

MERN stack powered by MongoDB

Naan Mudhalvan - Project Documentation

Introduction

Project Title: ShopEZ (E-Commerce Platform)

College: Tagore Engineering College – 4127

Department: B.E CSE IV Year 7th Sem

Team ID: NM2024TMID02093

Team Members:

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Project Overview

Purpose: Our E-Commerce Platform is designed to provide a seamless and engaging shopping experience for users, along with a comprehensive and efficient management interface for administrators. It offers customers a wide range of products, while enabling administrators to manage inventory, track orders, and analyze sales data.

Features:

Customer/User:

- **Signup/Login:**
 - User registration with email.
 - Login with email and password, with a “Remember Me” option.
- **Product Browsing and Filtering:**
 - View all available products with filter, and sorting capabilities by category, price, popularity.
 - View detailed product information, including images, descriptions, specifications, and reviews.
- **Wishlist and Cart Management:**
 - Add products to the wishlist for future reference.
 - Add products to the cart, view, and modify quantities.
 - Save items in the cart for later, with cart persistence across sessions.

- **Order Placement and Tracking:**
 - Secure checkout process with address input, order summary, and delivery options.
 - Order tracking with status updates and estimated delivery times.
- **User Profile:**
 - Editable profile information except for email (name, contact, address, etc.).
 - Order history view with downloadable receipts.

Admin:

- **User and Product Management:**
 - View, add, edit, and delete products and categories.
 - Manage users, with the ability to view user profiles and delete users if needed.
- **Order Management:**
 - View and update order statuses, including processing, shipping, and delivery.
 - Generate invoices and send order notifications.
- **Inventory and Sales Analytics:**
 - Track inventory levels, set low-stock alerts, and restock products as necessary.
 - View sales data, including sales volume, top products, revenue trends, and customer purchase behavior.
- **Promotions and Discounts:**
 - Create, update, and manage discount codes, sales events, and promotional offers.

Architecture

Frontend:

- **Developed using React** with responsive design and user-friendly interface, optimized for smooth navigation.
- **Bootstrap for styling** and layout, enhancing mobile and tablet responsiveness.

Backend:

- **Node.js and Express.js** to handle business logic and manage API endpoints for product listing, user actions, and order processing.
- **Middleware includes:**
 - **bcryptjs** for secure password hashing.
 - **jsonwebtoken** for user authentication and authorization.
 - **Multer** for managing image uploads and handling product image files.

Database:

- **MongoDB** serves as the database solution for storing all data, including user profiles, product listings, orders, and reviews.
- **Mongoose ORM (Object-Relational Mapping)** is used for defining schemas and handling data interactions efficiently.

This architecture and feature set ensure a robust, flexible, and scalable platform that caters to customer needs and streamlines administrative tasks, with a responsive, high-performance user experience.

Setup Instructions

Prerequisites:

- Node.js
- MongoDB Atlas Account.

Installation:

1. Clone the repository:

```
git clone cd online-learning-platform
```

2. Install dependencies:

○ Frontend:

```
cd client
```

```
npm install
```

○ Backend:

```
cd server
```

```
npm install
```

3. Set up environment variables:

- Create **.env** file in the **server** folder with the following:

```
MONGODB_URI= 'mongodb://localhost:27017/shopEZ'
```

```
JWT_SECRET='t9843yt8hg0h8y834th893hy89h'
```

- Create **.env.local** file in the **client** folder with the following:

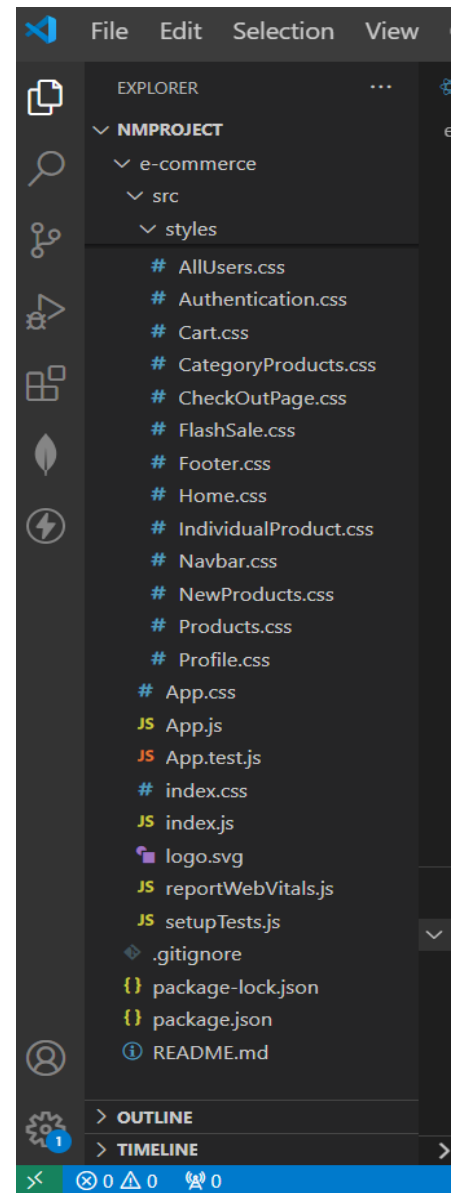
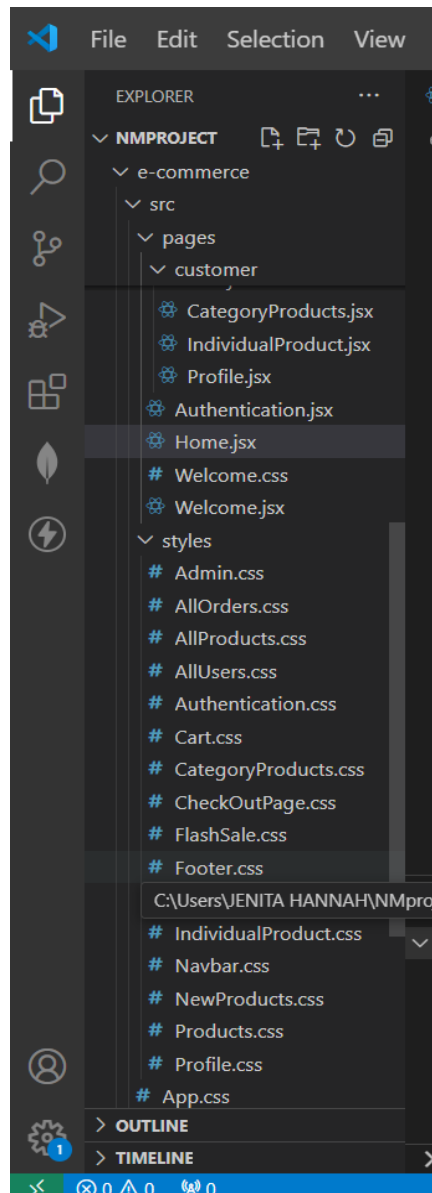
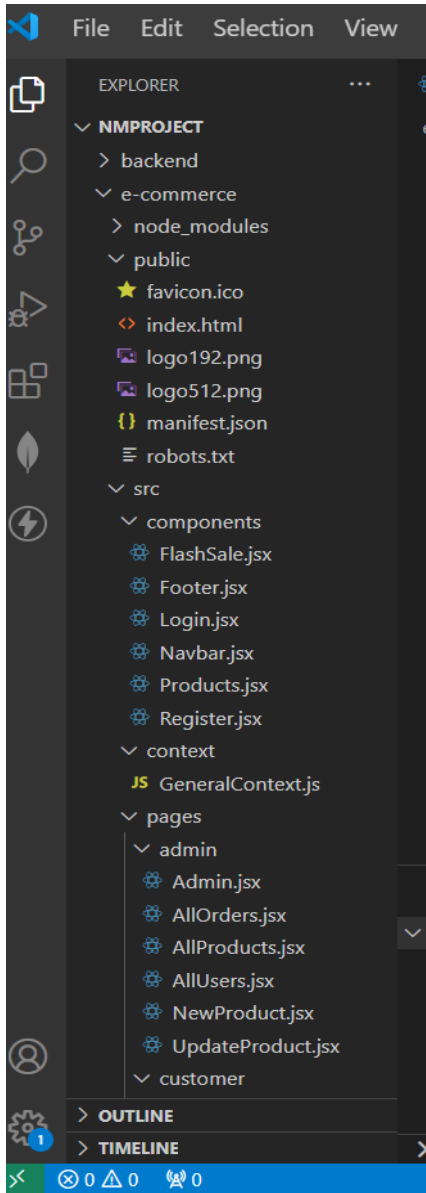
```
BACKEND_BASEURL=http://localhost:5000
```

Folder Structure

Client (Frontend):

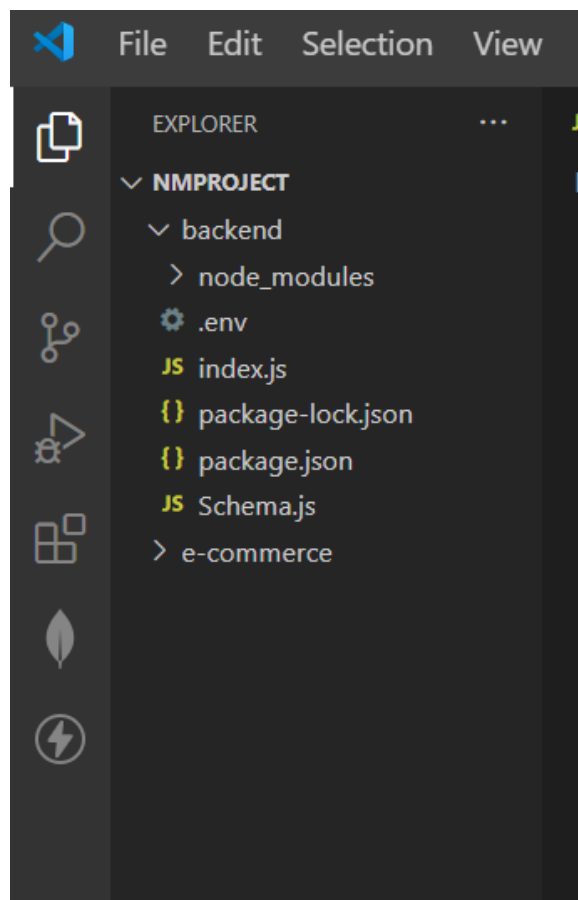
- **src/**: Contains all React components, pages, and assets.
 - **Components/**: Reusable UI components such as Footer, Header, HeaderStudent and SideBar

- **Pages/:** Folders such as Admin, User, Instructor and Navs containing Pages for different aspects of the application.



Server (Backend):

- **routes/**: Defines API routes for users, instructors, forums, and admin.
- **models/**: MongoDB schemas for Users, Courses, Instructor, Thread and OTP.
- **middleware/**: Authentication using jwt token.



Running the Application

- **Frontend:**

cd client

npm start

- **Backend:**

cd server

node index.js

User Routes:

POST /register: Register a new user.

POST /login: Login an existing user.

GET /fetch-users: Fetch all registered users.

Admin Routes:

GET /fetch-banner: Fetch the banner content.

POST /update-banner: Update the banner content.

GET /fetch-categories: Fetch all categories.

POST /add-new-product: Add a new product.

PUT /update-product/:id: Update an existing product by ID.

Product Routes:

GET /fetch-products: Fetch all products.

GET /fetch-product-details/:id: Fetch details of a specific product by ID.

Order Routes:

GET /fetch-orders: Fetch all orders.

POST /buy-product: Place an order for a specific product.

PUT /cancel-order: Cancel an order.

PUT /update-order-status: Update the status of an order.

POST /place-cart-order: Place orders for all items in the cart.

Cart Routes:

GET /fetch-cart: Fetch all items in the cart.

POST /add-to-cart: Add a new item to the cart.

PUT /increase-cart-quantity: Increase the quantity of a cart item by ID.

PUT /decrease-cart-quantity: Decrease the quantity of a cart item by ID.

PUT /remove-item: Remove a specific item from the cart by ID.

Authentication:

JWT (JSON Web Tokens):

- **Token Generation:** Tokens are generated upon successful login, allowing secure access to user-specific features.
- **Middleware Validation:** Middleware checks token validity for protected routes, ensuring secure access control.
- **Email Verification:**
 - During signup, a verification link is sent to the user's email using **Nodemailer** to verify the account.

User Interface

- **Customer Dashboard:**
 - A personalized dashboard where users can view their profile, order history, and wishlist.
 - Accessible options to update profile details (excluding email) and manage orders.
 - View cart items, track orders, and add products to the wishlist for future purchases.
- **Admin Dashboard:**
 - A streamlined interface that enables admin users to manage all products, orders, categories, and users.
 - Tools to add, edit, and delete products and categories, monitor stock levels, and view user profiles.
 - Admin-specific reports on sales, inventory, and user activity.

Testing

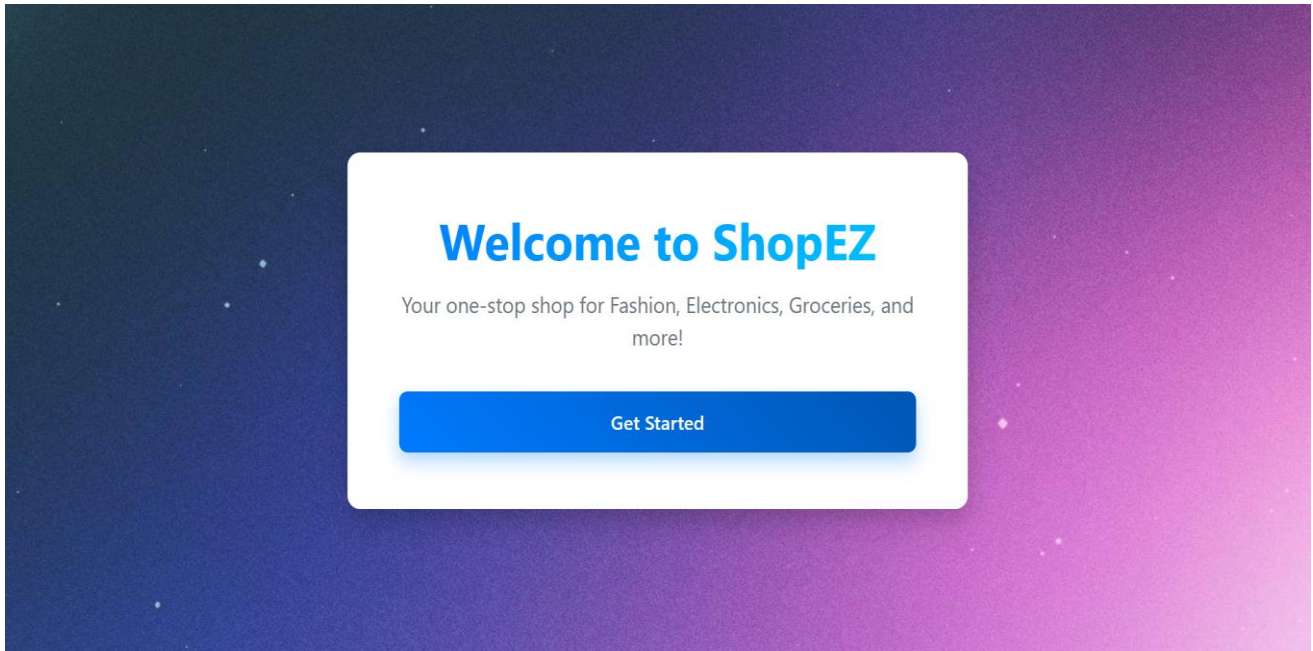
- **Manual Testing:**
 - Verified all major functionalities, including user signup/login, product search and filtering, cart management, order placement, and order tracking.
- **Postman Testing:**
 - Used for API endpoint testing, covering essential operations such as signup/login, product CRUD operations, cart updates, and order handling.

Screenshots or Demo

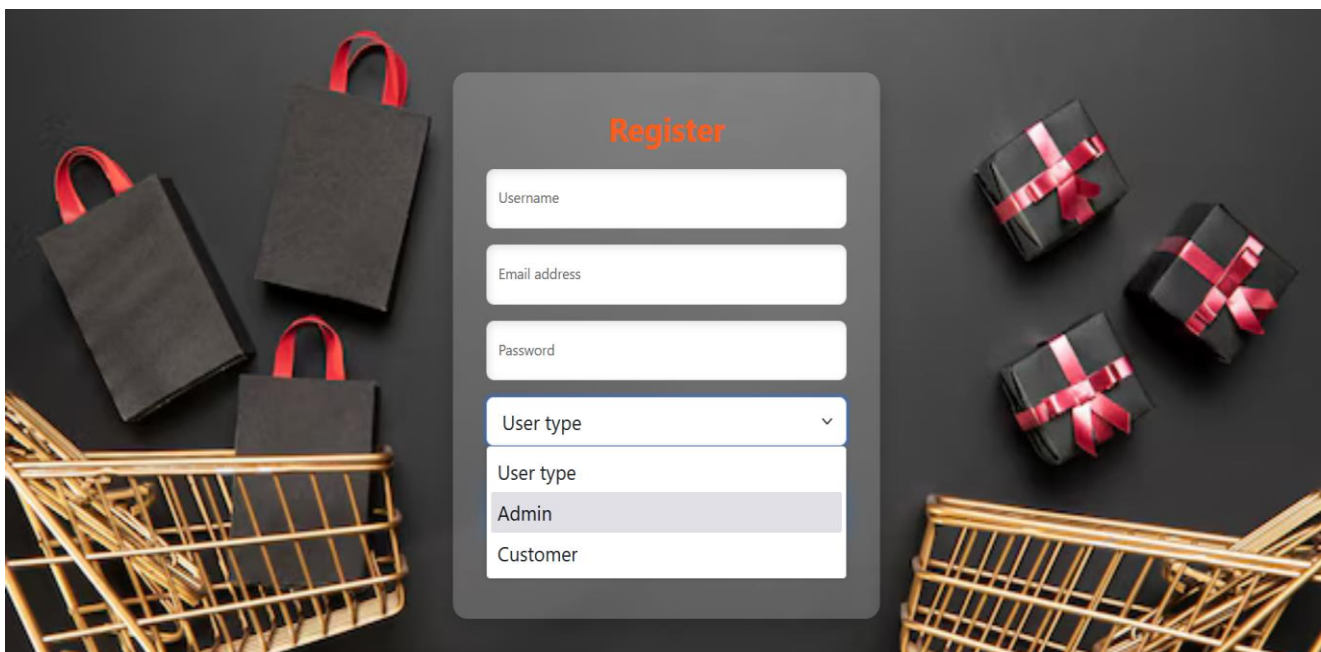
- **Demo Link:**
<https://drive.google.com/file/d/1jSy3fhvGZlBvtGzUKvIxKWKflg1bcagT/view?usp=sharing>

- **Screenshots:**

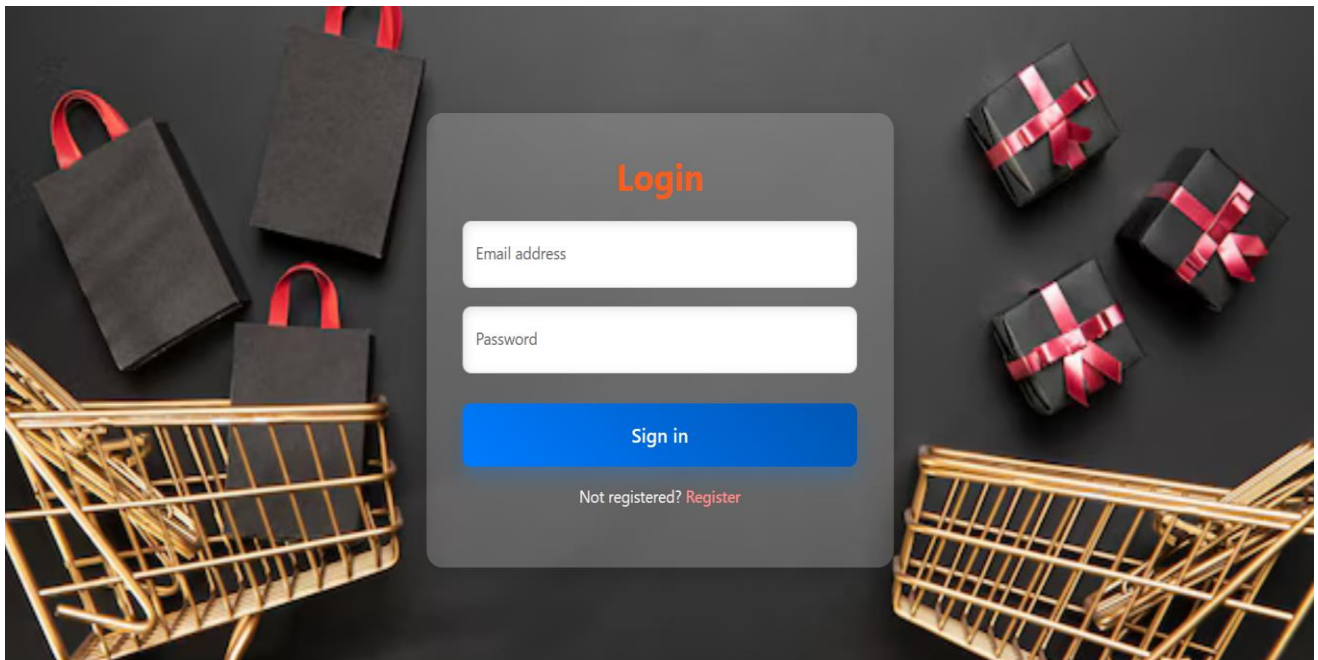
1. Landing Page



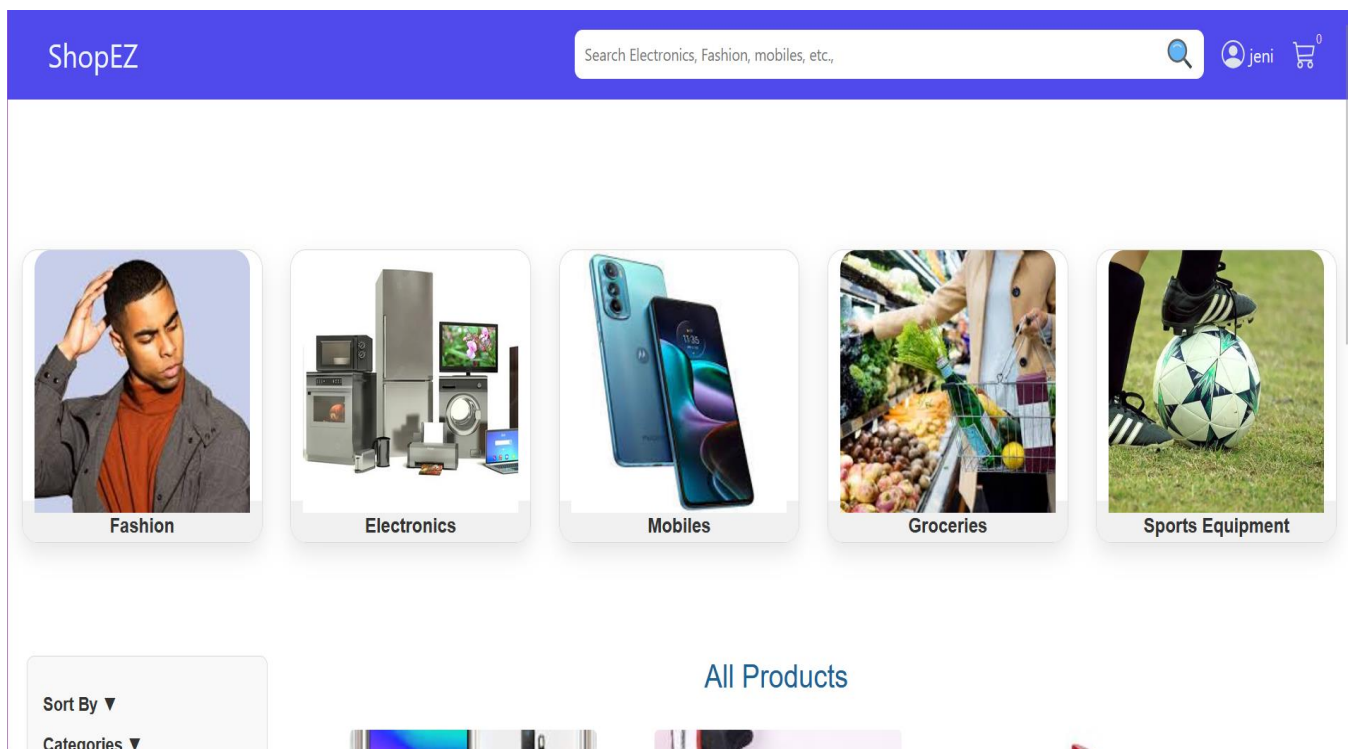
2. Register (customer and admin)



3. User Login



4. User Dashboard




- **Product categorization**

ShopEZ
Search Electronics, Fashion, mobiles, etc.,
jen
0


Fashion

Sort By ▼
Gender ▼


All Products



Lipstick
Make your lips shine like sun....
₹ 196 ~~200~~ (2% off)



Kurthis
Kurthis: Where tradition meets....
₹ 499 ~~499~~ (0% off)



Shirts
Shirts that define comfort and....
₹ 686 ~~700~~ (2% off)

- **‘All Products’ section with categorizing options**

Sort By ▲

☒ Popular
☐ Price (low to high)
☐ Price (high to low)
☐ Discount


Categories ▲

☐ Mobiles
☐ Sports-Equipment
☐ Fashion
☐ Electronics
☐ Groceries


Gender ▲

☐ Men
☐ Women
☐ Unisex


All Products




LG LED TV 50 inches
Visually appealing product I....
₹ 40000 ~~50000~~ (20% off)





UHD Micro oven
Microwave ovens that bring con....
₹ 4000 ~~4000~~ (0% off)



Samsung Refrigerator
Preserve your food items I....
₹ 33950 ~~35000~~ (3% off)









4. Placing order

ShopEZ

Search Electronics, Fashion, mobiles, etc.,


 jeni 


← back

...

LG LED TV 50 inches

Visually appealing product !

Choose size 

Quantity  1

Price: ₹ 40000 ~~50000~~ (20% off)

Rating: 3.4/5



Free delivery in 5 days

Buy now

Add to cart

ShopEZ

Search Electronics, Fashion, mobiles, etc.,

 jeni 

← back

...

Checkout

Details

Name

Jenita Hannah

Mobile

9677162312

Email

jeni@gmail.com

Address

no 2, ABC colony, mar

Pincode

600 126

Payment method

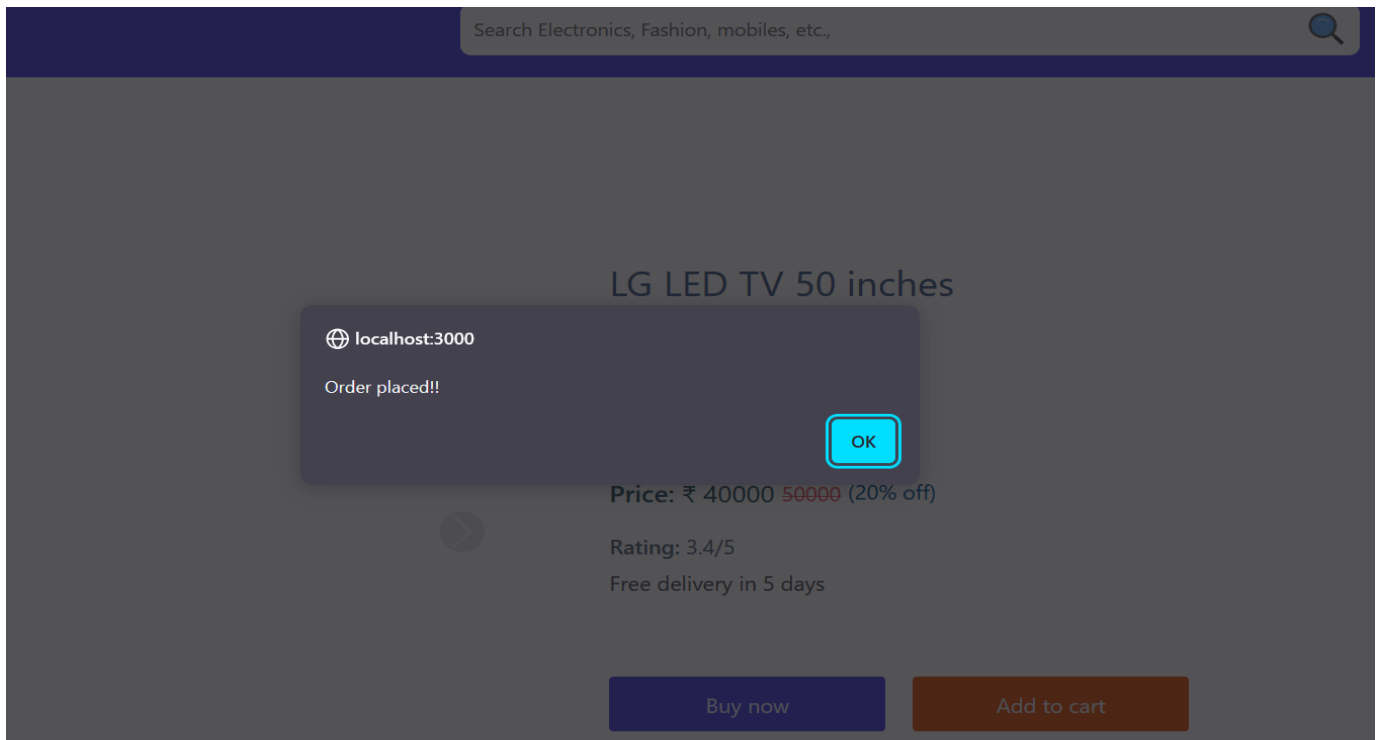
Choose Payment method

card payments

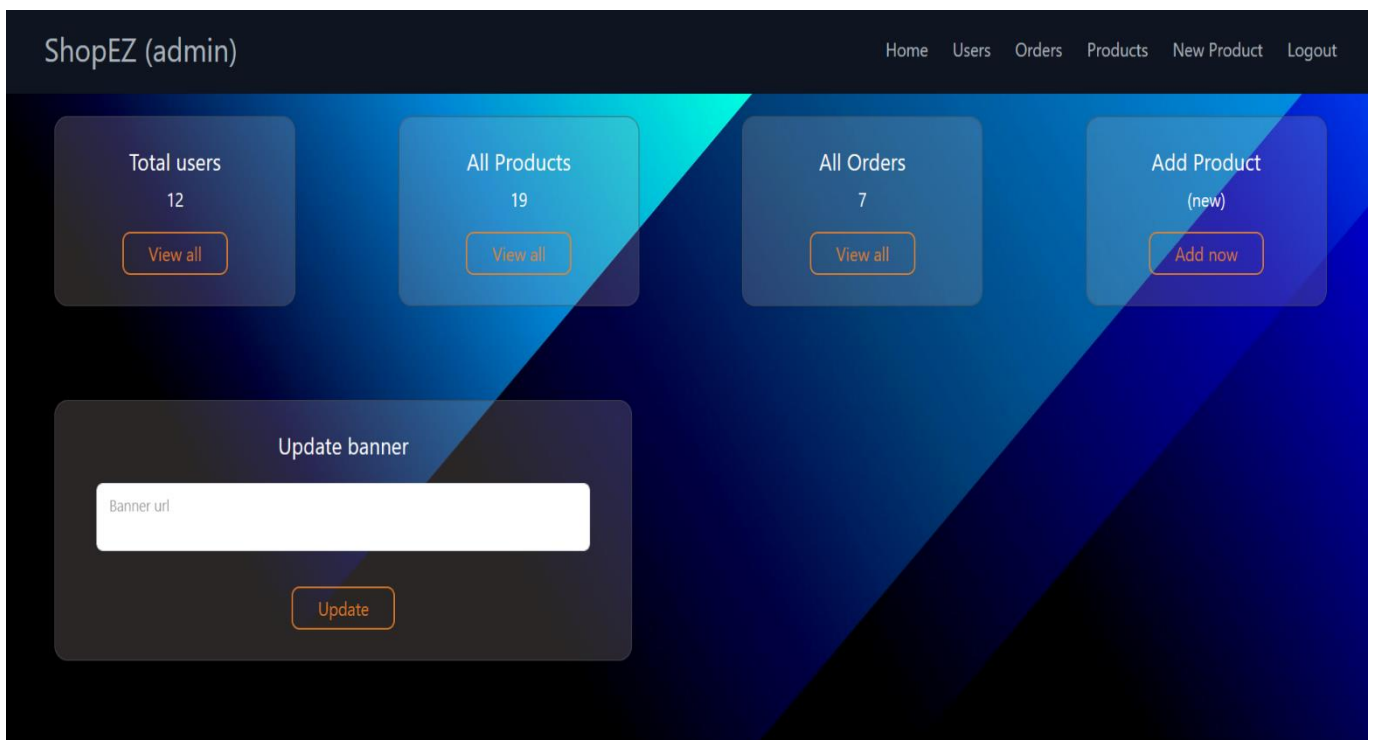
Cancel

Buy now

Add to cart



5. Admin Dashboard



- **View of users' login details**

ShopEZ (admin)

[Home](#)[Users](#)[Orders](#)[Products](#)[New Product](#)[Logout](#)

All Users

User Id	User Name	Email Address	Orders
6734a052d22a98694a50877f	Jenita_2003	jenita2003***@gmail.com	0

User Id	User Name	Email Address	Orders
6734a126ea8c324e17e439b5	Jenita_Hannah_2003	jenita2003****@gmail.com	1

User Id	User Name	Email Address	Orders
673af9089f9ce019038a3e95	selva	bselvalakshmi@tagore-engg.ac.in	1

User Id	User Name	Email Address	Orders
673affe190c75189875dc77f	kirthika	kirthikababu15@gmail.com	1

- **Adding a new product from Admin side**

ShopEZ (admin)

HomeUsersOrdersProductsNew ProductLogout

New Product

Product name

Product Description

Thumbnail img url

Add on img1 url

Add on img2 url

Add on img3 url

Available Size

☐ S☐ M☐ L☐ XL

Gender

☐ Men☐ Women☐ Unisex

Add product

New Product

Product name

Pantaloons

Product Description

Wear it at your comfort !

Thumbnail

AAAAAA

localhost:3000

product added

OK

Add on im

g3 url

Available Size



S



M



L



XL

Gender



Men



Women



Unisex

Add product

Known Issues

- **Admin Login:** Currently, the admin panel lacks a dedicated login system, accessed only through a protected route.
- **Error Handling for File Uploads:** There is limited error handling for invalid product image or document uploads.
- **No Payment Gateway:** Due to project requirements, the platform currently lacks a real payment gateway, and checkout is replaced with a mock payment process.
- **Profile and Product Editing Limitations:** When editing product details or user profiles, the platform doesn't automatically fetch the previously uploaded images or documents, requiring users to re-upload them.

Future Enhancements

- **Payment Gateway Integration:** Implement a secure payment gateway (e.g., Stripe, PayPal) to facilitate actual transactions during checkout.
- **Advanced Analytics for Admin:** Add in-depth analytics and reporting for the admin, including sales metrics, product performance, and customer insights.
- **Recommendation Engine:** Incorporate machine learning algorithms to recommend products based on user preferences, browsing history, and purchase patterns.
- **Live Customer Support via WebRTC:** Integrate WebRTC to enable live chat or video support for customers seeking assistance in real time.