

ProShop - Full Stack E-Commerce Documentation

ProShop is a robust, scalable, and feature-rich e-commerce ecosystem consisting of a high-performance backend, a modern analytical admin dashboard, and a cross-platform mobile application.

System Architecture

ProShop is architected as a decoupled system where each component serves a specific purpose:

1. **Backend API (proshop_backend_new)**: Built with Node.js and Express. It serves as the single source of truth for data, handles authentication via JWT, manages payments through Stripe/PayPal, and scales efficiently using MongoDB.
2. **Admin Dashboard (proshop_admin_new)**: A React-based web application (Vite-powered) that provides store managers with real-time analytics, product management tools, and order tracking.
3. **Mobile App (proshop_mobile)**: A Flutter-based native application for customers, offering a smooth shopping experience, secure checkout, and personalized features.

Technology Stack

1. Backend API

- * Runtime: Node.js
- * Framework: Express.js
- * Database: MongoDB (Mongoose)
- * Auth: JSON Web Tokens (JWT) & BCrypt
- * Security: Helmet, CORS, Rate Limiting
- * Utilities: Multer (Uploads), Compression, Morgan (Logging)

2. Admin Dashboard

- * Framework: React.js (Vite)
- * Styling: Vanilla CSS, Framer Motion (Animations)
- * Icons: Lucide React
- * Charts: Recharts, D3 Scale
- * Maps: React Leaflet
- * PDF Exports: jsPDF, AutoTable

3. Mobile application

- * Framework: Flutter (Dart)
- * State Management: Provider
- * Storage: Flutter Secure Storage, Shared Preferences
- * Payments: Flutter Stripe, Flutter PayPal Payment
- * Caching: Cached Network Image

Project Structure

```
```bash
/home/pro/projects/proshop/
proshop_backend_new/ # Node.js Server
 server/ # Core logic
 controllers/ # Request handlers
```

```
models/ # Mongoose schemas
routes/ # API endpoints
middleware/ # Auth & Error handling
proshop_admin_new/ # React Web App
src/
 components/ # Reusable UI elements
 pages/ # Dashboard, Products, Orders, etc.
 context/ # Auth & Theme state
proshop_mobile/ # Flutter App
lib/
 features/ # Screens & business logic
 providers/ # State management (Cart, Auth)
 models/ # Data structures

```

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## ## API Endpoints (Backend)

The backend provides a RESTful API for all resources.

### ### Products

- GET /api/products - Get all products (with pagination/search)
- GET /api/products/:id - Get single product details
- POST /api/products - Create a new product (Admin)
- PATCH /api/products/:id - Update a product (Admin)
- DELETE /api/products/:id - Delete a product (Admin)
- POST /api/products/:id/reviews - Add a customer review

### ### Users & Auth

- POST /api/users/login - Authenticate user & get token
- POST /api/users/register - Create a new account
- GET /api/users/profile - Get current user profile
- GET /api/users - Get all users (Admin)

### ### Orders

- POST /api/orders - Create a new order
- GET /api/orders/:id - Get order by ID
- PATCH /api/orders/:id/pay - Update order to paid
- GET /api/orders/myorders - Get logged-in user's orders

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## ## Admin Dashboard Features

The Admin Panel is designed for data-driven management:

- Analytical Dashboard: Visual representation of sales, revenue trends, and user growth using Recharts.
- Product Inventory: Full CRUD operations for products, categories, and inventory tracking.
- Order Management: Process orders, update shipping status, and view detailed invoices.
- Geospatial Insights: Interactive map showing customer distribution across the globe.
- PDF Reporting: Generate professional sales and performance reports with one click.

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## ## Mobile App Features

The customer-facing app focuses on speed and usability:

- Smooth Browsing: Highly optimized product listing with infinite scroll and fast image loading.
- Global Search: Find products quickly with filtered search.
- Secure Checkout: Seamless integration with Stripe and PayPal for global payments.
- Real-time Cart: Persistent shopping cart synced across devices.
- User Profile: Track orders, manage addresses, and view personal history.

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## ## Installation & Setup

### ### Prerequisites

- Node.js (v18+)
- Flutter SDK
- MongoDB Connection String

### ### Setup Steps

1. Clone the repo and navigate to the root.
2. Backend: cd proshop\_backend\_new && npm install. Create .env files. npm run dev.
3. Admin: cd proshop\_admin\_new && npm install && npm run dev.
4. Mobile: cd proshop\_mobile && flutter pub get && flutter run.

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