Full Stack Development with MERN

Project Documentation

1. Introduction

- **Project Title:** SB Foods.- Food Delivery Web App
- **Team Members:**

  Utkarsha Aherrao: Frontend Developer

  Anirban Mukherjee: Frontend Developer

  Deeksha Kushwaha: Backend Developer

  Rujula Malhotra: Backend Developer

2. Project Overview

- **Purpose:**

Our project focuses on building a simple food delivery web app using the MERN stack by combining basic but essential features. The main goal is to allow users to register, log in, view a list of available restaurants, browse food items by category, add items to their cart, and place orders smoothly.

- **Features:**

User registration and authentication

Responsive UI

Password encryption for user data privacy

Add to cart

Place order

Pay from the webapp

3. Architecture

- Frontend:

The frontend is built using React, a popular JavaScript library for building user interfaces. It uses useState for state management, react-router-dom for navigation, and Axios for making HTTP requests.

- Backend:

The backend is developed using Node.js and Express.js. It provides RESTful APIs for the frontend to interact with. The backend handles user authentication, food dishes and order retrieval.

• Database:

MongoDB is used as the database for this application. The database schema includes collections for users, orders and foods. Mongoose is used for object data modelling (ODM).

```
# const foodSchema = new mongoose.Schema({
    name: {type:String,required:true},
    description: {type:String,required:true},
    price:{type:Number,required:true},
    image:{type:String,required:true},
    category:{type:String,required:true}
})

# const orderSchema = new mongoose.Schema({
  userId: { type: String, required: true },
  items: { type: Array, required: true },
  amount: { type: Number, required: true },
  address: { type: Object, required: true },
  status: { type: String, default: "Food Processing" },
  date: { type: Date, default: Date.now },
  payment: { type: Boolean, default: false }
});

# const userSchema = new mongoose.Schema({
    name:{type:String, required:true},
    email:{type:String, required:true, unique:true},
    password:{type:String, required:true},
    cartData:{type:Object, default:{}},
})
```

4. Setup Instructions

• Prerequisites:

Node.js (v14 or above),

Vite (v^6.2.0),

Axios,

React-router,

React-router-dom,

Bcrypt,

Body-parser,

Cors,

Dotenv,

Express (v^5.1.0)

Jsonwebtoken,

Mongoose,

Multer,

Nodemon,

Validator

• Installation:

Clone the repository: git clone https://github.com/<username>/food-delivery-website.git

Install frontend dependencies: cd frontend && npm install

Install backend dependencies: cd backend && npm install

Set up environment variables: Create a .env file in the server directory and add the required variables like MONGO_URI and JWT token.

5. Folder Structure

• Client:

The React frontend is organized as follows:

frontend/

├── nodemodules/

├── public/

├── src/

│ ├── assets/

| ├── components/

| ├── context/

| ├── pages/

| ├── App.jsx

| ├── main.jsx

| ├── index.css

• Server:

The Node.js backend is organized as follows:

backend/

├── config/

├── controllers/

├── middleware/

├── models/

├── nodemodules/

├── server.js

6. Running the Application

• Commands to start the frontend and backend servers locally.

o **Frontend:** npm run dev in the client directory.

o **Backend:** npm run server in the server directory.

7. API Documentation

Cart Management

- **POST /api/cart/add** – Adds an item to the user's cart. Requires authentication.
- **POST /api/cart/remove** – Removes an item from the user's cart. Requires authentication.
- **POST /api/cart/get** – Retrieves the current user's cart. Requires authentication.
- Parameters:json
  { "foodId": "652f4ac3a1234567890abcdef"", "quantity": 2 }
- Response:json
  { success:true,message:"Added To Cart"}

Food Management

- **POST /api/food/add** – Adds a new food item with an image. Uses multipart/form-data for image upload.
- **GET /api/food/list** – Retrieves a list of all food items.
- **POST /api/food/remove** – Removes a food item.
- Parameters:json
  { "name": "Veg Burger",
  "price": 99,
  "category": "Fast Food",
  "image": [attached image file]}
- Response:json
  { success:true,message:"Food Added"}

Order Management

- **POST /api/order/place** – Places a new order. Requires authentication.
- **POST /api/order/userorders** – Retrieves all orders placed by the logged-in user. Requires authentication.
- Parameters:json
  {
  "userId": "652f2b93a1c123456789abcd",
  "items": [
  { "foodId": "652f4ac3a1234567890abcdef", "quantity": 2 },
  { "foodId": "652f4ac3a1234567890abcde0", "quantity": 1 }
  ],
  "amount": 397,
  "address": "123 Street Name, City"
  }
- Response:json
  { success:true,message:"added order"}

User Management

- **POST /api/user/register** – Registers a new user.
- **POST /api/user/login** – Logs in a user.
- Parameters:json
  {
  "name": "John Doe",
  "email": "john@example.com",
  "password": "weakpassword"
  }
- Response:json
  { success:false,message:" Please enter a strong password"}

8. Authentication

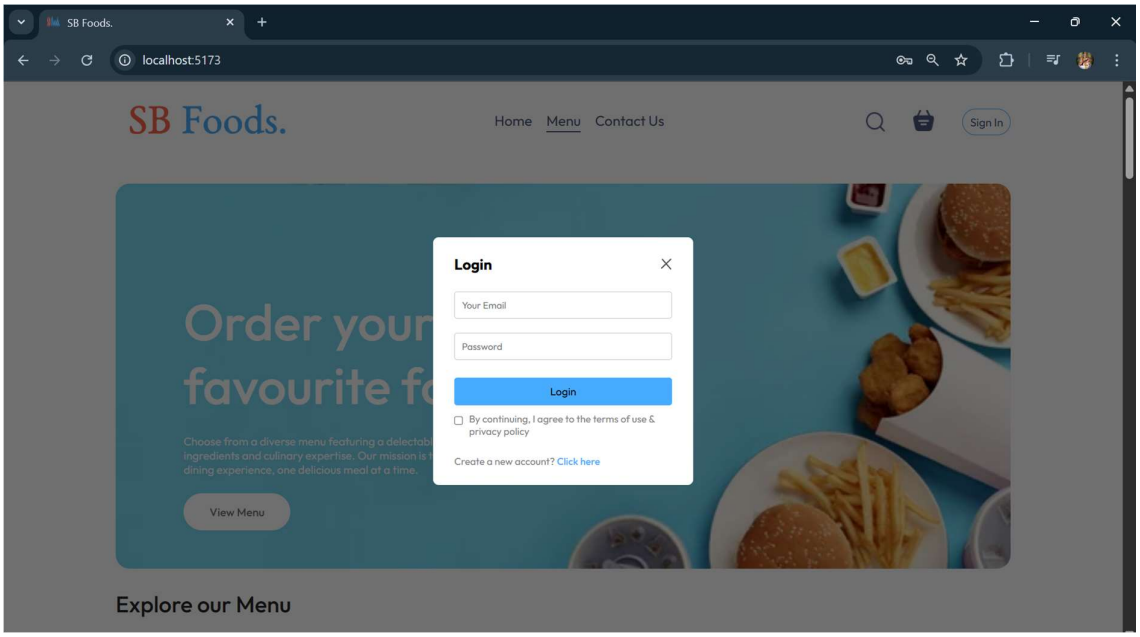
• Authentication and authorization are handled using JWT (JSON Web Tokens).

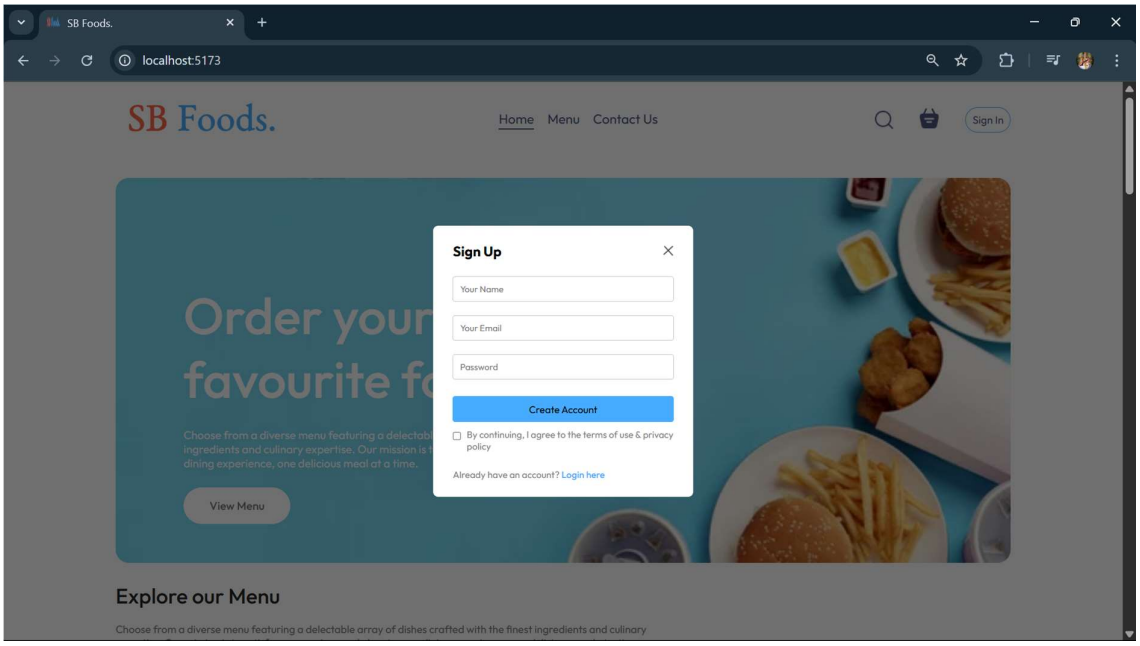
• Upon successful login, a token is generated and sent to the client. This token must be included in the Authorization header of subsequent requests.

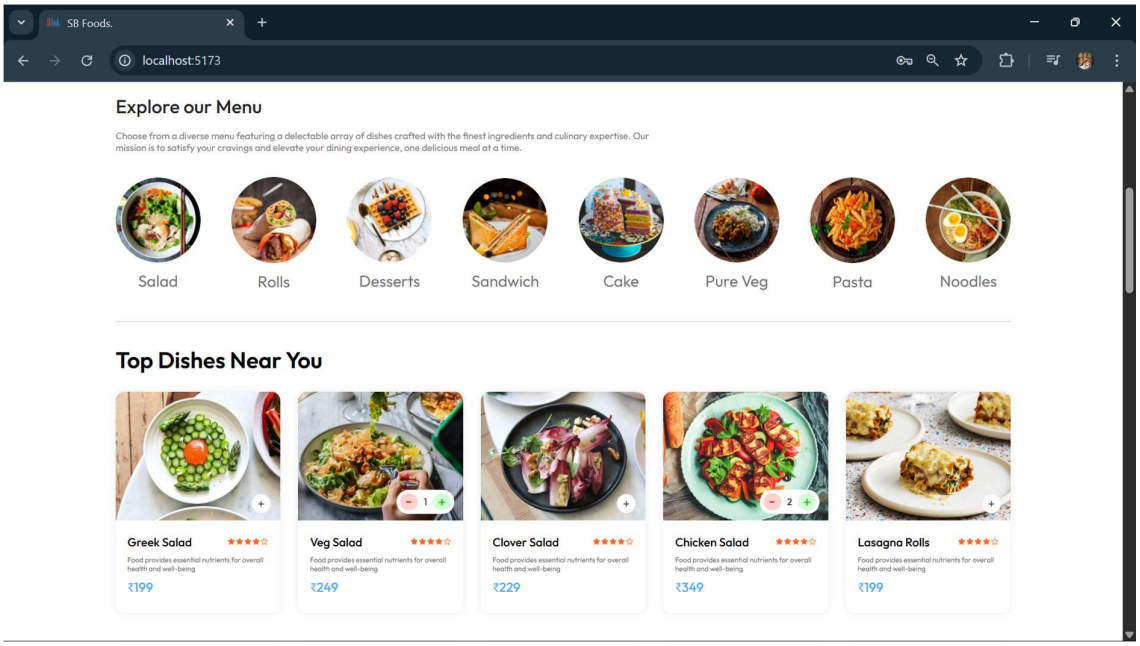
• The server verifies the token on each request — making our setup **stateless**.

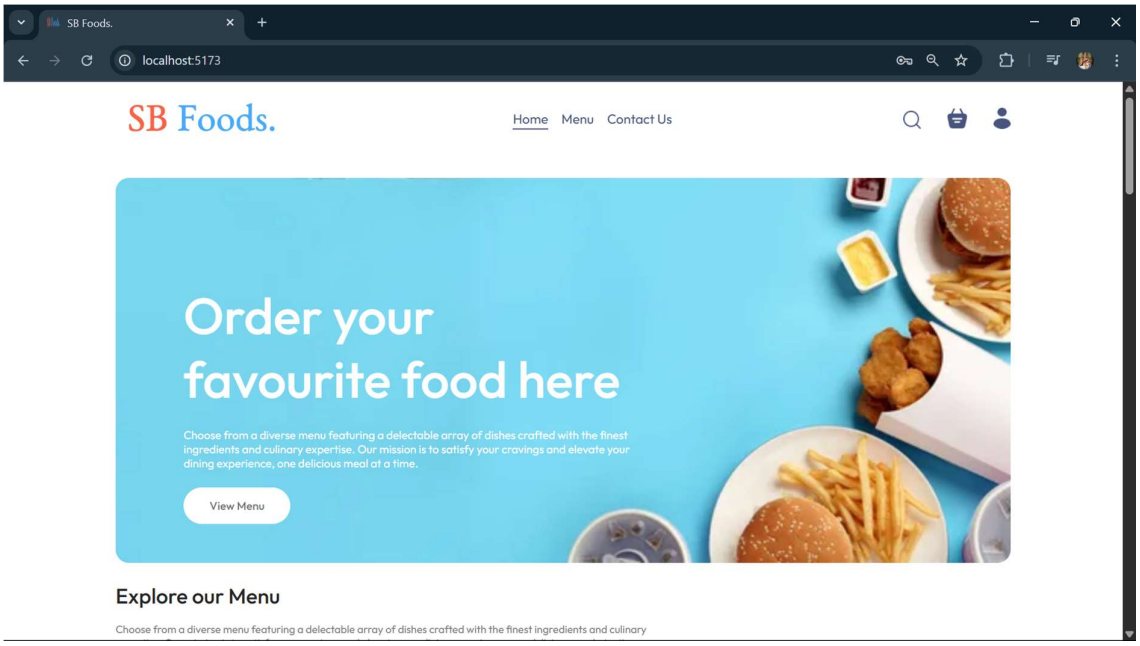
9. User Interface

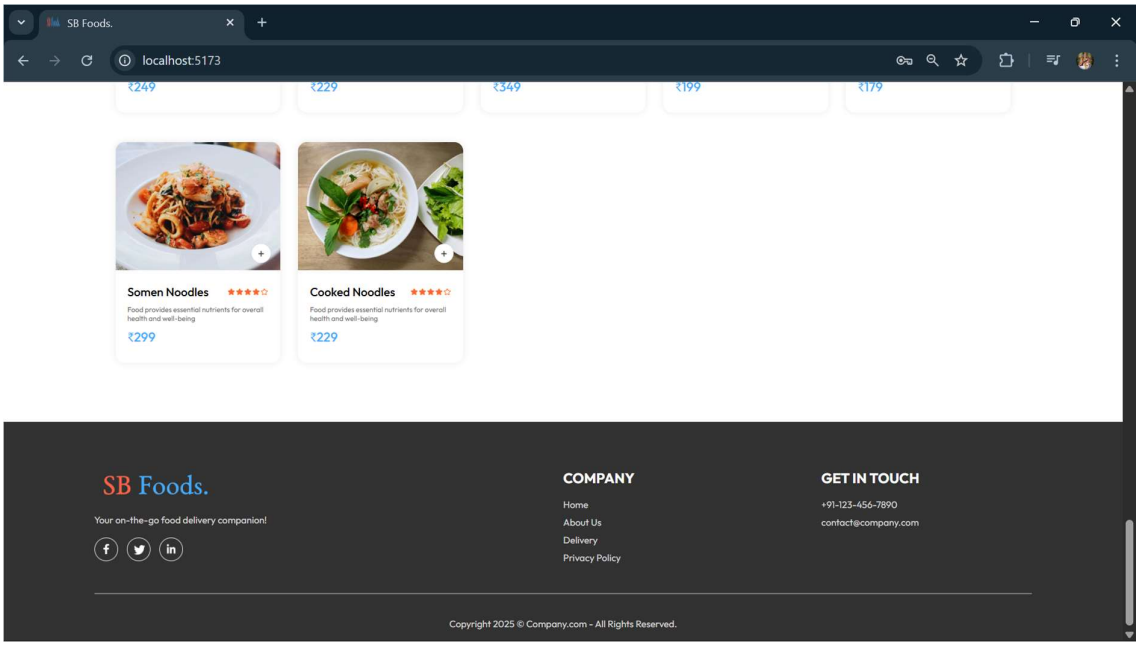
The UI is designed to be user-friendly and intuitive. Below are some screenshots showcasing different features:

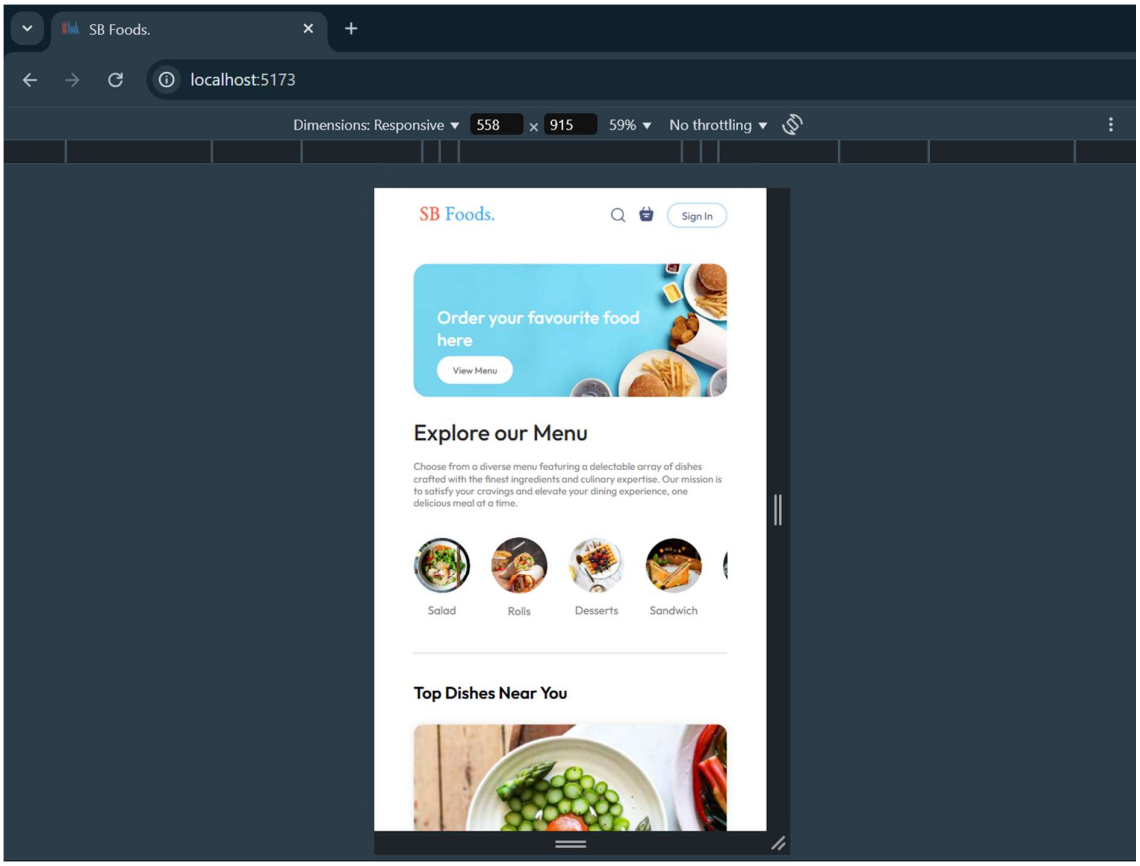


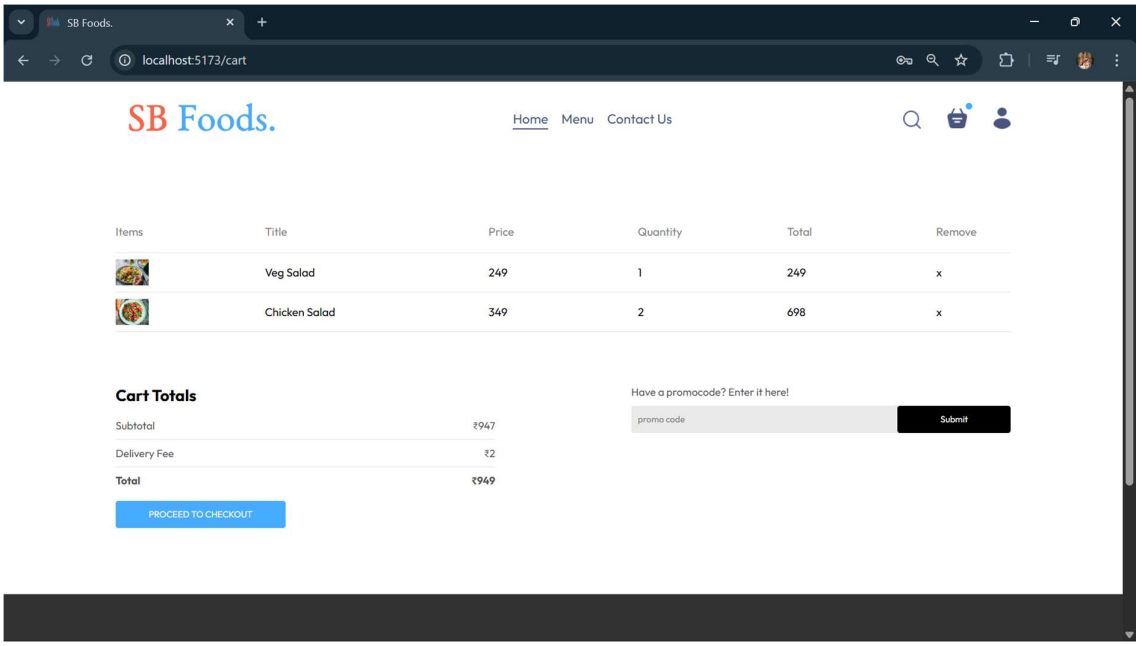

SB Foods.
localhost:5173
SB Foods.
Home
Menu
Contact Us
Sign In
Order your
favourite fo
Choose from a diverse menu featuring a delectab
ingredients and culinary expertise. Our mission is t
dining experience, one delicious meal at a time.
View Menu
Sign Up
Your Name
Your Email
Password
Create Account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

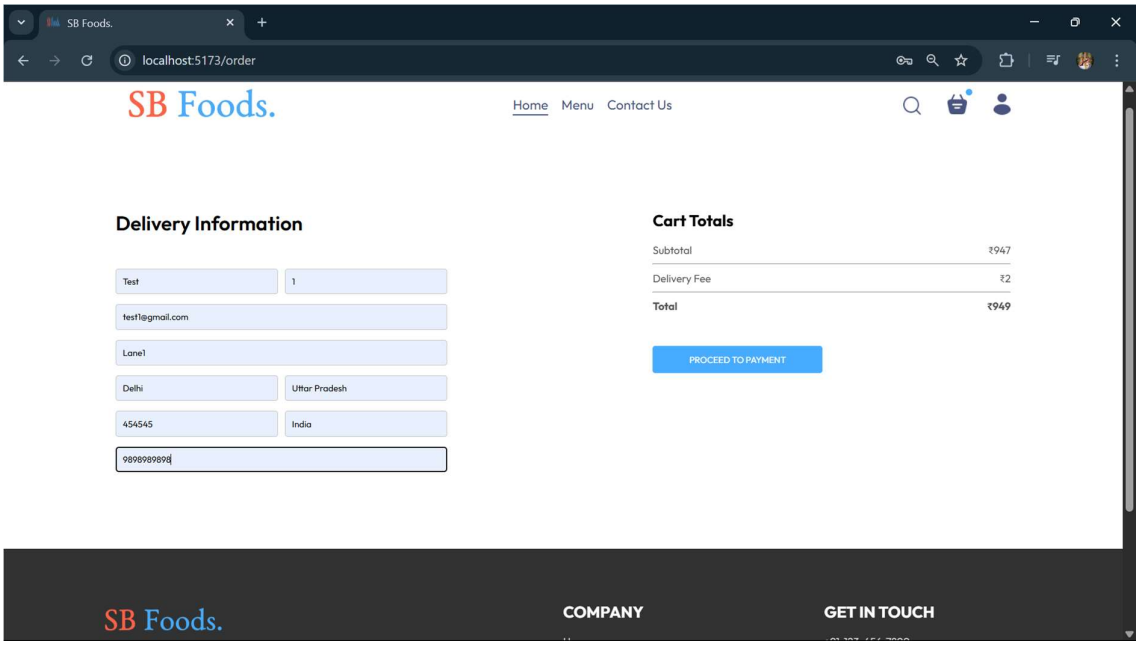

SB Foods.
localhost:5173
Explore our Menu
Choose from a diverse menu featuring a delectable array of dishes crafted with the finest ingredients and culinary expertise. Our mission is to satisfy your cravings and elevate your dining experience, one delicious meal at a time.
Salad
Rolls
Desserts
Sandwich
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

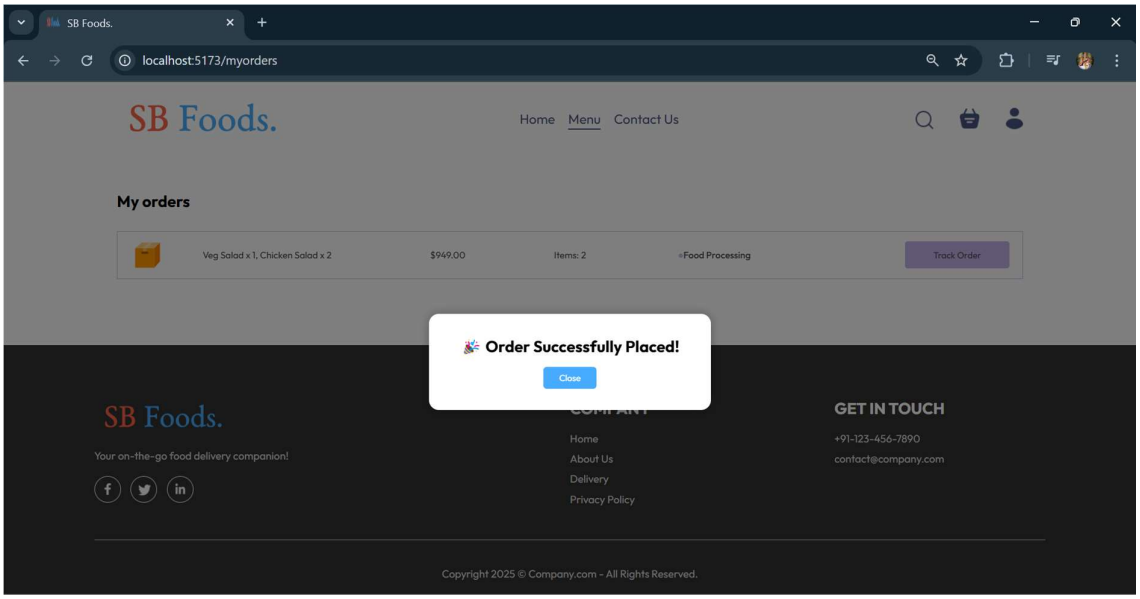

SB Foods.
localhost:5173
SB Foods.
Home
Menu
Contact Us
Order your favourite food here
Choose from a diverse menu featuring a delectable array of dishes crafted with the finest ingredients and culinary expertise. Our mission is to satisfy your cravings and elevate your dining experience, one delicious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





10. Testing

• The testing strategy includes both unit and integration tests.
• To ensure the reliability of a food delivery web application, implement a **multi-layered testing strategy** that includes:

- **Unit Testing** for validating individual components such as cart logic, order placement, and user authentication.
- **Integration Testing** to verify interactions between modules like food listing, cart updates, and order processing.

- **End-to-End (E2E) Testing** to simulate real user workflows — from browsing food items to checkout and order tracking.
- **Performance Testing** to ensure smooth and responsive operation during peak hours or high traffic situations.

11. Demo

• Demo video link : https://drive.google.com/drive/folders/1mwGR6zltl07l1i7120zVY_acVyZzjPzZ?usp=sharing

12. Known Issues

• The application may experience slow performance under heavy load. Further optimization is planned.

• Because of stripe being restricted and invite-only for Indian users, we were not able to integrate a payment gateway. We are looking for alternate payment gateways like razorpay.

13. Future Enhancements

• Integration with real-time food order tracking.

• Mobile app development for iOS and Android.

• Adding coupon code features.

• Integrating payment gateway.

14. 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