



**NUS Orbital 2023**

**Milestone 3**

**Code Caterers**

Chan Wei Ning

Ng Yan Hui

# Contents

<b>Contents</b>	2
<b>Posters</b>	4
<b>Proof-of-Concept</b>	9
<b>Deployment</b>	9
<b>Proposed Level of Achievement</b>	9
<b>Aim</b>	9
<b>Motivation</b>	9
<b>Vision</b>	10
<b>User Stories</b>	10
<b>Scope of project</b>	11
<b>How are we different from other platforms?</b>	11
<b>Tech Stack</b>	11
<b>List of Features</b>	12
<b>Features</b>	13
<b>User Account Authentication</b>	13
<b>User Profile</b>	17
<b>Stall Owner Profile</b>	19
<b>Food Preference Interface &amp; Food Recommendations</b>	22
<b>User Reviews</b>	29
<b>Food Stall Details</b>	31
<b>Discount &amp; Promotions</b>	33
<b>Saved and Explore Pages [EXTENSION]</b>	36
<b>Overall navigation flow</b>	41
<b>Wireframe</b>	43
<b>User Interface Design</b>	48
<b>Timeline and Development Plan</b>	48
<b>Sequence Diagram</b>	50
<b>Model Entity Relationship Diagram</b>	51
<b>Software Engineering Practices</b>	52
<b>Github Repo + Basic Version Control</b>	52
<b>Git Issues</b>	53
<b>Git Milestones</b>	54
<b>Intermediate Version Control</b>	55
<b>Branching</b>	55
<b>Pull Requests</b>	56
<b>Weekly Sprints</b>	56
<b>Quality Control</b>	56
<b>System Testing by Developers</b>	56
<b>Automated Testing</b>	65

<b>Unit Testing</b>	<b>65</b>
<b>Integration Testing</b>	<b>71</b>
<b>System Testing</b>	<b>75</b>
<b>User Testing</b>	<b>76</b>
<b>Limitations</b>	<b>87</b>
<b>Challenges faced</b>	<b>88</b>
<b>Project Log</b>	<b>88</b>
<b>Credits</b>	<b>88</b>

# Posters

# EATWHATLAH!

Code Caterers / Team 5541: Chan Wei Ning & Ng Yen Hui

### Motivation:

Have you ever been stuck on deciding what to eat? You're not alone! With countless mouth-watering options available at NUS, choosing just one can be a challenge. Don't worry, we've got you covered. Let us guide you to the perfect meal!

### Features:

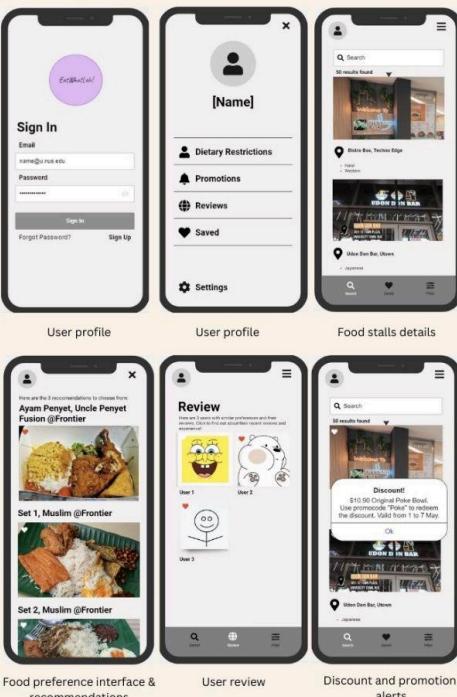
- User profile
- Food stalls details
- Food preference interface & recommendations
- User review
- Discount and promotion alerts



### Target Audience:

- Students in NUS
- Stall owners in NUS

### Interface:



### What sets us apart from other apps in the market?

- Tailored to the food options available at NUS.
- Takes into account the users' allergies.
- Narrowed to 3 food options to choose from.
- Uses machine learning to personalize food recommendations for each user.
- Allows users to match with others who share the same food preferences anonymously to exchange recommendations.

### Tech Stack:

- React Native (Mobile app development)
- Adobe XD (user interface and design)
- Java (Android)/ Swift (iOS) (programming language)
- MySQL (database management system)
- RESTful API (integrate third-party services)
- Python/ Java (programming language for server-side development)
- Express.js (server-side frameworks)
- Firebase authentication (authentication and security)
- Git and Github (version control, issue tracking)
- TensorFlow Lite (machine learning system)

Liftoff Poster

4

# EATWHATLAH!

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## Motivation:

Have you ever been stuck on deciding what to eat?  
You're not alone! With countless mouth-watering options available at NUS, choosing just one can be a challenge.  
Don't worry, we've got you covered. Let us guide you to the perfect meal!

## Features:



- User profile
- Input their personal details, including their dietary restrictions & Save their preferences and previous food choices.



Provide details of recommended food stalls, including location, menu options, reviews and ratings.



- Food preference interface & recommendations

Input their budget, cuisine and environment preferences & Recommendations will be narrowed to up to 3 options.



- User review

Help users make informed decisions based on other users' experiences and for machine learning purposes.



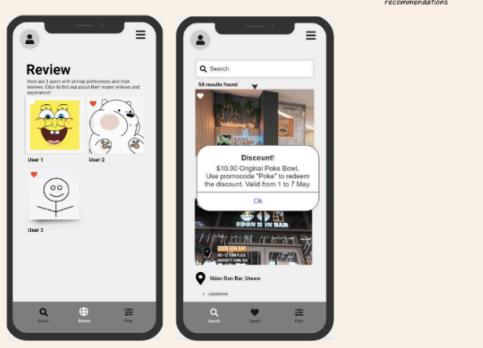
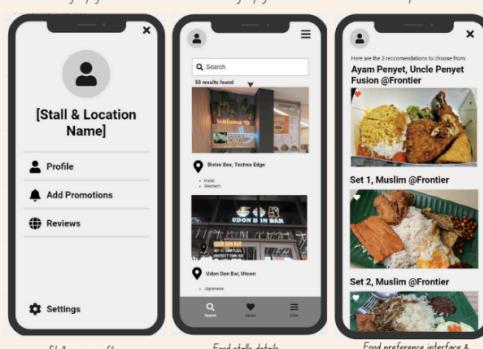
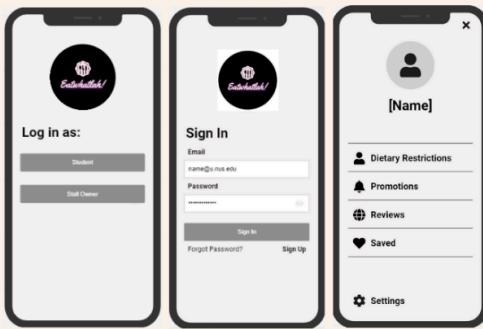
- Discount and promotion alerts

Display discounts and promotions from social media like Instagram and Telegram on the app.

## Target Audience:

- Students in NUS
- Stall owners in NUS

## Interface:



## What sets us apart from other apps in the market?

- Tailored to the food options available at NUS.
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- Allows users to match with others who share the same food preferences anonymously to exchange recommendations.





# EatWhatLah!

By Code Caterers, Team 5541

Members: Chan Wei Ning, Ng Yan Hui



## Introduction

With countless mouth-watering options available at NUS, choosing just one can be a challenge. Don't worry, our app EatWhatLah!, allows you to input your preferences and narrow down to 3 options for you to choose from!



✓ -Tested and Working

✓ User/Stall Owner Authentication: Register, Log in, Reset Password.

✗ User Profile

✗ Stall Owner Profile

✗ Food Preference Interface and Food Recommendation:

✗ Evaluation

✗ Food Stall Details

✗ User Review

✗ Discounts and Promotions Alerts

✗ Pop-ups and alerts are work in progress.

✓ -In Progress, Needs Improvement

✗ Stall Owner Interface

✗ User Interface

✓ System Design

✓ Key features:

- User profile: Input their personal details, including their dietary restrictions & Save their preferences and previous food choices.
- Food stalls details: Provide details of recommended food stalls, including location, menu options, reviews and ratings.
- Food preference interface & recommendations: Input their budget, cuisine and environment preferences & Recommendations will be narrowed to up to 3 options.
- User review: Help users make informed decisions based on other users' experiences and for machine learning purposes.
- Discount and promotion alerts: Display discounts and promotions from social media like Instagram and Telegram on the app.

✓ System design:

User Interface:

- Home Page lists all the stalls (Links to 'Stall' and 'Menu' table)
- Filter Page where users get 3 recommendations
- Profile Page to set up their account (Links to 'profile' table)
- Promotions page shows all the ongoing promotions (Links to 'promotions' table)
- Reviews Page to reviews by user (Links to 'review' table)

Stall Owner Interface:

- Home page: displays stall name and image, and enables navigation to other pages. (Links to 'Stall' table in Supabase)
- Update Stall page to change the stall name and stall image. (Links to 'Stall' table in Supabase)
- Stall Profile page to set up their account.(Links to 'Stall' table)
- Menu page to view menu and add menu items. (Link to 'Menu' table)
- Promotions page to view promotions added and add any ongoing promotions or discounts.(Links to 'Promotions' table)
- Reviews page to view reviews that have been left on their dishes. (Links to 'reviews' table)

SE practices:

- Basic version control
- Using git commit to add our code to git hub
- Git Issues
- Used to keep track of bugs and potential enhancements
- Intermediate version control
- Using branches and pull request to keep our main branch clean.

✓ Supabase

+ This ERD diagram shows the tables that we have created for our backend.

## Milestone 2 Poster



# EatWhatLah!

By Code Caterers, Team 5541  
Members: Chan Wei Ning, Ng Yan Hui



## Introduction

Introducing EatWhatLah! - Your Personalised Food App at NUS! With countless mouth-watering options available at NUS, choosing just one can be a challenge. Don't worry, our app EatWhatLah! allows you to select your preferences and curates top-notch food recommendations. Ensuring ease of decision making and also helping you never miss out on a satisfying meal. Leave reviews and foster community interaction while staying informed about ongoing promotions through our dedicated pages. Stall owners can also stand to benefit by receiving valuable feedback and refining their menus. Our objective is to empower NUS students with a convenient, personalised, and delightful food app. Embark on an exciting food adventure with EatWhatLah!



## Key Features

- 1) User Account Authentication -> Sign Up & Sign In
- 2) User profile -> Personalise account by setting up username, image and dietary restrictions.
- 3) Stall Owner Profile -> Customise stall profile, menu, promotions and view reviews written by users.
- 4) Food stall details -> Provide details of recommended food stalls, including location, menu items, reviews and ratings.
- 5) Food Preference Interface & Recommendations -> Input preferences & 3 food options will be recommended.
- 6) User Review -> Give feedback to stall owners, as well as help other users by rating the menu items.
- 7) Saved & Explore pages -> Save menu items and other users + Get recommended users and search for friends.
- 8) Discounts and Promotions -> Receive pop-ups and view ongoing discounts and promotions.

## System Design

User Interface Tabs: (Links to table in supabase database)

- Home: Search, sort and lists all stalls. ('stall' and 'menu' table)
- Filter: Input preferences & obtain 3 recommendations. ('stall', 'menu', 'profile')
- Profile: Navigates to other pages: Update Profile, Dietary Restrictions, Reviews, Saved (displays saved menu & saved profiles). ('reviews', 'profile')
- Promotions: Displays all the ongoing promotions ('promotions' table)
- Explore: Recommend users + Search and displays all users ('profile' table)

Stall Owner Interface: (Links to table in supabase database)

- Home: Displays stall name & image & navigates to other tabs. ('stall' table)
- Menu: Add, edit, view & delete menu items. ('menu' table)
- Promotions: Add, edit, view & delete promotions. ('promotions' table)
- Reviews: Receive feedback on their dishes. ('reviews' table)
- Stall Profile: Set up & update account details. ('stall' table)

## SE Practices

- Github Repo + Basic Version Control
  - keep track of the changes in code
  - use of git add, git commit, git push and git pull
  - Git Issues
  - track and manage tasks, bugs, and other project-related items
  - Git Milestones
  - keep track of the progress in each area of the app
- Milestones: Styling of the app, Saved Page, User Profile, Food Recommendation, User Reviews, Food Stall Details, Stall Owner Interface, Discounts and Promotions, Food Preference Interface
  - Intermediate version control
  - branching allows us to work on different features, bug fixes, or experiments without affecting the main codebase
  - pull requests: propose changes and initiate code review
    - Model Entity Relationship Diagram: to aid in database designing
    - Sequence Diagram: displays how authentication & database work together
    - Overall Navigation Flow: displays flow of app
    - Wireframe: initial design & layout
    - User Interface Design: displays app design (Link to diagrams: [↓↓↓](#))
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## Evaluation

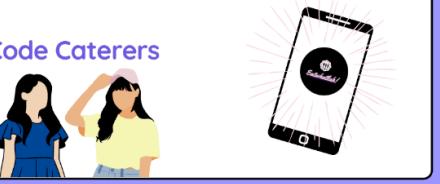
- System Testing by Developers
- Conducted testing on both user and stall owner interfaces
- Automated Testing
- Unit Testing: testing of individual units
- Integration Testing: testing whether different parts of the software work together
- System Testing: testing against non-functional requirements
  - User Testing
- Conducted testing on user interface
- Conducted google survey on selected individuals
- Made improvements to app design to make it more user-friendly and fixed bugs



## Conclusion

After immersing ourselves in various technologies and software during the development of EatWhatLah!, we have come to realise the need for continuous growth and improvement. We intend to continue learning various technologies and software to further improve our skills and eagerly embrace challenges as opportunities for growth. We also hope that people enjoy our app and find it helpful in making personalised food recommendations.

**Code Caterers**



Milestone 3 Poster

7



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Stall Owner Interface: (Links to table in supabase database)

- Home: Displays stall name & image & navigates to other tabs. ('stall' table)
- Menu: Add, edit, view & delete menu items. ('menu' table)
- Promotions: Add, edit, view & delete promotions. ('promotions' table)
- Reviews: Receive feedback on their dishes. ('reviews' table)
- Stall Profile: Set up & update account details. ('stall' table)

## SE Practices

- Github Repo + Basic Version Control
  - keep track of the changes in code + use of git add/push/pull/commit
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## Evaluation

- System Testing by Developers
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After immersing ourselves in various technologies and software during the development of EatWhatLah!, we have come to realise the need for continuous growth and improvement. We intend to continue learning various technologies and software to further improve our skills and eagerly embrace challenges as opportunities for growth. We also hope that people enjoy our app and find it helpful in making personalised food recommendations.

**Code Caterers**



Final Poster

# Proof-of-Concept

Refer to the video demonstration:

[https://drive.google.com/file/d/15iZwsO3C\\_zlzLE2kNhblN8nQuKP-t3S5/view?usp=drive\\_link](https://drive.google.com/file/d/15iZwsO3C_zlzLE2kNhblN8nQuKP-t3S5/view?usp=drive_link)

Test account email: [eatwhatlah9@gmail.com](mailto:eatwhatlah9@gmail.com) (Use for both user and owner)

Test account password: 123456

## Deployment

Refer to the attached apk file (Download on android phone):

[https://drive.google.com/file/d/1u11W2hGudWxRW-eycG\\_tqECpEJwGSXkJ/view?usp=sharing](https://drive.google.com/file/d/1u11W2hGudWxRW-eycG_tqECpEJwGSXkJ/view?usp=sharing)

## Proposed Level of Achievement

Apollo 11

## Aim

EatWhatLah! aims to be an all-in-one food recommendation app which helps indecisive eaters decide what to eat, considering the overwhelming amount of food options available in NUS and provides a platform for users to communicate with stall owners, so that improvements to the food in NUS can be made.

## Motivation

With the overwhelming amount of food options in NUS, it leads to a choice overload, making it extremely difficult to decide on where to eat and what to eat. Normally, we would decide by personal taste, cultural influences, emotional reasons, health concerns, societal pressures, convenience, and cost<sup>1</sup>.

However, it can be quite difficult to make a decision quickly and also ensure that the food that you choose will suit you. Furthermore, it is difficult to find out what tastes good without having to try it first and find food that is within our budget without going to every stall to look at the price. It is also uncommon for people to google what to eat as recommendations may not be personalised to the individual and individuals have to look through a long list of google reviews that can be quite time consuming. Thus, we wanted to make a mobile app that can help narrow the options and aid the decision making process.

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<sup>1</sup> Zelman, K. M. (n.d.). *Why We Eat the Foods We Do*. WebMD. Retrieved July 18, 2023, from <https://www.webmd.com/diet/features/why-we-eat-the-foods-we-do>

# Vision

EatWhatLah! is a personalised food recommendation app designed for NUS students. Our aim is to enhance the dining experience on campus by providing a user-friendly platform that caters to individual dietary preferences and fosters a vibrant food community.

Users can register with their email address and password, accessing separate interfaces for stall owners and users. The app features comprehensive user profiles where users can input personal details and dietary restrictions, ensuring customised recommendations and a personalised experience.

Stall owners have their own profiles where they can showcase their stall name, location, and ongoing promotions. They can also view reviews for their dishes, enabling them to make improvements and receive valuable feedback.

The app's advanced food preference interface leverages the user's preferences to recommend menu items based on budget, location, cuisine preferences, and desired environment. EatWhatLah! offers intelligent food recommendations tailored to each user's preferences and dietary restrictions, narrowing options down to three choices.

Users can leave reviews and constructive feedback on the food they've eaten, enhancing the app's recommendations and fostering community interaction.

Comprehensive information on recommended food stalls, including location, menu options, reviews, and ratings, is provided. Users can explore stalls through a scrollable interface, accessing details such as descriptions, menus, and dietary options.

EatWhatLah! keeps users informed of ongoing discounts and promotions through pop-ups, with a dedicated page listing all current offers.

Our vision is to empower NUS students with a convenient and personalised food discovery platform.

# User Stories

1. As a student that is indecisive on what to eat and with the vast amount of options available, I want to be able to narrow down my choices of food.
2. As a student who likes to try out different foods around school, I want to help my fellow schoolmates to enjoy good food as well by reviewing the food in school.
3. As a student with specific dietary needs, I want to be able to find food that I can enjoy.
4. As a student with a limited budget, I want to be able to find food with discounts and promotions that are within my budget.

5. As a student who is curious and outgoing, I want to explore the options saved by other students and also find my friends on the app.
6. As a student who has trouble remembering food options that I like, I want to be able to stalk menus and profiles that I like.
7. As a stall owner, I want to see the reviews of the food I made to make necessary improvements.
8. As a stall owner, I want to be able to manage my promotions and menu.

## Scope of project

EatWhatLah! is a food recommendation and review app that helps users to narrow down their choices from the overwhelming number of options at NUS.

Users will first register their account and create their profile, noting down any dietary restrictions that they have. When they are deciding what to eat, they can open the app and note down their budget, location, cuisine and environment preferences. The app will then use a filtering method to curate 3 options for the users to choose from. Users with similar food preferences will also be recommended. They are also able to save and look at each other's reviews and saved menu items. This could help further aid their decision making process. The app will also display discounts and promotions currently offered by the food stalls in NUS.

## How are we different from other platforms?

Firstly, compared to other platforms like yelp and grab we're tailored to the food options available at NUS.

Compared to NUSMART Dining, we help match and recommend users with others who share the same food preferences to exchange recommendations.

Lastly, apart from different apps on the market, we narrow it down to 3 options instead of giving a long list for users to choose from.

## Tech Stack

- React Native (Mobile app development)
- Supabase (account authentication, backend service and database)
- JavaScript (programming language)
- Git and Github (version control, issue tracking)
- Expo Go

# List of Features

- 1) User Account Authentication
  - Allow users and stall owners to create an account and log in to their respective interface.
  - Uses email and password authentication.
- 2) User Profile (User)
  - Upon creating the account, a new profile with default image and random username is created.
  - Allows users to view and update their profile image and username.
  - Allows users to edit their dietary restrictions.
  - Allow users to access their reviews.
  - Allow users to access their saved menu and saved profiles.
- 3) Stall Owner Profile (Stall Owner)
  - Allows stall owners to set their stall details.
  - Stall owner interface consists of home, menu, promotions, reviews and stall profile pages.
- 4) Food Preference Interface & Food Recommendations (User)
  - Consists of the filter page that allows users to input their preferences and receive 3 food recommendations.
  - Users are able to click on the recommendations to view the menu details.
- 5) User Reviews (Stall Owner & User)
  - (User) Users can leave ratings, comments, and upload images for dishes they have eaten to help others make decisions.
  - (User) Users can view, edit, and delete their reviews in the reviews page accessed through the profile tab.
  - (User) Reviews and ratings are shown on the menu details page, stall details page, and contribute to the recommendation system.
  - (Stall Owner) Stall owners can view reviews for each menu item on their reviews page, helping them improve their food and business.
  - Ratings are calculated by summing individual review ratings, dividing by the total reviews, and displayed accurately through Supabase.
- 6) Food Stall Details (Stall Owner & User)
  - (User) Users can view all stalls in NUS, search for specific stalls or locations using the search bar, and sort the stall list by ratings or alphabetical order.
  - (User) Users can click on a stall to view its ratings, cuisine type, descriptions, and menu items with their names, prices, and ratings.

- (User) Users can click on individual menu items to view dietary restrictions, item ratings, and reviews left by other users. They can also add their own reviews for menu items.
  - (Stall Owner) Stall owners can add, edit, view, and delete menu items using the menu page tab.
- 7) Discounts & Promotions (Stall Owner & User)
- (Stall Owner) Consists of a promotion page for stall owners to add, edit, view and delete promotions.
  - (User) Consists of a promotion page for users to view ongoing promotions.
  - (User) Promotion pop-up appears after users log in to their account to inform users of ongoing promotions. [EXTENSION]
- 8) Saved & Explore Pages (User) [EXTENSION]
- Consists of a heart toggle on menu details pages and profiles pages to allow users to save them.
  - Consists of a saved page for users to view the menus and profiles they have saved.
  - Consists of an explore page for users to view recommended user profiles, search for other users and view all the users available.
  - Consists of a user profile page for users to view other users' reviews and saved menus.

## Features

### User Account Authentication

#### Description

As EatWhatLah! Is a personalised food recommendation app, each user will need to be authenticated with his/her own unique account.

Utilising the Supabase SDK Authentication, users can:

- Log in via email and a password
- Create an account if the user does not have an existing account

When a user interacts with the application, the relevant call to the Supabase authentication instance is made based on their action. For example, if the user chooses to register with an email and password, the `createUserWithEmailAndPassword` function is used.

Exceptions that may occur during authentication are handled within a try-catch block. If the user enters invalid data, a snack bar is displayed to notify them.

Successful login or account registration redirects the user to the next page and updates their account in the Supabase authentication system. This ensures a seamless and secure user experience with the Supabase authentication system. Supabase automatically encrypted the user password allowing us to skip the step of hashing and salting the password.

### **Implementation philosophy**

When a user or stall owner first opens the application, they will first see the Login Portal page with 'Users' and 'Stall Owners' buttons. This will send the user or stall owner to their respective interfaces for registering or logging in.

First-time users or stall owners will then be able to register their account through email and password. They will then receive a verification email, where they have to press the link to verify their account. When they log in, they will be directed to their respective home page.

Users and stall owners have to be logged in to access their account, as sensitive information is stored in their accounts such as their dietary restrictions or menu.

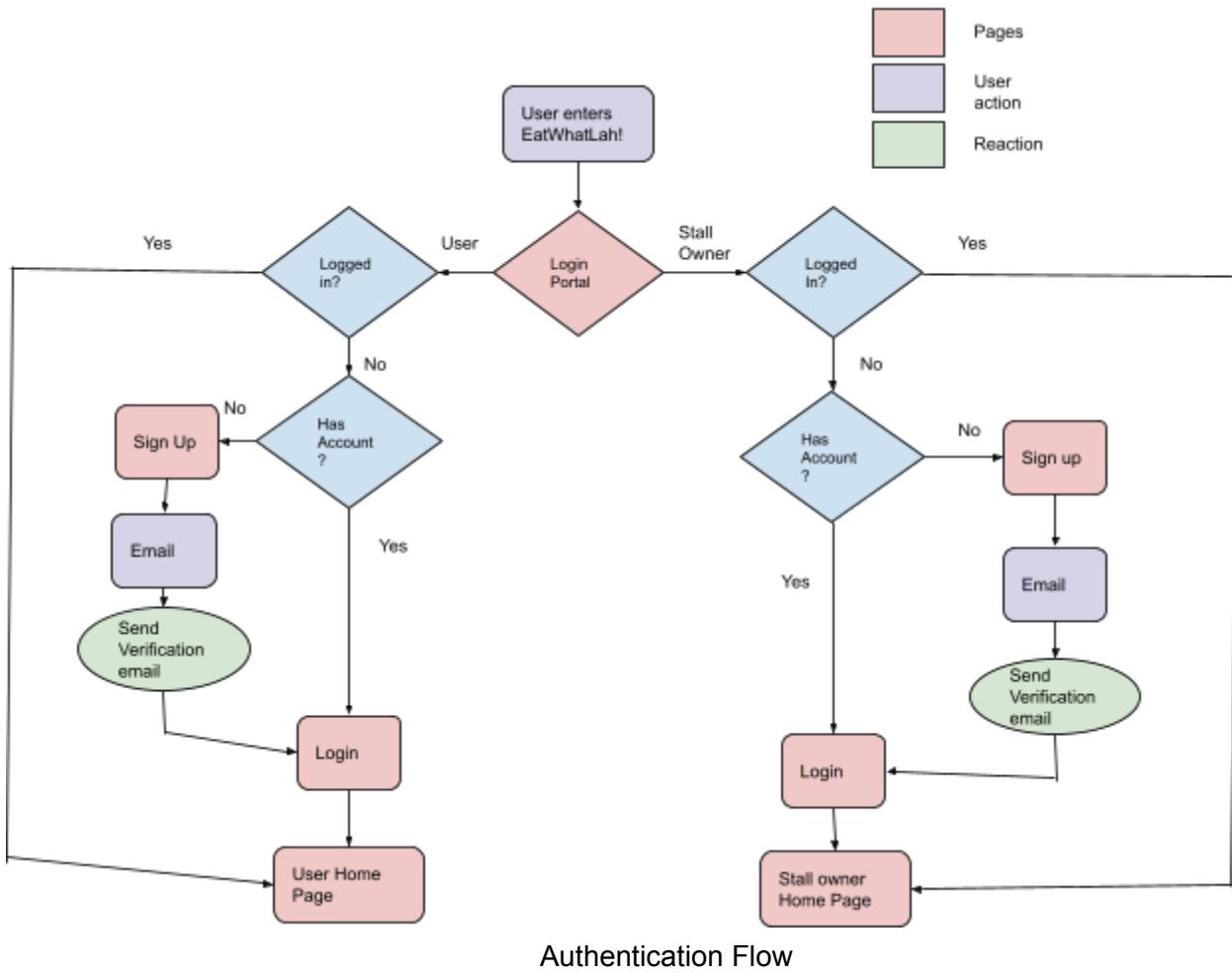
If the given input for the email and password are invalid, an error message will appear at the bottom of the screen.

### **Implementation challenges**

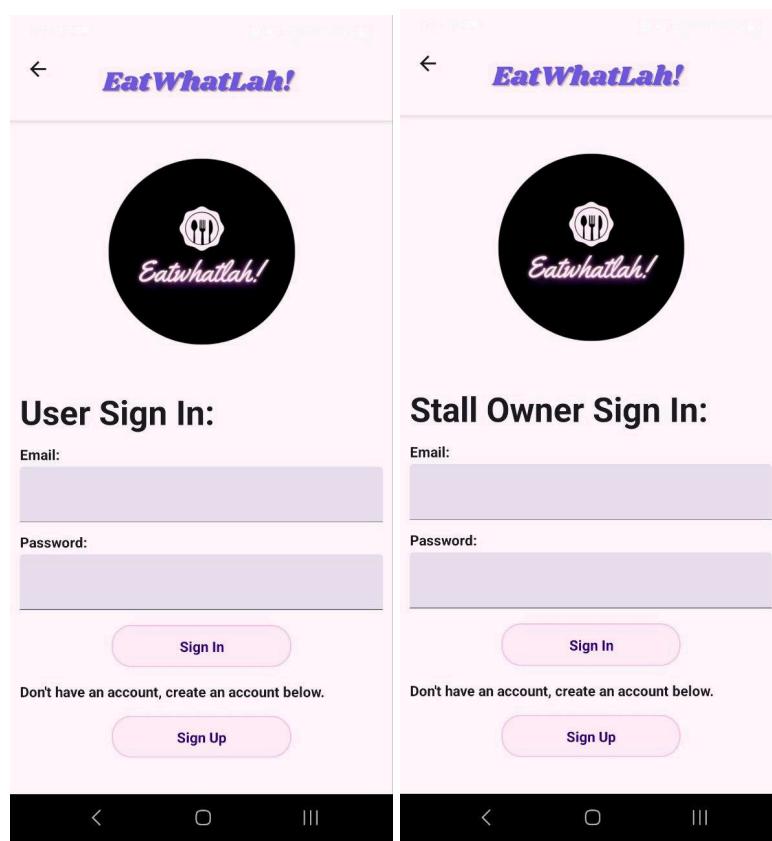
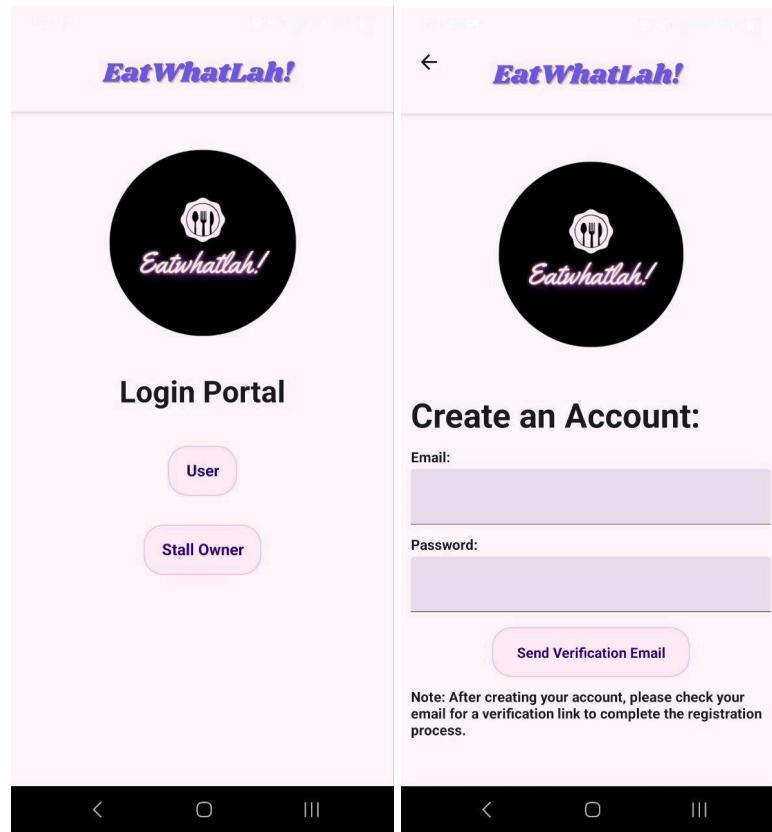
For user authentication, the key challenge was fixing the email sent to users or stall owners when verifying their passwords. The link sent initially kept showing localhost error because we did not realise we had to add redirect urls on supabase. After adding the redirect urls, we used github pages to maintain the webpage that users will be redirected to.

Initially we wanted to set up a reset password in case the user forgot their password, however due to lack of time and understanding about how supabase reset password works we decided to remove the reset password. We also decided to not do google authentication due to lack of time and not being able to get it working properly.

### **Diagrams**



Authentication Flow



Login Portal, Create an account, User Sign in and Owner Sign In pages

## User Profile

### **Description**

When a user first creates his/her account a string of random text will be assigned as his/her username and his/her profile image will be set to the default image. After logging in and navigating to the profile page, the user can see their profile image as well as his/her username.

The profile page allows users to navigate to:

- Update Profile page to change his/her username and profile image.
- Dietary Restrictions page allows users to input any allergies and dietary restrictions
- Reviews page which displays all the reviews they have written.
- Saved page storing the users saved menu/profile

Users can also log out of their account using the logout button on the profile page.

The Dietary Restrictions page will show users the dietary restrictions and allergies they have already declared. They can also declare new dietary restrictions or remove existing ones through this page. Their information will be updated to supabase and this will help our app to provide personalised food recommendations

### **Implementation philosophy**

We have added a function on Supabase such that whenever a new user signs up, a new row containing the user email and id will be added to the profile table in the database. The username and profile image will be set to a randomly generated uuid and a default image we have chosen respectively. The username column has been set such that it is unique across the rows which will help to ensure that no two users will have the same username and an error message will alert them that the username is not available.

### **Implementation challenges/ decisions**

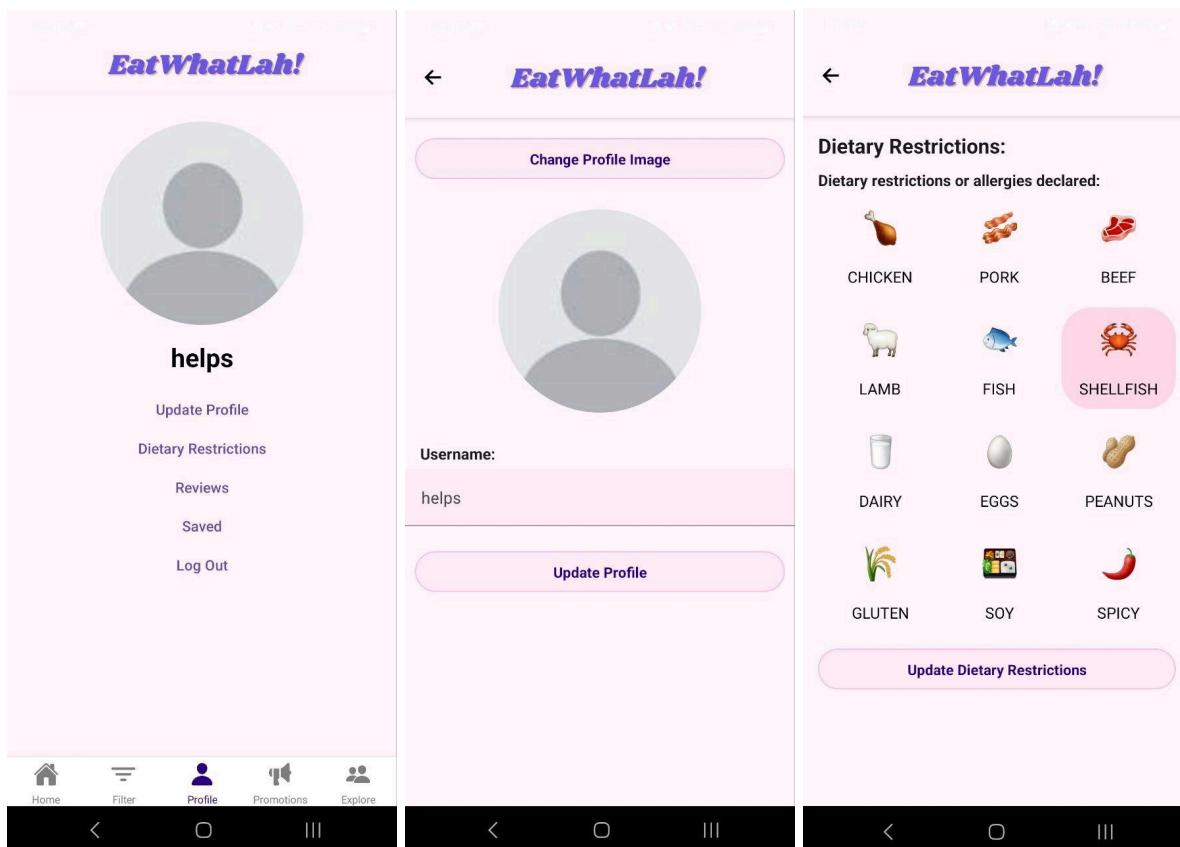
At first we wanted to make users create their profile when users first log in however, we had some difficulty trying to implement this and after much discussion we also realise that some users who use our app just want the app to recommend food immediately and may not have any interest in setting up their profile to match with users. So we decided to skip the first time login page and instead just randomise their username and give them a default image so that users can do it at their own free time.

Our original idea for the dietary restriction page was to allow users to type in their dietary restrictions and the keyboard will be automatically set to uppercase. This would facilitate standardisation and make it easier to retrieve the data we need from the database, without

having to worry about upper and lower case. This will then be updated to the dietary\_restrictions column and be referenced when users are using the filter page. Users will not be allowed to input halal, vegetarian or duplicated dietary restrictions as their input, and if they try to do so the system will not allow them to submit and an error message will appear.

After milestone 3, we decided to improve based on the feedback given that the UI could be more intuitive and is currently confusing for users. So we decided to change the UI and instead of allowing users to type in their restrictions, we let them choose from 12 different options using a multi-select screen which is more straightforward and easy to use. Currently the only options available for users to pick are chicken, pork, beef, lamb, fish, shellfish, dairy, eggs, peanuts, gluten, soy and spicy. We can easily add more options in the future if needed with this UI.

## Diagrams



Profile page, Update Profile page and Dietary Restriction page

Profile table on Supabase

```

1 -- inserts a row into public.profiles
2 create function public.handle_new_user()
3 returns trigger
4 language plpgsql
5 security definer set search_path = public
6 as $$ 
7 begin
8   insert into public.profile (id, email)
9   values (new.id, new.email);
10  return new;
11 end;
12 $$;
13
14 -- trigger the function every time a user is created
15 create trigger on_auth_user_created
16 after insert on auth.users
17 for each row execute procedure public.handle_new_user();
18

```

Query to create trigger and function for new row on profile table upon registration

## Stall Owner Profile

### Description

When a stall owner first creates his/her account and logs in, he/she will be navigated to the stall profile page. He/she will have to enter his/her stall details and submit it, before being able to access the other pages. The details include the stall image, stall name, location, cuisine,

whether the stall has air-conditioning, and whether the stall is halal-certified and/or vegetarian. After doing so, he/she will be directed to the home page. In subsequent logins, the stall owner will be directed to the home page, instead of the stall profile page.

The home page allows stall owners to navigate to:

- Stall Profile page to set up stall account/ update any of the stall's details.
- Menu page to view menu and add menu items.
- Promotions page to view promotions added and add any ongoing promotions or discounts.
- Reviews page to view reviews that have been left on their dishes.

Lastly, stall owners can log out of their account using the 'Log out' button.

### **Implementation philosophy**

For the home page, after setting up their account, the stall name and stall image will be retrieved from the 'stall' table on Supabase and displayed. The home page also includes buttons that will route stall owners to the different pages in the app.

For the stall profile page, stall owners will have to declare and fill in their stall image, stall name, location, cuisine, whether the stall has air-conditioning, and whether the stall is halal-certified and/or vegetarian to set up their account. This data will then be stored in the 'Stall' table in Supabase. For location and cuisine, stall owners have to choose from the selection provided which are fetched from the location and cuisine table respectively. After selection, they are stored and linked as foreign keys and only the id will be stored. Stall owners will also be able to update any of their stall details using this page. The updated details will then replace the previous details in the database.

After receiving feedback from MS3, we decided to indicate which part of the stall profile is compulsory to fill, to make it more simple for stall owners to use and comprehend. We added the '\*' for components that are compulsory and an alert will pop up if those components are not filled.

### **Implementation challenges**

We faced challenges in the implementation of selecting location and cuisine. This is because we had to fetch the location and cuisine id and names from the location table and cuisine table respectively for selection. Furthermore, after selecting the location and cuisine name, we had to link it to the id to be stored in the database, so that it can be easily retrieved as needed. It took us much time to figure out how to retrieve the data and connect to the database.

### **Diagrams**

**EatWhatLah!**



**S08 PGPR Western**

[Update Stall Profile](#)

[Menu](#)

[Promotions](#)

[Reviews](#)

[Log Out](#)

[Home](#) [Menu](#) [Promotions](#) [Reviews](#) [Stall Profile](#)

**EatWhatLah!**

[Insert Stall Image](#)



**S08 PGPR Western**

**Description**  
The only western food stall in pgpr

**What is the location of the stall?**  
[PGP Aircon Canteen](#)

**What is the cuisine?**  
[Western](#)

**Does the stall have air conditioning?**  
[Yes](#)

**Is the stall halal-certified?**  
[No](#)

**Is the stall vegetarian?**  
[No](#)

[Submit / Update Stall Details](#)

[Discard & Return](#)

[Home](#) [Menu](#) [Promotions](#) [Reviews](#) [Stall Profile](#)

**EatWhatLah!**

**Stall Name**  
S08 PGPR Western

**Description**  
The only western food stall in pgpr

**What is the location of the stall?**  
[PGP Aircon Canteen](#)

**What is the cuisine?**  
[Western](#)

**Does the stall have air conditioning?**  
[Yes](#)

**Is the stall halal-certified?**  
[No](#)

**Is the stall vegetarian?**  
[No](#)

[Submit / Update Stall Details](#)

[Discard & Return](#)

[Home](#) [Menu](#) [Promotions](#) [Reviews](#) [Stall Profile](#)

Home page, Stall Profile Page

**EatWhatLah!**

**Stall Name**  
S08 PGPR Western

**Description**  
The only western food stall in pgpr

**What is the location of the stall?**  
[PGP Aircon Canteen](#)

**What is the cuisine?**  

Terrace	<a href="#">Western</a>
The Deck	<a href="#">Chinese</a>
PGP Aircon Canteen	<a href="#">Western</a>
Frontier	<a href="#">Malay</a>
Techno Edge	<a href="#">Indian</a>

**Does the stall have air conditioning?**  
[Yes](#)

**Is the stall halal-certified?**  
[No](#)

**Is the stall vegetarian?**  
[No](#)

**Submit / Update Stall Details**

**Discard & Return**

[Home](#) [Menu](#) [Promotions](#) [Reviews](#) [Stall Profile](#)

**EatWhatLah!**

**Stall Name**  
S08 PGPR Western

**Description**  
The only western food stall in pgpr

**What is the location of the stall?**  
[PGP Aircon Canteen](#)

**What is the cuisine?**  
[Western](#)

**Does the stall have air conditioning?**  
[Yes](#)

**Is the stall halal-certified?**  
[No](#)

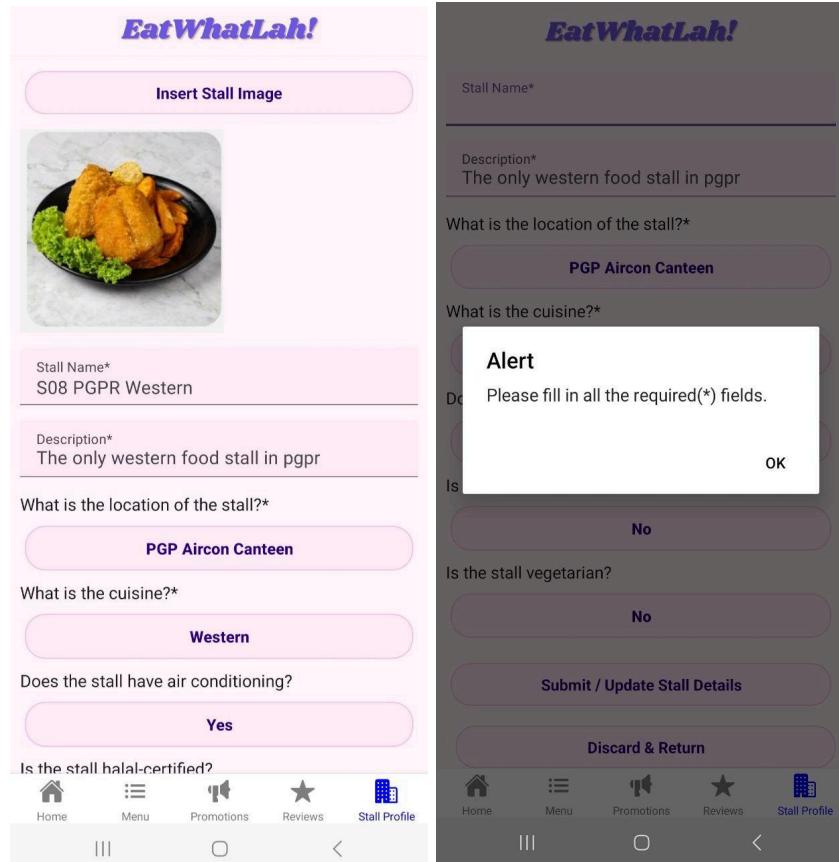
**Is the stall vegetarian?**  
[No](#)

**Submit / Update Stall Details**

**Discard & Return**

[Home](#) [Menu](#) [Promotions](#) [Reviews](#) [Stall Profile](#)

Select Location and Select Cuisine



Required fields and Alert message

## Food Preference Interface & Food Recommendations

### Description

In the food preference interface, users' dietary restrictions will first be retrieved from the 'profile' table on Supabase and be used for the filtering. Users will then have to input their budget, cuisine, location, preference of air-conditioning, halal and vegetarian. In addition, users do not need to input all their preferences and can choose to fill some of their preferences instead. The app will still be able to filter the results to display the recommendations. The selection of cuisine and location are taken from the 'cuisine' and 'location' table on Supabase respectively.

For the food recommendations, we will take note of the user's preference and also recommend menu items with higher stall rating and menu rating. In addition, we narrowed down the food options to 3 options for easy decision making.

### Implementation philosophy

For the food preference interface, we fetch data from 'profile', 'cuisine', 'location' and 'menu' tables. We fetch dietary restrictions so users do not have to repeatedly input their dietary

restrictions whenever they use this page. The cuisines and locations are fetched so that they are standardised and users are able to choose from the options available. The ‘menu’ table is fetched so that we can search and filter the menu items that match the user’s preference to provide accurate and good recommendations. We have implemented the filter, so that it resolves tie-breakers in the filter, by recommending menu items that have a higher rating. If there is a tie-breaker between menu items(due to them having the same rating), we have implemented that it will be resolved by recommending the menu item of the stall with a higher rating (compares the stalls’ rating).

In our food recommendation portion, we narrowed down the food options to 3 options to help indecisive eaters with their decision making process.

### **Implementation challenges**

It was quite challenging to implement the filter as we were unfamiliar with using foreign keys and fetching, this caused us to make mistakes in the retrieving and filtering. Furthermore, we had to decide how we wanted to resolve tie-breakers in the food recommendations. After discussing, we decided to sort the food recommendations by the ratings, and use stall ratings to further resolve tie-breakers.

### **Testing:**

Version 1 testing:

Test 1: Filtered by dietary restrictions. (taken directly from user’s profile) [PASS]

We use auto-capitalisation to generalise the dietary restrictions so that filtering will work smoothly. In this test, we only filter by their dietary restrictions, so in the example diagram below, we filter by ‘HALAL’, and only menu items that are labelled ‘HALAL’ are displayed to users.

Test 2: Filtered by dietary restrictions and budget. [PASS]

We filter by dietary restrictions and budget. Any menu items with price greater than the budget that the user input, will be filtered, only displaying menu items below or equal the budget set. When air-conditioning is set to false, menu items with and without air-conditioning are displayed.

Test 3: Filtered by dietary restrictions, budget, air-conditioning. [PASS]

We filter by dietary restrictions, budget and air-conditioning. When air-conditioning is set to true, only menu items that have stalls with air-conditioning are displayed. Any menu items that stalls do not have air-conditioning is filtered out.

Test 4: Filtered by dietary restrictions, budget, air-conditioning, cuisine and location. [FAIL]

We filter by dietary restrictions, budget, air-conditioning, cuisine and location. It is supposed to display menu items that are a specific cuisine and location, which users have selected. However, in this test, no recommendations are given, even though there are menu items that fulfil the preference chosen.

Version 2 testing:

Test: Filtered by dietary restrictions, budget, cuisine, location, air-conditioning, halal and vegetarian [PASS]

We filter by dietary restrictions, budget, air-conditioning, cuisine and location. It displays menu items that are a specific cuisine and location, which users have selected and provides 3 recommendations. However, retrieved recommendations have missing information.

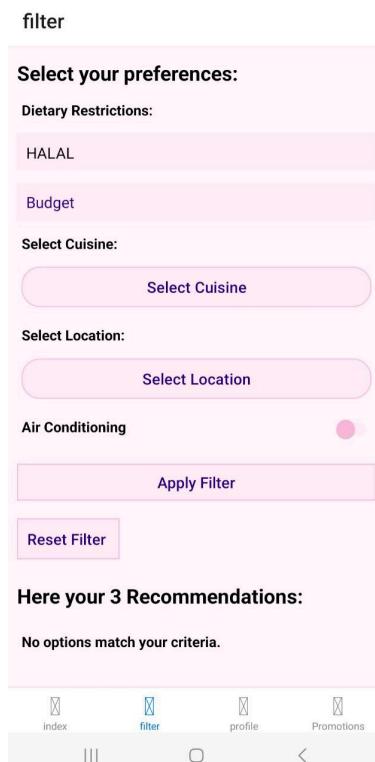
Version 3 testing:

Test: Filtered by dietary restrictions, budget, cuisine, location, air-conditioning, halal and vegetarian [PASS]

We filter by dietary restrictions, budget, air-conditioning, cuisine and location. Recommendations are also sorted and those with higher ratings are recommended. It displays menu items that are a specific cuisine and location, which users have selected and provides 3 recommendations. Retrieved recommendations include all the details and users are able to click on it to view the menu details.

## Diagrams

Version 1:



Default interface/ Before clicking 'Apply Filter'

**Select your preferences:**

Dietary Restrictions:  
HALAL

Budget

Select Cuisine:

Select Location:

Air Conditioning

**Here your 3 Recommendations:**

**dish 2**  
Price: \$10  
Dietary Restrictions: HALAL  
Cuisine:  
Location:  
Air Conditioning: Yes

**dish 3**  
Price: \$5  
Dietary Restrictions: HALAL  
Cuisine:  
Location:  
Air Conditioning: No

**dish 4**  
Price: \$6  
Dietary Restrictions: HALAL  
Cuisine:  
Location:  
Air Conditioning: Yes

Test 1: Filtered by dietary restrictions

**Select your preferences:**

Dietary Restrictions:  
HALAL  
10

Select Cuisine:

Select Location:

Air Conditioning

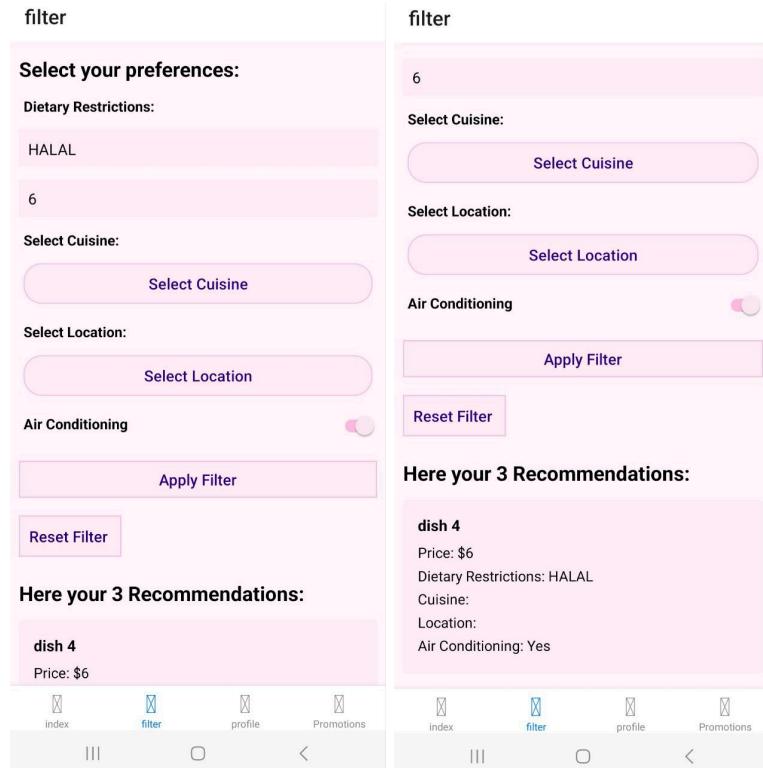
**Here your 3 Recommendations:**

**dish 2**  
Price: \$10  
Dietary Restrictions: HALAL  
Cuisine:  
Location:  
Air Conditioning: Yes

**dish 3**  
Price: \$5  
Dietary Restrictions: HALAL  
Cuisine:  
Location:  
Air Conditioning: No

**dish 4**  
Price: \$6  
Dietary Restrictions: HALAL  
Cuisine:  
Location:  
Air Conditioning: Yes

Test 2: Filtered by dietary restrictions and budget



Test 3: Filtered by dietary restrictions, budget and air-conditioning

filter

Select your preferences:

Dietary Restrictions:

HALAL

10

Select Cuisine:

Indian

Select Location:

The Deck

Air Conditioning

Apply Filter

Reset Filter

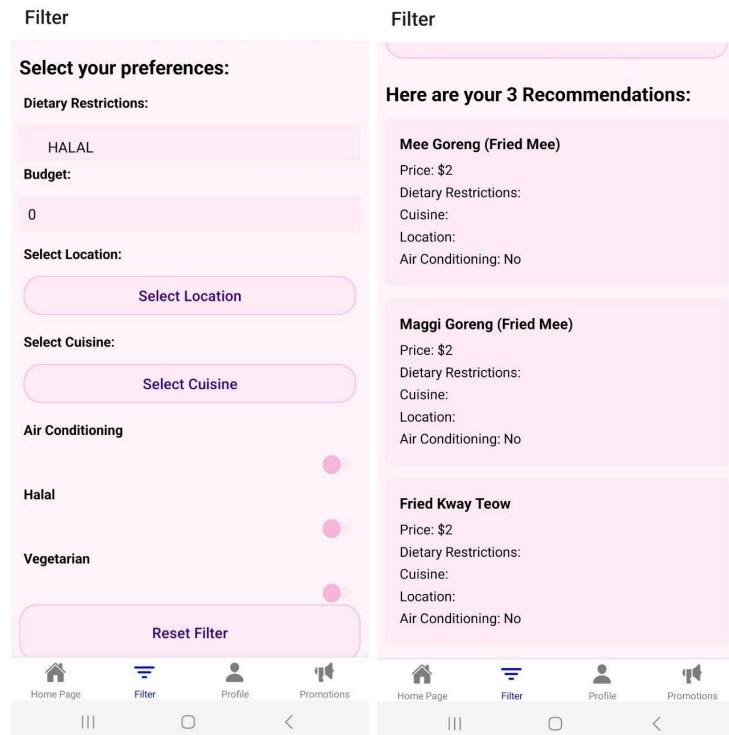
Here your 3 Recommendations:

No options match your criteria.

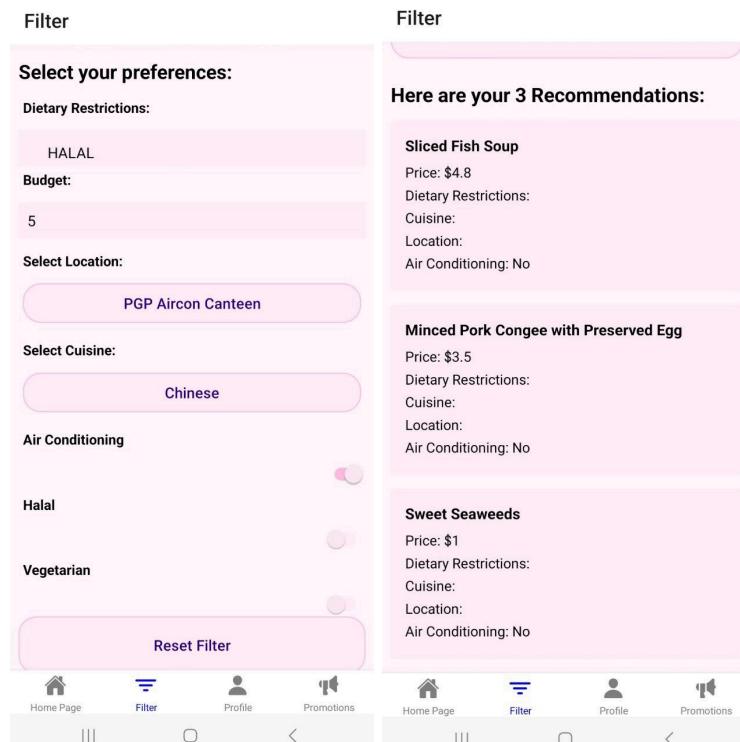


Test 4: Filtered by dietary restrictions, budget, cuisine, location and air-conditioning

**Version 2:**



Default interface



Test: Filtered by dietary restrictions, budget, cuisine, location, air-conditioning, halal and vegetarian

### Version 3:

**EatWhatLah!**

**Select your preferences:**

Dietary Restrictions Retrieved:  
No dietary restrictions found

**Input Budget:**

Budget

**Select Location:**

Select Location

**Select Cuisine:**

Select Cuisine

**Select Air Conditioning:**

**Select Halal:**

**Select Vegetarian:**

Reset Filter

---

**Here are your 3 Recommendations:**

Home Filter Profile Promotions Explore

**EatWhatLah!**

**Here are your 3 Recommendations:**

 French Fries, S08 PGPR Western  
Menu rating: ★★★★★ 5.0 / 5.0  
Stall rating: ★★★★★ 3.8 / 5.0  
Cuisine: Western  
Location: PGP Aircon Canteen  
Air Conditioning: Yes

 Bulgogi Beef, S02 Korean  
Menu rating: ★★★★★ 5.0 / 5.0  
Stall rating: ★★★★★ 4.2 / 5.0  
Dietary Restrictions: BEEF, SOY  
Cuisine: Korean  
Location: Frontier  
Air Conditioning: No

 Chocolate Waffle, Desserts & Snacks  
Menu rating: ★★★★★ 5.0 / 5.0  
Stall rating: ★★★★★ 4.7 / 5.0  
Dietary Restrictions: GLUTEN, DAIRY, EGGS  
Cuisine: Others  
Location: Terrace  
Air Conditioning: No

Home Filter Profile Promotions Explore

**EatWhatLah!**

French Fries, S08 PGPR Western  
Menu rating: ★★★★★ 5.0 / 5.0  
Stall rating: ★★★★★ 3.8 / 5.0  
Cuisine: Western  
Location: PGP Aircon Canteen  
Air Conditioning: Yes

**Bulgogi Beef, S02 Korean**  
Menu rating: ★★★★★ 5.0 / 5.0  
Stall rating: ★★★★★ 4.2 / 5.0  
Dietary Restrictions: BEEF, SOY  
Cuisine: Korean  
Location: Frontier  
Air Conditioning: No

**Chocolate Waffle, Desserts & Snacks**  
Menu rating: ★★★★★ 5.0 / 5.0  
Stall rating: ★★★★★ 4.7 / 5.0  
Dietary Restrictions: GLUTEN, DAIRY, EGGS  
Cuisine: Others  
Location: Terrace  
Air Conditioning: No

Home Filter Profile Promotions Explore

Default interface

**EatWhatLah!**

**Select your preferences:**

Dietary Restrictions Retrieved:  
BEEF

**Input Budget:**

10

**Select Location:**

Frontier

**Select Cuisine:**

Japanese

**Select Air Conditioning:**

**Select Halal:**

**Select Vegetarian:**

Reset Filter

---

**Here are your 3 Recommendations:**

Home Filter Profile Promotions Explore

**EatWhatLah!**

**Here are your 3 Recommendations:**

 Fish Katsu Curry Rice, S06 Japanese  
Menu rating: ★★★★★ 5.0 / 5.0  
Stall rating: ★★★★★ 4.4 / 5.0  
Dietary Restrictions: FISH, EGGS, GLUTEN  
Cuisine: Japanese  
Location: Frontier  
Air Conditioning: No

 Omelette Rice (Pork Katsu), S06 Japanese  
Menu rating: ★★★★★ 4.3 / 5.0  
Stall rating: ★★★★★ 4.4 / 5.0  
Dietary Restrictions: PORK, EGGS, GLUTEN  
Cuisine: Japanese  
Location: Frontier  
Air Conditioning: No

 Omelette Rice (Fish Katsu), S06 Japanese  
Menu rating: ★★★★★ 4.0 / 5.0

Home Filter Profile Promotions Explore

**EatWhatLah!**

Dietary Restrictions: FISH, EGGS, GLUTEN  
Cuisine: Japanese  
Location: Frontier  
Air Conditioning: No

 Omelette Rice (Pork Katsu), S06 Japanese  
Menu rating: ★★★★★ 4.3 / 5.0  
Stall rating: ★★★★★ 4.4 / 5.0  
Dietary Restrictions: PORK, EGGS, GLUTEN  
Cuisine: Japanese  
Location: Frontier  
Air Conditioning: No

 Omelette Rice (Fish Katsu), S06 Japanese  
Menu rating: ★★★★★ 4.0 / 5.0  
Stall rating: ★★★★★ 4.4 / 5.0  
Dietary Restrictions: FISH, GLUTEN, EGGS  
Cuisine: Japanese  
Location: Frontier  
Air Conditioning: No

Home Filter Profile Promotions Explore

Test: Filtered by dietary restrictions, budget, cuisine, location, air-conditioning, halal and vegetarian. Ratings are also taken into account.

## User Reviews

### Description

Users are able to leave reviews for each dish that they have eaten. They can leave a rating out of 5 for the dish, and they can upload an image and also write comments about the dish to help others get a better sense of the dish.

Users are able to see the reviews they have written from the reviews pages accessed through the profile tab. This is where they can also edit or delete their reviews if needed.

Users can see the reviews left by other users at the menu details page for each dish. The ratings will also be displayed at the stall details and menu details page. These rating scores will play a part in our recommendation system, helping us to break tie-breakers by recommending those with a higher rating.

Stall owners are able to see the reviews for each menu item on their reviews page. They can also see the overall rating for their stall. Constructive comments left by users can help them to improve, so that they serve better food and also allow them to improve and grow at the same time.

### Implementation philosophy

The ratings for each food item will be calculated by adding up all the review ratings and dividing it up by the total reviews given for each food item.

$$\text{Menu item rating} = (\text{sum of ratings of menu item}) / (\text{total number of reviews of menu item})$$

The rating for the stall will then be calculated by adding up all the food item ratings and dividing it up by the total number of food items the stall serves.

$$\text{Stall rating} = (\text{sum of ratings of all menu items}) / (\text{total number of reviews of all menu items})$$

Ratings will be calculated using sql query from Supabase, this will be done at night when all the stalls in NUS are closed so that we do not interfere with the stall owners and the users.

All reviews from the user and owner side can be seen in an expanded view by individually clicking on each review. The owner review page has grouped the reviews by menu items together with its ratings to be more organised and to allow owners easier access to menu items that may have worse ratings and allow them to focus on the reviews for that menu item only.

### Implementation challenges/ decisions

We had to decide between calculating the ratings using react native or Supabase.

Using react native would mean that the ratings would be real time as the calculation would be on the app and uploaded to the database. However, if 2 users were to upload their ratings at the same time this may cause miscalculation which results in inaccurate ratings and error as 1 of the ratings would not be considered in the calculation.

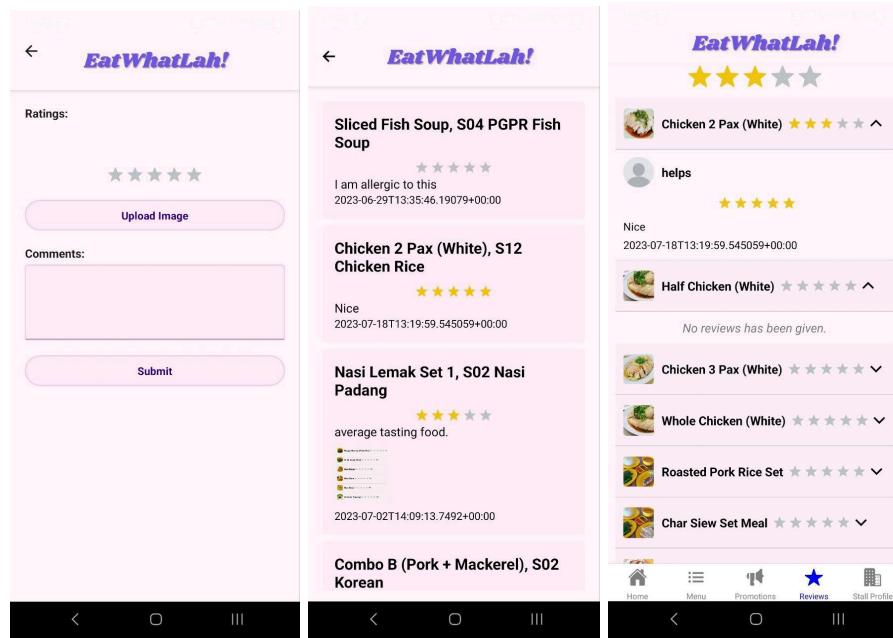
On the other hand, using Supabase would mean that the calculation is accurate all the time as the data used are from the database and even if multiple users were to upload their reviews the ratings would not be affected. However, there is no way for Supabase to run the code to calculate the ratings automatically so this would mean that we either need someone to sit there clicking the button to calculate or we had to set a time to do so that would not interfere with the app and is convenient.

We decided to go with supabase in the end since we wanted everyone's reviews to be considered. This would mean that the ratings can only be recalculated at night when all the stalls have closed and we can stop our server for maintenance.

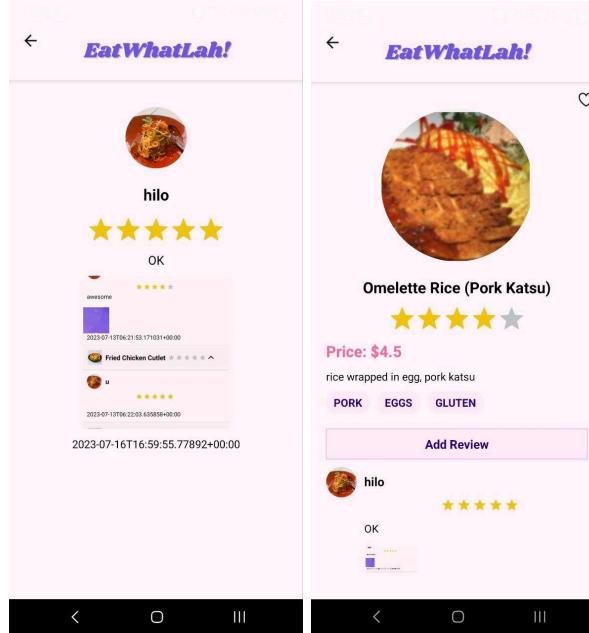
## Diagrams

```
1 UPDATE menu
2 SET rating = (
3   SELECT AVG(review.rating)
4   FROM review
5   WHERE review.menu_id = menu.id
6 )
7 WHERE EXISTS (
8   SELECT 1
9   FROM review
10  WHERE review.menu_id = menu.id
11 );
12
13 UPDATE stall
14 SET rating = (
15   SELECT AVG(menu.rating)
16   FROM menu
17   WHERE menu.stall_id = stall.id
18 )
19 WHERE EXISTS (
20   SELECT 1
21   FROM menu
22   WHERE menu.stall_id = stall.id
23 );
```

SQL Query to calculate ratings



Add reviews, reviews page(user), reviews page(stall owner)



Reviews seen in expanded form and reviews from menu details page

## Food Stall Details

### Description

When the user logs in, they will first see the home page which displays all the stalls in NUS. There is a search bar for them to search stalls that they are interested in. They can also sort the

list of stalls according to ratings or by alphabetical order, the sort bar will disappear when the user searches for a specific stall.

They can click into the stalls to see details such as the ratings, type of cuisine and descriptions of the stalls. The menu will also be displayed at the bottom with the name, price and rating of each food item. Each individual menu item is also clickable to display the dietary restrictions, item rating as well as the reviews left by users who have tasted the food. Users can add reviews for the menu items from this page.

Stall owners can add, edit, view or delete their menu item using the menu page tab.

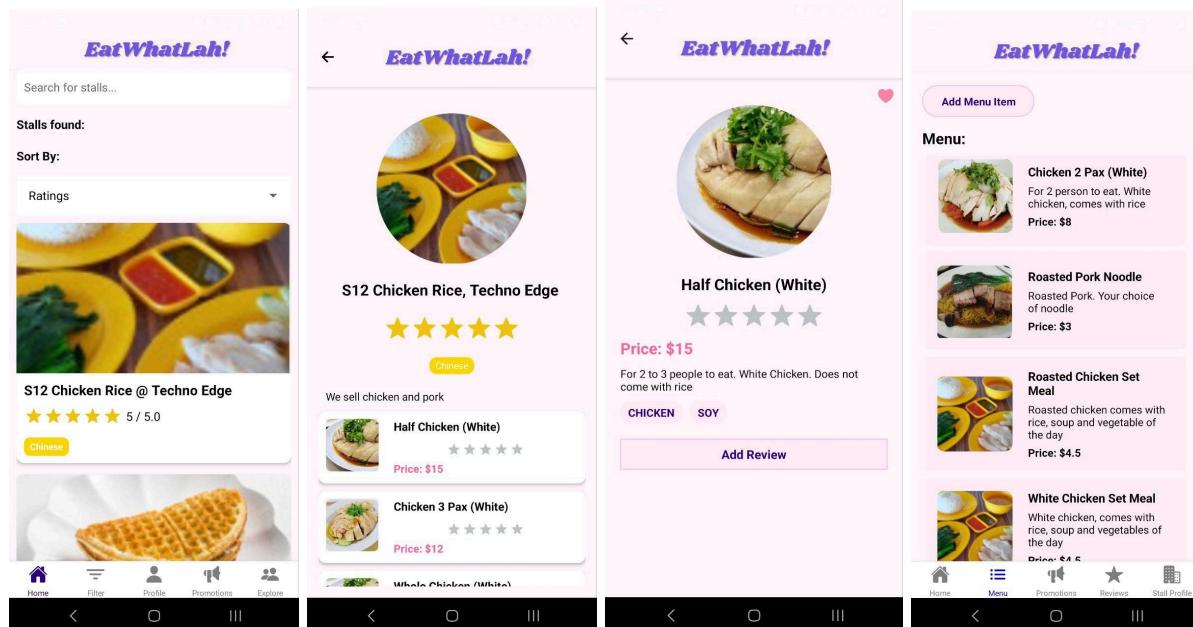
## Implementation philosophy

Stall and menu items have their own table and are related to each other using stall\_id. When trying to do dynamic routing we first have to retrieve the stall id before we can retrieve each individual item id that the food sells to display the information.

The home page allows users to search for stalls by implementing a search functionality using the searchQuery state variable and TextInput component. Stalls are fetched based on the search query using the Supabase client and the ilike filter. Users can also sort the stalls by implementing a sorting functionality using the sortBy state variable and Picker component. The stalls are sorted based on the selected sorting option using the sort method.

Stalls and menu items are manually inserted into our database, so we only included some stalls available at campus.

## Diagrams



Home Page, Stall details page, Menu details page, Menu tab from owner interface

## Discount & Promotions

### **Description**

Stall owners are able to add promotions and discounts through the app, which consists of a title, image, description, start date and end date. They are also able to view and edit the promotions and discounts they have added. In addition, the promotions will be categorised into 3 categories: ongoing, expired and upcoming. Stall owners would be able to click on the 3 categories to filter the promotions in each category or click the 'All' button to view all the promotions. Promotions are also ordered by the start date and end date.

Users are able to view all ongoing promotions and discounts made by all stalls. Promotions are also ordered by the start and end date.

### **Implementation philosophy**

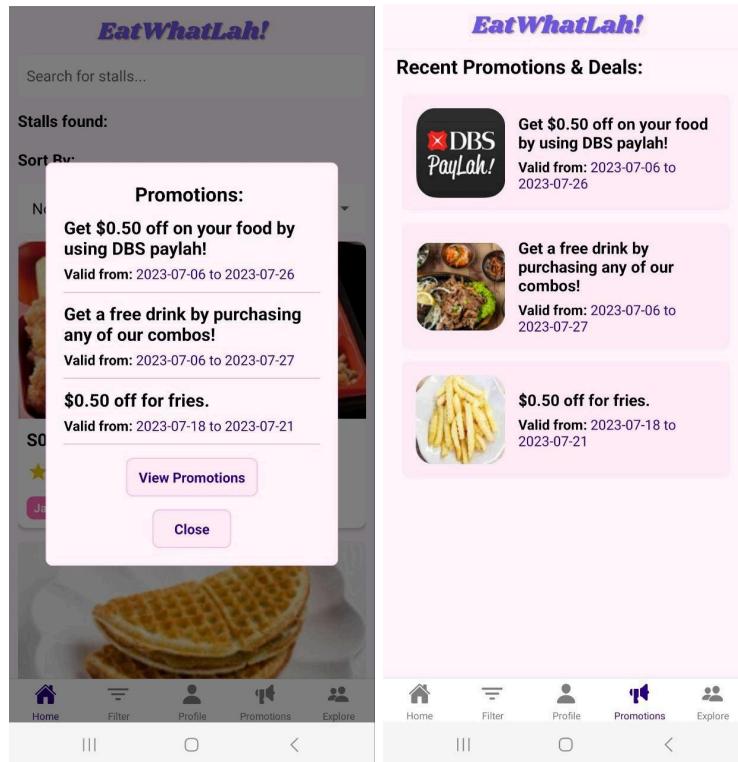
Stall owners can add promotions and discounts through the application, view, edit and delete the promotions and discounts they have added. We have built up on this feature by adding a timeline(start and end date) for the promotions and discounts. In addition, we have categorised the promotions that stall owners made into 3 categories: ongoing, expired and upcoming; for stall owners to easily identify their promotions' status. The 'upcoming' category has been made, so that stall owners can set their promotions in advance. Furthermore, we did not remove expired promotions, so as to allow stall owners to reuse the promotions by editing the start and end dates. Instead, we allow stall owners to decide whether they would like to delete the promotions instead.

Users can view the ongoing promotions and discounts in the promotion tab, which data has been retrieved from the 'promotion' table. Furthermore, users will receive a pop-up of the ongoing promotions, whenever they log in to their account. Pop-ups will only be shown once when they log in, and will only pop up again if they re-login to their accounts. [EXTENSION]

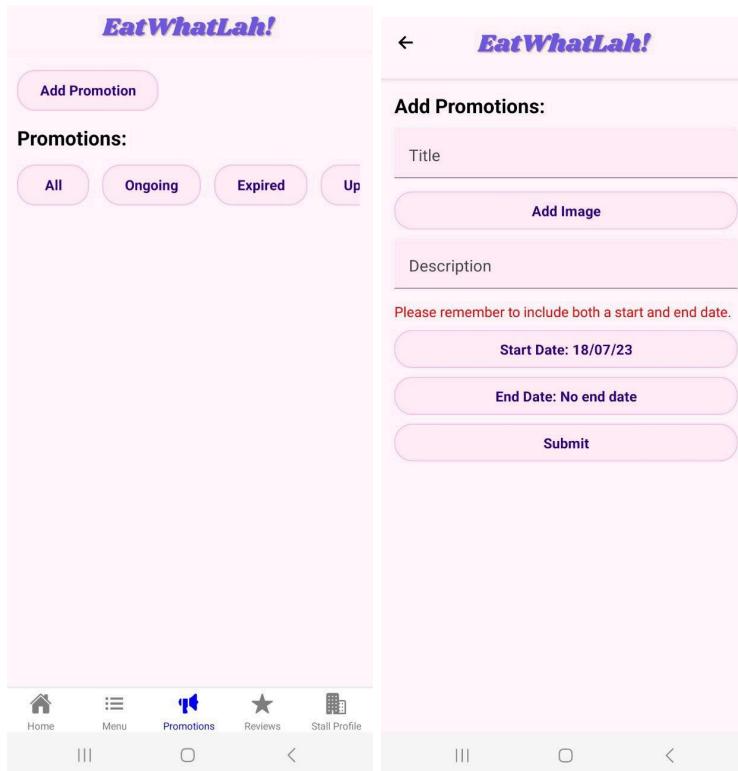
### **Implementation challenges**

Some challenges we faced were the implementation of the pop-up. Previously, whenever we click into the stall details and return to the home page. The pop-up would pop up again, which was not what we intended. However, we were able to fix it by using a pop-up counter and achieved the desired results.

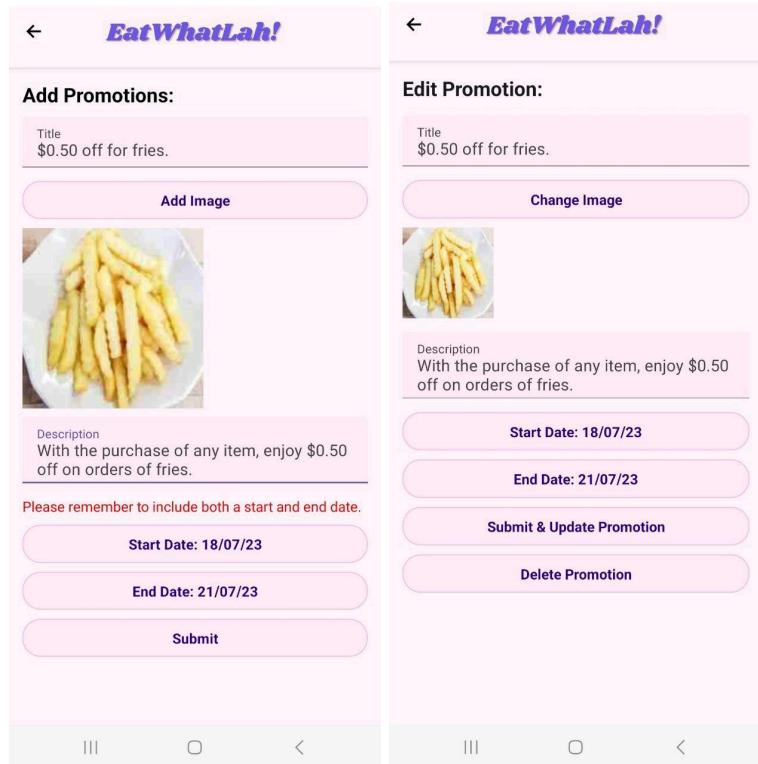
### **Diagrams**



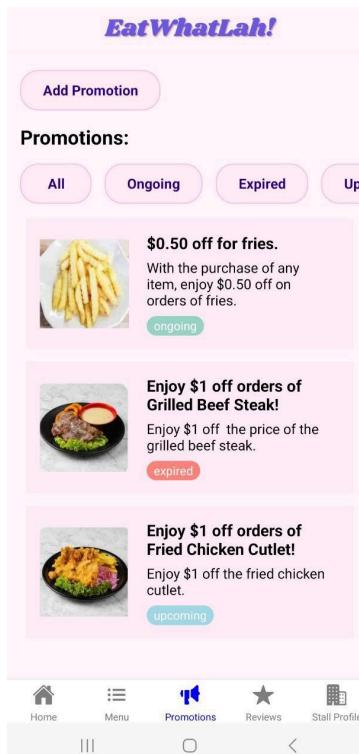
Promotion pop-up and promotion tab (User)



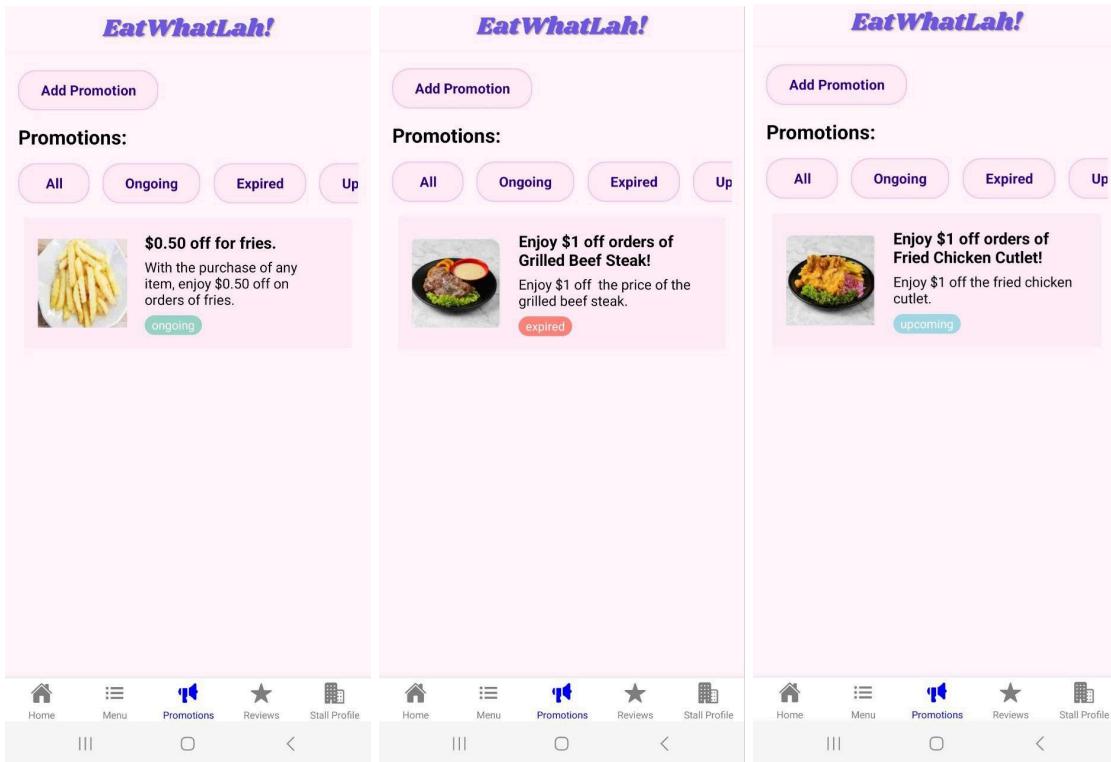
Promotion tab and add promotion default interface (Stall Owner)



Add and edit promotion (Stall Owner)



Default display of promotions/ after clicking the 'All' button (Stall Owner)



After clicking the ‘Ongoing’, ‘Expired’ and ‘Upcoming’ button (Stall Owner)

## Saved and Explore Pages [EXTENSION]

### Description

Users are able to save or unsave menu items or other user’s profiles by clicking on the heart toggle on the top right of the screen. They would then be able to view their saved menu items or saved profiles in the ‘Saved’ page in the ‘Profile’ tab. When they click any of the saved menu items, it would open that menu item’s menu details page. Similarly, when they click any of the saved profiles, they will be able to see the user profile page. The user’s profile page consists of username, image, reviews they have written and saved menu items. Reviews and saved menu items are also clickable, they would be able to view the review details and see the menu details of the saved menu respectively.

The Explore tab in our app is a dedicated section where users can explore and connect with other users of the app. It serves as a hub for discovering new friends and their reviews and saved menu items. The Explore tab also features a search bar. Users can enter their friends’ usernames into the search bar to quickly locate and connect with them. The Explore Tab also comes with a recommended user feature that helps users discover like-minded individuals with similar tastes.

### Implementation philosophy

When users save menu items or other user's profiles, the menu id of the menu item or the user id of the other user would be stored in a UUID array in the 'menu\_id' and 'other\_user\_id' columns respectively of the profile table. When they unsave menu items or other user's profiles, the respective menu\_id or other\_user\_id would be removed from the UUID array in their respective columns.

Saved page fetches the 'menu\_id' and 'other\_user\_id' from the UUID arrays in the 'profile' table and displays the saved menu items and saved profiles in the respective tabs. Clicking any of saved menu or saved profiles would route it to the menu details page and user profile page respectively. In the user profile page, they can view the other user's reviews and saved menu. The reviews and saved menu are clickable and would route them to the review details page and menu details page respectively.

When implementing the recommended user feature, we start by fetching the current user's data, including their menu\_id and other\_user\_id. This data is retrieved using the Supabase client and the from and select methods. The menu\_id and other\_user\_id arrays are extracted from the current user's data.

Next, the code fetches data for all users (excluding the current user) using the Supabase client and the from and select methods. The fetched user data is stored in the userData variable. The code filters the userData array to exclude users that are already saved by the current user. This is done using the filter and includes methods. For each user, the code calculates the similarity between their menu\_id and the current user's menu\_id using the countSimilarMenuIds function. The countSimilarMenuIds function compares the arrays of menu\_id values and returns the count of matching menu IDs. The filtered users are then mapped to include the similarity count as a new property in each user object.

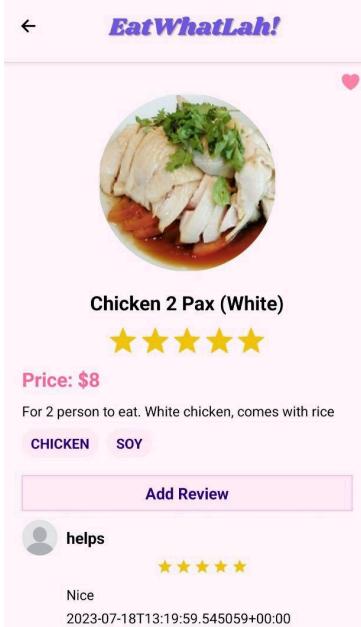
The code sorts the recommended users based on their similarity count in descending order. This is achieved using the sort method and a comparison function. Users with a higher similarity count (indicating more similar menu preferences) will appear at the top of the recommended users list.

### **Implementation challenges**

We faced challenges in adjusting the back button for the pages involved with the saved and explore page due to the numerous routing that we have done. We solved this problem by duplicating the pages, so that there would be no interference or clashing.

We faced some minor challenges trying to get the countSimilarMenuIds working as at first the code excluded users who had more menu items than the current user and only included users who had exactly the same menu ids saved. We manage to solve this problem by ensuring that it is not limited to the number of menu id the user has when finding similar menu IDs.

## Diagrams

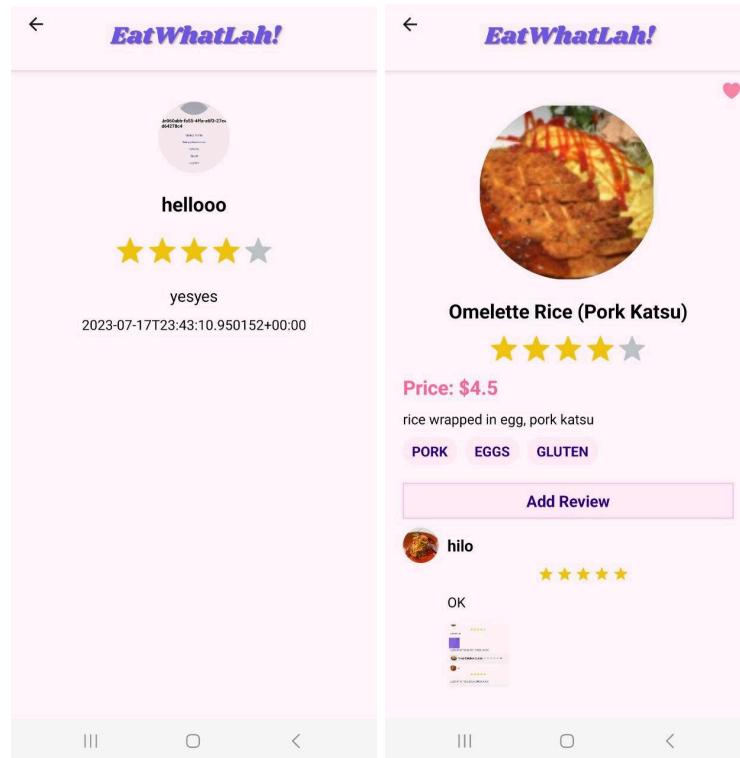


Menu Details Page

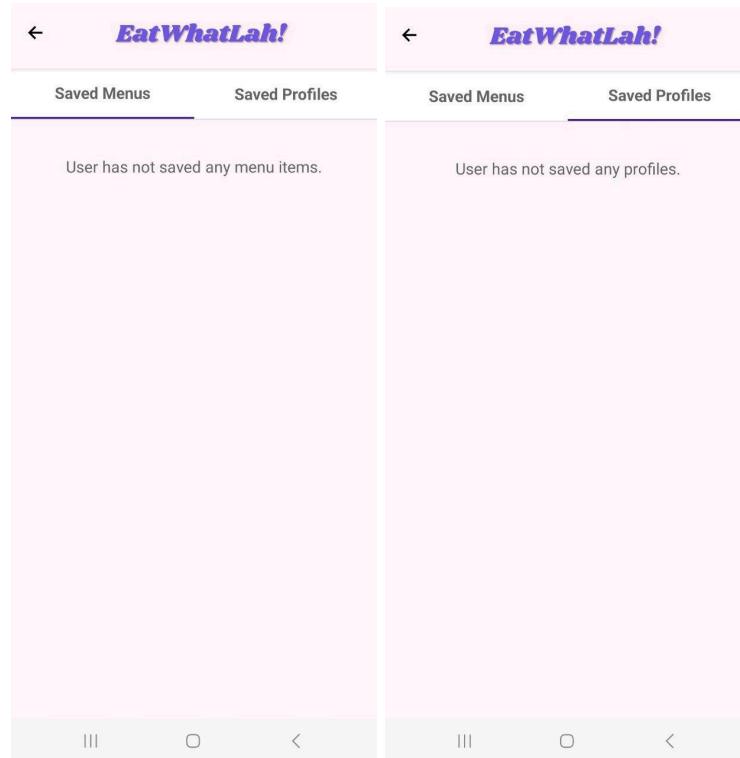
The screenshot displays the "Menu Details Page" with two menu items listed side-by-side.

- Chocolate Chip Ice Cream**:  
Price: \$1.3  
Desserts & Snacks  
Terrace
- Review:**  
yesyes  
2023-07-17T23:43:10.950152+00:00
- Grilled Beef Striploin Steak**:  
Price: \$8  
S08 PGPR Western  
PGP Aircon Canteen
- Review:**  
oui.  
2023-07-17T23:41:04.012034+00:00

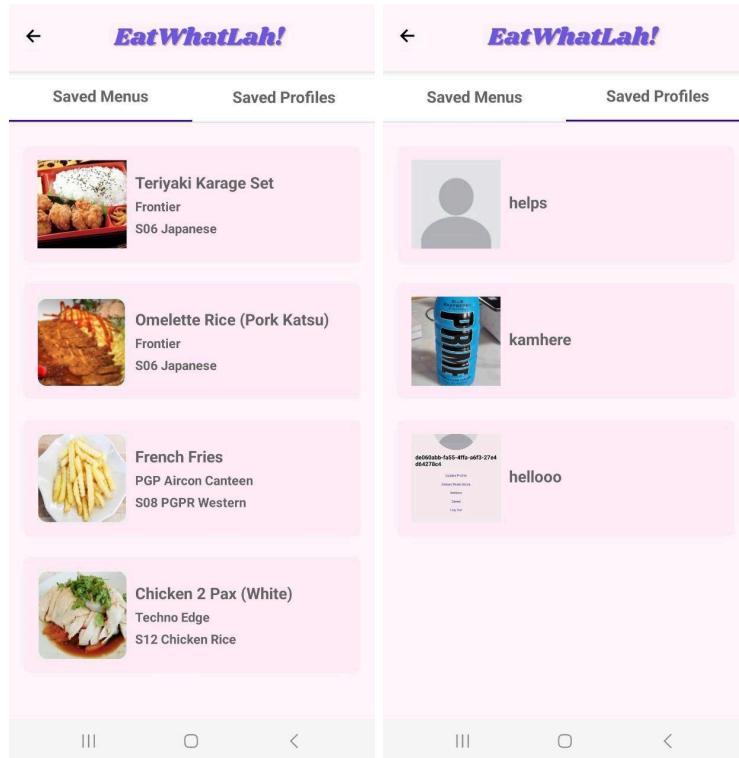
User profile page (other user's profile page)



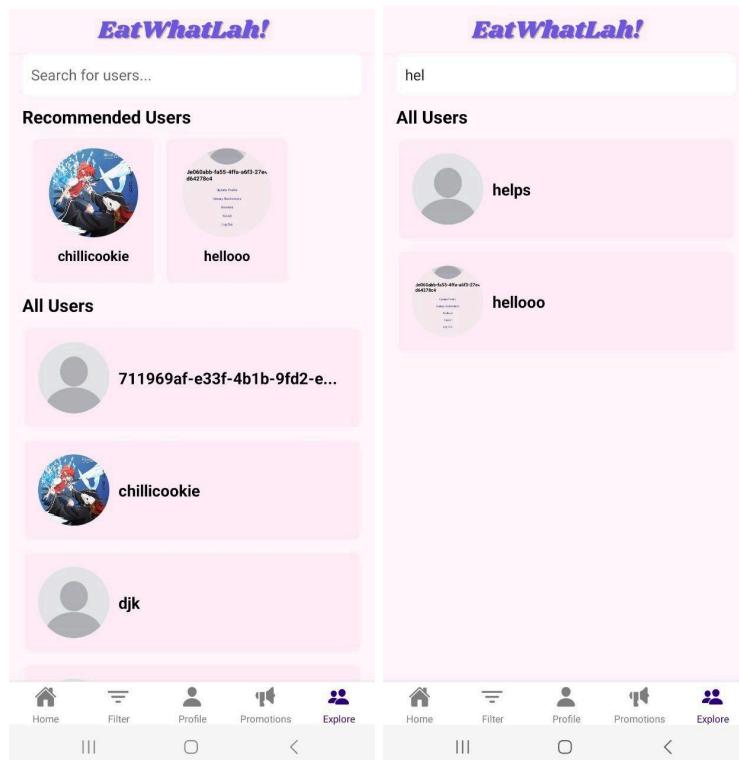
After clicking on the review and saved menu item



Default saved page

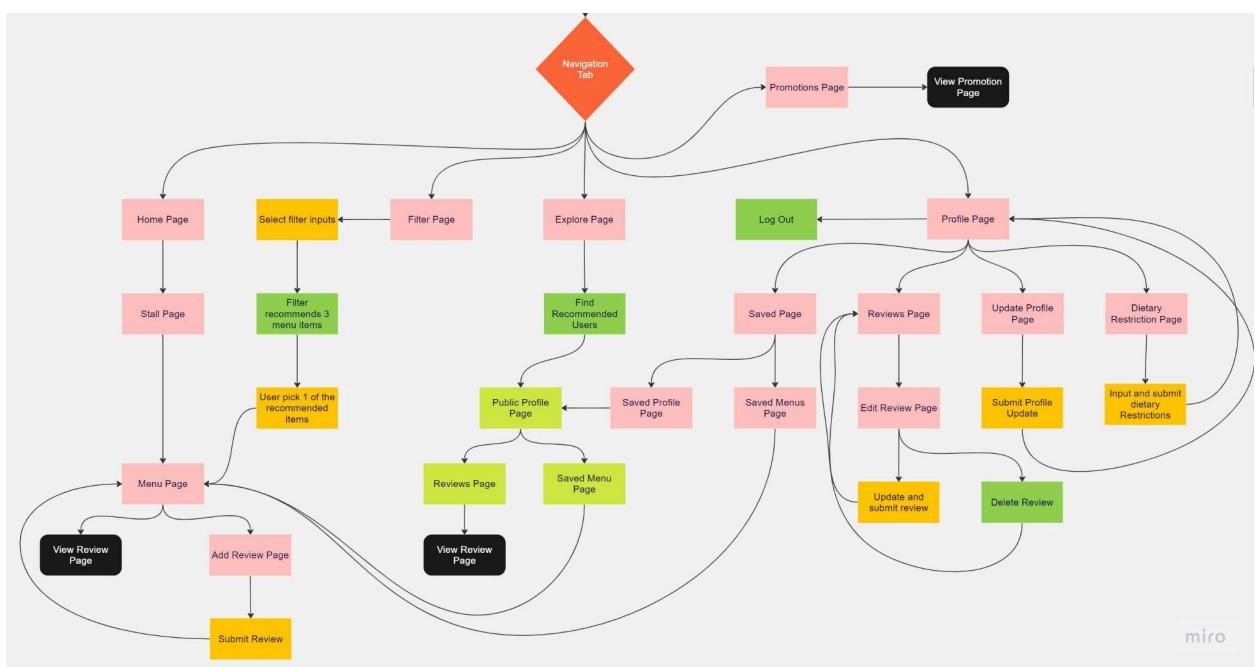
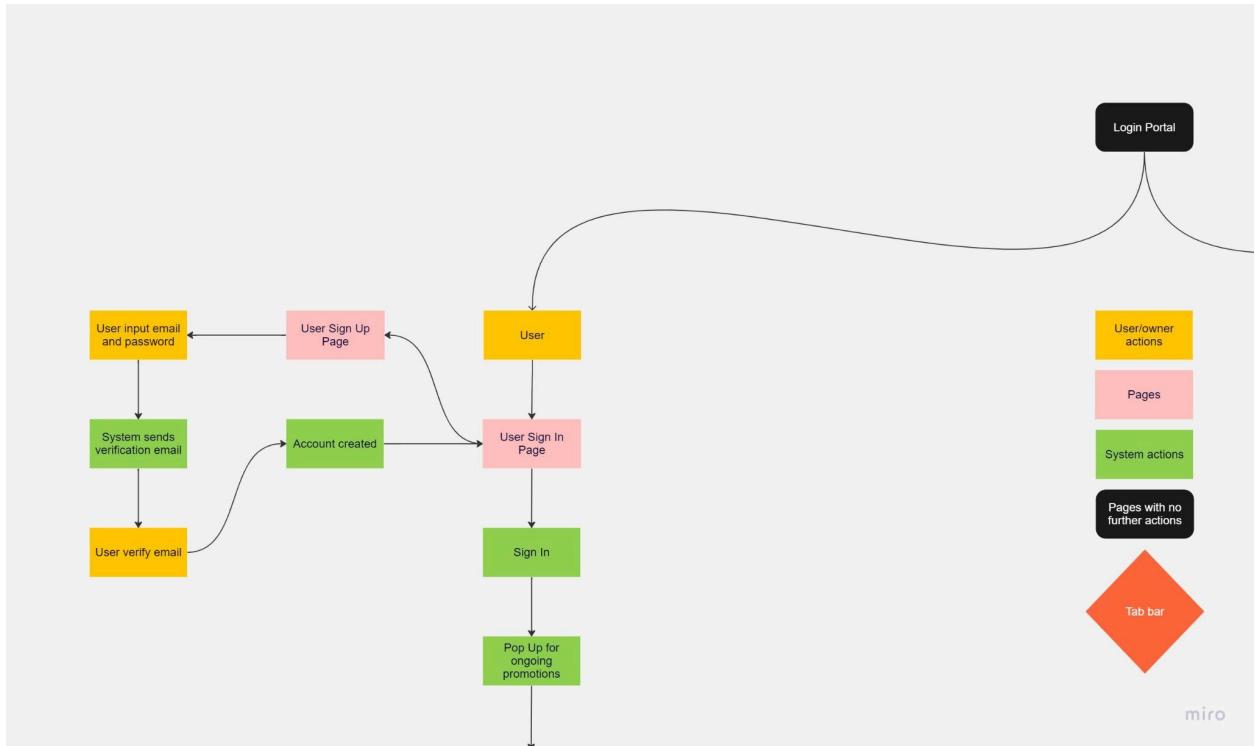


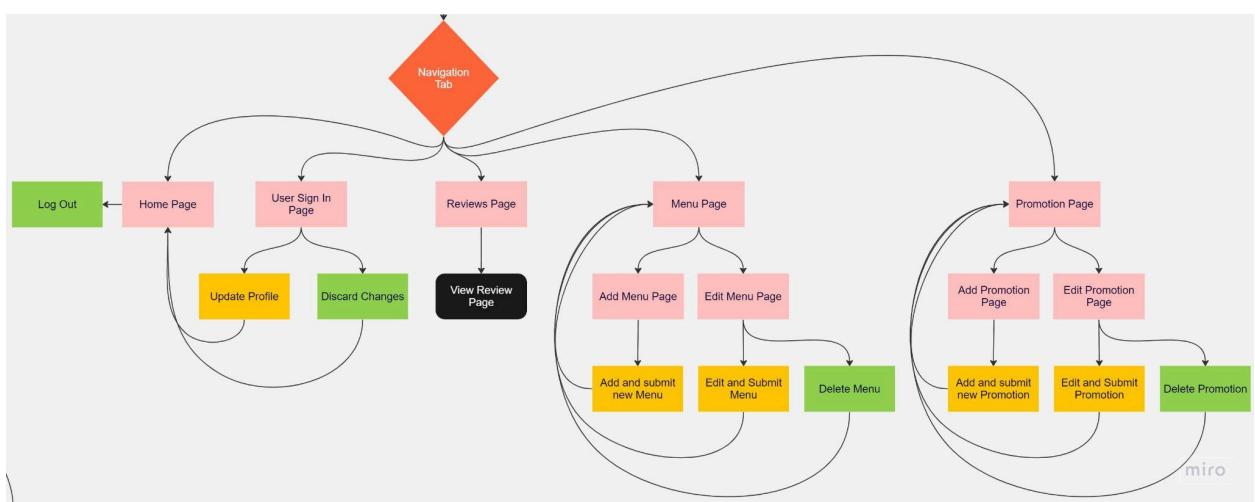
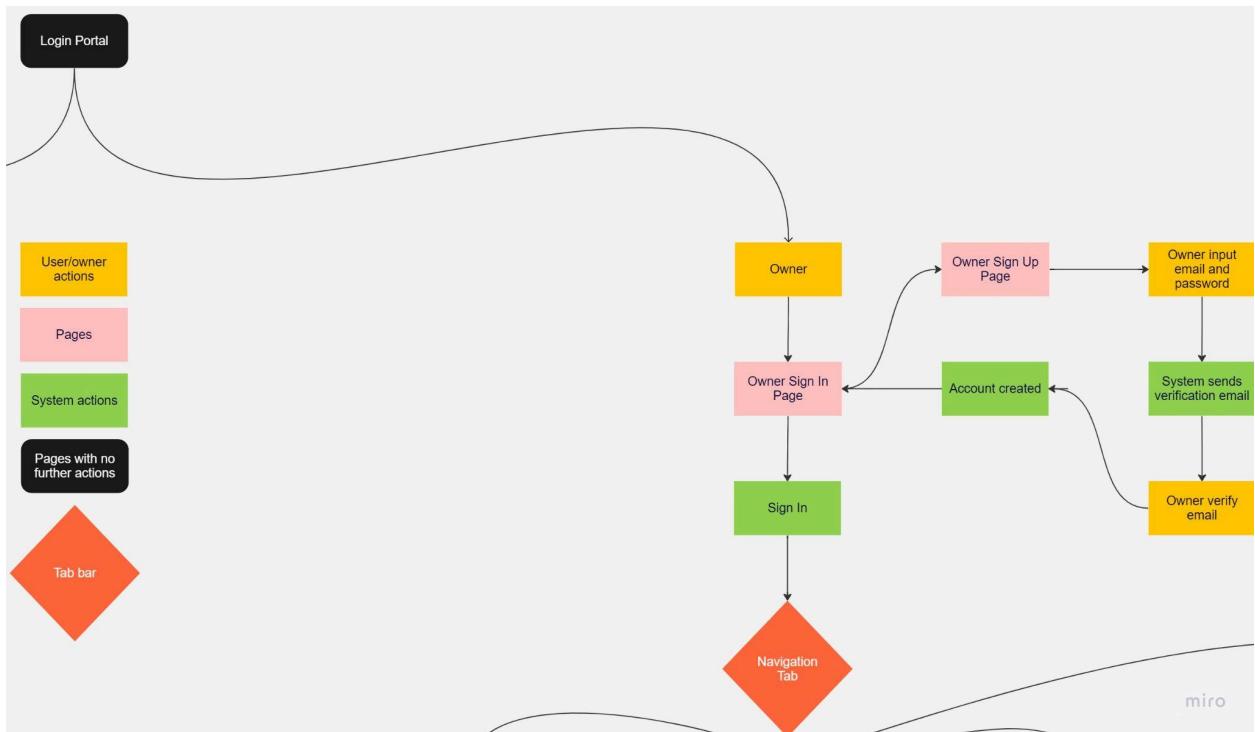
Saved page (after saving menus and profiles)

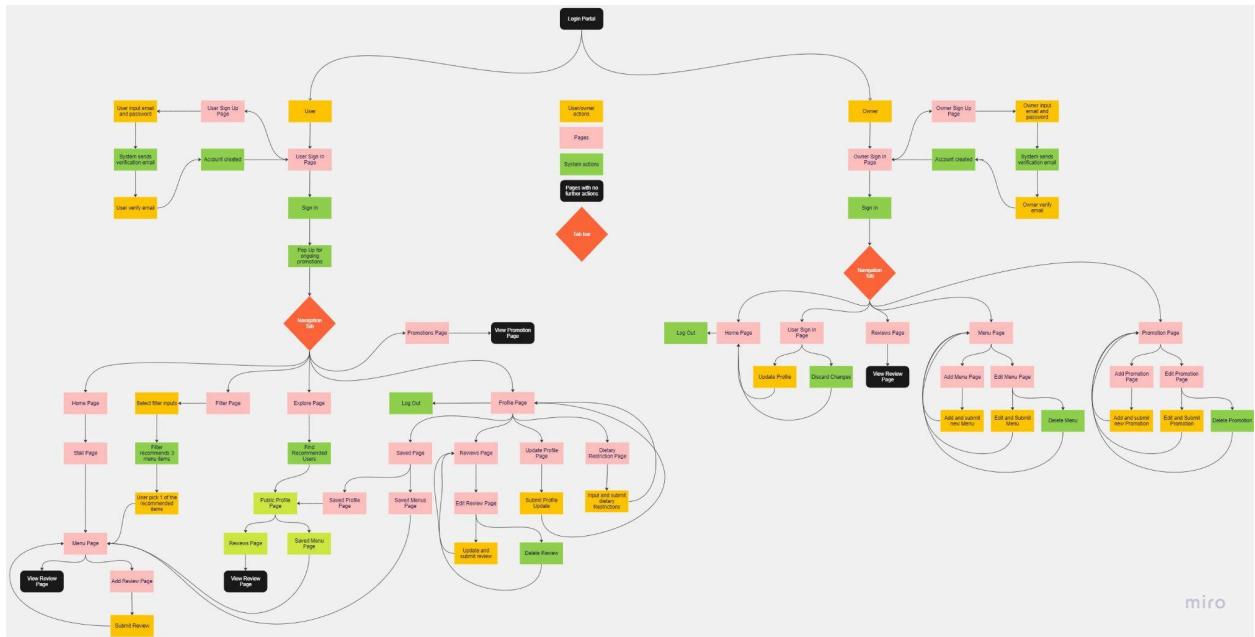


Explore tab and use of search bar

# Overall navigation flow



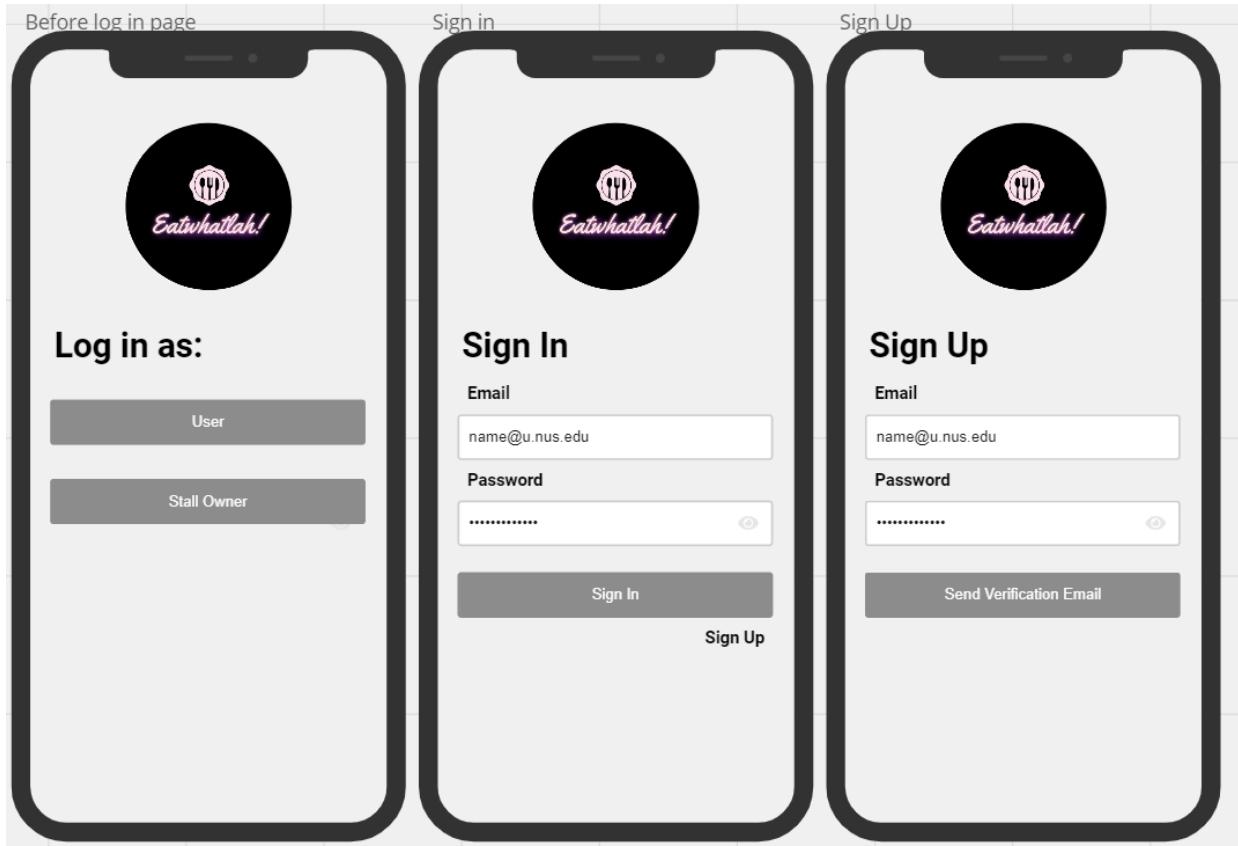


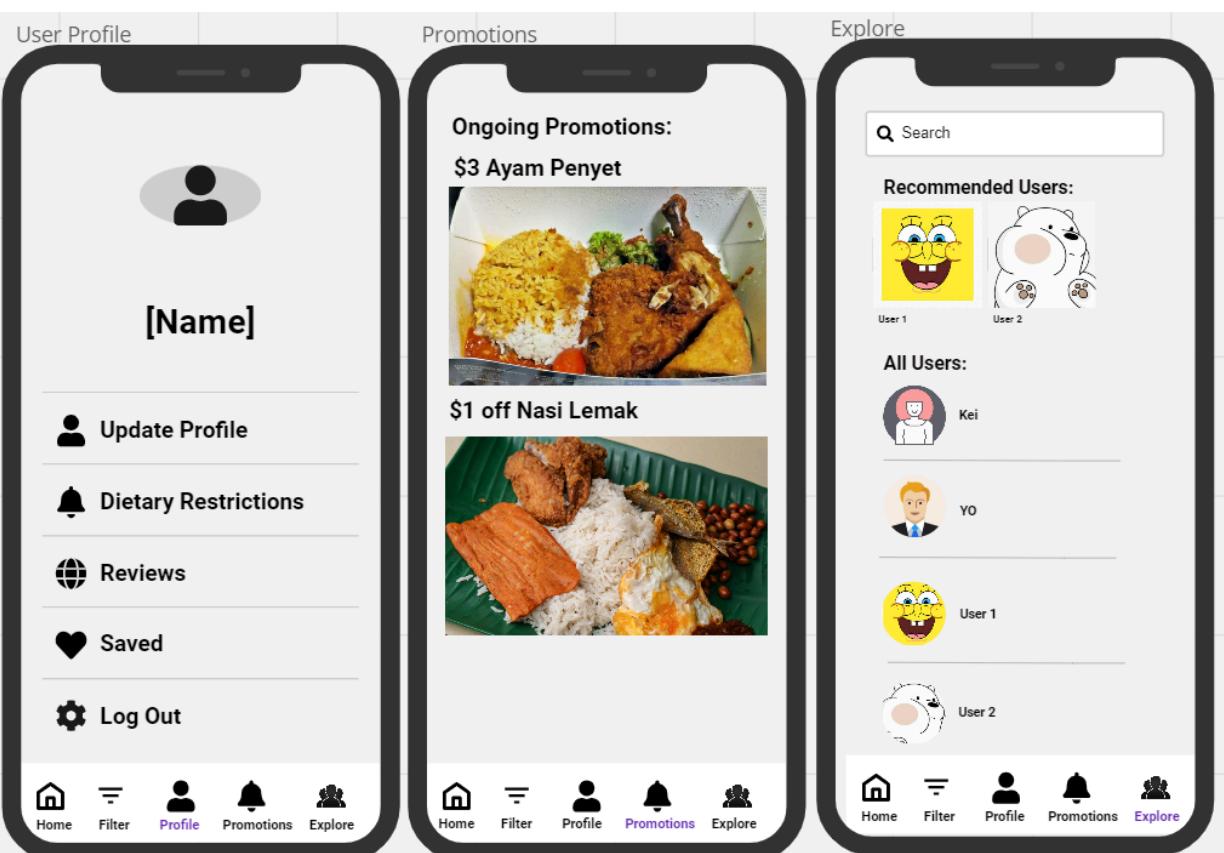
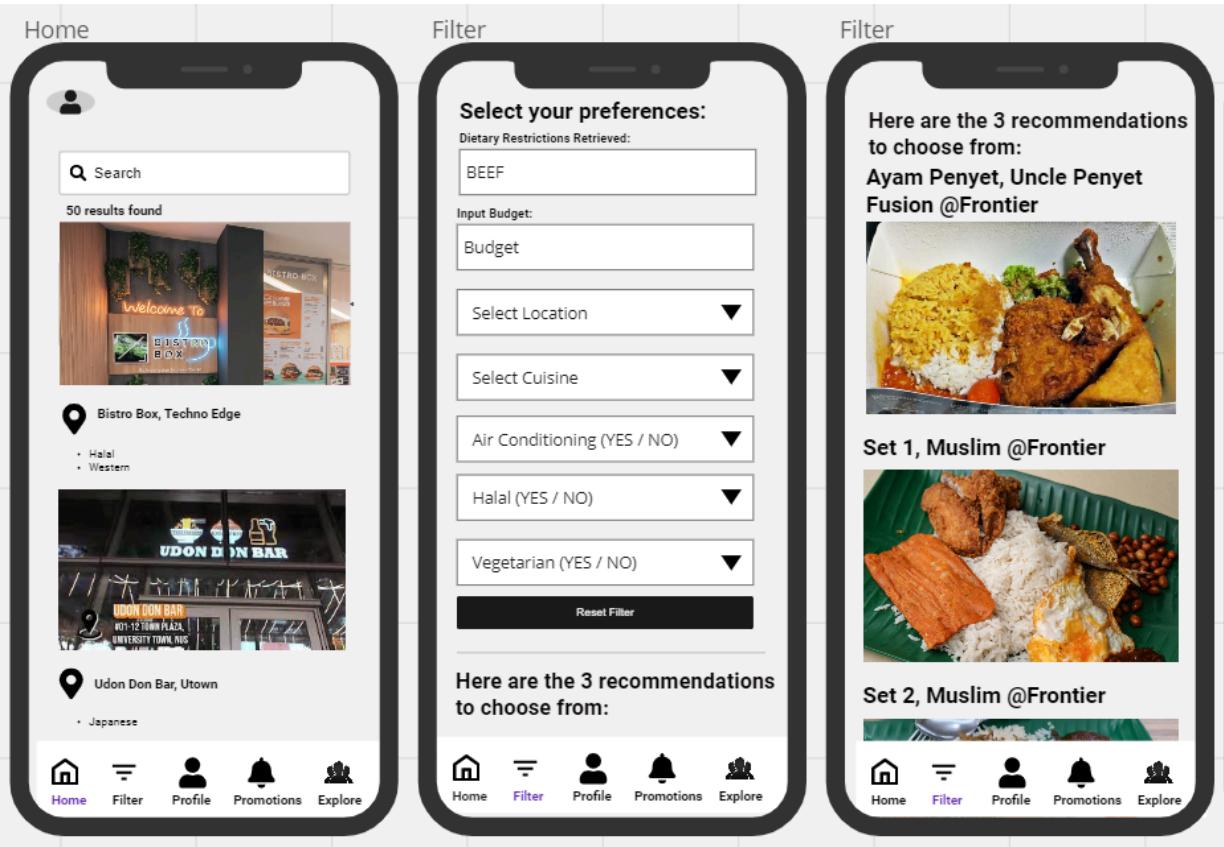


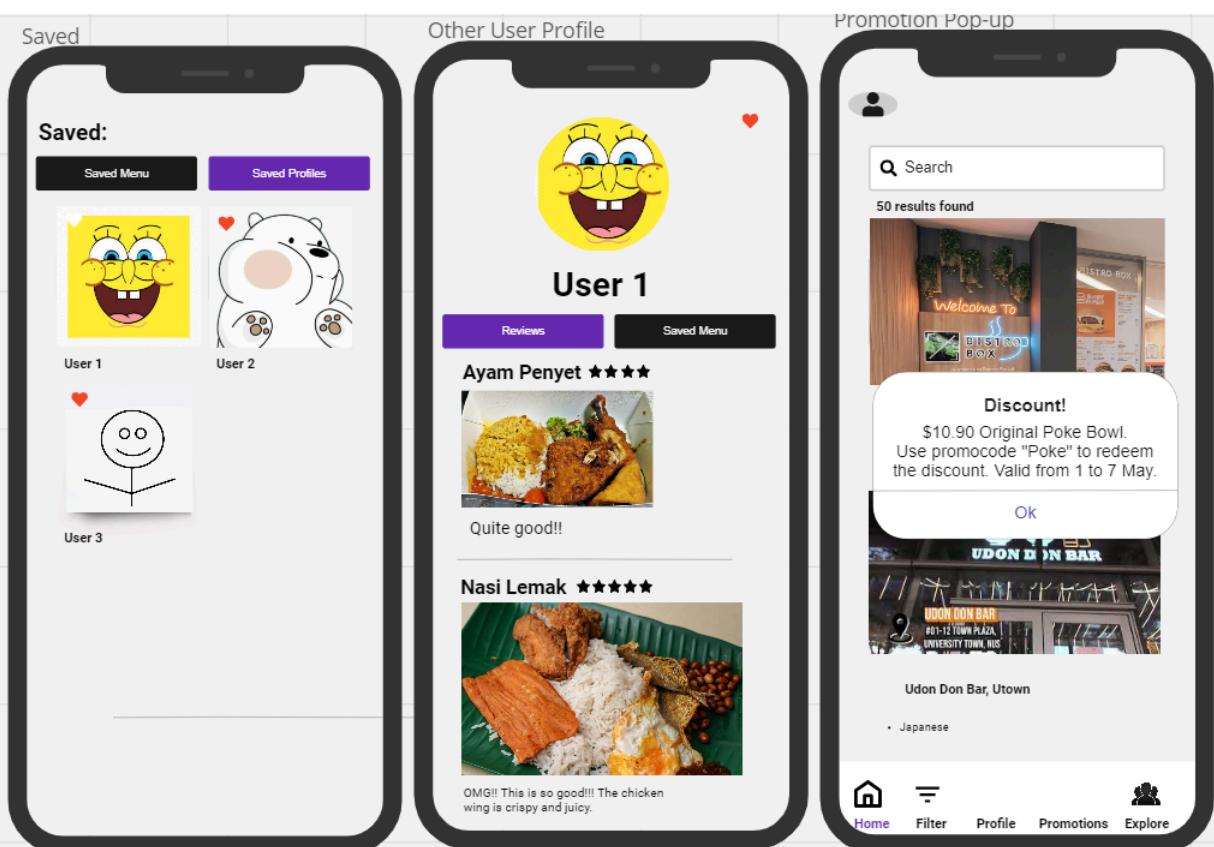
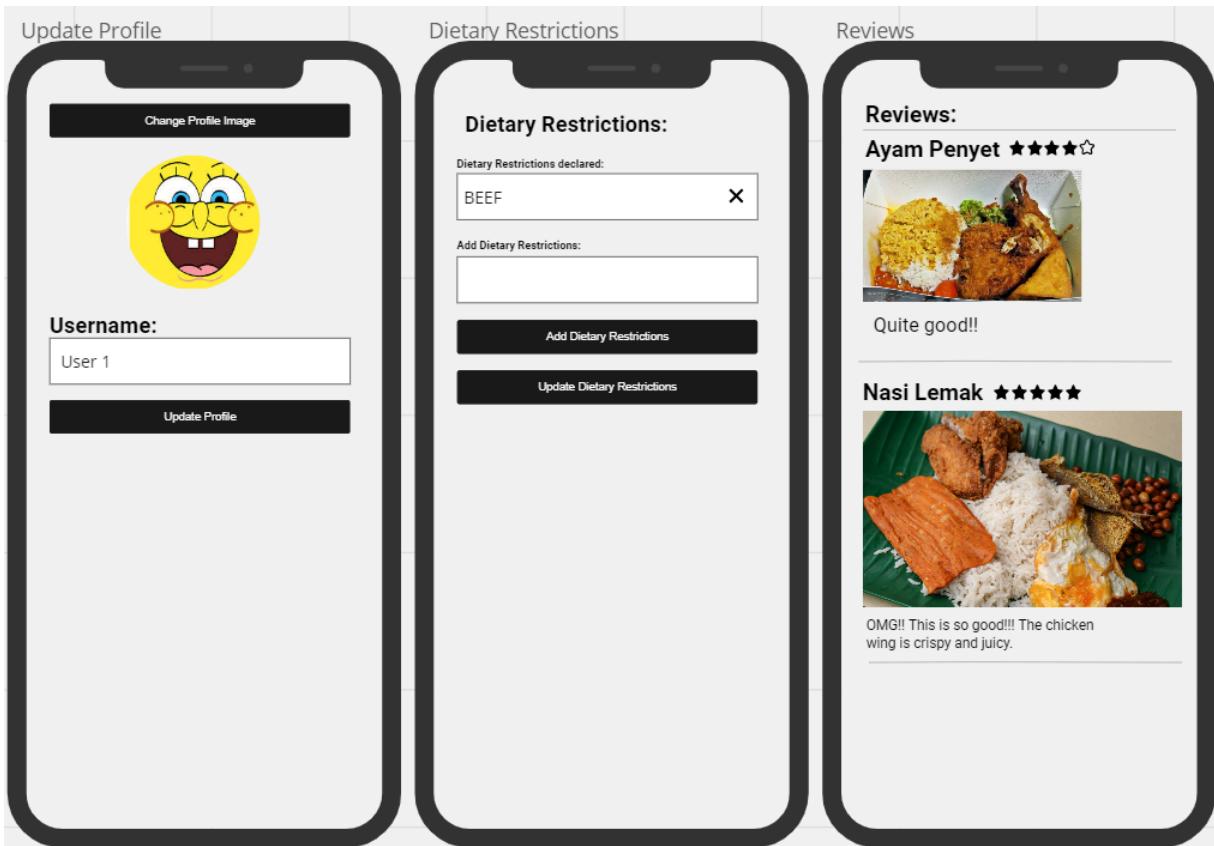
Note: for clearer viewing, see

[https://miro.com/app/board/uXjVM1XGPUo=/?share\\_link\\_id=770288531347](https://miro.com/app/board/uXjVM1XGPUo=/?share_link_id=770288531347)

## Wireframe







**Stall Owner Interface**

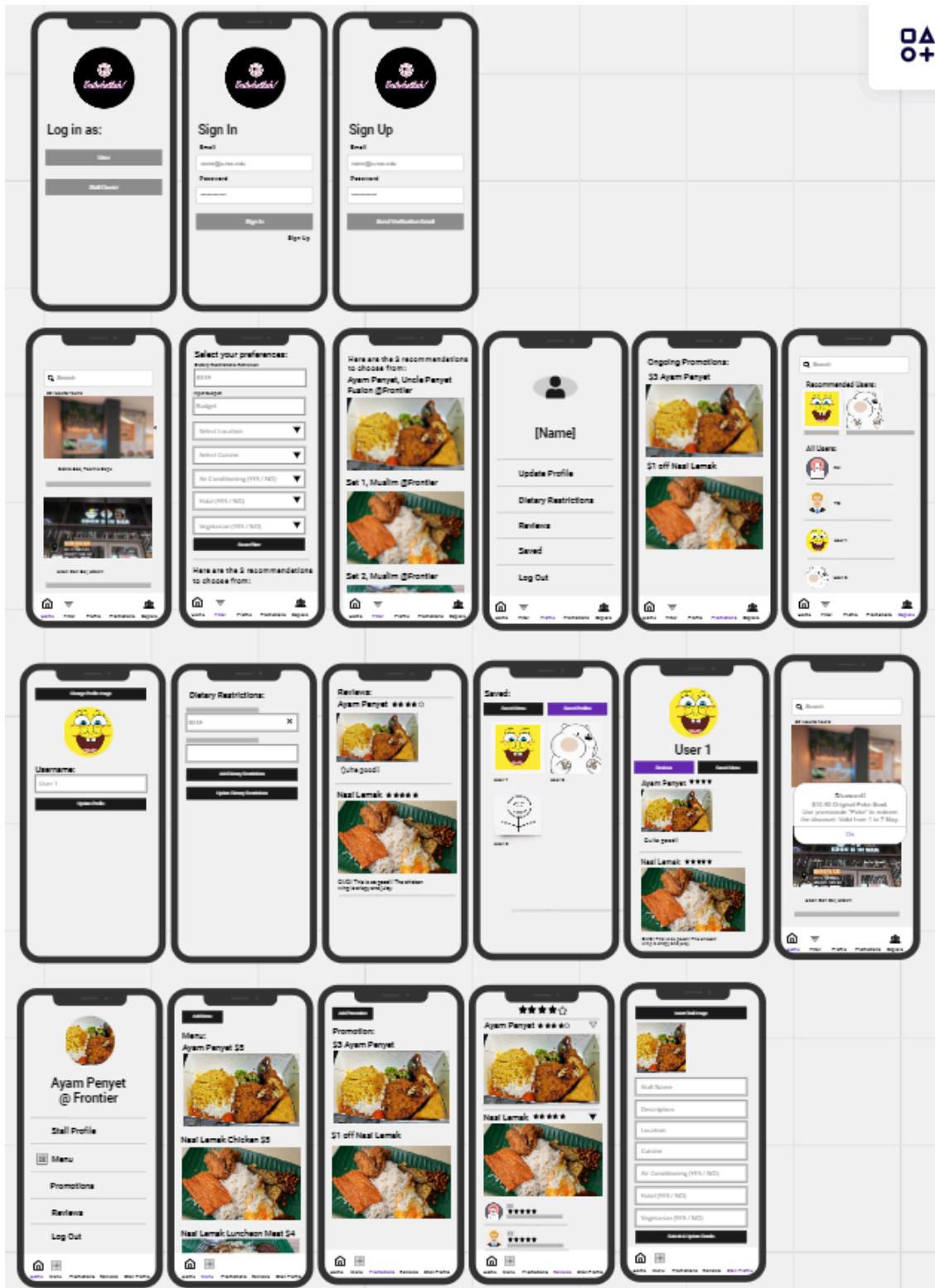
**Menu**

**Promotions**

**Reviews**

**Stall Profile**

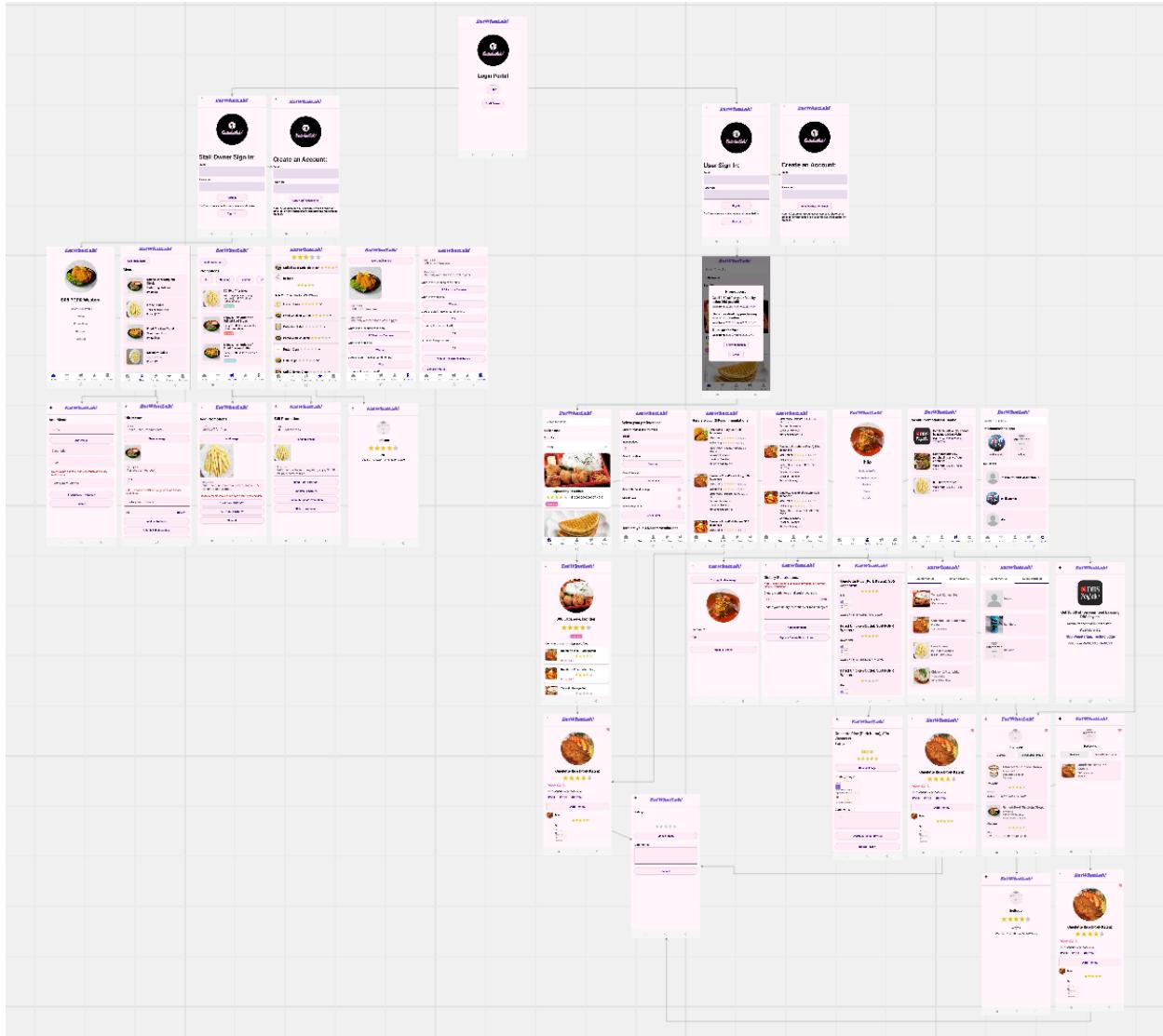
DA  
O+



Note: for clearer viewing, see

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# User Interface Design



Note: for clearer viewing, see

[https://miro.com/app/board/uXjVM1XGPUo=/?share\\_link\\_id=770288531347](https://miro.com/app/board/uXjVM1XGPUo=/?share_link_id=770288531347)

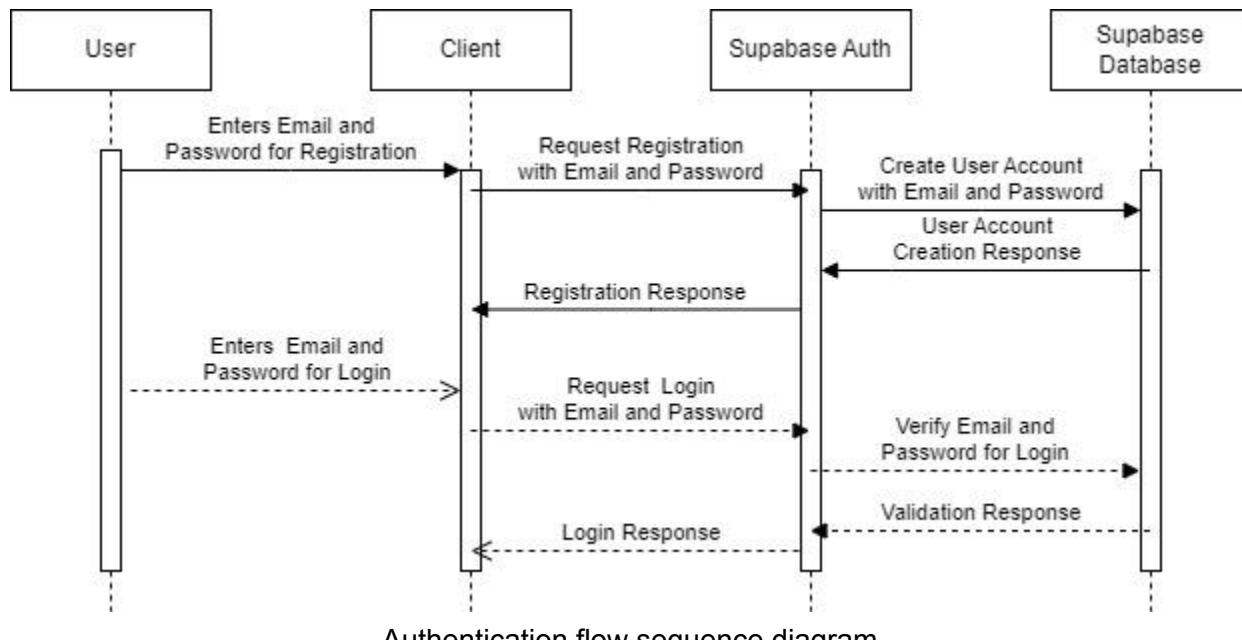
## Timeline and Development Plan

MS	Tasks	Descriptions	In-Charge	Date
1	Database	Creating ERD for database	Yan Hui & Wei Ning	15/5/23 - 26/5/23
	Algorithm	Deciding algorithm and research	Yan Hui & Wei	15/5/23 - 27/5/23

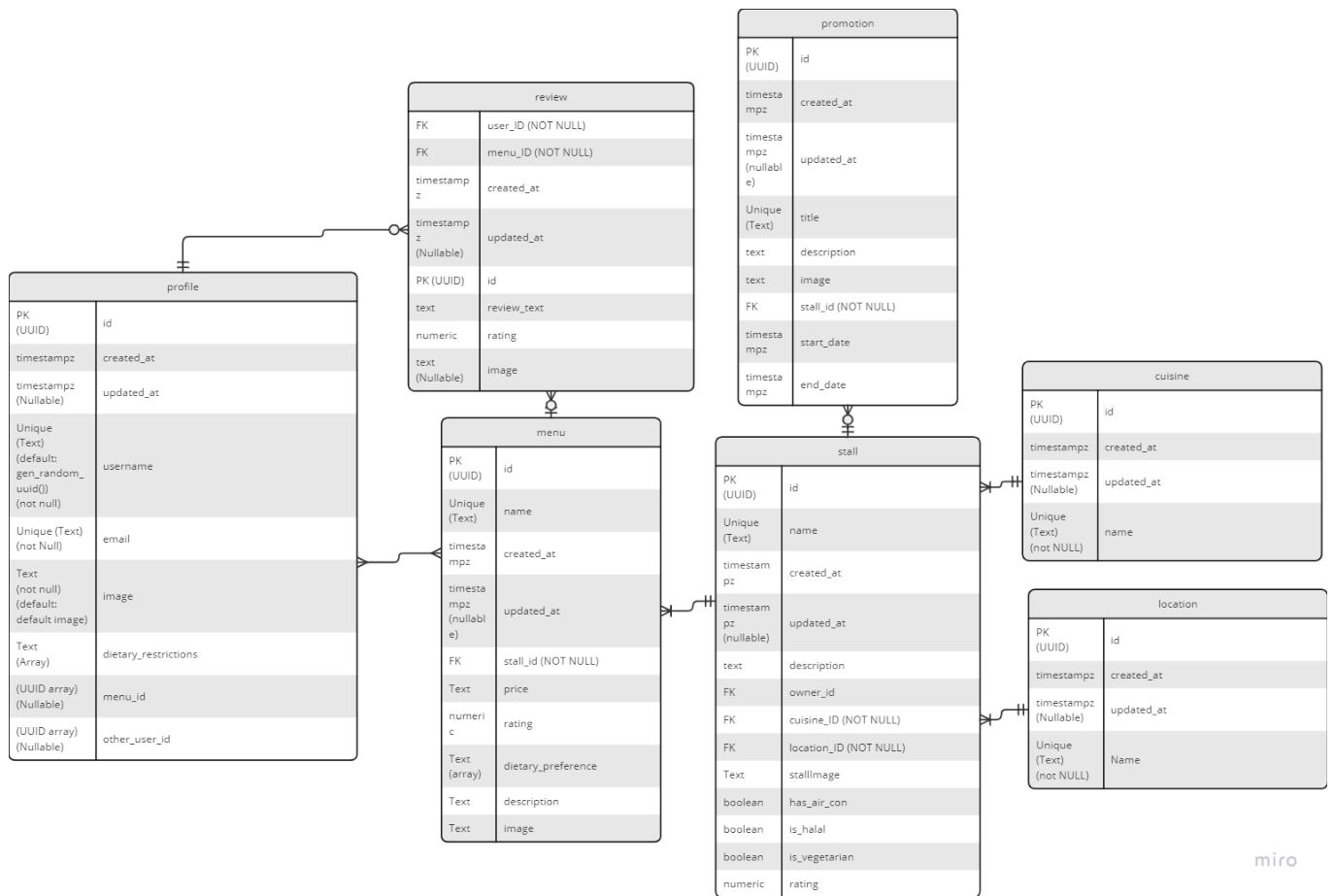
			Ning	
	Sign in and Register	Connecting the app to supabase for user authentication.	Yan Hui	21/5/23 - 25/5/23
	Database	Create the tables on Supabase	Yan Hui & Wei Ning	27/5/23
	User Profile	Basic page that allows users to input their username, upload their profile picture and input any dietary restrictions	Yan Hui & Wei Ning	27/5/23 - 28/5/23
	Styling	Designing of signup and login page	Wei Ning	27/5/23 - 29/5/23
	Milestone 1 - ideation			29/5/23
2	Food stalls details / stall owner profile	Allows stall owners to log in and sign up and they have a different interface they see from the users.	Yan Hui & Wei Ning	29/5/23 - 4/6/23
		Stall owners can update the information of their stalls and it will be reflected from the users side in the stall details page.		
		Complete the interface the users will see on the stall details page and also in the search page.		
	Food Preference Interface	Users can input current budget, cuisine and environment preferences.	Yan Hui & Wei Ning	4/6/23 - 16/6/23
	Food recommendation	Use an algorithm to filter out 3 options for users to choose from.	Yan Hui & Wei Ning	4/6/23 - 16/6/23
	Discounts and promotion	Ongoing discounts and promotions will be stored in a page in the app.	Wei Ning	4/6/23 - 16/6/23
	User Reviews	Allow users to review the dishes.	Yan Hui	17/6/23 - 26/6/23
	Food Stall Details	Add stalls and menu items	Yan Hui & Wei Ning	17/6/23 - 26/6/23
	Milestone 2 - prototyping			26/6/23
3	Discounts and promotion	When users log in the most recent discount and promotion will pop up.	Wei Ning	26/6/23 - 9/7/23
	Styling	Add icons and styling of app	Wei Ning	26/6/23 - 9/7/23

	User Reviews, Saved & Explore pages	An interface where you can follow other users that may have similar food preferences and look through the options they have saved and reviewed. (saved and explore page)	Yan Hui & Wei Ning	3/7/23 - 23/7/23
	Testing and debugging	Test the algorithm extensively for bugs with the implemented results.	Yan Hui & Wei Ning	3/7/23 - 24/7/23
Milestone 3 - extension				24/7/23
4	Submissions	Submission of final project poster, video, and code	Wei Ning & Yan Hui	7/8/23 - 14/8/23
Splashdown - refinement				23/8/23

## Sequence Diagram



# Model Entity Relationship Diagram



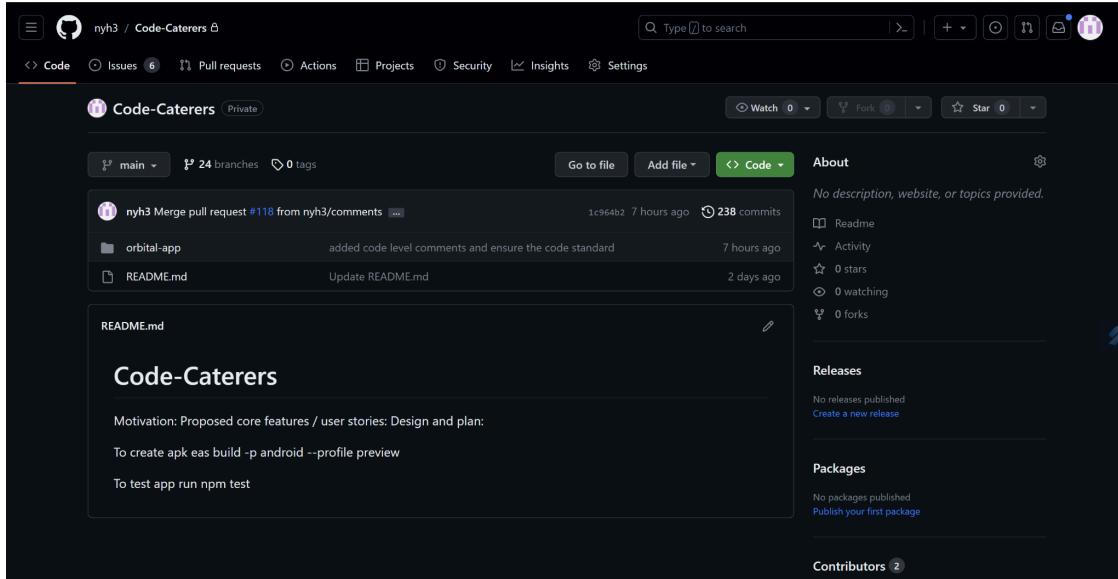
miro

Note: for clearer viewing, see

[https://miro.com/app/board/uXjVM1XGPUo=?share\\_link\\_id=770288531347](https://miro.com/app/board/uXjVM1XGPUo=?share_link_id=770288531347)

# Software Engineering Practices

## Github Repo + Basic Version Control



Our Project is hosted on GitHub, a web-based hosting platform for version control and collaboration. GitHub uses version control to keep track of the changes in code over time, by allowing us to manage project history and track modifications. We make use of git add, git commit, git push and git pull on our local machine to add and commit these changes onto GitHub for collaboration and to retrieve the current code from the main working directory on GitHub.

# Git Issues

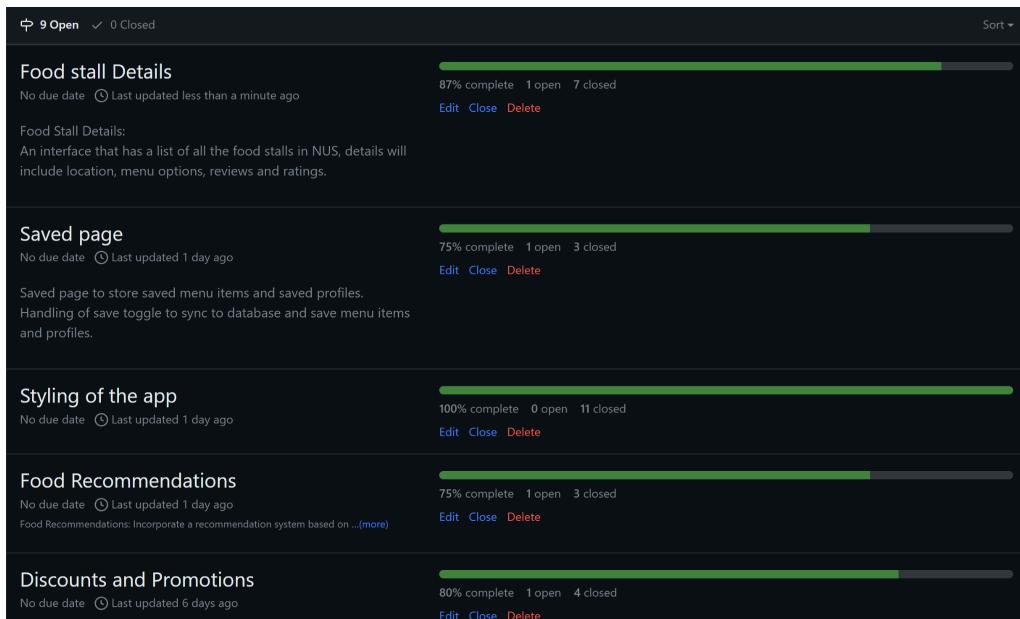
The screenshot shows a dark-themed Git issue tracker interface. At the top, there is a search bar with the query "is:issue is:open". Below the search bar, a summary indicates "4 Open" and "3 Closed". The main area displays four open issues:

- #51 Google authentication enhancement (opened 3 days ago by nyh3)
- #50 Allow more images to be uploaded enhancement (opened 4 days ago by nyh3)
- #49 Users can rate the same menu items multiple times bug (opened 5 days ago by nyh3)
- #10 reset password link problem bug (opened 3 weeks ago by nyh3)

Below the issues, there is a sidebar with configuration sections for Assignees, Labels, Projects, Milestone, and Food Recommendations. The Assignees section lists "nyh3" and "wnchan". The Labels section has "enhancement" selected. The Projects section says "None yet". The Milestone section shows a progress bar that is mostly filled. The Food Recommendations section is currently empty.

We use Git issues as a way to track and manage tasks, bugs, and other project-related items. When creating a new issue, we assign either one of us or both of us as the assignees to show who will be working on the issue. Issues come with tags, such as enhancements which means new features, or bugs which means that there is an issue with the code and we need to fix it. We also include milestones to each issue if applicable, so that we know which major we are working towards completing. Git issues will be closed during pull requests when we have completed the issue.

## Git Milestones



We have 9 milestones that we use to keep track of the progress in each area of the app. The 9 milestones are: Styling of the app, Saved Page, User Profile, Food Recommendation, User Reviews, Food Stall Details, Stall Owner Interface, Discounts and Promotions and Food Preference Interface. Each milestone roughly matches each feature in the list above. After We are sure that we have no more changes to the feature, we will close the milestone.

# Intermediate Version Control

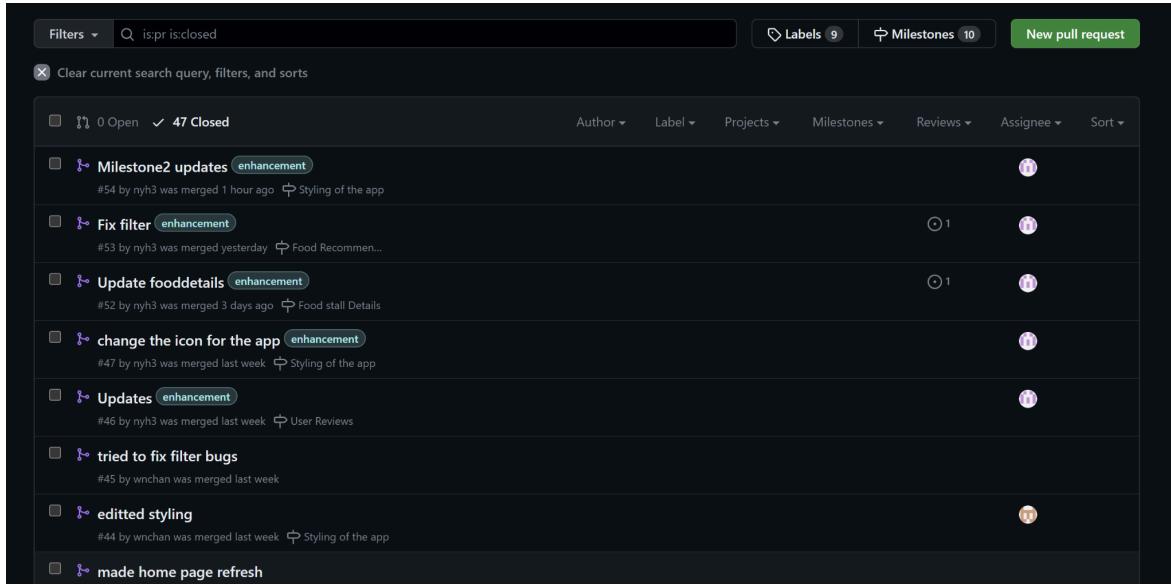
## Branching

The screenshot shows a Git interface with two main sections: 'Default branch' and 'Your branches'. The 'Default branch' section contains a single entry for 'main'. The 'Your branches' section lists several branches: 'comments', 'more-fixes', 'fixes', 'header', and 'edit-promotions-pop'. Each branch entry includes a commit history, the number of commits, and a merge status. Most branches have been merged into the main branch, indicated by purple 'Merged' buttons. A 'View more of your branches' link is visible at the bottom of the 'Your branches' section. The 'Active branches' section below it lists the same branches, showing they are now part of the 'Default' branch.

Branch	Last Commit	Commits	Merge Status
main	Updated 7 hours ago by nyh3	1   0	Merged
comments	Updated 7 hours ago by nyh3	1   0	Merged
more-fixes	Updated yesterday by nyh3	3   0	Merged
fixes	Updated yesterday by nyh3	5   0	Merged
header	Updated 5 days ago by nyh3	11   0	Merged
edit-promotions-pop	Updated 5 days ago by nyh3	15   0	Merged
View more of your branches >			
Active branches			
main	Updated 7 hours ago by nyh3	1   0	Merged
comments	Updated yesterday by nyh3	3   0	Merged
more-fixes	Updated yesterday by nyh3	5   0	Merged
fixes	Updated 2 days ago by wnchan	9   0	Merged
styling	Updated 5 days ago by nyh3	11   0	Merged
header	Updated 5 days ago by nyh3	11   0	Merged

Git branches allow for parallel development and isolation of features, allowing us to work on different features, bug fixes, or experiments without affecting the main codebase. With Git branches, we can switch between branches to work on different features concurrently and merge them back when ready. This allows both of us to work on different features without affecting each other's code. The name of the branch will describe what small feature we are working on currently.

## Pull Requests



The screenshot shows a list of 47 closed pull requests. The first few items in the list are:

- Milestone2 updates enhancement #54 by nyh3 was merged 1 hour ago → Styling of the app
- Fix filter enhancement #53 by nyh3 was merged yesterday → Food Recomm...
- Update fooddetails enhancement #52 by nyh3 was merged 3 days ago → Food stall Details
- change the icon for the app enhancement #47 by nyh3 was merged last week → Styling of the app
- Updates enhancement #46 by nyh3 was merged last week → User Reviews
- tried to fix filter bugs #45 by wrchan was merged last week
- edited styling #44 by wrchan was merged last week → Styling of the app
- made home page refresh

We use pull requests to propose changes and initiate code review. When the code in the branch is ready to be merged with the main codebase, we initiate the pull request and inform the other to look through the code to ensure that the code is ready to be merged. We leave messages of the changes that have been made to each pull request to help each other understand the changes. The pull request can only be merged if there is no conflict in the code. During pull requests, we close git issues that have been solved in the request. After a successful merger, we close the branches and make new branches for future code.

## Weekly Sprints

Our work schedule revolve around weekly sprints which is widely practised in the industry. A meeting is held once or twice every week to evaluate what had been implemented in the past week, whether the timeline is being adhered to and finally what are the plans for the upcoming week. This ensures that deadlines are being met while having the flexibility to adjust upcoming development plans if any unexpected issues arise.

## Quality Control

### System Testing by Developers

We have conducted system testing by developers by testing the different aspects of our app. This includes both the user and stall owner interfaces. Table below displays the details of our testing and how it was conducted.

User Story	Task	Steps to be completed	Expected Results	Test Results	Date Tested
As a new user/ stall owner, I want to be able to easily create my own personal profile/ stall.	Users/ stall owners are able to create an account successfully using the steps provided.	<ol style="list-style-type: none"> <li>Choose the user/ stall owner.</li> <li>Click the 'Sign Up' button.</li> <li>Enter email and password.</li> <li>Click the 'Send Verification Email' button.</li> <li>Proceed to email to click the link to verify their account.</li> <li>Head back to the app.</li> </ol>	<p>Able to choose user/ stall owner</p> <p>Able to enter email and password.</p> <p>Able to click the button and receive an email to verify the account.</p> <p>Able to proceed with log in.</p>	[PASS] Expected Results were obtained.	20/7/2023
As a user/ stall owner, I want to be able to log in to my own account.	Users/ stall owners are able to log into their newly created account.	<ol style="list-style-type: none"> <li>Choose the user/ stall owner.</li> <li>Enter email and password.</li> <li>Click the 'Sign In' button and sign in.</li> <li>Proceed to the profile tab to see the default username and profile image.(user)/ Get directed to the stall profile page to set up a stall.(stall owner).</li> </ol>	<p>Able to use email and password to sign in.</p> <p>Able to click the button and successfully sign in.</p> <p>Should sign in to a default profile image and username.(user)/ Should be directed to the stall profile page to set up the stall.(stall owner)</p>	[PASS] Expected Results were obtained.	20/7/2023
As a user/ stall owner, I want to be able to log out of my account and sign in again.	Users/ stall owners are able to log out of their account and sign in again after that.	<ol style="list-style-type: none"> <li>Proceed to the profile (user)/ home (stall owner) tab.</li> <li>Click the 'Log Out' button.</li> <li>Sign in to the account again.</li> </ol>	<p>Able to click the log out button to log out of their account.</p> <p>Able to repeat the sign process.</p>	[PASS] Expected Results were obtained.	20/7/2023
As a user who likes to customise their profile, I want to be able to	Users are able to update their username and profile image.	<ol style="list-style-type: none"> <li>Proceed to the profile tab.</li> <li>Click the 'Update Profile' button.</li> <li>Click 'Change Profile Image' and select a new image.</li> <li>Change the username by deleting and entering a</li> </ol>	<p>Able to input a new username and upload a new image.</p> <p>Able to successfully update their profile with the new username and image.</p>	[PASS] Expected Results were obtained.	20/7/2023

change my username and image whenever I want to.		<p>new username. [Additional, if no username set, user cannot update profile]</p> <p>5. Click 'Update Profile' and be sent back to the profile tab.</p>	After clicking the update profile button they are automatically sent back to the profile tab and see their updated profile.		
As a user with specific dietary needs, I want to be able to find food that I can enjoy.	Users are able to input and add their dietary restrictions.	<p>1. Proceed to the profile tab.</p> <p>2. Read the note before inputting your dietary restrictions.</p> <p>3. Add each dietary restriction individually. Click the 'Add Restriction' button to add each dietary restriction.</p> <p>4. Only after adding all dietary restrictions, click 'Update Dietary Restrictions' to submit your dietary restrictions. You should be directed back to the profile tab.</p>	<p>Able to add their dietary preferences.</p> <p>Able to add multiple dietary restrictions.</p> <p>Not able to add halal and vegetarian for dietary restrictions.</p> <p>Not able to add duplicate dietary restrictions.</p> <p>Able to submit their dietary restrictions and be routed back to the profile tab.</p>	[PASS] Expected Results were obtained.	20/7/2023
As a user I want to be able to view all the stalls together with its menu and reviews available in NUS.	Users are able to view the stalls available at NUS. Users are also able to sort the stalls by ratings or stall name or none.	<p>1. Proceed to the Home tab.</p> <p>2. Scroll through the whole page to view the stalls available.</p> <p>3. Click the white bar below 'Sort By', try clicking 'None', and view the Stalls ranked.</p> <p>4. On the same bar, click 'Ratings', followed by 'Stall Name' and see the difference in the ranking.</p>	<p>The stalls should be sorted according to ratings and stall names depending on what the user has chosen.</p> <p>Users are also able to scroll through the page to see all the stalls in NUS</p>	[PASS] Expected Results were obtained.	20/7/2023

	<p>Users are able to search for stalls.</p>	<ol style="list-style-type: none"> <li>1. Click the bar with the 'Search for stalls...' text and enter something to search.</li> <li>2. Check if the stall name you have searched for is displayed. (Unless, they have searched for something not in our database.)</li> </ol>	<p>The search bar should only show stalls that have similar names to what the user searches for.</p>	<p>[PASS] Expected Results were obtained.</p>	20/7/2023
	<p>Users are able to view the menu of the stalls and the details of each menu item.</p>	<ol style="list-style-type: none"> <li>1. Click on any of the stalls.</li> <li>2. Scroll through the stall's page, and see the different menu items available, the ratings, stall name, tags, description, etc.</li> <li>3. Click on any of the menu items, see the menu name, ratings, dietary restrictions, reviews (if there is), etc.</li> </ol>	<p>Able to click into each stall and see the stall details and menu of the stalls.</p> <p>Able to click into each menu to see the details and scroll through the reviews(if there is).</p>	<p>[PASS] Expected Results were obtained.</p>	20/7/2023
<p>As a user that is indecisive on what to eat and with the vast amount of options available, I want to be able to narrow down my choices of food.</p>	<p>Users are able to filter their preferences and receive 3 food recommendations. They are able to view the menu details of each recommendation.</p>	<ol style="list-style-type: none"> <li>1. Proceed to the filter tab.</li> <li>2. The default 3 recommendations will be set to the ones that follow the users dietary restrictions and have the highest ratings.</li> <li>3. Input your preferences. You can choose to fill all their preferences or choose to fill only some of the preferences.</li> <li>4. Scroll down to 'Here are your 3 recommendations' to view the recommendations given and its details.</li> <li>5. Click on any of the recommendations to view the menu details.</li> <li>6. Press the back button to go back and see other recommendations or proceed to step 7.</li> </ol>	<p>Able to see the dietary restrictions the users have previously added.</p> <p>Able to interact with all the filters and get recommendations if available.</p> <p>Able to click the recommendations to see the menu details and reviews if any.</p> <p>Able to reset the filter.</p>	<p>[PASS] Expected Results were obtained.</p>	20/7/2023

		7. Click the 'Reset Filter' button and repeat steps 3 to 6 to repeat the process or change your preferences.			
As a user who likes to try out different foods around school, I want to help my fellow schoolmates to enjoy good food as well by reviewing the food in school.	Users can give reviews to menu items. They can also add more reviews to the same item.	<p>1. Proceed to the home tab.</p> <p>2. Click on any stall.</p> <p>3. Click on any menu item of the stall.</p> <p>4. Click the 'Add Review' button.</p> <p>5. Enter ratings, image, comments before pressing the 'Submit' button. [Note: error will be received if ratings or comments are not entered.]</p> <p>6. Should be sent back to the menu details page and should be able to see their review listed below. [Note: Ratings of the menu item and stall will not change, only the review will be added.]</p> <p>7. Repeat steps 1 to 6 to the same menu item or other menu items and the same results should be expected.</p>	<p>Able to route to the add review page.</p> <p>Able to upload images and choose the ratings and also input comments.</p> <p>Able to submit their reviews with no problem.</p> <p>Able to see their reviews in the menu details page.</p>	[PASS] Expected Results were obtained.	20/7/2023
	Users can view reviews of other users.	<p>1. Proceed to the home tab.</p> <p>2. Click on any stall.</p> <p>3. Click on any menu item.</p> <p>4. View the reviews below the 'Add Reviews' button (if there is).</p> <p>5. Click the review to see its details.</p>	Able to click onto any reviews and see the correct review in a larger view.	[PASS] Expected Results were obtained.	20/7/2023
	Users can view, edit and delete their reviews.	<p>1. Proceed to the profile tab.</p> <p>2. Click the Reviews' button.</p> <p>3. If there are no reviews, you should see a note that there are no reviews</p>	<p>Able to see all the reviews they have returned from the reviews page.</p> <p>Able to click the reviews to see the information that</p>	[PASS] Expected Results were obtained.	20/7/2023

		<p>written. If there are reviews, they will be displayed with its details.</p> <p>4. Click the review to see the details and/ or update the details. Click the 'Update &amp; Submit Review' to update details or the delete button to delete the review.</p> <p>5. You can also click the back button from the review details page and repeat steps 3 to 4 to see other reviews.</p>	<p>they had written previously.</p> <p>Able to delete reviews they have written.</p> <p>Able to change image, rating and comments.</p> <p>Able to submit the new updates and see the changes in the reviews page that they will be routed to.</p>		
As a user with a limited budget, I want to be able to find food with discounts and promotions that are within my budget.	Users can view ongoing promotions and its details.	<p>1. Proceed to the promotions tab.</p> <p>2. Look through the promotions available. [check if the dates are ongoing]</p> <p>3. Click on any of the promotions to view its details.</p> <p>4. Click the back to return to the promotions tab and repeat step 3.</p> <p>5. If you log out and log in you should be able to see a pop up containing ongoing promotions.</p>	<p>Able to see ongoing promotions in the promotions tab.</p> <p>Able to click in to see the promotions details.</p> <p>Able to see the pop up appear upon logging in.</p>	[PASS] Expected Results were obtained.	20/7/2023
As a user who is curious and outgoing, I want to explore the options saved by other students and also find my	Users can view recommended users (those who saved similar menu items) and view all the users.	<p>1. Proceed to the home page, click on any stall.</p> <p>2. Click on any menu item, press the heart button to save the menu item. [Can repeat the steps to save other menu items]</p> <p>3. Proceed to the explore tab.</p> <p>4. Below the search bar, recommended users should be displayed. [note: only if you have saved similar menu items, will recommended users be shown]</p> <p>5. Scroll through the page</p>	<p>Able to click the heart on any menu page to save the menu.</p> <p>Able to see the menu they have saved from the saved page.</p> <p>Able to route to the explore page to see recommended users if any.</p> <p>Able to scroll to see all users of the app.</p> <p>Able to click on any user</p>	[PASS] Expected Results were obtained.	20/7/2023

friends on the app.		<p>to view all users.</p> <p>6. Click on any user to view the user's reviews and saved menus [note: reviews and saved menu are clickable].</p> <p>7. You can click the heart button to save the profile</p> <p>8. Press the back button and repeat step 6 to view other users.</p>	<p>to see what they have saved and reviewed.</p> <p>Able to click the heart to save the user as friends.</p>		
	Users can search for their friends using the search bar.	<p>1. Click the 'Search for users...' bar and write any username displayed in all users.</p> <p>2. Similar username profiles should be displayed.</p> <p>3. Click on the user to view the user's reviews and saved menus.</p> <p>4. Click the heart button to save the profile.</p>	<p>Able to search for their friends using the search bar.</p> <p>Able to click the heart to save the user as friends.</p>	<p>[PASS] Expected Results were obtained.</p>	20/7/2023
As a user who has trouble remembering food options that I like, I want to be able to stall menus and profiles that I like.	Users should be able to see the saved menu or profiles in the saved page.	<p>1. Proceed to the profile tab.</p> <p>2. Click on the 'Saved' button.</p> <p>3. You should see 2 tabs: Saved Menus, Saved Profiles.</p> <p>4. You can click any of the saved menus to see its details.[you can click on the heart button to unsave the menu item.] [click back button to saved page before proceeding to step 5]</p> <p>5. You can click on the saved profile tab.</p> <p>6. You can click any of the saved profiles to view the user's reviews and saved menu. [you can click on the heart button to unsave the user].</p>	<p>Able to see the menu and users they have saved from the saved page.</p> <p>Able to click each menu and user to see more details.</p> <p>Able to unsave the menu and users.</p>	<p>[PASS] Expected Results were obtained.</p>	20/7/2023

As a stall owner, I want to be able to customise my stall profile and make updates to it.	Stall owners should be able to set up their account when they log in for the first time.	<ol style="list-style-type: none"> <li>1. Upon logging in, should be directed to the stall profile tab. (Note: will not be able to access any of the other tabs until stall profile has been set up)</li> <li>2. Fill in the details of the stall, check if every button is working. Press 'Submit/ Update Stall Details' button.</li> <li>3. Should be directed to the home page that displays the stall image and stall name.</li> </ol>	<p>Able to see the stall profile page when logging in. Should not be able to access other tabs until the stall profile is set up.</p> <p>Able to fill up details and submit.</p> <p>Able to be directed to the home page, see stall name and image.</p>	[PASS] Expected Results were obtained.	20/7/2023
	Stall owners are able to update their stall profile.	<ol style="list-style-type: none"> <li>1. Proceed to the home tab and click the 'Update Stall Profile' button or click the stall profile tab.</li> <li>2. Update the details of the stall. Press 'Submit/ Update Stall Details' button.</li> <li>3. Should be directed to the home page that displays the updated stall image and stall name.</li> <li>4. Repeat steps 1 and 2, but instead of clicking the submit button, click the discard button. Should be directed back to the home page, with details not updated.</li> </ol>	<p>Able to see stall profile page with stall details.</p> <p>Able to edit details and submit.</p> <p>(Click submit) Able to be directed to the home page, see updated stall name and image.</p> <p>(Click discard) Able to be directed to the home page, see details not updated.</p>	[PASS] Expected Results were obtained.	20/7/2023
As a stall owner, I want to be able to manage my menu.	Stall owners are able to add menu items to their menu.	<ol style="list-style-type: none"> <li>1. Proceed to the menu tab and click the 'Add Menu Item' button.</li> <li>2. Fill in the menu item details, test all the buttons.</li> <li>3. For dietary restrictions, able to type and add dietary restrictions by pressing the 'Add Dietary Restriction' button.</li> <li>4. Click the 'Submit' button and be directed to the menu page.</li> </ol>	<p>Able to be directed to add menu page.</p> <p>Able to fill in details and the dietary restrictions added should be automatically made to uppercase.</p> <p>Able to submit and be directed to the menu page. Able to see a new menu added.</p>	[PASS] Expected Results were obtained.	20/7/2023

	Stall owners are able to edit the menu item.	<p>1. Proceed to the menu tab and click any menu item.</p> <p>2. Update the menu item details.</p> <p>3. Click the 'Submit &amp; Update Menu' button and be directed to the menu page.</p>	<p>Able to click menu items and be directed to edit menu page with the menu details filled.</p> <p>Able to update the menu details.</p> <p>Able to see changes in the menu details in the menu page.</p>	[PASS] Expected Results were obtained.	20/7/2023
	Stall owners are able to delete menu items.	<p>1. In the menu tab, click on any menu item. Click the 'Delete Menu' button at the bottom of the page.</p> <p>2. Should be directed back to the menu tab.</p>	Able to delete menu items. Menu items deleted can no longer be found in the menu page.	[PASS] Expected Results were obtained.	20/7/2023
As a stall owner, I want to be able to manage my promotions.	Stall owners are able to add promotions.	<p>1. Proceed to the promotions tab and click the 'Add Promotion' button.</p> <p>2. Fill in the promotion details, test all the buttons.</p> <p>3. Click the 'Submit' button and be directed to the promotion page.</p> <p>4. Repeat steps 1 to 3 and add promotions that are ongoing, expired or upcoming.</p> <p>5. Click on the ongoing, expired or upcoming button in the promotion page, to see the promotions being filtered accordingly.</p>	<p>Able to be directed to add promotion page.</p> <p>Able to fill in details.</p> <p>Able to submit and be directed to the promotion page. Able to see new promotions added.</p> <p>Able to click and filter the promotions according to ongoing, expired and upcoming.</p>	[PASS] Expected Results were obtained.	20/7/2023
	Stall owners are able to edit the promotions.	<p>1. Proceed to the promotion tab and click any promotion.</p> <p>2. Update the promotion details.</p> <p>3. Click the 'Submit &amp; Update Promotion' button and be directed to the promotion page.</p>	<p>Able to click promotion items and be directed to edit promotion page with the promotion details filled.</p> <p>Able to update the promotion details.</p> <p>Able to see changes in the promotion details in</p>	[PASS] Expected Results were obtained.	20/7/2023

			the promotion page.		
	Stall owners are able to delete the promotions.	1. In the promotion tab, click on any promotion. Click the 'Delete Promotion' button at the bottom of the page. 2. Should be directed back to the promotion tab.	Able to delete promotions. Promotions deleted can no longer be found in the promotion page.	[PASS] Expected Results were obtained.	20/7/2023
As a stall owner, I want to see the reviews of the food I made to make necessary improvements.	Stall owners are able to view the ratings for each stall and each menu item. They are also able to view the reviews left.	1. Proceed to the reviews tab, stall rating should be displayed at the top of the page. Should be able to see a list of menu items with their ratings. 2. Click on any menu item to view the reviews left on each menu item. 3. Click the review on the menu item to see the review details.	Able to see stall ratings and menu ratings.  Able to click the menu item and see it drop down to display the reviews.  Able to click each review to see its details.	[PASS] Expected Results were obtained.	20/7/2023

## Automated Testing

For EatWhatLah!, we have conducted 3 types of automated testing:

- Unit Testing: testing of individual units
- Integration Testing: testing of integration between units
- System Testing: testing of non-functional requirements

### Unit Testing

```
Test Suites: 31 passed, 31 total
Tests:     81 passed, 81 total
Snapshots: 0 total
Time:      7.377 s, estimated 8 s
```

Uses small units of code to test specific parts of the application.

Test ID	Testing Objective	Steps Taken	Expected Results	Pass/Fail	Date Tested

UT-1	Test the login portal	1. Press the user button 2. Press the stall owner button	Should change selected group to "User" when "User" button is clicked Should change selected group to "Stall Owner" when "Stall Owner" button is clicked	[PASS]	23/7/2023
UT-2	Test User Sign in for invalid and valid inputs	1. Leave email/password input blank 2. Press the sign in button. 3. Input email and password. 4. Press the sign in button.	Should display error message if email is empty Should display error message if password is empty Should not display any error message when both email and password are provided	[PASS]	22/7/2023
UT-3	Test User Create account for invalid and valid inputs	1. Leave email/password input blank 2. Press the 'Send Verification Email' button. 3. Input email and password. 4. Press the 'Send Verification Email' button.	Should display error message if email is empty Should display error message if password is empty Should not display any error message when both email and password are provided	[PASS]	22/7/2023
UT-4	Test home page	1. Render the home page 2. Press the stall	Should render stalls correctly Should call handleStallPress when a stall is pressed	[PASS]	23/7/2023
UT-5	Test filter page	1. Render the filter page 2. Check the UI 3. Toggle the air conditioning, halal and vegetarian switch 4. Press the reset filters button	Should render all UI elements correctly Should update budget input correctly Should toggle air conditioning switch correctly Should toggle halal switch correctly Should toggle vegetarian switch correctly Should reset filters correctly	[PASS]	23/7/2023

UT-6	Test profile page	1. Render the profile page 2. Press each of the buttons	Should render the UserProfile component Should call the correct callback functions on button press	[PASS]	23/7/2023
UT-7	Test promotions	1. Render the promotion page 2. Press the promotion item	Should render the PromotionPage component Should call the correct callback function on promotion item press Should make the promotion items pressable	[PASS]	23/7/2023
UT-8	Test if view promotion is rendered properly	1. Render the promotion 2. Check the promotion is rendered correctly	Should render loading indicator while fetching promotion details Should display promotion details	[PASS]	23/7/2023
UT-9	Test stall details page	1. Render the stall details 2. Check the stall details is rendered correctly	Should render the stall details correctly	[PASS]	23/7/2023
UT-10	Test menu details	1. Render the add review page 2. Click the add review button 3. Click the heart icon 4. Check the dietary restrictions are correct 5. Click on the reviews	Should render without crashing Clicking "Add Review" button should trigger handleAddReview Clicking the heart icon should trigger handleSaveToggle displays dietary restrictions correctly Clicking on a review should trigger handleReviewPress	[PASS]	23/7/2023
UT-11	Test review details	1. Render the review details page 2. Check the reviews details page is correct	Should display review details correctly	[PASS]	23/7/2023
UT-12	Test if add review page buttons work	1. Render the add review page 2. Change the comments 3. Change the image 4. Press the submit button	Handles comment change correctly Handles image upload correctly	[PASS]	23/7/2023

			Handles review submission correctly		
UT-13	Test update profile input and button	1. Render the update profile page 2. Check page is rendered correctly 3. Press the submit button	Displays username input field Displays change profile image button Displays update profile button Displays error message if username is empty on form submission	[PASS]	23/7/2023
UT-14	Test dietary restrictions page	1. Render the dietary restriction page 2. Add new dietary restrictions 3. Add duplicate restrictions 4. Add restricted restrictions like halal and vegetarian	Should add a new dietary restriction Should show an error message for duplicate restriction Should show an error message for restricted restriction	[PASS]	23/7/2023
UT-15	Test the user reviews page	1. Render the user review page 2. Check the page is rendered correctly 3. Press the reviews	Should render "User has not written any reviews." when no reviews are available Should render reviews when reviews are available Should handle pressing a review	[PASS]	23/7/2023
UT-16	Test if the edit review renders and submit correctly	1. Render the edit reviews page 2. Update the comment field 3. Press the submit button	Should render and update comment field Should render and submit review	[PASS]	23/7/2023
UT-17	Test the saved page	1. Render the saved page 2. Switch tabs between saved menu and saved profiles 3. Should display default message when there is no saved menu or saved profile	Should render saved menu items Should switch tabs Should display "User has not saved any menu items." when no menu items are available	[PASS]	23/7/2023

			Should display "User has not saved any profiles." when no profiles are available		
UT-18	Test the profile page	1. Render review tab 2. Switch to saved menu tab, render saved menus 3. Click on heart button to save and unsave the profile	Should render reviews tab by default Should render saved menus tab when clicking on the tab button Should toggle save/unsave when clicking on the heart icon	[PASS]	23/7/2023
UT-19	Test the explore page	1. Renders the user card 2. Renders the recommended user card 3. Search for users and observe that query changes 4. Search for users and observe that users are filtered	Should render the user card with the correct username Should render the recommended user card with the correct username Should update the search query state when the search input value changes Should filter users based on the search query	[PASS]	23/7/2023
UT-20	Test Owner Sign in for invalid and valid inputs	1. Leave email/password input blank 2. Press the sign in button. 3. Input email and password. 4. Press the sign in button.	Should display error message if email is empty Should display error message if password is empty Should not display any error message when both email and password are provided	[PASS]	22/7/2023
UT-21	Test Owner Create Account for invalid and valid inputs	1. Leave email/password input blank 2. Press the 'Send Verification Email' button. 3. Input email and password. 4. Press the 'Send Verification Email' button.	Should display error message if email is empty Should display error message if password is empty Should not display any error message when both email and password are provided	[PASS]	22/7/2023

UT-22	Test if owners can log out	1. Press the log out button from the home tab.	Should call logout event handler when log out button is pressed	[PASS]	22/7/2023
UT-23	Test if owners can add new menu items	1. Press the add menu item button 2. Add name, image, description, price and dietary restrictions 3. Press the submit button	Should add menu item with the details Should be able to press submit button	[PASS]	23/7/2023
UT-24	Test if owners can edit menu items	1. Press a menu item 2. Change name, image, description, price and dietary restrictions 3. Press the submit & update menu	Should be able to edit menu item Should be able to press the submit button	[PASS]	23/7/2023
UT-25	Test if owners can delete menu items	1. Press a menu item 2. Press the delete menu button	Should be able to press the delete button	[PASS]	23/7/2023
UT-26	Test if owners receive error message when trying to input halal, vegetarian, or duplicated dietary restrictions	1. Press a menu item to enter the edit menu page 2. Try to input and add halal, vegetarian 3. Try to input duplicated dietary restrictions	Should be able to edit menu item Should show error message when halal or vegetarian is inputted into dietary restrictions Should show error message when duplicated dietary restrictions are added	[PASS]	23/7/2023
UT-27	Test if owners can add promotion	1. Press the add promotion button 2. Input title, image, description and choose start and end date 3. Press the submit button	Should be able to input promotion details Should be able to press the submit button	[PASS]	23/7/2023
UT-28	Test if owners can edit promotions	1. Press a specific promotion 2. Change the title, image, description and start and end date 3. Press the submit & update promotion button	Should be able to edit promotion details Should be able to press the submit button	[PASS]	23/7/2023
UT-29	Test if owner can delete promotion	1. Press a specific promotion	Should be able to press the delete button	[PASS]	23/7/2023

		2. Press the delete promotion button			
UT-30	Test if owners receive error message trying to put end date before start date and if they try to submit no end date	1. Press the end date button and set it to before the start date 2. Press the submit & update promotion button 3. Don't set the end date 4. Press the submit & update promotion button	Should be able to press submit button and see error message Should be able to get error message if end date set before start date Should be able to get error message if no end date is set	[PASS]	23/7/2023
UT-31	Test if owners can change stall profile	1. Change the stall image, stall name, description, location, cuisine, and the three yes, no options. 2. Press the submit/update stall details button 3. Press the discard button	Should be able to input details. Should be able to click the submit button Should be able to click the discard button	[PASS]	23/7/2023

## Integration Testing

```

Test Suites: 18 passed, 18 total
Tests: 46 passed, 46 total
Snapshots: 0 total
Time: 6.31 s, estimated 17 s

```

Testing whether different parts of the software work together as expected. We tried to mimic the user / stall owner using the app doing the following items.

For users:

- Log in
- Create account
- Update profile
- Add and delete dietary restrictions
- View reviews written
- Views saved menu and saved profile
- Search, sort and view stalls
- Click stall, menu item and save menu item
- Input preferences and receive recommendations
- View and click promotions
- Search for users, click user, and save profile
- View reviews and saved menu of other user

For stall owners:

- Log in
- Create account
- Update and submit stall profile
- Add, edit, delete menu item
- Add, edit, update promotion
- View ratings and click review

Test ID	Testing Objective	Steps Taken	Expected Results	Pass/Fail	Date Tested
IT-1	Test the ability to create a new user account	1. Leave email/password input blank 2. Press the "Send Verification Email" button 3. Input email and password 4. Press the "Send Verification Email" button	Should display error message if email is empty Should display error message if password is empty Should not display any error message when both email and password are provided	[PASS]	22/7/2023
IT-2	Test the ability to login to the app as a user	1. Leave email/password input blank 2. Press the sign in button. 3. Input email and password. 4. Press the sign in button.	Should display error message if email is empty Should display error message if password is empty Should not display any error message when both email and password are provided	[PASS]	22/7/2023
IT-3	Test the ability to update the user's profile	1. Update username and image 2. Press update profile	Should update username and profile image Should be able to press update profile button	[PASS]	23/7/2023
IT-4	Test the ability to add and delete dietary restrictions	1. Add dietary restrictions 2. Add a duplicate of the dietary restrictions and observe the error message 3. Add dietary restrictions that are not allowed i.e halal or vegetarian, and observe the error message 4. Delete dietary restrictions, and observe	Should be able to add dietary restrictions Should not be able to add a duplicate or not allowed restrictions Should be able to delete dietary restrictions Should be able to update dietary restrictions	[PASS]	23/7/2023

		that dietary restriction is null 5. Update dietary restrictions by clicking the update button and should be successfully added			
IT-5	Test the ability to view reviews written	1. Should be able to load and view reviews 2. Should be able to see no reviews message if there are no message 3. Click review and edit review should be called	Should display user reviews Should display "No reviews" message if no reviews are available Should call onEditReview callback when a review is edited	[PASS]	23/7/2023
IT-6	Test the ability to view saved menu and saved profiles	1. Switch between "Saved Menus" and "Saved Profiles" tabs	Should switch between "Saved Menus" and "Saved Profiles" tabs	[PASS]	23/7/2023
IT-7	Test the ability to search, sort and view stalls	1. Should be able to render stall, handle search and sorting	Should render stalls and handle search and sorting	[PASS]	23/7/2023
IT-8	Test the ability to click stall, menu item and save menu	1. Should be able to render menu details and press save button 2. Should be able to render review and click on review item	Should render menu details and handle save toggle Should render reviews and handle review press	[PASS]	23/7/2023
IT-9	Test the ability to input preferences and receive 3 recommendations	1. Input preference details / press all the different buttons. 2. Press reset button	Should filter food options based on selected preferences Should be able to reset filter	[PASS]	23/7/2023
IT-10	Test the ability to view and click promotions	1. Should be able to render list of promotions 2. Click promotion to navigate to view promotion details	Should render the list of promotions with correct data Should navigate to view promotion details when a promotion item is pressed	[PASS]	23/7/2023
IT-11	Test the ability to search, click	1. Renders recommended users and all users 2. Search for user	Should render recommended users and all users	[PASS]	23/7/2023

	and save profiles		Should renders user and recommended users based on search query		
IT-12	Test the ability to view reviews and saved menu of other user's profile	1. Should be able to display user profile and reviews 2. Switch to saved menu page 3. Should be able to display saved menu data	Should display user profile and reviews by default Should switch to Saved Menu Items tab and display saved menu data	[PASS]	23/7/2023
IT-13	Test the ability to create a new stall owner account	1. Leave email/password input blank 2. Press the "Send Verification Email" button 3. Input email and password 4. Press the "Send Verification Email" button	Should display error message if email is empty Should display error message if password is empty Should not display any error message when both email and password are provided	[PASS]	23/7/2023
IT-14	Test the ability to login to the app as a stall owner.	1. Leave email/password input blank 2. Press the sign in button. 3. Input email and password. 4. Press the sign in button.	Should display error message if email is empty Should display error message if password is empty Should not display any error message when both email and password are provided	[PASS]	23/7/2023
IT-15	Test the ability to update and submit stall profile	1. Change the stall image, stall name, description, location, cuisine, and the three yes, no options. 2. Press the submit/update stall details button 3. Press the discard button	Should be able to input details. Should be able to click the submit button Should be able to click the discard button	[PASS]	23/7/2023
IT-16	Test the ability to add, edit and delete menu items	1. Add menu item and submit 2. Edit menu item and submit 3. Delete menu item 4. Edit menu item and test if error message is shown if write halal or vegetarian	Should be able to add menu item Should be able to edit menu item Should be able to delete menu item	[PASS]	23/7/2023

		5. Edit menu item and test if error message is shown if have duplicated dietary restrictions added	Should be able to get error message for each case with invalid inputs		
IT-17	Test the ability to add, edit and delete promotions	1. Add promotion and submit 2. Edit and update promotion 3. Delete promotion 4. Edit promotion and test if error message shown if end date before start date 5. Edit promotion and test if error message shown if there is no end date set	Should be able to add promotion Should be able to edit promotion Should be able to delete promotion Should be able to get error message for each case with invalid inputs	[PASS]	23/7/2023
IT-18	Test the ability to view ratings and reviews	1. See reviews left on dish	Should be able to view reviews left on each dish.	[PASS]	23/7/2023

## System Testing

```

PASS app/__tests__/system/ST-4.test.js
PASS app/__tests__/system/ST-2.test.js
PASS app/__tests__/system/ST-3.test.js
PASS app/__tests__/system/ST-1.test.js

Test Suites: 4 passed, 4 total
Tests: 4 passed, 4 total
Snapshots: 4 passed, 4 total
Time: 4.321 s
  
```

For the system testing, we have done portability testing to test whether the system works on different devices.

Test ID	Testing Objective	Steps Taken	Expected Results	Pass/Fail	Date Tested
ST-1	Test whether the layout of the filter page fits the size of different phones	1. Build the snapshot on a small screen 2. Build the snapshot on a medium screen 3. Build the snapshot on a large screen	Should look the same for all screens	[PASS]	23/7/2023

ST-2	Test whether the layout of the explore page fits the size of different phones	1. Build the snapshot on a small screen 2. Build the snapshot on a medium screen 3. Build the snapshot on a large screen	Should look the same for all screens	[PASS]	23/7/2023
ST-3	Test whether the layout of the index page fits the size of different phones	1. Build the snapshot on a small screen 2. Build the snapshot on a medium screen 3. Build the snapshot on a large screen	Should look the same for all screens	[PASS]	23/7/2023
ST-4	Test whether the layout of the saved page fits the size of different phones	1. Build the snapshot on a small screen 2. Build the snapshot on a medium screen 3. Build the snapshot on a large screen	Should look the same for all screens	[PASS]	23/7/2023

## User Testing

We have conducted user testing by sending out the app to certain individuals who met our target audience requirements. We used a google survey, detailing the instructions, for users to test different aspects of our app. With their feedback and experience, we were able to make improvements to the app and fix any bugs that we did not discover earlier.

Link to Google Forms we conducted the test on:

[https://docs.google.com/forms/u/0/d/e/1FAIpQLScN-fOHtsg\\_Qs4ITFJex2aJT60cWMv4KC5MabB113bVdnH32Q/formResponse](https://docs.google.com/forms/u/0/d/e/1FAIpQLScN-fOHtsg_Qs4ITFJex2aJT60cWMv4KC5MabB113bVdnH32Q/formResponse)

Link to the Google Spreadsheet with the responses:

[https://docs.google.com/spreadsheets/d/1\\_uqV15qr2\\_4K\\_yaLGljHdJmMYLXzp3hauTtnoAlxSTc/edit?usp=sharing](https://docs.google.com/spreadsheets/d/1_uqV15qr2_4K_yaLGljHdJmMYLXzp3hauTtnoAlxSTc/edit?usp=sharing)

User Story	Task	Steps to be completed	Expected Results	Test Results	Additional Feedback
As a new user I want to be able to easily create my own personal profile.	Users are able to create an account successfully using the steps	1. Enter email and password. 2. Click the 'Send Verification Email' button. 3. Proceed to	Able to enter their email and password.  Able to click	[PASS] Expected Results were obtained.	Misunderstanding due to there being a code below the link. This resulted in users writing the code down as their password. -> This was resolved by

	provided.	<p>email to click the link to verify their account.</p> <p>4. Head back to the app.</p>	<p>the button and receive an email to verify their account.</p> <p>Able to proceed with log in.</p>		<p>removing the code below the link and adding additional guidelines to minimise confusion.</p> <p>Keyboard covers the password portion when users enter their password.</p> <p>-&gt; This was resolved by making the sign up and sign in pages for both owner and user scrollable.</p>
As a user, I want to be able to log in to my own profile.	Users are able to log into their newly created account.	<p>1. Enter email and password.</p> <p>2. Click the 'Sign In' button and sign in.</p> <p>3. Proceed to the profile tab to see the default username and profile image.</p>	<p>Able to use their email and password to sign in.</p> <p>Able to click the button and successfully sign in.</p> <p>Should sign in to a default profile image and username.</p>	[PASS] Expected Results were obtained.	NIL
As a user, I want to be able to log out of my profile and sign in again.	Users are able to log out of their account and sign in again after that.	<p>1. Proceed to the profile tab.</p> <p>2. Click the 'Log Out' button.</p> <p>3. Sign in to the account again.</p>	<p>Able to click the log out button to log out of their account.</p> <p>Able to repeat the sign process.</p>	[PASS] Expected Results were obtained.	NIL
As a student who likes to customise their profile, I want to be able to change my username and image	Users are able to update their username and profile image.	<p>1. Proceed to the profile tab.</p> <p>2. Click the 'Update Profile' button.</p> <p>3. Click 'Change Profile Image' and select a new image.</p> <p>4. Change the</p>	<p>Able to input a new username and upload a new image.</p> <p>Able to successfully update their profile with the</p>	[PASS] Expected Results were obtained.	NIL

whenever I want to.		username by deleting and entering a new username. [Additional, if no username set, user cannot update profile] 5. Click 'Update Profile' and be sent back to the profile tab.	new username and image.  After clicking the update profile button they are automatically sent back to the profile tab and see their updated profile.		
As a student with specific dietary needs, I want to be able to find food that I can enjoy.	Users are able to input and add their dietary restrictions.	1. Proceed to the profile tab. 2. Read the note before inputting your dietary restrictions. 3. Add each dietary restriction individually in capital letters (it has already been auto-capitalised for users input). Click the 'Add Restriction' button to add each dietary restriction. 4. Only after adding all dietary restrictions, click 'Update Dietary Restrictions' to submit your dietary restrictions. You should be directed back to the profile tab.	Able to add their dietary preferences.  Able to add multiple dietary restrictions.  Not able to add halal and vegetarian for dietary restrictions.  Not able to add duplicate dietary restrictions.  Able to submit their dietary restrictions and be routed back to the profile tab.	[PASS] Expected Results were obtained.	Previously, the inputs were auto-capitalised but not enforced to be upper case, thus some users suggested enforcing the inputs to be uppercase, to ensure consistency of the inputs. -> This was resolved by enforcing uppercase conversion of all submitted inputs for dietary restrictions.  Users did not know what dietary restrictions they could input, causing confusion. -> This was resolved by adding a note for the dietary restrictions we are currently taking into account.  Users were unable to key in more than 9 restrictions as they were unable to see the button. -> This was resolved by making the dietary restriction page scrollable so that the 'Add Restrictions' button is visible even after inputting more than 9 dietary

					restrictions.  Users did not like that they had to close the keyboard first, before being able to add restrictions. -> Unable to be resolved.
As a user I want to be able to view all the stalls together with its menu and reviews available in NUS.	Users are able to view the stalls available at NUS. Users are also able to sort the stalls by ratings or stall name or none.	1. Proceed to the Home tab. 2. Scroll through the whole page to view the stalls available. 3. Click the white bar below 'Sort By', try clicking 'None', and view the Stalls ranked. 4. On the same bar, click 'Ratings', followed by 'Stall Name' and see the difference in the ranking.	The stalls should be sorted according to ratings and stall names depending on what the user has chosen.  Users are also able to scroll through the page to see all the stalls in NUS	[PASS] Expected Results were obtained.	NIL
	Users are able to search for stalls.	1. Click the bar with the 'Search for stalls...' text and enter something to search. 2. Check if the stall name you have searched for is displayed. (Unless, they have searched for something not in our database.)	The search bar should only show stalls that have similar names to what the user searches for.	[PASS] Expected Results were obtained.	Previously, users were unable to search by stall location and suggested for us to implement that. -> This was resolved by making changes to the code. Now, users are able to search by stall location and stall name.

	<p>Users are able to view the menu of the stalls and the details of each menu item.</p>	<ol style="list-style-type: none"> <li>1. Click on any of the stalls.</li> <li>2. Scroll through the stall's page, and see the different menu items available, the ratings, stall name, tags, description, etc.</li> <li>3. Click on any of the menu items, see the menu name, ratings, dietary restrictions, reviews (if there is), etc.</li> </ol>	<p>Able to click into each stall and see the stall details and menu of the stalls.</p> <p>Able to click into each menu to see the details and scroll through the reviews(if there is).</p>	<p>[PASS] Expected Results were obtained.</p>	<p>Users suggested making the whole stall details and menu details page scrollable, instead of just the menu and review parts. -&gt; This has been resolved by making those changes.</p> <p>Users said that when they click onto a menu item, they see an "error" message loading screen, rather than a "loading" message loading screen. -&gt; This has been resolved by making those changes.</p>
As a student that is indecisive on what to eat and with the vast amount of options available, I want to be able to narrow down my choices of food.	<p>Users are able to filter their preferences and receive 3 food recommendations. They are able to view the menu details of each recommendation.</p>	<ol style="list-style-type: none"> <li>1. Proceed to the filter tab.</li> <li>2. The default 3 recommendations will be set to the ones that follow the users dietary restrictions and have the highest ratings.</li> <li>3. Input your preferences. You can choose to fill all their preferences or choose to fill only some of the preferences.</li> <li>4. Scroll down to 'Here are your 3 recommendations' to view the recommendations given and its details.</li> <li>5. Click on any of the recommendations to view the menu details.</li> </ol>	<p>Able to see the dietary restrictions the users have previously added.</p> <p>Able to interact with all the filters and get recommendations if available.</p> <p>Able to click the recommendations to see the menu details and reviews if any.</p> <p>Able to reset the filter.</p>	<p>[PASS] Expected Results were obtained.</p>	<p>Users suggested adding units for the input budget portion. -&gt; This has been resolved by making those changes.</p>

		<p>6. Press the back button to go back and see other recommendations or proceed to step 7.</p> <p>7. Click the 'Reset Filter' button and repeat steps 3 to 6 to repeat the process or change your preferences.</p>			
As a student who likes to try out different foods around school, I want to help my fellow schoolmates to enjoy good food as well by reviewing the food in school.	Users can give reviews to menu items. They can also add more reviews to the same item.	<p>1. Proceed to the home tab.</p> <p>2. Click on any stall.</p> <p>3. Click on any menu item of the stall.</p> <p>4. Click the 'Add Review' button.</p> <p>5. Enter ratings, image, comments before pressing the 'Submit' button.</p> <p>[Note: error will be received if ratings or comments are not entered.]</p> <p>6. Should be sent back to the menu details page and should be able to see their review listed below. [Note: Ratings of the menu item and stall will not change, only the review will be added.]</p> <p>7. Repeat steps 1 to 6 to the same menu item</p>	<p>Able to route to the add review page.</p> <p>Able to upload images and choose the ratings and also input comments.</p> <p>Able to submit their reviews with no problem.</p> <p>Able to see their reviews in the menu details page.</p>	<p>[PASS]</p> <p>Expected Results were obtained.</p>	<p>Users suggested improving the date format. -&gt; This has been resolved by changing from timestampz to date in our database.</p>

		or other menu items and the same results should be expected.			
	Users can view reviews of other users.	<ol style="list-style-type: none"> <li>1. Proceed to the home tab.</li> <li>2. Click on any stall.</li> <li>3. Click on any menu item.</li> <li>4. View the reviews below the 'Add Reviews' button (if there is).</li> <li>5. Click the review to see its details.</li> </ol>	Able to click onto any reviews and see the correct review in a larger view.	[PASS] Expected Results were obtained.	

	<p>Users can view, edit and delete their reviews.</p>	<ol style="list-style-type: none"> <li>1. Proceed to the profile tab.</li> <li>2. Click the Reviews' button.</li> <li>3. If there are no reviews, you should see a note that there are no reviews written. If there are reviews, they will be displayed with its details.</li> <li>4. Click the review to see the details and/ or update the details. Click the 'Update &amp; Submit Review' to update details or the delete button to delete the review.</li> <li>5. You can also click the back button from the review details page and repeat steps 3 to 4 to see other reviews.</li> </ol>	<p>Able to see all the reviews they have returned from the reviews page.</p> <p>Able to click the reviews to see the information that they had written previously.</p> <p>Able to delete reviews they have written.</p> <p>Able to change image, rating and comments.</p> <p>Able to submit the new updates and see the changes in the reviews page that they will be routed to.</p>	<p>[PASS] Expected Results were obtained.</p>	<p>Users suggested updating the date when reviews have been updated, instead of putting its created date. -&gt; This has been resolved by making those changes.</p>
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<p>As a student with a limited budget, I want to be able to find food with discounts and promotions that are within my budget.</p>	<p>Users can view ongoing promotions and its details.</p>	<ol style="list-style-type: none"> <li>1. Proceed to the promotions tab.</li> <li>2. Look through the promotions available. [check if the dates are ongoing]</li> <li>3. Click on any of the promotions to view its details.</li> <li>4. Click the back to return to the promotions tab and repeat step 3.</li> <li>5. If you log out and log in you should be able to see a pop up containing ongoing promotions.</li> </ol>	<p>Able to see ongoing promotions in the promotions tab.</p> <p>Able to click in to see the promotions details.</p> <p>Able to see the pop up appear upon logging in.</p>	<p>[PASS] Expected Results were obtained.</p>	<p>Users suggested linking the view promotion page to the stall. -&gt; We do not intend for this to be linked.</p>
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<p>As a student who is curious and outgoing, I want to explore the options saved by other students and also find my friends on the app.</p>	<p>Users can view recommended users (those who saved similar menu items) and view all the users.</p>	<ol style="list-style-type: none"> <li>1. Proceed to the home page, click on any stall.</li> <li>2. Click on any menu item, press the heart button to save the menu item. [Can repeat the steps to save other menu items]</li> <li>3. Proceed to the explore tab.</li> <li>4. Below the search bar, recommended users should be displayed. [note: only if you have saved similar menu items, will recommended users be shown]</li> <li>5. Scroll through the page to view all users.</li> <li>6. Click on any user to view the user's reviews and saved menus [note: reviews and saved menu are clickable].</li> <li>7. You can click the heart button to save the profile</li> <li>8. Press the back button and repeat step 6 to view other users.</li> </ol>	<p>Able to click the heart on any menu page to save the menu.</p> <p>Able to see the menu they have saved from the saved page.</p> <p>Able to route to the explore page to see recommended users if any.</p> <p>Able to scroll to see all users of the app.</p> <p>Able to click on any user to see what they have saved and reviewed.</p> <p>Able to click the heart to save the user as friends.</p>	<p>[18/7/2023 FAIL] Step 6: Some users were unable to view the user profile page as it would not load on their phone. -&gt; This was caused as we did not set a null case to obtain the other_user_id for new users. Problem has been fixed and users were asked to test this portion again. [20/7/2023 PASS]</p>	<p>NIL</p>
	<p>Users can search for their friends using the search bar.</p>	<ol style="list-style-type: none"> <li>1. Click the 'Search for users...' bar and write any username displayed in all users.</li> </ol>	<p>Able to search for their friends using the search bar.</p> <p>Able to click</p>	<p>[18/7/2023 FAIL] Step 3: Some users were unable to view the user profile</p>	<p>NIL</p>

		<p>2. Similar username profiles should be displayed.</p> <p>3. Click on the user to view the user's reviews and saved menus.</p> <p>4. You can click the heart button to save the profile.</p>	<p>the heart to save the user as friends.</p>	<p>page as it would not load on their phone.</p> <p>-&gt; This was caused as we did not set a null case to obtain the other_user_id for new users.</p> <p>Problem has been fixed and users were asked to test this portion again.</p> <p>[20/7/2023 PASS]</p>	
As a student who has trouble remembering food options that I like, I want to be able to stall menus and profiles that I like.	Users should be able to see the saved menu or profiles in the saved page.	<p>1. Proceed to the profile tab.</p> <p>2. Click on the 'Saved' button.</p> <p>3. You should see 2 tabs: Saved Menus, Saved Profiles.</p> <p>4. You can click any of the saved menus to see its details.[you can click on the heart button to unsave the menu item.] [click back button to saved page before proceeding to step 5]</p> <p>5. You can click on the saved profile tab.</p> <p>6. You can click any of the saved profiles to view the user's reviews and</p>	<p>Able to see the menu and users they have saved from the saved page.</p> <p>Able to click each menu and user to see more details.</p> <p>Able to unsave the menu and users.</p>	<p>[18/7/2023 FAIL]</p> <p>Step 5 &amp; 6: Some users were unable to view the user profile page as it would not load on their phone.</p> <p>-&gt; This was caused as we did not set a null case to obtain the other_user_id for new users.</p> <p>Problem has been fixed and users were asked to test this portion again.</p> <p>[20/7/2023 PASS]</p>	NIL

		saved menu. [you can click on the heart button to unsave the user].			
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## Limitations

Our food recommendation app offers a convenient way for users to discover new dishes to try. However, it is important to acknowledge a key limitation that arises from our reliance on user-generated reviews and ratings. Our recommendation filter heavily depends on users' willingness to write reviews about the dishes they have tried. Consequently, the accuracy and reliability of the recommendations may be compromised if there is insufficient data available for a particular dish. This can happen when a dish has not received enough user ratings, leading to an inadequate overall rating. As a result, the app's ability to suggest personalised and accurate food recommendations may be hindered in such cases. We are continuously working to encourage more users to share their experiences, ensuring our recommendations become even more insightful and valuable.

Another limitation of our food recommendation app is the manual calculation of ratings. Currently, we rely on Supabase queries to calculate the ratings, which means that the process is not automated within our React Native Expo app. This manual approach increases the risk of potential errors in the rating calculations, leading to inaccurate recommendations. Moreover, if we were to scale and commercialise the app, this manual method would require updating the ratings at night when the app is less likely to be in use. As a result, during daytime hours, users would see outdated ratings from the previous day, which could impact the credibility and relevance of the food recommendations. To address this limitation, we need to explore ways to automate the rating calculation and updating process within our app, ensuring real-time and reliable ratings for a seamless user experience.

A significant limitation that affects the quality of our app is the lack of access to stall owners for user testing. While we have conducted developer testing and automated testing to identify and fix issues, the absence of feedback from actual stall owners means that we may overlook crucial insights and potential problems specific to their needs and preferences. As a result, the stall owner interface may not be optimised to meet their requirements or expectations. Direct feedback from stall owners would help us understand their pain points and areas of improvement, and enable us to refine and enhance the app's functionality and usability. To address this limitation, we should consider alternative methods of reaching out to stall owners, such as incentivized feedback surveys or collaborating with a subset of willing stall owners to conduct usability testing sessions. By actively seeking and incorporating their feedback, we can make informed refinements that align the app better with the stall owners' needs and create a more valuable and effective tool for both users and stall owners.

# Challenges faced

The first challenge we faced was having to spend a lot of time figuring out how to use the different softwares. Due to being a beginner in coding, we have never used such software before or made an app before. Thus, we had to use much of our time to pick up the relevant skills and debug our code.

The second challenge was that we did not have access to the school menu data and was unsure of how we could get the data. Thus, we had to search up on the school's menu, and ended up manually inputting the menu and stalls that we had found from the NUSmartDining app. This was quite challenging as we were only able to view the menu on weekdays or when the stall was open.

Lastly, conducting automated testing was quite challenging. This was because there was not much data available online about how to conduct the testing and to create the test cases. It was difficult to write the test cases and to make it work.

# Project Log

<https://docs.google.com/spreadsheets/d/1b7uvOWt9ARqVxuwMLleNymeUQ5zNSs94JypixwUAi-w/edit#gid=0>

# Credits

*Introduction to Expo Router.* (n.d.). Expo Documentation. Retrieved July 21, 2023, from <https://docs.expo.dev/routing/introduction/>

*Supabase Docs.* (n.d.). Supabase. Retrieved July 21, 2023, from <https://supabase.com/docs>

*Introduction · React Native.* (n.d.). React Native. Retrieved July 21, 2023, from <https://reactnative.dev/docs/getting-started>

*GitHub Issues documentation.* (n.d.). GitHub Docs. Retrieved July 21, 2023, from <https://docs.github.com/en/issues>

*Canva* (n.d.). Free Design Tool: Presentations, Video, Social Media | Canva. Retrieved July 21, 2023, from <https://www.canva.com/>

*MicMonster* (n.d.). MicMonster- Free Voice Over Generator 2023. Retrieved July 21, 2023, from <https://micmonster.com/>

*Miro* (n.d.). Miro: The Visual Collaboration Platform for Every Team. Retrieved July 21, 2023, from <https://miro.com/>

*Draw.io* (n.d.). draw.io. Retrieved July 21, 2023, from <https://app.diagrams.net/>

*NUSmartDining app*. Used to view menu items on campus and manually input menu items from this app to our app.

*AirbnbRating*. (n.d.). React Native Elements. Retrieved July 21, 2023, from <https://reactnativeelements.com/docs/next/components/airbnbrating>