

# LIBRARY MANAGEMENT SYSTEM

# A MINI PROJECT REPORT

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## **BONAFIDE CERTIFICATE**

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## **ABSTRACT**

A Library Management System is a software solution designed to efficiently manage library resources and operations. It automates tasks such as book cataloguing, member registration, book issuance, and return processes, reducing manual effort and errors. The system provides search functionality, overdue alerts, and reporting tools to help librarians track inventory and usage. Modern platforms often include cloud-based access, enabling users to search and reserve books remotely. By streamlining workflows and improving resource accessibility, the system benefits librarians, students, and researchers alike. It ensures efficient organization and promotes better knowledge sharing in academic, public, and institutional libraries.

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# **CHAPTER – 1**

## **INTRODUCTION**

### **1. INTRODUCTION**

The Library Management System is a software solution that automates library operations like cataloging, book issuance, and returns. It improves efficiency with features such as real-time updates, search functionality, and notifications. This system simplifies resource management for libraries, enhancing accessibility and user experience.

### **2. SCOPE OF THE WORK**

The system will handle user registration, login, and role-based management. It will organize and maintain a digital catalogue of library resources like books and journals. This will automate book issuance, return processes, and update inventory in real time.

### **3. PROBLEM STATEMENT**

Managing library operations manually is time-consuming, error-prone, and inefficient, particularly in large libraries with extensive resources and diverse user bases. Traditional methods of cataloging books, tracking inventory, handling book issuance and returns, and managing overdue items often lead to resource mismanagement, delays, and user dissatisfaction.

### **4. AIM AND OBJECTIVES OS THE PROJECT**

Aims to automate and streamline library operations, improving resource management and user accessibility. It will simplify processes like cataloging, book issuance, returns, and overdue tracking. The system will enhance user experience through real-time updates, search functionality, and notifications.

## **CHAPTER – 2**

### **SYSTEM SPECIFICATIONS**

#### **2.1      HARDWARE SPECIFICATIONS**

Processor	:	Intel i5
Memory Size	:	8GB (Minimum)
HDD	:	1 TB (Minimum)

#### **2.2      SOFTWARE SPECIFICATIONS**

Operating System	:	WINDOWS 10
Front – End	:	SQL + HTML
Back - End	:	PHP Server
Language	:	SQL + HTML + PHP

## CHAPTER - 3

### MODULE DESCRIPTION

This application consists of two main modules: **Admin Login** and **User Login**. Upon launching the program, the user will be prompted to select their role—either as an Administrator or a User. The functionalities of these modules are described below:

1. **Admin Login:** The Admin login allows the administrator to access the system by entering a username and password. Administrators have full access to manage library resources, including adding, removing, or updating books and other materials in the catalogue. They can also manage user accounts, generate reports on library activity, and monitor overdue items and fines. This module provides the necessary control and oversight for maintaining the library's inventory and operations.
2. **User Login:** The User login allows library members to either create a new account or log in to an existing one using their username and password. Users can search for books, borrow or return materials, view their account details, and reserve books. They can also check the availability of resources and receive notifications for overdue items or upcoming due dates. Additionally, users can access their borrowing history and pay any applicable fines.



## CHAPTER - 4

### SAMPLE CODING

FRONT- END CODE:

Dashboard Page:

```
<!DOCTYPE html>
```

```
<html lang="en">
```

```
<head>
```

```
  <meta charset="UTF-8">
```

```
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
```

```
  <title>Library Management Dashboard</title>
```

```
  <!-- Bootstrap CSS -->
```

```
  <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.0/dist/css/bootstrap.min.css"
rel="stylesheet">
```

```
  <link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/font-awesome@6.0.0/css/all.min.css">
```

```
<style>
```

```
  body {
    background-image: url('assets/dashboard.jpg');
    background-size: cover;
    background-attachment: fixed;
    color: white;
    background-size: cover;
    background-attachment: fixed;
    backdrop-filter: blur(3px);
  }
```

```
  .navbar {
    background-color: rgba(0, 0, 0, 0.8);
  }
```

```
  .sidebar {
    background-color: rgba(0, 0, 0, 0.8);
    height: 100vh;
    padding: 20px;
  }
```

```
  .card-sidebar {
    margin-bottom: 15px;
    color: black;
  }
```

```

.footer {
    background-color: black;
    padding: 20px;
    text-align: center;
}

.jumbotron {
    background-color: rgba(0, 0, 0, 0.7);
    border-radius: 10px;
    padding: 20px;
}

/* Custom Colors for Sidebar Cards */
.card-white { background-color: #007bff; }
.card-white { background-color: #28a745; }
.card-white { background-color: #fd7e14; }
.card-purple { background-color: #6f42c1; }
.card-teal { background-color: #20c997; }

/* Remove hover animation */
.card-sidebar:hover {
    transform: none;
    box-shadow: none;
}
</style>
</head>
<body>

<!-- Navbar -->
<nav class="navbar navbar-expand-lg navbar-dark">
    <div class="container-fluid">
        <a class="navbar-brand" href="#">Library Management</a>
        <div class="collapse navbar-collapse">
            <ul class="navbar-nav ms-auto">
                <li class="nav-item"><a class="nav-link" href="dashboard.php">Dashboard</a></li>
                <li class="nav-item"><a class="nav-link btn btn-primary" href="add_book.php">Add
Book</a></li>
                <li class="nav-item"><a class="nav-link btn btn-success"
href="add_member.php">Add Member</a></li>
                <li class="nav-item"><a class="nav-link btn btn-warning"
href="reports.php">Reports</a></li>
                <li class="nav-item"><a class="nav-link btn btn-danger"
href="logout.php">Logout</a></li>
            </ul>
            <!-- Search Bar -->
            <form class="d-flex ms-3" method="GET" action="search_results.php">

```

```

        <input class="form-control me-2" type="search" placeholder="Search..." aria-
label="Search" name="query" required>
        <button class="btn btn-outline-light" type="submit">Search</button>
    </form>
</div>
</div>
</nav>

<div class="container-fluid">
    <div class="row">
        <!-- Sidebar -->
        <div class="col-md-3 sidebar">
            <div class="card card-sidebar card-blue">
                <div class="card-body">
                    <h5 class="card-title">Library Sections</h5>
                    <a href="view_books.php" class="btn btn-light w-100">View Books</a>
                    <a href="view_members.php" class="btn btn-light w-100">View Members</a>
                    <a href="issue_book.php" class="btn btn-light w-100">Issue Book</a>
                    <a href="return_book.php" class="btn btn-light w-100">Return Book</a>
                </div>
            </div>
            <div class="card card-sidebar card-green">
                <div class="card-body">
                    <h5 class="card-title">New Sections</h5>
                    <a href="membership.php" class="btn btn-light w-100">Membership Section</a>
                    <a href="magazines.php" class="btn btn-light w-100">Magazine Section</a>
                </div>
            </div>
            <div class="card card-sidebar card-orange">
                <div class="card-body">
                    <h5 class="card-title">Book Habits</h5>
                    <p>Track reading habits and preferences.</p>
                </div>
            </div>
            <div class="card card-sidebar card-purple">
                <div class="card-body">
                    <h5 class="card-title">Quotes</h5>
                    <p>Inspire your reading with great quotes.</p>
                </div>
            </div>
        </div>
        <!-- Main Content -->
        <div class="col-md-9">
            <div class="text-center">
                <h1>Welcome, <?php echo htmlspecialchars($_SESSION['username']); ?>!</h1>
            </div>
        </div>
    </div>
</div>

```

```
<p>Manage the library below:</p>
</div>
```

```
<div class="row mt-5">
  <div class="col-md-4">
    <div class="card bg-info text-center">
      <div class="card-body">
        <h5 class="card-title">Total Users</h5>
        <p><?php echo $usersCount; ?></p>
      </div>
    </div>
  </div>
  <div class="col-md-4">
    <div class="card bg-warning text-center">
      <div class="card-body">
        <h5 class="card-title">Books Issued</h5>
        <p><?php echo $booksIssued; ?></p>
      </div>
    </div>
  </div>
  <div class="col-md-4">
    <div class="card bg-success text-center">
      <div class="card-body">
        <h5 class="card-title">Books Remaining</h5>
        <p><?php echo $booksRemaining; ?></p>
      </div>
    </div>
  </div>
</div>
```

```
<div class="mt-5">
  <h2>Check In / Check Out</h2>
  <form method="post">
    <input type="text" name="username" placeholder="Enter Username" required><br>
    <button type="submit" name="checkin" class="btn btn-success">Check In</button>
    <button type="submit" name="checkout" class="btn btn-danger">Check
Out</button>
  </form>
  <?php if ($checkInMessage): ?>
    <div class="alert alert-success mt-3"><?php echo $checkInMessage; ?></div>
  <?php endif; ?>
  <?php if ($checkOutMessage): ?>
    <div class="alert alert-warning mt-3"><?php echo $checkOutMessage; ?></div>
  <?php endif; ?>
  <h4 class="mt-4">Checked In Users:</h4>
  <ul class="list-group">
```

```
        <?php foreach ($checkedInUsers as $user): ?>
            <li class="list-group-item bg-dark text-light"><?php echo
htmlspecialchars($user); ?></li>
        <?php endforeach; ?>
    </ul>
</div>
```

```
<div class="row mt-5">
    <div class="col-md-6">
        <div class="jumbotron">
            <h2>Borrowing Trends</h2>
            <canvas id="borrowingTrendsChart"></canvas>
        </div>
    </div>
    <div class="col-md-6">
        <div class="jumbotron">
            <h2>Popular Genres</h2>
            <canvas id="popularGenresChart"></canvas>
        </div>
    </div>
</div>
<div>
</div>
</div>
</div>
```

```
<div class="footer">
    <p>&copy; 2024 Library Management System. All rights reserved.</p>
</div>
```

```
<script
src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.0/dist/js/bootstrap.bundle.min.js"></script>
<script src="https://cdn.jsdelivr.net/npm/chart.js"></script>
<script>
    const ctx1 = document.getElementById('borrowingTrendsChart').getContext('2d');
    const borrowingTrendsChart = new Chart(ctx1, {
        type: 'line',
        data: {
            labels: ['Week 1', 'Week 2', 'Week 3', 'Week 4', 'Week 5'],
            datasets: [{
                label: 'Books Borrowed',
                data: <?php echo json_encode($borrowingTrends); ?>,
                backgroundColor: 'rgba(255, 99, 132, 0.2)',
                borderColor: 'rgba(255, 99, 132, 1)',
                borderWidth: 2,
                fill: true,
            }]
        }
    });
</script>
```

```

    },
    options: {
      scales: {
        y: {
          beginAtZero: true
        }
      }
    }
  }
});

```

```

const ctx2 = document.getElementById('popularGenresChart').getContext('2d');

```

```

const popularGenresChart = new Chart(ctx2, {
  type: 'bar',
  data: {
    labels: <?php echo json_encode($popularGenres); ?>,
    datasets: [{
      label: 'Popular Genres',
      data: <?php echo json_encode($popularGenresCounts); ?>,
      backgroundColor: [
        'rgba(54, 162, 235, 0.6)',
        'rgba(255, 206, 86, 0.6)',
        'rgba(75, 192, 192, 0.6)',
        'rgba(153, 102, 255, 0.6)',
        'rgba(255, 159, 64, 0.6)',
      ],
      borderColor: [
        'rgba(54, 162, 235, 1)',
        'rgba(255, 206, 86, 1)',
        'rgba(75, 192, 192, 1)',
        'rgba(153, 102, 255, 1)',
        'rgba(255, 159, 64, 1)',
      ],
      borderWidth: 1
    }]
  },
  options: {
    scales: {
      y: {
        beginAtZero: true
      }
    }
  }
});

```

```

</script>

```

```

</body>

```

```

</html>

```

## BACKEND CODE :

```
<?php
session_start();

// Redirect if not logged in
if (!isset($_SESSION['username'])) {
    header('Location: login.php');
    exit();
}

// Include the database connection
include('access.php');

// Simulated data (replace with DB queries)
$usersCount = 120;
$booksIssued = 45;
$booksRemaining = 105;
$borrowingTrends = [10, 20, 30, 25, 15]; // Example data
$popularGenres = ['Fiction', 'Non-Fiction', 'Science', 'History', 'Fantasy'];
$popularGenresCounts = [15, 10, 20, 8, 5];

$checkInMessage = "";
$checkOutMessage = "";

// Check-in logic
if (isset($_POST['checkin'])) {
    $name = $_POST['username'];
    $stmt = $conn->prepare("SELECT * FROM members WHERE name LIKE ?");
    $stmt->bind_param('s', $name);
    $stmt->execute();
    $result = $stmt->get_result();

    if ($result->num_rows > 0) {
        $user = $result->fetch_assoc();
        $username = $user['name'];

        $checkin_stmt = $conn->prepare("INSERT INTO attendance (username, checkin_time)
VALUES (?, NOW())");
        $checkin_stmt->bind_param('s', $username);
        $checkin_stmt->execute();
        $checkInMessage = "User $username checked in successfully!";
    } else {
        $checkInMessage = "User not found!";
    }
}
```

```

// Check-out logic
if (isset($_POST['checkout'])) {
    $name = $_POST['username'];
    $stmt = $conn->prepare("SELECT * FROM members WHERE name LIKE ?");
    $stmt->bind_param('s', $name);
    $stmt->execute();
    $result = $stmt->get_result();

    if ($result->num_rows > 0) {
        $user = $result->fetch_assoc();
        $username = $user['name'];

        $checkout_stmt = $conn->prepare("UPDATE attendance SET checkout_time = NOW()
WHERE username = ? AND checkout_time IS NULL ORDER BY id DESC LIMIT 1");
        $checkout_stmt->bind_param('s', $username);
        $checkout_stmt->execute();
        $checkOutMessage = "User $username checked out successfully!";
    } else {
        $checkOutMessage = "User not found!";
    }
}

// Fetch checked-in users
$checkedInUsers = [];
$checkedIn_stmt = $conn->prepare("SELECT username FROM attendance WHERE
checkout_time IS NULL ORDER BY checkin_time DESC");
$checkedIn_stmt->execute();
$result = $checkedIn_stmt->get_result();
while ($row = $result->fetch_assoc()) {
    $checkedInUsers[] = $row['username'];
}
?>

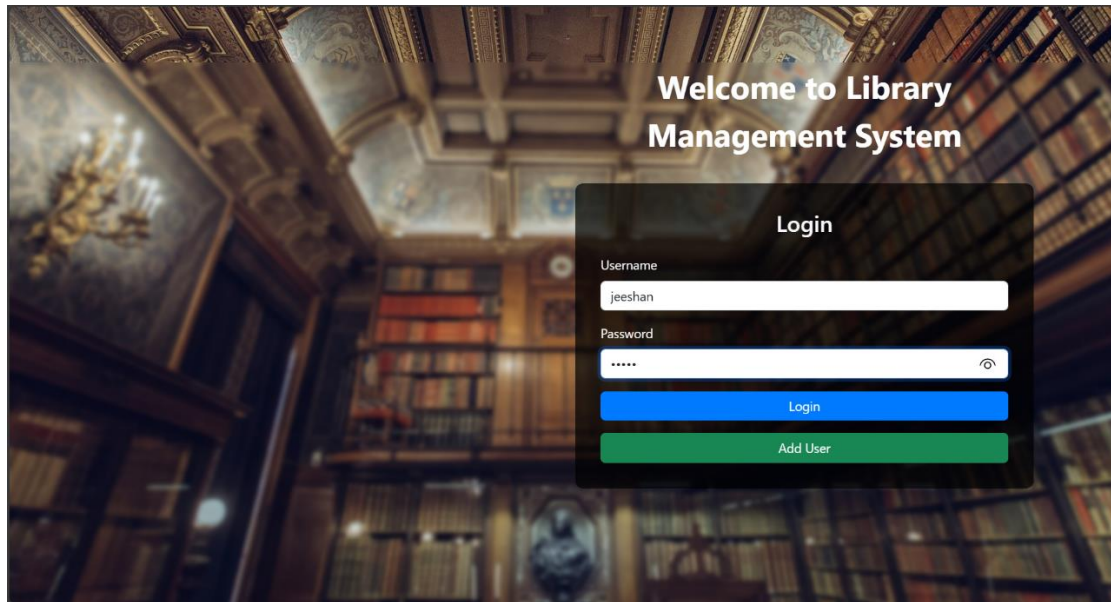
```



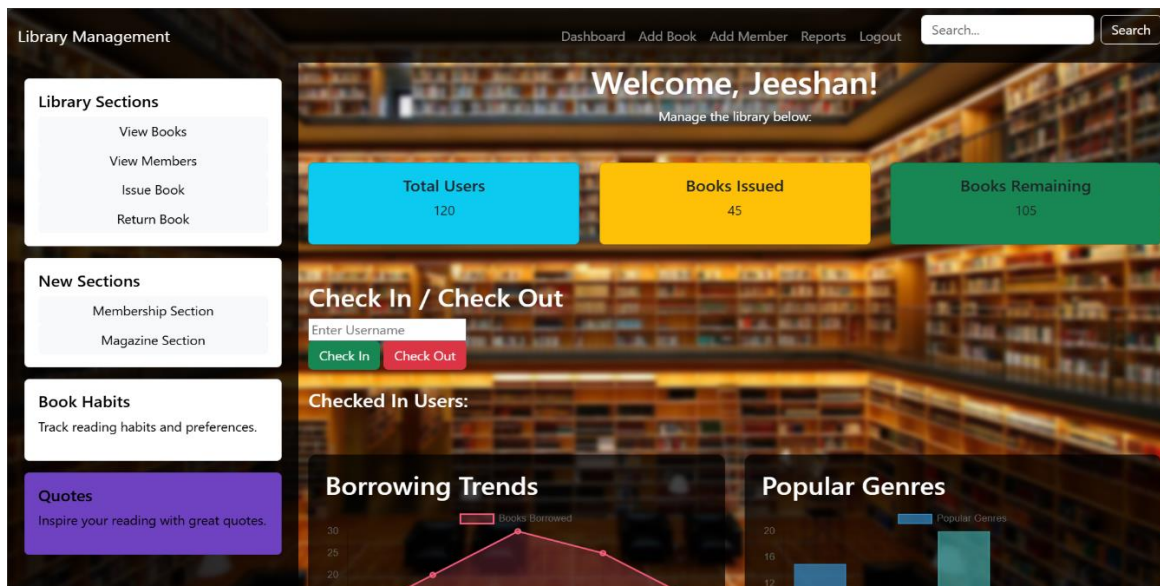
## CHAPTER - 5

### SCREEN SHOTS:

**Fig 5.1 Login Page**



**Fig 5.2 DASHBOARD**



**Fig 5.3 ADD NEW BOOK**

Connected successfully

Library Management

Dashboard Add Book Add Member Reports Logout

Search... Search

### Add a New Book

Title

Author

Genre

Publication Year

Add Book Back to Dashboard

**Fig 5.4 ADD NEW MEMBER**

Library Management

Dashboard Add Book Add Member Reports Logout

Search... Search

### Add New Member

Name

Email

Contact Number

Address

Join Date

dd-mm-yyyy

Add Member

View Members Back to Dashboard

Fig 5.6 ISSUE BOOK

Issue Book

Member ID

Book ID

Issue Book

Return Book

Member ID: 18

Name: James

Email: james@example.com

Contact: 9876543210

Member ID: 20

Name: John

Email: john@example.com

Contact: 9876543211

Member ID: 21

Name: Robert

Email: robert@example.com

Contact: 9876543212

Member ID: 22

Name: Michael

Email: michael@example.com

Contact: 9876543213

Member ID: 23

Name: William

Email: william@example.com

Contact: 9876543214

Member ID: 24

Name: David

Email: david@example.com

Contact: 9876543215

Fig 5.8 RETURN BOOK

Connected successfully

Return Book

Issued Books

Transaction ID	Book Title	Member Name	Issue Date	Return Date	Action
21	life	John	2024-11-23	<div><div>dd-mm-yyyy</div><div></div></div> <div>Return</div> <div>Calculate</div>	
22	history	John	2024-11-23	<div><div>dd-mm-yyyy</div><div></div></div> <div>Return</div> <div>Calculate</div>	

Back to Dashboard

Fig 5.9 DATA TABLES

Server: 127.0.0.1 » Database: library\_management

StructureSQLSearchQueryExportImportOperationsPrivilegesRoutinesEventsTriggersMore

Filters

Containing the word:

Table	Action	Rows	Type	Collation	Size	Overhead
<input type="checkbox"/> attendance		0	InnoDB	utf8mb4_general_ci	16.0 KiB	-
<input type="checkbox"/> books		9	InnoDB	utf8mb4_general_ci	16.0 KiB	-
<input type="checkbox"/> magazines		3	InnoDB	utf8mb4_general_ci	16.0 KiB	-
<input type="checkbox"/> members		10	InnoDB	utf8mb4_general_ci	32.0 KiB	-
<input type="checkbox"/> membership		0	InnoDB	utf8mb4_general_ci	16.0 KiB	-
<input type="checkbox"/> overdue_fees		0	InnoDB	utf8mb4_general_ci	32.0 KiB	-
<input type="checkbox"/> transactions		2	InnoDB	utf8mb4_general_ci	48.0 KiB	-
<input type="checkbox"/> users		5	InnoDB	utf8mb4_general_ci	16.0 KiB	-
8 tables	Sum	29	InnoDB	utf8mb4_general_ci	192.0 KiB	0 B

☐ Check all    With selected:

PrintData dictionary

Create new table

Table name:    Number of columns: 4    Create

Console

Server: 127.0.0.1 » Database: library\_management » Table: books

BrowseStructureSQLSearchInsertExportImportPrivilegesOperationsTriggers

Showing rows 0 - 8 (9 total, Query took 0.0007 seconds.)

SELECT \* FROM `books`

Profiling [ Edit inline ] [ Edit ] [ Explain SQL ] [ Create PHP code ] [ Refresh ]

UPDATE `books` SET `status` = 'available' WHERE `books`.`book\_id` = 6;

[ Edit inline ] [ Edit ] [ Create PHP code ]

Show all

 | Number of rows: 25 | Filter rows: Search this table | Sort by key: None

Extra options

	book_id	title	author	genre	publication_year	status	created_at
<input type="checkbox"/> Edit Copy Delete	1	The Great Gatsby	F. Scott Fitzgerald	Fiction	1925	available	2024-10-20 12:44:13
<input type="checkbox"/> Edit Copy Delete	2	1984	George Orwell	Dystopian	1949	available	2024-10-20 12:44:13
<input type="checkbox"/> Edit Copy Delete	3	To Kill a Mockingbird	Harper Lee	Fiction	1960	available	2024-10-20 12:44:13
<input type="checkbox"/> Edit Copy Delete	4	money	nelson	comic	2013	available	2024-10-20 21:07:50
<input type="checkbox"/> Edit Copy Delete	6	life	jeeshan	comic	2003	available	2024-10-20 21:42:44
<input type="checkbox"/> Edit Copy Delete	7	friends	ishwarya	comic	1986	issued	2024-10-21 13:52:59
<input type="checkbox"/> Edit Copy Delete	8	history	joh bee	comedy	2024	issued	2024-11-11 08:34:48
<input type="checkbox"/> Edit Copy Delete	9	science and technology	Jeeshan	comic	2024	available	2024-11-11 21:10:36
<input type="checkbox"/> Edit Copy Delete	10	comedy	unknown	comedy	2011	available	2024-11-11 22:05:17

Show all

 | Number of rows: 25 | Filter rows: Search this table | Sort by key: None

Console

## **CHAPTER 6**

### **CONCLUSION AND FUTURE ENHANCEMENT**

With effectively automates key library operations such as book cataloging, issuing, returns, and overdue management, improving overall efficiency and reducing manual errors. It provides a user-friendly interface for both administrators and users, ensuring easy access to resources and real-time updates on availability. The system enhances library management by generating detailed reports and offering notifications for overdue items. Future enhancements include mobile access for users, integration with external digital libraries, AI-based recommendations, enhanced security with multi-factor authentication, and the implementation of an online payment gateway. Additionally, moving the to the cloud will provide greater scalability and backup, while voice search integration will improve accessibility for all users. These upgrades will further enhance user experience and resource management in the evolving digital age.



## **CHAPTER – 7**

### **REFERENCES**

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