Spring 6 and Spring Boot Tutorial for Beginners

What is Spring Framework?

- In the enterprise market, the most popular language for building large, scalable, and secure applications is Java. These applications are built using Java, which is why we use the Spring framework, as it complements Java best.

- There are many other frameworks available, but Spring addresses most of the problems that developers encounter. Although it's not new, its recent concurrent modifications have made life easier for developers.
- Back in 2003, it was developed by **Rod Johnson.**

Spring is a versatile framework that can be used to build various types of applications, including:

- Enterprise-level applications
- Web Applications
- Desktop Applications
- Mobile Applications

Spring was initially created to address the complexities and boilerplate code issues that developers faced with Java EE. Java EE often required extensive configuration and was cumbersome to work with, leading to slower development and higher maintenance efforts.

Spring streamlined the process by providing a more straightforward, modular approach, reducing the amount of boilerplate code, and making the development process more efficient. Over time, with various upgrades and modifications, several Spring modules were developed.

Developers preferred Spring for its robustness, lightweight nature, and ease of use compared to other frameworks.

Key Features of Spring:

- **Lightweight**: It is designed to be lightweight in terms of its size and overhead.
- **POJO-Based**: It works with Plain Old Java Objects (POJOs), making it easy to use and integrate with existing systems.
- **Inversion of Control (IoC)**: It manages the creation and lifecycle of objects, promoting loose coupling through dependency injection.
- **Comprehensive Documentation**: It offers extensive documentation and strong community support.

What is Spring Boot?

- Spring Boot is an opinionated framework that simplifies development with Spring by providing defaults and reducing configuration efforts.

- With the help of Spring Boot, we can make APIs in just a couple of minutes. Yes, it's that fast.
- The latest version is Spring 6.
- **Spring comprises a variety of modules such as:**

Spring Boot	Spring Framework
Spring Security	Spring AOP
Spring AI	Spring Cloud
Spring Data JPA	Spring Batch

And many more modules are there; you can check them out by visiting the below link: 🔗 **https://spring.io/projects**

Key Features of Spring Boot:

- **Simplified Configuration**: It auto-configures Spring applications based on the dependencies present on the class path.
- **Embedded Servers**: It includes embedded servers like Tomcat, making it easy to run applications without needing to deploy to an external server.
- **Production-Ready Features**: It provides production-ready features such as metrics, health checks, and externalized configuration.
- **Spring Boot Starter Projects**: It creates stand-alone Spring applications that can be started using java -jar.

Prerequisites for learning Spring:

Before diving into Spring, you should be familiar with:

- **Core Java**: Fundamental understanding of Java programming.
- **JDBC**: Knowledge of connecting Java applications with databases.
- **Build Tools**: Experience with tools like Maven or Gradle.
- **ORM**: Understanding of Object-Relational Mapping.
- **Servlets**: Basic knowledge of servlets, as Tomcat (a servlet container) is commonly used.

IDE for Spring Development:

To develop Spring-based applications, you need:

- **JDK**: Java Development Kit (JDK 17 or above version)
- **IDE**: Any of the Integrated Development Environments such as:
    - Visual Studio Code (VS Code)
    - IntelliJ IDEA
    - Eclipse
    - NetBeans
    - Spring Tool Suite 4