

Laravel E-Commerce Project with Role-Based Access Control (RBAC), RESTful API, and Advanced Features

Project Overview

This project is a comprehensive Laravel-based e-commerce platform that blends a traditional web interface with modern RESTful APIs. It supports role-based access, background job processing, live search, coupon systems, and a powerful cart system. It utilizes modern development practices including Event-Driven Architecture, Jobs & Queues, and third-party package integration to ensure scalability and maintainability.

Key Features

Authentication & Authorization

- JWT & Sanctum-based API Authentication for session-less, secure access.
- Role-Based Access Control (RBAC) using Spatie Laravel Permission:
- Roles like super-admin, admin, and user with customizable permissions.
- Middleware protections: role: and permission: for route-level access control.

E-Commerce Functionalities

- Product Management
 - ❖ Admins can create, update, and delete products
 - ❖ Users can browse and view product details via slug.
- Cart System:
 - ❖ Implemented using Laravel **Shoppingcart package** for clean and extendable cart logic.
 - ❖ Features: add to cart, update quantities, remove items, move to 'save for later', restore to cart.
- Checkout & Order Flow
 - ❖ Supports both guest and authenticated checkouts.
 - ❖ Users receive an **email confirmation** after placing an order via a **queued job**.
 - ❖ Payment is integrated with ****Stripe**** and ****PayPal****, providing multiple secure checkout options.
- Order Management:
 - ❖ Authenticated users can view their own orders.
 - ❖ Admins have access to all orders with the ability to manage them.

Coupon System

- Users can apply and remove coupon codes at checkout.
- Coupon logic is dynamically recalculated based on cart updates using a **Listener** that reacts to cart events.
- This shows an **Event-Driven** Architecture, where the UpdateCoupon job recalculates discount based on real-time cart subtotal.

Search and Filtering

- Real-time, instant search implemented using **Algolia and Laravel Scout**.
- Users get fast, indexed product search with typo-tolerance and filters.
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RESTful API Endpoints (Sample)

Endpoint	Method	Description
/api/register	POST	User registration
/api/login	POST	User login & token issuance
/api/profile	GET	Authenticated user profile
/api/logout	POST	User logout (JWT/Sanctum)
/api/refresh	POST	Token refresh
/api/shop	GET	Product listing
/api/products/{slug}	GET	View single product
/api/product/search	GET	Instant search (Algolia)
/api/checkout	POST	Submit order
/api/cart/summary	POST	Cart preview info

Admin Panel (Web Interface)

- Secure dashboards for admin and super-admin roles.
- User Management with create/edit/delete functionality
- Order Overview with detailed order info and status controls.
- Product Management: Add/edit/delete with real-time feedback.

User Web Features

- View and edit user profile.
- Manage current and past orders.
- Responsive, interactive cart UI.
- Use discount coupons and promo codes.
- Enjoy smooth, reactive checkout UX
- Fast live search powered by Algolia

Technologies Used

Category	Stack / Package
Framework	Laravel 9+
Auth	Sanctum, JWT
Roles/Permissions	Spatie Laravel Permission
Cart	laravel-shoppingcart
Payments	laravel-stripe, srmklive/paypal
Jobs/Queues	Laravel Queue (used for sending order emails)
Search	Algolia + Laravel Scout
Events/Listeners	Event-driven coupon recalculation
Frontend	Blade, Bootstrap, jQuery
API Testing	Postman
Database	MySQL
Mail	SMTP driver via queued jobs