# En-lighten Technology Ltd

## Spring Boot Development: Hands-On

### Overview

This course takes a detailed look at how to use Spring Boot to create sophisticated applications rapidly, according to best practices and contemporary enterprise application patterns including microservices. The course explains key structural concepts in Spring Boot, such as auto-configuration, profiles, and packaging. We take a detailed look at important Spring Boot APIs, including MVC, REST, Data, Reactive, and Messaging.

During the course you will build a complete Spring Boot application end-to-end, incorporating all the features covered in the course. This will help you understand how each API fits into the bigger picture of the Spring Boot application landscape.

### Attendees will learn

- Creating and configuring Spring Boot applications
- Understanding Spring Boot auto-configuration
- Creating Web applications
- Creating and consuming REST services
- Developing asynchronous services with reactive programming
- Accessing SQL and NoSQL data sources
- Implementing Spring Boot messaging
- Spring Boot security
- Spring Boot testing

### Audience and Recommended Background

The course is a hands-on course with lots of practical exercises. Attendees should have a good knowledge of standard Java.

### Course Approach

Taught material will be delivered in short sessions and will be followed by the opportunity to practice what has been taught and reflect on how to put it into practice.

### Course Duration: 4 days

### Course Content

**Introduction to Spring Boot**
- Introduction to Spring Boot
- What is Spring Boot
- Spring Boot features and benefits
- Understanding how Spring Boot applications work
- Packaging options

**Managing Beans and Dependency Injection:**
- Defining components

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- Configuration classes
- Beans
- Dependency injection
- Value injection and the Spring Expression Language

## Spring Boot Auto-Configuration
- What is auto-configuration?
- Component scanning
- Understanding `@EnableXxx` annotations
- Managing auto-configuration
- @PostConstruct and @PreDestroy

## Effective Spring Development
- Property files and YAML files
- Sources of external configuration
- Spring profiles
- Spring Boot Actuator
- Custom Metrics
- Health Indicators
- Spring Boot Admin

## Creating Web Applications
- Spring MVC essentials
- Defining controllers and views
- Managing forms
- Additional techniques

## Creating REST Services
- REST essentials
- Creating REST services
- Consuming REST services
- Message converters
- Supporting CORS

## Aspect Oriented Programming (AOP)
- Spring AOP architecture
- Defining pointcuts
- Defining Joinpoints
- Implementing advice and introductions

## Spring Data
- Using JDBC
- Using JPA
- Creating CRUD repositories
- Dealing with NoSQL databases
- Managing transactions

## Spring Messaging
- Messaging essentials
- Configuring queuing infrastructure

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- Sending and receiving messages
- Using Spring Boot and Kafka

**Spring Reactive**
- Reactive programming
- Project Reactor and Spring WebFlux
- Implementing a reactive data service
- Reactive business services
- Building reactive REST API's

**Spring Boot Security**
- Security essentials
- Authentication and authorization techniques
- Implementing OAuth2 security

**Spring Boot Testing**
- Unit testing components
- Integration testing support
- REST testing