A PROJECT REPORT ON

Online Food Ordering in Canteen

(Reduce waiting time)

By

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B.Tech CE Semester-V Subject: ADVANCED TECHNOLOGIES

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CERTIFICATE

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Advanced Technologies and recorded in this journal is the bonafide

work of

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Abstract

Several platforms have made their marks and impact on the home food delivery industry, but nothing quite like this has existed before that allows client to order food online at the canteen itself. Our WebApp **online food ordering in canteen** fills this void in a way that is easy to use and effective for users and canteen managers.

Time and tide wait for none, it seems that nowadays time is more valuable than what money is to mankind. Waiting in long queues at the overcrowded canteens don't seem to be the ideal option if all you want to buy is a tiny pack of snack. That's why our application reduces waiting time by allowing the user to order online from his/her device and collect the respective items from the counter when the order is prepared. Customers can choose any item of their choice and enjoy the benefits of paying online.

Admins can improve sales too much extent as they have the complete list of all the orders and can start serving the one that are already available.

Introduction

> About Project:

Online food ordering system in canteen (reduced waiting time) is a web-based canteen management application with food ordering functionality. It connects users and canteen managers in an online community allowing users to browse menu and order food of their choice without having to wait in long queues. Users can pay online and wait for their order to get ready while the management system can handle the menu and orders.

Our application includes some of the major use cases like user account registration, login/logout, order food online, view order history. Confirming order, manage menu details and categories at owner side.

> Technology:

Our project uses MongoDB Atlas and Node.js to back the interface with strong database functionality and React Framework as frontend. Online food ordering system integrates Cloudinary as a cloud storage for Dynamic image upload. Along with this the use of **Netlify** and **Render** are employed to host the application's frontend and backend parts respectively. This project will target the major web browsers as the initial platform.

> Tools:

- Visual Studio Code (editor)
- MongoDb compass
- Github
- Netlify
- Render
- Postman

SOFTWARE REQUIREMENTS SPECIFICATION (SRS)

Online Food Ordering System in Canteen (reduce wait time)

R 1: User side

Description: User can see only view the home page of the application, to access further functionalities user must sign up first or login if already registered.

R 1.1: Authentication

Description: If the user is new to the system, they must register with the application else they can login if already registered previously.

R 1.1.1: Register

Input: User details.

Process: Validate details.

Output: Redirect to menu page.

R 1.1.2: Sign In

Input: User details.

Process: Validate details.

Output: Redirect to menu page.

R 1.1.3: Log Out

Input: User Selection.

Output: Redirect to Home page.

R 1.2: Menu

Description: as per user selection system shows different food categories

R 1.2.1: Menu item details

Input: User selection.

Output: list the food item details.

R 1.2.2: Add/Remove

Input: User selection.

Process: Total quantity of corresponding item gets added or

subtracted based on user selection.

Output: Adds or removes the respective food item along with

quantity from the food cart.

R 1.3: Orders History

Description: it will show list and status of all orders of the respective user.

R 1.4: Cart

Description: Display the contents of the cart based on the selection

R 1.4.1: Place Order

Input: User selection

Process: Payment processing

Output: User redirected to respective order's page

R 1.4.2: Clear Cart

Input: User selection

Process: All the cart items are removed

Output: Cart is cleared

R 2: Admin Side

Description: The first user who registers for the application is assigned the role of admin and the subsequent users are assigned the normal users. After approval the admin will be redirected to admin menu page.

R 2.1: Authentication

Description: If user is new to the system then first he/she must sign up to the system otherwise user can directly login and then enter to the system.

R 2.1.1: Sign Up

Input: User details.

Process: Validate details.

Output: Redirect to admin page.

R 2.1.2: Sign In

Input: User details.

Process: Validate details.

Output: Redirect to admin page

R 2.1.4: Log Out

Input: User Selection.

Output: Redirect to Home page.

R 2.2: Manage Menu

Description: Shows the food categories and respective food items.

R 2.2.1 Manage Categories

Description: Shows the existing food item categories in the menu.

R 2.2.1.1 Add Category

Input: User selectionOutput: Category Added

R 2.2.1.2 Edit Category

Input: User selection

Output: Category updated

R 2.2.1.3 Delete Category

Input: User selection

Output: Category deleted

R 2.2.2 Manage Food Items

Description: Lists all the food items corresponding to the category

selected.

R 2.2.2.1 Add Food Item

Input: User selection

Output: Food item corresponding to the respective category

added

R 2.2.2.2 Edit Food Item

Input: User selection

Output: Food item corresponding to the respective category

updated

R 2.2.2.3 Delete Food Item

Input: User selection

Output: Food item corresponding to the respective category deleted

R 2.3: Manage Orders

Description: Shows all the pending as well as completed orders.

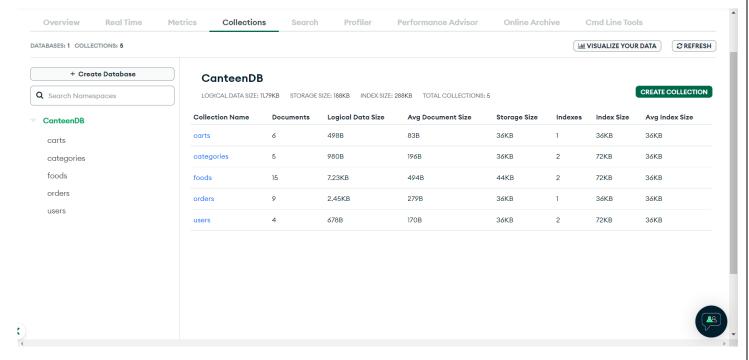
R 2.3.1 Order Prepared

Input: User Selection.

Process: Order status changes from pending to approved. **Output:** Order of the respective customer is finished.

Data Dictionary

Tables



Cart:

```
const mongoose = require('mongoose');
const Schema = mongoose.Schema;
const CartItemsSchema = new Schema({
 _id: {
    type: mongoose.Types.ObjectId,
    ref: 'Food',
    required: [true, 'Please provide Food Item id'],
  },
  name: {
    type: String,
    required: [true, 'Please provide Food Item name'],
  },
  quantity: {
    type: Number,
    required: [true, 'Please provide Food Item quantity'],
  },
  price: {
    type: Number,
    required: [true, 'Please provide Food Item price'],
  },
});
```

```
const CartSchema = new Schema({
   userId: {
     type: mongoose.Types.ObjectId,
        ref: 'User',
        required: [true, 'Please provide a user'],
   },
   cartItems: [CartItemsSchema],
   totalPrice: {
     type: Number,
     default: 0,
   },
});
module.exports = mongoose.model('Cart', CartSchema);
```

Category:

```
const mongoose = require('mongoose');
const Schema = mongoose.Schema;
const CategorySchema = new Schema({
 name: {
    type: String,
    required: [true, 'Please provide name of the category'],
    minlength: [3, 'Name cannot be less than 3 characters'],
    maxlength: [40, 'Name cannot be more than 40 characters'],
    unique: true,
  },
  slug: {
    type: String,
  },
  image: {
    type: String,
    default:
      'https://res.cloudinary.com/leantuts/image/upload/v1667803848/canteen-
backend/category/default.jpg',
 },
});
CategorySchema.pre('save', function () {
  let slugName = this.name;
 this.slug = slugName
    .toString()
    .trim()
    .toLowerCase()
    .replace(/\s+/g, '-')
    //eslint-disable-next-line
```

```
.replace(/[^\w\-]+/g, '')
  //eslint-disable-next-line
  .replace(/\-\-+/g, '-')
  .replace(/^-+/, '')
  .replace(/-+$/, '');
});

module.exports = mongoose.model('Category', CategorySchema);
```

Food:

```
const mongoose = require('mongoose');
const Schema = mongoose.Schema;
const FoodSchema = new Schema({
 category: {
   type: mongoose.Types.ObjectId,
   ref: 'Category',
    required: [true, 'Please provide id of category'],
 },
 slug: { type: String },
 name: {
   type: String,
   minlength: [3, 'Name cannot be less than 3 characters'],
   maxlength: [40, 'Name cannot be more than 40 characters'],
   unique: true,
   required: [true, 'Please provide name of the food item'],
 },
 price: {
   type: Number,
    required: [true, 'Please provide the price of the food item'],
 },
 inStock: {
   type: Boolean,
   default: true,
 },
 description: {
   type: String,
    required: [true, 'Please provide the description of the food item'],
 },
 image: {
   type: String,
   default:
      'https://res.cloudinary.com/leantuts/image/upload/v1667803945/canteen-
backend/food/default.jpg',
 },
});
```

```
FoodSchema.pre('save', function () {
  let slugName = this.name;
  this.slug = slugName
    .toString()
    .trim()
    .toLowerCase()
    .replace(/\s+/g, '-')
    //eslint-disable-next-line
    .replace(/[^\w\-]+/g, '')
    //eslint-disable-next-line
    .replace(/\-\-/g, '-')
    .replace(/\-\-/g, '-')
    .replace(/\-+/, '')
    .replace(/-+\food', FoodSchema);
```

Order:

```
const mongoose = require('mongoose');
const Schema = mongoose.Schema;
const CartItemsSchema = new Schema({
 id: {
    type: mongoose.Types.ObjectId,
    ref: 'Food',
    required: [true, 'Please provide Food Item id'],
  },
  name: {
    type: String,
    required: [true, 'Please provide Food Item name'],
  },
  quantity: {
    type: Number,
    required: [true, 'Please provide Food Item quantity'],
  },
  price: {
    type: Number,
    required: [true, 'Please provide Food Item price'],
 },
});
const OrderSchema = new Schema(
    userId: {
      type: mongoose.Types.ObjectId,
      ref: 'User',
      required: [true, 'Please provide a user'],
```

```
},
totalPrice: {
    type: Number,
    required: [true, 'Please provide the total price'],
},
isPrepared: {
    type: Boolean,
    default: false,
},
    orderItems: [CartItemsSchema],
},
{ timestamps: true }
);
module.exports = mongoose.model('Order', OrderSchema);
```

User:

```
const mongoose = require('mongoose');
const validator = require('validator');
const bcrypt = require('bcryptjs');
const Schema = mongoose.Schema;
const UserSchema = new Schema({
 name: {
    type: String,
    required: [true, 'Please provide a name'],
   minlength: [3, 'Name cannot be less than 3 characters'],
    maxlength: [30, 'Name cannot be more than 30 characters'],
  },
  email: {
    type: String,
    required: [true, 'Please provide an email'],
   unique: true,
   validate: {
     validator: validator.isEmail,
     message: 'Please provide valid email',
    },
  },
  password: {
    type: String,
    required: [true, 'Please provide a password'],
    minlength: [6, 'Password should be more than 6 characters long'],
  },
  role: {
    type: String,
    enum: ['admin', 'user'],
```

```
default: 'user',
    },
});

UserSchema.pre('save', async function () {
    if (!this.isModified('password')) return;
    const salt = await bcrypt.genSalt(10);
    this.password = await bcrypt.hash(this.password, salt);
});

UserSchema.methods.comparePassword = async function (checkPassword) {
    return await bcrypt.compare(checkPassword, this.password);
};

module.exports = mongoose.model('User', UserSchema);
```

Implementation Details

Modules created and brief description of each module

This Project consists of 4 major modules.

- 1) User Module
- 2) Menu Module
- 3) Cart Module
- 4) Orders Module

Each module consists of several methods to implement the required functionality Implementation is done using MERN.

1) User Module

There are three types of Users: Admin, Owner, Customer. This module is the base for authentication and authorization to ensure the security aspect of the user.

2) Menu Module

This module is responsible for listing various categories of food items and food items associated with them. It also shows makes other information available such as item price or whether item is out of stock or not and along with that lets the user add the corresponding food item to the cart. Admins can customize menu based on the items served and availability.

3) Cart Module

This module lists all the food items selected by the user and shows a brief order summary which includes total bill and order details.

4) Orders Module

It is accountable to list all the previous successful orders placed by the corresponding user. Admins are able to see the orders of all the users but an individual user can only see his/her respective previous orders. Admin can approve the order when prepared and thus changing the status of order from pending to completed.

Function prototypes which implement major functionality

1) User Module

Login

```
const { StatusCodes } = require('http-status-codes');
const UserModel = require('../../models/User');
const Errors = require('../../errors');
const JWT = require('.../.../utils/jwt');
const login = async (req, res) => {
 const { email, password } = req.body;
 if (!email || !password) {
    throw new Errors.BadRequestError('Email or Password missing');
  const user = await UserModel.findOne({ email });
  if (!user) {
    throw new Errors.UnauthenticatedError('Wrong credentials entered');
  const passwordMatch = await user.comparePassword(password);
  if (!passwordMatch) {
    throw new Errors.UnauthenticatedError('Wrong credentials entered');
  const userPayload = { userId: user._id, name: user.name, role: user.role };
  JWT.createJWT(res, userPayload);
  return res.status(StatusCodes.OK).json({ user: userPayload });
};
module.exports = login;
```

<u>Logut</u>

```
const { StatusCodes } = require('http-status-codes');

const logout = async (req, res) => {
  res.cookie('token', 'logout', {
    httpOnly: true,
    expires: new Date(Date.now() + 10),
    secure: process.env.NODE_ENV === 'production',
    signed: true,
    sameSite: 'none',
```

```
});
return res.status(StatusCodes.OK).send();
};
module.exports = logout;
```

Register

```
const { StatusCodes } = require('http-status-codes');
const UserModel = require('../../models/User');
const JWT = require('../../utils/jwt');
const createCart = require('../cart/createCart');
const Errors = require('../../errors');
const register = async (req, res) => {
 const isFirstAccount = (await UserModel.countDocuments({})) === 0;
  let user;
  let cart;
  if (isFirstAccount) {
    user = await UserModel.create({ ...req.body, role: 'admin' });
  } else {
    const emailAlreadyExists = await UserModel.findOne({
      email: req.body.email,
    });
    if (emailAlreadyExists) {
      throw new Errors.BadRequestError('Email already exists');
    user = await UserModel.create({ ...req.body, role: 'user' });
    cart = await createCart(req, res, user._id);
  const userPayload = { userId: user. id, name: user.name, role: user.role };
  JWT.createJWT(res, userPayload);
  return res.status(StatusCodes.CREATED).json({ user: userPayload, cart });
};
module.exports = register;
```

2) Menu Module

Get All Categories

```
const CategoryModel = require("../../models/Category");
const { StatusCodes } = require("http-status-codes");

const getAllCategories = async (req, res) => {
   const categories = await CategoryModel.find({});
   res.status(StatusCodes.OK).json({ categories, count: categories.length });
};

module.exports = getAllCategories;
```

Get food corresponding to category

```
const FoodModel = require('../../models/Food');
const { StatusCodes } = require('http-status-codes');

const getAllFood = async (req, res) => {
  const food = await FoodModel.find({});
  res.status(StatusCodes.OK).json({ food, count: food.length });
};

module.exports = getAllFood;
```

3) Cart

Get Cart of the current user

```
const CartModel = require('../../models/Cart');
const { StatusCodes } = require('http-status-codes');
const Errors = require('../../errors');

const getCurrentUserCart = async (req, res) => {
    if (req.user.role === 'admin') {
        return res
            .status(StatusCodes.NOT_FOUND)
            .json({ msg: 'Admin cannot have a cart' });
    }
    const userCart = await CartModel.findOne({ user: req.user.userId });
    if (!userCart) {
        throw new Errors.NotFoundError(`No cart with userId ${id}`);
    }
    res.status(StatusCodes.OK).json({ userCart });
};
```

```
module.exports = getCurrentUserCart;
```

Clear the cart

```
const CartModel = require('../../models/Cart');
const { StatusCodes } = require('http-status-codes');
const Errors = require('../../errors');

const clearCart = async (req, res) => {
    const cart = await CartModel.findOne({ userId: req.user.userId });
    if (!cart) {
        throw new Errors.NotFoundError(`No cart with userId ${id}`);
    }
    cart.totalPrice = 0;
    cart.cartItems = [];
    await cart.save();
    res.status(StatusCodes.OK).json({ cart });
};

module.exports = clearCart;
```

4) Order Module

Place order

```
const OrderModel = require('../../models/Order');
const { StatusCodes } = require('http-status-codes');

const createOrder = async (req, res) => {
    req.body.userId = req.user.userId;
    const order = await OrderModel.create({ ...req.body });
    return res.status(StatusCodes.CREATED).json({ order });
};

module.exports = createOrder;
```

Get all orders

```
const OrderModel = require("../../models/Order");
const { StatusCodes } = require("http-status-codes");

const getAllOrders = async (req, res) => {
  const orders = await OrderModel.find({});
  res.status(StatusCodes.OK).json({ orders, count: orders.length });
};
```

```
module.exports = getAllOrders;
```

Get current user order

```
const OrderModel = require('../../models/Order');
const { StatusCodes } = require('http-status-codes');
const Errors = require('../../errors');
const getCurrentUserOrders = async (req, res) => {
 if (req.user.role === 'admin') {
    return res
      .status(StatusCodes.NOT FOUND)
      .json({ msg: 'Admin cannot have orders' });
  const userOrders = await OrderModel.find({ userId: req.user.userId });
 if (!userOrders) {
    throw new Errors.NotFoundError(`No orders with userId ${id}`);
 res
    .status(StatusCodes.OK)
    .json({ orders: userOrders, count: userOrders.length });
};
module.exports = getCurrentUserOrders;
```

Update order

```
const OrderModel = require('../../models/Order');
const { StatusCodes } = require('http-status-codes');
const Errors = require('../../errors');

const updateOrder = async (req, res) => {
    const { id: orderId } = req.params;
    const order = await OrderModel.findOneAndUpdate(
      { _id: orderId },
      { ...req.body },
      { new: true, runValidators: true }
    );
    if (!order) {
      throw new Errors.NotFoundError(`No order with id ${orderId}`);
    }
    res.status(StatusCodes.OK).json({ order });
};

module.exports = updateOrder;
```

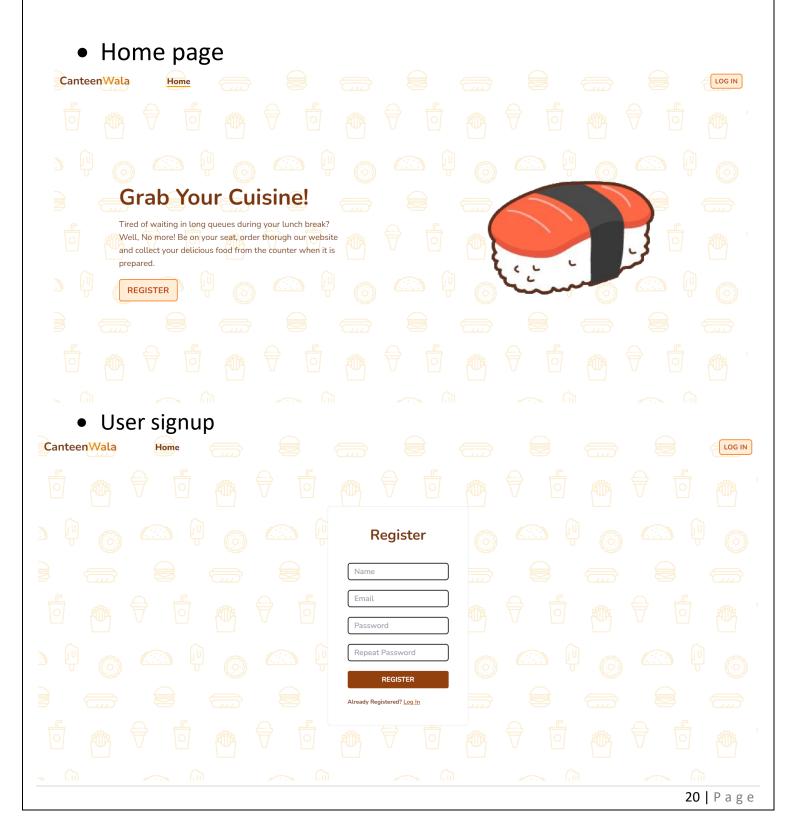
Testing

Test Cases

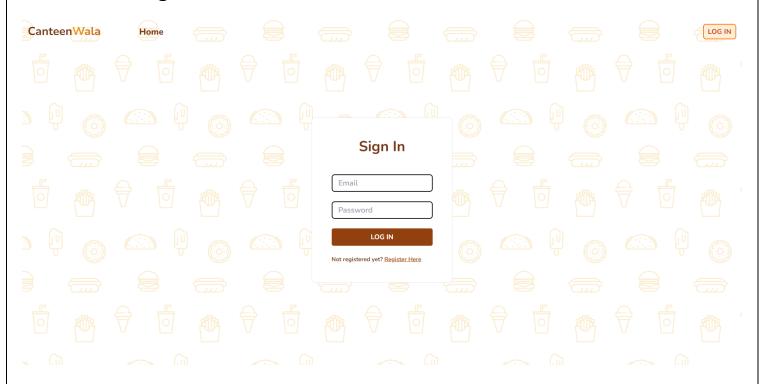
| Sr No | Test Case Objective | Input Data | Expected Output | Actual Output | Status |
|----------|--------------------------------------|--|--|--|--------|
| 1 | Authentication of customer and owner | Credential | Success or error message | Success or error message | Pass |
| 2 | List of categories | Selection of category | List of food items based on selected category | List of food items of category | Pass |
| 3 | Add food item to cart | Item selection | Item Added to cart with quantity | Item successfully added to cart with quantity | Pass |
| 4 | Clear the cart | User selection | Contents of cart are deleted | Cart is cleared successfully | Pass |
| 5 | Place order | User selection | Order placed successfully and user redirected to orders page | Order placed and status is pending | Pass |
| 6 | Manage categories | Adding, updating and deleting of categories with correct credentials | Categories successfully added, updated or deleted respectively | List of categories is successfully modified with the changes | Pass |
| 7 | Manage food items | Adding, updating and deleting of food items with correct credentials | Food items successfully added, updated or deleted respectively | List of food items are successfully modified with the changes | Pass |
| 8 | Manage orders | Owner selection | Status of order changes from "pending" to "completed" on customer side | Status of order changed successfully | Pass |
| 9 | Logout | Customer/owner selection | Logged out of the system and redirected to home page | User successfully logged out of the system | Pass |

Screenshots

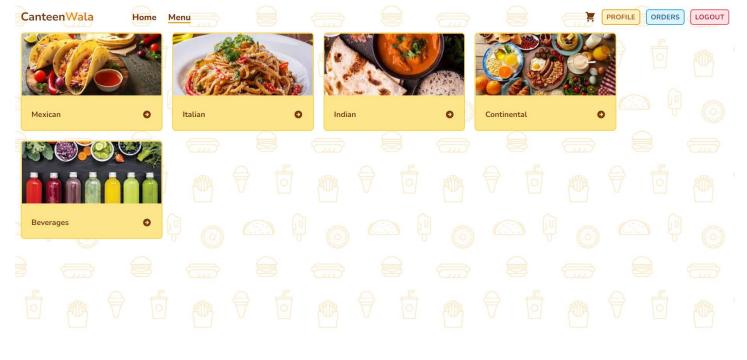
Customer Interface: -

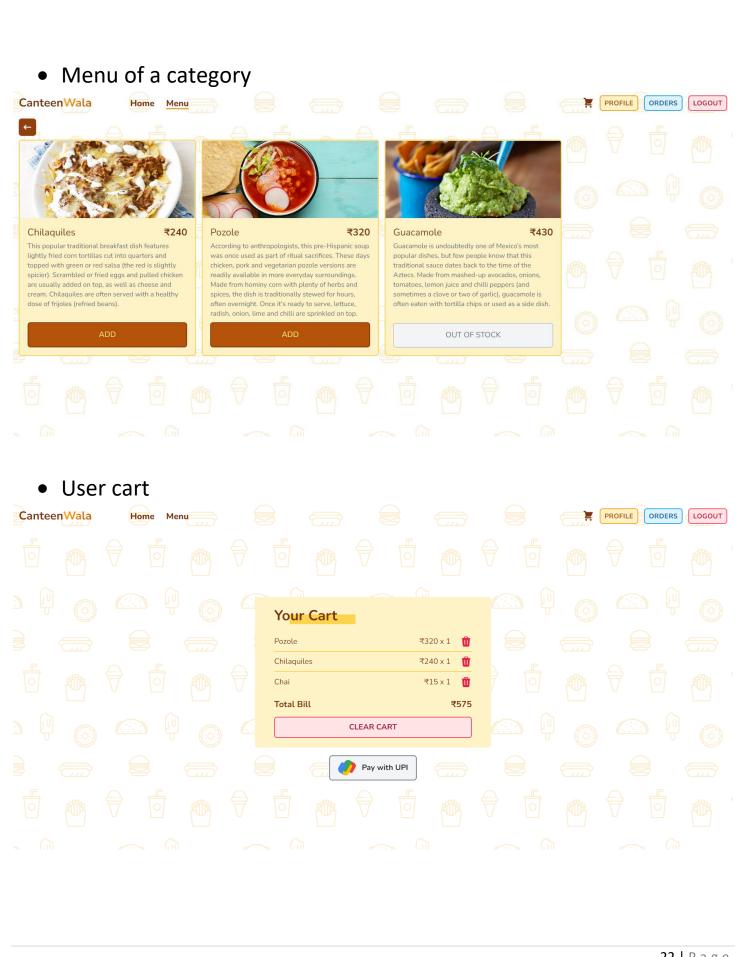


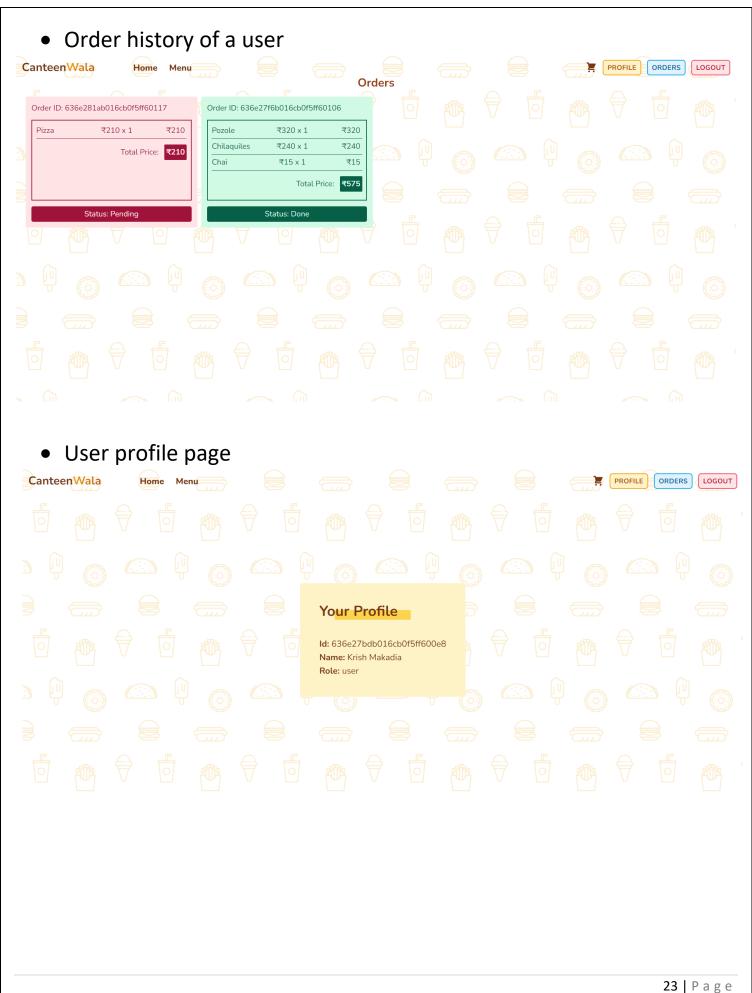
• User Login



• User Menu

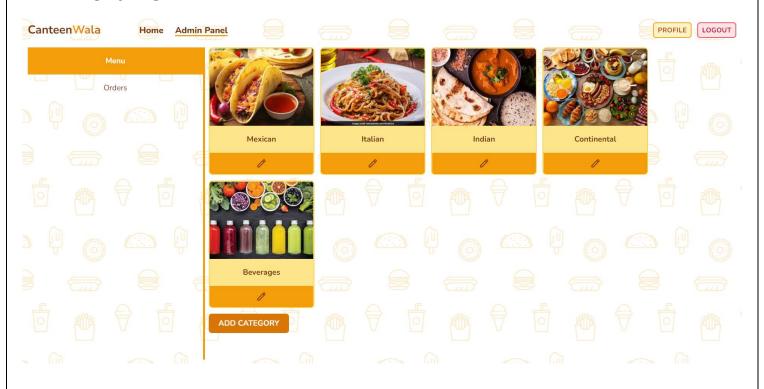




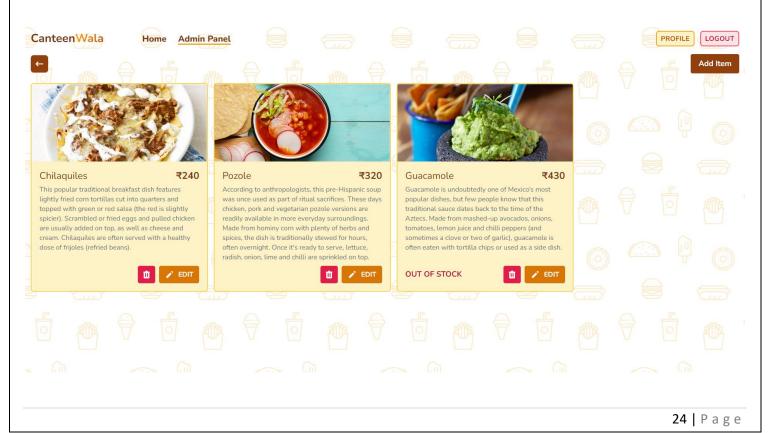


Admin Interface: -

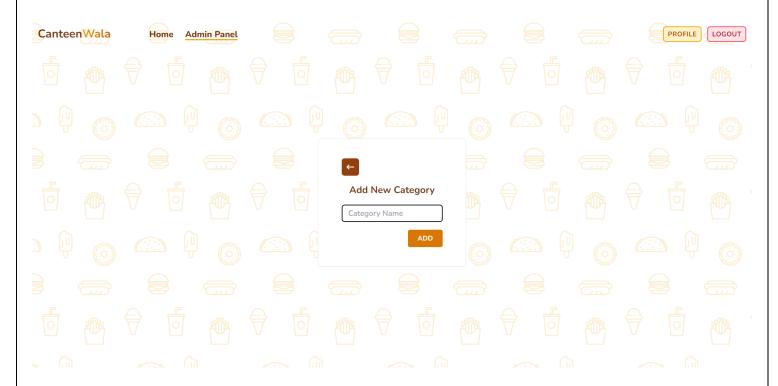
Menu view



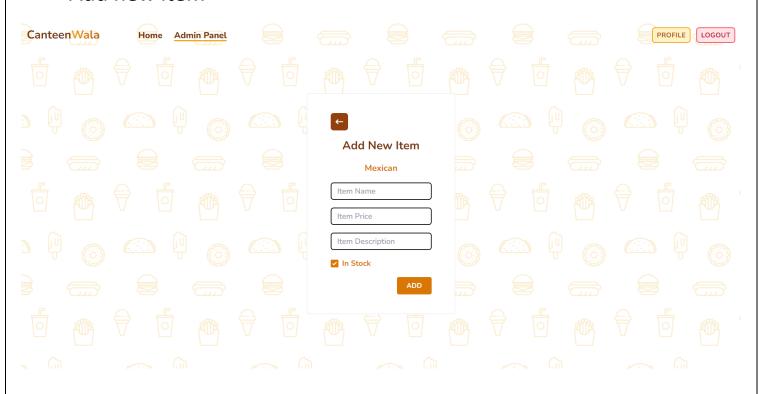
• Food items view of a category



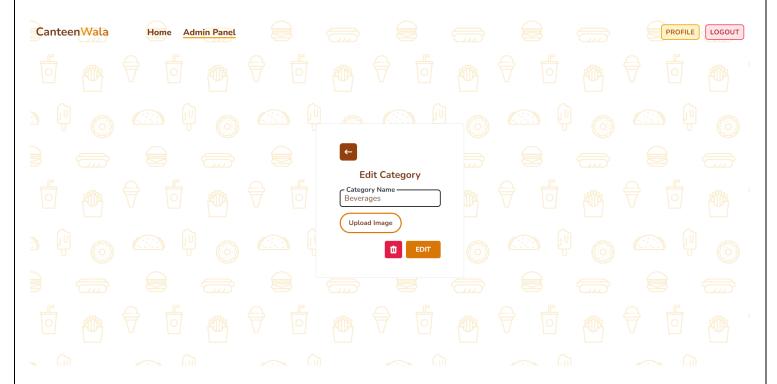
Add new category



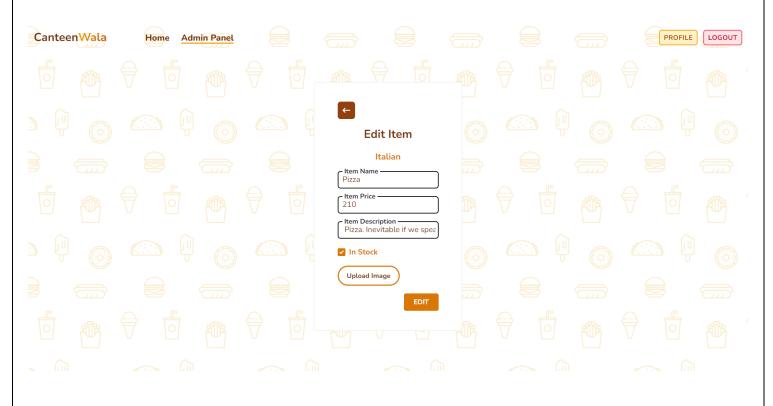
Add new item



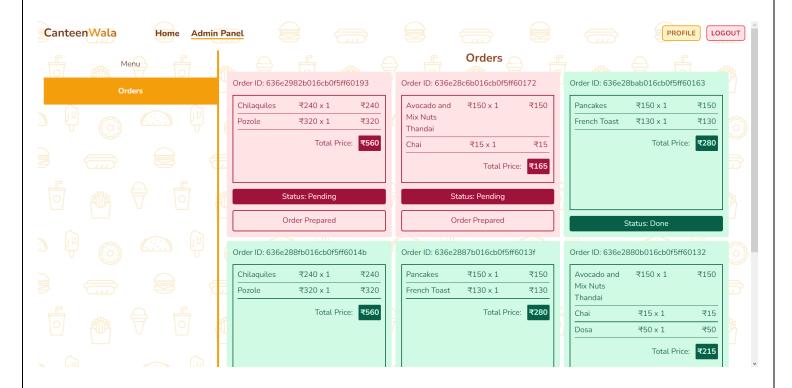
Edit category



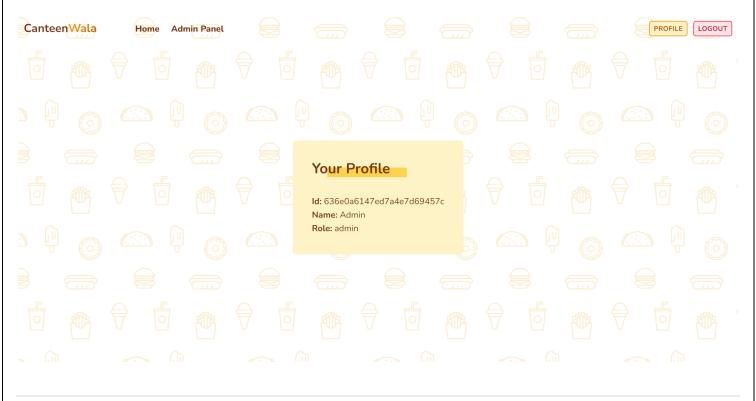
• Edit item



• Admin order view



• Admin profile page



Conclusion

The functionalities are implemented in system after understanding all the system modules according to the requirements. Functionalities that are successfully implemented in the system are:

- Customer Registration / login (with all validation)
- List of Categories
- Listing of food items corresponding to selected category
- Managing Cart
- Ordering Food
- Order history
- Customer logout
- Owner Registration / login (with all validation)
- Manage menu and categories
- Handling incoming orders
- List of all the orders
- Admin logout

Limitation and Future Enhancement

- Our system doesn't allow the user to edit his or her profile, which will be implemented in the upcoming versions.
- The owner has no feature of accepting or rejecting the order, it is assumed that the owner will deliver every order or mark food items as out of stock. In the upcoming version, the owner will have the freedom to accept or reject incoming order.
- Customers will be allowed to rate the service and provide valuable feedback in the next versions.

Reference / Bibliography

Following links and websites were referred during the development of this project:

- > Stackoverflow
- > Npmjs
- **≻** React
- **►** MDBReact
- **≻** Cloudinary
- > Render