Food Delivery Management Software

A Project Report Submitted

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ABSTRACT

Abstract:

The increasing demand for online food delivery services has led to the development of a basic food delivery software. The software has been designed and developed using Visual Studio 2012 for the front-end and Oracle SQLPlus for the back-end. It offers customers the ability to browse multiple restaurants, view menus, and place orders securely. Restaurants can manage their orders and view their order history through the software, while delivery personnel can view order details and personal information. The software also features customer reviews and ratings, ensuring a more seamless and satisfactory user experience. The software is created with scalability in mind to accommodate a large number of users. The project follows a thorough methodology that includes requirements gathering, design, implementation, and testing. It was successfully implemented, and it met the initial project requirements.

ACM Taxonomy:

- Computing methodologies: Collaborative and social computing systems and tools
- Human-centered computing: User interface design and evaluation

SDG:

The food delivery project can contribute to several Sustainable Development Goals (SDGs) established by the United Nations, including:

1. SDG 2: Zero Hunger - By providing easy access to a wide range of food options, the food delivery project can help ensure that people have access to nutritious and affordable food, thereby reducing hunger and malnutrition.

2. SDG 8: Decent Work and Economic Growth - The food delivery project can create job opportunities for delivery personnel, software developers, and customer service representatives, among others, contributing to economic growth and employment.

3. SDG 9: Industry, Innovation and Infrastructure - The food delivery project involves the use of technology to improve food delivery services and streamline operations, contributing to the development of innovative and sustainable infrastructure.

4. SDG 11: Sustainable Cities and Communities - By providing a convenient and efficient way for people to order food, the food delivery project can help reduce traffic congestion and air pollution in urban areas.

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Abbreviation

1. SDG- Sustainable Development Goals
2. DBMS- Database Management System
3. ER Diagram- Entity Relationship Diagram

CHAPTER 1
Introduction

The food delivery project is a platform that allows customers to order food from various restaurants in their area and have it delivered to their doorstep. It typically involves an application where customers can browse menus, select items,place orders and rate the restaurant and delivery personnel. The food delivery project brings convenience and efficiency to the food industry by providing a simple and fast way for customers to order food from their favorite restaurants. It also allows restaurants to reach a wider customer base and increase their sales.

The food delivery project also involves a backend system that manages orders and deliveries. The food delivery project is becoming increasingly popular in today's fast-paced world, where people are looking for convenient ways to get their food quickly and easily. It is a highly competitive market, with many players vying for market share. To succeed in this space, companies need to provide a superior user experience, efficient delivery operations, and a wide range of restaurant options.

CHAPTER 2
Literature Review and Background

Food delivery has become increasingly popular in India in recent years, with the rise of online food ordering platforms such as Swiggy, Zomato, and Uber Eats. These platforms have made it easier for customers to order food from their favorite restaurants and have it delivered to their doorstep, often within minutes. However, the rapid growth of the food delivery industry has also brought challenges, such as managing orders efficiently, ensuring timely delivery, and maintaining quality control.

To address these challenges, many restaurants and food delivery companies in India have started using food delivery management software. These software solutions provide a range of features, such as order management, delivery tracking, inventory management, and customer feedback. By using these software solutions, restaurants and food delivery companies can streamline their operations, reduce errors, and improve customer satisfaction.

One such food delivery management software is being developed in this project, which aims to provide a user-friendly and efficient platform for customers, restaurants, and delivery personnel. The software will enable customers to easily browse menus and place orders. Restaurants will be able to manage their order and view customer feedback. Delivery personnel will be able to receive and track their orders and view customer details. The software has been developed using modern web technologies, including C# for frontend and Oracle SQLPlus for backend. It will be designed to be scalable, secure, and easily customizable to meet specific needs of the food delivery ecosystem. In addition, the software will be designed to comply with the relevant regulations and guidelines in India, such as those related to food safety, data protection, and privacy.The software was designed with a user-centered approach, prioritizing ease of use and accessibility for all users, including customers, restaurants, and delivery personnel. It was also designed to be scalable to accommodate a large number of users and to be secure to protect sensitive information.

Overall, the food delivery management software being developed in this project has the potential to improve the efficiency and quality of food delivery services in India. By providing a centralized platform for managing orders and delivery, the software can help businesses to streamline their operations, reduce costs, and improve customer satisfaction.

CHAPTER 3
Objective

The objective of the "Food Delivery Management System" project is to design and develop an online platform that simplifies the process of ordering food and managing food deliveries. The system aims to meet the increasing demand for online food delivery services by providing customers with an easy-to-use interface to browse restaurants, view menus, place orders, and make payments. The system also aims to assist restaurants in managing their orders and order history, as well as providing delivery personnel with a convenient way to view order details assigned to them and their personal details.

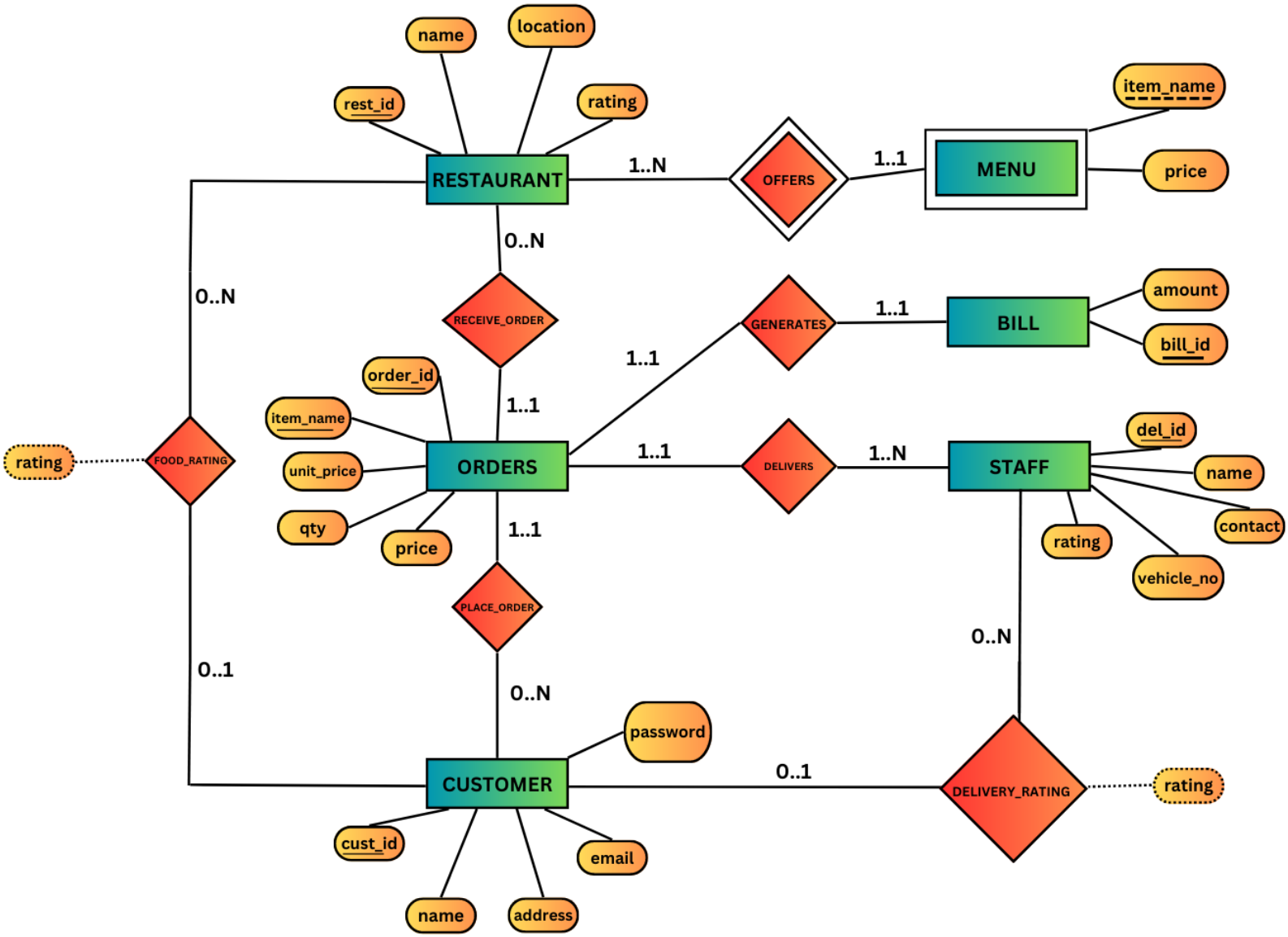
The database management component of the system plays a critical role in maintaining accurate records of restaurants, menus, orders, and delivery personnel. By keeping track of this information, the software enables restaurants to manage their inventory effectively, and delivery personnel to complete their tasks efficiently. Moreover, the system aims to promote responsible consumption and production by encouraging restaurants to minimize food waste and ensuring timely deliveries.

Overall, the objective of the Food Delivery Management System is to provide a user-friendly and secure platform that streamlines the food ordering and delivery process while promoting responsible consumption and production.

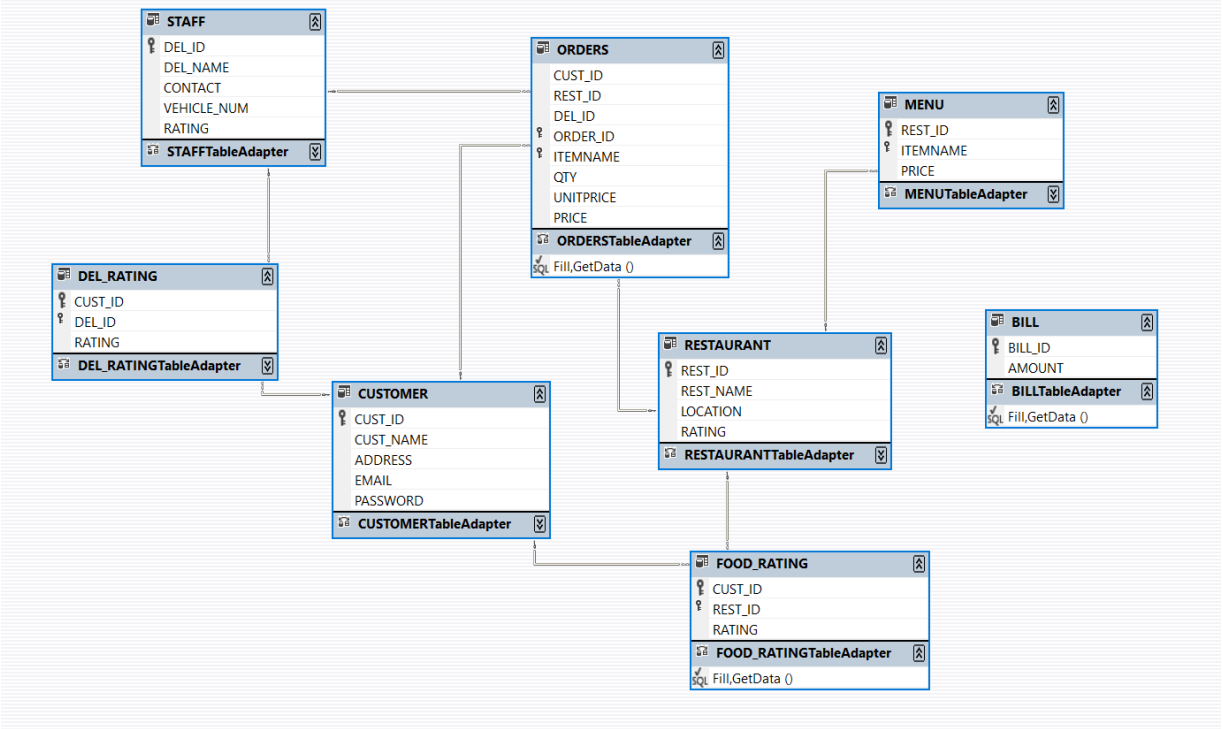
CHAPTER 4

Data Design

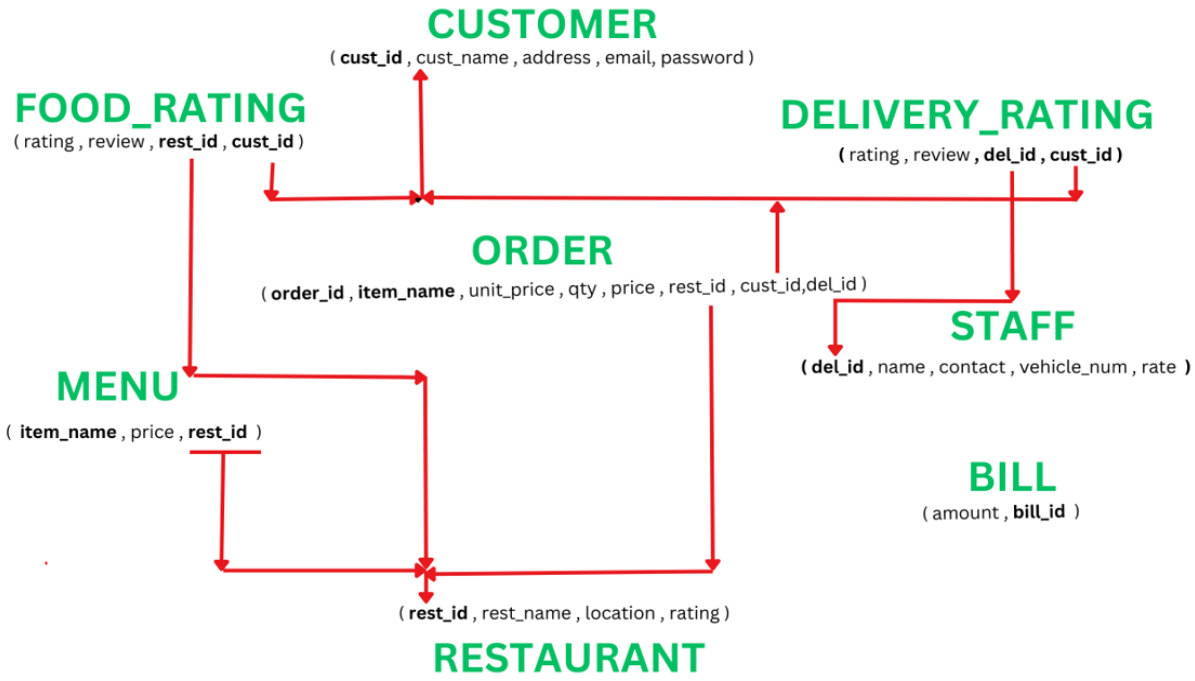
4.1 ER DIAGRAM



4.2 SCHEMA DIAGRAM



4.3 REDUCTION OF TABLE SCHEMAS FROM ER DIAGRAM



4.4 NORMALIZATION

1)CUSTOMER(**cust_id**, cust_name , address , email , password **)**;

Functional Dependencies: cust_id -> cust_name, address, email,password

In this first functional dependency, cust_id is the primary key and uniquely identifies each record in the table. The other attributes (cust_name, address, contact, and email) depend on the primary key.

In this relation,the primary key is cust_id and only one functional dependency is there that depends entirely on it.

2)RESTAURANT(**rest_id** , rest_name , location , rating **)**

Functional Dependencies: rest_id -> rest_name, location, rating

In this functional dependency, rest_id is the primary key, and the other attributes (rest_name, location, and rating) depend on the primary key. This means that if you know the value of the rest_id attribute, you can determine the values of the other attributes.

In this relation,the primary key is rest_id and only one functional dependency is there that depends entirely on it.

3)MENU(**item_name** , price , **rest_id**)

Functional Dependencies: rest_id, itemname -> price

In this functional dependency, the combination of rest_id and itemname is the primary key, and the other attributes (category, nv, and price) depend on this composite key. This means that if you know the values of rest_id and itemname, you can determine the values of the other attributes.

In this relation,the primary key is rest_id,itemname and only one functional dependency is there that depends entirely on it.

4)ORDERS(**order_id** , **item_name** , unit_price , qty , price , rest_id , cust_id)

Functional Dependencies: order_id,itemname -> cust_id, rest_id, qty,unitprice,price

In this functional dependency, order_id,itemname , together is the primary key, and the other attributes depend on this primary key.

5)STAFF(del_id , name , contact , vehicle_num , rate)

Functional Dependencies: del_id -> del_name, contact, vehicle_num, rating

In this functional dependency, del_id is the primary key, and the other attributes (del_name, contact, vehicle_num, and rating) depend on the primary key. This means that if you know the value of the del_id attribute, you can determine the values of the other attributes.

In this relation the primary key is del_id and only one functional dependency is there that depends entirely on it

6)FOOD_RATING(rating , **rest_id** , **cust_id**)

Functional Dependencies: cust_id, rest_id -> rating

In this functional dependency, the combination of cust_id and rest_id is the primary key, and the other attributes (review and rating) depend on this composite key. This means that if you know the values of cust_id and rest_id, you can determine the values of the other attributes.

In this schema , the primary key is cust_id,rest_id and only one functional dependency is there that depends entirely on it

7)DEL_RATING(rating , **del_id** , **cust_id)**

Functional Dependencies: cust_id, del_id -> rating

In this functional dependency, the combination of cust_id and del_id is the primary key, and the other attributes (review and rating) depend on this composite key. This means that if you know the values of cust_id and del_id, you can determine the values of the other attributes.

The primary key is cust_id,del_id and only one functional dependency is there that depends entirely on it

8)BILL(**bill_id** , **amount)**

Functional Dependencies: bill_id -> amount

In this functional dependency, the bill_id is the primary key, and the other attribute (amount) depends on it. This means that if you know the values of order_id and itemname, you can determine the values of the other attribute.

CHECKING FOR NORMALISATION

->1 NF - All atomic attributes, hence the table is in 1 NF.
->2 NF - No attribute depends on a part of the key, hence it is in 2 NF.
->3 NF - No transitive dependencies hence it is in 3 NF.
->BCNF - All LHS part in each functional dependency is a key so, BCNF also satisfies.

Hence, each table is in **BCNF.**

CHAPTER 5

Methodology and Implementation

5.1 Methodology

5.1.1 Planning and Analysis

We conducted an in-depth analysis of the project requirements and determined the features and functionalities of the application. We also identified the target audience and their needs. Based on these findings, we created a project roadmap and set project goals and timelines.

5.1.2 Design

The design was implemented the UI/UX for the web application using Visual C#. We also defined the database schema using SQLPlus and created tables to store data for the application. We used an ER diagram to visualize the schema and normalized the table schemas to ensure that it meets the requirements of the application and there are no redundancy or data consistency issues..

5.1.3 Frontend and Backend

For the frontend, we created a WindowsFormApplication using visual studio(C# Language). The forms were created using several TextBox features like Label, TextBox, Button, LinkLabel and ListView box to name a few.To connect to back end i.e, SQLPlus we established an OracleConnection to it.

For the backend, we used SQLPlus. The procedure and triggers were generated using PL/SQL statements.

5.1.4 Authentication

To authenticate users, we created a "password" attribute in the customer table in the database that stores the user's password. When a user logs in, we check their credentials against their respective password in this table to verify their identity. Once a user is authenticated, we store their user ID in a global cid variable so that we can identify the user on subsequent requests across various forms. For the Restaurant and Delivery staff we set a default password for all for the sake of simplicity during demo.

5.1.5 Functionality

We implemented several features in the application, including the ability to give orders, give ratings and feedback, and view bills along with the details of the restaurant and the specific delivery person. In the restaurant module, restaurant staff can view the orders done from their restaurant and their current updated rating. In the Delivery_Personnel module, the respective delivery person can view all the orders assigned to him/her along with their current rating and the contact details of the customer.

5.2 Implementation

Implementing this Food Delivery System project involves creating a software system that each customer, restaurant manager and the delivery staff can use.

There are three modules used in the project-

I. Customers

II.. Restaurant Managers

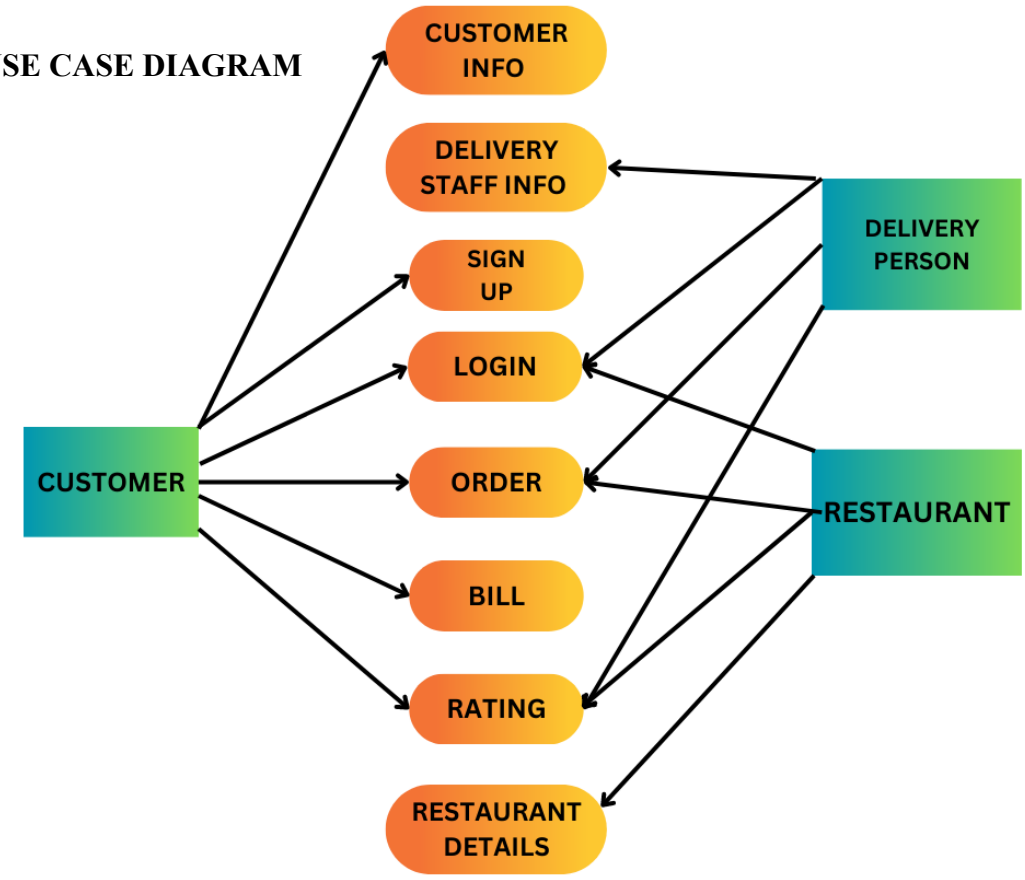
Ill. Delivery Personnels

The system should allow customers/guests to place their order by signing up (if they are using for the first time, then login with their user id and password. Next, they may view/update their profile details or directly choose a restaurant from which they want to place an order from . Subsequently, they select the items and the quantities, then finally confirm the order. After confirming, these details get stored in the Orders table and the final amount is stored in the bill table, also the user can view the final bill including details of the delivery person alloted to their order and give feedback for the restaurant and the delivery staff.

The Restaurant managers on successfully signing in will be able to view their current rating and the list of orders that has been placed from their restaurant.

The Delivery Personnel on Successful login will be able to view their details like their name, rating, vehicle registration number along with the list of orders that they were assigned to deliver, that also contains the customer contact number.

5.2.1 USE CASE DIAGRAM



5.3 Procedures and Triggers used:-

5.3.1 Verify Procedure: Authenticates the password entered by user on login

procedure verify(id int, pass varchar, res out int)

```
procedure verify(id int,pass varchar,res out int ) is
correct customer.password%type;
begin
select password into correct from customer where cust_id=id;
if pass!=correct then
   res:=0;
else
    res:=1;
end if;
end;
```

5.3.2 Del Procedure: To update rating of the delivery staff

procedure del(id int)

```
procedure del(id int) is
    rate del_rating.rating%type;
    begin
    select avg(rating) into rate from del_rating where del_id=id;
    if (rate>0) then
    update staff set rating=rate where del_id=id;
    end if;
    end;
```

5.3.3 Restro Procedure: To update rating of the restaurant

procedure restro(id int)

```
procedure restro(id int) is
    rate food_rating.rating%type;
    begin
    select avg(rating) into rate from food_rating where rest_id=id;
    if (rate>0) then
    update restaurant set rating=rate where rest_id=id;
    end if;
    end;
```

5.3.4 Trigger for checking if a user already exists while sign up (customer)

TRIGGER dupeuser

```
TRIGGER dupeuser
BEFORE INSERT ON customer
FOR EACH ROW
DECLARE
    total INTEGER;
BEGIN
    SELECT COUNT(*) INTO total FROM customer WHERE cust_id = :new.cust_id;

    IF (total > 0) THEN
        RAISE_APPLICATION_ERROR('-20000', 'User already exists please Log In!');
    END IF;
END;
```

5.3.5 Trigger for checking if a user already has an account on login

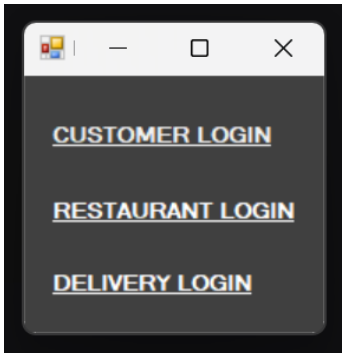
trigger notexist

```
trigger notexist
    before insert on logs
    for each row
    declare total integer;

    begin
         select count(*) into total from customer where  cust_id=:new.id ;
    if total=0 then
    RAISE_APPLICATION_ERROR('-20000','User does not exists please Sign Up! ');
  end if;
  end;
```

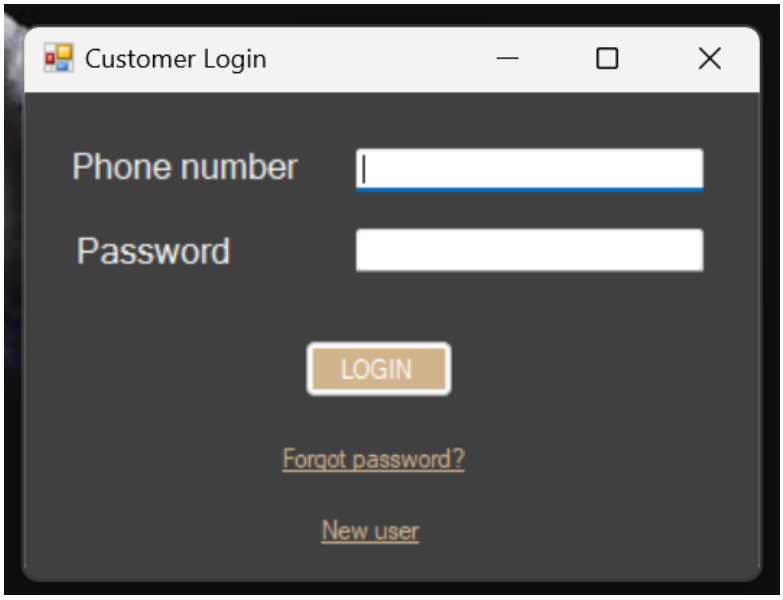
CHAPTER 6
Results

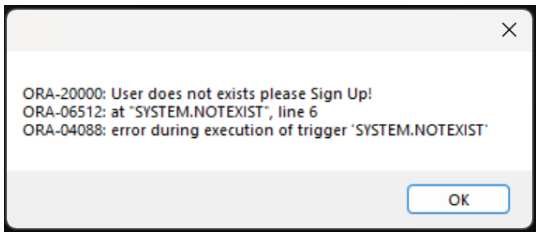
6.1 Module Selection Page

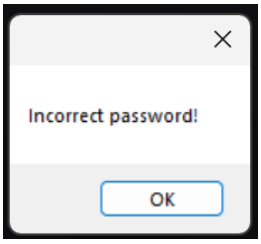


CUSTOMER

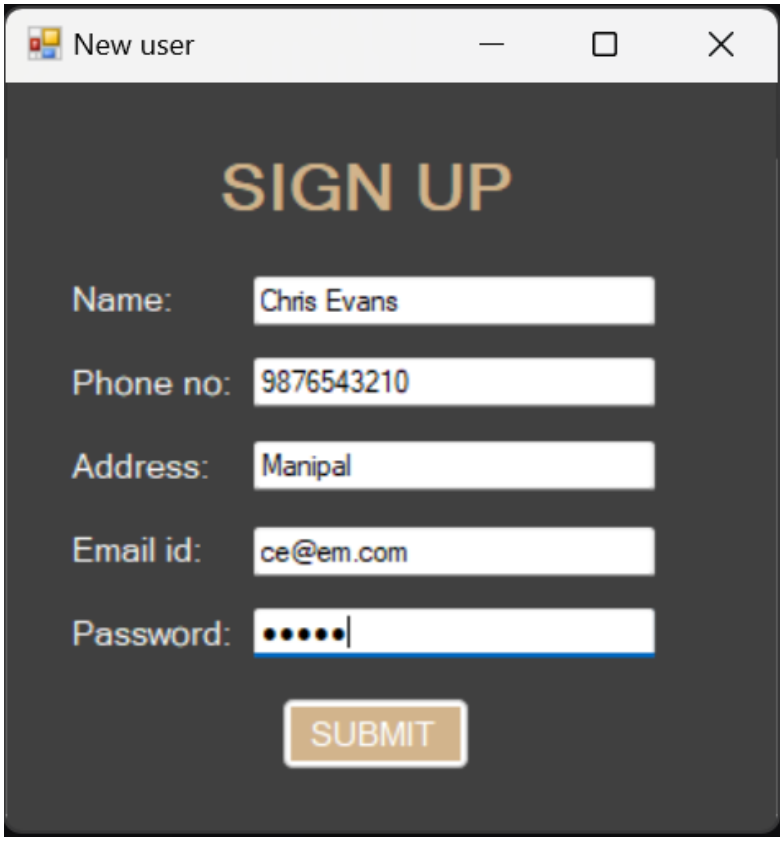
6.2 Customer Login Page

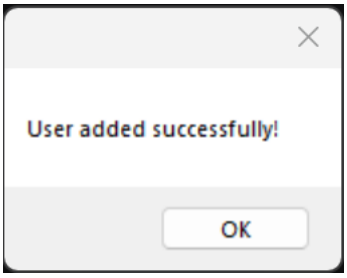




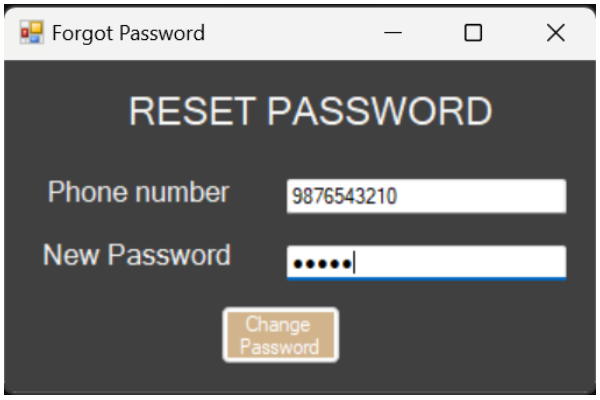


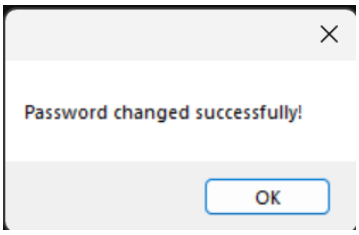
6.3 Sign Up Page



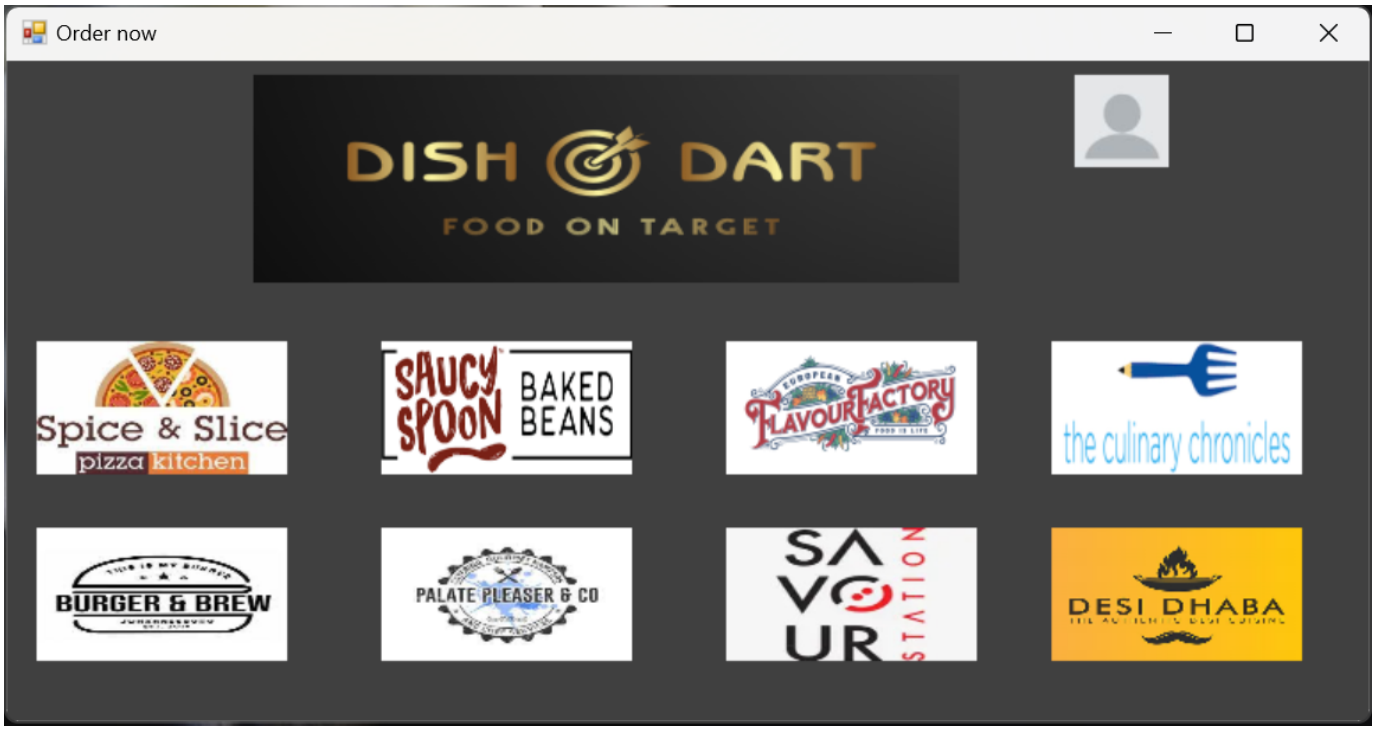


6.4 Forgot Password Page

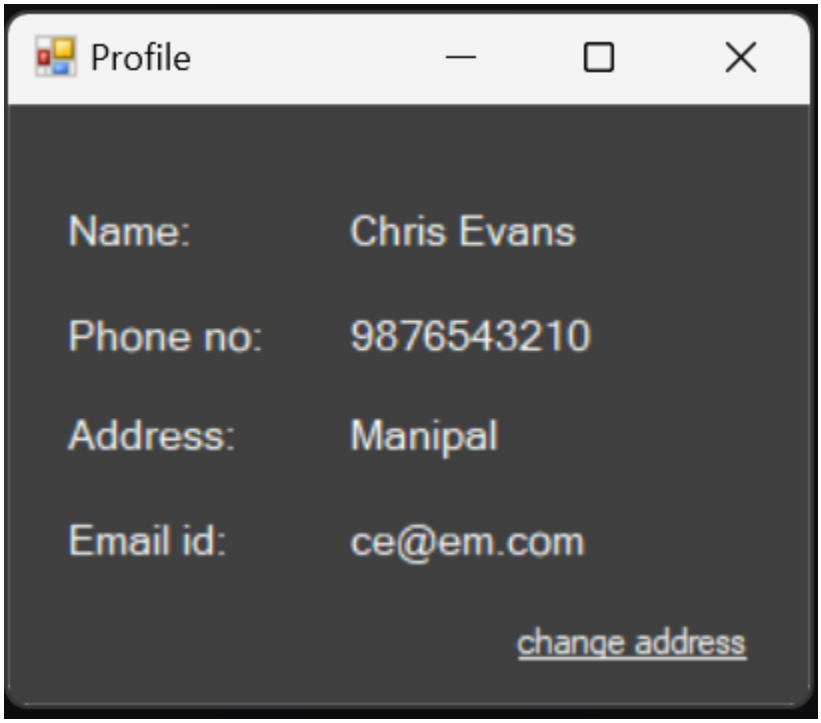




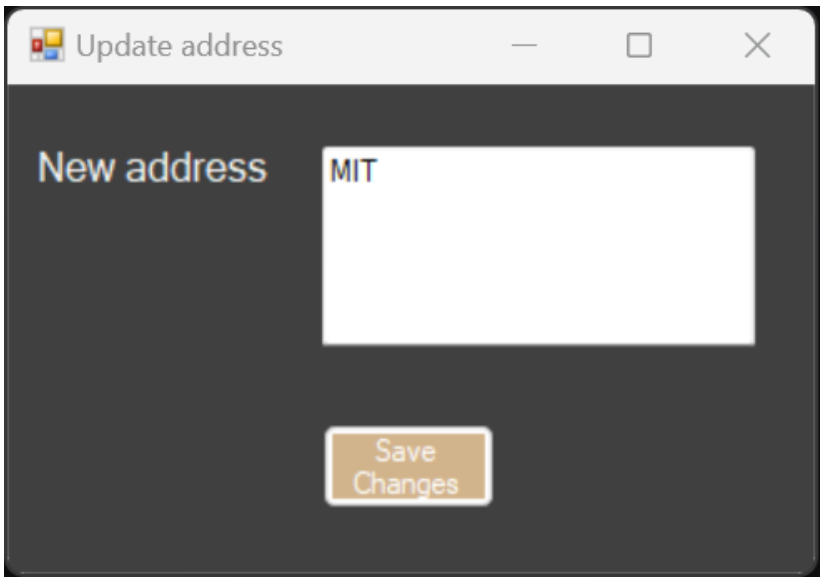
6.7 Home Page

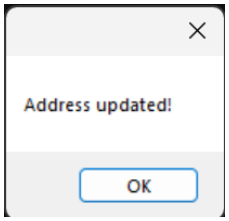


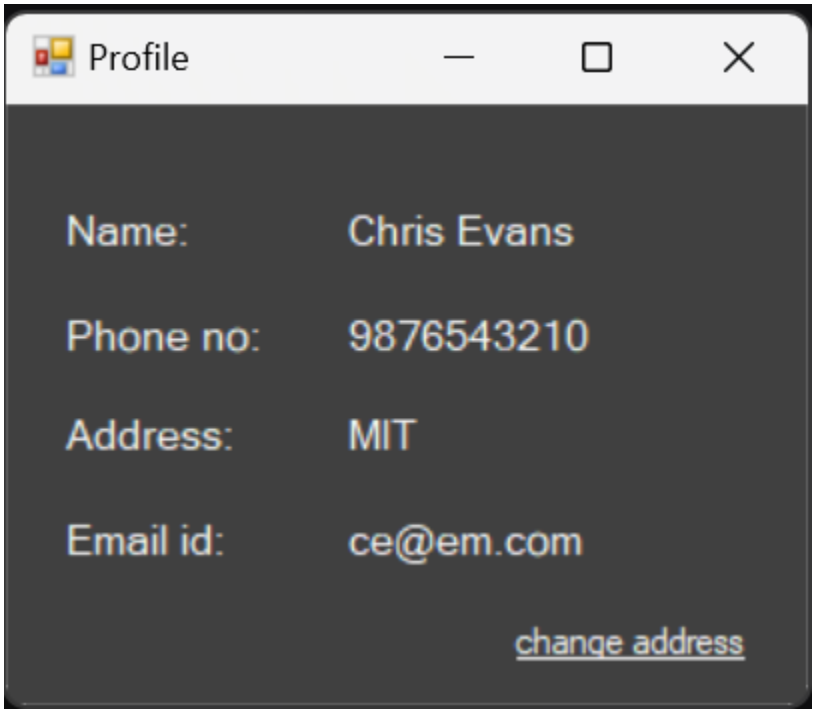
6.8.1 Personal details Page



6.8.2 Change Address





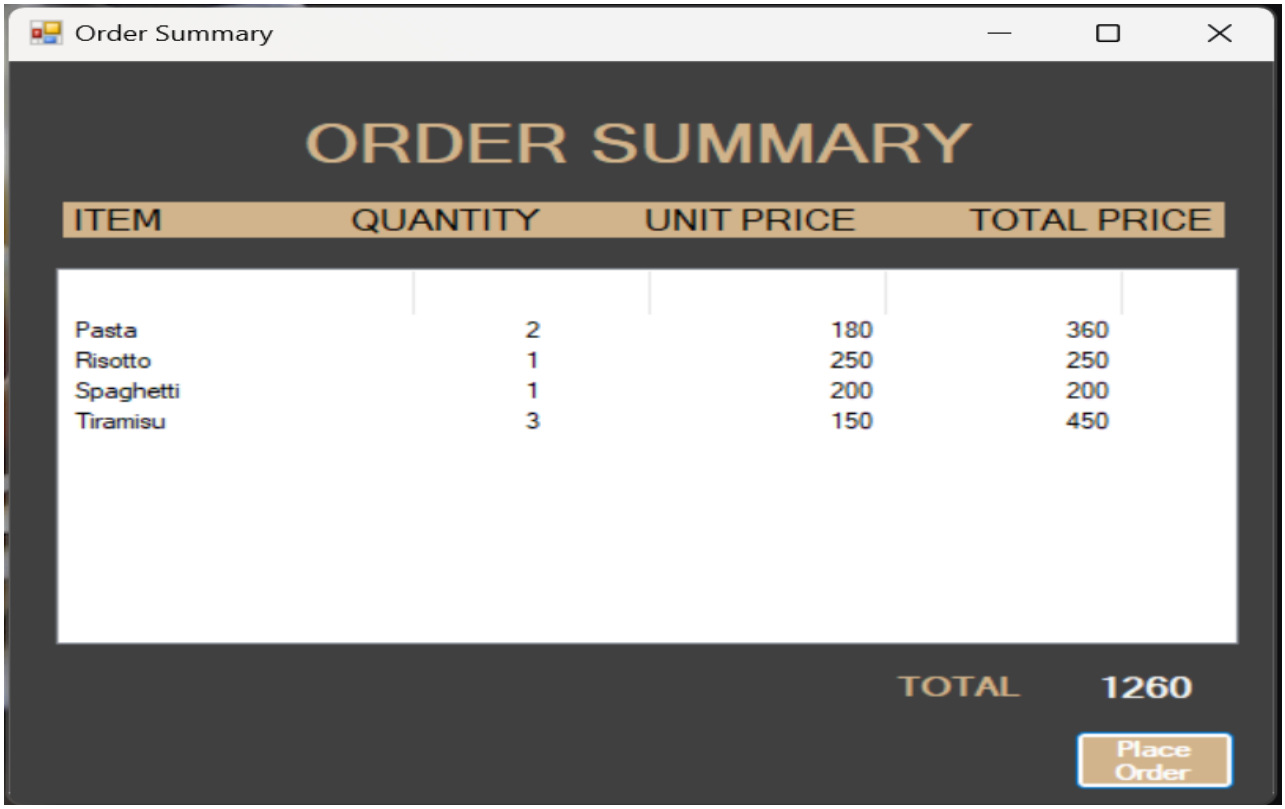

Profile
Name:
Chris Evans
Phone no:
9876543210
Address:
MIT
Email id:
ce@em.com
change address

6.9 Menu Page

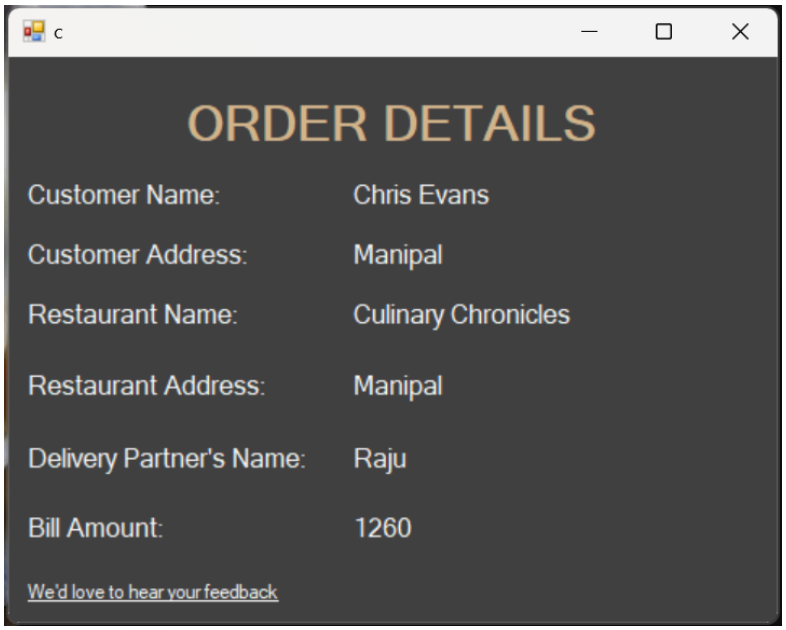
Culinary Chronicles
the culinary chronicles
Pasta
2
₹180
Lasagna
0
₹220
Spaghetti
1
₹200
Risotto
1
₹250
Tiramisu
3
₹150
ORDER

This restaurant has a 4 star rating
OK

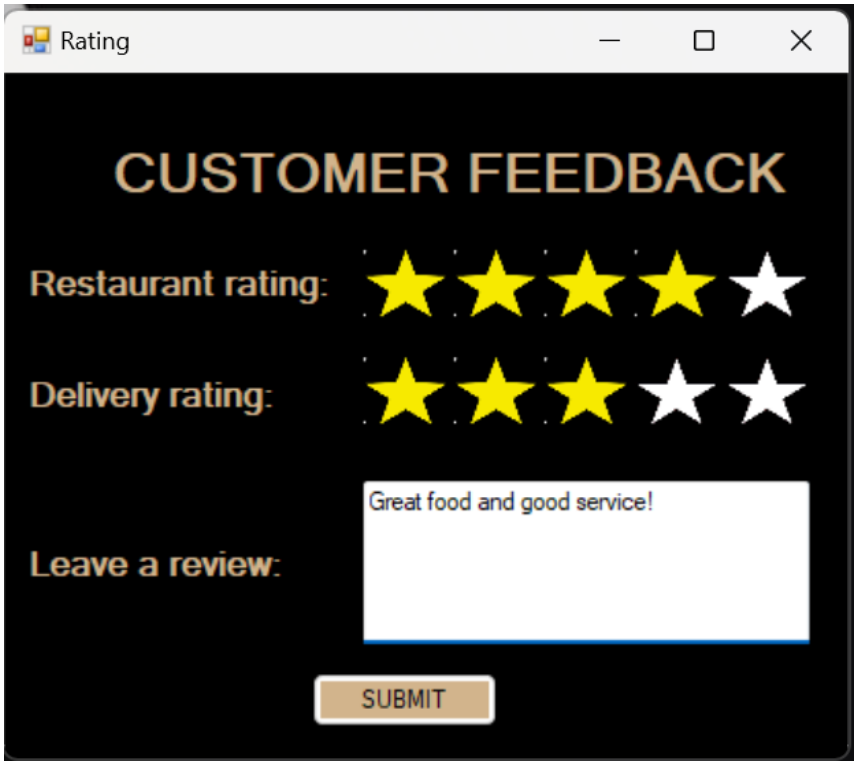
6.10 Order summary Page

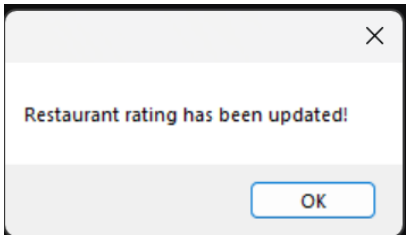


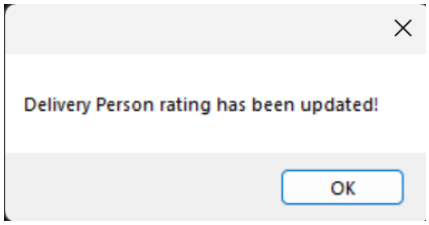
6.11 Order details Page



6.12 Feedback Form

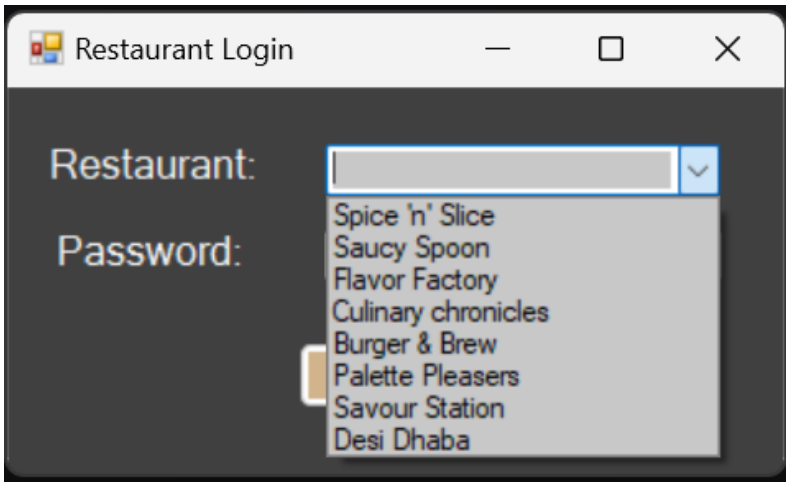




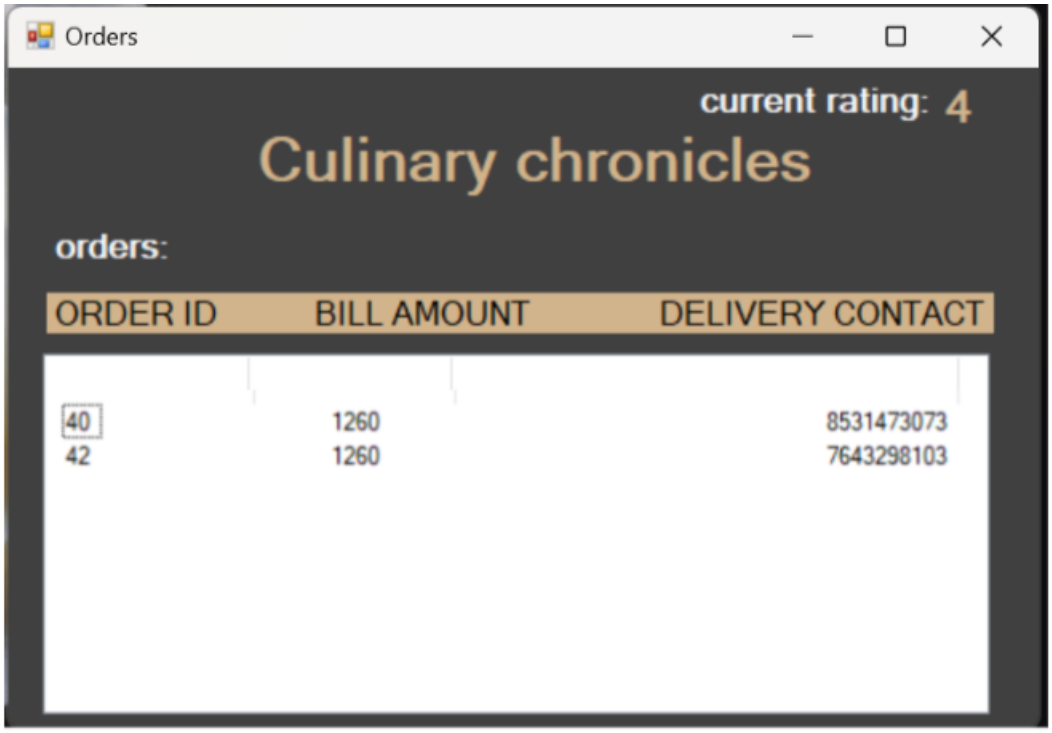


RESTAURANT

6.13 Restaurant Login

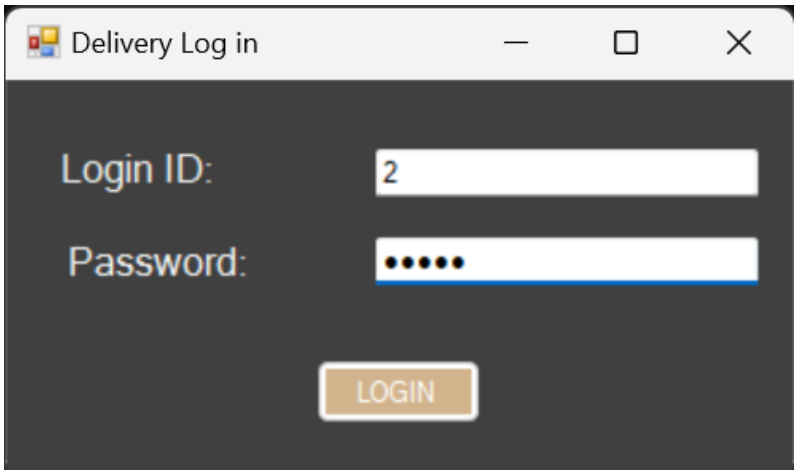


6.14 Restaurant Order History

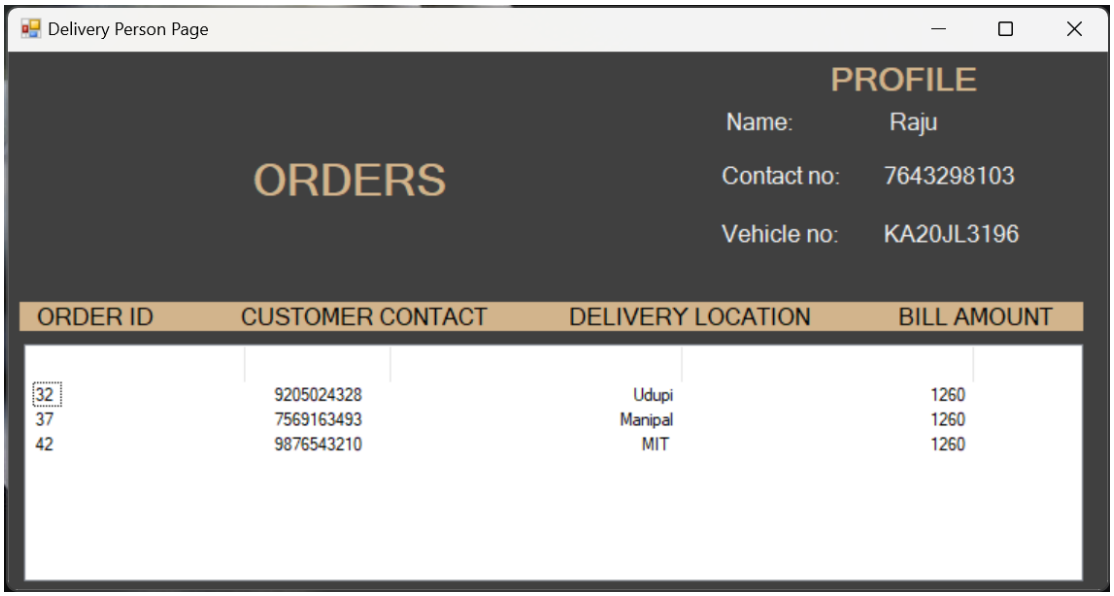


DELIVERY PERSONNEL

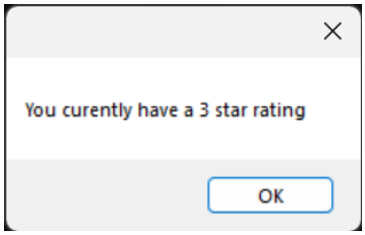
6.15 Delivery Personnel Login



6.16.1 Delivery personnel order history



6.16.2 Delivery personnel rating



CHAPTER 7
Conclusion and Future Work

7.1 CONCLUSION

In conclusion, the food delivery project has transformed the food industry by providing a convenient and efficient way for customers to order food and for restaurants to expand their customer base. With the rise of technology and the increasing demand for convenience, the food delivery project is expected to continue its rapid growth in the coming years. As the market becomes more competitive, companies will need to innovate and improve their services to stay ahead of the game and provide superior user experiences.

7.2 FUTURE WORK

In terms of future work, the food delivery project has several areas that can be improved upon. For instance, companies can focus on improving delivery times and accuracy, payment gateway, otp verification, live delivery tracking, optimizing routes and logistics, updating inventory and reducing delivery costs. Moreover, there is also a growing concern about the impact of food delivery services on the environment, particularly with regards to the amount of packaging waste generated. Companies can work towards developing more sustainable packaging solutions or implementing recycling programs to minimize their environmental footprint.

Overall, the food delivery project has brought significant benefits to customers, restaurants, and delivery personnel. With ongoing innovation and improvement, it has the potential to revolutionize the food industry even further and continue to meet the evolving needs of customers and businesses.

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