

E-Commerce Website - Complete Documentation

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Project Overview

What is this?

A full-featured e-commerce platform where customers can browse products, add to cart, checkout, and make purchases. Sellers can manage inventory, and admins can manage the entire platform.

Key Features

- **Product Catalog** - Browse products with filters, search, categories

- **Shopping Cart** - Add/remove items, quantity management
- **Checkout** - Shipping, taxes, order summary
- **Payment Processing** - Stripe/PayPal integration
- **Order Management** - Track orders, order history
- **User Accounts** - Registration, profile, wishlist
- **Reviews & Ratings** - Product ratings and customer reviews
- **Inventory Management** - Stock tracking, low stock alerts
- **Admin Dashboard** - Sales analytics, product management
- **Seller Dashboard** - Inventory, sales, analytics

Tech Stack (Recommended)

- **Frontend:** React + Next.js + Tailwind CSS
- **Backend:** FastAPI (Python) or Node.js/Express
- **Database:** PostgreSQL
- **Payment:** Stripe API / PayPal
- **Storage:** AWS S3 / Cloudinary
- **Caching:** Redis
- **Hosting:** Vercel (frontend), Railway/Render (backend)

Target Users

- Customers (browse and buy products)
 - Sellers (manage store and inventory)
 - Admins (manage platform)
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System Architecture

Architecture Overview

The system follows a three-tier architecture:

Presentation Layer (Frontend)

- React application for customer-facing website
- Admin dashboard for platform management
- Seller dashboard for inventory and sales management
- Responsive design for mobile and desktop

Application Layer (Backend)

- REST API built with FastAPI or Express
- Handles all business logic
- Manages authentication and authorization
- Processes payments and orders

Data Layer (Database)

- PostgreSQL for relational data
- Redis for caching and sessions
- AWS S3 for image storage

Data Flow

1. User interacts with frontend (React)
2. Frontend makes API calls to backend

3. Backend validates data and enforces business logic
4. Backend queries database and returns results
5. Frontend displays data to user

External Services

- **Stripe/PayPal:** Payment processing
 - **AWS S3:** Product image storage
 - **Email Service:** Order confirmations, notifications
 - **SMS Service (optional):** Order updates via SMS
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Database Schema

Core Tables

Users Table

- Stores customer, seller, and admin accounts
- Fields: email, password, first name, last name, phone, profile picture, role (customer/seller/admin)
- For sellers: seller name, description, rating
- Tracks: email verification status, active status, creation date

Categories Table

- Organizes products into categories
- Supports parent-child relationships (subcategories)
- Fields: name, slug, description, icon/image
- Tracks hierarchy and visibility

Products Table

- Core product information
- Fields: name, description, price, discount %, stock quantity, SKU
- Links to seller and category
- Tracks: rating (aggregate), review count, availability status
- Image references (multiple images per product)

Product Images Table

- Stores multiple images per product
- Fields: image URL, alt text, display order
- One primary image for catalog display

Cart Table

- Temporary storage of items user wants to buy
- Links user to product with quantity
- One entry per user-product combination
- Tracks when item added and last updated

Orders Table

- Final order record after checkout
- Fields: order number, user reference, total amount, status
- Stores: subtotal, tax, shipping, discount breakdown
- Payment information: method, status (paid/unpaid), tracking
- Address references (shipping and billing)

Order Items Table

- Line items in each order
- Links order to products purchased
- Stores: quantity, price at time of purchase (price may change)
- Seller reference (for multi-vendor tracking)

Reviews Table

- Customer feedback on products
- Fields: rating (1-5), title, comment, verified purchase flag
- Tracks helpfulness voting
- Links to user and product

Wishlist Table

- Users' favorite products for future purchase
- Tracks items saved by each user
- Date added for analytics

Addresses Table

- Stores multiple addresses per user
- Supports both shipping and billing addresses
- Fields: street, city, state, zip, country
- Marks default addresses for quick checkout

Payments Table

- Records payment transactions

- Links to orders
- Stores: payment method, transaction ID, amount, status
- Tracks refunds and payment history

Inventory/Stock Transactions Table

- Audit trail of stock changes
 - Why stock changed (sale, return, restock, adjustment)
 - Before/after quantities
 - Seller reference (for seller-specific tracking)
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Module Breakdown

Module 1: Authentication & User Management

Purpose: Handle user registration, login, account management

Key Features:

- User registration with email verification
- Login with JWT tokens
- Password reset functionality
- Profile management (update name, phone, picture)
- Role-based access (customer, seller, admin)
- Account security (change password, 2FA optional)

User Workflows:

- New user registration → email verification → login
- Existing user login → dashboard redirect
- Seller signup → additional seller info → approval
- Admin assignment → special permissions

Database Relationships:

- Users table is the central hub
 - Users linked to: orders, reviews, cart, wishlist, products (for sellers), addresses
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Module 2: Product Management

Purpose: Manage product catalog and inventory

Key Features:

- Create/update/delete products (sellers)
- Bulk product upload
- Product categorization and subcategories
- Pricing and discount management
- Stock tracking with low-stock alerts
- Product status (active, inactive, discontinued)
- Variant support (size, color, etc - optional)
- Product search and filtering

Seller Capabilities:

- Add new products with descriptions and images

- Set pricing and manage discounts
- Monitor stock levels
- Upload multiple images
- Manage product visibility

Admin Capabilities:

- Approve/reject products
- Set commission rates
- Monitor all products
- Handle disputes

Database Relationships:

- Products → Categories (many-to-one)
 - Products → Users/Sellers (many-to-one)
 - Products → Images (one-to-many)
 - Products → Inventory/Stock (one-to-one tracking)
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Module 3: Shopping Cart & Wishlist

Purpose: Manage items user wants to buy or save for later

Key Features:

- Add products to cart with quantity
- Update quantity or remove items
- Cart persistence (saved across sessions)

- Wishlist functionality (save for later)
- Cart sharing/recovery (if user loses session)
- Price recalculation based on current prices
- Out-of-stock detection before checkout
- Cart preview/mini cart in header

Cart Logic:

- Check product availability before adding
- Prevent duplicate entries (increment quantity instead)
- Allow quantity changes with stock validation
- Empty cart after successful checkout
- Cart expiration (optional - clear old carts)

Wishlist Features:

- Save products for future purchase
- Share wishlist with others
- Move items from wishlist to cart
- Receive notifications for price drops

Database Relationships:

- Cart → Users (one-to-many)
 - Cart → Products (many-to-one)
 - Wishlist → Users (one-to-many)
 - Wishlist → Products (many-to-one)
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Module 4: Checkout & Orders

Purpose: Handle order creation and management

Key Features:

- Shopping cart review
- Shipping address entry/selection
- Billing address (same as shipping or different)
- Shipping method selection with costs
- Tax calculation based on location
- Order summary with breakdown
- Order confirmation with order number
- Order tracking and status updates
- Order cancellation (if not shipped)
- Return/refund request workflow

Checkout Process:

1. Review cart items and prices
2. Enter or select shipping address
3. Select shipping method (standard, express, etc)
4. Review tax and final total
5. Enter payment information
6. Process payment
7. Create order record
8. Send confirmation email

Order Statuses:

- Pending: Awaiting payment confirmation
- Confirmed: Payment received, preparing to ship
- Shipped: In transit with tracking number
- Delivered: Received by customer
- Cancelled: Order cancelled by user or admin
- Refunded: Refund processed

Database Relationships:

- Orders → Users (many-to-one)
 - Orders → Addresses (many-to-one, for shipping and billing)
 - Orders → Payments (one-to-one)
 - Orders → Order Items (one-to-many)
 - Order Items → Products (many-to-one)
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Module 5: Payment Processing

Purpose: Handle payment transactions securely

Key Features:

- Stripe integration (card payments)
- PayPal integration
- Support for multiple currencies
- PCI compliance (outsource to payment provider)
- Payment validation

- Refund processing
- Failed payment handling and retries
- Payment confirmation and receipts
- Webhook handling (payment status updates)

Payment Flow:

1. User enters payment details in frontend
2. Frontend sends to payment provider (Stripe/PayPal)
3. Payment provider returns token/authorization
4. Backend validates token with payment provider
5. Backend creates payment record
6. Backend initiates order fulfillment
7. Send payment confirmation email

Security Measures:

- Never handle raw card details on backend
- Use payment provider's tokenization
- Validate all payments on backend
- Store payment method details securely
- Implement webhook verification

Database Relationships:

- Payments → Orders (one-to-one)
 - Payments → Users (many-to-one)
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Module 6: Reviews & Ratings

Purpose: Allow customers to review and rate products

Key Features:

- Submit product reviews with 1-5 star rating
- Verified purchase badge (only verified buyers can review)
- Helpful/unhelpful voting on reviews
- Admin moderation of reviews (remove inappropriate)
- Average rating calculation
- Review photos (optional)
- Review sorting (newest, most helpful, highest rated)
- Review filtering

Review Data:

- Rating (1-5 stars)
- Title and comment
- Verification that user purchased product
- Helpful/unhelpful count
- Creation date

Moderation:

- Flag inappropriate reviews
- Admin review and approve/reject
- Remove spam or fake reviews

- Block users with multiple rejected reviews

Analytics:

- Average rating per product
- Review count per product
- Rating distribution (how many 5-star, 4-star, etc)
- Most helpful reviews featured

Database Relationships:

- Reviews → Products (many-to-one)
 - Reviews → Users (many-to-one)
 - Reviews → Orders (to verify purchase)
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Module 7: Admin Dashboard

Purpose: Platform management and analytics

Key Features:

- Sales dashboard with total revenue, order count
- Product management (approve, reject, suspend)
- User management (customers, sellers, admins)
- Order management (view all orders, manage refunds)
- Category management
- Commission/payment management for sellers
- Analytics and reports

- Seller verification and approval
- Dispute resolution
- System settings and configuration

Admin Views:

- Dashboard: KPIs and quick stats
- Orders: All orders with filtering and search
- Products: Approve/reject seller products
- Users: Manage customers and sellers
- Sellers: Verify, approve, set commission rates
- Categories: Add, edit, organize
- Reports: Sales, inventory, customer data
- Settings: Tax rates, shipping methods, fees

Key Metrics:

- Total revenue
 - Order count (today, month, year)
 - New users
 - Product count
 - Seller count
 - Inventory status
 - Return/refund rate
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Module 8: Seller Dashboard

Purpose: Allow sellers to manage their products and sales

Key Features:

- Product inventory management
- Sales analytics and reporting
- Order fulfillment
- Review management
- Customer communication
- Payout management
- Performance metrics

Seller Views:

- Dashboard: Sales summary, pending orders
- Products: Add, edit, delete products
- Orders: View orders to fulfill
- Reviews: Respond to customer reviews
- Analytics: Sales trends, top products
- Settings: Store profile, payment info

Seller Capabilities:

- Manage products (CRUD)
- Track inventory
- View orders assigned to them
- See customer reviews and respond

- Access sales analytics
 - Manage payouts/bank details
 - View performance metrics (rating, response time)
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Module 9: Notifications & Email

Purpose: Keep users informed about orders and platform updates

Key Features:

- Order confirmation emails
- Shipping notifications with tracking
- Delivery confirmation
- Review request emails
- Password reset emails
- Promotional emails (opt-in)
- Push notifications (optional)
- In-app notifications

Email Triggers:

- User registration confirmation
- Password reset request
- Order confirmation
- Order shipped (with tracking)
- Order delivered
- Review reminder

- Review response notification
- Promotional emails

Notification Types:

- Transactional (order updates, password reset)
- Promotional (sales, new products)
- System (maintenance, updates)

Preferences:

- Users can opt-in/opt-out of email types
 - Frequency preferences
 - Channel preferences (email, SMS, push)
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Module 10: Search & Filtering

Purpose: Help users find products easily

Key Features:

- Full-text product search
- Filter by category, price range, rating
- Sort by relevance, price, newest, popularity
- Faceted search (multiple filters)
- Search suggestions and auto-complete
- Search history (optional)
- Advanced search filters

- Product comparison

Search Functionality:

- Search by product name, description, SKU
- Instant results with pagination
- Highlight matching keywords
- Typo tolerance (did you mean)

Filtering Options:

- Category (hierarchical)
- Price range slider
- Rating (3+ stars, 4+ stars, etc)
- Availability (in stock, out of stock)
- Brand/Seller
- Color, size, other variants
- New/Sale items

Performance:

- Use search index (Elasticsearch optional)
- Cache popular searches
- Pagination for large result sets

Module 11: Analytics & Reporting

Purpose: Provide insights into business performance

Admin Analytics:

- Total sales and revenue
- Order trends (daily, monthly, yearly)
- Top selling products
- Top sellers
- Customer acquisition cost
- Conversion rate
- Average order value
- Return rate
- Product performance

Seller Analytics:

- Their sales and revenue
- Order count and trends
- Top products
- Customer reviews and ratings
- Refund/return rate

Customer Analytics:

- Browse history
- Purchase history
- Favorite categories
- Saved items
- Personalized recommendations

API Endpoints

Authentication Endpoints

- Register new user with email verification
- Login with email and password
- Refresh authentication token
- Logout and session cleanup
- Password reset request
- Change password (authenticated users)
- Verify email address
- Update profile information

Product Endpoints

- Get all products with pagination
- Get product by ID with full details
- Search products by query
- Filter products by category, price, rating
- Get products by seller
- Get trending products
- Get featured products
- Create product (seller)
- Update product details (seller)
- Delete product (seller)

- Get product images
- Upload product image

Category Endpoints

- Get all categories
- Get category by ID
- Get products in category
- Get category hierarchy (parent-child)

Cart Endpoints

- Get current user's cart
- Add product to cart
- Remove product from cart
- Update item quantity in cart
- Clear entire cart
- Get cart summary (total, item count)
- Check product availability for cart items

Checkout Endpoints

- Validate cart before checkout
- Apply coupon/discount code
- Calculate shipping cost
- Calculate tax
- Get checkout summary
- Create order from cart

- Get order confirmation

Payment Endpoints

- Create payment intent (Stripe)
- Confirm payment
- Get payment status
- Process refund
- Get payment history

Order Endpoints

- Get user's orders
- Get order by ID with details
- Get order status
- Update order status (admin)
- Cancel order
- Request return/refund
- Track order with tracking number
- Get order invoice

Review Endpoints

- Get product reviews
- Create product review (verified buyers)
- Update own review
- Delete own review
- Vote review as helpful/unhelpful

- Get review statistics
- Admin: moderate reviews

Wishlist Endpoints

- Get user's wishlist
- Add product to wishlist
- Remove product from wishlist
- Move wishlist item to cart

User Endpoints

- Get user profile
- Update user profile
- Get user addresses
- Add address
- Update address
- Delete address
- Get user preferences
- Update notification preferences

Seller Endpoints

- Get seller profile
- Update seller profile
- Get seller products
- Get seller statistics
- Get seller orders

- Get seller reviews
- Get payout information
- Request payout

Admin Endpoints

- Get all orders
 - Get all products
 - Get all users
 - Get all sellers
 - Approve/reject products
 - Suspend/unsuspend user
 - Verify seller
 - Get analytics dashboard
 - Get sales reports
 - Manage categories
 - Set commission rates
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Frontend Components

Pages & Layouts

Home Page

- Hero banner with featured products
- Category showcase
- Best-selling products carousel

- New arrivals section
- Promotional banners
- Customer testimonials
- Newsletter subscription form

Product Listing Page

- Product grid/list view toggle
- Filter sidebar (category, price, rating)
- Sort dropdown (relevance, price, newest)
- Pagination
- Product cards with basic info
- Search bar
- Number of results display
- Active filters display

Product Detail Page

- Large product image with zoom
- Image gallery/thumbnail carousel
- Product name, price, discount
- Star rating and review count
- Stock availability indicator
- Add to cart button
- Add to wishlist button
- Product description
- Specifications table

- Customer reviews section
- Related products carousel
- Seller information

Shopping Cart Page

- Cart items list with product image, name, price
- Quantity selector for each item
- Remove item button
- Stock availability check
- Update cart button
- Cart summary: subtotal, tax, total
- Proceed to checkout button
- Continue shopping button
- Promotional code input

Checkout Page

- Multi-step form (address, shipping, payment)
- Shipping address: enter new or select existing
- Billing address: same as shipping toggle
- Shipping method selection with costs
- Order summary with item breakdown
- Tax calculation display
- Payment method selection (card, PayPal)
- Payment form
- Place order button

- Order confirmation message with order number

Order Confirmation Page

- Order number and date
- Order summary (items, quantities, prices)
- Shipping address
- Estimated delivery date
- Order status
- Continue shopping button
- Download invoice button

Order History Page

- List of user's orders
- Columns: order number, date, items, total, status
- Search orders by order number
- Filter by status
- Click to view details
- Cancel order button (if applicable)
- Track order button

Order Detail Page

- Order number, date, total
- List of items ordered
- Shipping address and method
- Expected delivery date

- Current order status with timeline
- Tracking number with link to carrier
- Contact seller button
- Return/refund request button
- Download invoice button

Product Reviews Page

- Sort reviews by helpful, recent, highest rated
- Filter by rating (5 stars, 4 stars, etc)
- Review cards: rating, title, comment, author, date
- Helpful/unhelpful voting buttons
- Write review button (if customer)
- Photo reviews display

User Account Page

- Profile information: name, email, phone
- Edit profile button
- Change password section
- Address book with add/edit/delete
- Wishlist items
- Notification preferences
- Account security settings

Wishlist Page

- Grid/list of saved items

- Product cards with price and availability
- Move to cart button
- Remove from wishlist button
- Share wishlist link
- Sort and filter options

Seller Dashboard

- Sales summary (total revenue, orders)
- Revenue chart
- Top selling products
- Pending orders list
- Recent reviews
- Navigation to product management, orders, reviews, analytics

Admin Dashboard

- Key metrics cards (revenue, orders, users, products)
- Sales trend chart
- Top products/sellers
- Recent orders
- Pending approvals
- System health status
- Navigation to all management sections

Common Components

Navbar

- Logo/brand link to home
- Search bar
- Category dropdown
- Cart icon with item count
- User account menu (login/register or profile)
- Wishlist icon
- Mobile hamburger menu

Footer

- Company information
- Quick links (categories, policies)
- Customer service links
- Newsletter signup
- Social media links
- Copyright and legal links
- Payment method icons

Product Card

- Product image
- Product name
- Price (with original price crossed out if discounted)
- Star rating and review count
- Quick view button
- Add to cart button
- Add to wishlist button

- Badge (new, sale, trending)

Filter Sidebar

- Category checkboxes
- Price range slider
- Rating filter (stars)
- Other filters based on category
- Apply/clear filters buttons
- Filter count badge

Pagination

- Previous/next buttons
- Page number buttons
- Jump to page input
- Items per page selector
- Current page indicator

Rating Stars

- 5-star visual display
- Show half-stars for decimals
- Click to rate (for reviews)
- Hover effect on interactive ratings
- Display average rating

Modal/Dialog

- Reusable modal for confirmations
- Add to cart confirmation
- Remove item confirmation
- Login required dialog
- Image zoom modal

Loading States

- Skeleton screens for product lists
- Spinner for async operations
- Progress bar for multi-step forms

Error Messages

- Toast notifications for errors and success
- Form validation messages
- Network error fallback
- 404/500 error pages

Buttons

- Primary button (add to cart, checkout)
 - Secondary button (cancel, continue shopping)
 - Danger button (delete, cancel order)
 - Button with loading state
 - Disabled button state
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Payment Integration

Stripe Integration

Payment Flow:

1. User enters payment details in checkout
2. Frontend creates payment intent with Stripe
3. Stripe returns client secret
4. Frontend confirms payment with user's card details
5. Stripe processes payment and returns status
6. Frontend sends order creation request to backend with payment confirmation
7. Backend verifies payment with Stripe
8. Backend creates order record
9. Order confirmation sent to user

Key Features:

- Supports card payments (credit, debit)
- 3D Secure for fraud prevention
- Recurring payments for subscriptions (if added later)
- Webhooks for payment status updates
- Refund processing
- Payment history tracking

Security:

- Never handle raw card details on backend
- Use Stripe elements for secure input

- Verify payments on backend using payment intent ID
- Implement webhook signature verification

PayPal Integration (Optional)

Alternative payment method:

- User is redirected to PayPal for authentication
 - PayPal returns authorization token
 - Backend exchanges token for payment confirmation
 - Order created upon successful payment
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Admin Dashboard

Key Sections

Dashboard Overview

- KPI cards with main metrics
- Revenue and order trend charts
- Top selling products widget
- Recent orders list
- Pending seller approvals

Order Management

- View all orders with filtering
- Order status management

- Order details view
- Refund/return processing
- Order search and export

Product Management

- View all products
- Approve/reject seller products
- Edit product details
- Manage product categories
- Suspend/activate products
- Bulk operations

User Management

- View all customers
- View all sellers
- Verify sellers
- Block/unblock users
- View user activity
- Manage user roles

Category Management

- Create, edit, delete categories
- Manage category hierarchy
- Feature categories
- Category ordering

Seller Management

- Verify and approve sellers
- Set commission rates
- Monitor seller performance
- Handle seller disputes
- Manage payouts

Analytics & Reports

- Sales reports by date range
- Product performance reports
- Seller performance reports
- Customer analytics
- Inventory reports
- Revenue by category
- Export reports

Settings

- Tax rate configuration
 - Shipping method setup
 - Commission rate settings
 - Payment method configuration
 - Email template setup
 - System notifications
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Security Considerations

Authentication & Authorization

- Use JWT tokens for API authentication
- Implement role-based access control (customer, seller, admin)
- Secure password hashing with bcrypt
- Email verification for new accounts
- Password reset with time-limited tokens
- Optional 2FA for admin accounts
- Session management and timeout

Payment Security

- Never store raw card details
- Use PCI-compliant payment processors (Stripe, PayPal)
- Validate all payments on backend
- Implement webhook signature verification
- Encrypt sensitive payment information
- Use HTTPS for all payment transactions

Data Protection

- Encrypt sensitive data (passwords, payment tokens)
- SQL injection prevention with parameterized queries
- XSS protection with input sanitization
- CSRF token protection on forms
- Rate limiting on API endpoints

- Input validation on all endpoints

Multi-Vendor Security

- Sellers can only modify their own products
- Sellers can only see their own orders and payouts
- Admins have access to all data
- Database-level access control

Infrastructure Security

- HTTPS/TLS for all communications
 - Environment variables for secrets
 - Database password rotation
 - Regular security audits
 - Backup and disaster recovery
 - Monitoring and logging
 - Firewall and DDoS protection
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Setup & Deployment

Backend Setup (FastAPI)

Local Development:

1. Create project directory and virtual environment
2. Install dependencies (FastAPI, SQLAlchemy, psycopg2, Stripe SDK, etc)

3. Create database and run migrations
4. Set up environment variables
5. Start development server with auto-reload
6. Test endpoints with Swagger UI

Database Setup:

1. Create PostgreSQL database
2. Create tables with proper relationships
3. Create indexes for performance
4. Set up backup strategy

Configuration:

- Environment variables for API keys (Stripe, AWS, email service)
- Database connection string
- CORS settings for frontend domain
- JWT secret key
- File upload configuration

Local Testing:

- Unit tests for business logic
- Integration tests for API endpoints
- Test with sample data

Frontend Setup (React/Next.js)

Local Development:

1. Create React project with Vite or Next.js
2. Install dependencies (Axios, React Router, Tailwind, etc)
3. Set up environment variables
4. Create folder structure
5. Start development server
6. Hot reload for development

Configuration:

- API base URL (environment variable)
- Stripe public key
- App name and branding
- Feature flags

Testing:

- Component tests
- Integration tests with mocked API
- E2E tests for critical flows

Deployment

Frontend (Vercel):

- Connect GitHub repository
- Set environment variables in Vercel
- Automatic deployment on push
- Custom domain configuration
- SSL certificate automatic

Backend (Railway/Render):

- Connect GitHub repository
- Create PostgreSQL database
- Set environment variables
- Automatic deployment on push
- Domain and SSL setup

Database (Cloud Provider):

- Use managed PostgreSQL service
- Configure backup and replication
- Set up monitoring
- Configure firewall rules

External Services:

- Stripe account setup
 - AWS S3 bucket for images
 - Email service (SendGrid, Gmail SMTP)
 - Domain registration and DNS
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Development Timeline

Week 1-2: Foundation

- Setup backend and database

- Setup frontend project
- Implement authentication module
- Create login/register pages

Week 3-4: Product & Catalog

- Build product management module
- Create product listing page
- Product detail page
- Search and filtering

Week 5-6: Shopping Cart & Checkout

- Implement cart module
- Build cart page
- Checkout flow
- Address management

Week 7-8: Payment & Orders

- Stripe integration
- Payment processing
- Order creation and confirmation
- Order management

Week 9-10: Reviews & Additional Features

- Reviews and ratings module
- Wishlist functionality

- Admin dashboard
- Seller dashboard

Week 11-12: Testing & Deployment

- Comprehensive testing
 - Bug fixes and optimization
 - Security audit
 - Deployment to production
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Success Metrics

- Page load time < 2 seconds
 - 99.9% payment success rate
 - Order fulfillment within 24 hours
 - Customer satisfaction > 4.5 stars
 - Zero critical security issues
 - Support response time < 24 hours
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This complete e-commerce documentation provides everything needed to build a professional, scalable online store.