

3. Library Management System

1. Introduction:

1.1 Purpose:

The purpose of this document is to define the requirements for a library management system (LMS).

The LMS will help in managing book inventories, member registrations, borrowing & returning of books and generating reports. It aims to simplify library operations, reduce manual work & improve efficiency.

1.2 Scope:

The system will allow librarians to manage collections & user accounts effectively.

It will enable members to search, borrow & return books.

The LMS will also provide overdue alerts & generate usage reports. The system shall be web-based & accessible to users with different levels of technical expertise.

1.3 Overview

The LMS will automate core library functions including catalog management, book circulation, member management and fine calculation.

2. General Description

The Library Management System is designed to serve librarians, students & staff. It provides a centralized database for storing book details & user information. The system ensures efficient search & retrieval of resources, real time tracking of borrowed books and secure management of member accounts. It will be user friendly, scalable & flexible.

3. Functional Requirements

3.1 Catalog Management

- * Add, update & delete book records
- * Maintain categories, authors & publication details

3.2 Member Management

- * Register new members & maintain their records
- * Issue membership cards & manage renewals

3.3 Circulation Management

- * Borrow & return books by title, author / subject
- * Calculate & record fines of overdue items

3.4 Search & Reports:

- * Search books by title, author or subject
- * Generate reports on inventory, circulation & overdue books

4. Interface Requirements

4.1 User Interface

- * Simple & intuitive interface for both librarians & users
- * Accessible on desktops, tablets & mobile devices

4.2 Integration Interfaces

- * Integration with barcode scanners for book issue/return
- * Support for email/SMS notifications for due dates & fines

5. Performance Requirements

5.1 Response time

- * The system should process search queries within 2s

5.2 Scalability

- * The system should support at least 500 concurrent users

5.3 Data Integrity

- * Ensure accuracy & consistency of book & member data

6. Design Constraints

6.1 Hardware Limitations:

- * Compatible with standard library computers & barcode scanners

6.2 Software Dependencies:

- * Relational DBS (MySQL / PostgreSQL)
- * Developed using technologies like Java, Spring Boot or Python Django

7. Non Functional Attributes

7.1 Security

- * Authentication & authorization for user access

7.2 Reliability

- * Ensure minimal downtime with backup facilities

7.3 Usability:

- * Provide easy navigation & accessibility for all users

7.4 Portability:

- * Compatible with major web browsers & operating systems

7.5 Maintainability:

- * Modular design for future enhancements

8. Preliminary Schedule & Budget

The Library Management System is estimated to be completed in 4-5 months, covering development & testing. The projected budget is about ₹4,50,000 including software, database setup & initial maintenance.