Java Spring Boot Development

Audience

This course is ideal for anyone who wants to know how to use Spring Boot to create sophisticated applications rapidly, according to best practices and contemporary enterprise application patterns.

Prerequisites

You should have at least 6 months experience with Java.

Familiarity with Spring Framework is beneficial.

Duration

5 days. Hands on.

Course Objectives

This course explains key structural concepts in Spring Boot, such as auto-configuration, profiles, and packaging. We take a detailed look at important Spring Boot APIs, including MVC, REST, Data, Messaging, and Integration. We also show how to create microservices and deploy them to the cloud.

During the course you will build a complete Spring Boot application from front to back, incorporating all the features covered in the course. This will help you understand how each ingredient fits into the bigger picture of the Spring Boot application landscape.

What you'll learn:

- Creating and configuring Spring Boot applications
- Understanding Spring Boot auto-configuration
- Creating Web applications

- Creating and consuming REST services
- Accessing SQL and NoSQL data sources
- Implementing Spring Boot messaging
- Microservices and Spring Cloud essentials
- Spring Boot testing
- Spring Boot security
- Spring Boot and containerization
- Spring Boot and microservices

Course Content

Introduction to Spring Boot
What is Spring Boot
Spring Boot vs. Spring Framework
Spring Boot features and benefits

Creating a Spring Boot Application
Using Spring Boot CLI
Using Maven and Gradle
Using Spring Initializr
IDE support
Understanding how Spring Boot applications work
Packaging options

Managing Beans and Dependency Injection
Defining components
Configuration classes
Beans
Dependency injection
Value injection and the Spring Expression Language

Spring Boot Auto-Configuration
What is auto-configuration
Understanding @EnableXxx annotations
Managing auto-configuration

Effective Spring Development
Property files and YAML files

Sources of external configuration
Spring profiles
Spring Boot Actuator
Spring Boot Admin

Creating Web Applications
Spring MVC essentials
Defining controllers and views
Managing forms
Additional techniques

Creating REST Services
REST essentials
Creating and consuming REST services
Managing links via HATEOAS and HAL
Supporting CORS
Integrating SPA technologies, e.g. Angular

Spring Cloud Microservices
Overview of microservices
Creating microservices with Spring Cloud
Microservice techniques

Spring Data
Using JDBC
Using JPA
Creating CRUD repositories
Dealing with NoSQL databases

Spring Messaging
Messaging essentials
Configuring queuing infrastructure
Sending and receiving messages
Using Spring Boot with Kafka

Spring Integration
Enterprise Application Integration
Using Spring Integration

Spring Integration channel interfaces and implementations
Examples of Spring Integration
Service activation
Integration options

Spring Boot Testing
Unit testing
Integration testing
UI testing

Spring Boot Security
Security essentials
Authentication and authorization techniques

Spring Boot and Containerization
Introduction to containerization and Docker
Understanding Docker images
A Closer look at images and containers
Containerizing a Spring Boot application
Automating Dockerization via Maven

Spring Boot and Microservices
Overview of microservices
A closer look at microservices and the cloud
Microservices in practice
Microservices applications example