Core Spring Quick Start | Introduction Spring 6.x and Spring Boot - TT3320

Explore Spring Essentials: Foundation, Spring Boot, Spring REST, Spring AOP, Persistence & More

Duration: 2 Days
Skill Level: Introductory
Available Format: Instructor-Led Online; Instructor-Led, Onsite In Person ; Blended; On Public Schedule

Core Spring Quick Start: Introduction to Spring 5.x and Spring Boot 2.x is a hands-on Spring training course geared for experienced Java developers who need to understand what the Spring Framework is in terms of today's systems and architectures, and how to use Spring in conjunction with other technologies and frameworks. Students will gain hands-on experience working with Spring, using Maven for project and dependency management, and, optionally, a test-driven approach (using JUnit) to the labs in the course.

What You'll Learn

Overview

Core Spring QuickStart is a hands-on Spring training course geared for experienced Java developers who need to understand what the Spring Framework is in terms of today's systems and architectures, and how to use Spring in conjunction with other technologies and frameworks. Students will gain hands-on experience working with Spring, using Maven for project and dependency management, and, optionally, a test-driven approach (using JUnit) to the labs in the course.

The Spring framework is an application framework that provides a lightweight container that supports the creation of simple-to-complex components in a non-invasive fashion. Spring's flexibility and transparency is congruent and supportive of incremental development and testing. The framework's structure supports the layering of

functionality such as persistence, transactions, view-oriented frameworks, and enterprise systems and capabilities. This course targets Spring 5.x, which includes full support for Java SE 11 and Java EE 8. Spring supports the use of lambda expressions and method references in many of its APIs. Spring .x is fully compatible with the module path introduced in Java 9.

Spring makes enterprise development easier. Spring simplifies common tasks and encourages good design based on programming to interfaces. Spring makes your application easier to configure and reduces the need for many JEE design patterns. Spring puts the OO design back into your enterprise application, and it integrates nicely with many view technologies and the new features of HTML5.

Objectives

This course provides a solid understanding of what Spring brings to the table and how to use Spring in the context of other technologies and frameworks. Students are taken on an in-depth tour of the basic Spring framework, initially examining concepts such as Inversion of Control and Dependency Injection, and then working with the container and basic components. Students are introduced to Spring Boot and use Spring Boot throughout the course. The course then moves into the areas of persistence and transactions, looking at various options.

Working in a hands-on learning environment, led by our expert practitioner, you'll learn to:
- Explain the issues associated with complex frameworks such as JEE and how Spring addresses those issues
- Understand the relationships between Spring and JEE, AOP, IOC and JDBC.
- Write applications that take advantage of the Spring container and the declarative nature of assembling simple components into applications.
- Understand how to configure the Spring Boot framework
- Understand and work on integrating persistence into a Spring application
- Explain Spring's support for transactions and caching
- Work with Spring Boot to facilitate Spring setup and configuration
- Apply Aspect Oriented Programming (AOP) to Spring applications

Need different skills or topics? If your team requires different topics or tools, additional skills or custom approach, this course may be further adjusted to accommodate. We offer additional programming, Spring, Microservices, REST, Testing, Security and other related topics that may be blended with this course for a track that best suits your needs.

Audience

This class is geared for experienced Java developers who are new to Spring, who wish to understand how and when to use Spring in Java and JEE applications.

Pre-Requisites

This introduction to Spring development course requires that incoming students possess solid Java programming skills and practical hands-on Java experience.

TT2100	Core Java Programming Developer's Workshop
TT2120	Basic Java Programming for Developers New to OO (C, COBOL, etc.)
TT2104	Fast Track to Core Java Programming for OO Experienced Developers
TT2000	Getting Started with Programming, OO & Java Basics for Non-Developers

Agenda

Please note that this list of topics is based on our standard course offering, evolved from typical industry uses and trends. We will work with you to tune this course and level of coverage to target the skills you need most. Course agenda, topics and labs are subject to adjust during live delivery in response to student skill level, interests and participation.

Session: Introduction to Spring
Lesson: The Spring Framework

- Understand the value of Spring
- Explore Dependency Injection (DI) and Inversion of Control (IoC)
- Introduce different ways of configuring collaborators
- Spring as an Object Factory
- Initializing the Spring IoC Container
- Tutorial: Setup Eclipse for Using Maven

Lesson: Configuring Spring Managed Beans

- Introduce Java-based configuration
- The @Configuration and @Bean annotations
- Define bean dependencies
- Bootstrapping Java Config

- Context Injection in Configuration classes
- Using context Profiles
- Conditionally loading beans and configurations
- Bean Life-Cycle Methods
- Lab: Spring Java Config

Lesson: Defining Bean dependencies

- Introduce Spring annotations for defining dependencies
- Explore the @Autowired annotation
- Stereotype Annotations
- Qualifying injection points
- Lifecycle annotations
- Using properties in Java based configuration
- The @Value annotation
- Using the Candidate Components Index
- Lab: Configuring Bean Dependencies using Annotations
- Lab: Creating the Candidate Component Index

Lesson: Introduction to Spring Boot

- Introduce the basics of Spring Boot
- Explain auto-configuration
- Introduce the Spring Initializr application
- Bootstrapping a Spring Boot application
- Lab: Introduction to Spring using Spring Boot

Lesson: Working with Spring Boot

- Provide an overview of Spring Boot
- Introduce starter dependencies
- Introduce auto-configuration
- @Enable... annotations
- Conditional configuration
- Spring Boot Externalized Configuration
- Bootstrapping Spring Boot
- Lab: Create REST Repository using Spring Boot

Session: Spring AOP

Lesson: Introduction to Aspect Oriented Programming

- Aspect Oriented Programming

- Cross Cutting Concerns

Lesson: Spring AOP

- Spring AOP in a Nutshell
- @AspectJ support
- Spring AOP advice types
- AspectJ pointcut designators
- Lab: Spring AOP: Adding Interceptors

Session: Persistence in Spring

Lesson: Transaction Management in Spring

- Understand Transaction Demarcation within Spring
- Configure the PlatformTransactionmanager
- The @Transactional annotation

Lesson: Spring JDBC

- Understand an overview of Spring JDBC support
- Define DataSources
- Understand Spring's JDBC exceptions and the SQLExceptionTranslater
- Create JDBC DAOs
- Use the JdbcTemplate class
- Map rows to Objects using the JdbcTemplate
- Map data to Objects using SQL helper objects (operation classes)
- Lab: Using Spring JDBC

Additional Topics: Time Permitting

These topics will be included in your course materials but may or may not be presented during class delivery depending on the pace of the course.

Lesson: Spring Data Overview

- Spring Data Capabilities and Features
- Spring Data repositories
- The Repository interfaces
- Defining the JPA entity
- Persisting entities using Spring Data JPA
- Bootstrapping the Spring Data application
- Lab: Spring Data JPA Using Spring Boot
- Lab: Spring Data JPA (Without Spring Boot) (optional)

Related Courses

TT3335   Mastering Spring 5.x Developer Boot Camp

Student Materials & Lab Environment

All course software (limited versions, for course use only), digital courseware files or course notes, labs / data sets and solutions (as applicable) are provided for you in our "easy access / no install required" high-speed remote lab environment. Our tech team works with every student to ensure everyone is set up with working access and ready to go prior to every course start date, ensuring a smooth delivery and great hands-on experience. Please ask for details.

For More Information

Please contact us or call 844-475-4559 toll free for more information about our training services (instructor-led, self-paced or blended), coaching and mentoring services, public course enrollment or questions, partner programs, courseware licensing options and more.