

JVA-SB2 Introduction to Spring Boot 2

As the Spring framework has grown, creating and configuring Spring applications has become more and more complex. Spring Boot takes an “opinionated” view of an application (via intelligent defaults) that minimizes configuration and boilerplate Spring code. Spring Boot makes it easier to use Spring’s many frameworks and adds advanced capabilities such as health monitoring.

This course introduces Spring Boot from the ground up, including overviews of building blocks such as Spring Core (including usage of @Configuration) maven. It covers the key features and capabilities of Spring Boot and many important technologies such as database and Web server support.

This course covers Spring Boot 2 and Spring 5 - the current releases of these frameworks.

Prerequisites

- Java programming – **Course 103** is excellent preparation.
- Basic knowledge of XML

Learning Objectives

- Understand the core principles of Spring, and of Dependency Injection (DI) / Inversion of Control
- Use the Spring Core module and DI to configure and wire application objects (beans) together
- Know the different types of metadata (XML, annotations/@Component, and Java Configuration/@Configuration), and how and when to use them
- Understand and use the complete capabilities of the Core module, such as lifecycle events, bean scopes, and the Spring API
- Use Spring Boot to simplify dependency management and configuration
- Understand and use Boot’s auto-configuration
- Customize Boot’s behavior with properties and in other ways
- Work with the ORM (Object-Relational Mapping) module to integrate Spring with technologies such as JPA
- Use Spring Data to automatically generate JPA-based repository classes
- Understand and use Spring’s transaction support, including the easy-to-use Java annotation support
- Understand REST, and use Spring REST to build RESTful services
- Use Ajax-based front ends with Spring REST
- Use RestTemplate to create Java REST clients

IDE Support: Eclipse IDE

In addition to the primary lab files, an optional overlay is available that adds support for Eclipse Luna. Students can code, deploy, test, and debug all exercises from within the IDE.

Course Length: 5 days

Course Outline

Chapter 1. Overview of Spring

- Spring Overview
 - Dependency Injection
 - Spring Configuration (XML, @Component, and @Configuration)

Chapter 2. Introduction to Spring Boot

- Brief maven Overview
 - Intro to Spring Boot - What is Spring Boot and What It Does
 - Spring Boot Hello World / SpringApplication
 - Using SpringApplication, CommandLineRunner, ApplicationRunner

Chapter 3. Configuration and Customization

- Working with Properties - YAML and .properties
 - Logging and its Configuration
 - Spring TestContext Framework
 - Auto-configuration Overview
 - Customization

Chapter 4. Spring Boot Database Support

- Basic Auto-configuration - Datasource and Pooling
 - Configuration Properties
 - JPA Support
 - Overview of Spring Boot Data and Spring Boot Data JPA
 - Querying with Spring Boot Data

Chapter 5. Spring Boot Web/REST and Security

- DispatcherServlet Review
 - Web Starters and Configuration spring-boot-starter-web
 - Using Embedded Servers (Tomcat, Netty)
 - Deploying to an External Server
 - Spring Security Overview (Web)
 - spring-boot-starter-security - Auto-configuration and Customization
 - Spring Boot Data REST

Chapter 6. Actuator and Devtools:

- Actuator Overview and Capabilities
 - Actuator Endpoints
 - Custom Actuators and Health Checks
 - Overview of Spring Boot Devtools

Chapter 7. Spring Boot CLI

- Overview and Capabilities
 - Web App in a Tweet!
 - Installing and Running