

**A PROJECT ON
RestroRun – Restaurant Management System**

SUBMITTED IN

PARTIAL FULFILLMENT OF THE REQUIREMENT

FOR THE COURSE OF DIPLOMA IN ADVANCED COMPUTING FROM CDAC



SUNBEAM INSTITUTE OF INFORMATION TECHNOLOGY
Hinjawadi

SUBMITTED BY:

**Avadhut Sakhare
Pranav Bobade
Aditya Marathe
Pratiksha Patil
Ayushi Khanbarad**

UNDER THE GUIDENCE OF:

Mrs. Pooja Jaiswal

Faculty Member
Sunbeam Institute of Information Technology, Pune

ACKNOWLEDGEMENT

A project usually falls short of its expectation unless aided and guided by the right persons at the right time. We avail this opportunity to express our deep sense of gratitude towards Mr. Nitin Kudale (Center Coordinator, SIIT, Pune) and Mr. Yogesh Kolhe (Course Coordinator, SIIT ,Pune) .

We are deeply indebted and grateful to them for their guidance, encouragement and deep concern for our project. Without their critical evaluation and suggestions at every stage of the project, this project could never have reached its present form.

Last but not the least we thank the entire faculty and the staff members of Sunbeam Institute of Information Technology, Pune for their support.

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0324 PG-DAC
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CERTIFICATE

This is to certify that the project work under the title 'Web Portal for Student and teacher' is done by **Avadhut Sakhare, Pranav Bobade, Aditya Marathe, Pratiksha Patil, Ayushi Khanbarad** in partial fulfillment of the requirement for award of Diploma in Advanced Computing Course.

Mrs.Pooja Jaiswal
Project Guide

Mr.Yogesh Kolhe
Course Co-Coordinator





Date:16/08/2024

1. INTRODUCTION TO PROJECT

RestroRun is a basic one stop web application for customers, hotel managers & delivery executives. Customers can order available food from their favorite restaurants whereas the restaurants can decide which food from their restaurant is been made available for their customers under specific food categories.

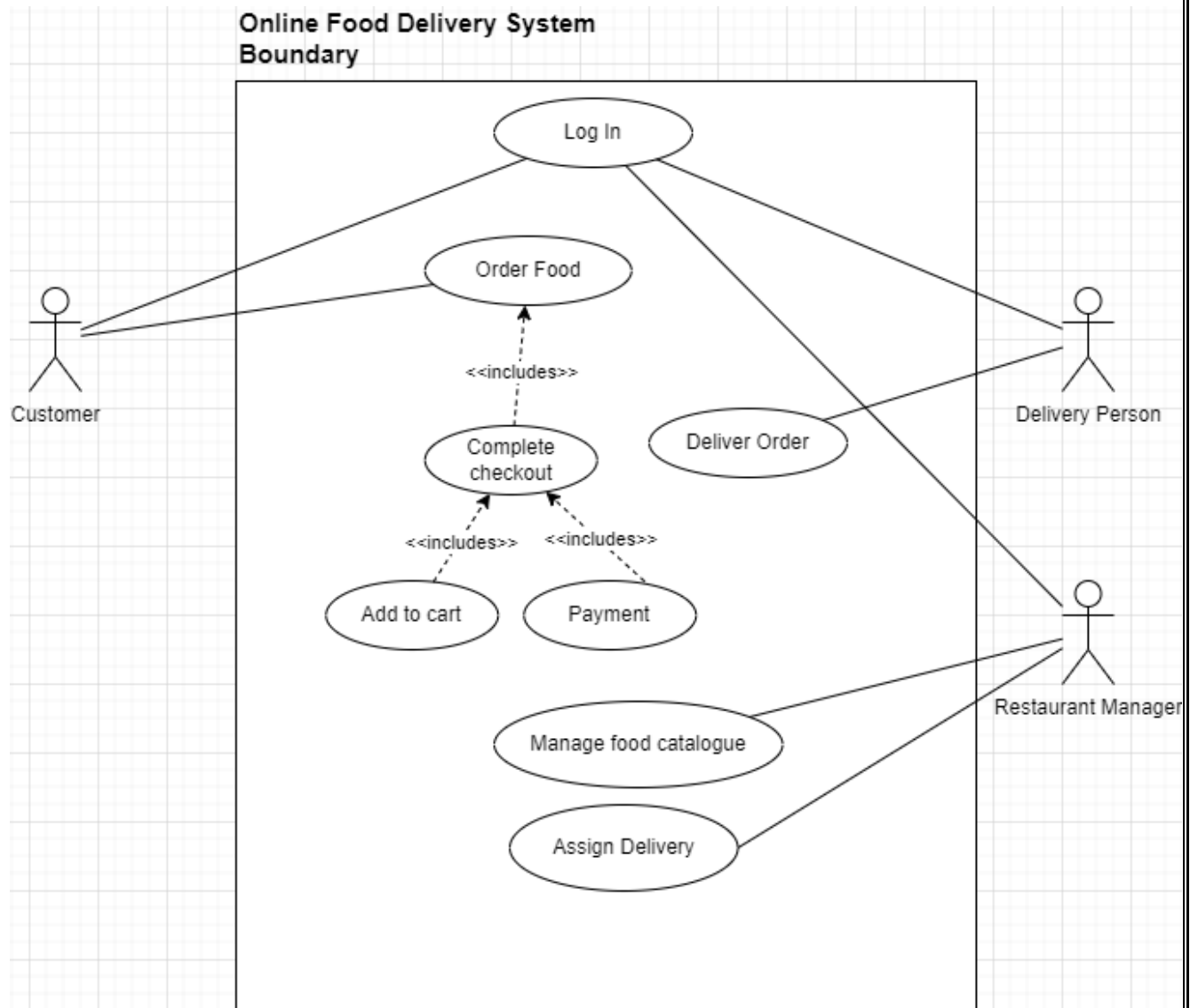
The restaurant managers can assign the food orders to the delivery executives and the delivery executives can deliver the food order and notify about delivery status. With the help of this system, people can easily order the food. It can also ensure that the people do not waste their precious time and use their time productively in the other works. In long run, this will ensure that it helps to reduce labor cost. This system proves to be more cost effective and reliable over other systems.

The main purpose of this system, is to increase the awareness about various food available in an area. To make cross cultural awareness among the people and to generate the feeling of oneness. Provide on time delivery of foods. In other words, our RestroRun food portal has, following objectives:

-  Simple database is maintained.
-  Easy operations for the operator of the system.
-  User interfaces are user accommodating and attractive; it takes very less time for the customer to use the system.
-  Easy operations for the operator of the system.

2.REQUIREMENTS

2.1 FUNCTIONAL REQUIREMENTS



2.1 Restaurant Manager

The Restaurant Manager needs comprehensive control over the operations and insights into the performance of the restaurant.

2.1.1 User Management

- **Create/Manage Users:** Ability to add, edit, and remove users (e.g., waiters, chefs, and other staff). Assign roles and permissions to users.
- **Access Control:** Manage access rights based on roles, ensuring that only authorized personnel can access sensitive features.
- **Employee Performance Monitoring:** View reports on individual employee performance, such as order handling efficiency, customer feedback, and attendance.

2.1.2 Table and Reservation Management

- **Table Configuration:** Configure the number of tables, their seating capacity, and table layout in the system.
- **Reservation Overview:** View all current and upcoming reservations. Modify or cancel reservations if necessary.
- **Waitlist Management:** Monitor and manage waitlisted customers during peak hours, ensuring efficient table turnover.

2.1.3 Menu Management

- **Create/Update Menu:** Add, remove, or update menu items, set pricing, and categorize dishes (e.g., appetizers, main courses, desserts).
- **Special Offers:** Create and manage promotional offers, discounts, and special menus for holidays or events.

2.1.4 Order and Billing Management

- **Order Monitoring:** Track the status of all current orders, including those in preparation, ready to serve, or completed.
- **Invoice Generation:** Oversee and manage bill generation. Address any disputes or discrepancies in billing.
- **Payment Tracking:** Monitor payments, ensuring all transactions are recorded correctly. Manage different payment methods and track cash flow.

2.2 Customers

Customers interact with the Restaurant Management System primarily through online interfaces or mobile apps, and their needs focus on convenience and personalization.

2.2.1 Table Reservation

- **Online Reservations:** Make table reservations through the restaurant's website or mobile app, specifying the date, time, and number of guests.
- **Reservation Modification:** Modify or cancel reservations easily, with confirmation sent via email or SMS.
- **Waitlist Sign-Up:** Join a waitlist if the restaurant is fully booked and receive notifications when a table is available.

2.2.2 Menu Access

- **Digital Menu:** Browse the restaurant's menu online, with detailed descriptions, images, and prices.
- **Special Requests:** Make special requests or specify dietary preferences when placing an order.

2.2.3 Order Placement

- **Online Ordering:** Place orders for dine-in, takeaway, or delivery directly through the website or app.
- **Order Tracking:** Track the status of online orders in real-time, from preparation to delivery.
- **Reorder Favorites:** Quickly reorder previously enjoyed meals from order history.

2.2.4 Billing and Payment

- **View and Split Bill:** View the bill on a digital device, split the bill among diners, and apply any available discounts or loyalty points.
- **Multiple Payment Options:** Pay using various methods, including credit/debit cards, mobile payments, and digital wallets.

2.2.5 Loyalty Programs

- **Loyalty Points Tracking:** Earn and track loyalty points with each purchase, and redeem points for discounts or free items.
- **Promotional Offers:** Receive notifications about special offers, discounts, and events through the app.

2.2.6 Customer Feedback

- **Submit Feedback:** Provide feedback on the dining experience directly through the app or website, including ratings and comments.
- **Receive Responses:** Get follow-ups or responses to feedback from the restaurant management.

2.2.7 Notifications and Alerts

- **Reservation Reminders:** Receive reminders for upcoming reservations.
- **Order Notifications:** Get real-time updates on order status, delivery times, and special promotions.

2.3 Delivery Person Management

2.3.1 Delivery Person Profile Management

- **User Registration:** Delivery personnel should be able to register and create a profile, including details like name, contact information, vehicle type, and license number.
- **Profile Updates:** Delivery personnel should be able to update their profile information, such as contact details and vehicle information.
- **Status Management:** Delivery persons should be able to set their availability status (e.g., Available, On Delivery, Offline).

2.3.2 Order Assignment

- **Automatic Order Assignment:** The system should automatically assign delivery orders to available delivery persons based on criteria such as proximity to the restaurant, delivery location, and workload.
- **Manual Order Assignment:** Managers should have the ability to manually assign orders to delivery personnel if needed.
- **Order Acceptance:** Delivery personnel should be able to accept or decline assigned orders within a specified time frame.

2.3.3 Order Details

- **View Order Information:** Delivery personnel should be able to view detailed order information, including customer name, address, contact number, order items, and special instructions.
- **Delivery Instructions:** Any specific delivery instructions provided by the customer (e.g., leave at the door, call on arrival) should be accessible to the delivery person.
- **Payment Details:** The system should display payment details, including whether the order is prepaid or requires cash on delivery (COD).

2.3.4 Communication

- **Contact Customer:** Delivery personnel should be able to contact the customer via phone or in-app messaging if needed.
- **Contact Restaurant:** Delivery personnel should have an option to contact the restaurant in case of issues or questions related to the order.
- **Notification System:** The system should send notifications to delivery personnel about new orders, changes in order status, and important updates.

2.3.5 Order Status Updates

- **Start Delivery:** Delivery personnel should be able to mark an order as "Out for Delivery" when they start the delivery process.
- **Delivery Completion:** After successfully delivering the order, delivery personnel should mark the order as "Delivered."
- **Failed Delivery:** If a delivery attempt fails (e.g., customer not available), the delivery person should be able to mark the order as "Failed" and provide a reason.
- **Real-Time Updates:** The system should provide real-time updates to the customer and the restaurant on the order status.

2.3.6 Payment Management

- **Cash on Delivery (COD):** The system should allow delivery personnel to collect cash payments and update the order status accordingly.

2.3.7 Performance Tracking

- **Delivery Time Tracking:** The system should track the time taken for each delivery and generate reports on delivery times.
- **Order Accuracy:** The system should track the accuracy of orders delivered (e.g., correct items, no missing items) and report any issues.
- **Customer Feedback:** Customers should be able to rate and provide feedback on the delivery service, which should be tracked and reported.

2.2 NON FUNCTIONAL REQUIREMENTS

2.2.1 Security

The system's back-end servers shall only be accessible to authenticated administrators. Sensitive data will be encrypted before being sent over insecure connections like the internet.

2.2.2 Availability

The system should be available at all times, meaning the user can access it using a web browser, only restricted by the downtime of the server on which the system runs. In case of an of a hardware failure or database corruption, a replacement page will be shown. Also, in case of a hardware failure or database corruption, backups of the database should be retrieved from the server and saved by the administrator. Then the service will be restarted. It means 24 X 7 availability.

2.2.3 Reliability

The reliability of the overall program depends on the reliability of the separate components. The main pillar of the reliability of the system is the backup of the database which is continuously maintained and updated to reflect the most recent changes. Thus, the overall stability of the system depends on the stability of container and its underlying operating system.

2.2.4 Maintainability

A commercial database is used for maintaining the database and the application server takes care of the site. In case of a failure, a re-initialization of the program will be done. Also, the software design is being done with modularity in mind so that maintainability can be done efficiently.

2.2.5 Accessibility

The system will be a web-based application it is going to be accessible on the web browser.

2.2.5 Back up

We will take a backup in our system database. In order to enable the administrator and the user to access the data from our system.

2.2.6 Performance

The product shall be based on web and has to be run from a web server. The product shall take initial load time depending on internet connection strength which

also depends on the media from which the product is run. The performance shall depend upon hardware components of the client/customer.

2.2.7 Supportability

The source code developed for this system shall be maintained in configuration management tool.

3. DESIGN

3.1 Database Design

The following table structures depict the database design.

Table1: Customer Info

<u>Field</u>	<u>Type</u>	<u>Null</u>	<u>Key</u>	<u>Default</u>	<u>Extra</u>
id	int	NO	PRI	NULL	
Address_text	varchar(255)	YES		NULL	
email	varchar(255)	YES		NULL	
name	varchar(255)	YES		NULL	
password	varchar(255)	YES		NULL	
Pin_code	varchar(255)	YES		NULL	

Table2: Delivery Person

<u>Field</u>	<u>Type</u>	<u>Null</u>	<u>Key</u>	<u>Default</u>	<u>Extra</u>
id	int	NO	PRI	NULL	auto_increment
email	varchar(255)	YES		NULL	
Is_available	bit(1)	YES		NULL	
name	varchar(255)	YES		NULL	
Password	varchar(255)	YES		NULL	

Table3: Food-item

<u>Field</u>	<u>Type</u>	<u>Null</u>	<u>Key</u>	<u>Default</u>	<u>Extra</u>
id	int	NO	PRI	NULL	auto_increment
Image_path	varchar(255)	YES		NULL	
Is_available	bit(1)	YES		NULL	
Is_vegeterian	bit(1)	YES		NULL	
name	varchar(255)	YES		NULL	
price	double	YES		NULL	
food_type_id	int	YES	MUL	NULL	
restaurant_id	int	YES	MUL	NULL	

Table4: food type

<u>Field</u>	<u>Type</u>	<u>Null</u>	<u>Key</u>	<u>Default</u>	<u>Extra</u>
id	int	NO	PRI	NULL	auto_increment
Image_path	varchar(255)	YES		NULL	

Table5: order item

<u>Field</u>	<u>Type</u>	<u>Null</u>	<u>Key</u>	<u>Default</u>	<u>Extra</u>
id	int	NO	PRI	NULL	auto_increment
Food_item_name	varchar(255)	YES		NULL	
Food_item_price	double	YES		NULL	
quantity	int	YES		NULL	
Food_item_id	int	YES	MUL	NULL	
order_id	int	YES	MUL	NULL	

Table6:Orders

<u>Field</u>	<u>Type</u>	<u>Null</u>	<u>Key</u>	<u>Default</u>	<u>Extra</u>
id	int	NO	PRI	NULL	auto_increment
status	varchar(255)	YES		NULL	
customer_id	int	YES	MUL	NULL	
order_id	int	YES	MUL	NULL	

Table7: payment

<u>Field</u>	<u>Type</u>	<u>Null</u>	<u>Key</u>	<u>Default</u>	<u>Extra</u>
id	int	NO	PRI	NULL	auto_increment
status	varchar(255)	YES		NULL	
Assign_to_delivery_person_id	int	YES	MUL	NULL	
customer_id	int	YES	MUL	NULL	
restaurant_id	int	YES	MUL	NULL	

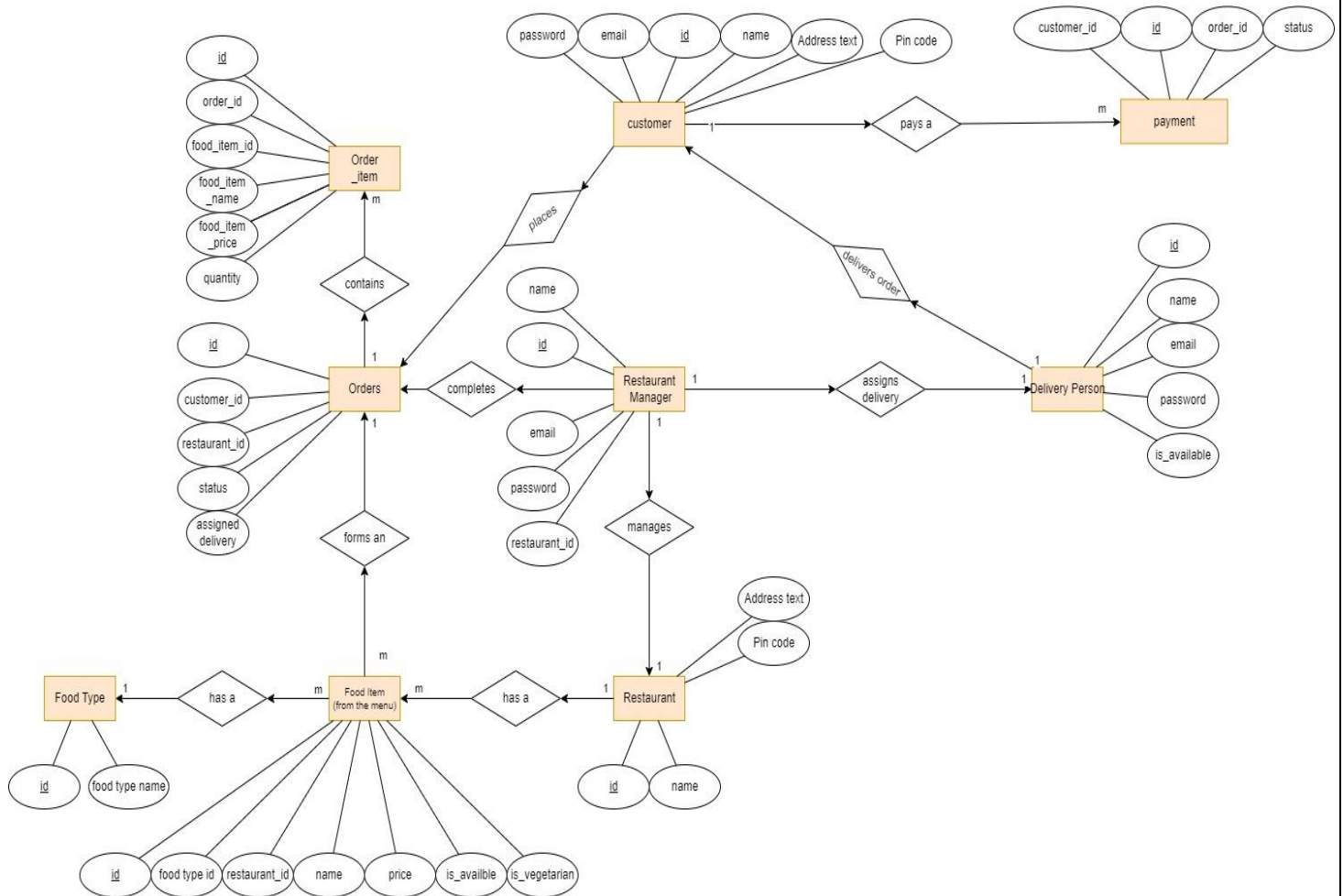
Table8: restaurant

<u>Field</u>	<u>Type</u>	<u>Null</u>	<u>Key</u>	<u>Default</u>	<u>Extra</u>
id	int	NO	PRI	NULL	auto_increment
Address_text	varchar(255)	YES		NULL	
name	varchar(255)	YES		NULL	
pin_code	int	YES		NULL	

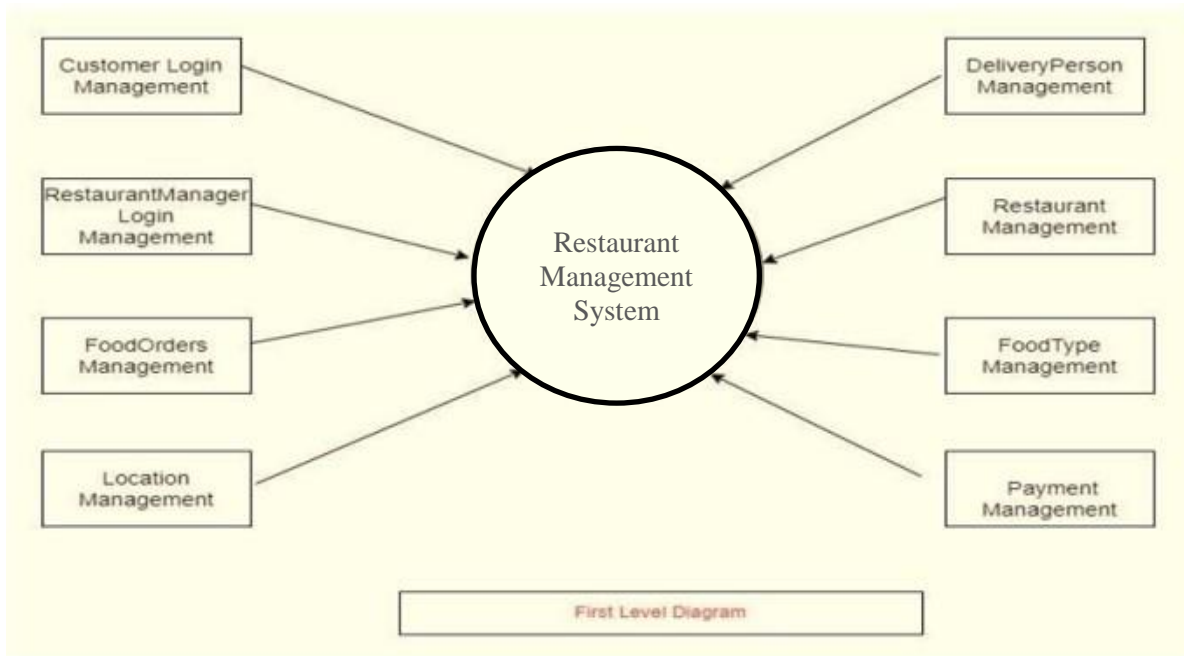
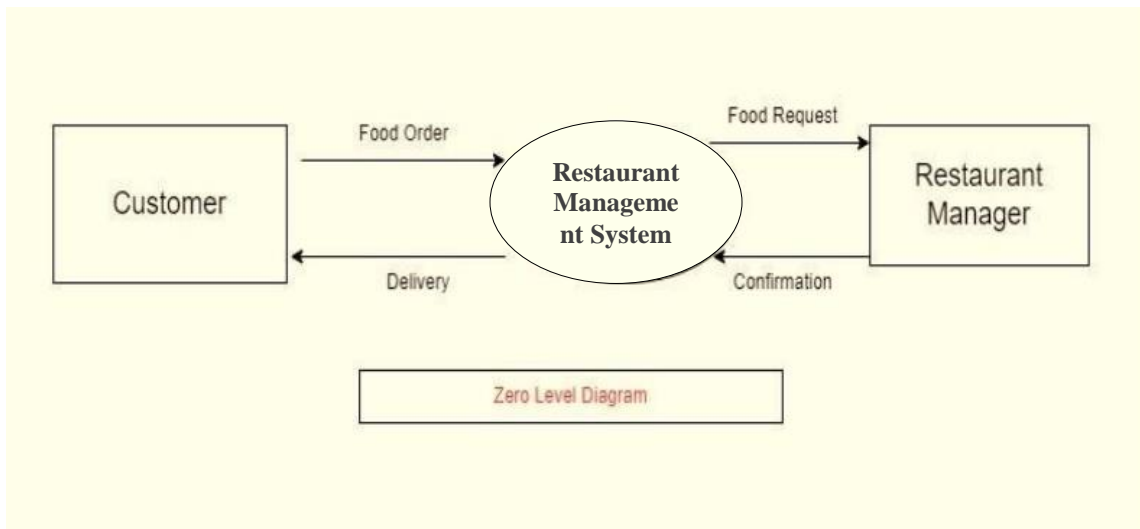
Table9: restraunt manager

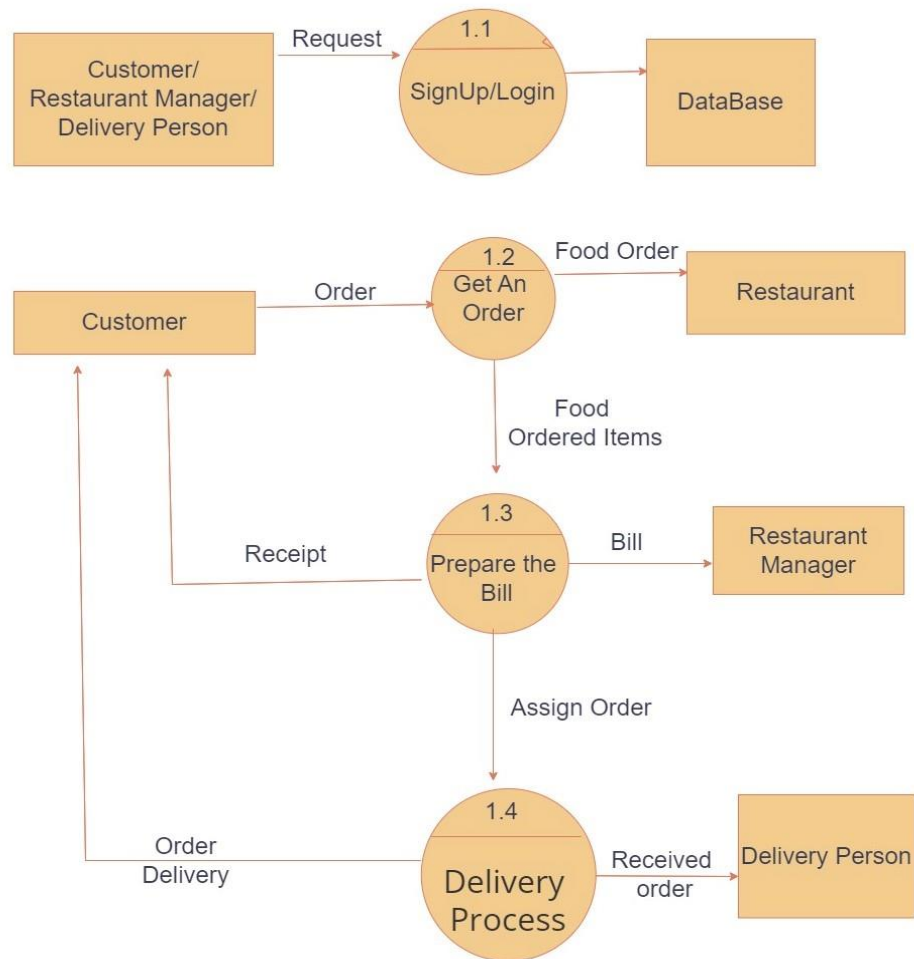
<u>Field</u>	<u>Type</u>	<u>Null</u>	<u>Key</u>	<u>Default</u>	<u>Extra</u>
id	int	NO	PRI	NULL	auto_increment
email	varchar(255)	YES		NULL	
name	varchar(255)	YES		NULL	
password	varchar(255)	YES		NULL	
restaurant_id	int	YES	MUL	NULL	

E-R Diagram:



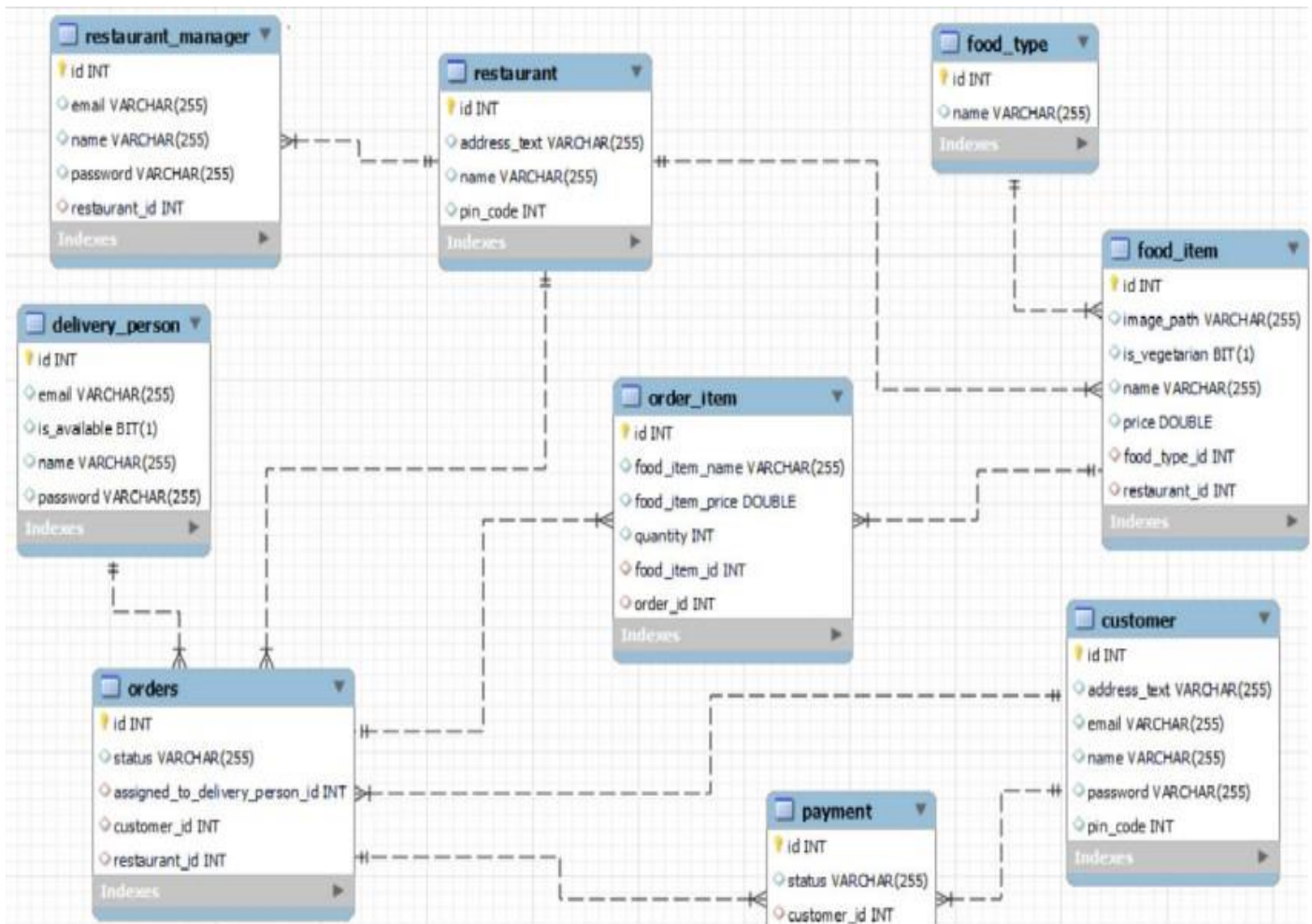
Data Flow Diagram:





Customer Level 2 Diagram

Class Diagram:



4. CODING STANDARDS IMPLEMENTED

Naming and Capitalization

Below summarizes the naming recommendations for identifiers in Pascal casing is used mainly (i.e. capitalize first letter of each word) with camel casing (capitalize each word except for the first one) being used in certain circumstances.

Identifier	Case	Examples	Additional Notes
Class	Pascal	Person, BankVault, SMSMessage, Dept	Class names should be based on "objects" or "real things" and should generally be nouns . No ‘_’ signs allowed. Do not use type prefixes like ‘C’ for class.
Method	Camel	getDetails, updateStore	Methods should use verbs or verb phrases.
Parameter	Camel	personName, bankCode	Use descriptive parameter names. Parameter names should be descriptive enough that the name of the parameter and its type can be used to determine its meaning in most scenarios.
Interface	Pascal with "I" prefix	Disposable	Do not use the ‘_’ sign
Property	Pascal	ForeColor, BackColor	Use a noun or noun phrase to name properties.
Associated private member variable	_camelCase	_foreColor, _backColor	Use underscore camel casing for the private member variables
Exception Class	Pascal with "Exception" suffix	WebException,	

Comments

- Comment each type, each non-public type member, and each region declaration.
- Use end-line comments only on variable declaration lines. End-line comments are comments that follow code on a single line.
- Separate comments from comment delimiters (apostrophe) or // with one space.
- Begin the comment text with an uppercase letter.
- End the comment with a period.
- Explain the code; do not repeat it.

5. TEST REPORT

Another group called LearnEase did the testing and the report of the testing is given here under.

GENERAL TESTING:

SR-NO	TEST CASE	EXPECTED RESULT	ACTUAL RESULT	ERROR MESSAGE
1	Register Page	Redirected to Next page	OK	Nothing
2	Login Page	Pop-up will come	Ok	Please enter username and password again .
3	Reset login	Only users password will reset	Ok	Nothing
4	Quick search food	Gives all food details	Ok	Nothing
5	Booking Table	All the fields should be filled for submission	Ok	Nothing
6	Checking login or not	User is logged in or not	Ok	Nothing
	Add person details for table booking	Add information according to no of tables allocated	Ok	Nothing
8	Go to restaurant page	Set added information about person	Ok	Nothing
9	Add information in booking table	Save this all data into booking table	Ok	Nothing
10	Payment	On back it should be reverted to previous page	Ok	Nothing
11	View Payment done	It shows you all payments done previously	Ok	Nothing
12	Logout	It will logout from user profile.	Ok	Nothing
	STATIC TESTING			
SR-NO	Deviation	Program		
1	Commenting not followed	All Web Application		

6. PROJECT MANAGEMENT RELATED STATISTICS

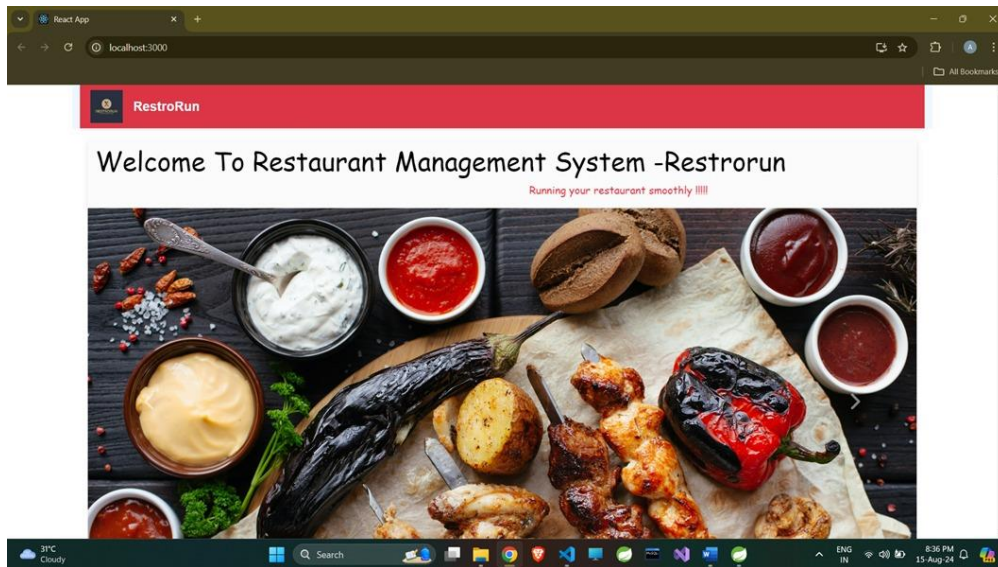
DATE	WORK PERFORMED	SLC Phase	Additional Notes
APR 11, 2024	Project Allotment and User Requirements Gathering	Feasibility Study	The team met the client, Mr. John Smith (Owner, Gourmet Bistro), to gather requirements for the restaurant system.
APR 16, 2024	Initial SRS Document Validation and Team Structure Decided	Requirement Analysis (Elicitation)	The initial SRS was presented to the client to refine and better understand his requirements.
APR 17, 2024	Designing Use Cases, Class Diagram, Collaboration Diagram, and UI Mockups	Requirement Analysis & Design Phase	Database design was completed based on the finalized requirements.
APR 18, 2024	Business Logic Component Design Started	Design Phase	Core business logic for table management and order processing began.
APR 19, 2024	Coding Phase Started	Coding Phase	60% of the backend services for order management were implemented.
APR 20, 2024	Implementation of Web Application and Mobile App Started	Coding Phase	Backend API development in progress.
APR 21, 2024	Off	Off	Off
APR 22, 2024	Continued Implementation of Web Application and Mobile App	Coding Phase and Unit Testing	Integration with third-party payment systems was initiated.
APR 23, 2024	Continued Implementation of Web Application and Mobile App	Coding Phase and Unit Testing	Development of the POS module was completed.
APR 24, 2024	Validation and Integration Testing	Coding Phase and Unit Testing	Integrated modules were tested for consistency and proper functioning.
APR 25, 2024	Project Testing by Respective Team Leads	Testing Phase (Module Testing)	Individual modules were tested by team leaders for quality assurance.
APR 26,	Project Submitted for	Testing Phase	The project was handed over to

DATE	WORK PERFORMED	SLC Phase	Additional Notes
2024	Cross-Team Testing	(Acceptance Testing)	another team for independent acceptance testing.
APR 27-29, 2024	Debugging and Error Resolution	Debugging	Final debugging sessions were held to resolve issues identified during testing.
APR 30, 2024	First Iteration of Project Submission	Final Submission	The first iteration of the project was submitted for client review.
MAY 05, 2024	Feedback Incorporation and Second Iteration	Coding Phase and Unit Testing	Client feedback was incorporated, and adjustments were made accordingly.
MAY 12, 2024	Final Implementation of Additional Features	Coding Phase	Additional requested features like loyalty programs and delivery tracking were implemented.
MAY 19, 2024	Final System Testing	Testing Phase	The entire system underwent thorough testing to ensure all functionalities worked as expected.
MAY 26, 2024	User Training and Documentation Preparation	User Training and Documentation	User manuals and training sessions were prepared for the restaurant staff.
JUN 01, 2024	Pilot Launch and Monitoring	Deployment	The system was deployed for a pilot run at Gourmet Bistro, with close monitoring and support.
JUN 15, 2024	Post-Pilot Review and Final Adjustments	Maintenance Phase	Feedback from the pilot was reviewed, and necessary adjustments were made before the full launch.
JUN 30, 2024	Final System Launch	Deployment	The restaurant management system was fully launched and went live at Gourmet Bistro.
JUL 14, 2024	Ongoing Support and Maintenance	Maintenance Phase	Continuous monitoring and maintenance services were provided to ensure smooth operation.
AUG	Final Project Closure and	Project Closure	The project was officially

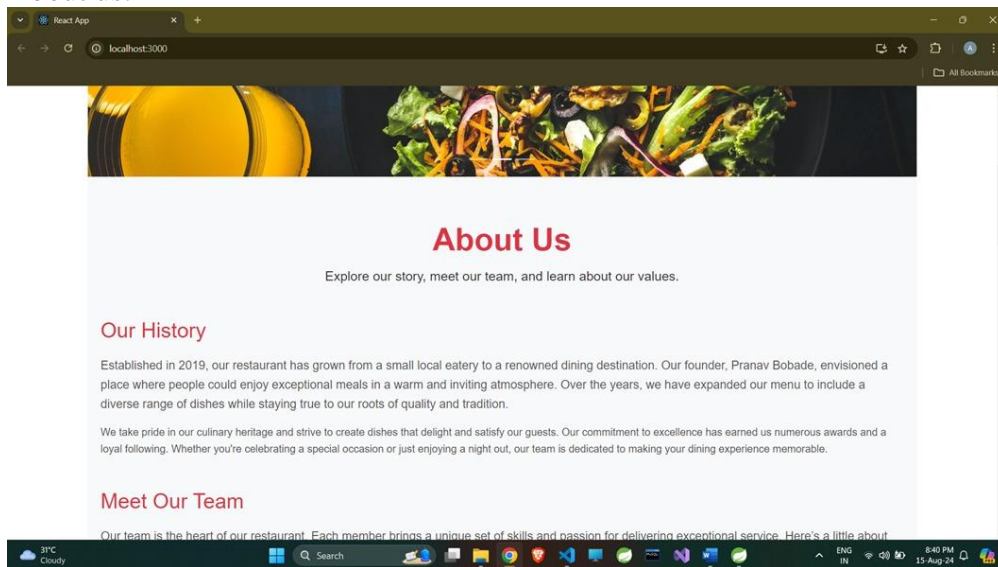
DATE	WORK PERFORMED	SLC Phase	Additional Notes
14, 2024	Handover		closed, and all documents and responsibilities were handed over to the client.

Appendix

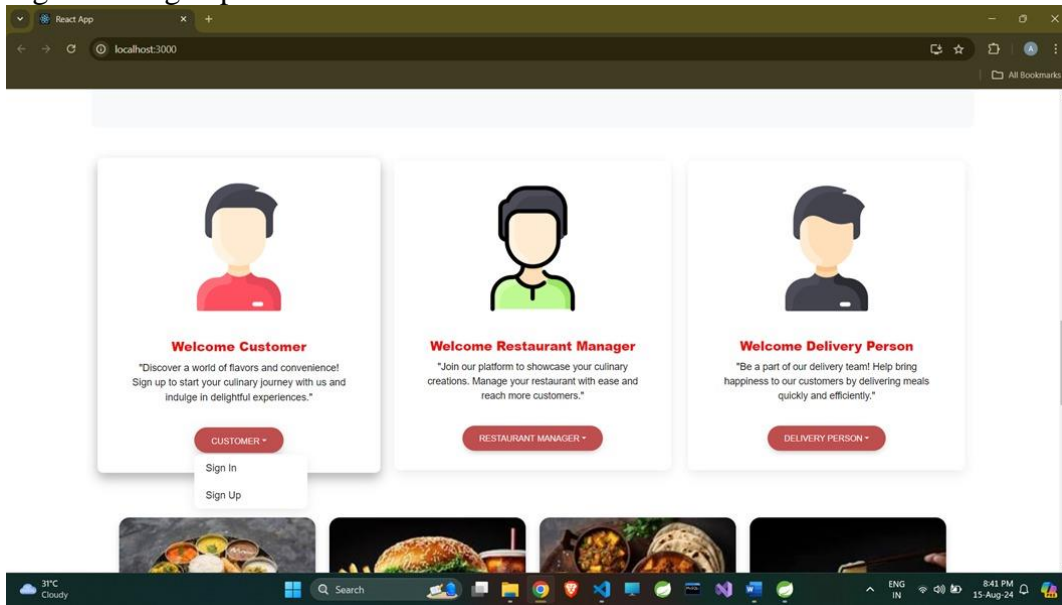
Homepage:



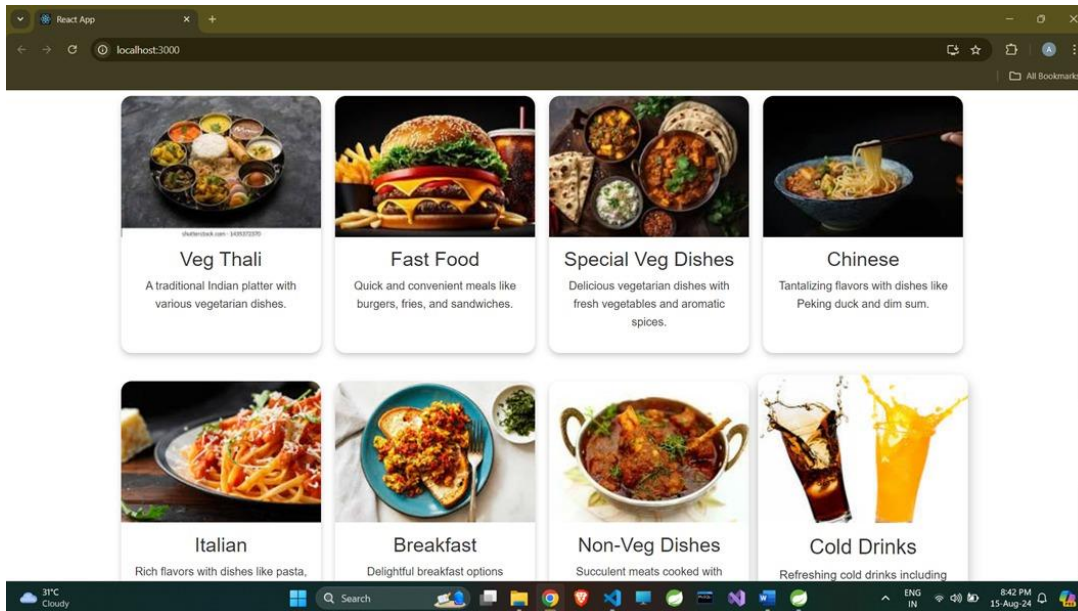
About us:



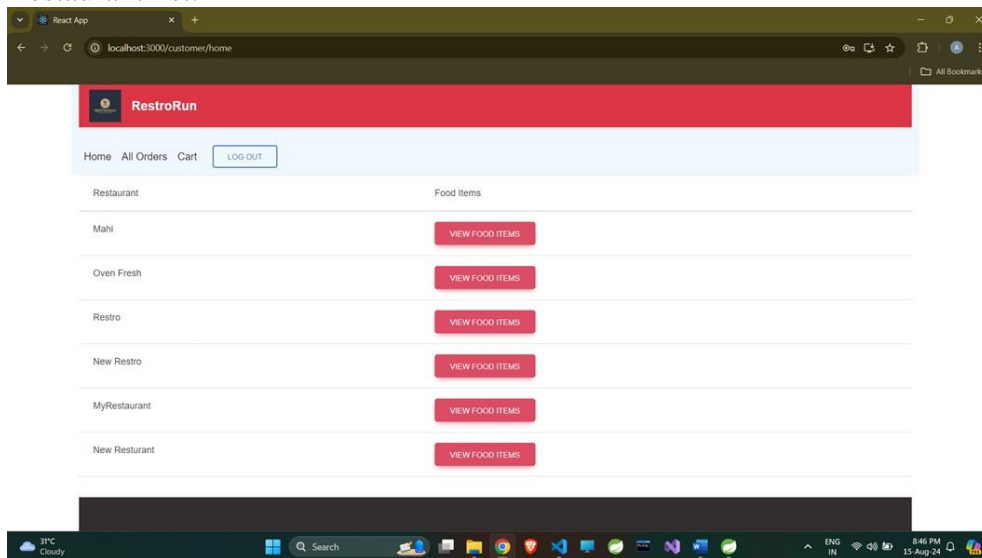
Sign in & SignUp:



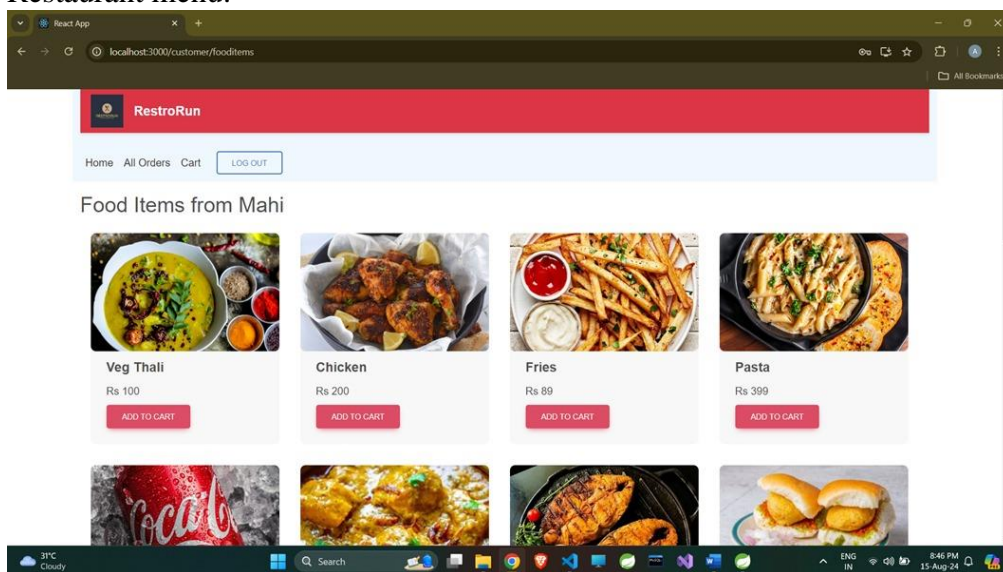
Menu:



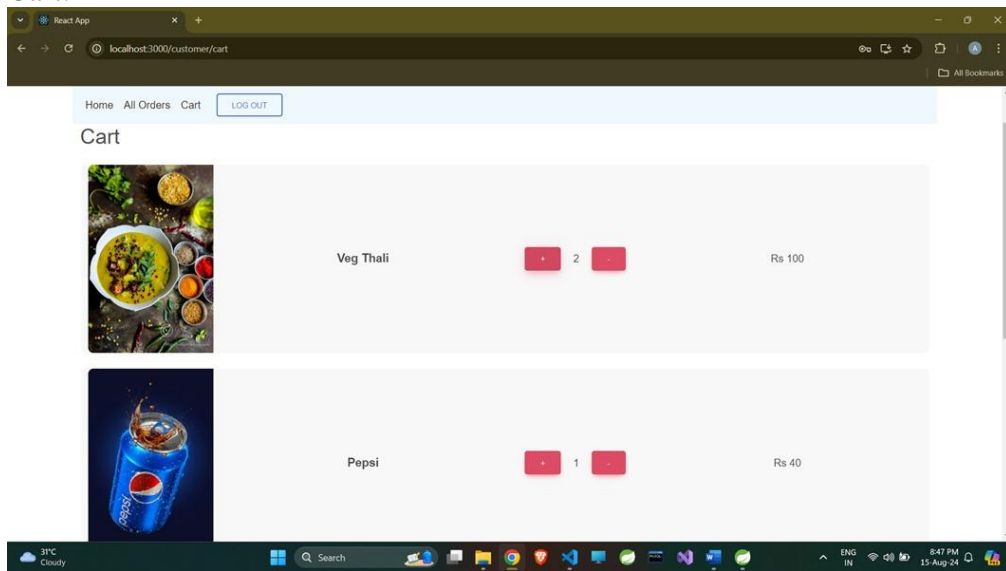
Restaurant list:



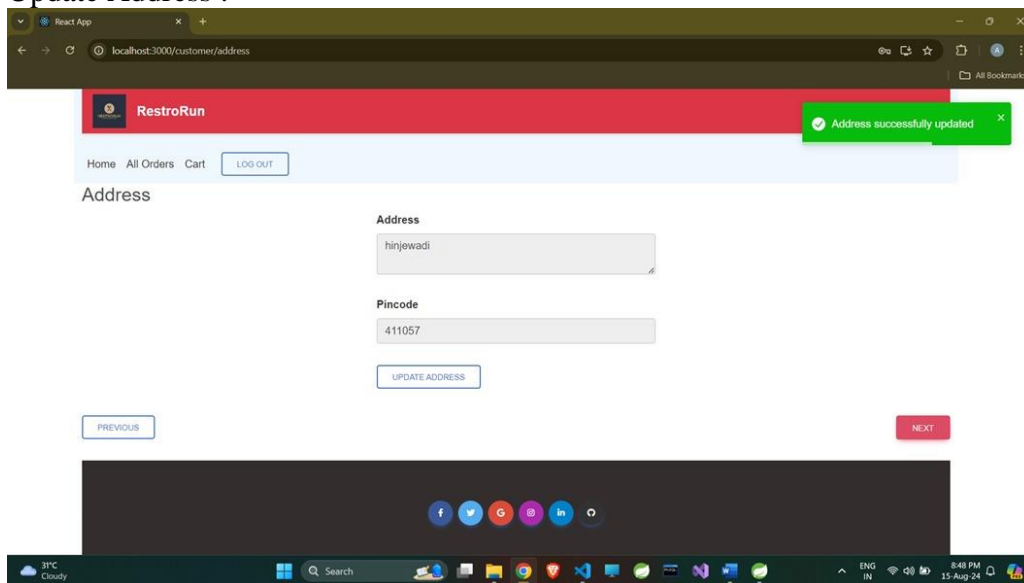
Restaurant menu:



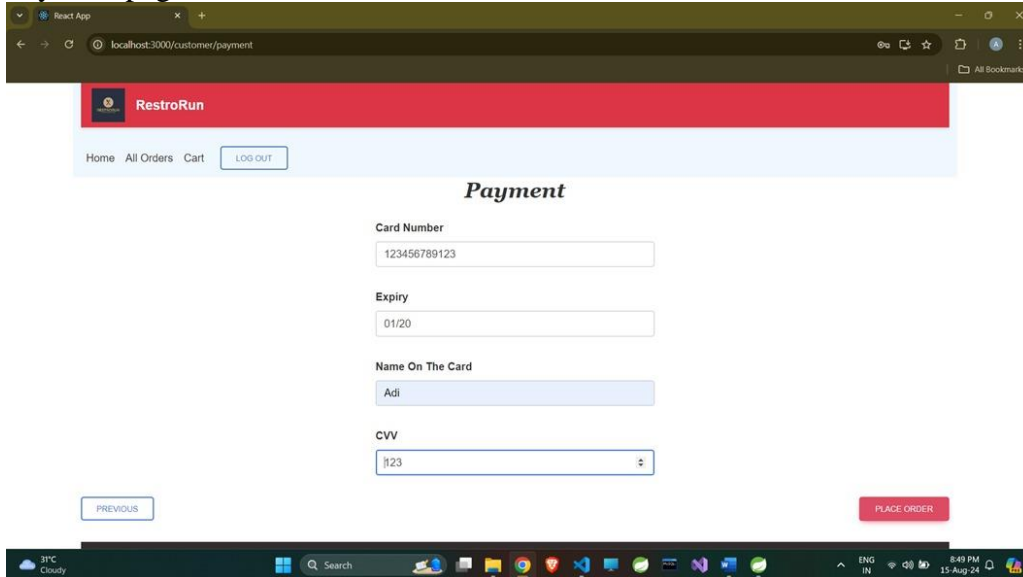
Cart:



Update Address :

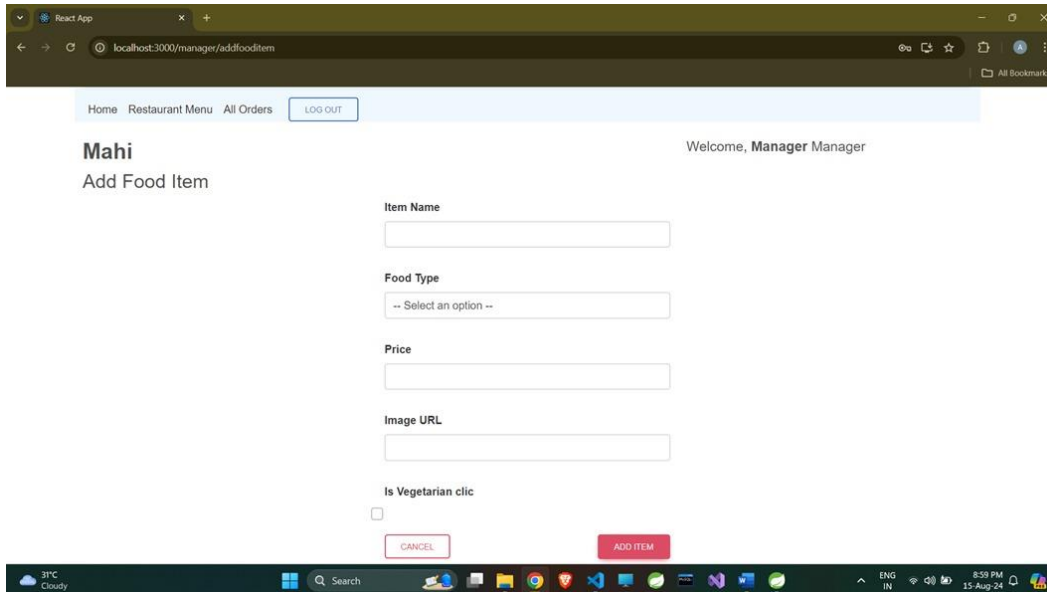


Payment page:



The screenshot shows a web browser window with the URL `localhost:3000/customer/payment`. The page has a red header with the RestroRun logo and a navigation bar with links for Home, All Orders, Cart, and a LOG OUT button. The main heading is "Payment". Below it, there are four input fields: Card Number (containing 123456789123), Expiry (containing 01/20), Name On The Card (containing Adi), and CVV (containing 123). At the bottom left is a PREVIOUS button and at the bottom right is a PLACE ORDER button. The Windows taskbar at the bottom shows the date as 15-Aug-24 and the time as 8:49 PM.

Add food item:



The screenshot shows a web browser window with the URL `localhost:3000/manager/addfooditem`. The page has a red header with the RestroRun logo and a navigation bar with links for Home, Restaurant Menu, All Orders, and a LOG OUT button. The main heading is "Add Food Item". Below it, there are four input fields: Item Name, Food Type (with a dropdown menu showing "-- Select an option --"), Price, and Image URL. There is also a checkbox for "Is Vegetarian clic" which is currently unchecked. At the bottom left is a CANCEL button and at the bottom right is an ADD ITEM button. The Windows taskbar at the bottom shows the date as 15-Aug-24 and the time as 8:59 PM.

Edit food item:

The screenshot shows a web browser window with the URL `localhost:3000/manager/editfooditem`. The page has a navigation bar with 'Home', 'Restaurant menu', 'All Orders', and 'LOG OUT'. The main heading is 'Mahi Edit Food Item'. On the right, it says 'Welcome, Manager Manager'. The form contains the following fields:

- Item Name:** A text input field containing 'Veg Thali'.
- Food Type:** A dropdown menu with 'Veg' selected.
- Price:** A text input field containing '100'.
- Image URL:** A text input field containing `https://i.pinimg.com/564x/e7/70/f5/e770f5885c4e1aee6`.
- Is Vegetarian:** A text input field.

At the bottom of the form are two buttons: 'CANCEL' and 'UPDATE'. The Windows taskbar at the bottom shows the date as 15 Aug 24 and the time as 8:59 PM.

Order details:

The screenshot shows a web browser window with the URL `localhost:3000/dp/home`. The page has a navigation bar with 'Home', 'All Orders', and 'LOG OUT'. The main heading is 'RestroRun'. A green notification banner at the top right says 'Delivery status changed'. Below the navigation bar, there are two sections: 'Orders ready for pickup' and 'Orders ready for delivery'. The 'Orders ready for delivery' section shows 'Order No 5' with the following details:

Pickup From :	Deliver To :
New Resturant	Aditya
Pune	hinjewadi
123454	411057

Below the table is a red button labeled 'MARK DELIVERY COMPLETE'. At the bottom of the page, there is a footer with social media icons (Facebook, Twitter, Google+, YouTube, LinkedIn, Instagram) and a navigation menu with 'RESTAURANT SYSTEM', 'FOOD ITEMS', 'USEFUL LINKS', and 'CONTACT'. The Windows taskbar at the bottom shows the date as 15 Aug 24 and the time as 9:02 PM.

7.REFERENCES:

<http://www.google.com>

<http://www.airIndia.com>

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