

PROJECT REPORT : "RATATOUILLE"

COURSE CODE: CSE 410
COURSE TITLE: MOBILE APPLICATION
DEVELOPMENT LAB

Submitted by

Snigdha Rahman (360)
Md.Tanvir Hossain Saon(388)

Submitted to

Dr. Md. Ezharul Islam, Professor
Samsun Nahar Khandakar, Lecturer



Computer Science and Engineering
Jahangirnagar University

Dhaka, Bangladesh

December 11, 2024

Contents

1	Project Overview	1
1.1	Project Title and type	1
1.2	Target Audience	1
2	Problem Statement	2
3	Solution: Ratatouille App	3
4	Features	4
5	Overview of Features	5
6	GitHub Link and Screenshots	8
7	Conclusion	17

1. Project Overview

1.1 Project Title and type

Project name: "*Ratatouille*" - A Food Making App

Tagline: "Unleashing your inner chef."

Project Type: Mobile Application (Android)

Objective

The *Ratatouille* app aims to revolutionize the cooking experience by providing an all-in-one platform for discovering recipes, managing personal meals, and achieving health and fitness goals. With AI-powered recipe suggestions tailored to user preferences, categorized meal options, and detailed cooking instructions, the app simplifies meal preparation for users of all skill levels. Additional tools like a BMI calculator, calorie tracker, and food calorie chart promote a balanced lifestyle, while Firebase integration ensures secure user authentication and efficient data management. By combining convenience, personalization, and health tracking, *Ratatouille* aspires to inspire culinary creativity and empower users to lead healthier lives.

1.2 Target Audience

- **Home Cooks:** Anyone looking to experiment with new recipes or improve their culinary skills.
- **Busy Professionals:** Those who want quick, easy-to-make meals without sacrificing flavor or nutrition.
- **Health-Conscious Individuals:** People with dietary preferences or restrictions (e.g., vegan, keto, gluten-free) seeking recipes that align with their needs.

- **Food Enthusiasts:** Individuals passionate about cooking, who want to explore global cuisines and share their creations
- **Individuals with Dietary Restrictions:** Users with food allergies or sensitivities (e.g., gluten, lactose) who need tailored meal plans and recipes that are safe for their consumption.
- **Fitness Enthusiasts:** People seeking to optimize their diet for fitness purposes, such as muscle building, fat loss, or athletic performance, who can benefit from customized nutritional plans.
- **Weight Management Seekers:** Individuals aiming to lose or manage weight by following a balanced, calorie-controlled diet.
- **General Users Seeking a Healthier Lifestyle:** Anyone looking to make better food choices through convenient meal planning and access to nutritious recipes.

2. Problem Statement

In today's fast-paced world, many people struggle to find the time and resources to cook meals from scratch. The lack of proper recipe curation, meal planning, and real-time assistance can often deter individuals from engaging in home cooking. Moreover, the variety of dietary needs and preferences (e.g., vegan, gluten-free, keto, or low-carb) make it challenging to find recipes that fit personal lifestyles and health goals. Additionally, people aiming to manage their weight, improve their nutrition, or follow specific diet plans often face difficulty in sticking to a consistent routine. Thus, a simple, intuitive, and personalized platform is needed to inspire and assist people in preparing food at home while offering tailored diet plans that support their individual health and wellness objectives.

3. Solution: Ratatouille App

Ratatouille is a comprehensive food-making app that helps users discover, plan, and cook meals in a personalized, guided manner. The app will provide recipe recommendations tailored to users' dietary preferences, nutritional goals

- **Recipe Discovery:** Browse a wide variety of recipes based on cuisine type, ingredients on hand, dietary restrictions, and cooking time.
- **Personalized Recommendations:** AI-driven suggestions based on the user's dietary habits, cooking skills, and food preferences.
- **Guided Cooking:** Step-by-step audio and visual instructions for every recipe, making it easy even for beginners to prepare meals with confidence.
- **Ingredient Management:** Integrated ingredient management helps users -generate shopping lists for items needed for the recipe.
- **Community Engagement:** A social platform within the app allows users to share recipes, rate them, follow other chefs, and get inspired by a global community of home cooks and professionals alike.

4. Features

- **Splash Screen and Authentication:** The app begins with a splash screen that provides users with options to either register or log in. For new users, the registration process involves inputting necessary details to create an account, ensuring personalized access. Registered users can log in securely using Firebase authentication, which ensures data protection and a seamless experience.
- **Bottom Navigation:** The app features a bottom navigation bar with three main sections:
 - *Home:* Displays a variety of recipes organized by categories such as Dinner, Lunch, Breakfast, and All. It includes a search bar for quick recipe lookup and detailed views for each recipe.
 - *Favorite:* Allows users to save their favorite recipes for easy access later.
 - *AI:* Provides AI-powered suggestions for recipes based on user preferences and past activity.
- **Drawer Navigation:** The app includes a comprehensive drawer menu, giving users access to additional features:
 - *My Recipe:* Users can view their added recipes, as well as add, update, or delete recipes.
 - *Meal Note:* Similar functionality to manage notes related to meal planning and preparation.
 - *My BMI:* A built-in BMI calculator helps users assess their fitness levels.
 - *Food Calorie Chart:* Displays nutritional information, including calorie and protein content, for various foods.
 - *Calorie Calculator:* Helps users calculate their daily calorie requirements to maintain or improve fitness.
 - *Profile:* Allows users to view and update their personal information.
 - *Sign Out:* Provides an option to securely log out of the application.

- **Recipe Management:** Users can create their own recipes by providing details such as ingredients, preparation steps, and images. They can update existing recipes if changes are required or delete them if no longer needed. This feature ensures that users can build and manage a personalized recipe collection.
- **Health Tools:** The app includes a BMI calculator to determine the user's body mass index, enabling them to monitor their fitness. A calorie calculator helps users estimate their daily caloric needs based on physical activity and dietary goals. Additionally, the food calorie chart offers detailed insights into the nutritional value of various foods, aiding in meal planning.
- **Technology:** The app utilizes Firebase for secure authentication and Firestore for real-time database management. Cloud Storage is employed to handle user-generated content, such as images and other data, ensuring scalability and efficiency.

5. Overview of Features

- **Splash Screen:** The splash screen is the first page users see when opening the app, providing a brief introduction to the app's branding and visual identity. It shows the app logo and tagline, welcoming the user before transitioning to the login or registration screen. The screen typically lasts a few seconds to allow the app to load essential resources in the background. After this, users are directed to the login page, ensuring a smooth entry into the app. The splash screen sets the tone for the user experience, creating anticipation for the app's features while allowing the app to initialize. This quick screen is essential for branding and establishing the app's visual identity, ensuring that users feel engaged right from the start.
- **Login and Registration Page:** The login and registration page is where users can either sign in or create a new account. New users can register by entering their details, while existing users log in with their credentials. Firebase authentication securely manages login details. For users who forget their passwords, the page provides a "Forgot Password" option to recover access easily. Users can

also select the "Remember Me" feature for quicker future logins. After successful login, users are redirected to the home page, where they can start exploring the app. This page provides a straightforward and secure method for accessing personalized app features, ensuring privacy and convenience. It's designed to be quick and easy to navigate, offering all the necessary login and registration functionality in one place.

- **Home Page:** The home page serves as the central hub for the app's content. It displays various recipes categorized into Dinner, Lunch, Breakfast, and All, each with an image and brief description. Users can easily browse through the categories and click on a recipe to view more details. The page includes a search bar for quick filtering of recipes based on ingredients or meal type. As users scroll through, they may see featured recipes or personalized recommendations based on their activity. The home page is designed to be engaging and user-friendly, helping users discover new recipes easily. It also integrates with the bottom navigation bar, allowing users to seamlessly switch to other pages like Favorites and AI. The home page offers a dynamic experience, continuously offering new content for users to explore and enjoy.
- **Favorite Page:** The Favorite page allows users to save and manage their favorite recipes. When users find a recipe they like, they can add it to their favorites for quick access later. Each favorite is displayed with an image and brief description, and users can click on any recipe to view the full details. This page provides a personalized list of saved recipes, making it easy to revisit and cook meals users love. It also gives users the option to remove any recipe from their favorites if they no longer wish to keep it. The layout is clean and organized, ensuring that users can easily find their preferred dishes. The Favorite page is key to a personalized experience, allowing users to curate a collection of their best-loved recipes.
- **AI Page:** The AI page leverages artificial intelligence to provide personalized recipe suggestions based on the user's cooking preferences and past behavior. The AI engine analyzes the recipes a user has viewed, saved, or liked, and suggests new meals accordingly. Users can refine suggestions based on their dietary preferences, such as vegan, gluten-free, or keto. This page offers a dynamic and evolving set of recommendations that improve over time as the AI learns from user interactions. The AI-powered suggestions are presented with images and short descriptions, making it easy for users to explore new meals. This feature helps users discover recipes they might not have considered otherwise, encouraging culinary creativity. The AI page is perfect for users looking to try something

new and exciting without having to search through countless recipes.

- **My Recipe Page:** The My Recipe page enables users to create and manage their own recipes. Users can add a new recipe by entering details like ingredients, instructions, and images. Once a recipe is added, users can edit it to update ingredients or steps as needed. Recipes can also be deleted if no longer wanted. This page gives users full control over their recipe collection, allowing them to organize, update, and remove recipes as they wish. Each recipe is displayed with a thumbnail image, and users can click to view or modify it. The page also offers a search functionality to quickly locate specific recipes from the user's collection. This feature is perfect for users who enjoy cooking and want to keep their personal recipes in one place.
- **Meal Note Page:** The Meal Note page provides users a space to record notes related to their meal plans. Users can jot down ideas for future meals, note modifications to recipes, or track meal prep instructions. This feature is useful for keeping organized, especially for meal planning or following up on changes to recipes. Users can categorize their notes by date or meal type to keep them organized. The layout is simple and intuitive, allowing for easy note-taking. The page also allows users to add or remove notes, ensuring they can keep track of their culinary journey. This feature is perfect for users who want to document their cooking process or plan their meals ahead of time.
- **My BMI Page:** The My BMI page allows users to calculate their Body Mass Index (BMI), a key indicator of overall health. Users input their weight and height, and the app calculates their BMI using a standard formula. The app then provides an interpretation of their BMI, indicating whether they are underweight, normal weight, overweight, or obese. This helps users understand their current fitness status and motivates them to make healthier lifestyle choices. The page offers educational content about BMI and health, explaining what each range means for fitness. This tool is helpful for users aiming to monitor their weight and make informed decisions about their diet and exercise routines.
- **Food Calorie Chart Page:** The Food Calorie Chart page displays nutritional information for a wide variety of foods, including calorie count, protein content, and other key nutrients. Users can search for specific foods or browse by category, making it easy to find the nutritional breakdown of ingredients they want to use. This page is essential for users managing their diet or looking to understand the nutritional value of their meals. It allows users to compare different foods and

make healthier choices based on their dietary needs. The food items are organized into categories like fruits, vegetables, proteins, and grains, making it easy to navigate the chart. This page supports users in making better food choices and helps with meal planning.

- **Calorie Calculator Page:** The Calorie Calculator page helps users estimate their daily caloric needs based on personal factors like age, gender, activity level, and fitness goals. By entering these details, users can calculate how many calories they should consume daily to maintain or adjust their weight. This tool is useful for anyone trying to lose weight, gain muscle, or maintain a healthy weight. The page offers clear instructions on how to enter data and interpret the results. It also links to other features, such as the Food Calorie Chart, to help users make diet choices aligned with their caloric goals. The Calorie Calculator is a vital tool for users focused on fitness or weight management.
- **Profile Page:** The Profile page allows users to manage their account details, including personal information, preferences, and settings. Users can update their name, email address, and password, ensuring their information remains up to date. The page also provides options to upload a profile picture, further personalizing the user experience. Additionally, users can change settings related to notifications and privacy preferences. The Profile page ensures that each user's experience is tailored to their needs, allowing them to update their preferences anytime. Users can also access links to external accounts or services, such as linking their social media accounts or syncing with other health apps. This page serves as a central location for managing the user's identity and preferences within the app.

6. GitHub Link and Screenshots

GitHub Repository Link

The source code for the Ratatouille app is available on GitHub the complete repository, including all files, assets, and documentation, by following the link below:

https://github.com/Tanvir-831/Ratatouille_flutter

This repository contains the app's codebase, which is developed using Flutter and integrated with Firebase, Firestore, and Cloud Storage for various features. It also includes configuration files and setup instructions for building the app locally.

Screenshots of the App

Below are some key screenshots that showcase the functionality and interface of the Ratatouille app:

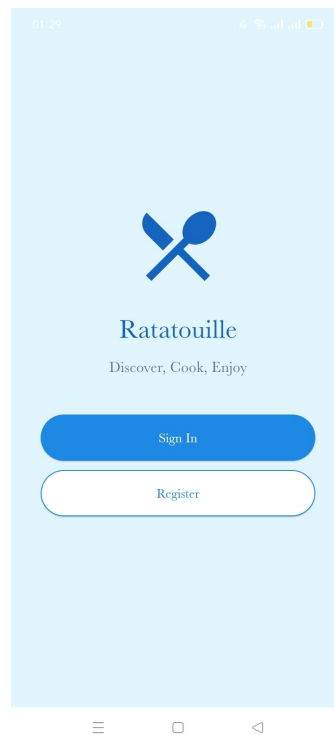
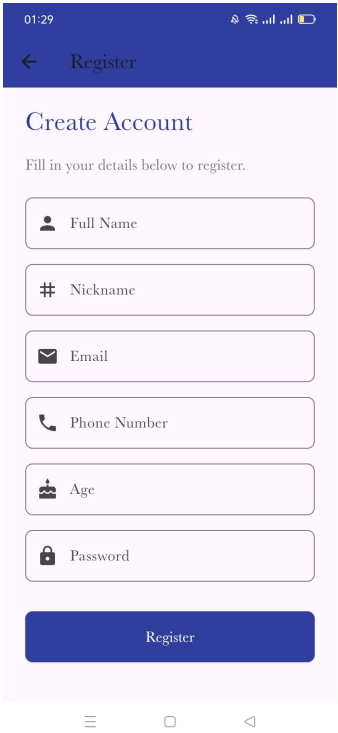
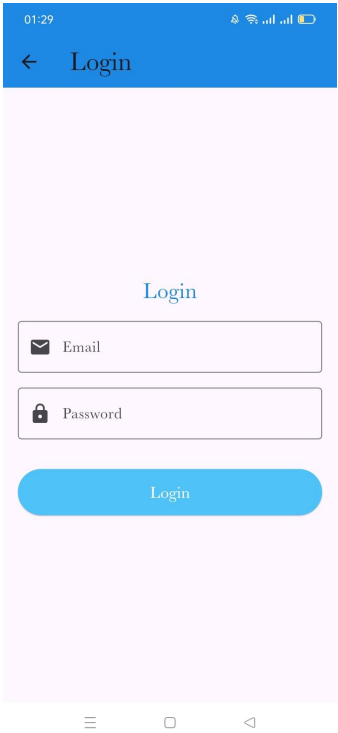


Figure 6.1: Splash Screen



A mobile application registration screen. At the top, a dark blue header bar contains a back arrow and the word "Register". Below this, the title "Create Account" is displayed in a dark blue font, followed by the instruction "Fill in your details below to register." in a smaller, grey font. The form consists of seven input fields, each with a light pink background and a dark blue border. The fields are labeled with icons and text: "Full Name" (person icon), "Nickname" (hash icon), "Email" (envelope icon), "Phone Number" (phone icon), "Age" (birthday cake icon), and "Password" (lock icon). A dark blue "Register" button is positioned at the bottom of the form. The screen is framed by a light pink border, and the bottom of the image shows standard Android navigation icons.

Figure 6.2: Registration



A mobile application login screen. At the top, a blue header bar contains a back arrow and the word "Login". Below this, the title "Login" is displayed in a blue font. The form consists of two input fields with light pink backgrounds and dark blue borders. The first field is labeled "Email" with an envelope icon, and the second field is labeled "Password" with a lock icon. A blue "Login" button is positioned at the bottom of the form. The screen is framed by a light pink border, and the bottom of the image shows standard Android navigation icons.

Figure 6.3: Log In

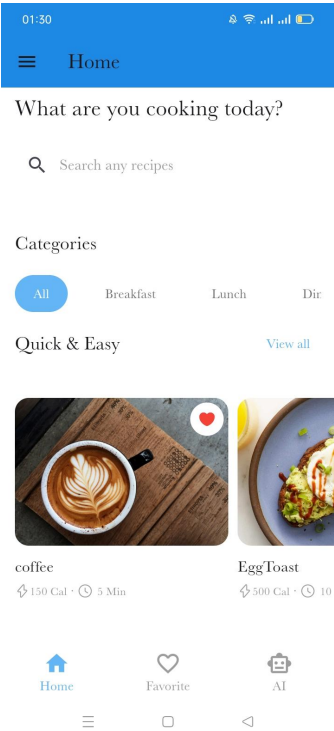


Figure 6.4: Home

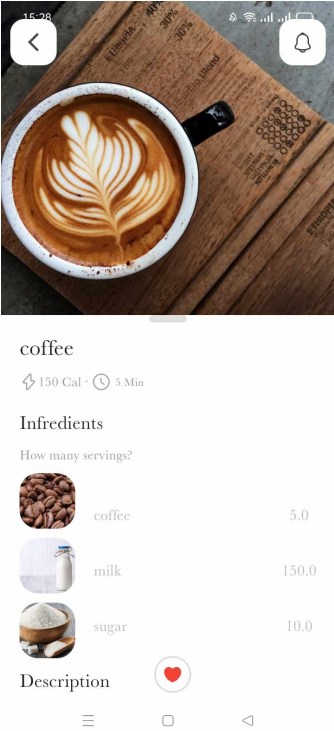


Figure 6.5: Recipe Details

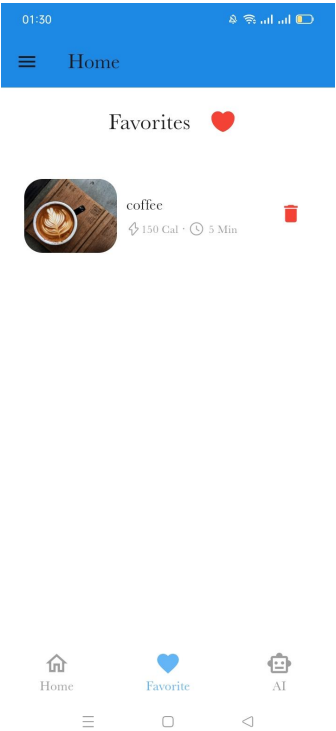


Figure 6.6: Favorite

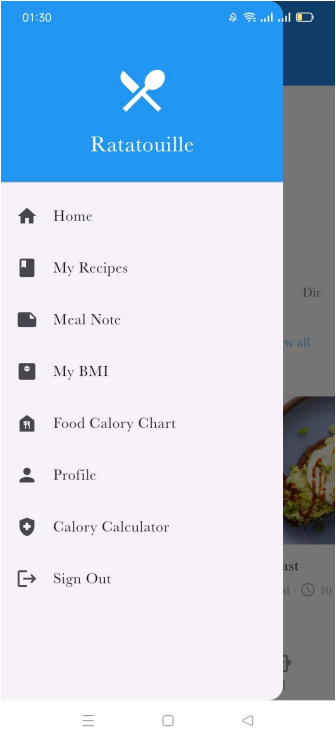


Figure 6.7: Navigation Drawer

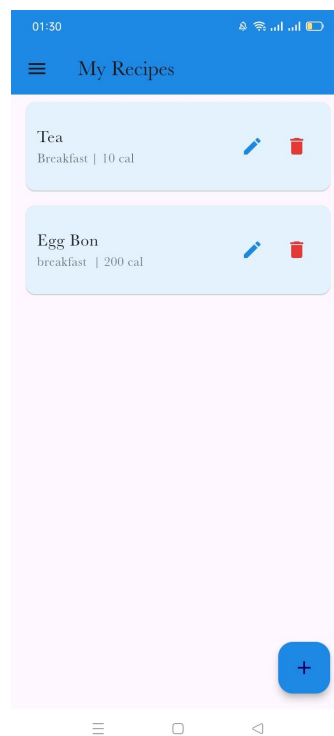


Figure 6.8: User Recipe

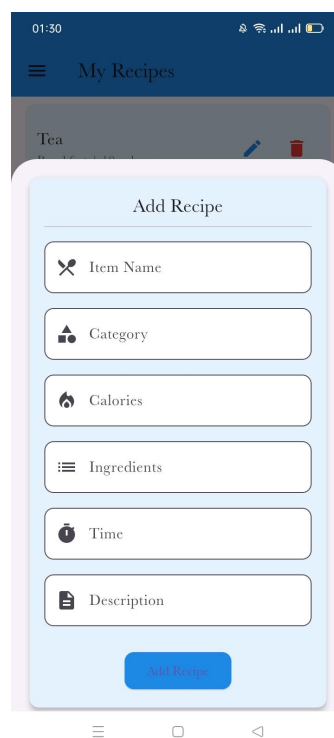


Figure 6.9: Add Recipe by User

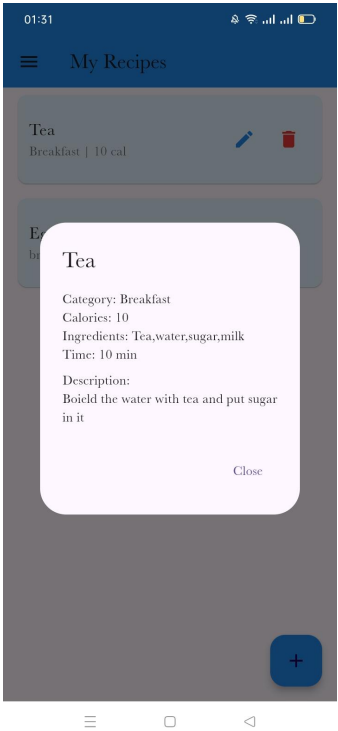


Figure 6.10: User Recipe

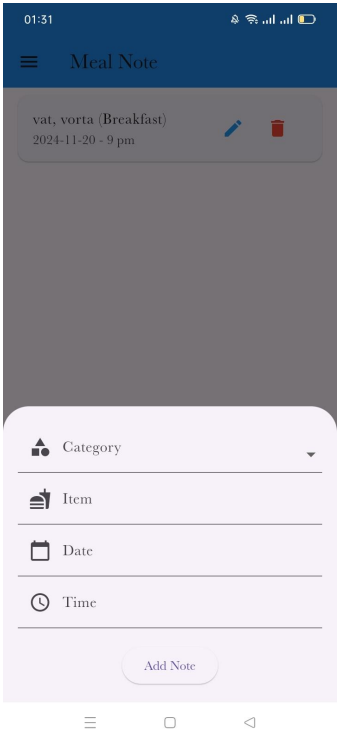


Figure 6.11: Meal Note

01:31

Body Mass Index Calculator

BODY MASS INDEX
CALCULATOR

Weight (lbs) 56

Height (ft) 5

Height (in) 4

RESET CALCULATE

Your BMI is: 21.2

Classification: Normal

Great job! Maintain your current lifestyle.

Figure 6.12: BMI

01:31

Profile

Edit Profile

Full Name Md Tanvir Hossain


Nickname # Saon

Phone Number 01750656500

Age 24

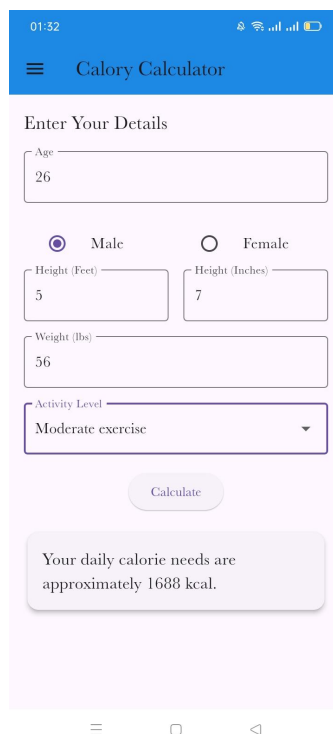
Update Profile

Figure 6.13: User Profile



Food (100g)	Calories	Fat (g)	Protein
Pecans	691	72	9
Walnuts	654	65	15
Hazelnuts	628	61	15
Sunflower Seeds	584	51	21
Almonds	575	49	21
Sesame Seeds	573	51	18
Pumpkin Seeds	559	50	30
Soybeans	446	20	36
Quinoa	368	6	14
Black Beans	341	1	22
Avocado	160	15	2

Figure 6.14: Calory Chart



01:32

Calory Calculator

Enter Your Details

Age: 26

☒ Male ☐ Female

Height (Feet): 5 Height (Inches): 7

Weight (lbs): 56

Activity Level: Moderate exercise

Calculate

Your daily calorie needs are approximately 1688 kcal.

Figure 6.15: Calory Calculator

7. Conclusion

The Ratatouille app simplifies cooking and promotes a healthier lifestyle through features like recipe discovery, AI-driven suggestions, and health tools such as BMI and calorie calculators. Built with Flutter and integrated with Firebase, the app ensures secure, efficient, and scalable performance. Its user-friendly design and personalized functionality make it a valuable tool for culinary enthusiasts and health-conscious individuals alike. The project demonstrates the effective use of modern technology to solve real-world problems, laying a strong foundation for future enhancements.