Assignment: Library Management System

Assignment Overview:

You are tasked with developing a simple Library Management System that allows users to manage books in a library. This system should provide basic CRUD (Create, Read, Update, Delete) functionalities for books.

Requirements:

Backend:

- Spring Boot application.
- MySQL database to store book information.
- JPA/Hibernate for database interaction.

Frontend:

- Angular application for the user interface.
- Use Bootstrap for styling the UI components.

Functional Requirements:

Book Entity:

Each book should have the following attributes:
- ID (auto-generated, unique identifier)
- Title
- Author
- ISBN
- Published Date
- Number of Pages

Features:

1. Create a Book: Provide a form to add a new book to the library. Validate inputs before submitting.
2. Read Books:
   - Display a list of all books in the library.
   - Provide a search functionality to find books by title, author, or ISBN.
3. Update a Book: Allow users to edit the details of an existing book.
4. Delete a Book: Enable users to remove a book from the library.

Technical Requirements:

Backend:

- Create RESTful APIs using Spring Boot to handle CRUD operations.
- Use Spring Data JPA to interact with the MySQL database.
- Validate inputs and handle exceptions appropriately.

Frontend:

- Use Angular to create components for listing, adding, updating, and deleting books.
- Implement services in Angular to communicate with the Spring Boot backend.
- Use Bootstrap to style the application for a clean and responsive design.

Deliverables:

Backend:

- Spring Boot project with all CRUD APIs implemented.
- MySQL database schema and sample data.
- Proper documentation of the APIs.

Frontend:

- Angular project with all required components and services.
- User-friendly interface with proper navigation and validations.
- Instructions on how to run the application.

Bonus Points:

1. Implement pagination and sorting for the list of books.
2. Add user authentication and authorization to manage access to different features.
3. Create a detailed README file with setup instructions and screenshots of the application.