# FOOD DELIVERY APP

Submitted in partial fulfillment of the requirements

of the degree

**BACHELOR OF ENGINEERING IN COMPUTER ENGINEERING**

By

**Vaibhavi Andhale 221041012**

**Altamash Chougle 221041042**

**Yashashree Dhake 221041059**

**Shubham Jadhav 221041048**

Name of the Guide

**Dr. M. M. Deshpande**


**Department of Computer Engineering**

**A. C. Patil College of Engineering**

**Kharghar, Navi Mumbai**

**University of Mumbai**

**(AY 2024-25)**

# CERTIFICATE

**This is to certify that the Mini Project (2B) entitled "**Food Delivery App**" is a bonafide work of Vaibhavi Andhale(01), Altamash Chougle(05), Yashashree Dhake(08), Shubham Jadhav(18)** submitted to the University of Mumbai in partial fulfillment of the requirement for the award of the degree of **"Bachelor of Engineering"** in **"Computer Engineering".**

**(Dr. M. M. Deshpande)**
Guide

**(Dr. M .M. Deshpande)**
Head of Department

**(Dr. V. N. Pawar)**
Principal

# Mini Project Approval

This Mini Project (2B) entitled **"Food Delivery App"** by **Vaibhavi Andhale(01), Altamash Chougle(05), Yashashree Dhake(08), Shubham Jadhav(18)** is approved for the degree of **Bachelor of Engineering** in **Computer Engineering.**

**Examiners**

**1……**
(Internal Examiner Name & Sign)

**2……**
(External Examiner name & Sign)

Date:

Place:

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# ABSTRACT

The **Food Delivery App** is an Android-based application developed using Code, aimed at providing a convenient and efficient platform for users to order food from local restaurants. The app facilitates seamless interaction between customers, restaurants, and delivery personnel. Customers can browse restaurant menus, place customized orders, make secure payments, and track deliveries in real-time. Restaurants can manage orders and update menu items, while delivery partners receive delivery tasks and navigation assistance through the app. The application leverages native Android components and integrates essential notifications, and secure transactions to ensure a smooth and responsive user experience. This project addresses the growing demand for contactless food delivery services, enhances user convenience, and supports local businesses by expanding their digital presence.

# ACKNOWLEDGMENTS

If words are considered as a symbol of approval and token of appreciation then let the words play the heralding role expressing our gratitude. The satisfaction that accompanies the successful completion of any task would be incomplete without the mention of people whose ceaseless cooperation made it possible, whose constant guidance and encouragement crowns all effort with success. We are grateful to our guide **Dr. M. M. Deshpande** for the guidance, inspiration and constructive suggestions that were helpful to us in the preparation of this project.

# 1.INTRODUCTION

## 1.1 Introduction

- In today's fast-paced lifestyle, convenience and speed are key factors that influence consumer behavior. The rapid growth of smartphones and mobile applications has transformed the way people access everyday services, including food delivery. This project presents a Food Delivery App developed using Code, which aims to simplify the process of ordering food from nearby restaurants and having it delivered to users quickly and efficiently.

- The app serves as a bridge between customers, restaurants, and delivery personnel. It allows users to explore restaurant menus, place orders, make payments, and track their deliveries in real-time — all from the comfort of their smartphones. For restaurant owners, the platform provides a simple interface to manage orders and update their listings. Delivery personnel are equipped with tools for receiving delivery tasks, viewing customer locations, and navigating optimized routes.

- The application is designed with a user-friendly interface and built using native Android components to ensure high performance and responsiveness. It is supabase for authentication and database storage (if used), and secure payment gateways. The goal is to offer a reliable, efficient, and enjoyable food ordering experience while supporting local food businesses and creating job opportunities for delivery workers.

## 1.2 Motivation

- The idea for developing a Food Delivery App was inspired by the growing demand for convenient and efficient online food ordering solutions, especially in urban areas where people often have busy schedules and limited time for cooking or dining out. With the increasing penetration of smartphones and internet connectivity, users now prefer services that offer speed, ease of access, and reliability — all from the comfort of their homes.
- The COVID-19 pandemic further accelerated the shift toward digital food services, highlighting the importance of contactless delivery and online ordering systems. Many small and local restaurants struggled to reach customers during this time due to a lack of digital presence. This app aims to address that gap by providing a platform where even small eateries can showcase their offerings and reach a wider audience.
- From a developer's perspective, this project also serves as a valuable learning experience in mobile app development using code. It brings together multiple technical components such as user interface design, real-time data handling and database management — offering a comprehensive insight into building a fully functional and user-oriented mobile application.

## 1.3 Problem Statement & Objectives

### Problem Statement

In today's digital age, the demand for quick and convenient food delivery services has significantly increased. However, many customers still face challenges such as limited restaurant options, inconsistent order tracking, delayed deliveries, and lack of real-time updates. At the same time, small and medium-sized local restaurants struggle to maintain a digital presence and reach a wider customer base. There is a need for a user-friendly, efficient, and reliable food delivery system that can bridge the gap between customers, restaurants, and delivery personnel through a single platform.

### Objectives

1. To develop a user-friendly Android application that allows customers to browse restaurant menus, place orders, and make secure payments.
2. To provide real-time order tracking for customers, improving transparency and user satisfaction.
3. To enable restaurants to manage menus and orders efficiently through a dedicated backend or interface.
4. To assist delivery personnel with order updates, delivery addresses, and optimized management system.
5. To support small and local restaurants in gaining visibility and expanding their customer reach through digital means.
6. To ensure data security and user privacy through proper authentication and secure data handling practices.
7. To design the app using native Android components for performance, scalability, and maintainability.

## 1.4 Organization of the Report

**Chapter 1:**

This Chapter include Initiation of this project where we will analyze Problem, Project Motivation & Objective. This will be further categorized as:

**1.Introduction**

**2.Motivation**

**3.Problem Statement**

**4.Objective**

**Chapter 2:**

This Chapter is all about the analysis of existing systems, the problems and flaws of this system, the reference we used to make this project and further reading. This will be further categorized as:

**1. Survey of existing system**

**2. Limitation Of existing system**

**Chapter 3:**

Here, we analyze the architecture and the implementation of our software, it also looks at the possible obstacles and the actual obstacles faced along with our test runs and conclusion. This will be further categorized into:

**1. Introduction**

**2. Architecture/framework**

**3. Algorithm of application**

**4. Details on software and hardware used**

**5. Test criteria**

**6. Test result**

**7. Conclusion**

**8. Further work**

# 2.LITERATURE SURVEY

## 2.1 Survey of Existing System

Several food delivery applications currently dominate the market, offering a variety of services aimed at connecting users with nearby restaurants and ensuring timely delivery of meals. A survey of these existing systems helps identify common features, user expectations, and gaps that can be improved upon in the proposed app.

**1. Swiggy**
Swiggy is one of India's largest food delivery platforms. It provides a smooth user interface with features like real-time order tracking, multiple payment options, scheduled delivery, and restaurant ratings. However, Swiggy charges a high commission from restaurants, which can be a burden for smaller food outlets.

**2. Zomato**
Zomato offers a combination of food delivery and restaurant discovery. Users can read reviews, view photos, and check ratings before placing orders. It also supports contactless delivery and in-app chat support. Despite its popularity, Zomato can be overwhelming due to its many features, which may not be necessary for all users.

**3. Uber Eats *(Note: merged with Zomato in India)***
Uber Eats was known for its clean UI, multiple delivery options, and integration with the Uber ecosystem. Its global presence helped tourists access food delivery easily. However, its operational challenges in India led to its merger with Zomato, showing the need for better local optimization.

**4. Dunzo**
While primarily a delivery service for groceries and daily needs, Dunzo also delivers food from selected restaurants. It focuses on hyperlocal deliveries and fast service. Its food segment is limited compared to Swiggy or Zomato, but it offers a unique approach to multipurpose delivery.

**Key Takeaways from the Survey**

- **Common Features:** Real-time order updates, order history, restaurant management, and customer support.
- **Pain Points:** High commissions for small restaurants, occasional delivery delays, and app complexity for non-tech-savvy users.
- **Opportunities for Improvement:**
    - A lightweight, user-friendly interface focused on speed and clarity.
    - Better support for local or small-scale food vendors.
    - Custom features such as pre-ordering, loyalty programs, or region-specific language options.
    - A fair management-based system for restaurant partners.

## 2.2 Limitation Of Existing System

Despite the popularity and widespread use of current food delivery platforms such as Swiggy, Zomato, and others, they still face several limitations and challenges that leave room for improvement. These limitations provide an opportunity for the development of a more optimized and inclusive solution.

**1. High Commission Charges**
Most existing platforms charge significant commissions (ranging from 20% to 30%) from restaurants, making it financially challenging for small or local eateries to sustain their presence on these platforms.

**2. Limited Support for Local Vendors**
Many small-scale or home-based food vendors are unable to join popular platforms due to strict requirements, complex onboarding processes, or high fees, leading to a lack of visibility for unique and local cuisines.

**3. App Complexity**
While feature-rich, existing apps can be overwhelming for some users, especially those who are not tech-savvy. Navigating through various sections like promotions, ratings, filters, and settings can be confusing.

**4. Delayed Deliveries During Peak Hours**
Most platforms struggle with timely deliveries during peak meal times or bad weather due to high demand and limited delivery personnel, resulting in a poor user experience.

**5. Limited Personalization**
Although some apps offer suggestions, most lack deep personalization based on user preferences, dietary needs, or order history beyond basic recommendations.

**6. Lack of Offline Accessibility**
These apps require constant internet connectivity to function. Users with limited or unstable internet access cannot place or track orders, creating a digital divide.

**7. Insufficient Customer Support**
In many cases, the resolution of issues such as incorrect orders, delayed delivery, or refund requests is slow or unresponsive, leading to customer dissatisfaction.

**8. Data Privacy Concerns**
With the increasing use of personal and financial data, existing platforms may pose privacy concerns if proper encryption and data protection measures are not implemented or made transparent to users.

# 3.PROPOSED SYSTEM

## 3.1 Introduction

To overcome the limitations identified in the existing food delivery platforms, this project proposes the development of a Food Delivery App using Code. The system is designed to provide a simple, efficient, and affordable platform that connects customers, restaurants, and delivery personnel within a unified ecosystem.

The proposed app focuses on creating a user-friendly interface, ensuring smooth navigation for users of all age groups and technical backgrounds. Unlike traditional systems that heavily favor large restaurant chains, this app provides a more inclusive platform that supports small and local food vendors, helping them reach a broader customer base without incurring high commission fees.

One of the key highlights of the system is real-time order updates, allowing customers to monitor their food from preparation to delivery.

The application will be developed natively for Android using Java/Kotlin in Android Studio, ensuring better performance and deeper integration with Android devices. It may optionally use supabase for backend services, authentication, and database storage, depending on scalability needs.

**The proposed system aims to offer:**

- Simplified food ordering
- Fast and reliable deliveries
- Low-cost digital solutions for small restaurants
- Better user engagement through personalized features

  By focusing on user convenience, fairness to vendors, and reliable delivery logistics, the proposed system intends to create a more balanced and accessible food delivery experience for all stakeholders.

## 3.2 Architecture/Framework

**Client Side (Web Application)**

1. User Interface Layer

- **Technologies Used**: HTML, TypeScript, with a modern frontend framework such as **Vue.js** or **React**.
- **Styling**: Tailwind CSS is utilized for responsive and utility-first styling.
- **Component Libraries**: Likely includes libraries like **Shadcn UI** (inferred from presence of components.json).
- **Responsibilities**:
  - Displays dynamic content including product listings, user profiles, order forms, search results, etc.
  - Provides a seamless and interactive user experience.
- **Hosting**: Served via **Firebase Hosting** or as defined in apphosting.yaml.

2. Business Logic Layer

- **Functionality**:
    - Handles user input validation and state management.
    - Manages application logic, user interactions, and component lifecycle methods.

- **State Management**: Likely utilizes **Vuex/Pinia** (Vue) or **React Context/Redux** (React).
- **Architecture**: Adheres to component-based architecture practices common in modern frontend development.

3. Data Layer

- **Primary Interface**: Interacts with backend services using the **Firebase SDK**.
- **Storage**:
    - Firestore for real-time data operations.
    - Local storage or session storage may be used for client-side caching or persistence.

**Server Side (Firebase Backend)**

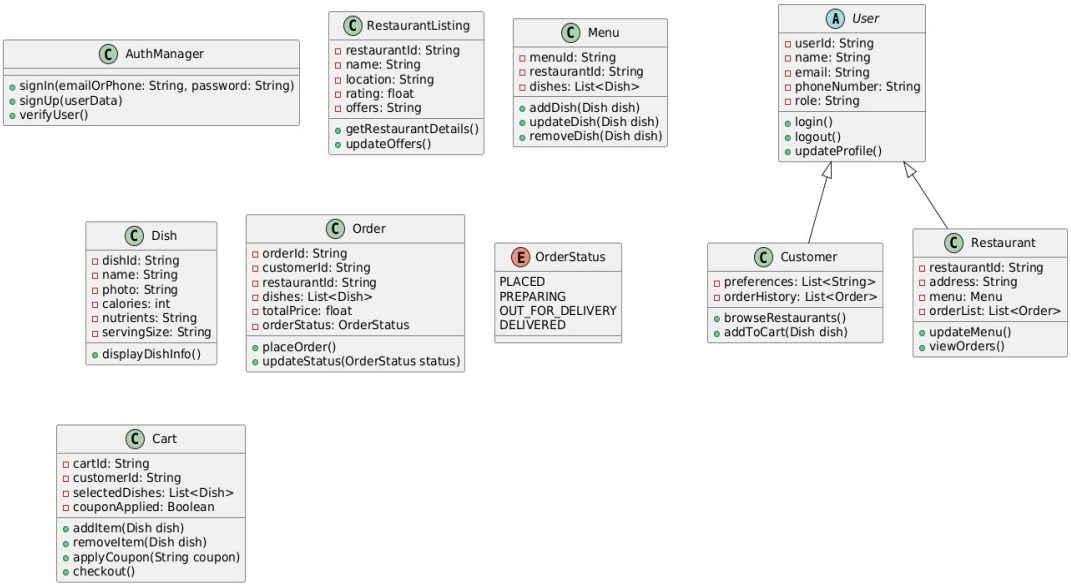
**1. Backend Services**

- **Cloud Functions** (functions/):
    - Handles complex server-side logic and privileged operations.
    - Supports HTTPS endpoints and responds to Firebase-triggered events.
    - Can integrate with third-party APIs (e.g., payments, AI).
- **Firestore**:
    - Serves as the primary NoSQL database for:
        - User data
        - Product details
        - Orders and reviews
    - Access control is governed by firestore.rules.
- **Firebase Storage**:
    - Manages media files like product images and profile pictures.
    - Access control is managed via storage.rules.
- **Firebase Authentication**:
    - Provides secure user registration, login, and session handling.

**2. Authentication & Security**

- **Authentication**: Managed through **Firebase Authentication**.
- **Authorization**: Enforced through:
    - firestore.rules for database access
    - storage.rules for file storage access

## 1.1 Case Diagram




## 1.2 Sequence Diagram

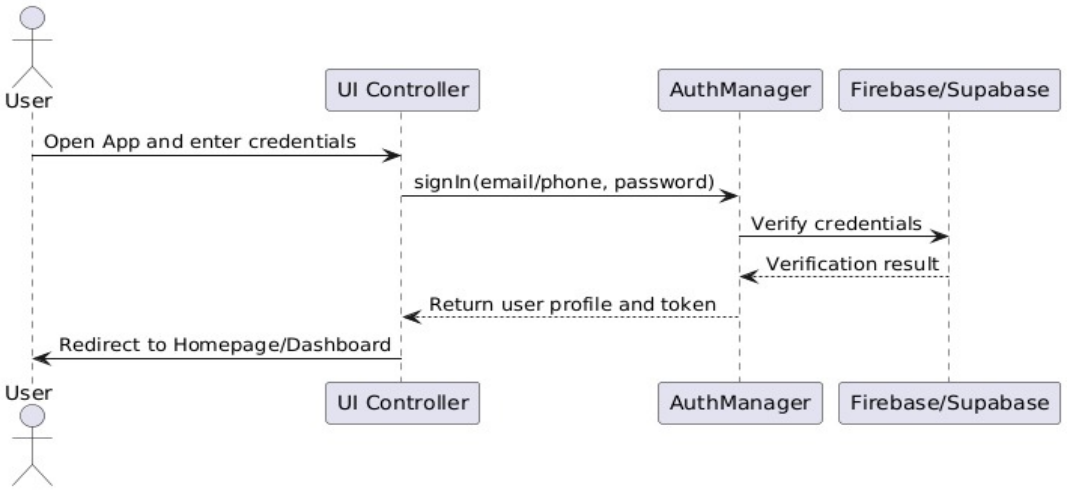



Fig: sequence diagram login side

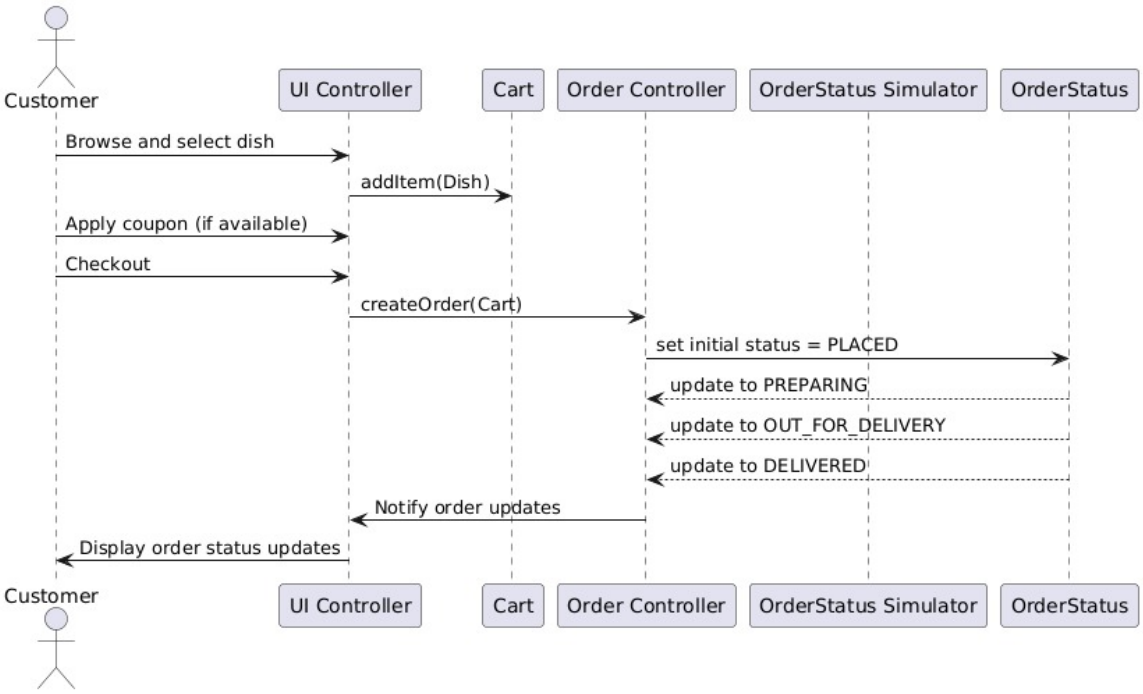
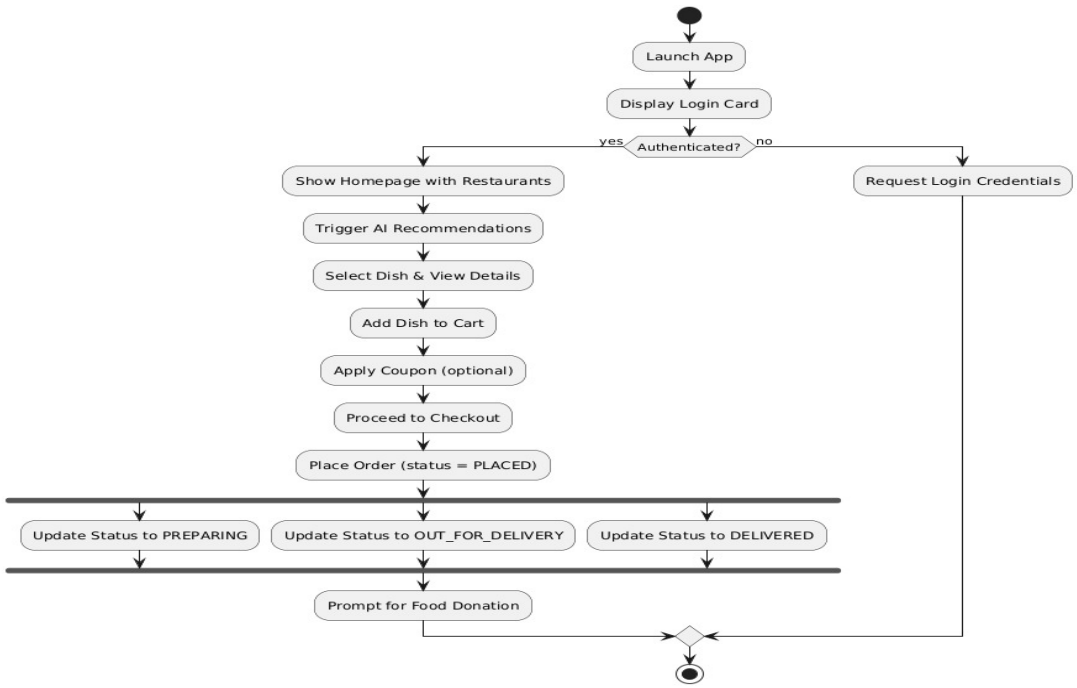
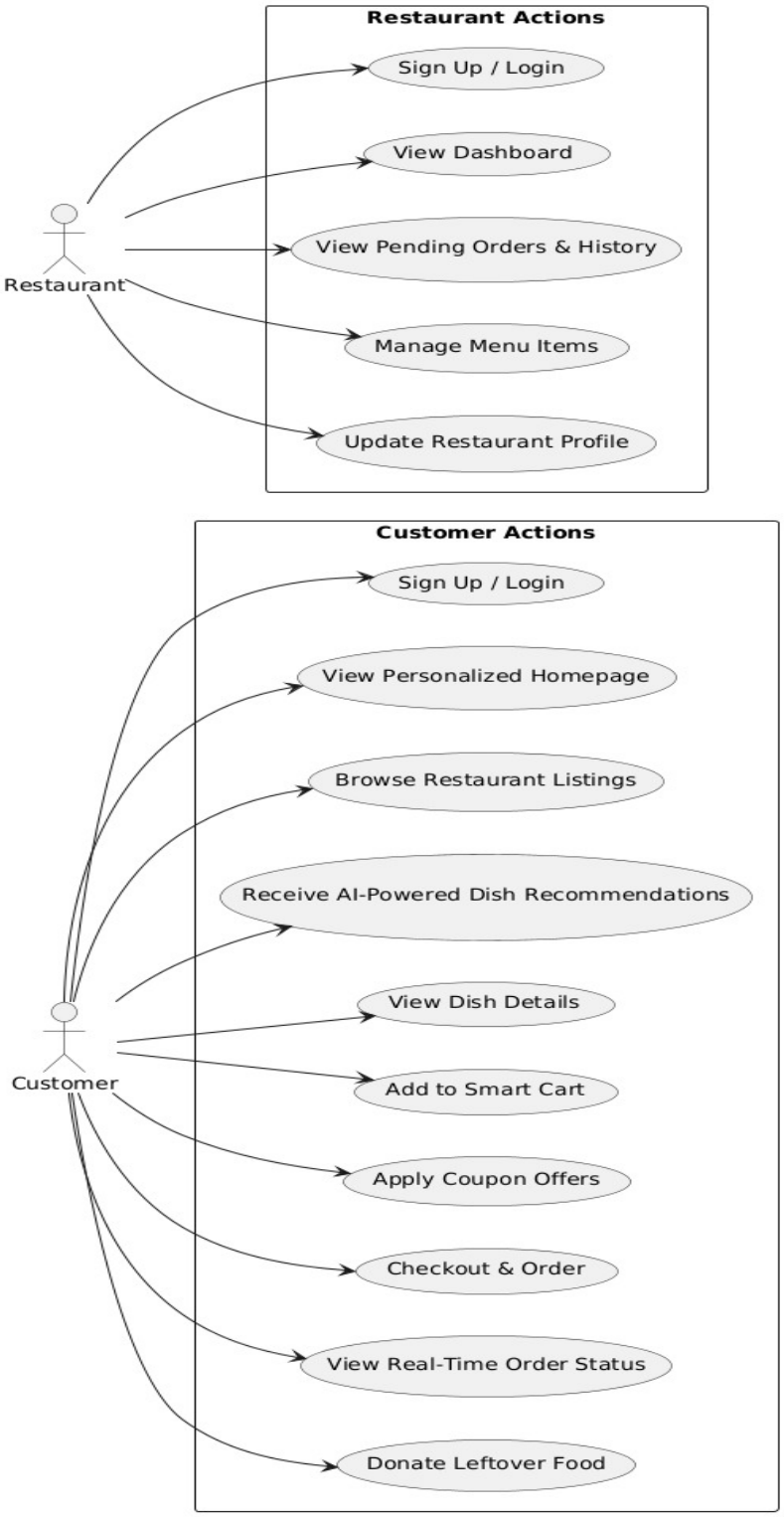



Fig: sequence diagram order side

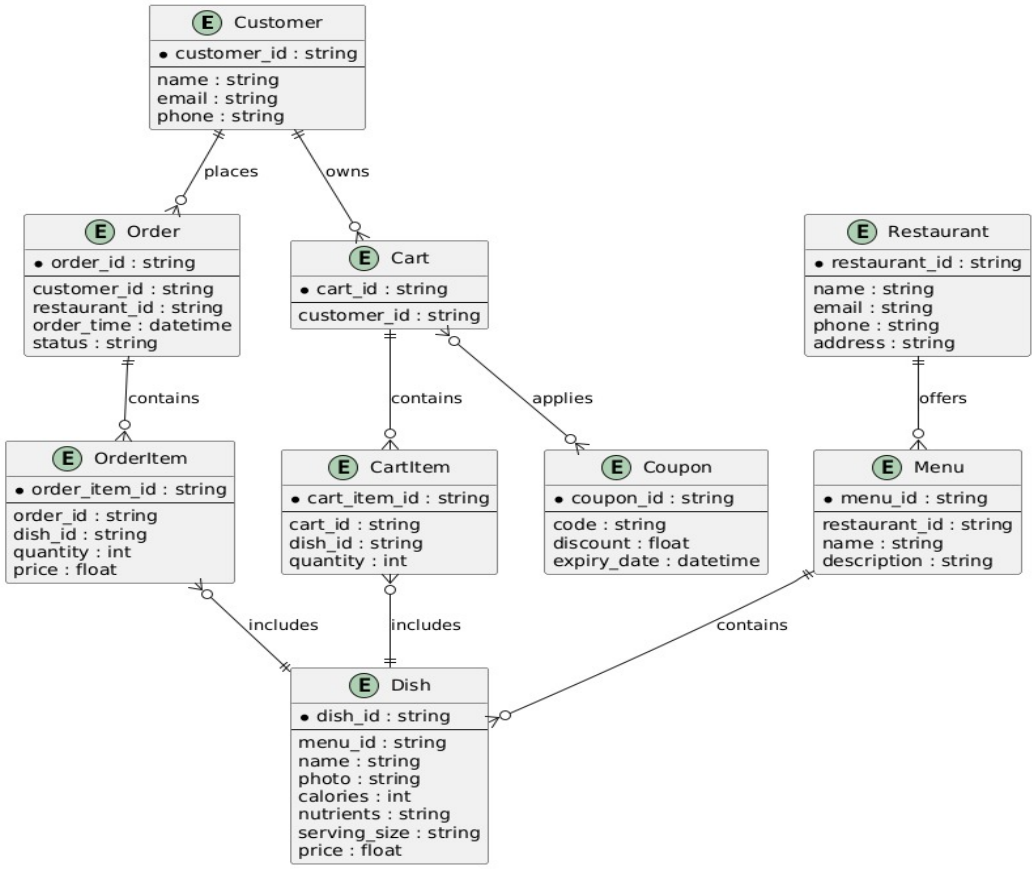
1.3 Activity Diagram



1.4 Use Case Diagram



1.5 Entity Relationship Diagram



## 3.7 Experiment and Results

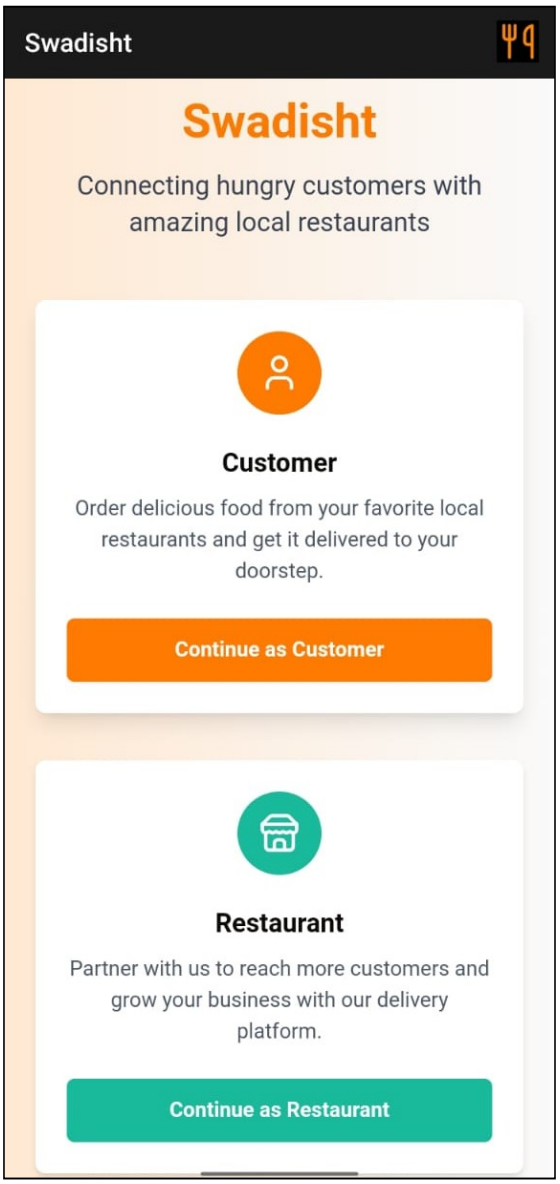



Fig. Initial User Interface

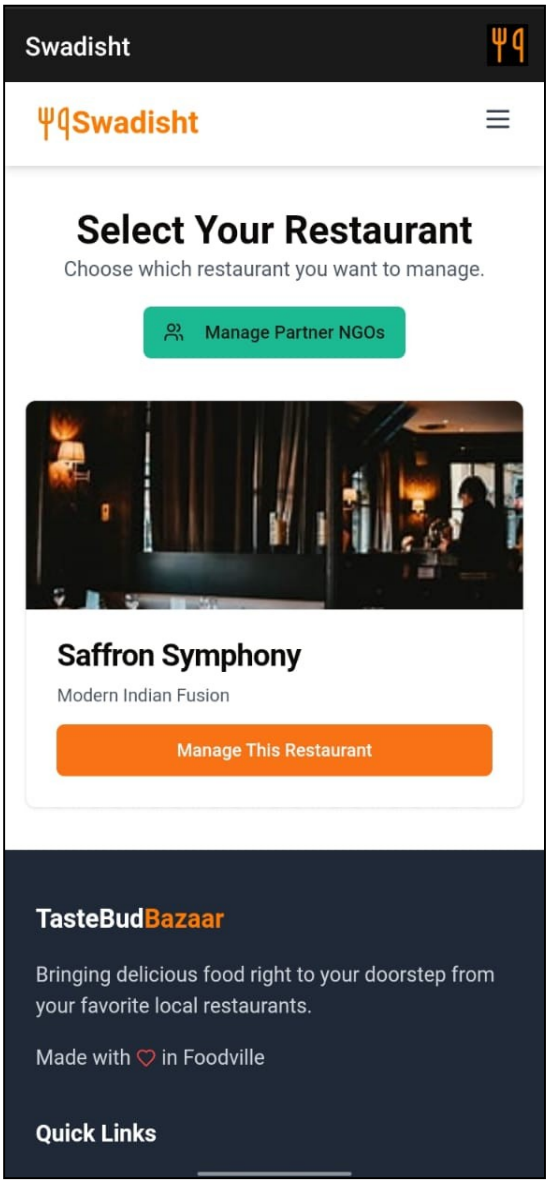



Fig. Admin Front Page

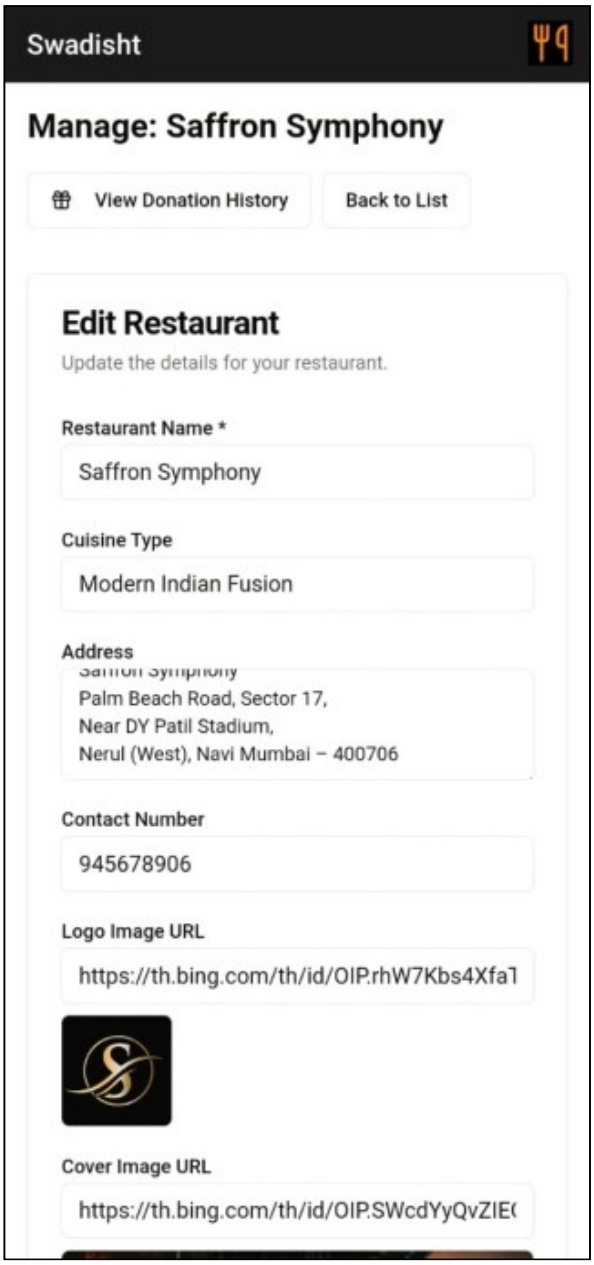



Fig. Add Restaurant

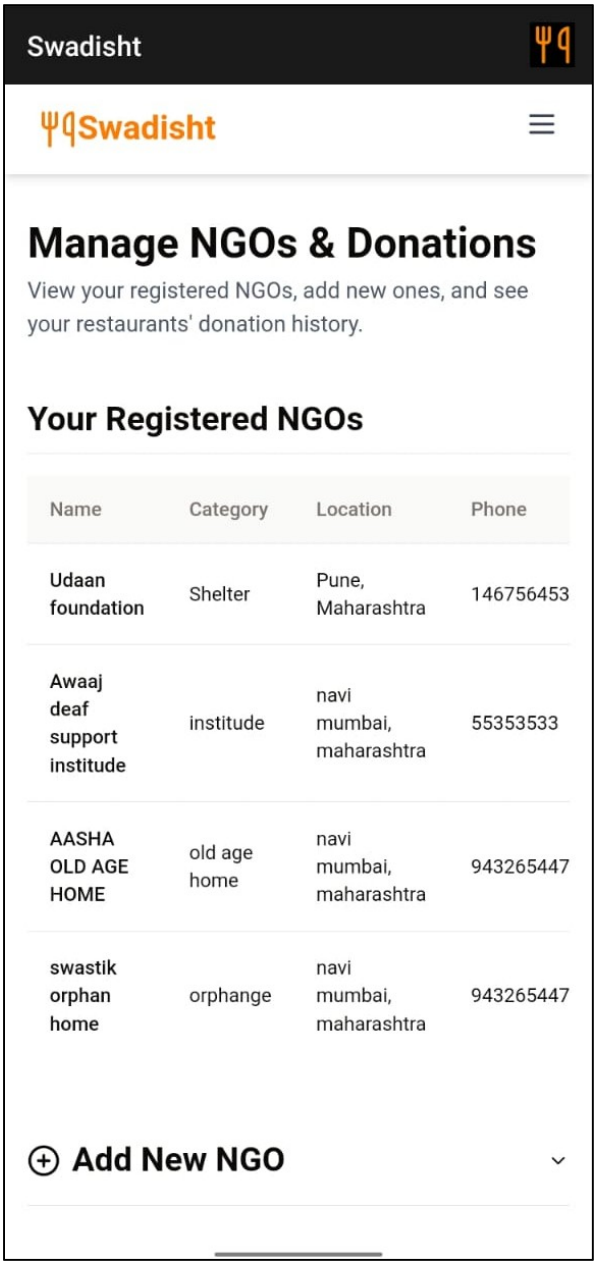



Fig.Manage NGOs

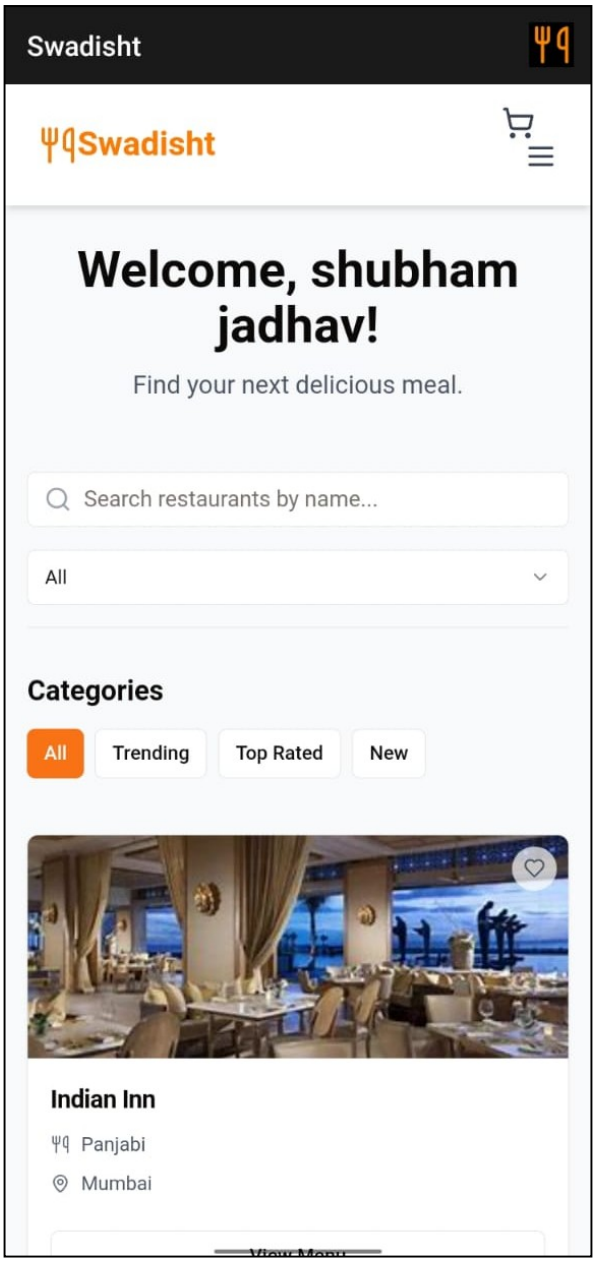



Fig. User Restaurant

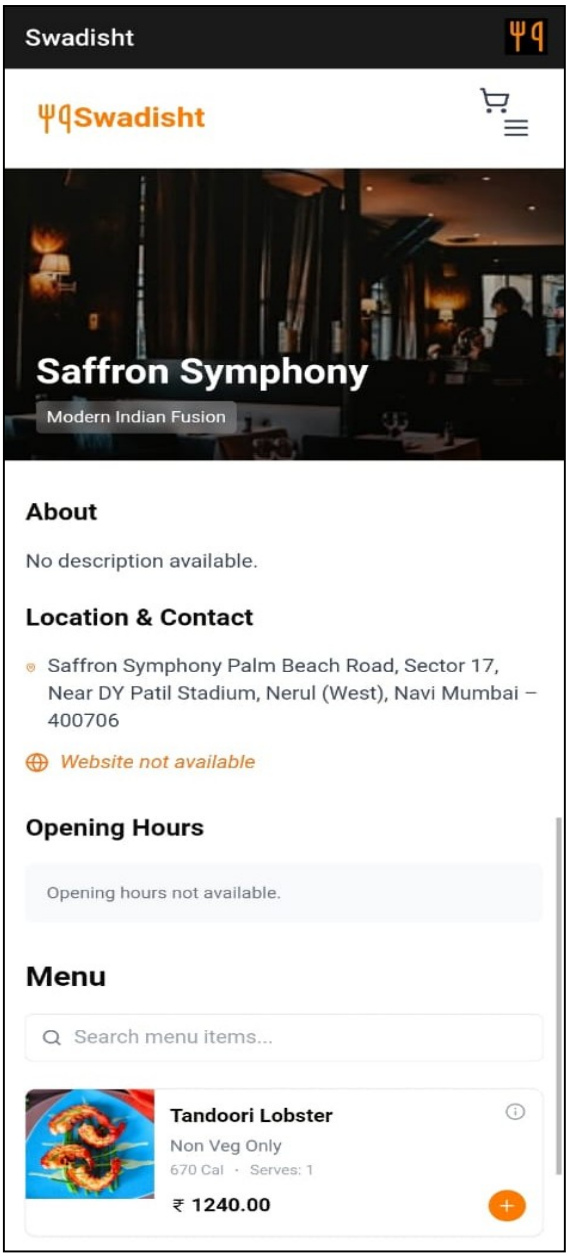



Fig. Restaurant & Menu

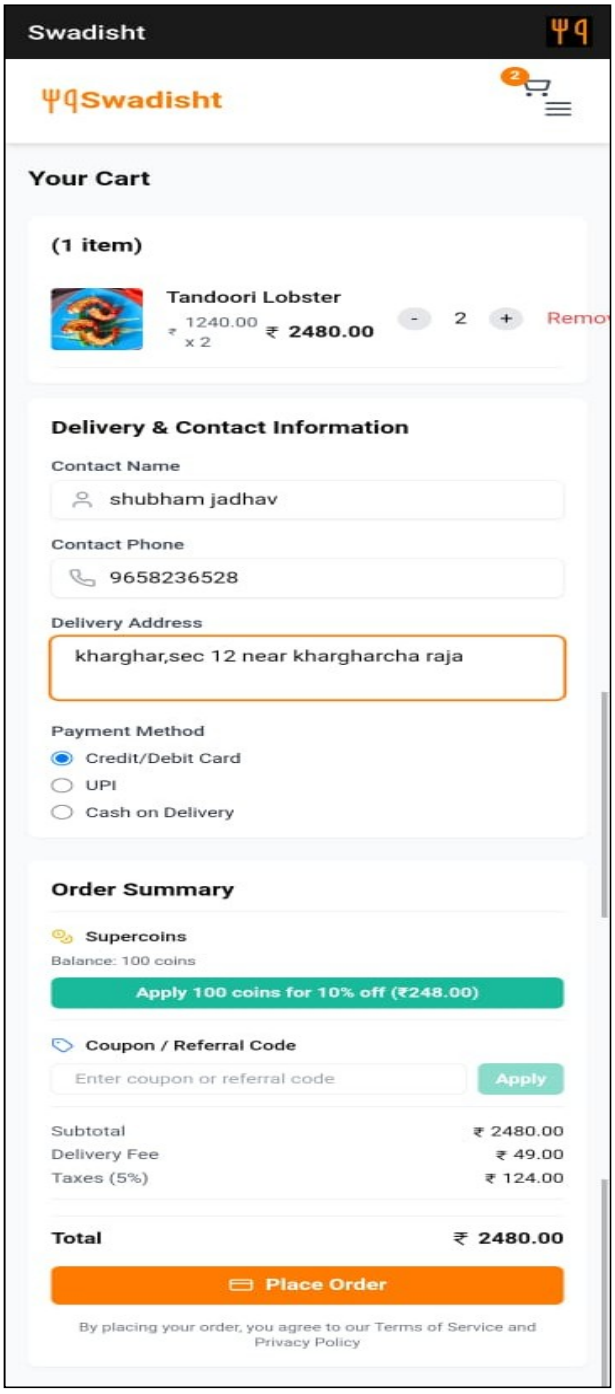



Fig. Order Checkout

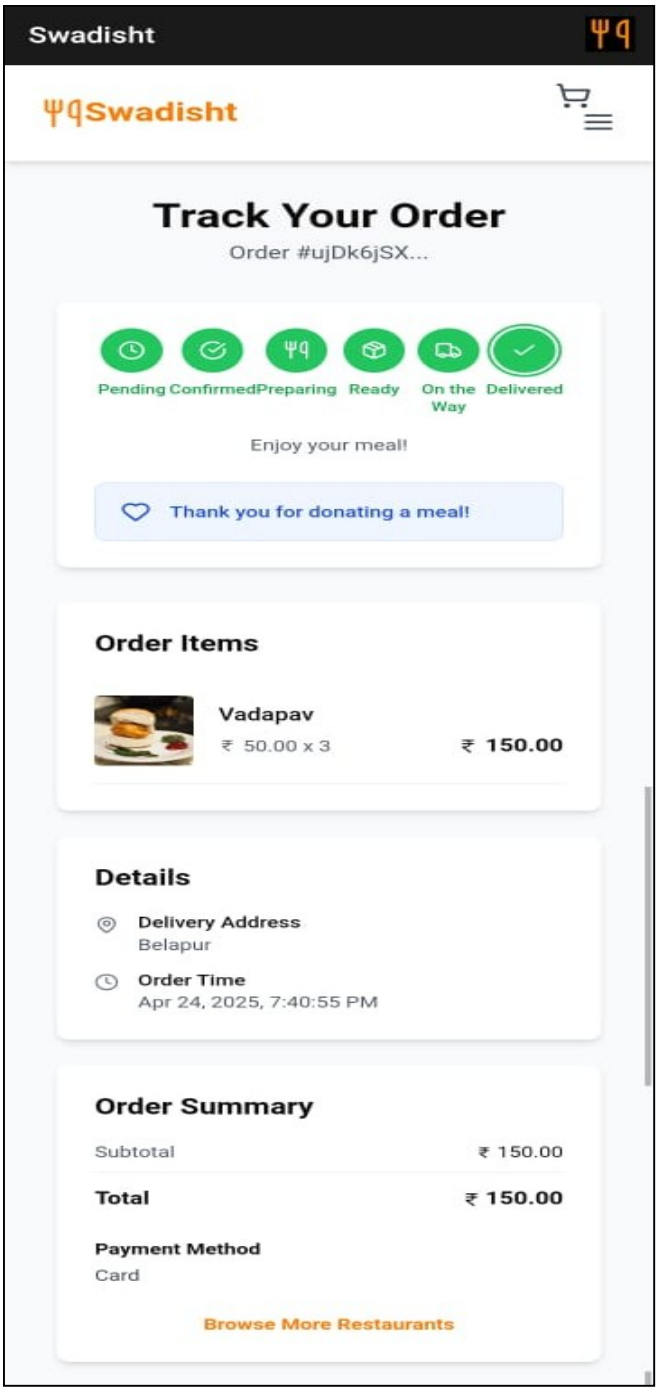



Fig. Track Order & Details

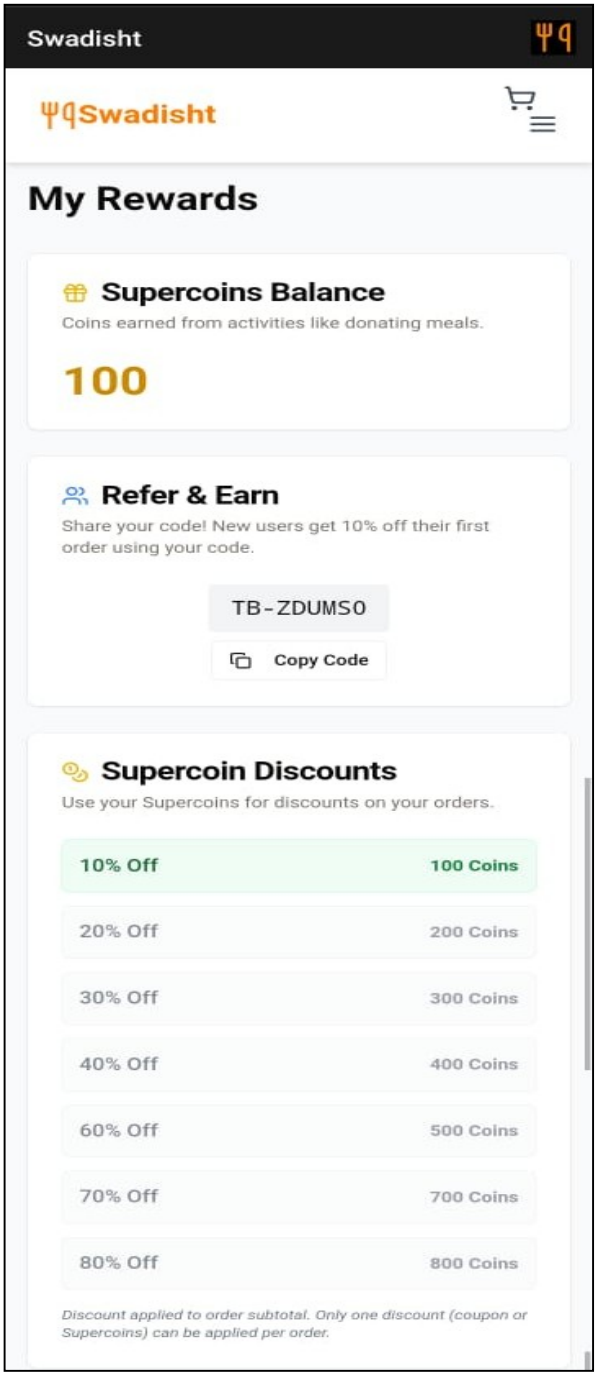



Fig. Reward Section

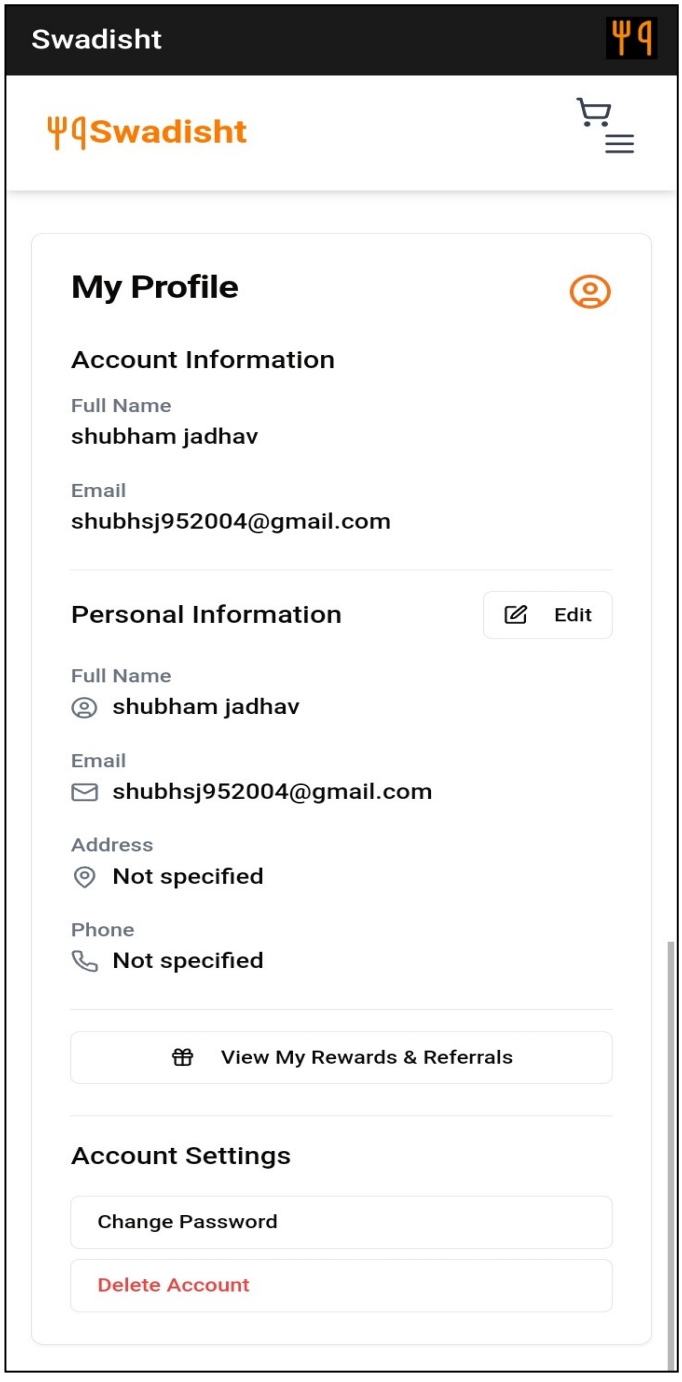



Fig. User Profile

## 3.7 Conclusion and Future work.

### Conclusion

- The Food Delivery App developed using Android Studio successfully addresses the need for a user-friendly, efficient, and affordable food ordering and delivery platform. By connecting customers, restaurants, and delivery personnel within a single system, the app simplifies the process of browsing menus, placing orders, making payments, and tracking deliveries in real-time.
- The system is designed with a clean and intuitive user interface, ensuring ease of use for a wide range of users. It also supports local vendors by offering them a digital presence without the high commission fees typically associated with existing platforms. The use of native Android development tools and integration of services such as Google Maps and Firebase helps ensure high performance, scalability, and reliability.
- Overall, the app meets its objectives of improving accessibility, streamlining food delivery logistics, and enhancing user satisfaction through a smooth and responsive experience.

### Future Work

While the current version of the app provides a strong foundation, there are several enhancements that can be implemented in the future:

1. **AI-based Food Recommendations**
   Integrate machine learning to suggest food items based on user preferences, order history, and dietary patterns.

2. **Multi-language Support**
   Add regional language options to improve usability for non-English-speaking users.

3. **Web-Based Admin Dashboard**
   Develop a companion web app for restaurants and delivery partners to manage orders and menus more efficiently.

4. **Wallet and Loyalty Programs**
   Implement in-app wallet functionality, reward points, and discount coupons to retain customers and increase engagement.

5. **Voice-Based Search and Ordering**
   Allow users to interact with the app using voice commands for a more hands-free experience.

6. **Advanced Delivery Optimization**
   Use GPS and route optimization algorithms to assign deliveries more efficiently and reduce delivery times.

7. **Offline Access and Caching**
   Enable users to view previously accessed menus and place orders even with limited or no internet connectivity, which get synced later.

8. **Security Enhancements**
   Implement end-to-end encryption and advanced security measures to protect sensitive user and transaction data.

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