

# Java Backend Developer Hiring Assignment

*Official Technical Evaluation Document*

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# 1. Problem Statement

Design a RESTful API solution around Products to perform full CRUD operations using Java and Spring Boot.

## 2. Technical Stack Requirements

- Java 17+
- Spring Boot
- Spring Data JPA (Hibernate)
- PostgreSQL or MySQL
- Spring Security with JWT & Refresh Token
- JUnit 5 & Mockito
- Swagger/OpenAPI Documentation
- Docker & Docker Compose

## 3. API Design Expectations

- Resource-oriented RESTful design.
- Consistent URL structure with API versioning (/api/v1/).
- JSON request and response format.
- Standardized error handling response.
- Pagination support for collection endpoints.

## 4. Endpoint Structure (Sample)

```
GET      /api/v1/products
GET      /api/v1/products/{id}
POST     /api/v1/products
PUT      /api/v1/products/{id}
DELETE   /api/v1/products/{id}
GET      /api/v1/products/{id}/items
```

## 5. Database Structure

```
CREATE TABLE product (
  id INT PRIMARY KEY AUTO_INCREMENT,
  product_name VARCHAR(255) NOT NULL,
  created_by VARCHAR(100) NOT NULL,
  created_on TIMESTAMP NOT NULL,
  modified_by VARCHAR(100),
```

```
        modified_on TIMESTAMP
    );

CREATE TABLE item (
    id INT PRIMARY KEY AUTO_INCREMENT,
    product_id INT NOT NULL,
    quantity INT NOT NULL,
    FOREIGN KEY (product_id) REFERENCES product(id)
);
```

## 6. Security & Performance Requirements

- JWT authentication with refresh token rotation.
- Role-based authorization.
- Input validation using Jakarta Validation.
- Database indexing strategy.
- Async processing where applicable.
- CORS configuration and HTTPS enforcement.

## 7. Testing Requirements

- Unit testing using JUnit 5 and Mockito.
- Integration testing using Spring Boot Test.
- Use H2 in-memory database for tests.
- Adequate test coverage for services and controllers.

## 8. GitHub Submission Instructions

- Create a new PUBLIC GitHub repository in your account.
- Push complete source code to that repository.
- Ensure README.md contains setup instructions and architecture explanation.
- Include Dockerfile and docker-compose.yml.
- Submit only the GitHub repository URL in the Google Form.
- Do NOT share ZIP files. Only GitHub repository URL is accepted.

## 9. Google Form Submission Details

After pushing the code to GitHub, submit the following details in the provided Google Form:

- Full Name
- Email Address
- Mobile Number

- Years of Experience
- GitHub Public Repository URL
- Time Taken to Complete Assignment

## **10. Evaluation Criteria**

- Code Structure & Clean Architecture
- REST API Design Quality
- Security Implementation
- Testing Coverage
- Documentation Quality
- Docker & Deployment Readiness