

Mobile Application Development

Project Report

Food Dining Application

DINE EASE



Submitted By-

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GitHub Link:

<https://github.com/AdityaArora06/Dine-Ease.git>

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Session 2023-24

Executive Summary

The Find Diner application is a cross-platform mobile solution developed using Flutter. Its primary goal is to empower users to discover nearby restaurants, browse their menus, read reviews, make reservations, and manage their profiles through secure login functionalities. By leveraging location services and Google Maps, the application enhances the searchability of dining options. The implementation of state management using the Provider package ensures efficient data handling and seamless UI updates. Additionally, Firebase is integrated to manage user authentication and store user data securely.

Objectives

- Develop a user-friendly mobile application that helps users find nearby restaurants.
- Integrate location services and Google Maps to improve the user experience.
- Enable users to browse restaurant menus, read reviews, and make reservations.
- Implement secure login functionalities using email/password and Google authentication.
- Use Firebase for database management and secure storage of user credentials.
- Ensure efficient state management for responsive and seamless interactions.

Features

1. **Restaurant Discovery**

- Users can discover nearby restaurants using their current location. The application utilizes location services to identify and display dining options in the vicinity.

2. **Google Maps Integration**

- Google Maps integration allows users to visualize the location of restaurants on a map. This feature provides an intuitive and interactive way to explore nearby dining options.

3. ****Menu Browsing****

- Users can browse the menus of listed restaurants. This feature helps users make informed decisions by allowing them to view available dishes and their prices.

4. ****Reviews and Ratings****

- The application aggregates and displays reviews and ratings for each restaurant. This information helps users gauge the quality and popularity of the dining options.

5. ****Reservations****

- Where available, users can make reservations directly through the application. This feature is integrated with partner APIs to facilitate seamless booking.

6. ****State Management****

- Efficient state management is achieved using the Provider package. This ensures that data handling and UI updates are optimized for performance and responsiveness.

7. ****Login Functionalities****

- Users can log in using email and password or through Google authentication. Firebase is used for managing user authentication and securely storing user data.

8. ****Profile Management****

- User credentials and profile information are visible on the profile page.
- Users can manage their profiles, including viewing their reservation history.

Technical Implementation

Technology Stack

- **Framework**: Flutter
- **Language**: Dart
- **State Management**: Provider
- **APIs**: Google Maps API, Partner APIs for reservations
- **Database**: Firebase
- **Authentication**: Firebase Authentication
- **Development Tools**: Android Studio, Xcode

Architecture

The application follows a modular architecture, separating concerns into distinct layers:

1. **UI Layer**: Contains all the widgets and UI components.
2. **Data Layer**: Manages data retrieval, storage, and caching.
3. **Business Logic Layer**: Contains the business logic and state management using Provider.
4. **Service Layer**: Handles API calls and integration with external services.

Key Components

1. ****Location Services****

- Location services are used to obtain the user's current position. The geolocator package is utilized to fetch the coordinates, which are then used to query nearby restaurants.

2. ****Google Maps Integration****

- Google Maps is integrated using the google_maps_flutter package. This integration allows users to see the exact location of restaurants and provides map-based search capabilities.

3. ****Menu and Reviews****

- The application fetches menu items and reviews from the respective restaurant databases. This data is displayed in a user-friendly format, allowing users to browse through it easily.

4. ****Reservation System****

- The reservation system is integrated with partner APIs. This integration enables users to make reservations directly from the app without needing to visit external websites.

5. ****State Management with Provider****

- The Provider package is used for state management. It ensures that the application's state is managed efficiently, providing a smooth user experience. The Provider package helps in managing the state across different parts of the application, ensuring that updates are reflected immediately in the UI.

6. ****Authentication and Profile Management****

- Firebase Authentication is used to handle user login functionalities. Users can log in using their email and password or via Google authentication. User

credentials and profile information are securely stored in Firebase and displayed on the profile page.

User Interface

The user interface is designed to be intuitive and user-friendly. Key screens include:

1. **Home Screen**: Displays a list of nearby restaurants and a map view.
2. **Restaurant Details Screen**: Shows detailed information about a selected restaurant, including menu, reviews, and reservation options.
3. **Map Screen**: Provides a map view with markers for nearby restaurants.
4. **Profile Screen**: Allows users to manage their profile, view their reservation history, and update their login credentials.

Testing and Quality Assurance

The application undergoes rigorous testing to ensure quality and performance. Testing includes:

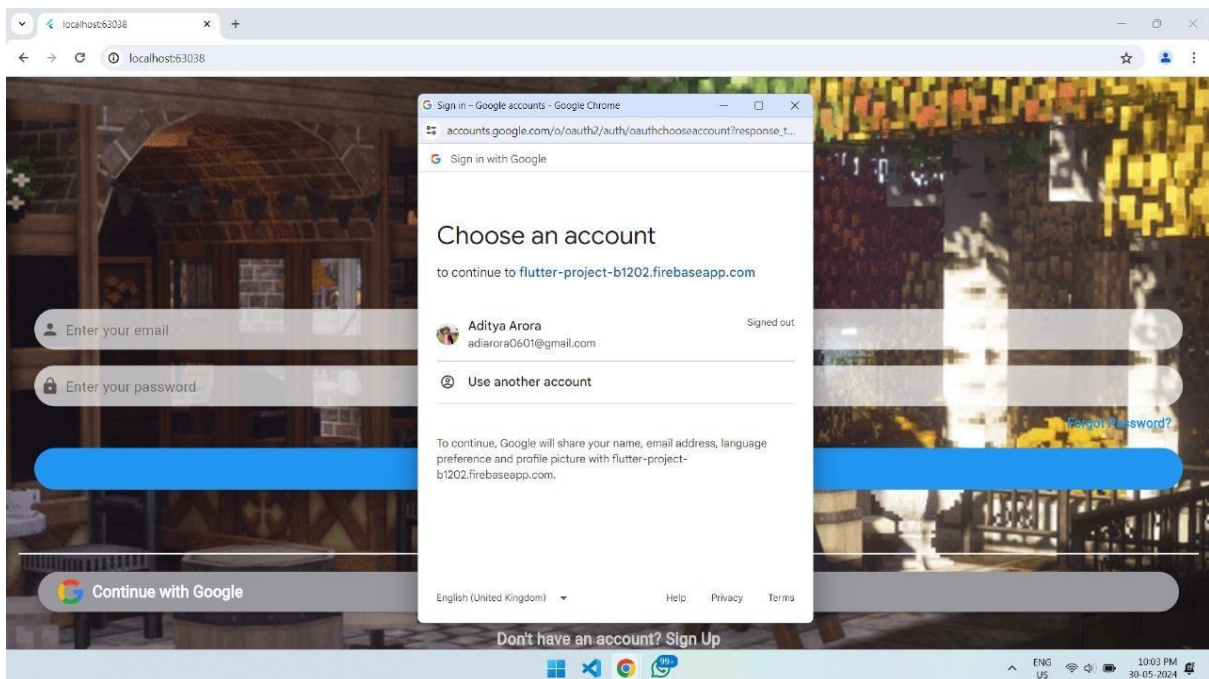
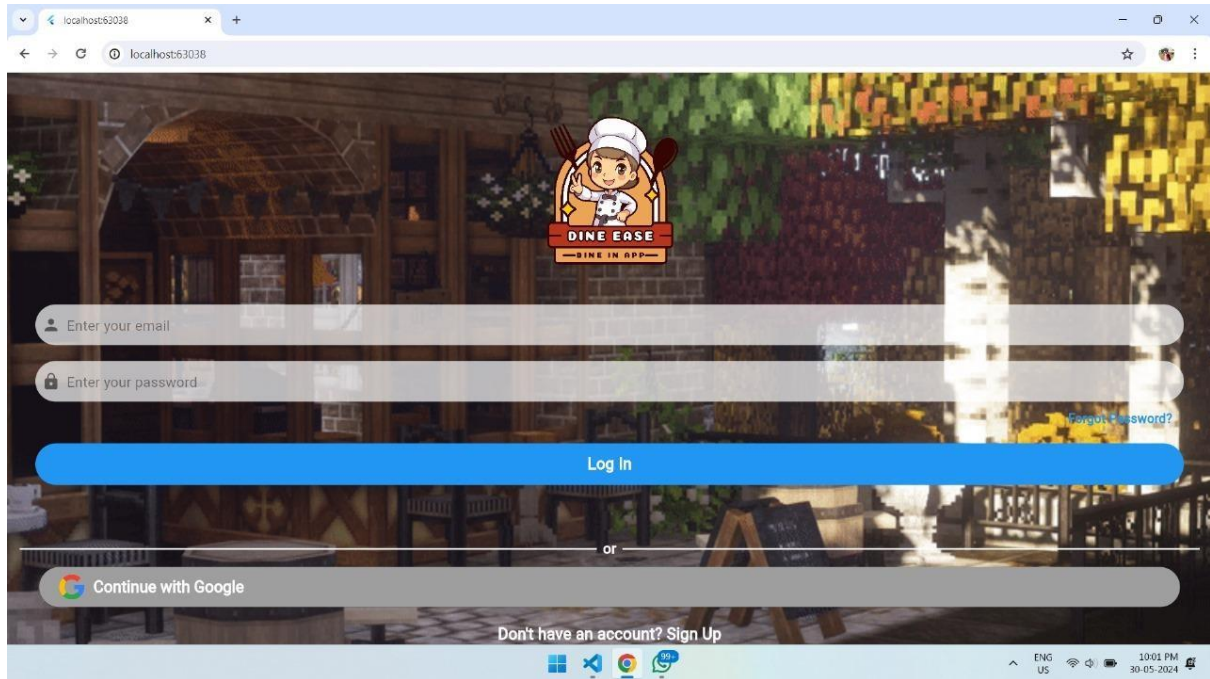
- **Unit Testing**: Ensures individual components and functions work as expected.
- **Integration Testing**: Validates the interaction between different parts of the application.
- **UI Testing**: Checks the user interface for usability and responsiveness.
- **Security Testing**: Ensures user data and authentication mechanisms are secure.

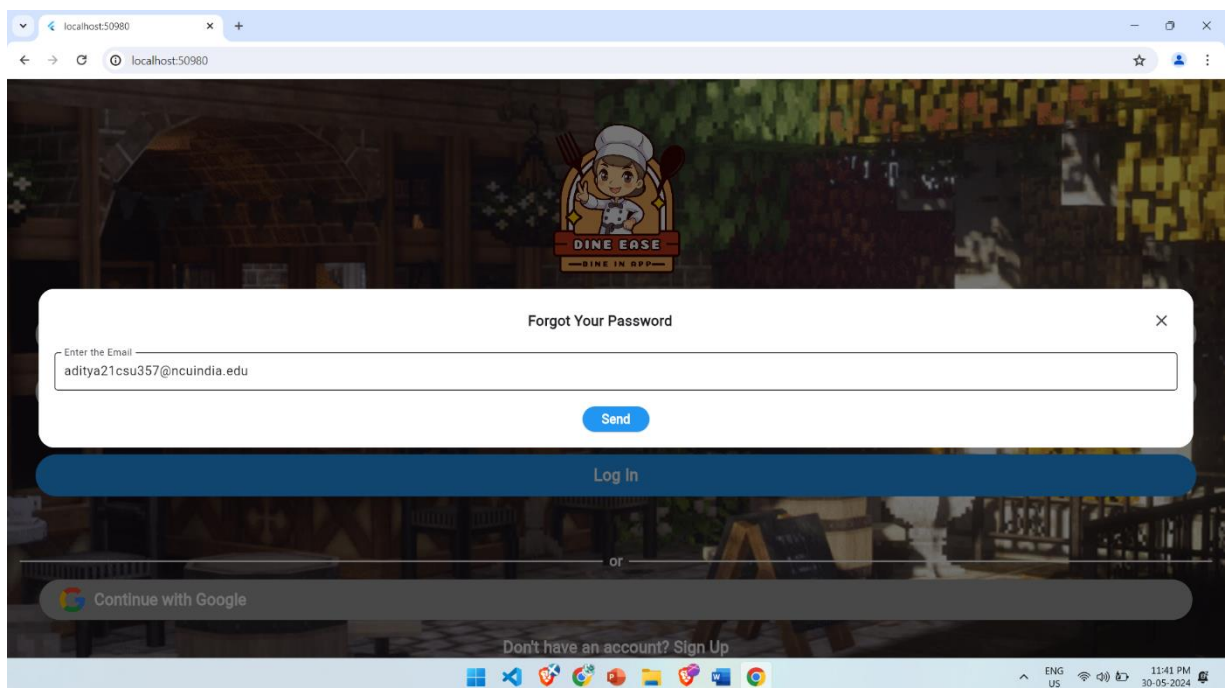
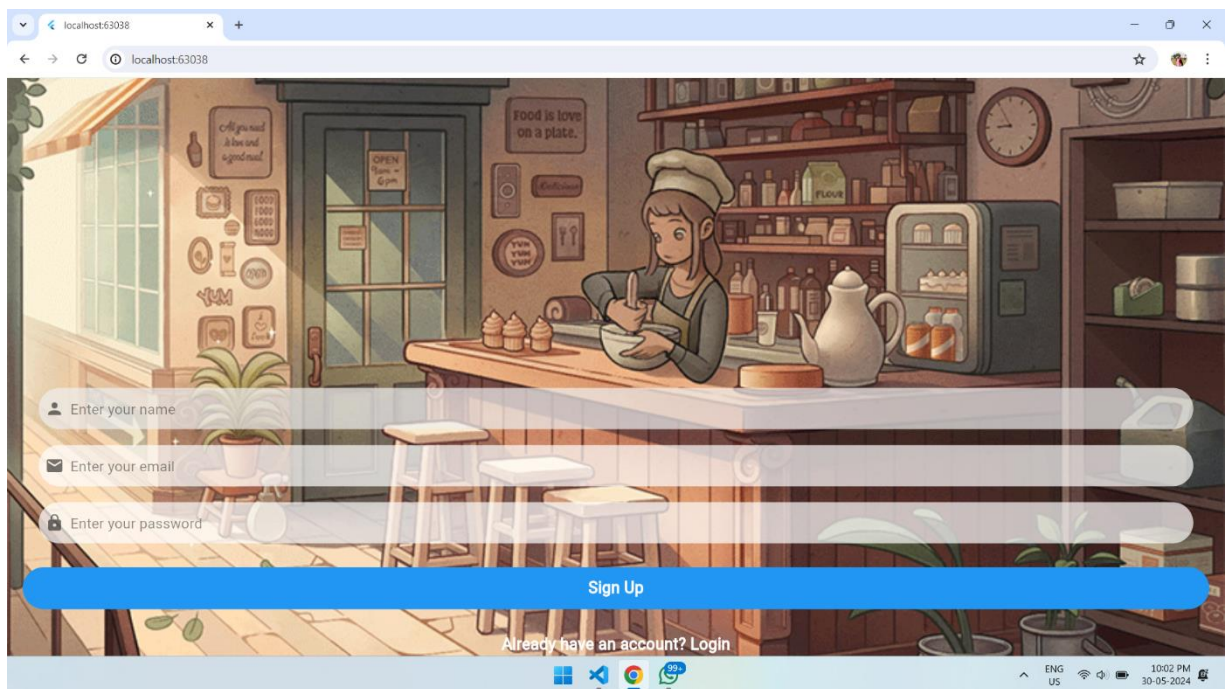
Automated tests are written using Flutter's testing framework to maintain code quality and catch issues early in the development process.

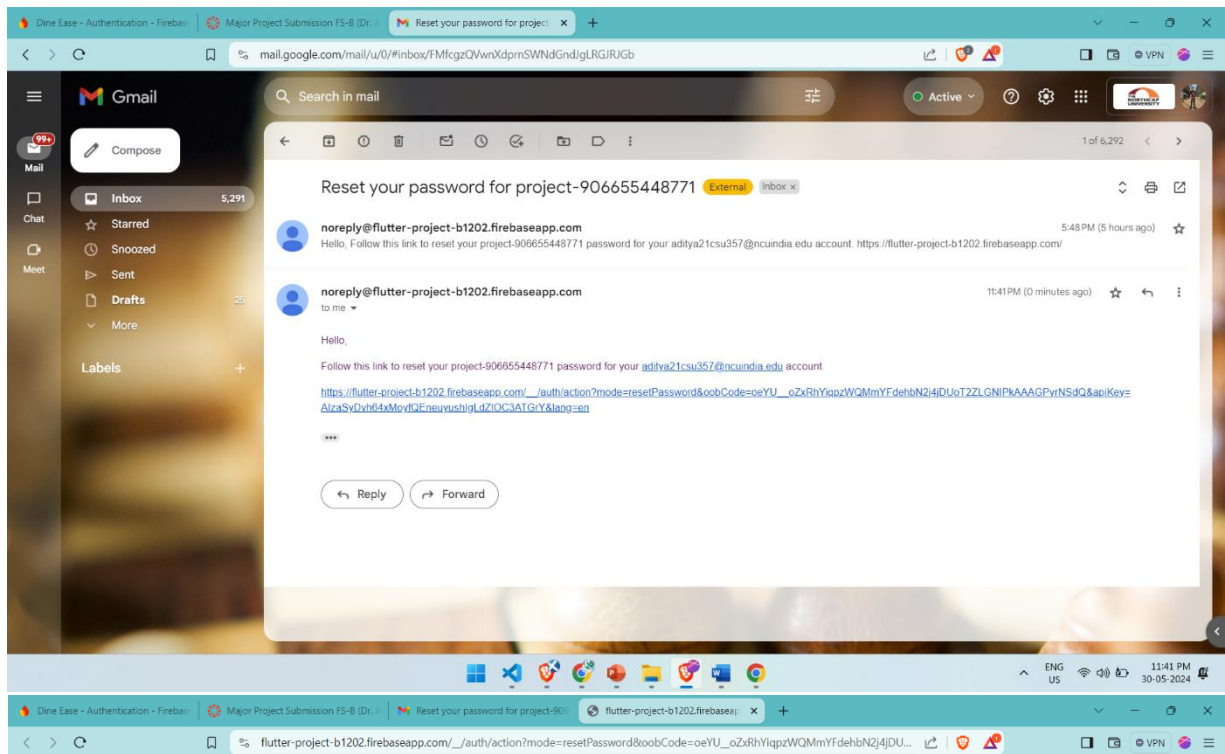
Conclusion

The Find Diner application successfully combines Flutter's cross-platform capabilities with powerful features such as location services, Google Maps integration, menu browsing, reviews, reservations, and secure login functionalities. Efficient state management using Provider and Firebase integration for user authentication ensures that the application is responsive and user-friendly. This project demonstrates the potential of Flutter in building sophisticated, cross-platform mobile applications that enhance user experiences in the restaurant discovery domain.

SCREENSHOTS







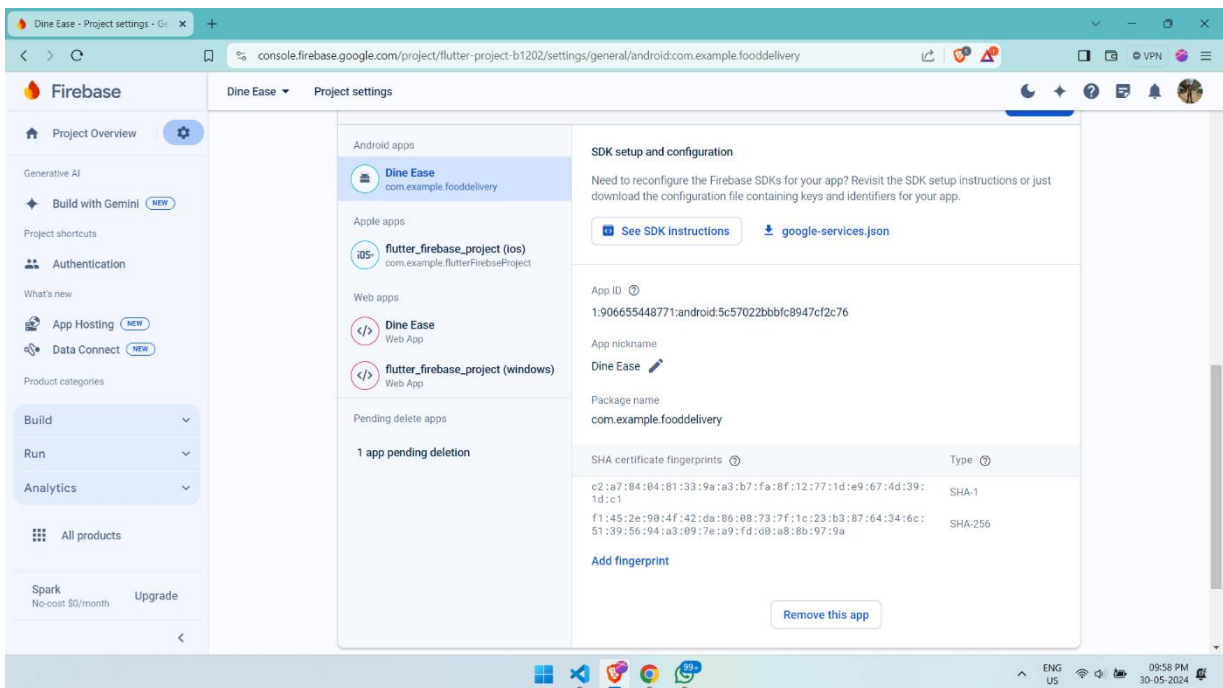
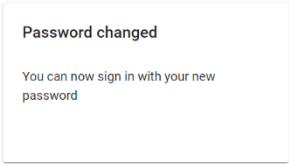
Reset your password

for aditya21csu357@ncuindia.edu

New password

SAVE





Dine Ease - Authentication - Sign in method

console.firebase.google.com/project/flutter-project-b1202/authentication/providers

Project Overview

Generative AI

Build with Gemini (NEW)

Project shortcuts

Authentication

What's new

App Hosting (NEW)

Data Connect (NEW)

Product categories

Build

Run

Analytics

All products

Spark

No-cost \$0/month

Upgrade

Dine Ease

Authentication

UsersSign-in methodTemplatesUsageSettingsExtensions

Sign-in providers

Add new provider

Provider	Status
Email/Password	Enabled
Google	Enabled

Advanced

SMS Multi-factor Authentication

Allow your users to add an extra layer of security to their account. Once enabled, integrated and configured, users can sign in to their account in two steps, using SMS. [Learn more](#)

MFA and other advanced features are available with Identity Platform, Google Cloud's complete customer identity solution built in partnership with Firebase. This upgrade is available on both the Spark and Blaze plans.

Upgrade to enable

Dine Ease - Project settings - General

console.firebase.google.com/project/flutter-project-b1202/settings/general/android.com.example.fooddelivery

Project Overview

Project settings

Project settings

GeneralCloud MessagingIntegrationsService accountsData privacyUsers and permissions

Your project

Project name

Dine Ease

Project ID

flutter-project-b1202

Project number

906655448771

Parent org/folder in GCP

ncuindia.edu

Web API Key

AlzaSyDvh64xMoyfQEnuyushlgLdZIOC3ATGRY

Environment

This setting customizes your project for different stages of the app lifecycle.

Environment type

Unspecified

Public settings

These settings control instances of your project shown to the public

Dine Ease - Project settings - Google Chrome

console.firebase.google.com/project/flutter-project-b1202/settings/general/android:com.example.fooddelivery

Flutter

Project settings

Project Overview

Generative AI

Build with Gemini

Project shortcuts

Authentication

What's new

App Hosting

Data Connect

Product categories

Build

Run

Analytics

All products

Spark

No-cost \$0/month

Upgrade

Public settings

These settings control instances of your project shown to the public

Public-facing nameproject-906655448771

Support emailaditya21csu357@ncuindia.edu

Your apps

Android apps

Dine Ease

com.example.fooddelivery

Apple apps

flutter_firebase_project (ios)

com.example.flutterFirebaseProject

Web apps

Dine Ease

Web App

flutter_firebase_project (windows)

Web App

SDK setup and configuration

Need to reconfigure the Firebase SDKs for your app? Revisit the SDK setup instructions or just download the configuration file containing keys and identifiers for your app.

See SDK instructions

google-services.json

App ID1:906655448771:android:5c57022bbbf8947cf2c76


App nickname

Dine Ease

localhost:63038

Back

Profile



Aditya Arora

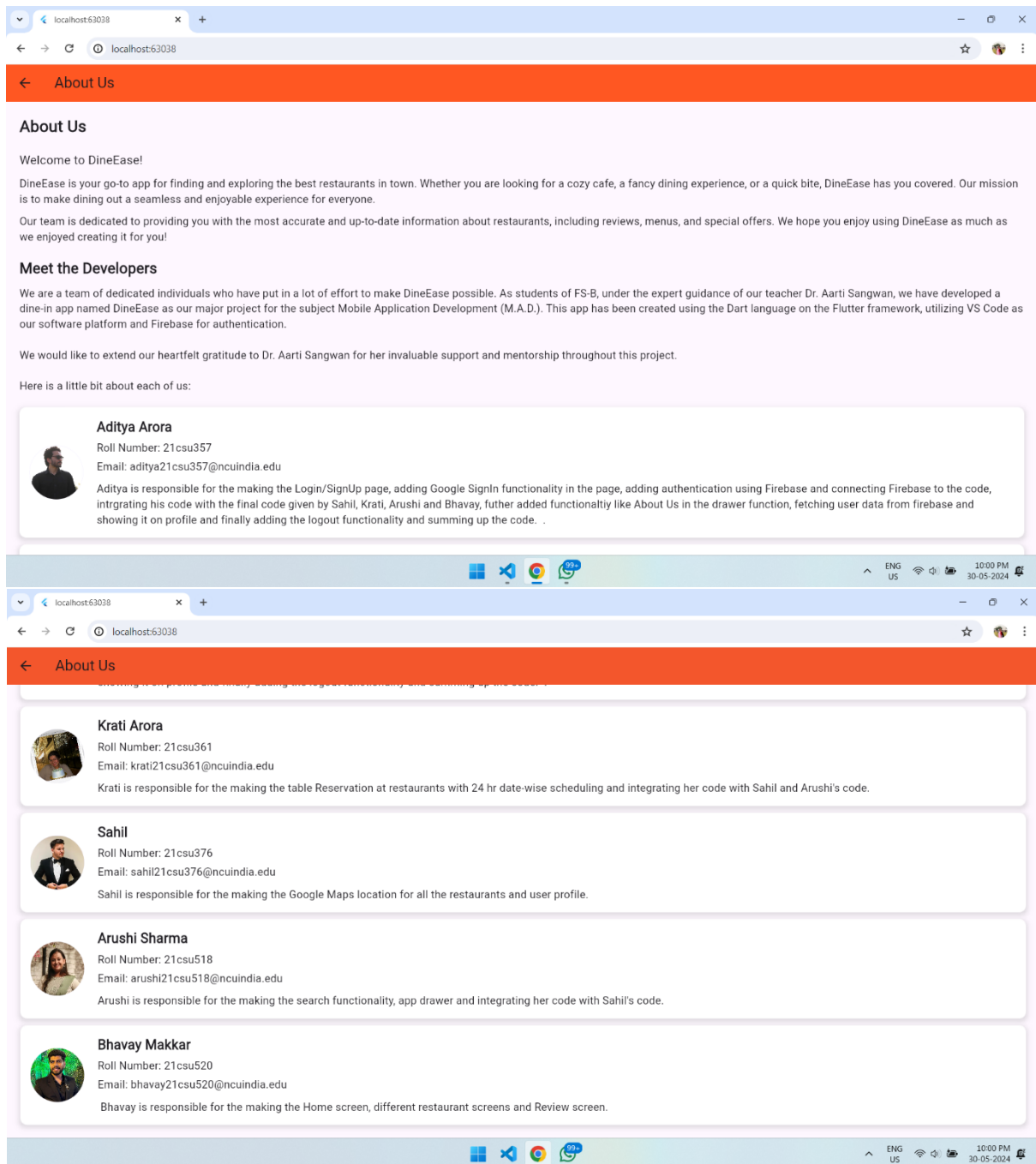
adlarora0601@gmail.com

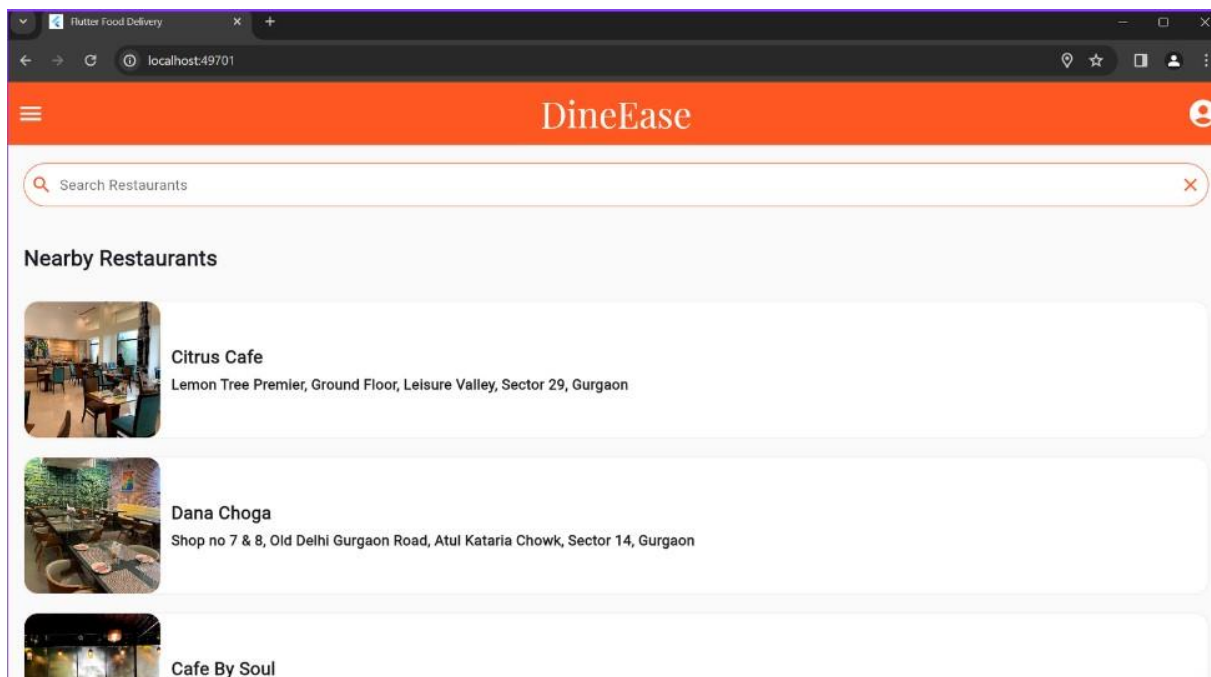
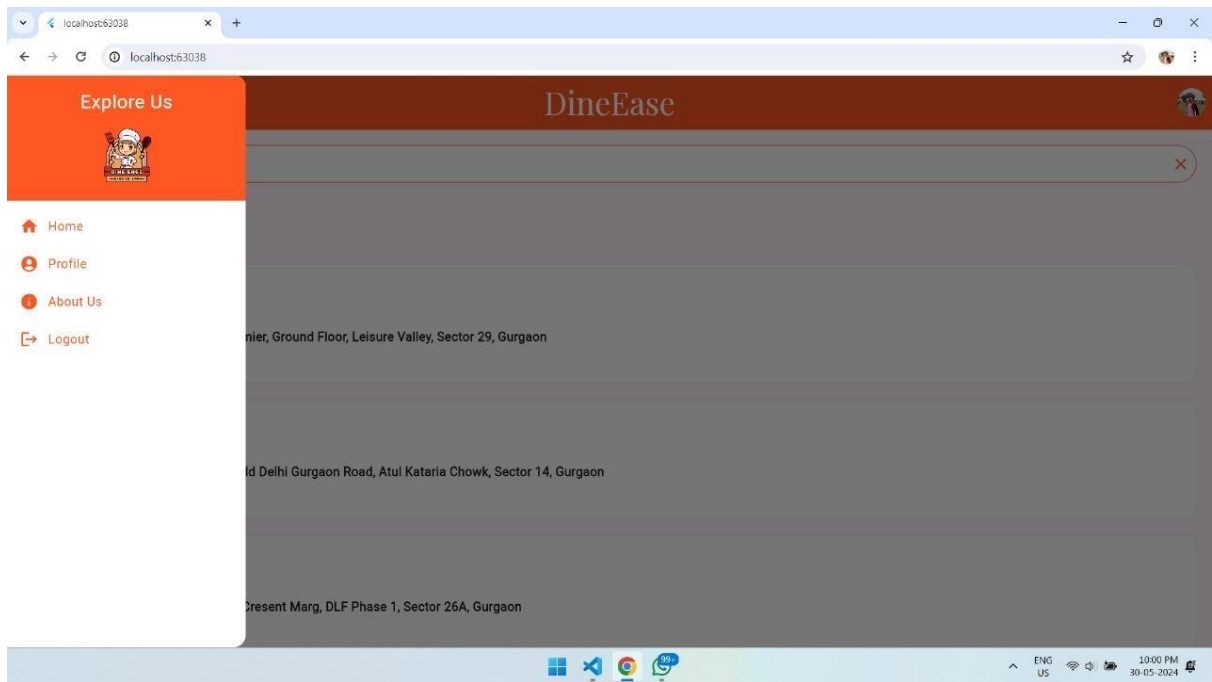
Edit Profile

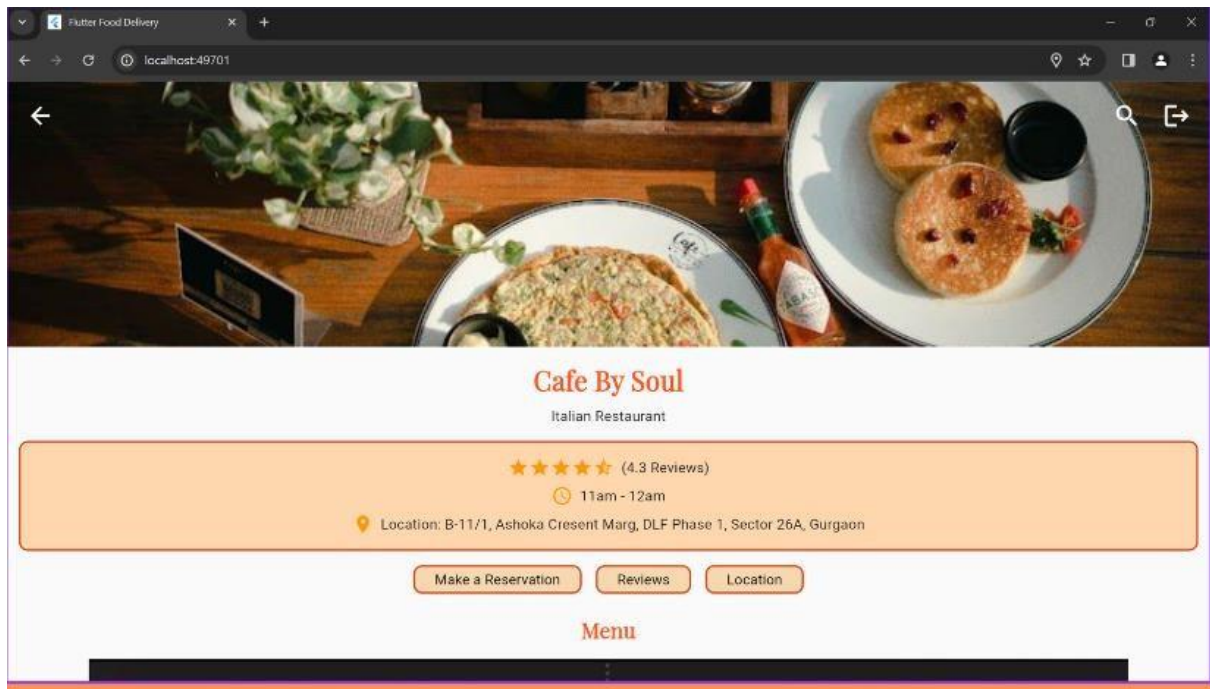
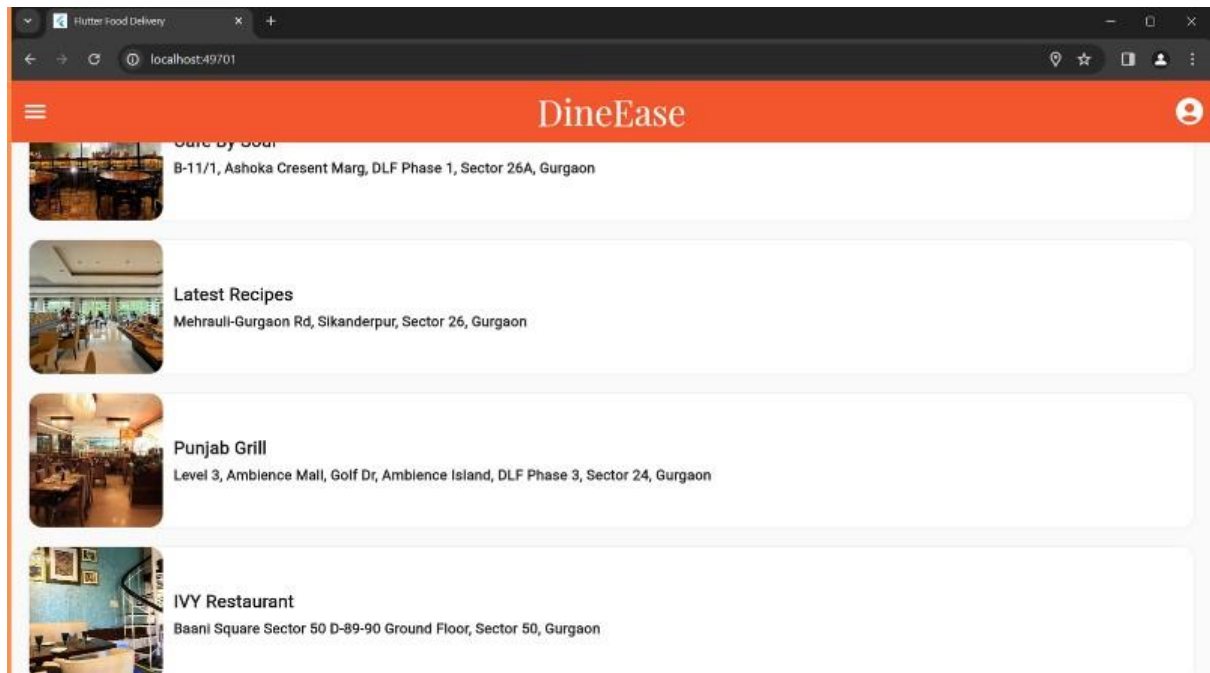
ENG US

10:00 PM

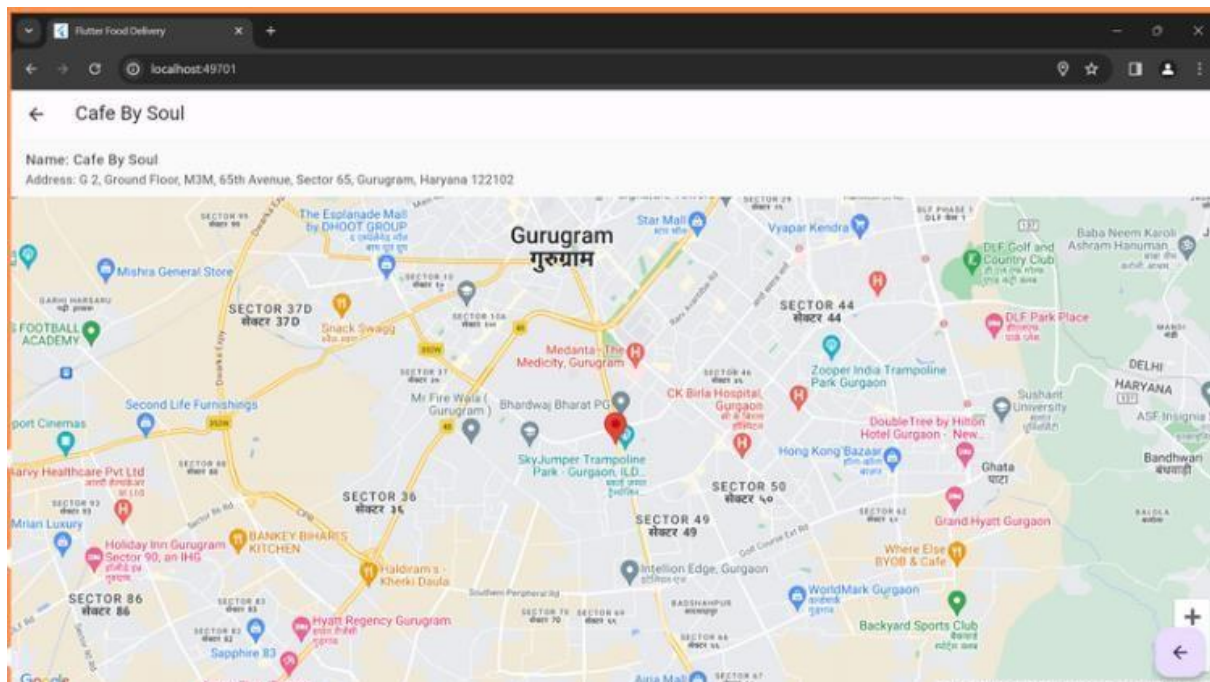
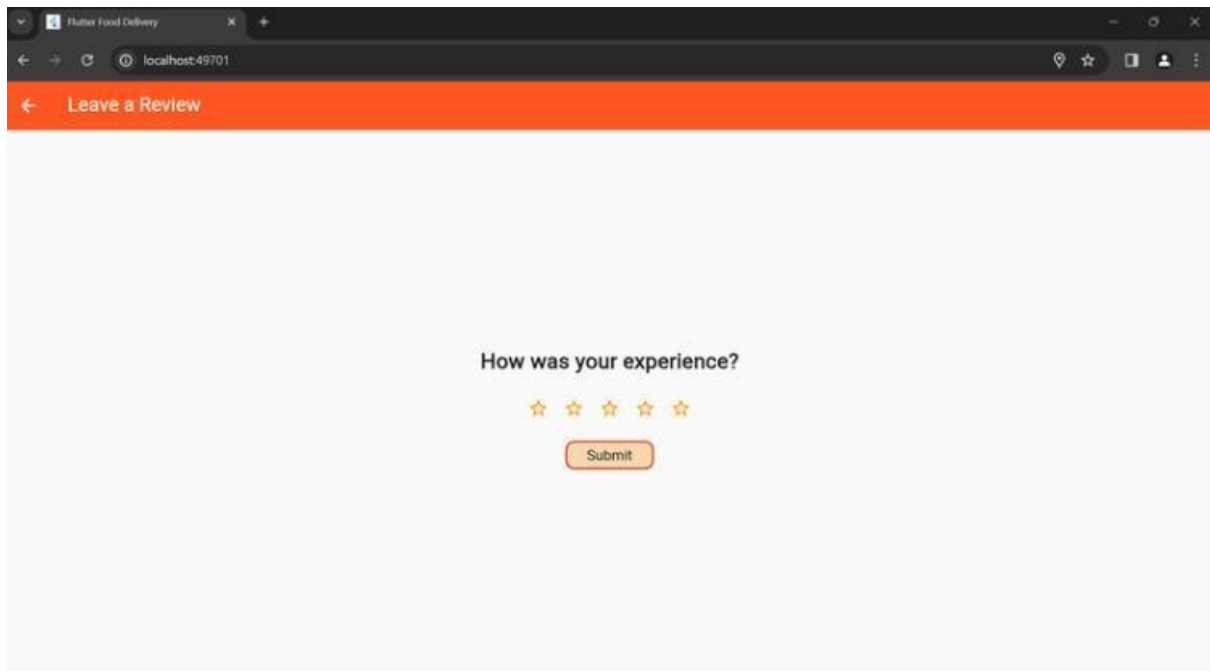
30-05-2024







Green Apple Ice Tea	225
Cucumber Tea	225
Lemon Ice Tea	225
Peach Ice Tea	225



Flutter Food Delivery

localhost:49701

BOOK NOW

Number of Guests:

+

4

-

Select Date:

Today

Tomorrow

May 31, 2024

June 1, 2024

June 2, 2024

Select Time:

4:30 PM

Book Reservation

Flutter Food Delivery

localhost:49701

BOOK NOW

Number of Guests:

+

0

-

Select Date:

Today

Tomorrow

May 31, 2024

June 1, 2024

June 2, 2024

Select Time:

Select Time

Book Reservation

