

SLIIT | Department of Computer Science & Software Engineering | Faculty of Computing

Module – Current Trends in Software Engineering (SE4010) | 2025 | Semester 1

DevOps Lab – 3

Building a Spring Boot Microservice with In-Memory Database & Swagger

Part 1 – Creating a Spring Boot Microservice

Objective: Create a simple RESTful microservice using Spring Boot.

Steps:

- 1 Go to Spring Initializr – <https://start.spring.io>
- 2 Project: Maven | Language: Java | Packaging: Jar
- 3 Group: com.sliit | Artifact: product-service
- 4 Add dependencies: Spring Web, Spring Data JPA, H2 Database, Springdoc OpenAPI UI
- 5 Generate and open the project in an IDE

Part 2 – Implementing REST APIs

Create a Product microservice with CRUD REST endpoints.

- 1 Create Product entity with id, name, and price
- 2 Create ProductRepository extending JpaRepository
- 3 Create ProductController
- 4 Implement POST, GET, GET by ID, and DELETE endpoints

Part 3 – Using an In-Memory Database (H2)

Use H2 database to persist data during runtime.

- 1 Configure H2 properties in application.properties
- 2 Enable H2 console
- 3 Run the application and access <http://localhost:8080/h2-console>
- 4 Verify table creation

Part 4 – Enabling Swagger (OpenAPI)

Expose API documentation using Swagger UI.

- 1 Add springdoc-openapi dependency
- 2 Start the application
- 3 Access Swagger UI at <http://localhost:8080/swagger-ui.html>
- 4 Test APIs using Swagger UI

Expected Outcome

Students will be able to build a Spring Boot microservice with REST APIs, use an in-memory database, and document APIs using Swagger.

Submission

Upload your entire project to **GitHub** and submit the **GitHub repository link** in a **.txt** file.

Rename the file using your **IT number**