INDIAN INSTITUTE OF INFORMATION TECHNOLOGY, ALLAHABAD

WEB DEVELOPMENT PROJECT-
FOOD ORDERING WEBSITE

Submitted to - Dr. Mohammed Javed

Submitted By- IIT2023183
IIT2023184
IIT2023185
IIT2023186

PROJECT OVERVIEW

Project Title: FOODIE: Hunger for food

Objective: To develop a user-friendly and efficient online platform for ordering food from local restaurants, enhancing convenience for users and empowering restaurants to manage orders effectively.

Problem Statement: Inefficient and disjointed online food ordering experiences leave both consumers and restaurants frustrated. Our project seeks to create a seamless, user-friendly platform that streamlines the process, providing easy navigation, personalized recommendations, and efficient order management for users, while empowering local restaurants to expand their reach and improve customer satisfaction.

Key Features:

1. **User Registration and Authentication:** Users can create accounts, login securely, and manage their profiles.
2. **Restaurant Listings:** Comprehensive listings of local restaurants, including menus, cuisine types, opening hours, and reviews.
3. **Search and Filtering:** Advanced search and filtering options to help users find restaurants and dishes based on location, cuisine, price range, dietary preferences, and ratings.
4. **Menu Browsing:** Detailed menus with images, descriptions, and pricing for each dish, along with special offers or discounts.
5. **Order Placement:** Intuitive order placement process, allowing users to customize their orders, specify delivery or pickup options, and schedule delivery times.
6. **Real-time Order Tracking:** Integration with GPS tracking systems to provide real-time updates on order status, from preparation to delivery.

7. **Proper Cart System:** Enables users to add, modify, and review items in their cart before checkout, ensuring a seamless ordering process.
8. **User Profile Management and Past Order Tracking:** Allows users to manage profiles, addresses, and payment methods, while tracking past orders for easy reordering.
9. **Flexibility and Feasibility to Add Food Items:** Empowers administrators to effortlessly add, update, or remove food items with necessary details for an enriched menu.
10. **User-Friendly GUI:** Offers an intuitive interface with clear navigation and appealing design for enhanced usability across devices.
11. **Completely Responsive:** Ensures optimal viewing and interaction experience on all devices, promoting accessibility and convenience for users.
12. **Feasible Category Distribution:** Organizes food items logically into categories, simplifying browsing and selection for users.

Project Timeline:

- **Phase 1 (Planning and Design)**: Define project scope, gather requirements, create wireframes and mockups - 1 month
- **Phase 2 (Development):** Implement frontend and backend functionalities, integrate APIs, perform testing - 3 months
- **Phase 3 (Deployment and Testing):** Deploy the website on production servers, conduct user acceptance testing (UAT), address any issues - 2 weeks
- **Phase 4 (Launch and Maintenance):** Official launch of the platform, monitor performance, gather user feedback, and iterate on improvements - Ongoing

Technologies Used

1. **HTML (Hypertext Markup Language):** Used for structuring the content of web pages, such as defining headings, paragraphs, lists, and links
2. **CSS (Cascading Style Sheets):** Used for styling the appearance of web pages, including layout, colors, fonts, and spacing, to create an appealing and consistent design.
3. **JavaScript:** Used for adding interactivity and dynamic behavior to web pages, such as form validation, animations, and event handling, to enhance user experience.
4. **Node.js:** Used as a server-side runtime environment for JavaScript, allowing developers to build scalable and high-performance web applications, handle HTTP requests, and interact with databases.
5. **React.js:** A JavaScript library for building user interfaces, particularly single-page applications (SPAs), using reusable components, virtual DOM, and state management, to create interactive and responsive UIs.
6. **Bootstrap:** A front-end framework containing pre-designed components and utilities, such as grids, buttons, forms, and navigation bars, to facilitate rapid prototyping and ensure consistency in design across devices.
7. **MongoDB:** A NoSQL database used for storing and managing data in a flexible and scalable manner, particularly suited for handling unstructured or semi-structured data like user profiles, orders, and menu items in a food ordering website.
8. **Express.js:** A web application framework for Node.js, used for building server-side APIs and handling routing, middleware, and HTTP requests/responses, to create robust and modular back-end components in a food ordering website.
9. **JSON Web Tokens (JWT):** Used for securely transmitting authentication and authorization data between client and server, particularly for user authentication and session management in a stateless manner.

Goals:

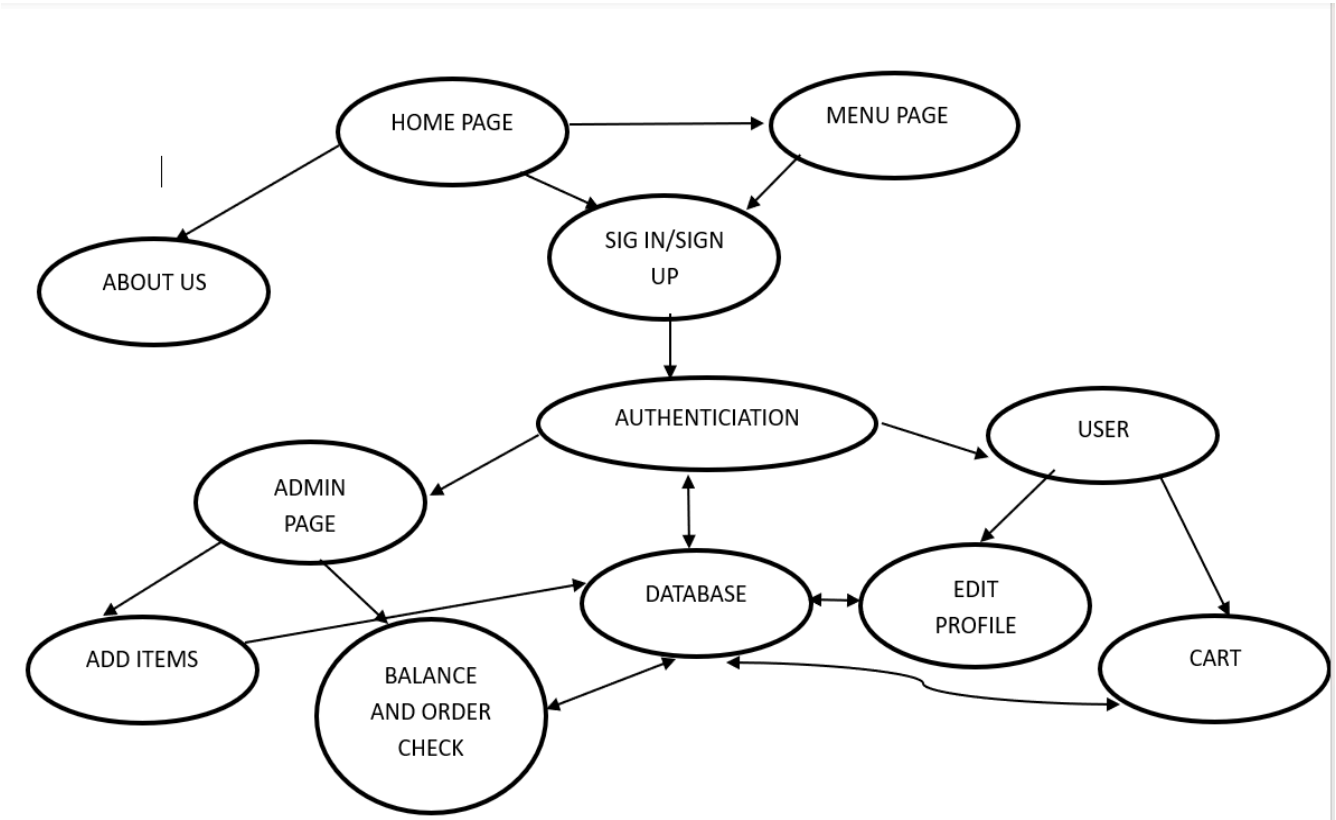
1. **Enhance User Experience:** Provide a seamless and intuitive platform for users to browse menus, place orders, and track deliveries, ensuring convenience and satisfaction.
2. **Empower Local Restaurants:** Partner with local restaurants to expand their reach, increase visibility, and boost sales through online ordering and delivery services.
3. **Optimize Operational Efficiency:** Streamline order management processes for restaurants, reducing errors, minimizing wait times, and improving overall efficiency.
4. **Foster Community Engagement:** Build a vibrant online community of food enthusiasts, fostering interaction, sharing of reviews and recommendations, and participation in promotions and events.
5. **Ensure Security and Trust**: Implement robust security measures to protect user data, payment information, and transactions, fostering trust and confidence among users and restaurant partners.
6. **Drive Revenue Growth:** Generate revenue through commission fees, advertising opportunities, and premium features, while delivering value to users and restaurants alike.

Expected Outcomes:

1. **Increased User Engagement:** Higher user engagement metrics such as time spent on site, repeat visits, and interaction with content, indicating a positive user experience and satisfaction.
2. **Growth in User Base:** Expansion of the platform's user base through effective marketing strategies, word-of-mouth referrals, and partnerships with local businesses and community organizations.
3. **Boost in Sales for Restaurants:** Incremental revenue growth for partner restaurants through increased order volume, expanded customer reach, and upselling opportunities.
4. **Improved Operational Efficiency:** Reduction in order processing times, errors, and customer complaints, leading to smoother operations and improved customer satisfaction for restaurants.

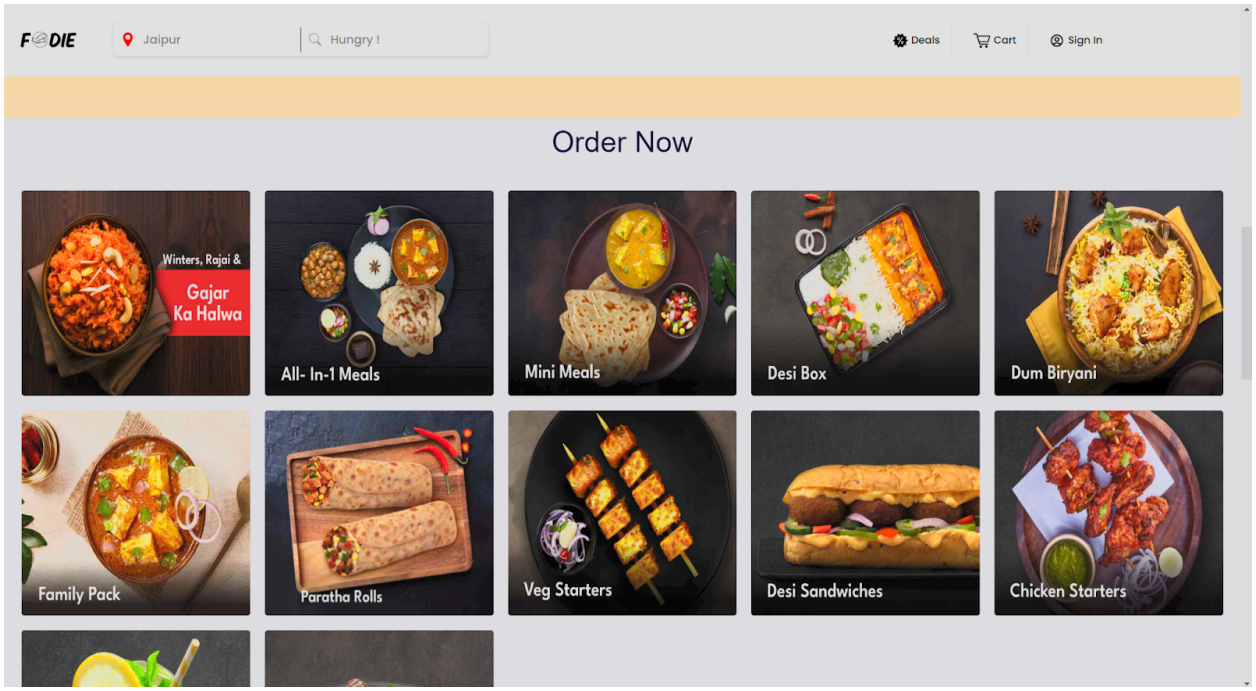
5. **Positive Brand Perception:** Establishment of a strong brand reputation as a reliable, user-friendly, and customer-focused platform for food ordering and delivery services.
6. **Financial Viability:** Achieve profitability through a sustainable business model, with revenue streams exceeding operational costs and investments, ensuring long-term viability and growth.

STRUCTURE AND FLOW DIAGRAM

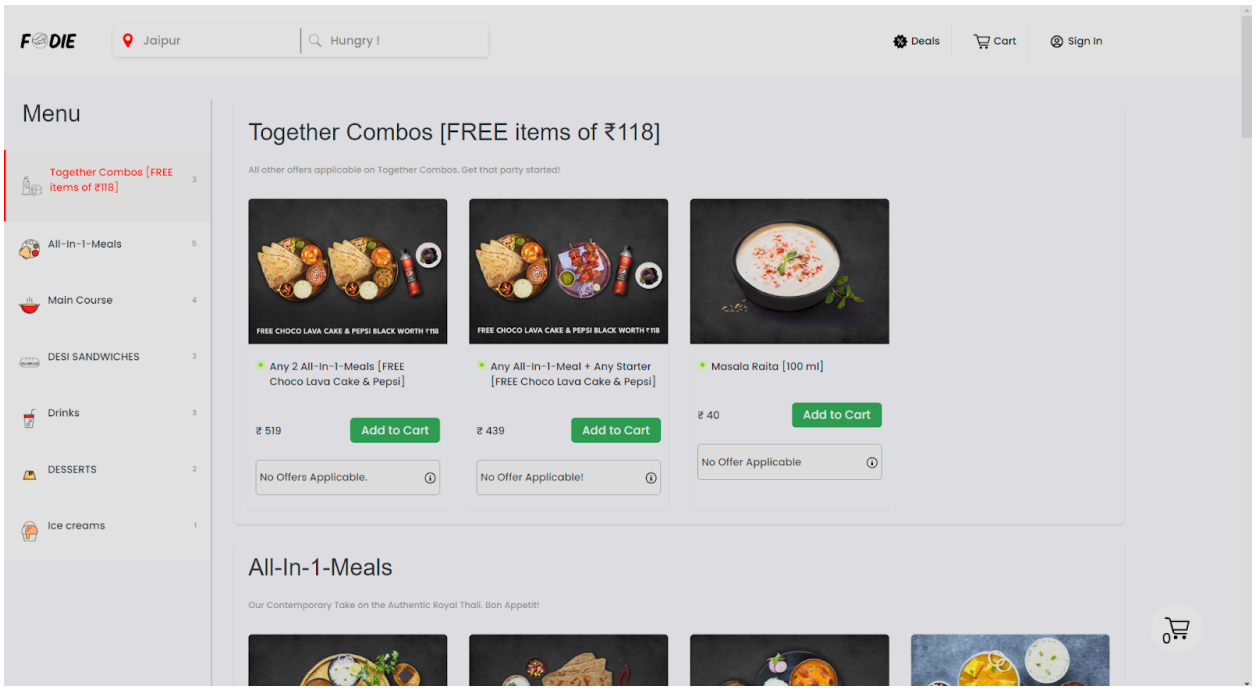


FRONTEND DEMONSTRATION (GUI)

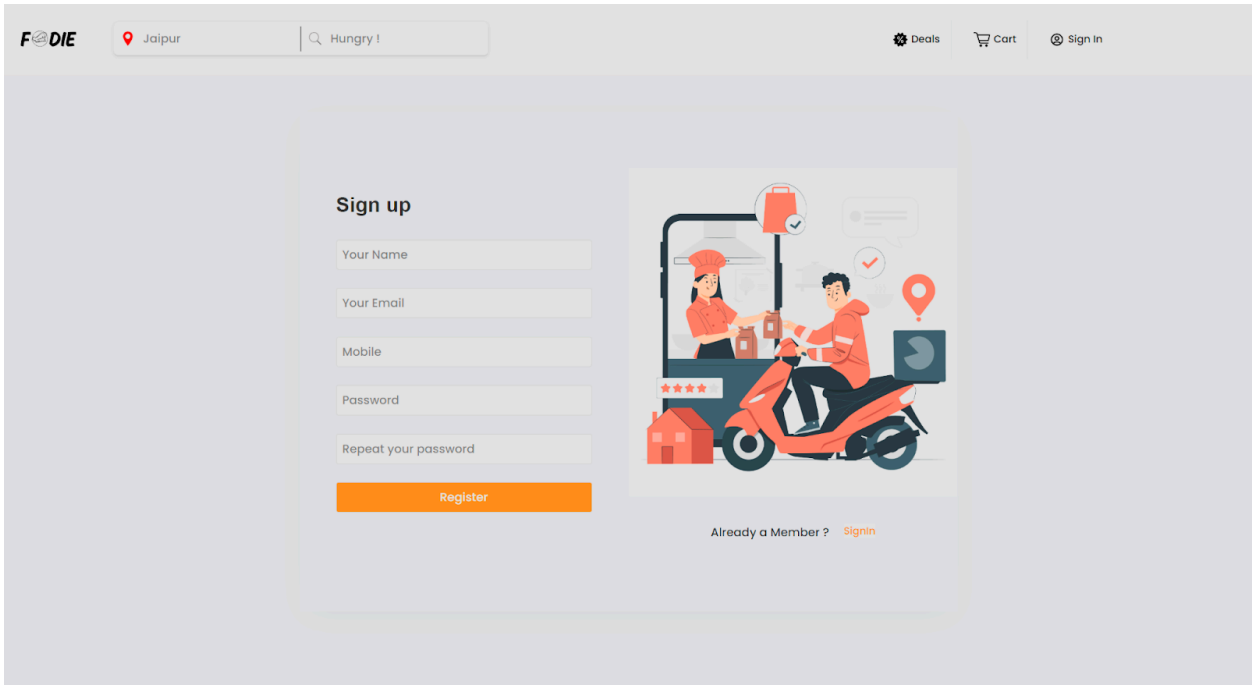
HOMEPAGE



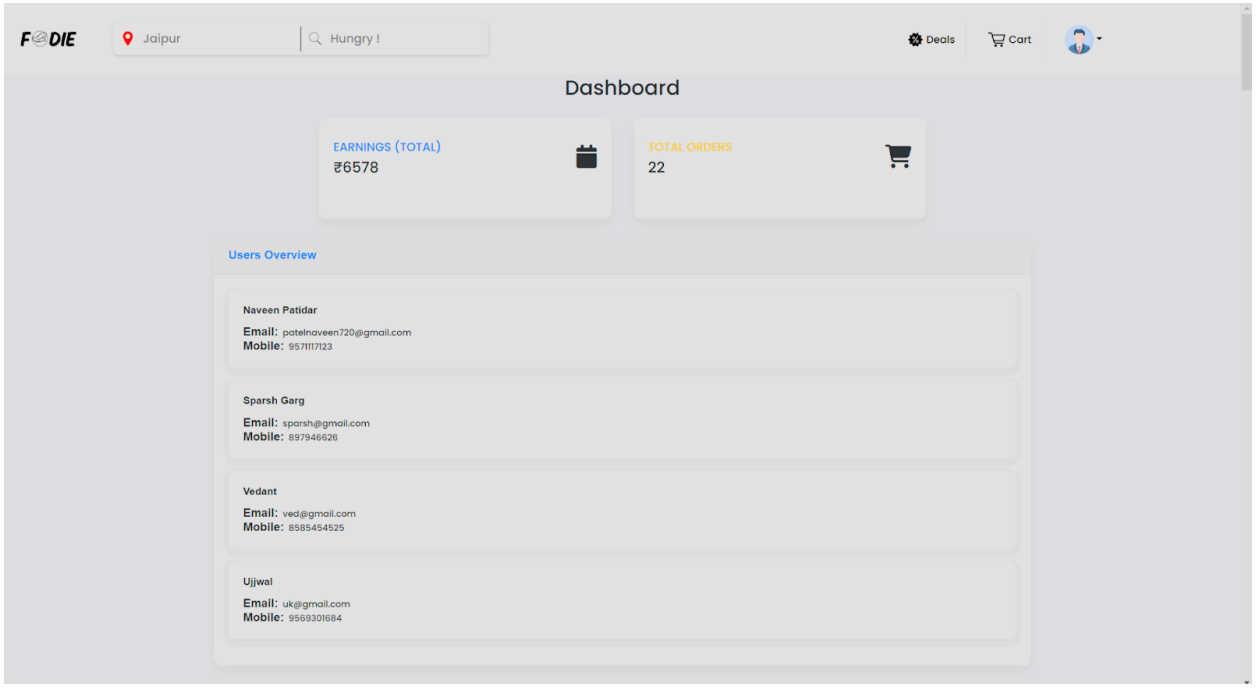
MENUPAGE



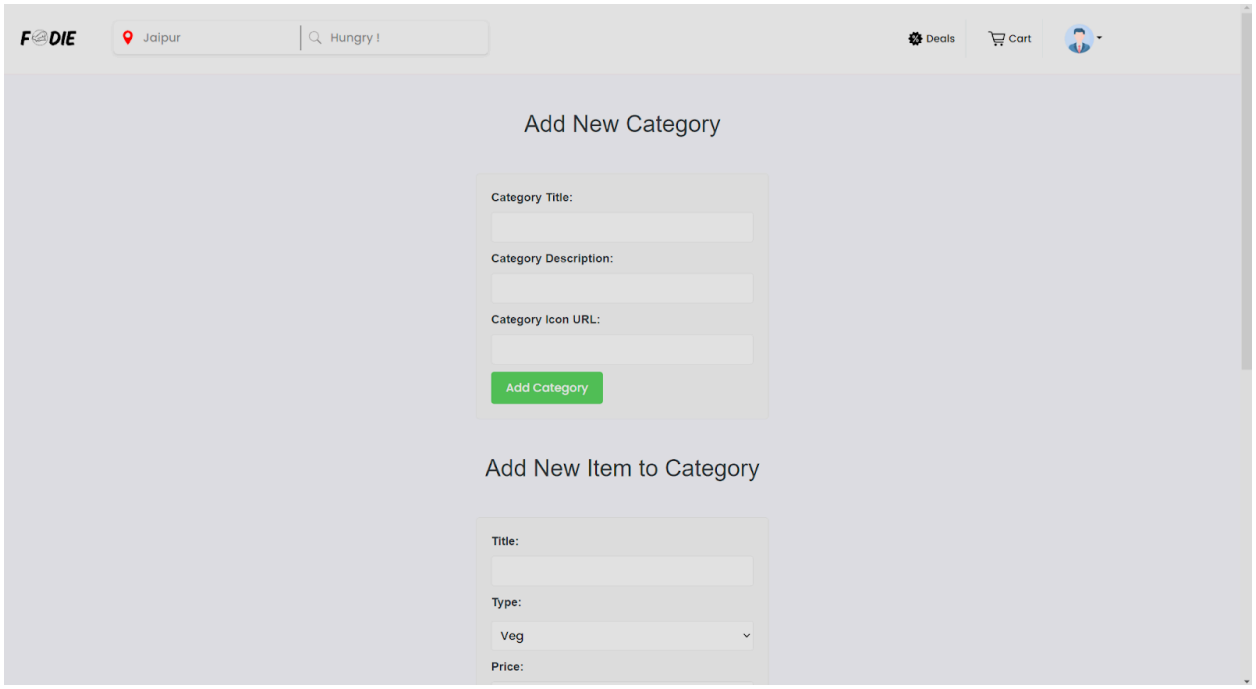
SIGNIN/SIGNUP



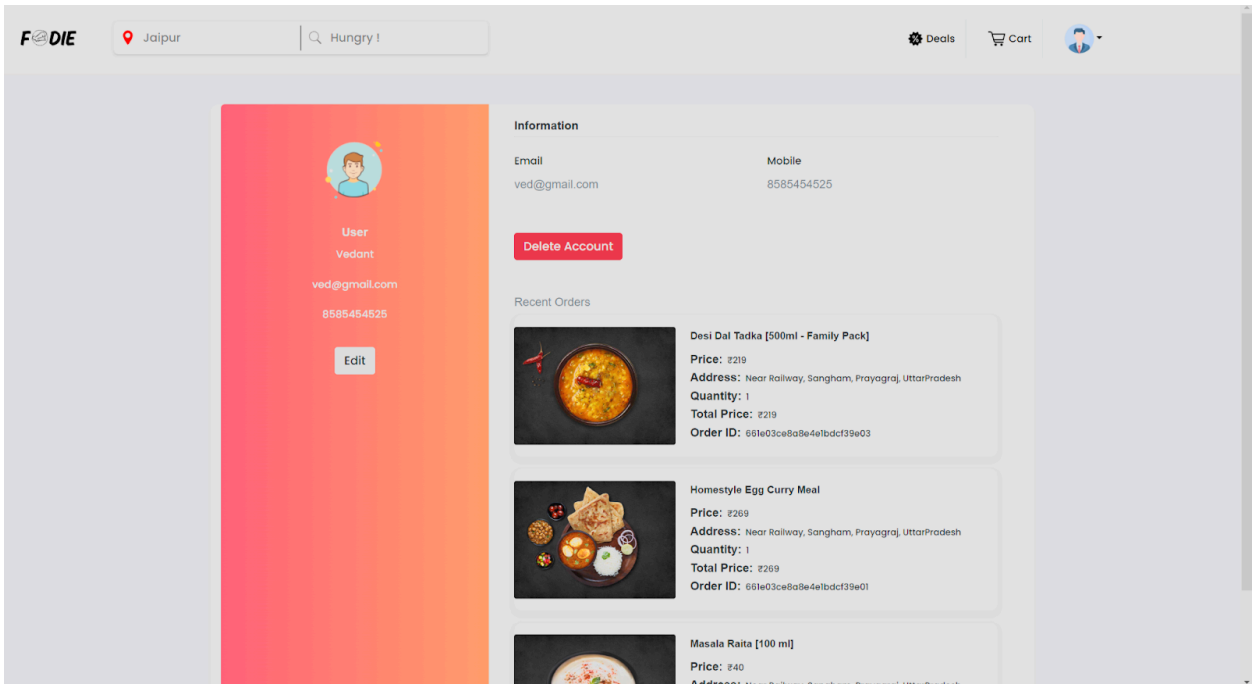
ADMIN PAGE



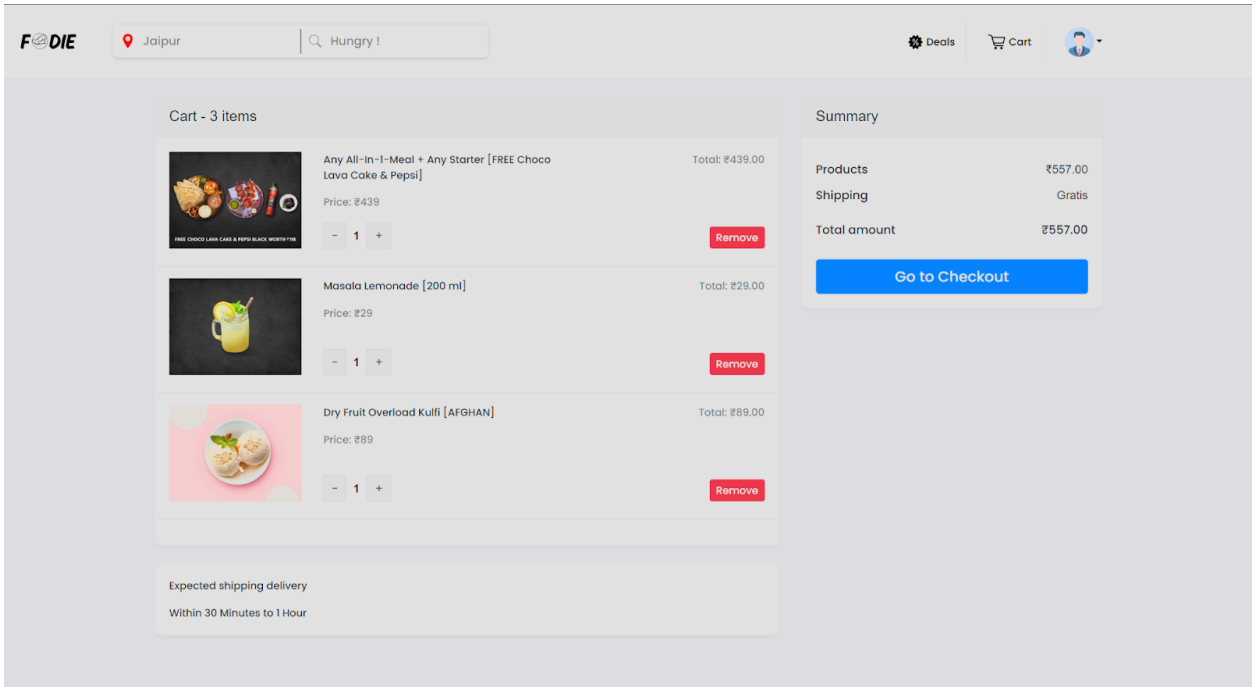
ADD ITEM PAGE



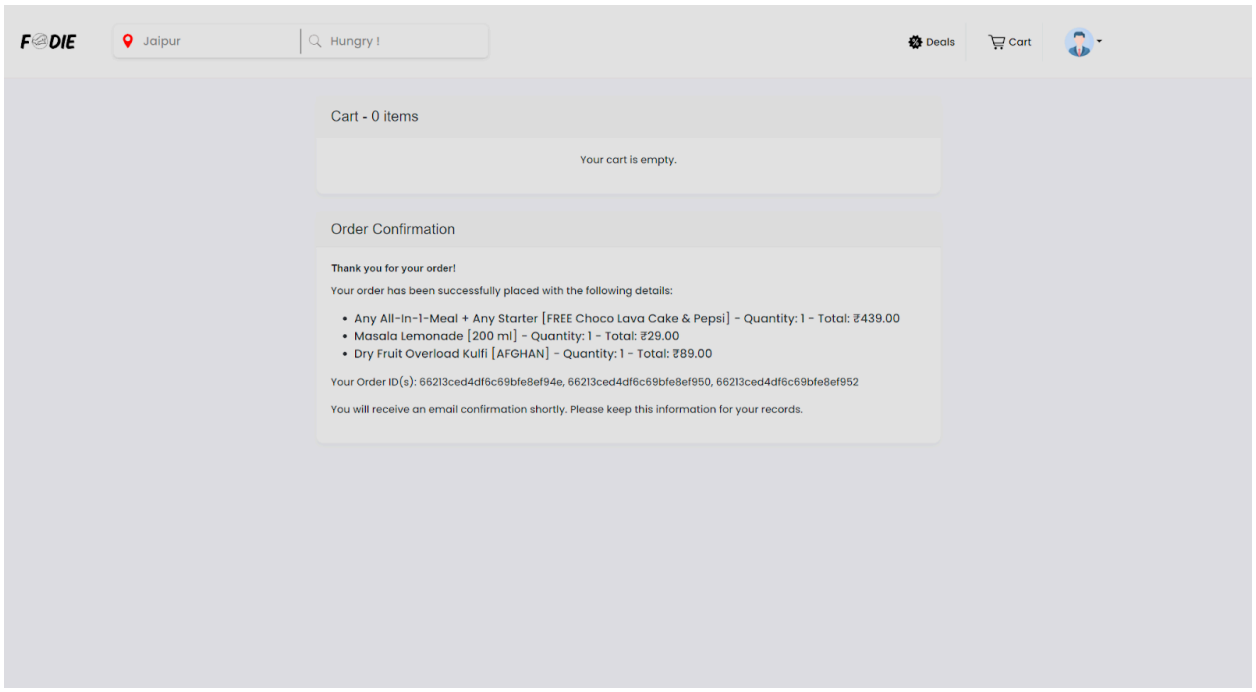
USER PROFILE



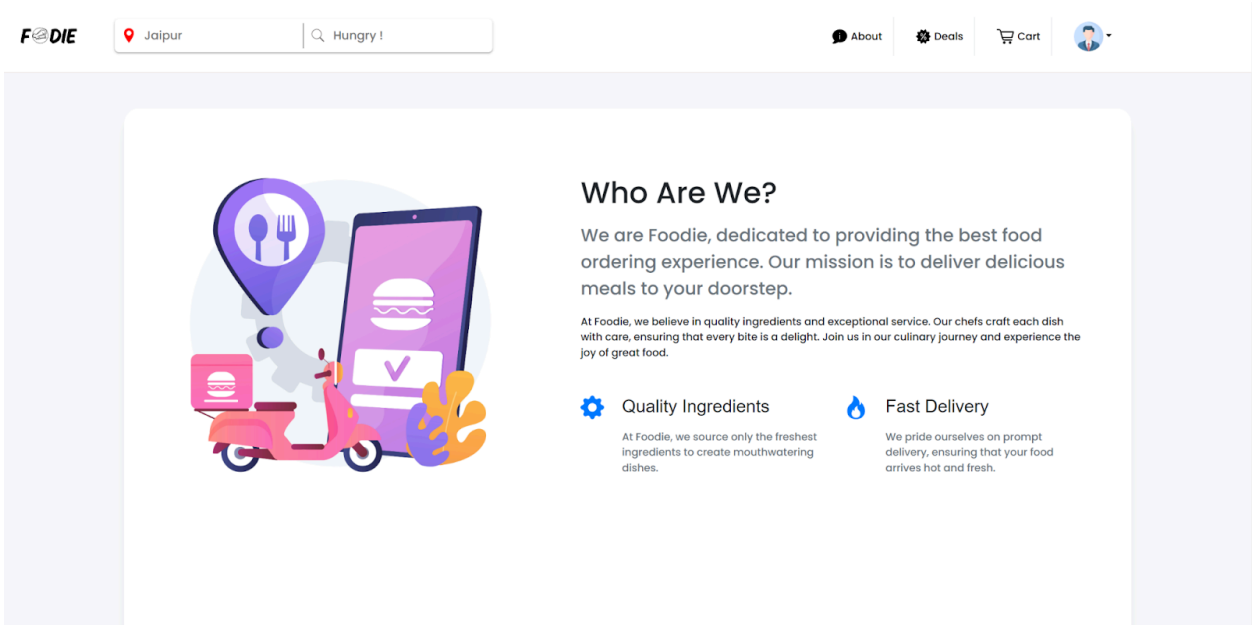
CART



ORDER CONFIRMATION



ABOUT US PAGE



DATABASE ORGANIZATION

USER SCHEMA

```
const UserSchema = new mongoose.Schema({
    fullName: {
        type: String,
        required: true,
    },
    email: {
        type: String,
        required: true,
        unique: true
    },
    role: {
        type: String,
        default: "User",
    },
    password: {
```

```
        type: String,
        required: true,
    },
    mobile: {
        type: String,
        required: true
    },
    salt: {
        type: String,
    },
    RecentOrders: [{
        type: mongoose.Schema.Types.ObjectId,
        ref: 'Order',
    }]
}, { timestamps: true });
```

ORDER SCHEMA

Order Schema

```
const orderSchema = new mongoose.Schema({
    name: {
        type: String,
        required: true
    },
    price: {
        type: String,
        required: true
    },
    delivery_address: {
        type: String,
        required: true
    },
    quantity: {
        type: String,
```

```
        required: true
    },
    image: {
        type: String,
        required: true
    },
    payment_method:{
        type:String,
        required:true
    },
    user: {
        type: mongoose.Schema.Types.ObjectId,
        ref: 'User',
        required: true
    }
},{timestamps:true});

const ORDER = mongoose.model("Order", orderSchema);
```

MONGODB DATABASE SAMPLE


```
_id: ObjectId('661dfcb06226d878baaa332b')
item_title : "Any 2 All-In-1-Meals [FREE Choco Lava Cake & Pepsi]"
item_type : "veg"
item_price : "519"
item_offer : "No Offers Applicable."
item_src : "https://assets.box8.co.in/default-picture-shape/web/product/5007"
__v : 0
```

```
_id: ObjectId('661dfcde6226d878baaa3330')
item_title : " Any All-In-1-Meal + Any Starter [FREE Choco Lava Cake & Pepsi]"
item_type : "veg"
item_price : "439"
item_offer : "No Offer Applicable!"
item_src : "https://assets.box8.co.in/default-picture-shape/web/product/5006"
__v : 0
```

```
_id: ObjectId('661dfd226226d878baaa3337')
item_title : " Dilli Rajma Meal"
item_type : "veg"
item_price : "269"
item_offer : "No Offer Available"
item_src : "https://assets.box8.co.in/default-picture-shape/web/product/751"
__v : 0
```

```
_id: ObjectId('661dfd496226d878baaa333c')
item_title : "Amritsari Chole Meal"
item_type : "veg"
item_price : "269"
item_offer : "No Offer Available"
item_src : "https://assets.box8.co.in/default-picture-shape/web/product/756"
__v : 0
```

CHALLENGES FACED AND SOLUTIONS

1. **Data Management Challenges:**

- **Challenge:** Managing a large volume of data related to menus, orders, customers, and inventory can be complex and resource-intensive.
- **Solution**: Implement a robust database management system (e.g., MongoDB, MySQL) with efficient data structures and indexing. Use data normalization techniques to organize data logically and minimize redundancy. Implement caching mechanisms to improve data retrieval performance.

2. **Integration Challenges:**

- **Challenge:** Integrating various third-party services such as payment gateways, mapping APIs, and restaurant management systems can be challenging due to compatibility issues and API limitations.
- **Solution:** Choose well-documented and widely-used APIs with strong community support. Use middleware solutions or custom integration layers to bridge the gap between different systems. Implement error handling and monitoring mechanisms to detect and resolve integration issues proactively.

3. **User Experience Challenges:**

- **Challenge**: Designing an intuitive and user-friendly interface for both customers and restaurant staff can be challenging, especially considering diverse user preferences and technological literacy levels.
- **Solution:** Conduct user research and usability testing to understand user needs and preferences. Follow established UI/UX design principles such as simplicity, consistency, and accessibility. Iterate on designs based on user feedback to optimize usability and satisfaction.

TESTING AND VALIDATION

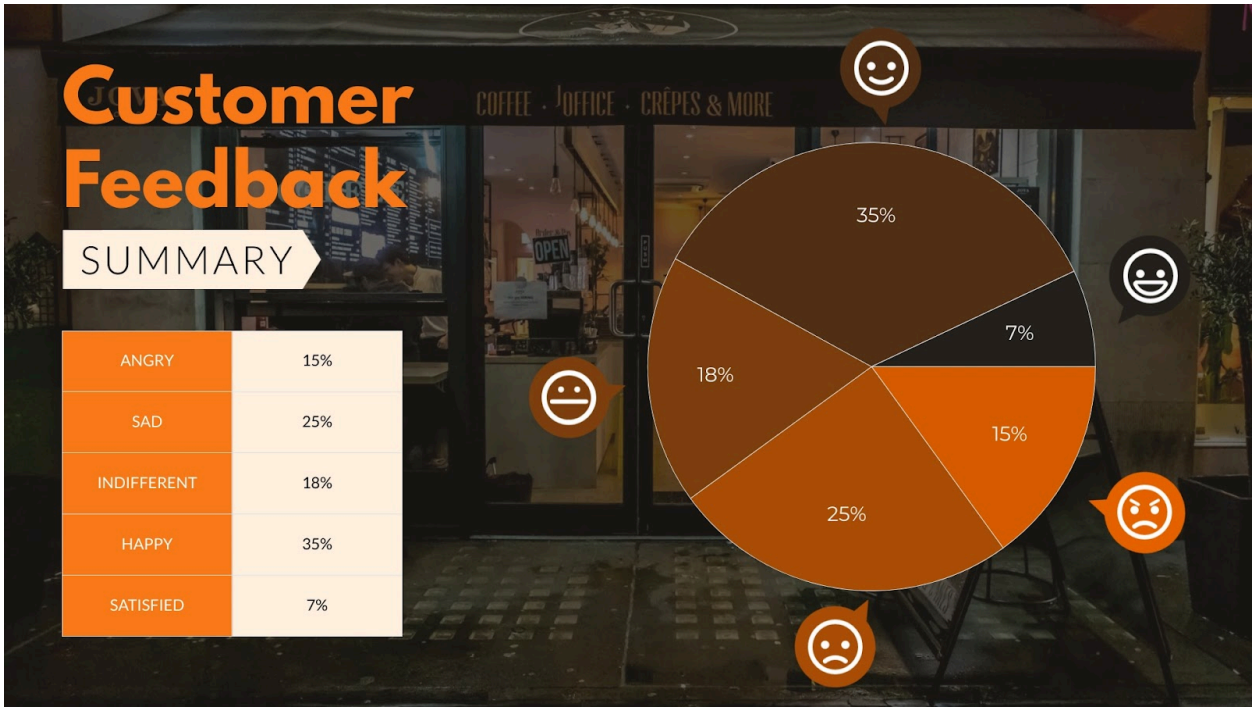
1.Functional Testing:

Verified that all features and functionalities of the website work as intended, including user registration, menu browsing, order placement.

2.Usability Testing:

Evaluated the website's user interface, navigation flow, and overall user experience to ensure ease of use and intuitiveness.

Collected user reviews about the look and feel of the website through google forms and obtained a rather satisfying result.



3.Compatibility Testing:

- Tested the website across different web browsers (e.g., Chrome, Firefox, Safari, Edge) and devices (e.g., desktops, laptops, tablets, smartphones) to ensure compatibility and responsiveness.
- Verified that the website renders correctly and functions properly across various screen sizes, resolutions, and operating systems.

FUTURE SCOPES

1. **Virtual Reality (VR) Dining Experience:** Implementing virtual reality technology to offer immersive dining experiences where users can visualize restaurant interiors, interact with menus in a virtual environment, and even simulate dining with friends or family remotely.
2. **Artificial Intelligence (AI) Chatbots:** Integrating AI-powered chatbots to provide personalized recommendations, assist users in placing orders, answer queries about menu items, and handle customer support inquiries effectively.
3. **Augmented Reality (AR) Food Visualization:** Enhancing the menu browsing experience by allowing users to view realistic 3D models of food items through augmented reality, enabling them to make more informed decisions based on visual presentation.
4. **Blockchain for Food Traceability:** Leveraging blockchain technology to track the entire food supply chain, from sourcing ingredients to delivery, ensuring transparency, authenticity, and traceability of food items, particularly for premium or specialty products.
5. **Voice-Activated Ordering:** Introducing voice-controlled ordering capabilities through integration with virtual assistants like Alexa or Google Assistant, allowing users to place orders hands-free using natural language commands.
6. **Hyper-Personalization:** Utilizing data analytics and machine learning algorithms to analyze user behavior, preferences, and ordering history, enabling hyper-personalized recommendations, promotions, and customized menus tailored to individual tastes.
7. **Contactless Delivery and Pickup:** Expanding contactless delivery and pickup options, including drone delivery, self-service kiosks, or curbside pickup stations, to accommodate changing consumer preferences and health safety concerns.
8. **Social Dining Features:** Introducing social networking features within the platform to facilitate group ordering, meal sharing, and virtual dining

experiences, allowing users to connect with friends, family, or fellow food enthusiasts.

9. **Integration with Smart Kitchen Appliances:** Partnering with smart kitchen appliance manufacturers to enable seamless integration with devices like smart ovens, refrigerators, or meal prep robots, automating cooking instructions, and ingredient reordering based on user preferences.
10. **Sustainable and Eco-Friendly Initiatives:** Promoting sustainability by partnering with eco-friendly restaurants, offering environmentally friendly packaging options, and incentivizing users to opt for carbon-neutral delivery methods to reduce the carbon footprint of food delivery operations.

CONCLUSION

In conclusion, our food ordering website stands as a testament to innovation, collaboration, and customer-centricity, poised to redefine the way people discover, order, and enjoy food in the digital age. As we look towards the future, we remain dedicated to driving growth, sustainability, and delight in the food industry ecosystem, delivering value and impact for all our stakeholders.

THANK YOU