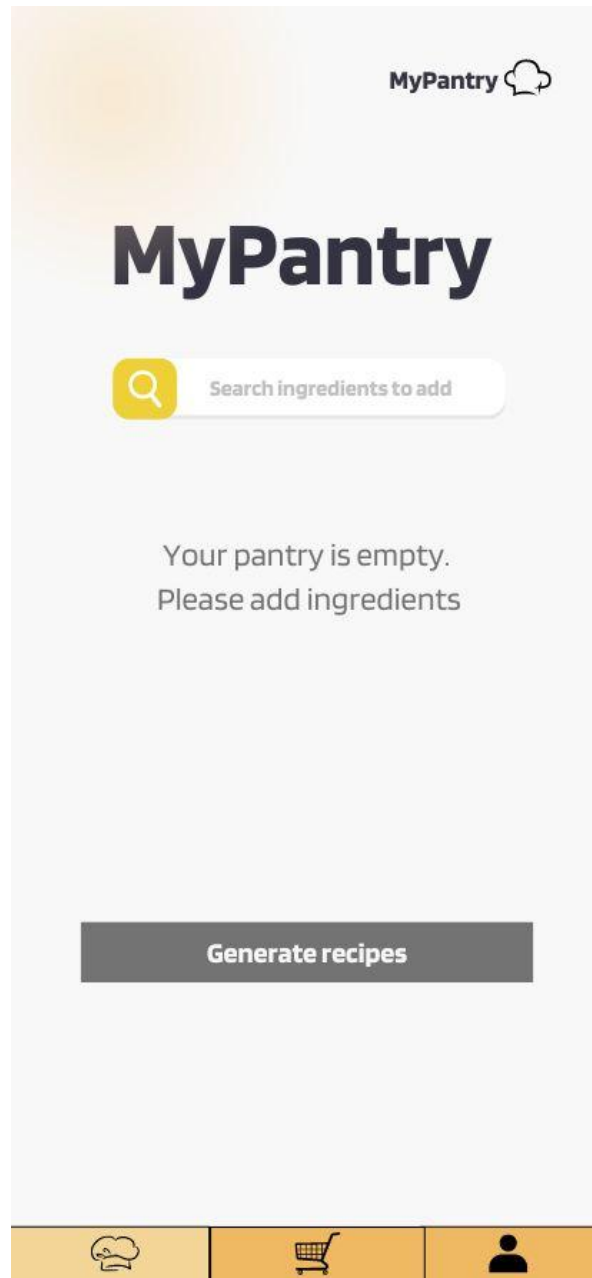
Confirm Password    
Must contain a number and least of 6 characters

**Sign Up**

Have an account? **Log In**

### 3.1.3 MyPantry Page (without ingredients)

Allows users to add ingredients into their virtual pantry, “MyPantry” using the search function.



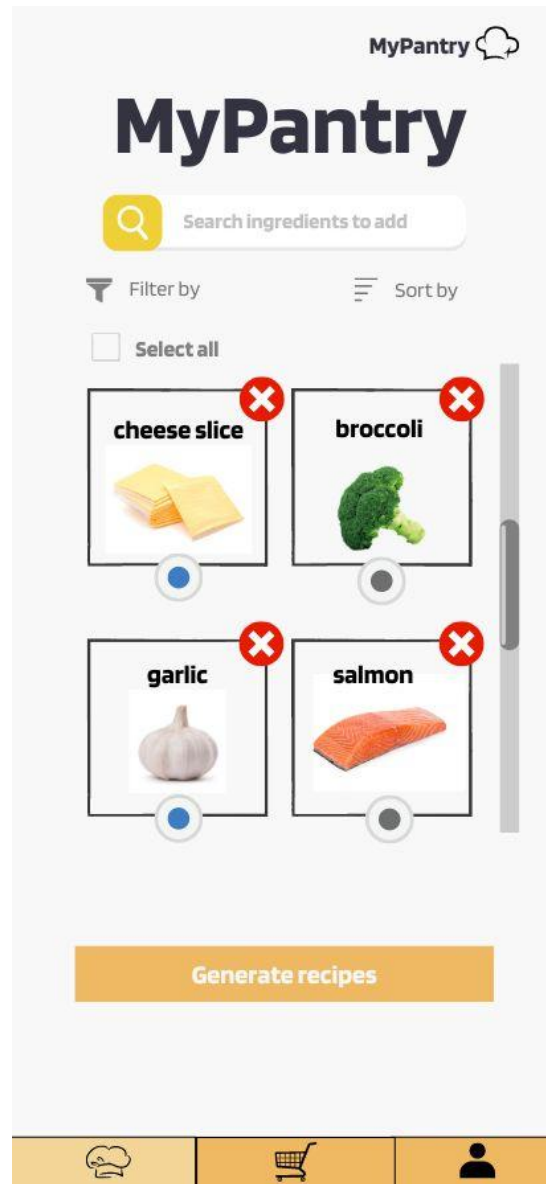


### 3.1.4 MyPantry Page (with ingredients)

Allows users to select some or all the ingredients in MyPantry.

Allow users to generate recipes from the selected ingredients in MyPantry.

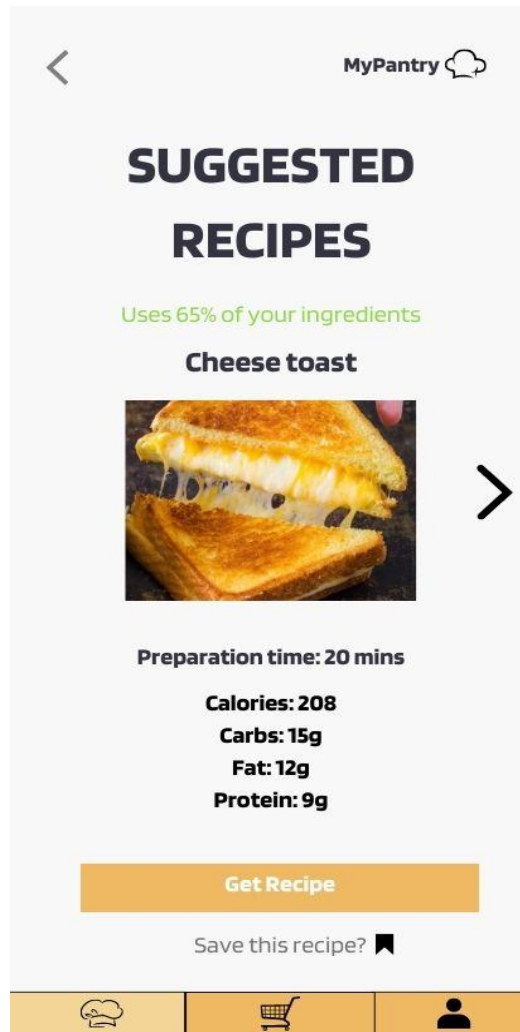
Users may sort the ingredients in alphabetical order or filter the ingredients based on its food type.



### 3.1.5 Generated recipes page

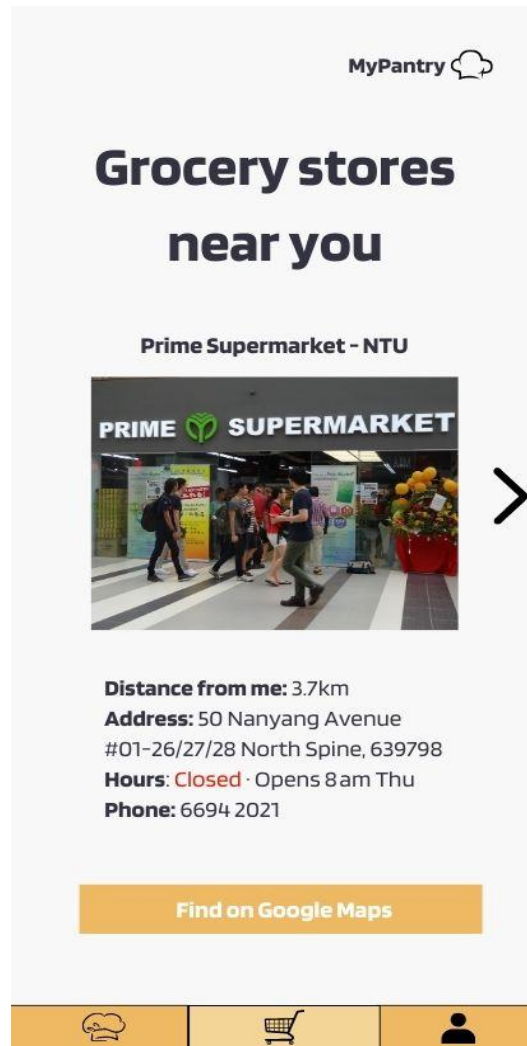
When the user selects the “Generate Recipes” function, recipe(s) which uses at least 60% of the ingredients in MyPantry will be displayed with its estimated preparation time and nutritional information.

Users may have the option to save the recipe.



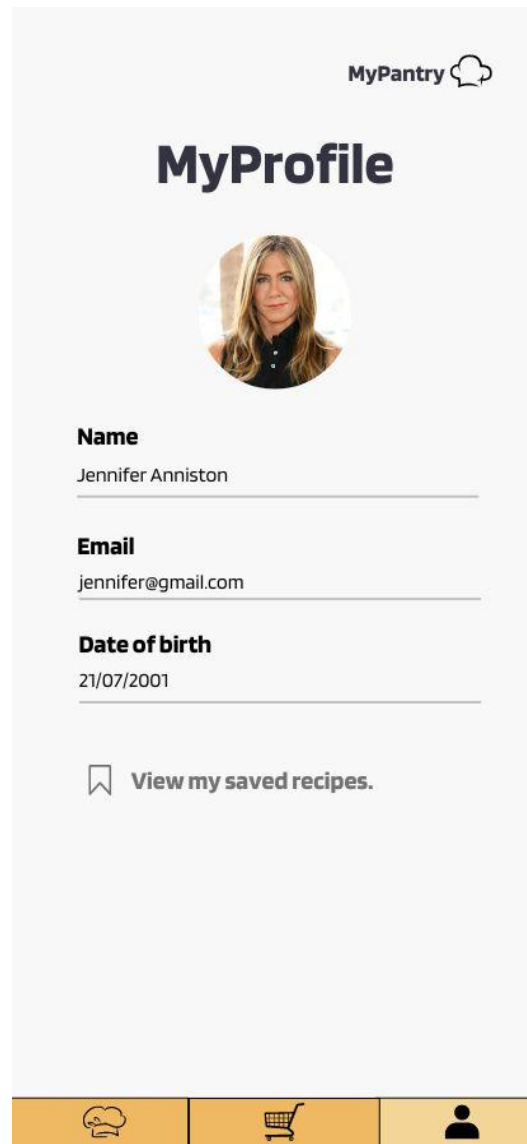
### 3.1.6 Nearby Grocery Stores

Uses the user's location to identify nearby grocery stores and display its distance from user, address, opening hours and phone number.



### 3.1.7 MyProfile Page

Displays the user's information such as profile picture, name, email and date of birth.

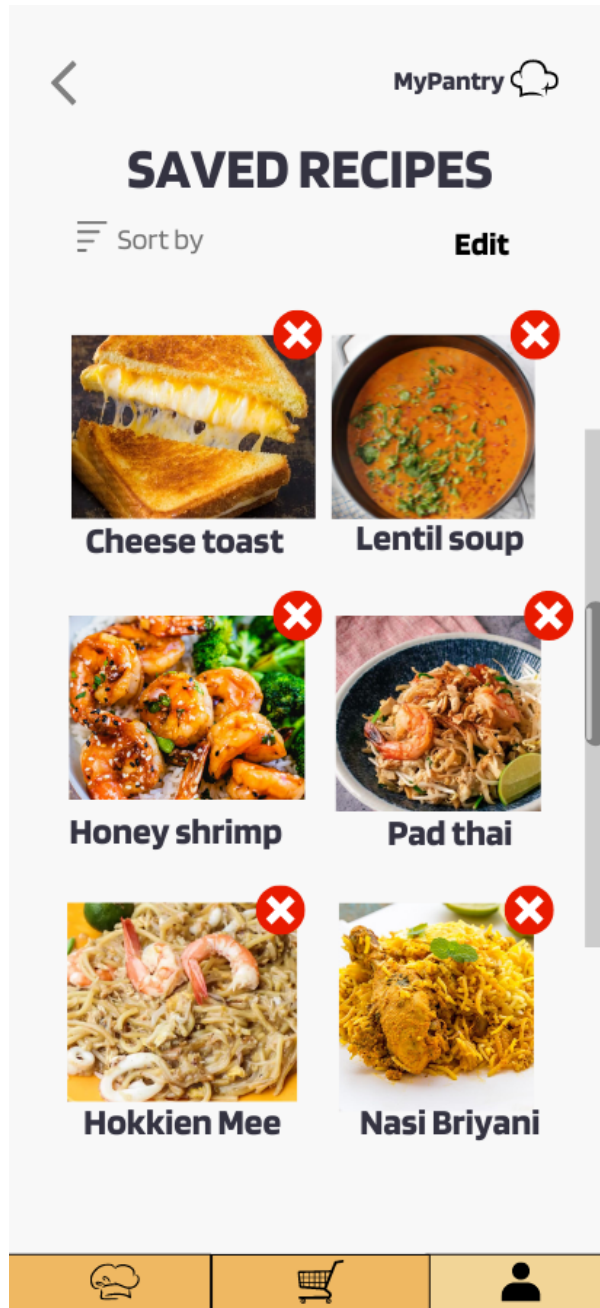


### 3.1.8 Saved Recipes Page

Displays the recipes that have been saved by the user.

Users may use the edit function to remove a recipe from this page.

Users may sort the saved recipes by alphabetical order.



## **3.2 Hardware Interfaces**

The MyPantry mobile application must be used on an Android smartphone with a touch screen feature. This allows the device to support the swiping and scrolling gestures which are required to perform the functions of this application.

## **3.3 Software Interfaces**

The application is built using Flutter and Firebase. The application will also rely on external APIs such as Google Maps API and recipes API.

## 4. System Features

### 4.1 Login and Account creation page

#### 4.1.1 Description and Priority

This feature contains the login UI for the user to input their email and password. It also allows the user to sign in with their Google account, and allows the user to tick the “Remember Me” option where the system will automatically input the user’s login details upon launching the app if the user successfully logs in once. If the user does not have an account, the user can sign up for an account with an email and password.

Priority: High

#### 4.1.2 Stimulus/Response Sequences

1. User taps on sign up.
  - 1.1. System will bring the user to the account registration page.
  - 1.2. User input email, name, password, and confirm password.
  - 1.3. User tap on sign up.
  - 1.4. System will check if the email is taken.
  - 1.5. System will check if the password has at least 1 special character, 1 uppercase letter, 1 lower case letter, and has at least 8 characters.
  - 1.6. If the password is valid, the system will create an account for the user.
  - 1.7. If the password is invalid, the system will prompt the user for another password.
2. User wants to login, the user inputs email and password to login.
  - 2.1. System will validate email and password.
    - 2.1.1. If correct, the system will log the user in.
    - 2.1.2. If wrong, the system will display “Incorrect login details”, and allows the user to input the login details again.

#### 4.1.3 Functional Requirements

REQ-1:

1. The system must let the user sign up for an account.
  - 1.1. System must create an account for the user once a valid email and password is fulfilled.
  - 1.2. System must allow the user to sign up with an email, and password.
    - 1.2.1. System must prompt the user to change the passwords if the password didn’t adhere to requirements: at least 1 special character, 1 uppercase letter, 1 lower case letter, at least 8 characters.
    - 1.2.2. System must prompt the user to change email if the email has already been used to create an account.
  - 1.3. System must allow the user to sign up with a Google account.

REQ-2:

- 2. If not logged in, the system must let the user log in.
  - 2.1. If not logged in, the system must let the user log in with a Google Account.
  - 2.2. If not logged in, the system must let the user login with email and password
  - 2.3. If not logged in, the system must let the user tick the “Remember me” option
    - 2.3.1. If the “Remember me” option is ticked when the user logs in successfully, the system must automatically input the user’s account details upon launching the app in the future.

REQ-3:

- 3. After the user logs in, the system must validate the user’s login details.
  - 3.1. If user’s login details are correct, system must log into the user’s account
  - 3.2. If user’s login details are incorrect, system will generate a red text : “Login details are incorrect”

REQ-4:

- 4. If logged in, the system must let the user logout.



## 4.2 MyPantry

### 4.2.1 Description and Priority

This page displays the user's pantry and what ingredients are in the pantry. Users can search for ingredients to add to their pantry. Users can sort the ingredients they have in their pantry in alphabetical order or by the types of ingredients(meat,vegetables,dairy etc). The system allows users to generate recipes based on what ingredients they want to use in their pantry. Users can save their saved recipes.

### 4.2.2 Stimulus/Response Sequences

1. User taps on the search box.
2. System allows user to enter text to search for an ingredient
3. User enters an ingredient name
4. System displays the ingredient, if ingredient name does not exist, system will not display anything
5. User taps on the displayed ingredient to add.
6. User taps on the "sort by" button.
7. System displays options to sort the ingredients they have in their pantry, in alphabetical order or by the types of ingredients(meat,vegetables,dairy etc)
8. User taps on the "filter by" button.
9. System displays categories to tick, filtering the ingredients displayed. Categories include meat,vegetables,dairy, TBD.
10. User ticks the meat and vegetables categories
11. System displays all the meat and vegetables ingredients available in the pantry.
12. User taps on multiple ingredients to select them in order to generate a recipe.
13. The system will then generate recipes based on the ingredients selected, and displays the recipes' nutritional information and preparation time, and a "get recipe" button.
14. User taps on "get recipe" button
15. System redirects the user to a webpage which details the recipe and cooking instructions of the recipe.

### 4.2.3 Functional Requirements

REQ-5:

5. The system must let the user add ingredients to the pantry.
  - 5.1. The system must let the user search for ingredients in the search bar.
  - 5.2. The system must let the user select 1 or more ingredients to add to the pantry.

REQ-6

6. The system must let the user generate recipes.
  - 6.1. The system must let the user select 1 or more ingredients in the pantry to use in generating a recipe.
  - 6.2. If user taps on generate recipe, the system must generate all the recipes that meets the following conditions:

- 6.2.1. The system must only generate the recipes that use at least 1 or more of the ingredients selected.
- 6.2.2. The system must only generate recipes that have 60% or more of its ingredients available in the user's pantry.

REQ-7

- 7. For all the displayed suggested recipes, the system must display the recipe's basic nutritional information
  - 7.1. Calories
  - 7.2. Carbs
  - 7.3. Fat
  - 7.4. Protein

REQ-8

- 8. The system must allow the user to tap on "get recipe" for a recipe the user wants
  - 8.1. if a user taps on "get recipe", the system must bring the user to the webpage where the recipe is taken from.
  - 8.2. The webpage must display instructions on preparing the dish
  - 8.3. The webpage must display the full nutritional information of the dish

REQ-9

- 9. The system must allow the user to tap on "save recipe" for a recipe the user wants.
  - 9.1. The system must add the recipe the user saved to the "saved recipes" collection.
  - 9.2. The "saved recipes" collection can be viewed in the user's profile page.

## **4.3 Nearby Grocery Stores**

### **4.3.1 Description and Priority**

This page displays grocery stores that are near the user. It uses live location to determine which stores are near. It will also display the distance away, the address, the opening hours, and the phone number.

### **4.3.2 Stimulus/Response Sequences**

1. User tap on the nearby groceries store page
2. The system displays the nearest grocery store.
3. The distance away, address, opening hours, and phone number will be displayed.
4. User taps on the next button represented by the ">" arrow located on the right hand portion of the screen
5. The system displays the next nearest store.
6. User taps on the "Find on Google Maps".
7. The system opens the google map page where the store will be pinpointed

### **4.3.3 Functional Requirements**

REQ-10

10. The system must use the user's location to display nearby grocery stores.
  - 10.1. For each grocery store nearby, the system must display the following information
    - 10.1.1. The system must display the distance the user is away from the grocery stores.
    - 10.1.2. The system must display the address of the grocery store.
    - 10.1.3. The system must display the opening hours of the grocery store.
    - 10.1.4. The system must display the phone number of the grocery store.'

REQ-11:

11. If the user taps on "Find on Google Maps", the system must open the Google Maps app with the store pinpointed

REQ-12:

12. If the user taps on the ">" button, the system must show the next closest grocery store.

## **4.4 My Profile Page**

### **4.4.1 Description and Priority**

This page shows the user's personal information, such as name, email used, and date of birth, as well as the profile picture. Users can edit their name and profile picture. There is a "View my saved recipes button" that allows users to view all the recipes they have saved.

### **4.4.2 Stimulus/Response Sequences**

1. When users tap on their profile page, their personal information is displayed.
2. The user taps on the Name text box.
3. The system allows the user to change the name.
4. The user taps on the Date of birth box.
5. The system allows the user to change his Date of Birth.
6. The user taps on "View my saved recipes".
7. The system redirects the user to the saved recipes page.

### **4.4.3 Functional Requirements**

#### **REQ-13**

13. The system must display the user's profile picture
  - 13.1. The system must allow the user to change the profile picture
  - 13.2. If user taps on profile picture, system display a full screened image of current profile picture
  - 13.3. If the user taps on profile picture, system must display the option to change profile picture via camera or photo album.

#### **REQ-14**

14. The system must display the user's name
  - 14.1. The system must allow the user to change name
  - 14.2. If user taps on name, the user can edit the text box to change name

#### **REQ-15**

15. The system must display the user's email

#### **REQ-16**

16. The system must display the user's date of birth

#### **REQ-17**

17. The system must display the "saved recipes" button
  - 17.1. If user taps on "saved recipes", the system must redirect the user to the saved recipes page

## **4.5 Saved Recipes Page**

### **4.5.1 Description and Priority**

This page displays all the recipes that the user has saved. The user can tap on any of the recipes to directly access the recipe page. This page allows a user to revisit a recipe conveniently that the user really enjoyed without having to generate the recipe again. Users can also sort the recipes by alphabetical order via the “Sort by” button, or delete recipes via the “edit” button.

### **4.5.2 Stimulus/Response Sequences**

1. The user can view all the saved recipes
2. The user can tap on the “sort by” button.
3. The system sorts all the saved recipes by alphabetical order.
4. The user taps on the “edit” button.
5. The system displays red “x” on the top right hand corner of saved recipes.
6. The user taps on a red “x”.
7. The system removes the recipe from the saved recipes page.
8. The user taps on a recipe.
9. The system redirects the user to a webpage that displays the recipe, showing the nutritional information and the preparation time, as well as a “get recipe” button.

### **4.5.3 Functional Requirements**

REQ-16:

18. The system must display all the saved recipes when in the saved recipes page

REQ-17:

19. The system must allow the user to sort the displayed recipes in alphabetical order

REQ-18:

20. The system must allow the user to edit the saved recipes page
  - 20.1. When the edit button is tapped, the system must display ‘x’ on the top right corner of all recipes.
  - 20.2. The system must allow the user to remove recipes from the saved recipes page by tapping on the ‘x’ button.

REQ-19:

21. The system must redirect the user to the webpage when they tap on a recipe.

## **5. Other Nonfunctional Requirements**

### **5.1 Performance Requirements**

5.1.1 The app must be able to boot up within 10 seconds when the number of users using the app is more than 10,000.

5.1.2 The app must have a response time of less than 2 seconds.

5.1.3 The app must be able display recipe outputs within 5 seconds after the user selects the ingredients.

5.1.4 The app must be able to display filtered recipe results within 3 seconds after the user applies filters like cooking time, cuisine, rating, etc.

5.1.5 The app must be able to update the database and display it within 1 second after the user adds/removes ingredients.

5.1.6 The app must take less than 2 seconds to load after the user signs in.

### **5.2 Usability Requirements**

5.2.1 UI must be simple, organized and intuitive enough for users to navigate.

5.2.2 Text fields requiring input from the user must have example or hidden text as much as possible, to guide the users on what to input in the corresponding text field.

### **5.3 Security Requirements**

5.3.1 The app's back-end must only be accessed by authorized personnel from the developer team.

5.3.2 Each time the user uses the app they must be prompted to log into their myPantry account.

5.3.3 The account password must be a minimum of 8 characters long with at least one number and uppercase letter.

5.3.4 The data collected from the user must be stored securely away from public access.

5.3.5 User information must be deleted if the user account is deleted.

### **5.4 Reliability Requirements**

5.4.1 The app must run without failure 95% of the time.

5.4.2 The app must back up its data immediately after it receives new data.

### **5.5 Supportability Requirements**

5.5.1 The app must be able to support 10,000 users simultaneously.

5.5.2 The app must be compatible with mobile platforms like Android and iOS.

5.5.3 The app's backend database must be replaceable with any commercial product supporting standard SQL queries.

## **5.6 Localisation Requirement**

5.6.1 App must display conventional units of measurements used in Singapore like weight in grams, volume in milliliters, etc.

## Appendix A: Glossary

### Data Dictionary

Term	Definition
User	A person with an account in the system and uses the services the application provides.
Profile	A list of user profile details in the system containing (Name, Email, Date-Of-Birth) associated with them.
Password	A string of characters (letters, numbers, special symbols) that protects an account from unwanted access.
Pantry	The list of food ingredients that the user currently has or can have access to.
Ingredient	An edible food or substance used to combine to make a particular dish.
Recipe	A set of instructions for preparing a particular dish, including a list of the ingredients required.
SavedRecipes	An interface that displays the list of recipes that users saves.
NearestMart	A list of nearest marts generated from user's geographical location.