RefinedTech: Secure Multi-User eCommerce Platform for Tech

A Smart Marketplace for Buying & Selling Used Electronics

Project Overview & Team

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Course: CSE 3100 - Software Development-IV

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Core Features & Functionality

Multi-Role Authentication

Buyers (instant), Sellers (admin approval), Admins (access code).

Advanced Product Management

40+ attributes, condition verification (Like-new, Excellent, Good, Fair).

Smart Shopping Experience

Cart, wishlist, AI recommendations, advanced filtering.

Secure Communication

Buyer-seller messaging for product inquiries.

Order Management

Complete order lifecycle with status tracking.

Admin Dashboard

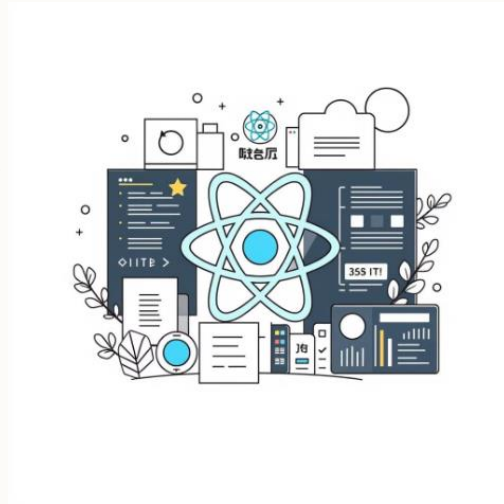User approval, access code, platform monitoring.

Security Features

Document verification, fraud detection.
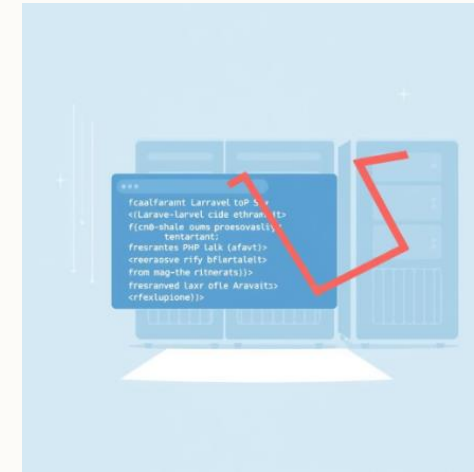
Technology Stack

Frontend

- React 18 with JavaScript
- Vite for build tooling
- Framer Motion & GSAP for animations
- Custom CSS with responsive design

Backend

- Laravel 12 with PHP 8.2
- Laravel Sanctum for authentication
- RESTful API
  architecture (50+ endpoints)
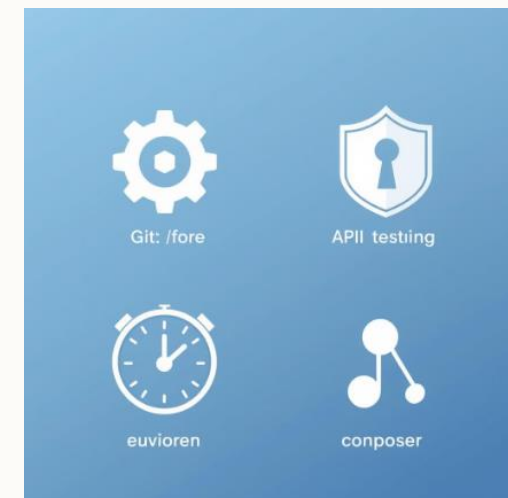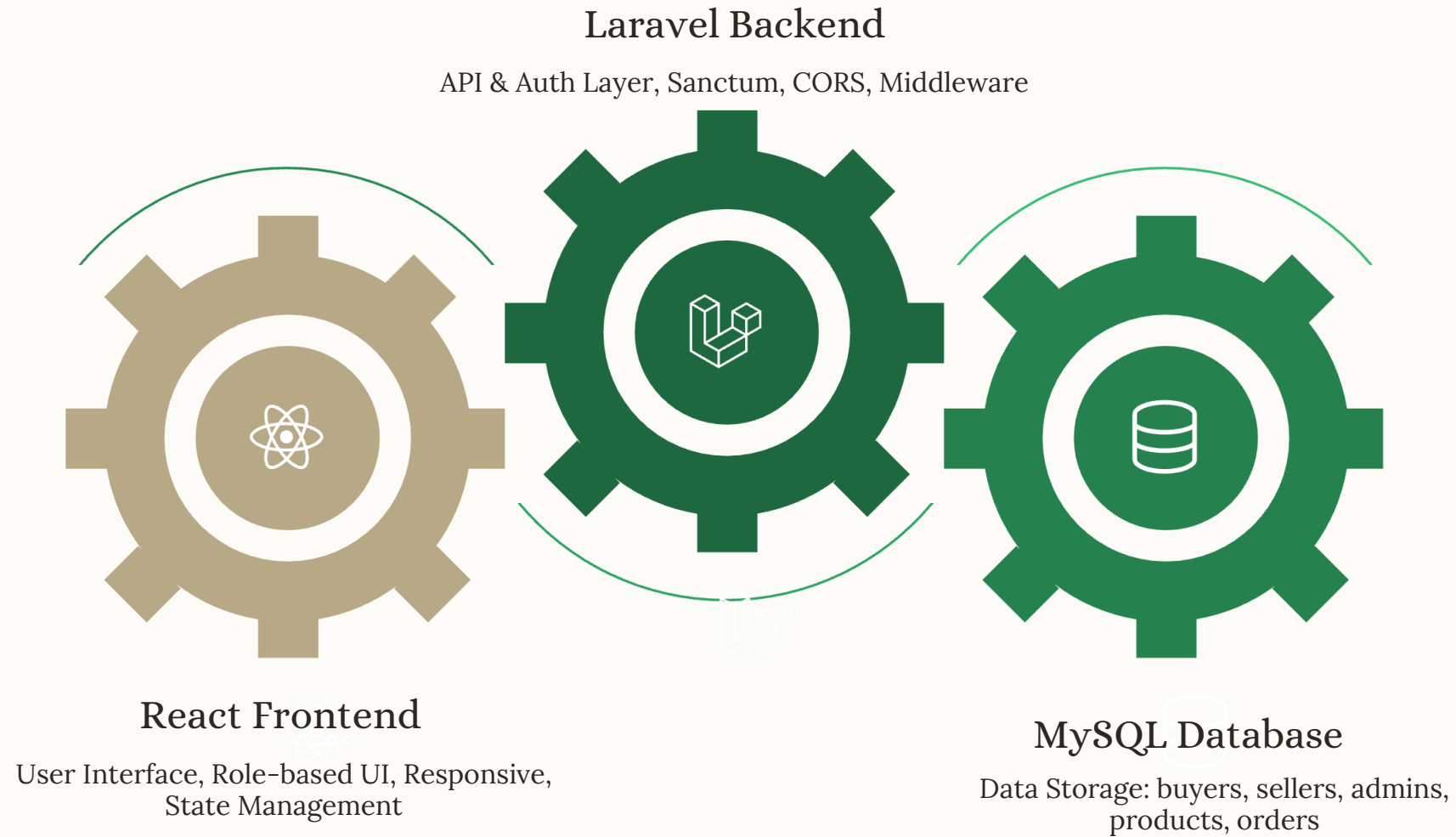- Multi-guard authentication system

Database

- MySQL with optimized schema
- Separate tables for user roles
- 20+ database tables with relationships

Development Tools

- Composer & NPM package managers
- Git version control
- Thunder Client for API testing
- WakaTime for productivity tracking

System Architecture Overview

Laravel Backend

API & Auth Layer, Sanctum, CORS, Middleware

React Frontend

User Interface, Role-based UI, Responsive, State Management

MySQL Database

Data Storage: buyers, sellers, admins, products, orders

Key Components

- Multi-table authentication system
- Role-based access control
- RESTful API design
- Secure file upload handling

Technical Achievements & Solutions

Challenge 1: Multi-Table Authentication

Problem: Separate user types (buyers, sellers, admins) needed distinct approval workflows.

Solution: Implemented Laravel Sanctum with custom multi-auth middleware supporting separate database tables.

Achievement: Seamless, permission-isolated authentication for all user roles.

Challenge 2: Hierarchical Admin Access

Problem: Required super admin and regular admin roles with controlled registration.

Solution: Created an access code system for secure admin onboarding.

Achievement: Secure, controlled admin onboarding with proper permission hierarchy.

Technical Pride Points

From Scratch Development	120+ Hours Invested
No pre-made templates used; pure custom build.	Dedicated development time tracked for efficiency.
Comprehensive API Testing	Modern UI/UX
Detailed documentation ensures reliability.	Responsive design with smooth, engaging animations.

User Journey Overview

Buyer Journey

- Register → Instant approval
- Browse Products
- Add to Cart/Wishlist
- Secure Checkout
- Track Orders

Seller Journey

- Register with Documents
- Admin Approval
- List Products
- Manage Inventory
- Process Orders
- Communicate with Buyers

Admin Journey

- Register with Access Code
- Dashboard Access
- Approve/Reject Users
- Monitor Platform
- Generate Access Codes

These pathways highlight the distinct yet interconnected experiences within RefinedTech, demonstrating our multi-user design.

THANK YOU