Course : Spring 5: Developing enterprise apps

Practical course - 5d - 35h00 - Ref. SPG
Price : 2970 CHF E.T.

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(BEST)

🎯 Teaching objectives

At the end of the training, the participant will be able to:

- ✓ Understand the layers of an N-tier application.
- ✓ Create a REST and MVC web front-end
- ✓ Ensure the persistence of data
- ✓ Secure an application
- ✓ Understand the relationship between Spring and the Java EE APIs

Practical details

Hands-on work
A "common thread" exercise will accompany the training, each step of which will be validated by unit tests.

Course schedule

① The Spring container

- Essential components: core, data access, webmvc, webflux.
- Integration with other technologies.
- Deployment strategies.
- Beyond the Spring Framework.
- Development environment.
- Design practices.
- Spring in the Java EE ecosystem.
- Beyond Spring Framework: security, boot, data.

(2) Bean management with Spring Core

- Interceptors and aspect-oriented programming.
- Planned invocations. Profiles. Testing Spring beans.
- Caching and monitoring with JMX.
- Breakdown into layers, the POJO approach.
- State management Dependency injection.

Hands-on work
Creating an n-tier application with Spring Core.

(3) Access to data and transaction management

- Support for transactions within tests.
- Spring Data.
- Couplings with different technologies: JDBC, JPA, NoSQL.
- Transaction management.

Hands-on work
Implementation of a persistence layer with JPA and Spring.

(4) Packaging and deployment with Spring Boot

- Automatic configuration
- The execution environment.
- Packaging (jar, war, OCI image).
- Dependency management.
- Starters.
- Deployment.

Hands-on work
Create a Spring Boot deliverable from the previously created REST API.

(5) Spring Security

- Application security.
- Securing the routes.
- Choosing a user repository.
- Authentication modes (session, JWT)
- Hands-on work
- Create security for the web project.

Hands-on work
REST API: best practices.

(6) The basics of the HTTP protocol.

- Setting up a REST API.
- The Bean validation API.
- Exception management.
- Reactive programming with Spring Webflux.

Hands-on work
Develop a web façade that demonstrates the services described above, consumption of RESTful web services by an html/javascript client.

(7) Exchanging messages with Spring Websocket

- Theory, design patterns, the pub/sub principle.
- Overview of STOMP and SockJS.
- Support and fallback mechanisms.
- Server- and client-side implementation.

Hands-on work
Creating a publish/subscribe mechanism.

(8) Web HMI with Spring MVC

- Refresher on the MVC pattern.
- Views: model access, validation, internationalization, exception handling.
- Validation with the Bean validation API.

Hands-on work
Creating a web application demonstrating the business layer developed previously.

Dates and locations

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2026 : 23 Mar., 1 June, 1 June, 3 Aug., 3 Aug.,
12 Oct., 30 Nov., 30 Nov.