

Spring Boot 3 New Features

Duration: 1 Full Day

Course Outline:

Module 1: Introduction to Spring Boot 3

- **What's New in Spring Boot 3?**
 - Major version upgrade (Spring Boot 3.x is compatible with Spring Framework 6).
 - End of support for Java 8.
 - Spring Boot 3 is built on Spring Framework 6, which brings more features and improvements.
 - Native support for GraalVM-based native images.
 - New Jakarta EE 9+ API compatibility.

Module 2: Java 21 and Spring Boot 3 Compatibility

- **Why Java 21?**
 - New Features of Java that Spring Boot 3 benefits from:
 - Pattern matching for switch statements.
 - Sealed classes and interfaces.
 - Stronger encapsulation and performance improvements.
 - Compatibility considerations when upgrading from Java 8 to Java 21.
- **Migrating to Java 21: Best Practices**
 - Update build tools (e.g., Maven or Gradle) for Java 21 compatibility.
 - Address deprecated and removed features from earlier versions.
 - Utilize new language features like instanceof pattern matching, records, and var for improved code readability.

Module 3: Spring Framework 6 and Jakarta EE 9

- **Jakarta EE 9+ Migration**
 - The change from javax.* to jakarta.* namespace.

- Impact on dependencies: Spring Boot 3 includes Jakarta EE 9 APIs, so apps will need to update their imports and dependencies accordingly.

- **Spring Framework 6 Key Features**

- Full support for Java 21 features.
- New @ConfigurationProperties mechanism with more flexible configuration support.
- Spring AOT (Ahead-of-Time) compilation for GraalVM native images.
- Improvements in Spring's data access and transaction management.

Module 4: New Features in Spring Boot 3

- **Spring Boot Configuration Improvements**

- Introduction of a more powerful and flexible configuration system.
- New application.yaml/application.properties support for more advanced scenarios (profiles, environments).
- Property binding improvements and support for complex types.
- Using Spring Boot's new @ConfigurationProperties to auto-bind configuration properties to beans.

- **Support for GraalVM Native Compilation**

- Introduction to native image generation using Spring Native.
- Setting up GraalVM for building native images in Spring Boot 3.
- How to use spring-boot-maven-plugin and spring-boot-gradle-plugin to create native executables.
- Benefits of native images: faster startup times, reduced memory footprint.

- **Improved Observability**

- New default observability features (metrics, tracing, and logging) to help track application health and performance.
- Integration with Micrometer for application monitoring.

Module 5: Spring Boot 3 Migration Strategies

- **Upgrading to Spring Boot 3**

- Step-by-step guide to migrating from Spring Boot 2.x to Spring Boot 3.
- Handling breaking changes (Java version changes, API shifts, deprecated features).

- Compatibility checkers and tools for migration.
- Sample upgrade path: Migrating a sample application from Spring Boot 2.x to 3.x.
- **Common Pitfalls in Migration**
 - Dealing with deprecated APIs and new namespace changes (e.g., javax to jakarta).
 - Handling configuration issues.
 - Troubleshooting common migration errors.