

## **PROJECT SYNOPSIS**

**Project Title** : Library Management System(LMS)  
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### **Introduction:**

Library Management System using PHP and MySQL is a Web-Based application. A **Library Management System (LMS)** is software designed to manage various library functions, including the cataloging, circulation, and inventory management of books and other media. LMS helps libraries keep track of their resources, automate administrative tasks, and provide better services to users, such as borrowing and returning books, tracking late fees, and searching for available resources.

### **Scope Of Project:**

The scope of a Library Management System (LMS) defines the extent of its functionalities, the types of users it supports, and the areas of library operations it aims to manage. It covers various modules that address the needs of both library staff and patrons, ensuring efficient management of resources and services. The system can be implemented in different types of libraries, including schools, universities, public, and specialized libraries.

1. User Management:
2. Book and Resource Management
3. Circulation Management
4. Search and Discovery
5. Notifications and Alerts
6. Reports and Analytics
7. Integration with External Systems
8. Data Security and Backup
9. Multi-Library Support (Optional for Large Systems)
10. Scalability and Customization.

### **Requirements:**

1. **Functional Requirements:**
  1. User Management
  2. Resource Management
  3. Book Issuing and Returning
  4. Search and Discovery
  5. Reservations and Renewals
  6. Notifications
  7. Fines and Payments
  8. Reports Generation
  9. Integration with Barcode/RFID Scanners
  10. Data Backup
  11. Administration and Configuration
2. **Non-Functional Requirements:**
  1. Usability
  2. Performance
  3. Scalability

4. Security
  5. Reliability
  6. Maintainability
  7. Compatibility
  8. Data Privacy
  9. Backup and Recovery
  10. Localization
3. **Hardware Requirements** (Optional, depending on setup):
1. **Processor** : intel i3
  2. **RAM** :8 GB
  3. **Hard disk** :512 GB
4. **Software Requirements :**
1. **Operating system** : Windows10
  2. **Language** : PHP/Python
  3. **Database** : MySQL
  4. **Browser** :Internet Explorer, Chrome
  5. **Software Development Kit** :VS Code editor .

## **MODULES:**

### **User Management Module**

- User registration, login, and authentication.
- Role management (e.g., librarian, admin, patron).
- User profile management (edit, update user information).
- Borrowing history and user activity tracking.
- Fines management (tracking overdue fines).
- Password reset and account recovery options.

### **Catalog Management Module:**

- Adding, updating, and deleting book records.
- Classification based on title, author, genre, ISBN, publisher, etc.
- Support for different media formats (books, eBooks, DVDs, journals).
- Use of classification systems (Dewey Decimal, Library of Congress).
- Uploading cover images and metadata for books.
- Integration with external databases for book metadata retrieval (optional).

### **Circulation Management Module:**

- Check-in and check-out of books using barcode scanning or manual entry.
- Automatic due date calculation based on library policies.
- Book renewals (online or in-person).
- Reservation of books that are currently checked out.
- Overdue management and fine calculation.
- Integration with RFID or barcode systems for faster circulation.

**Search and Discovery Module:**

- Basic and advanced search functionality (by title, author, genre, ISBN, keywords).
- Search filters (e.g., by availability, publication year, format).
- Display of book details, availability status, and location in the library.
- Suggestion of related or similar books based on the search query.

**Reservation and Renewal Module:**

- Allow users to place reservations on items.
- Notifications when reserved books become available.
- Allow users to renew borrowed books within set limits.
- Option for librarians to approve or reject renewal requests based on library policy.

**Notifications and Alerts Module:**

- Sending reminders for upcoming due dates.
- Alerts for overdue items and accumulated fines.
- Notifications for reserved items that are available.
- General notifications for library events, new arrivals, and system updates.

**Fines and Payments Module:**

- Automatic fine calculation for overdue books.
- Fine history and payment tracking.
- Support for different fine structures (e.g., per day, per item).
- Integration with payment gateways (for online payments).
- Receipt generation for fine payments.

**Reports and Analytics Module:**

- Generation of reports on book circulation (issued, returned, overdue items).
- Inventory reports (available, lost, damaged books).
- User activity reports (active users, most borrowed books).
- Financial reports (fines collected, payments made).
- Customization reports based on different metrics (date range, categories, etc.).

**Inventory Management Module:**

- Tracking of available, issued, lost, and damaged books.
- Adding new acquisitions and removing outdated resources.
- Managing inventory across multiple branches or sections (optional).
- Performing stock checks and audits.

- Flagging resources for replacement or repair.

**Barcode/RFID Integration Module (Optional) :**

- Scanning books for issuing and returning using barcode or RFID readers.
- Generating and printing barcodes for new resources.
- Enhancing circulation processes with RFID systems for tracking items in real-time.

**Digital Resource Management Module (Optional) :**

- Integration with eBook platforms for borrowing and reading digital content.
- Support for online access to journals, research papers, and other digital materials.
- Licensing management for digital content.
- Access control for different types of digital resources (based on user type or subscription).

**Administration and Configuration Module:**

- Managing system settings such as borrowing limits, fine rates, and reservation policies.
- Configuring user roles and permissions.
- Customizing notifications, reports, and dashboard views.
- Setting up branches and sections for multi-library management.
- Backups and database management for data security.

**Backup and Recovery Module:**

- Automated and manual data backups.
- Data recovery options in case of system failure.
- Configuration of backup schedules and storage locations.

**Security and Access Control Module:**

- Role-based access control (librarians, patrons, administrators).
- Data encryption for sensitive information (e.g., passwords, user details).
- Activity logs to track system usage and detect potential security breaches.
- Integration with external authentication systems (e.g., LDAP, OAuth).

**Multi-Library or Branch Management Module (Optional for large systems) :**

- Manage multiple library locations from a central dashboard.
- Inter-library loan requests between branches.
- Branch-specific settings (circulation policies, inventory management).
- Consolidated reporting for all branches.

## Diagrams:

### 1. Use Case Diagram:

