Library Management System

The Library Management System is a web-based application designed to streamline and manage the daily operations of a library. Built using JavaScript, HTML, and CSS, this system provides a comprehensive platform for librarians to efficiently manage books, categorize collections, and oversee member activities. The primary goal of this project is to enhance the functionality of traditional library systems by leveraging modern web technologies to deliver a user-friendly and effective management tool.

Key Features

1. Book Management by Librarian

- **Add or Remove Books:** Librarians have the authority to add new books to the library's inventory or remove existing ones. This feature ensures that the library's collection is always up-to-date and relevant.
- **Categorize Books:** Books can be categorized based on various criteria such as genre, author, publication date, and more. This categorization aids in easy navigation and retrieval of books by both librarians and members.

2. Inventory Management

- **Multiple Copies:** The system supports the addition of multiple copies of the same book. This feature is crucial for libraries that need to manage large volumes of books and ensure that multiple members can access the same title simultaneously.

3. Member Registration and Management

- **NIC Number Registration:** Members are required to register with their National Identity Card (NIC) number. This ensures a unique identifier for each member, simplifying the process of tracking borrowing history and managing member information.
- **User Profile Management:** Members can view and update their personal information, check their borrowing history, and see the status of books they have lent.

4. Book Lending and Return

- **Lending Books:** Members can borrow books for a period of one week. The system keeps track of the lending date and automatically calculates the due date.
- **Overdue Alerts:** If a member fails to return a book within the specified one-week period, the system generates an alert for the librarian. This feature ensures that books are returned on time and helps maintain the library's inventory.
- **Return Processing:** When a member returns a book, the system updates the lending section to reflect the return. This includes marking the book as available for borrowing again and removing it from the member's active lent books list.

5. Reports

- **Inventory Report:** Provides a detailed overview of all books in the library, including their categories and availability.
- **Borrowing Report:** Tracks the borrowing history, overdue books, and frequently borrowed books.
- **Member Report:** Lists all registered members and their borrowing activities.

User Roles

1. Librarian

- Manage books (add, remove, categorize).
- View and manage member information.
- Oversee lending and return processes. - Generate and view reports.

- [Return books must done by Librarian]

2. Member

- Register and manage their profile.
- ~~Borrow and return books.~~
- [Borrow books]
- View borrowing history and status of borrowed books.
- [Can Borrow only two books at once]
- [Can't Borrow same book copies at once]
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Technical Overview

The Library Management System is developed using a combination of JavaScript, HTML, and CSS. To ensure simplicity and ease of use, the system is designed to work entirely on the client side, utilizing local storage for data persistence. This approach eliminates the need for a server-side backend, making it ideal for small to medium-sized libraries.

- **JavaScript:** Manages the core functionality, including event handling, DOM manipulation, and interaction with local storage. JavaScript is used to perform all operations such as adding/removing books, updating categories, and managing member data.
- **HTML:** Structures the content and elements of the web pages.
- **CSS:** Enhances the appearance and layout, providing a consistent and user-friendly design across different devices and screen sizes.
- **Local Storage:** Utilized for data persistence, local storage ensures that all data (books, members, lending records) is saved directly in the user's browser. This enables the application to retain data between sessions without requiring a server-side database.

Conclusion

The Library Management System offers a robust solution for managing the diverse needs of a library. By integrating essential features such as book management, member registration, and lending processes, it simplifies the day-to-day operations for librarians while providing a seamless experience for members. The addition of comprehensive reporting capabilities enhances the system's utility by providing valuable insights into inventory, borrowing trends, and member activities. This project represents a significant step towards digitizing library management and improving the overall efficiency and accessibility of library services.