



UNSW
SYDNEY

PROJECT PROPOSAL

Eatery Management System

COMP3900 W18AZEAL

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Introduction

Context/Background

In this rapidly changing post-COVID era, restaurants and similar businesses are awakening and preparing to welcome a surge of customers in this fast-paced environment. Statistics have shown that “Revenue at restaurants was up 130%, while cafes earned 59% more in May compared to 12 months ago”, as a result, “Sydney’s hospitality trade has doubled since May 2020, with trade in regional NSW up 53%” ([Taylor, A. \(2021\)](#)). This not only further shows the recovery in the economy, but also a phenomenon of “Revenge Spending” post-COVID. Consumers are more attracted to better deals and discounts; however, it can be tricky for them to find a perfect platform that meets their needs. For restaurants, releasing vouchers and discount can boost brand awareness as well as brand reputation, which encourages repeat purchases thus an increase in market share and incremental sales. Voucher and discount increase the price-performance ratio of the brands or the certain product that they are offering, in which stabilises the valuable asset of customer loyalty that further secures a constant growth of the business ([Herput, N. \(2019\)](#)).

Our proposed system has targeted consumers, aiming to provide them with vouchers that allow them to use discounts in restaurants. Furthermore, we are also aiming to provide more opportunities for restaurants in terms of advertisements to attract more customers. The Eatery Voucher System should recommend some available vouchers for users using certain criteria such as distances to customers or keywords frequently searched by the users. An example of such functionalities would be providing a list of available vouchers in the order of the distance from users’ current or selected locations. Another way of recommending available vouchers could be to keep in track of users’ previous search keywords and historical data. For example, if a user has searched Mexican style restaurants multiple times, then the system can recommend vouchers that associate with Mexican style food more frequently. As the result of a successful system, we are aiming to provide personalised services for consumers.

Proposed Goals/Main Objectives

The Eatery System that we are proposing must be inclusive, easy to access, and efficient. We are aiming to develop a comprehensive system which takes other similar systems’ disadvantages into consideration (With Similar System Analysis in later section) and provide users with the best user experience as possible. With a deep dive into the specifications, we have listed the following main tasks that we will need to achieve in order for the system to be successful.

1. Customers can decide to create a schedule to specify when they would like vouchers to be available.
1. Customers can look for discounts at eateries that look interesting to them.
2. Book a voucher for an eatery they are interested in.
3. Use the voucher to get a discount.

These four main objectives will then be split into different user contexts, with further detailed sub-tasks which build up towards those main objectives.

Sub-Objective

As an illustration of the system's context, we have identified two primary user parties and carefully considered the tasks they need to accomplish. Those sub objectives are guidelines for deciding and designing specific functionalities which cover specific features that reflect those sub objectives.

Restaurants	Customers
<p>Register and maintain a profile.</p> <p>Visible to all users (Customers)</p> <p>Name, Address, Cuisines offered, Menu.</p> <p>Able to offer any given number of discount vouchers at any time range of a given day.</p> <p>Voucher provides percentage discounts with matching time.</p> <p>Automated voucher releasing (Schedule, % Discount, Number of vouchers) within a given time frame.</p> <p>Identify the corresponding discount according to the voucher code provided by the customer.</p> <p>Verify the validity of the voucher (Identity of the customer, voucher not used before).</p>	<p>Find available discounts (According to Location, Cuisine, Relevant Keywords).</p> <p>Able to navigate to any eatery's profile from search results.</p> <p>Able to book a voucher and see the time range (Reduce available voucher in this time frame by 1).</p> <p>View the time availability of booked vouchers.</p> <p>Only 1 voucher can be booked per eatery per voucher time range.</p> <p>Showing the voucher code at the eatery.</p> <p>Add text reviews.</p> <p>Add rating out of 5.</p> <p>Have access to other customers' reviews of the same eatery.</p> <p>Recommendations showing all eateries that are currently offering discount vouchers where customers have not had a booking previously.</p>

Similar Technologies/Platforms

To gain a comprehensive understanding of the positive features and implementations used in other similar applications and platforms, further analysis is required. These findings can serve as valuable inspiration for our future development of our system. Additionally, it is important to identify any potential drawbacks, constraints, or areas of improvement to avoid or even potentially introduce effective enhancements and fixes that are beneficial to improve our user experiences.

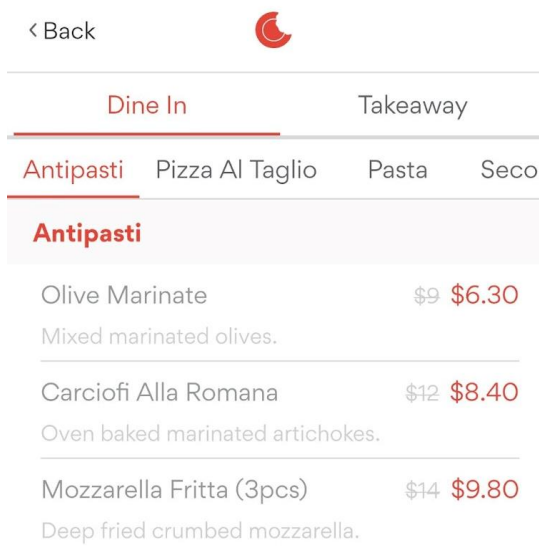
Eat Club

Overview:

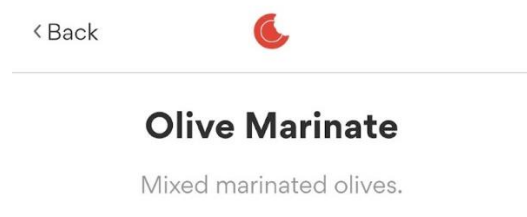
A free platform or application that offers exclusive offers, which provides vouchers for both take-away and dine-in offers. Users can tap to pay with a digital Eat Club card and will receive the offer automatically.

Pros	Cons
Various of restaurants.	Has minimum spending required.
Search bar.	No picture provided in the digital menu.
High number of available vouchers.	“Best deal” only shows deals within 2km as default.
Interactive map for restaurant selection.	Navigation options in the bottom of the screen only contain logo and no text explanation.
The Android platform provide notification promotion.	No deal in further areas such as Newcastle and Wollongong.
A “favourite list” is included, acting as a subscription feature	

One of the main objectives is easy to set up and inclusive for everyone to use. However, the main drawback that conflicts with its main objective is the fact that no picture is provided in the specific menu when the user is browsing for food. References are shown below.



(Figure 1)



(Figure 2)

Both figures have clearly demonstrated the lack of visual representation of the meal. Even though figure 1 indicated the platform allows restaurants to provide a simple description, more detailed description as well as every ingredient used can be more helpful to customers when they are ordering food, which further allows them to avoid food that contains ingredients which they may be allergic to. However, we believe that a picture is worth a thousand words. Based on the study done in the International Journal of Hospitality Management, researchers have found that diners were more likely to purchase the item when the establishment had a descriptive name with a picture of the food ([Happy Menu, H.M. \(2020\)](#)).

First Table

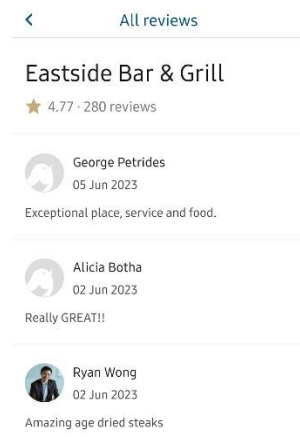
Overview:

First Table is a restaurant discovery website offering diners 50% off the food bill when they book the first table at one of the partner restaurants for breakfast, lunch, and dinner.

Pros	Cons
Various of restaurants	The statement describing the discount isn't clear enough for user to understand "50% off the bill for \$10".
Comprehensively and clearly demonstrates booking availabilities.	No rating is associated with the comments in the review section of a restaurant.
List sorted with according to user-decided criteria.	Does not show user's current location on map.
Application provides a gallery function allowing restaurant to upload series of pictures relating to food and scenery.	Special conditions are placed deep in the bottom of the page, can be hard to find.

One of the main purposes for a platform like this is to recommend users with restaurants as well as providing a platform for users to search and browse restaurants that may potentially be interesting to them ([Graves, A. \(2022\)](#)). In this context, a rating is much more direct than long comments left behind by other users. First Table does provide an overall rating on the restaurants, but no ratings provided by each individual user. Through a review (Rating) system, a platform will allow:

- Risk Reduction
- Search Time Reduction



(Figure 3)

A rating feature can significantly reduce time spent on searching desired eateries. Contrastingly, a review system without a rating feature increases users' time spent as they need to carefully read over people's literal comments to gain a better understanding of their unique experience in certain restaurants.

Features and Functionalities

Functionalities Summary

1. Basic Functionalities	2. Novelties Functionalities
1.1 Customer/Restaurant Account Management (Sign up, Log in, Log out) 1.2 Search bar for restaurants 1.3 Restaurants releasing vouchers (Create vouchers according to restaurants' criteria) 1.4 Redeem vouchers as the restaurant and users (Through codes) 1.5 Sharing voucher if it's limited/allowed by restaurants (Only vouchers limited amount and time) 1.6 Provide a list of collected available and used voucher for customer	2.1 Restaurant menu management (Adding/Updating/Deleting image and menu items) 2.2 Review system with rating features (Customers can leave text comment with a star rating)

Functionalities

1. Account Management (Change profile, Register, Log in/out)

This functionality mainly focuses on users managing their account. Central features included here are account registrations and log in/out. Detailly, user register an account using the following information:

- First Name
- Last Name
- Email Address
- City
- Restaurant Name (Only when registering for restaurant)
- Postcode
- Password
- Confirm Password

When information is inserted into the database, the email address will be users' username which can be used to log into their account. This is also the email address to receive promotions and reset passwords. Every email address can only be used once, attempting to register an account using the same email twice may potentially lead users to the login page rather than registration page. This feature opens a gateway for users to customise their account according to their wills. This may also depict the diversity of our users that can further be used for user group analysis.

User Story 1:

"As a new user to the platform, I want to register my account, so that I can log into my personal account."

Acceptance Criteria 1:

- Single used email address.
- Passwords should contain 8 digits, with 1 capital letter.
- Both passwords provided are the same.
- Given that I am a new user to the platform, when I register using my personal account. information, then I can use that information (password) to log into my account.

User Story 2:

“As a user, I want to be able to log into this account, so that I can start releasing vouchers for the restaurant.”

Acceptance Criteria 2:

- Used valid username.
- Input valid corresponding password.
- Given that I am a registered user on the platform, when I input my username and password, then I can log into my personal (or restaurant) account.

User Story 3:

“As a user of this platform, I want to be able to sign out from a logged in account, so that others are prevented from accessing my system.”

Acceptance Criteria 3:

- Account is logged in.
- All actions are saved.
- Given that I am a logged in user on the platform, when I click the log out option, then I can logout my account so that others don't have access to my account using the same device.

User Story 4:

“As a user of this platform, I want to reset my password using my email address, so that I can log in to my account if my password is forgotten.”

Acceptance Criteria 4:

- Account is not logged in.
- Restoration email is correct and valid.
- A random code provided by the user must be the same as the one sent to the restoration email.
- New password is provided.
- Both inputs (Twice) of the password are matching.
- Given that I am a user of this platform and forgot my password, when I click reset password, then I can use my email to verify myself and reset my password for further future logins.

User Story 5:

“As a user of this platform, I want to be able to change my profile picture, so that I can decide what to use to represent myself.”

Acceptance Criteria 5:

- Account is logged in.
- A picture in valid file format is uploaded by the user.
- The file size does not exceed the limit.
- Given that I am a logged in user on the platform, when I upload a new picture, then I can use the new picture as my profile.

2. Search Bar

A search bar is a function that fetches users with the results that match to their searching criteria. In the context of our system, this can be the name of the restaurant, or the specific type of cuisine that they are looking for. The main advantage of this functionality is to boost users' efficiency when browsing. In particular, when users are not getting the information that they desire, a search bar will always be there as an alternative that increases user experiences.

User Story 1:

"As a user of the platform, I want the search results to be direct and clear, so that it is easy for me to access and use."

Acceptance Criteria 1:

- Sorted results.
- Clear vertical layout
- Interactive
- Given that I am a user that wants to use the search function, when I provide the criteria I want, then I get results that are direct and clear which allows me to have easy access to those records.

User Story 2:

"As a restaurant account manager, I want the restaurant to appear in the search results, so that customers can find the restaurant when they use the search function."

Acceptance Criteria 2:

- Include all matching restaurants in the search results.
- Given that I am an account manager of my restaurant, when customers search for the name or the cuisine that matches with my restaurant, then I want my restaurant to appear in their search results.

User Story 3:

"As a user of the platform, I want to be able to spot it on the website at first glance, so that I can directly use the search feature."

Acceptance Criteria 3:

- Search bar is positioned in the most obvious section in the navigation bar.
- Easy to click.
- Can not be hidden.
- Given that I am a user wanting to search for results, when I look for a search bar, then I want it to be found easily.

User Story 4:

"As a customer, I want to use the search function, so that I can find the right restaurants that I'm interested in."

Acceptance Criteria 4:

- Searching provides the most accurate results possible.
- Given that I am a user searching for restaurants, when I provide keywords, then I want the system to provide me with accurate results.

User Story 5:

"As a customer, I want the search results to be ordered according to my criteria, so that I can find the restaurant more effectively."

Acceptance Criteria 5:

- Toolbars that allow users to for sorting
- Sorting criteria may contain:
 - Distance
 - Rating
 - Popularity
 - Restaurants with the same distance or rating or popularity are sorted alphabetically.
- Default criteria may be set to distance.
- Given that I have searched using the search bar, when I set different criteria using the tool bar, then I want the results to be sorted in that order obtaining the criteria.

User Story 6:

"As a customer, I want the search results to cover more than just title, so that I can get more information from the results."

Acceptance Criteria 6:

- Fetches information such as distances, reviews, cuisines.
- Given that I am provided with a list of results, when I look over them, then I want the results to give more information to help me with further decisions.

3. Releasing Vouchers Automatically

This feature allows restaurant account managers to decide the schedule, discount limit, and number of vouchers to be released. These will be the three main criteria; however, we might introduce different types of vouchers in the later development. This may include something such as "Percentage discount (By default)", "Voucher for free food", and "Vouchers that allow dollars discount rather than percentage discount". The main advantage that this feature targets is to boost the efficiency and reduce the time spent of restaurant managers when releasing vouchers.

User Story 1:

"As a restaurant account manager, I want to set a time schedule, so that the platform can release vouchers automatically."

Acceptance Criteria 1:

- Providing time schedule:
 - Per Day
 - Per Week
 - Per Month
 - Customise
- Automatically releasing discount vouchers to the platform for collection after providing a discount amount and number of vouchers.
- Given that I am an account manager of my restaurant, when I provide a schedule to the system, then I want vouchers to be released automatically following the schedule.

User Story 2:

"As a restaurant account manager, I want to set a desired value of discount, so that the platform can release the vouchers according to it."

Acceptance Criteria 2:

- Provide discount value:
 - 5% off
 - 10% off
 - 20% off
 - Customise
- Does not automatically release unless the time schedule is provided by the restaurants' account managers.
- Given that I am an account manager of my restaurant, when I set the discount amount for our vouchers, then I want those discounts to be applied when vouchers are released.

User Story 3:

"As a restaurant account manager, I want to set a limit, so that the amount of the released voucher doesn't exceed that target."

Acceptance Criteria 3:

- Provide number of vouchers:
 - 5
 - 10
 - 20
 - 50
 - Customise
- Does not automatically release unless the time schedule is provided by the restaurants' account managers.
- Given that I am an account manager of my restaurant, when I set the number of vouchers to be released, then I want the exact number of vouchers to be released without exceeding the limit that I set.

User Story 4:

"As a restaurant account manager, I want to set certain properties of the vouchers, so that customers can choose to share the voucher."

Acceptance Criteria 4:

- Provide Boolean
 - Yes
 - No
- Allows sharing vouchers if set to yes, not allowed when otherwise.
- Gifting will be failed if the target customers currently hold the same voucher that is unused.
- Given that I am an account manager of my restaurant, when I set certain properties of the voucher, then I can decide whether our customer can share or gift our vouchers to others.

User Story 5:

“As a customer, I want to subscribe to certain restaurants, so that I get notified quickly when vouchers are released.”

Acceptance Criteria 5:

- Users have clicked the subscribe button.
- Sending emails when a new voucher is released by subscribed restaurants.
- Users can manage the subscribed list, removing certain restaurants.
- Given that I am a customer of the platform, when I choose to subscribe to a restaurant, then I get notified when there is a new promotion so that I don't miss the discount.

4. Redeeming Vouchers by Customers

This feature allows customers to collect and use their vouchers. Once a voucher is collected, it will show in customers' individual “Wallet” or “Inventory”. It can be used by inputting their personal details when checkout. Another feasible proposed way of applying discount is to input account information on the platform at the restaurant as a way of manual input. With two ways of using collected vouchers, customers can redeem the discount even if their devices ran out of battery.

User Story 1:

“As a user, I want to browse and sort all vouchers provided by restaurants, so that I can redeem them.”

Acceptance Criteria 1:

- A list of all vouchers that are currently available sorted by restaurants.
- Sort by
 - Distance
 - Rating (By Default)
- Given that I am a customer of the platform, when I am browsing for vouchers, then I want the system to show all available vouchers relating to the restaurants that I am looking at.

User Story 2:

“As a restaurant account manager, I want a platform to convert vouchers to codes, so that customers can use them in the restaurant.”

Acceptance Criteria 2:

- Generate codes according to the voucher.
- Sending this code under customers' accounts who have booked for it using email.

- Given that I am an account manager of my restaurant, when customers booked our vouchers, then I want those vouchers to be converted into code for them to collect as well as sending them backups.

5. Sharing/Gifting Vouchers to other Customers

Some customers may not be able to go to the restaurant prior to the expiry date of the voucher. This feature takes that into consideration where customers are now able to gift and share their existing unused voucher to another customer. However, this is only approved if vouchers can be shared (which is decided by the restaurant which released this voucher). Once shared, the gifter and receiver will not be able to collect the same voucher again. This feature allows customers to gift vouchers if they can't use collected vouchers in the required time frame.

User Story 1:

"As a customer, I want to give my friends my vouchers, so that they can use them in the corresponding restaurant."

Acceptance Criteria 1:

- Share vouchers to others.
- Require givers' double consent.
- Gifting will fail if the receivers already hold the same voucher.
- Given that I am a customer of the platform, when I give my vouchers to friends, then they can use those vouchers in corresponding restaurants.

User Story 2:

"As a restaurant account manager, I want to make sure people who are gifted with the voucher can't collect it the second time, so that they only have one voucher in inventory."

Acceptance Criteria 2:

- Givers will not be able to collect the same voucher again after it has been gifted once.
- Receiver will not be able to collect the same voucher again after it has been received once.
- Given that I am an account manager of my restaurant, when users gift vouchers, then they can't hold duplicate vouchers if that's not allowed by our criteria.

6. Viewing All Vouchers / Vouchers Overview

This feature allows customers to view all their vouchers. This includes used, unused, and expired vouchers. This list is sorted by expiry dates. Restaurant account managers can also have access to all the released vouchers, the list can be sorted by Date of release, Discount amount, Release amount, and Popularity (According to the fraction of collected vouchers/all released vouchers). Sorting and viewing all vouchers will be sufficient to provide customers with an overview of their past activities, which is act as important references when making future decisions.

User Story 1:

"As a customer, I want to have access to all vouchers that I have collected, so that I will not miss the time frame of my unused vouchers."

Acceptance Criteria 1:

- List out all unused vouchers.
- Sort them according to expiry date.

- Vouchers with the same expiry dates are ordered alphabetically.
- Given that I am a customer of the platform, when I am overviewing all my vouchers, then I will identify the ones that are not used.

User Story 2:

“As a customer, I want to have access to all vouchers that I have used, so that I can overview my previous restaurant experiences.”

Acceptance Criteria 2:

- List out all used vouchers.
- Sort them according to expiry date.
- Vouchers with the same expiry dates are ordered alphabetically.
- Given that I am a customer of the platform, when I am overviewing all my vouchers, then I will identify the ones that are used.

User Story 3:

“As a restaurant manager, I want to have access to all the different vouchers that we have released, so that I can use that data for future voucher releases, for example finding the most popular one.”

Acceptance Criteria 3:

- List out all released vouchers.
- Sort them according to different criteria
 - Date
 - Discount Amount
 - Vouchers Amount
 - Number of collections
- Vouchers with the same criteria are ordered alphabetically.
- Given that I am an account manager of my restaurant, when I am overviewing all my vouchers, then I will identify the pattern for future voucher releasing such as releasing more popular vouchers.

7. Menu Configuration (Novelties Functionality 1)

This option allows restaurant account managers to upload their unique menu. They can either upload the pictures of the traditional physical menu that they have in store, or they can choose to have the menu typed in. That is, the name of the dishes, one picture associated with each dish, a list of main ingredients used, and a brief to detail description of the dish. Those can also be edited so that new dishes can be added to the menu, and existing dishes can be removed from the menu. The advantage of this feature is that restaurants are able to maximise their customer satisfaction through live interactions by updating new offers as well as removing options that are no longer available which further increases reputation.

User Story 1:

“As a restaurant manager, I want to be able to configure my account, so that I can upload a digital menu to the restaurant page.”

Acceptance Criteria 1:

- Allowing account managers to make different versions of the menu on the platform.
- Given that I am an account manager of a restaurant, when I configure and manage my account, then I will be able to upload a digital menu to the corresponding restaurant page.

User Story 2:

“As a restaurant manager, I want to be able to upload pictures for my dishes, so that customers can have a better understanding of what they are ordering.”

Acceptance Criteria 2:

- Accepting a variety of image formats when uploading pictures.
- Setting a limit of file size. This size cannot be exceeded.
- Unsupported files will not be accepted.
- Given that I am a restaurant manager, when I upload pictures for our dishes, then customers will have a better understanding of what they are ordering.

User Story 3:

“As a restaurant manager, I want to be able to update pictures over existing pictures, so that customers can view the latest information.”

Acceptance Criteria 3:

- Replacing old pictures with new ones.
- The new pictures must also obtain the rules provided in Acceptance Criteria 2.
- The old picture is removed from the database, no copy or backup will be saved.
- Given that I am a restaurant manager, when I update the pictures in the menu and replace the existing pictures, then customers can view the latest information.

User Story 4:

“As a restaurant manager, I want to be able to delete certain dishes from the menu, so that customers do not order foods that are no longer available.”

Acceptance Criteria 4:

- Able to delete the existing pictures.
- Given that I am a restaurant manager, when I delete the pictures in the menu, then customers will no longer see the foods that are no longer available.

User Story 5:

“As a customer, I want to be able to view images that associate with the dishes, so that I get a preview of the food that I may potentially order.”

Acceptance Criteria 5:

- Able to view the menu.
- Given that I am a customer, when I click into the menu, then I will be able to get a preview of the food that I may potentially order.

8. Reviewing with Rating Features (Novelties Functionality 2)

This feature allows customers to rate and review certain restaurants they have visited. This can include the quality of the food that they are served with and the quality of the services. Furthermore, they can also comment on the pricing, locations, and so on. Alongside a text review, the customers can also rate the restaurant, so that an average rating of the restaurant can be calculated and displayed in the main page. All users can reply to review, and report comments. This feature benefits the

User Story 1:

"As a customer, I want to be able to view other people's reviews, so that I can take other people's thoughts into consideration."

Acceptance Criteria 1:

- Ability to read all reviews and comments.
- Ability to access the rating.
 - Individuals' ratings
 - Average ratings
- Given that I am a customer, when I read other people's reviews, then I should be able to gain an overview of the restaurant that I am looking into.
- Given that I am a customer, when I read other people's reviews, then I should also have access to a summary of their experiences in terms of star ratings, so I get a quick insight into the quality of the restaurant.

User Story 2:

"As a customer, I want to be able to rate and review my experiences of a restaurant over the platform, so that others and the restaurant can use my feedback as a reference."

Acceptance Criteria 2:

- Ability to write reviews.
- Ability to rate the restaurant.
- Ability to post that information onto the platform.
- Given that I am a customer of a restaurant, when I review and rate the restaurant on the platform, then I want the restaurant to view my reviews and use them as valid feedback for potential improvements.
- Given that I am a customer of a restaurant, when I review and rate the restaurant on the platform, then I want other customers to be able to read my feedback and use them as references.

User Story 3:

"As a user, I want to be able to reply to other people's reviews, so that it increases the credibility of certain reviews for others."

Acceptance Criteria 3:

- Ability to reply to other comments.
- Given that I am a customer of a restaurant, when I view the reviews of this restaurant, then I would like to reply to those comments to either make them more credible or express opposite opinions.

User Story 4:

"As a user, I want to be able to report certain reviews, so that incorrect reviews and harassment can be removed."

Acceptance Criteria 4:

- Ability to report.
- If a comment has been reported more than 5 times, it can be misleading or potential harassment.
- A comment should be removed directly if the number of reports received exceeds the limit. (Default as 5, this may increase if the user base increases)

- Given that I am a user of the platform, when I report a misleading, incorrect, disrespectful comment, or potential harassment, then I want the platform to take this comment into consideration and remove it from the platform when necessary.

User Story 5:

“As a user, I want to be able to sort reviews/ratings, so that I get a better understanding of a restaurant.”

Acceptance Criteria 5:

- Ability to sort reviews and ratings.
- The criteria can include.
 - Time Posted
 - Rating
 - Latest Replied
 - Most Replied
- Given that I am a user viewing the comment, when I sort all comments according to the criteria that I want, then I can view the comments in the most effective and suitable way for myself.

Jira User Stories Screenshots

FDGX-25	As a new user, I want to register an account for my restaurant, so that I can log into this account.	ACCOUNT MANAGEMENT
FDGX-27	As a user, I want to be able to log into this account, so that I can start releasing vouchers for the restaurant.	ACCOUNT MANAGEMENT
FDGX-28	As a user of this platform, I want to be able to sign out from a logged in account, so that others are prevented from access my system.	ACCOUNT MANAGEMENT
FDGX-29	As a user of this platform, I want to reset my password using my email address, so that I can log in to my account if my password is forgotten.	ACCOUNT MANAGEMENT
FDGX-30	As a user of this platform, I want to be able to change my profile picture, so that I can decide what to use to represent myself.	ACCOUNT MANAGEMENT
FDGX-37	As a user of the platform, I want the search results to be direct and clear, so that it is easy for me to access and use.	SEARCH BAR
FDGX-31	As a restaurant account manager, I want the restaurant to appear in the search results, so that customers can find the restaurant when they use the search function.	SEARCH BAR
FDGX-38	As a user of the platform, I want to be able to spot it on the platform at first glance, so that I can directly use the search feature.	SEARCH BAR
FDGX-32	As a customer, I want to use the search function, so that I can find the right restaurants that I'm interested in.	SEARCH BAR
FDGX-33	As a customer, I want the search results to be ordered according to my criteria, so that I can find the restaurant more effectively.	SEARCH BAR
FDGX-34	As a customer, I want the search results to cover more than just title, so that I can get more information from the results.	SEARCH BAR
FDGX-39	As a restaurant account manager, I want to set a time schedule, so that the platform can release vouchers automatically.	VOUCHER RELEASING
FDGX-40	As a restaurant account manager, I want to set a desired value of discount, so that the platform can release the vouchers according to it.	VOUCHER RELEASING
FDGX-41	As a restaurant account manager, I want to set a limit, so that the amount of the released voucher doesn't exceed that target.	VOUCHER RELEASING
FDGX-42	As a customer, I want to subscribe to certain restaurants, so that I get notified quickly when vouchers are released.	VOUCHER RELEASING
FDGX-43	As a restaurant account manager, I want to set certain properties of the vouchers, so that customers can choose to share the voucher.	VOUCHER RELEASING
FDGX-44	As a user, I want to browse and sort all vouchers provided by restaurants, so that I can redeem them.	VOUCHER REDEEMING

Screenshot 1

FDGX-44	As a user, I want to browse and sort all vouchers provided by restaurants, so that I can redeem them.	VOUCHER REDEEMING
FDGX-45	As a restaurant account manager, I want a platform to convert vouchers to codes, so that customers can use them in the restaurant.	VOUCHER REDEEMING
FDGX-49	As a customer, I want to give my friends my vouchers, so that they can use them in the corresponding restaurant.	VOUCHER SHARING
FDGX-50	As a restaurant account manager, I want to make sure people who are gifted with the voucher can't collect it the second time, so that they only have one voucher in inventory.	VOUCHER SHARING
FDGX-51	As a customer, I want to have access to all vouchers that I have collected, so that I will not miss the time frame.	VOUCHERS OVERVIEW
FDGX-52	As a customer, I want to have access to all vouchers that I have used, so that I can overview my previous restaurant experiences.	VOUCHERS OVERVIEW
FDGX-53	As a restaurant manager, I want to have access to all the different vouchers that we have released, so that I can use that data for future voucher releases, for example finding the most popular one.	VOUCHERS OVERVIEW
FDGX-56	As a restaurant manager, I want to be able to configure my account, so that I can upload a digital menu to the restaurant's page.	MENU CONFIGURATION
FDGX-57	As a restaurant manager, I want to be able to upload pictures for my dishes, so that customers can have a better understanding of what they are ordering.	MENU CONFIGURATION
FDGX-58	As a restaurant manager, I want to be able to update pictures over existing pictures, so that customers can view the latest information.	MENU CONFIGURATION
FDGX-59	As a restaurant manager, I want to be able to delete certain dishes from the menu, so that customers do not order foods that are no longer available.	MENU CONFIGURATION
FDGX-60	As a customer, I want to be able to view images that associate with the dishes, so that I get a preview of the food that I may potentially order.	MENU CONFIGURATION
FDGX-61	As a customer, I want to be able to view other people's reviews, so that I can take other people's thoughts into consideration.	REVIEWS/RATINGS
FDGX-63	As a customer, I want to be able to rate and review my experiences of a restaurant over the platform, so that others and the restaurant can use my feedback as a reference.	REVIEWS/RATINGS
FDGX-64	As a user, I want to be able to reply to other people's reviews, so that it increases the credibility of certain reviews for others.	REVIEWS/RATINGS
FDGX-65	As a user, I want to be able to report certain reviews, so that incorrect reviews and harassment can be removed.	REVIEWS/RATINGS
FDGX-67	As a user, I want to be able to sort reviews/ratings, so that I get a better understanding of a restaurant.	REVIEWS/RATINGS

Screenshot 2

Sprints

- Week 3 Wednesday - Week 5 Wednesday (Sprint 1)
- Week 5 Wednesday - Week 7 Wednesday (Sprint 2)
- Week 7 Wednesday - Week 10 Wednesday (Sprint 3)

Sprint 1:

For back-end:

- New User Account Management
- Database
- Crawling data using Python Crawler
- Structure for Testings

For frontend

- Logo Design (Colour and Theme)
- Account Management Page (Login, Register...)
- Design for the main page

Interface / Diagram

Design Draft / Overview (Colour will be added and design may vary)

The image displays five mobile app screens for user registration and login:

- FDGX-27: Welcome To Donut Voucher** - A login screen with fields for email and password, and buttons for 'Sign Up', 'Log In', and 'Forgot Your Password?'. It is labeled 'Welcome Page' at the bottom.
- FDGX-28: You are a?** - A screen with two options: 'Quality Restaurant' (with a restaurant icon) and 'Hungry Customer' (with a customer icon). It is labeled 'Sign Up Page' at the bottom.
- FDGX-30: Tell us about yourself** - A registration form for customers with fields for First Name, Last Name, Post Code, Email, Current Password, New Password, and Confirm Password. It includes a 'Click to change profile' link and an 'All Set' button with a right arrow.
- FDGX-31: Tell us about your restaurant** - A registration form for restaurants with fields for Restaurant Name, Typical Cuisine, Email, Address, Password, and Confirm Password. It includes a 'Click to change profile' link, a 'Menu Configuration' button, and an 'All Set' button with a right arrow.
- FDGX-32: My Menu** - A screen for restaurant menu management. It features a table with columns: Dish Name, Dish Description, Ingredients, and Image. The table contains four rows of placeholder data. Below the table is a button 'Click To Upload' and a 'Save' button with a checkmark.

When users first launch the platform, those are the main pages that interact with the customers (Both customers and restaurants). If the users have already registered an account, they will be able to log in directly from the welcome page. If not, they can choose to sign up, where the restaurant accounts will require menu uploads.

The image shows a mobile app screen for a logged-in user, labeled 'FDGX-28' at the top. The screen displays a welcome message: 'Welcome, "USER'S FIRSTNAME"'. Below the message is a list of menu items, each in a rounded rectangle:

- Vouchers
- Account Management
- All Released/Collected Vouchers
- My Favourite (Option only shows to customer)
- Scan Voucher (Option only shows to restaurant)
- Reviews (Option only shows to restaurant)

At the bottom of the screen is a 'Sign Out' button with a left arrow.

This is the home page for users. In this page, they will have access to different functionalities. Some of the options will appear according to users' identities. For example, "My Favourite" tab will only appear when the logged in user is identified as a "Customer".

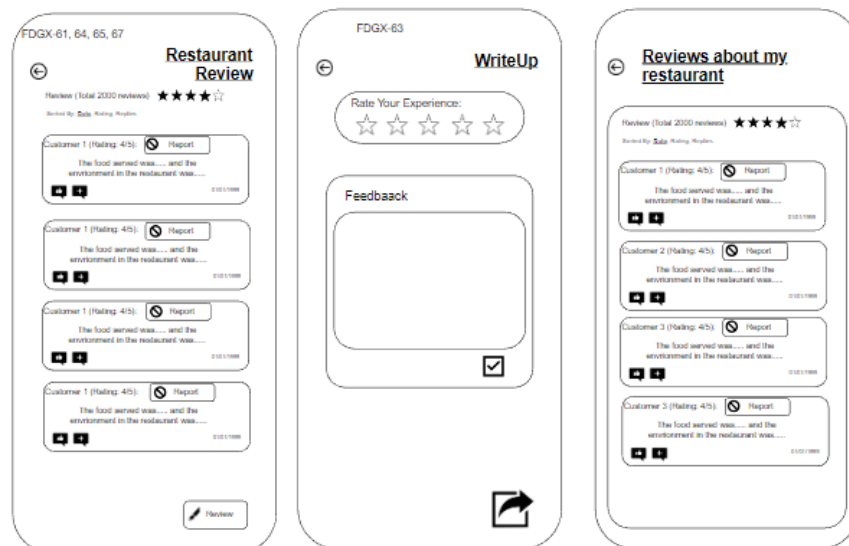
The top row contains three screens: 'Forgot Your Password?' (FDGX-29) with a 'Registered Email' field and a 'Next' button; 'Provide Your Code in Email' (FDGX-30) with a 6-digit code input and a 'Next' button; and 'Reset Your Password' (FDGX-31) with 'New Password' and 'Confirm Password' fields and a 'Save' button.

The bottom row contains three screens: 'Manage My Account' (FDGX-32) with fields for 'First Name', 'Last Name', 'Email Code', 'Current Password', 'New Password', and 'Confirm Password', plus a 'Click to change profile' button and a 'Save' button; another 'Manage My Account' screen (FDGX-33) with fields for 'Restaurant Name', 'Country', 'Address', 'Current Password', 'New Password', and 'Confirm Password', plus a 'Menu Configuration' button and a 'Save' button; and 'My Menu' (FDGX-56, 57, 58, 59) with a table of menu items (Name, Description, Ingredients, Image) and a 'Save' button.

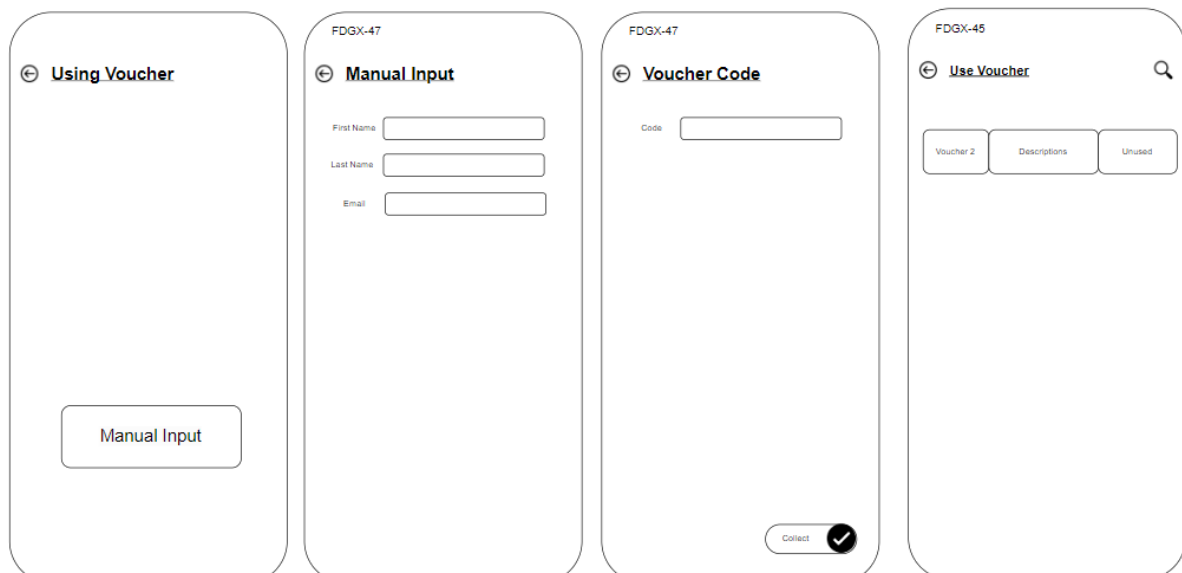
Those pages allow users to update their details. Including their first name, last name, and other relevant personal details. The forgot password page also allows users to retrieve their account by using the email that they've signed up with. Menu can also be updated.

The 'Vouchers' screen (FDGX-38, 32, 44) shows a list of vouchers (Voucher 1-6) with fields for 'Restaurant Image', 'Name of the Restaurant', and 'Location/Suburb'. The 'Search Results For' screen (FDGX-37, 31, 33, 34) displays search results for 'SAMPLE' with a table of vouchers (Voucher 1-3) and their descriptions and availability. The 'Voucher Details' screen (FDGX-60) shows details for a specific voucher, including a 'View Menu' button and a 'Collect Voucher' button.

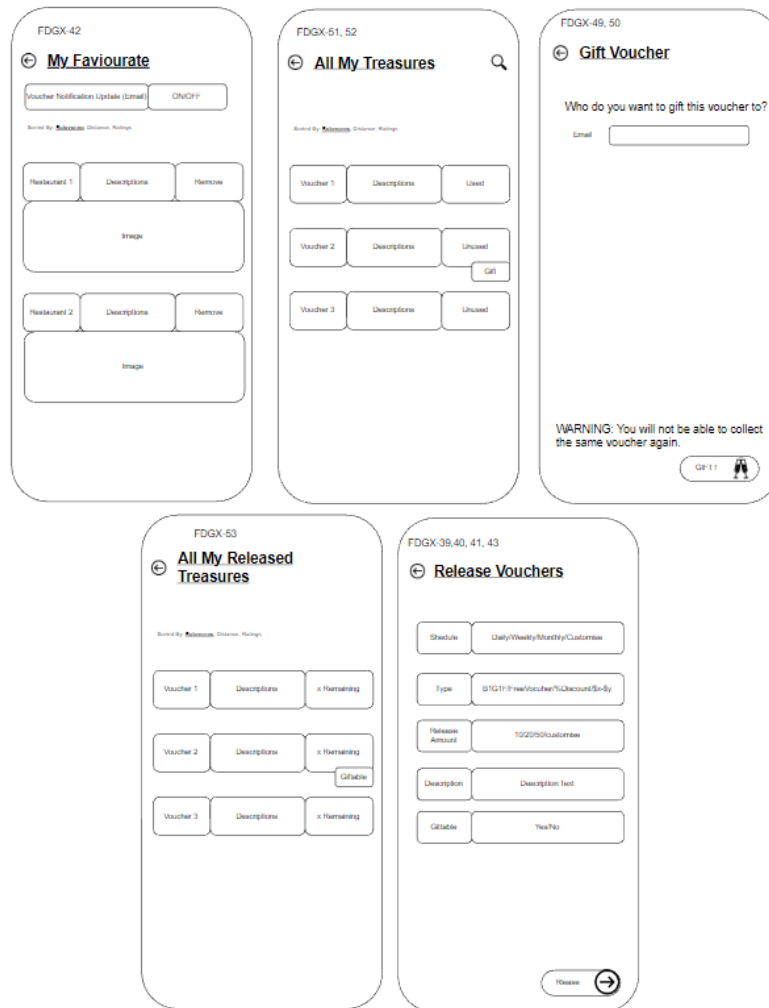
Those will be the main pages for customer interactions. First page will display all vouchers, which can also be sorted according to different criteria. The second page shows a search page that appears after customers have used the search engine by providing certain keywords. The last page represents the detail page that the customer will be viewing prior to the collection of vouchers.



These pages represent the functionalities in terms of the review system. Customers will be able to read reviews and the ratings associated with the restaurant. They can also reply to and like individuals' comments. Furthermore, they can also compose their own reviews and post them when completed. Restaurant owners or managers can also read the comments and improve their future qualities. Both types of users can report if they find certain comments being offensive or indicate potential harassment.

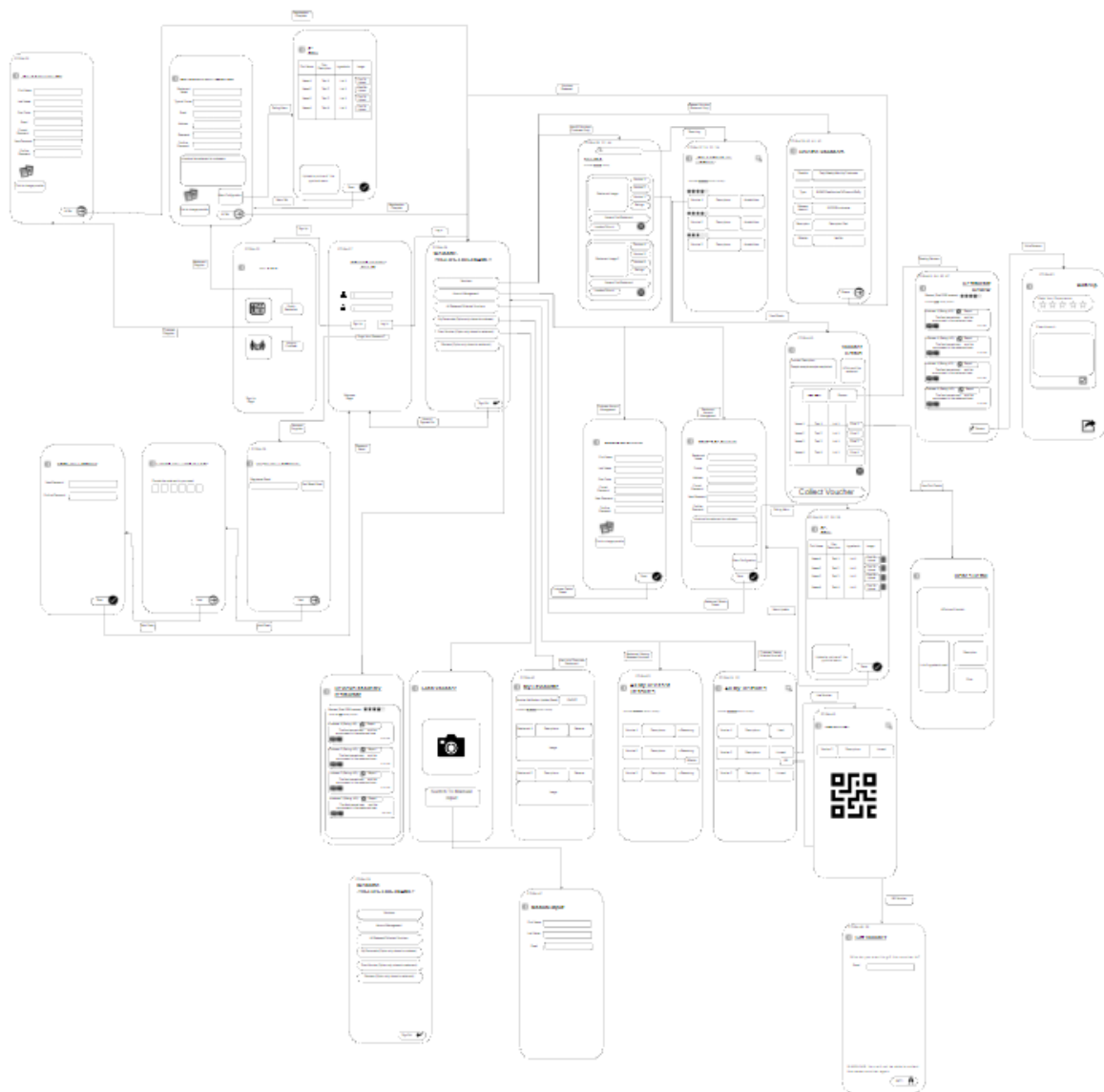


When a voucher is collected, a Code is generated that associates with the collectors' account. This can be used to be scanned at restaurants when check out or be used by providing personal information.



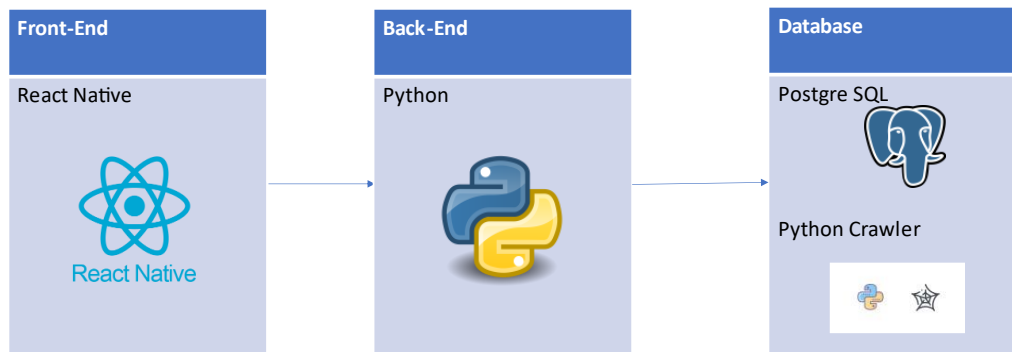
First row representations indicate customers' properties management. They can access and edit their list of favourite restaurants as well as all collected vouchers including the used and unused ones. They can also choose to give the unused vouchers to another customer by providing their email address. The second row indicates restaurants' management of vouchers. They will be provided with overviews of the released vouchers as well as the management page for future voucher releasing.

Storyboard



System Architecture

Architecture / Structural Diagram



Front-End (Presentation Layer)

In the front-end development, our team has decided to choose React Native as our primary development language. The key benefit of React Native is its component-based architecture, which promotes code reusability and modularity. With a vast ecosystem of pre-built UI components, we can leverage existing libraries and community-driven solutions to accelerate development and enhance user experiences while optimising code performance. React Native offers excellent performance due to its rendering capabilities, where it utilises native components and APIs, providing high level performance and responsiveness ([Business, I.T.& and Name \(2022\)](#)).

Another important capability offered by React Native is live rendering and hot reloading, this allows us to directly access the design that we are implementing during the development without the need to recompile the entire application. Furthermore, React Native also enjoys strong community support and large number of resources. Overall, React Native offers the following benefits or advantages that increases our work efficiency while contributing to user experiences of our final project:

- Robust Framework
- Excellence Performance
- Platform Compatibility (e.g., iOS to Android)
- Vibrant Community

Back-End (Business Layer)

Regarding back-end development, our team decided to use Python as our main development language. Python is a widely used programming language and most of us are familiar and experienced with it. Its versatility, portability and robustness are the reasons why we chose this language. As mentioned in the Features/Features section, we have divided different users into different roles, although they share some of the same properties. Python has object-oriented features, which also helps us in this case.

In addition to Python, we chose to develop the back-end using the Flask framework, a popular Python back-end framework that provides a comprehensive set of tools and

libraries for building robust and scalable applications. We chose to use Flask in our project for several reasons ([Coursera \(2023\)](#)).

Simplicity:

- Flask is designed to keep things simple and streamlined, without imposing too many restrictions on developers. It doesn't have too many levels of abstraction, allowing developers to better understand and control how the application works.

Flexibility:

- Flask allows developers to customise and extend it according to their project needs. We can choose to use the plugins and libraries you need without being limited by the constraints of the framework itself.

Community support:

- Flask has an active community with plenty of documentation, tutorials, and resources to refer to. We can get help from the community, solve problems, and learn best practices.

To summarise, Python and Flask are a powerful combination for building robust, scalable back-end applications. Our team believes that choosing them as development tools was a wise decision.

Database

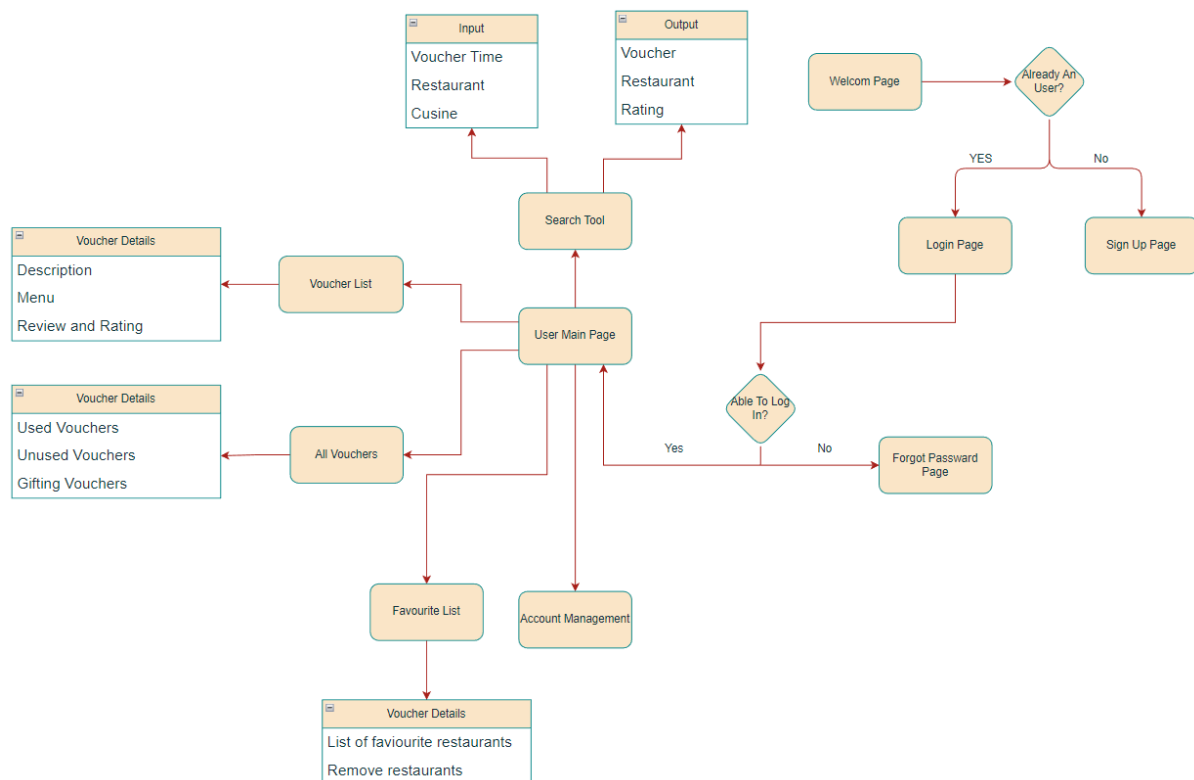
For data processing and database management, we have chosen PostgreSQL. It is a powerful and versatile open-source relation database management system ([Amazon AWS \(2023\)](#)).

- High Performance
Due to its robust features and excellent performance, PostgreSQL has the capability to handle large volume of data while ensuring data integrity and reliability.
- High Compatibilities
PostgreSQL has supports over different data types, including JSON, XML, and even geospatial data. Those supported file format will benefit us when pulling data from the internet for building our back-end database.

To pull data from the Internet, we will write a crawler using Python, which has many powerful third-party libraries such as Beautiful Soup, Requests, etc. These libraries provide a variety of tools and features for crawling and parsing web pages, making it easier to develop crawlers. For example, allowing developers to extract specific data elements such as text, images, links, and structured data from a website through customization options. As an overview, Python Crawler has the following advantages that benefit us in this project.

- Supportive Resources
Python crawlers also benefit from a wide range of community support and extensive documentation. The availability of pre-existing code snippets, tutorials, and online resources makes it easier for us to get started with web scraping projects and troubleshoot any issues they may encounter along the way.
- Customisation
Allowing us to specify what data we want to collect from the internet.

System Interaction (Customer)

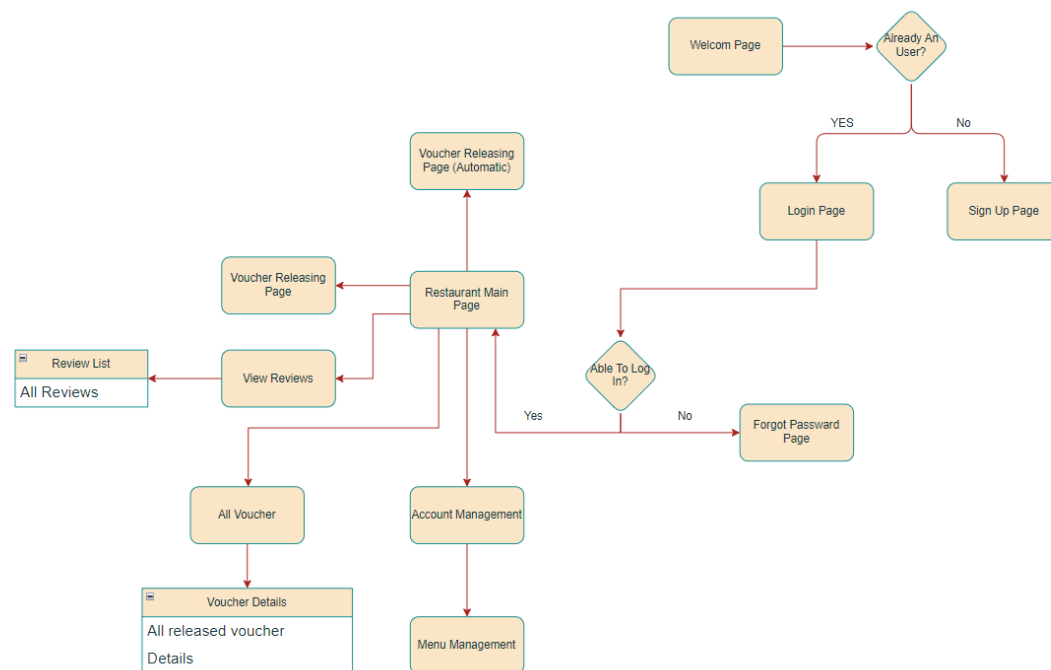


When a user opens the platform, they can let the system know if they have an account or not. If so, they will be able to log in using the front-end interface, where their inputs such as password and username are collected using back-end. If the records provided match them the record stored in database when they registered their account, then they will be able to log in and have access to the main page, where details and information are retrieved from the database. Making changes to the database will also be feasible, for example resetting password and updating account details.

This information may include available vouchers, related restaurants, account management and collected vouchers. If the user registers on the platform, their details are inputted through front-end interaction, and back-end encryption, which then be stored into the database.

Another user interaction features that brings all components of the system would be the search function. In frontend, the search function appears as an interactive button, in which the backend may run relevant SQL queries that obtain relevant records from the database, sort them in backend using provided criteria and then display them to the user through frontend user interface.

System Interaction (Restaurant)



When a restaurant manager opens the platform, the process of registering, logging in will be the same as the users. A representative feature that users interact with system would be the automation process of releasing vouchers. The manager may be able to set up relevant criteria for voucher releasing, then the backend should be to create vouchers and release them according to the provided criteria and store them into the database for further retrieval.

Another example that represents user-system interaction and potentially a two-way user system process from the restaurant side would be the menu configuration features. In this feature, the restaurant managers can obtain previously stored information through the database, then update it by passing new information through front-end, then process it in the backend, and finally be stored back into the database with the updated menu.

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