# Software Requirements Specification (SRS)

## Library Management System

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## 1. Introduction

### 1.1 Purpose

The Library Management System (LMS) is designed to efficiently manage library operations such as book cataloging, user authentication, book borrowing, returning, and fine calculations.

### 1.2 Document Conventions

This document follows IEEE 830-1998 SRS guidelines and maintains a structured format for clarity.

### 1.3 Intended Audience and Reading Suggestions

- Library Staff  
- Software Developers  
- Administrators  
- QA Team  
- End Users

### 1.4 Project Scope

The LMS automates library processes, including book tracking, membership management, and transaction handling to improve efficiency and accuracy.

### 1.5 References

- IEEE 830-1998 Software Requirements Specification Standard  
- Library Management Best Practices

## 2. Overall Description

### 2.1 Product Perspective

The LMS is a web-based system designed for seamless interaction between librarians and users.

### 2.2 Product Features

- User Authentication

- Book Management (Add, Update, Delete)

- Borrowing and Returning Books

- Fine Calculation for Late Returns

- Report Generation and Analytics

### 2.3 User Classes and Characteristics

- Librarians: Manage book inventory and user accounts.

- Members: Search, borrow, and return books.

- Administrators: Configure system settings and generate reports.

### 2.4 Operating Environment

The system runs on cloud-based infrastructure and is accessible via web browsers.

### 2.5 Design and Implementation Constraints

- Must support barcode scanning for book transactions.

- Requires secure authentication using encryption.

### 2.6 User Documentation

User manuals and online help sections will be provided.

### 2.7 Assumptions and Dependencies

- Internet connectivity is required.  
- Users must have valid library memberships.

## 3. System Features

- User Authentication: Secure login and role-based access control.

- Book Catalog Management: Maintain book records with ISBN, author, and title.

- Transaction Management: Borrow and return books with due date tracking.

- Fine Calculation: Calculate overdue charges automatically.

- Search Functionality: Search by title, author, or category.

- Notifications: Email/SMS alerts for due dates and fines.

## 4. External Interface Requirements

### 4.1 User Interfaces

The system provides a web-based interface with dashboards and search functionality.

### 4.2 Hardware Interfaces

Supports barcode scanners for book tracking.

### 4.3 Software Interfaces

Interfaces with third-party book databases and external notification services.

### 4.4 Communication Interfaces

Supports email and SMS notifications.

## 5. Other Nonfunctional Requirements

### 5.1 Performance Requirements

Must handle at least 100 concurrent users with minimal response times.

### 5.2 Safety Requirements

Regular data backups will be performed to prevent data loss.

### 5.3 Security Requirements

User authentication and data encryption are mandatory.

### 5.4 Software Quality Attributes

The system should be user-friendly, scalable, and highly reliable.

## 6. Other Requirements

### Appendix A: Glossary

- LMS: Library Management System

- ISBN: International Standard Book Number

- RFID: Radio Frequency Identification

### Appendix B: Analysis Models

Includes system architecture and UML diagrams.

### Appendix C: Issues List

Currently, no major issues identified.