

Backend Engineering Fundamentals - 6 Week Intensive Course

Week 5: Testing, Validation & Final Project Start

Learning Objectives

- Write unit and integration tests
- Understand test-driven development (TDD)
- Implement input validation and error handling
- Learn API documentation with Swagger/OpenAPI
- Begin final project architecture and planning

Resources

Videos:

- [Python Testing with Pytest](#) by ArjanCodes (40 mins)
- [Flask Testing Tutorial](#) by Pretty Printed (15 mins)

Text Resources:

- [Pytest Documentation](#)
- [Flask Testing](#)
- [Marshmallow for Validation](#)
- [Flask-RESTX Documentation](#)

Topics Covered

- Unit testing basics
- Integration testing
- Test fixtures and mocking
- Testing API endpoints
- Code coverage

- Input validation with Marshmallow
- Custom error handlers
- API documentation
- Logging and monitoring
- Project architecture patterns

Week 5 Activity: Final Project Planning & Initial Setup

Final Project: E-Commerce Backend API

You'll build a complete e-commerce platform backend that includes:

Planning & Setup

- Database schema design (Users, Products, Categories, Orders, Cart)
- API endpoint planning
- Project structure setup
- Initial models creation

Core Development

- User authentication system
- Product management (CRUD)
- Category management
- Shopping cart functionality
- Basic order creation

Deliverable by End of Week 5:

- Database models created
- User authentication working
- Product CRUD endpoints functional
- Basic tests written
- API documentation started