E-Commerce Backend Project (Daily Breakdown)

This document provides a day-by-day breakdown of the E-commerce backend project. Each day has a specific task to gradually build a production-ready system.

Day 1

Initialize NestJS project, configure PostgreSQL connection, setup environment variables.

Day 2

Implement User entity & migrations. Create registration endpoint with password hashing (bcrypt).

Day 3

Add login endpoint with JWT access & refresh tokens.

Day 4

Implement role-based authorization (admin, customer) using NestJS guards.

Day 5

Create Category entity & CRUD APIs.

Day 6

Create base Product entity with default fields (id, name, slug, description, price, stock, status).

Day 7

Extend Product with common fields: category relation, brand, sku, barcode, images.

Day 8

Add product attributes: weight, dimensions, tags, rating, created_at/updated_at.

Day 9

Implement advanced product types: variants (size, color, etc.).

Day 10

Implement group/bundle products (parent product with multiple children).

Day 11

Implement gift product logic (conditional free products).

Day 12

Add search, filtering, and pagination for product catalog.

Day 13

Create Cart entity and Cart_Items entity.

Day 14

Implement add/update/remove cart item APIs.

Day 15

Persist cart per user. Fetch cart with product details.

Day 16

Create Order entity & Order_Items entity. Implement order creation from cart.

Day 17

Implement order status workflow (pending $\rightarrow$ paid $\rightarrow$ shipped $\rightarrow$ delivered).

Day 18

Integrate Stripe sandbox: create payment intent & confirm payment.

Day 19

Handle Stripe callbacks (success/failure). Store transaction logs.

Day 20

Implement Transaction entity with payment details & metadata.

Day 21

Create Coupon entity & admin CRUD.

Day 22

Add coupon validation rules (expiration date, usage limits, min order value).

Day 23

Implement coupon application at product level (fixed & percentage discounts).

Day 24

Implement coupon application at order level (fixed & percentage discounts).

Day 25

Integrate coupon discount logic into checkout flow with Stripe.

Day 26

Add Redis caching for product listings & coupon lookups.

Day 27

Setup RabbitMQ/Kafka for background jobs (order confirmation emails).

Day 28

Implement file upload for product images (S3/Cloudinary).

Day 29

Add API rate limiting, input validation, and global error handling.

Day 30

Document APIs with Swagger. Dockerize app. Setup GitHub Actions CI/CD. Deploy to cloud. Final end-to-end testing.

■ Deliverable

A scalable, secure, and feature-rich E-commerce backend showcasing mid-level backend developer skills. The daily breakdown ensures continuous progress and clear milestones.