**Spring Core and Maven**

**Exercise 9: Creating a Spring Boot Application**

**Scenario:**

You need to create a Spring Boot application for the library management system to simplify configuration and deployment.

**Steps:**

1. **Create a Spring Boot Project:**
   * Use **Spring Initializr** to create a new Spring Boot project named **LibraryManagement**.
2. **Add Dependencies:**
   * Include dependencies for **Spring Web, Spring Data JPA, and H2 Database**.
3. **Create Application Properties:**
   * Configure database connection properties in **application.properties**.
4. **Define Entities and Repositories:**
   * Create **Book** entity and **BookRepository** interface.
5. **Create a REST Controller:**
   * Create a **BookController** class to handle CRUD operations.
6. **Run the Application:**
   * Run the Spring Boot application and test the REST endpoints.

**CODE:**

**pom.xml**

<?xml version="1.0" encoding="UTF-8"?>  
<project xmlns="http://maven.apache.org/POM/4.0.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"  
 xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 https://maven.apache.org/xsd/maven-4.0.0.xsd">  
 <modelVersion>4.0.0</modelVersion>  
 <parent>  
 <groupId>org.springframework.boot</groupId>  
 <artifactId>spring-boot-starter-parent</artifactId>  
 <version>3.5.3</version>  
 <relativePath/>  
 </parent>  
 <groupId>com.example</groupId>  
 <artifactId>librarymanagement</artifactId>  
 <version>0.0.1-SNAPSHOT</version>  
 <name>LibraryManagement</name>  
 <description>Demo project for Spring Boot</description>  
 <url/>  
 <licenses>  
 <license/>  
 </licenses>  
 <developers>  
 <developer/>  
 </developers>  
 <scm>  
 <connection/>  
 <developerConnection/>  
 <tag/>  
 <url/>  
 </scm>  
 <properties>  
 <java.version>17</java.version>  
 </properties>  
 <dependencies>  
 <dependency>  
 <groupId>org.springframework.boot</groupId>  
 <artifactId>spring-boot-starter-data-jpa</artifactId>  
 </dependency>  
 <dependency>  
 <groupId>org.springframework.boot</groupId>  
 <artifactId>spring-boot-starter-web</artifactId>  
 </dependency>  
  
 <dependency>  
 <groupId>com.h2database</groupId>  
 <artifactId>h2</artifactId>  
 <scope>runtime</scope>  
 </dependency>  
 <dependency>  
 <groupId>org.springframework.boot</groupId>  
 <artifactId>spring-boot-starter-test</artifactId>  
 <scope>test</scope>  
 </dependency>  
 </dependencies>  
  
 <build>  
 <plugins>  
 <plugin>  
 <groupId>org.springframework.boot</groupId>  
 <artifactId>spring-boot-maven-plugin</artifactId>  
 </plugin>  
 </plugins>  
 </build>  
  
</project>

**applicationContext.xml**

spring.application.name=LibraryManagement  
  
spring.datasource.url=jdbc:h2:mem:testdb  
spring.datasource.driverClassName=org.h2.Driver  
spring.datasource.username=sa  
spring.datasource.password=  
  
  
spring.jpa.database-platform=org.hibernate.dialect.H2Dialect  
spring.h2.console.enabled=true  
spring.jpa.show-sql=true  
spring.jpa.hibernate.ddl-auto=update

**controller 🡪 BookController**

package com.example.librarymanagement.controller;  
  
import com.example.librarymanagement.model.Book;  
import com.example.librarymanagement.repository.BookRepository;  
import org.springframework.beans.factory.annotation.Autowired;  
import org.springframework.web.bind.annotation.\*;  
  
import java.util.List;  
  
@RestController  
@RequestMapping("/books")  
public class BookController {  
  
 @Autowired  
 private BookRepository bookRepository;  
  
 @GetMapping  
 public List<Book> getAllBooks() {  
 return bookRepository.findAll();  
 }  
  
 @PostMapping  
 public Book createBook(@RequestBody Book book) {  
 return bookRepository.save(book);  
 }  
  
 @PutMapping("/{id}")  
 public Book updateBook(@PathVariable Long id, @RequestBody Book bookDetails) {  
 Book book = bookRepository.findById(id).orElseThrow();  
 book.setTitle(bookDetails.getTitle());  
 book.setAuthor(bookDetails.getAuthor());  
 book.setPrice(bookDetails.getPrice());  
 return bookRepository.save(book);  
 }  
  
 @DeleteMapping("/{id}")  
 public void deleteBook(@PathVariable Long id) {  
 bookRepository.deleteById(id);  
 }  
}

**model🡪Book**

package com.example.librarymanagement.model;  
  
import jakarta.persistence.Entity;  
import jakarta.persistence.GeneratedValue;  
import jakarta.persistence.GenerationType;  
import jakarta.persistence.Id;  
  
@Entity  
public class Book {  
  
 @Id  
 @GeneratedValue(strategy = GenerationType.*IDENTITY*)  
 private Long id;  
  
 private String title;  
 private String author;  
 private double price;  
  
 public Long getId() {  
 return id;  
 }  
 public void setId(Long id) {  
 this.id = id;  
 }  
 public String getTitle() {  
 return title;  
 }  
 public void setTitle(String title) {  
 this.title = title;  
 }  
 public String getAuthor() {  
 return author;  
 }  
 public void setAuthor(String author) {  
 this.author = author;  
 }  
 public double getPrice() {  
 return price;  
 }  
 public void setPrice(double price) {  
 this.price = price;  
 }  
}

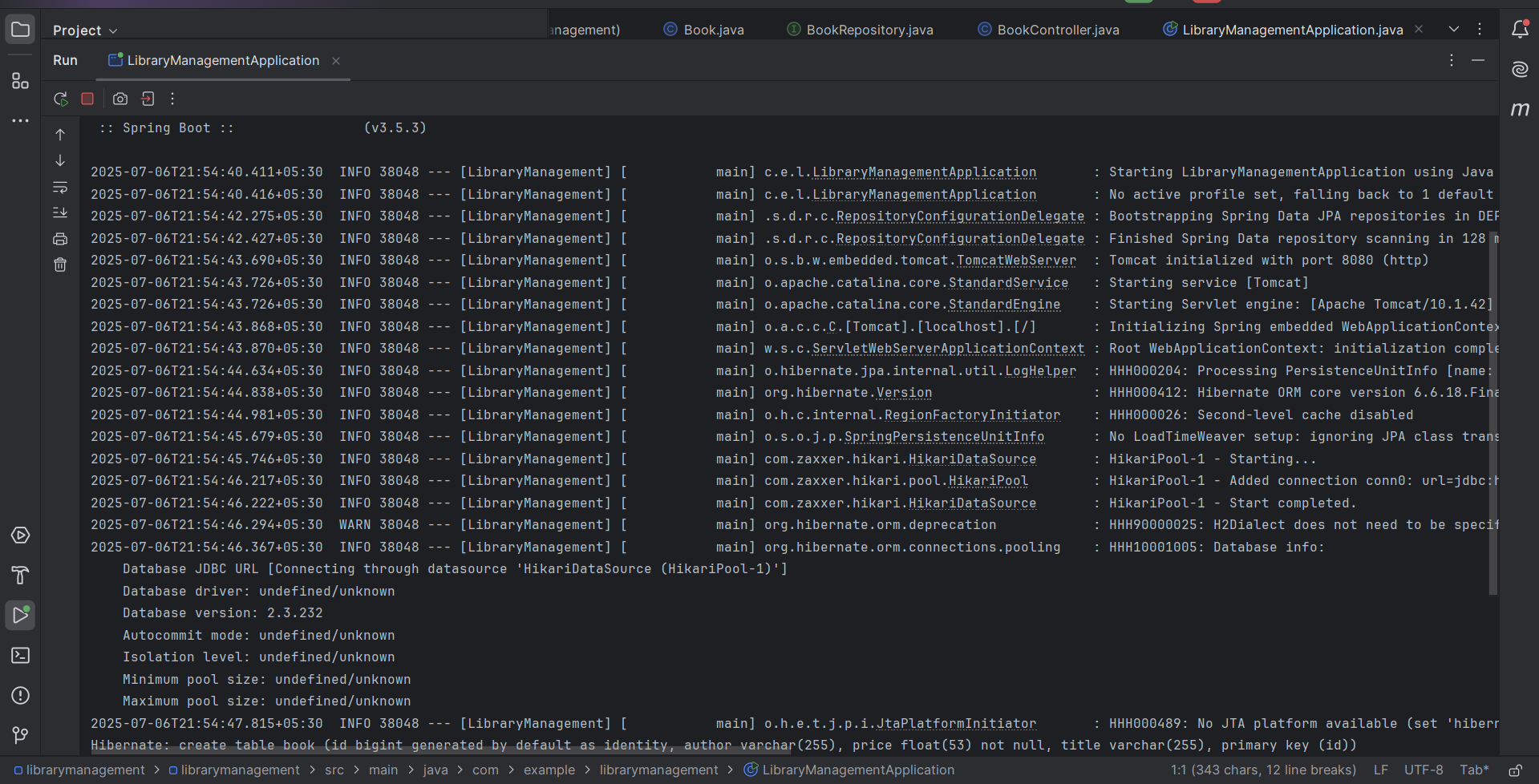
**repository 🡪BookRepository**

package com.example.librarymanagement.repository;  
  
import com.example.librarymanagement.model.Book;  
import org.springframework.data.jpa.repository.JpaRepository;  
  
public interface BookRepository extends JpaRepository<Book, Long> {  
}

**LibraryManagementApplication.java**

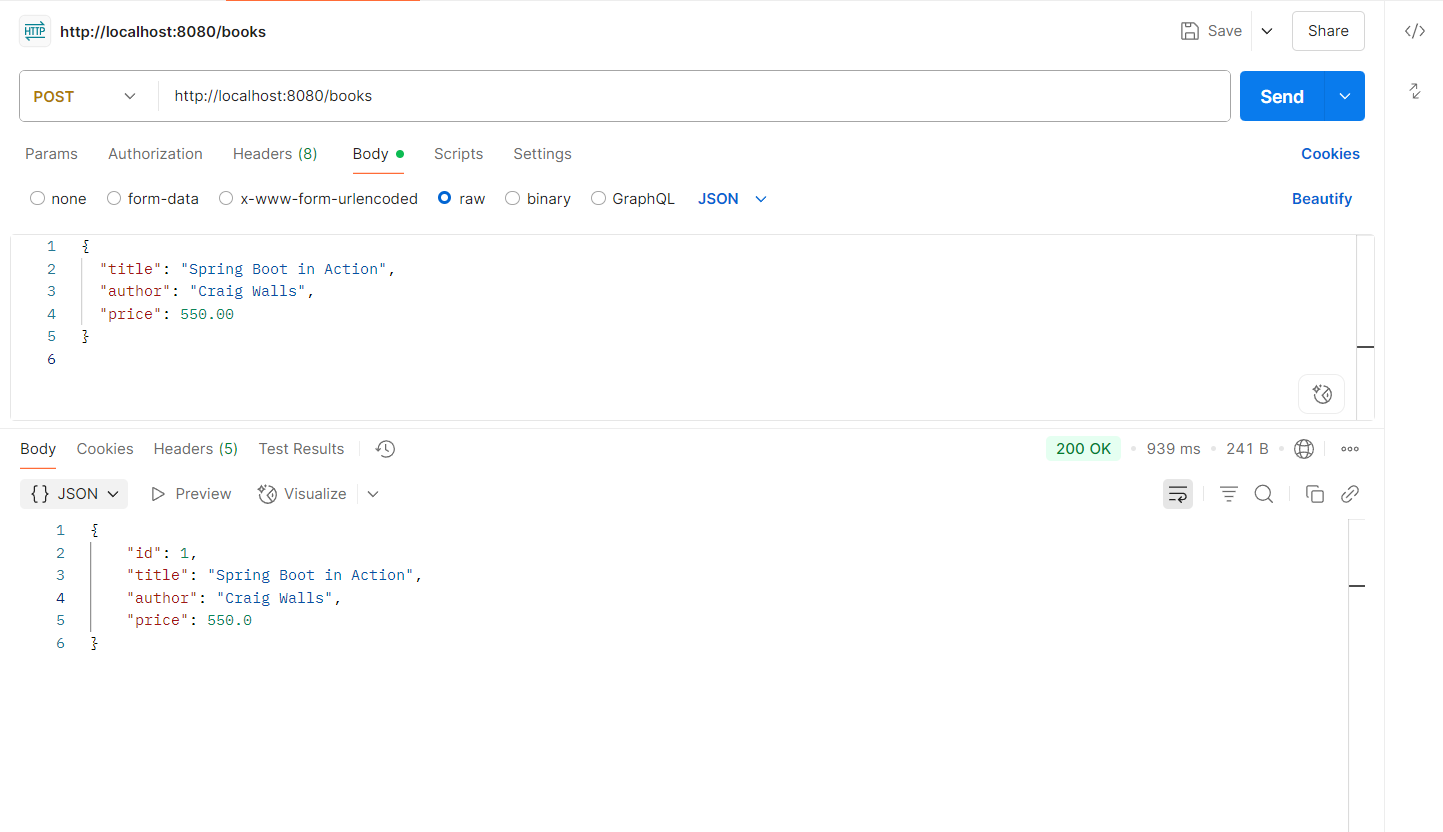
package com.example.librarymanagement;  
  
import org.springframework.boot.SpringApplication;  
import org.springframework.boot.autoconfigure.SpringBootApplication;  
  
@SpringBootApplication  
public class LibraryManagementApplication {  
  
 public static void main(String[] args) {  
 SpringApplication.*run*(LibraryManagementApplication.class, args);  
 }  
}

**OUTPUT:**



**POSTMAN**

**POST**

****

**GET**

