

Spring: Core Training

Course Overview

This 4-day course offers hands-on experience with the major features of Spring and Spring Boot, which includes configuration, data access, REST, AOP, auto-configuration, actuator, security, and Spring testing framework to build enterprise and microservices applications. On completion, participants will have a foundation for creating enterprise and cloud-ready applications.

This course prepares students for the Spring Professional certification exam.

Course Objectives

By the end of the course, you should be able to meet the following objectives:

- Spring configuration using Java Configuration and Annotations
- Aspect oriented programming with Spring
- Testing Spring applications using JUnit 5
- Spring Data Access - JDBC, JPA and Spring Data
- Spring Transaction Management
- Simplifying application development with Spring Boot
- Spring Boot auto-configuration, starters and properties
- Build a simple REST application using Spring Boot, embedded Web Server and fat JARs or classic WARs
- Implementing REST client applications using RestTemplate
- Utilize Spring Boot enhancements to testing
- Spring Security
- Enable and extend metrics and monitoring capabilities using Spring Boot actuator

Target Audience

Application developers who want to increase their understanding of Spring and Spring Boot with hands-on experience and a focus on fundamentals.

Prerequisites

Some developer experience using Java, an IDE (Eclipse, STS or IntelliJ) and build tools such as Maven or Gradle

Course Delivery Options

- Classroom
- Live Online
- [Private Training](#)
- [On Demand](#)

Course Modules

1 Spring Overview

- What is the Spring Framework?
- The DI Container
- The Spring Framework History and EcoSystem

2 Java Configuration

- Java configuration and the Spring application context
- @Configuration and @Bean annotations
- @Import: working with multiple configuration files
- Defining bean scopes
- Launching a Spring Application and obtaining Beans

3 More Java Configuration

- External properties & Property sources
- Environment abstraction
- Using bean profiles
- Spring Expression Language (SpEL)

4 Annotation and Component Scanning

- Component scanning
- Autowiring using @Autowired
- Java configuration versus annotations, mixing.
- Lifecycle annotations: @PostConstruct and @PreDestroy
- Stereotypes and meta-annotations

5 Inside the Spring Container

- The Spring Bean Lifecycle
- The BeanFactoryPostProcessor interception point
- The BeanPostProcessor interception point
- Spring Bean Proxies
- @Bean method return types

6 Introducing Aspect-oriented programming

- What problems does AOP solve?
- Defining pointcut expressions
- Implementing various types of advice

7 Testing a Spring-based Application

- Spring and Test-Driven Development
- Spring 5 integration testing with JUnit 5

- Application context caching and the @DirtiesContext annotation
- Profile selection with @ActiveProfiles
- Easy test data setup with @Sql

8 JDBC Simplification with JdbcTemplate

- How Spring integrates with existing data access technologies
- Spring's JdbcTemplate
- DataAccessException hierarchy

9 Transaction Management with Spring

- Transaction overview
- Transaction management with Spring
- Transaction propagation and rollback rules
- Transactions and integration testing

10 Spring Boot Feature Introduction

- Introduction to Spring Boot Features
- Value Proposition of Spring Boot
- Creating a simple Boot application using Spring Initializer website

11 Spring Boot – A closer look

- Dependency management using Spring Boot starters
- How auto-configuration works
- Configuration properties
- Overriding auto-configuration
- Using CommandLineRunner

12 Spring Boot – Spring Data JPA

- Quick introduction to ORM with JPA
- Benefits of using Spring with JPA
- JPA configuration in Spring
- Configuring Spring JPA using Spring Boot
- Spring Data JPA dynamic repositories

13 Web Applications with Spring Boot

- Introduction to Spring MVC and request processing
- Controller method signatures
- Using @Controller, @RestController and @GetMapping annotations
- Configuring Spring MVC with Spring Boot
- Spring Boot packaging options, JAR or WAR



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14 RESful Application with Spring Boot

- An introduction to the REST architectural style
- Controlling HTTP response codes with @ResponseStatus
- Implementing REST with Spring MVC, @RequestMapping, @RequestBody and @ResponseBody
- Spring MVC's HttpMessageConverters and automatic content negotiation

15 Spring Boot Testing

- Spring Boot testing overview
- Integration testing using @SpringBootTest
- Web slice testing with MockMvc framework
- Slices to test different layers of the application

16 Securing REST Application with Spring Security

- What problems does Spring Security solve?
- Configuring authentication
- Implementing authorization by intercepting URLs
- Authorization at the Java method level
- Understanding the Spring Security filter chain
- Spring security testing

17 Actuators, Metrics and Health Indicators

- Exposing Spring Boot Actuator endpoints
- Custom Metrics
- Health Indicators
- Creating custom Health Indicators
- External monitoring systems

Contact

If you have questions or need help registering for this course, click [here](#).



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