**1. Introduction**

The Library Management System (LMS) is designed to simplify and automate library operations, including book cataloging, member management, book issuance and returns, and overdue tracking. This system aims to replace manual methods and streamline workflows for both librarians and members.

**2. System Overview**

LMS will be a web-based application compatible with both desktop and mobile browsers. It will operate on Windows/Linux servers and use a relational database (like MySQL or PostgreSQL) for data storage. The system supports integration with optional tools like barcode scanners and email notifications.

**3. User Roles**

There will be three types of users: **Admin**, who manages system settings and user roles; **Librarian**, who manages books and member records; and **Members**, who can browse the catalog and view their borrowing history. Each role will have different access privileges based on their responsibilities.

**4. Functional Requirements**

Key features include adding/editing/removing books, registering and updating member details, issuing books with due dates, processing returns, and calculating fines for overdue items. Members will be able to search for books by title, author, or ISBN, and view their borrowing status.

**5. Non-Functional Requirements**

The system should be secure, with role-based access and encrypted login. It must be reliable, with 99.9% uptime, and scalable to support at least 100 users simultaneously. The user interface should be clean and intuitive, requiring minimal training.

**6. Constraints and Assumptions**

The system assumes stable internet access for all users and that library staff have basic computer skills. It will use open-source technologies to reduce costs and must comply with data privacy standards for storing user and book information.