



# Software Requirements Specification (SRS) – Database Design Library Management System (LMS)

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## 1. Problem

The Library Management System (LMS) aims to automate the process of managing books, members, employees, borrowing, and returning of books. The system should handle multiple branches, categories, and allow different roles (Employees, Managers) to perform their respective tasks.

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## 2. System Requirements

- **Functional Requirements**

The Library Management System should support the following functionalities:

### 1. Members:

- Search Books
- Borrow Books
- Return Books
- List Available Books

### 2. Employees:

- Add Books
- Edit Books
- Remove Books
- Issue Books
- Return Books

### 3. Managers:

- Manage Categories
  - Manage Branches
  - View Reports
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## 3. Entities and Attributes

### 1. Books

- book\_id (PK)
- title
- author

- category\_id (FK → Category.category\_id)
  - is\_borrowed (Boolean)
  - branch\_id (FK → Branch.branch\_id)
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## **2. Category**

- category\_id (PK)
  - category\_name
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## **3. Members**

- member\_id (PK)
  - name
  - email
  - phone
  - address
  - username
  - password
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## **4. Employees**

- employee\_id (PK)
  - name
  - email
  - phone
  - branch\_id (FK → Branch.branch\_id)
  - role (ENUM: "Employee", "Manager")
  - username
  - password
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## 5. Branch

- branch\_id (PK)
  - branch\_name
  - location
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## 6. IssuedStatus (Borrow Transaction)

- issue\_id (PK)
  - book\_id (FK → Books.book\_id)
  - member\_id (FK → Members.member\_id)
  - employee\_id (FK → Employees.employee\_id)
  - issue\_date
  - due\_date
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## 7. ReturnStatus (Return Transaction)

- return\_id (PK)
  - issue\_id (FK → IssuedStatus.issue\_id)
  - return\_date
  - employee\_id (FK → Employees.employee\_id)
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## 4. Relationships

- **One Branch → Many Books**
  - **One Branch → Many Employees**
  - **One Category → Many Books**
  - **One Member → Many Borrow Transactions (IssuedStatus)**
  - **One Borrow Transaction (IssuedStatus) → One Return Transaction (ReturnStatus)**
  - **One Employee → Handles Many Issued & Returned Books**
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## 5. Features Covered

- **Members:** Search, Borrow, Return, List Books
- **Employees:** Add, Edit, Remove, List Books, Issue/Return Books
- **Managers:** Manage Categories, Manage Branches, View Reports