ShopEZ - E-commerce Application

1. Introduction

1.1 Project Overview

Project Title: ShopEZ - E-commerce Application
Team Members:
- **Navanil Das**: Frontend Developer
- **Utkarsh**: Backend Developer
- **Dev Tailor**: Database Administrator
- **Adrija Daniary**: Database Administrator

2. Project Overview

2.1 Purpose

ShopEZ is a full-stack e-commerce application developed using the MERN stack. Its goal is to provide an intuitive and seamless shopping experience for customers, with features like personalized recommendations, secure checkout, and easy order management. For sellers, it offers an efficient platform to manage their products and track orders.

2.2 Features

- Effortless product discovery and filtering
- Personalized shopping experience with product recommendations
- Secure checkout process with multiple payment options
- Seller dashboard for order and product management
- Insightful analytics for business growth
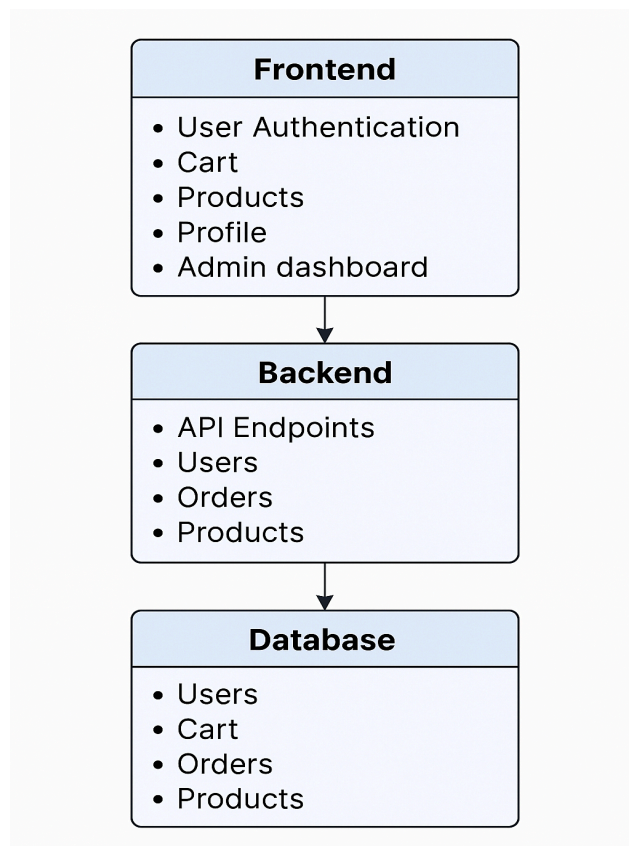
3. Architecture

3.1 Frontend

The frontend is built using React.js, providing an interactive and responsive user interface. Key components include product catalog, cart, user authentication, and a profile section.

3.2 Backend

The backend is developed using Node.js and Express.js, handling API requests for user management, products, orders, and authentication. It serves as the middleware between the frontend and database.

3.3 Database

The database uses MongoDB, with collections for Users, Products, Orders, and Cart. Data interactions are handled via Mongoose, providing seamless data manipulation and storage.

Frontend
- User Authentication
- Cart
- Products
- Profile
- Admin dashboard

↓

Backend
- API Endpoints
- Users
- Orders
- Products

↓

Database
- Users
- Cart
- Orders
- Products

4. Setup Instructions

4.1 Prerequisites

- Node.js
- MongoDB

- Git (for version control)

4.2 Installation

1. Clone the repository:
   ```bash
   git clone https://github.com/your-repository-url.git
   ```
2. Navigate to the project directory:
   ```bash
   cd ShopEZ
   ```
3. Install dependencies:
   ```bash
   npm install
   ```
4. Set up environment variables for MongoDB and any API keys in a `.env` file.

5. Folder Structure

5.1 Client

- **src/**: Contains React components (Product, Cart, Profile, etc.)
- **public/**: Static assets (images, icons)

5.2 Server

- **models/**: Mongoose models for Users, Products, Orders
- **routes/**: API routes for user and product management
- **controllers/**: Logic to handle requests

6. Running the Application

6.1 Frontend

1. Navigate to the `client` directory:
   ```bash
   cd client
   ```

```
```

2. Start the frontend server:
   ```bash
   npm start
   ```


6.2 Backend

1. Navigate to the `server` directory:
   ```bash
   cd server
   ```
2. Start the backend server:
   ```bash
   npm run dev
   ```


7. API Documentation

- **POST /api/users/register**: Registers a new user
  - Body: `{ "name": "John", "email": "john@example.com", "password": "securepassword" }`
  - Response: `{ "message": "User registered successfully" }`
- **GET /api/products**: Retrieves all products
  - Response: `[ { "id": "1", "name": "Product 1", "price": 29.99 }, ... ]`

8. Authentication

Authentication is handled using JWT (JSON Web Tokens). Upon user login, a JWT token is issued, which is stored in the frontend (local storage or cookies). For each API request, the token is sent in the `Authorization` header for secure access.

9. User Interface

My Orders

Show entries

| 10 ⇕ | | | | Search |

Order ID	Number of Items	Amount	Status	Actions
No matching records found				
Order ID	Number of Items	Amount	Status	Actions

Showing 0 entries

Previous **1** Next

Enter Product Name 🔍   DEV TAILOR   Cart **1**

Search Products

$1 $1000

Categories

Electronics
Mobile Phones
Laptops
Accessories
Headphones
Food
Books
Clothes/Shoes
Beauty/Health
Sports
Outdoor
Home

Shipping Info

Address

VIT Bhopal University

City

Bhopal

Phone No

9109631194

Postal Code

46614

Country

India

State

Madhya Pradesh

Shipping Info

Name: DEV TAILOR

Phone: 9109631194

Address: VIT Bhopal University, Bhopal, 46614, Madhya Pradesh, India

Your Cart Items:

OPPO F21s Pro 5G   1 x ₹18425 = ₹18425

Order Summary

Subtotal:	₹18425
Shipping:	₹0
Tax:	₹921.25
Total:	₹19346.25

Proceed to Payment

Latest Products

OPPO F21s Pro 5G

⭐⭐⭐⭐ (15 Reviews)

₹18425

View Details

WRISTIO HD, Bluetooth Calling Smart Watch

⭐⭐⭐ (5 Reviews)

₹5000

View Details

Dell Inspiron 3511 Laptop

⭐⭐ (12 Reviews)

₹35000

View Details

First (1 2 3 Next Last

OPPO F21s Pro 5G

Product # 67fcb678213c3f8f923b5a57

⭐⭐⭐⭐ (15 Reviews)

₹18425

− 1 +   Add to Cart

Status: **In Stock**

Description:

OPPO F21s Pro 5G is a powerful device with a RAM extension feature, that offers brilliant operational speed to users.

Sold by: **Amazon**

Login to Post Review

t/67fcb678213c3f8f923b5a57#

Your Cart: **1 items**

	OPPO F21s Pro 5G	₹18425	− 1 +	🗑

Order Summary

Subtotal:	**1 (Units)**
Est. total:	**₹18425**

Check out

Login

Email

Password

Forgot Password?

LOGIN

New User?

Register

Name

Email

Password

Avatar

Choose Avatar | Browse

REGISTER

Full Name

DEV TAILOR

Email Address

devtailor2022@vitbhopal.ac.in

Joined

2025-04-14

Edit Profile

My Orders

Change Password

10. Testing

The testing strategy includes:
- Unit Testing using Jest for backend logic and components.
- End-to-End Testing using Cypress to simulate user behavior.

11. Screenshots or Demo

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View Details

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Email

Password

Forgot Password?

LOGIN

New User?

Register

Name

Email

Password

Avatar

Choose Avatar   Browse

REGISTER

Full Name
DEV TAILOR

Email Address
devtailor2022@vitbhopal.ac.in

Joined
2025-04-14

Edit Profile

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Change Password

12. Known Issues

- Issue 1: Occasional slow response when loading product data due to large inventory.
- Issue 2: The user profile page sometimes doesn't load correctly in Safari.

13. Future Enhancements

- Mobile App: A mobile version for both Android and iOS.
- AI-Based Recommendations: Implement more advanced AI-based recommendation systems for products.