Project Design Phase

Problem – Solution Fit

Date: 20 JULY 2025
Team ID: LTVIP2025TMID48243
Project Name: Shopmart
Maximum Marks: 2 Marks

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1. Problems Identified

Problem ID	Problem Description
P1	Small businesses lack access to secure and affordable e-commerce backend systems.
P2	Developers spend time reinventing standard product/order/user management logic.
P3	Role-based access control and feedback systems are often missing or hard to implement.
P4	Scaling and deploying backend services for e-commerce is often not beginner-friendly.

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2. Target Audience (Who is facing the problem?)

Stakeholder Type	Description
Developers	Need a reusable, secure backend with built-in CRUD operations.
Small Business Owners	Seek affordable backend systems without vendor lock-in or high cost.
Students	Want real-world backend architecture experience with authentication and role handling.
Educators	Require practical backend templates to teach scalable system design.

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3. Existing Alternatives

Alternative	Drawback
Hosted Platforms (e.g., Shopify, Wix)	Limited backend control and expensive for scaling.
Custom Development from Scratch	Time-consuming and repetitive for each project.
Basic CRUD Templates	Lack authentication, feedback handling, and scalability.

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4. Solution Offered (Shopmart)

Feature	How It Solves the Problem
User Authentication with JWT	Secures access and separates roles (admin/user).
Product & Order CRUD APIs	Modular, reusable endpoints for essential backend logic.
Feedback Management	Built-in feedback system for collecting user input.
MongoDB Integration	Lightweight NoSQL storage ideal for fast iteration and scaling.
Role-Based Middleware	Guards sensitive routes and separates privileges.
RESTful Architecture	Clean and scalable API design that integrates easily with any frontend.

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5. Unique Value Proposition

Shopmart provides a ready-to-use backend for e-commerce operations with clean API architecture, built-in authentication, product/order control, and user feedback—all deployable on Node.js with MongoDB. It is designed for students, small teams, and businesses who want a production-ready backend without starting from scratch.

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6. Adoption Triggers

Trigger	Explanation
Time Savings	Reduces weeks of setup time with pre-built modules.
Security	Offers authentication and role-based access control out of the box.
Flexibility	Easily extendable for new features or business logic.
Developer-Friendly	Minimal setup and full control over backend code.