SB FOODS

Food Ordering Application

MONGODB, EXPRESS, REACT AND NODE.JS

PRESENTATION OVERVIEW

TEAM MEMBERS

- Alice A(310821104009)
- Juliya A(310821104043)
- Harini M(310821104034)
- Rajesh Kanna A(310821104306)

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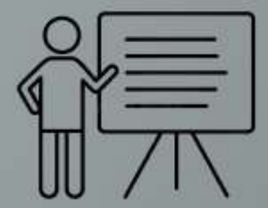


ABSTRACT

This Project is a Web-based food delivery application designed to streamline online food ordering. The app enables users to browse items, add them to a cart, and place orders, while an admin panel manages food items and orders. Built with React for the Frontend, Node.js and Express for the Backend and MongoDB for the Database, this application offers an integrated approach to online food ordering with user authentication, cart management and order processing

INTRODUCTION

The Objective of this project is to create an efficient, user-friendly food delivery application. It focuses on intuitive navigation, responsive design and easy order processing to enhance user experience and simplify food delivery management for admins.

SYSTEM REQUIREMENTS

SOFTWARE:

- ***Frontend***: *React*
- ***Backend***: *Node.js, Express*
- ***Database***: *MongoDB*
- ***Additional Tools***: *NPM, Postman (for API testing), GitHub (for version control*

MODULES:

-User Module: *Handles user registration, login, and authentication.*

-Admin Module: *Manages food items and orders.*

-Cart Management: *Allows users to add, update, or remove items.*

-Order Processing: *Processes orders placed by users.*

SYSTEM DESIGN

ARCHITECTURE:

The application uses a client-server architecture, with the frontend handling the user interface and the backend managing API endpoints, user authentication, and database interactions. MongoDB is used as the primary data source.

DATABASE SCHEMA:

The application is structured around three key collection:

- ***Users***: *_id, username, email, password*
- ***Food Items***: *_id, name, description, price, category, image*
- ***Orders***: *_id, userId, items, totalPrice, status*

TOOLS AND TECHNOLOGIES USED:

*1.**Frontend**: Built using React, it includes components for navigation, menu display, cart management, and order submission. React Router manages page navigation, and Axios handles API requests.*
*2. **Backend**: Developed with Node.js and Express, the backend powers REST APIs for user authentication, food item retrieval, and order management.*
*3. **Database**: MongoDB, a NoSQL database, is used for storing user data, menu items, and order details. Mongoose ensures smooth integration and data validation.*
*4. **Authentication**: JWT (JSON Web Token) secures user sessions and validates access to resources.*
*5. **Admin Module**: Admins can manage food items and orders using a separate interface with full CRUD functionality.*

IMPLEMENTATION

FRONTEND:

The React frontend includes components for navigation, displaying food items, cart management, and order submission. React Router manages routes, while Axios is used for API calls to the backend.

BACKEND:

Node.js and Express are used to create REST APIs for user authentication, food item retrieval, and order management. Mongoose connects to MongoDB and performs data validation.

ADMIN PANEL:

Admin users can manage menu items and orders using a separate panel, providing CRUD operations on the food items and viewing orders.

PRIMARY FEATURES

USER FEATURES:

- ***Registration & Login***: *Users can register or log in with their credentials.*
- ***Menu Browsing***: *Users view available food items and search by category.*
- ***Cart Management***: *Add, remove, or update items in the cart.*
- ***Order Placement***: *Place orders and view order status.*

ADMIN FEATURES:

- ***Food Item Management***: *Add, update, or delete menu items.*
- ***Order Management***: *View and update the status of orders.*

TESTING

TESTING TYPES:

- ***Unit Testing***: *Individual components and API endpoints.*
- ***Integration Testing***: *Testing interactions between frontend, backend, and database.*
- ***User Acceptance Testing (UAT)***: *Ensures the final product meets user expectations.*

TESTING TOOLS:

Jest for frontend tests, Postman for API testing, and manual testing for UI validation.

PERFORMANCE METRICS

Efficient LoadEfficient Load Handling:
The app works smoothly even when many users are active at the same time.
Scalability:
The system adjusts easily as more users join without slowing down.
Fast Database Speed:
Quick response time for retrieving and saving user and order data.
Low Error Rate:
Few errors even during busy periods, ensuring a reliable user experience.
Optimized Resource Usage:
The server uses memory and bandwidth efficiently, improving performance.
Session Stability:
Users can stay logged in and maintain activity without interruption.
Consistent Performance:
Fast and smooth experience across all devices and networks.

CHALLENGES AND SOLUTIONS

CHALLENGES:

1. *Implementing secure payment processing.*
2. *Ensuring database reliability and scalability.*
3. *Each provider (Google, Facebook, Apple) has its own system and setup. Integrating all these can get tricky.*
4. *If Google, Facebook, or Apple servers are down, users can't log in.*

SOLUTIONS:

1. *Used Stripe for secure, test-mode payment integration.*
2. *Used MongoDB with data validation through Mongoose.*
3. *Use tools like Firebase Authentication or Auth0. These tools allow you to connect multiple third-party services at once without much hassle.*
4. *Add a backup login option like email/phone OTP so users can still sign in.*

FUTURE ENHANCEMENT

- Introduces AI chatbots to assist with FAQs and real-time support.
- Add a recommendation engine based on user preferences.
- Introduce delivery partner functionality.
-Add live order tracking with delivery time estimate.
-.Add an Eatlist feature to save favorites and provide personalized dish recommendations.

CONCLUSION

This project successfully demonstrates a streamlined approach to online food ordering with user and admin functionalities. It is built using modern web technologies, including React, Node.js, and MongoDB, ensuring scalability and a good user experience.

PROJECT SETUP FOR GITHUB

FRONTEND:

1. *Navigate to the frontend directory:*
   cd frontend

2. *Install dependencies:*
   npm install

3. *Start the frontend server:*
   npm run server

Front-end

BACKEND:

1. Navigate to the backend directory:
cd backend

2. Install dependencies:
npm install

3. Start the backend server:
npm run server
npm install express mongoose cors dotenv body-parser bcryptjs jsonwebtoken stripe morgan helmet
npm install react react-dom react-router-dom axios
npm install --save-dev nodemon
npm install axios

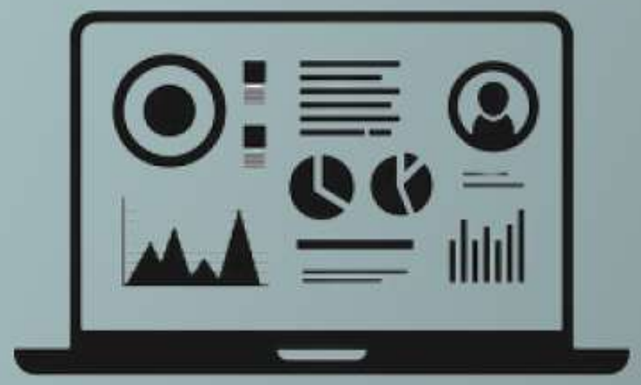
BACKEND

ADMIN PANEL:

1. Navigate to the admin directory:
cd admin

2. Install dependencies:
npm install

3. Start the admin panel:
npm run dev



THANK YOU