

# **Backend Engineering Fundamentals - 6 Week Intensive Course**

## **Week 6: Final Project Completion**

### E-Commerce Backend API - Complete Feature List

Core Features:

1. User Management
  - Registration, login, logout
  - Profile management
  - Password reset
  - Role-based access (Admin, Customer)
2. Product Management
  - CRUD operations (Admin only)
  - Product images upload
  - Categories and subcategories
  - Search and filtering
  - Pagination
  - Product reviews and ratings
3. Shopping Experience
  - Shopping cart (add, update, remove items)
  - Wishlist functionality
  - Order creation and management
  - Order history
  - Order status tracking
4. Admin Features
  - Dashboard statistics
  - User management
  - Order management
  - Inventory tracking

## 5. Advanced Features

- Product stock management
- Email notifications (order confirmation)
- Payment intent simulation (no actual payment processing)
- Search with filters (price range, category, rating)

## **Technical Requirements:**

- PostgreSQL database with proper relationships
- JWT authentication
- Input validation on all endpoints
- Comprehensive error handling
- Unit and integration tests (minimum 70% coverage)
- API documentation (Swagger/OpenAPI)
- Docker containerization
- Deployed to production
- Environment-based configuration
- Logging implemented

## Project Structure:

- ecommerce-api/
- └── app/
- |   └── \_\_init\_\_.py
- |   └── models/
- |   └── routes/
- |   └── schemas/
- |   └── utils/
- └── config.py
- └── tests/
- └── migrations/
- └── Dockerfile
- └── requirements.txt

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• └── .env.example  
└── README.md
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## Day 6: FINAL DEMO DAY

Demo Presentation Structure:

1. Project overview
2. Architecture explanation
3. Live API demonstration
  - User registration and authentication
  - Product browsing and search
  - Shopping cart operations
  - Order placement
  - Admin features
4. Code walkthrough of interesting features