

Full Stack Development with MERN

ShopEZ: E-commerce Application

1. Introduction

- Project Title: ShopEZ: One-Stop Shop For Online Purchases
- Team Members:

Team Leader: Kolusu Prabhavathi

Team Member: Kokkera Neethu Sree

Team Member: Koganti Sai Sivarama Krishna

Team Member: Koki Ruthwika Sree

2. Project Overview

- Purpose: ShopEZ is your one-stop destination for effortless online shopping. With a user-friendly interface and a comprehensive product catalog, finding the perfect items has never been easier. Seamlessly navigate through detailed product descriptions, customer reviews, and available discounts to make informed decisions. Enjoy a secure checkout process and receive instant order confirmation. For sellers, our robust dashboard provides efficient order management and insightful analytics to drive business growth. Experience the future of online shopping with ShopEZ today.

Seamless Checkout Process

Effortless Product Discovery

Personalized Shopping Experience

Efficient Order Management for Sellers

Insightful Analytics for Business Growth

SCENARIO:

Sarah's Birthday Gift

Sarah, a busy professional, is scrambling to find the perfect birthday gift for her best friend, Emily. She knows Emily loves fashion accessories, but with her hectic schedule, she hasn't had time to browse through multiple websites to find the ideal present. Feeling overwhelmed, Sarah turns to ShopEZ to simplify her search.

1. Effortless Product Discovery: Sarah opens ShopEZ and navigates to the fashion accessories category. She's greeted with a diverse range of options, from chic handbags to elegant jewelry. Using the filtering options, Sarah selects "bracelets" and refines her search based on Emily's preferred style and budget.

2. Personalized Recommendations: As Sarah scrolls through the curated selection of bracelets, she notices a section labeled "Recommended for You." Intrigued, she clicks on it and discovers a stunning gold bangle that perfectly matches Emily's taste. Impressed by the personalized recommendation, Sarah adds it to her cart.

3. Seamless Checkout Process: With the bracelet in her cart, Sarah proceeds to checkout. She enters Emily's address as the shipping destination and selects her preferred payment method. Thanks to ShopEZ's secure and efficient checkout process, Sarah completes the transaction in just a few clicks.

4. Order Confirmation: Moments after placing her order, Sarah receives a confirmation email from ShopEZ. Relieved to have found the perfect gift for Emily, she eagerly awaits its arrival.

5. Efficient Order Management for Sellers: Meanwhile, on the other end, the seller of the gold bangle receives a notification of Sarah's purchase through ShopEZ's seller dashboard. They quickly process the order and prepare it for shipment, confident in ShopEZ's streamlined order management system.

6. Celebrating with Confidence: On Emily's birthday, Sarah presents her with the beautifully packaged bracelet, knowing it was chosen with care and thoughtfulness. Emily's eyes light up with joy as she adorns the bracelet, grateful for Sarah's thoughtful gesture.

In this scenario, ShopEZ proves to be the perfect solution for Sarah's busy lifestyle, offering a seamless and personalized shopping experience. From effortless product discovery to secure checkout and efficient order management, ShopEZ simplifies the entire process, allowing Sarah to celebrate Emily's birthday with confidence and ease.

• Features:

1. Comprehensive Product Catalog: ShopEZ boasts an extensive catalog of products, offering a diverse range of items and options for shoppers. You can effortlessly explore and discover various products, complete with detailed descriptions, customer reviews, pricing, and available discounts, to find the perfect items for your needs.
2. Shop Now Button: Each product listing features a convenient "Shop Now" button. When you find a product that aligns with your preferences, simply click on the button to initiate the purchasing process.
3. Order Details Page: Upon clicking the "Shop Now" button, you will be directed to an order details page. Here, you can provide relevant information such as your shipping

address, preferred payment method, and any specific product requirements.

4. Secure and Efficient Checkout Process: ShopEZ guarantees a secure and efficient checkout process. Your personal information will be handled with the utmost security, and we strive to make the purchasing process as swift and trouble-free as possible.
5. Order Confirmation and Details: After successfully placing an order, you will receive a confirmation notification. Subsequently, you will be directed to an order details page, where you can review all pertinent information about your order, including shipping details, payment method, and any specific product requests you specified.

In addition to these user-centric features, ShopEZ provides a robust seller dashboard, offering sellers an array of functionalities to efficiently manage their products and sales. With the seller dashboard, sellers can add and oversee multiple product listings, view order history, monitor customer activity, and access order details for all purchases.

ShopEZ is designed to elevate your online shopping experience by providing a seamless and user-friendly way to discover and purchase products. With our efficient checkout process, comprehensive product catalog, and robust seller dashboard, we ensure a convenient and enjoyable online shopping experience for both shoppers and sellers alike.

3. Architecture

- Frontend:

1. Setup React Application:

- Create a React app in the client folder.
- Install required libraries
- Create required pages and components and add routes.

- 2.Design UI components:

- Create Components.
- Implement layout and styling.
- Add navigation.

- 3.Implement frontend logic:

- Integration with API endpoints.
- Implement data binding.

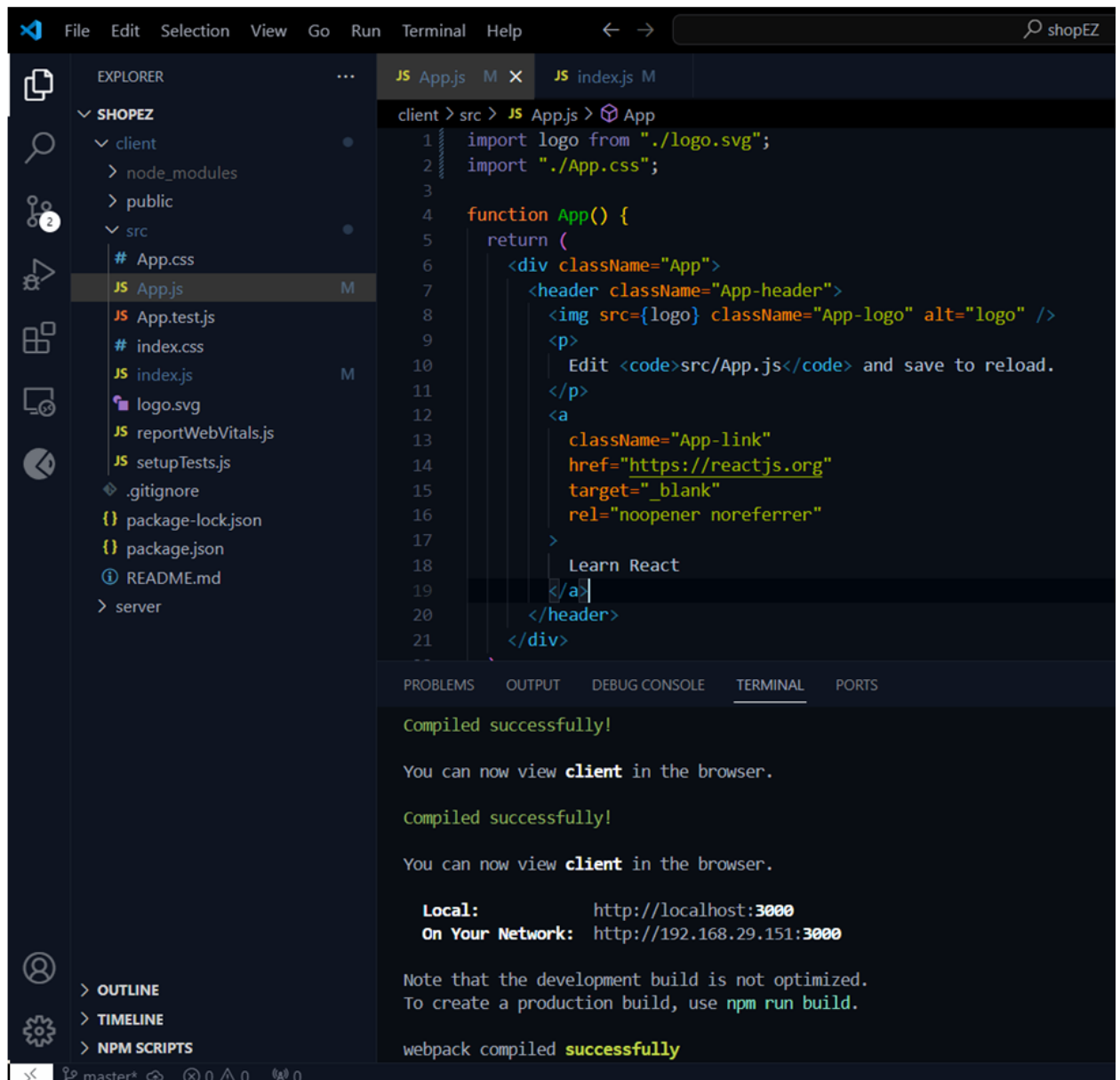
Reference Video Link:

<https://drive.google.com/file/d/1EokogagcLMUGilluwHGYQo65x8GRpDcP/view?usp=sharing>

- Reference Article Link:

https://www.w3schools.com/react/react_getstarted.asp

Reference image:



- Backend:

Setup express server:

- Create index.js file.
- Create an express server on your desired port number.
- Define API's

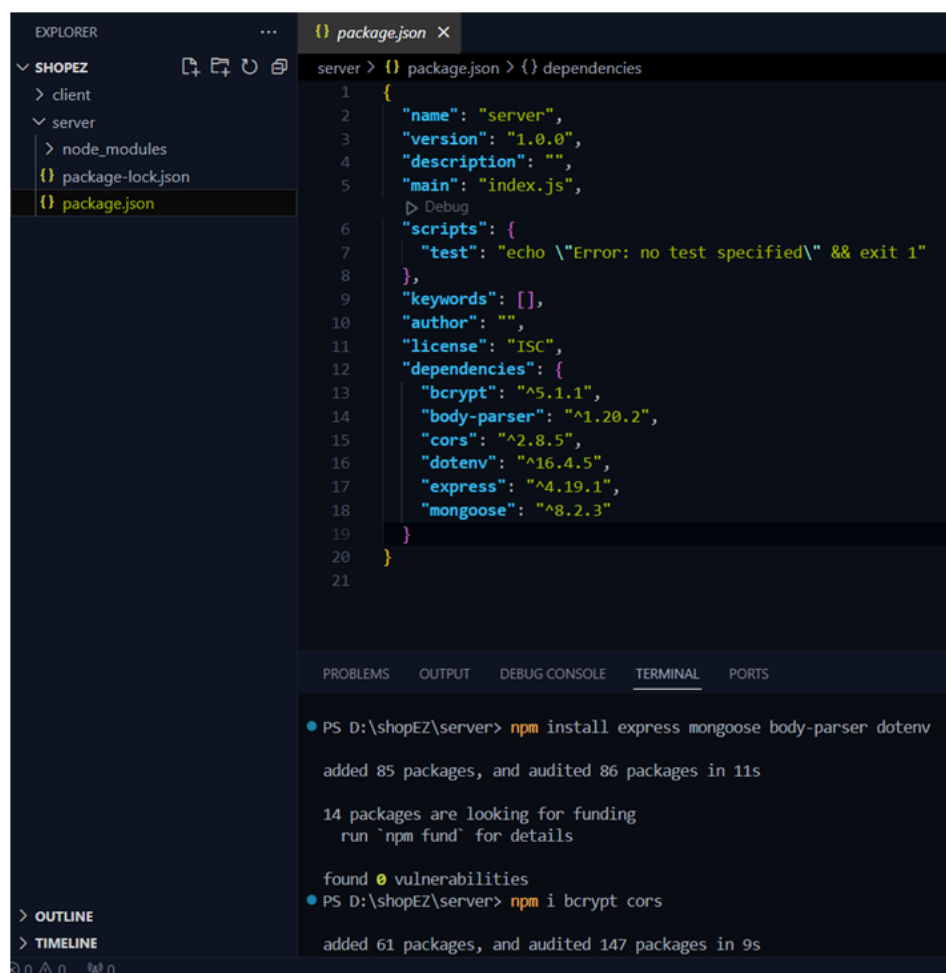
Reference Video: https://drive.google.com/file/d/1-uKMLcrok_ROHyZl2vRORggrYRio2qXS/view?usp=sharing

Set Up Project Structure:

- Create a new directory for your project and set up a package.json file using the npm init command.
- Install necessary dependencies such as Express.js, Mongoose, and other required packages.

Reference Video: <https://drive.google.com/file/d/19df7NU-gQK3DO6wr7ooAfJYIQwnemZoF/view?usp=sharing>

Reference Images:



The screenshot shows the Visual Studio Code interface. On the left, the Explorer pane displays the project structure for 'SHOPEZ', including 'client', 'server', 'node_modules', 'package-lock.json', and 'package.json'. The 'package.json' file is open in the editor, showing the following content:

```
1 {
2   "name": "server",
3   "version": "1.0.0",
4   "description": "",
5   "main": "index.js",
6   "scripts": {
7     "test": "echo \"Error: no test specified\" && exit 1"
8   },
9   "keywords": [],
10  "author": "",
11  "license": "ISC",
12  "dependencies": {
13    "bcrypt": "^5.1.1",
14    "body-parser": "^1.20.2",
15    "cors": "^2.8.5",
16    "dotenv": "^16.4.5",
17    "express": "^4.19.1",
18    "mongoose": "^8.2.3"
19  }
20 }
```

At the bottom, the Terminal pane shows the output of two npm commands:

```
PS D:\shopEZ\server> npm install express mongoose body-parser dotenv
added 85 packages, and audited 86 packages in 11s

14 packages are looking for funding
  run `npm fund` for details

found 0 vulnerabilities
PS D:\shopEZ\server> npm i bcrypt cors
added 61 packages, and audited 147 packages in 9s
```

```
server > JS index.js > ...
1 import express from "express";
2
3 const app = express();
4 app.use(express.json());
5
6 app.listen(3001, () => {
7   console.log("App server is running on port 3001");
8 });
9
```

```
PS D:\shopEZ> cd server
PS D:\shopEZ\server> node index.js
App server is running on port 3001
```

2. Database Configuration:

- Set up a MongoDB database either locally or using a cloud-based MongoDB service like MongoDB Atlas or use locally with MongoDB compass.
- Create a database and define the necessary collections for admin, users, products, orders and other relevant data.

3. Create Express.js Server:

- Set up an Express.js server to handle HTTP requests and serve API endpoints.
- Configure middleware such as body-parser for parsing request bodies and cors for handling cross-origin requests.

4. Define API Routes:

- Create separate route files for different API functionalities such as users, orders, and authentication.
- Define the necessary routes for listing products, handling user registration and login, managing orders, etc.
- Implement route handlers using Express.js to handle requests and interact with the database.

5. Implement Data Models:

- Define Mongoose schemas for the different data entities like products, users, and orders.
- Create corresponding Mongoose models to interact with the MongoDB database.
- Implement CRUD operations (Create, Read, Update, Delete) for each model to perform database operations.

6. User Authentication:

- Create routes and middleware for user registration, login, and logout.
- Set up authentication middleware to protect routes that require user authentication.

7. Handle new products and Orders:

- Create routes and controllers to handle new product listings, including fetching products data from the database and sending it as a response.
- Implement ordering(buy) functionality by creating routes and controllers to handle order requests, including validation and database updates.

8. Admin Functionality:

- Implement routes and controllers specific to admin functionalities such as adding products, managing user orders, etc.
- Add necessary authentication and authorization checks to ensure only authorized admins can access these routes.

9. Error Handling:

- Implement error handling middleware to catch and handle any errors that occur during the API requests.
- Return appropriate error responses with relevant error messages and HTTP status codes.
- Database:

Create database in cloud video link:- <https://drive.google.com/file/d/1CQil5KzGnPvkVOPWTLp0h-Bu2bXhq7A3/view>

- Install Mongoose.
- Create database connection.

Reference Video of connect node with mongoDB database: https://drive.google.com/file/d/1cTS3_-EOAAvDctkibG5zVikrTdmoy2Ag/view?usp=sharing

Reference Article: <https://www.mongodb.com/docs/atlas/tutorial/connect-to-your-cluster/>

Reference Image:

```
server > JS index.js > ...
1 import express from "express";
2 import mongoose from "mongoose";
3 import cors from "cors";
4 import dotenv from "dotenv";
5
6 dotenv.config({ path: ".env" });
7
8 const app = express();
9 app.use(express.json());
10 app.use(cors());
11
12 app.listen(3001, () => {
13   console.log("App server is running on port 3001");
14 });
15
16 const MongoUri = process.env.DRIVER_LINK;
17 const connectToMongo = async () => {
18   try {
19     await mongoose.connect(MongoUri);
20     console.log("Connected to your MongoDB database successfully");
21   } catch (error) {
22     console.log(error.message);
23   }
24 };
25
26 connectToMongo();
27
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS D:\shopEZ> cd server
PS D:\shopEZ\server> node index.js
App server is running on port 3001
bad auth : authentication failed
PS D:\shopEZ\server> node index.js
App server is running on port 3001
Connected to your MongoDB database successfully
```

Schema use-case:

1. User Schema:

- Schema: userSchema
- Model: 'User'
- The User schema represents the user data and includes fields such as username, email, and password.
- It is used to store user information for registration and authentication purposes.
- The email field is marked as unique to ensure that each user has a unique email address

2. Product Schema:

- Schema: productSchema
- Model: 'Product'
- The Product schema represents the data of all the products in the platform.
- It is used to store information about the product details, which will later be useful for ordering .

3. Orders Schema:

- Schema: ordersSchema
- Model: 'Orders'
- The Orders schema represents the orders data and includes fields such as userId, product Id, product name, quantity, size, order date, etc.,
- It is used to store information about the orders made by users.
- The user Id field is a reference to the user who made the order.

4. Cart Schema:

- Schema: cartSchema
- Model: 'Cart'
- The Cart schema represents the cart data and includes fields such as userId, product Id, product name, quantity, size, order date, etc.,
- It is used to store information about the products added to the cart by users. • The user Id field is a reference to the user who has the product

in cart.

5. Admin Schema:

- Schema: adminSchema
- Model: 'Admin'
- The admin schema has essential data such as categories, banner.

Code Explanation:

Schemas:

Now let us define the required schemas

```
JS Schemajs X
server > JS Schemajs > [0] productSchema
1  import mongoose from "mongoose";
2
3  const userSchema = new mongoose.Schema({
4    username: {type: String},
5    password: {type: String},
6    email: {type: String},
7    usertype: {type: String}
8  });
9
10 const adminSchema = new mongoose.Schema({
11   banner: {type: String},
12   categories: {type: Array}
13 });
14
15 const productSchema = new mongoose.Schema({
16   title: {type: String},
17   description: {type: String},
18   mainImg: {type: String},
19   carousel: {type: Array},
20   sizes: {type: Array},
21   category: {type: String},
22   gender: {type: String},
23   price: {type: Number},
24   discount: {type: Number}
25 });
26
```

```

JS Schemajs X
server > JS Schemajs > [0] productSchema
27 const orderSchema = new mongoose.Schema({
28   userId: {type: String},
29   name: {type: String},
30   email: {type: String},
31   mobile: {type: String},
32   address: {type: String},
33   pincode: {type: String},
34   title: {type: String},
35   description: {type: String},
36   mainImg: {type: String},
37   size: {type: String},
38   quantity: {type: Number},
39   price: {type: Number},
40   discount: {type: Number},
41   paymentMethod: {type: String},
42   orderDate: {type: String},
43   deliveryDate: {type: String},
44   orderStatus: {type: String, default: 'order placed'}
45 })
46
47 const cartSchema = new mongoose.Schema({
48   userId: {type: String},
49   title: {type: String},
50   description: {type: String},
51   mainImg: {type: String},
52   size: {type: String},
53   quantity: {type: String},
54   price: {type: Number},
55   discount: {type: Number}
56 })
57
58
59 export const User = mongoose.model('users', userSchema);
60 export const Admin = mongoose.model('admin', adminSchema);
61 export const Product = mongoose.model('products', productSchema);
62 export const Orders = mongoose.model('orders', orderSchema);
63 export const Cart = mongoose.model('cart', cartSchema);
64

```

4. Setup Instructions

• Prerequisites:

To develop a full-stack e-commerce app using React JS, Node.js, and MongoDB, there are several prerequisites you should consider. Here are the key prerequisites for developing such an application:

Node.js and npm:

Install Node.js, which includes npm (Node Package Manager), on your development machine. Node.js is required to run JavaScript on the server side.

MongoDB: Set up a MongoDB database to store hotel and booking information. Install MongoDB locally or use a cloud-based MongoDB service.

Express.js: Express.js is a web application framework for Node.js. Install Express.js to handle server-side routing, middleware, and API development.

React.js: React.js is a popular JavaScript library for building user interfaces. It enables developers to create interactive and reusable UI components, making it easier to build dynamic and responsive web applications. To install React.js, a JavaScript library for building user interfaces, follow the installation

HTML, CSS, and JavaScript: Basic knowledge of HTML for creating the structure of your app, CSS for styling, and JavaScript for client-side interactivity is essential.

Database Connectivity: Use a MongoDB driver or an Object-Document Mapping (ODM) library like Mongoose to connect your Node.js server with the MongoDB database and perform CRUD (Create, Read, Update, Delete) operations.

Front-end Framework: Utilize Angular to build the user-facing part of the application, including product listings, booking forms, and user interfaces for the admin dashboard.

Version Control: Use Git for version control, enabling collaboration and tracking changes throughout the development process. Platforms like GitHub or Bitbucket can host your repository.

- Installation:

Node.js and npm:

Download: <https://nodejs.org/en/download/>

Installation instructions: <https://nodejs.org/en/download/package-manager/>

MongoDB:

Download: <https://www.mongodb.com/try/download/community>

Installation instructions: <https://docs.mongodb.com/manual/installation/>

Express.js:

Installation: Open your command prompt or terminal and run the following command: `npm install express`

React.js:

installation guide: <https://reactjs.org/docs/create-a-new-react-app.html>

Version Control: Use Git for version control, enabling collaboration and tracking changes throughout the development process. Platforms like GitHub or Bitbucket can host your repository.

- Git: Download and installation instructions can be found at: <https://git-scm.com/downloads>

Development Environment: Choose a code editor or Integrated Development Environment (IDE) that suits your preferences, such as Visual Studio Code, Sublime Text, or WebStorm.

- Visual Studio Code: Download from <https://code.visualstudio.com/download>

- Sublime Text: Download from <https://www.sublimetext.com/download>
- WebStorm: Download from <https://www.jetbrains.com/webstorm/download>

To Connect the Database with Node JS go through the below provided link: •

Link: <https://www.section.io/engineering-education/nodejs-mongoosejs-mongodb/>

To run the existing ShopEZ App project downloaded from github: Follow below steps:

Clone the repository:

- Open your terminal or command prompt.
- Navigate to the directory where you want to store the e-commerce app.
- Execute the following command to clone the repository:

Git clone: <https://github.com/harsha-varadhan-reddy-07/shopEZ-e-commerce-MERN>

Install Dependencies:

- Navigate into the cloned repository directory:
`cd ShopEZ-e-commerce-App-MERN`
- Install the required dependencies by running the following command: `npm install`

Start the Development Server:

- To start the development server, execute the following command:
`npm run dev` or `npm run start`
- The e-commerce app will be accessible at `http://localhost:3000` by default. You can change the port configuration in the `.env` file if needed.

Access the App:

- Open your web browser and navigate to <http://localhost:3000>.
- You should see the flight booking app's homepage, indicating that the installation and setup were successful.

You have successfully installed and set up the ShopEZ app on your local machine. You can now proceed with further customization, development, and testing as needed.

5.Folder Structure

Install required tools and software:

- Node.js.

Reference Article: <https://www.geeksforgeeks.org/installation-of-node-js-on-windows/>

- Git.

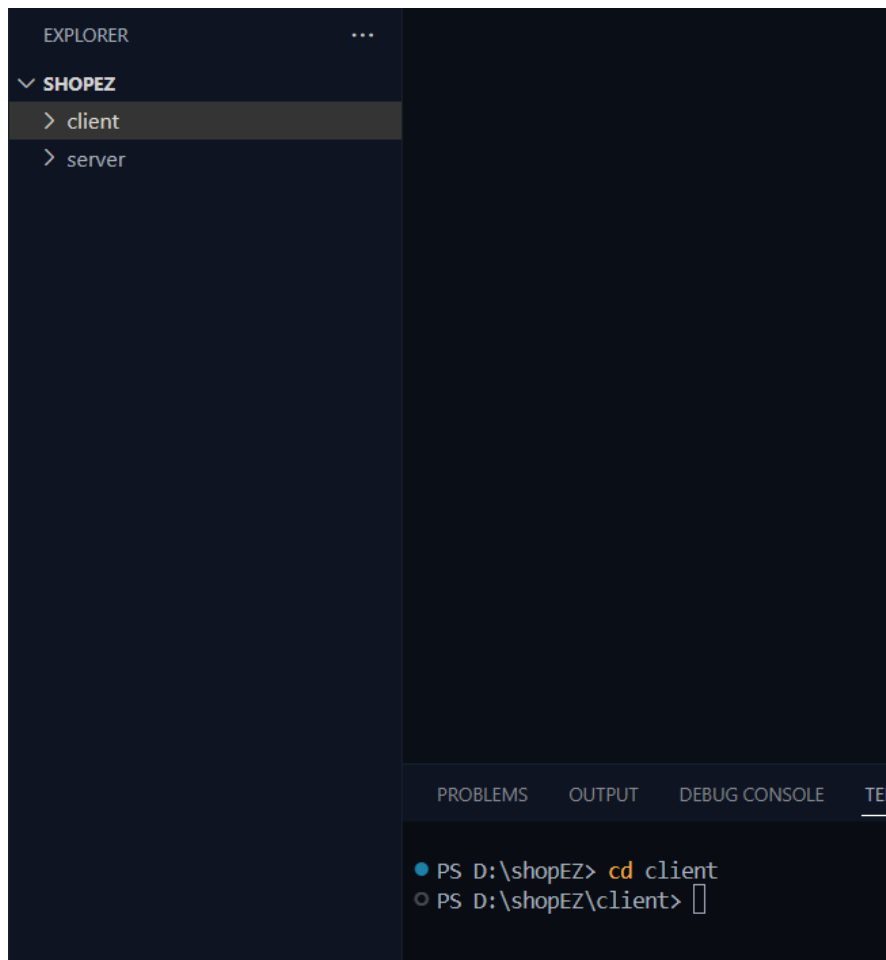
Reference Article: <https://git-scm.com/book/en/v2/Getting-Started-Installing-Git>

Create project folders and files:

- Client folders.
- Server folders

Referral Video Link: https://drive.google.com/file/d/1uSMbPIAR6rfAEMcb_nLZAZd5QljTpnYQ/view?usp=sharing

Referral Image:



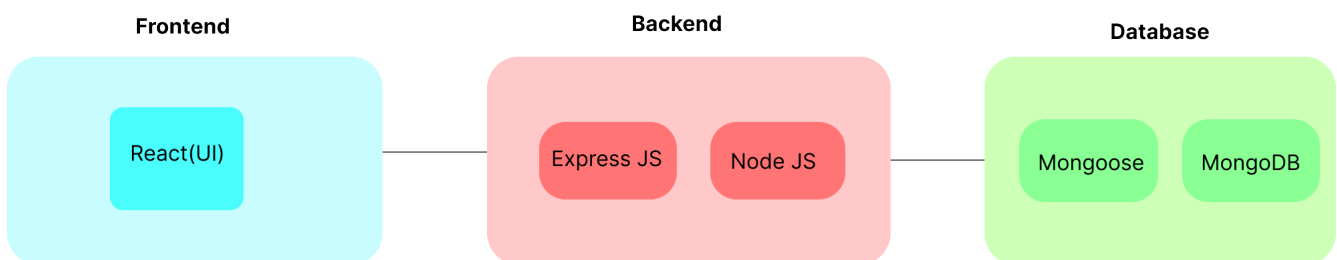
6. Running the Application

Frontend: npm start in the client directory.

Backend: npm start in the server directory.

7. API Documentation

TECHNICAL ARCHITECTURE:



In this architecture diagram:

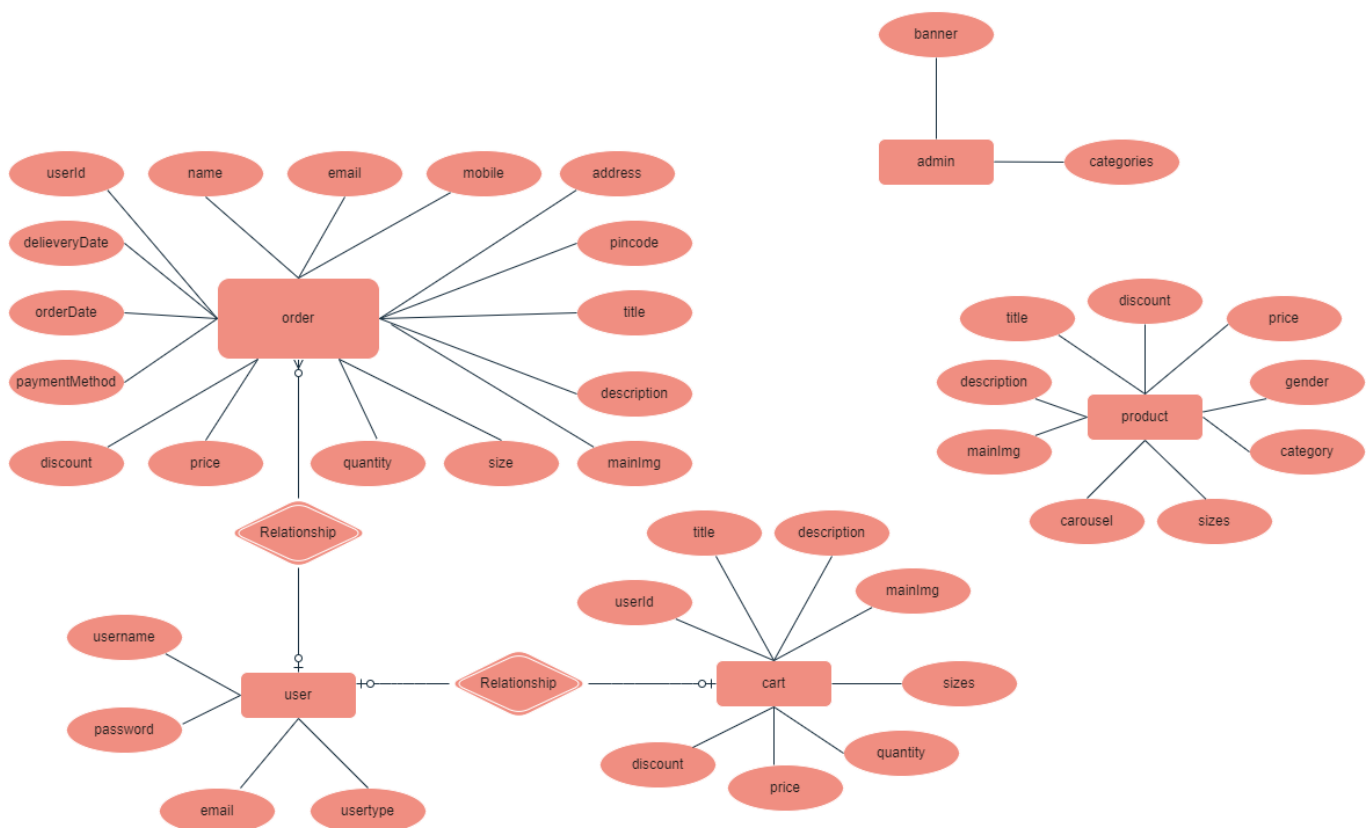
- The frontend is represented by the "Frontend" section, including user

interface components such as User Authentication, Cart, Products, Profile, Admin dashboard, etc.,

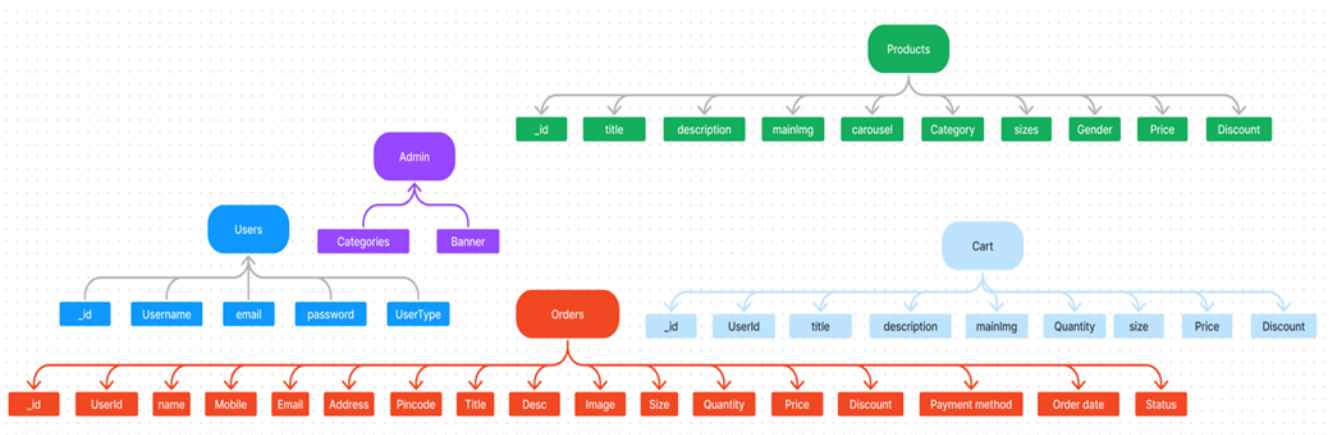
- The backend is represented by the "Backend" section, consisting of API endpoints for Users, Orders, Products, etc., It also includes Admin Authentication and an Admin Dashboard.
- The Database section represents the database that stores collections for Users, cart, Orders and Product.

ER DIAGRAM:

ER-MODEL



- The Database section represents the database that stores collections for Users, Admin, Cart, Orders and products.



The ShopEZ ER-diagram represents the entities and relationships involved in an e-commerce system. It illustrates how users, products, cart, and orders are interconnected. Here is a breakdown of the entities and their relationships:

USER: Represents the individuals or entities who are registered in the platform.

Admin: Represents a collection with important details such as Banner image and Categories.

Products: Represents a collection of all the products available in the platform.

Cart: This collection stores all the products that are added to the cart by users. Here, the elements in the cart are differentiated by the user Id.

Orders: This collection stores all the orders that are made by the users in the platform.

8. Authentication

User Authentication:

- Backend

Now, here we define the functions to handle http requests from the client for authentication.

```

JS index.js X
server > JS index.js > then() callback > app.get('/fetch-banner') callback
46 app.post('/login', async (req, res) => {
47   const { email, password } = req.body;
48   try {
49     const user = await User.findOne({ email });
50     if (!user) {
51       return res.status(401).json({ message: 'Invalid email or password' });
52     }
53     const isMatch = await bcrypt.compare(password, user.password);
54     if (!isMatch) {
55       return res.status(401).json({ message: 'Invalid email or password' });
56     } else {
57       return res.json(user);
58     }
59   } catch (error) {
60     console.log(error);
61     return res.status(500).json({ message: 'Server Error' });
62   }
63 });
64

```

· Frontend

Login:

```

JS GeneralContext.js U X
client > src > context > JS GeneralContext.js > GeneralContextProvider > register > then() callback
46 const login = async () =>{
47   try{
48     const loginInputs = {email, password}
49     await axios.post('http://localhost:6001/login', loginInputs)
50     .then( async (res)=>{
51
52       localStorage.setItem('userId', res.data._id);
53       localStorage.setItem('userType', res.data.usertype);
54       localStorage.setItem('username', res.data.username);
55       localStorage.setItem('email', res.data.email);
56       if(res.data.usertype === 'customer'){
57         navigate('/');
58       } else if(res.data.usertype === 'admin'){
59         navigate('/admin');
60       }
61     }).catch((err) =>{
62       alert("login failed!!");
63       console.log(err);
64     });
65   }catch(err){
66     console.log(err);
67   }
68 }
69

```

Register:

```
JS GeneralContext.js U X
client > src > context > JS GeneralContext.js > [e] GeneralContextProvider > [e] logout
71 const inputs = {username, email, usertype, password};
72
73 const register = async () =>{
74   try{
75     await axios.post('http://localhost:6001/register', inputs)
76     .then( async (res)=>{
77       localStorage.setItem('userId', res.data._id);
78       localStorage.setItem('userType', res.data.usertype);
79       localStorage.setItem('username', res.data.username);
80       localStorage.setItem('email', res.data.email);
81
82       if(res.data.usertype === 'customer'){
83         navigate('/');
84       } else if(res.data.usertype === 'admin'){
85         navigate('/admin');
86       }
87     }).catch((err) =>{
88       alert("registration failed!!");
89       console.log(err);
90     });
91   }catch(err){
92     console.log(err);
93   }
94 }
95
```

logout:

```
GeneralContext.jsx U X
client > src > context > GeneralContext.jsx > [e] GeneralContextProvider > [e] login >
72
73 const logout = async () =>{
74
75   localStorage.clear();
76   for (let key in localStorage) {
77     if (localStorage.hasOwnProperty(key)) {
78       localStorage.removeItem(key);
79     }
80   }
81
82   navigate('/');
83 }
84
85
```

All Products (User):

In the home page, we'll fetch all the products available in the platform along with the filters.

Fetching products:

```
Products.jsx 2, U X
client > src > components > Products.jsx > Products > handleCategoryCheckBox
10  const [categories, setCategories] = useState([]);
11  const [products, setProducts] = useState([]);
12  const [visibleProducts, setVisibleProducts] = useState([]);
13
14  useEffect(() => {
15    fetchData();
16  }, [])
17
18  const fetchData = async() => {
19
20    await axios.get('http://localhost:6001/fetch-products').then(
21      (response) => {
22        if(props.category === 'all'){
23          setProducts(response.data);
24          setVisibleProducts(response.data);
25        } else {
26          setProducts(response.data.filter(product => product.category === props.category));
27          setVisibleProducts(response.data.filter(product => product.category === props.category));
28        }
29      }
30    )
31    await axios.get('http://localhost:6001/fetch-categories').then(
32      (response) => {
33        setCategories(response.data);
34      }
35    )
36  }
37
```

In the backend, we fetch all the products and then filter them on the client side.

```
JS index.js X
server > JS index.js > then() callback > app.get('/fetch-banner') callback
100
101 // fetch products
102
103 app.get('/fetch-products', async(req, res)=>{
104   try{
105     const products = await Product.find();
106     res.json(products);
107   }catch(err){
108     res.status(500).json({ message: 'Error occurred' });
109   }
110 }
111 })
```

Filtering products:

client > src > components > Products.jsx > Products > useEffect() callback

```

38   const [sortFilter, setSortFilter] = useState('popularity');
39   const [categoryFilter, setCategoryFilter] = useState([]);
40   const [genderFilter, setGenderFilter] = useState([]);
41
42   const handleCategoryCheckBox = (e) =>{
43     const value = e.target.value;
44     if(e.target.checked){
45       setCategoryFilter([...categoryFilter, value]);
46     }else{
47       setCategoryFilter(categoryFilter.filter(size=> size !== value));
48     }
49   }
50
51   const handleGenderCheckBox = (e) =>{
52     const value = e.target.value;
53     if(e.target.checked){
54       setGenderFilter([...genderFilter, value]);
55     }else{
56       setGenderFilter(genderFilter.filter(size=> size !== value));
57     }
58   }
59
60   const handleSortFilterChange = (e) =>{
61     const value = e.target.value;
62     setSortFilter(value);
63     if(value === 'low-price'){
64       setVisibleProducts(visibleProducts.sort((a,b)=> a.price - b.price))
65     } else if (value === 'high-price'){
66       setVisibleProducts(visibleProducts.sort((a,b)=> b.price - a.price))
67     }else if (value === 'discount'){
68       setVisibleProducts(visibleProducts.sort((a,b)=> b.discount - a.discount))
69     }
70   }
71
72   useEffect(()=>{
73
74     if (categoryFilter.length > 0 && genderFilter.length > 0){
75       setVisibleProducts(products.filter(product=> categoryFilter.includes(product.category) && genderFilter.includes(product.gender) ));
76     }else if(categoryFilter.length === 0 && genderFilter.length > 0){
77       setVisibleProducts(products.filter(product=> genderFilter.includes(product.gender) ));
78     } else if(categoryFilter.length > 0 && genderFilter.length === 0){
79       setVisibleProducts(products.filter(product=> categoryFilter.includes(product.category)));
80     }else{
81       setVisibleProducts(products);
82     }
83
84     [, [categoryFilter, genderFilter]]
85
86

```

Add product to cart:

Here, we can add the product to the cart or can buy directly.

```
client > src > pages > customer > IndividualProduct.jsx > IndividualProduct
61 const buyNow = async() =>{
62   await axios.post('http://localhost:6001/buy-product',{userId, name, email, mobile, address,
63     pincode, title: productName, description: productDescription,
64     mainImg: productMainImg, size, quantity: productQuantity, price: productPrice,
65     discount: productDiscount, paymentMethod: paymentMethod, orderDate: new Date()}).then(
66     (response)=>{
67       alert('Order placed!!');
68       navigate('/profile');
69     })
70   .catch((err)=>{
71     alert("Order failed!!");
72   })
73 }
74
75 const handleAddToCart = async() =>{
76   await axios.post('http://localhost:6001/add-to-cart', {userId, title: productName, description: productDescription,
77     mainImg: productMainImg, size, quantity: productQuantity, price: productPrice,
78     discount: productDiscount}).then(
79     (response)=>{
80       alert("product added to cart!!");
81       navigate('/cart');
82     })
83   .catch((err)=>{
84     alert("Operation failed!!");
85   })
86 }
87
```

- Backend: In the backend, if we want to buy, then with the address and payment method, we process buying. If we need to add the product to the cart, then we add the product details along with the user Id to the cart collection.

Buy product:


```

JS index.js X
server > JS index.js > then() callback > app.post('/add-to-cart') callback
233
234 // buy product
235
236 app.post('/buy-product', async(req, res)=>{
237     const {userId, name, email, mobile, address, pincode, title,
238           description, mainImg, size, quantity, price,
239           discount, paymentMethod, orderDate} = req.body;
240     try{
241         const newOrder = new Orders({userId, name, email, mobile, address,
242               pincode, title, description, mainImg, size, quantity, price,
243               discount, paymentMethod, orderDate})
244         await newOrder.save();
245         res.json({message: 'order placed'});
246     }catch(err){
247         res.status(500).json({message: "Error occurred"});
248     }
249 })
250

```

Add product to cart:

```

JS index.js X
server > JS index.js > then() callback > app.put('/increase-cart-quantity') callback
300
301 // add cart item
302
303 app.post('/add-to-cart', async(req, res)=>{
304
305     const {userId, title, description, mainImg, size, quantity, price, discount} = req.body
306     try{
307         const item = new Cart({userId, title, description, mainImg, size, quantity, price, discount});
308         await item.save();
309         res.json({message: 'Added to cart'});
310     }catch(err){
311         res.status(500).json({message: "Error occurred"});
312     }
313 })
314

```

Order products:

Now, from the cart, let's place the order

- Frontend


```

Cart.jsx 3, U X
client > src > pages > customer > Cart.jsx > [0] Cart
83   const [name, setName] = useState('');
84   const [mobile, setMobile] = useState('');
85   const [email, setEmail] = useState('');
86   const [address, setAddress] = useState('');
87   const [pincode, setPincode] = useState('');
88   const [paymentMethod, setPaymentMethod] = useState('');
89
90   const userId = localStorage.getItem('userId');
91   const placeOrder = async() =>{
92     if(cartItems.length > 0){
93       await axios.post('http://localhost:6001/place-cart-order', {userId, name, mobile,
94         email, address, pincode, paymentMethod, orderDate: new Date()}).then(
95         (response)=>{
96           alert('Order placed!!');
97           setName('');
98           setMobile('');
99           setEmail('');
100          setAddress('');
101          setPincode('');
102          setPaymentMethod('');
103          navigate('/profile');
104        })
105      }
106    }
107  }

```

Backend

In the backend, on receiving the request from the client, we then place the order for the products in the cart with the specific user Id.

```

JS index.js X
server > JS index.js > then() callback
359
360   // Order from cart
361
362   app.post('/place-cart-order', async(req, res)=>{
363     const {userId, name, mobile, email, address, pincode, paymentMethod, orderDate} = req.body;
364     try{
365       const cartItems = await Cart.find({userId});
366       cartItems.map(async (item)=>{
367
368         const newOrder = new Orders({userId, name, email, mobile, address,
369           pincode, title: item.title, description: item.description,
370           mainImg: item.mainImg, size:item.size, quantity: item.quantity,
371           price: item.price, discount: item.discount, paymentMethod, orderDate})
372         await newOrder.save();
373         await Cart.deleteOne({_id: item._id})
374       })
375       res.json({message: 'Order placed'});
376     }catch(err){
377       res.status(500).json({message: "Error occurred"});
378     }
379   })
380

```

Add new product:

Here, in the admin dashboard, we will add a new product.

o Frontend:

```
NewProduct.jsx U X
client > src > pages > admin > NewProduct.jsx > NewProduct
4/
48 const handleNewProduct = async() =>{
49   await axios.post('http://localhost:6001/add-new-product', {productName, productDescription, productMainImg,
50     productCarousel: [productCarouselImg1, productCarouselImg2, productCarouselImg3], productSizes,
51     productGender, productCategory, productNewCategory, productPrice, productDiscount}).then(
52     (response)=>{
53       alert("product added");
54       setProductName('');
55       setProductDescription('');
56       setProductMainImg('');
57       setProductCarouselImg1('');
58       setProductCarouselImg2('');
59       setProductCarouselImg3('');
60       setProductSizes([]);
61       setProductGender('');
62       setProductCategory('');
63       setProductNewCategory('');
64       setProductPrice(0);
65       setProductDiscount(0);
66
67       navigate('/all-products');
68     }
69   )
70 }
71
```

o Backend:

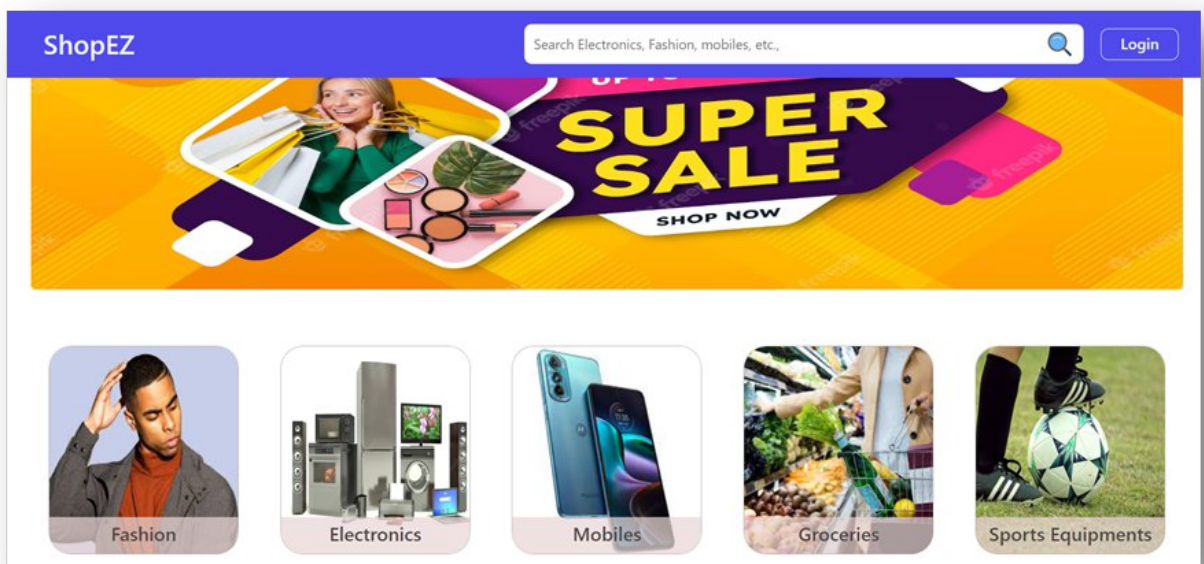
```

JS index.js X
server > JS index.js > then() callback > app.put('/update-product/id') callback
143
144 // Add new product
145
146 app.post('/add-new-product', async(req, res)=>{
147   const {productName, productDescription, productMainImg, productCarousel,
148         productSizes, productGender, productCategory, productNewCategory,
149         productPrice, productDiscount} = req.body;
150   try{
151     if(productCategory === 'new category'){
152       const admin = await Admin.findOne();
153       admin.categories.push(productNewCategory);
154       await admin.save();
155       const newProduct = new Product({title: productName, description: productDescription,
156                                       mainImg: productMainImg, carousel: productCarousel, category: productNewCategory,
157                                       sizes: productSizes, gender: productGender, price: productPrice, discount: productDiscount});
158       await newProduct.save();
159     } else{
160       const newProduct = new Product({title: productName, description: productDescription,
161                                       mainImg: productMainImg, carousel: productCarousel, category: productCategory,
162                                       sizes: productSizes, gender: productGender, price: productPrice, discount: productDiscount});
163       await newProduct.save();
164     }
165     res.json({message: "product added!!"});
166   }catch(err){
167     res.status(500).json({message: "Error occured"});
168   }
169 })
170

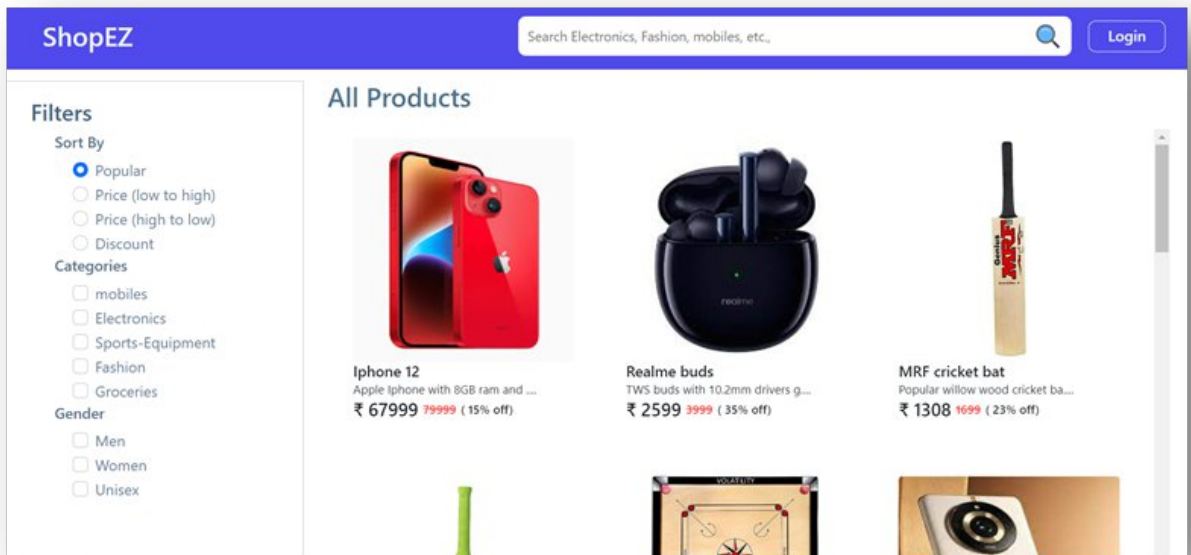
```

Demo UI images:

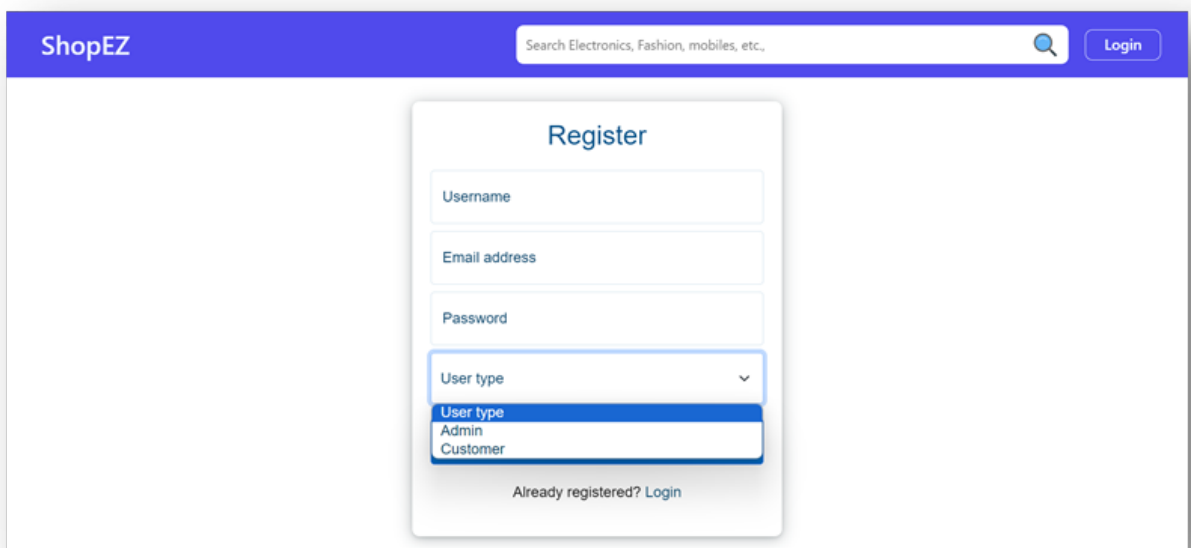
- Landing page



- Products



· Authentication



User Profile

ShopEZ

Search Electronics, Fashion, mobiles, etc.,

hola

0


Username: hola

Email: hola@gmail.com

Orders: 5

Logout

Orders




joyful

Size: M Quantity: 2 Price: ₹ 1838 Payment method: netbanking

Address: Vizag Pincode: 502132 Ordered on: 2023-08-30

Order status: In-transit

Cancel



MRF cricket bat

Popular willow wood cricket bat from MRF. Suitable for your all format plays in all conditions.

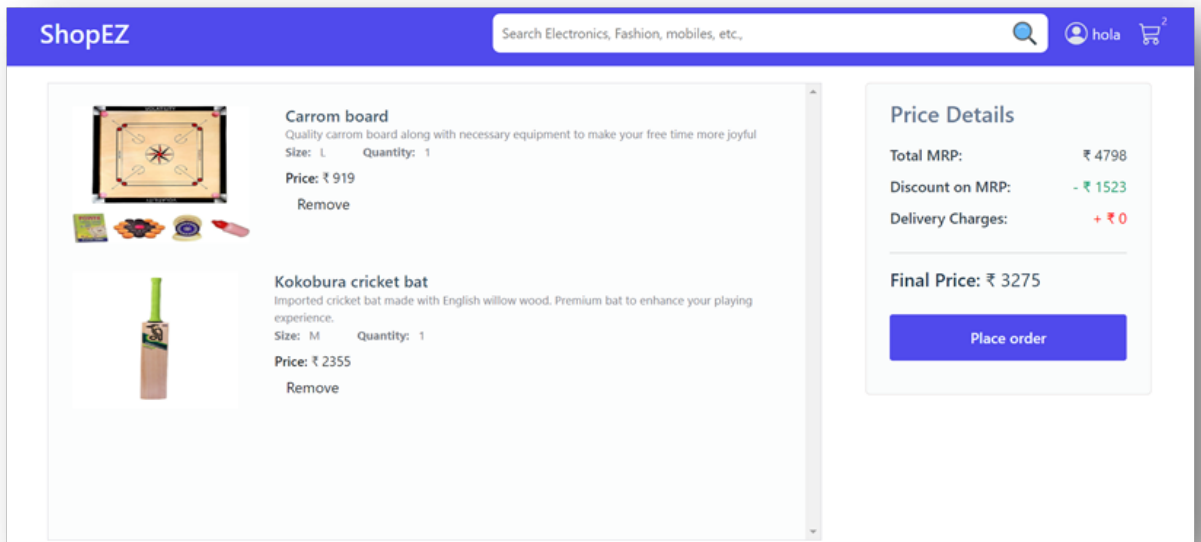
Size: M Quantity: 1 Price: ₹ 1308 Payment method: netbanking

Address: Vizag Pincode: 502132 Ordered on: 2023-08-30

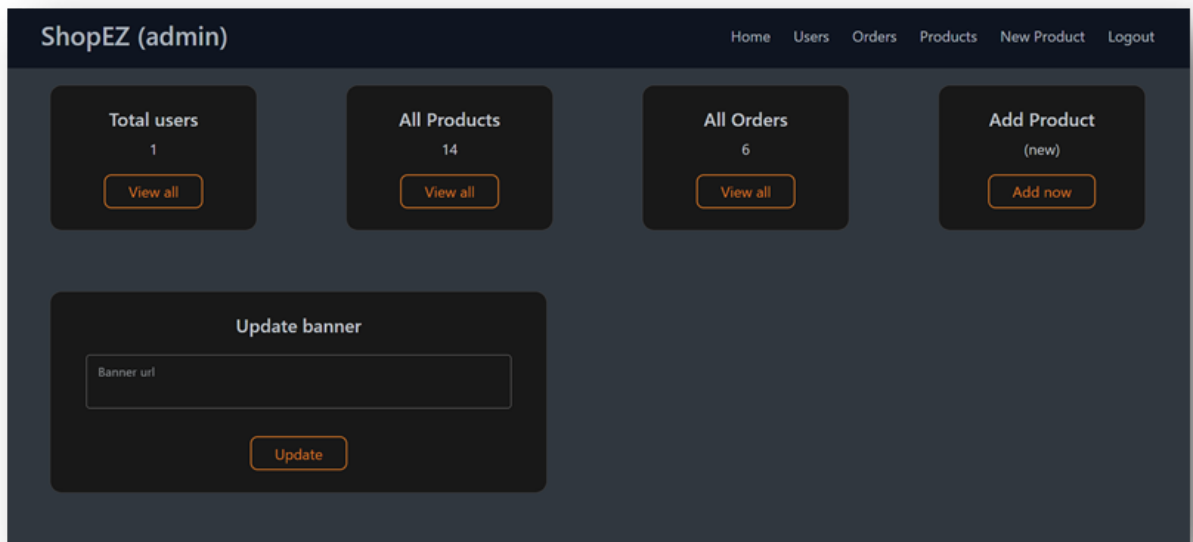
Order status: order placed

Cancel

Cart



Admin dashboard




- All Orders

ShopEZ (admin)

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

Orders



Carrom board

Quality carrom board along with necessary equipment to make your free time more joyful

Size: M Quantity: 2 Price: ₹ 1838 Payment method: netbanking

Userld: 64edcfad3631d148df3ce2e1 Name: Simon Email: simon@gmail.com Mobile: 8798790898


Ordered on: 2023-08-30 Address: Vizag Pincode: 502132

Order status: In-transit

Update order status

Update

Cancel



MRF cricket bat

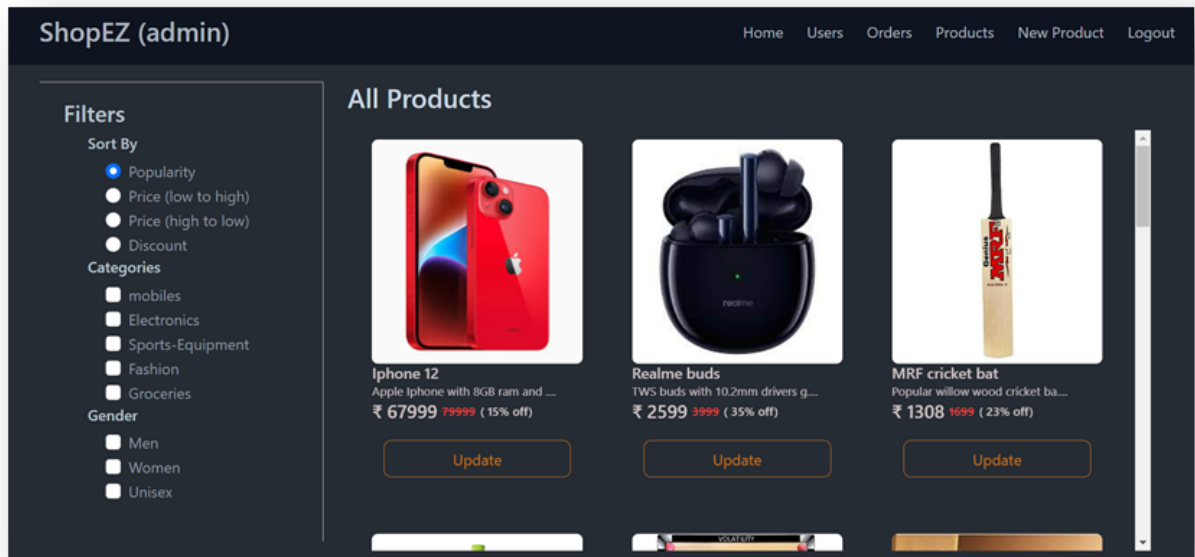
Popular willow wood cricket bat from MRF. Suitable for your all format plays in all conditions.

Size: M Quantity: 1 Price: ₹ 1308 Payment method: netbanking

Userld: 64edcfad3631d148df3ce2e1 Name: Simon Email: simon@gmail.com Mobile: 8798790898

Ordered on: 2023-08-30 Address: Vizag Pincode: 502132

- All Products



· New Product Page

ShopEZ (admin)

Home Users Orders Products New Product Logout

New Product

Product name

Product Description

Thumbnail Img url

Add on img1 url

Add on img2 url

Add on img3 url

Available Size

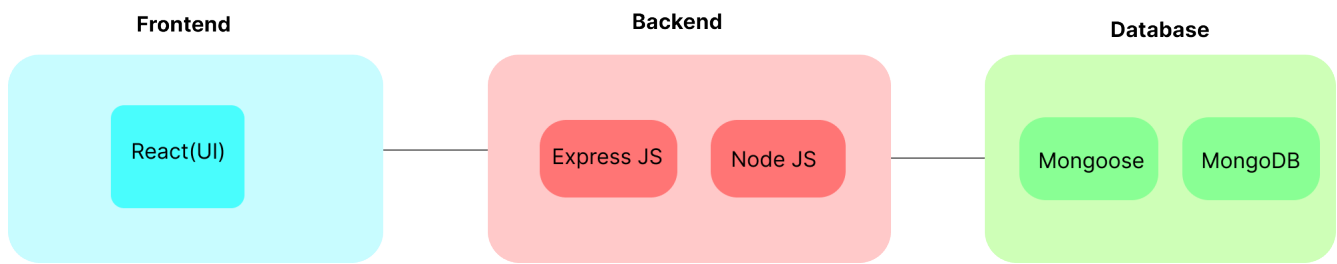
☐ S ☐ M ☐ L ☐ XL

Gender

Add product

9. User Interface

TECHNICAL ARCHITECTURE:



In this architecture diagram:

- The frontend is represented by the "Frontend" section, including user interface components such as User Authentication, Cart, Products, Profile, Admin dashboard, etc.,
- The backend is represented by the "Backend" section, consisting of API endpoints for Users, Orders, Products, etc., It also includes Admin Authentication and an Admin Dashboard.
- The Database section represents the database that stores collections for Users, cart, Orders and Product.

10. Testing

To start the development server, execute the following command:

`npm run dev` or `npm run start`

- The e-commerce app will be accessible at `http://localhost:3000` by default. You can change the port configuration in the `.env` file if needed.

Access the App:

- Open your web browser and navigate to `http://localhost:3000`.
- You should see the flight booking app's homepage, indicating that the installation and setup were successful.

11. Screenshots or Demo

The demo of the app is available at: <https://drive.google.com/file/d/12LSyk0rHTb9M3oY0dYaq8x4nDVsbI6j2/view?usp=sharing>

12. Known Issues

13. Future Enhancements

