Software Requirement Specification(SRS)

1 Introduction:

1.1 **Purpose of this Document:** At first, main aim of why this document is necessary and what's purpose of document is explained and describeThe purpose of the Software Requirement Specification (SRS) document is to outline the functional and non-functional requirements for developing a Library Management System (LMS). The document provides a clear and comprehensive understanding of the system's functionalities, features, and constraints.

1.2 **Scope of this document** – The scope of this document is to provide a complete understanding of the LMS and its features. The LMS system will be used by librarians and users to manage the library's activities such as managing books, users, borrowing and returning books, and managing book inventory. The system will also generate reports on book inventory, borrowed books, overdue books, and reserved books.

1.3 **Overview** – The SRS document begins with an introduction to the Library Management System and its purpose. It then outlines the functional requirements that describe the system's functionalities, such as user management, book management, borrowing and returning books, book reservation, and reporting.

2 **General description:**A Library Management System (LMS) is a software application that helps in managing the activities of a library. It includes functions such as managing books, users, borrowing and returning books, and managing book inventory. This Software Requirement Specification (SRS) document outlines the requirements for developing a LMS.

3 Functional Requirements:

- User Management-

  The system should allow users to create an account and log in with their credentials.

  Users should be able to edit their profile information.

  The system should differentiate between librarians and regular users.

  Librarians should be able to add, edit, and delete users.

- Book Management-

  The system should allow librarians to add, edit, and delete books.

  Books should have the following attributes: title, author, ISBN, publisher, publication date.

  The system should keep track of the number of copies available for each book.

  The system should allow users to search for books by title, author, category, and ISBN.

- Borrowing and Returning Books

  The system should allow users to borrow books and keep track of borrowed books.

  The system should set a due date for borrowed books.

The system should send reminders to users who have overdue books.

The system should allow users to return books and update the book inventory.

- Book Reservation

  The system should allow users to reserve books that are currently checked out.

  The system should send a notification to the user when the reserved book is available.

  The system should automatically cancel a reservation after a specified period of time.

- Reporting

  The system should generate reports on book inventory, borrowed books, overdue books.

  The system should allow librarians to export reports in CSV or PDF format.

4 Interface Requirements:

- User Interface: The system should have a user-friendly interface that is easy to navigate and understand for both librarians and users.
- Login Interface: The system should have a login interface that requires users to enter their credentials before accessing the system.
- Book Search Interface: The system should have a book search interface that allows users to search for books by title, author, category, and ISBN.
- User Profile Interface: The system should have a user profile interface that allows users to edit their profile information.
- Book Management Interface: The system should have a book management interface that allows librarians to add, edit, and delete books.
- Reporting Interface: The system should have a reporting interface that allows librarians to generate reports on book inventory, borrowed books, overdue books, and reserved books.

5 Performance Requirements:

- Response Time: The system should respond to user requests quickly, with a response time of no more than two seconds.
- Concurrent Users: The system should be able to handle multiple users simultaneously without any significant decrease in performance.
- Book Search Performance: The system should be able to search for books quickly, even when the database contains a large number of books.
- System Availability: The system should be available 24/7, with a maximum downtime of 1 hour per month for maintenance.
- Database Performance: The system's database should be optimized to ensure fast and efficient data retrieval and storage.
- Scalability: The system should be scalable, allowing for the addition of new features and functionalities as the library's needs grow.
- Security Performance: The system's security features, such as encryption and authentication, should not significantly affect the system's performance.

6 Design Constraints:

- Technology: The system should be designed using technologies that are commonly used in the industry and are easily available.
- Hardware: The system should be designed to work on hardware that is commonly used, such as desktops, laptops, and mobile devices.
- Operating System: The system should be designed to work on multiple operating systems, including Windows, MacOS, and Linux.
- Web Browser: The system should be designed to work on modern web browsers, including Google Chrome, Mozilla Firefox, and Microsoft Edge.
- Third-Party Libraries: The system should be designed to use third-party libraries and frameworks that are licensed under open source or commercial licenses.
- Accessibility: The system should be designed to be accessible to users with disabilities, in compliance with the Web Content Accessibility Guidelines (WCAG).
- Security: The system should be designed to be secure, following industry best practices for secure software development, such as encryption of sensitive data, authentication, and access control.
- Data Privacy: The system should be designed to comply with data privacy regulations, such as the General Data Protection Regulation (GDPR), by implementing appropriate data protection and retention policies.

7 Non-Functional Attributes:

- Usability: The system should be user-friendly and easy to navigate for both librarians and users.
- Reliability: The system should be reliable and operate without errors or downtime.
- Performance: The system should perform quickly and efficiently, with a fast response time and minimal latency.
- Scalability: The system should be scalable and able to handle increased traffic and user demand without compromising performance.
- Security: The system should be secure and protect user data from unauthorized access or breach.
- Maintainability: The system should be maintainable, allowing for easy updates and modifications to the system without causing downtime.
- Portability: The system should be portable and able to run on different operating systems and hardware platforms.
- Accessibility: The system should be accessible to users with disabilities, complying with the Web Content Accessibility Guidelines (WCAG).
- Compatibility: The system should be compatible with different web browsers and devices.
- Availability: The system should be available 24/7, with a maximum downtime of 1 hour per month for maintenance.

8 Preliminary Schedule and Budget:

Preliminary Schedule:

Requirements Gathering and Analysis: 2 weeks

Design and Architecture: 4 weeks

Development: 12 weeks

Testing and Quality Assurance: 4 weeks

Deployment and Maintenance: Ongoing

Total Project Duration: 22 weeks (approximately 5 months)

Preliminary Budget

Salaries and Wages: $80,000 - $120,000 (depending on team size and experience level)

Software Tools and Licenses: $5,000 - $10,000

Hardware and Infrastructure: $5,000 - $10,000

Testing and Quality Assurance: $10,000 - $15,000

Miscellaneous Expenses: $5,000 - $10,000

Total Project Cost: $105,000 - $165,000 (approximate)