**Library Management System**

**Date**: 23/04/2023

**EXPNO**: 13

**Aim:**

The aim is to create a system that is easy to use for both beginners and advanced users, helping the librarian to manage the library more efficiently and with greater convenience.

**Algorithm:**

1. Start the application and display the Home page with the navbar containing links to Gallery, How it works, About, and Contact Us.
2. If the user clicks on Gallery, display the Gallery page with images of the library and its collection.
3. If the user clicks on How it works, display the How it works page with information on the library management system and its features.
4. If the user clicks on About, display the About page with information about the library, its history, and its mission.
5. If the user clicks on Contact Us, display the Contact Us page with a form to submit inquiries or feedback.
6. If the user wants to use the library management system, authenticate their credentials and grant access to the dashboard.
7. Display the dashboard with options to add new members, add new books, and search books and members.
8. If the user chooses to add a new member, display a form to collect member details such as name, address, contact number, and email.
9. Validate the member details and add the member to the database using mysqli.
10. If the user chooses to add a new book, display a form to collect book details such as title, author, publisher, and ISBN.
11. Validate the book details and add the book to the database using mysqli.
12. If the user chooses to search for books or members, display a search form with options to search by title, author, publisher, or name.
13. Retrieve the search results from the database using mysqli and display them on the search results page.
14. If the user chooses to borrow a book, display a form to collect the member's ID and book's ISBN.
15. Validate the member's ID and book's ISBN, and update the database to reflect the borrowing transaction using mysqli.
16. If the user chooses to return a book, display a form to collect the member's ID and book's ISBN.
17. Validate the member's ID and book's ISBN, and update the database to reflect the returning transaction using mysqli.
18. If the user chooses to generate a report, display options to generate reports such as books borrowed by a member, books not returned, or overdue books.
19. Retrieve the report data from the database using mysqli and display the report on the report page.
20. End the application.

**FRONT-END: -**

**HTML 5:**

HTML5 is the latest and most enhanced version of HTML. Technically, HTML is not a programming language, but rather a markup language.

HTML5 is a standard for structuring and presenting content on the World Wide Web. The new standard incorporates features like video playback and drag-and-drop that have been previously dependent on third-party browser plug-ins such as Adobe Flash, Microsoft Silverlight, and Google Gears.

HTML5 is designed, as much as possible, to be backward compatible with existing web browsers. Its new features have been built on existing features and allow you to provide fallback content for older browsers.

**CSS 4:**

Cascading Style Sheets (CSS) is a style sheet language used for describing the look and formatting of a document written in a markup language. CSS3 is a latest standard of CSS earlier versions (CSS2). CSS3 is collaboration of CSS2 specifications and new specifications, we can call this collaboration is module.CSS is used to control the style of a web document in a simple and easy way.

BOOTSTRAP4:

Bootstrap is a free and open-source CSS framework directed at responsive, mobile-first front-end web development. It contains CSS- and (optionally) JavaScript-based design templates for typography, forms, buttons, navigation, and other interface components. Bootstrap is a web framework that focuses on simplifying the development of informative web pages (as opposed to web apps). The primary purpose of adding it to a web project is to apply Bootstrap's choices of colour, size, font and layout to that project.

**JAVASCRIPT:**

JavaScript is a lightweight, dynamic, interpreted programming language. It is designed for creating network-centric applications. It is complimentary to and integrated with Java. JavaScript is very easy to implement because it is integrated with HTML. It is open and cross-platform.

**JQUERY:**

A fast and concise JS library, which simplifies HTML document traversing, event handling, animating, and Ajax interactions for rapid web development. jQuery is a JavaScript toolkit designed to simplify various tasks by writing less code.

jQuery, at its core, is a Document Object Model (DOM) manipulation library. The DOM is a tree-structure representation of all the elements of a Web page. jQuery simplifies the syntax for finding, selecting, and manipulating these DOM elements.

**FONT AWESOME:**

Font Awesome is a font and icon toolkit based on CSS and LESS. It was made to use with Bootstrap, and later was incorporated into the Bootstrap CDN.

**BACK-END: -**

**PHP:**

PHP (Hypertext Pre-processor) is a server-side scripting language used to create dynamic web pages and applications.

PHP code is embedded within HTML or can be used to generate HTML dynamically. With PHP, developers can create complex web applications, such as e-commerce sites, content management systems, and social media platforms, making it a widely used language on the web.

**MySQL:**

MySQL is an open-source relational database management system (RDBMS) used to store and manage data for web applications. MySQL uses Structured Query Language (SQL) to manage its data and provides a scalable, high-performance, and reliable database solution for web developers.

**Tables: -**

1. **Userinfo**

Description: Stores user information

Fields: id, firstname, middlename, lastname, aadhar, phone, birth, blood, gender, nationality, city, state, pin, paddress, taddress, email, password, photo, status.

1. **Issued\_books**

Description: Stores information about borrowed and returned books

Fields: id, aadhar, name, phone, email, issue\_date, return\_date, book\_name

1. **Books:**

Description: Stores information about available books in library

Fields: id, book\_name, book\_image, author, publication, purchase\_date, price, quantity, available\_quantity.

1. **Message:**

Description: Stores message from librarian

Fields: id, aadhar, title, messages, read

**5. Librarian info**:

Fields: id, name, email, password

**CONNECTIVITY**:

1. Database is stored phpMyAdmin.
2. Database is connected to the backend through a function ‘mysqli\_connect’ included in mysqli php package.

**Code:**

Librarian Login

Student Login

Registration Form