

Online Bookstore — MVP Specification

1. Business Requirements (10)

- 1 User accounts & roles — Customers register/login; admins manage catalog.
- 2 Browse & search catalog — Filter by title, author, category, price, rating.
- 3 Book details — Title, ISBN, author(s), price, stock, description.
- 4 Shopping cart — Add/update/remove items; cart persists.
- 5 Checkout & order placement — Convert cart to order; capture address/shipping.
- 6 Payment processing — Mock gateway; handle success/failure.
- 7 Inventory management — Decrement stock on orders; restore on cancellation.
- 8 Order tracking — Track statuses: PLACED → PAID → SHIPPED → DELIVERED.
- 9 Reviews & ratings — Purchasers can leave feedback.
- 10 Admin catalog management — CRUD books/authors/categories.

2. MVP Features (5)

- **User Registration & Login** — JWT auth, secure password, register/login endpoints.
- **Catalog Browse & Details** — Public endpoints to list/search/view books.
- **Shopping Cart** — Persisted cart linked to user; CRUD on items.
- **Checkout & Orders** — Transactional checkout; inventory & payment integration.
- **Admin Catalog Management** — Admin-only CRUD for catalog entities.

3. Data Model Summary

Entities: User, Address, Book, Author, Category, Cart, CartItem, Order, OrderItem, Payment.

Relations: User→Order (1–N), Order→OrderItem (1–N), Book↔Author (M–N), Book↔Category (M–N), User→Cart (1–1).

4. Cross-cutting Concerns

- @ControllerAdvice for validation and error mapping.
- @Transactional for checkout operations.
- AOP for service timing logs.
- Swagger/OpenAPI for documentation.

5. Example Endpoints

- POST /api/v1/auth/register
- POST /api/v1/auth/login
- GET /api/v1/books, GET /api/v1/books/{id}
- GET /api/v1/cart, POST /api/v1/cart/items
- POST /api/v1/orders/checkout, GET /api/v1/orders
- POST|PUT|DELETE /api/v1/admin/books/*