

Software Requirement Specification (SRS) for a Library Management System

1) Introduction

The Library Management System (LMS) is designed to automate the management of library activities. It provides features to help librarians and users track books, manage borrowing and returning, and organize library resources. The system aims to streamline the process of searching for, issuing, and returning books, thereby improving efficiency.

1.1 Purpose

This document provides a detailed specification of the functional and non-functional requirements for the LMS. It is intended for use by the developers, testers, project managers, and any stakeholders involved in the development and deployment of the system.

1.2 Scope

The LMS will enable users to search for books, issue them, and manage their accounts. Librarians will be able to add and remove books, track issued books, and generate reports. The system will be web-based and accessible from any device connected to the internet.

1.3 Definitions, Acronyms, and Abbreviations

LMS: Library Management System

UI: User Interface

ISBN: International Standard Book Number

1.4 References

IEEE Standard 830-1998 for SRS

Database Design Principles, 2nd Edition

2) Overall Description

2.1 Product Perspective

The LMS is an independent system that can be integrated into a larger institutional software ecosystem, such as a university management system. It will primarily operate as a web-based application, making use of relational databases to store data. It aims to replace manual library record-keeping systems.

2.2 Product Functions

Book Search: Users can search for books by title, author, or ISBN.

Book Borrowing: Users can borrow available books and check their borrowing history.

Book Return: Users can return books to the library and check their due dates.

Librarian Management: Librarians can add/remove books, manage inventory, and track issued books.

Notifications: The system will send notifications for overdue books, and new arrivals.

Report Generation: Librarians can generate reports about issued and overdue books.

2.3 User Classes and Characteristics

Librarians: Responsible for maintaining the system, adding/removing books, and managing inventory.

Members (Users): Students or members of the institution who can search, borrow, and return books.

Admin: Responsible for overall system administration, including user management and permissions.

2.4 Operating Environment

Client-side: Web browser (Chrome, Firefox, Edge)

Server-side: Runs on Linux/Windows servers, using a MySQL/PostgreSQL database and a JavaScript framework for the front-end.

Network: Internet connection with 100 Mbps bandwidth or higher.

2.5 Design and Implementation Constraints

The system must comply with accessibility standards (WCAG 2.1).

The maximum number of simultaneous users should not exceed 500.

The system must follow privacy laws such as GDPR for handling user data.

2.6 User Documentation

The system will include:

User manuals for librarians and members.

Installation guides for system administrators.

Online help sections within the application.

2.7 Assumptions and Dependencies

The library catalog data will be available in digital form before deployment.

Internet access is required for users to interact with the system.

The system will be compatible with any modern web browser.

3) External Interface Requirements

3.1 User Interfaces

Login Page: A login page for librarians, admins, and users.

Dashboard: Displays book search, borrow, return functions for users, and administrative tools for librarians.

Book Search Interface: Allows users to search for books by various parameters.

Reports Page: Allows librarians to generate and download reports.

3.2 Hardware Interfaces

Client Devices: Desktop or mobile devices with a web browser.

Server Hardware: Requires a server with at least 16 GB RAM, multi-core CPU, and 500 GB storage.

3.3 Software Interfaces

Database: MySQL or PostgreSQL for managing book and user data.

API Integration: The system should provide REST APIs for integration with other institutional systems (e.g., student management systems).

3.4 Communication Interfaces

SMTP Server: For sending email notifications to users.

HTTP/HTTPS: For communication between the client and server.

4) Functional Requirement Specifications (FRS)

4.1 System Features

Login and Authentication: Users and librarians must log in to access their respective dashboards.

Book Management: Librarians can add, update, or remove books from the system.

Borrowing System: Users can borrow available books, and the system will update the inventory.

Return System: Users can return books, and overdue fees (if any) will be calculated.

Notification System: The system will notify users of overdue books and new book arrivals.

4.2 Functional Requirements

FR01: The system shall allow users to search for books by title, author, or ISBN.

FR02: The system shall allow users to borrow a book if it is available.

FR03: The system shall notify users via email about overdue books.

FR04: The system shall generate a monthly report of issued books for librarians.

FR05: The system shall allow librarians to update book details (author, title, genre, etc.).

5) Non-Functional Requirements

5.1 Usability Requirements

The system must be user-friendly, with an intuitive UI that allows users to perform tasks without needing extensive training.

All users should be able to perform basic tasks (searching, borrowing, etc.) within 3 clicks.

5.2 Performance Requirements

The system should handle up to 500 concurrent users without noticeable performance degradation.

Page load times should not exceed 2 seconds under normal load conditions.

5.3 Compatibility Requirements

The system should be compatible with Chrome, Firefox, and Edge.

It should be responsive and functional on both desktop and mobile devices.

6) Other Requirements

The system must support data encryption to protect user credentials and personal data.

Regular backups should be maintained for the database.

The system should support multiple languages for global deployment.

7) Glossary

Book: A physical or electronic publication available in the library.

User (Member): Any person registered to use the system for borrowing books.

Librarian: The individual responsible for managing the books and overseeing library operations.

Admin: The system administrator who manages access rights and overall system performance.

ISBN: A unique identifier for books.

This document outlines the Library Management System's features, interface requirements, and constraints. It provides a framework for the development, deployment, and maintenance of the system.