

Mastering Spring 5.x Developer Boot Camp - TT3335

Explore Spring Essentials: Foundation, Spring Boot, Spring AOP, Spring Data & More

Duration: 4 Days

Skill Level: Introductory

Available Format: Instructor-Led Online; Instructor-Led, Onsite In Person ; Blended;
On Public Schedule

Spring Developer Boot Camp 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.

What You'll Learn

Overview

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 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.

Mastering Spring 5.x Developer Boot Camp 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. This leading-edge course provides added coverage of Spring's Aspect-Oriented Programming and the use of Spring Boot. Students will gain hands-on experience working with Spring, using Maven for project and dependency management.

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 remainder of the course. The latter part of the class looks at implementing REST with Spring and takes a deep dive into Spring Boot to prepare students for more extended Spring Boot usage.

This course combines engaging instructor-led presentations and useful demonstrations with valuable hands-on labs and engaging group activities. **Throughout the course you will learn how 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 ORM.
- 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
- Work with Spring Boot to facilitate Spring setup and configuration
- Apply Aspect Oriented Programming (AOP) to Spring applications
- Use Spring Data JPA to implement the persistence layer of an application
- Develop REST applications using Spring 5
- Work with Spring Boot to facilitate Spring setup and configuration

If your team requires different topics, additional skills or a custom approach, our team will collaborate with you to adjust the course to focus on your specific learning objectives and goals.

Audience

This course is geared for experienced Java developers new to Spring.

Pre-Requisites

Take Before: Students should have incoming practical skills aligned with those in the course(s) below, or should have attended the following course(s) as a pre-requisite:

- **TT2104:** Fast Track to Core Java Programming for OO Developers (C+, C#, etc.)
- TT2120 Basic Java Programming for Developers New to OO (C, COBOL, etc.)
- TT2104 Fast Track to Core Java Programming for OO Experienced Developers

Agenda

Session: Introduction to Spring

1. 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

2. 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

3. 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

4. Introduction to Spring Boot

- Introduce the basics of Spring Boot
- Explain auto-configuration
- Introduce the Spring Initializr application
- Bootstrapping a Spring Boot application

5. 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

Session: Spring AOP

6. Introduction to Aspect Oriented Programming

- Aspect Oriented Programming
- Cross Cutting Concerns
- Spring AOP
- Spring AOP in a Nutshell
- @AspectJ support
- Spring AOP advice types
- AspectJ pointcut designators

Session: Spring Data

8. 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

9. Spring Data Query Methods

- Querying data using Query methods
- Query builder mechanism
- Handling an Absence of Value
- Pagination and Ordering
- Asynchronous query methods
- Count and Delete Derived Query methods

10. Spring Data JPA Queries

- JPA named queries
- @Query and @NamedQuery annotations
- Defining Query parameters
- Executing native queries
- SpEL expressions in queries
- Managing the Persistence Context after updates

Session: Implementing REST with Spring

11. REST principles

- Introduce the six architectural constraints of REST
- Introduce Resources and Resource representations
- Best practices for defining Resource URIs

12. Introduction to RESTful Services in Spring

- Discuss the request-response cycle of REST requests
- Defining a REST Controller in Spring
- Explain the @ResponseBody annotation
- Define request mappings
- Use path variables

13. Introduction to REST Clients in Spring

- Introduce RestTemplate class
- Making GET, POST, PUT, HEAD, OPTIONS and DELETE requests
- Introduce the UriTemplate class

- Using HttpEntity and RequestEntity
- Use the exchange method to define 'complex' requests
- Process requests and responses using callback
- Configure the RestTemplate

14. Bootstrapping the REST application

- Describe steps needed to bootstrap Spring REST application
- Configure Content Representation libraries
- Configure Spring MVC and map the Dispatcher Servlet
- Explain the advantages of using Spring Boot to setup the REST project
- Setup a Spring REST application using Spring Boot

15. Content Representation

- Returning different media types from service
- Introduce negotiated resource representation
- Configure Message Converters

16. Implementing the REST Service

- Process for Spring REST Implementation
- The Domain object
- Using Project Lombok to define the domain object
- (Not) Using Data Transfer Objects
- ResponseEntity builder interfaces
- Setting Location header using UriComponentsBuilder

Session: Spring Boot 2

17. Spring Boot Actuator

- Understand Spring Boot Actuators
- Work with predefined Actuator endpoints
- Enabling Actuator endpoints
- Securing the Actuator

Bonus Topics: Time Permitting

These topics will be included in your course materials but may or may not be presented during the live class depending on the pace of the course and attendee skill level and participation.

18. Developing in Spring Boot

- Introduce Spring Boot Devtools
- Enable the ConditionEvaluationReport
- Debugging Spring Boot applications

19. Thymeleaf

- Provide a quick overview of Thymeleaf
- Introduce Thymeleaf templates
- Create and run a Spring Thymeleaf MVC application

Follow On Courses

TT3353 Introduction to Reactive Spring

Related Courses

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

Setup Made Simple! Learning Experience Platform (LXP)

All applicable course software, digital courseware files or course notes, labs, data sets and solutions, live coaching support channels, CodeCoach.AI anytime tutor access, and rich extended learning and post training resources are provided for you in our “easy access, single source, no install required” online remote lab and content environment. Access periods vary by course. We’ll collaborate with you to ensure your team is set up and ready to go well in advance of the class. Please inquire about set up details and options for your specific course of interest.

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.