

# Plan for a Simple E-commerce API

## 1) High-level responsibilities

- User registration and login (JWT-based auth)
- Product catalog (list, view, create, edit)
- Shopping cart per user
- Checkout flow with Stripe
- Order creation/history
- Inventory management
- Admin actions
- Webhook handling
- Logging & error handling

## 2) Core entities & data model

- User: id, email, password, role, timestamps
- Product: id, name, price, stock, description, images
- CartItem: id, user\_\_id, product\_\_id, quantity
- Order: id, user\_\_id, total, status, payment\_\_intent\_\_id
- OrderItem: id, order\_\_id, product\_\_id, quantity, price\_\_snapshot
- PaymentLog, WebhookLog

## 3) Authentication & Authorization

- JWT tokens
- Login/register/me endpoints
- Role-based access

## 4) Payment integration (Stripe)

- Create PaymentIntent
- Confirm via client\_\_secret
- Webhooks handle success/failure
- Idempotency
- Decrement inventory after payment

## 5) Inventory & concurrency

- Check stock before checkout
- Row-level locking or transaction safety

## 6) API endpoints

**Auth:** POST /auth/register

POST /auth/login

GET /auth/me

Products:

GET /products

GET /products/:id

POST /products

PUT /products/:id

**Cart:** GET /cart

POST /cart/items

PUT /cart/items/:id

DELETE /cart/items/:id

**Checkout/Orders:** POST /checkout

GET /orders

GET /orders/:id

**Webhooks:** POST /webhooks/stripe

## 7) Validation & errors

- Validate inputs
- Clear status codes
- Handle declines, invalid JWT, insufficient stock

## 8) Security basics

- Hash passwords
- JWT secret env var
- HTTPS

- Validate Stripe signatures
- Rate limiting

### **9) Dev tooling**

- Docker
- Postman
- dotenv
- Migrations
- Env vars: DB URL, JWT secret, Stripe keys, etc.

### **10) Testing**

- Unit tests
- Integration tests
- Stripe test mode

### **11) Logging/monitoring**

- Log requests/errors
- Webhook logs

### **12) Optional features**

- Search, filtering
- Image uploads
- Caching
- Email notifications

### **13) Milestones**

- A: Basic API + auth
- B: Orders + DB
- C: Stripe integration
- D: Tests/docs
- E: Deployment

#### **14) Documentation**

- README
- Postman collection
- Webhook payload samples

#### **15) Quick start checklist**

- Repo + README
- .env.example
- DB setup + migrations
- Auth endpoints
- Product endpoints
- Cart endpoints
- Checkout flow
- Webhook endpoint