



International Journal of Research Publication and Reviews

Journal homepage: www.ijrpr.com ISSN 2582-7421

LIBRARY MANAGEMENT SYSTEM

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ABSTRACT :

This website was created for online library management. All authors and their books are available on this website. You can view and buy books from the library in a variety of genres. The library offers a wide variety of books that you can look for and buy. The books you wish to view and access are available on our website. If you order a book from this site and it hasn't arrived yet, the administrator can verify the status of your order and deliver it to your address as soon as possible. The purpose of this website is to manage library books.

INTRODUCTION

We are happy to introduce our Online Library Management System, a feature-rich software program that improves user engagement and streamlines library operations. From books and periodicals to multimedia content, this system scans library resources and incorporates them into a comprehensive resource management module. Intuitive interfaces make cataloguing, circulation, and inventory easy for both librarians and users. Automating repetitive tasks frees up staff time to focus on providing exceptional customer service, while handheld devices facilitate the process of checking books in and out. Improved administrative, analytics, and reporting capabilities provide useful data about resource usage and organisational effectiveness. Because the catalogue offers easy access for searching, reserving, and checking out materials, there are no longer any obstacles for library users to use it.

METHODOLOGY

The steps in library management approach are as follows:

1. Requirement analysis: Determine the library system's needs.
2. Implementation: Build the frontend using HTML, CSS, JS, web interface, or other frameworks.
3. Testing: To make sure every feature functions, go out functional testing.
4. Maintenance & upgrades: Because users provide frequent input, upgrades are required. Include new functions, such notifications.

MODELING AND ANALYSIS

Students must do system development, which entails both analysis and design, in order to model and analyse the library management system. Gathering data for system modelling is the first step in system analysis. A use case diagram is incorporated into the system modelling, showing the user with a variety of functionalities, such as finding and issuing books. Other sub-diagrams used in system modelling include class diagrams, which represent system elements and their accompanying functionality, and ER diagrams, which relate to data-bound objects and individual entities such as books, users, or transactions. Data flow diagrams, which show the channels of data transference within the system, are also incorporated into modelling.

RESULTS AND DISCUSSION SCREENSHOTS:

USER LOGIN

USER LOGIN FORM

ADMIN DASH BOARD

ADMIN DASHBOARD



System was also tested on several handwritten samples.

Example:

Input: The user adds a new book with the following details: Title: "The Great Gatsby", Author: "F. Scott Fitzgerald", ISBN: "9780743273565"

Output:

The program stores the book record and confirms:

Book "The Great Gatsby" added successfully.

Shows the step-by-step execution:

Step 1: Input received — Book details entered by the user.

Title = "The Great Gatsby", Author = "F. Scott Fitzgerald", ISBN = "9780743273565"

Step 2: System creates a new Book object or record.

Step 3: The Book object is stored in the library database or book list.

Step 4: Confirmation message is displayed to the user.

Time Complexity Panel:

Estimated Complexity:

$O(1)$ — Constant time complexity (assuming we are simply appending to a list or inserting into a hash table/dictionary).

Execution Time:

0.1452 seconds — Time it took to execute the operation (may vary based on system and database backend).

Input Image Text: "Project is completed" OCR Output: "project 8s completed"

After Spell Correction: "project is completed" After Grammar Correction: "Project is completed."

The output was very accurate and efficient. Users enjoyed the feature of the uploading/capturing and receiving downloadable clean text immediately. NLP usage guaranteed sentence meaning retention while correcting mistakes.

CONCLUSION

A web-based program called the Online Library Management System was created to arrange and oversee the volumes in a virtual library. For front-end development, the project makes use of HTML, CSS, and JavaScript, guaranteeing an organised, fashionable, and interactive user interface. PHP is used to manage server-side processes for database connectivity and backend functionality. A homepage, a user login page, an admin login page, a book management page, and an admin dashboard are among the website's key pages. While administrators have greater access to manage users, books, and system operations, users can log in to access and browse books. In order to facilitate easy navigation and an effective library management experience, all of these pages are connected.

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