Search Eat: A Mobile Recipe Finder

A Capstone Project

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Lyceum of the Philippines University-Batangas

In Partial Fulfillment

of the Requirements for the Degree

Bachelor of Science in Information Technology

Specialized in Multimedia Technologies

By:

Jairus Poul A. Esguerra

Sophia Lorine M. Levantino

Shane Marie V. Malabanan

Kevin M. Peatman

And

Maria Cristina Ramos

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APPROVAL SHEET

In partial fulfillment of the requirements for the degree Bachelor of Science in Information Technology (Specialized in Multimedia Technologies), this capstone project entitled **"Search Eat: A Mobile Recipe Finder"** has been prepared and submitted by **Jairus Poul A. Esguerra, Sophia Lorine M. Levantino, Shane Marie V. Malabanan and Kevin M. Peatman** and is hereby recommended for oral examination.

Mrs. Maria Cristina Ramos, MSCS
Adviser

Defended in an oral examination before a duly constituted panel with a grade of _____ .

Mrs. Roselie B. Alday, MSCS, PhD Cand.
Chairman

Mr. Aris Gail S. Mendoza
Member

Engr. Joselito A. Dolot, MSc
Member

Dr. Arnie Christian D. Villena
Member

Accepted in partial fulfillment of the requirements for the degree Bachelor of Science in Information Technology (Specialized in Multimedia Technologies).

Mrs. Roselie B. Alday, MSCS, PhD Cand.
Dean, College of Computer Studies

Search Eat: A Mobile Recipe Finder

Jairus Poul A. Esguerra
Lyceum of the Philippines University
Capitol Site, Batangas City
(0945) 854 8130
jairusesguerra@lpubatangas.edu.ph

Shane Marie V. Malabanan
Lyceum of the Philippines University
Capitol Site, Batangas City
(0926) 604 7176
shanemariemalabanan@lpubatangas.edu.ph

Sophia Lorine M. Levantino
Lyceum of the Philippines University
Capitol Site, Batangas City
(0965) 759 7958
sophialevantino@lpubatangas.edu.ph

Kevin M. Peatman
Lyceum of the Philippines University
Capitol Site, Batangas City
(0920) 584 8174
kevinpeatman@lpubatangas.edu.ph

ABSTRACT

A common problem faced by many people today is when it comes to cooking food, they tend to stick to what they know. This may seem boring and monotonous to everyone because of repeating almost the same meals every day. Every household tends to have the same staple ingredients however, without the knowledge of how to put those ingredients together in different ways; they are missing out on a variety of new recipes to potentially satisfy their palate.

With the growing trend in online services, it seems that nowadays, there are many apps emerging which combine their original function with a social media aspect, allowing users to communicate without each other through the app. Through Search Eat, not only can users learn different recipes, they can make with their ingredients on hand, but also it allows users to post pictures and recipes of their own creations which can be used as an inspiration for the rest of the online community. Each user can add notes or recommendations to give a twist to common recipes that others may not be aware of.

Keywords*: Ingredients Match, Mobile Application, Recipe Match, Recipe Finder, SearchEat*

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1.0 INTRODUCTION

With the increasing popularity of mobile applications, people are now turning to technology to help solve the nuances of daily life. People are having a hard time cooking food due to busy schedule (http://onetwosimplecooking.com/blog/2014/2/26/10-cooking-challenges-and-how-to-overcome-them). with the availability of resources such as technology, people can now save time in preparing their food. Cooking food is an experimentation or a fusion of traditional and modern style creating a diversity and versatility of styles in the field of culinary arts (Davis, n.d.). The crave of adding a new spin or spice in a traditional food has been the trend nowadays and some people are finding it monotonous when they stick to the recipes they know and want to expand their cooking abilities. Every household tends to have the same staple ingredients however without the knowledge of how to put those ingredients together in different ways; they are missing out on a variety of new recipes to potentially satisfy their palate

Currently, a person can just get any information they need from the internet. However, they must first know what they are looking for. Using the Search Eat app, this takes away the guess work and adds convenience to the whole process. Rather than looking up several recipes one by one and checking if they have all the necessary ingredients, this app allows the user to enter the ingredients they have on hand and the app will give them a list of all the possible dishes that they can make, along with a step-by-step guide on how to prepare it.

Another issue is that all non-perishable food items will eventually expire. This app can also help a household to utilize the items inside their pantry that they would have otherwise not use, thus saving money on meals.

With the growing trend in Social Media services, it seems thar nowadays there are many apps emerging which combine their original function with a social media aspect, allowing users to communicate without each other through the app.

The focus of this study is to develop a cooking themed mobile application using Android Studio, Firebase Realtime Database and The MealDB API. This application will allow users to search for different recipes by entering the ingredients they have on hand, resulting in a list of all the possible dishes they can create using said ingredients. A catalogue of the collective recipes will be accessed through a database integrated into the application. In addition, Social media functions are incorporated into the application to allow users to showcase and share the different recipes they have made through the application

Ultimately, the scope of the study is to provide its user a platform where they can learn how to cook, share their knowledge about cooking and advertise their own recipes though the application does not include indigenous recipes and ingredients from other countries.

2.0 Objectives of the Study

This study entitled, “Search Eat: A mobile recipe finder” aimed to:

1. provide people a method to learn how to cook and maximize the utilization of available ingredients
2. develop a mobile application that can save time in preparing food
3. create a platform to share personal recipes to other people over the internet

3.0 LITERATURE REVIEW

Through thorough research, the team compiled existing applications that provided inspiration to the researchers. The following

are those applications where the SearchEat App got its design, framework and function specifically, the recipe finder feature. To make SearchEat different from these applications, the researchers designed it to help its users find a recipe from the available ingredients the users have.

Yummly

Developed by David Feller and Vadim Geshel in 2009, Yummly helps its users broaden their cooking knowledge using recipe recommendations and pre-recorded videos, along with convenient tools to help the users along the way. It is easily accessible through an android application and has an online website which allows for its use either on the go or from the comfort of your own home. Once the Yummly app raised $7.8 million, their company Venture Capital gained support from Uniliver Ventures, Intel Capital, Harrison Metal Capital and First Round Capital. Yummly showcases tons of recipes from its users just like SearchEat where the users can upload and share their recipes. The difference between these two applications is that Yummly does not have the search ingredient feature like SearchEat where the users can search for a recipe with just inputting a couple of ingredients.

SideChef

This all-inclusive app takes things one step further than just guiding the user through the process of cooking a meal. SideChef completely personalizes the users experience through its algorithms which take note of the users likes and dislikes of types of food and can even compile a list of recipes that it believes will appeal to the person using it. With over 11,000 recipes to choose from, this application is the perfect personal cooking assistant. Other features include smart appliance control, in-app timers, voice command, meal planning, and a smart search filter to help navigate through their

impressive catalogue of recipes. SideChef has gained recognition from several platforms, such as The New York Times, ABC News, Forbes, Wired, USA Today, The Guardian, The Wall Street Journal, Real Simple, and Business Insider. Dietary friendly, with its Meal Planner and nutrient driven recipes. SideChef is a much healthier Yummly focusing more on the nutritious food than savory.

MyRecipeBook App

Created by Asbat El Khairi of Al Akhawayn University as a Capstone project, MyRecipeBook is an android application which allows the user to search, create, share, and save recipes through its image-based user interface. The app has two main features, the first of which is called “shopping list”, where the user will add all the ingredients that they need to purchase and create a virtual shopping list. The other feature, “Meal Planner”, aides the user in planning meals for the week. With recipes being added daily, the user will have a wide spectrum of meals to choose from which can easily be found through its title search feature. MyRecipeBook was implemented by PHP, MySQL, and Android Studio. This application focusses more on nutrition like SideChef but offers its user a shopping list to track its user’s grocery, SearchEat on the other hand, features the add ingredients which allows the user to input available ingredients to generate recipes out of it.

{app}ettite

Created by JT Seger and Britney Allred, this application was inspired by the famous dating app “Tinder”, which allows the user to make choices purely from images. Their goal in making {app}ettite was to save the user’s time by speeding up the process of finding a recipe they would like to try making, and to provide an ample amount of resources for future references. Their tactic is to gain the

users interest by having the application resemble a game, rather than just a food app. The difference of this app to SearchEat is that it resembles a game to provide its users recipes.

4.0 METHODS

During the process of developing this mobile application, the researchers discussed the purpose of the project. To justify its purpose and goals, the proponents developed specific processes and procedures. The project was able to achieve its intention and objectives with an array of well-ordered plans and strategies.

Upon the development phase of the project, unexpected situations challenged the researchers thus, urging them to perceive other ways to improve the project. To attain the desired result, the proponents continuously studied different methods that helped them in creating the project in a fast and efficient way. The researchers used the **Agile Model** since it is more adaptive and generates applications that are absolute, fast, small and easy to work on. Agile model is an example of Software Development Life Cycle (SDLC) that makes the application more secure with fewer errors hence, increasing its quality. It promotes robust planning, revisionary development, rapid delivery and constant improvement. It also recommends brisk and versatile response to change. This model includes initial planning, analysis and design, development, testing, deployment and reviewing of the project.

Initial Planning. The project started with the initial planning, the researchers together with the adviser discussed day-to-day problems encountered by them. The researchers conducted meetings and discussions to come up with an application that can fully impact one’s day-to-day routine. As the discussion progresses, the researchers began to draw

solutions from simple to major difficulties encountered by the society. Through the combination of ideas and suggestions of each members, the researchers came up with a proposal that was submitted and checked by Mrs. Maria Cristina Ramos and with the approval of Dr. Roselie B. Alday, Dean, College of Computer Studies.

Planning and Requirements Gathering. After the approval of the project, the researchers began gathering and reviewing applications, and reading articles, statistics and trend reviews that are related to the project, which later became its references. It gave the researchers the idea that the project is achievable with further revisions and adjustments. The timeframe and the deadline of the project was given by the adviser. There is also consultation schedule set to further improve the project. To be able to work faster, the researchers conducted group meetings to delegate the task. The members were then assigned certain tasks to complete at a given time to help fast track the development of the project. To monitor the project's progress, the researchers regularly conducted meetings to discuss problems encountered during the development of their task. The researchers formulated solutions to improve the project. These group meetings helped the members formulate the objectives, goals and limitations of the project.

Analysis and Design. Upon analysis of the different functions that the researchers implemented in this application, they created a list of different requirements needed which aided them in the designing process. The first task was to decide on how to set up the home screen in order to include all the necessary buttons without looking too crowded and still maintaining a sophisticated user interface. On top of this, another factor that was taken into consideration is how to design the icons in a way that the user will know their functions without needing an explanation.

For each screen of the application, the researchers utilized the list of requirements to create flowcharts using Microsoft Visio. This gave a structure to follow for the designing process. After having a concrete idea of how to set up the framework of the application, the developers design the user interface of the prototype with Adobe XD. Additionally, Adobe Photoshop and Adobe Illustrate were used to create different images and layouts for the application.

Implementation. This phase was based on the outcome of the team's Analysis and Design. On this phase, the researchers built the project's code using Android Studio which is a platform that uses different programming languages such as C# and JAVA. The project used JAVA for it is an object-oriented language that satisfied the needs of the project, its functionalities and features that helped the team achieve the project's goals. For the application's database the researchers used firebase. Firebase is a google built infrastructure that provides tools in developing high-quality applications which is scalable, and user based. Another tool used is the MealDB API which provides recipes for the application. It generates the latest meals according to categories that are categorized by common main ingredients such as chicken, pork, beef, etc.

Testing. In this phase, the coding that was done during the implementation stage were tested. Complications and errors were also identified. One major problem that the researchers encountered was when the API to be used which was Food2Fork, shutdown last November 30th making it hard for the researchers to provide data for the application. Food2Fork is an API that completely satisfied the researcher's objectives. The team then tried to use firebase as an alternative which was initially designed as a database for the users, but with little time left, the researchers were not successful to

implement firebase as the primary database for the recipe. The team started working on both MealDB API and Firebase to prevent such problems to occur again. This helped the researchers improve the project. In this phase, the team found ways and strategies to debug the errors to be able to achieve the project's main goals.

Evaluation. After the in-depth execution of the testing stage, the team started to draw their evaluation and assessment to be able to upgrade and strengthen the project. The process of Analysis and Design, Implementation and testing was done repeatedly to achieve the project's goals until it is free from bugs and errors. Once it succeeded, the project will be ready for deployment.

Deployment. In this phase, the target market or users of the application will be able to try and review the application. They will provide feedback and suggestions to help the researchers improve the project. With the suggestion and feedback provided, the application should be able to comply with the ISO 9126 that is now replaced by ISO/IEC 25010:2011 standard. It is a standard that is used internationally to check the quality of the software and systems. The researchers should be able to comply with these standards. The first degree is Functional Sustainability which states that the set of all functions are covered including the specified tasks and user objectives, provides correct result with the needed degree of precision and facilitate the accomplishment of specified tasks and objectives. Second degree is Performance Efficiency. This is the degree to which the requirements specified by the application is met. The third degree is Compatibility that requires the application to work efficiently with other products without damaging other product's functionality and features. The next is Usability. This is the degree in which the application should be able to meet the users need. The next degree

is Reliability in which the product should be able to meet the standard reliability in normal operations. Security is also a degree of standard which states that the product's data should be accessible only to those who are authorized. Maintainability is another degree of standard in which the application is composed of discrete components that will only have minimal effect on other components and lastly, portability. This is the degree in which the application should be able to adjust to certain improvements such as hardware, software and operational changes or improvements.

Gantt Chart

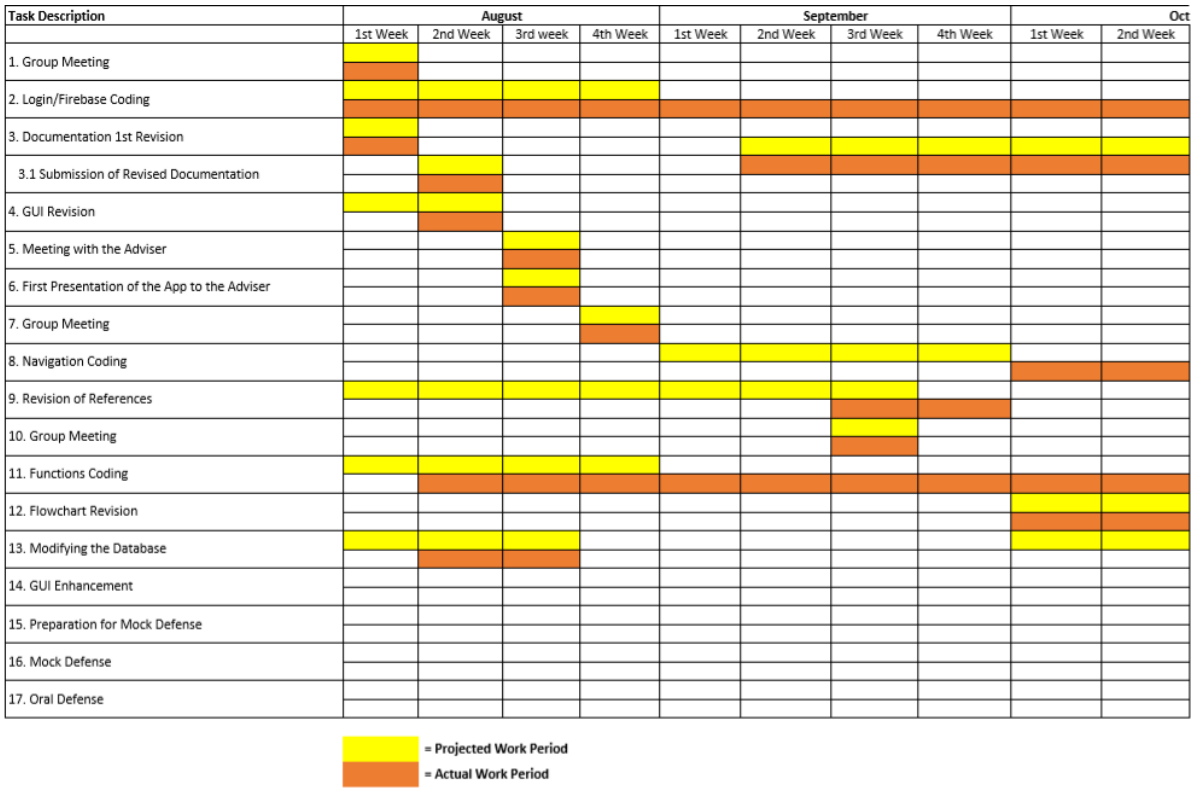

Figure 1.

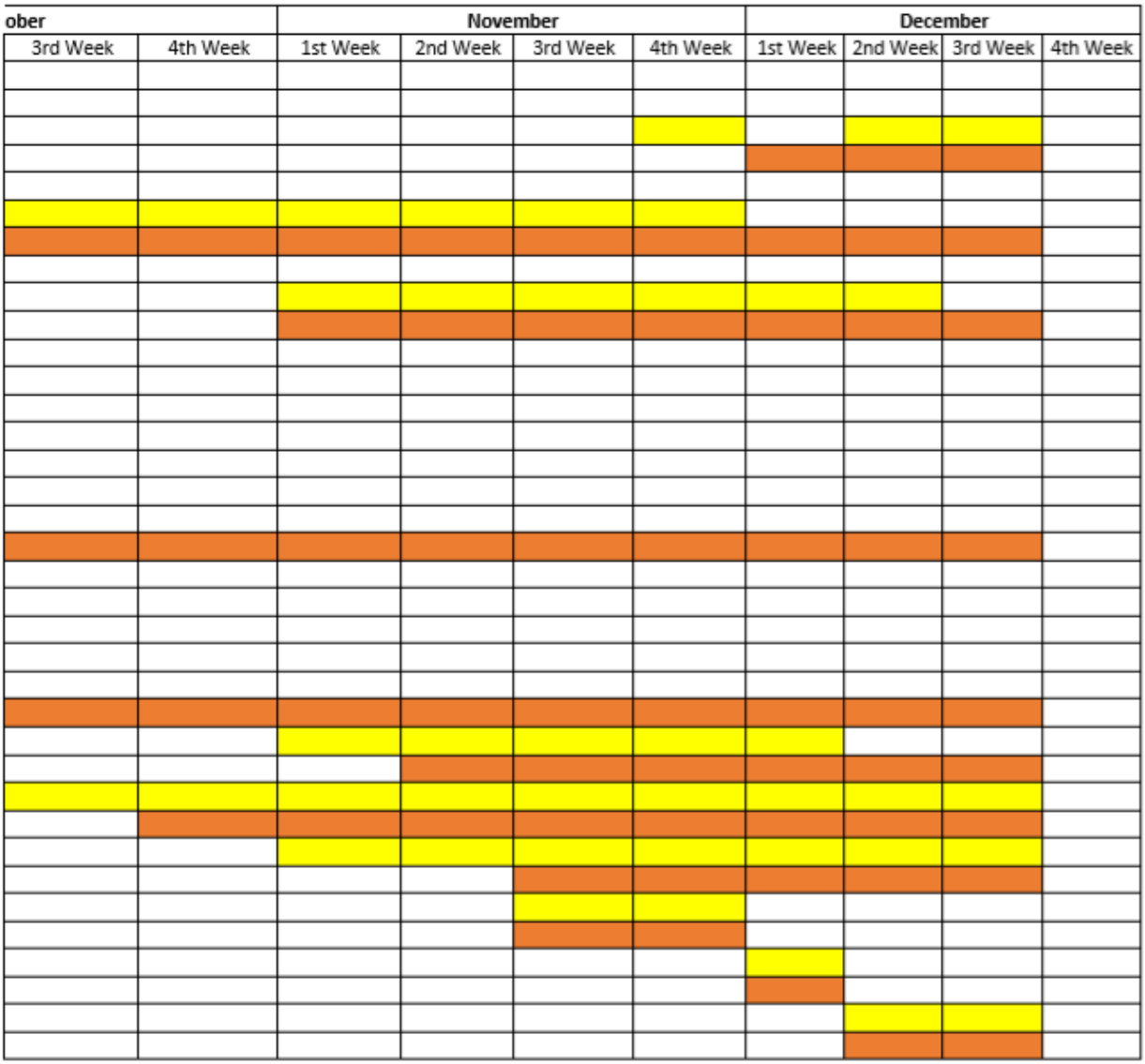
ober
November
December
3rd Week
4th Week
1st Week
2nd Week
3rd Week
4th Week
1st Week
2nd Week
3rd Week
4th Week

Figure 2

5.0 RESULTS AND DISCUSSIONS

FLOWCHART

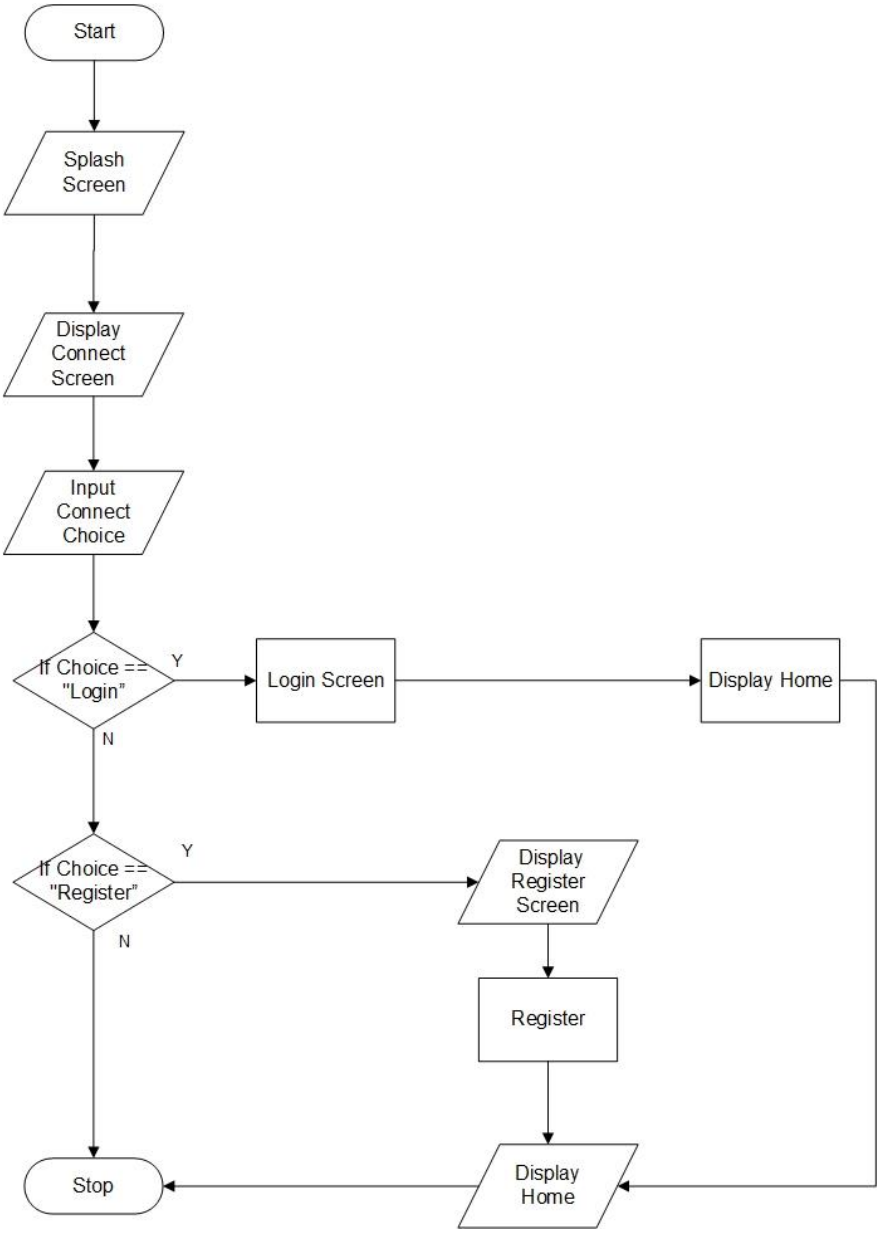

Figure 2. Connect (Login/Registration) Screen

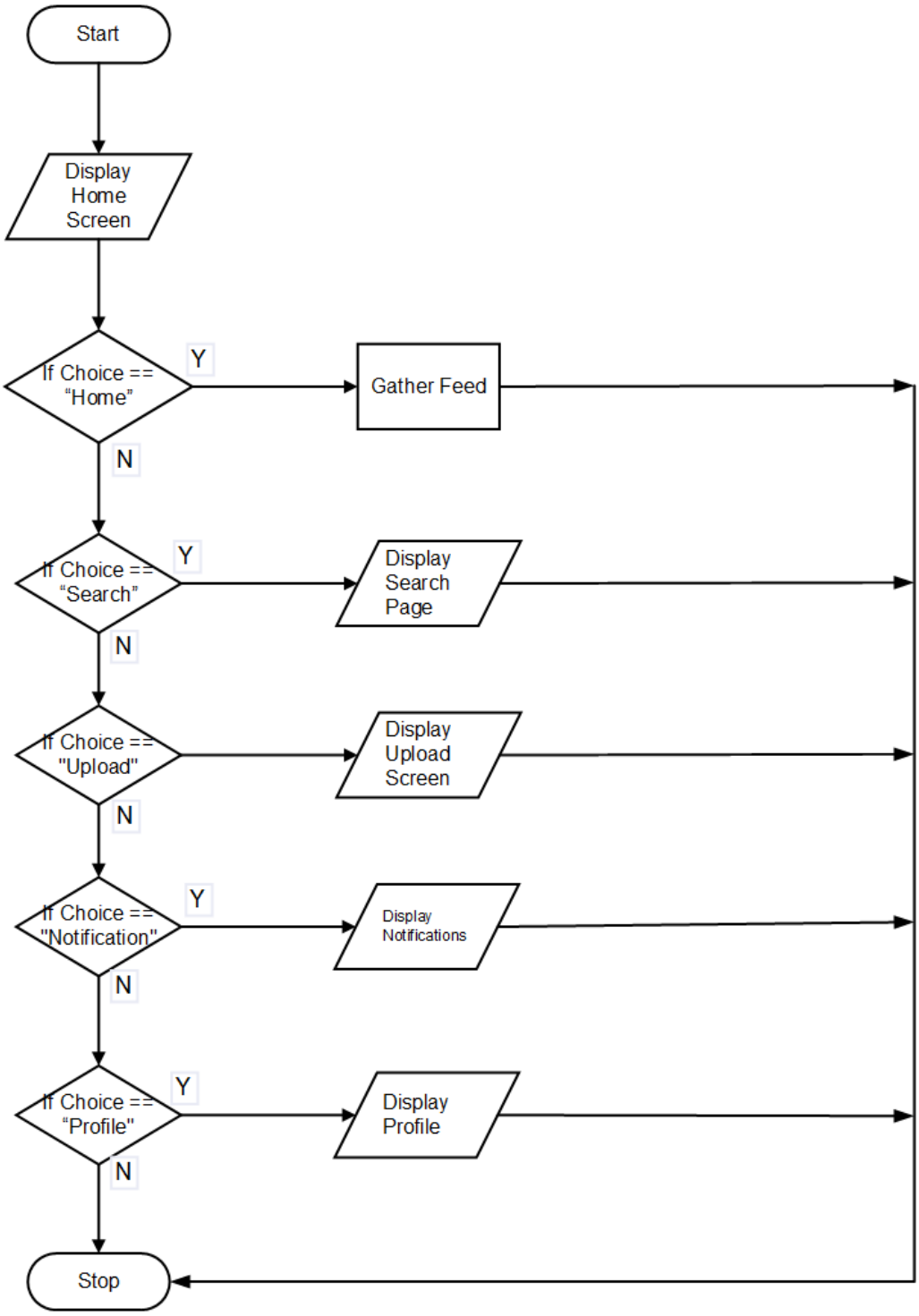

Figure 3. Home Screen

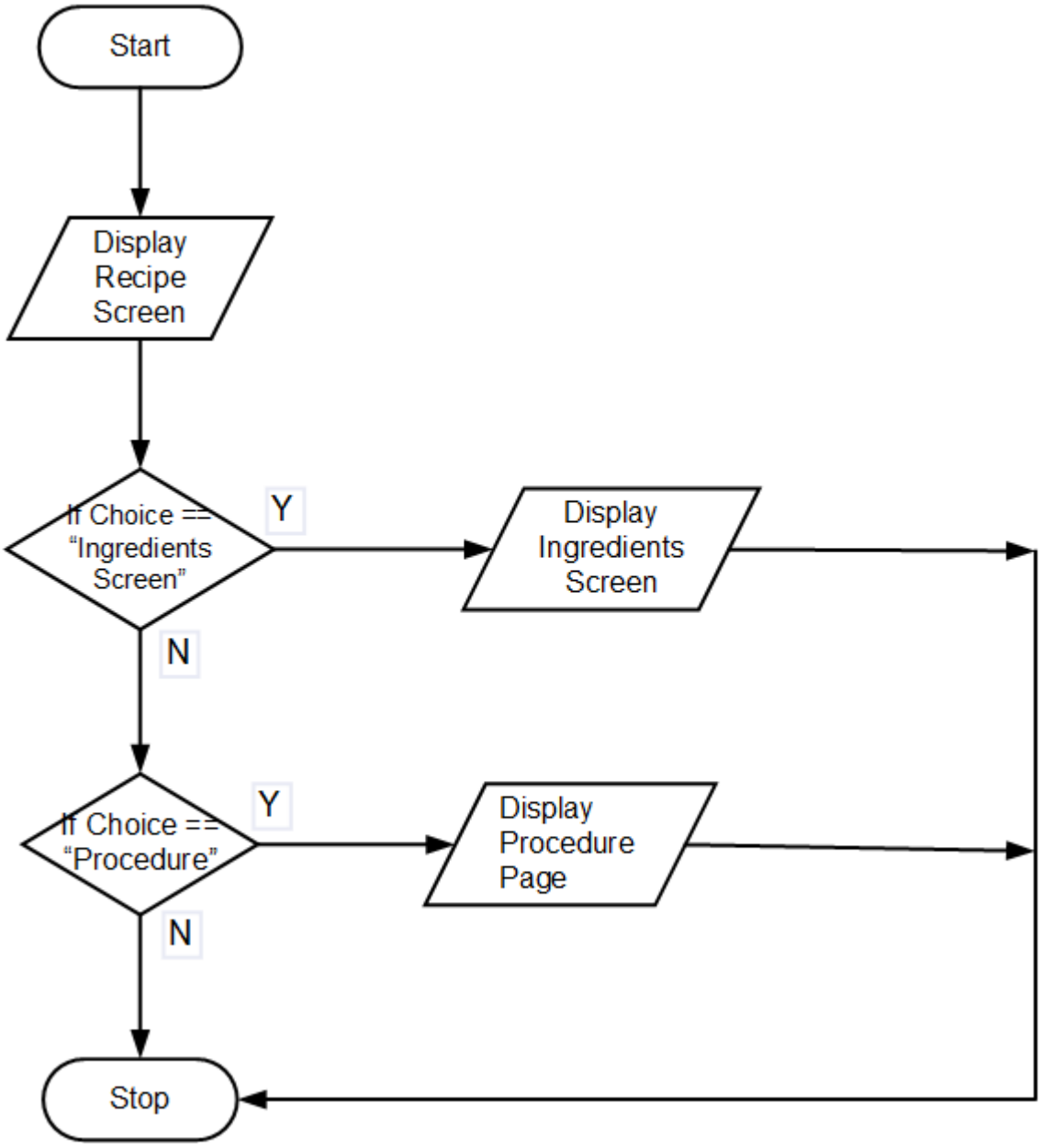

Figure 4. Recipe Screen

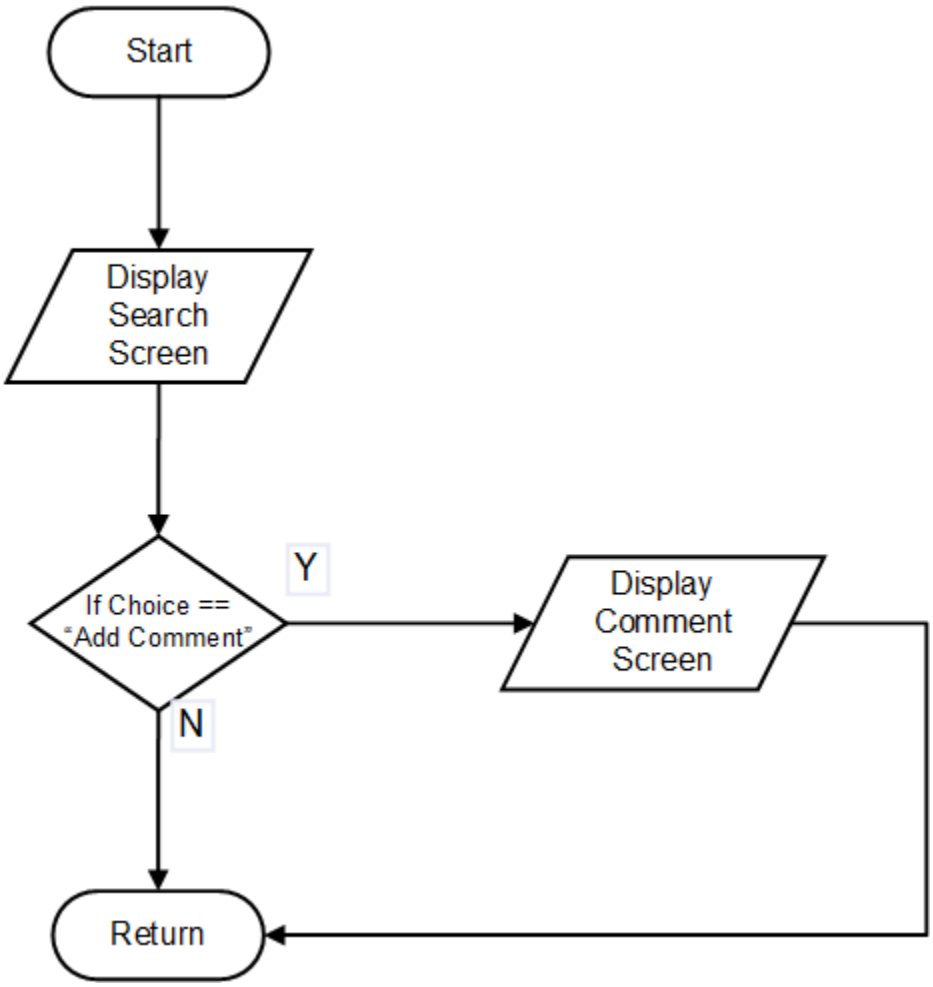

Figure 5. Comment Screen

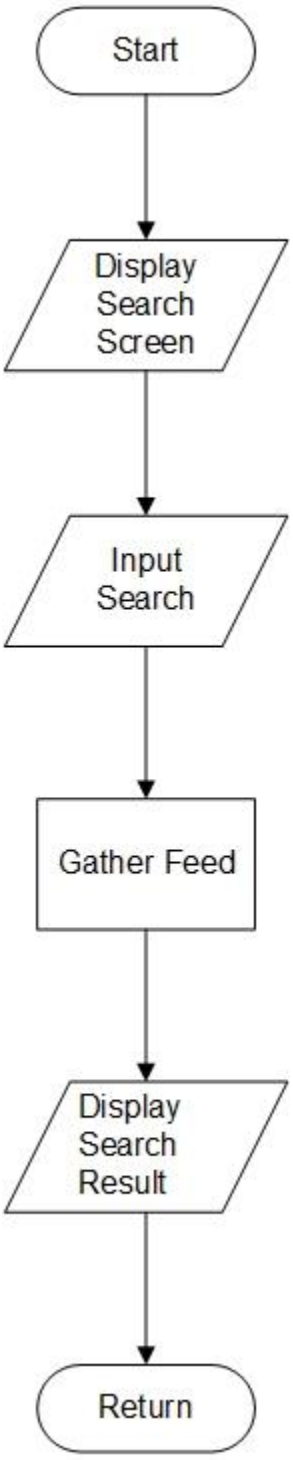

Figure 6. Search Recipe/Ingredients Screen

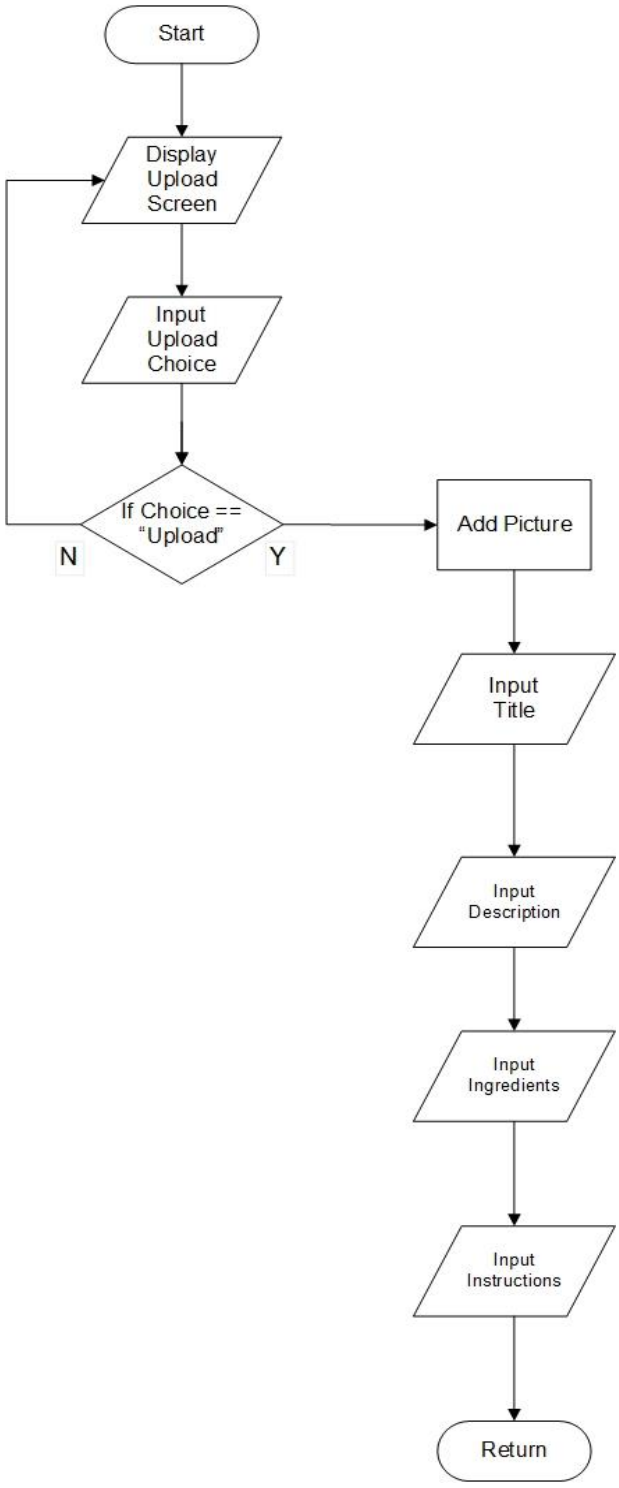

Figure 7. Upload Screen

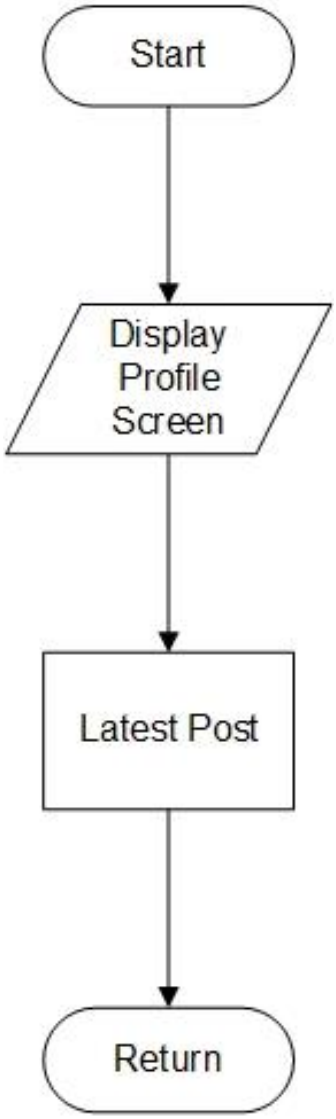

Figure 8. Profile Screen

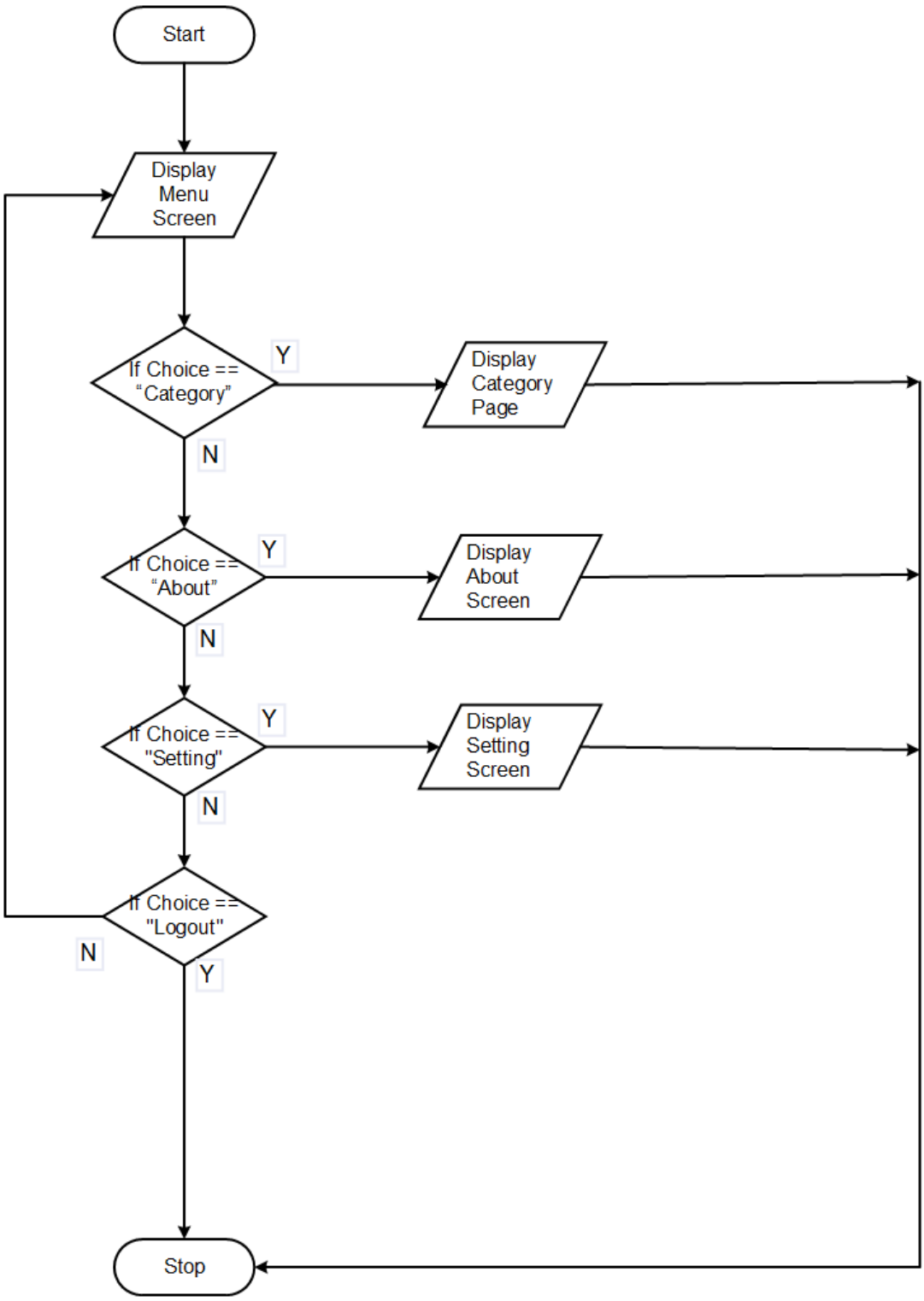

Figure 9. Side Menu Screen

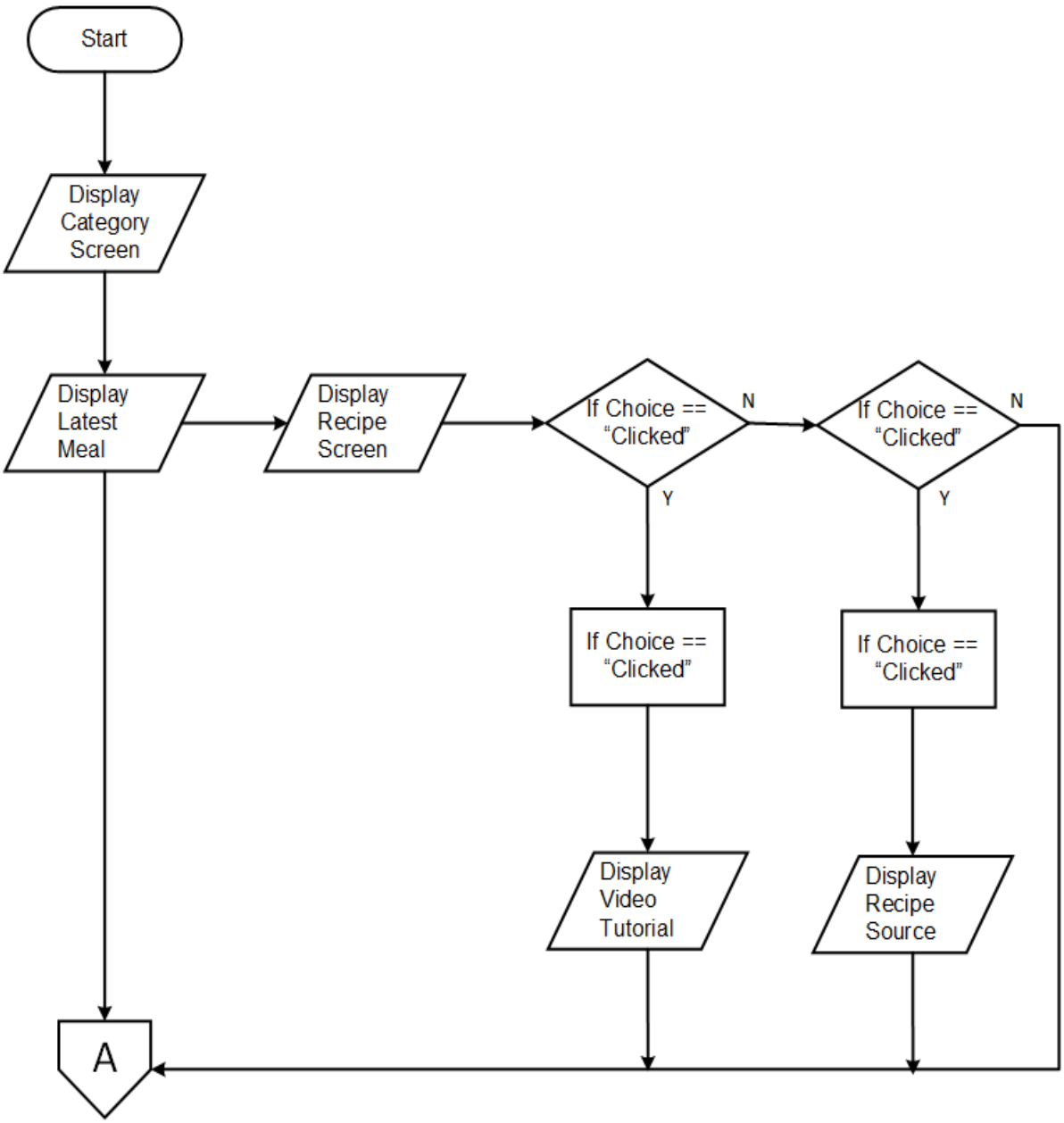

Figure 10.1. Category Screen

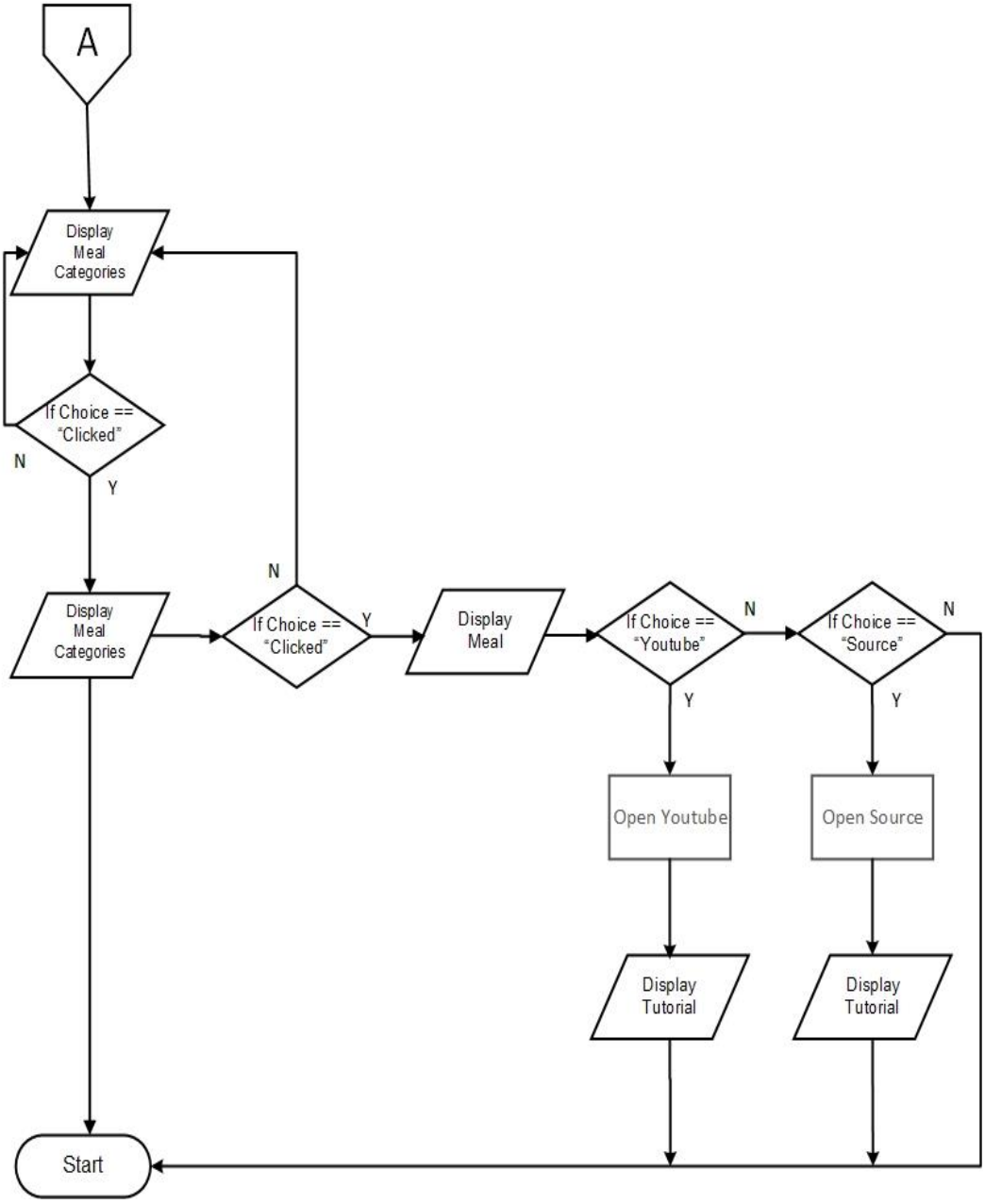

Figure 10.2. Category Screen

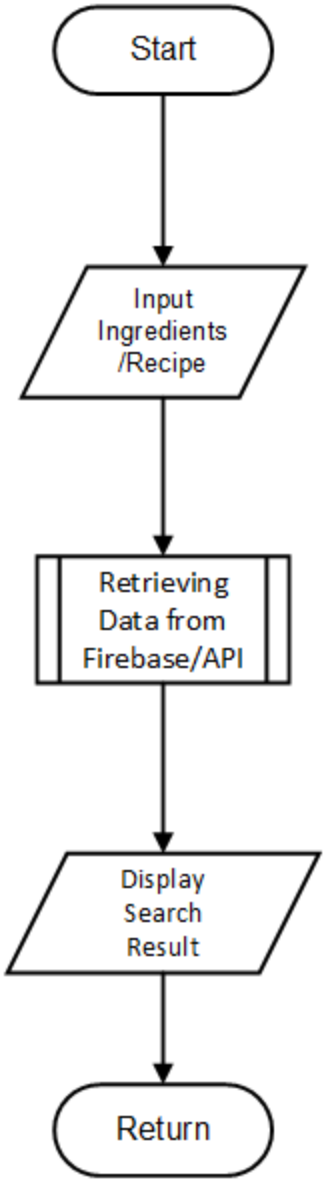

Figure 11. Gathering Feed

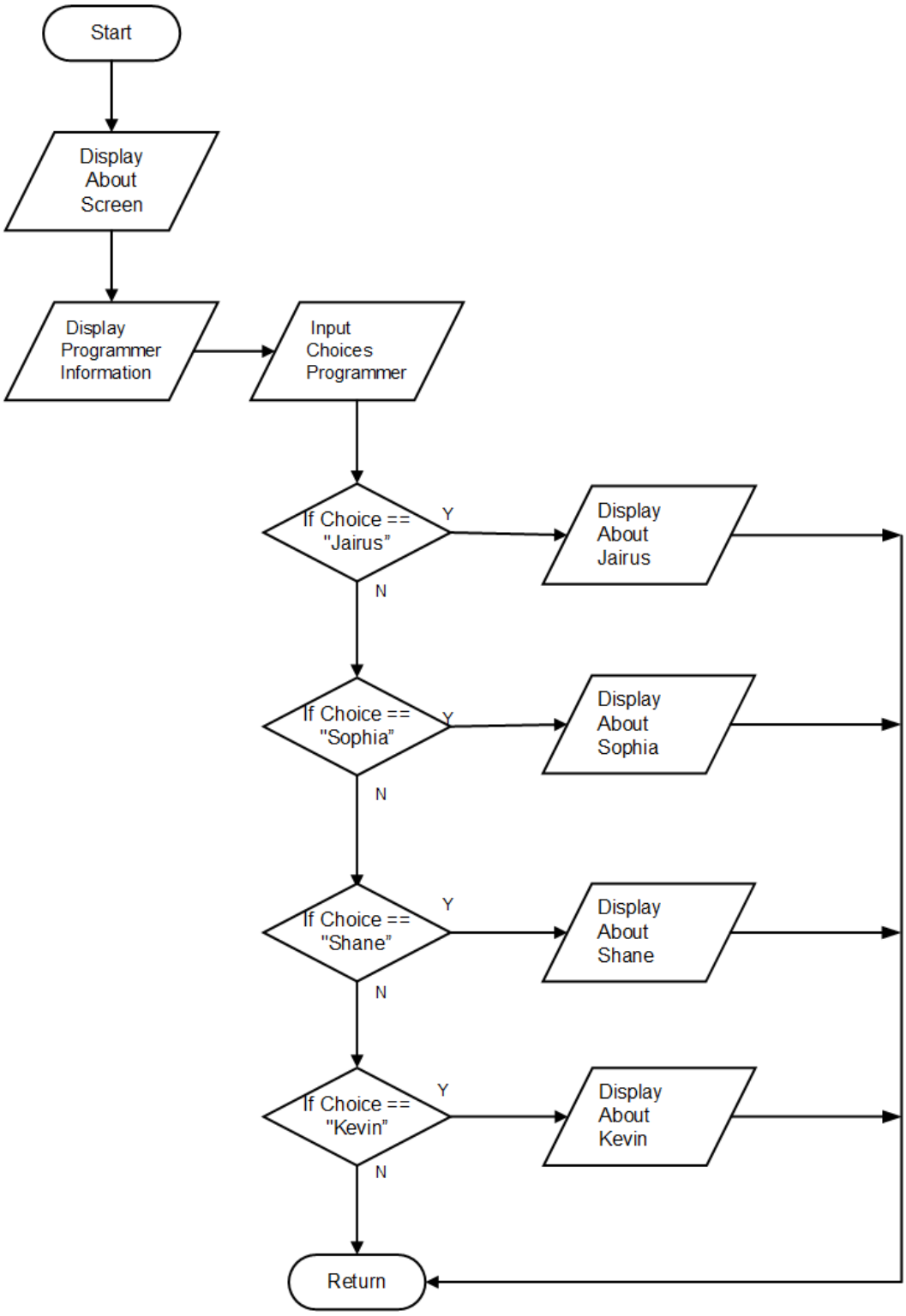

Figure 12. About Screen

SCREENSHOTS

Figure 13. Splash Screen

This is the application's loading screen

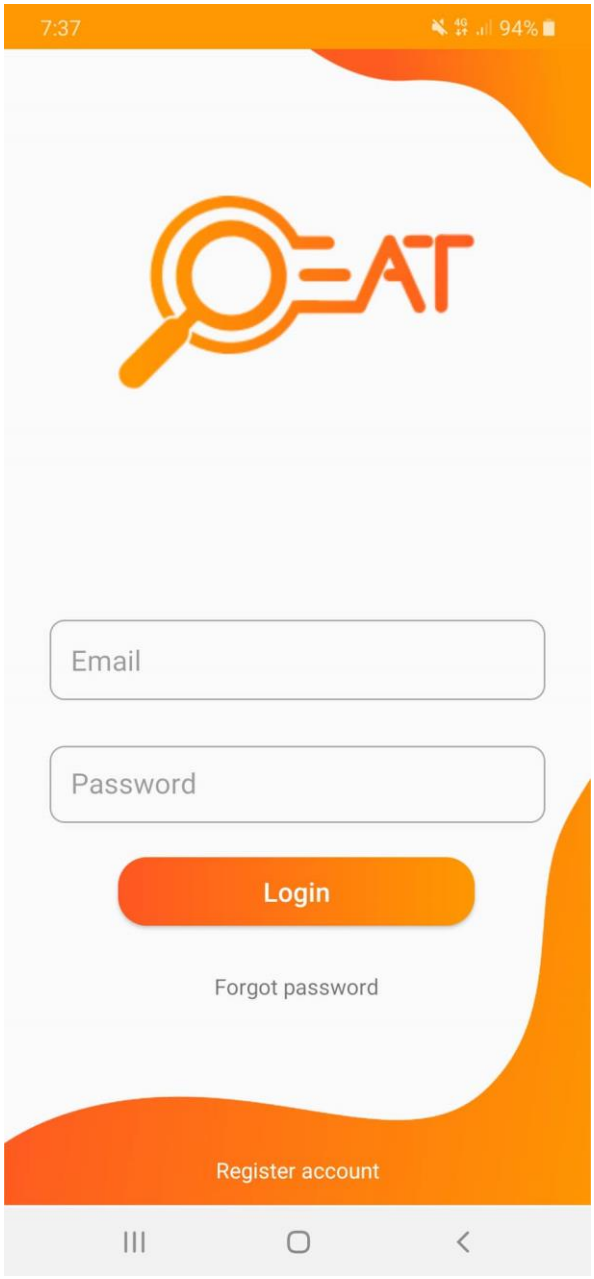

Figure 14. Login Screen

This screen is where the user login

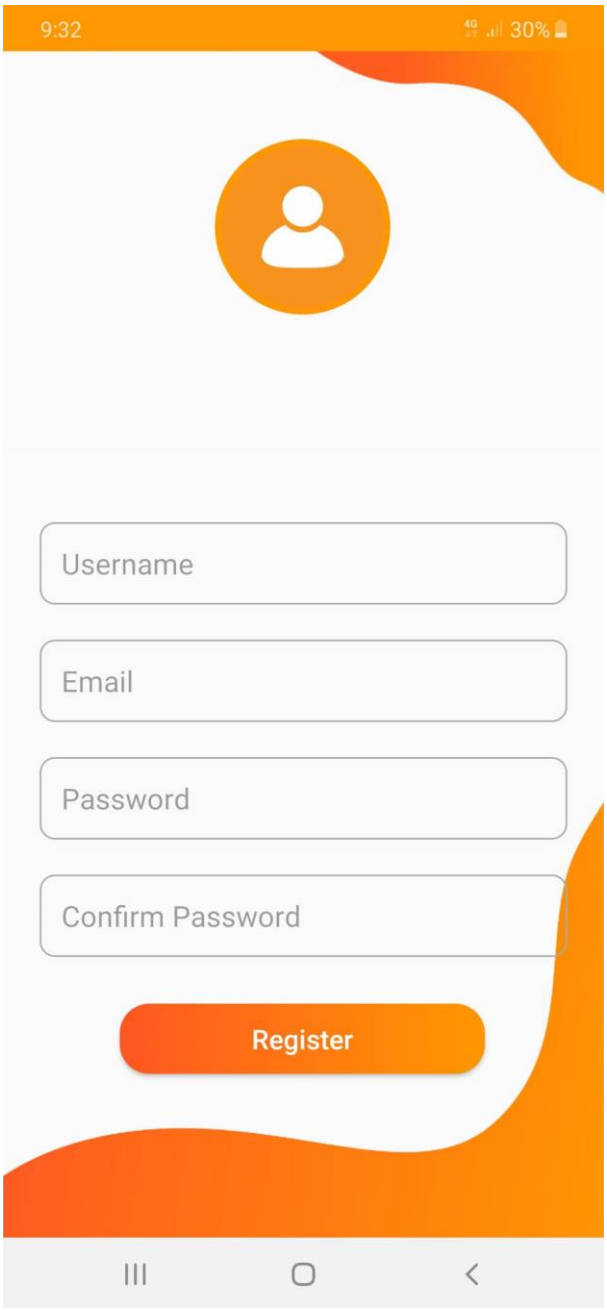

Figure 15. Register Screen
This is where the first-time users of the app register their emails (if they don't have gmail or facebook account)

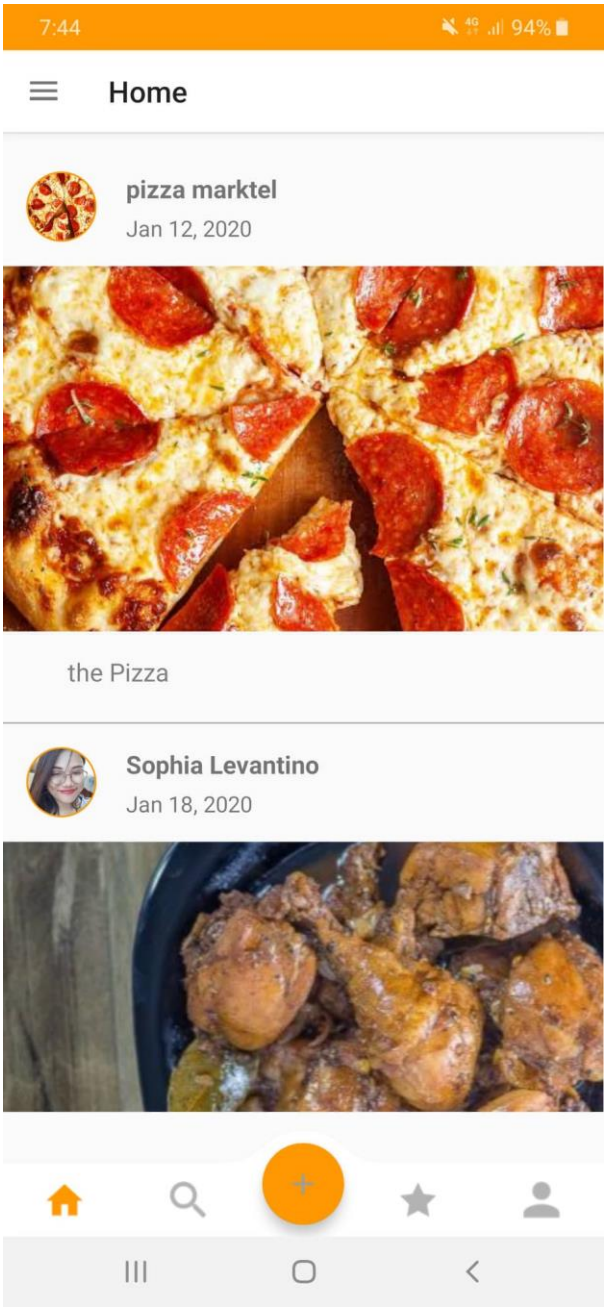

Figure 16. Home Screen
This is where your recent posts and the posts of the people you follow appears

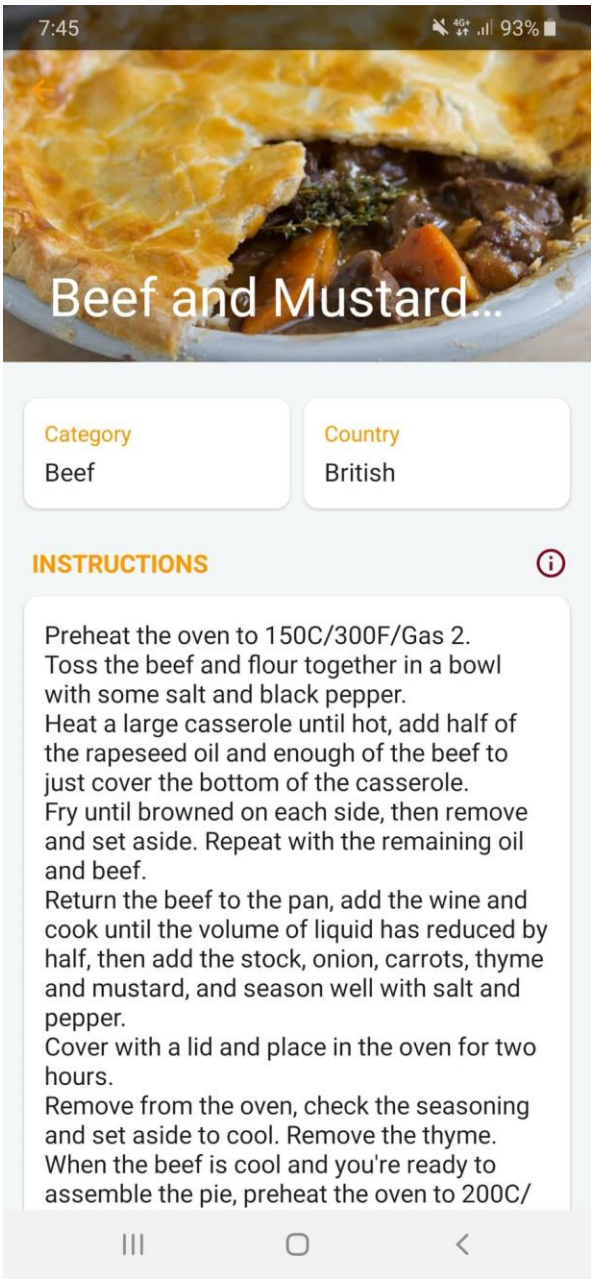

Figure 17. Recipe Screen (Procedure)
This is the procedure tab of the recipe screen and where you can see the procedures made to make the dish

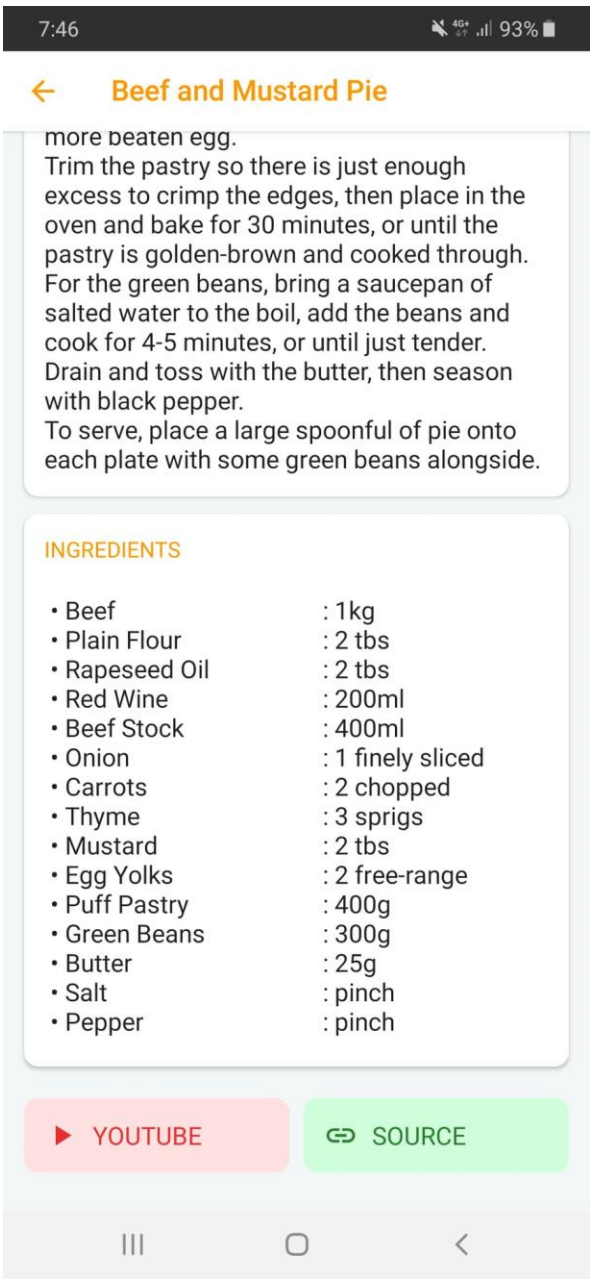

Figure 18. Recipe Screen (Ingredients)
This is where you can view your recipes or the recipes of the people you follow. What is shown above is the picture of the dish and its ingredients

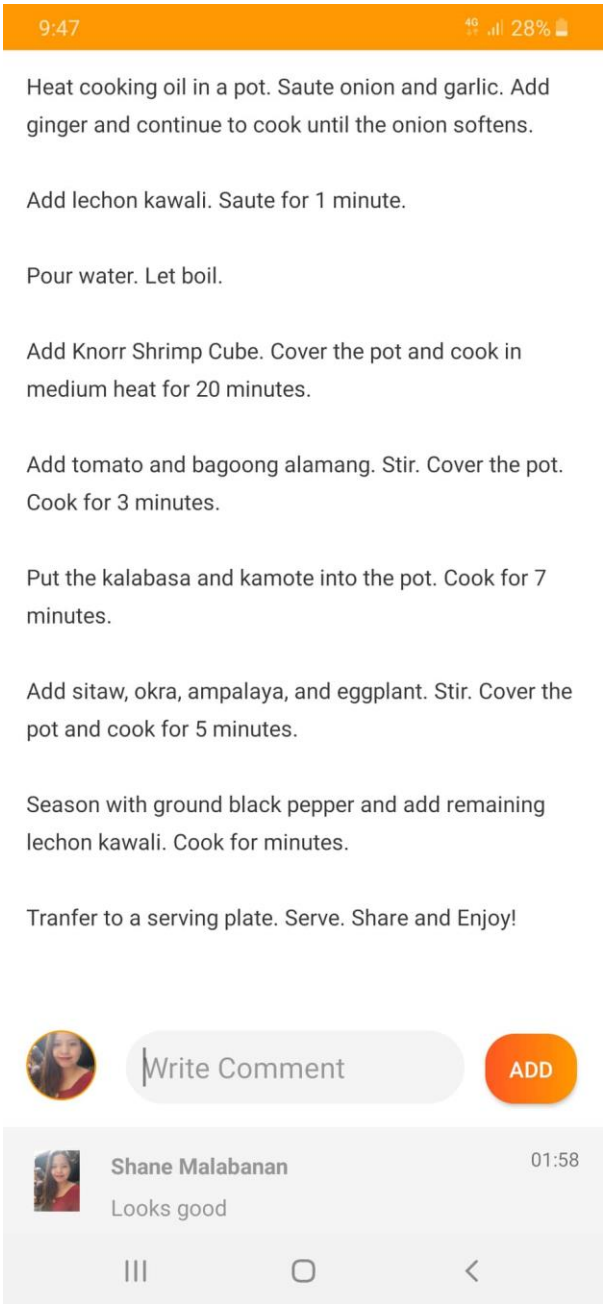

Figure 19. Comment Screen
This is where the user and his followers interact

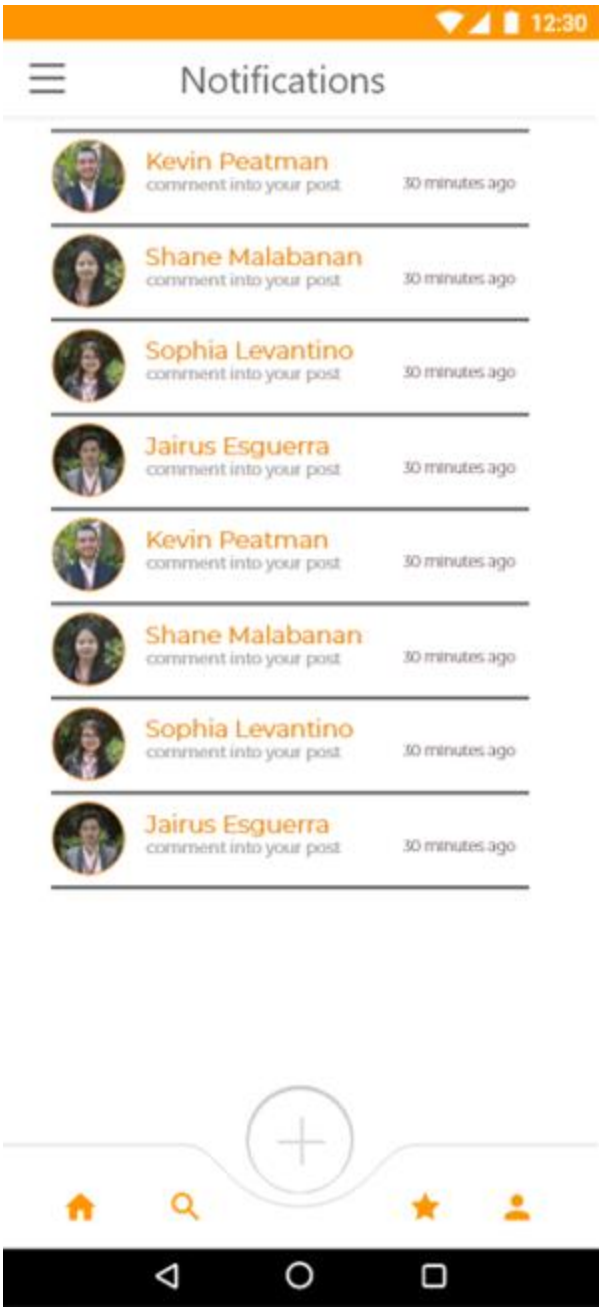

Figure 20. Notification Screen
This is where the user is notified about the interactions made through his post

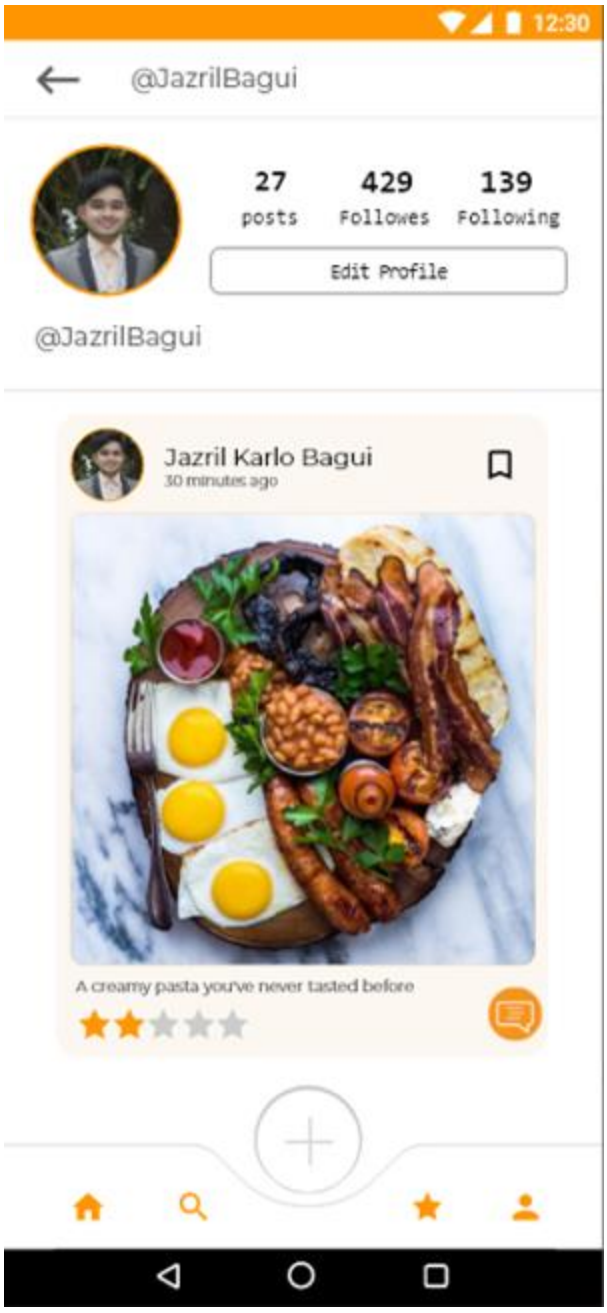

Figure 21. Profile Screen
This is where you can view all your posts

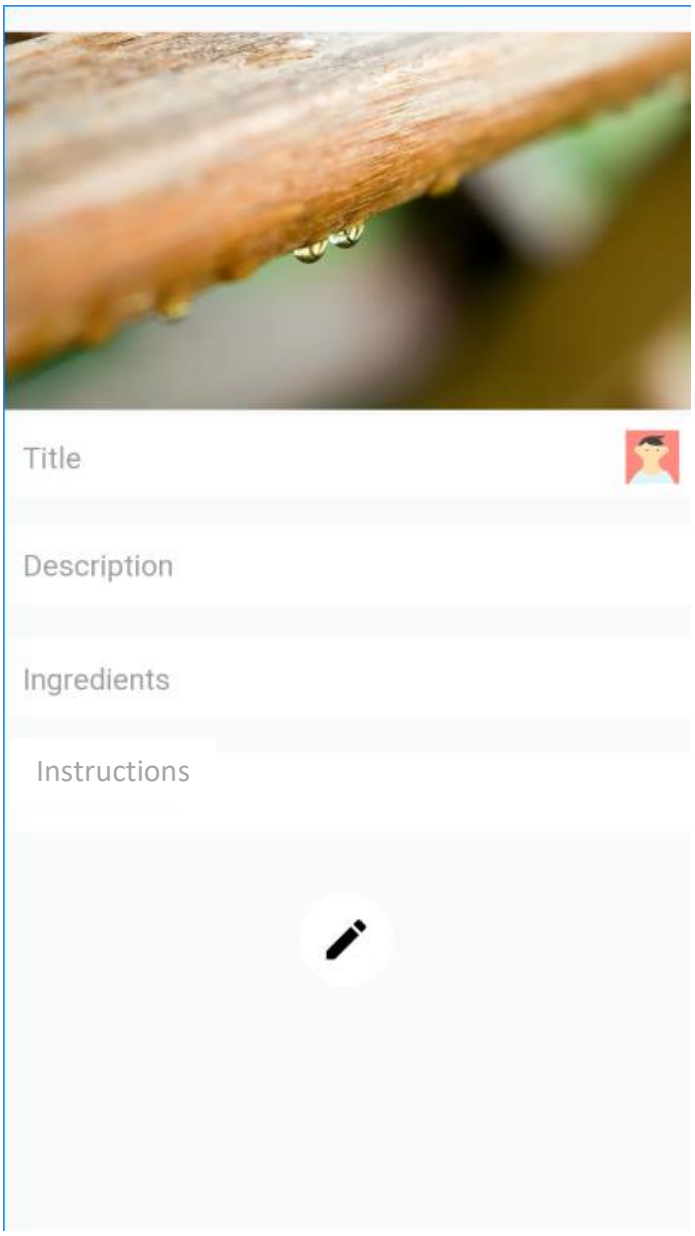

Figure 22. Upload Screen
This is where the users can upload their recipes

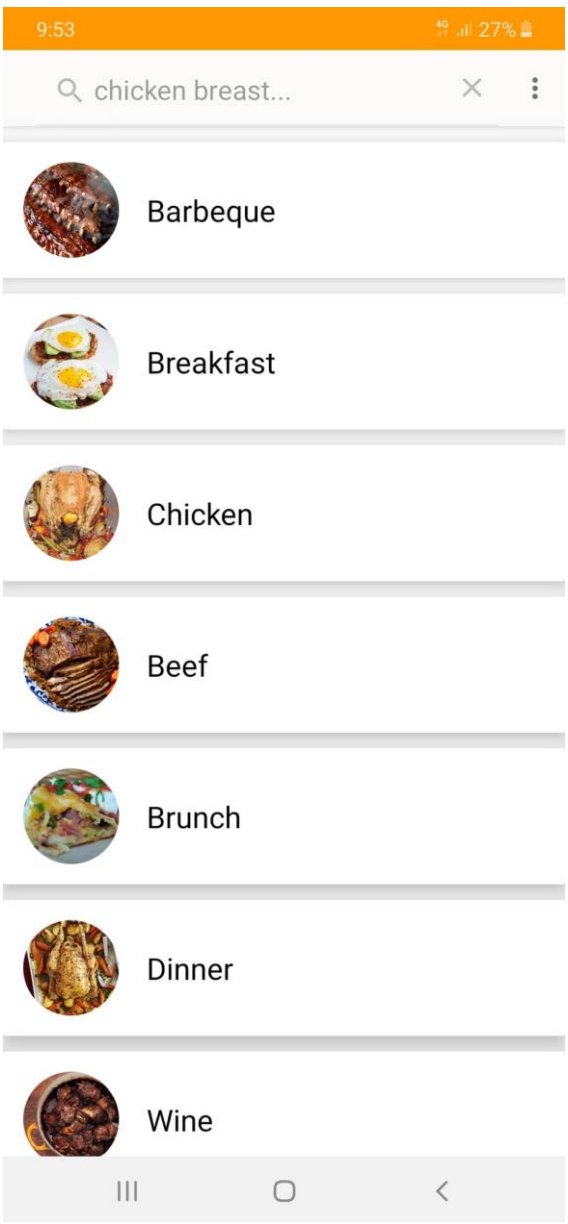

Figure 23. Search Screen (Ingredients)
In this screen, users can search a recipe or ingredients

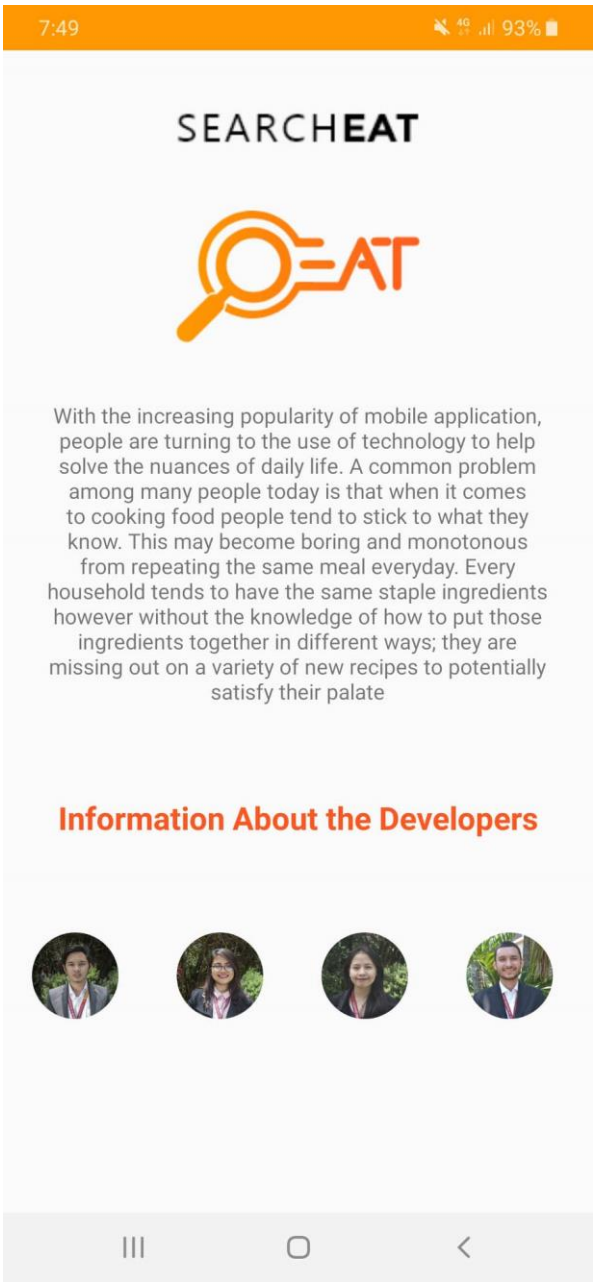

Figure 24. About Screen
This screen shows the description of the application

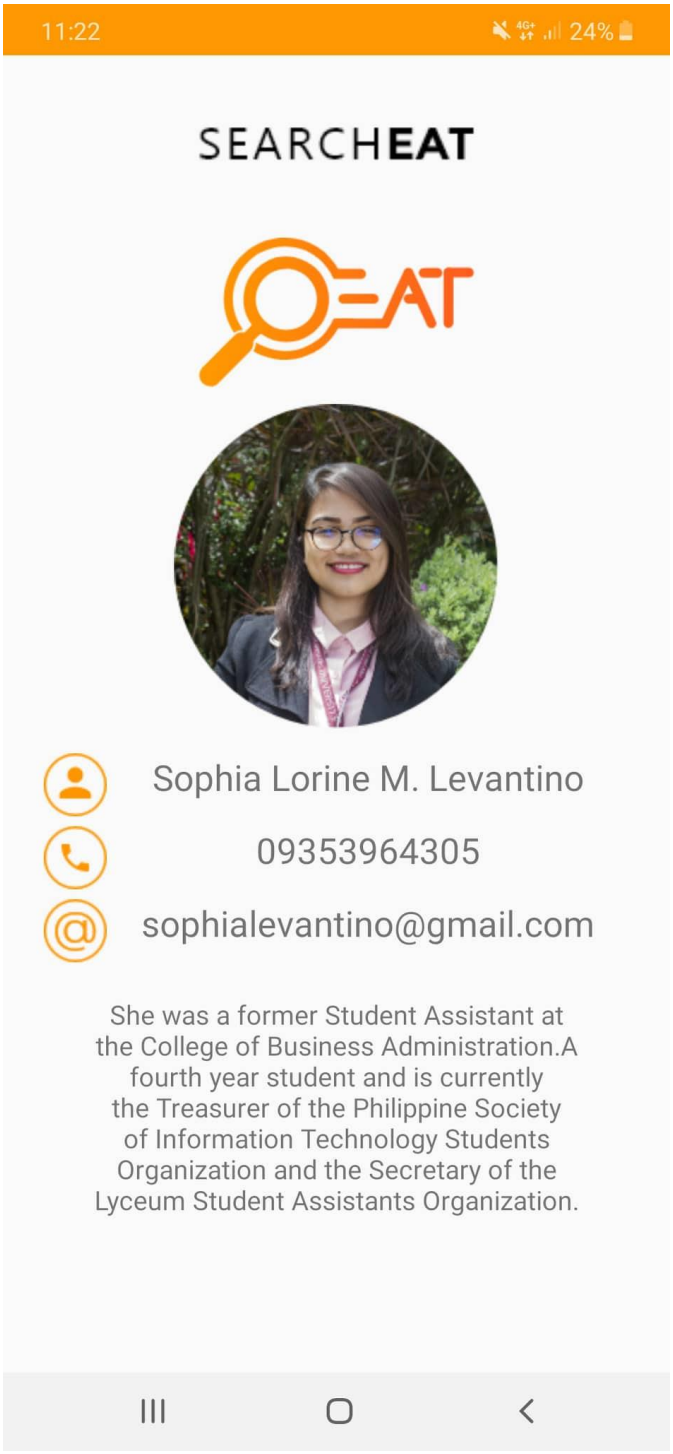

Figure 25. About the Developers Screen
This is where you can see information about the programmers of the application

6.0 CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

SearchEat: A Mobile Recipe Finder is a platform in which the users can learn or educate themselves on how to cook food in a way that can maximize the usage of available ingredients. With this application, users can now save their time in preparing food, taking full advantage of the application's feature specifically, the generation of recipe from the available ingredients inputted by the user and lastly, the combination of Android Studio and Firebase can create an application which is adaptive, easy to use and very user-friendly. Also, this mobile application is created at the time where the technology is in its highest demand and users can now take full advantage of it in every aspect of their daily lives.

RECOMMENDATIONS

From the conclusions and data presented by the researchers, the application is recommended to have an in app registering and login to protect the users' private accounts i.e. (facebook, twitter, gmail.). The application should also have a heightened security features that can protect the data of its users and an in-app video tutorial to help the users prepare their food with precision thus making it easier for them to follow instructions on how to properly cook and prepare the food. However, the researchers were not able to satisfy this feature for it will cost them a lot. APIs that are offering this feature charge its users around $30 - $100 per month is expensive. The team then focused on the procedures that can also help the users learn how to cook. All of these were achieved

using Firebase and the MealDB API, an API that provides our app with meals from its database which includes a thorough instruction about the app, a YouTube tutorial and a source link from where the recipe is from. All these recommendations are provided to give the users an app that they can be used for free with ease and comfort.

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