

LMS Requirement Specification

1. Introduction

1.1 Purpose

The purpose of this document is to outline the functional and non-functional requirements for a Simple Library Management System (LMS). The system will allow librarians to manage books, issue/return books, and maintain student records.

1.2 Scope

This system is designed for small to medium-sized libraries. It will help manage book inventories, user registrations, book issuance, returns, and fines. The system will be developed as a desktop application.

1.3 Users

- Librarians (Admins)
- Students/Members

2. Overall Description

2.1 Product Perspective

The system will replace the manual record-keeping process in libraries with a digital solution. It will maintain records in a backend database (e.g., MySQL or SQL Server) and have a front-end developed in C#, Java, or Python.

2.2 Product Functions

- Manage books (add, update, delete, search)
- Register and manage users
- Issue and return books
- Maintain transaction history
- Calculate and manage fines
- Generate reports

2.3 Assumptions and Dependencies

- The system will run on Windows OS
- An internet connection is not mandatory
- Admin must log in to use the system

3. Functional Requirements

3.1 User Login

- Only authorized users (admins/librarians) can log in.
- The system must validate username and password.

3.2 Manage Books

- Admin can add, update, delete, or search books using title, author, or ISBN.
- Each book record includes: Book ID, Title, Author, Publisher, ISBN, and Quantity.

3.3 User Management

- Admin can register new students.
- Fields include: Student ID, Name, Department, and Contact Info.

3.4 Book Issue

- Admin can issue books to registered students.
- System checks for book availability.
- Each issue records: Book ID, Student ID, Issue Date, Due Date.

3.5 Book Return

- Admin can mark a book as returned.
- System checks return date and calculates fine if overdue.

3.6 Fine Calculation

- The system auto-calculates fines based on the number of days late (e.g., ₹2/day).

3.7 Search and Reports

- Admin can search issued books, late returns, and generate reports:
 - Issued books report
 - Student-wise report
 - Overdue report

4. Non-Functional Requirements

4.1 Performance Requirements

- System should respond to any action within 2 seconds.
- It must handle at least 10 users simultaneously in a LAN environment.

4.2 Security Requirements

- Passwords should be stored securely (hashed).
- Access to administrative functions should be restricted.

4.3 Usability Requirements

- The UI should be simple and user-friendly.
- Minimal training should be required for users.

4.4 Portability

- System should run on Windows 10 or higher.
- It should be installable via a simple setup process.

5. Database Requirements

- **Tables:**
 - Books(BookID, Title, Author, Publisher, ISBN, Quantity)
 - Students(StudentID, Name, Department, Contact)
 - Transactions(TransactionID, BookID, StudentID, IssueDate, DueDate, ReturnDate, Fine)

6. Constraints

- System should support a single admin login at a time.
- All fields are mandatory unless marked optional.