MINOR PROJECT REPORT

2023-2024

TOPIC NAME: LIBRARY MANAGEMENT SYSTEM

Under the Guidance of

Abhishek Tiwari
Mentor

Submitted to

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Declaration

I hereby declare that the work which is being presented in the B.Tech Cs mini Project **"LIBRARY MANAGEMENT SYSTEM"**, in partial fulfillment of the requirements for the award of the ***Bachelor of Technology*** in Computer Science and Engineering and submitted to the Department of Computer Engineering and Applications of GLA University, Mathura, is an authentic record of our own work carried under the supervision of Mr.Abhishek Tiwari(Project Incharge).

The contents of this project report, in full or in parts, have not been submitted to any other Institute or University for the award of any degree.

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CERTIFICATE

This is to certify that the project entitled "*LIBRARY MANAGEMENT SYSTEM*", carried out in Mini Project – I, is a bonafide work by, **GARGI DUBEY**, **VAISHNAVI SONI** and **SHIKHA AGRAWAL** and is submitted in partial fulfillment of the requirements for the award of the degree Bachelor of Technology (Computer Science & Engineering).

Signature of Supervisor:

Name of Supervisor: MR.ABHISHEK TIWARI

Date: 02-12-2023

Acknowledgement

It gives us a great sense of pleasure to present the synopsis of the **B.Tech(CS)** mini project undertaken during the B.Tech III Year. This project is going to be an acknowledgment of the inspiration, drive, and technical assistance that will be contributed to it by many individuals. We owe a special debt of gratitude to **Ms. Rimi Gupta**, **4rd year, Section A, B.Tech Computer Science,** for providing us with an encouraging platform to develop this project, which thus helped us in shaping our abilities towards a constructive goal, and for his constant support and guidance to our work.

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opportunity to acknowledge the contribution of all faculty members of the department for their kind guidance and cooperation.

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ABSTRACT

A Library Management System is a project that tries to create an automated and computerised version for a library so that the daily work of a library can be managed and monitored easily and efficiently. Earlier, the librarian used to manage the whole work in manual mode in the form of files and record books. Also, the process of adding new books, new students, issuing and returning books had to be managed in a manual manner which is very slow and inefficient. The library management system resolves this problem and provide a better solution to this. It provides a user-friendly interface application to the librarian where he can do all the operations of a library very easily. The application mainly consists of three modules which are admin module, librarian module and student module. The admin module will be managed by the system administrator. He manages the overall functioning of the application. The

librarian module will be accessed by the librarian. He can perform various operations inside the application such as add new students, new books to the database, issuing and returning of books, updating student's details, book's details, generating weekly/monthly reports etc. The student module can be accessed by the registered students only. The operations that can be performed by the student includes: view all books available in the library, search the availability of a particular book, number of books he has issued, overall fine he has to pay etc. These three modules are interconnected with each other and also with the database. The application is built using Java technology and Sql database.

CONTENTS

INTRODUCTION

Traditionally, the librarian managed the whole work in a manual mode or recording the work details in a record book. He has to manage all the work related to library such as issuing books to the students, returning books from the students, maintaining all the details of the books, adding new students, new books etc. on a daily basis. But with the increase in the number of user/students and number of books in a library, this management process has become slow and complex. So, a better management of the library work is required.

The purpose of the library management system is to automate and digitize this traditional way of managing the library work. The Library Management System is much more user-friendly, faster in operation and easy to manage than the manual one. Through the use of it, the librarian can manage the whole data of the library in a single database in different tables with a much more security than the traditional way. In a library, tasks like issue/return/add new students/add new books/ checking any discrepancy in stock, calculating fine for overdue books etc. are performed on a daily basis and suppose a student asks for a particular book from a librarian then he has to search the book manually which takes a lot of time and there are chances of human error in that process as well. But with the help of LMS, the searching of books has become quite easy and fast and the librarian only needs to enter the book id in the search section of the application. Similarly, if a new student has to be added as a registered member of the library or an existing student has to be removed then this process has become very easy to perform. So, all these kinds of operations can be digitized and performed efficiently by using a library management system.

A library management system is software that is designed to manage all the functions of a library. It helps librarian to maintain the database of new books and the books that are borrowed by members along with their due dates.

This system completely automates all your library's activities. The best way to maintain, organize, and handle countless books systematically is to implement a library management system software.

A library management system is used to maintain library records. It tracks the records of the number of books in the library, how many books are issued, or how many books have been returned or renewed or late fine charges, etc.

You can find books in an instant, issue/reissue books quickly, and manage all the data efficiently and orderly using this system. The purpose of a library management system is to provide instant and accurate data regarding any type of book, thereby saving a lot of time and effort.

TECHNOLOGY STACK USED IN LIBRARY MANAGEMENT SYSTEM

The technology stack used in a library management system are:-

1. Front-end technologies:

- HTML, CSS, and JavaScript: These are the core technologies used for building the user interface of the system.
- Bootstrap and Material UI: Front-end frameworks that provide pre-designed UI components and layouts, making it easier to build a responsive and mobile-friendly system.

MOTIVATION

Having a management system in libraries can significantly **streamline overall efficiency**. With records of the books available with a single click, a portal for real-time analysis, and a direct connection with students, the system can handle the majority of the tasks, saving the team a substantial amount of time.

TASK DEFINITION

Library management is a sub-discipline of institutional management that focuses on specific issues faced by libraries and library management professionals. Library management encompasses normal managerial tasks, as well as intellectual freedom and fundraising responsibilities. Issues faced in library management frequently overlap with those faced in managing non-profit organizations.[1]

The basic functions of library management include overseeing all library operations, managing the library budget, planning and negotiating the acquisition of materials, Interlibrary Loan [ILL] requests, stacks maintenance, over seeing fee collection, event planning, fundraising, and human resources.[2]

WORKING

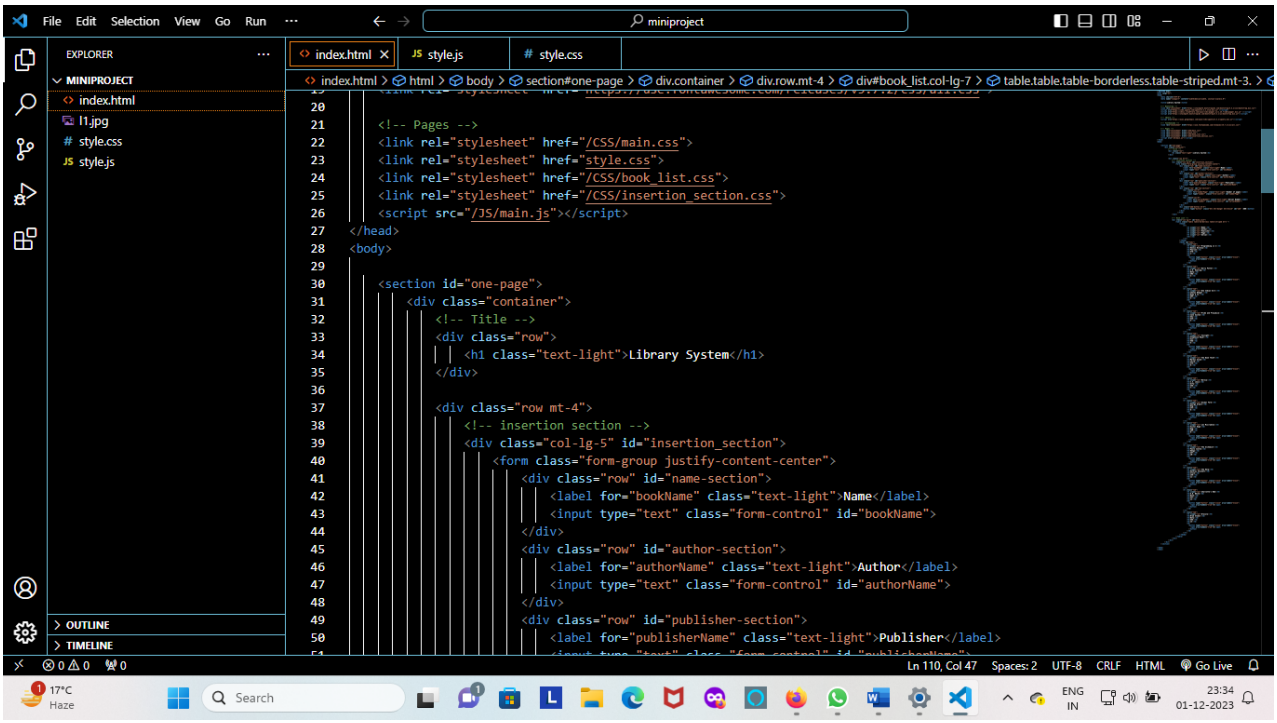
Functionality

- A library management system is software that is designed to **manage all the functions of a library**. It helps librarian to maintain the database of new books and the books that are borrowed by members along with their due dates. This system completely automates all your library's activities.

Behind the scene

- A library management system is **software that is designed to manage all the functions of a library**. It helps librarian to maintain the database of new books and the books that are borrowed by members along with their due dates..

File Structure :-



Index.html :-

index.html serves as the entry point for a library management system project, providing the initial framework and structure for the web application. It typically includes the basic HTML elements, such as the `<head>` and `<body>` tags, as well as links to external CSS and JavaScript files that enhance the overall user experience and functionality. Additionally, index.html may incorporate fundamental JavaScript code that interacts with the HTML content to implement basic user interactions and data manipulation.

Within the context of a library management system, index.html plays a crucial role in establishing the initial layout and navigation structure of the application. It often includes elements like a header, footer, and sidebar that provide consistent branding and navigation options throughout the website. Moreover, index.html may contain embedded HTML forms or dynamic content that allows users to interact with the library's catalog, search for books, and manage their personal accounts.

Style.js

The style.js file plays a crucial role in the library management system project by defining and controlling the visual appearance of the user interface. It utilizes JavaScript and CSS techniques to

style various elements, including buttons, forms, tables, and other interactive components. The file ensures a consistent and visually appealing design throughout the application, enhancing the user experience.

Style.js typically employs CSS selectors to target specific elements and apply CSS properties to modify their appearance. For instance, it can set the font family, font size, color, padding, margin, and other visual attributes of various elements. Moreover, it can implement more complex styling techniques like responsive design, media queries, and CSS animations to adapt the user interface to different screen sizes and user interactions.

The integration of style.js with the library management system project is essential for creating a visually appealing and user-friendly interface. It allows developers to separate the visual aspects of the application from its core functionality, making the code more organized and maintainable. Additionally, it enables the creation of a consistent design across different pages and components, enhancing the overall user experience.

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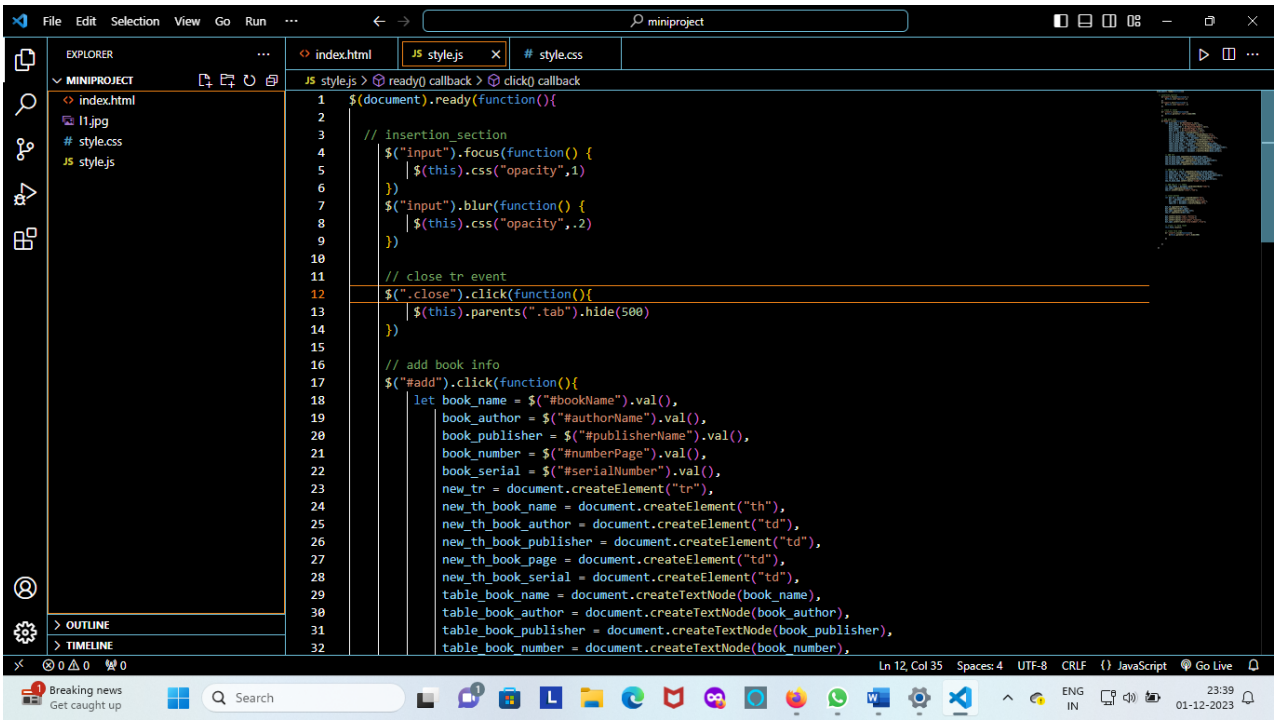

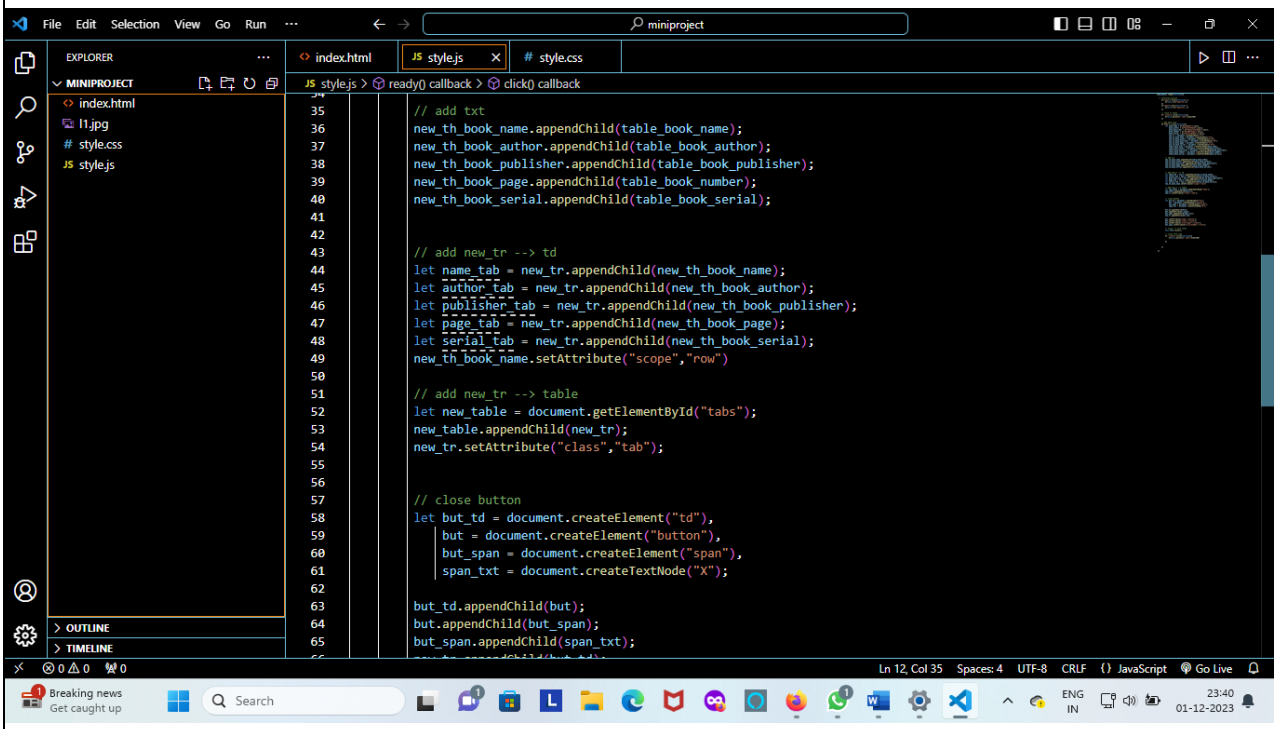
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new_th_book_author.appendChild(table_book_author);
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let publisher_tab = new_tr.appendChild(new_th_book_publisher);
let page_tab = new_tr.appendChild(new_th_book_page);
let serial_tab = new_tr.appendChild(new_th_book_serial);
new_th_book_name.setAttribute("scope","row")
// add new_tr --> table
let new_table = document.getElementById("tabs");
new_table.appendChild(new_tr);
new_tr.setAttribute("class","tab");
// close button
let but_td = document.createElement("td"),
but = document.createElement("button"),
but_span = document.createElement("span"),
span_txt = document.createTextNode("X");
but_td.appendChild(but);
but.appendChild(but_span);
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RELATED WORK

Library management systems (LMS) have been a staple in educational institutions, public libraries, and corporate settings for many years. As technology has evolved, so have LMSs, becoming increasingly sophisticated and integrated into the broader digital landscape. Over the years, there have been numerous research projects and developments that have contributed to the advancement of library management systems.

Early LMS Development

In the early days of computerized library systems, the focus was on automating basic tasks such as cataloging, circulation, and acquisitions. Systems like the Library of Congress' MARC (Machine Readable Cataloging) format and OCLC's WorldCat database played a pivotal role in standardizing bibliographic data and enabling interlibrary resource sharing. These early systems laid the groundwork for modern LMSs.

Web-based LMS Evolution

The advent of the World Wide Web in the 1990s transformed library management systems, ushering in the era of web-based LMSs. These web-based systems provided users with remote access to library resources, enabling them to search the catalog, check book availability, and renew materials from anywhere with an internet connection. Web-based LMSs also facilitated integration with other online services, such as online databases and e-resources.

Integrated Library Systems (ILS)

Integrated library systems (ILS) emerged as the next generation of LMSs, combining various library functions into a single, unified platform. ILSs offered comprehensive solutions for managing all aspects of library operations, from cataloging and circulation to acquisitions and serials management. They also provided enhanced functionality for user management, reporting, and data analysis.

Open-Source LMS Solutions

The open-source movement has had a significant impact on the development of library management systems. Open-source LMS platforms like Koha and Evergreen have gained widespread adoption due to their cost-effectiveness, flexibility, and community support. These open-source solutions have democratized access to advanced LMS technology, particularly for smaller libraries and institutions.

Cloud-based LMS Adoption

Cloud-based library management systems have emerged as a popular alternative to traditional on-premise solutions. Cloud-based LMSs offer several advantages, including scalability, accessibility, and reduced IT overhead. They also provide access to regular updates and new features, ensuring that libraries stay at the forefront of technology.

Emerging Trends in LMS

As technology continues to evolve, library management systems are incorporating new features and functionalities to meet the changing needs of libraries and their users. Some emerging trends include:

- **Mobile-first design:** LMSs are increasingly prioritizing mobile-friendly interfaces to cater to users accessing library resources on smartphones and tablets.

FUTURE WORK

There are several ways to make our library management website better in the future. Here are some examples:

1. Issue Procedure: While issuing the book to the students and/or teachers, first of all one of the college staffs working as a librarian asked the students to show the library card that has already been made by the college for each and every students. If the student does not have library card, then they never issue the book to that particular one. The librarian takes the library card and hold it until the students return the book. In the register, all the information related to the students as well as the book such as accession number, student's name and contact details, book title, book author, issue date, return date etc. It is impossible to reserve the book from home.
2. Book Return Procedure: There is a certain procedure that has to be followed by the students and librarian while returning the book. Within the due date, the student is required to return the book. Otherwise, the student has to pay certain amounts as a fine. The book borrowed by the student is being handed over to the librarian and now it is the duty of the librarian to issue the library card to the respective student by declaring that the student is no longer holding that book with him/her.
3. Addition of new books: To keep record of the new book, the library staff needs to fill a form named 'Add New Book' in which there are number of headings to be filled up such as 'Name of Book', 'Date of Delivery', 'Book Title', 'Author Name', 'Published Date', 'Published Year', 'Edition', 'Book Category', etc. They need to keep a catalogue and a notice is stick on the library notice board noticing that a particular book is available in the library.

4. Fine System: The librarian is working on keeping the record of penalty paid by the student on not giving back the book on time. Librarian finds out the issue date and return date of the book and if the student fails to return that book within the return date of the book, then he/she has to pay £1/day as a

fine. The fine may get high in the case when the book has been lost or damage by the student..

5.Deletion Procedure: The book record is deleted from the library register book when the book has been lost or totally damaged by the user.

CONCLUSION

In conclusion, our upcoming Library Management System Web Development Project is not just about modernizing library operations; it's about embracing the evolving landscape of information and technology. As we stand on the cusp of a new era, where digital solutions are key to enhancing user experiences, this project represents a dynamic bridge between tradition and innovation.

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