Project Report

Team Members:
- **Navanil Das**: Frontend Developer
- **Utkarsh**: Backend Developer
- **Dev Tailor**: Database Administrator
- **Adrija Daniary**: Database Administrator

1. INTRODUCTION

1.1 Project Overview

ShopEZ is a full-stack e-commerce application designed using the MERN stack (MongoDB, Express.js, React.js, Node.js). The application provides an intuitive online shopping experience with a seamless checkout process, personalized product discovery, and efficient order management for both customers and sellers.

1.2 Purpose

The purpose of this project is to build a user-friendly e-commerce platform that allows users to shop effortlessly and sellers to manage their products and orders efficiently. The goal is to provide a comprehensive online shopping experience by integrating personalized recommendations, secure payment systems, and an intuitive seller dashboard.

2. IDEATION PHASE

2.1 Problem Statement

The project addresses the challenges of busy consumers who lack time for thorough product browsing across various e-commerce platforms. It also focuses on simplifying the order management and analytics for e-commerce sellers.

2.2 Empathy Map Canvas

- **Users' Needs**: Easy shopping experience, personalized product recommendations, and fast checkout.

- **Sellers' Needs**: Streamlined product management, order tracking, and insightful analytics.
- **User Pain Points**: Difficulty in finding relevant products quickly, unreliable checkout systems.
- **Sellers' Pain Points**: Complex order management and lack of easy-to-use analytics.

2.3 Brainstorming

Several features were brainstormed to improve both user and seller experience:

- Personalized product recommendations using AI.
- A secure, quick, and easy checkout process.
- A robust seller dashboard with advanced order management tools.

3. REQUIREMENT ANALYSIS

3.1 Customer Journey map

Sarah (User): Browses through fashion accessories → Filters search results → Finds a personalized recommendation → Adds to cart → Makes a secure payment → Receives order confirmation.

Seller: Receives order notification → Processes the order → Ships the product.

3.2 Solution Requirement

For Users: Personalized product discovery, easy checkout, and order tracking.

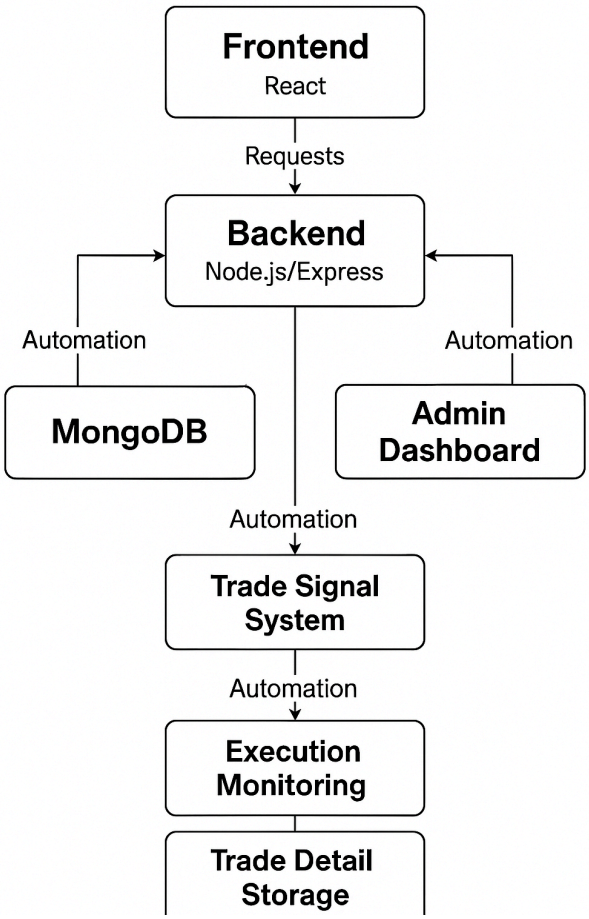
For Sellers: Simple order processing, product management, and analytics dashboard.

3.3 Data Flow Diagram

Users interact with the frontend UI (React.js) to view products, add them to the cart, and complete orders.

Backend (Node.js with Express.js) handles requests, processes orders, and interacts with the database (MongoDB) for product and user management.

Admin can manage products and orders via the Admin Dashboard.



3.4 Technology Stack

Frontend: React.js, HTML, CSS, JavaScript

Backend: Node.js, Express.js, MongoDB (Mongoose for database interactions)

Version Control: Git (GitHub for collaboration)

4. PROJECT DESIGN

4.1 Problem Solution Fit

The solution fits by offering a seamless user experience for customers through personalized product recommendations, while also addressing the need for efficient product management and order processing for sellers.

4.2 Proposed Solution

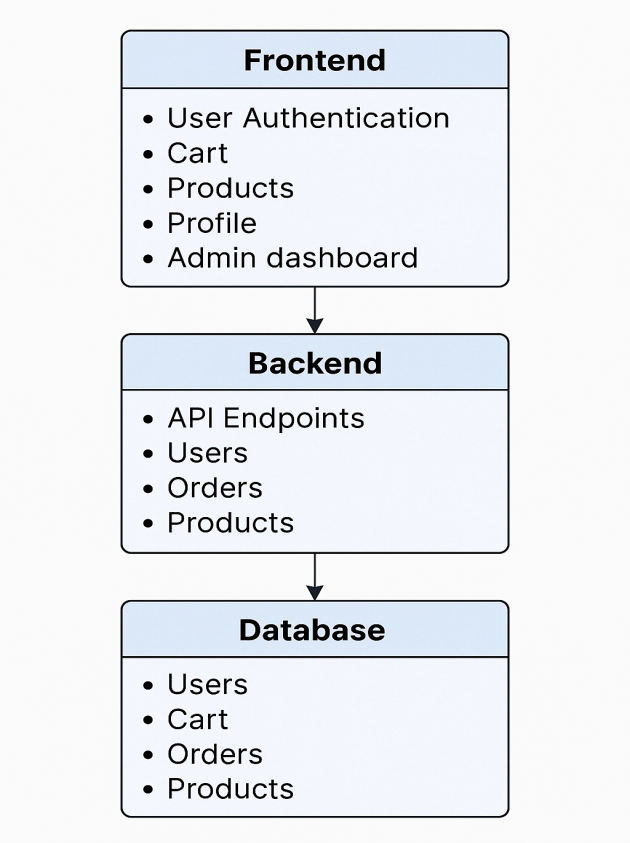
ShopEZ proposes a comprehensive e-commerce platform where users can quickly find products that match their preferences. The app includes a fast checkout process and a powerful seller dashboard that simplifies order management.

4.3 Solution Architecture

Frontend: React.js handles the UI components such as user authentication, product catalog, cart, and user profile.

Backend: Express.js serves API routes for user authentication, product handling, and order processing.

Database: MongoDB stores user data, product details, and order history.



5. PROJECT PLANNING & SCHEDULING

5.1 Project Planning

- **Phase 1**: Requirement gathering and initial design (2 weeks)
- **Phase 2**: Frontend and backend development (4 weeks)
- **Phase 3**: Testing and debugging (2 weeks)
- **Phase 4**: Deployment and user feedback collection (1 week)

6. FUNCTIONAL AND PERFORMANCE TESTING

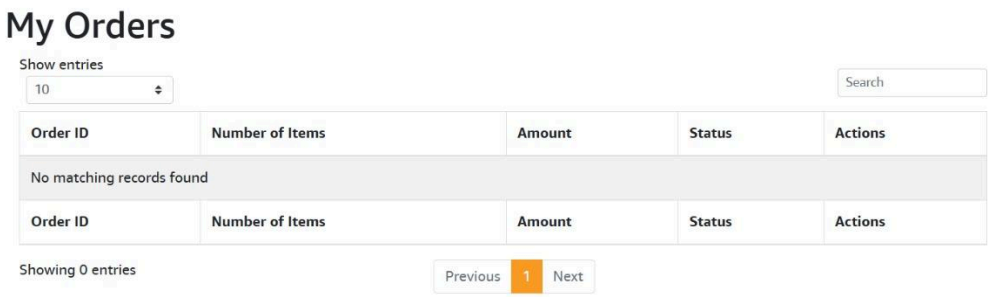
6.1 Performance Testing

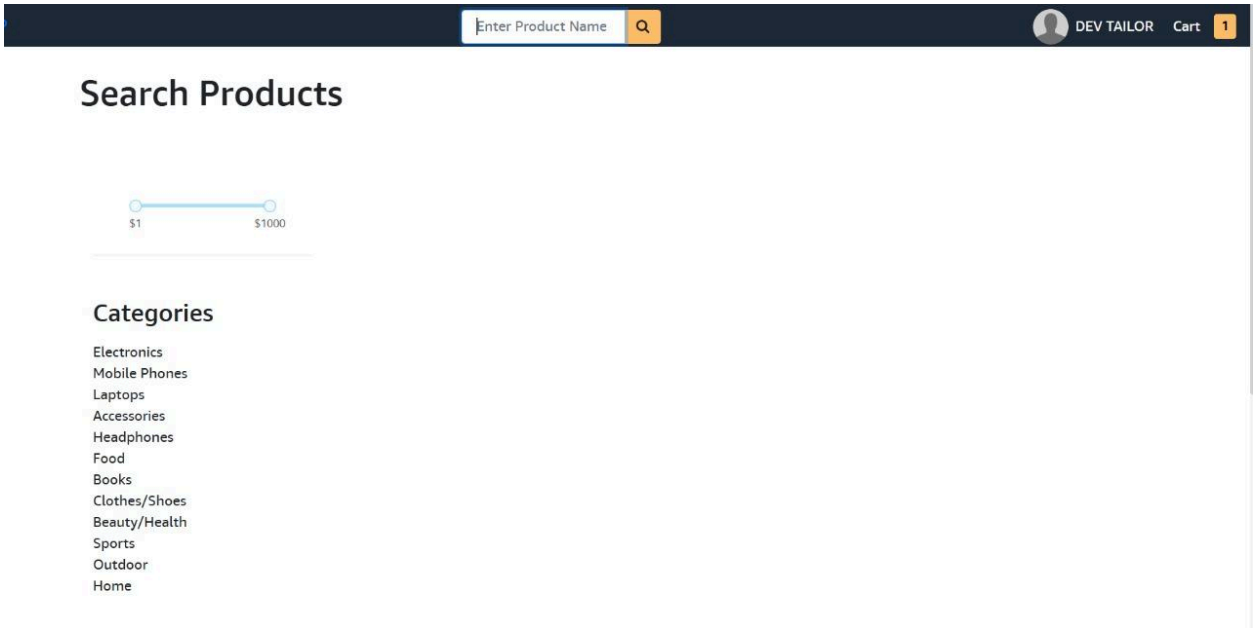
- **Load Testing**: Simulated high traffic scenarios to ensure the app can handle a large number of users simultaneously.

- **Response Time**: Measured server response time for API calls during various stages of user interaction.

7. RESULTS

7.1 Output Screenshots




Enter Product Name
DEV TAILOR
Cart
1
Search Products
$1
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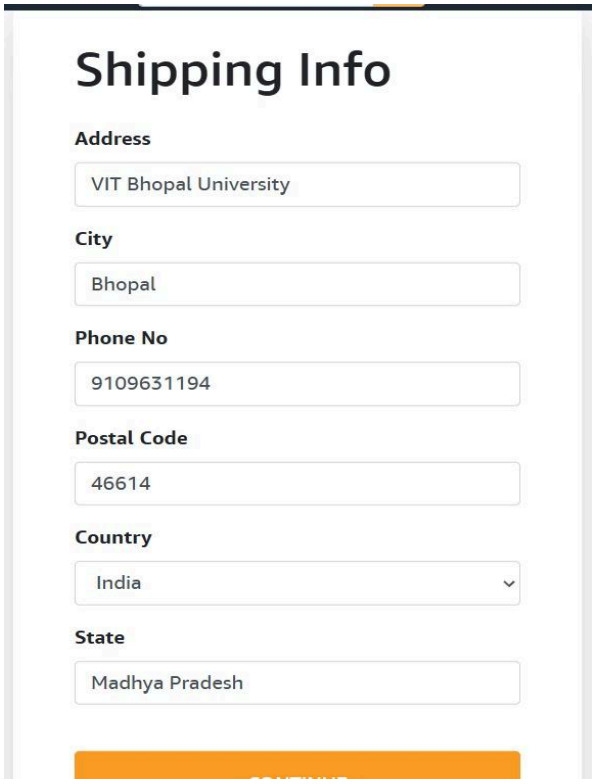
Categories
Electronics
Mobile Phones
Laptops
Accessories
Headphones
Food
Books
Clothes/Shoes
Beauty/Health
Sports
Outdoor
Home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Address
VIT Bhopal University
City
Bhopal
Phone No
9109631194
Postal Code
46614
Country
India
State
Madhya Pradesh

Shipping Info → Confirm Order → Payment

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

ShopEZ Logo | Enter Product Name | Login | Cart 0

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#

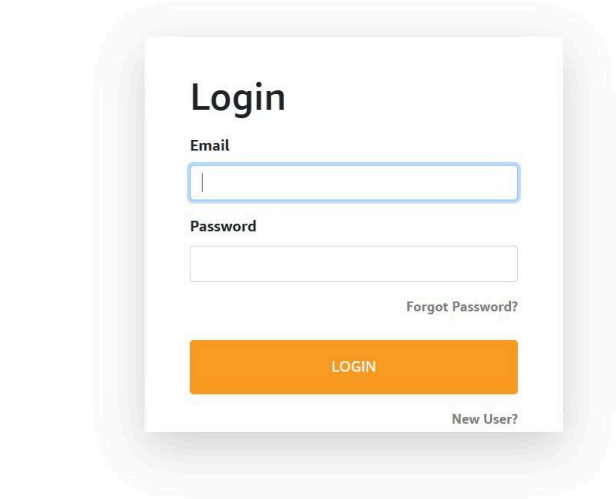
Your Cart: 1 items

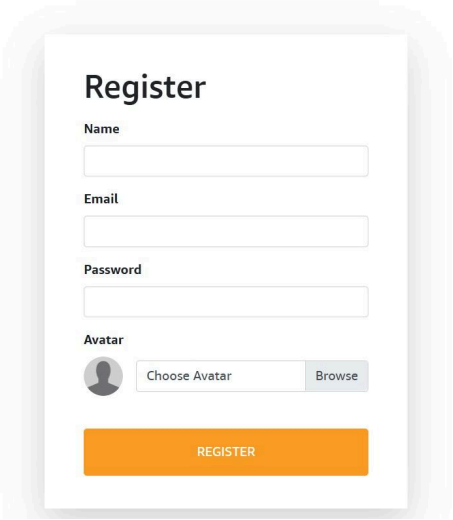
OPPO F21s Pro 5G ₹18425 - 1 +

Order Summary

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

Check out





8. ADVANTAGES & DISADVANTAGES

Advantages:

- **User Convenience**: Personalized product recommendations enhance shopping efficiency.
- **Secure Checkout**: Multiple payment options with secure transactions.
- **Seller Dashboard**: Helps sellers track and manage their orders easily.

Disadvantages:

- **Initial Learning Curve**: New users may need some time to get used to the layout and features.

- **Dependency on Internet**: The app is web-based and requires an active internet connection.

9. CONCLUSION

ShopEZ offers a user-friendly, efficient e-commerce platform that caters to both customers and sellers. By integrating a seamless shopping experience with powerful backend tools for sellers, it is poised to become a future-ready solution for online shopping.

10. FUTURE SCOPE

- **Mobile App**: Develop a mobile version for Android and iOS.

- **AI-Based Analytics**: Integrate AI for advanced predictive analytics for both sellers and users.

- **Global Expansion**: Expand product offerings to cater to international markets.

11. APPENDIX

Source Code(if any) - **https://github.com/navanil2702/ShopEZ_Mern-Stack.git**
Dataset Link - NA
GitHub & Project Demo Link -
https://github.com/navanil2702/ShopEZ_Mern-Stack.git