



**SHAHEED ZULFIKAR ALI BHUTTO
INSTITUTE OF SCIENCE AND TECHNOLOGY**

Final Year Project Report

RECIPEDIA

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Submitted in the partial fulfillment of the requirements for the degree of

Bachelor of Science in Computer

Science in the

Faculty of Computing and Engineering Sciences

Declaration of Authorship

We, Safin Noordin Mahesania (1912282) and Moin Amir Dauva (1912355), declare that this report titled, “RECIPEDIA” and the work presented in it are our own. We confirm that:

This work was done wholly or mainly while in candidature for a bachelor’s degree at this University.

Where any part of this report has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated. Where we have consulted the published work of others, this is always clearly attributed.

Where we have quoted from the work of others, the source is always given. With the exception of such quotations, this report is entirely our own work.

We have acknowledged all main sources of help.

Where the report is based on work done by ourselves jointly with others, we have made clear exactly what was done by others and what we have contributed ourselves.

Signed:

Safin Noordin Mahesania 1912282

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Date: 1st August, 2023

Project Description

Recipedia is a cutting-edge recipe app designed to simplify culinary exploration. Organized into various categories such as breakfast, lunch, and dinner, Recipedia offers a diverse range of recipes to suit every palate. However, what truly sets Recipedia apart is its revolutionary AI-powered feature. With this technology, users can effortlessly scan vegetables and fruits to instantly identify them and access relevant recipes.

Our app's mission is to make cooking an engaging and efficient experience. By harnessing the power of AI, we enable users to scan unfamiliar produce items and receive not only their names but also curated recipes tailored to those ingredients. This innovative approach saves time and eliminates the need for internet searches, ensuring a seamless cooking journey.

The core focus of Recipedia is user-friendliness and convenience. The app's standout feature is the scanning capability, allowing users to identify items with a simple scan. Furthermore, the app facilitates easy sharing of recipes through platforms like WhatsApp and other social media channels, fostering culinary connections.

Behind the scenes, Recipedia employs a robust backend powered by Firebase, ensuring secure storage of user data. Every feature aligns with user demands, including the unique scan function, sharing options, and the ability to mark favorite recipes within the app.

What truly distinguishes Recipedia is its pioneering scan feature—a novel concept not found in other recipe apps. This feature revolutionizes the way users discover recipes by making the identification of ingredients seamless and immediate. As a result, users can confidently explore new dishes without the barriers of ingredient unfamiliarity.

In summary, Recipedia is reshaping the culinary landscape by harnessing AI technology to provide instant ingredient recognition and corresponding recipes. With its user-centric design, easy sharing capabilities, and a focus on user-friendliness, Recipedia promises to be a game-changer in the realm of recipe apps.

Keywords: Scan Vegetable, Favorites, Healthy Diet, Delicious Recipes.

Acknowledgement

In the name of ALLAH the most beneficent and merciful who gave us the knowledge and courage to work on this research area.

The success and final outcome of this project required a lot of guidance and assistance from many people and we are extremely privileged to have got this all along the completion of our project.

We would first like to thank our supervisor Sir Khawaja Mohiuddin of the Computer Science faculty at Shaheed Zulfiqar Ali Bhutto Institute of Science and Technology. The door to her office was always open whenever we ran into a trouble spot or had a question about our research or writing. She consistently helped, cooperated and motivated us throughout the research.

We would like to thank to our teachers who guided us in the light of their knowledge and experience. We would also like to express our gratitude to our loving parents and family members who helped and gave us encouragement. Furthermore, we would also like to acknowledge with much appreciation the crucial role of the staff of SZABIST, who gave the permission to use all required equipment and the necessary materials to complete the project.

At the end, we would like to thank Shaheed Zulfiqar Ali Bhutto Institute of Science and Technology for providing us with such an inspiring environment. The quality education, the cooperative faculty members and the challenging environment have always motivated and boosted the confidence level of each and every student who has been a part of Shaheed Zulfiqar Ali Bhutto Institute of Science and Technology.

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Project Proposal

1. Introduction

Recipedia is a user-friendly platform targeting housewives and bachelors who don't know how to cook and also who are interested. The user will scan the vegetables or fruits, and the app will suggest the recipes for foods or juices according to the scan vegetables or fruits. App also includes an add-to-favorite feature in which the user can add any recipe to that favorite list. There will be a feature for sharing a recipe with your friends through social media. If the user likes or dislikes the recipe, they can rate the recipe. There will be an admin portal from where the admin can use CRUD operation for recipes.

1.1 Objective

To provide a solution to those people who either don't know how to cook or are always in a confusion about what should I cook with these particular ingredients. Our application will provide a variety of recipes for vegetables and juices which users can try.

1.2 Problem Description

Do you enjoy cooking? If not, are there any cooking fans among your friends? Anyways, you probably know that searching for the right recipe on the internet may take a lot of time. And after finding the desired recipe, you're faced with another problem: saving it. Rewriting the recipe on paper is too old-fashioned, and bookmarking it is also unreliable. Also, don't know the name of vegetables and have limited ingredients at home.

So, through our platform, we will provide a list of food categories in which according to the user's choice they can find any recipe which includes ingredients, time, and food-making process. Through our app users can save recipes to their favorites and also share those recipes with their friends. If the user doesn't know the name of the vegetable or has few vegetables and wants to know what he can make with those vegetables. There is a scan feature too in our app in which by scanning vegetables the application will give the vegetable's name and also tell what they can make with that vegetable.

Similarly, our application will also include fruit juice recipes.

1.3 Methodology

To overcome the problem for people who always want to try something new with limited ingredients. This will help users to save time and get a quick solution for hunger.

We have examined a few methodologies of system development that helped us to choose the Waterfall Model which we think is fine for our project.

Waterfall Model:

This classical model is employed in the system development life cycle to construct a system using a sequential approach. It is divided into distinct phases, each comprising tasks and specific objectives. Notably, alterations cannot retrogress to previous phases within this model to accommodate changes.

Strengths:

It is easy to use. It works well when quality is more important than cost or schedule. Moreover, the milestones are well understood. Before going for development, the requirements are clear.

Drawbacks:

If the user wants the requirement to be replaced it will not be updated during the process of the development

Reason to choose the waterfall model:

The implementation is straightforward. Milestones are clearly defined using this method. Prior to progressing to a new phase, each current phase is completed within a specific timeframe. Phases are undertaken and concluded sequentially, with no overlap. This approach is ideal when requirements are well-defined and technology comprehension is strong, making it a suitable choice for adopting the waterfall model.

1.4 Project Scope

Our project mainly focuses on providing a platform where users have a reliable way to get their favorite recipes and satisfy their needs by using a scan feature in which by scanning vegetables, they will get recipes with ingredients and the steps to them. By using the scan feature users can save time instead of searching for recipes.

Advanced Search: In this feature, we are going to filter the search results category-wise.

OTP Verification: In this feature, it will verify the Email Address of the user by sending them an OTP verification code when the user is doing registration. **Save to favorite:** In this feature, the user can save any of the recipes which they like to favorite and can also share that recipe with their friends.

Review & Rating: With this feature, the user can rate & review any of the recipes they try.

1.5 Feasibility Study

Yes, With the above-defined scope, we would be able to meet our project schedule. Do mention follow aspects:

i. Risks Involved:

we thought that the risk will be to deploy the whole system in the client machine and to integrate different modules because sometimes, on the developer machine everything works fine but when we deploy the system to the client machine it creates a problem. We will try our best to accommodate this issue.

ii. Resource Requirement:

- Processor: Core i7-8th Generation
- RAM: 16.0GB
- STORAGE: 500 Gigabyte HDD & 128 GB SSD
- Windows: Windows 10

1.6 Solution Application Areas

Yes, our project provides food recipes from across the world to fulfill the user's needs.

1.7 Tools/Technology

- Android Studio, VS code
- Flutter
- Dart, Python

1.8 Expertise of the Team Members

Yes, we both previously worked together on the projects so our understanding and coordination are good, also we are equally interested in this project because this project will allow us to work on a real-time project that is worth a lot. Both the members are pre-equipped with the level of knowledge.

1.9 Milestones

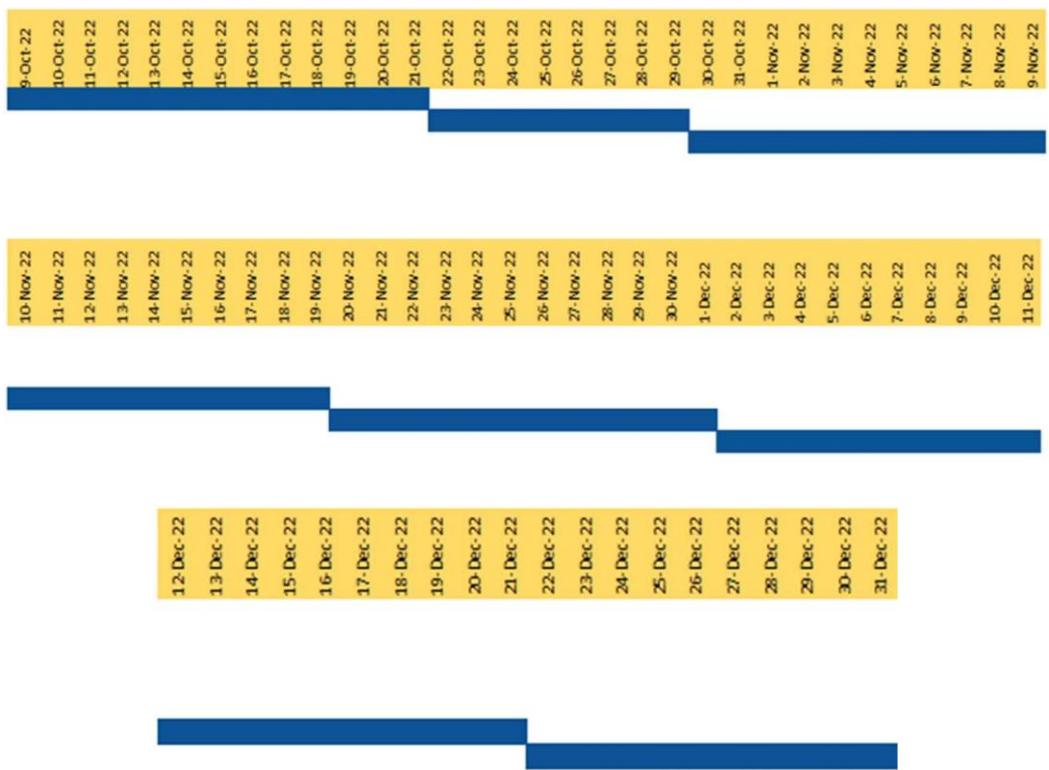
1. Easy Registration Process
2. OTP Verification
3. User Personalization
4. Push Notification
5. Admin Portal
6. Recipes (CURD)
7. Food & Juice Category
8. Save Recipe to Favorite
9. Advance Search/Filtered Search
10. Share Recipe on WhatsApp
11. Review & Rating to Recipe
12. Scan Vegetable and Fruit

1.10 Project Schedule

FYP 1

Project Name	Project Duration	Project Start Date	Project End Date
Recipedia	83 Days	9-Oct-22	31-Dec-22

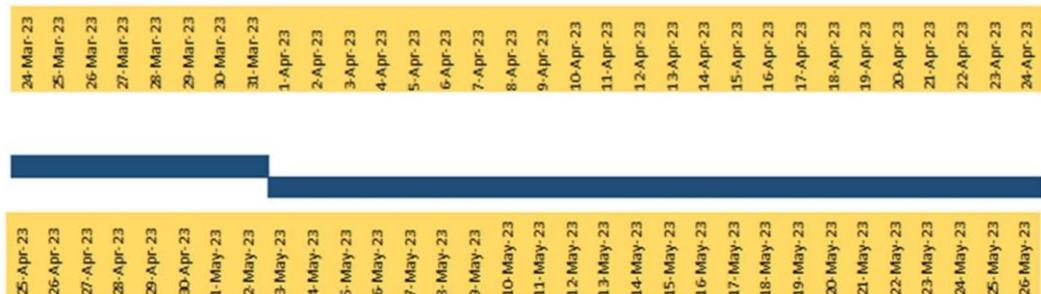
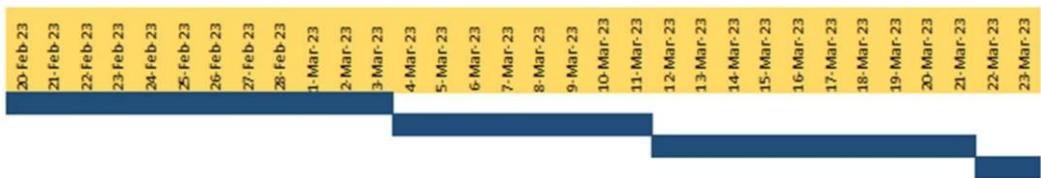
Task ID	Task Description	Start Date	End Date
1	Easy Registration Process	9-Oct-22	21-Oct-22
2	OTP Verification	22-Oct-22	29-Oct-22
3	User Personalization	30-Oct-22	9-Nov-22
4	Push Notification	10-Nov-22	19-Nov-22
5	Admin Portal	20-Nov-22	1-Dec-22
6	Recipes (CURD)	2-Dec-22	21-Dec-22
7	Food & Juice Category	22-Dec-22	31-Dec-22



FYP 2

Project Name	Project Duration	Project Start Date	Project End Date
Recipedia	100 Days	20-Feb-23	31-May-23

Task ID	Task Description	Start Date	End Date
1	Save Recipe to Favorite	20-Feb-23	3-Mar-23
2	Advance Search/Filtered Search	4-Mar-23	11-Mar-23
3	Share Recipe on WhatsApp	12-Mar-23	21-Mar-23
4	Review & Rating to Recipe	22-Mar-23	31-Mar-23
5	Scan Vegetable and Fruit	1-Apr-23	31-May-23



1.11 Work Breakdown Structure

Project: Recipedia					
FYP 1					
PHASE-1	FEATURES	DESIGN	CODE	TESTING	DEPLOY
TASKS	Easy Registration Process	Create UML	Write Code	Conduct System Testing	Install System
	OTP Verification	Create Prototype	Integrate Code	Conduct Acceptance Testing	Install System
	User Personalization	Create Database	Test Code	Conduct Acceptance Testing	Train User
	Push Notification	Finalize Prototype			
	Admin Portal	Create UML	Write Code	Conduct System Testing	Install System
	Recipes (CURD)	Create UML	Test Code	Conduct System Testing	Train User
	Food & Juice Category		Write Code	Conduct System Testing	Install System

FYP - 2					
PHASE-2	FEATURES	DESIGN	CODE	TESTING	DEPLOY
TASKS	Save Recipe to Favourite		Test Code	Conduct Acceptance Testing	Train User
	Advance Search/Filtered Search				
	Share Recipe on Whatsapp		Test Code	Conduct Acceptance Testing	Train User
	Review & Rating to Recipe		Write Code	Conduct System Testing	Install System
	Scan Vegetable and Fruit				

Software Requirement Specification

2. Introduction

2.1 Purpose

In the current working situation like in covid, many people want to eat outside food but they can't go to eat. Many people think that what food should they make. They don't have any idea like housewives, they have to make food daily but their children want new food to eat every day. So, our application, through our platform, will provide a list of food categories in which according to the user's choice they can find any recipe which includes ingredients, time, and food-making process. Through our app users can save recipes to their favorites and also share those recipes with their friends. If the user doesn't know the name of the vegetable or has few vegetables and wants to know what he can make with those vegetables. There is a scan feature too in our app in which by scanning vegetables the application will give the vegetable's name and also tell what they can make with that vegetable. Similarly, our application will also include fruit juice recipes.

2.2 Document Conventions

The document was generated using Microsoft Word 2016 and employs the "Times New Roman" font. The consistent font size utilized throughout the document is 11.5pt. Headings are presented in "Times New Roman" font with a font size of 15, while subheadings employ a font size of 12.

2.3 Intended Audience and Reading Suggestions

The intended audience of this document would be Housewives, Foreigner Students, Youngsters, and Admins. Admin will add food recipes to the application and the user will be able to see the recipes which admin has added in category wise. Users can also scan vegetables to find any food recipe they want by using our application. The SRS document can be used in any case regarding the needs of the project and the results which have been taken.

2.4 Project Scope

Our project mainly focuses on providing a platform where users have a reliable way to get their favorite recipes and satisfy their needs by using a scan feature in which by scanning vegetables, they will get recipes with ingredients and the steps to them. By using the scan feature users can save time instead of searching for recipes.

Easy Registration Process:

In this feature, the user will be able to register themselves in our app by providing a few basic details, then the user will be able to login into our Recipedia App.

OTP verification:

This feature will verify the Email Address of the user by sending them an OTP verification code when the user is doing registration.

User Personalization:

How users can easily go to another feature in a few clicks.

Push Notification:

Users will be notified when the new notification arrives in the app.

Admin Portal:

In this feature, there will be the dashboard of admin in which admin will perform all the CRUD operations for users.

Food & Juice Category:

There will be categories of food and juices so by using this feature users can easily get recipes.

Save recipe to favorite:

In this feature, the user can save any of the recipes which they like to favorite and can also share that recipe with their friends.

Recipe (CRUD):

In this feature, the recipe will be added, removed, deleted or updated according to the need.

Advance Search/Filtered Search:

Users will be able to see the search according to the filter search which they have selected.

Share Recipe on WhatsApp:

With this feature, users can send any recipe to anyone.

Review & Rating of Recipe:

With this feature, the user can rate & review any of the recipes they try.

Scan Vegetable and Fruit:

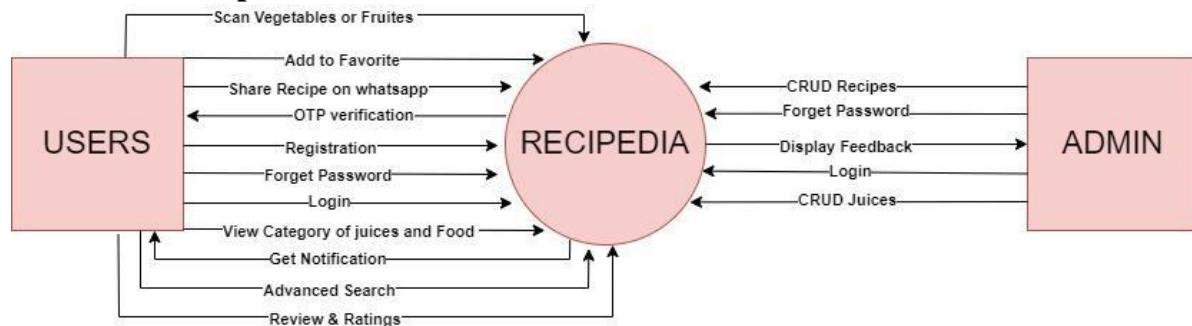
In this feature, users can scan any vegetable or fruit and find the recipe.

2.5 Reference

- <https://docs.flutter.dev/>
- <https://towardsdatascience.com/a-comprehensive-guide-to-convolutional-neural-networks-the-eli5-way-3bd2b1164a53>
- <https://www.tensorflow.org/>
- <https://firebase.google.com/>
- <https://www.hyperlinkinfosystem.com/blog/a-guide-to-develop-a-cooking-recipe-app-key-features-cost-estimates>

3. Overall Description

3.1 Product Perspective



3.2 Product Functions

Recipedia App Product Functions are as follows:

- Registration of Users.
- Login of Admin & Users.
- Users can view profiles.
- Users can search for food that they like.
- Users can view the category of Food & Juices.
- Users can view notifications from the app.
- Users can save their favorite recipes.
- Users can rate & review the recipes.
- Users can use the scan feature to find the particular recipe of that vegetable or fruit.
- Admin can view Feedback.
- Admin can add, delete, update and view users.
- Admin can add, delete, update and view the recipes.

3.3 User Classes and Characteristics

Admin: They can add, delete, update and view recipes and also see the feedback of recipes and users and also send notifications to users.

User: They can view recipes, they can add to their favorites, can share the recipe with anyone, also they can use the scan feature to find recipes for that particular vegetable or fruit, give ratings on recipes, receive notifications, search for recipes, and view food in different categories.

3.4 Operating Environment

Hardware and software requirements

Hardware

- Processor: Core i7-8th Generation
- RAM: 16.0GB
- STORAGE: 500 Gigabyte HDD & 128 GB SSD
- Windows: Windows 10

Software

- Android Studio, VS Code
- Flutter
- Dart, Python

3.5 Design and Implementation Constraints

The following are the constraints for the system to work the system properly in the environment.

- System should support Android Studio and VS Code.

3.6 User Documentation

The furnished SRS document offers users a lucid understanding of system interaction, articulated in accessible language. The documentation encompasses context diagrams, use cases, and iterative plans.

3.7 Assumptions and Dependencies

We presume users employ Windows 7 or newer, boasting a minimum 2GB RAM and equipped with Android Studio. Another premise is the consistent use of Windows and adequately performant mobile devices. In instances of insufficient hardware resources, the app might not function optimally. Basic internet familiarity is assumed for users.

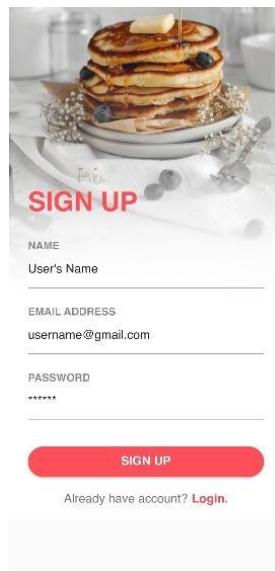
3.8 Process/Model Details

Data is extracted from kaggle.com for the scan feature. The dataset contains a few of the vegetables & fruits. By this data we will make a python code that will detect the fruit and vegetable and that will be implemented on the flutter project.

After the detection of fruits and vegetables, we will use API by which particular fruit or vegetable recipes will be shown for our app.

4 External Interface Requirements

4.1 User Interfaces



Splash Screen

Welcome Screen

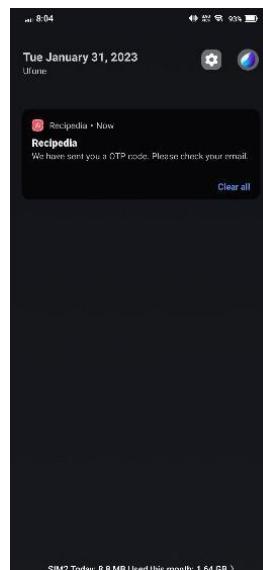
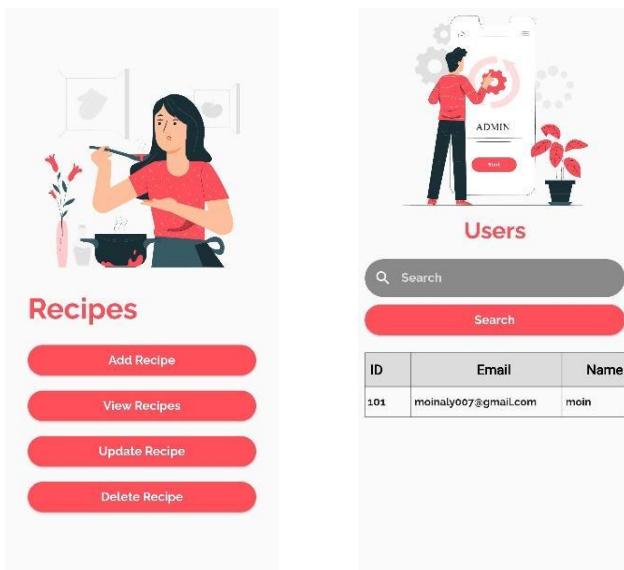
Create Account



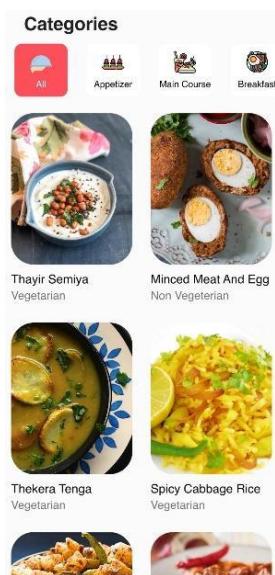
Login Screen

Forget Password

Admin Panel



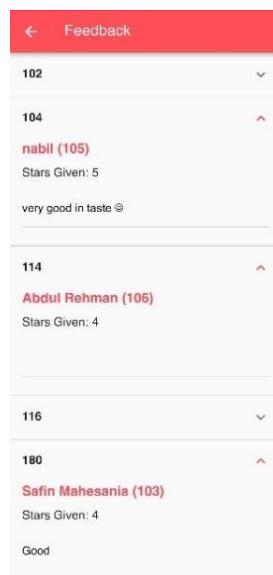
CRUD Operation for Admin



Users Account



Push Notification



View Recipe (Admin)

Add Recipe (Admin)

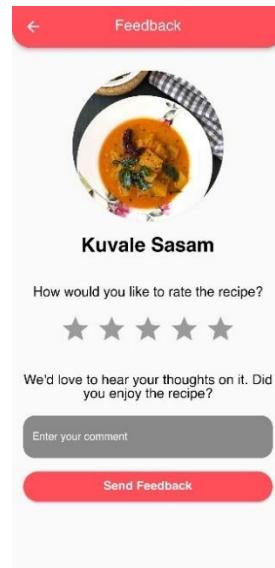
Feedback (Admin)



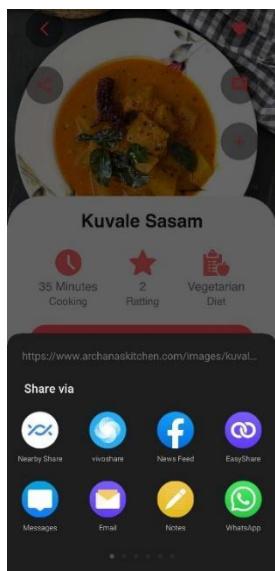
Dashboard



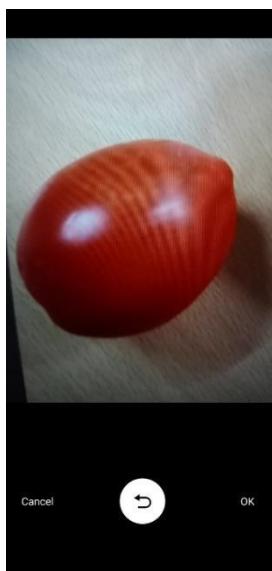
Favorite



Feedback



Share Recipe



Scan Ingredient



Ingredient Recipe

4.2 Hardware Interfaces

This system interfaces with Android-based smartphones having a minimum of 1GB RAM and internet connectivity.

4.3 Software Interfaces

Recipedia, an Android app, functions on smartphones running Android version 5.0 or above, necessitating an active internet connection.

Technologies that are being proposed to be used in Recipedia App.

- Dart
- Firebase
- Python

4.4 Communication Interfaces

We will use HTTP communication standards to communicate with the internet as it is very common and secure.

5 System Features

5.1 System Feature

Description and Priority

- **Easy Registration Process:**

In this feature, the user will be able to register themselves in our app by providing a few basic details, then the user will be able to login into our Recipedia App. (**High priority**)

- **OTP verification:**

This feature will verify the Email Address of the user by sending them an OTP verification code when the user is doing registration. (**High priority**)

- **User Personalization:**

How users can easily go to another feature in a few clicks. (**Medium priority**)

- **Push Notification:**

Users will be notified when the new notification arrived in the app. (**Medium priority**)

- **Admin Portal:**

In this feature, there will be a dashboard of admin in which the admin will perform all the CRUD operations for users. (**High priority**)

- **Food & Juice Category:**

There will be categories of food and juices so by using these features users can easily get recipes. (**High priority**)

- **Save recipe to favorite:**

In this feature, the user can save any of the recipes which they like to favorite and can also share that recipe with their friends. (**Low priority**)

- **Recipe (CRUD):**

In this feature, the recipe will be added, remove, delete or update according to the need. (**High priority**)

- **Advance Search/Filtered Search:**

Users will be able to see the search according to the filter search which they have selected. (**High priority**)

- **Share Recipe on WhatsApp:**

With this feature, users can send any recipe to anyone. (**Medium priority**)

- **Review & Rating of Recipe:**

With this feature, the user can rate & review any of the recipes they try. (**High priority**)

- **Scan Vegetable and Fruit:**

In this feature, users can scan any vegetable or fruit and find the recipe. (**High priority**)

Stimulus/Response Sequence

5.2 Signup

Use Case Name	Signup	
Summary	To register an account	
Primary Actors	Users	
Precondition	User not registered yet	
Happy Path	System Response	Actor Response
	1. System will display registration interface.	
		2. User enters their details to register themselves and press create account button.
	3. System will verify details and check provided data is correct or not.	
	4. The provided data will sent to the OTP screen and user will be redirected to it.	
Alternative Path	None	
Post Condition	User will move to OTP screen to check the email is really exist or not.	

5.3 Login

Use Case Name	Login	
Summary	To login into the application	
Primary Actors	Users	
Precondition	User must have registered before login through email.	
Happy Path	System Response	Actor Response
	1. System will display login interface.	
		2. User will enter their email and password and press login button.
	3. User is validated	
	4. If user exist then they will be sucessfully logged in else they will asked to create new account.	
Alternative Path	None	
Post Condition	User will move to home screen.	

5.4 OTP

Use Case Name	OTP Verification	
Summary	To avoid creating account with fake email.	
Primary Actors	Users	
Precondition	User must have enter a valid email at signup screen.	
Happy Path	System Response	Actor Response
	1. System will display OTP screen interface.	
		2. User will click send OTP button.
	3. System will send OTP code to user's entered email.	
		4. User will enter the OTP code and press verify OTP.
	5. System will validate the OTP and send it to home screen.	
Alternative Path	User will enter wrong code then they have to perform this from start. They can also change email by pressing back.	
Post Condition	User will move to home screen.	

5.5 User Personalization

Use Case Name	User Personalization	
Summary	Question will be asked to user to know about the app	
Primary Actors	User	
Precondition	User must be login	
Happy Path	System Response	Actor Response
	1. System will display questions	
		2. User will answers all the questions.
	3. System will save the recording and admin will make changes if needed.	
		4. User will see the app according to his/her answers.
Alternative Path	None.	
Post Condition	None.	

5.6 Push Notification

Use Case Name	Push Notification	
Summary	To get notifications related to recipes newly added.	
Primary Actors	User	
Precondition	User must be login	
Happy Path	System Response	Actor Response
	1. System will send notification to users.	
		2. User will receive a notification regarding newly added recipes.
		3. User then open notification.
Alternative Path	None.	
Post Condition	None.	

5.7 Add Recipe

Use Case Name	Add Recipe	
Summary	Adding Recipes in the application	
Primary Actors	Admin	
Precondition	Admin must be logged in as admin	
Happy Path	System Response	Actor Response
	1. System will display add recipe interface	
		2. Admin will add the food recipes details.
		3. Admin will press the add recipe button
	4. Recipe will be add.	
Alternative Path	None.	
Post Condition	New recipe will be added.	

5.8 Edit Recipe

Use Case Name	Edit Recipe	
Summary	Edit Recipes in the application	
Primary Actors	Admin	
Precondition	Admin must be logged in as admin	
Happy Path	System Response	Actor Response
	1. System will display edit recipe interface	
		2. Admin will edit the food recipes details.
		3. Admin will press the ok button
	4. Recipe will be edit.	
Alternative Path	None.	
Post Condition	The recipe will be edited.	

5.9 Delete Recipe

Use Case Name	Delete Recipe	
Summary	Delete Recipes in the application	
Primary Actors	Admin	
Precondition	Admin must be logged in as admin	
Happy Path	System Response	Actor Response
	1. System will display delete recipe interface	
		2. Admin will delete the food recipe details.
		3. Admin will press the ok button
	4. Recipe will be deleted.	
Alternative Path	None.	
Post Condition	The recipe will be deleted.	

5.10 Food & Juice Category

Use Case Name	Food & Juice Category	
Summary	Show Juices & Food catalog in category vise.	
Primary Actors	User	
Precondition	User must be login	
Happy Path	System Response	Actor Response
	1. System will display food & Juices category vise.	
		2. User can view recipes by selecting any of the categories.
	3. System will show food & juices recipes according to the user which he/ she has select.	
		4. User can view the recipes.
Alternative Path	None.	
Post Condition	None.	

5.11 Save to Favorite

Use Case Name	Save to Favorite	
Summary	To favorite recipe that he/ she wanted to view again.	
Primary Actors	User	
Precondition	User must be login	
Happy Path	System Response	Actor Response
	1. The system displays recipe category vise.	
		2. User can view recipes by selecting any of the categories.
	3. System will show food & juices recipes according to the user which he/ she has select.	
		4. User can view the recipes and by clicking on add to favorite.
	5. system will then update favorite recipe list.	
		6. Later user can go to their favorite to see the recipes.
Alternative Path	None.	
Post Condition	None.	

5.12 Search Recipes

Use Case Name	Search Recipes	
Summary	To search recipes through category vise.	
Primary Actors	User	
Precondition	User must be login	
Happy Path	System Response	Actor Response
		1. Click on search button.
	2. show categories of food recipes.	
		3. Click on the categories that the user was searching for.
	4. open that recipe with details.	
Alternative Path	None.	
Post Condition	None.	

5.13 Share Recipe

Use Case Name	Share Recipes	
Summary	Send recipes to anyone through WhatsApp.	
Primary Actors	User	
Precondition	User must be login	
Happy Path	System Response	Actor Response
		1. Click on share button.
	2. show the category or person to whom you want to send it.	
		3. Select a person by clicking on him/her.
	4. recipe with its details will be sent to him/her.	
Alternative Path	None.	
Post Condition	None.	

5.14 Review & Rating

Use Case Name	Review & Rating	
Summary	To give a review & ratings about recipes	
Primary Actors	Users	
Precondition	Must be login.	
Happy Path	System Response	Actor Response
	1. System will display recipes listing.	
		2. User selects the recipe.
		3. User will give review or feedback regarding products
		4. User will also give rating to recipes.
	5. System will saved the review & rating and then show to other users also.	
Alternative Path	None.	
Post Condition	Other Users can also see reviews & rating of that recipes.	

5.15 Scan Feature

Use Case Name	Scan vegetables & fruits	
Summary	User can scan vegetables or fruits and find recipes for	
Primary Actors	Users	
Precondition	Must be login.	
Happy Path	System Response	Actor Response
		1. User will click on scan feature.
	2. the system will open the camera on app.	
		3. User will scan vegetable or fruit.
	4. System will show recipes according to the scan vegetable or fruit.	
Alternative Path	None.	
Post Condition	None.	

5.16 Functional Requirements

- **Login:** user must log in to continue to their Dashboard.
- **Register:** user must register to access the app.
- **Forget Password:** user can change their password by entering their email in forget password page.
- **Recipe (CRUD):** admin can add, update, view, or delete the recipe from the database.
- **Notification:** user can view the notification that is sent by the admin.
- **Share recipe:** user can share their favorite recipe with their friends by clicking on the share button.
- **Review & Rating:** user can add reviews and ratings to the recipe.
- **Save to favorite:** user can add recipes to favorites.
- **Scan Feature:** Users can scan vegetables or fruit and they will find the recipe of that particular item.

6. Other Nonfunctional Requirements

6.1 Performance Requirements

Performance requirements establish acceptable response times for system functions. While the system is optimized for minimal performance requirements, its actual performance is reliant on the capabilities of the hardware and software components of the host computer. In terms of timing, user interface screen loading times should not exceed two seconds, ensuring swift access to system features. Verification of login information should occur within five seconds to enhance system efficiency. Similarly, query results should be delivered within five seconds to enhance the accuracy of the search function.

6.2 Safety Requirements

Our system would be maintaining a backup of the database every day in excel sheet format just in case anything to the original database goes wrong, backup would be restored.

6.3 Security Requirements

We provide different validations (logins) for a different type of users. We are responsible for our security and validations. However, it is the responsibility of the team to create secure logins and not share privileged information with persons he/she could not trust.

6.4 Software Quality Attributes

- **Portability:** Our App can easily be portable on windows and android so this software has the benefit of being portable and used whenever you want.
- **Usability:** Our app is user-friendly; we have designed a user-friendly UI and buttons to switch to on next screen which can be easily understood by users.
- **Reliability:** For OTP Code, the code will send to the authenticated email address which is been provided by the user.
- **Flexibility:** Our App will be able to add new features and handle them easily.
- **Maintainability:** Users review matters here after their feedback on the annual average we will check performance if performance will be poor then we will try to improve it.
- **Availability:** The application must be connected to the internet when it is in use.

6.5 Business Rules

Admin will be given all the rights of an Application. Only the admin can have full access to the system to add recipes, delete recipes, update recipes, and upload images and recipe details.

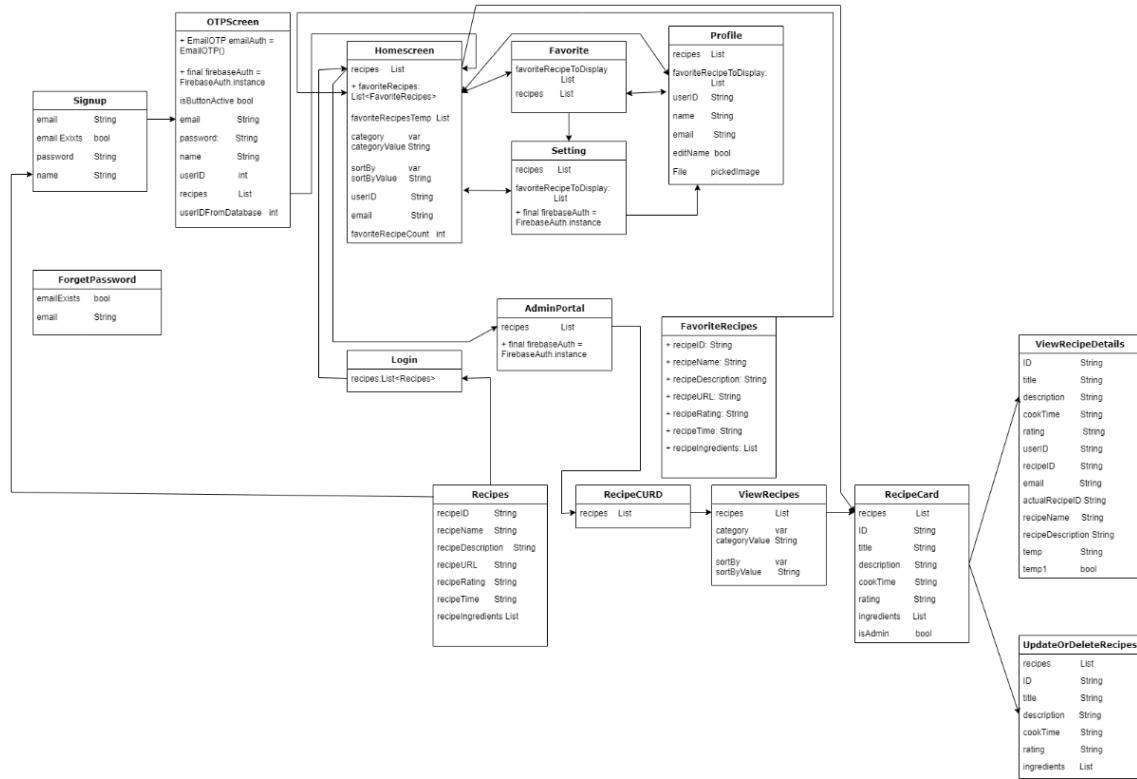
6.6 Data/ Dataset Details

Fruit and vegetable Dataset extracted from kaggle.com

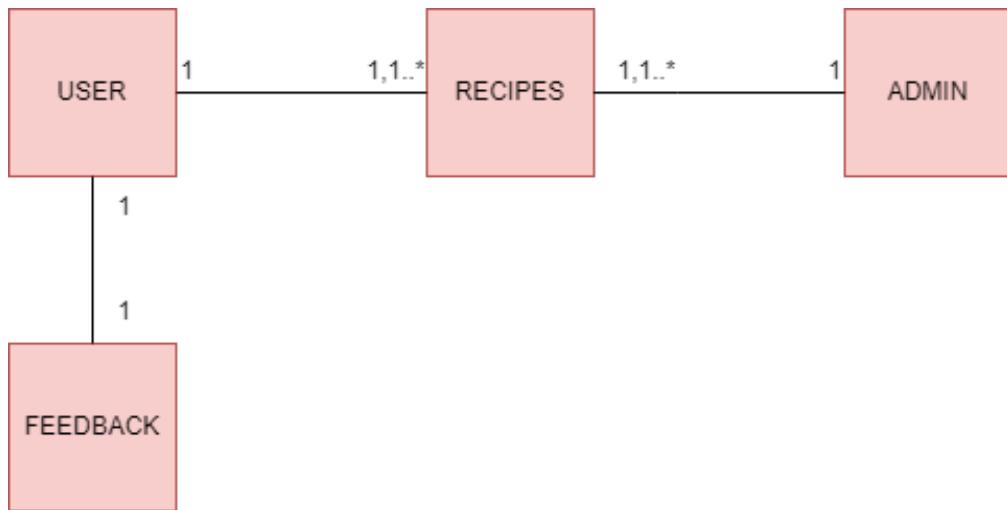
<https://www.kaggle.com/datasets/kritikseth/fruit-and-vegetable-image-recognition>

7. Other Requirements

7.1 Entity Relationship Diagram

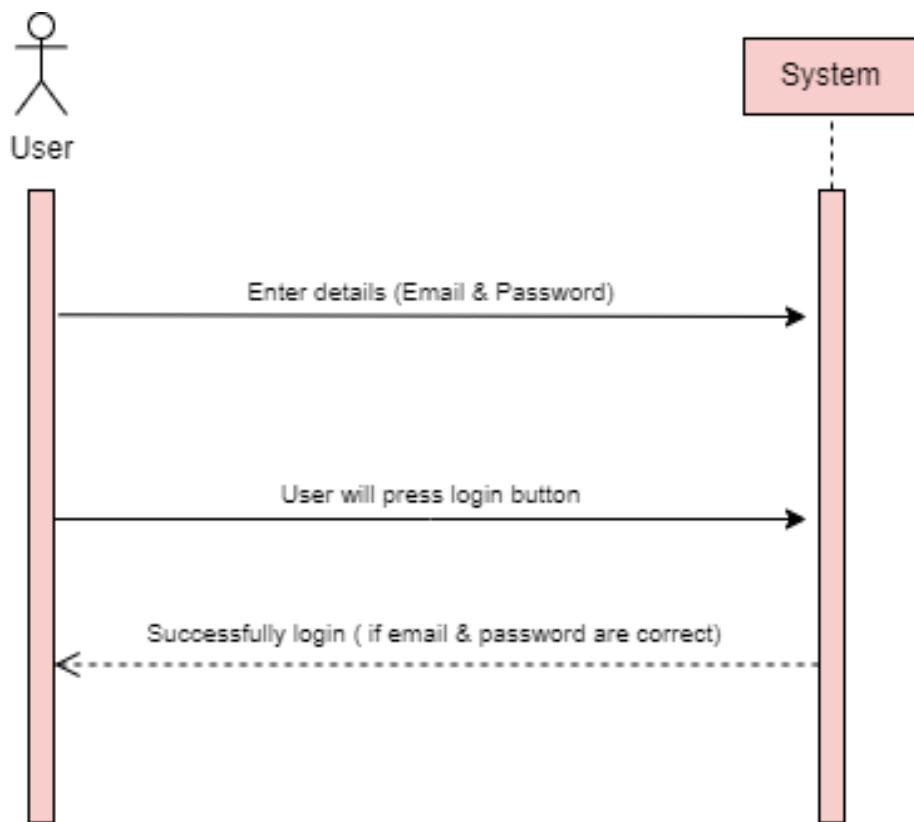


7.2 Domain Model

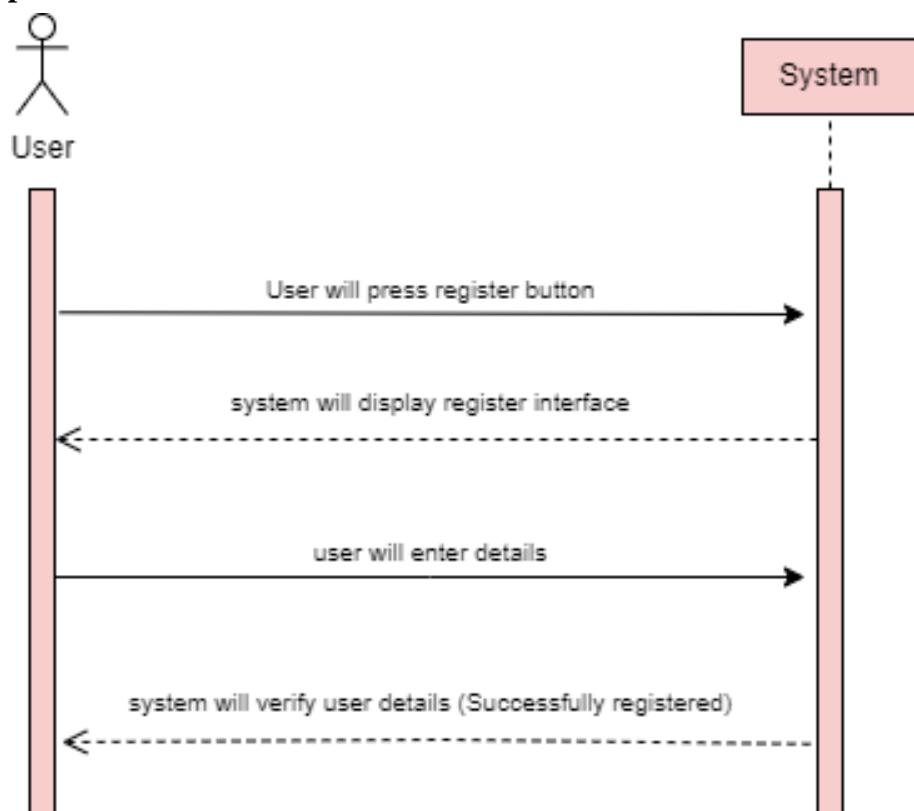


7.3 System Sequence Diagram

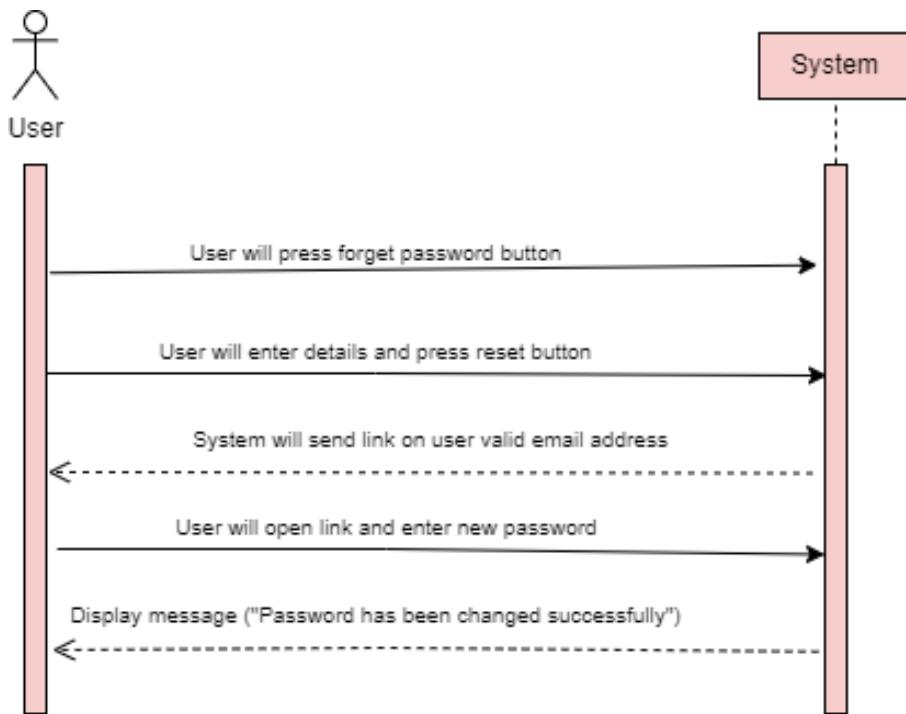
1. Login



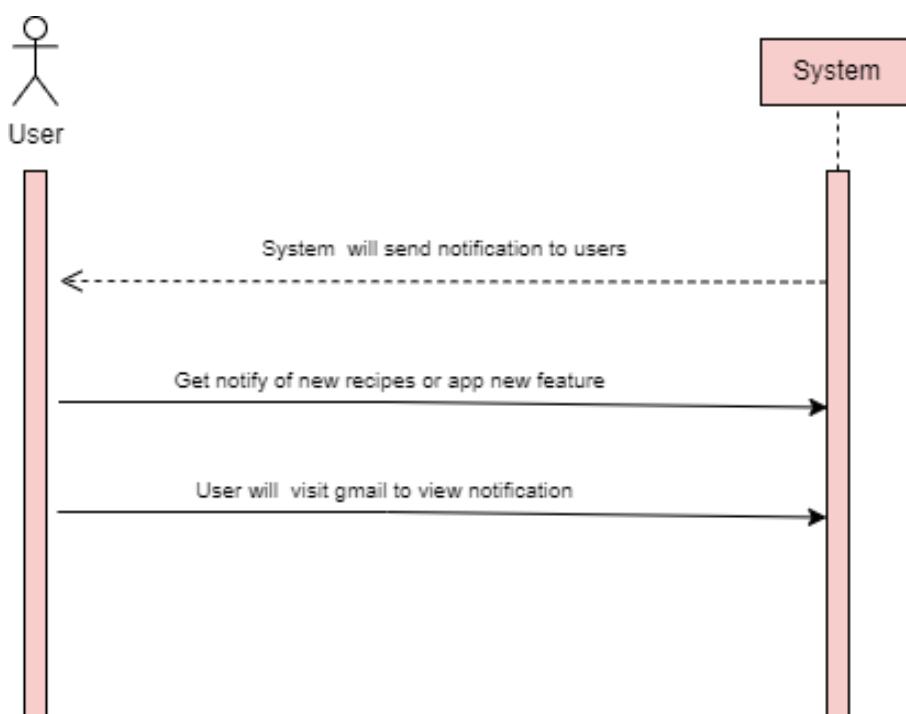
2. Sign Up



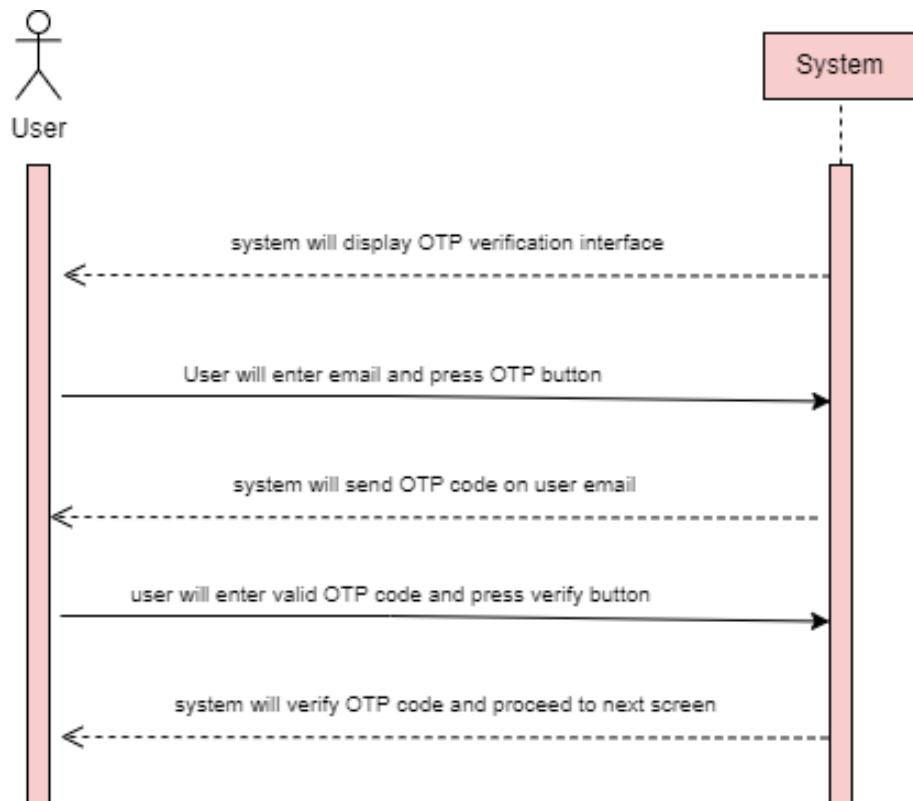
3. Forget the password



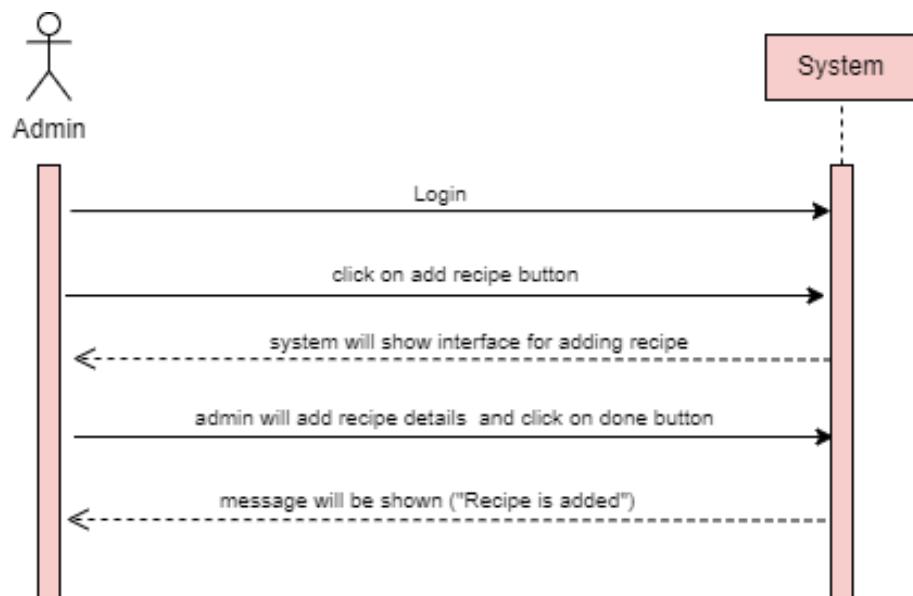
4. Push Notification



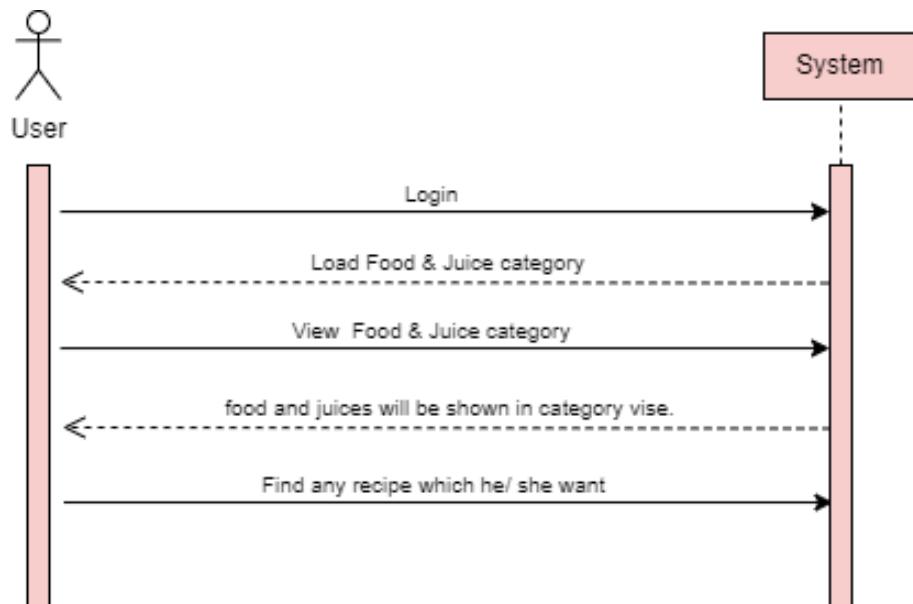
5. OTP Verification



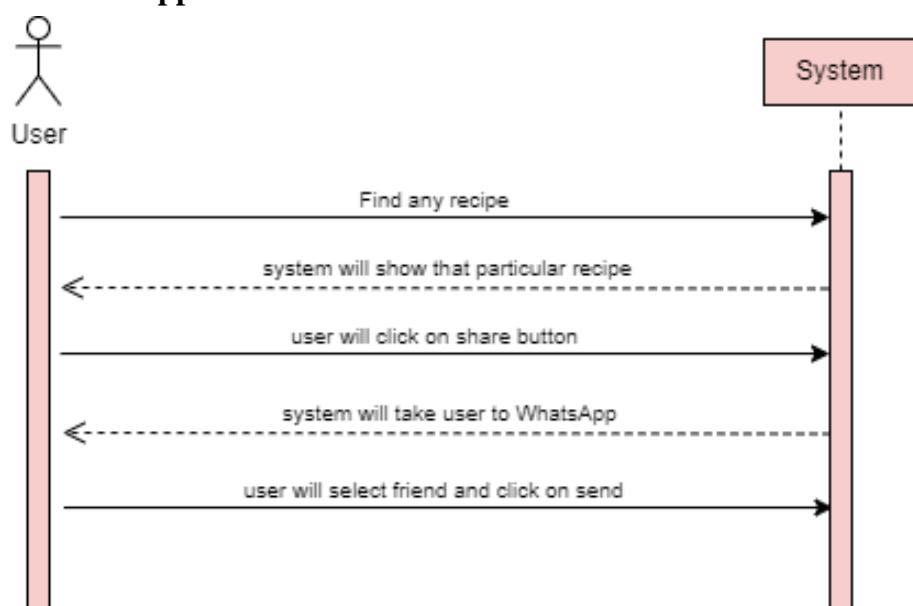
6. Recipe Add



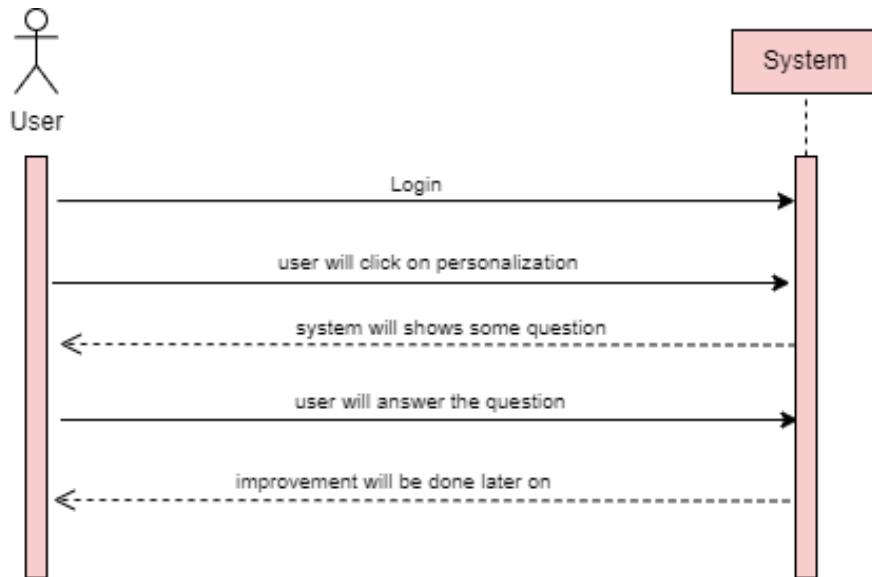
7. Food & Juice Category



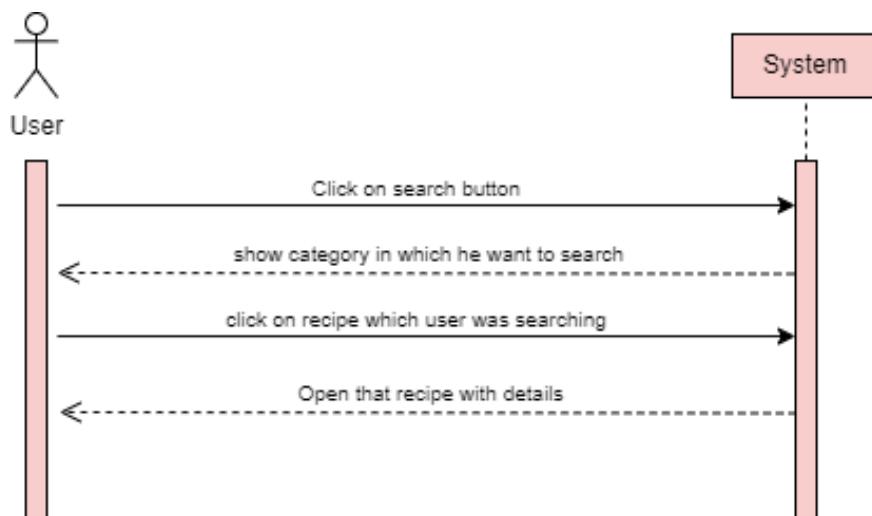
8. Share on WhatsApp



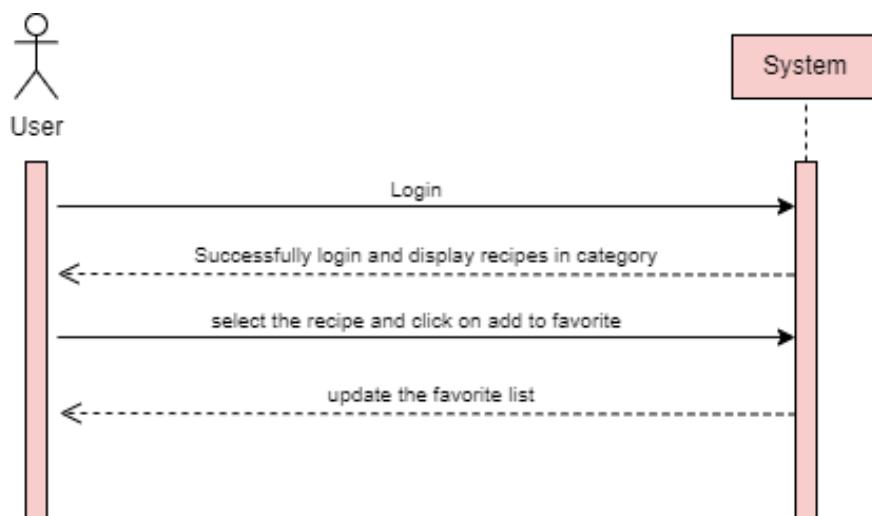
9. User Personalization



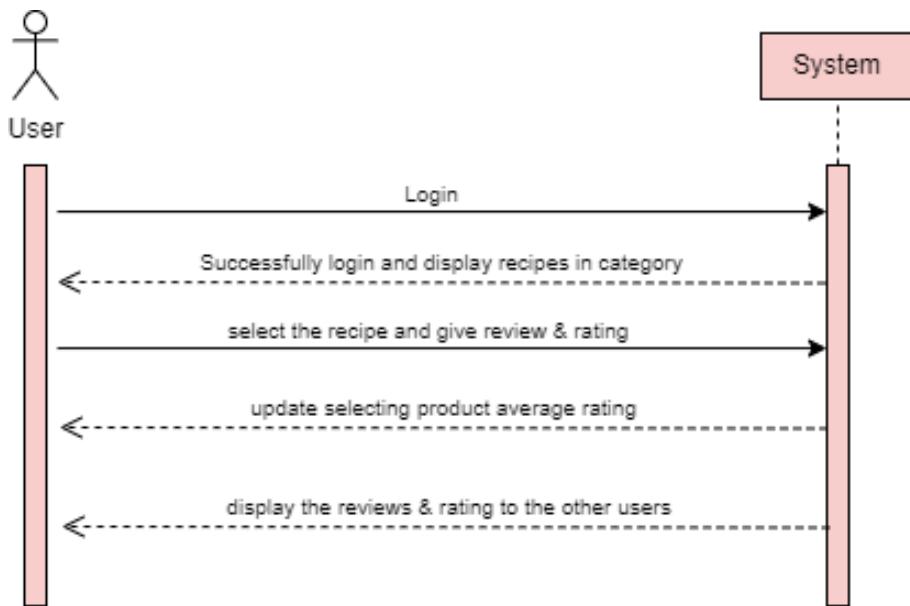
10. Filter Search



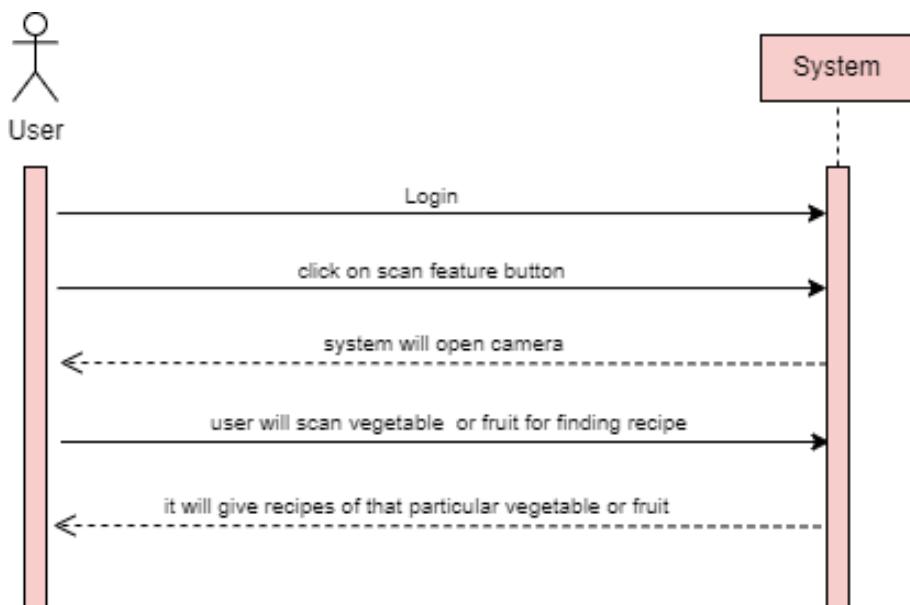
11. Add to Favorite



12. Review & Rating



13. Scan Feature



7.4 Use Case Diagram



7.5 Iteration Plan for FYP 1

S.No.	Features	FYP-I & II Iterations			
		Monthly Iteration-I	Monthly Iteration-II	Monthly Iteration-III	Monthly Iteration-IV
F1, F2	F1: Easy Registration Process F2: OTP Verification	Requirements (100%)			
		Design (100%)			
		Implementation (100%)			
		Tested			
F2, F3, F4, F5, F6	F3: Push Notification F4: Recipe CRUD F5: Admin Portal F6: Save to Favorite		Requirements (100%)		
			Design (100%)		
			Implementation (100%)		
			Tested		
				Requirements	
F7, F8, F9	F7: Filter Search F8: Food & Juice Category F9: Share Recipe			Design	
				Implementation	
				Testing	
					Requirements
F10, F11, F12	F10: User Personalization F11: Review and rating F12: Scan Feature			Design	
				Implementation	
				Testing	
	
Output Features		F1, F2	F2, F3, F4, F5, F6	F7, F8, F9	F10, F11, F12

8. Test Cases

8.1 Easy Registration Process

Test Cases ID	Test Case Name	Test Case Summary	Test Case Steps	Expected Result	Actual Result
TC001	Easy Registration Process	The aim of this test is to confirm that the registration process of a new user is functioning correctly.	<ol style="list-style-type: none"> User enters his/her details to register themselves. User then presses the create account button. 	The user will be registered and created his/her account.	Everything processed as expected.

8.2 Login

Test Cases ID	Test Case Name	Test Case Summary	Test Case Steps	Expected Result	Actual Result
TC002	Login (User and Admin)	Verify that by clicking log in, after entering a valid email and password.	<ol style="list-style-type: none"> Enter details associated with his/her account. Press the login button. 	Successfully Login if the email and password are correct.	If email and password are correct, the result is expected.

8.3 Forget Password

Test Cases ID	Test Case Name	Test Case Summary	Test Case Steps	Expected Result	Actual Result
TC003	Forget Password	To reset the password through email.	<ol style="list-style-type: none"> Enter the required field and press "Reset Password" button. Open the link and set a new password. 	Password changed successfully.	If the email is correct so the result is expected.

8.4 OTP Verification

Test Cases ID	Test Case Name	Test Case Summary	Test Case Steps	Expected Result	Actual Result
TC004	OTP Verification	We are verifying that users are registered with the real or fake email addresses.	<ol style="list-style-type: none"> User will enter their email and press send OTP button. 	Password changed successfully.	If the email is correct so the result is expected.

8.5 Food and Juice Category

Test Cases ID	Test Case Name	Test Case Summary	Test Case Steps	Expected Result	Actual Result
TC005	Food & Juice Category	To show recipe in grid form with recipe steps	<ol style="list-style-type: none"> User click on recipe and can view recipe details in which recipe steps and ingredients will show. 	User can see recipe listing in grid view of from and can view recipe details.	If user have an account so the result is expected.

8.6 Advanced Search

Test Cases ID	Test Case Name	Test Case Summary	Test Case Steps	Expected Result	Actual Result
TC006	Advanced search	To search recipe through recipe category.	<ol style="list-style-type: none"> Click on search button. Click on search bar to search recipe by filter category. 	Recipe will be show according to user desired search.	Recipe shown and result is expected.

8.7 Add Recipe

Test Cases ID	Test Case Name	Test Case Summary	Test Case Steps	Expected Result	Actual Result
TC007	Add Recipe (Admin)	To add recipe into application	1. Admin will add recipe details, recipe steps and recipe image. 2. Admin will click on add recipe button.	Recipe will be added alongside with recipe details and recipe image in database.	New recipe is added and the result is expected.

8.8 Delete Recipe

Test Cases ID	Test Case Name	Test Case Summary	Test Case Steps	Expected Result	Actual Result
TC008	Delete Recipe (Admin)	To delete recipe into application	1. Admin clicks on the recipe which he/she wanted to delete it.	Recipe will be deleted from recipe listing and database.	Recipe deleted successfully.

8.9 Share Recipe

Test Cases ID	Test Case Name	Test Case Summary	Test Case Steps	Expected Result	Actual Result
TC009	Social Media Integration	To share recipe on social media through application.	1. User clicks on share button. 2. Select platform which is already install in mobile.	Recipe will be share on that social media platform in which user want to send.	Recipe shared and result is expected.

8.10 Push Notification

Test Cases ID	Test Case Name	Test Case Summary	Test Case Steps	Expected Result	Actual Result
TC0010	Push Notification	To get notification when user try to register account by using OTP Verification.	1. User will receive notification for OTP code. 2. User then see the notification.	User will get notification for OTP.	Notification received.

8.11 Review and Rating

Test Cases ID	Test Case Name	Test Case Summary	Test Case Steps	Expected Result	Actual Result
TC0011	Review and rating	To get review about recipes and rating to recipes	1. The system display will recipe listing. 2. The user selects the recipe. 3. User will give review or feedback regarding recipe and user will also give rating to recipe. 4. System will saved the review & rating and then show to other users also.	User will be given review and rating to recipes.	Everything proceeded as expected.

8.12 Add to favorite

Test Cases ID	Test Case Name	Test Case Summary	Test Case Steps	Expected Result	Actual Result
TC0012	Add to favorite	To favorite recipe which he/she wanted to view later.	<ol style="list-style-type: none"> 1. The system display will recipe listing. 2. The user selects the recipe which he/she wanted to view later and click on favorite button. 3. System will then update favorite list page. 4. Later user can go to favorite page to see the list. 	User will add recipe into favorite page which they want to view later.	If recipe is added into favorite page so result is expected.

8.13 Scan Feature

Test Cases ID	Test Case Name	Test Case Summary	Test Case Steps	Expected Result	Actual Result
TC0013	Scan Feature	User will scan vegetable or fruit through camera and recipe will be shown.	<ol style="list-style-type: none"> 1. The system display will recipe listing. 2. User will click on camera. 3. User will scan vegetable or fruit. 4. Recipe will be shown to user for that particular vegetable. 	User will find recipe through scan feature.	If user have an account so the result is expected.

Software Design Specification

9. Introduction

9.1 Purpose of this document

The purpose of the document is to provide a detail description about the system. That how the system works, what are the assumptions made while making this system and what risk factors are considered etc. so through this the intended audience for this specific document will know about all this detail including software architecture and the sequence or work flow for a particular task is also explained for the ease of the both stakeholders and the developers of the system.

9.2 Scope of the development project

Our project mainly focused on providing a platform where users have a reliable way to search their favorite recipes and satisfying the user's needs by using scan feature and also by our project user can also find particular recipe by scanning vegetable and fruits.

- Easy Registration Process:**

In this feature, the user will be able to register themselves in our app by providing a few basic details, then the user will be able to login into our Recipedia App.

- OTP verification:**

This feature will verify the Email Address of the user by sending them an OTP verification code when the user is doing registration.

- User Personalization:**

How users can easily go to another feature in a few clicks.

- Push Notification:**

Users will be notified when the new notification arrived in the app.

- Admin Portal:**

In this feature, there will be a dashboard of admin in which the admin will perform all the CRUD operations for users.

- Food & Juice Category:**

There will be categories of food and juices so by using these features users can easily get recipes.

- Save recipe to favorite:**

In this feature, the user can save any of the recipes which they like to favorite and can also share that recipe with their friends.

- Recipe (CRUD):**

In this feature, the recipe will be added, remove, delete or update according to the need.

- Advance Search/Filtered Search:**

Users will be able to see the search according to the filter search which they have selected.

- Share Recipe on WhatsApp:**

With this feature, users can send any recipe to anyone.

- Review & Rating of Recipe:**

With this feature, the user can rate & review any of the recipes they try.

- **Scan Vegetable and Fruit:**

In this feature, users can scan any vegetable or fruit and find the recipe.

9.3 Definition, acronyms and aberrations.

- **Firebase:** Firebase offers a dynamic real-time database and backend service, supplying developers with an API to synchronize application data across multiple clients and store it securely on Firebase's cloud infrastructure.

9.4 Reference

N/A

9.5 Overview of document

This document contains the following information.

- **Section 1.0:** Introduces the document's purpose, key terminologies, references, and a succinct overview of subsequent sections.
- **Section 2.0:** Provides an insight into the system architecture, its components, inter-component relationships, and pertinent user interface considerations.
- **Section 3.0:** Offers an in-depth elucidation of each software component. Refer to the component template for detailed information.
- **Section 4.0:** Elaborates on the User Interface Design strategies and considerations.
- **Section 5.0:** Explores the role of reuse in both product design and implementation.
- **Section 6.0:** Lists the design decisions and trade-offs made during the design phase, providing rationale for these choices.
- **Section 7.0:** Presents pseudo-code implementations for the project's diverse components.
- **Section 8.0:** An appendix encompassing our UML, Use-Case, State chart, Object diagrams, and Class diagram.

10. System Architecture Description

10.1 Section Overview

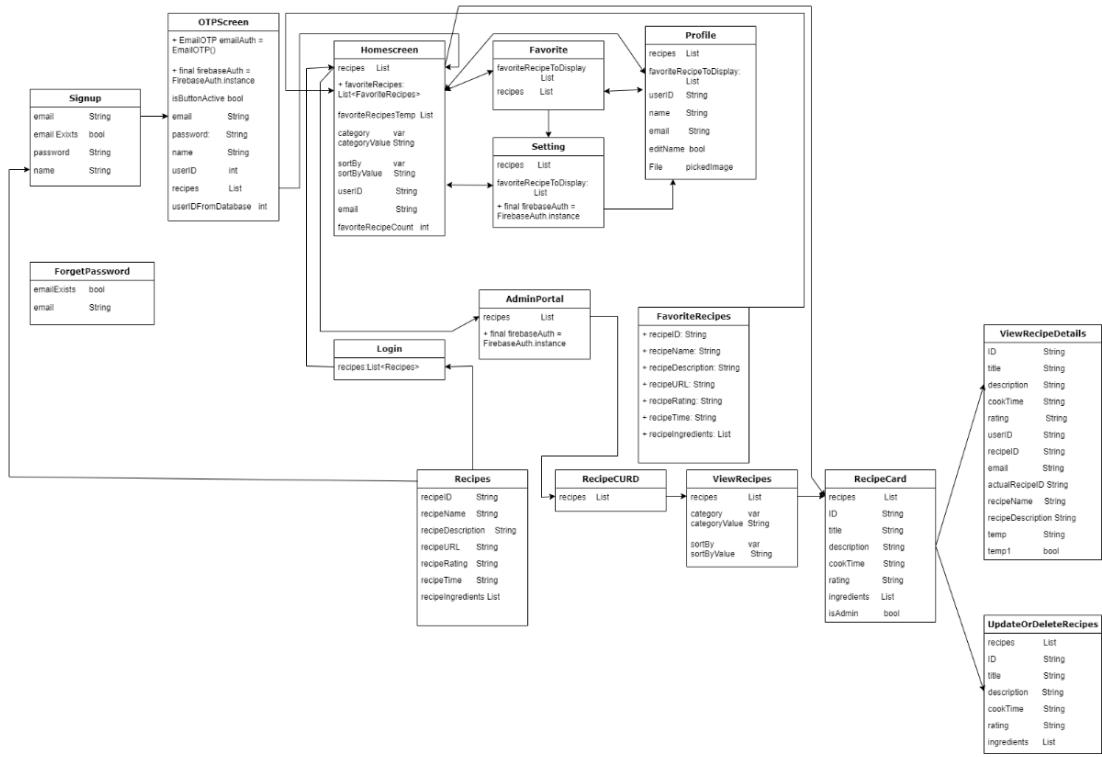
This section will provide an outline of the various components and subsystems of the Recipedia app as well as the Data design of the system. In **section 2.2** the general Constraints in which we describe what are the requirements, hardware and software environments and limitations of our system. In **section 2.3** there will be ERD diagram. In **section 2.4** we describe architectural model and various major components. In **section 2.5** alternative of architectural model for our system.

10.2 General Constraints

Developing a platform such big that handles data of everyone, there will be always ongoing difficulties each day that must be tackled, solved and handled effectively without compromising Recipedia invulnerability and performance. Recipedia basically will be made on visual studio, and for training data of fruit and vegetable we use google colab. So, no hardware will be required it's completely based on software. Limitation will be only that user cannot run the application where there is no internet connection and other user not registered.

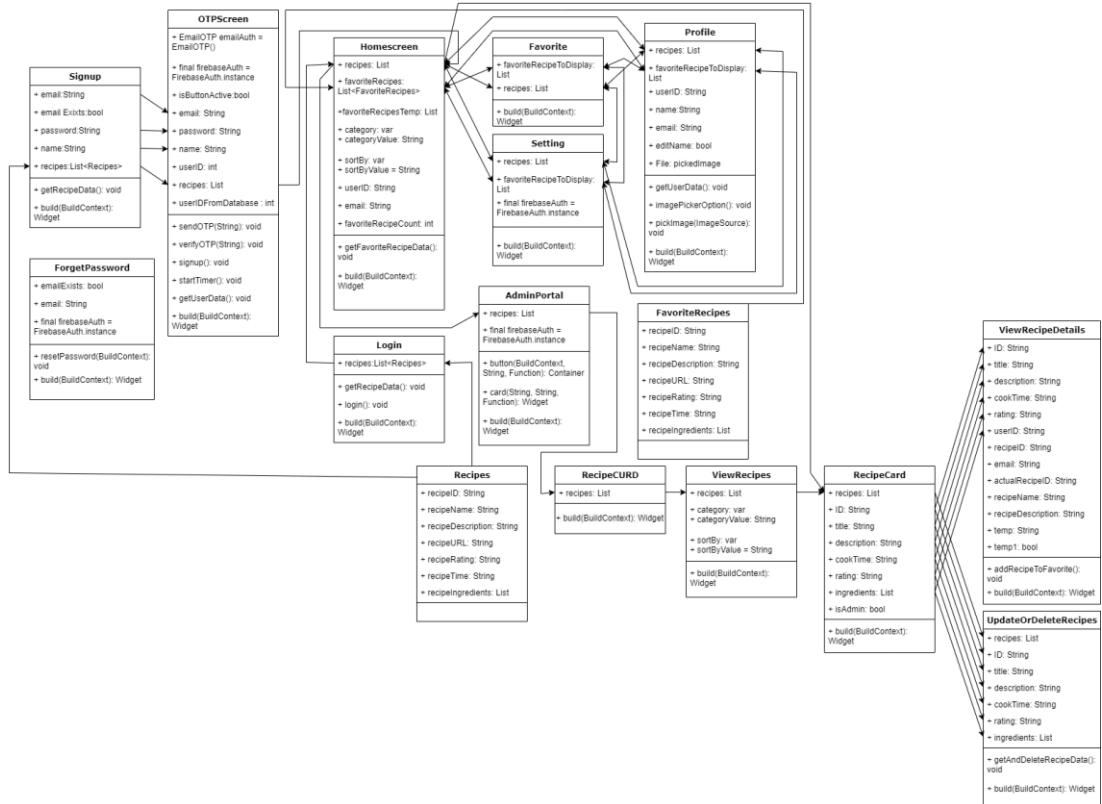
10.3 Data Design

ERD:

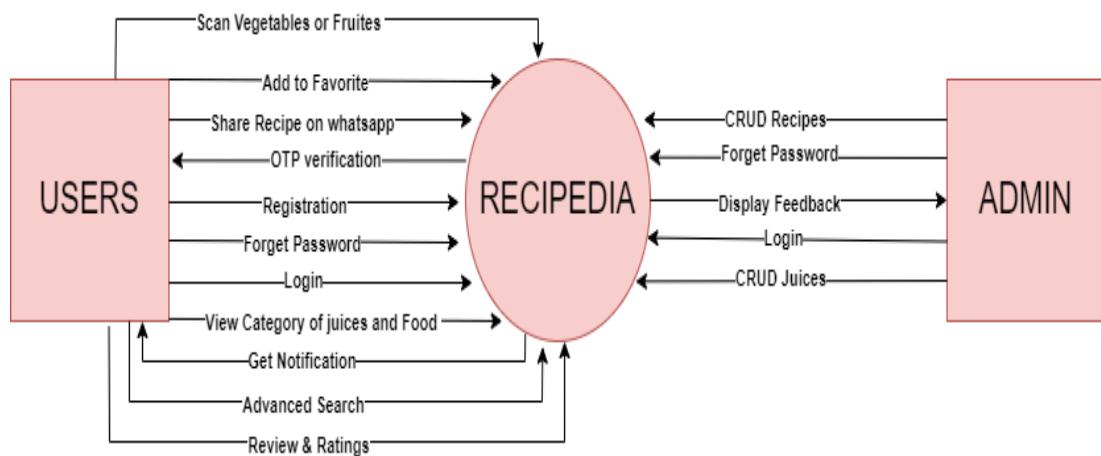


10.4 Program Structure

Class diagram:



Block Diagram:



10.5 Alternative Considered

Not applicable

11. Detailed description of the components

11.1 Section Overview

This section will provide most of the basis for implementing the system. In section 3.2 we describe the complete detail of components including their description, data members and methods and also component template description.

11.2 Component 1:

Description:

The use of registration of an account in our application, user will get new recipe and get notification or user can register with our application.

Data members:

It's a type of class which we need in our system through which user can register them with our application and it is visible for everyone.

Methods:

- We make registration class and Include registration function.
- Function will store user's credentials in firebase database.
- If something is wrong it will give error message.
- User then redirects to homepage.

Registration Screen Components

Identification	Registration Screen
Type	Class
Purpose	The registration screen is made for the new users can register with our system and view recipes.
Function	There are some fields in the registration screen like username, email address, password, when a user enters all the required fields and press register button so all the data will be saved in our database and user redirect to the OTP page.
Subordinates	The following screen contains links to the following screen: <ul style="list-style-type: none">• OTP
Dependencies	The following screen links to this screen: <ul style="list-style-type: none">• LoginAndSignupScreen
Interfaces	In our registration screen the link are included with bold font so that user can notice it very easily. The screen is created using standard resolution on personal computer. We use the flutter to make registration screen interface.
Resources	The access is only for valid users.
Processing	The processing which involve in our system is the inputting information into the textboxes and navigating it to the other pages. Each page navigates user to new page with unique interfaces.
Data	The data supplied by the system are fields.

11.3 Component 2:

Description:

The use of a login screen in our application is that users can login with their registered account to get recipe details.

Data members:

It's a type of class which we need in our system through which user can register them with our application and it is visible for everyone.

Methods:

- We make Login class and Include login function.
- Function will store user's credentials in firebase database.
- If something is wrong it will give error message.
- User then redirects to homepage.

Login Screen Components

Identification	Login Screen
Type	Class
Purpose	This screen assure that the user and admin of the app can access the system.
Function	There are some fields in the login screen like email address, password, when a user enter all the required fields and press button and user redirect to the homepage.
Subordinates	The following screen contain links to the following screen <ul style="list-style-type: none">• HomeScreen
Dependencies	The searching screen link to <ul style="list-style-type: none">• LoginAndSignupScreen
Interfaces	The link of button in the left of the screen. The screen is designed to be easy to view using the resolution standard. We use flutter to design this interface.
Resources	Database access requirements access to the violator information found in the appropriate database. This access is for the valid user and admin.
Processing	The only type of processing is required is inputting information into the textbox and navigating to other pages. Each page directs the users to different page.
Data	The data for only the registration screen is the email address and password entered by the user. It is validated with a query against the database.

11.4 Component 3:

Description:

The use of a forget password screen in our application is that users can reset their password.

Data members:

It's a type of class which we used in our system through which user can reset their password and it is visible for everyone.

Methods:

- We make forget password class and Include forget password function.
- Reset password link will send to user email.
- Function will store user's credentials in firebase database.
- If something is wrong it will give error message.
- User then redirect to Login screen.

Forget Password Screen Components

Identidication	Forget Password Screen
Type	Class
Purpose	This forget screen assures that only users of the app can manage their password.
Function	There are some fields in the forget password screen like email address, when a user enters all the required fields and press button and user redirect to the login screen.
Subordinates	The following screen contain links to the following screen <ul style="list-style-type: none">• Login
Dependencies	The searching screen link to <ul style="list-style-type: none">• Login
Interfaces	The link are contained in the left of the screen. The screen is designed to be easy to view using the resolution standard. We simply flutter to make an forget password layout.
Resources	Database access requirements access to manage password. This access is used to reset the password of the users and check to make sure that the password has rest or not.
Processing	The only type of processing is required is to reset the password by entering data in the required textboxes and make sure to check the link which is send on user given email.
Data	The data supplied by the system are fields, the user must exist. The data given by the users is the approriate information needed to reset the password.

11.5 Component 4:

Description:

The use of the add recipe screen in our application is that admin can add new recipes with full details.

Data members:

It's a type of class which we used in our system through which admin can add recipes and it is visible for everyone.

Methods:

- We make add recipe class and Include add recipe function.
- Function will store recipe details in firebase database.
- Function will store recipe image in firebase database.
- If something is wrong it will give error message.

Add Recipe Screen Components

Identidication	Add recipe screen (Admin)
Type	Class
Purpose	The add products screen assures that only admin of the app can add new recipes.
Function	There are some fields in the Add recipe screen like recipe name, recipe description mean recipe making steps, when admin enters all the required fields and press button and new recipe will be added.
Subordinates	The following screen contain links to the following screen <ul style="list-style-type: none">• updateOrDeleteRecipe
Dependencies	The searching screen link to <ul style="list-style-type: none">• recipeCURD Screen
Interfaces	The link are contained in the left of the screen. The screen is designed to be easy to view using the resolution standard. We simply flutter to make an forget password layout.
Resources	Database access requirements this access is used to add recipe with complete details and check to make sure that recipe upload successfully.
Processing	The only type of processing is required is to add products by entering data in the required textboxes.
Data	The data supplied by the system are fields. The data entered by the admin is the valid and product uploaded.

11.6 Component 5:

Description:

The use of the delete recipe screen in our application is that admin can delete recipes.

Data members:

It's a type of class which we used in our system through which admin can delete recipes and it is visible for everyone.

Methods:

- We make admin all recipe class and Include admin all recipe function.
- By clicking long on recipe, a pop will appear with a message.
- recipe will be deleting and database will be updated.
- If something is wrong it will give error message.

Delete Recipe Screen Components

Identidication	Delete recipe screen (Admin)
Type	Class
Purpose	The delete products screen assures that only admin of the app can delete new recipes.
Function	There are no fields in the delete recipe screen. Admin only click long to delete recipes.
Subordinates	The following screen contain links to the following screen <ul style="list-style-type: none">• updateOrDeleteRecipe
Dependencies	The searching screen link to <ul style="list-style-type: none">• recipeCURD Screen
Interfaces	The link are contained in the left of the screen. The screen is designed to be easy to view using the resolution standard. We simply flutter to make an forget password layout.
Resources	Database access requirements this access is used to delete recipe with complete details and check to make sure that recipe delete successfully.
Processing	The only type of processing is required is to delete products by clicking long on recipes.
Data	The data supplied by the system are fields. The data of products will be delete also.

11.7 Component 6:

Description:

The use of the search recipe screen in our application is that users can search recipe by categories.

Data members:

It's a type of class which we used in our system through which users can search recipe and it is visible for everyone.

Methods:

- We make search recipe class and Include search recipe function.
- recipe can search by different options.
- If something is wrong it will give error message.

Search Recipe Screen Components

Identidication	Searching Screen
Type	Class
Purpose	This screen objective is to assist the only those user who are registered they can perform searching by names.
Function	There are few files in searching screen like search bar. This component will be able to do searching.
Subordinates	The following screen contain links to Home Page
Dependencies	The searching screen link to recipe list.
Interfaces	we use flutter widgets to create the user friendly searching interface.
Resources	The access is only for valid users.
Processing	The processing which require in searching is by clicking on search bar and search for recipe category vise.
Data	For the data internal to the component is provided by system fields.

11.8 Component 7:

Description:

The use of the recipe listing screen in our application is that the user can view recipe details.

Data members:

It's a type of class which we used in our system through which users can see details of recipe and it is visible for everyone.

Methods:

- We make recipe listing class and recipe listing function.
- Users can see details of recipes.
- Users can view recipe image.
- Users can give review and rating to recipe.
- If something is wrong it will give error message.

Recipe Listing Screen Components

Identification	Recipe Listing Screen
Type	Class
Purpose	This screen assures that the recipe listing is displaying and the user can view recipes details.
Function	A user click on recipe to see recipes details and image.
Subordinates	The following screen contain links to the following screen • viewRecipeDetails
Dependencies	The searching screen link to • recipeCURD Screen
Interfaces	The link are contained in the bottom navigation bar. The screen is designed to be easy to view using the resolution standard. We simply flutter to make an forget password layout.
Resources	No resources
Processing	The only type of processing is required is to click on products which will redirect the user to the product details page.
Data	The data supplied by the system are fields. User must exist.

11.9 Component 8:

Description:

The use of the send notification screen in our application is that the user can receive notifications related to OTP.

Data members:

It's a type of class which we used in our system through which users can receive notifications.

Methods:

- We make send notification class and notification function.
- Users will receive notifications about OTP.
- Users see notifications.
- Notification will include that see email for OTP.
- If something is wrong it will give error message.

Send Notification Screen Components

Identidication	Send Notification Screen
Type	Class
Purpose	This screen assures that the notification are send to users and the user will receive notification.
Function	A user can view that notification that wil appear like for OTP.
Subordinates	The following screen contain links to the following screen Login Screen Home Screen
Dependencies	The searching screen link to Recipe Listing Screen
Interfaces	The icon is contained in the normal notification.. The screen is designed to be easy to view using the resolution standard. We simply flutter to make an forget password layout.
Resources	No resources
Processing	The only type of processing is required is to click on products which will redirect the user to the product details page.
Data	The data supplied by the system are fields. User must exist.

11.10 Component 9:

Description:

The use of the review and rating in our application is that the user can give review about recipe and also rating to recipe which will be visible to all users.

Data members:

It's a type of class which we used in our system through which users can give review and rating and it is visible for everyone.

Methods:

- We make review and rating class and its function.
- Users can give reviews about recipes.
- Users can give rating to recipe.
- All reviews and rating will be visible.
- If something is wrong it will give error message

Review and Rating Screen Components

Identidication	Review and Rating
Type	Class
Purpose	This screen assures that user can give review and rating to recipes.
Function	A user will give the review and rating about the service which provided by the particular organization.
Subordinates	After user give review it will be main page.
Dependencies	The searching screen link to • Admin Portal Screen
Interfaces	In our feedback screen the link are included with bold font so that the user can notice it very easily. The screen is created using standard resolution. We use flutter to make review screen interface.
Resources	No resources.
Processing	The only type of processing needed to give review for recipes according to their satisfactions which will also help other users to know about the recipes.
Data	The data supplied by the system are fields.

11.11 Component 10:

Description:

The use of the favorite in our application is the users can add recipe into favorite page which they want to buy later.

Data members:

It's a type of class which we used in our system through which users can easily favorite their recipe they feel they want to view later and them into favorite page.

Methods:

- We make favorite class and its function also.
- Users can add recipe into favorite.
- Later they can go and see that recipe list which they added into favorite.
- If something is wrong it will give error message.

Favorite Screen Components

Identidication	Add to Favorite
Type	Class
Purpose	This screen assure that the user can have an option of add to favourite which recipe user like.
Function	A use will selects the food and add them into favourite and that food recipe will be save and they can view later.
Subordinates	The following screen contain links to the following screen Login Screen Home Screen
Dependencies	The searching screen link to Listing Screen Recipe Detail Screen
Interfaces	The link of button is contained to add recipe to favourite page. The screen is designed to be easy to view using the resolution standard . We use flutter to build this interface.
Resources	No resources.
Processing	The only type of processing is required is users add recipe to favourite and which they can view later.
Data	The data supplied by the system are fields. User must exist.

11.12 Component 11:

Description:

The purpose of this OTP verification Screen in our application is the users with fake email address will not be able to access our application only valid email address users can assist our application.

Data members:

It is a type of class which we are going to use in our application which will send OTP on the person email.

Methods:

- We create OTP verification class and OTP Verification function.
- When user will register then the will receive OTP code on his email address which user has mention on register screen.

- If there will be an issue the system will display error message.

OTP Screen Components

Identidication	OTP Verification
Type	Class
Purpose	The OTP verification screen objective is to send the OTP code on users email address from which user have register.
Function	On this screen there will be OTP code field in which user will enter the OTP code to go ahead.
Subordinates	The following screen contain links to the following screen • Homescreen
Dependencies	The following screen links to • Signup Screen
Interfaces	In our OTP verification screen the line are included with bold font so that the user can notice it very easily. The screen is created using standard resolution. We use the flutter to make OTP verification screen interface.
Resources	The access is only for valid admins.
Processing	The processing which involve in our syustem is the inputting information into the textboxes and navigating it to the other pages. Each page navigates user to new page with unique interfaces.
Data	The internal data or data on screen is OTP code which user will get. It is verified with a code against the database.

11.13 Component 12:

Description:

The use of the Scan feature in our application is the users can scan and recipe recipes using scan feature.

Data members:

It's a type of class which we used in our system through which users can easily scan and try to find recipe by using scan feature.

Methods:

- We make scan class and its function also.
- Users will scan fruit or vegetable using camera.
- recipe will display after you scan vegetable or fruit.
- If something is wrong it will give error message.

Scan Feature Screen Components

Identidication	Scan Feature
Type	Class
Purpose	This screen assure that the user can use scan feature by which particular recipes will be show of that scan vegetable.
Function	A use will scan fruit or vegetable and find recipe.
Subordinates	The following screen contain links to the following screen • Home Screen
Dependencies	The searching screen link to • Login Screen • OTP Screen
Interfaces	The link of button is to contained to try scan feature. This screen is designed to be easy and to view using resolution standard.
Resources	No resources.
Processing	The only type of processing is required is users to to scan vegetable by clicking photo and they can view recipe according to that.
Data	The data supplied by the system are fields. User must exist.

12 User Interface Design

12.1 Section Overview

This segment encompasses the subsequent details:

- Section 4.2: Provides an introductory insight into the user interface design, elucidating the purpose of design rules.
- Section 4.3: Introduces GUI Components—elements employed within graphical user interfaces. These components enhance usability for individuals with limited computer expertise, facilitating interaction with software.
- Section 4.4: Offers a comprehensive depiction of the user interface, inclusive of screen images.

12.2 Interface Design Rules

Visibility of System Status: Users should consistently be kept informed about system operations through prominently displayed and easily comprehensible status indicators on the screen.

User control and freedom: There are two main users of the system one is Admin and Users, both persons have their own login and have full access control to use the functions that are presented in their accounts.

Consistency and Standards: The application boasts simplicity and user-friendliness, catering to all types of users. All functions are distinctly labeled and elucidated, ensuring clarity. Icons representing categories or concepts should remain consistent and not alter their meaning when employed on different screens.

12.3 GUI Components

- Images
- Buttons
- Icons
- Input fields (Text)
- Scaffold
- App Bar
- Drawer
- Bottom Navigation Bar
- List View
- Grid View
- Snack Bar
- Custom widget

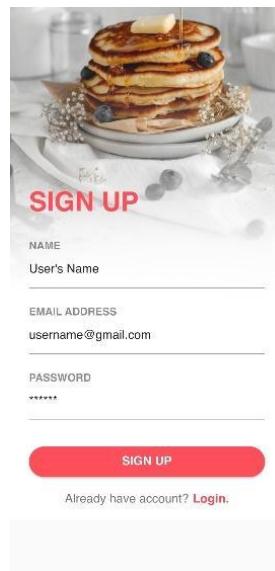
12.4 Detailed Description



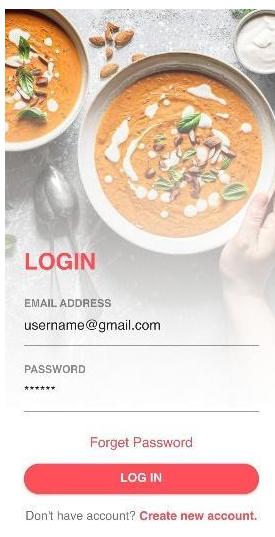
Splash Screen



Welcome Screen



Create Account



Login Screen

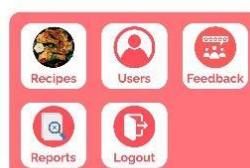


Forgot Password



RECIPEDIA

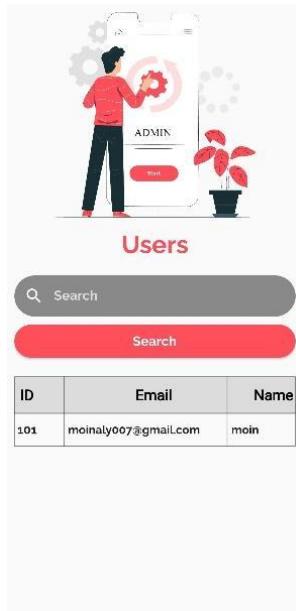
Aao Pakaaye milke!



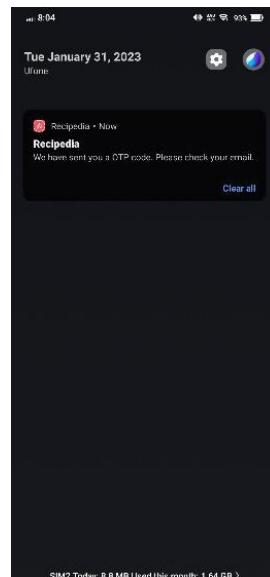
Admin Panel



CRUD Operation



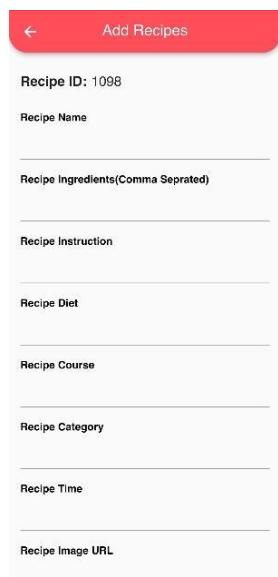
Users Account



Push Notification



View Recipe (Admin)



Add Recipe (Admin)



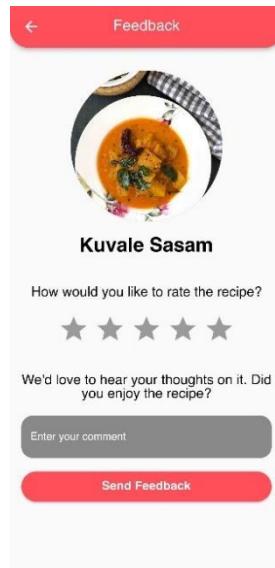
Shown Feedback



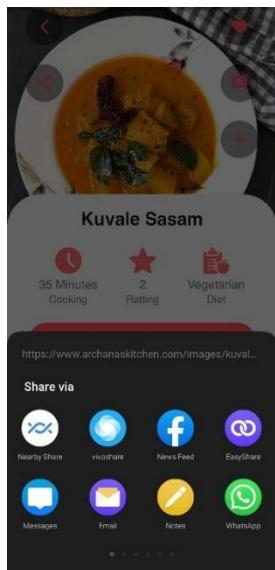
Dashboard



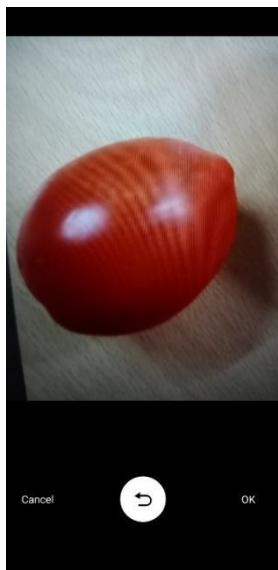
Favorite



Feedback



Share Recipe



Scan Ingredient



Ingredient Recipe

13 Reuse and relationship to other recipes

Right from the outset, our aim was to maximize efficiency by repurposing existing code and prevent redundant efforts. We prioritized the integration of open source or freeware solutions whenever feasible. Given the targeted nature of our software, incorporating open source technologies in various aspects was viable. To begin, we opted for Flutter as our coding platform due to its cost-effectiveness and compatibility across multiple operating systems. Subsequently, we adopted Android Studio as our development environment, thanks to its cost-free availability and the array of plugins that facilitate the utilization of pre-existing applications.

Also, for Database we are using firebase because it is free to user database with amazing UI and it gives many features to make client experience better.

14 Design Decisions and Tradeoffs

The design of a Flutter application was made with efficiency and modularity in mind. To achieve this, the application is divided into individual, encapsulated modules that allow for changes to be made to important parts of the system without affecting the overall structure. The design's ultimate goal is to provide a user-friendly and seamless experience. To enhance navigation and increase visibility, buttons may be used in place of menu items. This decision balances the tradeoff between functionality and ease of use. By using encapsulation, the application remains flexible and adaptable, ensuring that the system remains functional even as parts of it evolve and change over time.

15 Pseudo code for components

1. Registration

- Enter details for registration.
- If (Email == correct form)
- User registered successfully
- Else
- {Show Error message}
- Redirect to Registration Page.

2. Login Screen

- Enter details for registration.
- If (Email == correct form)
- User registered successfully
- Else
- {Show Error message}
- Redirect to Registration Page.

3. Forgot password

- Enter Email to reset password.
- If (Email == Valid)
- Send mail to that email in which reset link is there.
- Else
- {Show Error Message}
- Redirect to Forget Page.

4. Add Recipes

- Login as Admin
- Fill add recipe form
- If all fields are not Empty
- Add recipe in Database
- Else
- Display Error

5. Update Recipes

- Login as Admin
- Choose recipe from recipe list
- Fill all the fields with that recipe current fields i.e. name, ingredients, image etc.
- If all fields are not empty
- Update recipe in Database

- Else

- Display Error

6. Delete Recipe

- Login as Admin

- Click on recipe that you want to Delete from recipe List

- Click on delete recipe

- Delete recipe from database

- Else

- recipe will not delete

7. OTP

- Login as user

- when you register for new account

- Fill the fields

- registration will be done then on next page OTO verification will code

- OTP verification code will send on email

- Else

- your email is wrong

8. Advance Search

- Login as user

- Click on Search Button

- Redirect to Search Layout

- Choose Category

- If click on category

- Filter and show all the recipe that are of that category

- Else

- Display Error

9. Review and Rating

- Login as Users.

- Click on recipe.

- Give Reviews and give star for rating.

- All reviews and rating will be visible to all users.

10. Favorite

- Login as Users.

- Recipe Listing Page.

- Add recipe into favorite page.

- Later users can go and see those recipe in favorite

- Later they can view that recipe.

11. Scan Feature

- Login as Users.

- Click on camera

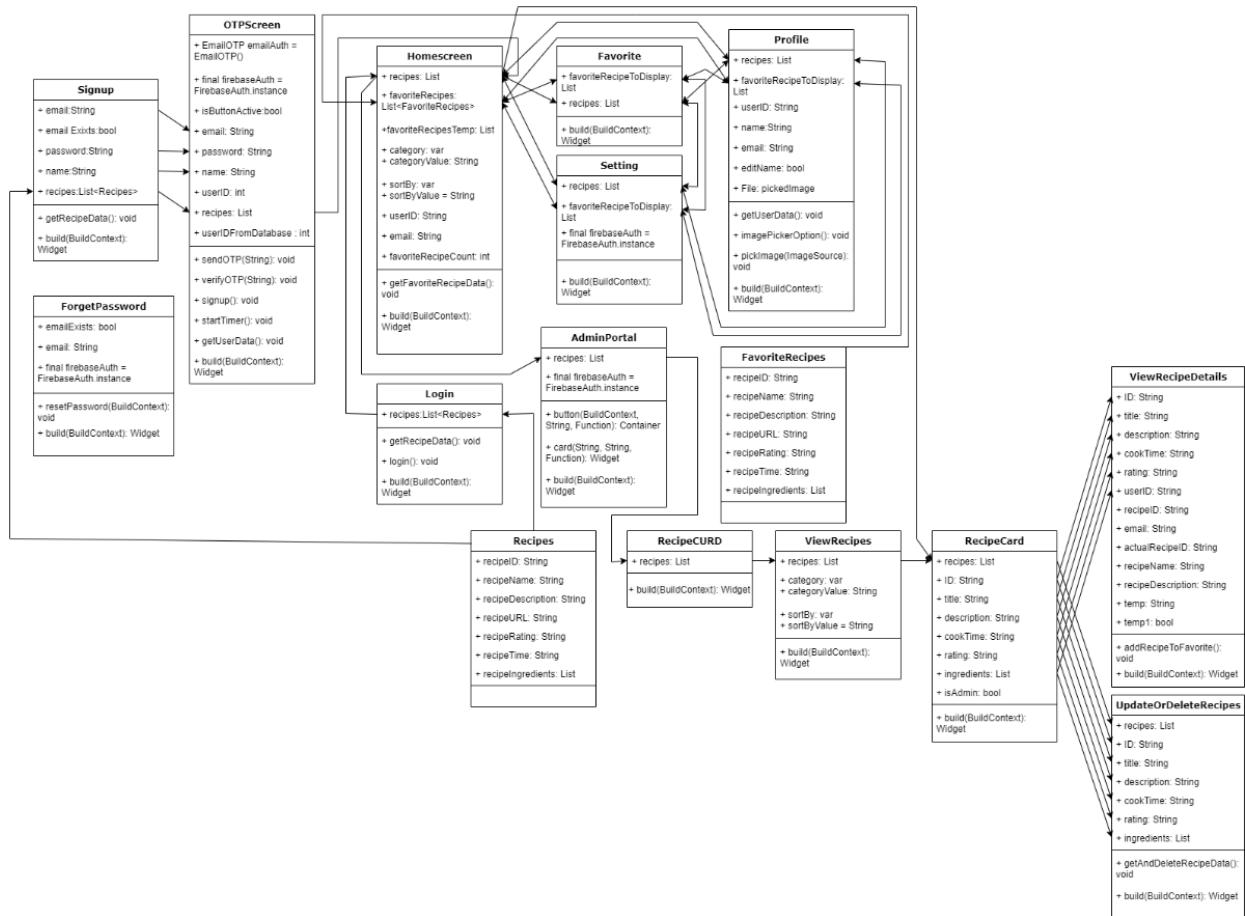
- Scan vegetable or fruit

- it will detect that vegetable or fruit

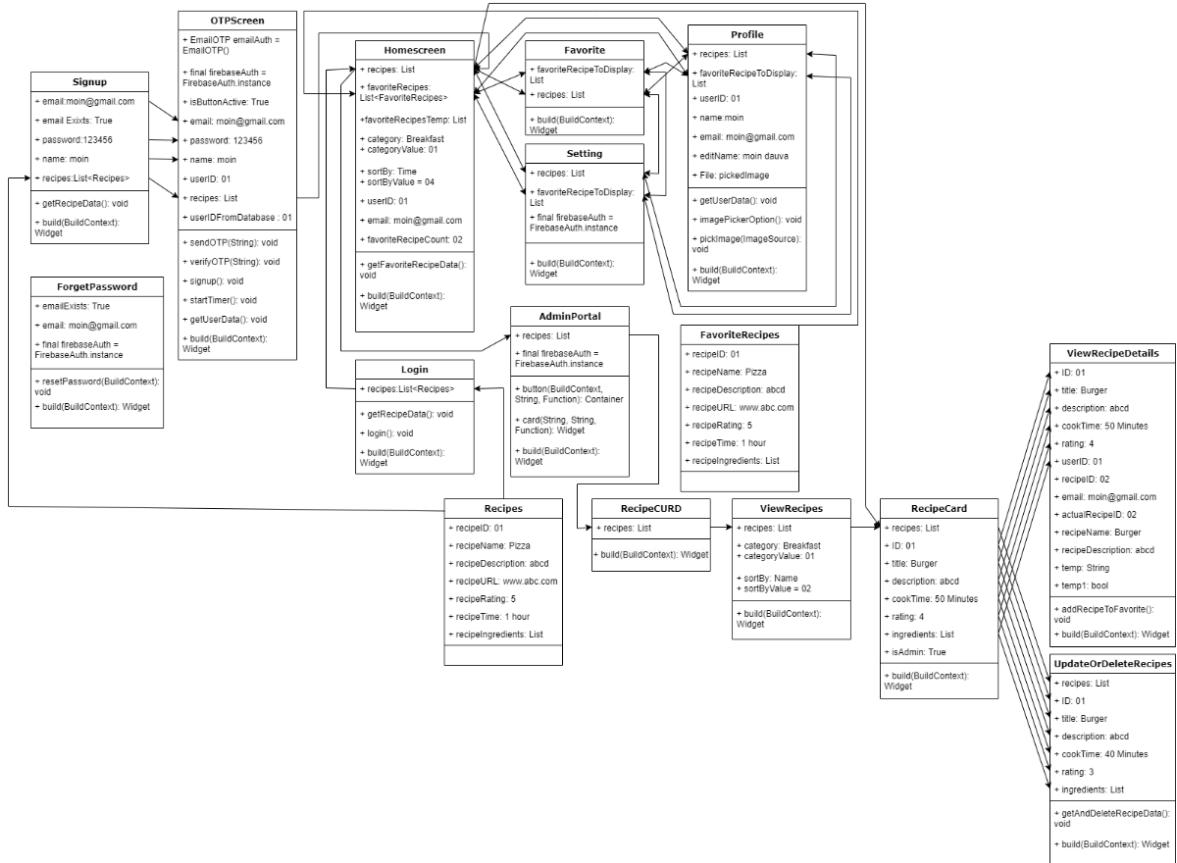
- through API it will show recipe of that particular fruit or vegetable.

16 Appendices

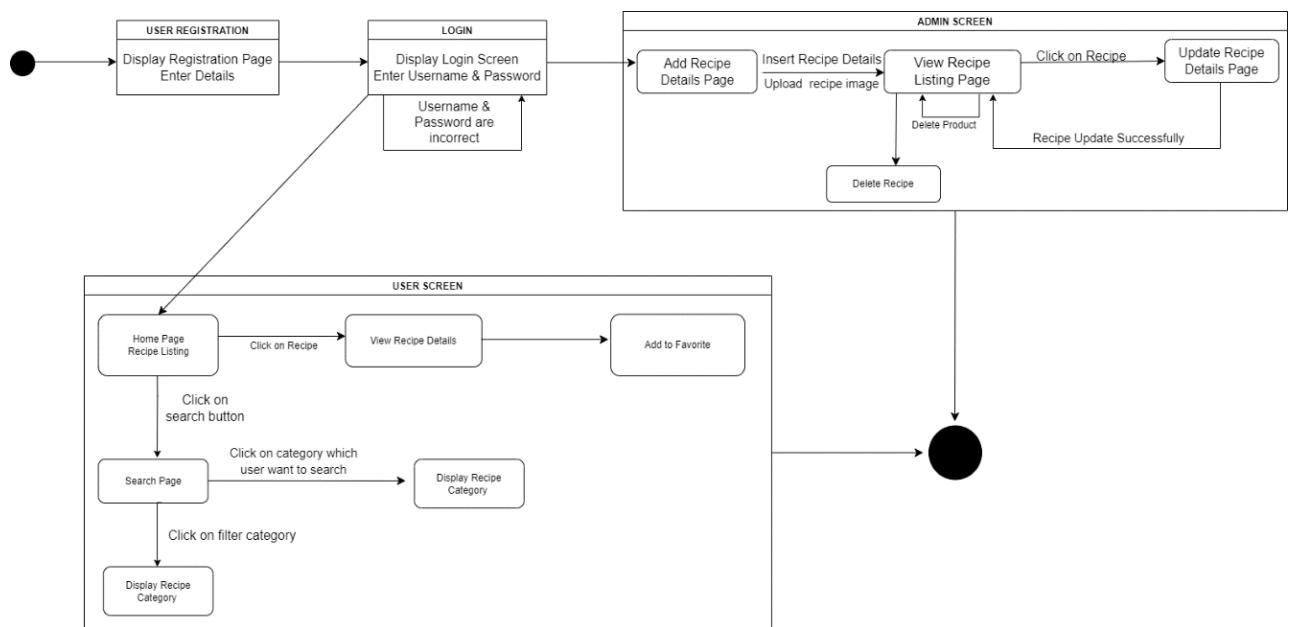
16.1 Class Diagram



16.2 Object Diagram

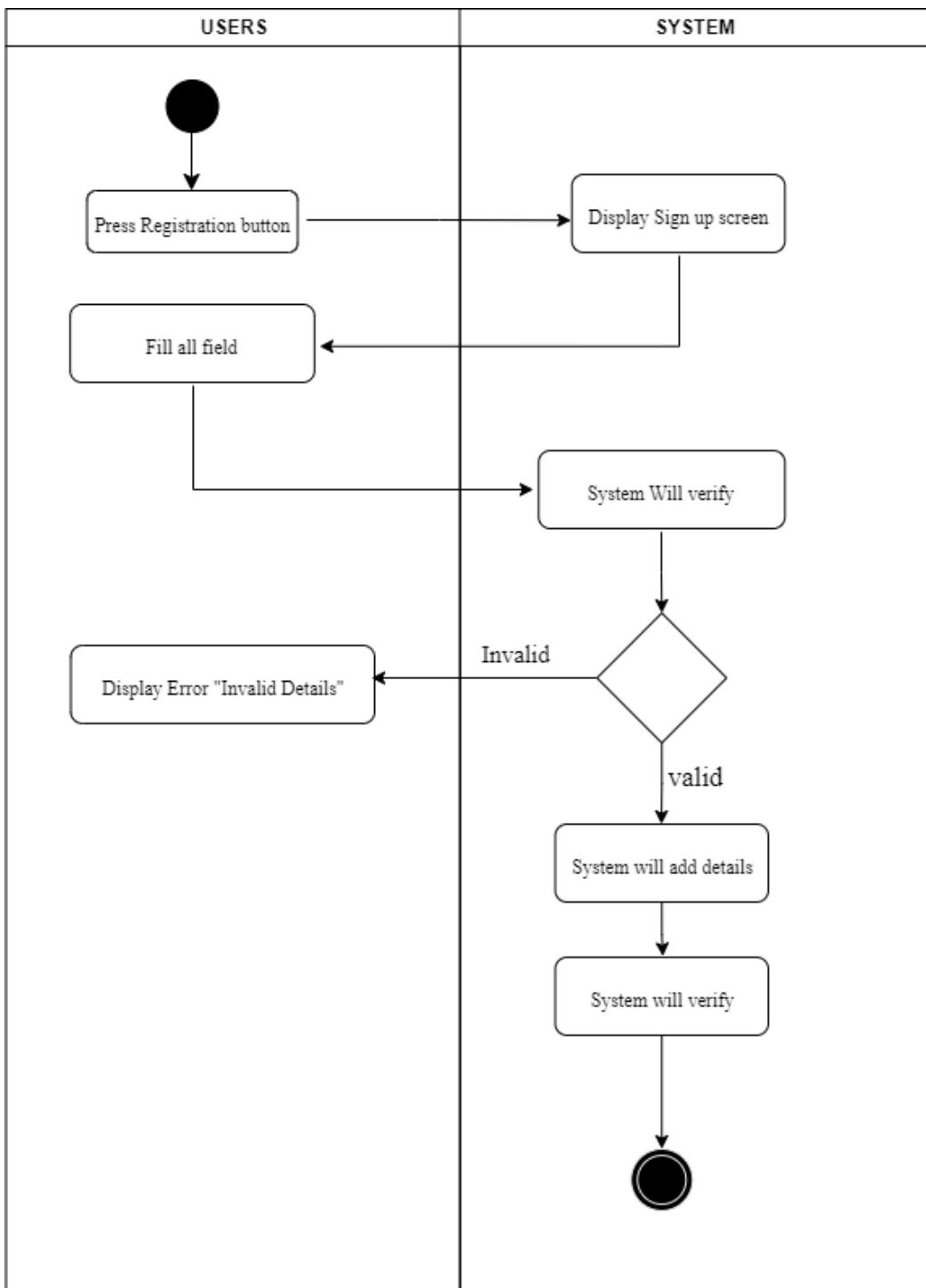


16.3 State Chart

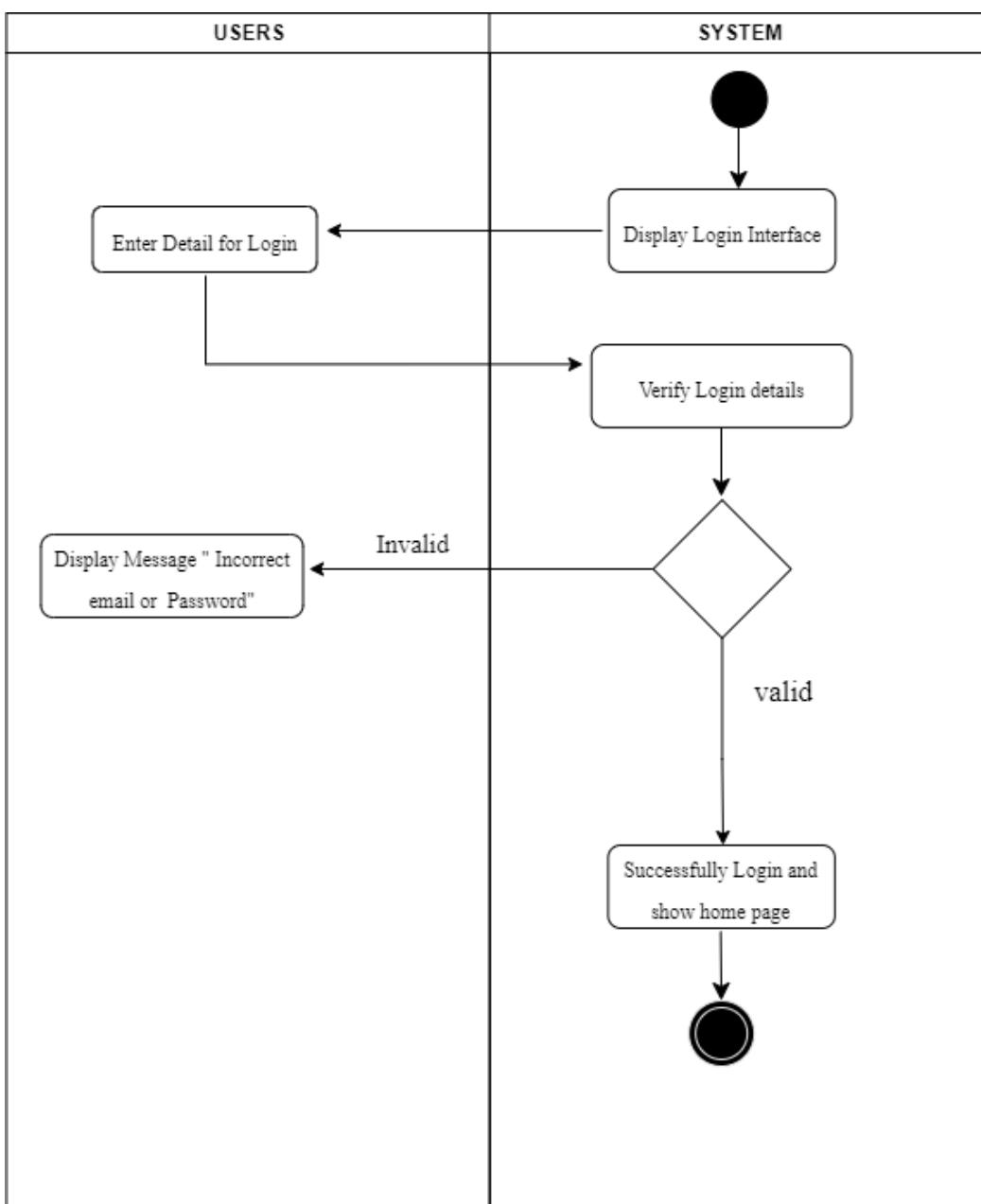


16.4 Activity Diagram

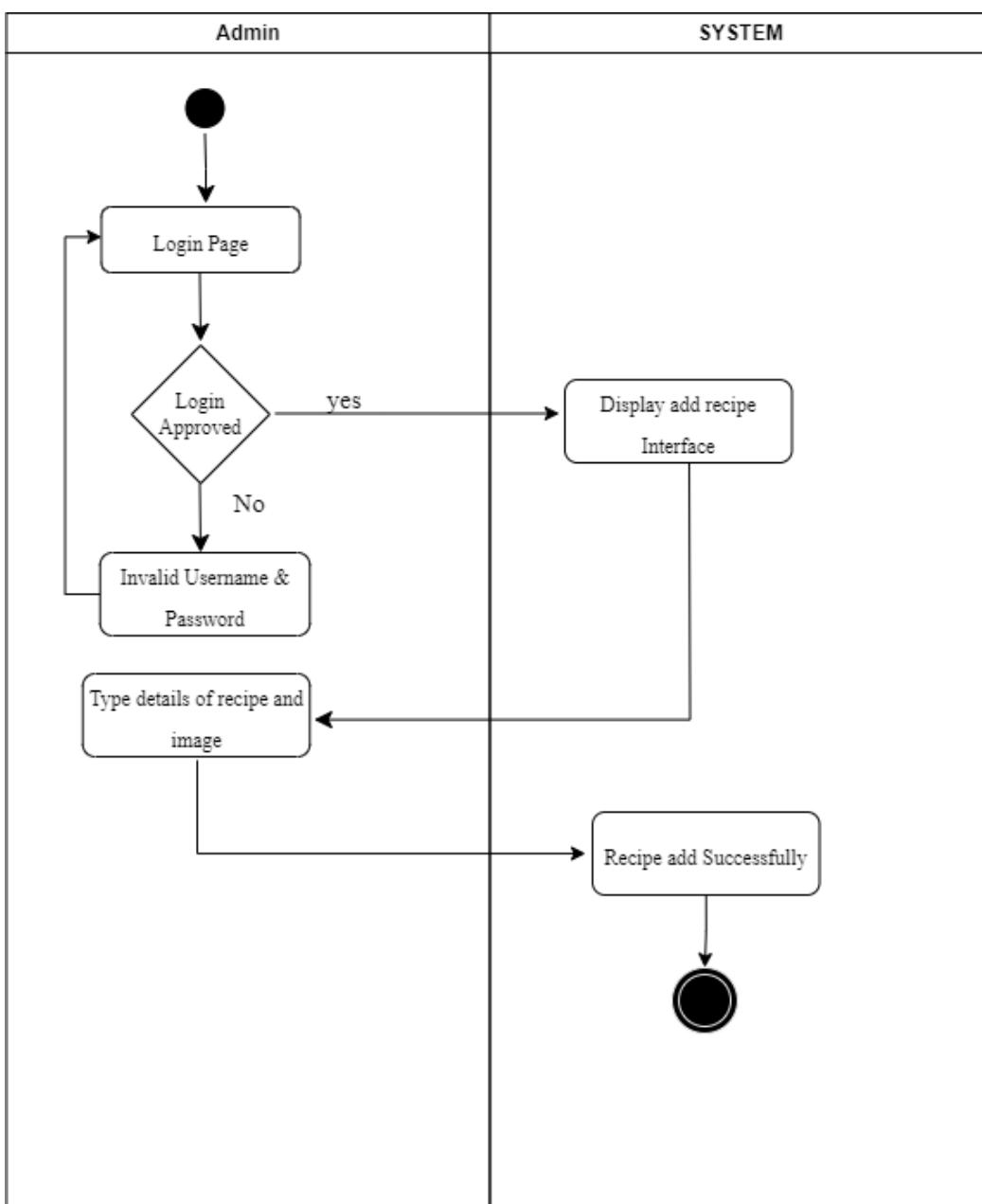
Register



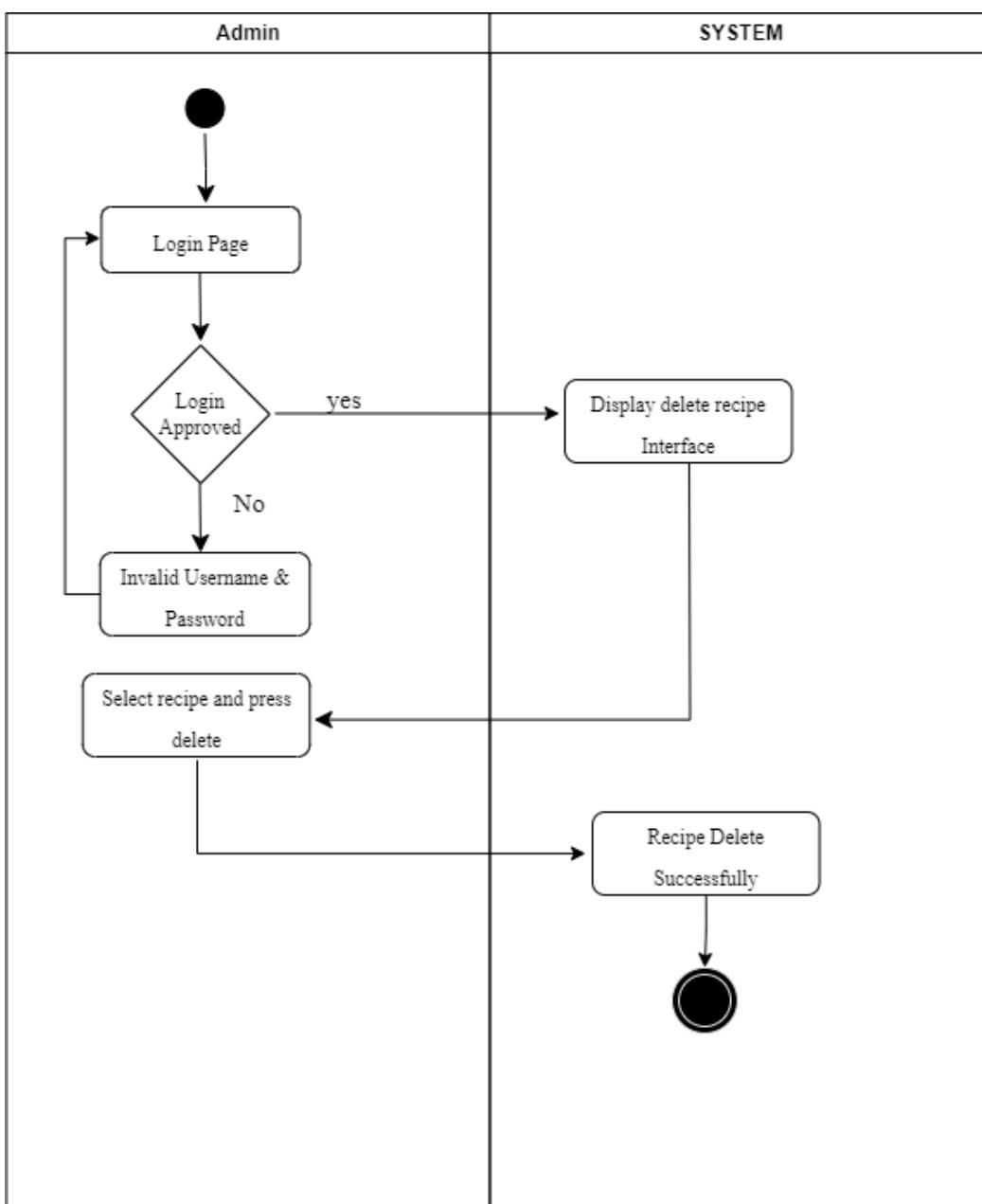
Login



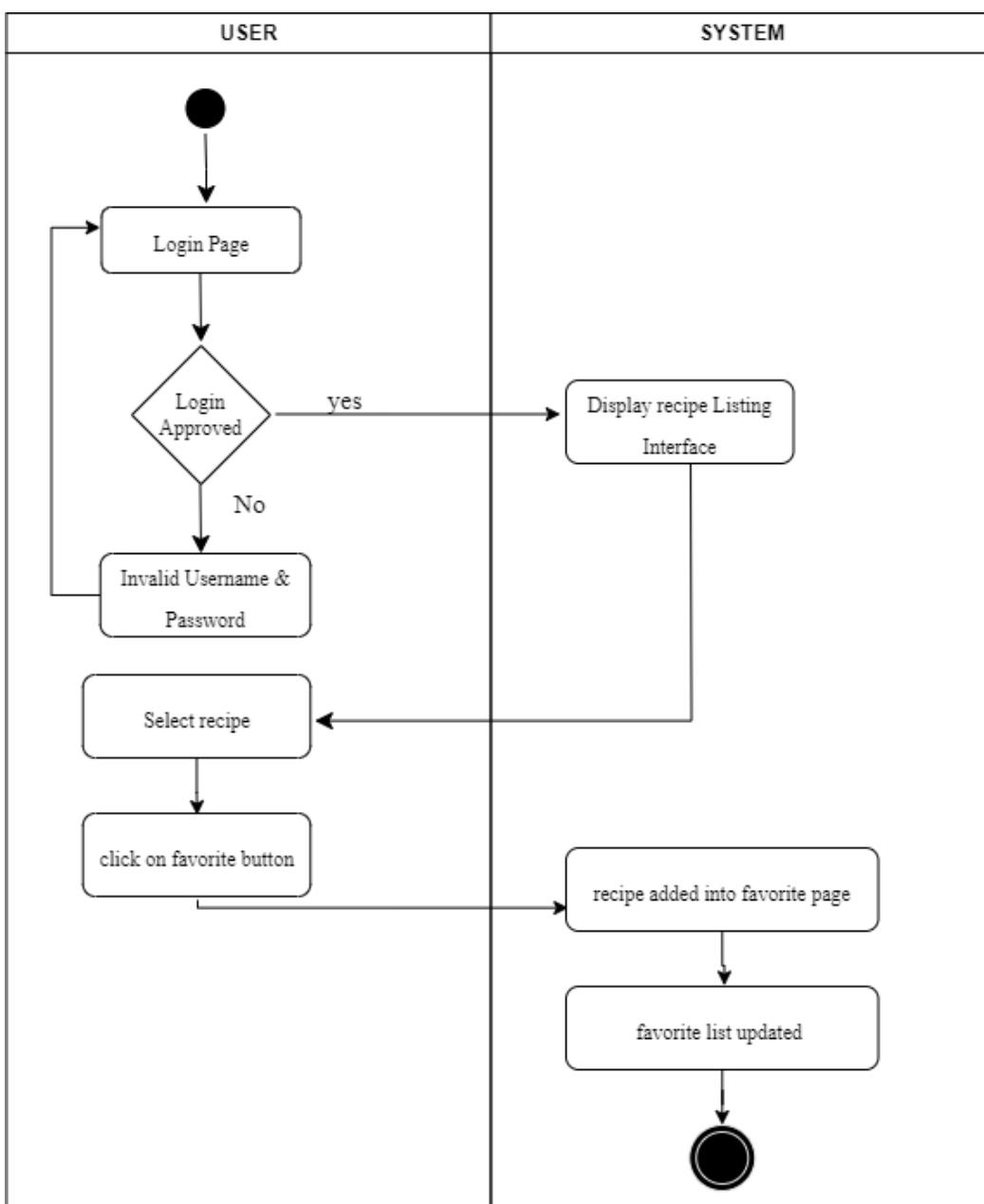
Add Recipe



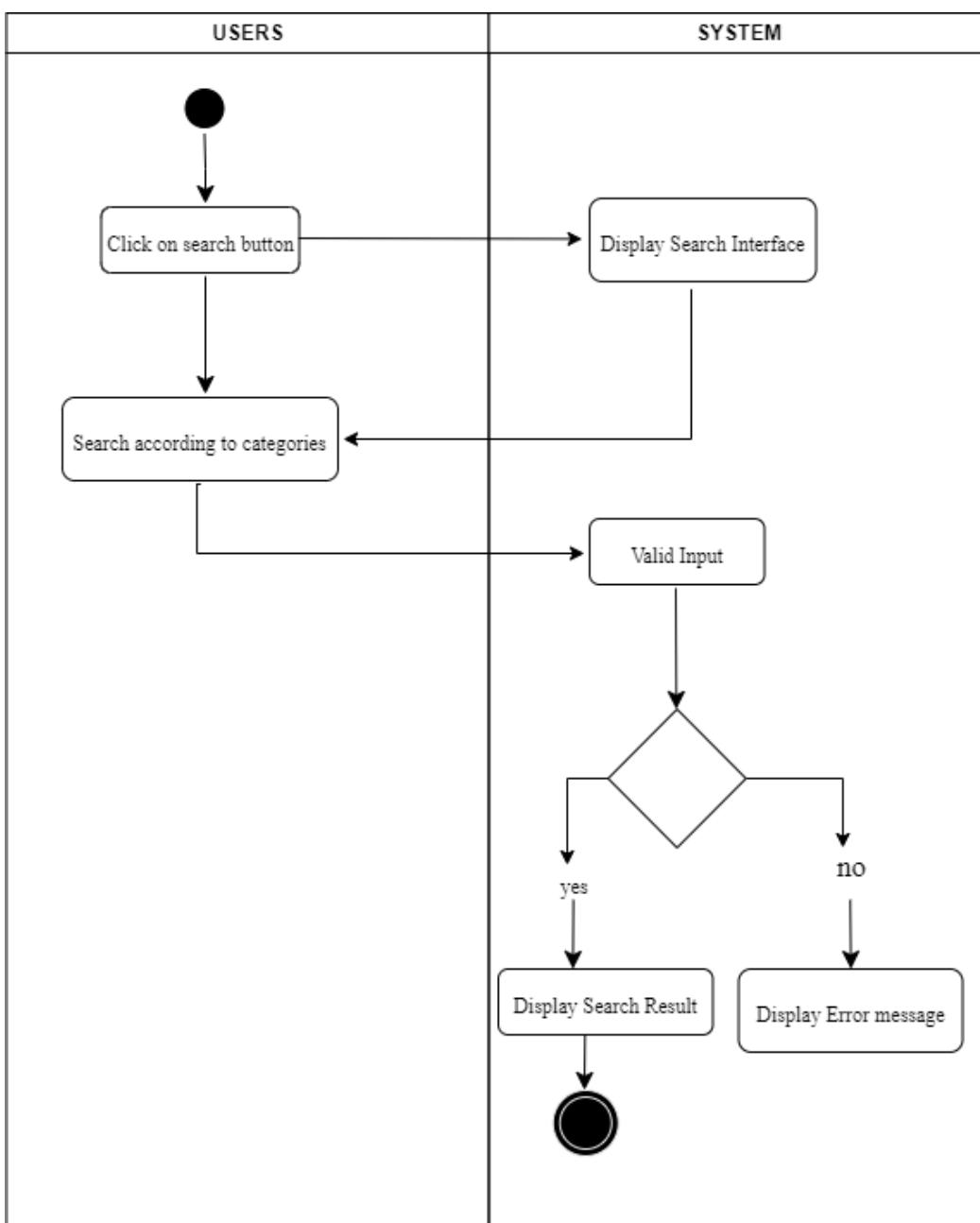
Delete Recipe



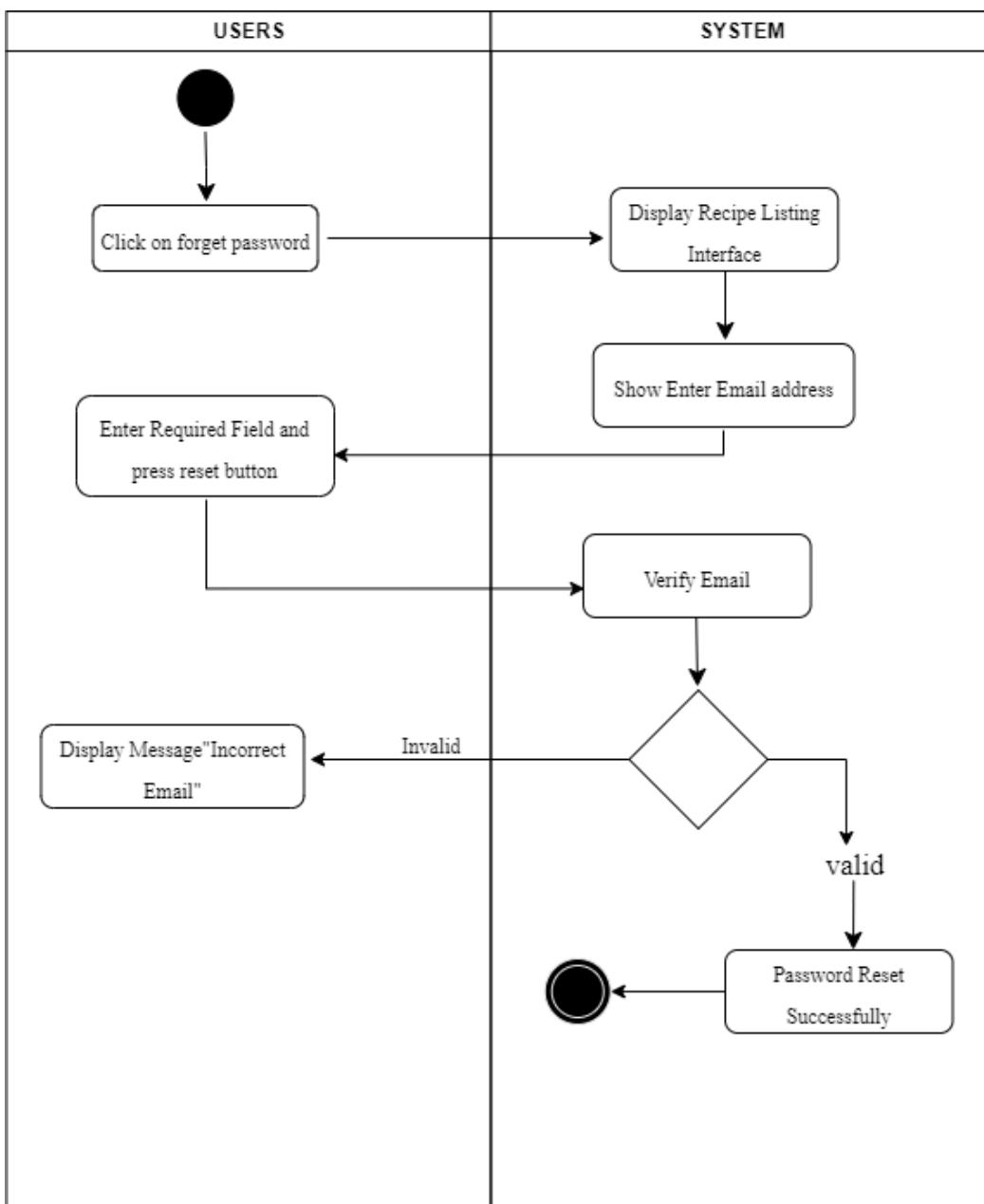
Favorite Recipe



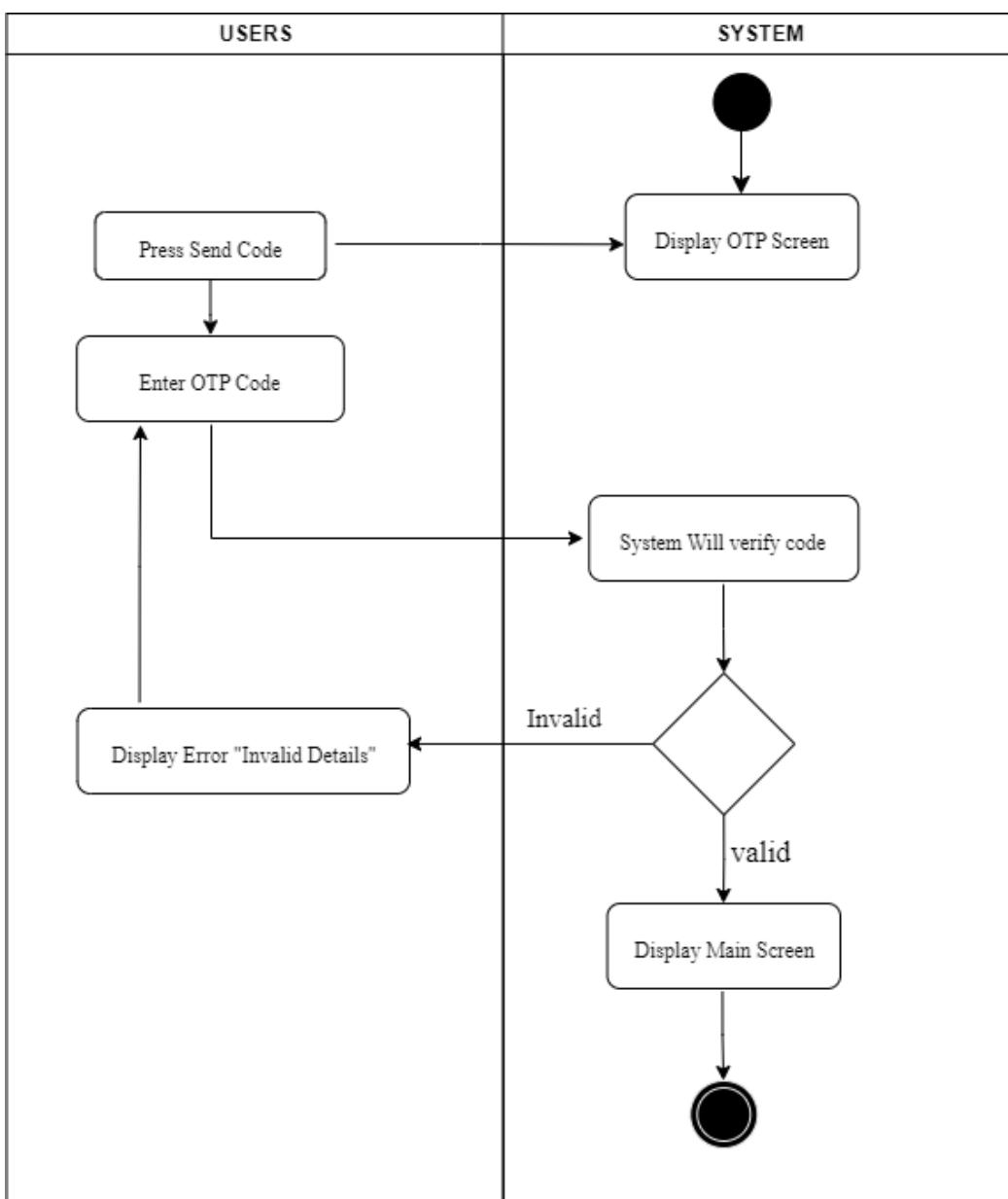
Filter Search



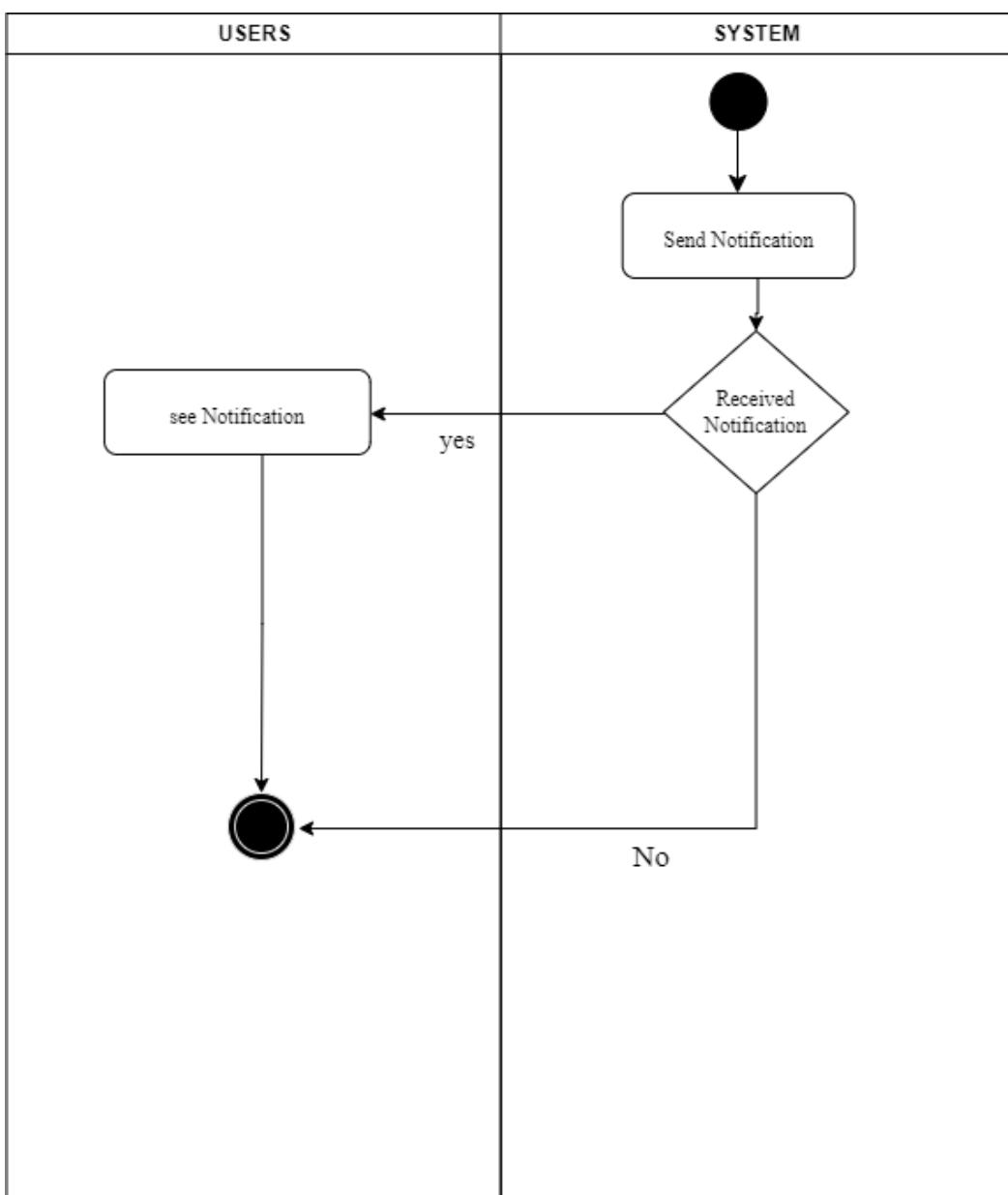
Forget Password



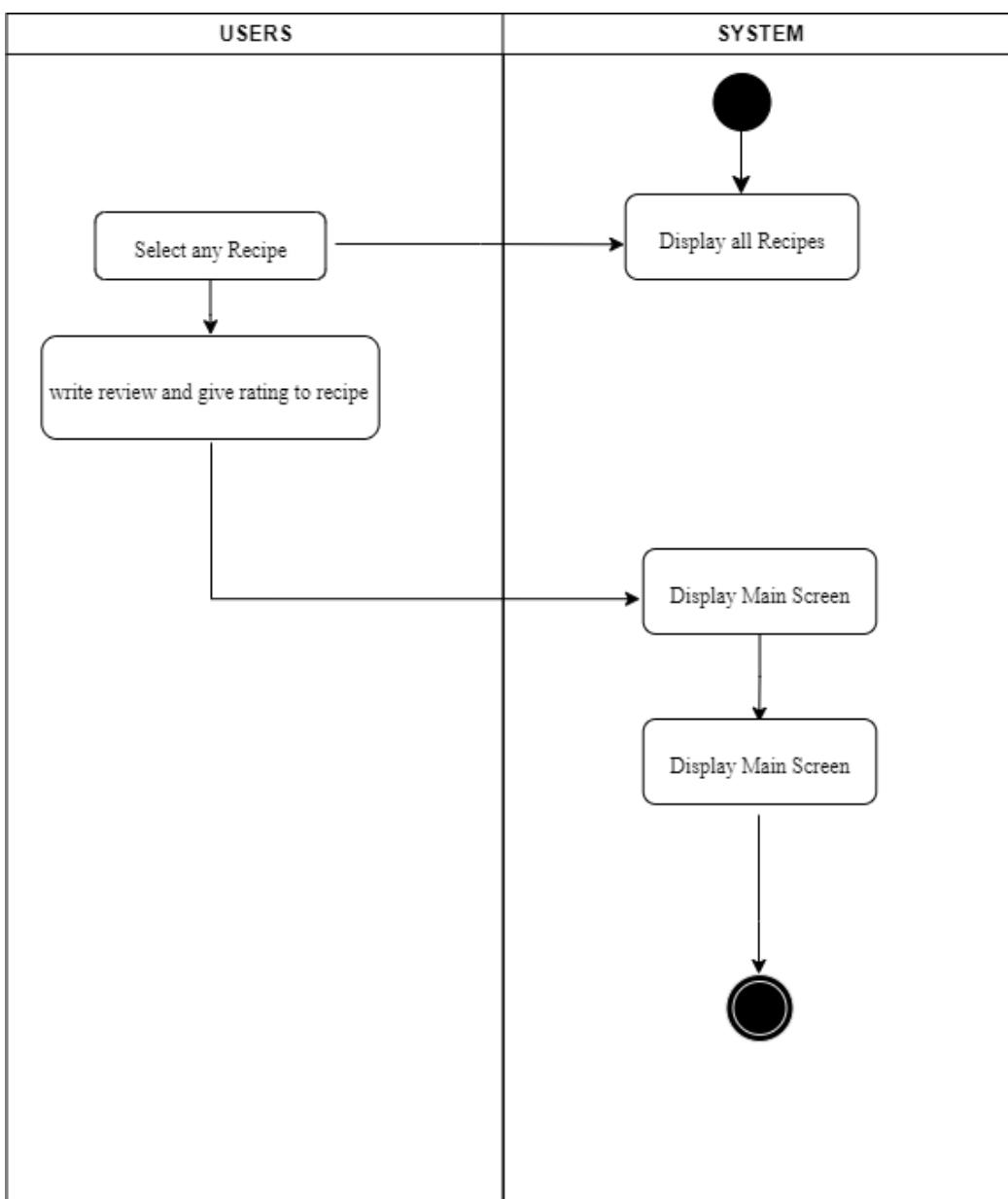
OTP Verification



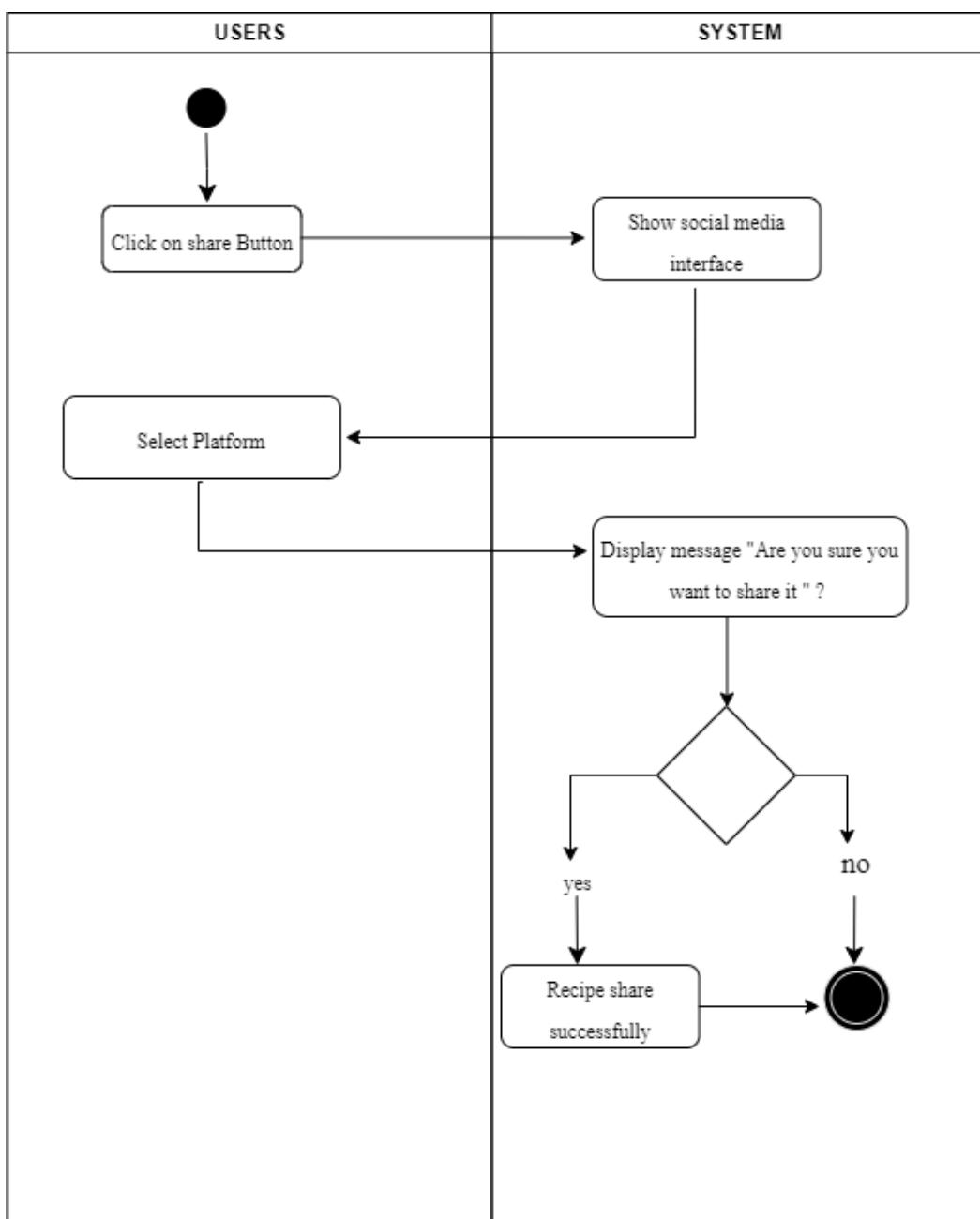
Push Notification



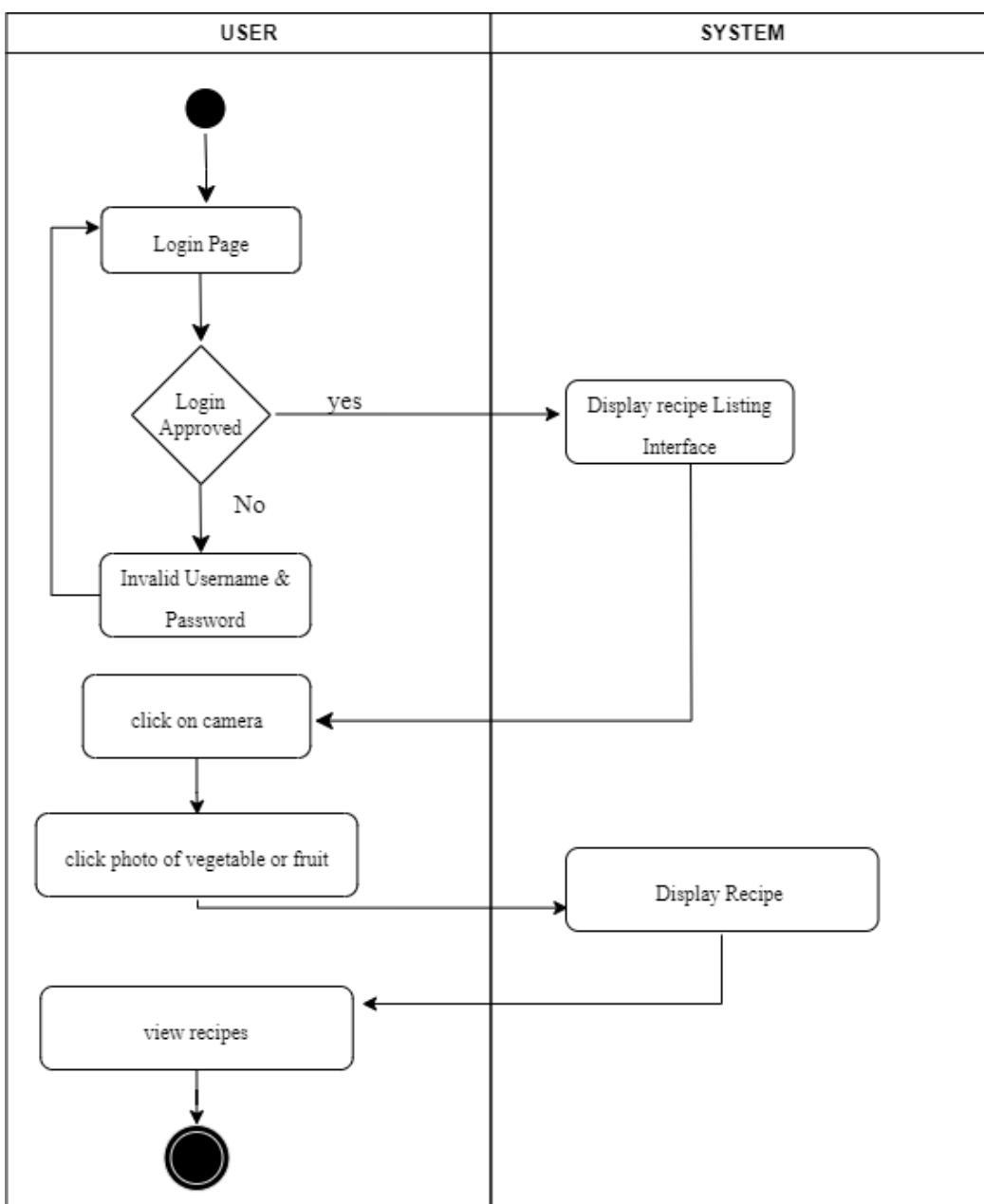
Review and Rating



Share Recipe

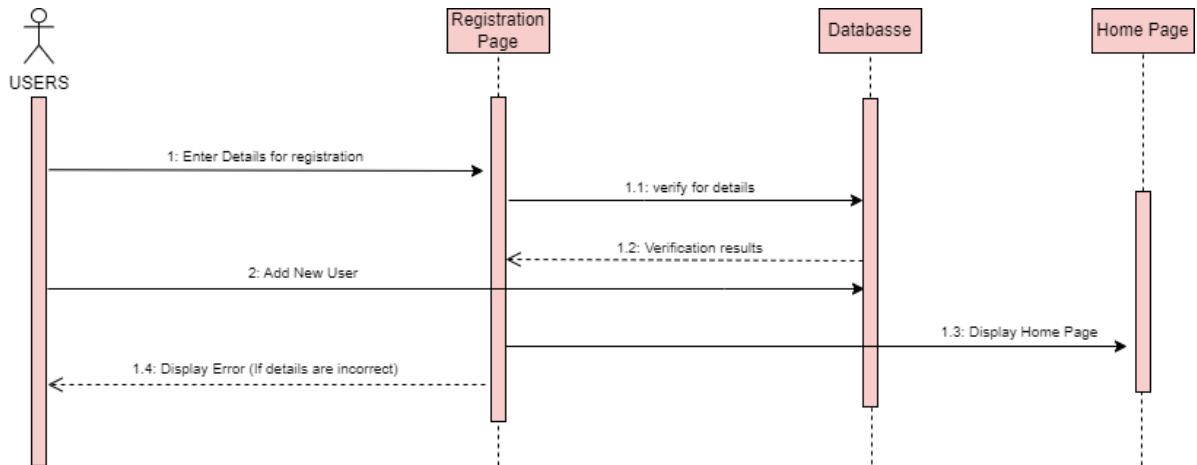


Scan Feature

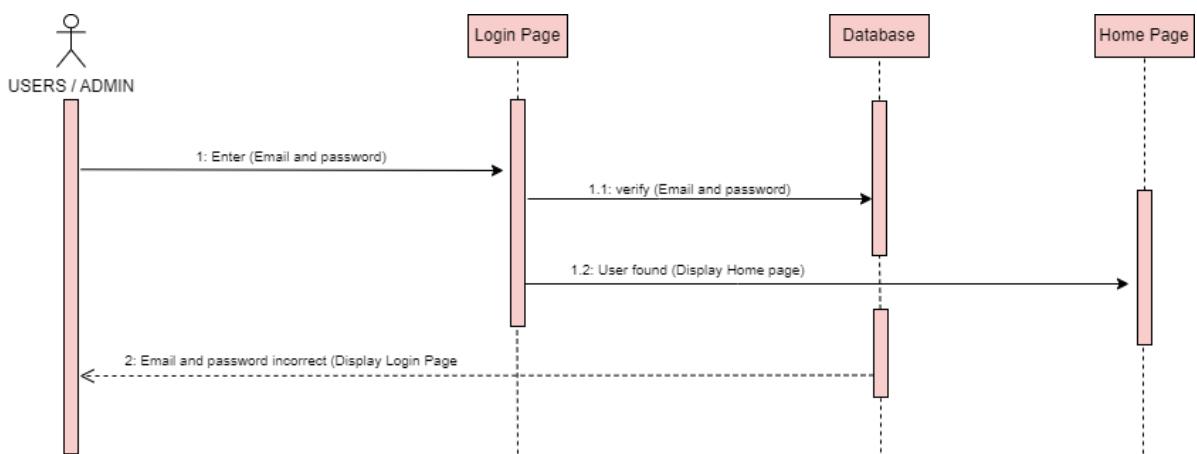


16.5 Sequence Diagram

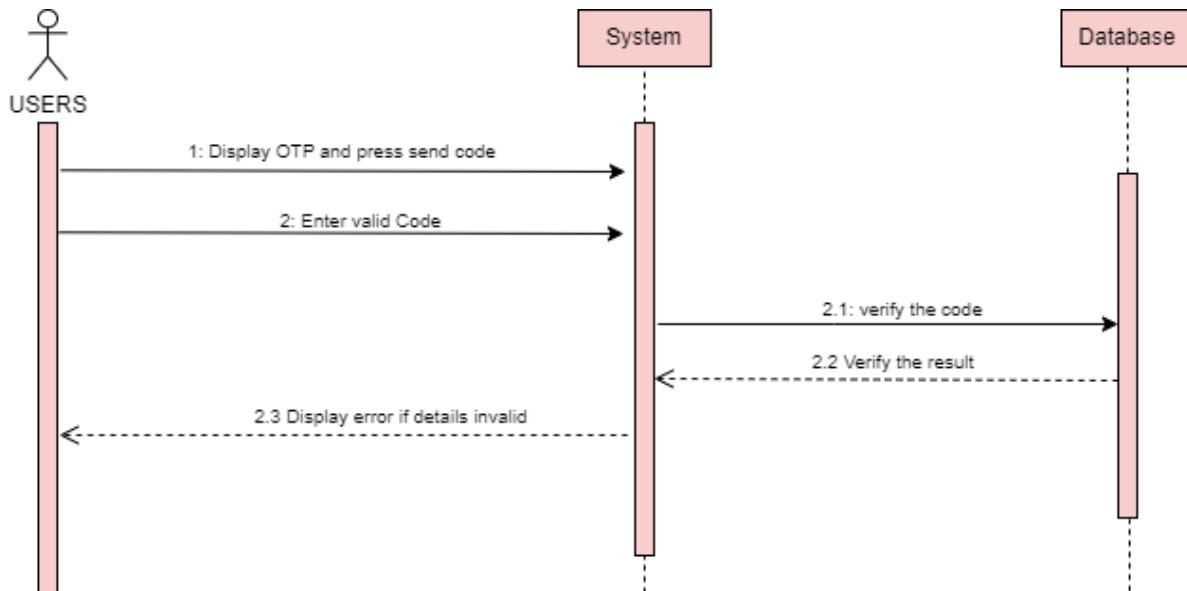
- **Registration:**



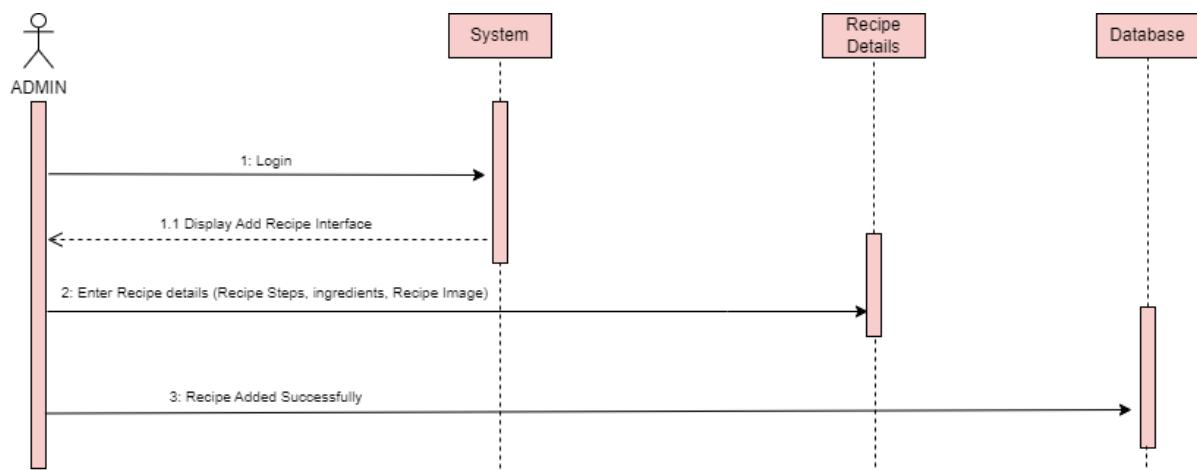
- **Login:**



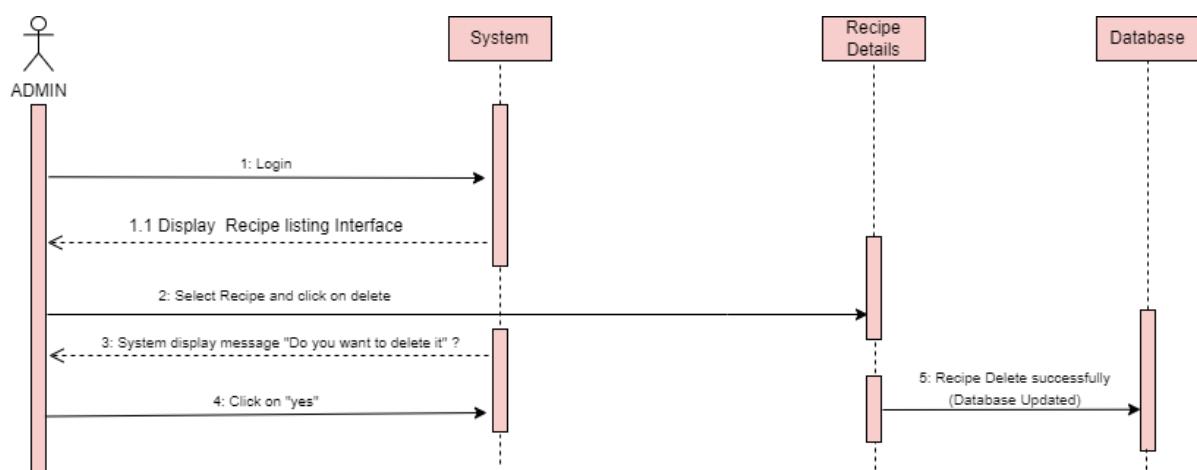
- **OTP:**



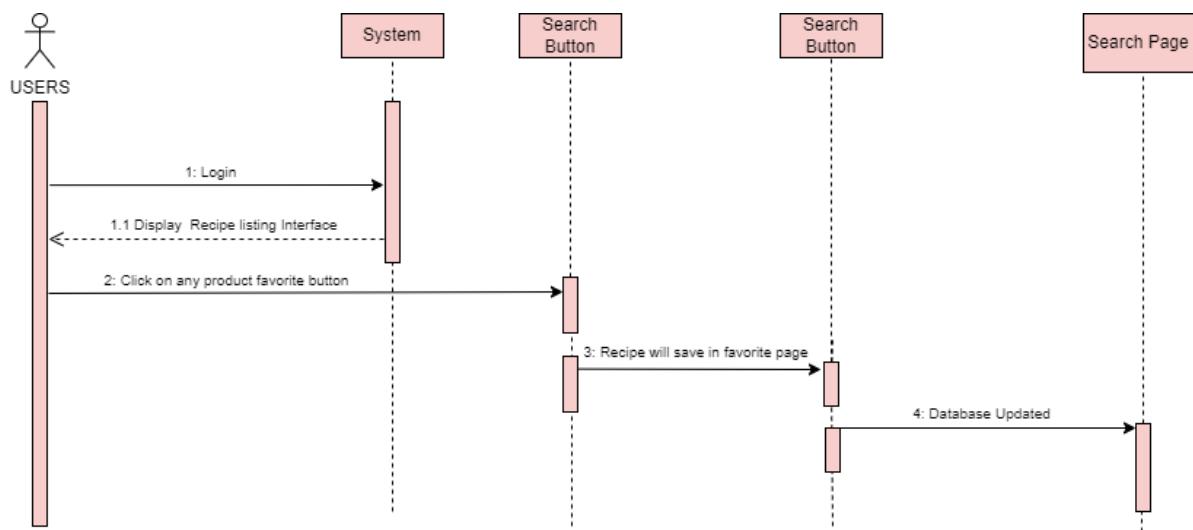
- **Add Recipe:**



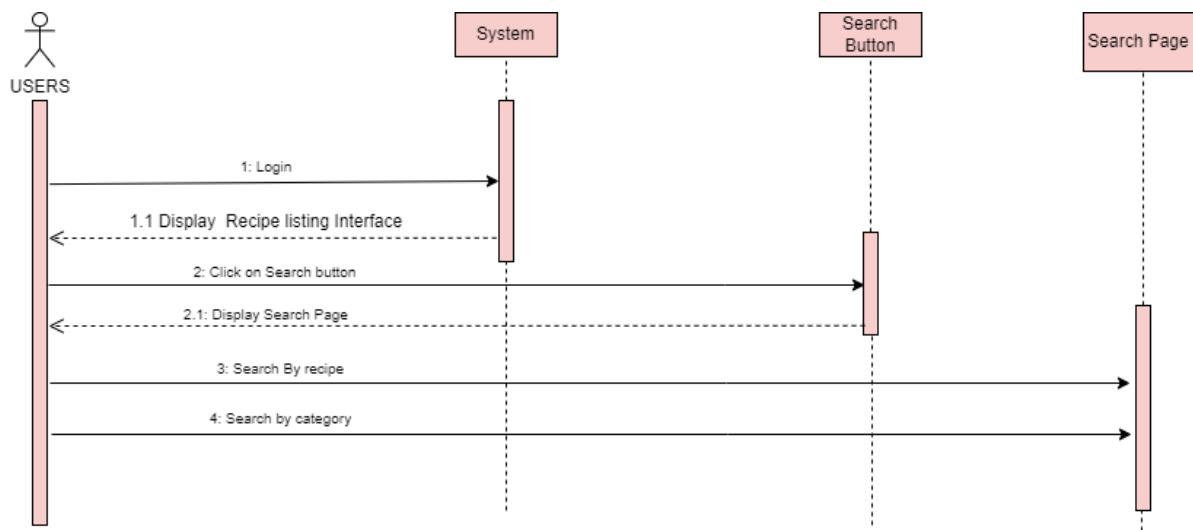
- **Delete Recipe:**



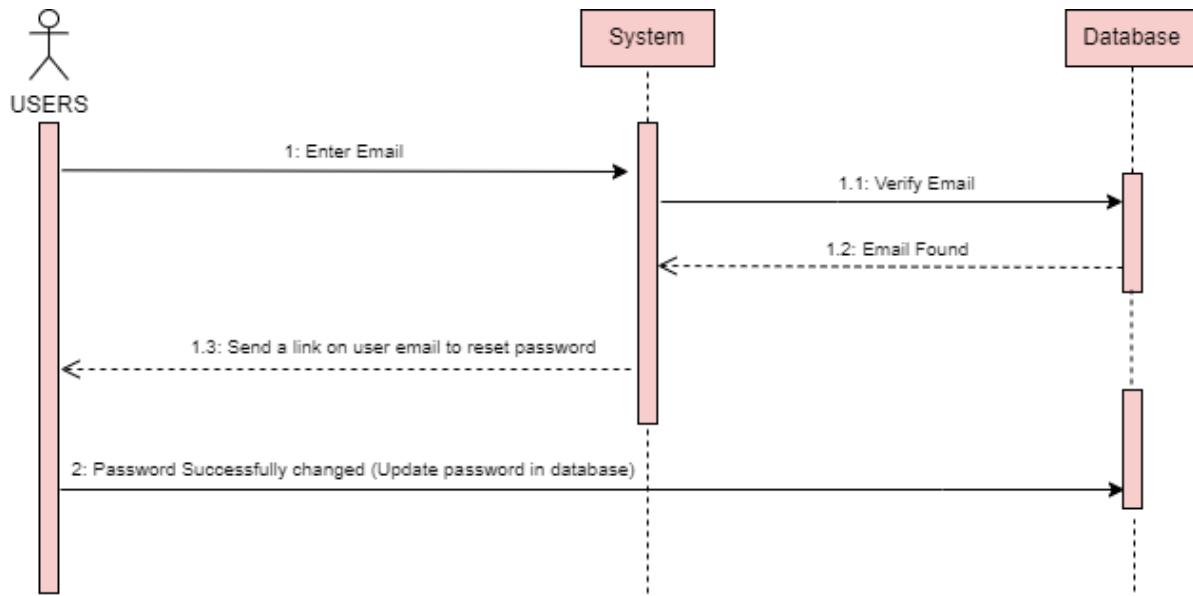
- **Add to Favorite:**



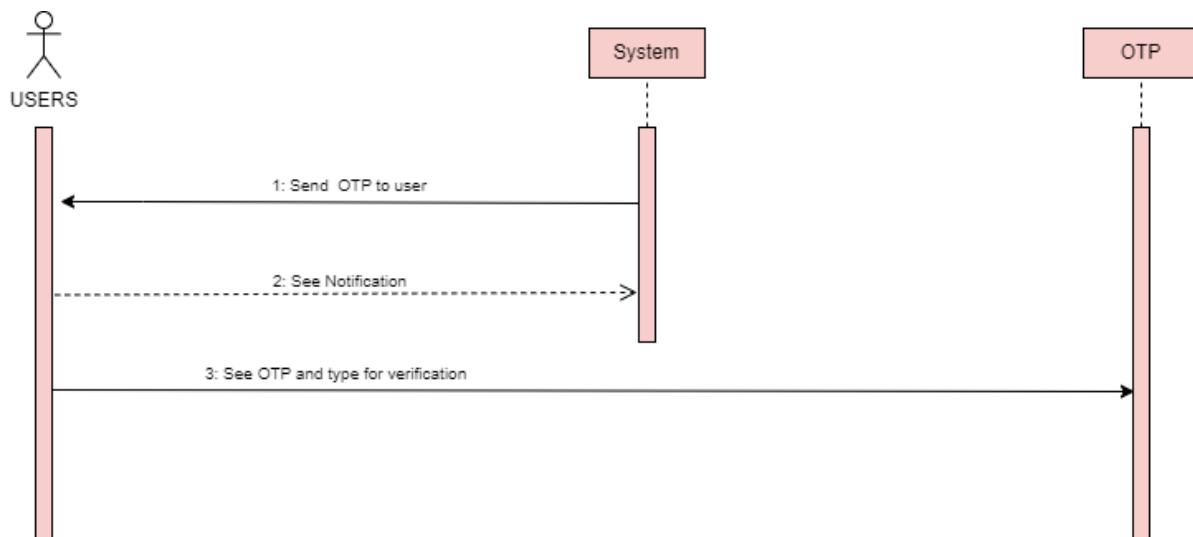
- **Filter Search:**



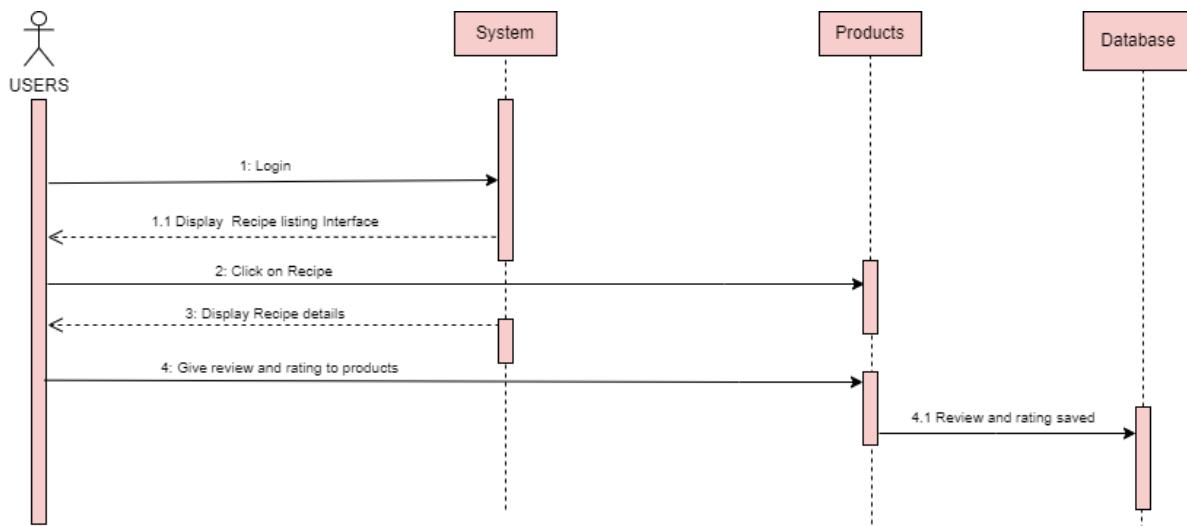
- **Forget Password:**



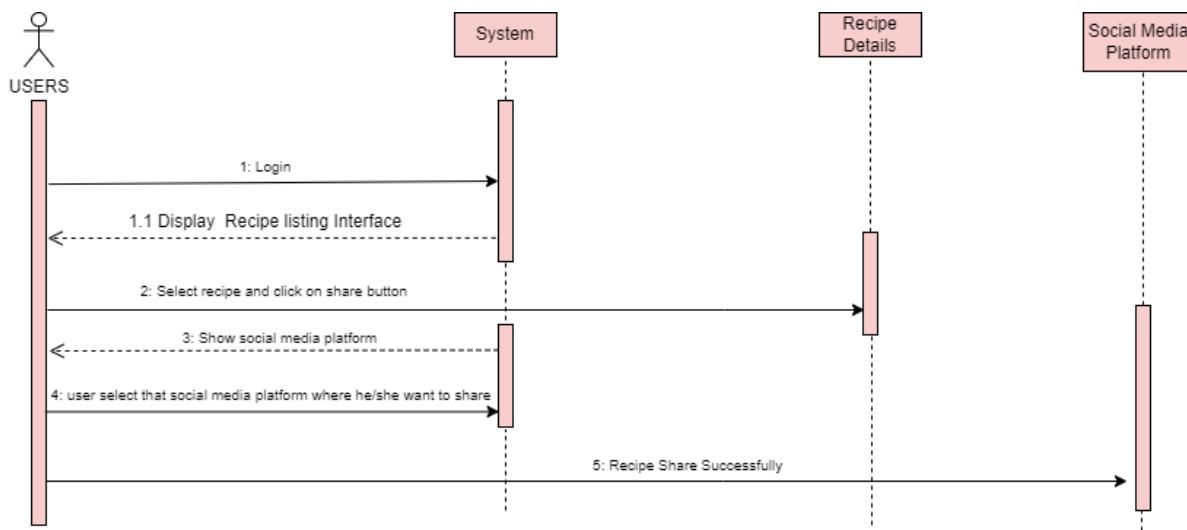
- **Push Notification:**



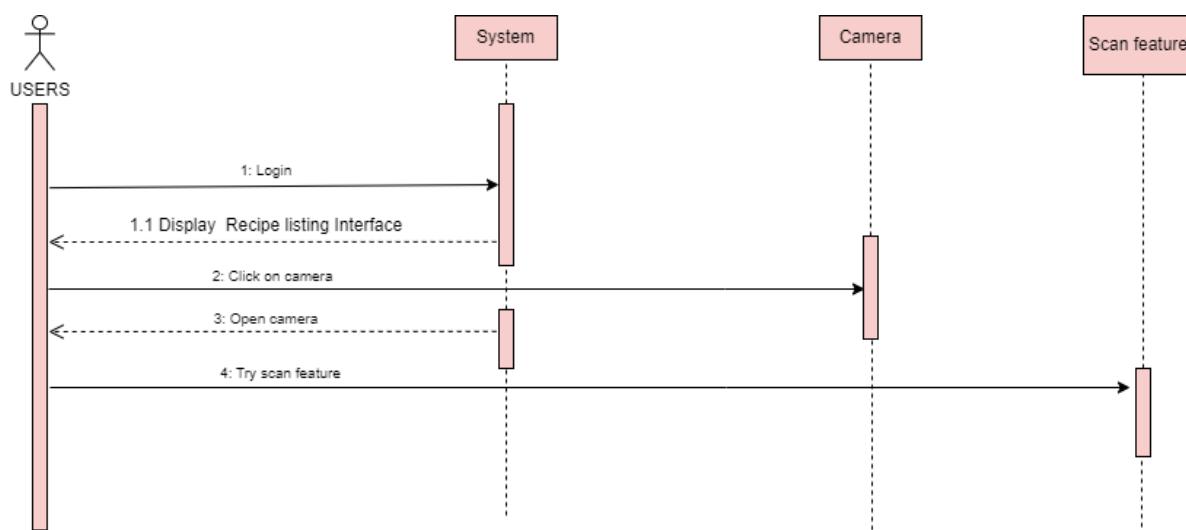
- **Review and rating:**



- **Share Recipe:**

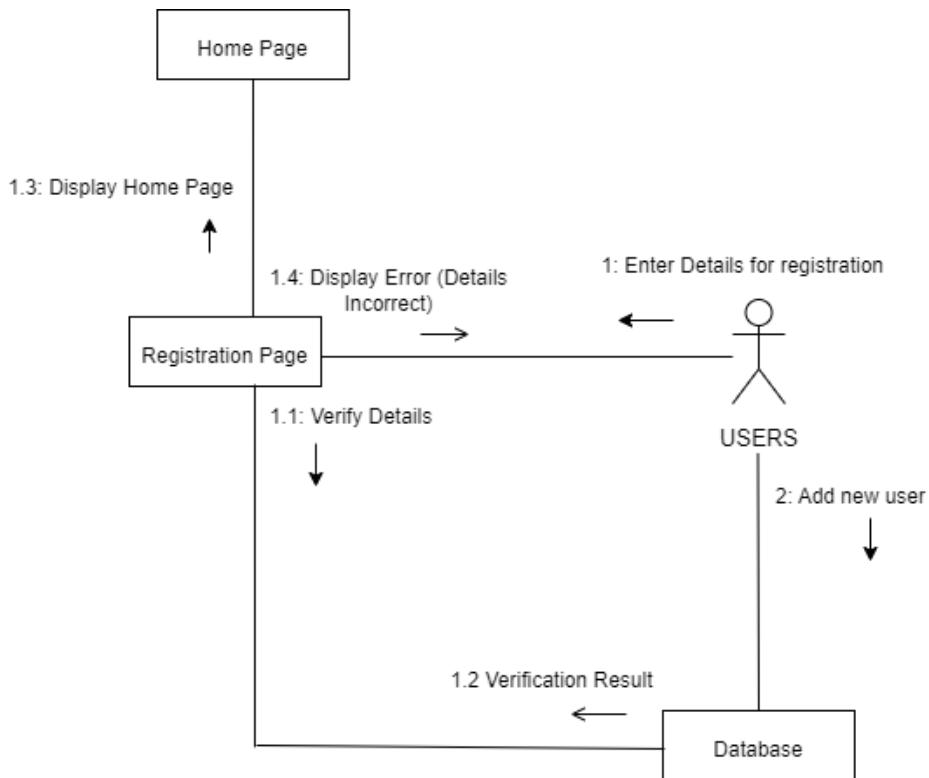


- **Scan Feature:**

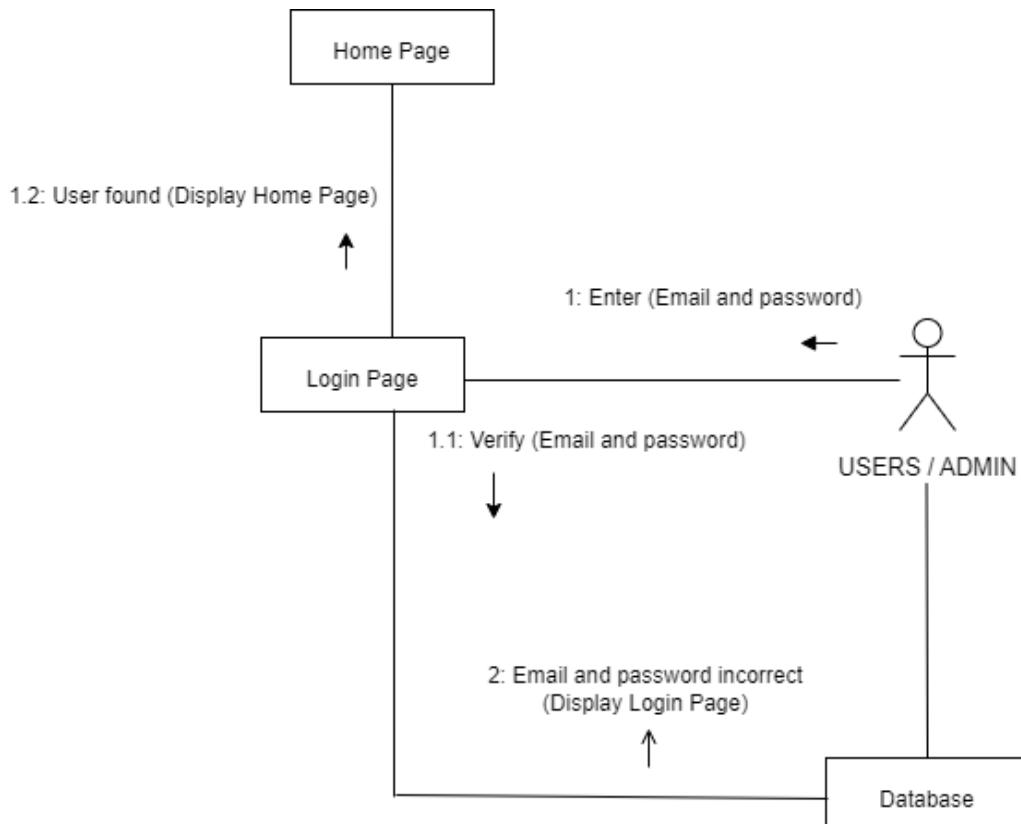


16.6 Collaboration Diagram

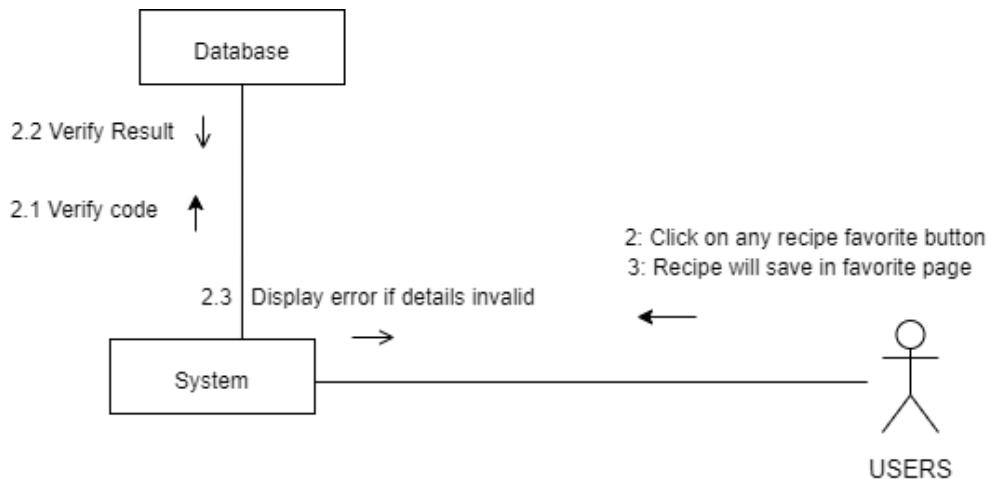
- Registration:



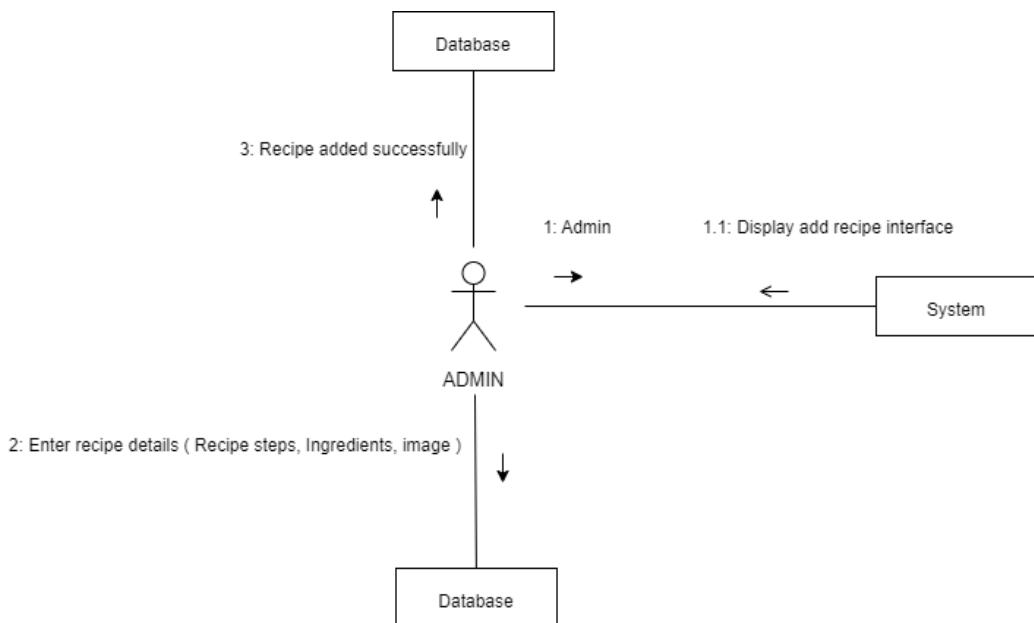
- Login:



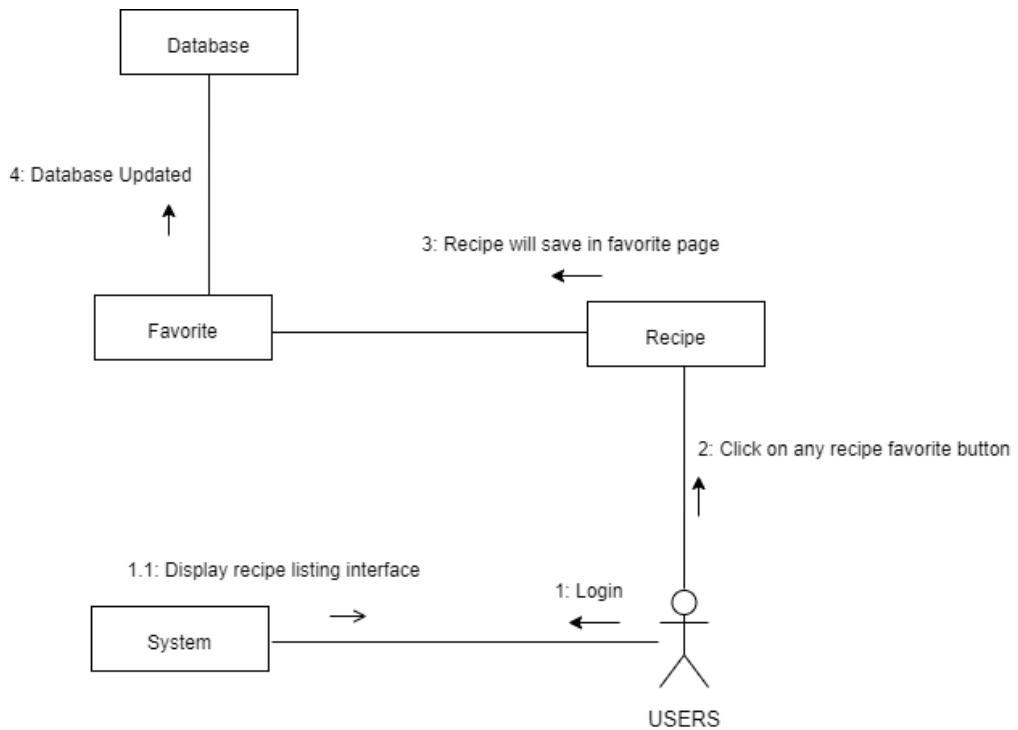
- **OTP verification:**



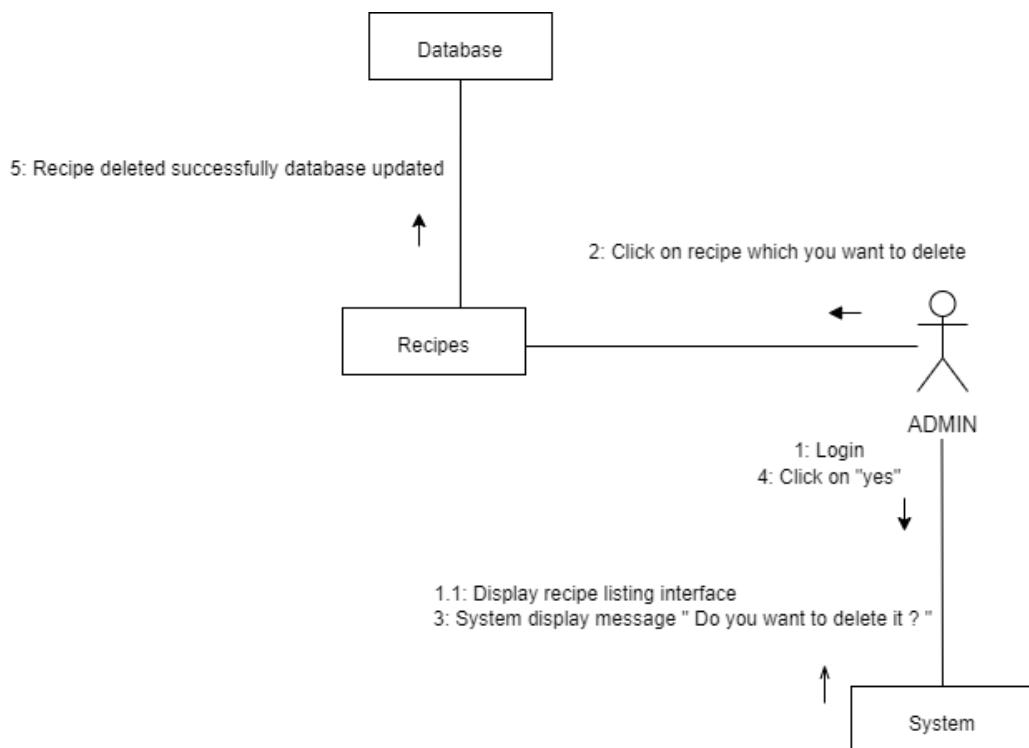
- **Add Recipe:**



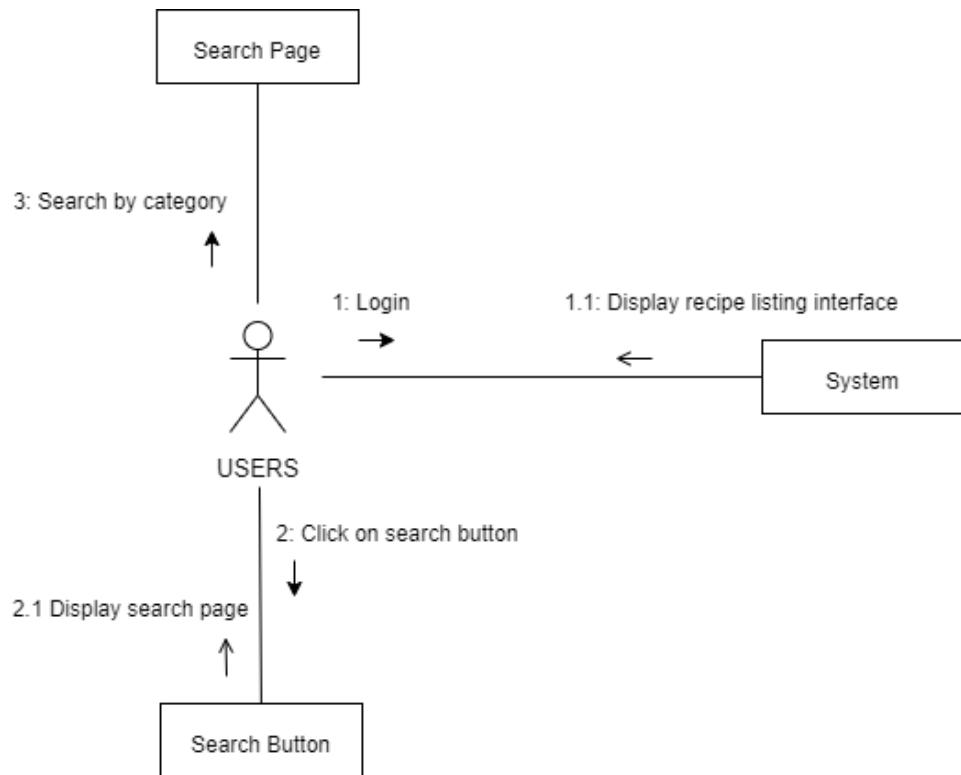
- **Add to Favorite:**



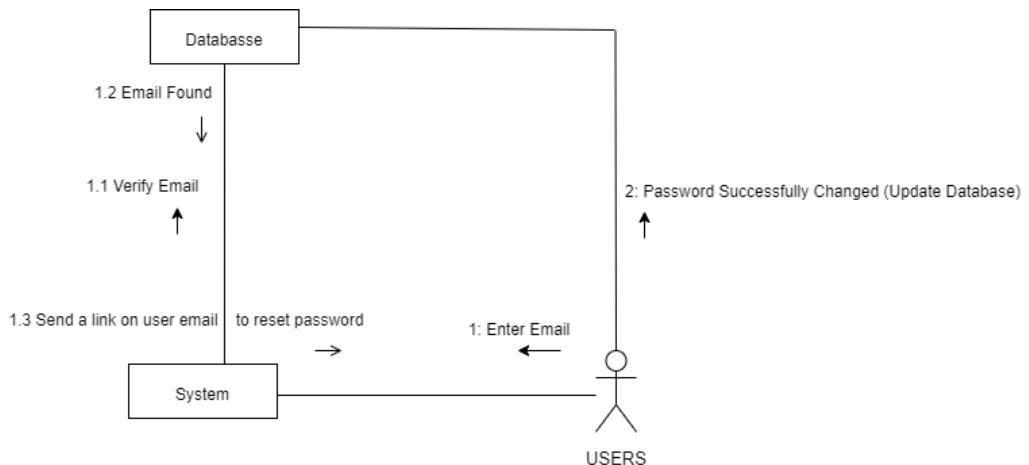
- **Delete Recipe:**



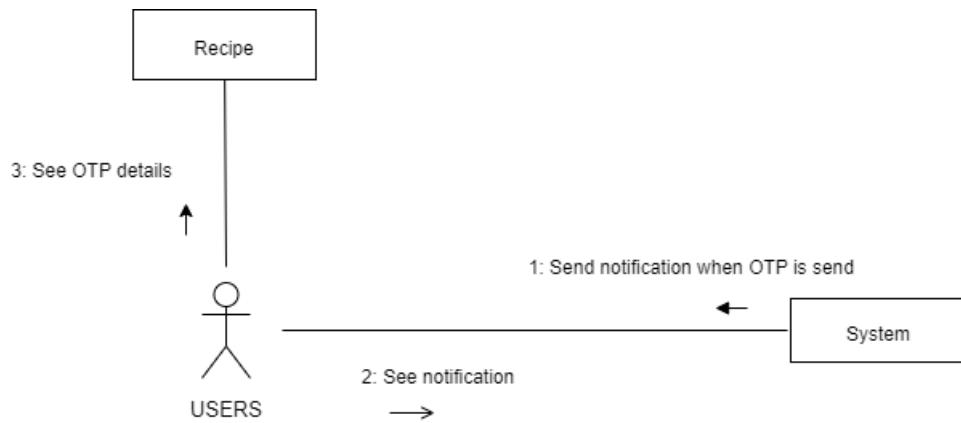
- **Filter Search:**



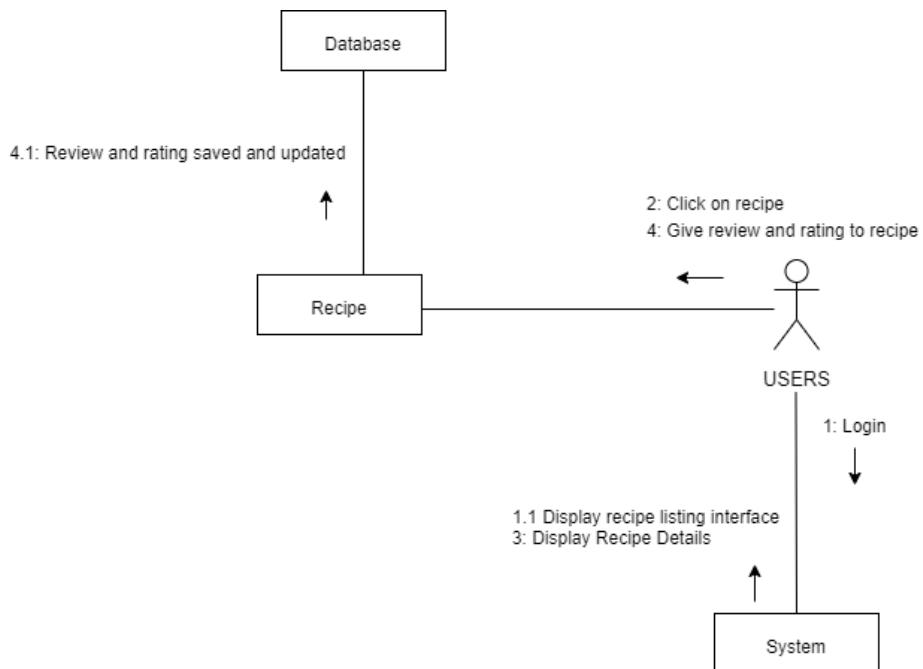
- **Forget Password:**



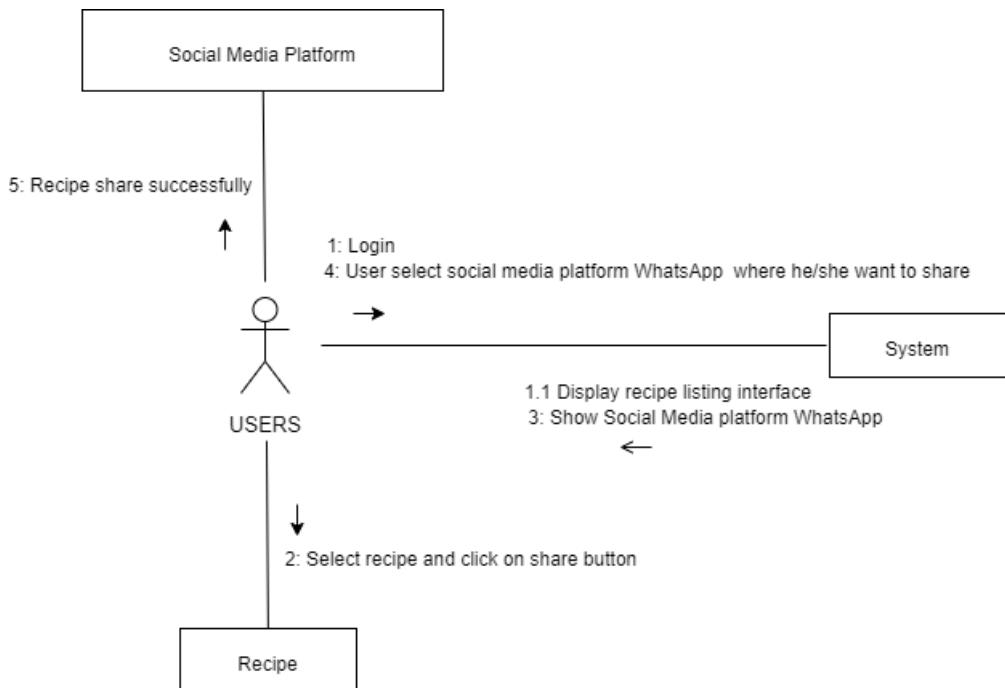
- **Push Notification:**



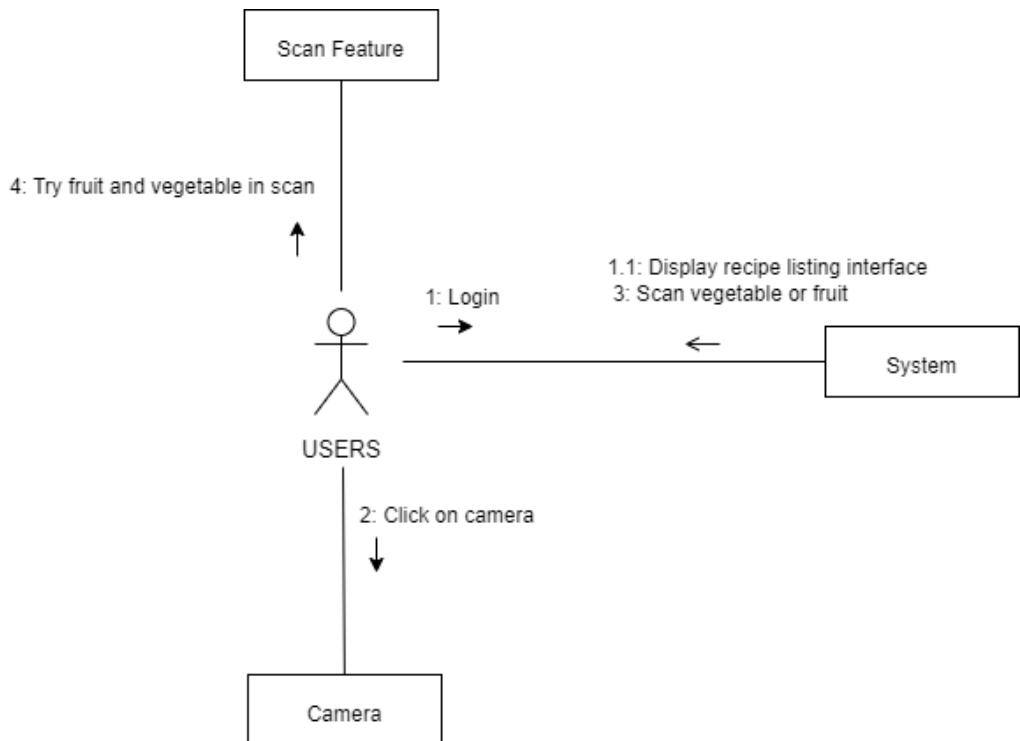
- **Review and Rating:**



- **Social Media:**



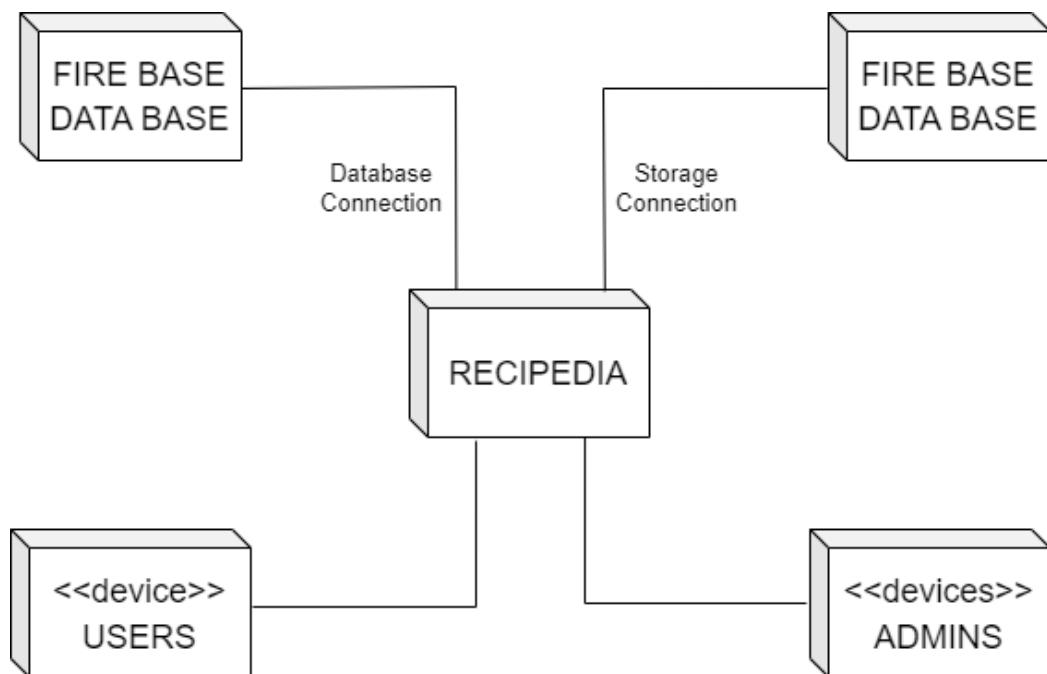
- **Scan Feature:**



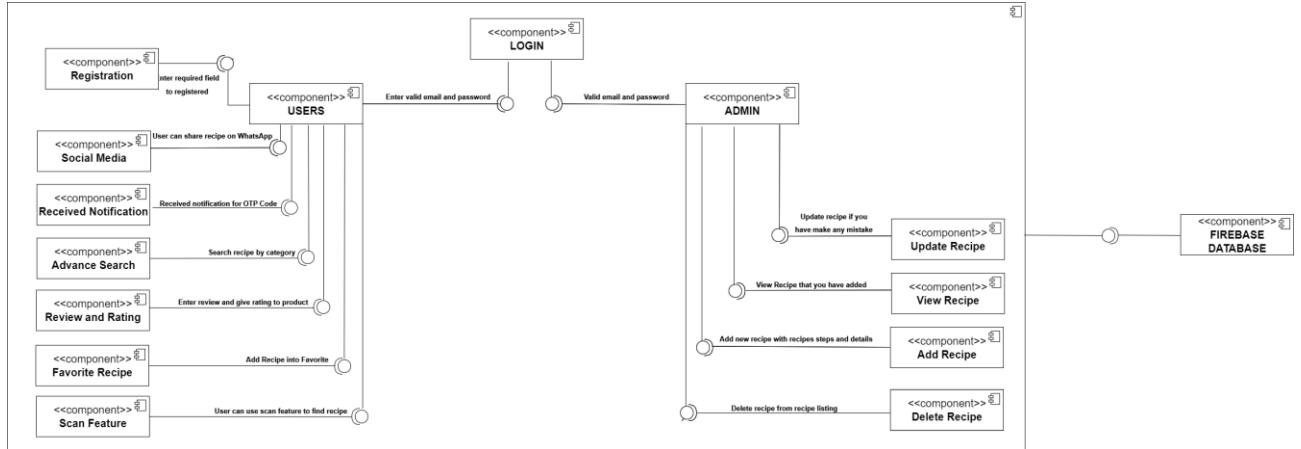
16.7 Use Case Diagram



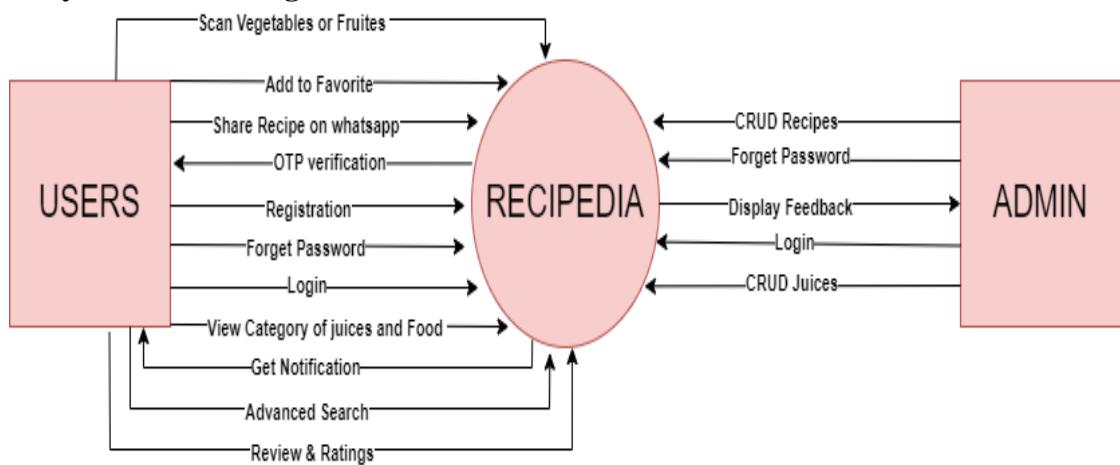
16.8 Deployment Diagram



16.9 Component Diagram



16.10 System Block Diagram



User Manual

17 Introduction

17.1 System Overview

Recipedia is a revolutionary recipe app that redefines the culinary experience through innovative features and cutting-edge technology. Our mission is to transform cooking into an interactive and delightful journey, departing from the conventional recipe websites of the past.

With Recipedia, users can explore an extensive collection of recipes categorized by meal types like breakfast, lunch, dinner, and more. The key highlight of our app is the groundbreaking scan feature powered by AI. By simply scanning a fruit or vegetable, users can instantly access a curated recipe that incorporates the scanned item, along with the list of ingredients and step-by-step cooking instructions.

Similar to how Amazon revolutionized the way books were sold, Recipedia is revolutionizing the way people approach cooking and discover new recipes. Our app not only saves users' time and money but also provides a reliable and enjoyable way to explore the culinary world in the comfort of their own kitchens. Experience the future of cooking with Recipedia and unleash your inner chef!

17.2 Acronyms and Abbreviations

- **AI:** Artificial Intelligence (AI) is a computer science field focused on developing smart machines that can execute tasks usually necessitating human intelligence. In Recipedia, AI empowers the unique scan function, enabling users to identify produce and access relevant recipes.
- **Firebase:** Firebase offers a real-time database and backend as a service. Its API lets app developers sync data across clients and store it on Firebase's cloud infrastructure.

17.3 Tools Information for Android App

Tools: Camera for scanning vegetables and fruits and internet connectivity.

17.4 System Configuration

The system requirements include a minimum of 4GB memory, with 8GB recommended. Compatibility with Android Studio and reliable internet connectivity are essential.

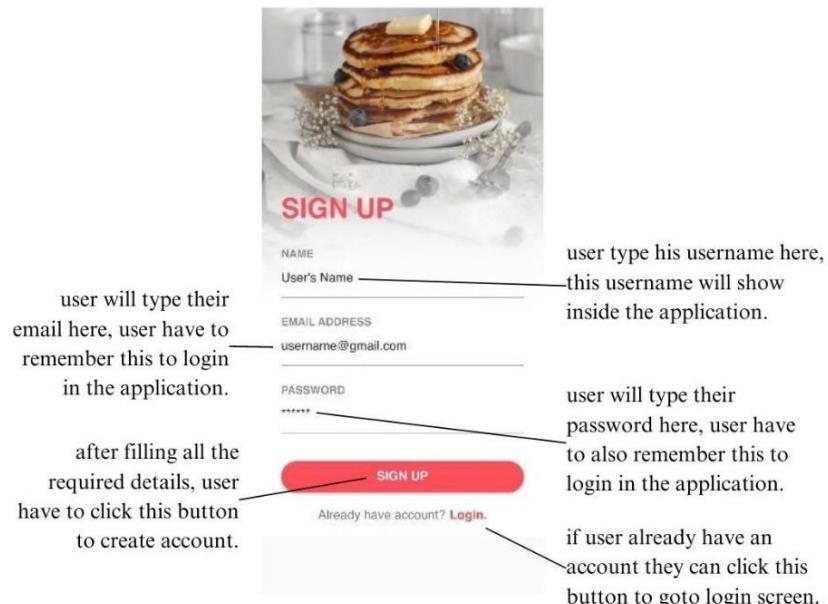
17.5 System Requirements

Android based smart phone with android version 5 marshmallow, 2GB Ram plus good processor with good quality camera and internet connectivity also required.

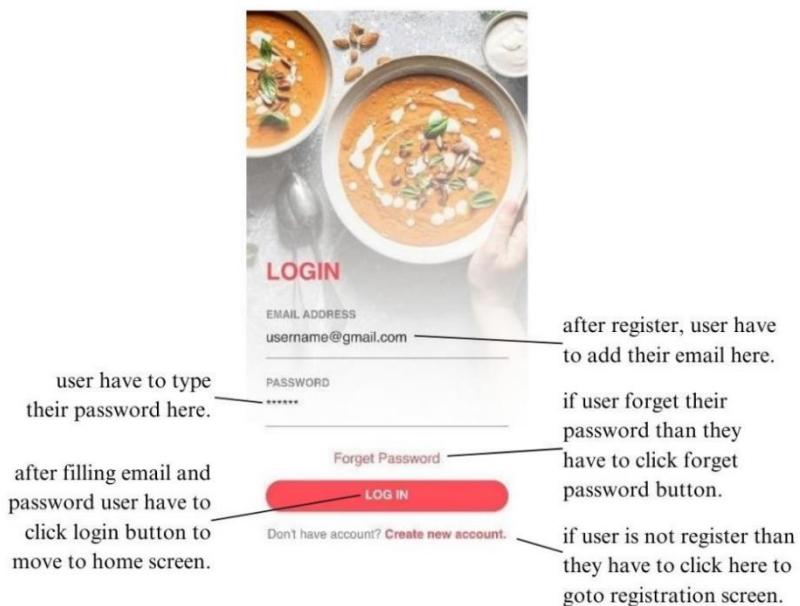
17.6 How to Guide

17.7 System Features

Signup Screen



Login Screen

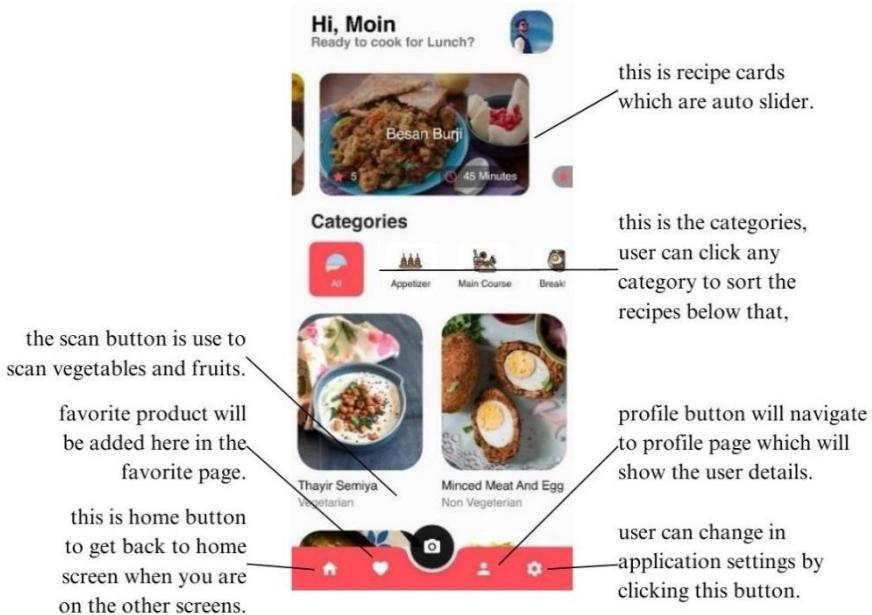


Forget Password Screen

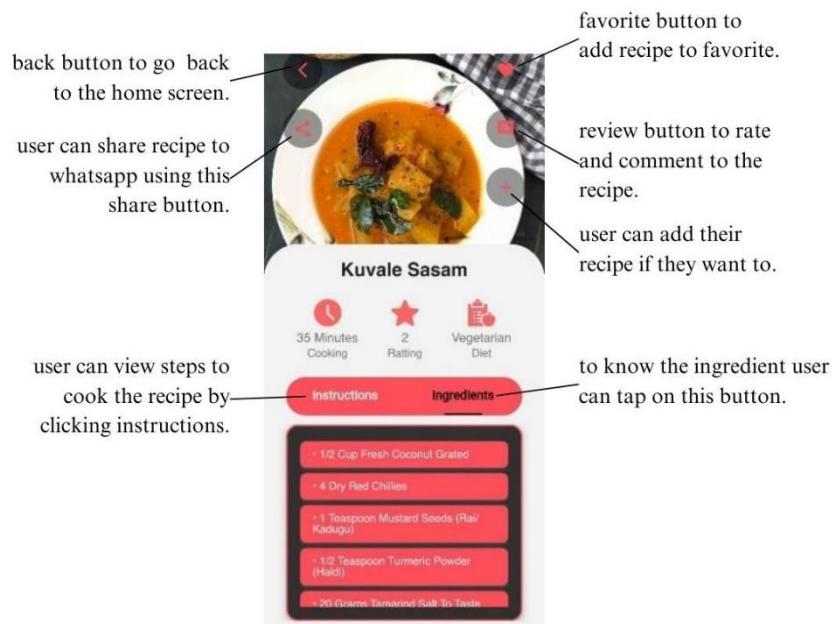
after filling the email field user have to click this forget password button, if the email exist in database, user will receive new email to reset their password, if email doesn't exists in database, user will prompt that "email does not exists".



Home Screen



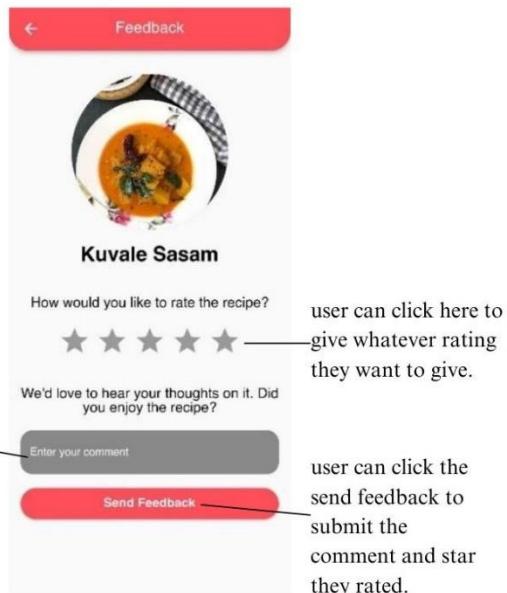
Recipe Details Screen



After Scan Recipes Screen



Review and Rating Screen



Log Sheet

Log Sheet

FYP 1



SHAHEED ZULFIKAR ALI BHUTTO INSTITUTE OF SCIENCE &
TECHNOLOGY KARACHI CAMPUS

Form IV: Student Log Form

Title: Recipedia

Supervisor: Sir Khawaja Mohiuddin Batch/Sec: _____ Group #: 103

Reg. # (Group members): Safin Noordin Mahesana, Moin Amir Dauva
1912282 1912355

Sr.	Task Assigned	Due	Task Completed (S)	Date (S)/Sign.
1	Prepare documentation for defense	10/10/22	Completed	W.Mohiuddin 8/10/22
2	Prepare PPT and presentation points for defense	25/10/22	Completed	W.Mohiuddin 8/10/22
3	Develop and test begin and registration	4/11/22	Completed	W.Mohiuddin 8/11/22
4	Develop and test OTP	8/11/22	Completed	W.Mohiuddin 8/11/22
5	Complete documentation for iteration -1	15/11/22	Completed	W.Mohiuddin 20/11/22
6	Develop and test Admin Port of Recipedia user last	13/12/22	Completed	W.Mohiuddin 20/12/22



SHAHEED ZULFIKAR ALI BHUTTO INSTITUTE OF SCIENCE &
TECHNOLOGY KARACHI CAMPUS

7	Develop and test push notifications	20/12/22	Completed	W.Mohiuddin 29/12/22
8	Develop and test vegetable detection model	20/12/22	Completed	W.Mohiuddin 29/12/22
9	Modify and complete database for iteration 2	27/12/22	Completed	W.Mohiuddin 29/12/22
10	Fix performance issue with UI	27/12/22	Completed	W.Mohiuddin 29/12/22
11	Complete front-end UI	05/01/23	Done	W.Mohiuddin 05/01/23
12	Demo working features for FYP-1	05/01/23	Done	W.Mohiuddin 05/01/23
13				
14				
15				

Supervisor's Authentication (Completed report): W.Mohiuddin

Dated: 15/12/22

FYP 2



SHAHEED ZULFIKAR ALI BHUTTO INSTITUTE OF SCIENCE &
TECHNOLOGY KARACHI CAMPUS

Form IV: Student Log Form

Title: RECIPEDIA

Supervisor: Mian Javaid Nabi Batch/Sec: E Group #: _____

Reg. # (Group members): MOIN AMIR DAUVA 1912355, SAFIN NOORDIN MAHESANIA 1912282

Sr.	Task Assigned	Due	Task Completed (S)	Date (S)/Sign.
1	Create local database	16/3/23	Completed	16/3/23
2	Extract recipies from dataset/websites	22/3/23	Completed	22/3/23
3	Implement feedback screen	29/3/23	Completed	29/3/23
4	Add Reminding Text cases to Reminding	5/4/23	Completed	5/4/23
5	Add validation on review feedback screen	5/4/23	Completed	5/4/23
6	Develop script for saving recipies	12/4/23	Completed	12/4/23



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TECHNOLOGY KARACHI CAMPUS

7	Train app for fruits and vegetables	17/4/23	Completed	17/4/23
8	Show loaded recipies in the App	2/5/23	Completed	2/5/23
9	Update UI	5/5/23	Completed	5/5/23
10	API for Item detection	12/5/23	Completed	12/5/23
11	Add user Recieve	19/5/23	Completed	19/5/23
12	Share Recipe	26/5/23	Completed	26/5/23
13	UI after detection	03/6/23	Completed	03/6/23
14				
15				

Supervisor's Authentication (Completed report): Mian Javaid Nabi

Dated: 6/7/23

FYP Coordinator Authentication: _____

Dated: _____