**WEEK 4&5**

**EXERCISE 1**

**Online Bookstore - Setting Up RESTful Services**

**Business Scenario**

The task is to develop a RESTful service for an online bookstore. The service will manage books, authors, and customers.

**Instructions**

**1. Setup Spring Boot Project:**

Project Name: BookstoreAPI

* Step 1: Initialize a new Spring Boot project using Spring Initializr.
* Step 2: Select the following dependencies:
  + Spring Web: For building web, including RESTful, applications using Spring MVC. It uses Tomcat as the default embedded container.
  + Spring Boot DevTools: Provides development-time features such as automatic restarts, live reload, and configurations tailored for development environments.
  + Lombok: A Java library that automatically plugs into your editor and build tools, spicing up your Java by removing boilerplate code like getters, setters, equals, and hashcode.

Output: A Spring Boot project named BookstoreAPI with the necessary dependencies.

**2. Project Structure:**

Once the Spring Boot project is generated, the following structure will be present:

* src/main/java: Contains the application code.
* src/main/resources: Includes static resources, templates, and application configuration files (application.properties or application.yml).
* src/test/java: Houses the test classes.
* pom.xml: The Maven configuration file which manages project dependencies and plugins**.**

Key Components:

* @SpringBootApplication: The main entry point for Spring Boot applications.
* Controller Layer: Handles HTTP requests and maps them to services.
* Service Layer: Contains business logic.
* Repository Layer: Manages data persistence and retrieval.
* Model Layer: Represents the entities managed by the application.

**3. What's New in Spring Boot 3:**

Spring Boot 3 introduces several new features and enhancements:

* Java 17 Support: Spring Boot 3 is the first version to fully support Java 17, including all the modern language features and APIs it offers.
* Native Image Support: Spring Boot 3 introduces support for GraalVM native images, which allows applications to be compiled into native executables, reducing startup time and memory footprint.
* Improved Observability: Enhanced support for metrics, tracing, and logging, making it easier to monitor and manage applications in production.
* Security Enhancements: Updated security features, including better support for OAuth 2.0 and OpenID Connect, along with improvements in password encoding and cryptography.
* Spring Data Improvements: More efficient data access and query generation with enhancements in the Spring Data module.
* Batch Processing: Enhanced support for batch processing, including better configuration and execution of batch jobs.

**Conclusion:**

The new features in Spring Boot 3 provide improved performance, security, and observability, making it easier to build, deploy, and manage enterprise applications.