

# **Full Stack Development with** **MERN**

## **Phase 2 : Ideation**

**Project Title – ShopEZ : One-Stop shop for online purchases**

**Team Members :**

- 1. Diviz Pandey (Team Lead) – Backend Developer**
- 2. Bhavya Jain – Frontend Developer**
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## 2.1 Problem Statement

In today's fast-paced digital world, online shopping has become a necessity rather than a luxury. Yet, small to mid-sized businesses often struggle to establish an effective online presence due to the high cost and complexity of developing e-commerce platforms. Additionally, consumers are overwhelmed by clunky interfaces, unreliable search functions, and lack of personalization on many e-commerce websites.

ShopEZ was conceived to solve these dual challenges:

1. **For Sellers:** Provide an affordable, scalable, and customizable e-commerce solution.
2. **For Buyers:** Deliver a user-centric, fast, and intuitive shopping experience.

### Key Problems Identified:

- High technical barrier for small sellers to launch their own stores.
- Lack of open-source, modern, full-stack templates that are easily deployable.
- Inefficient or outdated UI/UX in many existing platforms.
- Fragmented order and inventory management for sellers.
- No real-time feedback or updates for buyers.

ShopEZ aims to bridge this gap with a MERN-stack solution that is modular, efficient, and easy to deploy.

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## 2.2 Empathy Map Canvas

While not visually represented, the design and functionality of ShopEZ align well with an empathy map. Below is a verbal breakdown of the **Empathy Map Canvas** from both a **User** and **Admin** perspective.

### User (Buyer) Perspective

- **Says:**
  - "I want to find products quickly."
  - "I need to trust the platform with my personal data."
  - "I expect a smooth checkout experience."
- **Thinks:**
  - "Will my order arrive on time?"
  - "Is this platform secure?"
  - "I hope there's a way to track my purchase."

- **Feels:**  
Curious when exploring new products.  
Frustrated by slow or unresponsive designs.  
Reassured by order confirmations and clear pricing.
- **Does:**  
Browses categories, adds to cart, places orders, checks order history, and logs in/out.

#### **Admin (Seller/Owner) Perspective**

- **Says:**  
“I need control over my inventory.”  
“The dashboard should be easy to use.”
- **Thinks:**  
“Can I track which products are in demand?”  
“I want to update my catalog quickly.”
- **Feels:**  
Empowered with data.  
Stressed when the system is buggy or unreliable.
- **Does:**  
Adds, edits, or deletes products. Reviews user orders. Manages users.

These user insights informed the intuitive dashboard design, dynamic search filters, and secure authentication system.

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## **2.3 Brainstorming**

Our brainstorming process involved weekly team discussions, flow charting on collaborative platforms like Miro and Figma, and peer feedback loops. The goal was to identify critical features and pain points, and then prioritize them into milestones.

### **Key Brainstormed Areas:**

#### **Frontend Ideas**

- Minimalistic UI using Tailwind CSS
- React Router for seamless navigation
- Toast notifications for alerts
- Role-based UI (User/Admin)

#### **Backend Features**

- JWT authentication (access & refresh tokens)
- RESTful APIs for CRUD operations

- Email integration using Nodemailer
- Secure password handling with bcrypt

#### User Features

- Register/Login
- Product filtering & sorting
- Shopping cart with quantity control
- Checkout & order history
- Wishlist functionality (planned)
- Responsive mobile-first design

#### Admin Features

- Admin login and dashboard
- Add/Edit/Delete products
- Order fulfillment tracking
- View all users and manage access
- Analytics integration (planned)

#### Optional Enhancements Brainstormed

- Payment gateway integration (Stripe, Razorpay)
- Real-time order status updates
- Seller multi-tenancy for marketplace support
- Push/email notifications
- AI-driven product recommendations

#### Feature Prioritization Matrix:

Features were divided into **Must-Have**, **Nice-to-Have**, and **Future Scope**:

Priority	Feature
Must-Have	Product catalog, cart, orders, auth, admin
Nice-to-Have	Wishlist, search autocomplete
Future Scope	Payments, analytics, mobile app, ML recs

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## 2.4 Design Inspiration & Market Research

During ideation, we also conducted comparative research on successful platforms such as:

- **Amazon** – Comprehensive functionality, but too complex for small sellers.

- **Flipkart** – High scalability, but poor performance on budget devices.
- **Etsy** – Seller-centric but lacks modern UI flexibility.

This inspired us to take the "**best of all worlds**" approach:

- Clean, modern UI from Etsy
- Admin control panel like Amazon Seller Central
- Fast performance and responsiveness like Shopify Lite

We also gathered informal feedback from 10+ peer users who tested e-commerce sites on mobile. Their top concerns included:

- Confusing navigation
- Login issues
- Lack of cart persistence
- Poor product image display

These insights directly shaped decisions like persistent login via cookies, React context for cart state, and optimized image loading.

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## 2.5 Tools Used During Ideation

To make the ideation process efficient and trackable, we used:

Tool	Purpose
Google Docs	Collaborative feature listing
Figma	UI wireframes
Miro	Brainstorming and flowcharts
Trello	Task tracking & feature roadmap
Google Meet	Weekly team meetings

The entire ideation phase spanned over 2 weeks, with all ideas validated through consensus.

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## 2.6 Summary

The ideation phase for ShopEZ laid the strategic and creative groundwork for the rest of the development cycle. With clear user personas in mind, informed by empathy mapping and user interviews, we were able to brainstorm features that solved real problems while maintaining a balance between development feasibility and innovation.

Through brainstorming, market analysis, and collaborative design, we generated a strong foundation that supports not only the current version of ShopEZ but also its future roadmap. This phase ensured that the platform is not just functional, but meaningful to the users it aims to serve.

