**SOFTWARE REQUIREMENT**

**SPECIFICATIONS**

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**SRS FOR LIBRARY MANAGEMENT SYSTEM**

**1. Introduction**

**1.1 Purpose**

The purpose of this document is to outline the software requirements for the development of a Library Management System (LMS). The LMS is intended to streamline library operations, including book cataloging, borrowing, returning, and user management.

* 1. **Document Convention**

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Convention for Main title

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Convention for sub title

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Convention for Body

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**1.3 Scope of Development Project**

The scope of this development project encompasses the design and implementation of a web-based Library Management System (LMS) for a public library. The system aims to provide efficient management of library resources, user accounts, and administrative functions.

**1.4 Definitions, Acronyms, and Abbreviations**

- LMS: Library Management System

- GUI: Graphical User Interface

- ISBN: International Standard Book Number

- RFID: Radio-Frequency Identification

**2. Overall Descriptions**

**2.1 Product Perspective**

The Library Management System will be a standalone system integrated with the library's existing database of books and user records. It will interact with external databases for real-time book availability information.

**2.2 Product Function**

The primary functions of the LMS include:

- User registration and authentication

- Book cataloging and management

- Check-in and check-out of books

- Fine calculation and payment

- Reporting and analytics

**2.3 User Classes and Characteristics**

User classes include:

- Librarians: Responsible for managing books, users, and system configurations.

- Patrons: Registered library users who borrow and return books.

- Administrators: Oversee system-wide operations and maintenance.

**2.4 Operating Environment**

The LMS will be developed as a web application, accessible through modern web browsers. It will be hosted on a secure server and require a stable internet connection for real-time updates.

**2.5 Assumptions and Dependencies**

Assumptions:

- Users have basic computer literacy.

- The library has an existing book catalog database.

Dependencies:

- Availability of a web server and database server.

**2.6 Requirements**

User Registration

- Book Cataloging

- Check-in and Check-out

- Fine Calculation

- Reporting and Analytics

**2.7 Data Requirements**

The LMS will store and manage data related to users, books, transactions, fines, and system configurations. Data will be stored securely and backed up regularly.

**3. External Interface Requirements**

**3.1 GUI**

The graphical user interface (GUI) will be intuitive, user-friendly, and responsive. It will include screens for user registration, book search, transaction history, and administrative tasks. The GUI shall support multiple languages.

**4. System Features**

User Registration

- Patrons shall be able to create accounts with their full name, email address, username, and password.

- Email verification shall be required for account activation.

Librarian Account Creation

- Librarians shall have the ability to create accounts with administrative privileges.

Book Cataloging

Add New Book

- Librarians shall add new books by providing title, author, ISBN, genre, publication date, and availability status.

- The system shall allow for manual or automatic retrieval of book information using ISBN.

Mark Books as Reference

- Librarians can mark books as reference materials, preventing them from being borrowed.

Check-in and Check-out

Book Search

- Patrons shall search for books by title, author, or genre.

- Search results shall display book availability status.

Book Check-out

- Patrons can select available copies of books and confirm check-out.

- The system shall update availability status upon check-out.

Book Check-in

- Patrons shall return books by selecting checked-out books and confirming check-in.

- The system shall update availability status upon check-in.

Fine Calculation

Overdue Fine Calculation

- The LMS shall calculate fines for overdue books based on library policy.

- Fines shall be calculated daily and added to the patron's account.

Reporting and Analytics

Dashboard

- Librarians and administrators shall have access to a dashboard displaying real-time library statistics, such as the number of books borrowed, returned, and overdue.

Reports

- The system shall generate reports on book usage, patron borrowing history, popular genres, and more.

- Reports shall be exportable in PDF and CSV formats.

- Reporting and Analytics

**5. Non-Functional Requirements**

**5.1 Performance Requirement**

The system shall be responsive with a maximum response time of 2 seconds for any user interaction.

**5.2 Safety Requirement**

User data shall be securely stored and encrypted. Backup and disaster recovery procedures shall be in place.

**5.3 Security**

The system shall implement authentication and authorization mechanisms to ensure data privacy and system integrity.

**5.4 Requirement Attributes**

Requirements shall be prioritized, traceable, and testable.

**5.5 Business Rules**

Business rules governing library operations shall be implemented in the system.

**5.6 User Requirements**

User requirements shall be collected and incorporated into the system design.

**6. Class Diagram**

