

Software Requirements Specification (SRS)

Library Management System (LMS) - Beginner Tier

1. Introduction

- **Purpose:** This document details the software requirements for the beginner-tier Library Management System.
- **Intended Audience:** Developers, testers, and project stakeholders.
- **Technologies Used:**
 - Backend: **Spring Boot, REST API**
 - Frontend: **React.js**
 - Database: **MySQL**

2. Functional Requirements

ID	Requirement
FR-01	The system must allow users to register with email and password.
FR-02	The system must validate required fields during registration.
FR-03	Admin must be able to add new books via a form.
FR-04	Users must be able to search books by title.
FR-05	Users must be able to borrow books and update the book status in the database.
FR-06	The system should provide a basic UI for searching and borrowing books.

FR-07 (Optional) The system should show an overdue notification for borrowed books based on a static due date.

3. Non-Functional Requirements

ID	Requirement
NFR-01	The system should follow basic web security standards.
NFR-02	The system should be lightweight and performant for a small dataset.
NFR-03	The UI should be simple and intuitive.
NFR-04	The backend should follow RESTful API principles.
NFR-05	The database should enforce proper indexing for search efficiency.

4. System Architecture

- **Frontend:** React.js (UI components, API integration)
- **Backend:** Spring Boot (RESTful API)
- **Database:** MySQL (Users & Books tables)

5. Data Requirements

Table	Fields
Users	<code>user_id (PK), name, email, password</code>
Books	<code>book_id (PK), title, author, status (available/borrowed)</code>

6. API Endpoints

Endpoint	Method	Description
<code>/api/register</code>	POST	Registers a new user
<code>/api/books</code>	GET	Retrieves all books
<code>/api/books/search?title=xyz</code>	GET	Searches books by title
<code>/api/books/add</code>	POST	Admin adds a new book
<code>/api/books/borrow/{id}</code>	PUT	Updates book status to borrowed

7. Security Requirements

- Basic input validation (e.g., required fields).
- No advanced authentication in beginner tier.
- No sensitive data stored unencrypted.

8. Assumptions & Limitations

- User roles are minimal (Admin, Member).
- No support for multi-library management.
- UI design is kept basic.

9. Testing Requirements

Test Case	Description
TC-01	Ensure user registration works with valid inputs.

- TC-02 Verify that books can be added successfully.
- TC-03 Check if book search works with valid inputs.
- TC-04 Test borrowing functionality and status update.