

# **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