**Exercise 2: Online Bookstore - Creating Basic REST Controllers**

**Business Scenario:**

Implement RESTful endpoints to manage books.

**Instructions:**

1. **Create Book Controller:**
   * Define a **BookController** class with request mappings for /books.
2. **Handle HTTP Methods:**
   * Implement methods to handle **GET**, **POST**, **PUT**, and **DELETE** requests.
3. **Return JSON Responses:**
   * Ensure the controller returns JSON responses.
   * Define the Book entity with attributes like **id, title, author, price**, and **isbn**.

**Solution**

**BookController.java**

package com.example.bookstoreapi.controller;

import com.example.bookstoreapi.model.Book;

import org.springframework.web.bind.annotation.\*;

import java.util.ArrayList;

import java.util.List;

@RestController

@RequestMapping("/api/books")

public class BookController {

private List<Book> books = new ArrayList<>();

// GET: Retrieve all books

@GetMapping

public List<Book> getAllBooks() {

return books;

}

// GET: Retrieve a book by ID

@GetMapping("/{id}")

public Book getBookById(@PathVariable Long id) {

return books.stream().filter(book -> book.getId().equals(id)).findFirst().orElse(null);

}

// POST: Add a new book

@PostMapping

public Book createBook(@RequestBody Book book) {

books.add(book);

return book;

}

// PUT: Update an existing book

@PutMapping("/{id}")

public Book updateBook(@PathVariable Long id, @RequestBody Book updatedBook) {

for (int i = 0; i < books.size(); i++) {

Book book = books.get(i);

if (book.getId().equals(id)) {

books.set(i, updatedBook);

return updatedBook;

}

}

return null;

}

// DELETE: Delete a book by ID

@DeleteMapping("/{id}")

public String deleteBook(@PathVariable Long id) {

books.removeIf(book -> book.getId().equals(id));

return "Book with ID " + id + " has been deleted.";

}

}

**Book.java**

package com.example.bookstoreapi.model;

import lombok.AllArgsConstructor;

import lombok.Data;

import lombok.NoArgsConstructor;

@Data

@AllArgsConstructor

@NoArgsConstructor

public class Book {

private Long id;

private String title;

private String author;

private Double price;

private String isbn;

}