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Spring Core Training

4 days (28 hours)

Presentation

Spring is a Java-based framework that provides a complete programming and configuration model for enterprise applications.

One of Spring's key elements is application-level infrastructure support: Spring focuses on the "plumbing" of enterprise applications so that teams can concentrate on business logic at the application level, without unnecessary ties to specific deployment environments.

Spring Core training covers both Spring fundamentals and new features such as reactive flows, Kubernetes integration and RSocket. During this 4-day training course, you'll put Spring into action by building, step by step, a complete web application on a database.

At the end of our Spring Core training course, you'll be able to develop Java applications using the Spring framework. You'll be able to improve the design and realization of software solutions, apply the SpEL expression language and acquire knowledge of constructor annotation.

As with all our training courses, this one will introduce you to the latest version of Spring Core (at the time of writing: Spring 5.3).

Objectives

- Developing Java applications with the Spring framework
- Understanding the challenges of modern applications
- Acquire knowledge of constructor annotation
- Improve the design and implementation of software solutions
- Control inversion and dependency injection
- Discover the Bean Factory and the bean lifecycle
- Master the SpEL language of expression

- Understand the Spring Core Framework, enabling you to easily excel in advanced Spring concepts

Target audience

- Java and Java EE developers
- Architects
- Project managers

Prerequisites

- Java experience
- Knowledge of build tools such as Maven or Gradle

Software requirements

- Java 11 minimum
- An IDE of your choice: Intellij, Netbeans, Eclipse, ...
- ALM: Maven or gradle
- And docker for testing database access (optional)

Spring Core training program

Challenges of modern applications

- Presentation of design problems
- Implementation of software applications

Design patterns

- Introduce design patterns that contribute to their resolution

Annotations

- Explanation of annotations
- Exploiting annotations throughout the software lifecycle

Container concept

- Improve the design and implementation of software solutions
- Transfer control of object lifecycles to a container

Control inversion and dependency injection

- Explanation of the principles of inversion of control
- Dependency injection
- Illustrate with examples

Application context and Bean Factory

- Introducing the objects at the heart of the IoC
- Its different configurations

Component life cycle

- Bean lifecycle overview
- Introduction to APIs for fine-tuned behavior management

Resource management

- Resource API presentation
- Manage different types of resources: access, loading, creation, etc.

Data management - validation, formatting and conversion

- Presentation of handling interfaces
- Data validation: Validation, BeanWrapper, PropertyEditor, Converter interfaces, etc.

SpEL

- Introducing the SPRING expression language
- Greater flexibility in application configuration

Aspect-oriented programming

- Introducing AspectJ
- Dynamically inject behavior at compile time or runtime
- Better capitalization of the code

Competition management

- Introduction to Java's competition and communication patterns
- Configuring Spring to manage thread pools

Spring and reactive programming

- Add more responsiveness to Spring applications

Tests

- Junit5 and Spring integration

Further information

Companies concerned

This course is aimed at both individuals and companies, large or small, wishing to train their teams in a new advanced computer technology, or to acquire specific business knowledge or modern methods.

Teaching methods

Practical course: 60% Practical, 40% Theory. Training material distributed in digital format to all participants.

Organization

The course alternates theoretical input from the trainer, supported by examples, with brainstorming sessions and group work.

Validation

At the end of the session, a multiple-choice questionnaire verifies the correct acquisition of skills.

Sanction

A certificate will be issued to each trainee who completes the course.