

pivotal.io

CORE SPRING

DATA SHEET

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Core Spring

COURSE OVERVIEW

**DELIVERY METHODS**

Core Spring is the four-day flagship Spring Framework training. In

• Instructor-led

• Live-online

• On-site training

this course, students build a Spring-powered Java application that demonstrates the Spring Framework and other Spring technologies like Spring Boot, Spring Data, AOP and Spring Security in an intensely productive, hands-on setting.

**COURSE DURATION**

Completion of this training entitles each student to receive a free

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Four days of instructor-led training

voucher to schedule an exam at a Pearson VUE Center to become

• 50% lecture, 50% hands-on lab

a Spring Certified Professional.

**TARGET AUDIENCE**

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Developers

• Architects

COURSE OBJECTIVES At the end of the training, you should have an understanding of Spring and associated technologies and be able to do the

**PREREQUISITES**

following:

Experience with developing applications using Java

• Use the Spring Framework to develop Java applications.

PRICING Please visit our website at pivotal.io/training

• Use dependency injection to set up and configure applications.

• Test Spring-based applications.

• Configure Spring applications using Java configuration, MORE INFORMATION

annotations, or XML. On-site training is also available for customers who prefer

• Use Spring Data JPA and JDBC to rapidly implement relational to bring a Pivotal Certified Instructor to their own facilities

database access. For additional information about on-site classes, including facility requirements, contact education@pivotal.io

• Use Spring support for transactions.

• Use aspect-oriented programming (AOP) to declaratively add behavior to applications.

• Develop a basic Web application with Spring MVC.

• Use Spring Security to secure Web applications.

• Use Spring to easily build REST web services.

• Use Spring to easily work with messaging APIs such as JMS.

• Take the Spring Boot shortcut to productivity



**CORE SPRING**

COURSE MODULES

**1. INTRODUCTION TO SPRING**

• Java configuration and the Spring application context

• @Configuration and @Bean annotations

• @Import: working with multiple configuration files

• Launching a Spring Application and obtaining Beans

**2. SPRING JAVA CONFIGURATION: A DEEPER**

**LOOK**

• External properties & Property sources

• Environment abstraction

• Bean scope, bean profiles

• How it Works: Inheritance based proxies

**3. ANNOTATION-BASED DEPENDENCY**

**INJECTION**

• Autowiring and component scanning

• Java configuration versus annotations, mixing.

• Lifecycle annotations: @PostConstruct and @PreDestroy

• Stereotypes and meta-annotations

**4. XML DEPENDENCY INJECTION**

• XML syntax, constructor & setter injection

• Resource prefixes

• Factory Bean / Factory Method

• Namespaces and best practices when using

• XML profile selection

• Working with a high number of configuration files

• Bean definition inheritance

**5. THE BEAN LIFECYCLE: HOW DOES SPRING**

**WORK INTERNALLY?**

• The init phase: available interceptors

• The init phase: what is the difference between XML, annotations and Java configuration?

• What happens during bean post processing

• The use and destruction phases

**6. TESTING A SPRING-BASED APPLICATION**

• Spring and Test Driven Development

• @ContextConfiguration and @RunWith annotations

• Application context caching and the @DirtiesContext annotation

• Profile selection with @ActiveProfiles

• Easy test data setup with @Sql

**7. ASPECT-ORIENTED PROGRAMMING**

• What problems does AOP solve?

• Differences between Spring AOP and AspectJ

• Defining pointcut expressions

• Implementing an advice: @Around, @Before, @After

**8. DATA ACCESS AND JDBC WITH SPRING**

• How Spring integrates with existing data access technologies

• DataAccessException hierarchy

• Implementing caching using @Cacheable

• jdbc namespace and Spring‘s JdbcTemplate

**9. DATABASE TRANSACTIONS WITH SPRING**

• @Transactional annotation

• Transactions configuration: XML versus annotations

• Isolation levels, transaction propagation and rollback rules

• Transactions and integration testing

• Should you use read-only transactions?

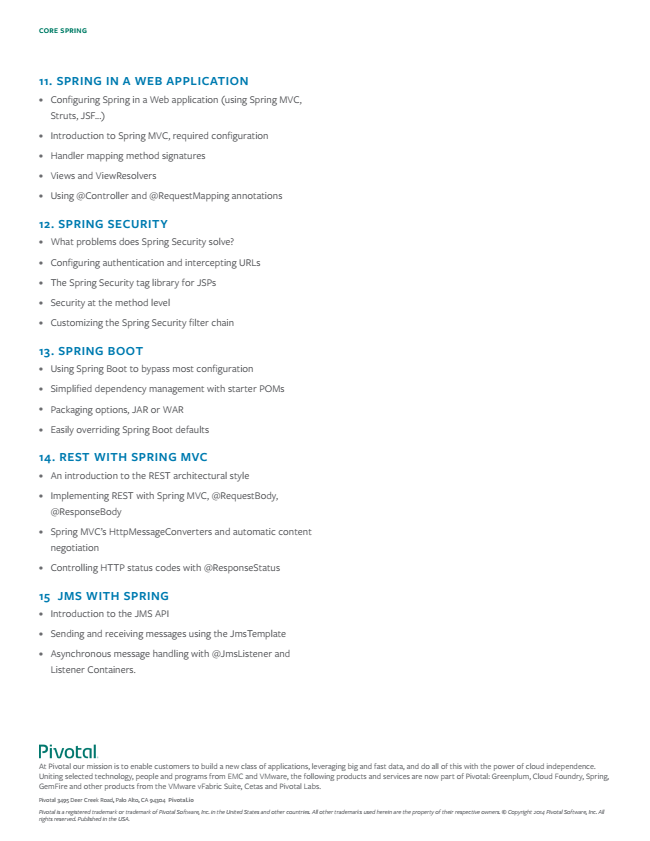
**10. JPA WITH SPRING AND SPRING DATA**

• Quick introduction to ORM with JPA

• Benefits of using Spring with JPA

• JPA configuration in Spring

• Spring Data JPA dynamic repositories



**CORE SPRING**

**11. SPRING IN A WEB APPLICATION**

• Configuring Spring in a Web application (using Spring MVC, Struts, JSF...)

• Introduction to Spring MVC, required configuration

• Handler mapping method signatures

• Views and ViewResolvers

• Using @Controller and @RequestMapping annotations

**12. SPRING SECURITY**

• What problems does Spring Security solve?

• Configuring authentication and intercepting URLs

• The Spring Security tag library for JSPs

• Security at the method level

• Customizing the Spring Security filter chain

**13. SPRING BOOT**

• Using Spring Boot to bypass most configuration

• Simplified dependency management with starter POMs

• Packaging options, JAR or WAR

• Easily overriding Spring Boot defaults

**14. REST WITH SPRING MVC**

• An introduction to the REST architectural style

• Implementing REST with Spring MVC, @RequestBody, @ResponseBody

• Spring MVC’s HttpMessageConverters and automatic content negotiation

• Controlling HTTP status codes with @ResponseStatus

**15 JMS WITH SPRING**

• Introduction to the JMS API

• Sending and receiving messages using the JmsTemplate

• Asynchronous message handling with @JmsListener and Listener Containers.

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