Objective:
Develop a Spring Boot application to manage products, users, and orders, including dynamic discount computation based on user type and order amount. Your implementation should demonstrate mastery of Spring Boot, REST APIs, persistence, testing, and clean architecture.

Requirements:

1. **Product Management**
   - CRUD operations for products (id, name, description, price, quantity, timestamps, soft delete)
   - Search/filter products by name, price range, and availability
2. **User Management**
   - Users have roles: USER, PREMIUM_USER, ADMIN
   - JWT-based authentication
   - Role-based access control:
     - ADMIN: full CRUD on products
     - USER/PREMIUM_USER: view products, place orders
3. **Order Management**
   - Place orders for multiple products
   - Validate stock; reject if insufficient
   - Decrease product inventory upon successful order
   - Each order includes items (productId, quantity, unitPrice, discountApplied, totalPrice) and orderTotal
   - **Discount Rules:**
     - USER: no discount
     - PREMIUM_USER: 10% off total order
     - Orders > $500: extra 5% discount for any user
   - Implement discount calculation dynamically using a suitable design pattern
4. **Technical Requirements**

   - Java 17+, Spring Boot 3+, Spring Web, Spring Data JPA, Spring Security, Validation
   - H2 or PostgreSQL; Flyway/Liquibase migrations
   - Unit & integration tests (JUnit 5, Mockito)
   - OpenAPI/Swagger documentation

5. **Bonus Features**
   - Docker/Docker Compose setup
   - Caching (e.g., Redis)
   - Pagination & sorting
   - Exception handling via @ControllerAdvice
   - Logging with SLF4J
   - Spring Actuator endpoints

Deliverables:

- Source code in a github repository
- README with setup instructions, design decisions, and API documentation
- Postman collection or HTTP request examples

Evaluation Criteria:

- Code quality, architecture, and design patterns
- Mastery of Spring Boot ecosystem
- Correctness and design of discount logic
- Testing coverage and quality
- API design and documentation
- Security and database migrations