Project Report Format

1. INTRODUCTION

1.1 Project Overview:

SB Foods - Food Ordering App is an internet-based application aimed at making and improving the food ordering process easier for users. The app enables customers to navigate through a curated menu, add items to their cart, order, and securely pay. The platform enables web-based interaction as well as responsive design to facilitate mobile usability.

The application includes an easy-to-use front end developed using React.js, a robust backend developed with Node.js and Express.js, and an agile MongoDB database for handling dynamic information like users, orders, and foods. The purpose of the application is to simplify the process of food ordering by providing speedy access to food choices, prompt ordering, and handling data in real time.

1.2 Purpose:

The purpose of SB Foods - Food Ordering App is to:

- Provide a digital solution for ordering food online.
- Eliminate manual order-taking and streamline operations for food vendors.
- Enable users to register, log in, browse food items, manage their cart, and place orders with ease.
- Improve customer satisfaction through a fast and intuitive interface.
- Support real-time cart updates and order history for each user.
- Ensure data security through user authentication and protected API endpoints.

2. IDEATION PHASE

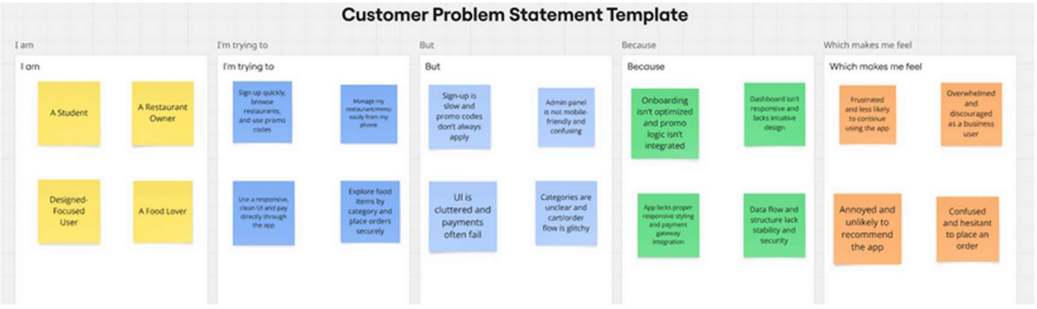
2.1 Problem Statement

problem 1: How can we improve the user onboarding experience and restaurant discovery flow in our MERN stack food delivery application to ensure quicker sign-up and effective use of promo codes for first-time users?

problem 2: How can we simplify the admin interface and improve mobile usability for restaurant owners managing their listings and orders via the MERN stack platform?

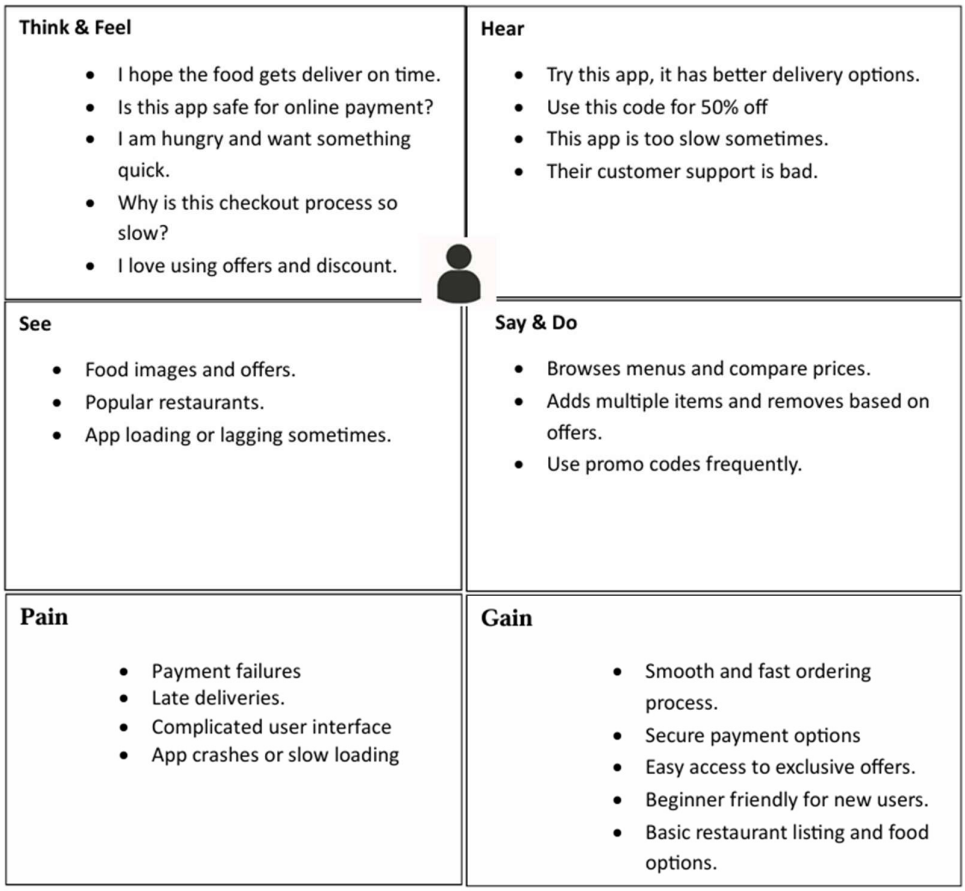
problem 3: How can we enhance food item discovery and secure order placement in our MERN stack food delivery application to ensure a smooth and trustworthy experience?

problem 4: How can we deliver a clean, responsive interface and enable in-app payment features in the food delivery app built with MERN stack to match modern user expectations?



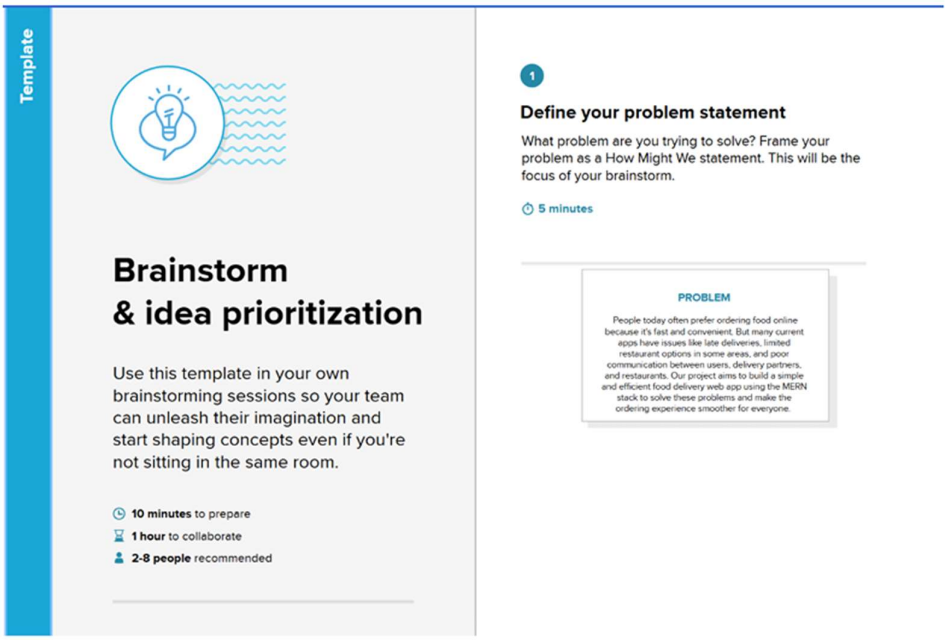
Problem statement (PS)	I am (customer)	I'm Trying to	But	Because	Which makes me feel
PS 1	Priya (college student & frequent food at user)	Register quickly, browse restaurant and use promo codes	The registration takes time, restaurant aren't frilled well, and promo codes don't apply.	The system lacks smooth onboarding and integrated promology.	Frustrated and less likely to continue using the app.
PS2	Karan (a restaurant owner with limited tech skills)	Easily add my restaurant and menu, manage orders from phone	The admin panel is confusing and the mobile access is clunky.	The dashboard isn't optimized for small screens.	Overwhelmed and discouraged.
PS3	Neha (food lover)	Browse food by category	Categorization is poor, and ordering /cart is glitchy	The UI is under Develops and lacks proper data flow and secure handling.	Confused and less confident.
PS4	Aditiya (a design-aware user who wants fast access)	Use a clean interface and pay quickly within the app.	UI is cluttering, not responsive and payments often fail	The app isn't built with responsive design.	Annoyed and unmotivated to use.

2.2 Empathy Map Canvas

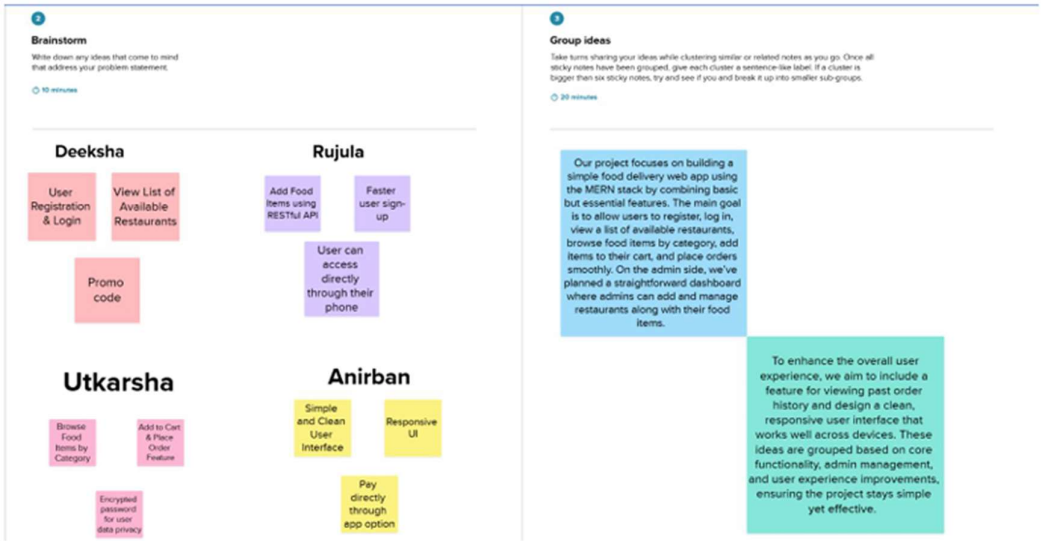


2.3 Brainstorming

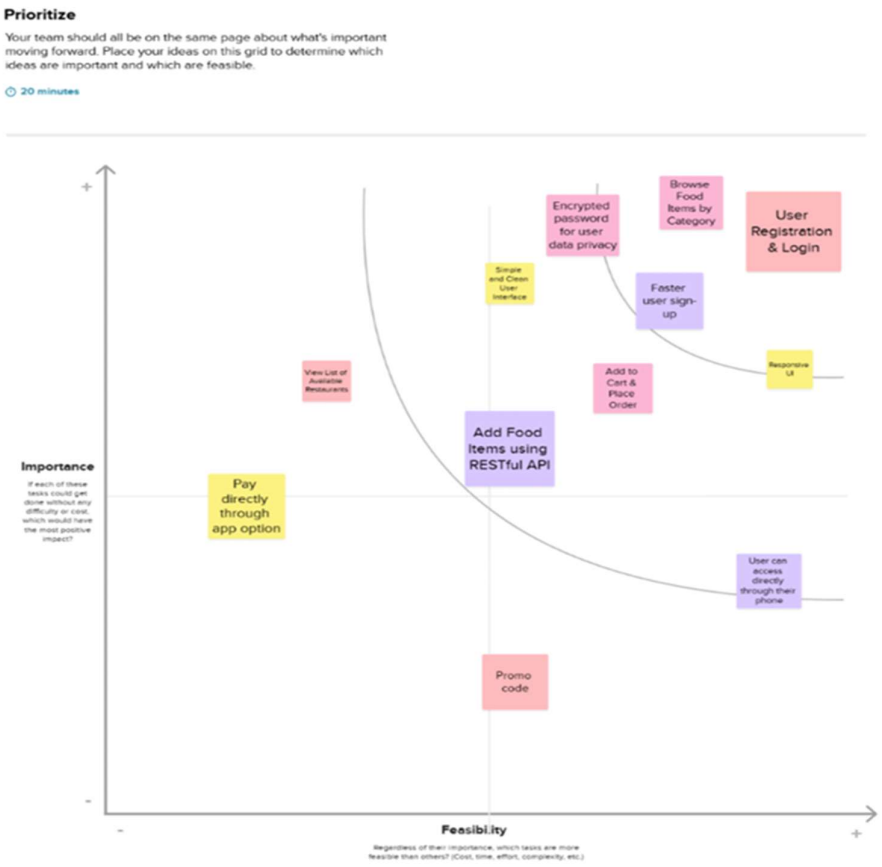
Step-1: Team Gathering, Collaboration and Select the Problem Statement



Step-2: Brainstorm, Idea Listing and Grouping

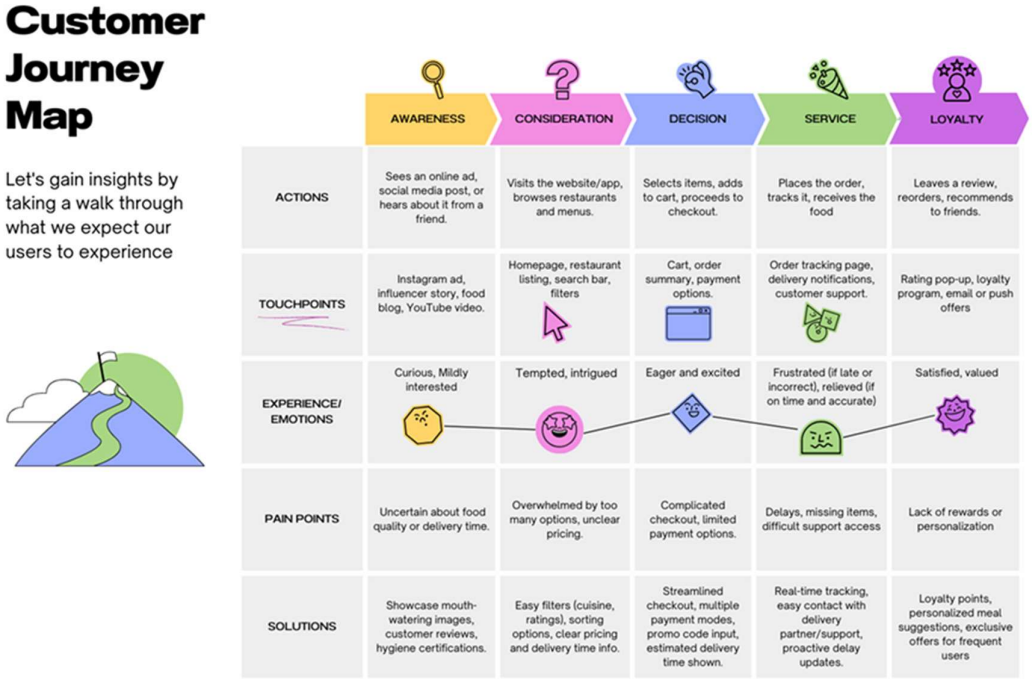


Step-3: Idea Prioritization



3. REQUIREMENT ANALYSIS

3.1 Customer Journey map



3.2 Solution Requirement

Functional Requirements:

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	Registration through Form Registration via Gmail Registration via Facebook
FR-2	User Confirmation	Confirmation via Email Confirmation via OTP
FR-3	User Login	Login via Form Login via Social Media
FR-4	Restaurant Discovery	Browse by Category/Cuisine Filter by Ratings/Price
FR-5	Menu Viewing	View Menu See Item Details (price, ingredients, image
FR-6	Cart Management	Add/Edit/Remove Items View Cart Total
FR-7	Order Placement	Select Address and Payment Method Place Order
FR-8	Order Tracking	View Order Status Live Delivery Tracking
FR-9	Order History	View Past Orders Reorder Items
FR-10	Ratings and Reviews	Rate Food and Delivery Add Text Reviews
FR-11	Offers and Discounts	Apply Promo Codes Redeem Loyalty Points
FR-12	Alerts and Notifications	Order Status Notifications New Deals & Offers Alerts

Non-functional Requirements:

Following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement	Description
NFR-1	Usability	The UI should be intuitive and mobile-friendly. Include filters, clear icons, easy access to cart, and a simple checkout flow.
NFR-2	Security	Ensure secure transactions with SSL/TLS encryption, secure login (OAuth2/JWT), and compliance with PCI DSS for payments.
NFR-3	Reliability	The app must handle order requests consistently without crashing or failing. Backup databases and ensure integrity checks.
NFR-4	Performance	Pages should load within 2 seconds. Use caching (e.g., Redis), CDNs for images, and optimize database queries.
NFR-5	Availability	Ensure 99.9% uptime using cloud hosting, autoscaling, failover mechanisms, and proactive monitoring.

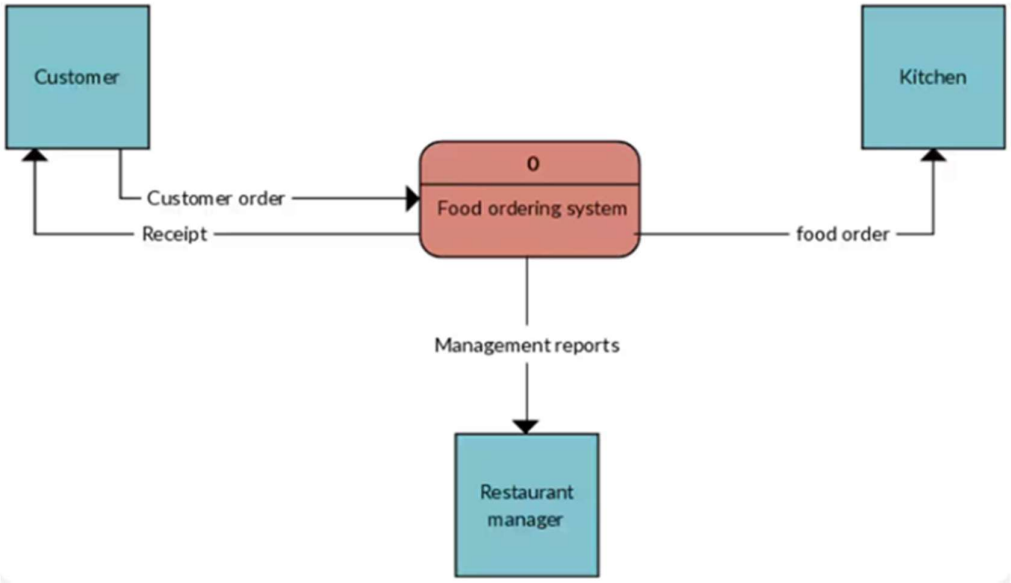
NFR-6	Scalability	The system must scale to handle increased users/orders during peak times (e.g., festivals). Use microservices & load balancers.

3.3 Data Flow Diagram

SB Foods - Food Ordering App DFDs:

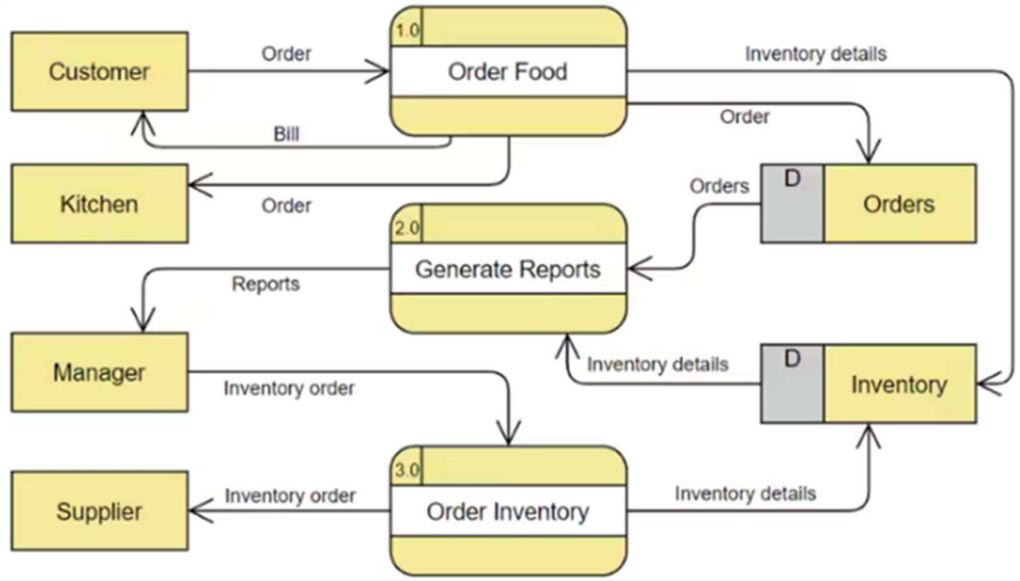
Level-0 Description:

It represents the system as a single process wrapped by additional objects. The primary process in the context of a meal ordering system is the system itself, whereas external entities can be customers, restaurants, delivery people, and payment gateways. A bird's-eye view of how information enters and exits the system is provided by the data flows between these entities and the system.



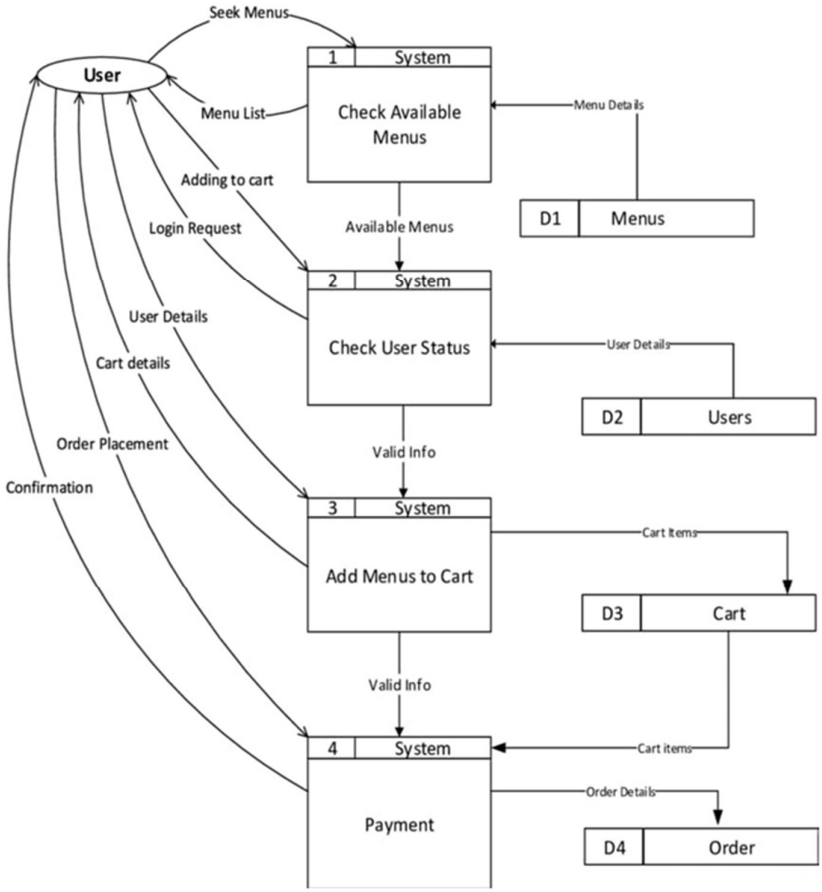
Level-1 Description and Processes:

DFDs at Level 1 split the primary process into smaller processes or functions, each of which is symbolized by a different process symbol. For instance, Level 1 DFD in a meal ordering system may cover operations like "Order Processing," "Payment Handling," and "Menu Management." Data flow between these operations and external entities is depicted using data flows.



Level-2 Deeper Dive:

Food ordering platforms are complex; for a better understanding, we need to go to Level 2 DFD. DFDs at Level 2 provide a more detailed view of individual processes than DFDs at Level 1. Level 1's "Order Processing'' procedure, for example, can be divided into sub-processes like "Order Verification," "Menu Item Selection," and "Payment Authorization." These sub-processes are represented as processes with complete data flows and data stores.



3.4 Technology Stack

Technical Architecture:

Table-1: Components & Technologies:

S.No	Component	Description	Technology
1.	User Interface	How user interacts with the application	HTML, CSS, JavaScript, React.js
2.	Application Logic-1	Handles user authentication and session management	Node.js / Express.js
3.	Application Logic-2	Order management and cart processing	Node.js / Express.js
4.	Database	Stores user info, orders, menu	MongoDB
5.	Cloud Database	Cloud-based data storage	Amazon RDS
6.	File Storage	Storing food item images, menu PDFs	Local Filesystem
7.	External API-1	Address autocomplete & delivery estimates	Google Places API / Zomato API (for references)
8.	Infrastructure (Server / Cloud)	Application hosting and scaling	Local Server

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	List the open-source frameworks used	Technology of Opensource framework
2.	Security Implementations	List all the security / access controls implemented, use of firewalls etc.	e.g. SHA-256, Encryptions, IAM Controls, OWASP etc.
3.	Scalable Architecture	Justify the scalability of architecture (3 – tier, Micro-services)	Technology used
4.	Availability	Justify the availability of application (e.g. use of load balancers, distributed servers etc.)	Technology used
5.	Performance	Design consideration for the performance of the application (number of requests per sec, use of Cache, use of CDN's) etc.	Technology used

4. PROJECT DESIGN

4.1 Problem Solution Fit

<table>
<tr>
<td>1. Customer segment
• Busy professionals and office-goers
• College students living away from home
• Working parents with little time to cook
• Elderly people needing convenience
• People ordering during late hours</td>
<td>6. Customer Constraints
• Limited budget
• Poor internet connection
• No delivery options in area
• Payment method issues (e.g., no UPI or card)
Delay due to bad weather or traffic</td>
<td>5. Available Solutions
• Cooking at home
• Dining out at a restaurant
• Asking a friend/family to bring food
• Using meal subscription services
• Food delivery via other platforms</td>
</tr>
<tr>
<td>2. Problems
• Want to eat good food without cooking
• Craving specific cuisines not available at home
• No time or energy to prepare meals
• Need food delivered quickly and conveniently
• Hosting guests or planning a party</td>
<td>9. Problem Root Cause
• Lack of time or energy to cook
• Busy work/study schedules
• Desire for variety in food
• No cooking skills or ingredients at hand
• Urban lifestyle prioritizing convenience</td>
<td>7. Behavior
• Browsing menus and reviews online
• Comparing prices, deals, and delivery time
• Saving favorite dishes/ restaurants
• Checking ratings and delivery time estimates
• Reordering from past orders</td>
</tr>
<tr>
<td>3. Triggers
• Hunger while working or studying
• Seeing tempting food ads online
• Peer recommendations or social media posts
• Discounts and offers through push notifications</td>
<td rowspan="2">10. Your Solution
A seamless, user-friendly app that lets customers:
• Browse a wide variety of restaurants and cuisines
• Track their order in real-time
• Pay securely through multiple options
• Get rewards/discounts on regular usage
•Schedule orders and reorder easily</td>
<td>8. Channels of Behavior
8.1 ONLINE:
• Mobile app (primary platform)
• Website
• Social media for offers and feedback
• Email and push notifications</td>
</tr>
<tr>
<td>4. Emotions: Before/After
Before: Hungry, tired, stressed, lazy, indecisive

After: Satisfied, relieved, comforted, content, pampered</td>
<td>8.2 OFFLINE:
• Word of mouth recommendations
• Flyers or posters at college hostels, offices</td>
</tr>
</table>

4.2 Proposed Solution

S.No.	Parameter	Description
1	**Problem Statement (Problem to be solved)**	Numerous professionals, students, and busy families find it challenging to access fresh, clean, and prompt meals because of their hectic schedules or limited resources.
2	**Idea / Solution description**	A food delivery platform connects users with nearby home chefs and verified restaurants. The app allows for ordering fresh, affordable meals with exciting offers, user data privacy and real-time tracking,.
3	**Novelty / Uniqueness**	Unlike mainstream apps, this solution includes home-cooked meal options, food-specific filters, and a zero-waste initiative.
4	**Social Impact / Customer Satisfaction**	Empowers home chefs and small food vendors, promotes healthy eating, reduces food waste, and offers accessible meal options for all income levels. Features like review ratings, quick support, and order personalization enhance satisfaction.
5	**Business Model (Revenue Model)**	Revenue streams include delivery charges, commission from vendors, subscription plans for regular users, premium vendor listings, and targeted local ads.

6	**Scalability of the Solution**	Highly scalable via city-wise onboarding of vendors and delivery partners. Modular infrastructure allows easy expansion into tier-2/3 cities and adaptation to different cuisines and demographics.

4.3 Solution Architecture

1) Client:
   User: Uses a mobile or web interface to interact with the food delivery platform and can browse restaurants, place orders, track deliveries, and manage account info.

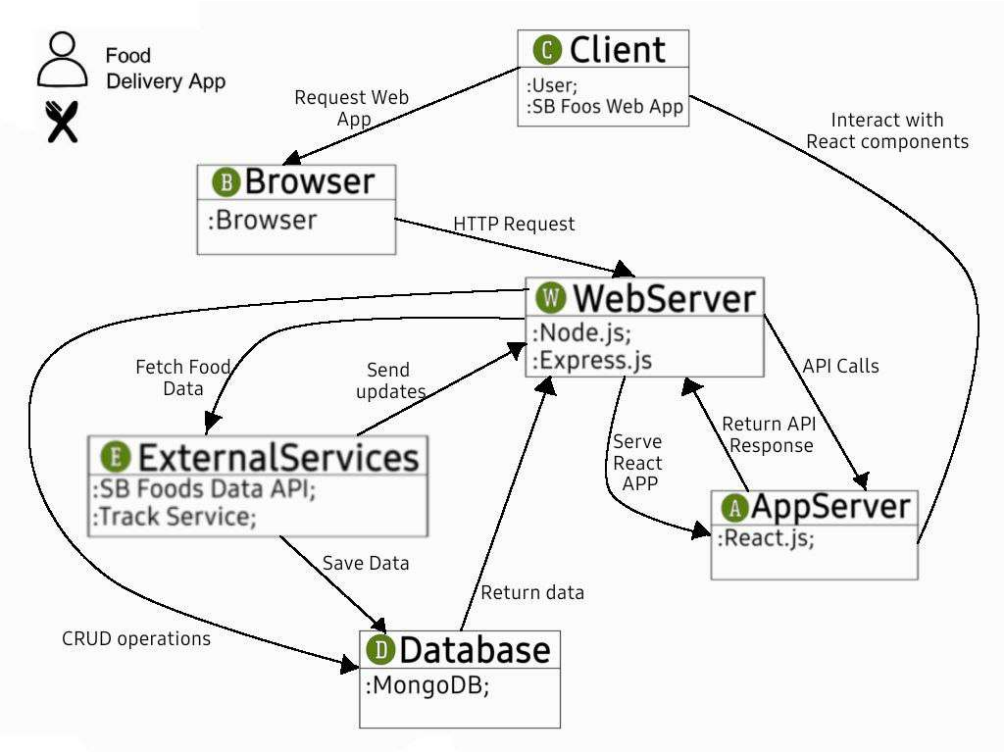
2) Browser:
   Acts as the interface through which the user accesses the web application and it also sends HTTP requests to the backend server when users perform actions like ordering food or viewing menus

3) WebServer:
   - Node.js: The JavaScript runtime environment used for building the server-side of the application.
   - Express.js: A web application framework for Node.js, used to handle HTTP requests and route them to the appropriate handlers.

4) AppServer:
   React.js: Provides the user interface of the food delivery app and handles dynamic rendering of menus, order forms, and delivery tracking. it interacts with backend APIs via HTTP calls.

5) Database:
   MongoDB: The NoSQL database used to store user information, food details, order details and other relevant data for the web app.

6) ExternalServices:
   - SB Food Data API: Provides food information, menu updates, and pricing.
   - Track Service: Integrates with food processing services to monitor order delivery in real-time.



5. PROJECT PLANNING & SCHEDULING

5.1 Project Planning

Product Backlog, Sprint Schedule, and Estimation (4 Marks)

Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed (as on Planned End Date)	Sprint Release Date (Actual)
Sprint-1	13	2 Days	3 April 2025	5 April 2025	13	5 April 2025
Sprint-2	7	1 Day	6 April 2025	7 April 2025	7	7 April 2025
Sprint-3	4	2 Days	8 April 2025	9 April 2025	4	9 April 2025
Sprint-4	8	3 Days	10 March 2025	12 March 2025	8	12 March 2025

Project Tracker, Velocity & Burndown Chart: (4 Marks)

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	User Registration	USN-1	As a user, I can register for the application by entering my email, password, and confirming my password.	5	High	Rujula

Sprint-1	User Login	USN-2	As a user, I can log into the application by entering email & password	3	High	Deeksha
Sprint-1	Exploring Menu	USN-3	As a user, I can view the menu category-wise.	3	Medium	Utkarsha
Sprint-1	Responsive Design	USN-4	As a user, I can easily access the website on laptop or on my phone	2	High	Anirban
Sprint-2	Shopping Cart	USN-5	As a user, I can view the items I have added to cart and interested to buy.	5	High	Rujula
Sprint-2	Place-Order	USN-6	As a user, I can easily enter my delivery information and confirm my order	2	Medium	Utkarsha
Sprint-3	Information Saving	USN-7	As a user, I need to get information back where I left off if I get logged off mid-session.	4	High	Deeksha
Sprint-4	Ease to Pay	USN-8	As a user, I should be able to easily pay through the site easily if I want.	8	Medium	Anirban

6. FUNCTIONAL AND PERFORMANCE TESTING

6.1 Performance Testing

Project Overview:

Project Name: SB Foods - Food Ordering App

Project Description: A full-stack food delivery web application allows users to browse restaurant menus, place orders, and track real-time food status. The platform supports user account management, order history, and live updates via external APIs.

Project Version: v1.0.0 (Version 1)

Testing Period: April 13, 2025 to April 14, 2025

Testing Scope:

List of Features and Functionalities to be Tested:

- User Registration & Login
- Restaurant Listing & Menu Browsing
- Cart Management (Add/Edit/Delete items)
- Order Placement
- Real-Time Order Tracking
- Order History
- Error Handling and Validation

List of User Stories or Requirements to be Tested:

- As a user, I can register and log into the app.
- As a user, I can browse available restaurants and their menus.
- As a user, I can add food items to my cart and place an order.
- As a user, I can track the delivery status of my order.
- As a user, I can view my previous orders.

Testing Environment:

URL/Location:

- Front-end: http://localhost:5173/
- Back-end: http://localhost:4000/

Credentials (if required): [Username/Password]

- User[Existing]: test1@gmail.com: Test1/12345678
- User[New]: food@gmail.com: Foddie/12348765

Test Cases:

Test Case ID	Test Scenario	Test Steps	Expected Result	Actual Result	Pass/ Fail
TC-001	User login with valid credentials	1. Navigate to login page 2. Enter a valid email/password 3. Check the terms & conditions checkbox 4. Click the "Login" button	User is logged in and redirected to home page	Works as expected	Pass
TC-002	New user signup	1. Navigate to signup page 2. Enter all required fields 3. Check the terms & conditions checkbox 4. Click "Create Account"	User registered and redirected to home page	Works as expected	Pass
TC-003	Add items to cart	1. Browse restaurant menu 2. Select item 3. Click "Add to Cart"	Selected item appears in the cart	Works as expected	Pass
TC-004	Removing items from cart	1. Add multiple items to cart 2. Go to cart 3. Click "x" on a selected item	Selected item is removed from the cart	Works as expected	Pass
TC-005	Place an order	1. Add items to cart 2. Go to cart 3. Click "Proceed To Checkout" 4. Enter the delivery information 5. Click on “Proceed to Payment”	Order confirmation is displayed with food status	Works as expected	Pass
TC-006	Invalid login attempt	1. Enter wrong credentials 2. Click "Login"	Error message: "Invalid credentials."	Error displayed	Pass
TC-007	Weak password / Invalid Email attempt	1. Enter a weak password/invalid email 2. Click “Create Account”	Error message: "Please enter a strong password." Or “Please enter a valid email.”	Error displayed	Pass
TC-008	View order history	1. Login 2. Navigate to “Orders”	Past orders are listed	Works as expected	Pass

TC-009	Attempt placing order with empty cart	1. Navigate to cart without adding items 2. Click “Proceed To Checkout”	Page should redirect to the cart page	Works as expected	Pass
TC-009	Invalid Login	1. Navigate to login 2. Enter incorrect/non-existent username 3. Enter any password 4. Click login	Error message: " User doesn't exist."	Error displayed	Pass

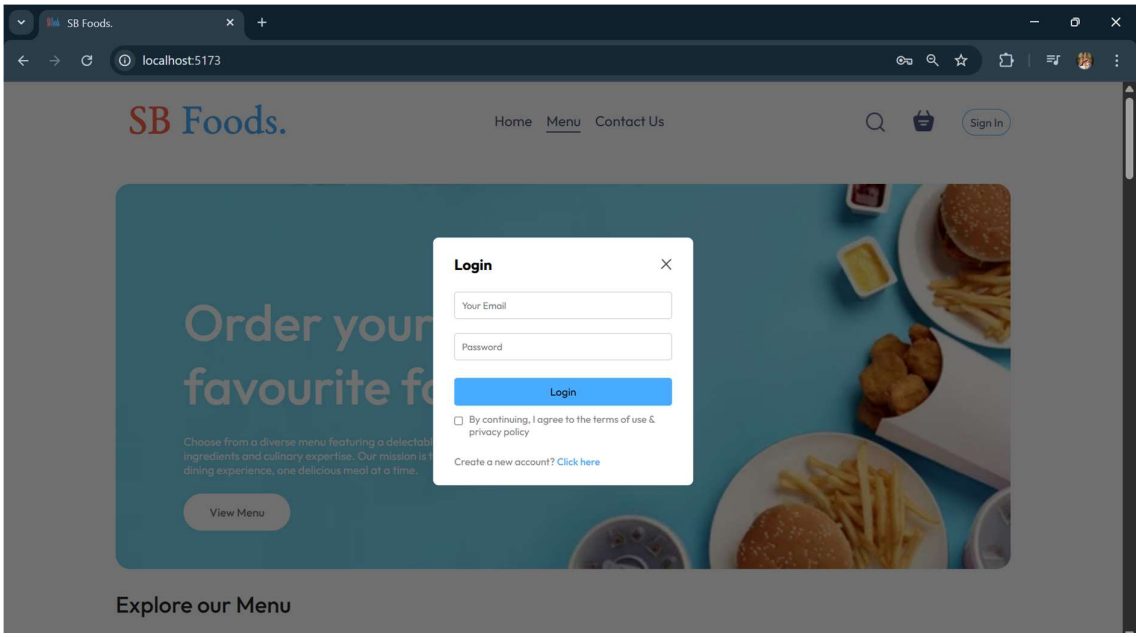
Bug Tracking:

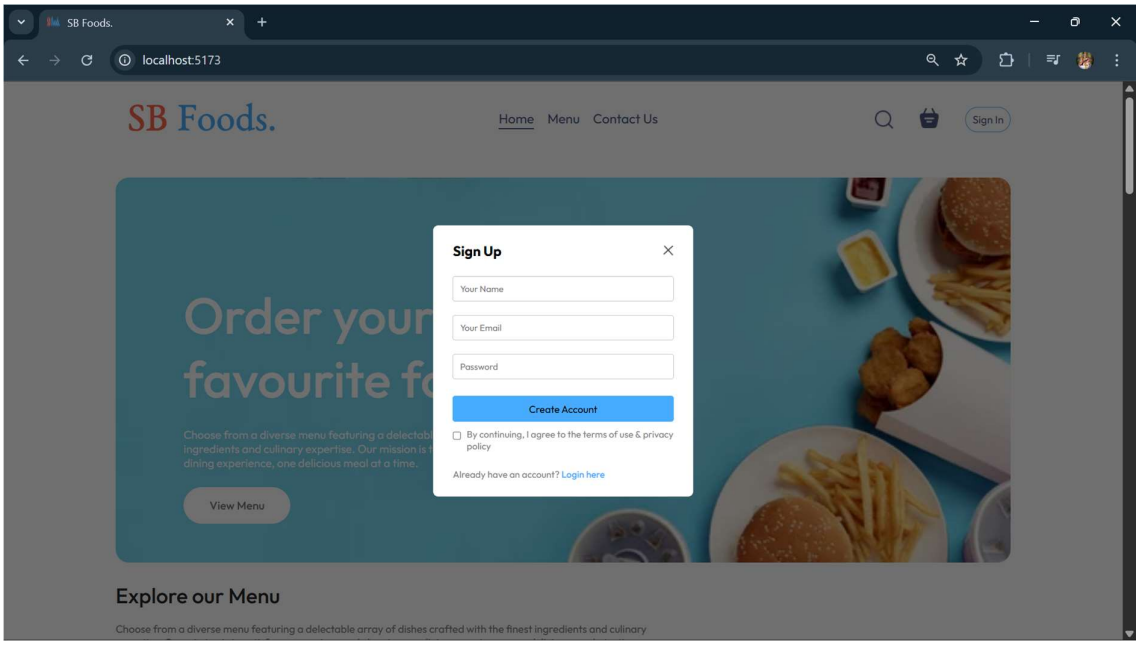
Bug ID	Bug Description	Steps to Reproduce	Severity	Status	Additional feedback
BG-001	Minor UI overlap on mobile devices	1. Login 2. Open cart on mobile view 3. Check buttons	Low	In Progress	Responsive layout fix recommended
BG-002	The login button is occasionally unresponsive	1. Go to login 2. Enter credentials 3. Click button rapidly multiple times	Low	Closed	Issue was resolved with debounce logic
BG-003	Unable to place buy order	1. Login 2. Add item to cart 3. Click "Place Order"	Medium	In Progress	Backend order creation API is failing
BG-004	Error during user registration	1. Go to registration 2. Enter user details 3. Click "Sign"	Low	In Progress	Server returns 500 error—possibly a DB constraint

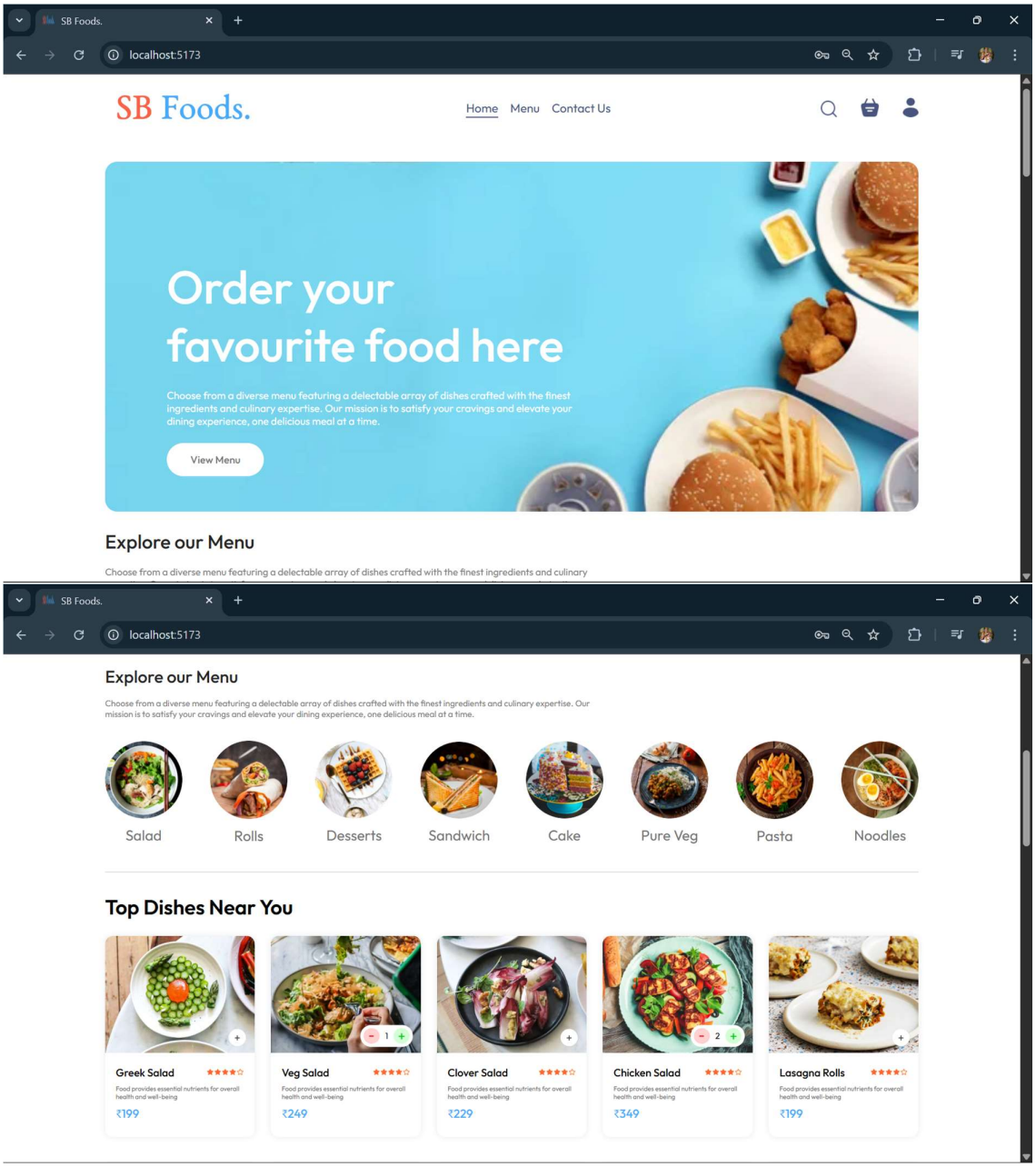
7. RESULTS

7.1 Output Screenshots

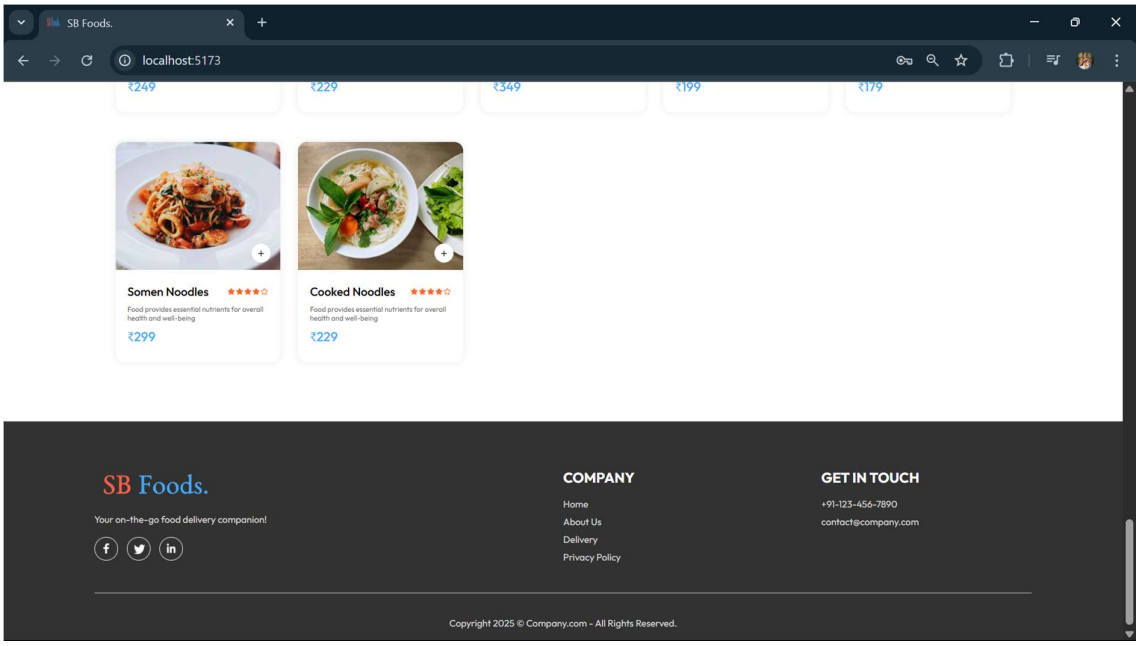
User Interface:

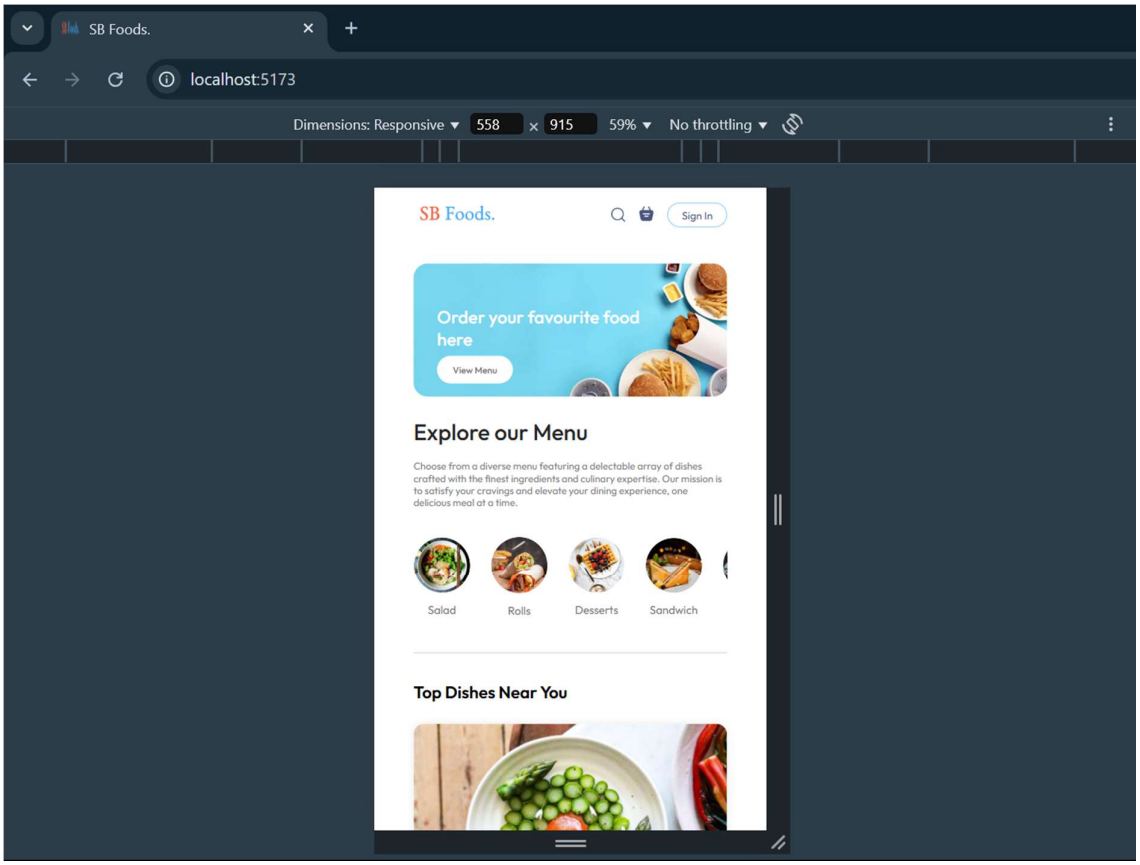

SB Foods.
localhost:5173
SB Foods.
Home
Menu
Contact Us
Sign In
Login
Your Email
Password
Login
By continuing, I agree to the terms of use & privacy policy
Create a new account? Click here
Order your
favourite fo
Choose from a diverse menu featuring a delectab
ingredients and culinary expertise. Our mission is t
dining experience, one delicious meal at a time.
View Menu
Explore our Menu

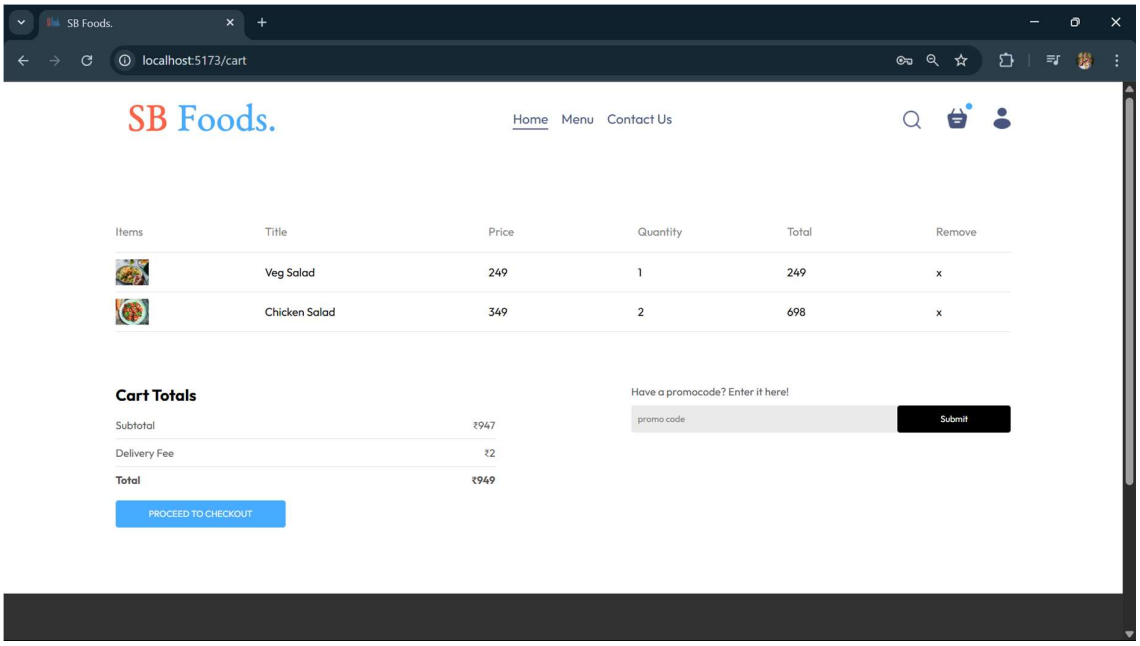

SB Foods.
localhost:5173
SB Foods.
Home
Menu
Contact Us
Sign In
Sign Up
Your Name
Your Email
Password
Create Account
By continuing, I agree to the terms of use & privacy policy
Already have an account? Login here
Order your
favourite fo
Choose from a diverse menu featuring a delectab
ingredients and culinary expertise. Our mission is t
dining experience, one delicious meal at a time.
View Menu
Explore our Menu
Choose from a diverse menu featuring a delectable array of dishes crafted with the finest ingredients and culinary

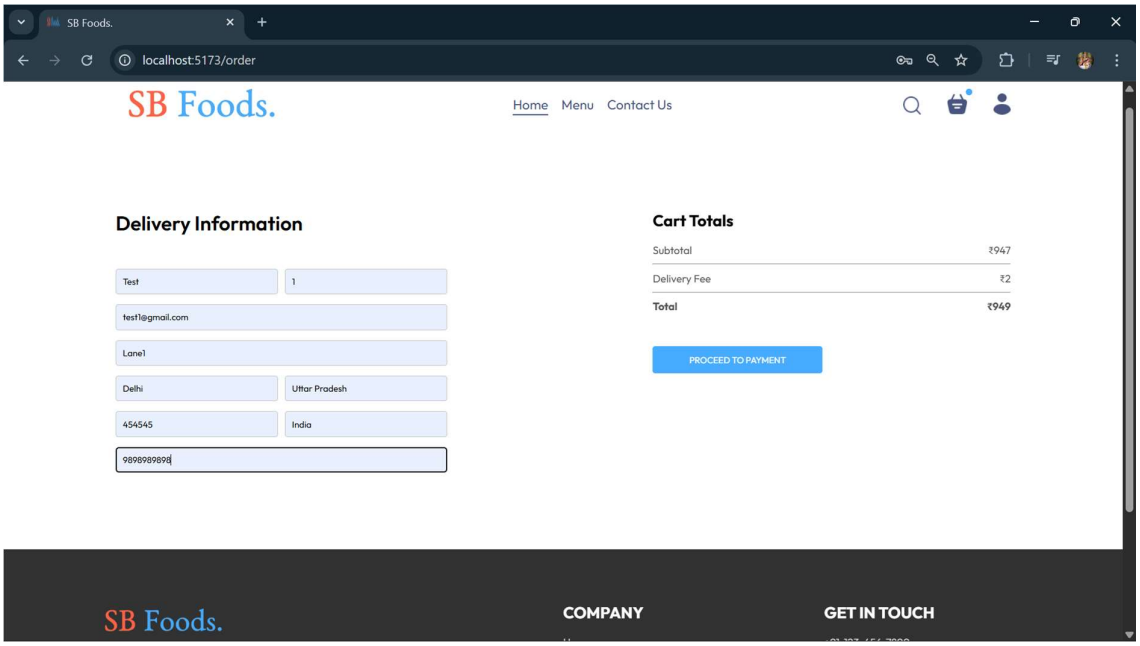

SB Foods.
localhost:5173
SB Foods.
Home
Menu
Contact Us
Order your favourite food here
Choose from a diverse menu featuring a delectable array of dishes crafted with the finest ingredients and culinary expertise. Our mission is to satisfy your cravings and elevate your dining experience, one delicious meal at a time.
View Menu
Explore our Menu
Choose from a diverse menu featuring a delectable array of dishes crafted with the finest ingredients and culinary

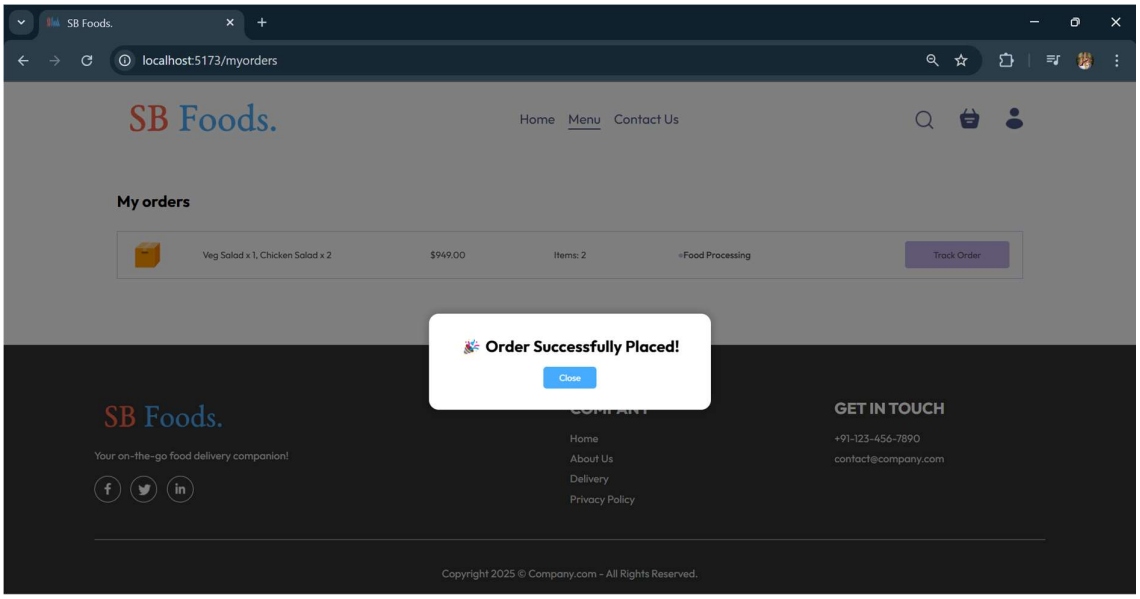
SB Foods.
localhost:5173
Explore our Menu
Choose from a diverse menu featuring a delectable array of dishes crafted with the finest ingredients and culinary expertise. Our mission is to satisfy your cravings and elevate your dining experience, one delicious meal at a time.
Salad
Rolls
Desserts
Sandwich
Cake
Pure Veg
Pasta
Noodles
Top Dishes Near You
Greek Salad
Food provides essential nutrients for overall health and well-being
₹199
Veg Salad
Food provides essential nutrients for overall health and well-being
₹249
Clover Salad
Food provides essential nutrients for overall health and well-being
₹229
Chicken Salad
Food provides essential nutrients for overall health and well-being
₹349
Lasagna Rolls
Food provides essential nutrients for overall health and well-being
₹199


SB Foods.
localhost:5173
₹249
₹229
₹349
₹199
₹179
Somen Noodles
Food provides essential nutrients for overall health and well-being
₹299
Cooked Noodles
Food provides essential nutrients for overall health and well-being
₹229
SB Foods.
Your on-the-go food delivery companion!
COMPANY
Home
About Us
Delivery
Privacy Policy
GET IN TOUCH
+91-123-456-7890
contact@company.com
Copyright 2025 © Company.com - All Rights Reserved.


SB Foods.
localhost:5173
Dimensions: Responsive
558
915
59%
No throttling
SB Foods.
Sign In
Order your favourite food here
View Menu
Explore our Menu
Choose from a diverse menu featuring a delectable array of dishes crafted with the finest ingredients and culinary expertise. Our mission is to satisfy your cravings and elevate your dining experience, one delicious meal at a time.
Salad
Rolls
Desserts
Sandwich
Top Dishes Near You


SB Foods.
localhost:5173/cart
SB Foods.
Home Menu Contact Us
Items Title Price Quantity Total Remove
Veg Salad 249 1 249 x
Chicken Salad 349 2 698 x
Cart Totals
Subtotal ₹947
Delivery Fee ₹2
Total ₹949
PROCEED TO CHECKOUT
Have a promocode? Enter it here!
promo code
Submit


SB Foods.
localhost:5173/order
SB Foods.
Home Menu Contact Us
Delivery Information
Test
1
test1@gmail.com
Lane1
Delhi
Uttar Pradesh
454545
India
9898989898
Cart Totals
Subtotal ₹947
Delivery Fee ₹2
Total ₹949
PROCEED TO PAYMENT
SB Foods.
COMPANY
GET IN TOUCH



8. ADVANTAGES & DISADVANTAGES

Advantages:

- **User Convenience:** Users can order food anytime from anywhere, reducing time and effort.
- **Real-Time Tracking:** Customers can track their orders in real time, enhancing transparency.
- **Wider Reach for Businesses:** Local restaurants gain access to a broader customer base through the platform.
- **Secure Payments:** Integration with trusted payment gateways ensures safe and seamless transactions.
- **Responsive Design:** Compatible with various devices – mobile, tablet, and desktop.
- **Personalized Experience:** Features like favorites, order history, and saved addresses improve user experience.

Disadvantages:

- **Delivery Limitations**: May face delivery issues in remote or non-serviceable areas.
- **Service Downtime**: Dependence on internet connectivity and server uptime.
- **Data Privacy Risks**: Needs strong measures to secure personal and payment information.
- **High Competition**: Numerous food delivery apps already exist; differentiation is essential.

9. CONCLUSION

The SB Foods - Food Ordering App provides a robust platform for customers to browse, order, and receive their favorite meals from local restaurants with ease. It bridges the gap between customers

and food providers by leveraging technology to offer a seamless, convenient, and secure ordering experience. The application not only enhances the dining experience for users but also opens new growth opportunities for restaurants.

10. FUTURE SCOPE

- **AI-based Recommendation System:** Suggest meals based on user preferences and previous orders.
- **Loyalty Programs:** Introduce reward points and discounts to encourage repeat customers.
- **Multilingual Support**: Expand app usability to non-English speaking users.
- **Admin Analytics Dashboard**: Offer insights into orders, user behavior, and delivery performance.

11. APPENDIX:

Drive Link: https://drive.google.com/drive/folders/1DM8WrcWWJapNeYyYvgo4-G9PH7sNzyUQ?usp=drive_link

GitHub & Project Demo Link:

- GitHub: https://github.com/Deeks779/Food_Delivery_Website
- Project Demo Link: https://drive.google.com/drive/folders/1mwGR6zltl07l1i7120zVY_acVyZzjPzZ?usp=sharing