

Business Requirements Document (BRD)

1. Introduction

1.1 Project Name:

Library Management System (LMS)

1.2 Business Purpose:

Libraries often face difficulties in managing book inventory, tracking borrowing history, and handling overdue books efficiently. The LMS aims to digitize and automate these processes, improving operational efficiency and user experience.

1.3 Scope of the Project:

- The system will allow **librarians** to manage books, users, and borrowing history.
- **Members** can search for books, borrow/return them, and receive overdue notifications.
- The system will include authentication, book tracking, fine calculation, and overdue notifications.
- Advanced search filters will be provided (by title, author, category, and publication year).

1.4 Stakeholders:

- **Librarians (Admins):** Manage books, users, and borrowing records.
- **Library Members (Users):** Search for and borrow books.
- **System Administrators:** Maintain database integrity and performance.
- **Higher Management (Library Directors, Supervisors):** View reports, track overdue trends, monitor system usage, and make data-driven decisions.

2. Business Objectives

- Automate book borrowing and returning.
- Provide a structured and searchable book catalogue.
- Implement role-based access control (Librarian vs. Member).
- Generate overdue notifications and calculate fines dynamically.

3. Functional Requirements

- **User Management:** Registration, login, user roles (Librarian/Member), password reset.
- **Book Management:** Add, edit, delete books, track book status (available, borrowed, reserved).
- **Borrowing System:** Borrow/return books, due date tracking, member borrowing history.
- **Search Feature:** Users can search for books by title, author, category, and publication year.
- **Overdue Notifications:** Notify users if they have overdue books and calculate fines.

4. Constraints

- Members can borrow a maximum of **3 books at a time**.
- Borrowed books must be returned within **14 days**.
- A fine of **\$0.50 per day** applies for overdue books.
- Members with **overdue books or fines exceeding \$10** cannot borrow new books.

5. Deliverables

- A fully functional LMS application with a web interface.
- A database that stores user and book data with optimized queries.
- A final presentation explaining the system.
- Unit and integration tests for key functionalities.
- User training documentation.

6. Definition of Done

The project will be considered **complete** when the following criteria are met:

- All **core features** (User Management, Book Management, Borrowing System) are **fully functional**.
- The system passes **unit and integration testing**.

- Security features, including **authentication and role-based access control**, are implemented.
- A user-friendly **UI/UX** is in place and tested.
- Project documentation, including **SRS, BRD, API Documentation, and User Manual**, is complete.
- The system is **successfully deployed** to a test/live environment.

7. Risks & Mitigation

Risk	Impact	Mitigation Strategy
Scope Creep	Project timeline may extend due to additional feature requests.	Clearly define scope in SRS and ensure stakeholder approvals before adding new features.
Data Security	User data might be exposed if not properly secured.	Implement JWT authentication, password hashing (BCrypt), and role-based access control (RBAC) .
Performance Issues	Slow response times could impact user experience.	Optimize database queries, use indexing, and perform load testing .
Technical Debt	Poor code quality could lead to future maintenance challenges.	Follow coding standards, conduct code reviews , and write unit tests.
User Adoption	Users may find it difficult to adapt to the new system.	Provide training materials, user manuals, and onboarding support .