FOOD PLANNER

A Project Report
Submitted in partial fulfillment of the
Requirements for the award of the Degree of

BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)

By

Raj Manish Dedhia

Roll No (A718)

Pranali Rajendra Kale

Roll No (A738)

Under the esteemed guidance of

Ms. Pooja Amin

DEPARTMENT OF INFORMATION TECHNOLOGY

CHIKITSAK SAMUHA'S

S.S & L.S PATKAR COLLEGE OF ARTS & SCIENCE & V. P. VARDE COLLEGE OF COMMERCE & ECONOMICS.

An Autonomous College

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CERTIFICATE

This is to certify that the project entitled, **"Food Planner"**, is bonafide work of **Raj Dedhia & Pranali Kale** bearing Roll.No: A718 & A738 submitted in partial fulfillment of the requirements for the award of degree of BACHELOR OF SCIENCE in INFORMATION TECHNOLOGY from University of Mumbai.

Ms. Pooja Amin **Mr. Chayan Bhattacharjee**

Internal Guide **Co-cordinator**

External Examiner

Date: 14-03-2022 **College Seal**

ABSTRACT

Every day dinner plans are tough to choose. It gets very difficult to choose what should we make for today's dinner. This app will take several dinner options from the user. After that, they will get recipes and calories (Protein, Fat, Carbs) for the particular dish. The purpose of the project is to help user choose their meal according to their preferences and to make it interesting there are a lot of features in the app. Our aim throughout the project is to fulfill the needs of user and to save their time and get new recipes. The features of this application will be, you can set the remainder time to eat your meal. The app will give you the information (benefits) about the ingredients and also how much can one consume. You can build your own recipes, you can create a whole library of recipes. You can save recipes from web and save it in your library. There will be Fasting Tracker which will help you to notify your Fasting timings. There will be whole calendar of your meals which you have given input about and if you can't select app will do it for you. You can set a calorie target, according to that your breakfast, lunch and dinner will be balanced. It will recommend you according to your goals and daily requirements. This will help people make their work easier and it will save their time and energy to. There are several features in this application to make one's life simpler and fun to use. It is very user friendly app not complicated to use.

ACKNOWLEDGEMENT

With profound sense of gratitude and regard, I express my sincere thanks to all the teachers in Patkar college who have taught us, guided us. I wound also like express my gratitude towards our guide mentor "Ms Pooja Amin" for helping us. We are obliged to our parents & family members who always support us greatly and encouraged us in each and every step.

I would like to to extend my gratitude to the CEO Dr. (Mrs.) Mala Kharkar, Principal Dr. Trisa Joseph and B.Sc.I.T Co-coordinators Ms. Pooja Shinde and Mr. Chayan Bhattacharjee for providing me with all the facilities that were required and I would like to to extend my special gratitude for my friends who have been helping me throughout my project and taught us many things in all these years. I have learned a lot from all, a special thanks to all of you.

DECLARATION

I hereby declare that the project entitled, "**Food Planner**" done at **Patkar Varde College**, has not been in any case duplicated to submit to any other university for the award of any degree. To the best of my knowledge other than me, no one has submitted to any other university.

The project is done in partial fulfillment of the requirements for the award of degree of

BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY) to be submitted as a final semester project as part of our curriculum.

Name: Raj Manish Dedhia **Name: Pranali Rajendra Kale**

Signature of the Student **Signature of the Student**

Date: **Date:**

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CHAPTER 1 : INTRODUCTION

Planning meal is essential for a healthy diet and eating habits vary from people to people. So Food Planner will help people plan their meals according to their preferences. It will help them to know more about the food they eat - their nutrients, calories etc. One can also get new recipes which can help them to make the food. It allows you to make your own recipes and upload it. It helps the user to make the best use of the time, material resources. This will help them to keep users healthy and free of any kind of deficiencies. We can create a grocery list for whatever items we need. We can create our own library in which we can store our favourite recipes and share it with others. When it is time to have a meal the application will send the notification to the user. There will be whole calendar of your meals which you have given input about and if you can't select app will do it for you. You can set a calorie target, according to that your breakfast, lunch and dinner will be balanced. It will recommend you according to your goals and daily requirements.

1. Theoretical Background

Now-a-days excessive consumption of the processed food and the nutrient-poor food is more which affects our immune system and causes many health problems. This outside junk food intakes are more seen in youngsters. Humans physical, mental and emotional health depends on the food we eat.
So we came up with the idea of Food Planner which is a application which will make healthy food interesting. Earlier we had to remember our shopping items we have to buy for particular meal with the help of this app you will get a grocery list created and manage your shopping items through that grocery list. Earlier it was difficult to calculate calories of particular meal but now this app calculates the calories of every single meal.

2. Objectives of the Project

1. To satisfy the nutritional needs of the family members.
2. To keep expenses within family food budget.
3. To take into account the food preference of individual members.
4. Using methods of cooking to retain maximum nutrients.
5. To cut back on time and energy.
6. To serve appetizing and healthy meals
7. To provide assistance for the new cooks out there.

3. Purpose, Scope & Applicability of the Project

a. Purpose

- Make feasible for user to follow their diet plan.
- Saves time that we waste on thinking what to make.
- It helps recipes to reach out to other people.
- Users can also maintain their grocery list.
- They can track their calorie intake.

b. Scope

- Limitation

1) It can actually remove a level of mindfulness because the goal is to hit target numbers NOT listen to your body.
2) We can become hyper-focused on numbers of calories, carbs, fiber, sugar, etc this and led to sometimes eaing really less or over eating a wide variety of healthy, whole foods.

- Accessibility

1) It is beneficial for the people who are confused what to make or eat.
2) People who exercise regularly need to track their meals.
3) People who's passion is cooking and want to share their recipes.
4) This is for the people who wants to explore food and recipes and want to learn new items to make.

c. Applicability

Food planner deals with domain of planning meals for the user to make it easy . It focuses mainly on.

- **Planning:** Planning meals for the user is the main focus of this application.
- **Spin wheel:** The user will be able to choose their favourite meals and when they are not able to decide what to make the spin wheel will decide for the users making it easy for them.
- **Experience:** It will make easy for the User to know more about the food nutrients, calories etc.

4. Expected Achievements

While building a Food Planner Application I learn new technology. It was a great experience. This technology will breach the gap between personally making meals and taking the help of our app, offering a richer experience and personalized promotions delivered right to the wearer. Learning and implementing this technology was little bit tough but it was great. I learnt searching a new technology and implementing it.
Food planner deals with the domain planning food and hence it can be very useful if all the modules and the features are efficiently used. The basic feature of Food planner is to plan personalized meal according to their requirements and create a personalized library with a grocery list. The goal of implementing this application is successfully achieved.

5. Organisation of Report

Chapter 1 give the brief idea about the project. Objectives, purpose, scope and Applicability is mentioned in this chapter.

Chapter 2 contains brief analysis of technologies that are carried out throughout the project. Survey of technologies is been done in this to select the suitable one.

Chapter 3 basically focuses on requirements and analysis and also the feasibility study done for the project. It consists of the process model which is best suitable for our project, also it show timeline to complete the project. It contains different types UML diagrams to show the flow of the system.

Chapter 4 describes about the system design. It focuses in the basic modules and the desired features of the system. It shows the structure of the database. Also it shows the procedural design that is the process flow diagram of the project.

Chapter 5 explains the implementation of code along with different testing phases.

Chapter 6 presents the test reports followed by user documentation and cost analysis of the application.

Chapter 7 explains the conclusion, limitations and future scope of the application.

CHAPTER 2 : SURVEY OF TECHNOLOGIES

1. Description of Available Technologies

C++: C++ is a general-purpose object-oriented programming language. It is regarded as a middle-level language, as it comprises a combination of both high-level and low-level language features.

Java: Java is a general-purpose, class-based, object-oriented programming language designed for having lesser implementation dependencies. It is a computing platform for application development. Java is fast, secure, and reliable.

Python: Python is an object-oriented, high-level programming language. Python's simple, easy to learn syntax emphasizes readability and therefore reduces the cost of program maintenance. Python supports modules and packages, which encourages program modularity and code reuse.

2. Comparative Analysis of Technologies in Chosen Area

C++	**JAVA**	**PYTHON**
Platform dependent	Platform independent	Platform independent
Does not support threads	Has in build multithreading support	Supports multithreading
Has limited number of library support	Has library support for many concepts like UI	Has a huge set of libraries
Strictly uses syntax norms	Strictly uses syntax norms	Use of ; is not compulsory

Table 2.1

3. Chosen Project Domain

Android Development

Any application developed to be supported by the Android Operating system using the android software development kit (sdk) on android studio is the process of android development. Google states that "Android apps can be written using Kotlin, Java, and C++ languages" using the Android software development kit (SDK), while using other languages is also possible. Any application for android system can be easily created by installing the freely available SDK. These applications support any device which is built in android OS and written In Java.

4. Technologies to be used

a. Front End

Xml: Xml stands for extensible markup language. A markup language is a set of codes, or tags, that describes the text in a digital document. XML is a markup language much like HTML.XML was designed to be self-descriptive.

b. Back End

Java: Java is a class-based, object-oriented programming language designed for having lesser implementation dependencies. It is a computing platform for application development. Java is fast, secure, and reliable. Therefore, It is widely used for developing Java applications.

c. Other Development Tools

Android Studio: Android Studio is the official Integrated Development Environment (IDE) for android application development. Android Studio provides more features that enhance our productivity while building Android apps. It has a flexible Gradle-based build system and it provides extensive testing tools and frameworks.

5. Reason Supporting the use of above selected technologies

These are the trending technologies and best web development framework. By making use of these technologies in our project we will get to learn about these technologies and how to use it. In fact these technologies are in-demand in the market. So learning these will help us in future.

CHAPTER 3 : REQUIREMENTS & ANALYSIS

1. Problem Statement and Problem Definition

Basically people in their day to day life are fed up of planning about their meals. Normally, we as a human it get very difficult to keep track of what food items we have. To Count Macros of the food is also a difficult task.

These things all together gets very difficult to handle of a single person. This application will sort out all these problems of user in their daily life and help them get out of it very easily by making track of things.

So Basically This app will plan the meals for users, Keep the track of their Daily Calorie intake, help them to make their grocery list, etc.

2. Requirements Specification

The requirements should be documented, actionable, measurable, testable, traceable, related to identified business needs or opportunities, and defined to a level of detail sufficient for system design.

a. Functional Requirements

In software engineering and systems engineering, a functional requirement defines a function of a system or its component, where a function is described as a specification of behavior between outputs and inputs.

Functional requirements are as follows :

- **Register:** A user needs to register in order to access the app. The user needs to enter his/her details like username, password, age, and country. All these information will be stored in the database.
- **Login:** This feature used for the user to login into the system. A user must login to the system after registration by providing the username and password.
- **Search for a Recipe:** The user will be able to search any recipes he want. The user shall be able to view ingredients of a certain recipe. This option will allow him/her to mark those ingredients as needed, and can add them in the shopping list.
- **View My Shopping List:** The user shall be able to manage his/her shopping list based on the needed ingredients.
- **Plan a Meal:** The user shall be able to plan a meal according to their preference.

- **Spin wheel:** This features will take the inputs from the user and then the user can spin this wheel if he/she is confused what should be made today. This can save alot of time of the user and make things fun and interesting for them.

b. Non-functional Requirements

In systems engineering and requirements engineering, a non-functional requirement (NFR) is a requirement that specifies criteria that can be used to judge the operation of a system, rather than specific behaviors. They are contrasted with functional requirements that define specific behavior of functions.

Non-functional requirements are as follows:

- Compatibility: Food Planner app will be compatible with all the android devices.
- Usability Requirements: The application will be easy to use and have a user-friendly interface. GUI will be simple and clear.
- Reliability Requirements: The application will not produce an incorrect output.
- Availability: Will be available to all the android users.
- Security: Personal information of the user shall only be accessed by the administrator. The application is protected from any external danger or attacks Above points are subject to change and may vary depending on the project.

c. User Requirements

User requirements are as follows:

- Planning diet should be feasible.
- It should show all the ingredients.
- It should track amount calories.
- It should recommend recipes.
- Look and feel should be good.

d. Hardware Requirements

Hardware requirements are as follows :

- Processor: Intel® Core™ i5-8300H CPU @ 2.30Ghz 2.30GHz.
- Memory: 8GB RAM
- Input Devices: Keyboard and Mouse
- Output Devices: Monitor Screen

e. Software Requirements

Software requirements are as follows :

- Android studio
- Database – Firebase
- Programming Language: Java, xml

3. Feasibility

A well-designed feasibility study should provide a historical background of the business or project, a description of the product or service, accounting statements, details of the operations and management, marketing research and policies, financial data, legal requirements and tax obligations. Generally, feasibility studies precede technical development and project implementation.

a. Operational Feasibility

It explains how well the proposed project solves the problem, how it takes into account the advantages and how it satisfies the requirements specified.

- Affordability – Currently, the website does not use any third-party paid software and is geared on a small scale, making it free for now.
- Producibility – Production is the main stage of development, when source code for the application are produced. Programmers write a new source codes.

b. Technical Feasibility

The technical feasibility assessment is focused on gaining an understanding of the present technical resources of the organization and their applicability to the expected needs of the proposed system.

- Processor: Intel® Core™ i5-8300H CPU @ 2.30Ghz 2.30GHz.
- Memory: 8GB RAM
- Input Devices: Keyboard and Mouse
- Output Devices: Monitor Screen

c. Economic Feasibility

The purpose of an economic feasibility study (EFS) is to demonstrate the net benefit of a proposed project for accepting or disbursing electronic funds/benefits, taking into consideration the benefits and costs to the agency, other state agencies, and the general public as a whole.

- The Food Planner app is economically feasible since all the technical requirement is available to the developer. In order to publish the app on the Google Play Store, it is mandatory to create a Google Developer Account. The registration fee is a one-time payment of $25 i.e 1843Rs. And if this project is done for some client then the approx costing will be 5000Rs to 6000Rs.

4. Planning and Scheduling

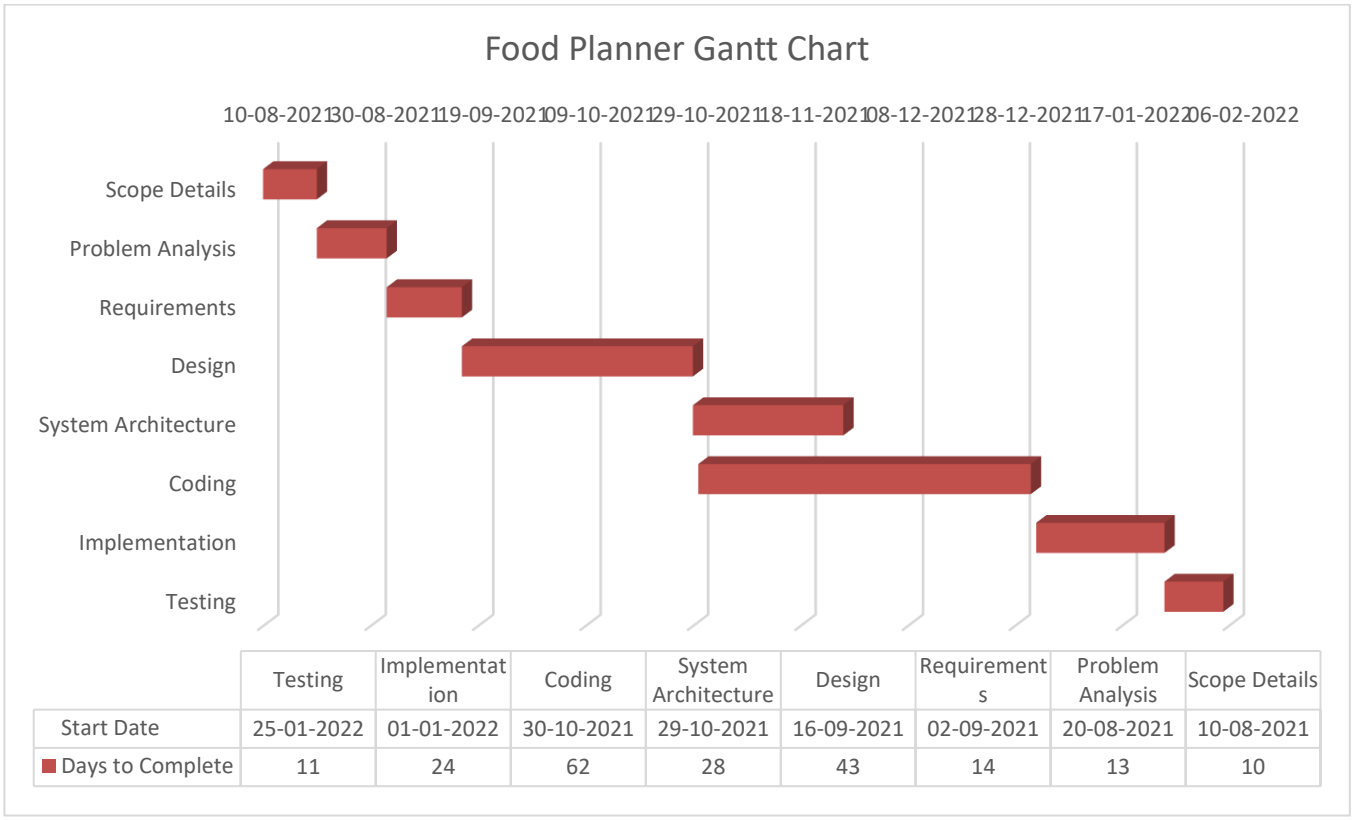
What is planning?

It is the process of creating a plan of which materials and resources will be required to fulfill the demand. This step is mandatory to ensure that you have enough materials and resource capacity available to produce your orders on time. This component pertains what exactly needs to be achieved and how it will be accomplished.

What is scheduling?

Scheduling refers to establishing the timing of the use of specific resources of that organization. Scheduling involves developing schedules for workers, equipment, and materials. It reflects on the 'when' of a project, by assigning the appropriate resources to get the production plan completed within the given time period. Creating optimized schedules ensures that your facility is able to reduce costs, increase productivity, and deliver to customers on time.

a. Gantt Chart



	Testing	Implementation	Coding	System Architecture	Design	Requirements	Problem Analysis	Scope Details
Start Date	25-01-2022	01-01-2022	30-10-2021	29-10-2021	16-09-2021	02-09-2021	20-08-2021	10-08-2021
Days to Complete	11	24	62	28	43	14	13	10

Fig 1.1

b. Pert Chart

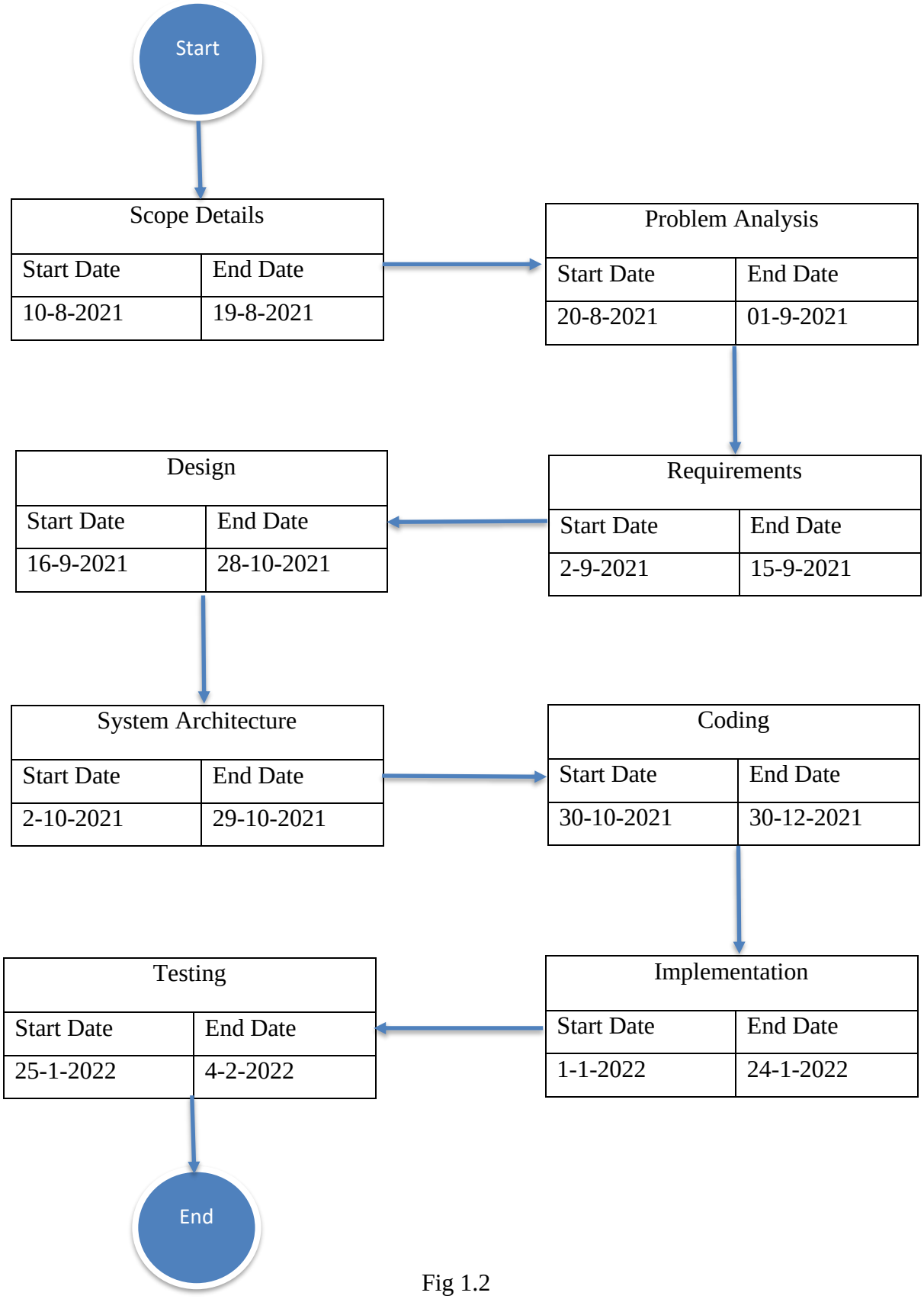


Fig 1.2

5. Preliminary Product Description

Preliminary product description helps in identifying the requirements and the objectives of the new proposed product/project/system. It helps in defining the functions and associated activities or operations of the proposed product/project/system.

The Food Planner app will help to plan meal easy and is helpful for all the users, specifically for people who are health conscious. This app helps users to track their calorie intake, in planning diet and many more. User can also get some tasty and healthy recipes. This can make things interesting for the user.
New users shall be able to successfully operate with the app without any problems on their first try. All buttons should be easy to allocate and tap;
98% of accessible content provided by the app functionality shall be displayed completely within 1 second from the time the user requests it over a 3G or faster Internet connection.

6. Conceptual Model

a. Process Model

Process models are processes of the same nature that are classified together into a model. Thus, a process model is a description of a process at the type level. One possible use of a process model is to prescribe how things must/should/could be done in contrast to the process itself which is really what happens

Proposed Process Model

- **Name of process model – Spiral Model**
- **Brief overview of the process model**
  Spiral model is one of the most important Software Development Life Cycle models, which provides support for Risk Handling. In its diagrammatic representation, it looks like a spiral with many loops. The exact number of loops of the spiral is unknown and can vary from project to project. Each loop of the spiral is called a Phase of the software development process. The exact number of phases needed to develop the product can be varied by the project manager depending upon the project risks. As the project manager dynamically determines the number

of phases, so the project manager has an important role to develop a product using a spiral model.The Radius of the spiral at any point represents the expenses(cost) of the project so far, and the angular dimension represents the progress made so far in the current phase.

Below diagram shows the different phases of the Spiral Model:

- **Design of the process model**

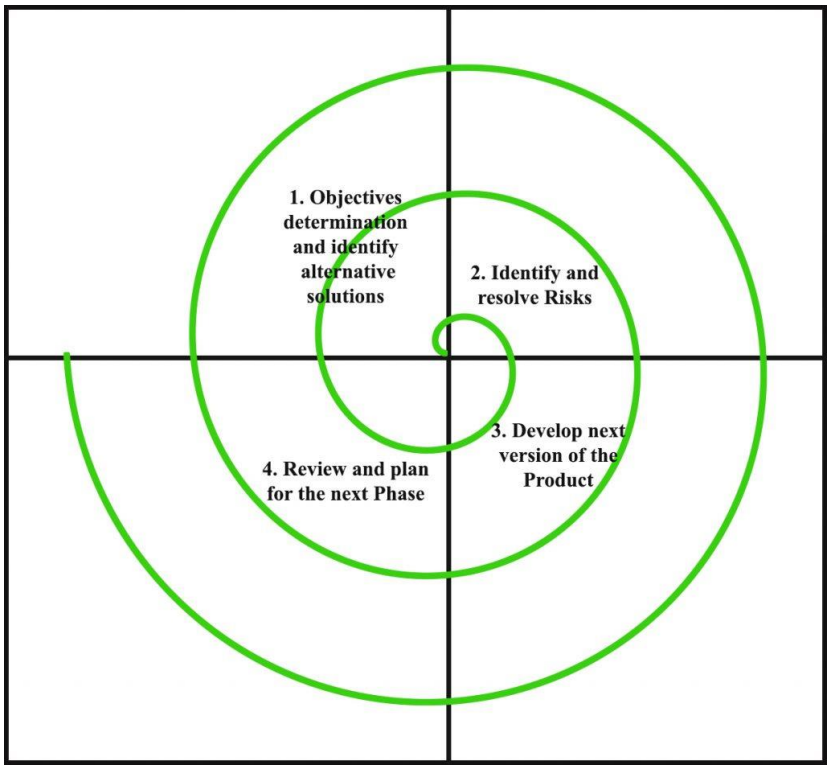


Fig 1.3

- **Reasons for choosing this process model**

  The spiral model enables gradual releases and refinement of a product through each phase of the spiral as well as the ability to build prototypes at each phase. The most important feature of the model is its ability to manage unknown risks after the project has commenced; creating a prototype makes this feasible.

- **Application of chosen process model**

  The Spiral Model is widely used in the software industry as it is in sync with the natural development process of any product, i.e. learning with maturity which

involves minimum risk for the customer as well as the development firms. When there is a budget constraint and risk evaluation is important.

- **Advantages of chosen process model**
    1. Additional functionality or changes can be done at a later stage.
    2. Cost estimation becomes easy as the prototype building is done in small fragments.
    3. Continuous or repeated development helps in risk management.
    4. Development is fast and features are added in a systematic way in Spiral development.
    5. There is always a space for customer feedback.
- **Disadvantages of chosen process model**
    1. Risk of not meeting the schedule or budget.
    2. Spiral development works best for large projects only also demands risk assessment expertise.
    3. For its smooth operation spiral model protocol needs to be followed strictly.
    4. Documentation is more as it has intermediate phases.
    5. Spiral software development is not advisable for smaller project, it might cost them a lot.

b. <u>The goals of a process model are to be:</u>

a. Descriptive

1. Planning: This phase starts with the gathering of business requirements. In the subsequent spirals as the product matures, identification of system requirements and unit requirements are done in this phase. This also includes understanding of system requirements by continual communication between the customer and the analyst.
2. Design: Here you define the feature to develop in the next cycle.Design phase starts with the design in the baseline spiral and involves architectural, logical design of modules.
3. Construct: Construct phase refers to development of the final software product at every spiral.

4. Evaluation and Risk Analysis: Risk Analysis comprises classifying, measuring and observing the technical feasibility and business risks, such as schedule impact and cost escalations. After examining the build, at the end of the first repetition, the customer assesses the software and gives feedback.

b. Prescriptive

1. First we will create the design part.
2. we will implement this design using the technologies and suitable language that is already specified .
3. Then there will be testing of the design. After testing the design logic or backend implementation is done.
4. After being done with logic part we test design and logic part are working together or not.
5. After completion of 1st iteration, according to user review we will make changes if the current system .

c. Explanatory

Ui of the app will be user friendly after that when user will login into the account through registration process.The admin will verify user credentials with the help of Database. After That process we will check the verification and Validation of the app is proper or not.Then we will check all the features of the app is it working properly or not . Then we will add some data into it and see does it reflects porperly or not if in case there are any issues with these functions , we will solve those bugs and errors , so that user doesnt gets stuck or the feature does not stop working. After that we'll solve the bugs that user will to face.

c. Diagrams to be included in the design phase are as follows:

1. Use case diagram

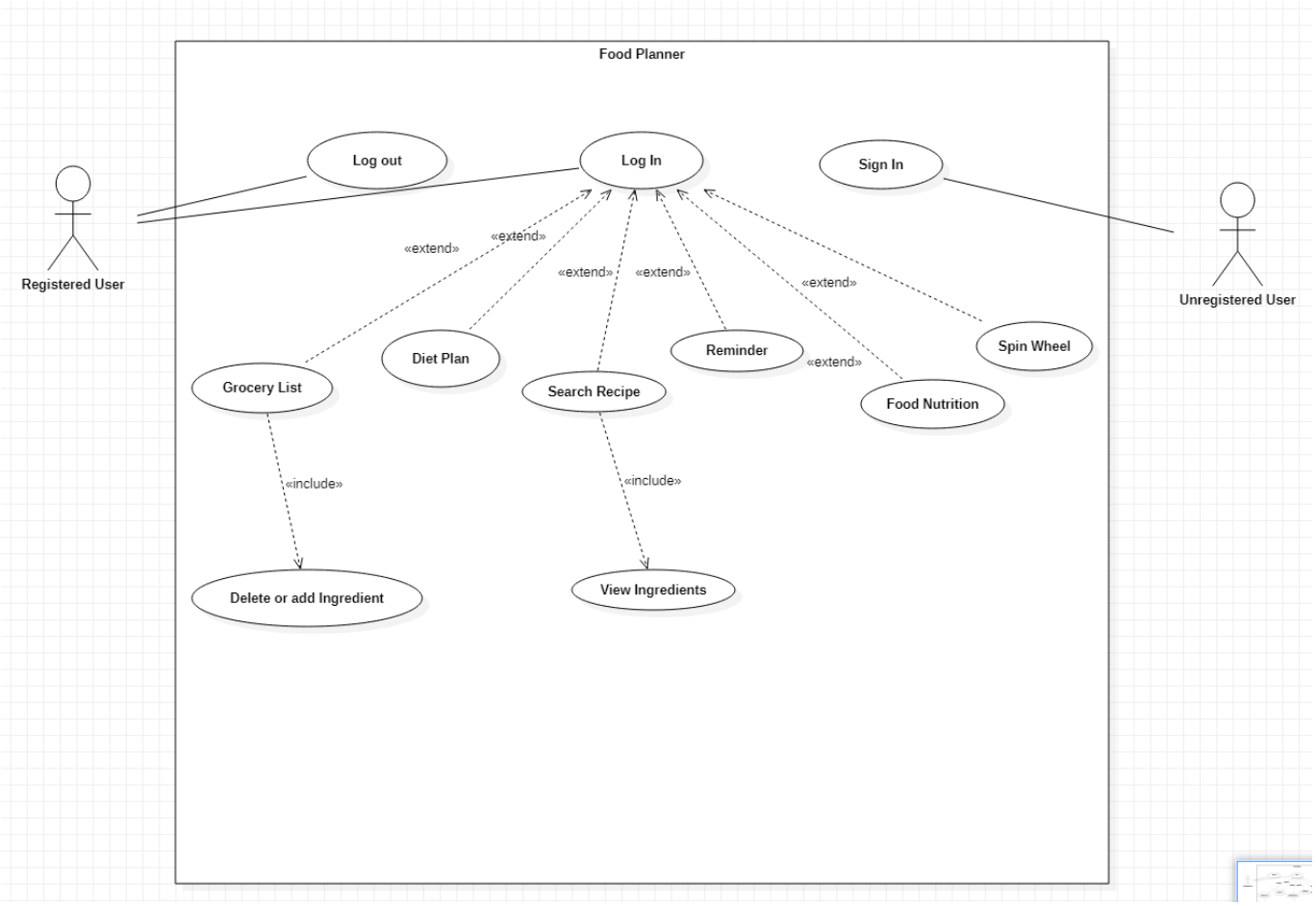


Fig 1.4

2. Activity diagram

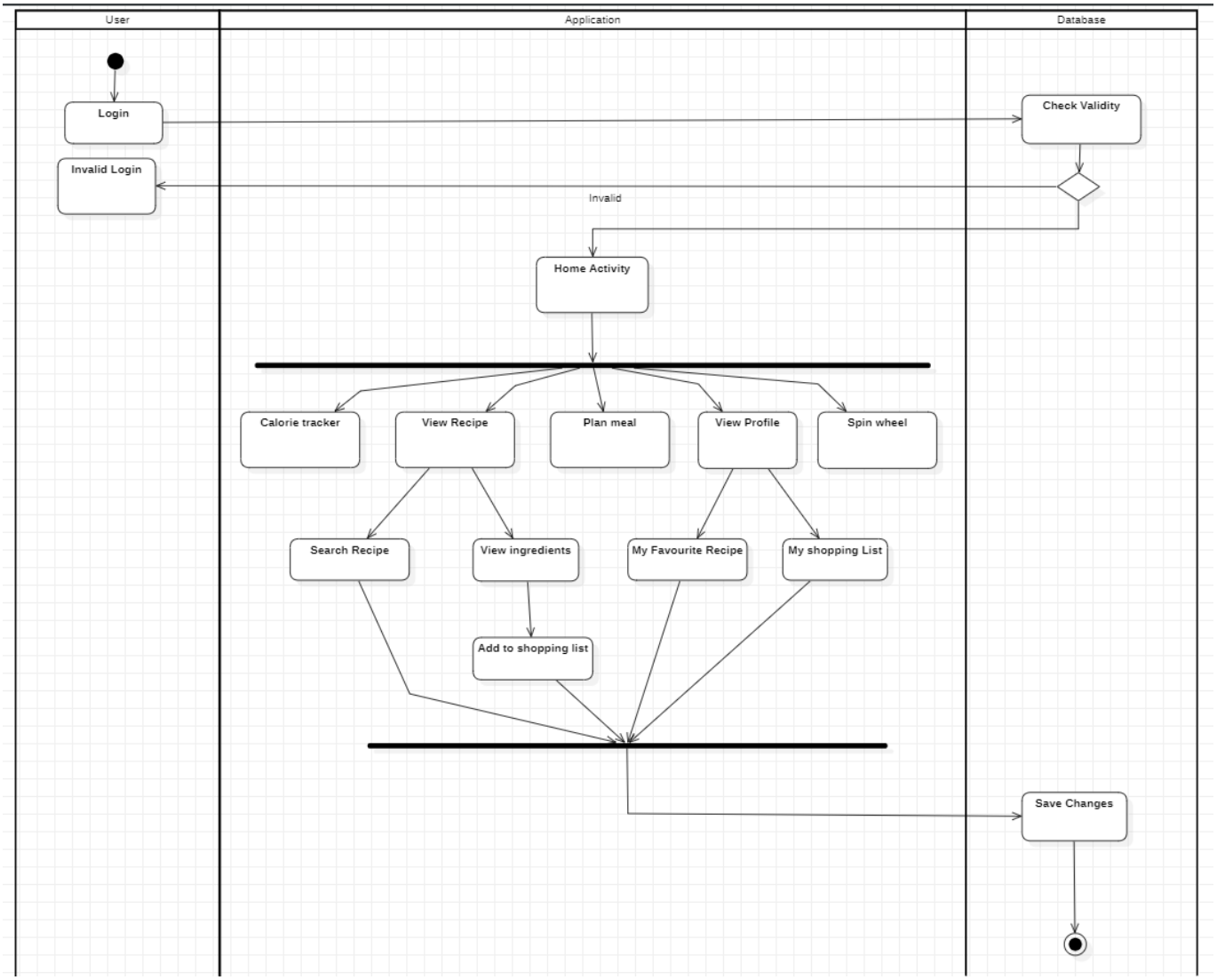


Fig 1.5

3. Class diagram

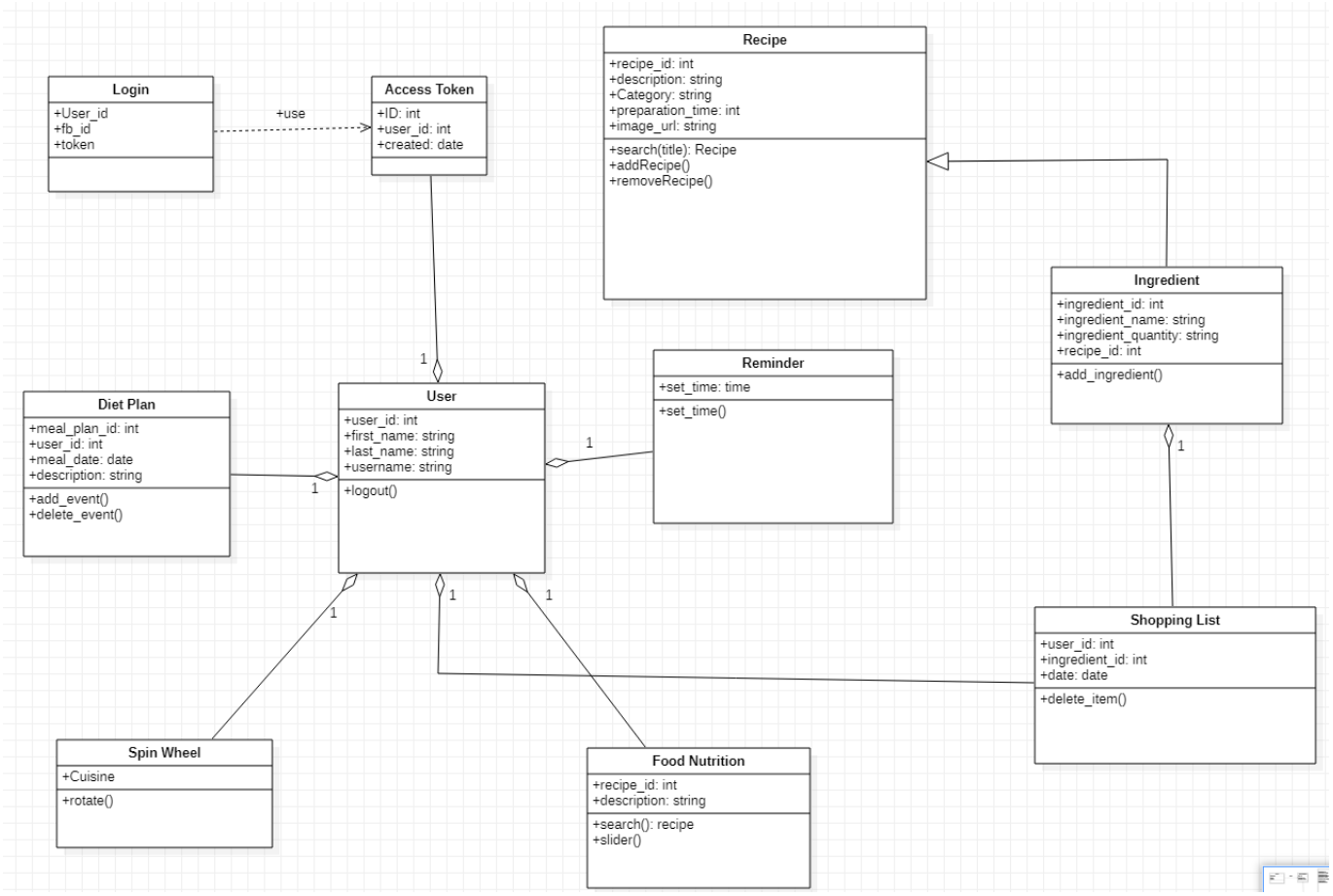


Fig 1.6

4. Sequence diagram

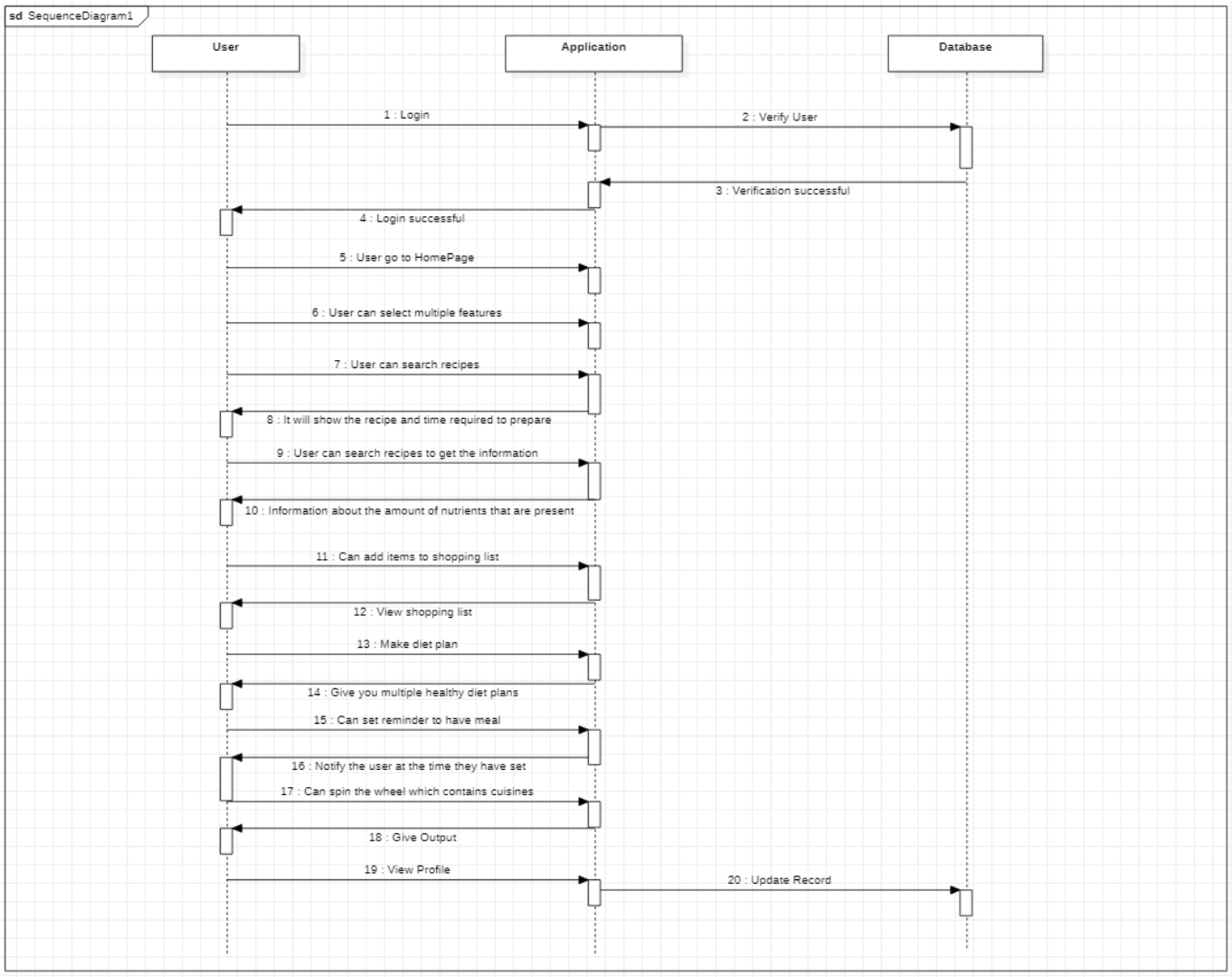


Fig 1.7

5. E-R model

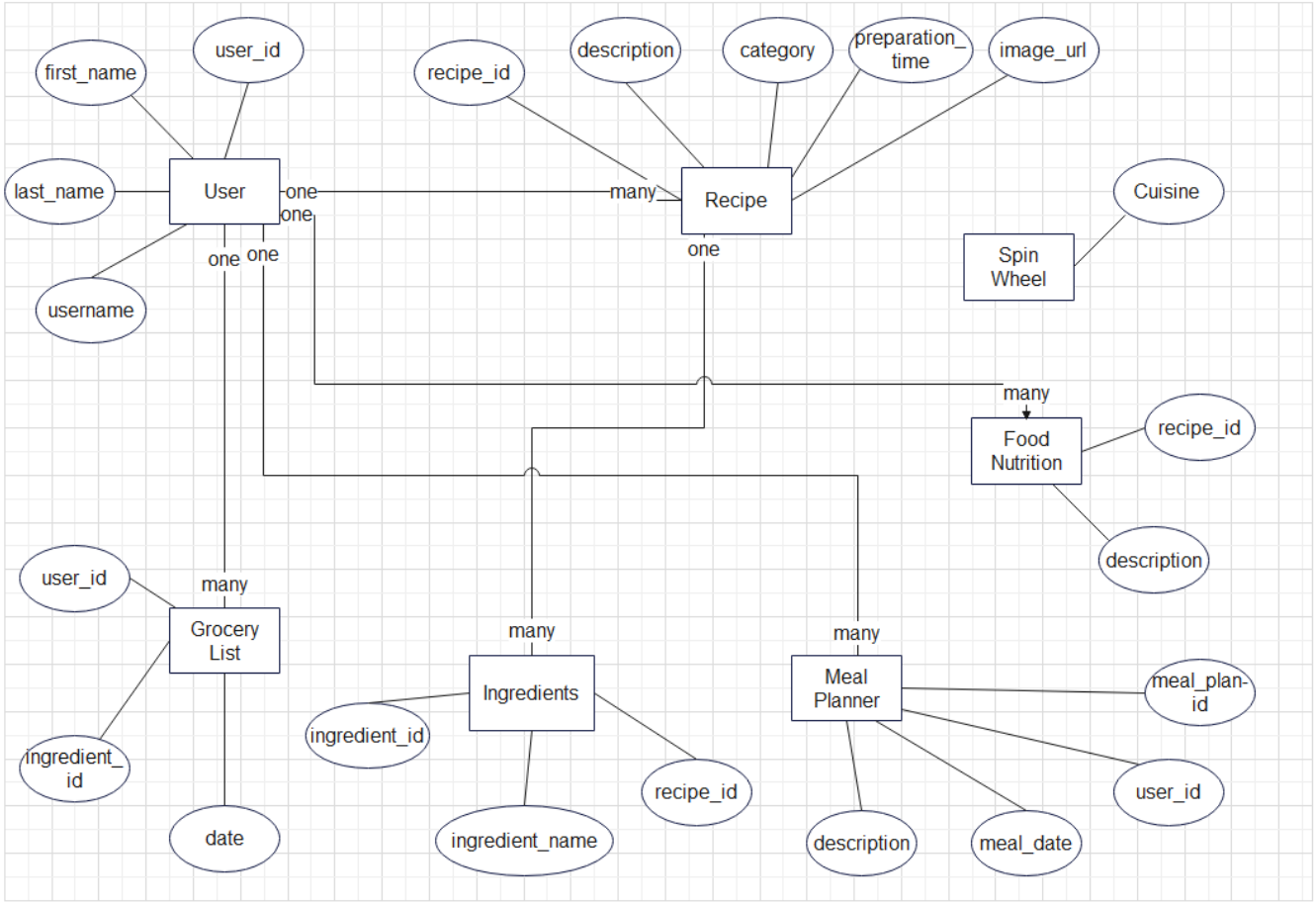


Fig 1.8

6. Data Flow Diagram

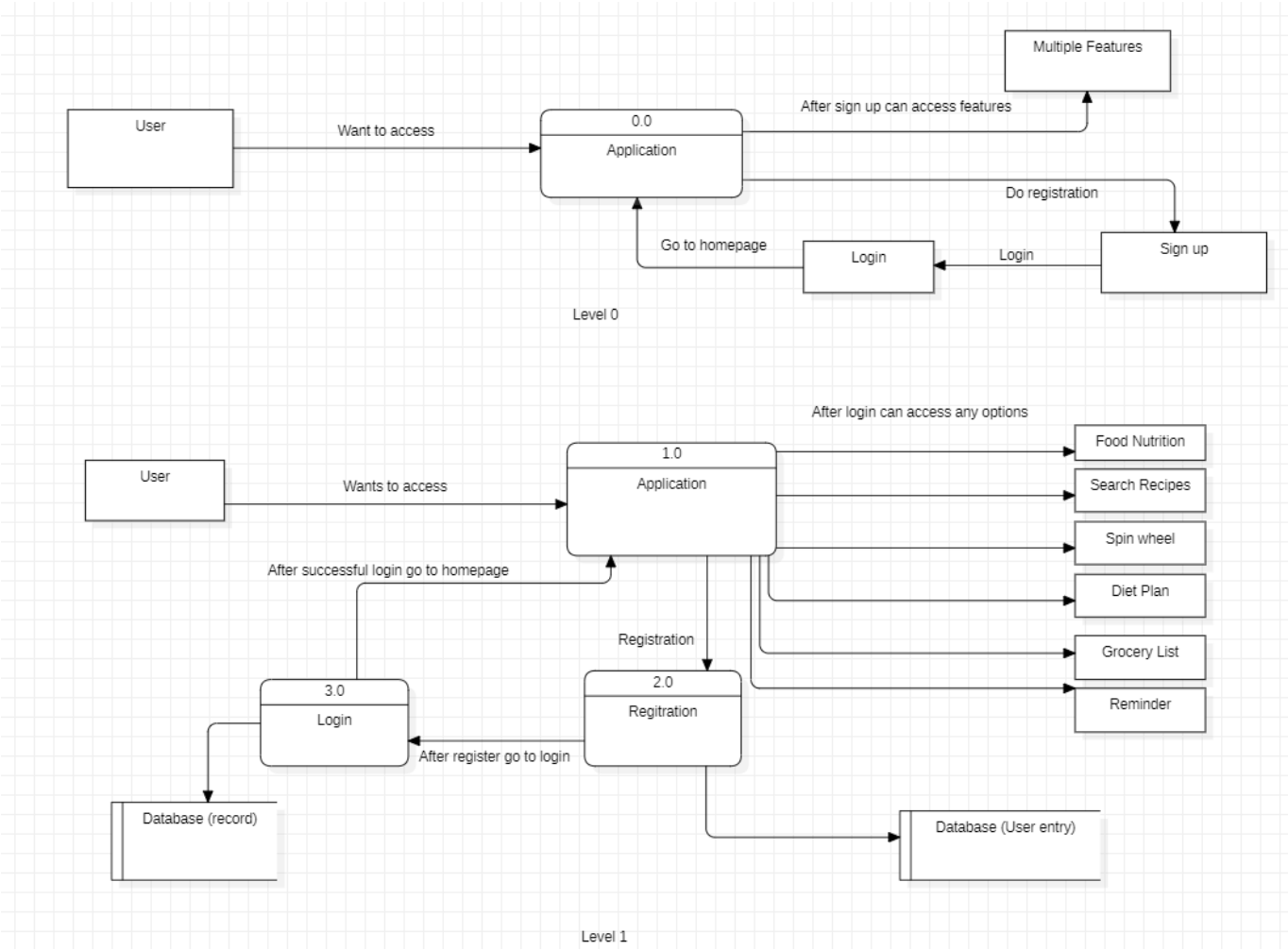


Fig 1.9

CHAPTER 4 : SYSTEM DESIGN

1. Basic Modules

1. **Login:** This is the first activity that user have to insert the details and login into the system. After login, it open Home Page.
2. **Register:** User have to register first by filling some necessary and basic information like firstname, lastname, age and email id etc.
3. **Home Page:** This is where everything starts from. There will be many buttons that will lead the user to different features to access.

a. Description of Desired Modules

1. **Search Recipe:** User can get many recipes, he/she can search for the recipe they want to access. They will get the information about the searched recipe.
2. **Diet Plan:** User can schedule their breakfast, lunch, snacks and dinner plans.

b. Description of Desired Features

1. **Grocery List:** This will display all the ingredients the user has added. User can also remove the items added.
2. **Food Nutrition:** This will give the information about the recipes i.e its nutrients, calories, protein, calcium content etc.
3. **Spin Wheel:** When a user in confused what to make today, this feature will take inputs from the user and help them to choose and will save time for them.
4. **Reminder:** User can set the time to have meals. This feature will notify the user to have the meal at the time that user has set.

2. Data Design

In the design phase, the requirements will be broken down further to be able to forecast the project's timeline and estimate the level of effort and amount of resources needed. Design is a very important phase and is a multi-step process which represents structure, program, interface characteristics and procedural details. The proposed system is designed using the design models such as functional decomposition diagrams, data flow diagrams, entity relationship diagrams or any unified modeling language diagrams. The design phase includes all the diagrams which provide an outline of how the application would look.

I. Schema Design

User:

Column Name	Constraint	Datatype
User_id	Unique key	int
Firstname	Not Null	varchar(40)
Lastname	Not Null	varchar(40)
Email_id	Unique key	varchar(20)
Password	Unique key	varchar(20)
PhoneNo	Unique key	varchar(10)

Table 2.2

Shopping List:

Column Name	Constraint	Datatype
User_id	Foreign key	Int
Ingredient_id		Int
date		date

Table 2.3

Meal Planner:

Column Name	Constraint	Datatype
Meal_plan_id	Primary key	Int
Meal_date		date
description	Not Null	varchar(100)
User_id		Int

Table 2.4

II. Data Integrity and Constraints

- Integrity
    1. Referential integrity

       Referential integrity refers to the accuracy and consistency of data within a relationship. It states that if a foreign key exist in a relation, the foreign key value must match the primary key of some tuple in its parent relation. Because of this, we need to ensure that data on both sides of the relationship remain intact. A lack of referential integrity in a database can lead to incomplete data, usually with no indication of an error. It could also give strange results.
    2. Domain Integrity: The allowed values of an attribute establish domain integrity, which ensures that all data in a field contains valid values. Domain integrity encompasses rules and other processes that restrict the format, type, and volume of data recorded in a database. It ensures that every column in a relational database is in a defined domain.

- Constraints
    1. Not Null: A Not Null constraint prevents null values from being entered into one or more columns within a table.
    2. Unique Key: A unique constraint is a rule that forbids duplicate values in one or more columns within a table.
    3. Primary Key: A primary key is a column or a set of columns in a table whose values uniquely identify a row in the table.
    4. Foreign Key: A foreign key is a column or a set of columns in a table whose values correspond to the values of the primary key in another table. In order to add a row with a given foreign key value, there must exist a row in the related table with the same primary key value.

3. Procedural Design

I. Logic Diagram

- Define the systematic flow of procedure (with programmers point of view)
- Process Flow diagram or Control flow diagram or Circuit diagram(For IOT)

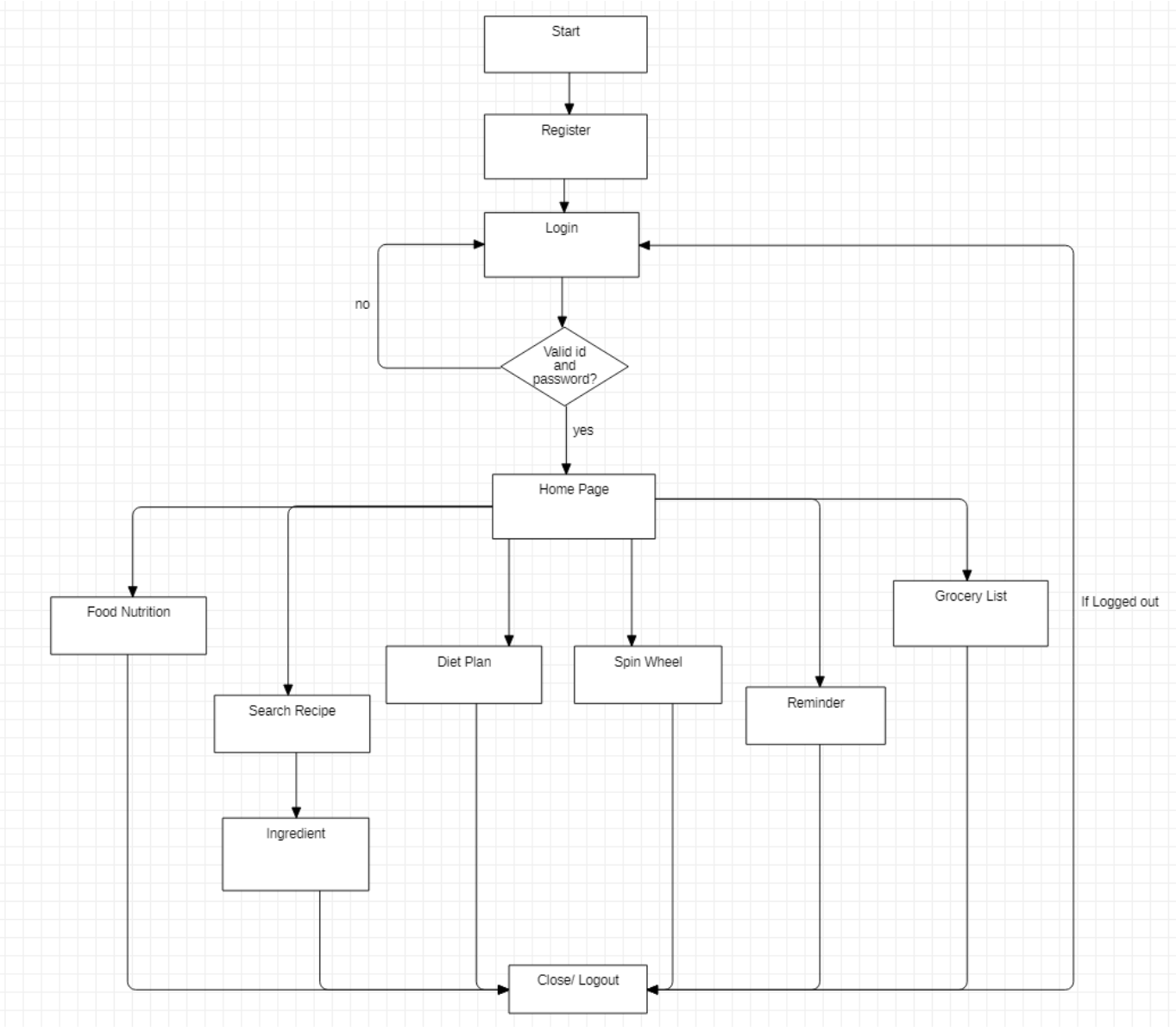


Fig 1.10

II. Data Structures

- Arrays:

  An array is a collection of items stored at contiguous memory locations. The idea is to store multiple items of the same type together. This makes it easier to calculate

the position of each element by simply adding an offset to a base value, i.e., the memory location of the first element of the array.

III. Algorithm design

- Rest API calls

4. User Interface Design

I. Define the user task and environments availability to carry that task

First the new user opens the app and the user can try to login, if user is new then he/she have to register first. After registration user comes in login page and after that user comes to home page where user can access all the features. And the old user will directly get the home page.

II. Describe internal and external components of the architecture or user interface

When the user click the sign-up/register button, after entering an email and password, the information entered is first sent as a request to the server to verify whether account exists. If it does, then it will show error message.

When customer login, it sends data to backend server where it validates from a database whether the username and password matches, if it does it redirects customer to home page. If the server confirms that customer account doesn't exist in the system, it's ready to create a new account, what the system needs to do is store in the database that customer's email and password will let customer into their account.

III. Draw or frame sample user interface design.

- Registration Page

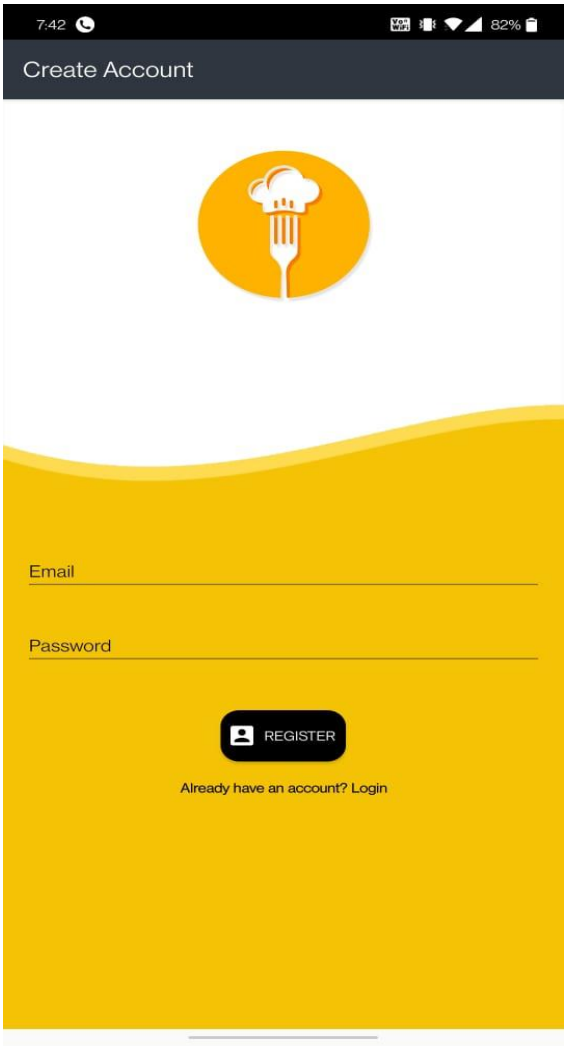


Fig. 2.2

- Login Page

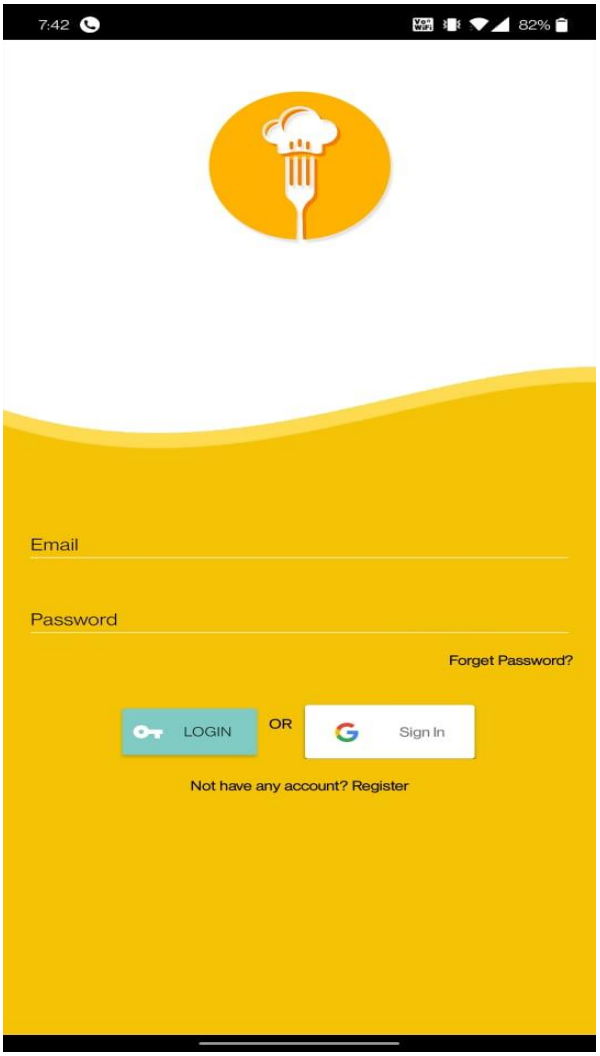


Fig. 2.2

- Home Page

Fig. 2.3

5. Security Issues

I. List and describe all the security issues that might be experienced while a user uses your application.

It is possible that client's data will be hacked from the database.

II. Give your plan of action on how would you treat those issues

By authenticating your users and writing security rules, you can fully restrict read / write access to your Firebase data.

CHAPTER 5 : IMPLEMENTATION AND TESTING

1. Implementation Approaches

Behind every successful project implementation is a combination of critical factors such as the right technology, the implementation, integration services and training. The failure of one of these factors hinders the implementation and success of the project.

a. Define the implementation plan

First, we started with learning the working of Android Studio as it is the most important thing in the project. Then we did the study of different languages we can use in the Android Studio. After that we search some similar types of applications on internet for reference. After all the literature and study work, we have started with the implementation process. First of all, it is important to create an attractive GUI in an application. For this purpose, we mostly referred different applications from google play store. When we get the basic idea of GUI, we similarly started creating database to the project.
For database, we decide to use Firebase console. Because Firebase uses tree structure to store data we decided to take reference of some youtube videos to learn how to implement a tree structured database in the project. Now, we started to implement both GUI and database programming at the same time. The main highlight in the project is the API. We have used fatsecret API which has plenty of data in it.
The Firebase database and Android Studio are very compatible to each other. So, the best way we found was to store user data in Firebase Real-Time Database and authenticate user through Firebase Authentication. We assured that both Firebase Real-Time database and Firebase authentication are linked to each other for each and every user. This is done by identifying every user by a unique alphanumeric key which is generated automatically by Firebase. The code implementation of this is discusses in further chapter.

b. State the standards and protocols used in implementation

First we started learning and working with Android Studio as it the most important aspect of our project. Then we decided we should use java language in Android studio as we are favourable with it.
Then We have started with the implementation Process of the project. First we Created GUI and then similarly we started creating Database for the project.
For Database we have used Firebase as Firebase is very safe and protected by google.
so we decided to take reference of some youtube videos to learn how to implement a database in the project. Now, we started to implement both GUI and database programming at the same time.

2. Coding Details and Code Efficiency

```
private void loginrUser(String email, String password) {


        progressDialog.setMessage("Logging In User.......");

        progressDialog.show();


        mAuth.signInWithEmailAndPassword(email, password)

                .addOnCompleteListener(this, new
OnCompleteListener<AuthResult>() {

                    @Override

                    public void onComplete(@NonNull Task<AuthResult> task) {

                        if (task.isSuccessful()) {

                            // Sign in success, update UI with the signed-in
user's information



                            progressDialog.dismiss();

                            checkEmailVerification();

                            finish();


                        } else {

                            // If sign in fails, display a message to the user.

                            progressDialog.dismiss();

                            Toast.makeText(LoginActivity.this, "Authentication
failed.", Toast.LENGTH_SHORT).show();

                        }


                    }

                }).addOnFailureListener(new OnFailureListener() {

            @Override

            public void onFailure(@NonNull Exception e) {

                progressDialog.dismiss();

                Toast.makeText(LoginActivity.this, ""+e.getMessage(),
Toast.LENGTH_SHORT).show();

            }

        });
```

a. Code of the main logic (must be with comments)

```
// Whenever user ask any data through the array list it gets reflected into the db
 public MutableLiveData<List<data>> renderHomeView() {
    final MutableLiveData<List<data>> ListMutableLiveData = new MutableLiveData<>();
    final ArrayList<data> list = new ArrayList<>();
    mDatabaseReference.addValueEventListener(new ValueEventListener() {
       @Override
       public void onDataChange(@NonNull DataSnapshot snapshot) {
          list.clear();
          for (DataSnapshot item : snapshot.getChildren()) {
             data dataPojo = item.getValue(data.class);
             if (dataPojo != null) {
                list.add(dataPojo);
             }
          }
          ListMutableLiveData.setValue(list);
       }
```

```
// Whenever user will add ingredients below function will give output result as recepies containing selected
ingredients
public void loadSuggestions(String query) {
   FoodApi foodApi = RetrofitClient.getFoodApi();
   Call<List<Ingredient>> stringCall = foodApi.ingredientList(query);
   stringCall.enqueue(new Callback<List<Ingredient>>() {
      @Override
      public void onResponse(@NotNull Call<List<Ingredient>> call, @NotNull Response<List<Ingredient>>
response) {
         List<Ingredient> names = response.body();
         ingredientList.clear();
         for (int i = 0; i < Objects.requireNonNull(names).size(); i++) {
            ingredientList.add(names.get(i).getNames());
         }
         arrayAdapter = new ArrayAdapter<>(getActivity(),
android.R.layout.simple_dropdown_item_1line,ingredientList);
         inputEditText.setAdapter(arrayAdapter);
         inputEditText.setThreshold(1);
      }
```

```
// Method to build menu out of customized meals
private List createMenu() {
   List menuList = new ArrayList();
   int dailyCalTotal = 0;

   // Create Breakfast Menu
   MakeBreakfast makeBreakfast = new MakeBreakfast(maxCals, minCals);
   ArrayList<FoodItem> breakfastList = makeBreakfast.getNewBreakfast();
   MenuCard breakfast = new MenuCard();
   breakfast.title = "Breakfast";
   breakfast.food = getMealFood(breakfastList);
   breakfast.calories = getMealCalories(breakfastList);
   breakfast.totalCal = getMealTotalCal(breakfastList);
   dailyCalTotal = dailyCalTotal + getMealCalInt(breakfastList);
   menuList.add(breakfast);

   // Create Lunch Menu
   MakeLunch makeLunch = new MakeLunch(maxCals, minCals);
   ArrayList<FoodItem> lunchList = makeLunch.getNewLunch();
   MenuCard lunch = new MenuCard();
   lunch.title = "Lunch";
   lunch.food = getMealFood(lunchList);
   lunch.calories = getMealCalories(lunchList);
   lunch.totalCal = getMealTotalCal(lunchList);
   dailyCalTotal = dailyCalTotal + getMealCalInt(lunchList);
   menuList.add(lunch);

   // Create Dinner Menu
   MakeDinner makeDinner = new MakeDinner(maxCals, minCals);
   ArrayList<FoodItem> dinnerList = makeDinner.getNewDinner();
   MenuCard dinner = new MenuCard();
   dinner.title = "Dinner";
   dinner.food = getMealFood(dinnerList);
   dinner.calories = getMealCalories(dinnerList);
   dinner.totalCal = getMealTotalCal(dinnerList);
   dailyCalTotal = dailyCalTotal + getMealCalInt(dinnerList);
   menuList.add(dinner);

   // Create Summary Card
   MenuCard summary = new MenuCard();
   summary.title = "Total Calories: " + dailyCalTotal;
   summary.food = "This is in the range of daily recommended values for " + userAgeRange + " year old, "
+ userActivity.toLowerCase() + " " + userGender.toLowerCase() + "s";
   menuList.add(summary);

   return menuList;

}
```

c. Code Efficiency

The code which is used is very efficient as compare to other languages. The languages used are basically xml for GUI part and java for logical part. XML provides a variety of options to create a user friendly and attractive GUI. The functions are inbuild in Android Studio and easy to use.

Java is Object Oriented Programming Language. It is very useful to create different classes for each module and call the methods use inside them by using the objects. The constructor plays an important role in java as it gives options for parameter passing. The Android Studio provides a large number of packages of different inbuilt functions.

It is very easy to use them in the code by just importing the package and the class name. Then we can use the functions given by that package.

The objects created in java requires memory space. It is better to create one only we need them. For this purpose, Android studio prompts the unused objects and variables so we can either use them or delete them.

The compiler use by java converts the bytecodes into native codes at runtime which helps to optimize the code and execute the code quickly and efficient

3. Testing Approach

Once the prototype is defined, the development team starts designing, coding, and testing the prototype, while the testing team simultaneously develops test plans, creates tests, and runs them. This model requires close interaction between the development team and the testing team so that to sufficiently test the prototype before it is demonstrated to the user. If the functionality of the system increases with each iteration, the test team should be able to conduct regression testing at each phase of the life cycle. In other words, it is necessary to run specific tests to make sure that the old functionality is not destroyed or degraded as a result of adding new functionality.

a. Functional Testing

Functional Testing is a software testing that validates the software system against the functional requirements or specifications. The purpose of Functional tests is to test each function of the software application, by providing appropriate input, verifying the output against the Functional requirements.

1. User Acceptance Testing or Beta Testing

Beta Testing was implemented successfully. We have created this Food Planner app, We then gave the app to a normal person which had no technical knowledge of the background of the application. He successfully created an account using his Gmail id and was able to log in easily. After he opened and came to main page, there were many features for him to access. He used every single features and the features work properly and was successful. He saw many recipes, successfully made diet plan for him, added items to grocery list and many more. It was easy for him to access this app.

Beta Testing is one of the Acceptance Testing types, which adds value to the product as the end-user (intended real user) validates the product for functionality, usability, reliability, and compatibility.

Inputs provided by the end-users helps in enhancing the quality of the product further and leads to its success. This also helps in decision making to invest further in the future products or the same product for improvisation.

2. Unit Testing

Register: In Registration module testing, first we provide all the fields as blank input. So in this case user unable to register. In second case we provide user name as blank input field so user unable to login. In third case we provide email as blank filed so user unable to login. In fourth case we provide both password fields with wrong values so in this case user unable to login. In fifth case we provide all the fields with right values so in this case user able to login.

Login: This model is responsible for authentication. This model is also mentioned in user acceptance testing.

Food Nutrition: This module will show all the nutrients that are in you food.

Recipes: In this module you will get all the recipes you want to make. Also you will get the preparation time for it.

Diet Plan: In this module according to the details you will enter, this will create multiple healthy diet plans for you also if you don't like the plans you can get more new plans.

Reminder: This module will help you to set the time to have your meal on time. It will send you the notification on the time that you have set.

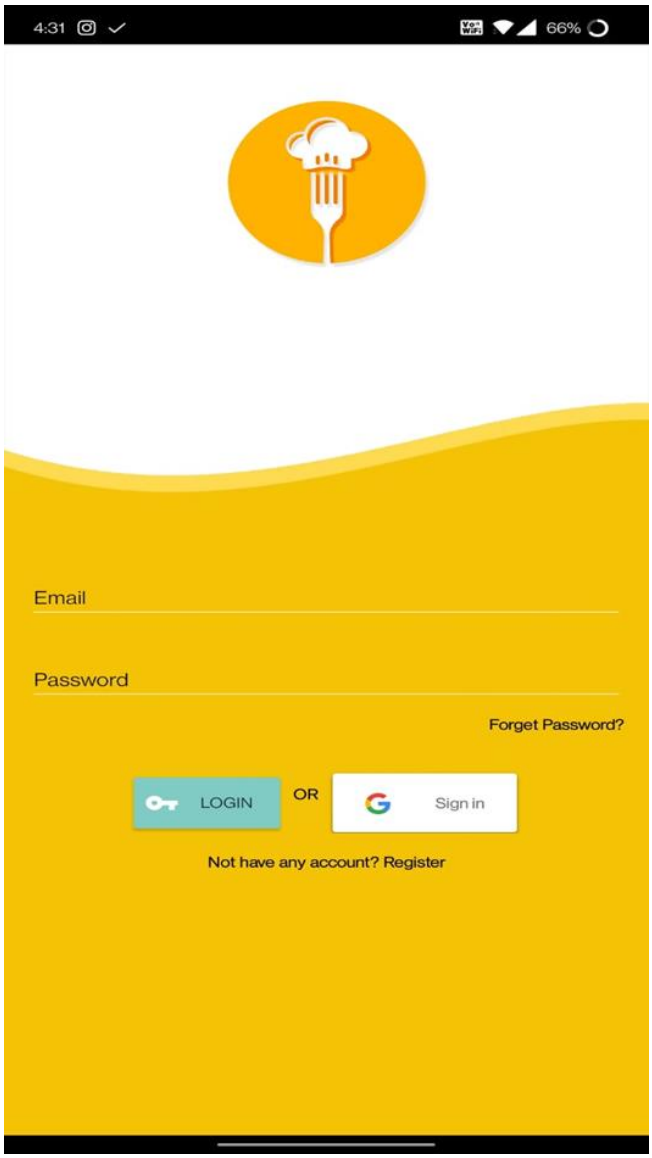
Spin Wheel: This module will help you to decide which cuisine to make for the day.

Grocery List: In this module you can add the items and its quantity you want and those things will get listed. You can also update or delete the item from your list.

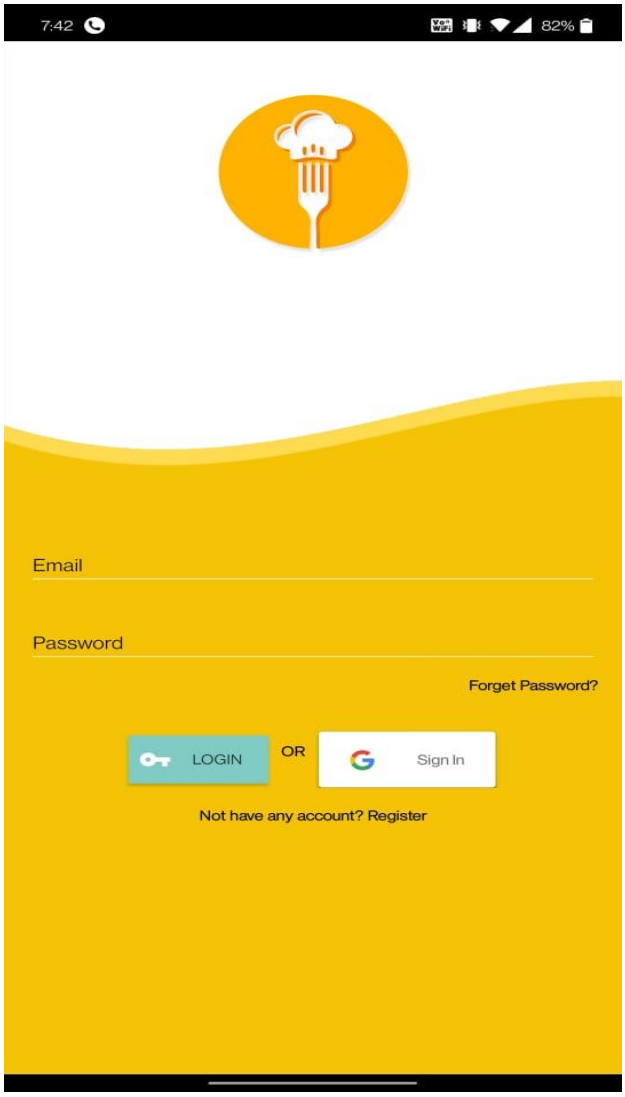
3. Integration Testing

Integration testing is a level of software testing where individual units are combined and tested as a group. The purpose of this level of testing is to expose faults in the interaction between integrated units.

- **Registration** - First we have a Login page and via that we registration page by clicking on register.

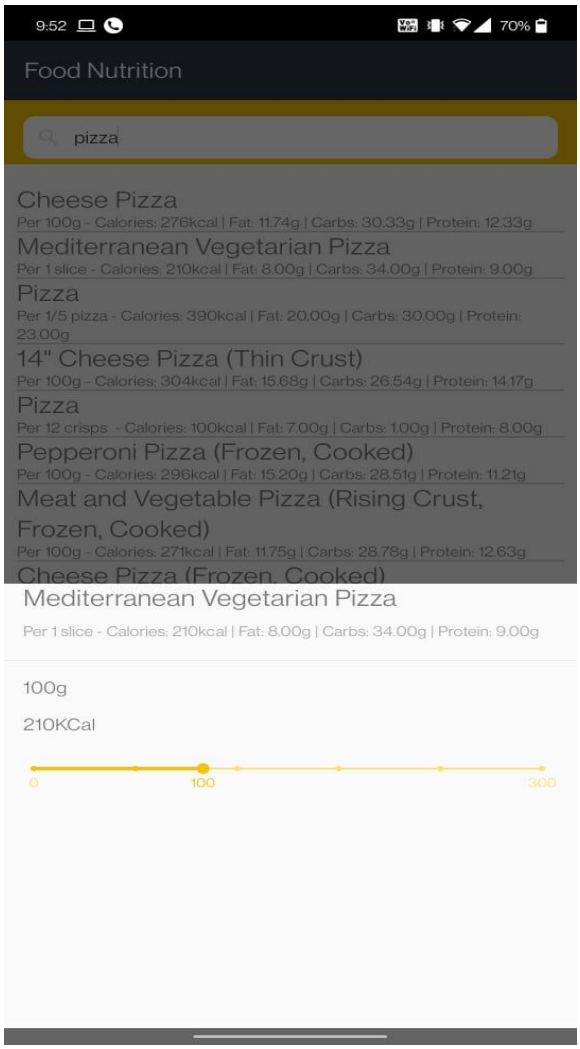


- **Login** – After registering, then it will redirect you to the Login page again.



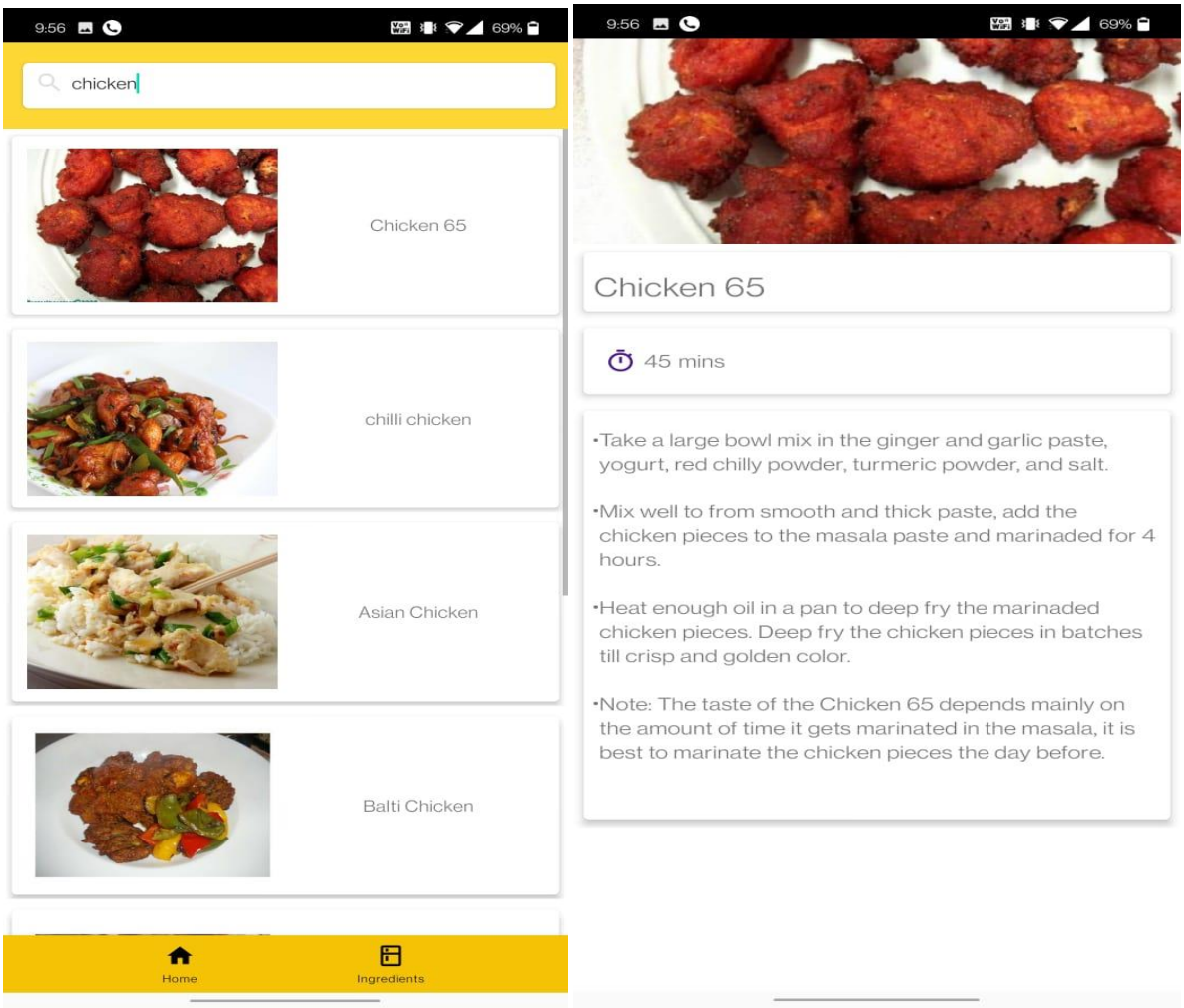
- **Home Page –** After Login it will take to the Home page where we have all the features of our application. By Clicking on a feature it will get you to that particular feature where you can access it.

- **Food Nutrition** – Then we have our first feature which will give you the information about the amount of nutrients present in a recipe. One can also increase the amount of intake and see how much calories come with it.

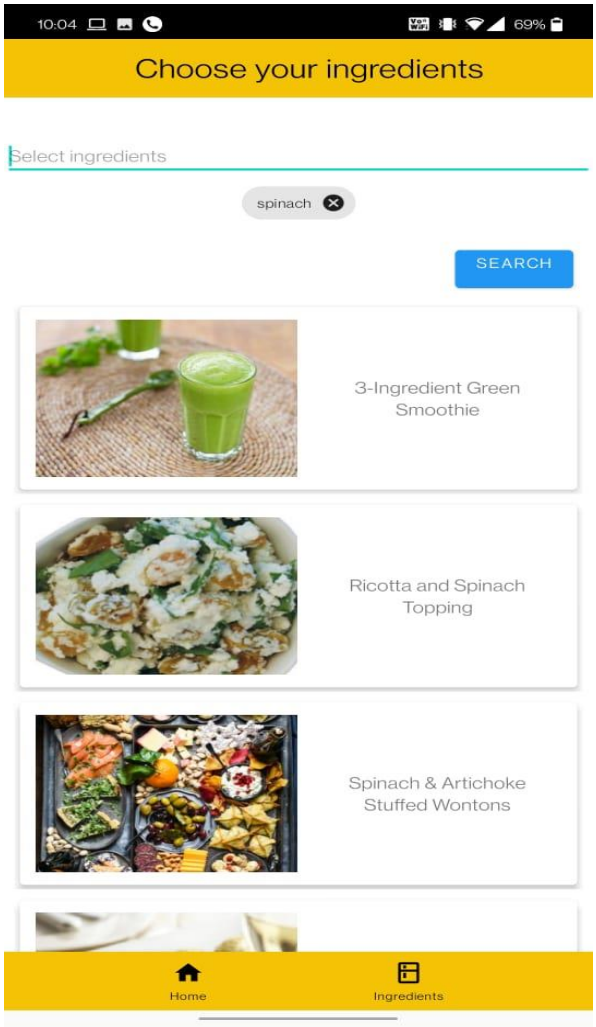


- **Recipes** – Can search any recipes they want to try.

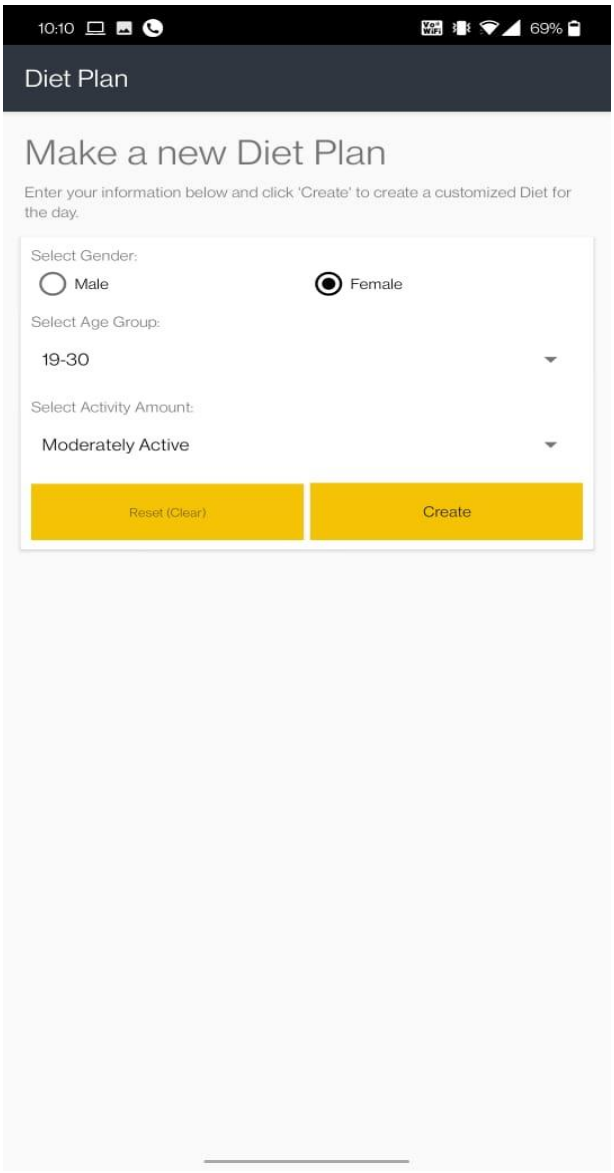
  You can click on any one you want and see how it is prepared and also it will show you the preparation time.

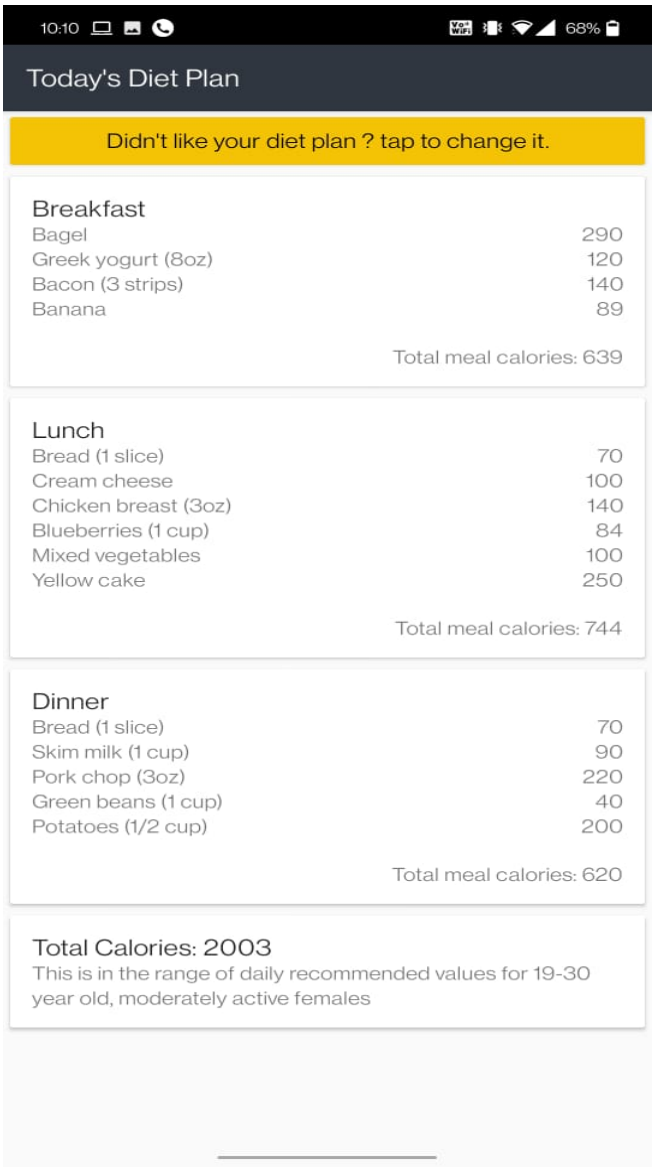


- **Ingredient** – We have on more feature inside this recipe feature, in which you can search an ingredient and based on that ingredient it will show you the recipes.

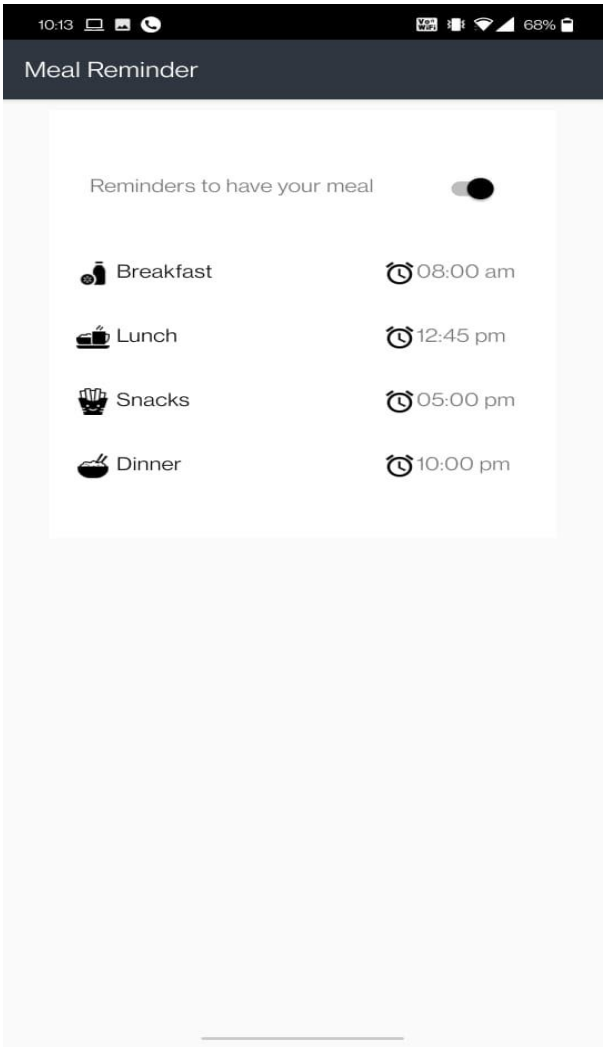


- **Diet Plan –** In this after entering some details you will get multiple healthy diet plans.

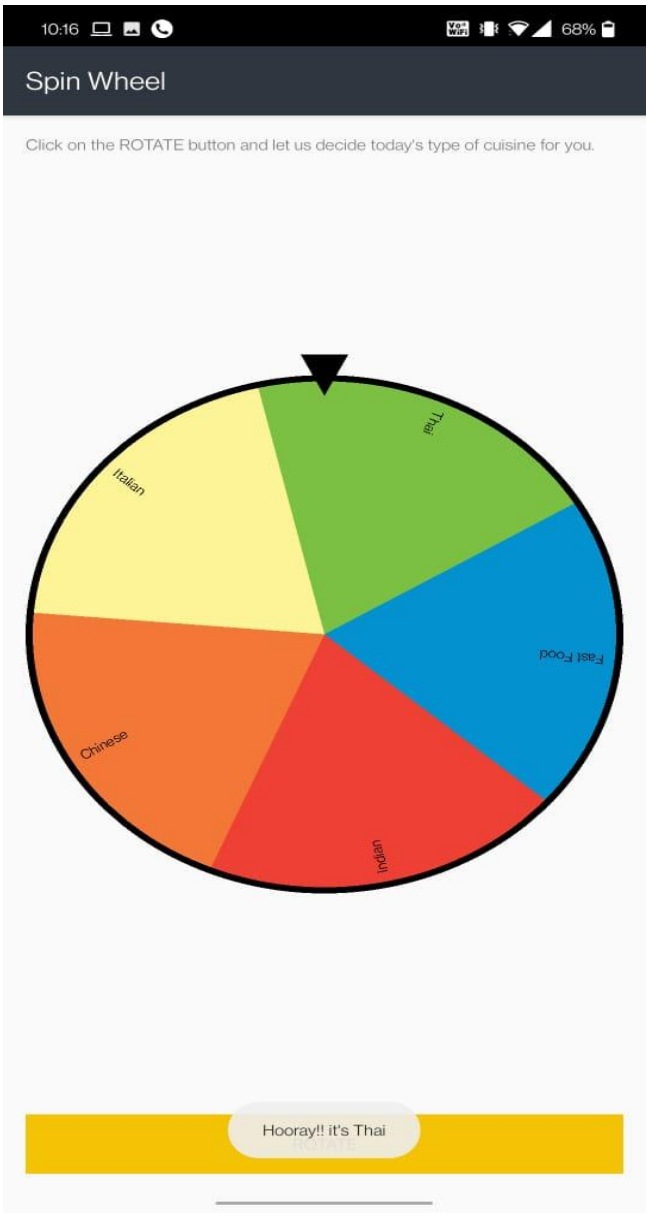




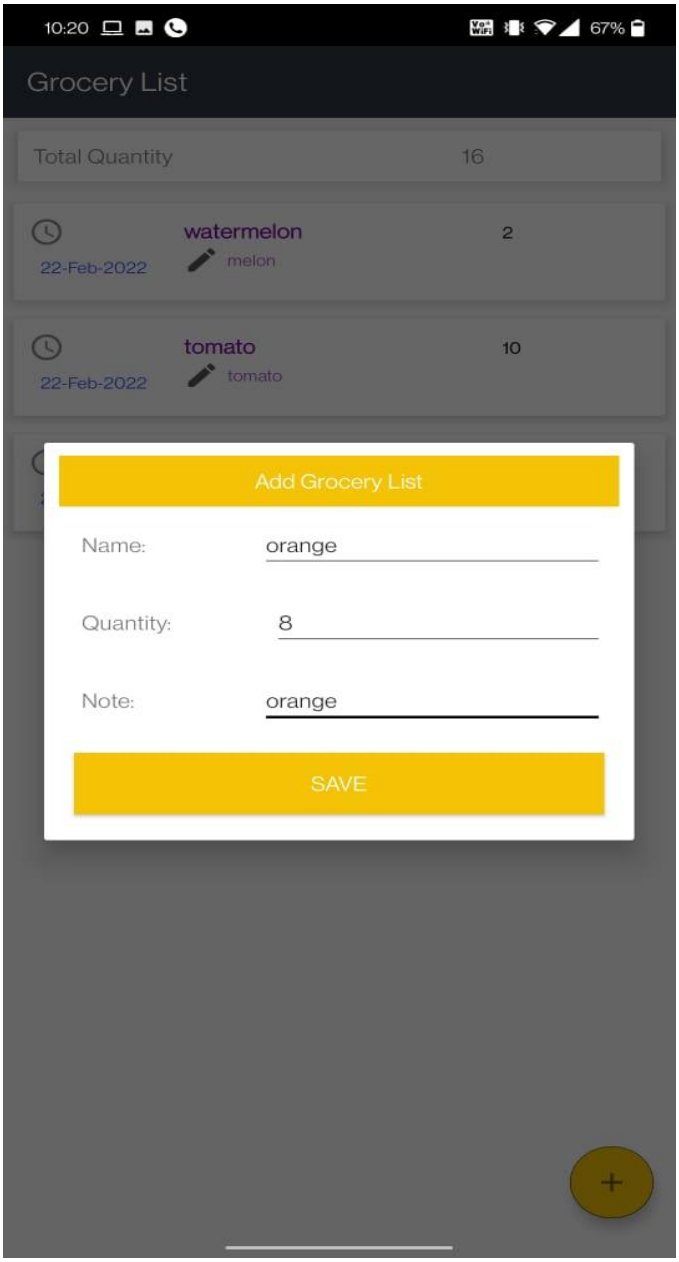
- **Reminder** – This will send you a notification at the time you have set to have you meal.

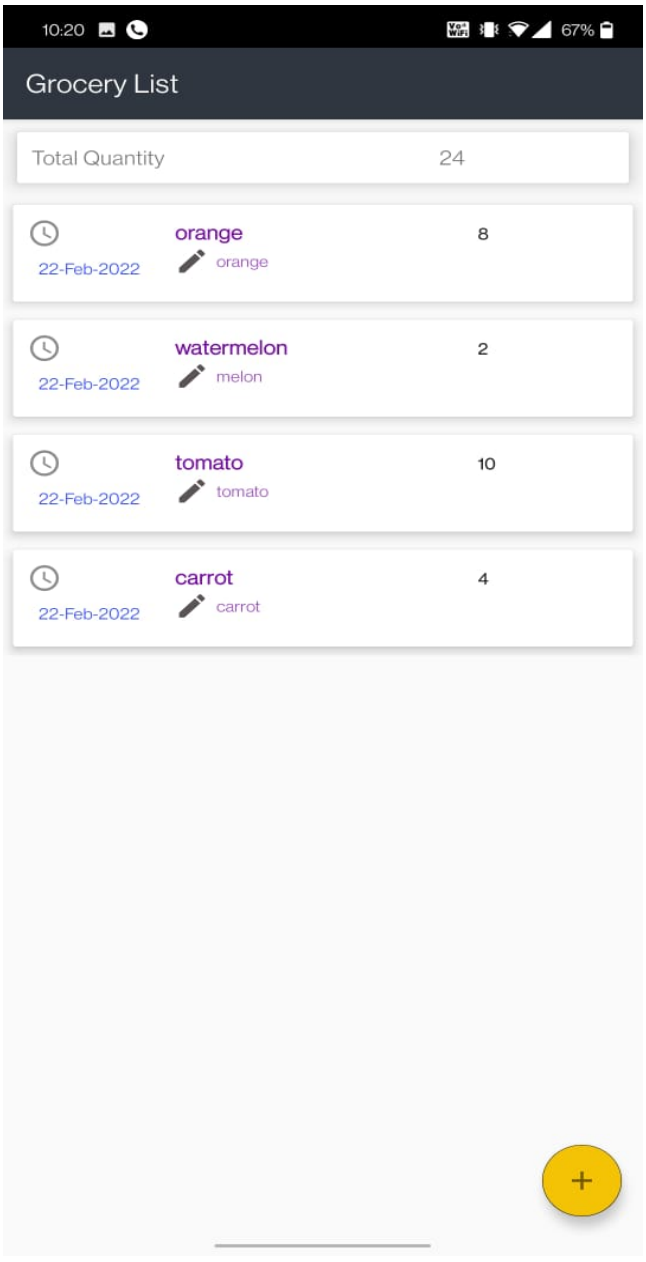


- **Spin wheel –** Click on rotate and this will help you to choose the cuisine.



- **Grocery List** – Enter the item and its quantity you want and all the item will get listed in this. You can update and also delete the item.





b. Non-Functional Testing

Non-Functional Testing is defined as a type of Software testing to check non-functional aspects (performance, usability, reliability, etc) of a software application. It is designed to test the readiness of a system as per nonfunctional parameters which are never addressed by functional testing.

1. Performance Testing

The application needs to be responsive to the user.

- Responses to queries shall take no longer then 5-6 seconds on backend.
- Minimal time delay in sending and receiving data.
- Server should be stress-tested to ensure full functionality during peak hours.
- The software and servers need to be scaled accordingly.
- Application may get a bit slow if many actions are performed by multiple users at the same time.
- Primary Performance requirement of the application is speed of the Internet network of Mobile Phone.
- The system will display the loading status of activity during action performed by the user.

2. Scalability Testing

After conducting scalability testing .We conclude that this website is scalable. We can add more features in this app such as fitness section, workouts, user progress section, to set a goal etc.

3. Portability Testing

This application will run on Android operating system. Latest every version of Android Android:

Applicable Operating System Version
Lollipop 5.0 - 5.1.1
Marshmallow 6.0 - 6.0.1
Nougat 7.0
Nougat 7.1.0 - 7.1.2
Oreo 8.0
Oreo 8.1
Pie 9.0
Android 10 10.0
Android 11 11

c. Black Box Testing

At the time we open the app for the first time we will enter into onboarding screen in that Splash Screen it will display a Basic Intro about the application and its features.

After that the next Page is where login and signup options are there we will go to the login page and try to login if login is unsuccessful it will show please sign up. Then we will fill sign up form and register ourself into the application and then try to login again with the correct credentials of login after getting logged in.

Then we visit to the dashboard Page which is the main page of our app we have six features present in that page .

We can use any feature we want to use it we just have to click on the featured button present with the feature name and then we enter into that feature and use it as we want.

Then we have an logout button present on the dashboard if user wants to logout they can logout anytime they want to

d. White Box Testing

First went with Login Page we tried to login with some random account credential but we unable to logged into the website because we don't have right credential so we concluded that login page working properly as per implementation logic.

After logged page visit to signup page so we filled up the registration form but we tried to filled the form as per test cases we found that as per the test cases it responded.

So after filling the registration form we try to login at this time login got successful.

After registration and login we entered into the dashboard and started checking each of the features with their output all the features were working properly.

Then we entered all the details for the user and tried using all the feature the output generated was in proper format and there were no error or bugs.

Then we tried to logout after using the application it was successful once after logging out the application again ask user to renter their login credentials in order to login again into the application.

4. Test Cases

System Name	Food Planner		
Module Code	RD001 - Registration		
Pass	4	0	0
Fail	0	0	

Test ID	Test Case Description	Test Case Procedure	Expected Output	Actual Output	Date	Result	Note, if any
TC001	Status verify registration of user	Keep input fields empty and register the button.	User get an error of empty field	User get an error of empty field	25-Jan-22	pass	
TC002	Status verify registration of user	Enter gmailID without "@" symbol	User gets an error of invalid emailID	User gets an error of invalid emailID	25-Jan-22	pass	
TC003	Status verify registration of user	Enter gmailId without domain	User gets an error of emailID	User gets an error of emailID	25-Jan-22	pass	
TC004	Status verify registration of user	Create a account with emailID which is already register.	User gets an error of emailID is already used.	User gets an error of emailID is already used.	25-Jan-22	pass	

System Name	Food Planner		
Module Code	RD002 - Login		
Pass	3	0	0
Fail	0	0	

Test ID	Test Case Description	Test Case Procedure	Expected Output	Actual Output	Date	Result	Note, if any
TC001	Status verify login of user	Login with emailID which is not registerd.	User gets an error of no user record for that emailID.	User gets an error of no user record for that emailID.	26-Jan-22	pass	
TC002	Status verify login of user	Login with EmailID without "@" symbol.	User gets an error of invalid emailID	User gets an error of invalid emailID	26-Jan-22	pass	
TC003	Status verify login of user	Keep both the fields empty	User will get error of invalid	User will get error of invalid	26-Jan-22	pass	

System Name	**Food Planner**		
Module Code	**RD003 - Food Nutrition**		
Pass	**3**	**0**	**0**
Fail	**0**	**0**	

Test ID	Test Case Description	Test Case Procedure	Expected Output	Actual Output	Date	Result	Note, if any
TC001	Verify Food nutrition	Search recipes	User will get many recipes	User will get many recipes	27-Jan-22	pass	
TC002	Verify Food nutrition	Search the recipes you want	User will get the Nutrients that are present in the recipes he/she have searched for	User will get the Nutrients that are present in the recipes he/she have searched for	27-Jan-22	pass	
TC003	Verify Food nutrition	Can increase the amount of intake	User can increase the amount he/she wants to have can according to tha amount it will show how much calories are present	User can increase the amount he/she wants to have can according to tha amount it will show how much calories are present	27-Jan-22	pass	

System Name	Food Planner		
Module Code	RD004 - Recipes		
Pass	3	0	0
Fail	0	0	

Test ID	Test Case Description	Test Case Procedure	Expected Output	Actual Output	Date	Result	Note, if any
TC001	Verify Recipes and ingredients	Search Recipes	User get multiple options for a particular recipe	User get multiple options for a particular recipe	29-Jan-22	pass	
TC002	Verify Recipes and ingredients	Searching a recipe that is not available	User will get no result	User will get no result	29-Jan-22	pass	
TC003	Verify Recipes and ingredients	Search and select ingredients to generate recipes	After choosing an ingredient user gets multiple recipes on that particular ingredient	After choosing an ingredient user gets multiple recipes on that particular ingredient	29-Jan-22	pass	

System Name	Food Planner		
Module Code	RD005 - Diet Plan		
Pass	3	0	0
Fail	0	0	

Test ID	Test Case Description	Test Case Procedure	Expected Output	Actual Output	Date	Result	Note, if any
TC001	Verify Diet Plan	After entering the details click on "Create" button to generate plans	User will get multiple diet plans. User can choose any plan	User will get multiple diet plans. User can choose any plan	30-Jan-22	Pass	
TC002	Verify Diet Plan	After entering the details if user wants to change the details so, it can be done by clicking on "Reset"	User can select any option and click on reset, now this will generate plans according to the new information	User can select any option and click on reset, now this will generate plans according to the new information	30-Jan-22	Pass	
TC003	Verify Diet Plan	If the user didn't like the plan he/she can get new plans by clicking on "tab to change it" button	User get many new plans by clicking on "tab to change" button	User get many new plans by clicking on "tab to change" button	30-Jan-22	Pass	

System Name	**Food Planner**		
Module Code	**RD006 - Reminder**		
Pass	**1**	**0**	**0**
Fail	**0**	**0**	

Test ID	Test Case Description	Test Case Procedure	Expected Output	Actual Output	Date	Result	Note, if any
TC001	Verify Meal Reminder	Set the time as per you want for the meals	User can set the reminder to have the meal. They will get notification as per the time they have set.	User can set the reminder to have the meal. They will get notification as per the time they have set.	1-Feb-22	Pass	

System Name	Food Planner		
Module Code	RD007 - Spin Wheel		
Pass	1	0	0
Fail	0	0	

Test ID	Test Case Description	Test Case Procedure	Expected Output	Actual Output	Date	Result	Note, if any
TC001	Verity Spin wheel	Click on the rotate button to spin the wheel	The spin wheel will randomly decide a type of cuisine for the user.	The spin wheel will randomly decide a type of cuisine for the user.	2-Feb-22	pass	

System Name	Food Planner		
Module Code	RD008 - Grocery List		
Pass	4	0	0
Fail	0	0	

Test ID	Test Case Description	Test Case Procedure	Expected Output	Actual Output	Date	Result	Note, if any
TC001	Verify Grocery List	Click on "add" button to add the items	User will get a pop up to enter the item and its details	User will get a pop up to enter the item and its details	04-Feb-22	Pass	
TC002	Verify Grocery List	Enter the items, its quantity and click on "save" button	User will get the list of items he/she has added	User will get the list of items he/she has added	04-Feb-22	Pass	
TC003	Verify Grocery List	By clicking on the item listed, you will get a pop up in which you can update the items quantity	User will get the updated list by cliking on "update" button	User will get the updated list by cliking on "update" button	04-Feb-22	Pass	
TC004	Verify Grocery List	By clicking on the item listed, you will get a pop up through which you can delete that item	The deleted item will get removed from the users list	The deleted item will get removed from the users list	04-Feb-22	Pass	

5. Modification and Expected Improvements

Once testing is done and if there are any bugs or errors, modification needs to be made.

Make changes in your code and explain what modifications you had to do to improve your code here.

While Testing we discovered that user was able to direct login into the app after completing the registration form. This was creating an security issue as anyone was able to login with fake email id so we decided to improve the security of the application by modifying the code.

We created Check email verification function to resolve this issue.

CHAPTER 6 : RESULTS AND DISCUSSIONS

1. Test Reports

Test Report					
Date	04-Feb-22				
No	Module code	Pass	Fail	Pending	Total Number of test cases
1	RD001 - Registration	4	0	0	4
2	RD002 - Login	3	0	0	3
3	RD003 - Food Nutrition	3	0	0	3
4	RD004 - Recipes	3	0	0	3
5	RD005 - Diet Plan	3	0	0	3
6	RD006 - Reminder	1	0	0	1
7	RD007 - Spin Wheel	1	0	0	1
8	RD008 - Grocery List	4	0	0	4
	Sub total	22	0	0	22
Test coverage		100%			
Test successful coverage		100%			

For the whole project prepare one test report which covers the following points

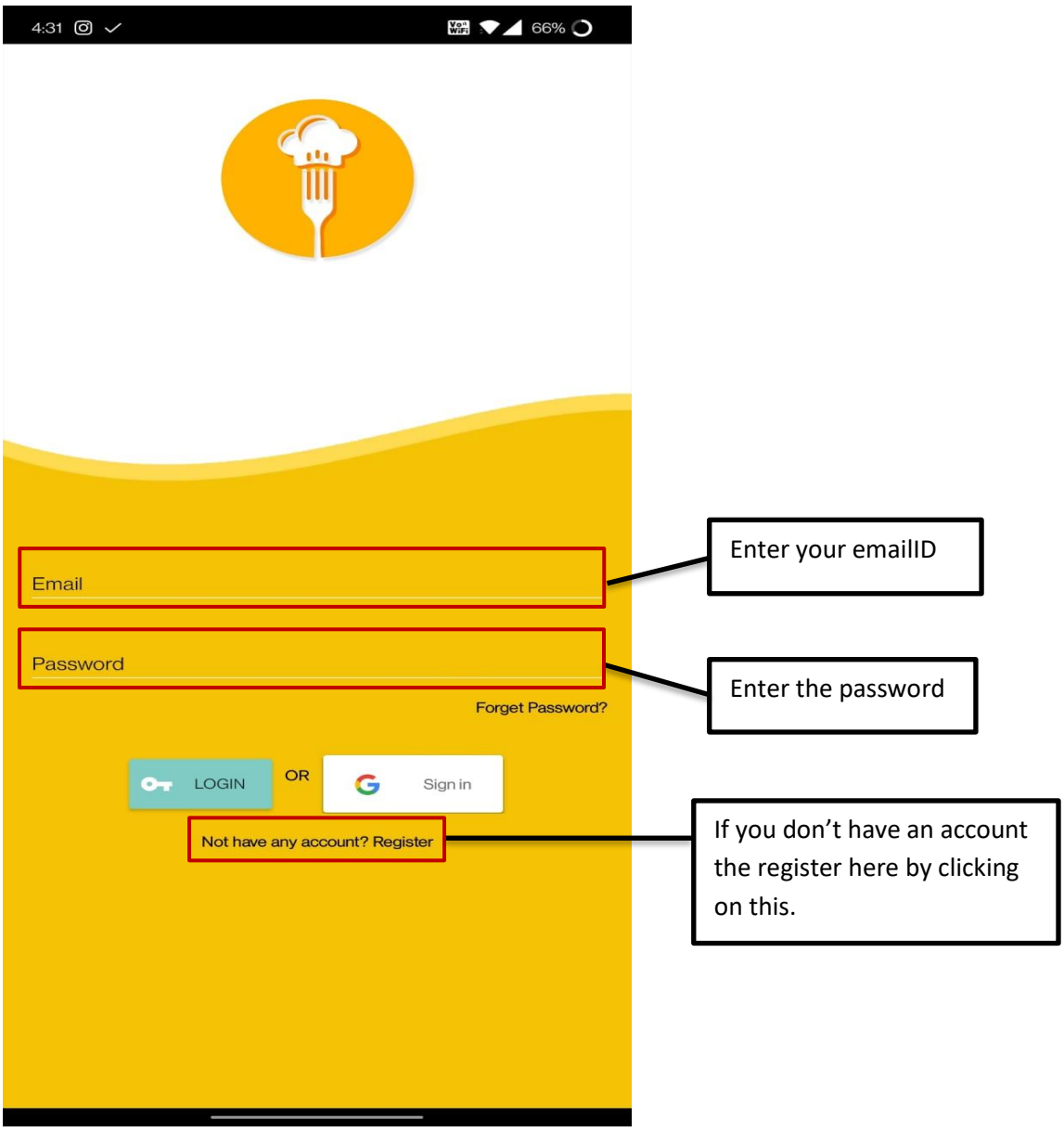
- Project Name – Food Planner
- Test Objective
    1. TC001 – Registration : To ensure that whenever user will do registration, he/she is following all required condition.
    2. TC002 – Login : To ensure that user have a secure login and can login through any device.
    3. TC003 – Food Nutrition : To ensure that whenever user will search the recipes it will display multiple recipes and its nutrients.
    4. TC004 – Recipes : To ensure that whenever user will search for a particular recipe, it will give multiple recipes to the user also its preparation time.
    5. TC005 – Diet Plan : To ensure that whenever user will enter its details according to that it will generate healthy diet plans for you.
    6. TC006 – Reminder : It will ensure that whenever user will set the time of a meal it will send you the notification at that particular time.
    7. TC007 – Spin wheel : To ensure that whenever user is confused to decide what to make or eat this will help you to decide what to make or eat.

8. TC008 – Grocery List : It is to ensure that whenever user will add the items in this it will show you all the items that you have added, you can also update or delete an item.

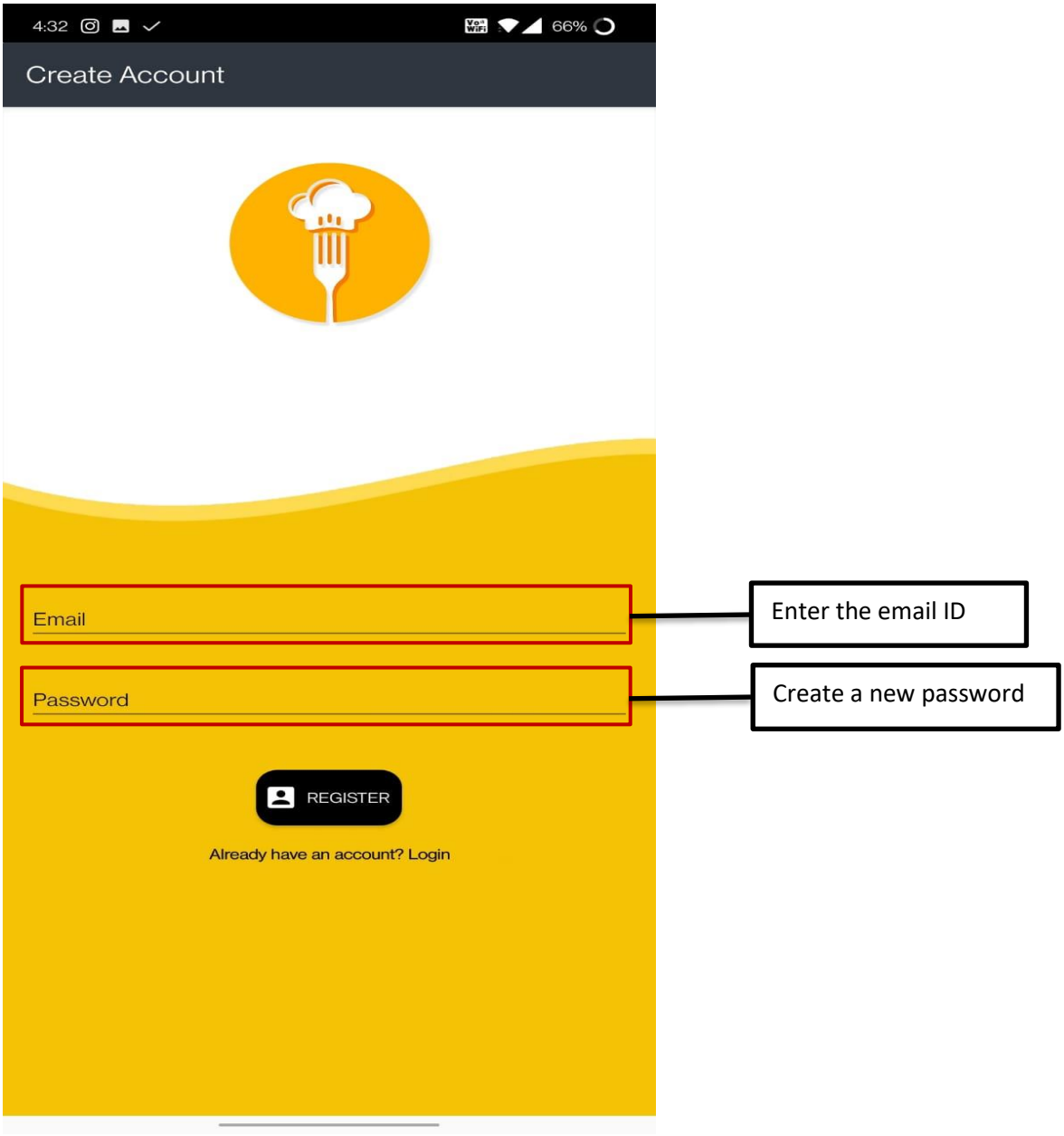
- Test Summary
    - The total modules that have been tested are: 8
    - Total test cases:22
    - Out of which,
    - Test Case which passed:22
    - Test Case which failled:0
    - Test coverage: 100 %
    - Test successful coverage: 100%

2. User Documentation

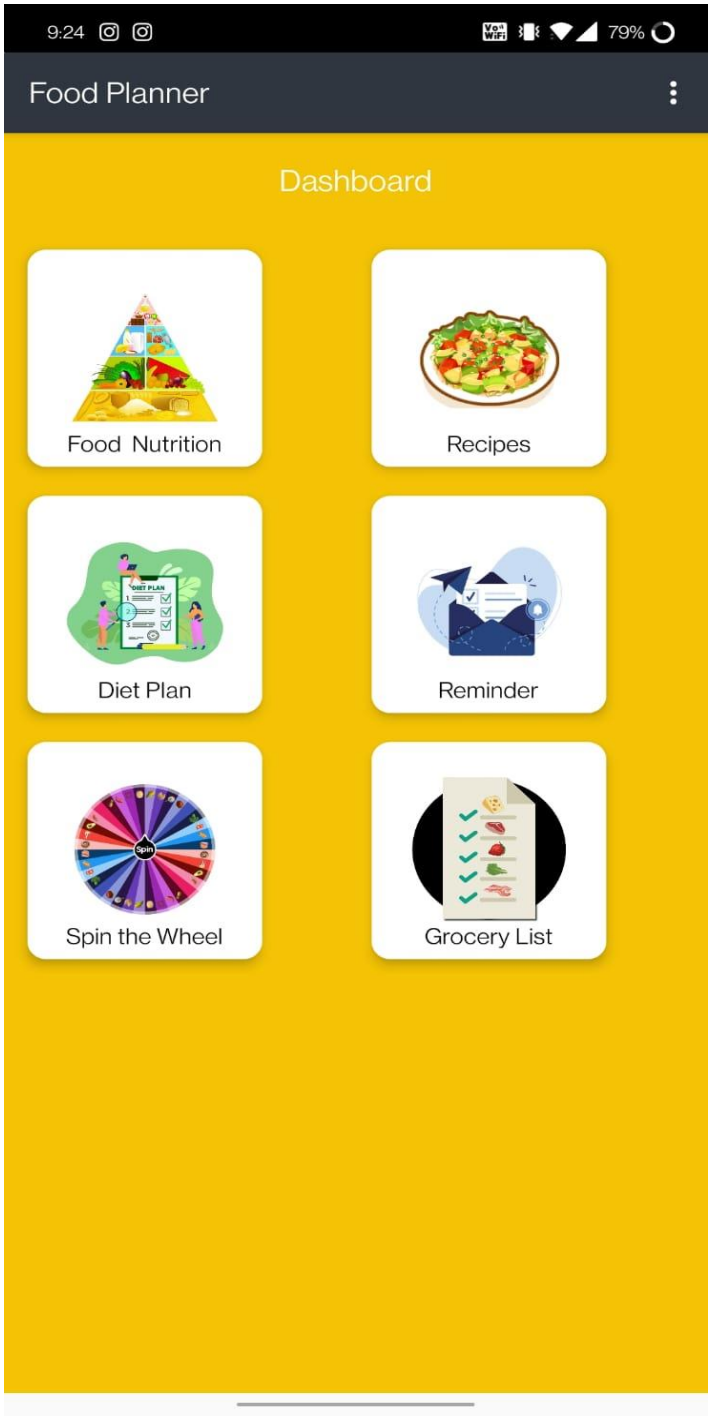
1. This is the login page



2. Registration Page



3. HomePage – It contains all the features user can access.



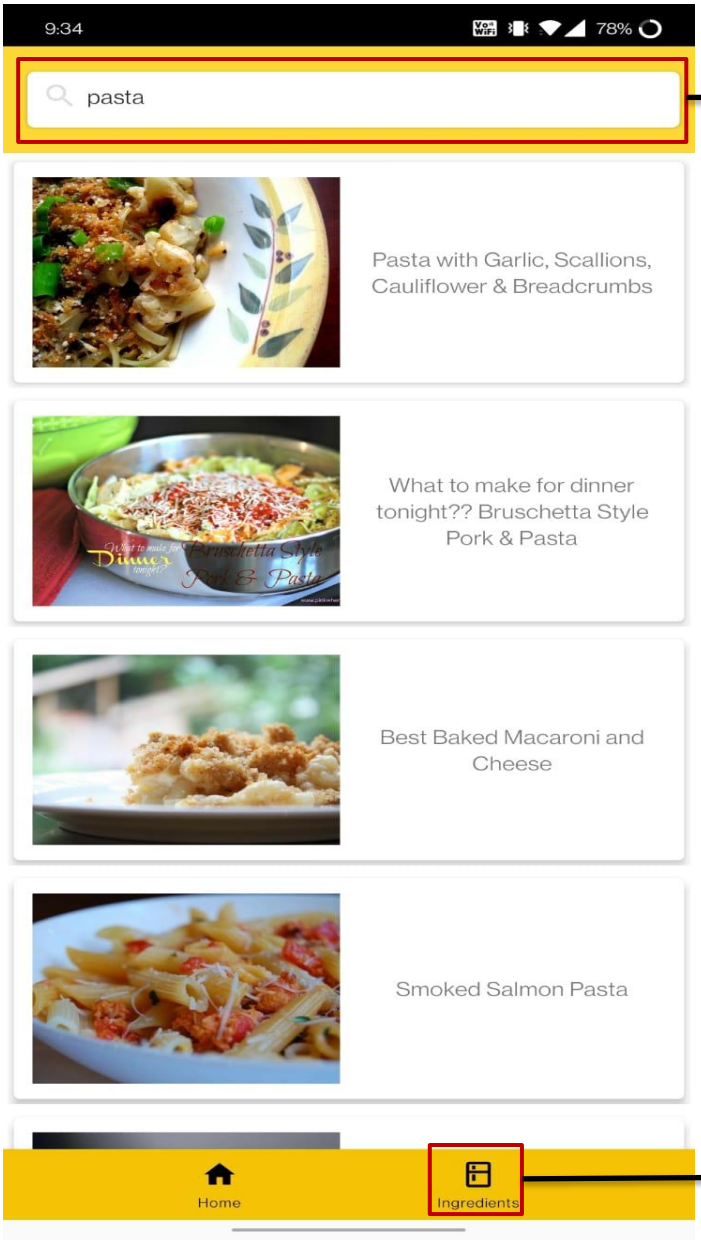
4. Food Nutrition – Give you information about all the nutrients that are in the recipes

Search your recipes

You will get all the information about the recipe you have searched i.e calories, fats, protein etc.

You can increase the amount and can see how much calories you will consume.

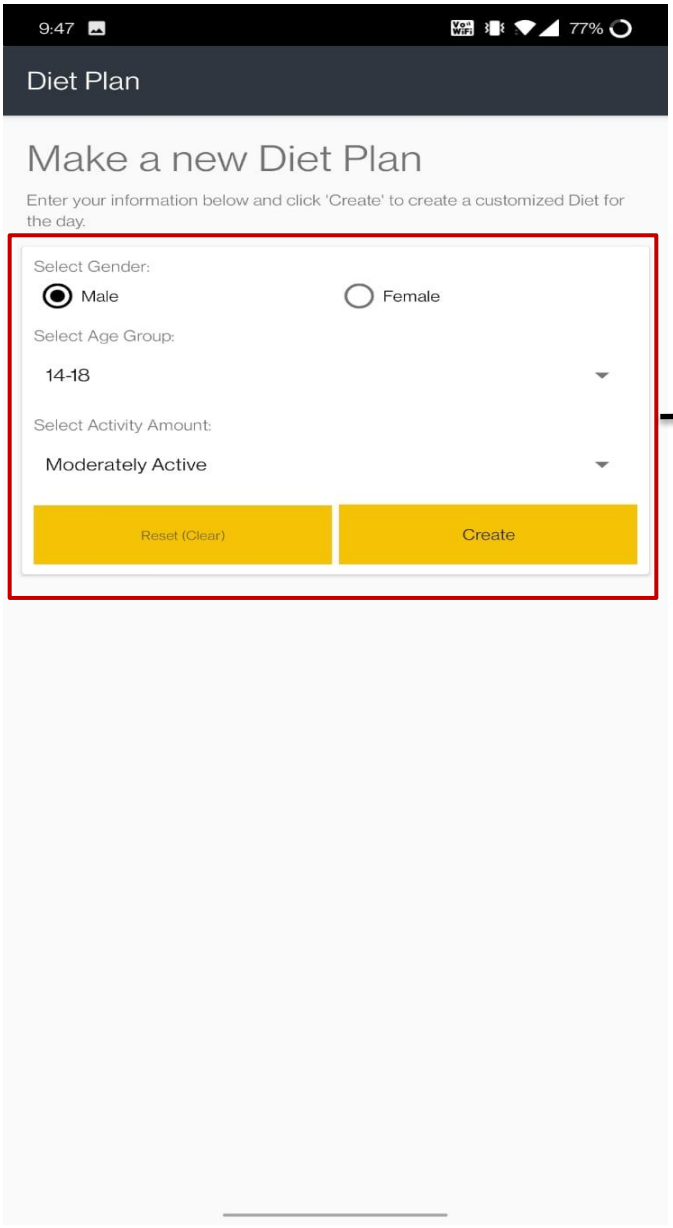
5. Recipes – You can get many recipes here.



In this you can search the recipes you want.

In this section you can search an ingredient and related recipes will show up.

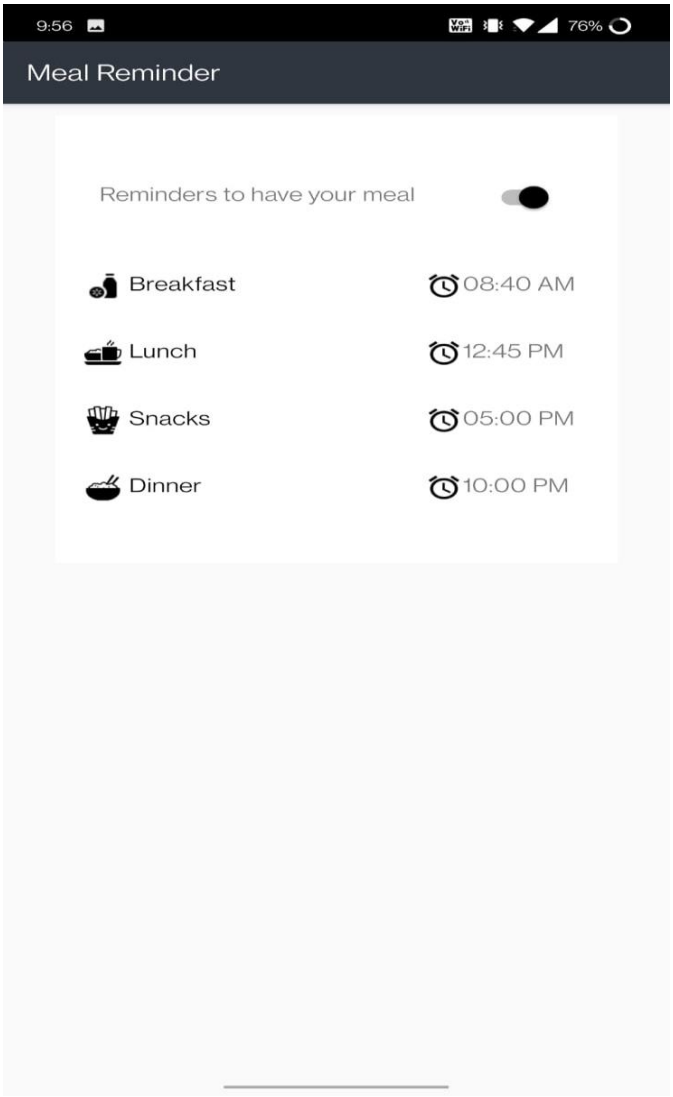
6. Diet Plan – You can get multiple diet plans, as per your like you can choose any of it.



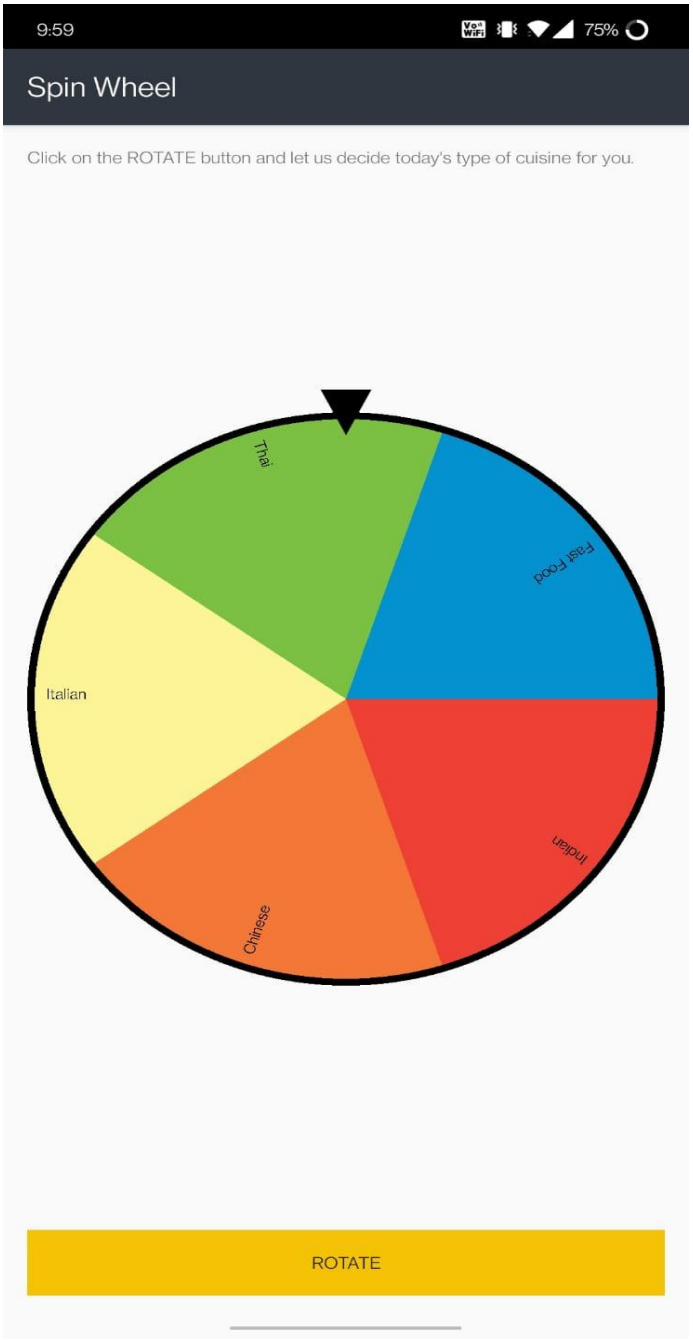
Enter the given information and it will generate diet plans for you.

If you don't like the plans, you can click here to get more new modified plans.

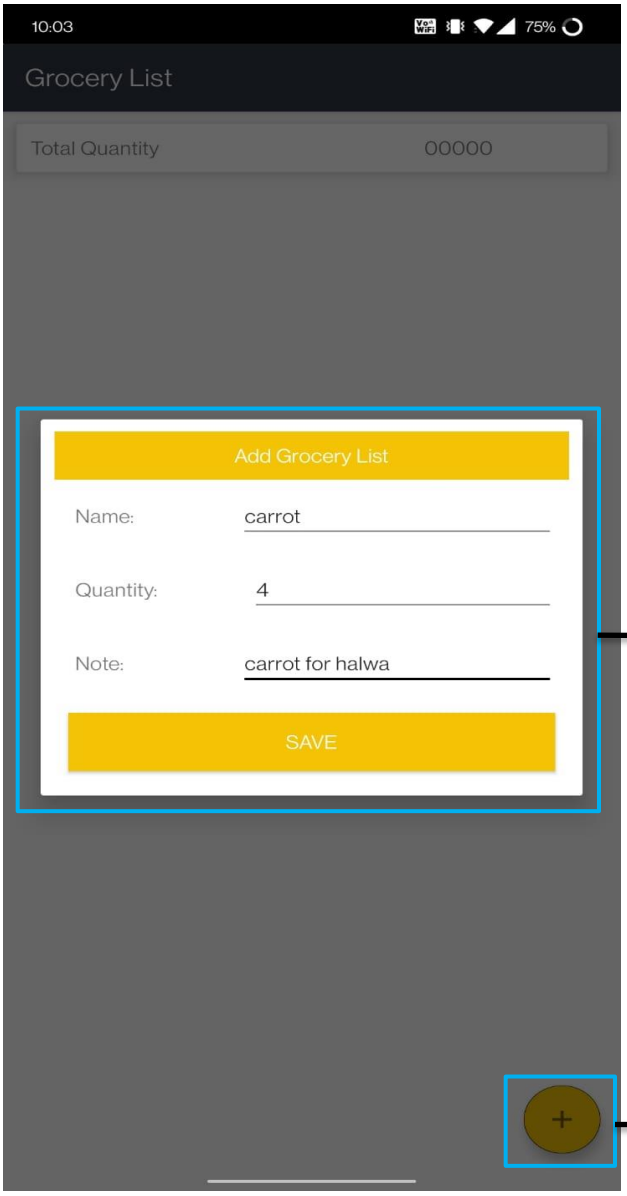
7. Reminder – By clicking on the time you can set the reminder for your meal.



8. Spin wheel – Click on rotate button and the wheel will spin, help you to decide what cuisine to make.



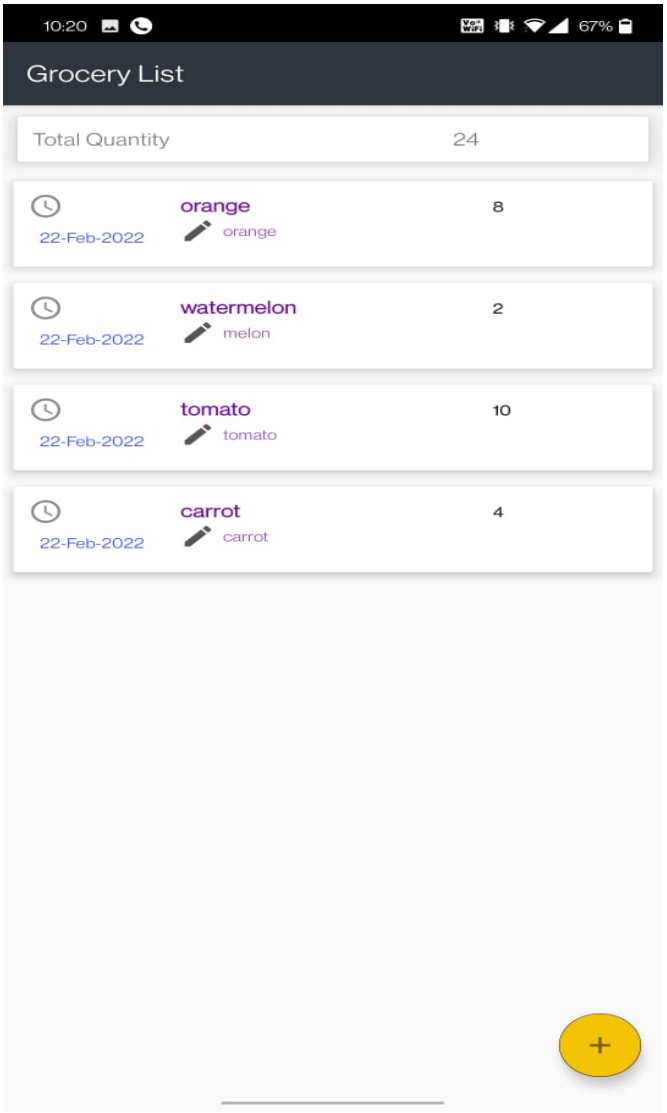
9. Grocery List



Enter the item and is quantity according to you and save. It will list your items.

Click on the add button then you will get the above pop up.

You will get the list of items that you have added.



3. Cost Estimation

Cost estimation models are mathematical algorithms or parametric equations used to estimate the costs of a product or project. The results of the models are typically necessary to obtain approval to proceed, and are factored into business plans, budgets, and other financial planning and tracking mechanisms.

- **The Development Model**

  COCOMO (Constructive Cost Model) is a regression model based on LOC viz. number of Lines of Code. It is a procedural cost estimate model for software projects and often used as a process of reliably predicting the various parameters associated with making a project such as size, effort, cost, time and quality.

- **Key Parameter**
  a. Efforts - measured in person months units
  b. Schedule - measured in span of months or weeks

To estimate the effort and development time, COCOMO uses the same equations but with different coefficients (a, b, c, d in the effort and schedule equations) for each development mode. Types are as follows :

- Organic System
- Semi - detached System
- Embedded System

The basic COCOMO equations take the form

- Effort Applied (E) = ab (KLOC) bb [person-months]
- Development Time (D) = cb (Effort Applied) db [months]
- People Required (P) = Effort Applied / Development time [count]

  Where, KLOC is the estimated number of delivered lines (expressed in thousands) of code for a project.

  The coefficient ab, bb, cb and db are given in the following table:

Software Project	a_b	b_b	c_c	d_d
Organic	2.4	1.05	2.5	0.38
Semi-detached	3.0	1.12	2.5	0.35
Embedded	3.6	1.20	2.5	0.32

COCOMO Model for "MyProjectName"

a. Effort :

$a_b * (KLOC)^{b_b} = 2.4 * 7.1^{1.05} = 2.4 * 7.83 =$ **18 SM**

b. Time for development :

cb * (Effort Applied) ^{db} [Months] = $2.5 * 18^{0.38} = 2.5 * 2.99 =$ **7 Months**

Where,

Effort = Number of staff months (SM)

Size = Number of source lines of code

Time = Total number of months required to complete the project

The Project Code for Food Planner application contains 7100 Lines of code

Since, we know that 1000 Lines of Code = 1 KLOC (K - Kilo - 10^3)

Therefore, the project consists of 7.1 KLOC.

Effort = $2.4 \times (7.1)^{1.05}$
= 18 SM

Time for development = $2.5x(18)^{0.38}$
= 7 Months

Cost per Month = Rs.2500/-

Total Cost of the Project = Cost per Month * Time required for the development project

= 2500 * 7

= Rs. 17500

CHAPTER 7 : CONCLUSIONS

1. Conclusion

Planning our meal was associated with a healthier lifestyle and keeping our body fit. With people becoming conscious about their diets and fitness goals, this app give us wide range of features. It make things simpler for the users.

There are various Features in this application from which it will get easier for user to be productive with their meals which they want to prepare. It gets easier as they search for any meal and they would get all the information about the food. It will also display all the nutritious content of the particular meal. It plans customized diet for personal requirements which helps in user to track overall calories of the day. It also has reminders which will set yourself with a disciplined eating habits. If user does not know what they should make for meal they can use Spin wheel feature which will help them decide. Also it has a Grocery list which will help them to keep track of what items they have and want to add in their Grocery.

All These Features together fulfill our user needs and help them in many different ways. Every person should use this app because food is very important part of our life and we should know what we are consuming in our body. Tracking this could help in many ways which will enhance better lifestyle.

2. Limitations

Concepts that cannot be modified within your project are the limitations

List all the limitations that are applicable to your project with a short description for each

- Limitation 1 : API777

  Description : User will get only those recipes that are

  included in the API.

- Limitation 2 : Internet Connection

  Description : Some of the features in the app cannot be used without internet connection.

3. Future Scope of the Project

As in the future this application will be of great importance as our health is a crucial part of our lives. With people becoming conscious about their diets and fitness goals, there is a wide scope of diet and fitness apps thriving in the app world. This app can make diet planning easier and more interesting which can motivate youngsters.

In future there are many features we have planned to add in our application. User will be able to create their own recipes and share it with others. We want it to be like food community where people post everything about food to help to reach out others. There can

be a section for fitness where user can get many exercises and can get personal coaching. AI support
assistant will help user with their queries whatever they have with their fitness life. These Technologies are the future of our development towards building new things, so then we can create new ideas related to our application using new technologies which will support it.

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