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

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
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.