**Library Management System – Spring Boot Application**

**📄 Project Overview**

This is a simple RESTful web application built using **Spring Boot** to manage a library’s collection of books. It exposes APIs to add and retrieve books, utilizes **Spring Web** and **Spring Data JPA**, and stores data in an in-memory **H2 database**. The project also follows proper layering with a dedicated **service layer** to demonstrate **dependency injection** and modular design.

**🛠 Technologies Used**

* Java 17
* Spring Boot (version 3+)
* Spring Web
* Spring Data JPA
* H2 Database
* Maven
* IDE: VS Code / IntelliJ / Eclipse

**✅ Project Features**

* Exposes REST APIs to perform CRUD operations on books
* Implements service and repository layers to separate concerns
* Uses H2 in-memory database for quick development and testing
* Supports JSON request and response handling

**🚀 How to Run the Application**

**📌 Prerequisites**

Before running the application, ensure you have the following installed:

* Java 17 or higher
* Maven
* VS Code or any Java IDE (Eclipse, IntelliJ)

**💻 Execution Steps**

1. Open terminal (or IDE terminal) and navigate to the project folder:

bash

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cd library-management

1. Run the application using Maven Wrapper:

bash

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./mvnw spring-boot:run (Linux/Mac)

mvnw spring-boot:run (Windows)

1. The application will start on the default port:

arduino

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http://localhost:8080

**📘 Available REST API Endpoints**

**➕ POST /books**

* **Purpose**: Add a new book to the library system
* **Request Format (JSON)**:

json

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{

"title": "Clean Code",

"author": "Robert C. Martin"

}

* **Sample Response**:

json

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{

"id": 1,

"title": "Clean Code",

"author": "Robert C. Martin"

}

**📚 GET /books**

* **Purpose**: Retrieve all books stored in the library
* **Sample Response**:

json

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[

{

"id": 1,

"title": "Clean Code",

"author": "Robert C. Martin"

},

{

"id": 2,

"title": "Spring in Action",

"author": "Craig Walls"

}

]

**✅ Conclusion**

This Library Management System demonstrates the core concepts of **Spring Boot development** using **RESTful APIs** and **JPA**. It is a great starting point for beginners learning full-stack Java development and can be extended to include features like updating