Getting Started with Spring Boot

In this section, we explored the fundamentals of Spring Boot and how to set up a development environment to build Spring applications efficiently. We covered everything from project creation and structure to debugging and configuration.

1. Introduction to Spring Boot

- Spring Boot is a framework that simplifies Java application development by handling configuration, dependency management, and embedded servers.
- It allows us to quickly build production-ready applications with minimal setup.

2. Setting Up the Development Environment

To build a Spring Boot application, we need:

- **Java Development Kit (JDK)** – Spring Boot requires Java 17 or later.
- **An Editor or IDE** – Popular choices include:
    - IntelliJ IDEA (Recommended for its smart editor and built-in Spring support)
    - Eclipse
    - VS Code
- **A Build Tool** – Spring Boot supports:
    - Maven – More widely used and has been around longer.
    - Gradle – More modern, concise, and optimized for performance.

3. Creating a Spring Boot Project

We can generate a Spring Boot project in two ways:

- **Spring Initializr** (start.spring.io) – A web-based tool to configure and generate a Spring Boot project.
- **Directly in IntelliJ IDEA Ultimate** – IntelliJ provides built-in support for creating and configuring Spring Boot projects.

4. Understanding the Project Structure

A Spring Boot project consists of:

- `src/main/java:` Contains the application code.
- `src/main/resources:` Stores configuration files (application.properties or application.yml).
- `pom.xml or build.gradle`: Manages project dependencies using Maven or Gradle.

5. Dependency Management

- Spring Boot simplifies dependency management through **Spring Boot Starters**, which bundle commonly used libraries.
- Maven and Gradle handle versioning automatically, reducing the need for manual dependency updates.

6. Running Spring Boot Applications

Spring Boot provides multiple ways to run an application:

- Using IntelliJ's Run button
- Running `mvn spring-boot:run` from the terminal