ShopEZ: One-Stop Shop for Online Purchases

1. INTRODUCTION

1.1 Project Overview

ShopEZ is a full-stack e-commerce platform built to provide users with a seamless and efficient shopping experience. It supports product browsing, shopping cart functionality, order management, and secure checkout processes.

1.2 Purpose

The primary purpose of ShopEZ is to create a scalable and maintainable online marketplace that bridges the gap between buyers and sellers. It aims to simplify online transactions through an intuitive interface and robust backend systems.

2. IDEATION PHASE

2.1 Problem Statement

Existing e-commerce platforms often have usability issues, limited scalability, and complex interfaces. ShopEZ aims to address these by providing a modern, user-friendly, and full-featured alternative

2.2 Empathy Map Canvas

Users want a trustworthy, fast, and intuitive shopping experience. They seek ease in finding products, reading reviews, and placing orders without confusion or technical barriers.

2.3 Brainstorming

Ideas such as a mobile-responsive UI, real-time product updates, secure payment systems, and admin controls were explored to create a complete e-commerce ecosystem.

3. REQUIREMENT ANALYSIS

3.1 Customer Journey Map

From landing on the homepage to completing a purchase, users go through discovery, comparison, cart addition, checkout, and order tracking stages.

3.2 Solution Requirement

Functional: Authentication, Product Listings, Order Processing. Non-functional: Security, Performance, Usability, Scalability.

3.3 Data Flow Diagram

User interacts with UI -> Frontend sends requests to API -> API interacts with MongoDB for data CRUD operations.

3.4 Technology Stack

Frontend: React.js, Tailwind CSS
Backend: Node.js, Express.js
Database: MongoDB
Other Tools: Git, Postman, MongoDB Atlas

4. PROJECT DESIGN

4.1 Problem Solution Fit

The solution aligns with modern user expectations for speed, security, and simplicity in e-commerce transactions.

4.2 Proposed Solution

A responsive, secure web application with distinct user and admin interfaces, product filtering, and streamlined checkout.

4.3 Solution Architecture

Client (React) -> Server (Express.js) -> Database (MongoDB). JWT-based authentication and RESTful API design ensure modular and secure operations.

5. PROJECT PLANNING & SCHEDULING

5.1 Project Planning

Week 1: Planning & Requirements
Week 2: Frontend Design, Backend API
Week 3: Integration & Testing,Deployment & Documentation

6. FUNCTIONAL AND PERFORMANCE TESTING

6.1 Performance Testing

Tools like JMeter and Postman were used for load and stress testing. Results showed optimal performance under typical loads.

7. RESULTS

7.1 Output Screenshots

Screenshots include: Homepage, Product Page, Cart, Checkout, and Admin Dashboard.

8. ADVANTAGES & DISADVANTAGES

Advantages: Scalable, responsive, secure.
Disadvantages: Requires internet, mocked payment integration.

9. CONCLUSION

ShopEZ successfully delivers a full-featured e-commerce solution that meets user needs with modern full-stack development technologies.

10. FUTURE SCOPE

Integrate real payment gateways, mobile app version, AI-driven product suggestions, and live customer support.