**Phase 1 – Problem Understanding & Industry Analysis**

**1. Requirement Gathering**

👉 Goal: Understand what each stakeholder needs from the system.

**Customers:** Browse products easily with categories, search, and filters.

Add products to cart, checkout securely, and track orders.

**Sellers/Admins:** Add, edit, and delete product listings.

Manage orders, update stock, and process returns.

**Delivery Partners**: Access order dispatch details and update delivery status.

**Platform Owners:** Monitor transactions, customer engagement, and sales performance.

Ensure security, reliability, and smooth integration with payments.

**2. Stakeholder Analysis**

👉 Goal: Identify roles and responsibilities in the ecosystem.

**Primary Stakeholders:**

**Customers** → End users who buy products.

**Admins** → Manage product inventory, user accounts, and reports.

**Sellers** → Add/update product details and handle stock.

**Secondary Stakeholders:**

**Payment Gateway Providers** → Enable online transactions.

**Delivery Services** → Ensure products reach customers.

**Developers/IT Admins** → Maintain and enhance the platform.

**3. Business Process Mapping**

👉 Goal: Compare current manual process vs. platform-enabled process.

**Current (Manual/Traditional):**

Customers browse products in-store → limited selection.

Payment handled in cash/card only → no automation.

Order tracking manual → poor customer experience.

**Proposed (E-commerce Enabled with MERN):**

Customers browse products online 24/7 → unlimited catalog.

Online payments processed via secure gateway (Stripe/PayPal).

Automated order tracking and notifications via email/SMS.

Admin dashboards show real-time sales and stock levels.

**4. Industry-Specific Use Case Analysis**

👉 Goal: Benchmark against e-commerce best practices.

**Personalized Recommendations:**

Amazon/Flipkart use AI to suggest products.

Our platform can implement “related products” and “recently viewed” features.

**Customer Engagement:**

Many platforms send personalized emails/discounts.

Solution → Integrate coupon system and email notifications.

**Order Management:**

Best-in-class sites provide real-time tracking.

Solution → Order status updates integrated with delivery partners.

**5. Tech/Tool Exploration**

👉 Goal: Identify tools and services to reduce development effort.

Potential Tools & Services:

Authentication: JWT (JSON Web Token), Passport.js.

Database: MongoDB (local/Atlas).

Payments: Stripe / PayPal API.

UI Components: React + Tailwind CSS / Bootstrap.

Deployment: Vercel (frontend) + Render/Heroku (backend).

Monitoring: Postman (API testing), GitHub Actions (CI/CD).