ShopEZ: E-commerce Application

GMart

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Objective:

- Develop an intuitive and user-friendly online shopping interface for effortless product discovery.
- Implement personalised recommendations to enhance user satisfaction and engagement.
- Provide a secure and efficient multi-step checkout process with real-time order tracking.
- Enable sellers to manage inventory and orders efficiently through a robust dashboard.
- Offer insightful analytics to help sellers optimise business performance and identify growth opportunities.
- Build a scalable and high-performance platform using the MERN stack to support large user bases.

Project Description :

- **Simplified Online Shopping**: ShopEZ provides an intuitive interface for effortless navigation and product discovery.
- **Comprehensive Product Catalogue**: Customers can explore a wide range of products with detailed descriptions and filters.
- **Personalised Recommendations**: AI-driven algorithms deliver tailored product suggestions based on user preferences.
- **Secure Checkout**: A streamlined and secure multi-step checkout process with real-time order tracking.
- **Efficient Order Management**: Sellers benefit from a robust dashboard to manage inventory, process orders, and track shipments.
- **Insightful Analytics**: Sellers receive actionable insights through analytics to optimise business growth and understand customer behaviour.

Tech Stack Overview:

Frontend

- **React.js**: A powerful JavaScript library used to build interactive, responsive, and dynamic user interfaces, enabling seamless navigation and fast rendering of product data.

Backend

- **Node.js**: A server-side JavaScript runtime built on Chrome's V8 engine, providing a scalable and high-performance environment for handling concurrent requests in real-time.
- **Express.js**: A minimal, flexible web application framework for Node.js, facilitating the creation of RESTful APIs for managing product, user, and order data.

Database

- **MongoDB**: A NoSQL database that stores data in flexible JSON-like documents, allowing for scalable and efficient data management across users, products, and transactions.

Authentication / Authorization

- **JSON Web Tokens (JWT)**: A secure and stateless authentication method for user and admin authentication, enabling safe transmission of user credentials and authorization data.

Database Hosting

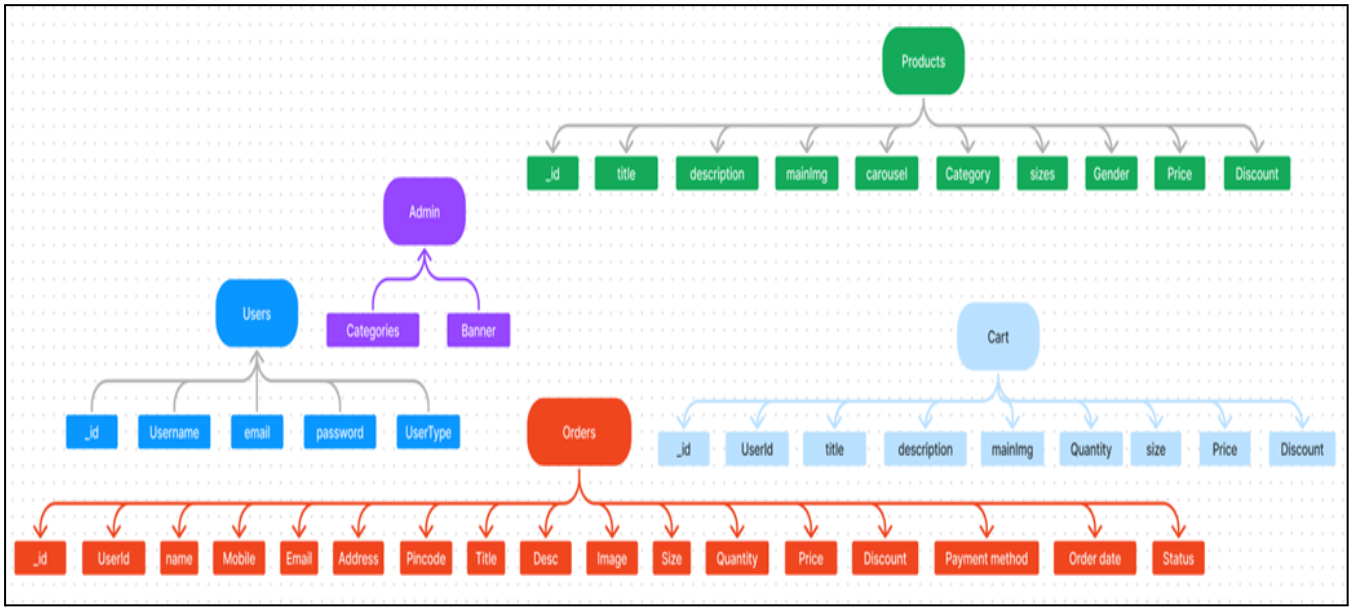
- **MongoDB Atlas**: A fully managed cloud service for hosting MongoDB databases, offering automated backups, scaling, and high availability to ensure robust and secure data storage.

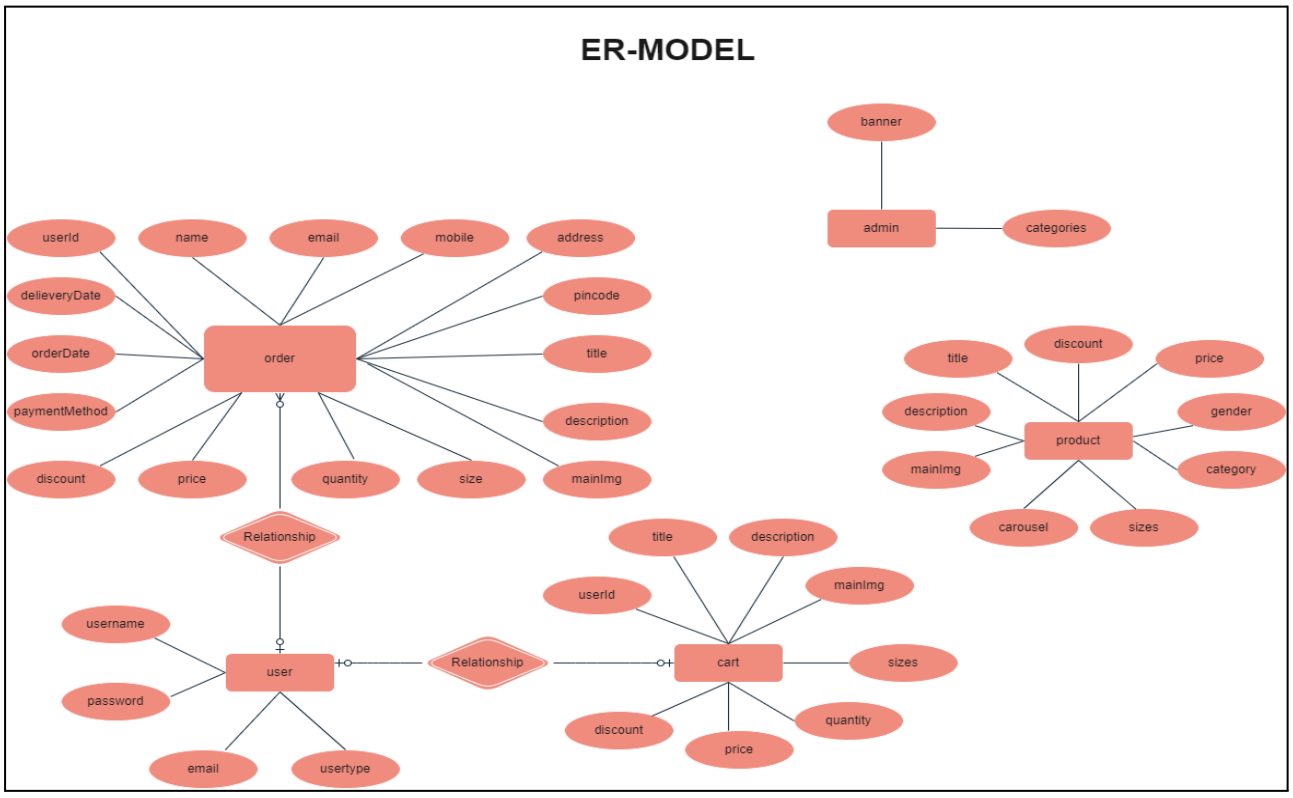
Use Case:

- **Social Media Platform:** Users can engage with content, share media, and interact with others through a personalised feed and notifications.
- **Online Banking System:** Customers manage accounts, transfer funds, and track transactions securely with multi-factor authentication.
- **Healthcare Management System:** Patients schedule appointments, consult doctors remotely, and access medical records and lab results online.
- **Ride-Hailing Application:** Users book rides, track their journey in real-time, and make payments securely through the app.
- **Food Delivery Application:** Customers browse nearby restaurants, customise orders, and track deliveries in real-time.

- **Fitness Tracking Application:** Users track workouts, set fitness goals, and monitor progress through synced devices and personalised plans.

Database Design / ER Diagram





The GMart 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.

Features:

Login / Register

- **Account Creation**: Users can register with an email, phone number, or social media accounts for easy access.
- **Secure Authentication**: Login process utilises encrypted passwords and session tokens to ensure user security.
- **Forgot Password Option**: Users can reset their password through email or mobile verification if they forget their login credentials.

Product Listing

- **Search and Filter**: Users can search for products by name and apply filters such as category, price, ratings, and size.
- **Detailed Product Descriptions**: Each product listing includes detailed descriptions, high-quality images, and customer reviews for informed decision-making.
- **Product Sorting**: Users can sort products by price, popularity, new arrivals, and customer ratings for easy navigation.

Add to Cart

- **Multiple Item Addition**: Users can add multiple products to the cart at once and adjust the quantities before checkout.
- **Cart Review**: Users can review their cart, view itemised costs, and check for available discounts or promotional codes.

Payment Integration

- **Multiple Payment Options**: Supports various payment methods, including credit/debit cards, digital wallets, and other secure gateways.

- **Encrypted Transactions**: All payment data is securely processed with encryption to protect user financial information.

Order Tracking

- **Real-time Updates**: Users can track the status of their order from order confirmation to delivery with live updates.
- **Shipping Notifications**: Automatic email or SMS notifications are sent to users when their order is shipped, out for delivery, or successfully delivered.
- **Order History**: Users can view the complete history of past orders, including tracking details, in their profile section.

Conclusion

GMart offers a seamless and personalised e-commerce experience, combining an intuitive user interface with powerful features such as product discovery, secure checkout, and efficient order management. With the integration of the MERN stack, the platform ensures high performance, scalability, and security for both users and sellers. Personalised recommendations and insightful analytics further enhance user engagement and business growth. The project simplifies online shopping for busy customers while providing sellers with valuable tools to optimise operations. Overall, ShopEZ sets a new standard for user-centric e-commerce platforms, making shopping efficient and enjoyable for all.

References

Github Link: https://github.com/J-B-Mugundh/Gmart

Demo Video Link: Drive video URL