

# Requirements Specification: Simple Library Management System (LMS) - v1.0

## 1. Introduction

This document outlines the functional requirements for the Simple Library Management System (LMS). The system aims to provide librarians with tools to manage book inventory and member checkouts.

## 2. User Roles

- **Librarian:** Primary user responsible for managing books and member checkouts.
- **Member:** (Future Scope - Not included in v1.0 functionality described here)

## 3. Functional Requirements

### 3.1 Book Management

- **FR-BM-01: Add New Book:**
  - The Librarian must be able to add new books to the system inventory.
  - Required information for each book: ISBN (13 digits, unique), Title, Author, Genre, Publication Year (4 digits), Number of Copies (integer  $\geq 1$ ).
  - The system shall validate that the ISBN is exactly 13 digits long and contains only numbers.
  - The system shall prevent adding a book with an ISBN that already exists in the inventory. An error message "ISBN already exists" must be shown.
  - Upon successful addition, a confirmation message "Book '[Title]' added successfully" should be displayed.
- **FR-BM-02: Search Books:**
  - The Librarian must be able to search for books using Title, Author, or ISBN.
  - Search results should display Title, Author, ISBN, and Number of Available Copies.
  - The search should support partial matching for Title and Author fields (case-insensitive).
  - If no books match the search criteria, the system should display "No books found".
- **FR-BM-03: View Book Details:**

- From the search results, the Librarian must be able to select a book to view its full details (all fields entered during addition).

### 3.2 Member Checkout Management

- **FR-CO-01: Checkout Book:**

- The Librarian must be able to record a book checkout for a library member.
- Inputs required: Member ID (must exist in a separate member registry - *assume registry exists for v1.0*), Book ISBN (must exist in inventory).
- The system must check if there are available copies (Number of Copies > 0) of the selected book (based on ISBN).
- If no copies are available, an error message "No available copies for ISBN [ISBN]" must be displayed, and checkout should fail.
- If copies are available, the system shall decrease the Number of Available Copies for that ISBN by 1.
- The system shall record the checkout transaction (Member ID, ISBN, Checkout Date).
- A confirmation message "Book [ISBN] checked out successfully to Member [Member ID]" should be displayed.

- **FR-CO-02: Return Book:**

- The Librarian must be able to record a book return.
- Inputs required: Book ISBN being returned.
- The system shall increase the Number of Available Copies for that ISBN by 1.
- The system shall mark the corresponding checkout transaction as complete (or remove it, depending on design).
- A confirmation message "Book [ISBN] returned successfully" should be displayed.

### 4. Non-Functional Requirements (Examples)

- **NFR-PERF-01:** Book search results should be displayed within 3 seconds on average.
- **NFR-USAB-01:** Error messages should be clear and informative.