

The Clean Plate: An Online Food Ordering System
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This Report Presented in Partial Fulfillment of the Requirements for the Degree of Bachelor of Science in Computer Science and Engineering.

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APPROVAL

This Project titled “**The Clean Plate**”, submitted by Eshakur Rahman, ID: 182-15-11725, Pranoy Chandra Kuri, ID: 181-15-10819 and Md. Atikul Islam, ID: 171-15-8910 to the Department of Computer Science and Engineering, Daffodil International University, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on 13/09/2022.

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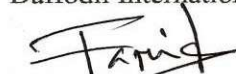


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DECLARATION

We hereby declare that, this project has been done by us under the supervision of **Md. Tarek Habib, Assistant Professor, Department of CSE** Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

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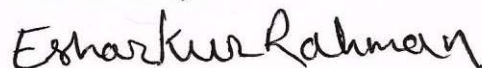
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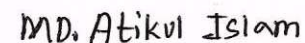
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Finally, we must acknowledge with due respect the constant support and patients of our parents.

ABSTRACT

The most important motive of Online Food Ordering System is to automate the present guide machine with the aid of using the assist of automated gadget and full-fledged laptop software, satisfying their requirements, simply so their treasured data/records may be saved for an extended duration with smooth getting access to and manipulation of the Through those offerings eating places can promote and distribute their sources at minimum aid utilization efficiently with the aid of using gaining the accept as true with of the clients. This Online meals order machine database can be useful for the commercial enterprise proprietors to growth their commercial enterprise simply with the aid of using putting the orders on line and now no longer travelling the eating place. There isn't any capability, for putting and receiving the orders, because the order may be located on line. There will be no waiting time with the good sized quantity of verities at the comfortable prices. To broaden this software database is the primary component so that it will talk thru the equipment to retrieve the details. we will be developing the Online meals ordering database with firebase as a platform. Database consists of Customers can region their orders from distinctive meals classes and eating place team of workers will system the orders and supply the asked order with an anticipated shipping time, and asking the consumers for the opinions and relies upon at the order amount offering the rewards to the clients wherein they are able to declare moneys.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

The "Online Food Ordering System" has been developed to unravel the problems prevalent in the practicing manual system. This software is employed to extract and, in some cases, reduce the hardships faced by this running system. Moreover, this technique is designed for the particular need of the company to carry out operations in a bland and fruitful manner. The application is reduced as much as possible to avoid errors while entering the data. It also provides error message while putting invalid data. No lesson knowledge is required for the user to use this system. Thus, by this all it proves it's user-friendly. Online Food Ordering System, as described above, can lead to error free, secure, reliable and fast management system. It can assist the user to consider their other activities rather to concentrate on the record keeping. Thus, it will help organization in better utilization of resources. Every organization, whether big or small, has challenges to beat and managing the information of Category, Food Item, Order, Payment, Confirm Order. Every Online Food Ordering System has different Food Item needs; therefore, we design exclusive employee management systems that are adapted to your managerial requirements. This meant to assist in strategic planning and will help you ensure that your organization is equipped with the right level of information and details for your future goals. Also, for those busy executives who are always on the go, our systems come with remote access features, which can allow you to manage your workforce anytime, at all times. These systems will ultimately allow you to raised manage resources.

1.2 Objective

We want to broaden a machine in which clients can order meals online. There may be meals for different items and a listing of components and expenses for his or her most important path in conjunction with snap shots of the meals. There may be a separate facet for every object and meals lists may be to be had on that facet. Each meal may be exceptional and if the consumer selects the meals of his/her choice, there may be complete information of the meals. Set a few objectives. Without any goals, we cannot get here up with right outcomes. The goal of our software are-

- Help to the consumer all around us easily.
- Each consumer may have an account and may replace their interest and availability.
- Anyone inquisitive about food order may be part of this software.
- There may be a newsfeed in which a person can choose restaurant for ordering different types of food.

1.3 Motivation

We will have all kinds of food in these apps. There will be food from Bangladeshi traditional food and different items from different Chinese restaurants. You can order according to the customer's demand and the price of the food will be fixed with the picture of the food. The menu of each restaurant will be provided, and the customer will confirm the order as per his choice.

Multi order system: The advantage of the multi-order system is that the customer can order food from several restaurants at the same time by paying only one delivery charge. (However, in this case, the customer must order a minimum of 120 tk.)

Pre-booking food and table: The advantage of pre-booking food and table is that the customer will place an order before going to the restaurant by pre-paying through online payment system and his/her meal will be served immediately after going to the restaurant and in this case, he will be able to decide which table he wants to choose. This will save a variety of time for the consumers.

1.4 Expected Outcome

Online ordering and meals transport have taken a large flip over the last few years. Setting up an internet ordering machine units up an eating place for efficiency, boom and a constant boom in revenue. Goals that we want to implement in the application. There are some expected outcomes of our application-

1. Food seeker will get the all-important information before he orders the food.
2. Get the convenient and satisfactory food order experience with listed restaurant.
3. The most important consumers order info.
4. Also available restaurant or organizations (app owner) contact/helpline info.
5. Authentication while login into the application.
6. Feedback from customers depends on their foods.

1.5 Report Layout

□ In the Report Chapter-1, we are discussing about the Introduction, objective, motivation, and project expected outcome, Report layout.

□ In the Report Chapter-2 we will present this project's "Background" and "Challenges". we will define the fields and challenges of the project.

□ In the Report Chapter-3, we will present Requirement Specification such as case diagram, logical data model, requirement collection and analysis.

□ In the Report Chapter-4, we will present Design Specification, Implementation requirements. Present Front-end and Back-end design.

□ In the report chapter - 5, we will present implementation and testing, implementation of database, interaction, testing, test results and report.

□ In Report Chapter-6, we presented the project's future deployment, conclusion, limitation.

Related references have been given at the end of the project.

CHAPTER 2 BACKGROUND STUDIES

2.1 Related works

There are some food delivery type apps on Google Play Store that Bangladeshi developer for Bangladeshi people develops. We have installed them and take a tour of this application to experience the features and how it works. Let's talk about some essential features and functionalities of that application. [1] „Food Panda“ is an android mobile-based application that is available on Google Play Store. The application is developed by the „Delivery Hero“. This app offers detailed information about a lot of areas and food delivery inside Bangladesh. When we use the application, we found that they also include important information about restaurant and food items. The application does not show anything without the internet. [2] „Hungry Naki“ is an android mobile-based application that is available on Google Play Store. The application is developed by „App brain“. This app offers detailed information about a lot of areas. After opening this application users have to permit the GPS to track the current location. After that when we use the application, we found that they also include important information about restaurant and different food items. This application is rated by 1M+ users. But the application does not show anything without the internet like the previous one.

2.2 Comparative Studies

After using the application, we find many interesting and important features which are useful for the food seekers. Features like –

- Almost every restaurant list.
- Information of where to find different items of food.
- Customers profile like – Customers name, address, mobile phone, email address, location

Those features are enough, if the food seeker wants to get food delivery. Still, when we used these applications we found some features are missing like –

- Simple account creating feature.
- Advice desk.
- No real time location tracking system.

- App user current location switch with his or her device mover from one area to another area
- No homemade food orders

2.3 Scope of the problem

In our application, we have wanted to overcome the lack of previously developed applications. We have created a system where a restaurant and food seeker create an account easily. After this procedure, a user can log in to the application and can see the main UI (User Interface) which is created for the user. As we wanted to save all the records for that we have used a database. We wanted to make sure that a food seeker can get all the major help in one place. To get the best restaurant we wanted to make sure they get everything within the application.

2.4 Challenges

Since there are a lot of food-related applications available it is kind of a challenge to develop them something that already exists. Competition for Android Application Development also getting higher day by day. Fierce competition is going on, the fight is going on also Android application development is infinite. We have to come to this struggling situation come up with new ideas or try to develop existing ideas in a better way. Otherwise, it will a development is a waste. We have thought of developing our application like the existing ones, so

We had to create some new features. It is common for every developer that whenever developers want to develop or implement

A system then they have to face some challenges. We develop to meet that challenge.

The applications are-

- Implementing the concept in a visual representation using diagrams
- Gathering authentic data before development
- Proper authentication when a user creates an account and tries to login in the application
- For convenient use of the application, we had to ensure that the app device compatible and fits every screen

CHAPTER 3

REQUIREMENT SPECIFICATION

3.1 Case Diagram:

Only static conduct isn't sufficient to model a system rather than dynamic conduct is more

important than static conduct. In UML, five diagrams available to model the

dynamic nature, and consequently the use case diagram is certainly one among them. Now as we've to debate that the usage case diagram is dynamic in nature, there should be some internal or external factors for creating the interaction.

These internal and external agents are mentioned as actors. Use case diagrams contain actors, use cases, and their relationships. This diagram is the best diagram, so that is employed to model the system/subsystem of an application. A single-use case diagram captures a specific functionality of a system.

Use case diagrams could be used for –

- Requirement analysis and high-level design.
- Model the context of a system.
- Reverse engineering.
- Forward engineer.

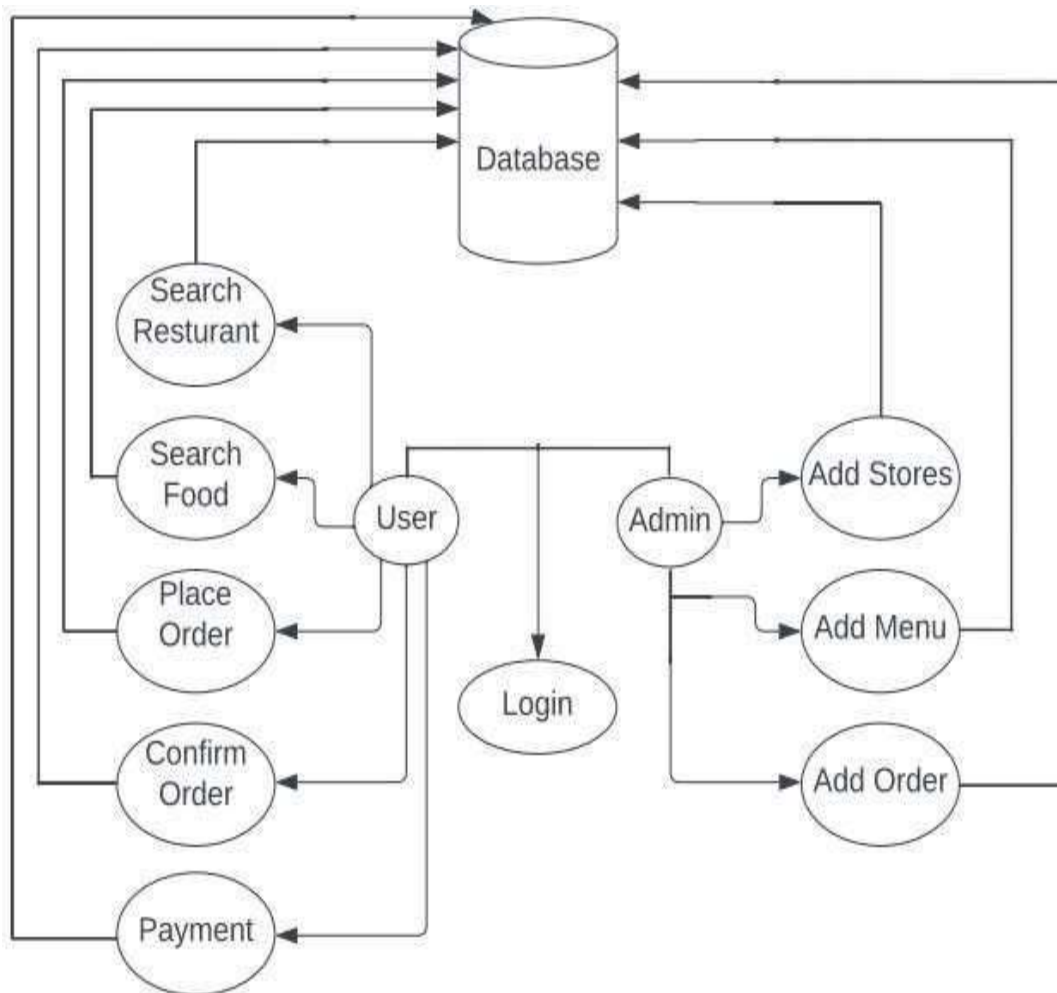


Figure 3.1.1: Use Case Diagram

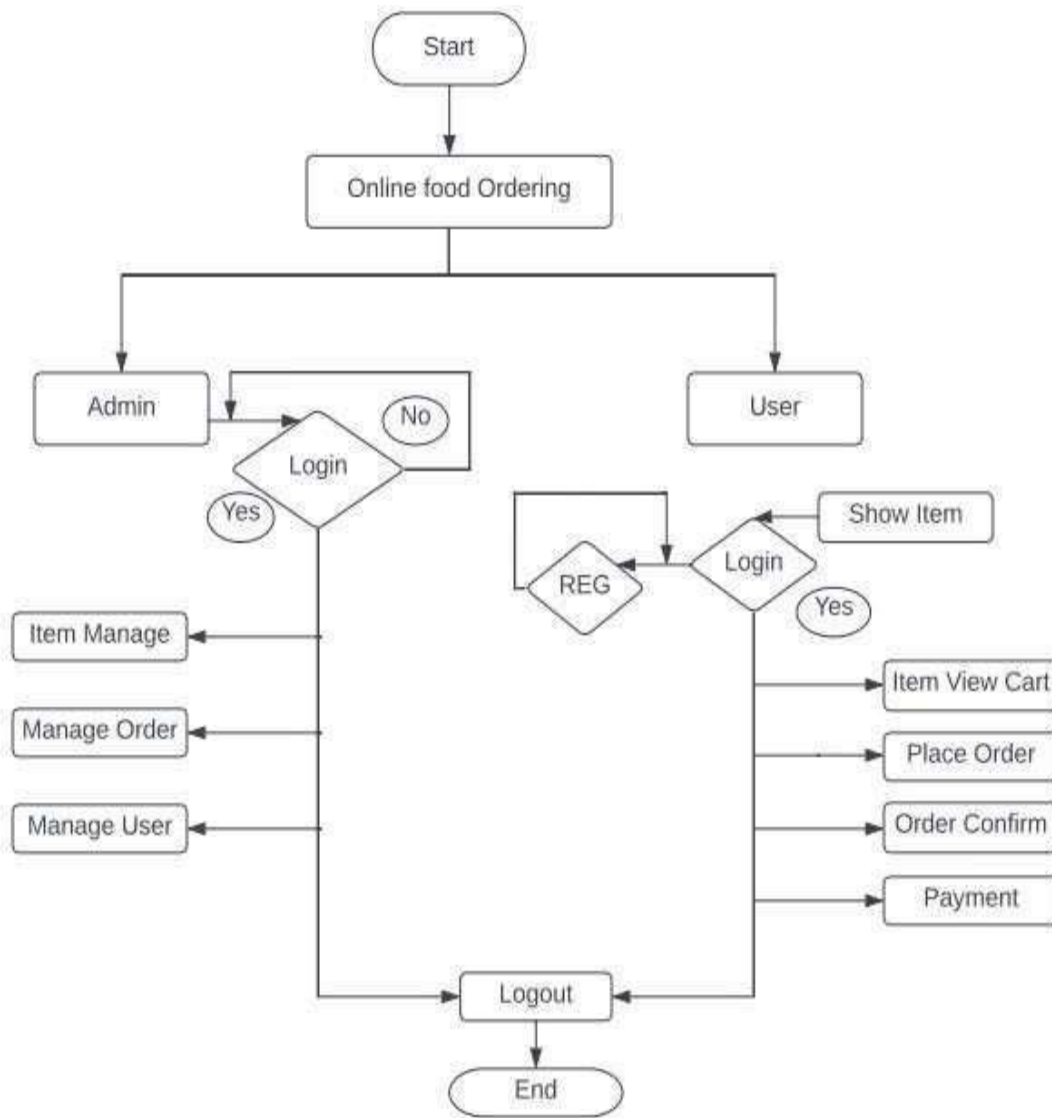


Figure 3.1.2 Work Flow of the system

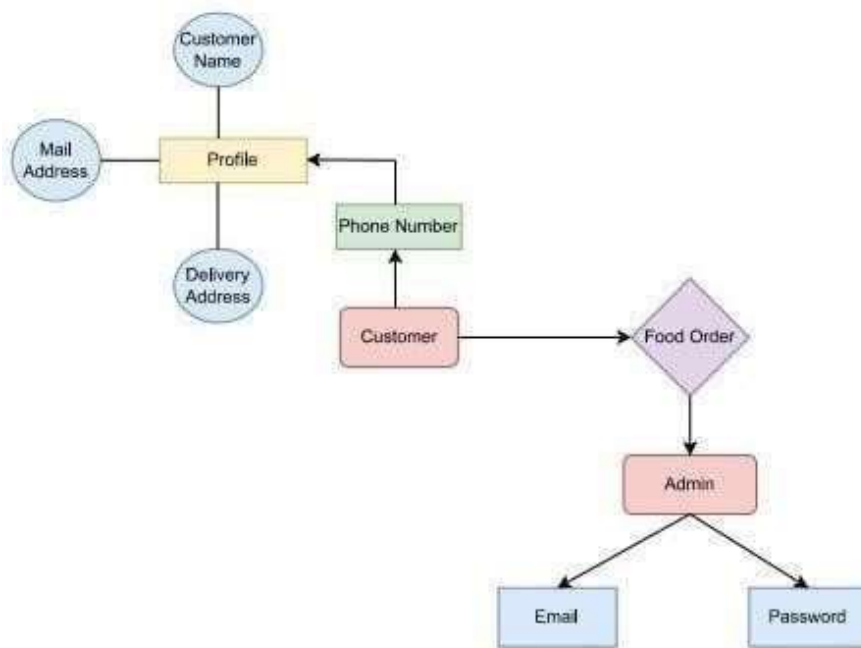


Figure 3.1.3 ER Diagram

Utilize case title	Login
Pre-Condition	Have to register
Actors	Users
Purpose	For user security
Main Flow	<ol style="list-style-type: none"> 1. Homepage will show login page first. 2. The system will be required for phone number 3. User has to enter require info 4. Click to next

Table 3.1.1: Use case for Login Function

Utilize case title	Create Profile
Pre-Condition	Null
Actors	First users for secure login to the app
Actors	Access to the application
Main Flow	<ol style="list-style-type: none"> 1. Homepage will show create profile button 2. System will require: <ul style="list-style-type: none"> . Name . Email Address . Delivery address 3. Users enters the required info 4. Click to create profile button

Table 3.1.2: Use case for User Create Profile

Utilize case title	Login
Pre-Condition	Must have login
Actors	Users
Purpose	Make request for food
Main Flow	<ol style="list-style-type: none"> 1. Go to home page 2. Press on restaurant icon 3. Then a user interface will appear 4. This will display <ul style="list-style-type: none"> . Restaurant name . Food menu . Food name . Location . Delivery time . Payment method 5. Users need to click on “place your order” button

Table 3.1.3: Use case for Make a Request for Food

Utilize case title	Login
Pre-Condition	Have to Login
Actors	Admin
Actors	Access to the application
Main Flow	<ol style="list-style-type: none"> 1. Homepage will show login as admin 2. System will require: <ul style="list-style-type: none"> . Email . Password 3. Click on login button

Table 3.1.4: Use case for Admin Panel Login

Utilize case title	Login
Pre-Condition	Must have login
Actors	Admin
Purpose	Accepting ordering food
Main Flow	<ol style="list-style-type: none"> 1. Go to homepage 2. Go to all orders 3. Accept the order

Table 3.1.5: Use case for Accept Ordering Food from Customers

Utilize case title	Logout
Pre-Condition	Must have login
Actors	User and Admin
Purpose	Logout or exit from the app
Main Flow	<ol style="list-style-type: none"> 1. Navigation will show logout button 2. Click on logout button

Table 3.1.5: Use case for Logout

3.2 Logical Data Model

-Security: For using this application client must have a checked record. Without a record, the client won't ready to log in to the framework. For this reason, the client likewise cannot access the highlights of the application given by engineers. We guarantee confirmed clients for this reason we have decent security.

- Availability: Framework will be accessible on Google Play Store with standard updates. As it is practically an online-based android application thus a few highlights may not be accessible during disconnected.

- Usability: The interface of our framework is extremely helpful, simple thus much basic. The application is pretty much easier to understand and less case delicate for eliminating unpredictability.

3.3 Requirement Collection and Analysis

We have utilized the Waterfall model as our framework improvement procedure. It is straight consecutive life cycle strategy. The effortlessness of this technique is exceptionally high and comprehend to use for engineers effectively.

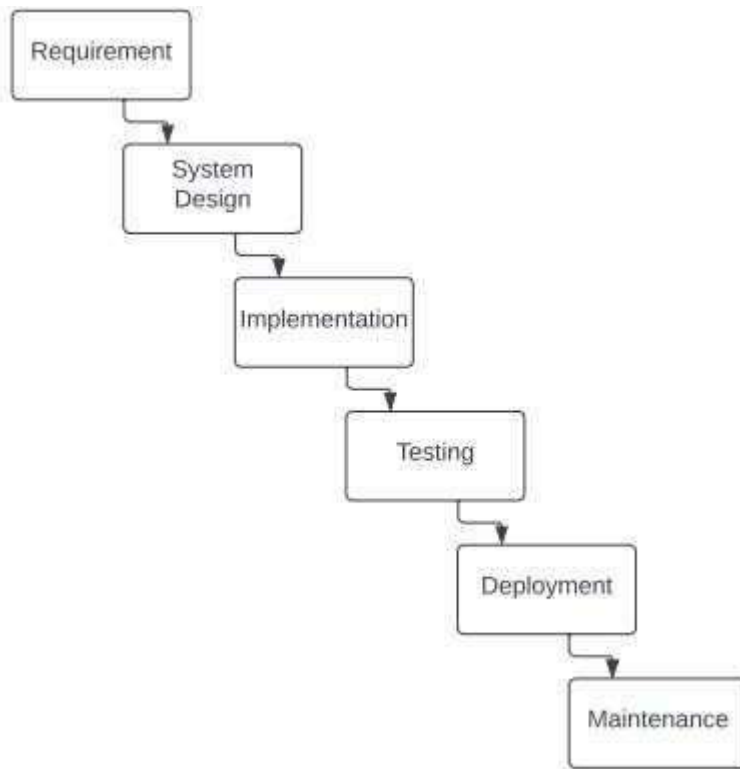


Figure 3.3.1 Waterfall Model

CHAPTER 4

DESIGN SPECIFICATION

4.1 Front-end Design

It is the user-side of an application. After starting an application, whatever the client sees in the front is the front-end design. The front-end of any website or application is the key thing that attracts the user as there are colored and stylish texts, beautiful buttons, scrolling and sliding pictures, navigation menu, and much more. Frontend developers have to work hard on the appearance, behavior, structure and content of an application according to the client's interest. The design part of any project is kind of tough to do as it depends upon user interest. From our point of view, the design part takes more time than the development part. As users interact the most with the frontend part of an application, it has to be designed beautifully and in a responsive way so that users are satisfied. Building an application in a responsive way means that, the application can be installed and used on all kinds of device and fits with the size of every screen. Along with the responsiveness, applications performance is also important. Both the responsiveness and performance needs to be stable for the application to work properly on any device.

For the front-end design we have used XML in our application. XML stand for Extensible Markup Language. As this is not a programming language, it is use to control presentation of data. With XML in android it is not that tough to design but it takes time. XML uses layout, view and view groups to make the designs. At first we have to create a root layout and inside the root layout, we can do all the implements. Implementation with Buttons, Text View to show texts, Edit Text to write texts, Image View to show the images, Web View to show the web pages, Fragments and more. To implement the view and view groups, XML uses tags. In XML, we can also write the tags just by drag and drop of the view and view groups. Users can see a beautiful interface after doing all of the design in XML

Table 4.1.1: List of application pages

1	Next Page
2	Create Profile
3	Homepage
4	Navigation bar
5	Restaurant page
6	Food items page
7	Cart page
8	Check Out page
9	Order Submitted page
10	Logout

4.1.1 Next or Login page: Below picture is our Next or sign in interface. Here, user can sign in to the app using their log in credentials.



Figure 4.1.1: Next/Login page

4.1.2 Create Profile page: Here a new user can register for an account giving their proper information. Here a user must provide name, email and their delivery address.

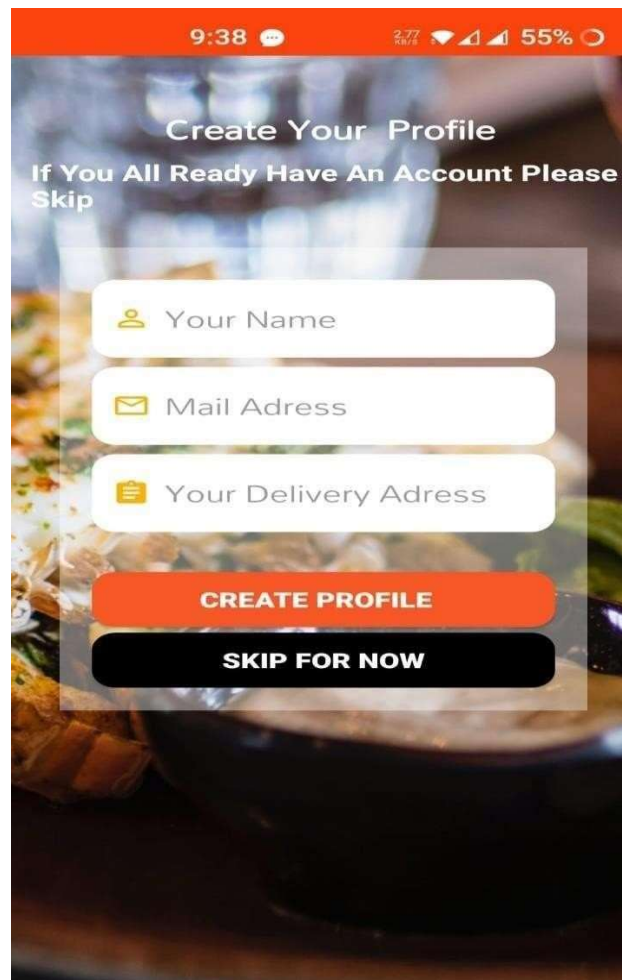


Figure 4.1.2: Create Profile Page

4.1.2 User Dashboard: Here we can see some icon and name of feature.

All- It's showing all restaurant names and other homemade foods names

Restaurants- Here it's showing restaurant's names

Homemade- It's showing the foods which made at home and sell here

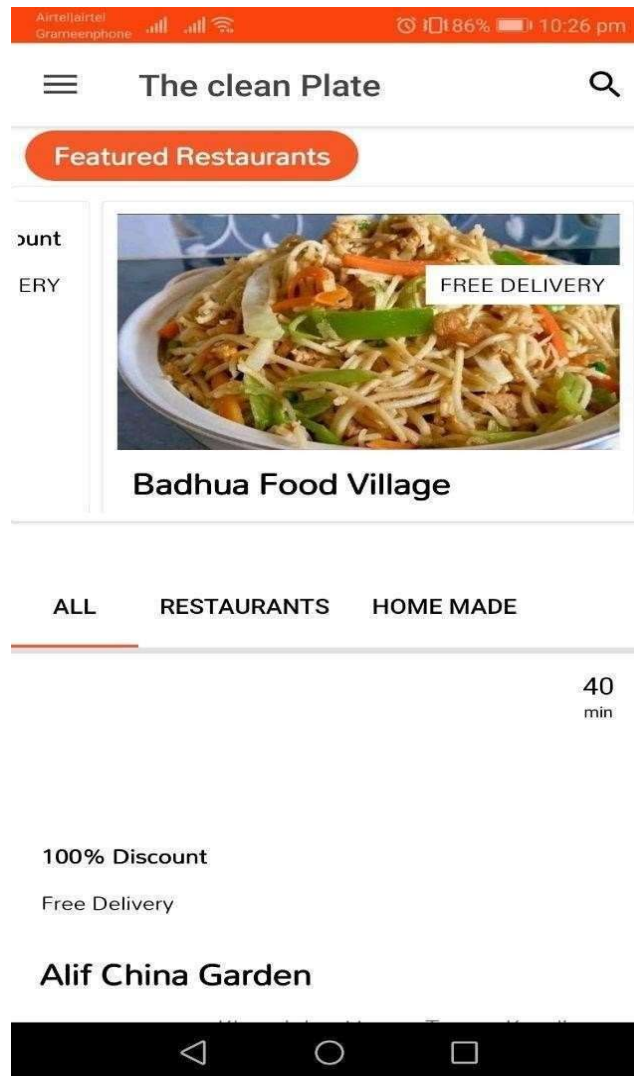


Figure 4.1.3: User Dashboard

4.1.4 User Home page: This is the picture of where customers will see when they go inside the application.



Figure 4.1.4: User Home page

4.1.5 Navigation Bar: This is the picture of navigation bar. Here user can see their profile. Can do order history, my vouchers, help, sign out from the app, terms and conditions, rateus options.

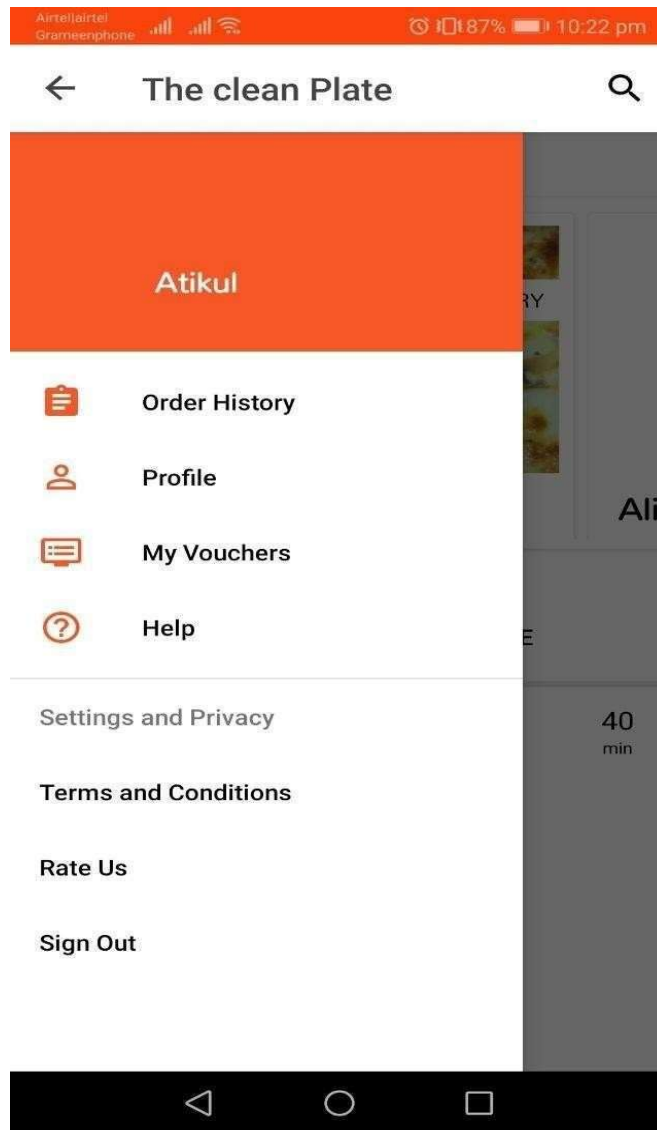


Figure 4.1.5: Navigation Bar

4.1.6 Food Restaurant Interface: Using this interface a customer can see the overview of the restaurant.

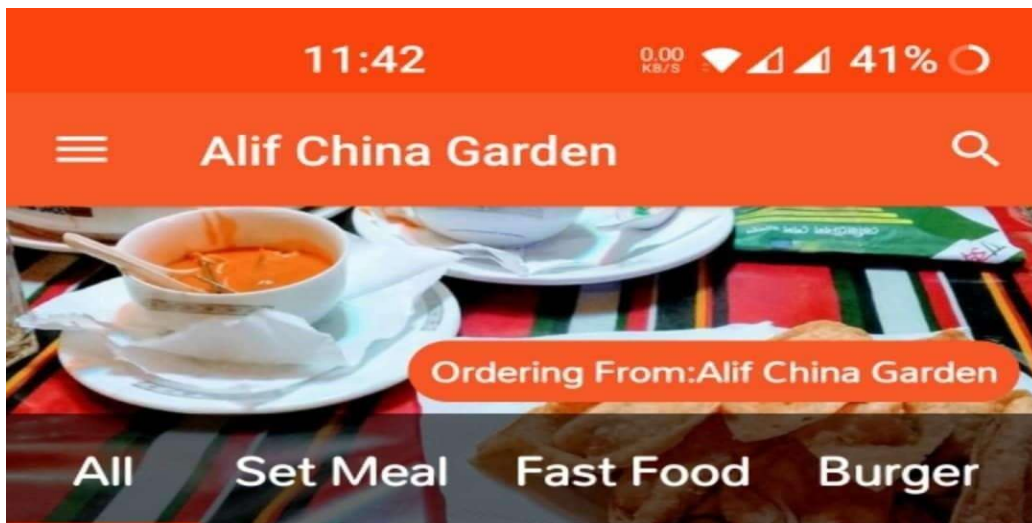


Figure 4.1.6: Food Restaurant Interface

4.1.7 Food Restaurant Info: Here customers can see the items of foods available in the restaurant and the price of the foods.



Figure 4.1.7: Food Restaurant Info

4.1.8 Order Cart Page: Here customers can add different items of foods they want to order and they can select their address zone, payment method, contact info.

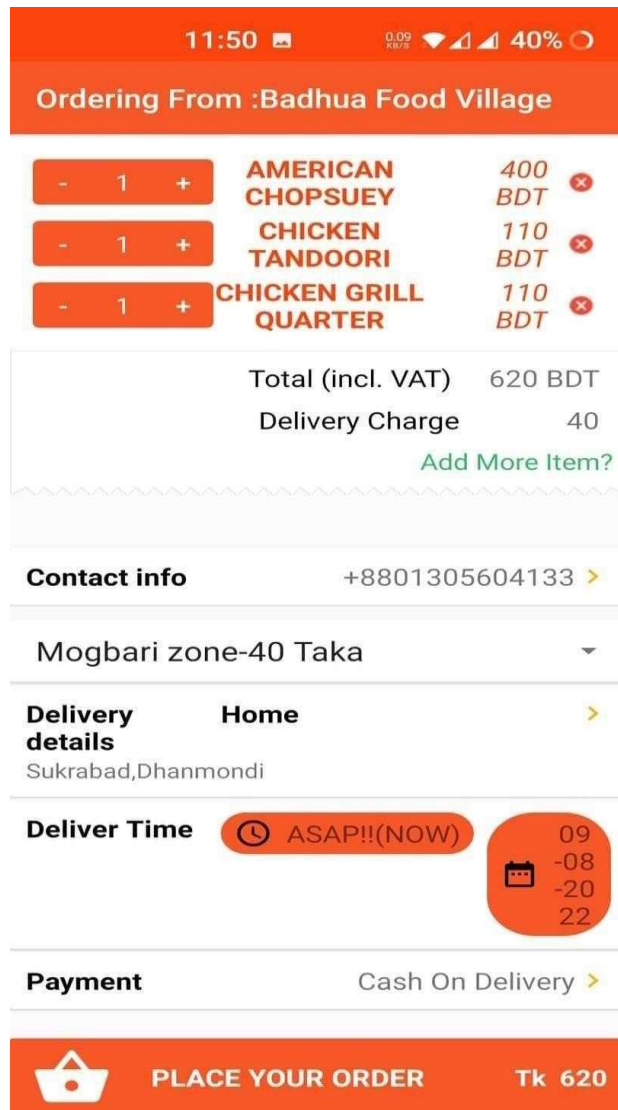


Figure 4.1.8: Order Cart Page

4.1.9 Food Checkout Page: Here customers can check out their order.

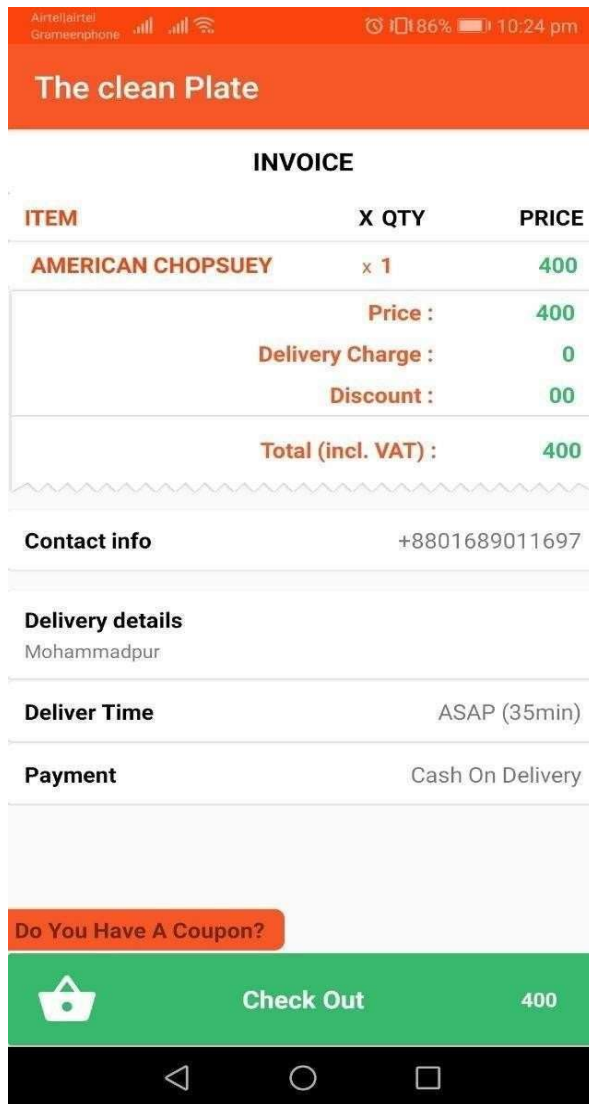


Figure 4.1.9: Food Checkout Page

4.1.10 Order Submitted Page: This page will show order submitted page.

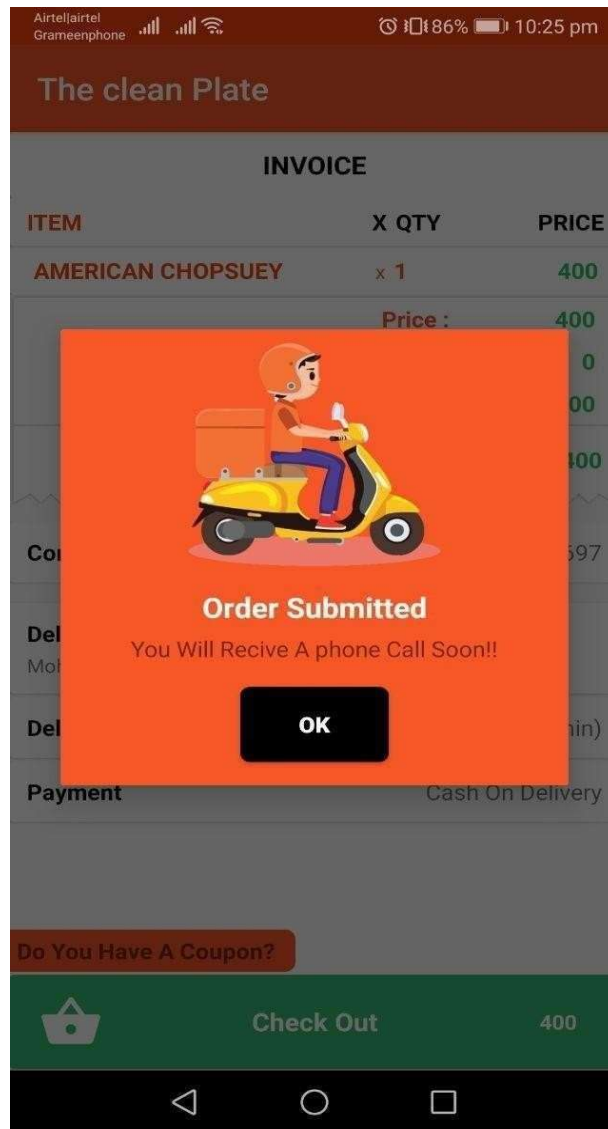


Figure 4.1.10: Order Submitted Page

4.1.11 Admin Login Page: This display will show admin login interface, where admin can login using the email address and password.

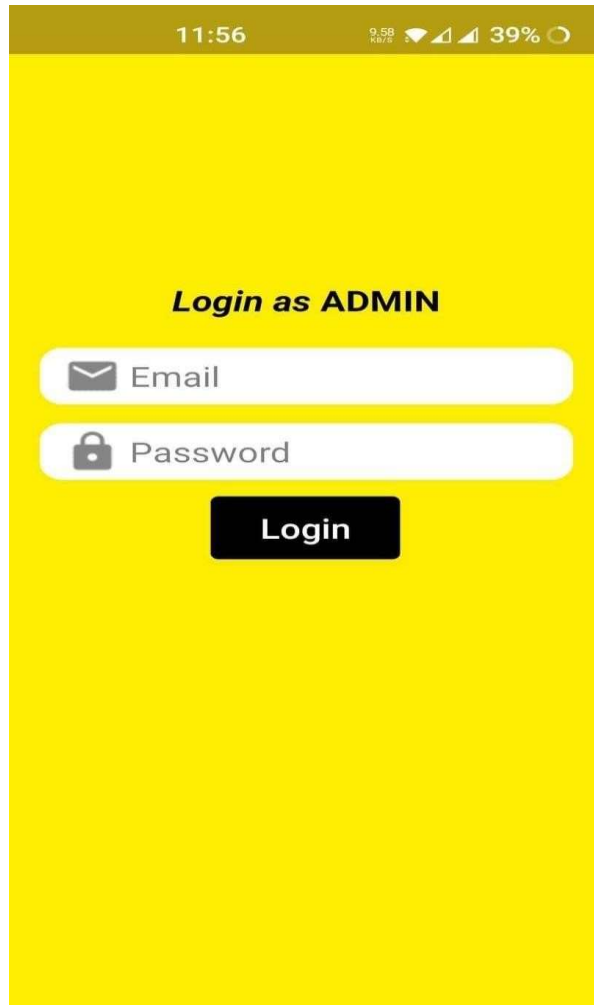


Figure 4.1.11: Admin Login Page

4.1.12 Admin Dashboard: Here admin can see the new orders, all orders, create coupon, add stores, update stores, add featured stores, all menus, add discount, logout option.

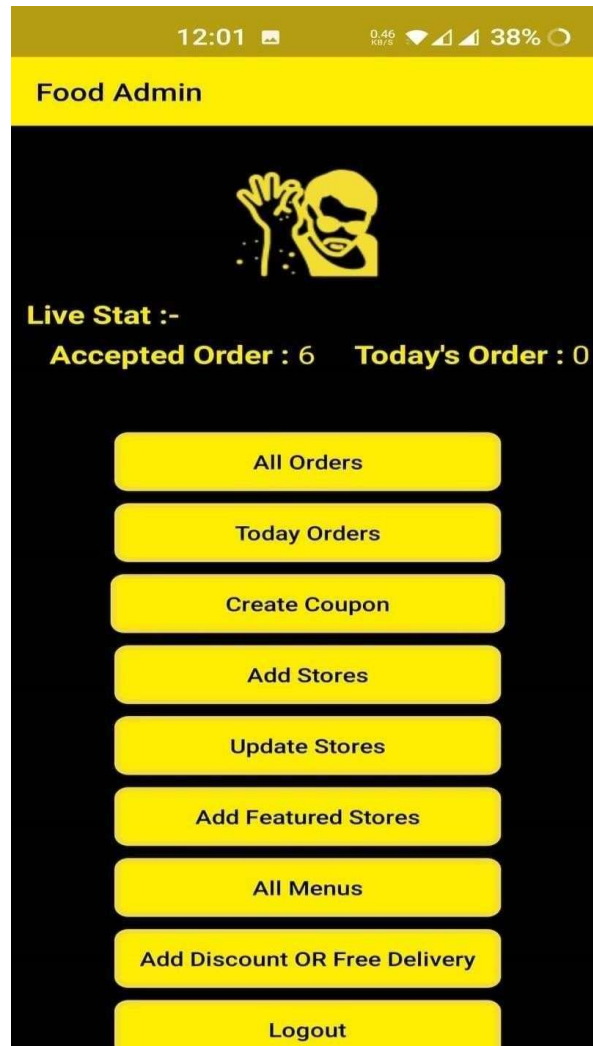


Figure 4.1.12: Admin Dashboard

4.1.13 All Orders Checking: In this interface admin can see all the orders.



Figure4.1.13: All Orders Checking

4.1.14 Today's Order: Here admin can see the orders they get that day also admin can accept or decline the orders.

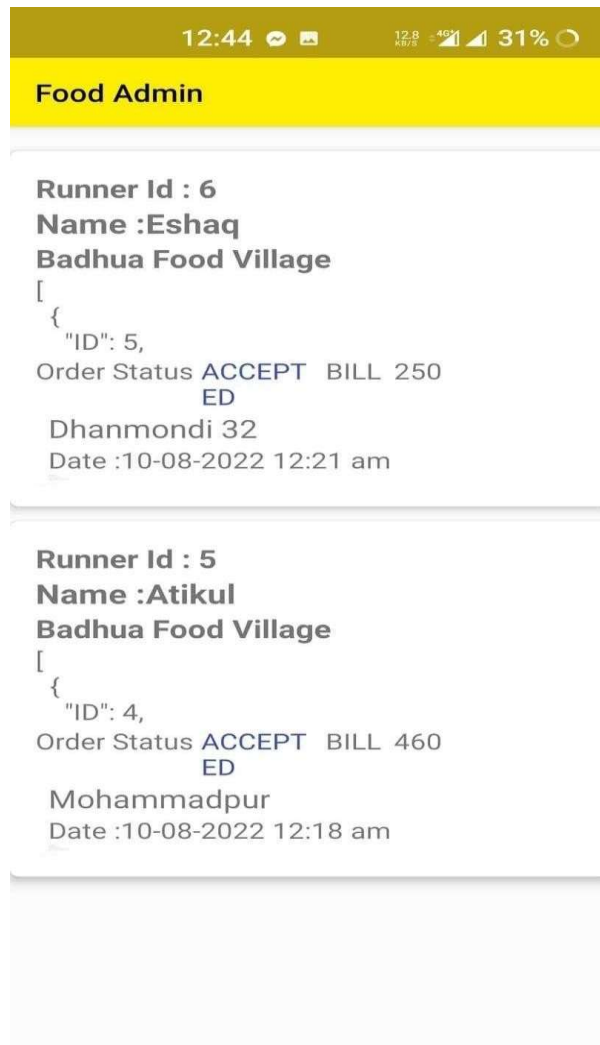
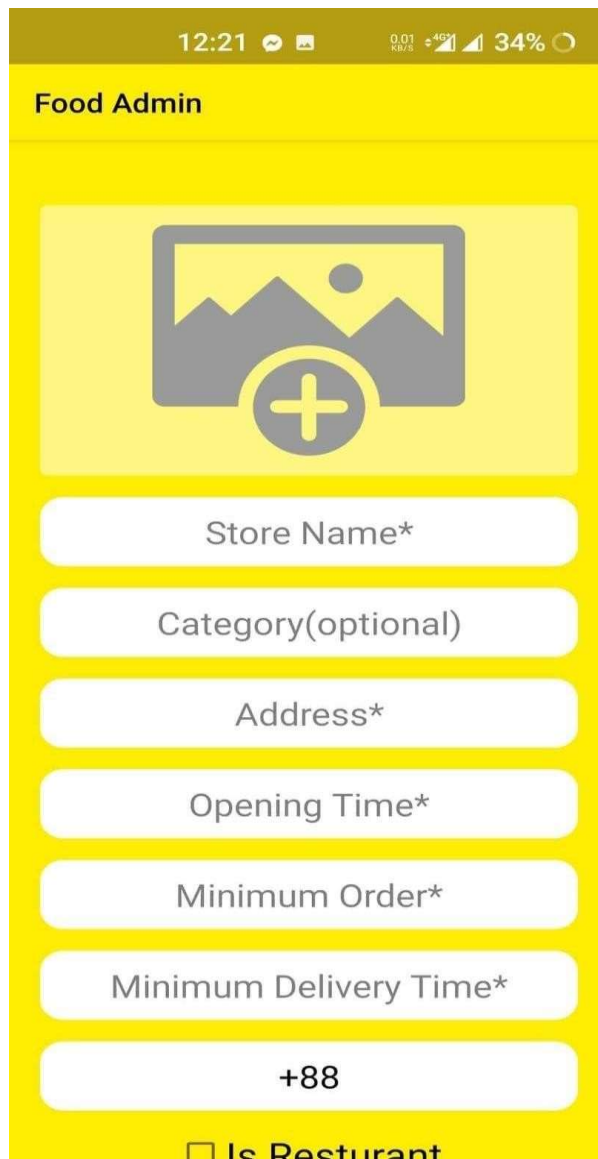


Figure 4.1.14: Today's order

4.1.15 Add Stores: In here, admin can add new stores. By giving, store name, category, address, opening time, minimum order, minimum delivery time, phone number.



The screenshot shows a mobile application interface for 'Food Admin'. At the top, the status bar displays the time 12:21, signal strength, 4G LTE, and 34% battery. Below the status bar, the app title 'Food Admin' is visible. The main content area features a large yellow button with a grey icon of a photo gallery with a plus sign, indicating an image upload function. Below this are several white input fields with rounded corners, each containing a label: 'Store Name*', 'Category(optional)', 'Address*', 'Opening Time*', 'Minimum Order*', 'Minimum Delivery Time*', and '+88'. At the bottom, there is a checkbox labeled 'Is Resturant'.

Figure 4.1.15: Add Stores by Admin

4.1.16 Updates Stores by Admin: Here admin can update and restaurants info, food items, opening time, closing times, minimum order, phone number and address.



Figure 4.1.16: Updates Stores by Admin

4.1.17 All Menu: Here admin can see all restaurants names and details of the foods they providing. Also admin can add items too.

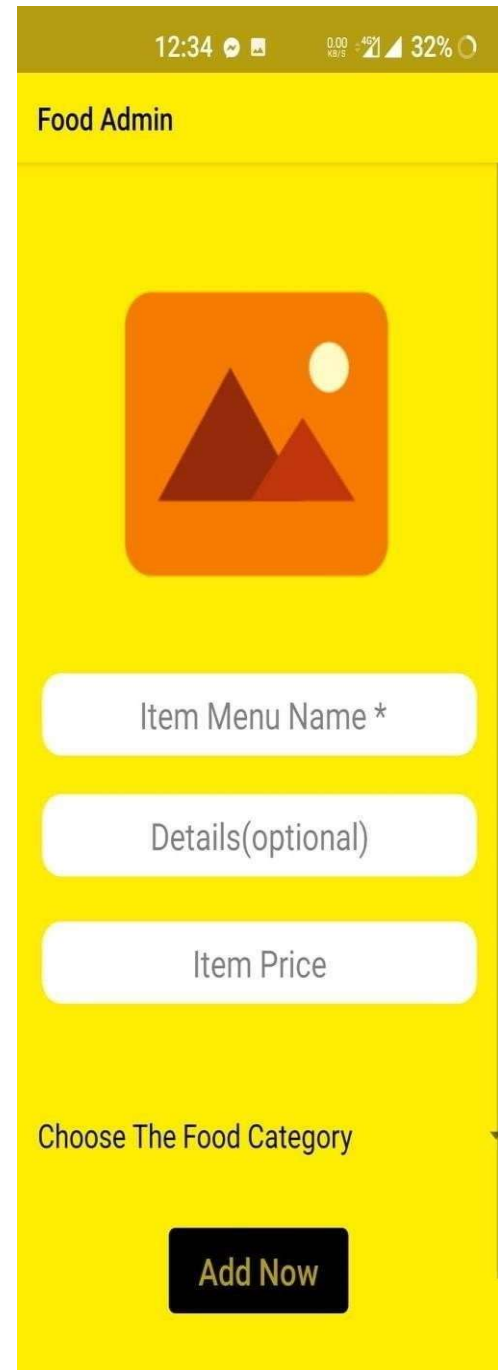
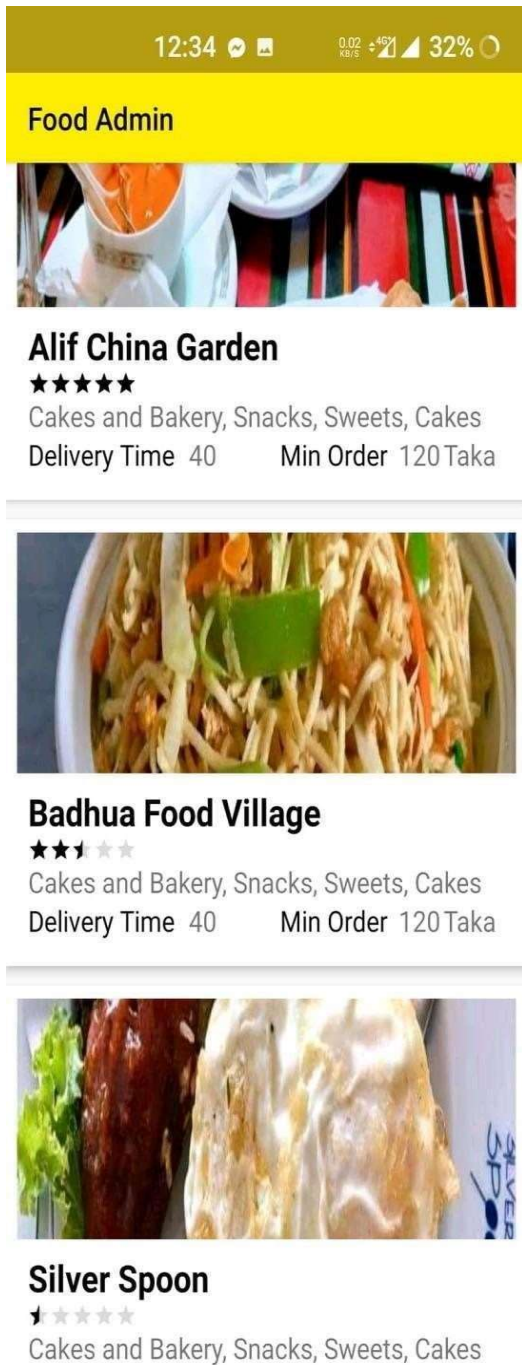


Figure 4.1.17: All Menu

4.1.18 User and Admin Logout: This shows the interface of user and admin logout from theirapps.

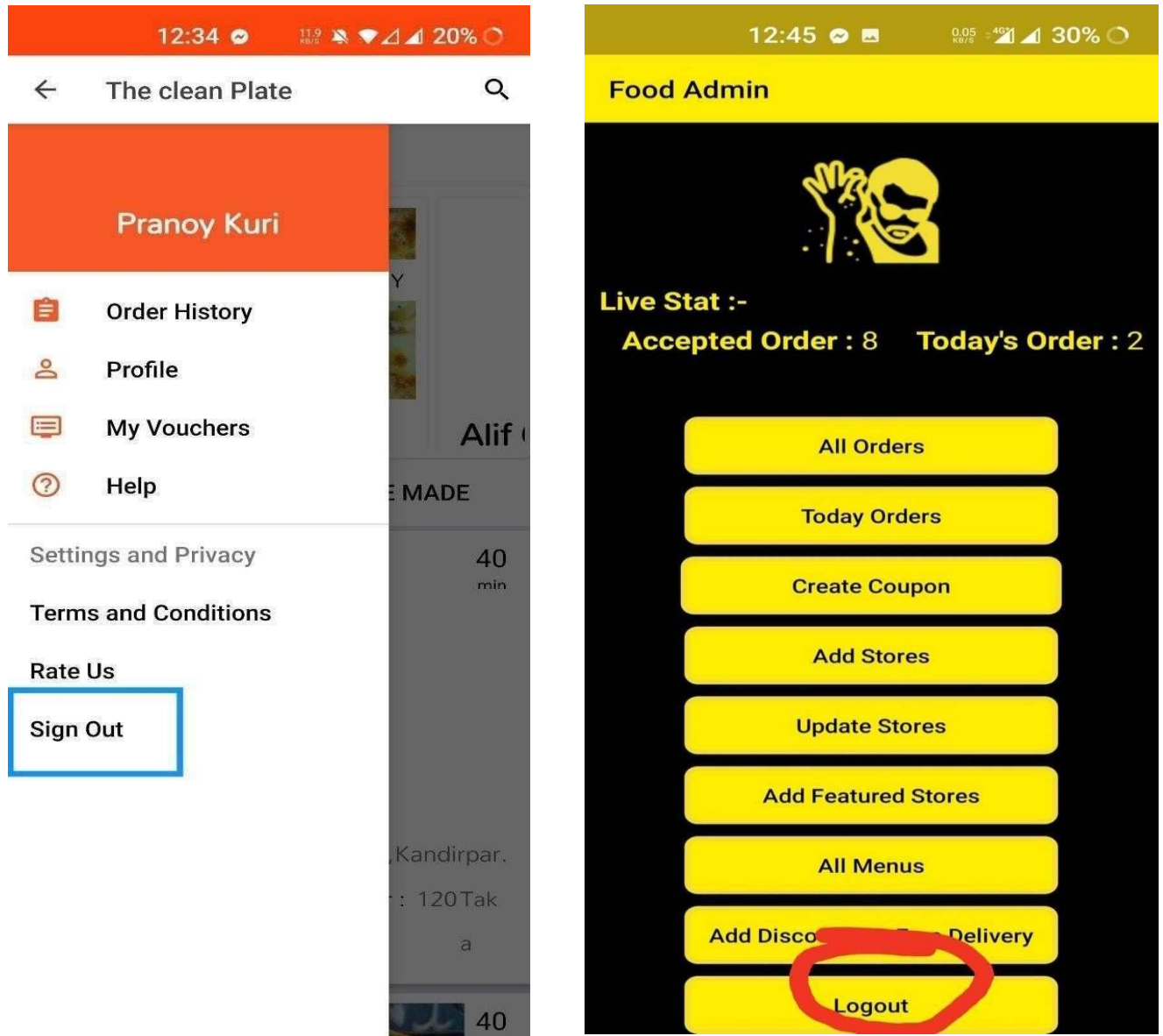


Figure 4.1.18: User and Admin Logout

4.2 Back-end Design

Backend design is referred as the server-side of an application or website. It is actually hidden from the client-side. Even if the users cannot see the backend part of the application but they can interact indirectly with the server-side with the help of the front-end interface. All the data is stored arranged, managed and updated on the backend. Because all the things happen in a database system.

In this time there are a lot of popular programming language like as- C, C++, Python, Java, PHP, and JavaScript. We use Java programming language to develop our android application. It is an Object Oriented Programming Language. Java is also known as the most wanted language for backend. It can run on all kind of platforms along with Windows, Mac OS and Linux because of the Java Virtual Machine (JVM). This is one of the most valuable advantage of Java and because of this advantage it is called as “Write Once, Run Every Where”. Java also allows multi-threading. Multi-threading means that, multiple users can perform different task at once in the application. The server becomes receptive and the response of the application is also quick because of multi-threading. The main reason of Java being one of the popular language is that, it is supported by Google. Java is not so easy to learn and also building complex applications with it can be a problem for the beginners. Yet the developer build most of the applications with java. We have used Java as backend in our application.

4.3 Implementation Requirements

There are the requirements to implement our project,

Hardware specification,

Processor	AMD Ryzen 5 2500U with Radeon Vega Gfx2.0 GHz
Disk Space	50 GB of SSD and 655 GB of Hard Disk Available
RAM	8GB
Display	1920*1080
Graphics	NVIDIA GeForce GTX 1050 series 4gb
Mobile Phone	One Plus Nord

Table- 4.3.1: Hardware specification

Operating System	Windows 10 64-Bit
IDE	Android Studio
Database	Firebase Real-time
Web Browser	Google Chrome

Table- 4.3.2: Software specification

CHAPTER 5

IMPLEMENTATION AND TESTING

5.1 Implementation of database

We used Firebase as our database in our project. It's a backend service that uses a Realtime Database. Because the data changes often and the workload is significant, real-time databases require real-time processing. The stock market, for example, fluctuates on a regular basis. Real-time databases are utilized in banking, medical records, reservation systems, scientific data processing, and other applications. Transactions are now faster thanks to the Real-time database system. Because Firebase is based on Google's infrastructure, it is a NoSQL database that stores document data in JSON format. In the firebase database, there are a few crucial features. This real-time database's primary features include authentication, test lab, hosting, and alerting.

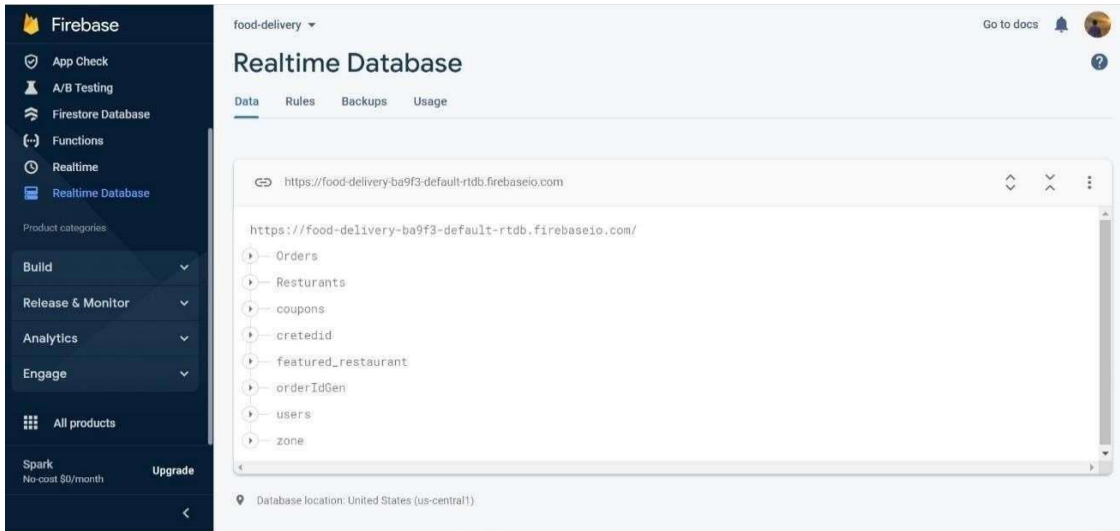


Figure 5.1.1: Implementation Database

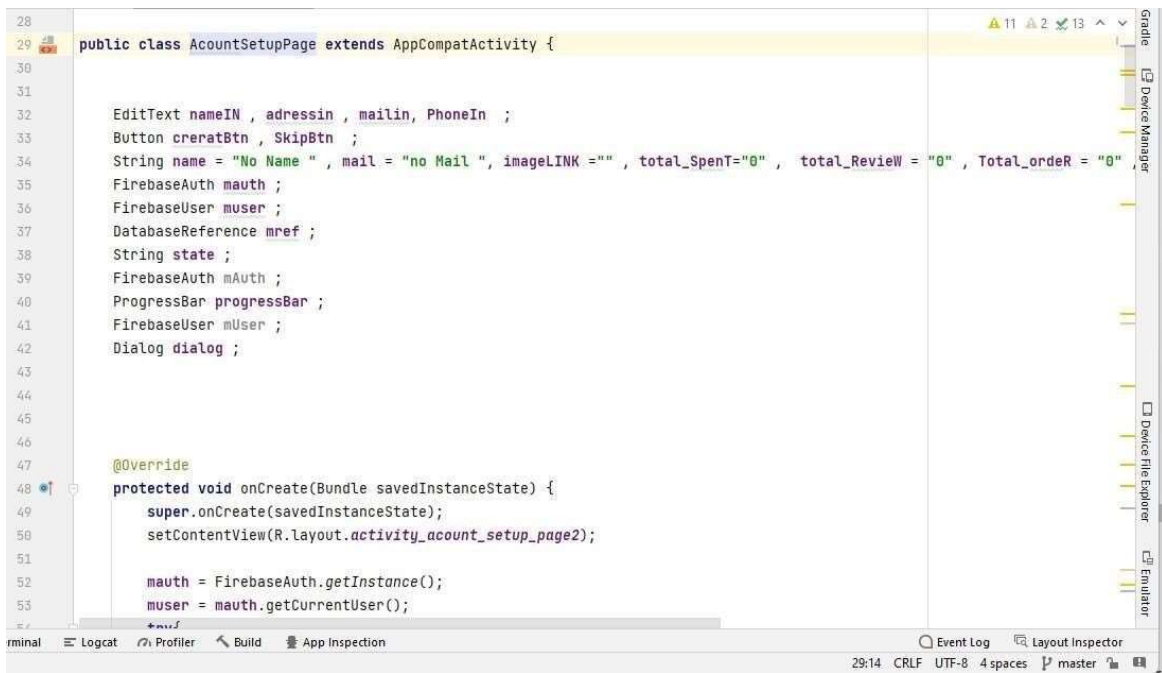


Figure 5.1.2: Authentication Rule

5.2 Implementation of Interaction

By implementing our application association, we make the application appealing to the user. The most crucial colleague is required for each user. By integrating the applications, we make our user affords easier and more secure. We finished our project with a basic symbol that may be used by a wide range of users. Our project was well-designed, with all of the necessary elements for the user to engage with it with ease.

5.3 Testing Implementation

This is the most important part of an application. Without testing it none can say that their project or application is running without any error. For this reason we run our application in several devices. The testing parts are –

- ▯ Internal Logic.
- ▯ Input and output domain.

5.3.1 : Smoke Testing Table

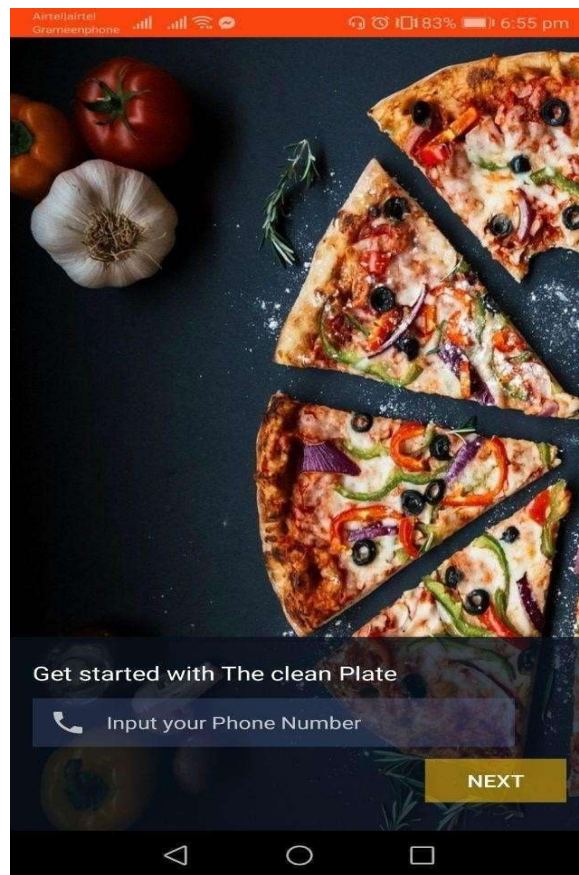
Test Case	Test Input	Expected Outcome	Actual Outcome	Result
1.Run the app	Use some androidos phones	Run the application successfully	Run the application successfully	Passed
2.Try to sign in without info	Blank or incorrect address	Login info mustneed	Invalid mobile no	Passed
3.Username	Blank or incorrect address	Correct passwordmust be needed	Incorrect password	Passed
4.Password	Blank or incorrect address	Correct passwordmust be needed	Incorrect password	Passed

Table-5.3.1: Smoke Testing Table

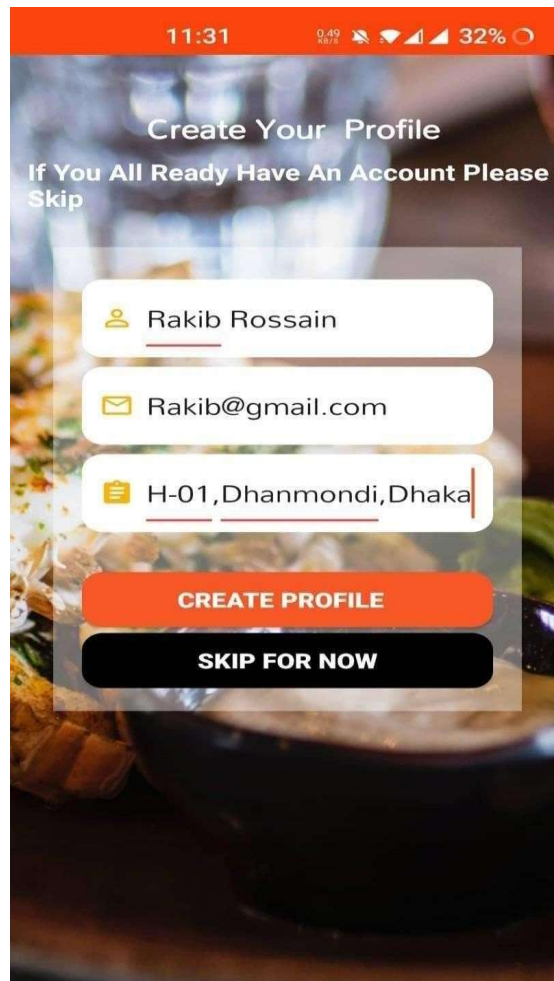
5.4 Test Result and Report

When we developing our android application we also run this at the android virtual device in our IDE (Integrated Development Environment). After the final deployment of database we use our application in many android device for testing purpose. The application run as well as device based. There are some testing purpose result below.

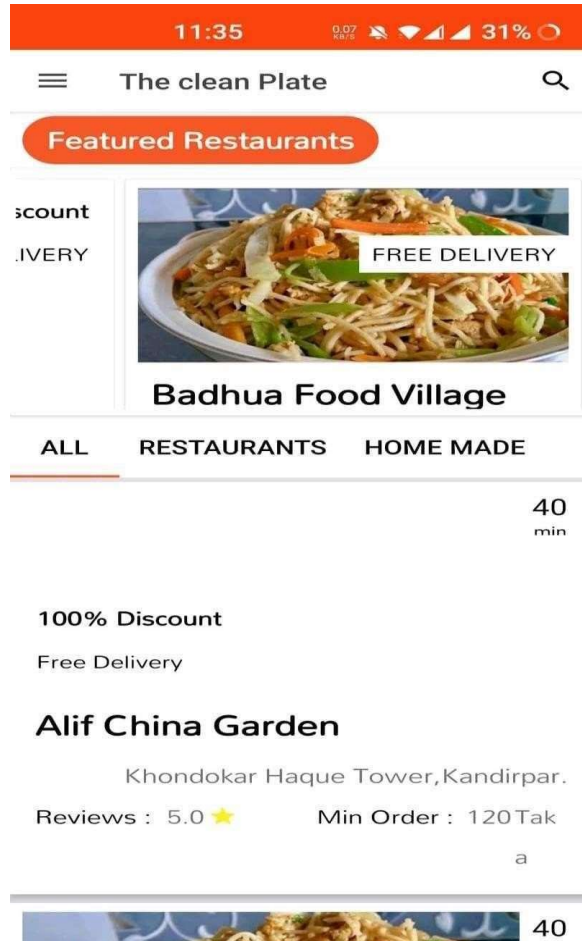
At first we install our application in an android device. The application installed in that device without any error. Then we open the application in that particular device a user screen came up. That contain the welcome message and there is one text box that contain Phone number, also has a Next button. In the below of the user interface we can see there is a Number given option for the users.



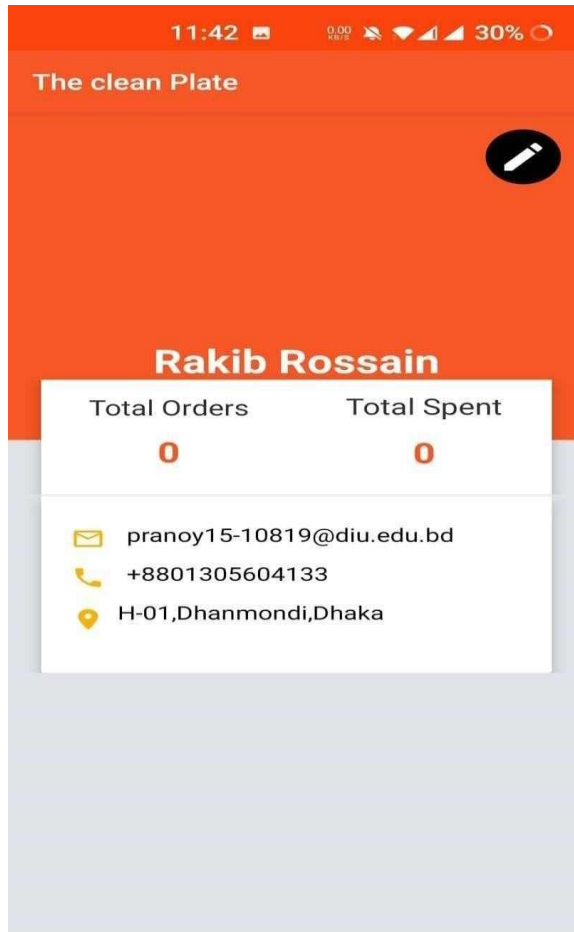
After clicking on the Next button it takes to the Create Profile page. This page contains three input boxes. First one takes name as input, second takes the email of user, third takes the Delivery Address of the user also. We complete the instruction as a new user. Also previous users can skip this process as they already given the details which sign up. Then press the Create Profile button.



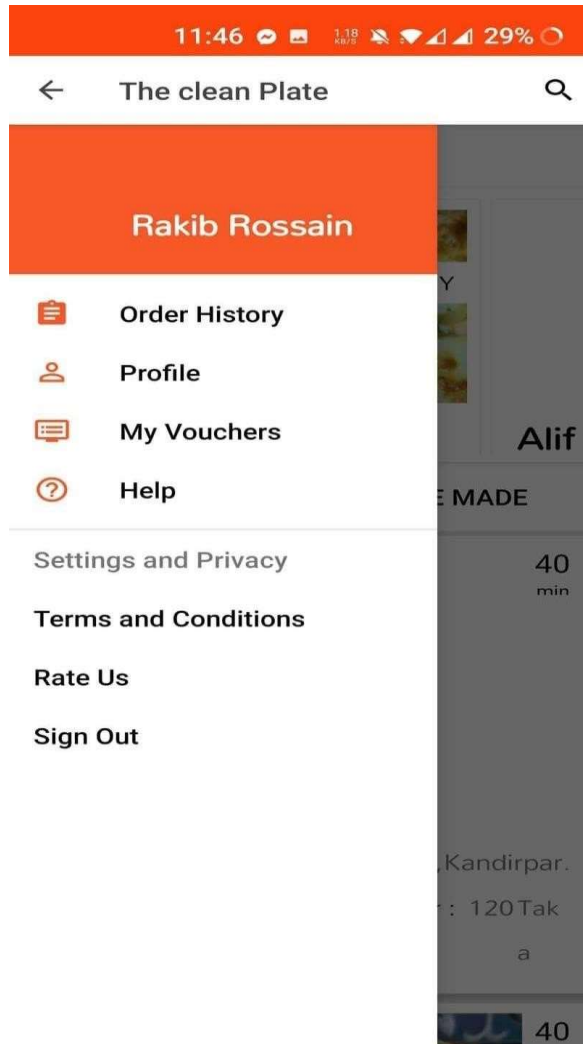
After providing all the information then a user account open. After creating a user account it redirect to the homepage of our application. The homepage contains the useful navigation.



A user can go to the user profile by pressing the button from the navigation bar named as Profile. In this the user can see the information which are provided when user created the account.



Now users are logged in the application but sometime a user need to Sign out from the application the user find the Sign out option in the navigation bar. If the user press on the Sign out button then it will break the session of the user until the user logged in the application.



White Box Testing Table:

Features	Task	Working or not
1. Next/Login	Register	Working
2. Create Profile	Sign In as user	Working
3. Homepage	Will display the restaurants	Working
4. Navigation Bar	Showing different options	Working
5. Restaurant	Showing food items	Working
6. Cart	Adding food to cart	Working
7. Checkout	Submitting the order	Working
8. Logout	Showing the logout button	Working

Table- 5.3.2: White Box Testing Table

CHAPTER 6

CONCLUSION AND FUTURE SCOPE

6.1 Discussion and Conclusion

A lot of food delivery apps are now available on Google Play Store and App Store. Because, due to the advancement technology, we are apt to get every essential thing in an operation format on our smartphones. Since everything is online grounded, we have also implemented online food delivery apps. So that food promoters can get everything in operation with the help of internet. When we implemented our idea, we only thought about the client's comfort. We have implemented a feedback section so that we know whether the client and admin are satisfied. We thought of implementing this in our application when something bad or calamity happens thinking of getting emergency services in unknown places. Finally, as a service provider for the people of Bangladesh, we wanted to implement the application so that the food seekers can get their desired food when they need and be satisfied using our Android application.

6.2 Scope for Further Developments

Our farther development plan is to develop a website with the name of our application. currently, every company or service provider has their own website, so we also want to develop one. Beside with this, we will continuously modernize our android application as there are some missing features yet needs to apply. And if our users find any bug in the application also we will break the issue. Further we want to apply a section for the nonnatives who need blood at his/ her exigency situation. Our concern is also for the peoples those are lives in Bangladesh.

6.3 Limitations

As we know that there is nothing that is perfect. Every creation or development has its own limitation.

So that's way our project has some of limitations. Those limitations are-

- This application developed for only android platform.
- Features don't work without internet connection.
- No chatting option.

6.4 Future Works

There are some features in below which will be implemented in future-

- Develop our application for iOS platform
- Update security system of this application according to global rules and regulation
- Optimize the UI and UX and make app faster.
- Make UI attractive.

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