**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.

<dependencies>

<dependency>

<groupId>org.springframework.boot</groupId>

<artifactId>spring-boot-starter-web</artifactId>

</dependency>

<dependency>

<groupId>org.springframework.boot</groupId>

<artifactId>spring-boot-starter-data-jpa</artifactId>

</dependency>

<dependency>

<groupId>com.h2database</groupId>

<artifactId>h2</artifactId>

<scope>runtime</scope>

</dependency>

<dependency>

<groupId>org.springframework.boot</groupId>

<artifactId>spring-boot-starter</artifactId>

</dependency>

</dependencies>

**Application.properties**

spring.datasource.url=jdbc:h2:mem:testdb

spring.datasource.driverClassName=org.h2.Driver

spring.datasource.username=sa

spring.datasource.password=password

spring.jpa.database-platform=org.hibernate.dialect.H2Dialect

spring.h2.console.enabled=true

Book.java

package com.library.entity;

import javax.persistence.Entity;

import javax.persistence.GeneratedValue;

import javax.persistence.GenerationType;

import javax.persistence.Id;

@Entity

public class Book {

@Id

@GeneratedValue(strategy = GenerationType.IDENTITY)

private Long id;

private String title;

private String author;

// Getters and Setters

}

BookRepository.java

package com.library.repository;

import com.library.entity.Book;

import org.springframework.data.jpa.repository.JpaRepository;

import org.springframework.stereotype.Repository;

@Repository

public interface BookRepository extends JpaRepository<Book, Long> {

}

BookController.java

package com.library.controller;

import com.library.entity.Book;

import com.library.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();

}

@GetMapping("/{id}")

public Book getBookById(@PathVariable Long id) {

return bookRepository.findById(id).orElseThrow(() -> new RuntimeException("Book not found"));

}

@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(() -> new RuntimeException("Book not found"));

book.setTitle(bookDetails.getTitle());

book.setAuthor(bookDetails.getAuthor());

return bookRepository.save(book);

}

@DeleteMapping("/{id}")

public void deleteBook(@PathVariable Long id) {

Book book = bookRepository.findById(id).orElseThrow(() -> new RuntimeException("Book not found"));

bookRepository.delete(book);

}

}

#### LibraryManagementApplication.java

package com.library;

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);

}

}