Full Stack Development with MERN

Project Documentation

1. Introduction

· **Project Title: ShopSmart: Your Digital Grocery Store Experience**

Team Members:

Team Size: 3

Team Leader:

- **Padma Gadi** – Full Stack Development (Backend APIs, Database Integration, Project Integration & Deployment) & Frontend Support & Testing

Team Members:

- **Sai Joshika Ayyankala** – Documentation & Presentation Support
- **Jagarapu Hyma** – Frontend Development (UI Components & Design)

2. Project Overview

· **Purpose:**

The purpose of this project is to build a complete full-stack grocery e-commerce web application where users can browse products, add items to cart, place orders, and track payments.

The system also includes an admin dashboard to manage users, products, categories, and orders.

The main goal is to demonstrate MERN stack development skills in a real-world application.

- **Features:**

User Features:

- User Registration & Login
- Browse Products
- Filter by Category
- Add to Cart
- Place Orders
- View Order History

- Provide Feedback

Admin Features:

- Admin Login
- Add Category
- Add Products
- Update/Delete Products
- View Users
- Manage Orders
- View Payments
- View Feedback

3. Architecture

- **Frontend: (Client – Angular/React)**

- Developed using Angular (as per your project)
- Uses component-based architecture
- Routing handled using Angular Router
- HTTP requests handled using Axios/HttpClient
- Bootstrap used for styling

Frontend communicates with backend APIs using REST APIs.

- **Backend: (Server – Node.js + Express.js)**

- Built using Node.js and Express.js
- REST API based architecture
- JWT Authentication implemented
- Password hashing using bcrypt
- Middleware used for authentication and authorization

- **Database: (MongoDB)**

MongoDB used as NoSQL database.
Collections:

- Users
- Category
- Product
- AddToCart
- Orders
- Payments

- Feedback

Each schema is defined using Mongoose.

4. Setup Instructions

· **Prerequisites:**

- Node.js (v16 or above)
- MongoDB (Local or Atlas)
- Git
- VS Code

Installation:

Step 1: Clone Repository

git clone https://github.com/PadmaGadi17/shopsmart-grocery-webapp.git

Step 2: Install Backend Dependencies

cd server

npm install

Step 3: Install Frontend Dependencies

cd client

npm install

Environment Variables:

Inside server:

Create .env file:

MONGO_URI=mongodb://127.0.0.1:27017/grocery-webapp

JWT_SECRET=mysecretkey

5. Folder Structure

· **Client:**

client/

```
│
├── src/
│   ├── components/
│   ├── admin_components/
│   ├── assets/
│   ├── services/
│   └── app.module.ts
```

· **Server:**

server/

```
│
├── src/
│   ├── db/
│   ├── models/
│   ├── routes/
│   └── app.js
```

6. Running the Application:

Frontend:

- cd client
- npx ng serve

Frontend runs on: http://localhost:4200

B**ackend:**

- cd server
- npm start

Server runs on: http://localhost:5100

7. API Documentation

- **Authentication:**

Method	Endpoint	Description
POST	/register	Register new user
POST	/login	Login user

- **Products:**

Method	Endpoint
GET	/products
GET	/products/:id
POST	/add-products
PUT	/products/:id
DELETE	/products/:id

- **Cart:**

Method	Endpoint
POST	/add-to-cart
GET	/cart/:id
DELETE	/remove-from-cart/:id

- **Orders:**

Method	Endpoint
POST	/orders
GET	/orders
PUT	/orders/:id
GET	/my-orders/:id

8. Authentication

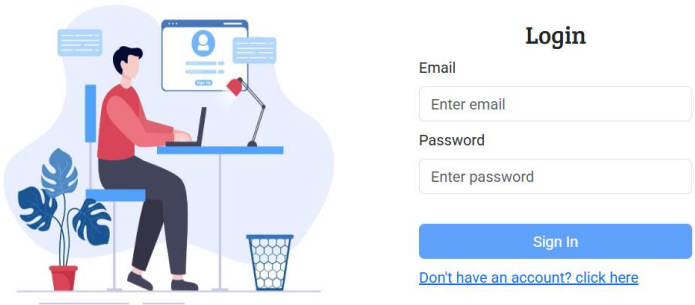
- Passwords hashed using bcrypt
- JWT tokens used for authentication
- Admin and user roles handled
- Token stored in frontend after login
- Middleware verifies token before protected routes

9. User Interface

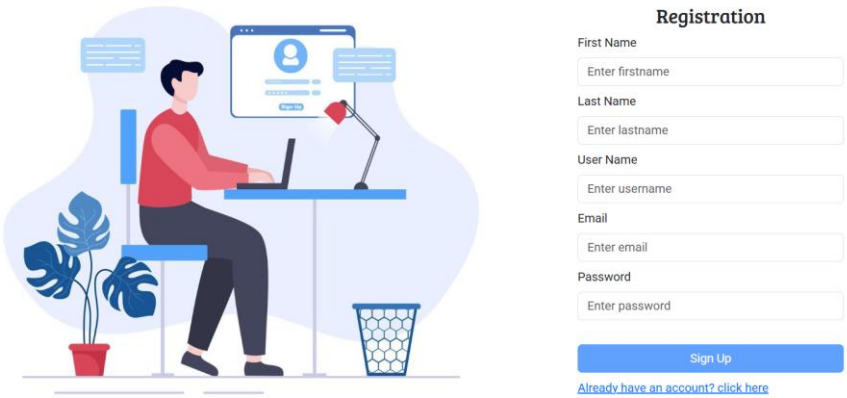
• The UI includes:

- Home Page

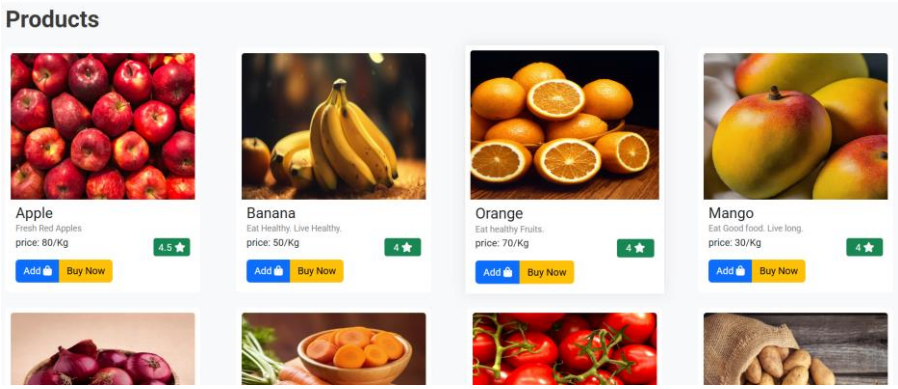
- Login Page



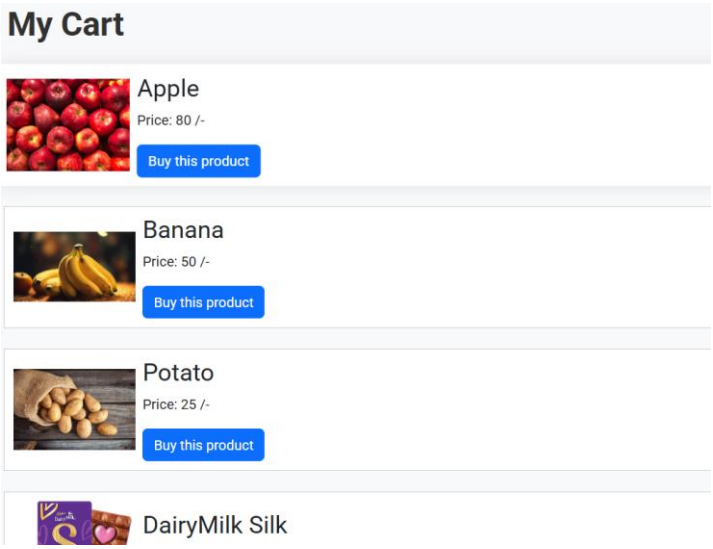
- Registration Page



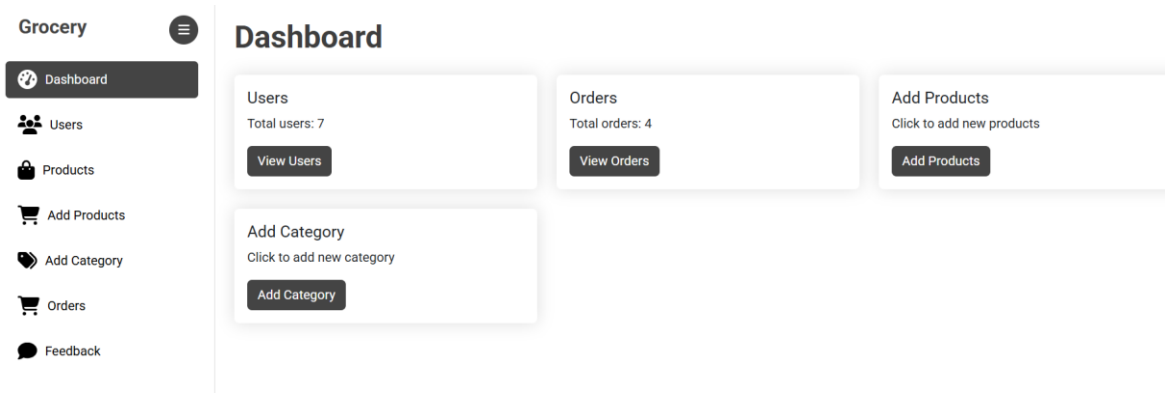
- Product Listing Page



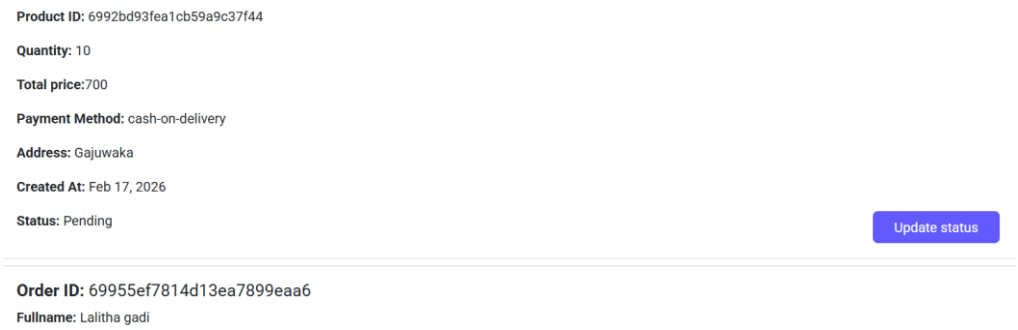
- Cart Page



- Admin Dashboard



- Order Management Panel



10. Testing

- Manual testing performed for all APIs

Verified:

- Registration
- Login
- Add Product
- Order Placement
- Payment Creation

Tested using browser and Postman

11. Screenshots or Demo

- **Demo Video Link:**

(https://drive.google.com/file/d/1j2SASFUlTXHUQEf2uakJCDA0ro-eKSEi/view?usp=sharing)

Screenshots included in documentation.

12. Known Issues

- No payment gateway integration

- No email notification system
- UI responsiveness can be improved
- Basic admin authentication logic

13. Future Enhancements

- Razorpay/Stripe Payment Integration
- Product image upload via Cloudinary
- Role-based access control
- Order tracking with real-time updates
- Admin analytics dashboard
- Deployment on AWS or Render