COMP9900 Project Proposal of Myrecipes

GROUP – COMP9900-H13A-ABOUTTOGRADUATE

TEAM MEMBER:

Yunfan Wang	Scrum Master	Z5171928	Z5171928@ad.unsw.edu.au
Qinyu Chen	Developer	Z5242233	Z5242233@ad.unsw.edu.au
Xiaocong Chen	Developer	Z5282006	Z5282006@ad.unsw.edu.au
Zhiyu GU	Developer	Z5240598	Z5240598@ad.unsw.edu.au
Zihan Yu	Developer	Z5242308	Z5242233@ad.unsw.edu.au

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1.Introduction

1.1Background of the project

As the saying goes, hunger breeds discontentment. Meals are indispensable in daily life, and it is quite meaningful to explore how to cook healthy and delicious food. In order to search recipes and share people's own styles and opinions on tasty food with each other, a recipe-themed platform is necessary.

In recent years, increasing Internet users are absorbed in gourmet shows, such as MasterChef, it has triggered a craze for food all over the world. Although, in the past few years, the themes of takeaway and restaurant recommendation were basically centered in the competition of Internet catering market, the idea of home-made and healthy diet is becoming the mainstream nowadays. According to the survey (Thomson, 2019), more than 90% people prefer to have meals at home, especially those have children. This is possibly because having meals with family and cooking by themselves could bring more happiness to them and people cares more about food quality and health than filling the stomach. Therefore, the project aims to develop a website that help people search for their favorite recipes, recommend similar food, and provide humane management system for their saved recipes and their beloved cooks. For talented cooks who have a passion to share their recipes, our website provides a convenient platform with intelligent recommendation system and for people who are eager to become an experienced home cook, they can find their desired recipes as well as subscribe their interested chefs with a simple click.

1.2Problem statement

There have already been some simple websites for recipe searching and recommendation. For example, the sample website Allrecipes (Allrecipes, 2021), which the homepage is shown below.
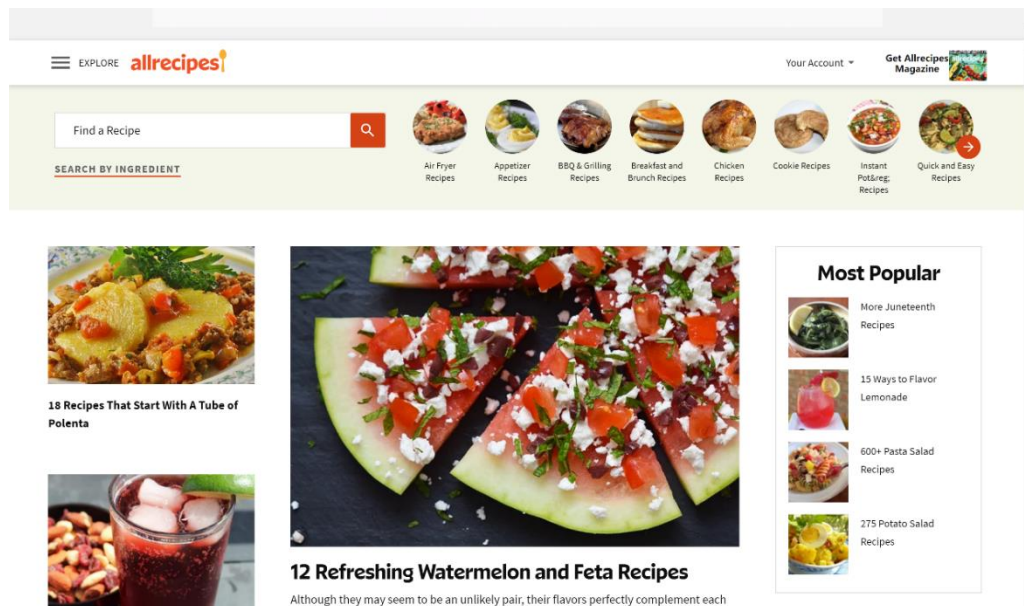
Figure 1: A Screenshot of Allrecipes Website

This website provides several food types and recommendation recipes on its homepage. Users can find recipes by entering specific names or searching by ingredients. Each recipe has detailed cooking steps and an example video.

However, it has several drawbacks harden users to find their interested food. Firstly, the classification of food types is chaotic as it does not sort based on different labels. Categories are supposed to be split into smaller parts so that users could make a more convenient search by selecting multiple labels. Besides, the recommendation recipes cannot be sorted by users' likes. To date, it is common to push some objectives according to users' preference on the forefront of the homepage.

Another sample is Kitchen Stories (Kitchen Stories, 2021), which is shown below. Compared to Allrecipes, 'kitchen stories' has a better search system with rich tags such as 'type of dish' and 'preparation time'. Nevertheless, the number of total likes is only shown for each single recipe. It is reasonable to show the total likes of an uploader on the personal homepage, as well as the total followers so that the website can provide a gentler view for users about popular recipes and chefs.

Overall, our team aims to design a brand-new recipe recommendation website which will mitigate the cons where those old websites might have and make some novel functionalities to provide more convenience for our users.
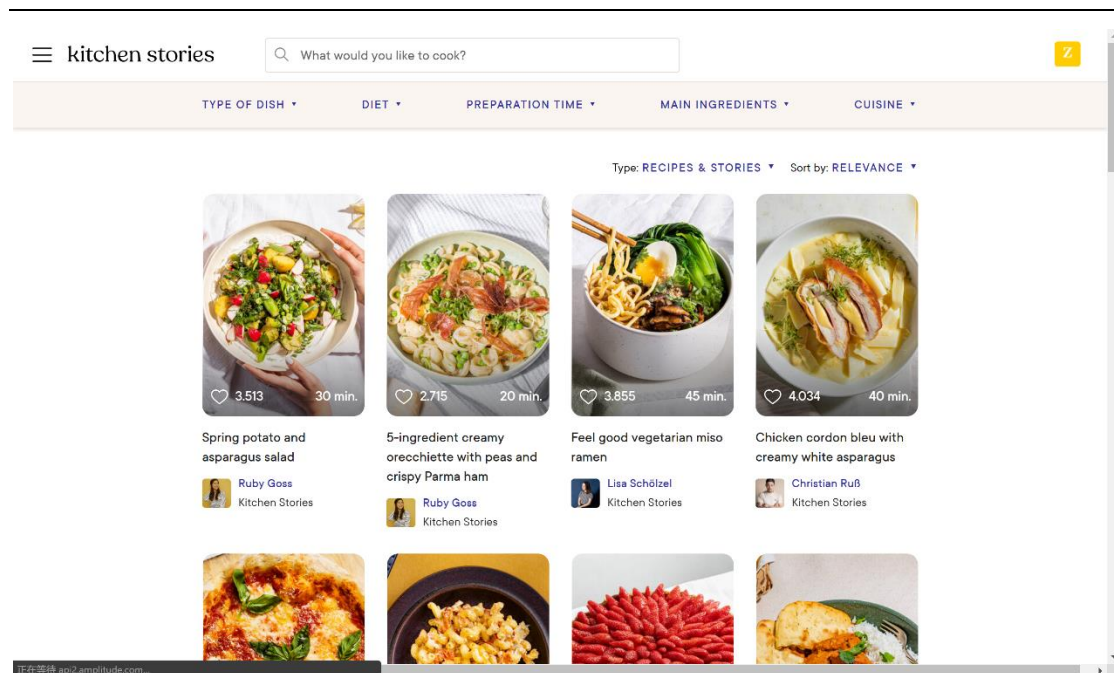
Figure 2: A Screenshot of Kitchen Stories Website

2.User stories and sprints

2.1User stories

Our project aims to create a platform based on facilitating food lovers to share and search.

ID	Sprint	Priority	User story	Project Objective
3	1	1	As a public user, I want to sign up for an account by name and email, so that I can build my own personal info.	Ensure the public user is able to: a. Sign up an account by username and email smoothly. b. Clear and design interface, so that users will not be overwhelmed.
4	1	1	As a public user, I want to check the popular rank of recipes, so that I can know about the popular recipes.	Ensure the public user is able to: a. Load the website. b. Easily check the popular rank of recipes on the index page. c. The criterion of ranking is fair and reasonable to contribute a convincing ranking list.
22	1	1	As a public user, I want to see some recipe recommendations, so that I can find recipes I may be interested in.	The recipe recommendations on the index page are chosen by recommendation algorithm and maintain a daily update. And the recommendation recipes are present in a conspicuous location in the index page, which can catch public eyes in the first time.
26	1	1	As a registered user, I want to login my account, so that I can enjoy more service.	Ensure that successfully registered users can login their accounts smoothly. After login, users an able to enjoy more services from the website and grab more information they need.

11	1	1	As a registered user, I want to logout, so that I can make my account safer.	Login and logout process should be smooth and manipulated by the user. Enable account holders to logout to protect personal privacy security.
5	1	1	As a contributor, I want to create my own profile, so that I can maintain my personal description and preference on the website.	The contributor profile will be link to a specific account when it created. The profile includes: User uploaded profile photo, user id, user email etc. Withing a description that contributor can choose to present in his/her recipes pages.
6	1	1	As a contributor, I want to update my own profile after creating it, so that I can keep my profile fresh and recognized.	All the information can be changed in the personal profile page except the sign-in username and sign-in email address. Contributor is able to upload a new photo and change the description.
10	1	1	As a contributor, I want to see how many likes I have got, so that I can know how popular I am.	The likes of a contributor is a sum of all likes gain from the contributor posted recipes. It represents how popular the contributor' recipes are and can be seen on the personal profile page by the contributor.
9	2	2	As a contributor, I want to create my recipe, so that I can share it with people.	Ensure the recipe contributor is able to create a recipe, which includes: a. Upload the photos relate to the recipe. b. Write in the steps of the recipe, c. Write in the ingredients of the recipe. d. Choose the recipe type. Then lastly successful post it on the website. This project objective is also related to

					story 7 and 8.
7	2	2		As a contributor, I want to edit my recipes, so that I can make recipes better.	Ensure the contributor can modify the contents of the uploaded recipes. Contributor is able to change the photos, type of the recipe and rewrite the ingredients and cooking steps.
8	2	2		As a contributor, I want to delete my recipes, so that I can remove old-fashioned or wrong recipes from my recipe list.	The contributor is able to delete any recipe he/she uploaded, and the recipes will be vanished from the database and invisible on the web page. This operation is irreversible
21	2	2		As an explorer, I want to have my own recipe news web, so that I can see the new recipes that I am interested in.	Ensure the explorer can load the news web page, which includes the updates of explorer's subscribers and their new recipes. The recipes are listed by update time from new to old within their main photos.
25	2	2		As an explorer, I want to search results of recipes by type in my search key words, so that I can find some recipes I am interested in and relate to my key words as well.	The search button is put in an obvious location in the index page, explorer can jump to search page clicking it. The search web page will contain: a. The blank input bar for searching keywords. b. Searching engine button. c. The results are displayed with their main photos horizontally to meet the aesthetic needs. This project objective is also link to story 15,16,17.
12	2	2		As an explorer, I want to give my like to the recipe, so that I can recommend it.	Ensure that the explorer is able to: a. See any recipes posted by contributors. b. Easily access the photos, recipes describes, food ingredients and meal type in the recipe page.

				c. Give at most one like to a recipe and see the likes number of any recipe on its web page. This project objective is also link to story 24.
24	2	2	As an explorer, I want to cancel my like for a recipe, so that I can change my recommendation.	Ensure the explorer is able to: a. See whether the recipes have been liked before. b. Cancel the like in the recipe web page anytime if the recipes been liked before.
23	2	2	As an explorer, I want to see all recipes I liked, so that I can review my interests.	Ensure the explorer is able to: a. Access a 'My favorite' web page which display all recipes the explorer has liked. b. Find out the number of likes for his favorite recipes.
13	2	2	As an explorer, I want to leave a comment on the recipe, so that I can share my points of view to other users.	Ensure the explorer is able to: Leave comments below the recipe contents and post it on the website. The explorer can see other comments left by users.
14	2	2	As an explorer, I want to see the number of likes of a recipe, so that I can know how popular it is.	The sum number of likes for a recipe will be displayed on the recipe web page. All explorers are able to see the likes on that page.
19	2	2	As an explorer, I want to subscribe a contributor, so that I can find him/her easily.	Ensure the explorer is able to: a. Subscribe any contributor he/she interested in. b. See the updates of subscribed contributors in the news page. c. See the list of subscribed contributors in the profile web page. This project objective is also related to story 20.
20	2	2	As an explorer, I want to	Ensure the explorer is able to:

			unsubscribe a contributor, so that I will not see the recipes he/she shares.	a. Unsubscribe a contributor on the recipe web page which the contributor unloaded. b. Move a contributor out of the subscription list in the profile web page.
15	3	3	As an explorer, I want to search recipes based on specific ingredients, so that I can find targeted recipes easily.	Ensure the explorer is able to: a. Find a ingredients filter engine in the search page. b. Choose any ingredients to specify the searching. c. Manage the search with keywords and ingredients filter and get expected result.
16	3	3	As an explorer, I want to search recipes based on meal types, so that I can find targeted recipes easily.	Ensure the explorer is able to: a. Find a recipe type filter engine in the search page. b. Choose any recipe type to specify the searching. c. Manage the search with keywords and recipe type filter and get expected result.
17	3	4	As an explorer, I want to search recipes based on methods, so that I can find targeted recipes easily.	Ensure the explorer is able to: a. Find a cooking method filter engine in the search page. b. Choose any cooking method to specify the searching. Manage the search with keywords and cooking method filter and get expected result.

Table 1: User Stories and Project Objective

2.2 Sprints arrangement

We create 3 sprints and each one covers a 2-week working period.

Sprint	Start Date	End Date	User Story Id
First Sprint	13.Jun 2021	27.Jun 2021	3-6,10,22,26
Second Sprint	27.Jun 2021	11.Jul 2021	7-9,12-14,19-21,23-25
Third Sprint	11.Jul 2021	25.Jul 2021	15-17

Table 2: Sprints Arrangement

2.3 Screenshots of Jira for the first sprint
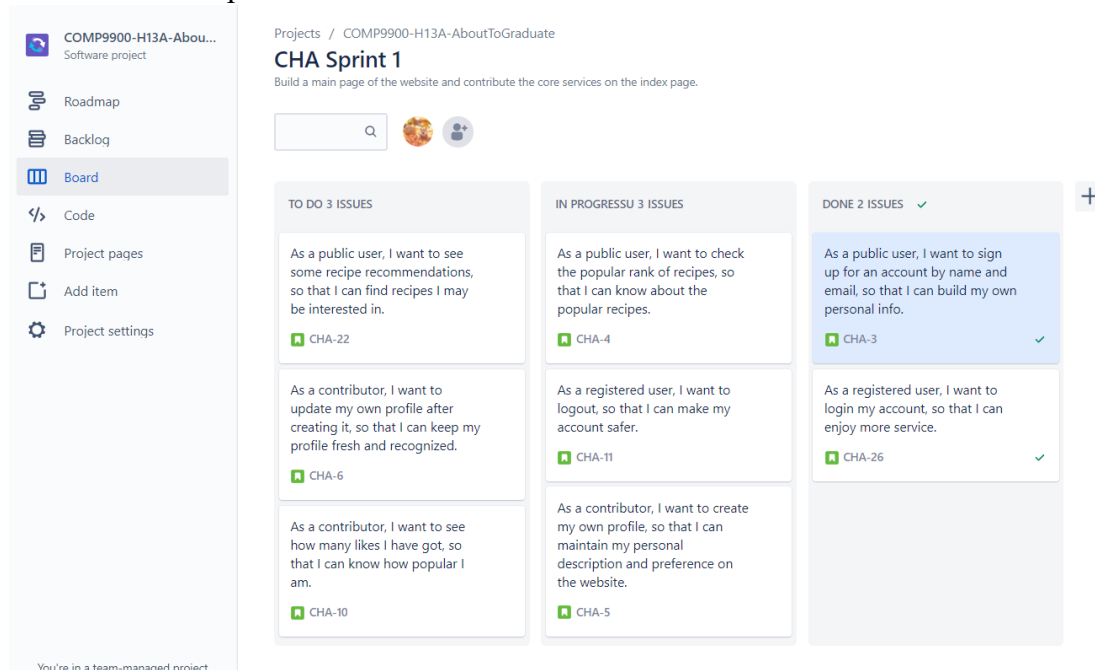
Here is the first sprint screen shot on Jira.

Figure 3: Screenshot of Sprint1

2.4 Project objectives are satisfied by user stories

Our project aims to create a platform based on facilitating food lovers to share and search.

As it is important for a recipe sharing website to attract more public users, we set user stories to implement the recommendation, recipe ranking as well as the contributor ranking functions to catch public eyes in the first time. To ensure the security of personal privacy, some functions of highest priority, such as sign in, sign up and sign out are to be implemented, which can be shown in our user story 3, 11, 26.

As for contributors, we expect them to have their own accounts to maintain their personal description and preference; thus, we set a few user stories to achieve profile creating and updating functions. We also set some user stories to implement the create, edit, and delete functions for recipes, in which contributors can share and refine their recipe lists. To inform contributors how popular they are, we set a user story to show a

sum of all likes gained from the contributor posted recipes.

While for explorers, we expect them to have their personal recipe news page where they can see the updates of the interested subscribers and new recipes; therefore, we set user story 21 to implement this function. A search button is designed to be put in an obvious location in the index page, which can be used by explorers to search recipes by keywords. Some searching filters like ingredient, meal type and method are added to the searching system to facilitate explorers to find the targeted recipes. All these searching functions are shown in our user story 25, 15, 16, 17 respectively. To share their opinions about a specific recipe, we set a few user stories to implement the like and comment functions, as well as the corresponding cancellation functions. We also set a user story to implement the function showing the number of likes of a recipe, which represents the popularity of that recipe. Explorers can subscribe and unsubscribe contributors, and it can be reflected in our user story 19 and 20.

2.5 Existing systems and defined user stories novel functionality

The main innovation of our website is that users can see the rank of contributors and recipes at the index page, so that they can know who the most popular contributors are and what the most popular recipes are, which attracts more users to share recipes of high quality to some extent. This is shown in our user story 4.

Compared to other existing systems that only have keyword searching, different kinds of filters such as ingredient, meal type and title name are added to our search function, making search easier and more precise. For example, when an explorer wants to find recipes containing golden syrup, he can type 'golden syrup' in ingredient search box and look for related recipes. User stories 15-18 reflect that.

Compared to other existing systems, our platform provides explorers with their own personal news page, where they can see the newly updated recipes posted by the contributors that they are interested in. This is a personalized setting designed for registered users and one of the highlights of our project, which can be shown in our user story 21.
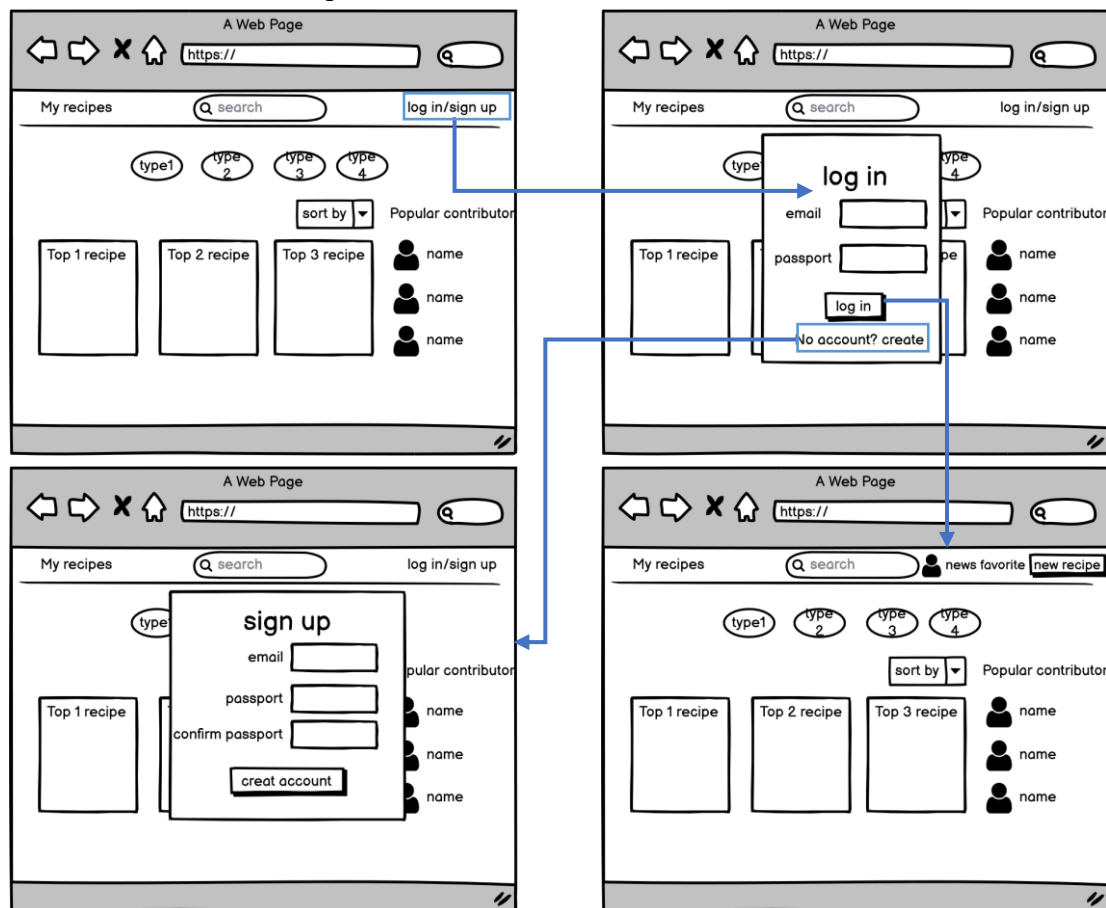
3.Technical Specification

3.1System model

3.1.1Story boards

(a) Home page
A user can explore ranking recipes in homepage and recipes by different meal types. When he/she wants to get more functionality, he/she can sign up/log in. Three shortcut links in the upper menu bar can be easy to access my profile, news page, my favorite list and create a new recipe.
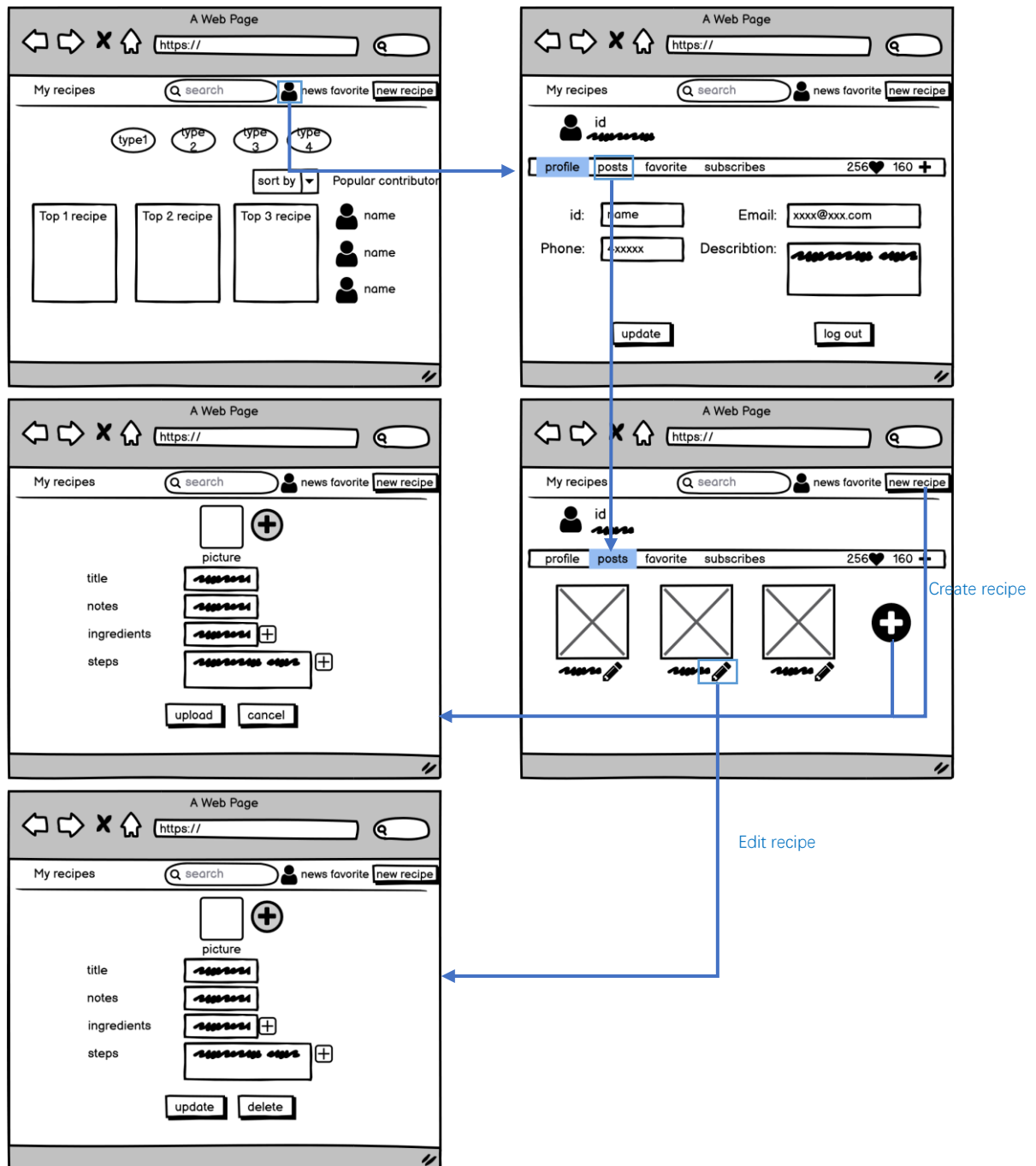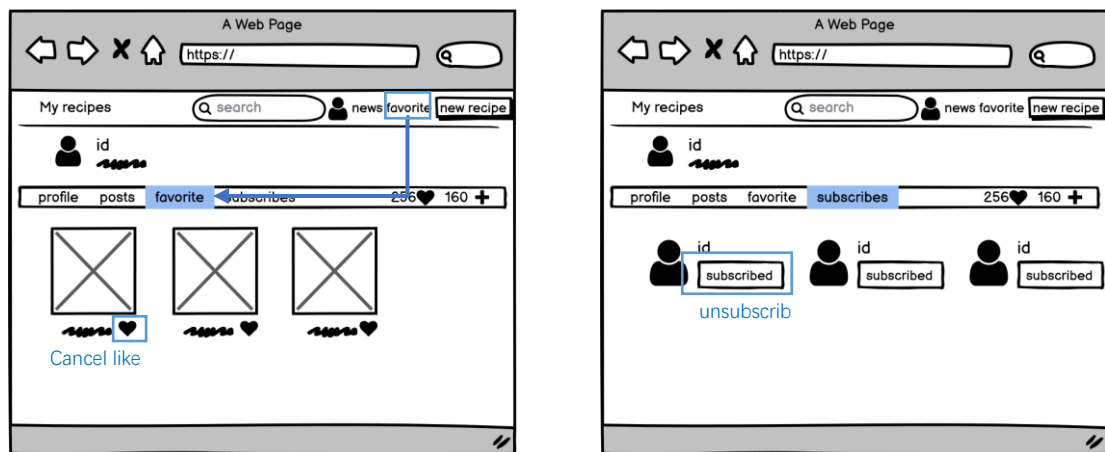

Figures 4: Storyboard on the Home Page

(b) My profile page
On the profile page, there is a menu bar which consists of four elements and a number represents the counts of likes by other user. A user can update his/her information in his/her profile. The posts subpage lists all the recipes uploaded by user and sets quick access to create/edit recipe page that can create,update and delete recipes. The favorite subpage shows all the recipes that user liked. If he/she doesn't like this recipe anymore, he/she can cilck like icon to cancle like. Favorite subpage shows all the contributors

that user subscribed. If he/she wants to unsubscribe, he/she can cilck 'unsubscrib' button to unsubscribe.
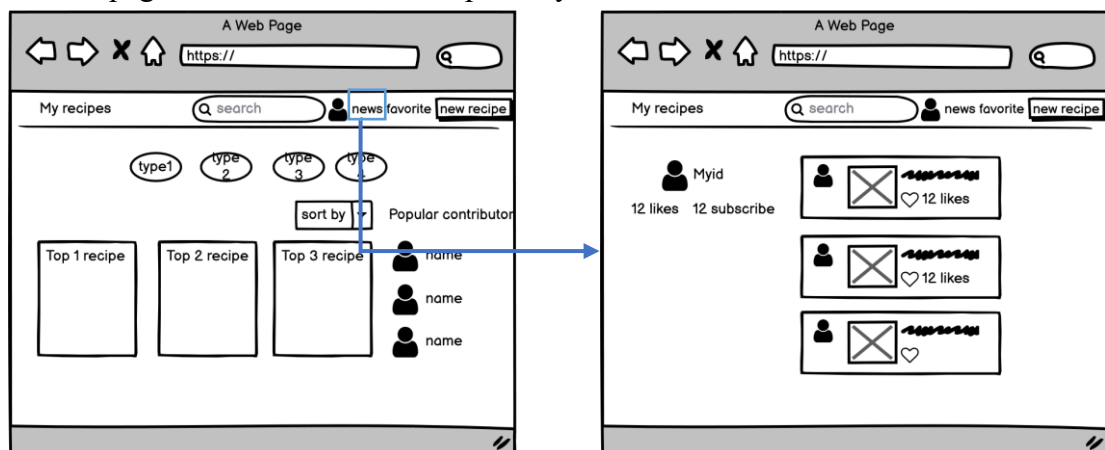
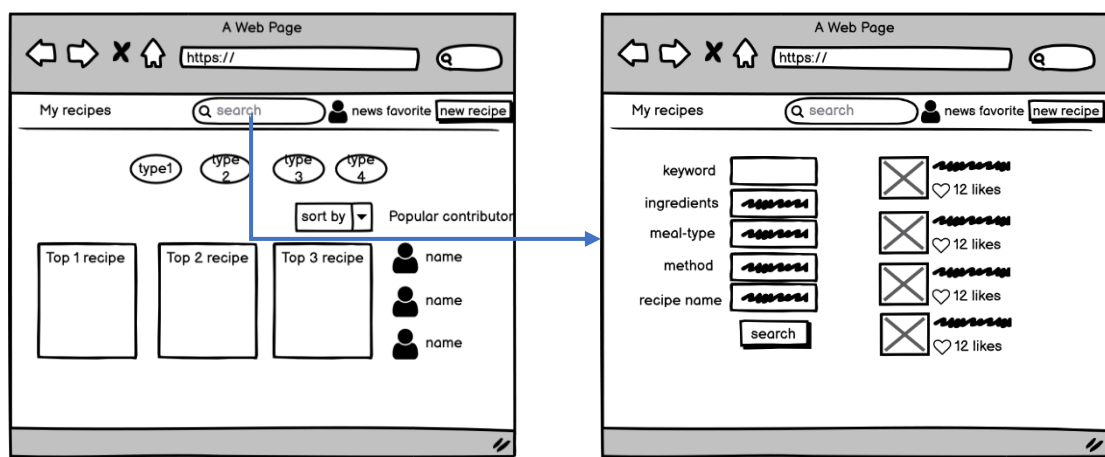Figures 5: Storyboard on My Profile Page

(c) News page

On this page, a user can check new posts by subscribed contributors.

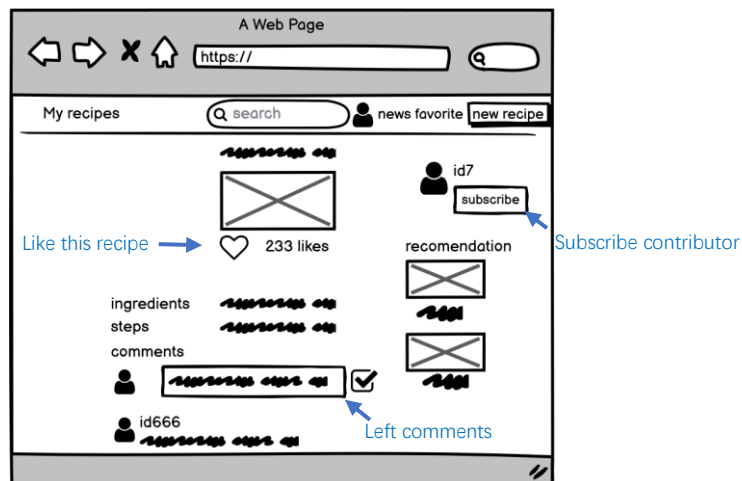Figures 6: Storyboard on News Page

(d) Search page

The entry of search page is in the middle of upper menu bar. A user can find recipes they are interested in based on any combination of the following: ingredients, method, meal-type(s), recipe name.

Figures 7: Storyboard on Search Page

(e) Recipe page

A user can post comments, subcribe contributors and like a recipe in the recipe page. Some recommendation ralated to current recipe are showed in the right panel.

Figures 8: Storyboard on Recipe Page
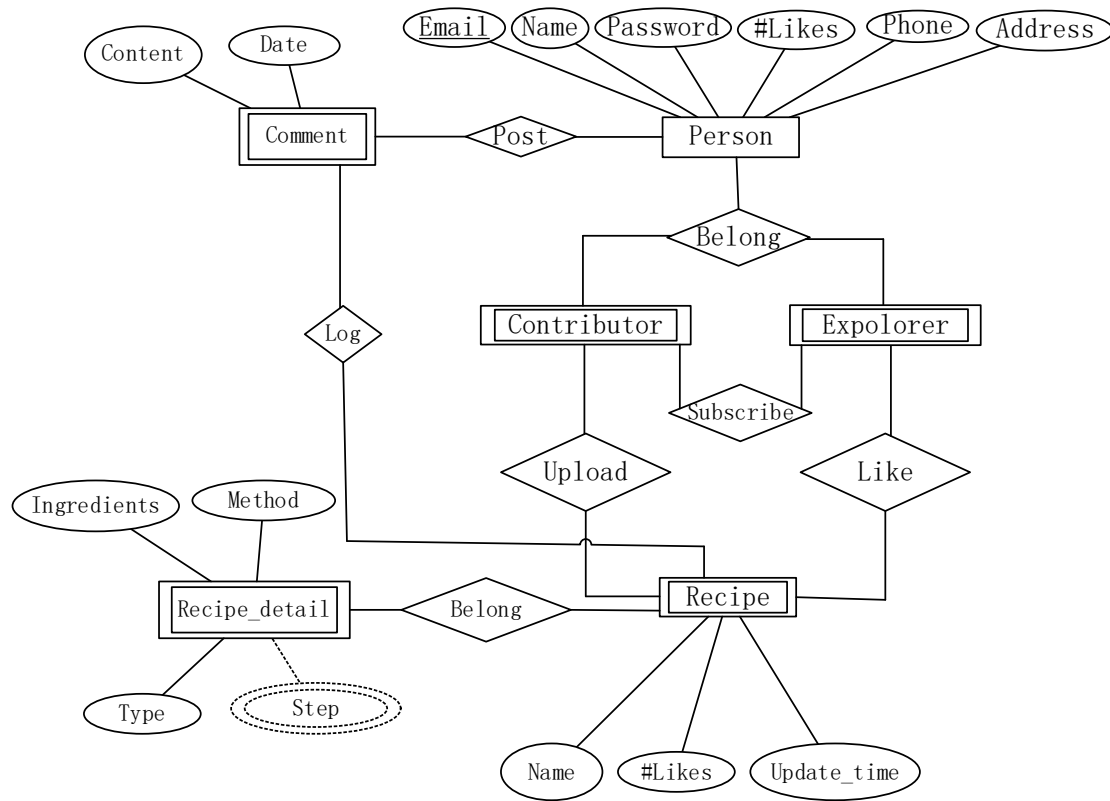
3.1.2ER diagram

Figure 9: ER Diagram

Figure 9 demonstrates the ER Diagram of our back-end system, it defines the relation of all entities to complete our project. Since the project is a user-based website, all other entities rely on one entity – Person. Besides, 'contributor' and 'explorer' are two child subsets of 'person'. The diagram shows that only person can upload recipes and save them by liking it, so a contributor can upload many recipes and a explorer can like a bunch of recipes as well. And explorers can subscribe plural contributors. When a person wants to post a comment on a recipe, the recipe will have a log on it. And all recipes need exactly one recipe detail log to include its ingredient, method, type, and steps.
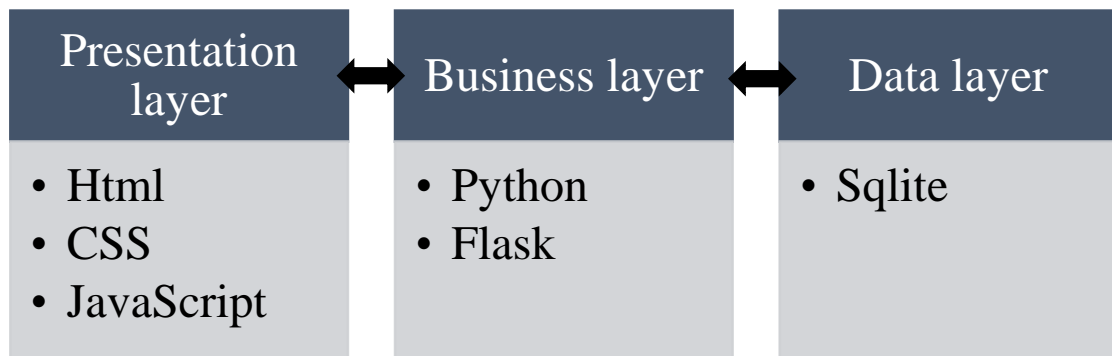
3.2 System architecture

Figure 10: Our System Architecture

3.2.1 Presentation layer

Presentation layer is the upper layer, which is responsible for collecting, presenting and transmitting data between front end and business layer. As the project aims to develop a web-based product, the presentation layer is a user-friendly interface based on web platform and guarantees convenience and functionality meanwhile.

3.2.2 Business layer

Business layer is the middle layer of the application. It will fulfill the communication between data layer and presentation layer. The main task is to query data layer when presentation layer sends requests and sends desired information back to presentation layer.

3.2.3 Data layer

Date layer is used to store and manage all data for the product. This project will choose a flexible and lightweight database as the data layer. The core data is user personal information and recipes. Detailed information about data structure can refer to part 3.1.2.
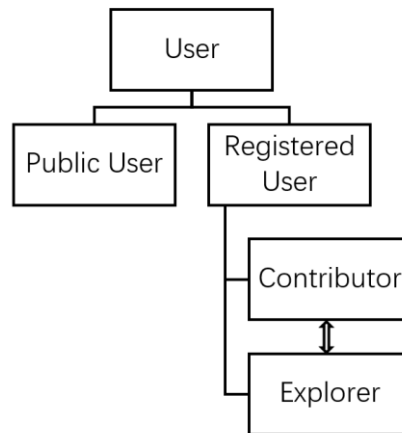
3.3External actors

Figure 11:   The External Actors of System

As per the requirement of the project, there are two kinds of actors for the web application -contributor and explorer, and this web has no front-end administrator. We also categorize users into two types - public user and registered user. As shown of figure 3.3.1, Contributor and explorer are defined to distinguish the habit for different users, and they are all belong to registered users. Those 2 actors actual share the same priority, and both can scan, upload and like recipes and subscribe other users all well. However, public users can only scan the web and more comparisons are demonstrated on table 3.3.2

	Public User	Registered User
Search recipe	Yes	Yes
Like recipe	No	Yes
Share recipe	No	Yes
Subscribe user	No	Yes
Personal Web	No	Yes

Table 3:   User Types and Motivations

3.4Development tools

3.4.1Development environment

The product will be deployed on UNSW Vlab environment, which is a Unix based OS with 8GB memory and 2 CPUs.

3.4.1Development software and language

(a) Python
We choose flask in Python to deploy our web frame and an interface to connect back end and front end. Considering that most of our team members are familiar with this programming language and Python itself is a powerful and convenient development tool to realize the task, as it has rich tripartite library to achieve out requirement. Yana Petlovana asserts that flask is an intelligent lightweight web framework for Python, and it remains the top growing Python framework to date (Yana, 2020).

(b) SQLite
SQLite is selected as our database to store all information of our website. Although SQLite is a simple and basic database, it is still self-contained RDBMS and has many advantages for our project. According to A2 Marketing Team (A2 Marketing, 2020), SQLite is a versatile and portable platform, which we can obtain several benefits. First, we do not have a uniform development environment and SQLite is suitable for various operation systems. Besides, SQLite is an embedded database for Python, so it can be efficient if we choose Python as our web framework.

(c) JavaScript/CSS/HTML
These three development tools are the most popular languages for front-end. HTML is the cornerstone of the web design and CSS can embellish the frame of the web. JavaScript will play a role as a trigger to response for the information from user and back-end.

4.Reference

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