Enterprise Computing Solutions - Education Services

TRAINING OFFERING

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VMware Spring: Core Training

CODE:	LENGTH:	PRICE:
VMW_SCT	32 Hours (4 days)	£2,810.00

Description

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.

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 and WebClient
- • Spring Security
- • Enable and extend metrics and monitoring capabilities using Spring Boot actuator
- • Utilize Spring Boot enhancements to testing

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

Programme

1 Introduction to Spring

- • 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

2 Spring JAVA Configuration: A Deeper Look

- • External properties & Property sources
- • Environment abstraction

- • Using bean profiles
- • Spring Expression Language (SpEL)

3 Annotation-based Dependency Injection

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

4 Factory Pattern in Spring

- • Using Spring FactoryBeans

5 Advanced Spring: How Does Spring Work Internally?

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

6 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 Data Accss and JDBC with Spring

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

9 Database Transactions with Spring

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

10 Spring Boot Introduction

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

11 Spring Boot Dependencies, Auto-configuration, and Runtime

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

12 JPA with Spring and Spring Data

- • 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 Spring MVC Architecture and Overview

- • 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 Rest with Spring MVC

- • 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 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

16 Actuators, Metrics and Health Indicators

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

17 Spring Boot Testing Enhancements

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

18 Spring Security Oauth (Optional Topic)

- • OAuth 2 Overview
- • Implementing OAuth 2 using Spring Security OAuth

19 Reactive Applications with Spring (Optional Topic)

- • Overview of Reactive Programming concepts
- • Reactive Programming support in Spring
- • Using Spring's reactive WebClient

Session Dates

On request. Please Contact Us

Additional Information

This training is also available as onsite training. Please contact us to find out more.