THE YENEPOYA COLLEGE

LAPHUB – Laptop E-Commerce Website

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LAPHUB - Laptop E-Commerce Website

A modern full-stack e-commerce platform built with the MERN stack

What is LAPHUB?

LAPHUB is a comprehensive e-commerce platform specifically designed for buying and selling laptops online. The website delivers an intuitive and secure shopping experience, combining the best of modern web technologies.

Our platform features a powerful admin panel for inventory management, seamless order processing, and integrated payment gateway functionality through Razorpay. Built entirely on the MERN stack, LAPHUB provides a real-world shopping experience that mirrors industry-leading e-commerce solutions.

Project Objectives

Full-Stack Development

Build a complete laptop e-commerce website from the ground up using modern technologies

User-Friendly Experience

Deliver an intuitive interface with seamless navigation and responsive design

Secure Transactions

Implement secure payment processing and real-time order management systems

Practical Learning

Gain hands-on experience in full-stack web development with industry-standard tools

Technology Stack

Frontend Technologies

- **React.js** – Dynamic component-based UI
- **Tailwind CSS** – Modern utility-first styling
- **JWT Authentication** – Secure user sessions

Backend Technologies

- **Node.js** – JavaScript runtime environment
- **Express.js** – Web application framework
- **MongoDB** – NoSQL database solution
- **bcrypt** – Password hashing and security

Payment & Tools

- **Razorpay** – Payment gateway integration
- **VS Code** – Development environment
- **Git & GitHub** – Version control
- **Postman** – API testing platform
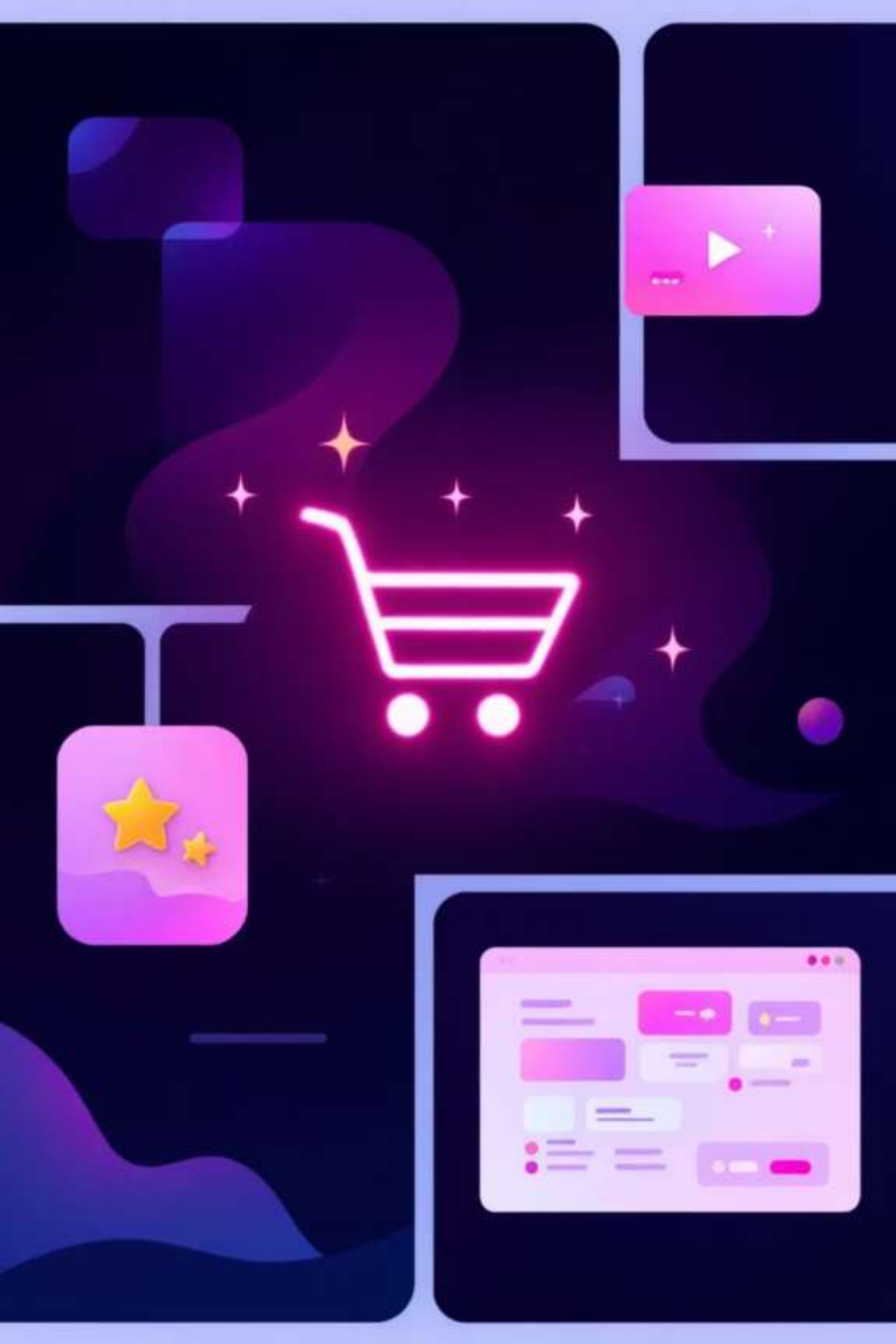
Key Features Overview

Authentication

Secure user registration, login, and profile management

Product Catalogue

Comprehensive laptop listings with detailed specifications and pricing

Shopping Cart

Add to cart, manage quantities, and seamless checkout process

Secure Payments

Integrated Razorpay for safe and reliable transactions

Additional features include order tracking, purchase history, comprehensive admin dashboard with analytics, and complete inventory management capabilities.

System Architecture Modules

01

User Module

Manages authentication, user profiles, registration, login functionality, and order tracking capabilities for customers

02

Product Module

Controls laptop listings, detailed specifications, pricing information, product images, and inventory levels

03

Cart Module

Enables users to add or remove laptops, update quantities, and proceed to secure checkout

04

Order Module

Handles order placement, status tracking, order history, and real-time updates throughout the purchase journey

05

Payment Module

Processes secure Razorpay transactions, handles payment verification, and manages transaction records

06

Admin Module

Comprehensive dashboard for managing users, orders, products, inventory control, and business analytics

Platform Showcase

These screens demonstrate the complete user journey—from browsing and authentication through to purchase completion—alongside powerful administrative tools for business management and analytics.

LOGIN PAGE AND SIGNUP PAGE

Platform Showcase

HOME AND SHOP PAGE
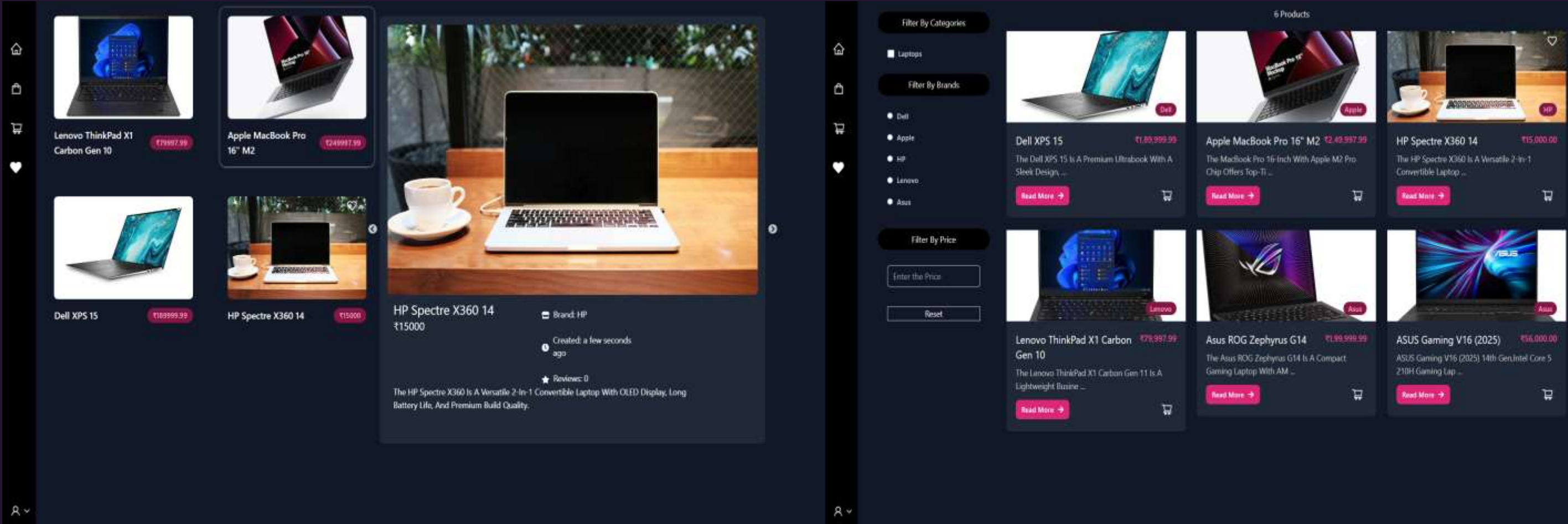
Platform Showcase

CART AND ORDERS PAGE
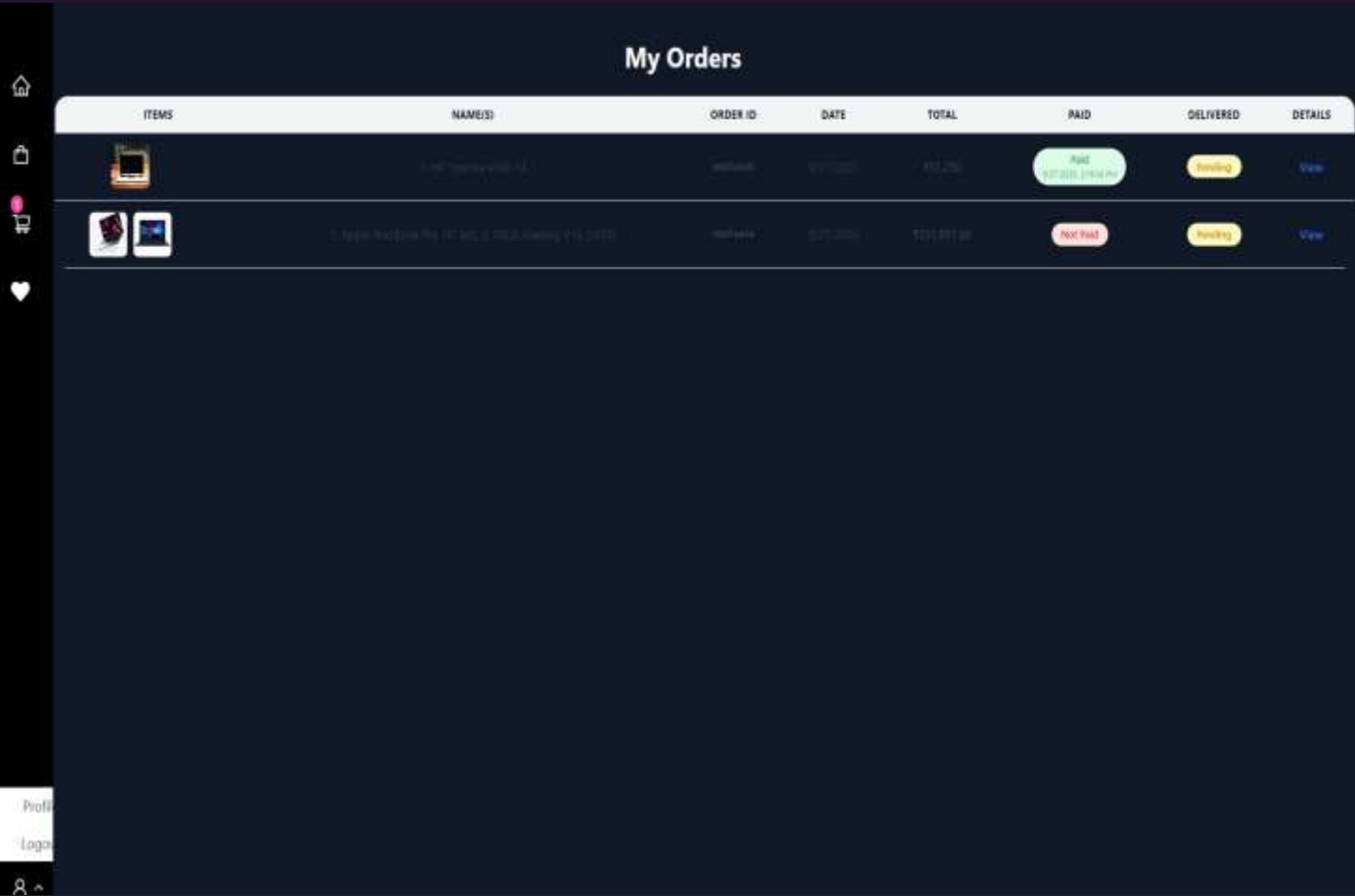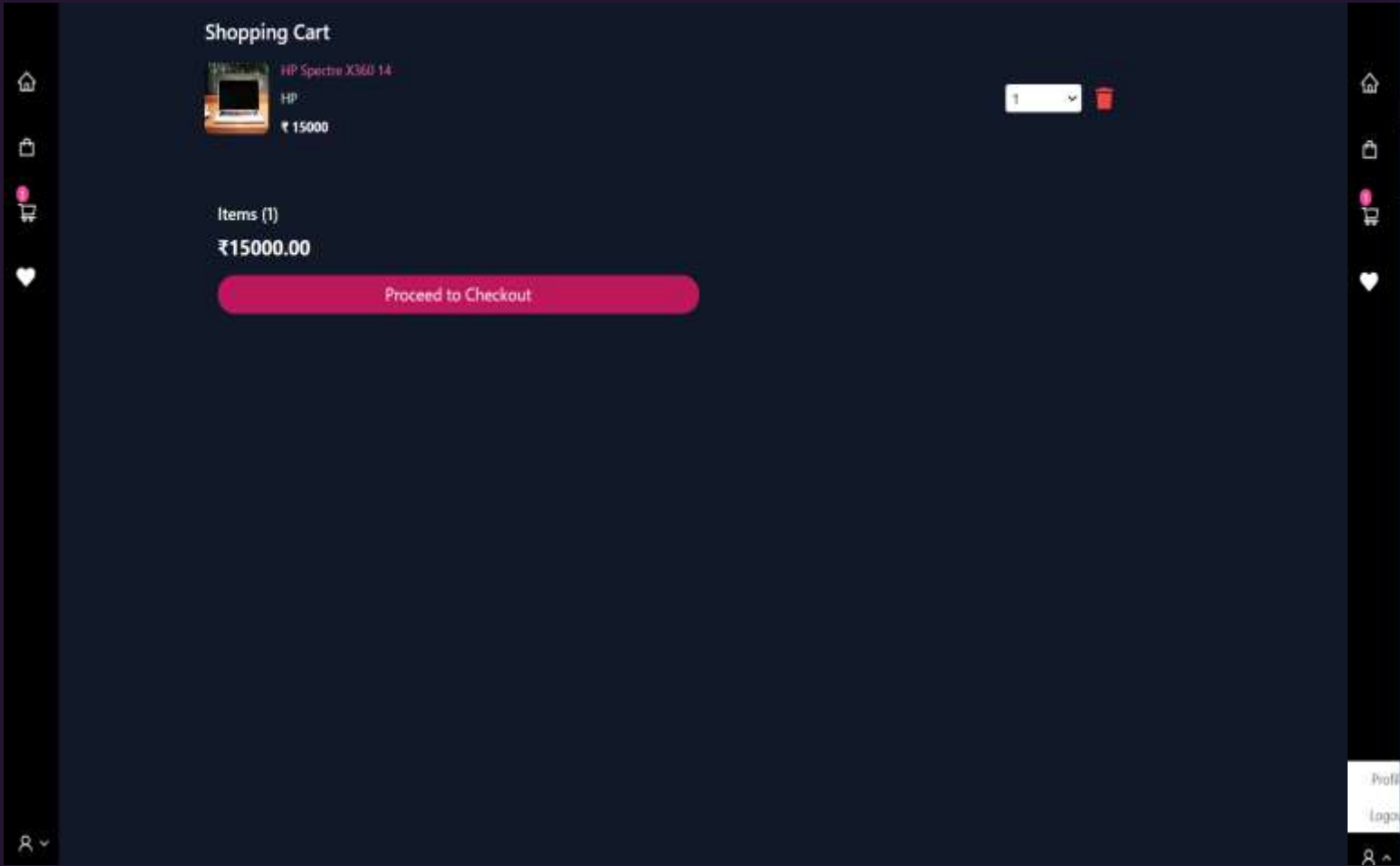
Platform Showcase

Checkout and payment
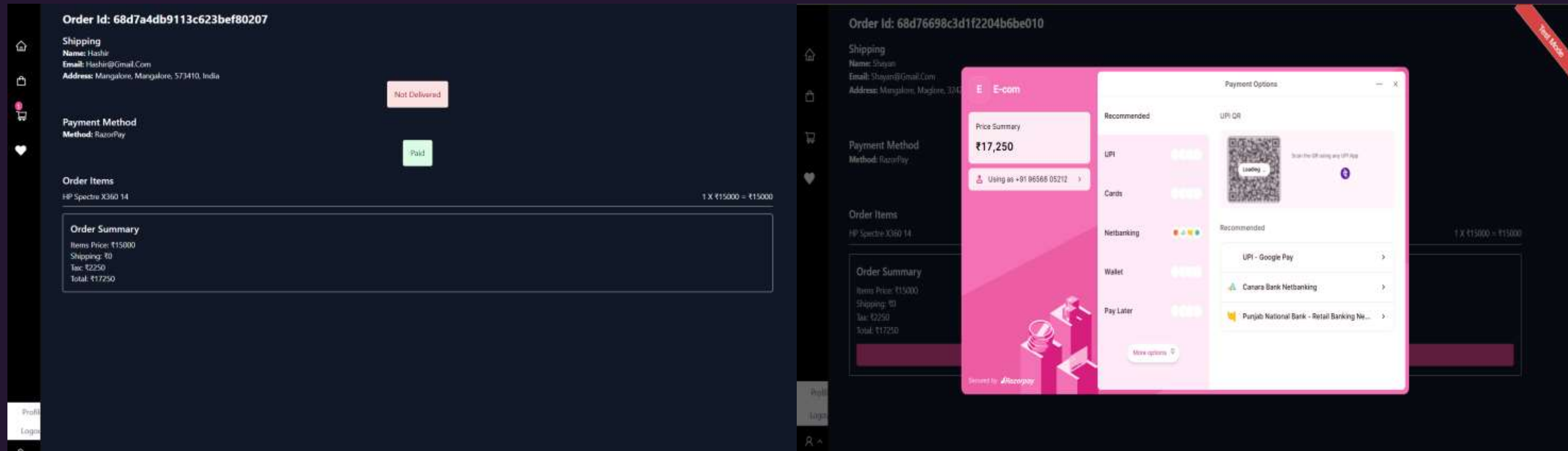
# Platform Showcase

ADMIN - DASHBOARD AND ADD PRODUCT

Platform Showcase

ADMIN — ORDERS AND USERS

Development Challenges

Payment Gateway Integration

Successfully integrating and thoroughly testing the Razorpay payment gateway required careful attention to security protocols and transaction workflows

State Management

Maintaining consistent state synchronisation between the React frontend and Node.js backend presented complex data flow challenges

Image Handling

Efficiently managing product images, optimising uploads, and ensuring fast load times required strategic implementation

Responsive Design

Building a consistent and responsive UI across all devices using Tailwind CSS demanded careful attention to breakpoints and layouts

Role-Based Access

Implementing secure authentication and authorisation to distinguish between admin and user privileges was crucial for system integrity

Future Enhancements

Enhanced Features

Add product reviews, ratings, and laptop comparison tools to help customers make informed decisions

Promotional System

Implement discount coupons, seasonal offers, and loyalty programmes to increase customer engagement

Payment Expansion

Integrate additional payment methods including Stripe, PayPal, and digital wallets for greater flexibility

Cloud Deployment

Deploy to production platforms such as Render, Vercel, or AWS for public accessibility and scalability

AI-Powered Analytics

Enhance dashboard with artificial intelligence-based insights for sales forecasting and customer behaviour analysis

THANK YOU