RAJALAKSHMI INSTITUTE OF TECHNOLOGY

BELIEVE IN THE POSSIBILITIES

LIBRARY MANAGEMENT SYSTEM

PROJECT REPORT

MENTOR:

MR. R. DEEPAK SURESH KUMAR

ASSISTANT PROFESSOR

MECHANICAL DEPARTMENT

TEAM LEADER:

HRITHICK KUMAR L (II MECH)

PROJECT MEMBERS:

FRONT-END:

SELVAMARI KANNAN S (II CSE)

VIJAY K (II CSE)

MANISHA R (I AIDS)

MONICA A (I AIDS)

MRITHUNJAYA D R (I AIDS)

INTEGRATION:

AKHIL TV (II CSE)

GODWIN JUDAH J (II CSE)

BACK-END:

ROSHAN N (II CSE)

AKSHAY G (II CSE)

PROJECT DURATION: *08/05/2024 – 31/05/2024*

**LANGUAGES USED:**

FRONT-END: HTML, CSS, JAVASCRIPT

BACK-END: FLASK – PYTHON

DATABASE: MONGODB

Abstract:

This Library Management System (LMS) is an advanced and user-friendly software solution designed to automate the management of library resources and services. Tailored for both librarians and sub-librarian, this system offers a well suite of features aimed at enhancing operational efficiency and improving user experience. This Library management system provides real-time insights into key metrics such as available books, total books issued, and active library members, ensuring easy monitoring and decision-making. Key functionalities include an inventory management module for tracking and updating book stock, a member management system for seamless addition and maintenance of user records. The software also features a book acquisition tool to request new books, a Fine Manager for Automated fine calculation to manage overdue book fees efficiently, and a Report feature to generate detailed analytical reports. The integrated book manager facilitates efficient handling of book issues, returns, and renewals. As a centralized platform for all library operations, the LMS aims to present a resource management and creates a more organized and accessible library environment for Librarian and users.

1. **Librarian Login interface for a Library Management System:**
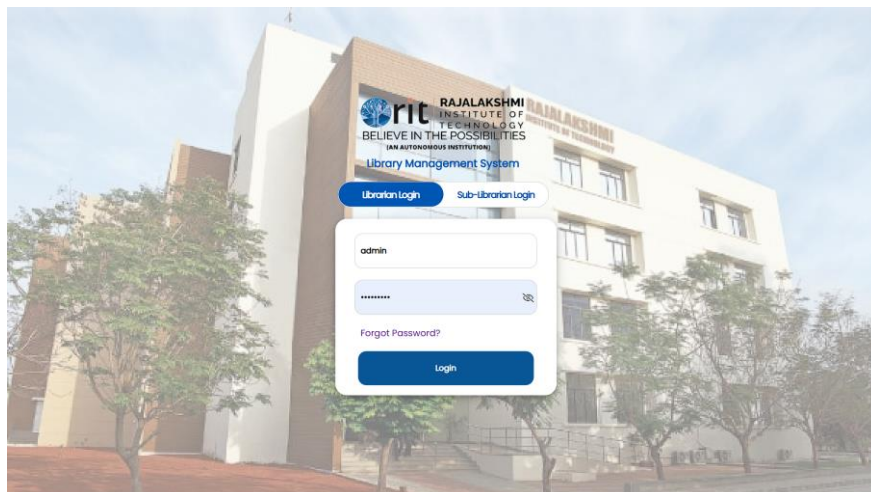
This interface features a login form with options for "Librarian Login" at the top. The interface includes:

- Username Field: For entering the user's name
- Password Field: Below the username field, with the option to view or hide the password.
- Forgot Password: A link to reset the password if forgotten.
- Login Button: A button to submit the login credentials.

1.2. Library Management System Dashboard:
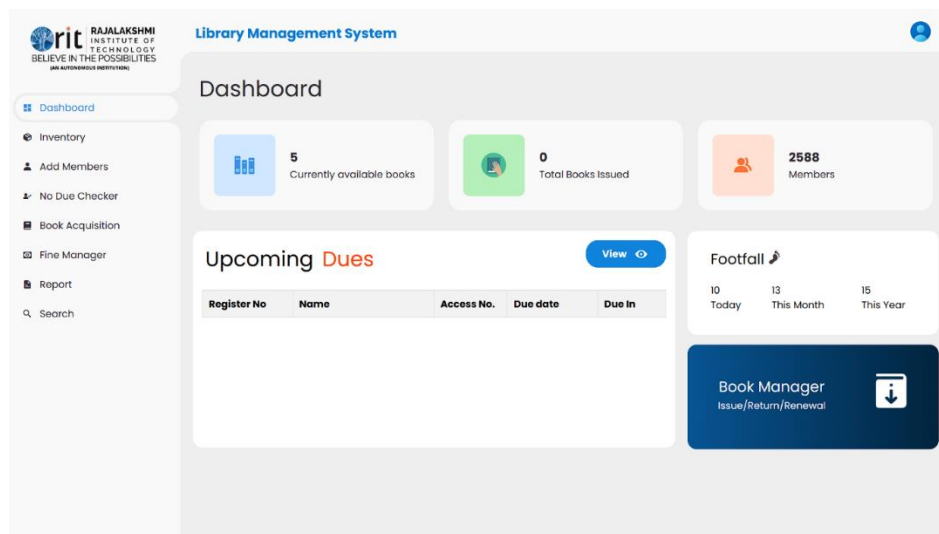
The dashboard provides an overview of key datas and functionalities, including:
- Currently Available Books: Displays the number of books currently available in the library.
- Total Books Issued: Shows the total number of books issued.
- Members: Indicates the total number of library members.
- Log out button / change password: on the right side top.
Footfall:
- Tracks the number of library visits:
  - Total visits today.
  - Total visits this month.
  - Total visits this year.

1.2.1. Book Manager:

- A feature for managing book issues, returns, and renewals.
- Quick Return by entering the accession number of the book.
Navigation Menu (on the left):
- Dashboard: The main overview screen.

- Inventory: Manage library inventory.
- Add Members: Add new members to the library.
- No Due Checker: Check for any pending dues.
- Book Acquisition: Manage the acquisition of new books.
- Fine Manager: Automated Fine Calculation to manage overdue book fees efficiently.
- Report: Generate reports.
- Search: Search for books and members.

1.2.2.Upcoming Dues:
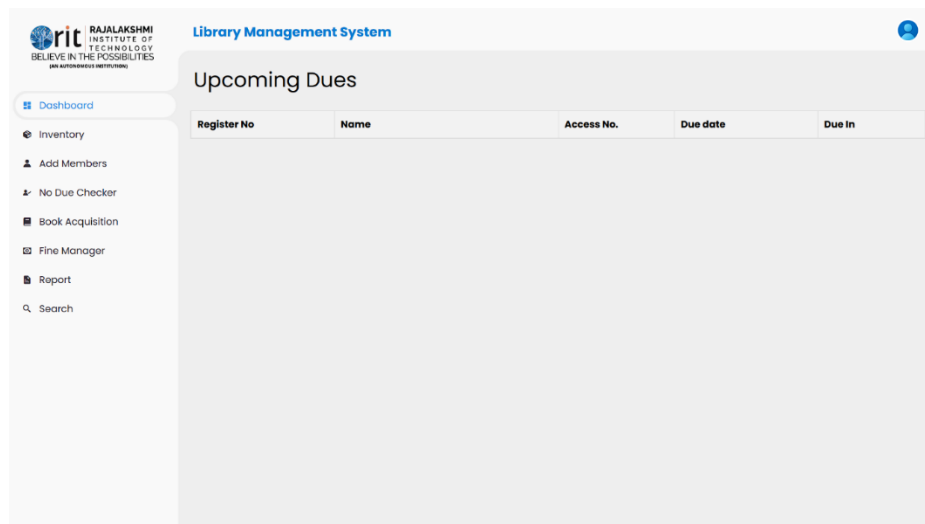
- A section to view upcoming book due dates. The table includes columns for Register Number, Name, Access Number, Due Date, and the number of days until the due date.

1.3. Inventory Management:
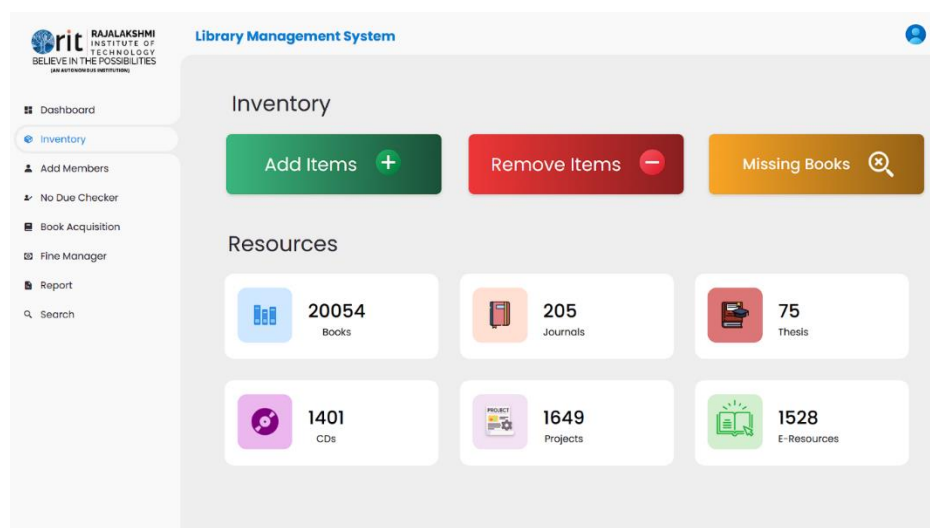
- Add Items: This functionality allows library staff to add new items to the inventory. By clicking on the "Add Items" button, staff can input details about new books, journals, CDs, projects, theses, and e-resources to keep the inventory up to date.

- Remove Items: This option enables the removal of items from the inventory. It helps in maintaining an accurate count of resources by removing out dated or lost items.
- Missing Books: This feature helps in tracking books that are reported missing. It aids in managing the status of inventory and taking necessary actions to recover or replace missing items.

- Total number of Books, Journals, Thesis, CDs, Projects, E-Resources In-stock in library.

1.4. Add Members:

The "Add Members" interface provides an easy-to-use form for inputting new member details,

1. Register No: This field is used to input the unique registration number of the member.
2. Designation (Student/Staff): This field specifies whether the member is a student or a staff member.

3. Name: The full name of the member is entered here, ensuring that the library can correctly identify and address each user.
4. Department: This field indicates the department to which the member belongs.
5. Academic Year (20XX): For student members, this field records their academic year.
6. Phone Number: The contact number of the member is recorded here.

Additional Features:

- Import by CSV: This feature allows for importing member data from a CSV file. It is especially useful for registering multiple members simultaneously, saving time and reducing manual entry errors.
- Submit Button: Once all fields are filled out, the "Submit" button finalizes the registration process, adding the new member to the library database.
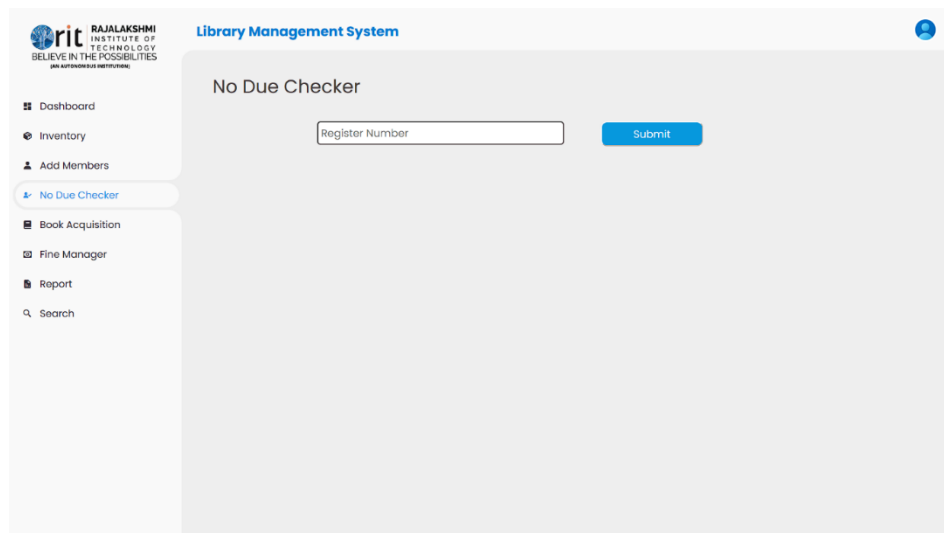
1.5. No Due Checker:

1. Register Number Input:
   - Field: There is a single input field labelled "Register Number," where the staff can enter the unique registration number of the member whose dues status needs to be checked.
   - Purpose: The register number is used to retrieve the member's borrowing history and current status in the library database.
2. Submit Button:
   - Function: Once the register number is entered, clicking the "Submit" button will query the library database.
   - Result: The system will display a list of books currently issued to the member. This list will include details such as the titles of the books, their due dates, and any fines incurred if the books are overdue.


1.6. Book Acquisition Module:

- Title: The name of the book to be acquired.
- Call Number: The unique identifier for the book within the library's classification system.
- Author: The primary author of the book.
- Author 2: A secondary author, if applicable.
- Year: The year of publication.
- Publisher: The publishing company of the book.
- Page Number: The total number of pages in the book.
- Price: The cost of acquiring the book.

The module ensures that all necessary information is collected for the acquisition process, making it easier for library staff to evaluate and procure new titles.

1.7. Report Generator Module:

The Report Generator module provides the functionality to create various reports based on library data. This module allows users to specify the type of report and the date range for which the report is to be generated. Here are the key components of the Report Generator:
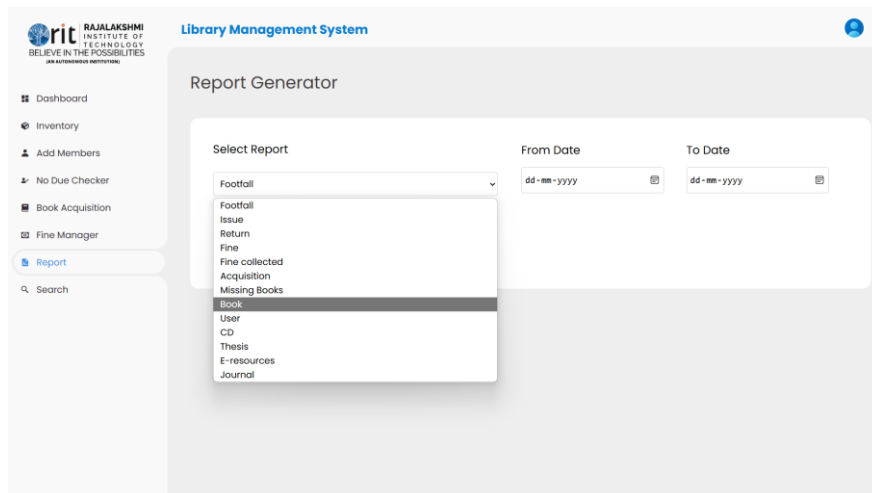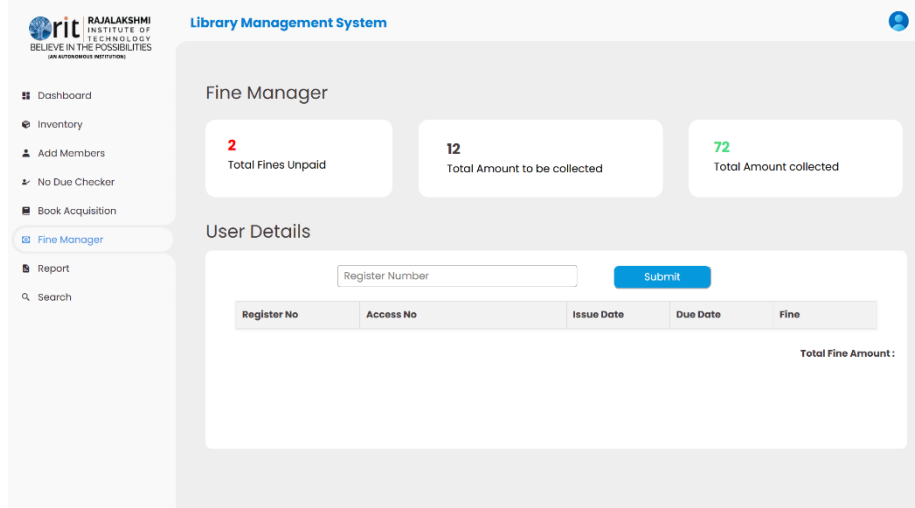
- Select Report: A dropdown menu to choose the type of report to generate
- From Date: The start date for the reporting period.
- To Date: The end date for the reporting period.
- Submit Button: Generates the report based on the selected criteria.

This feature may help library staff to analyse different aspects of library usage and management.

1.8. Fine Manager Module:

The Fine Manager module is designed to handle fines for overdue books. It provides a detailed overview and management of fines, including the following features:
- Total Fines Unpaid: Displays the number of unpaid fines.
- Total Amount to be Collected: Shows the total amount of money that is yet to be collected from fines.
- Total Amount Collected: Indicates the total amount of money collected from fines.

1.9. Search:

The module includes a specific section for library staff where librarian can enter details like register number or access to view details of member and books:
- Register Number: Input field to enter the member's register number.
- Submit Button: Displays fine details for the specified member, including register number, access number, issue date, due date, and the fine amount.
- Data of members and books will be displayed in tabular format.

2. Sub-Librarian Login interface for a Library Management System:
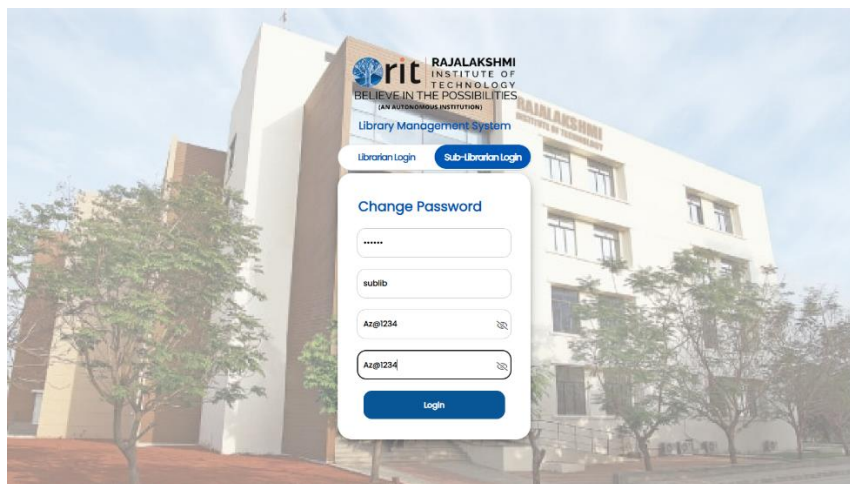
This interface features a login form with options for "Sub-Librarian Login" at the top. The interface includes:

- Username Field: For entering the user's name
- Password Field: Below the username field, with the option to view or hide the password.
- Forgot Password: A link to reset the password if forgotten.
- Login Button: A button to submit the login credentials.

2.1. Library Management System Dash board:
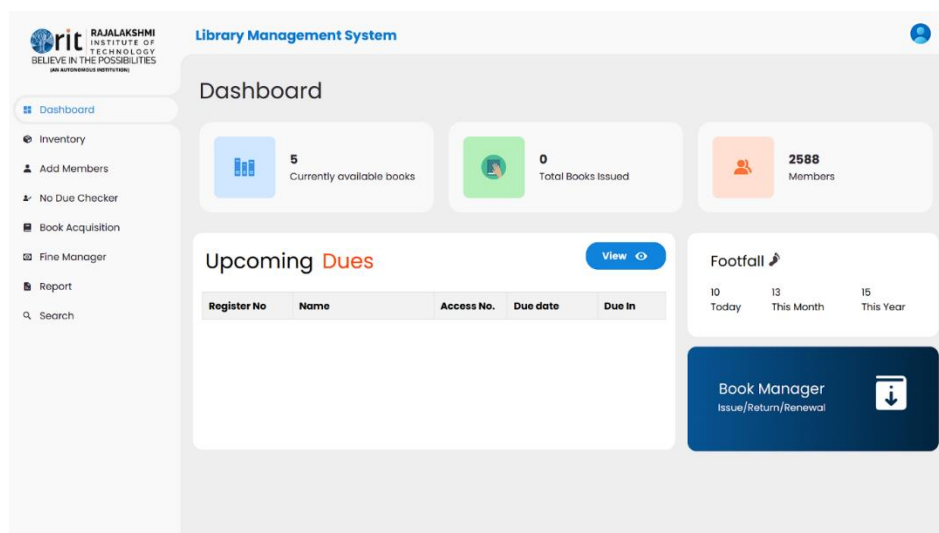
The dashboard provides an overview of key datas and functionalities, including:
- Currently Available Books: Displays the number of books currently available in the library.
- Total Books Issued: Shows the total number of books issued.
- Members: Indicates the total number of library members.
- Log out button / change password: on the right side top.
Footfall:
- Tracks the number of library visits:

- Total visits today.
- Total visits this month.
- Total visits this year.

2.1.2 Book Manager:

- A feature for managing book issues, returns, and renewals.
- Quick Return by entering the accession number
Navigation Menu (on the left):
- Dashboard: The main overview screen.
- Inventory: Manage library inventory.
- Add Members: Add new members to the library.
- No Due Checker: Check for any pending dues.
- Book Acquisition: Manage the acquisition of new books.
- Fine Manager: Automated Fine Calculation to manage overdue book fees efficiently.
- Report: Generate reports.
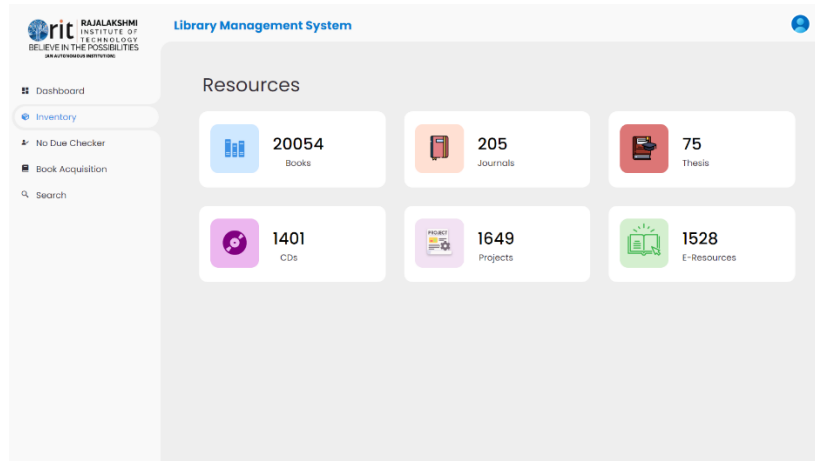- Search: Search for books and members.

2.1.3. Upcoming Dues:

- A section to view upcoming book due dates. The table includes columns for Register Number, Name, Access Number, Due Date, and the number of days until the due date.

2.2. Inventory Management:

- Total number of Books, Journals, Thesis, CDs, Projects, E-Resources In-stock in library.

2.3. No Due Checker:

Functionality:
1. Register Number Input:
   - Field: There is a single input field labelled "Register Number," where the staff can enter the unique registration number of the member whose dues status needs to be checked.
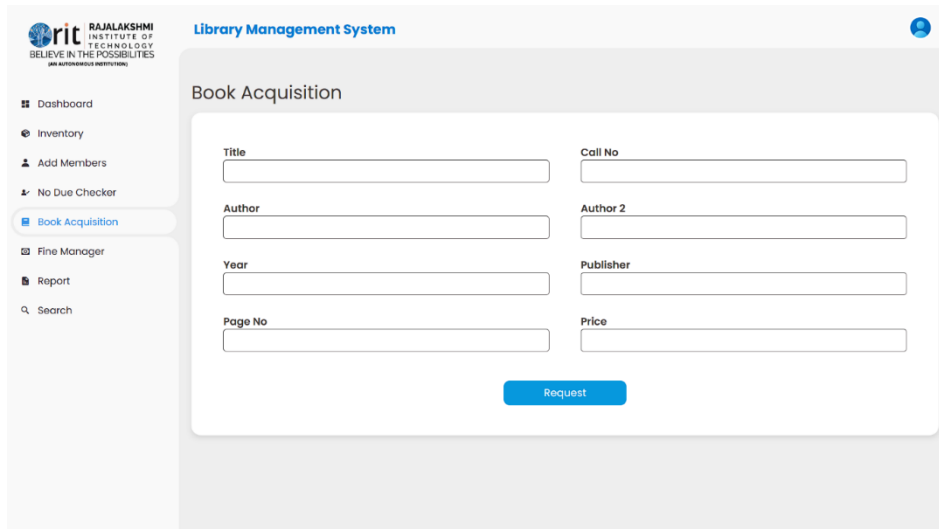   - Purpose: The register number is used to pull up the member's borrowing history and current status in the library database.
2. Submit Button:
   - Function: Once the register number is entered, clicking the "Submit" button will query the library database.

- Result: The system will display a list of books currently issued to the member. This list will include details such as the titles of the books, their due dates, and any fines incurred if the books are overdue.
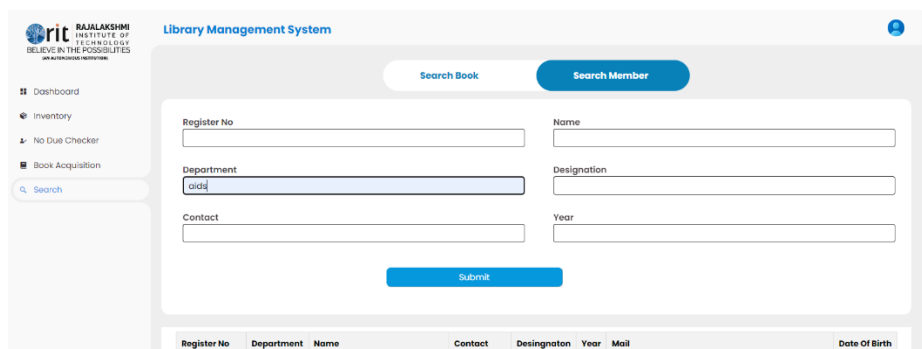
2.4. Book Acquisition Module:

- Title: The name of the book to be acquired.
- Call Number: The unique identifier for the book within the library's classification system.
- Author: The primary author of the book.
- Author 2: A secondary author, if applicable.
- Year: The year of publication.
- Publisher: The publishing company of the book.
- Page Number: The total number of pages in the book.
- Price: The cost of acquiring the book.

The module ensures that all necessary information is collected for the acquisition process, making it easier for library staff to evaluate and procure new books.

2.5.Search:

The module includes a specific section for library staff where can enter details like register number or access to view details of member and books:

- Register Number: Input field to enter the member's register number.
- Submit Button: Displays fine details for the specified member, including register number, access number, issue date, due date, and the fine amount.

- Data of members and books will be displayed in tabular format.

3. OPAC (open public access catalogue):

The Open Access Public Catalogue page is a user-friendly and visually appealing interface that provides comprehensive information about the available library resources

Header Section:

  - Institution Name and Logo: The top-left corner displays the logo, maintaining brand consistency.

  - Navigation Links: The top-right corner contains links to different sections of the LMS: Dashboard, User Info, Book Requisition, and Search.

  - The central part of the page welcomes users to "RIT's Open Access Public Catalogue," reinforcing the purpose of the interface.

Main Navigation Buttons:

  - User Info Button: Allows users to access their personal information and library usage history.

 - Search Button: Enables users to search for specific resources within the library's catalogue.

Resources Overview:

  - A section titled "Resources" displays the quantity and type of resources available in the library, using visually distinct icons and color-coded categories:

    - Books
    - Journals
    - Theses
    - CDs
    - Projects
    - E-Resources

The interface is designed to provide users with quick access to important sections of the LMS and a clear overview of the library's resources. Users can easily navigate to their personal information, search the library's catalogue, and understand the scope of available materials at a glance.

3.1. User Info:

This document describes the "User Info" page of the Library Management System (LMS) at Rajalakshmi Institute of Technology (RIT). This page allows users to access their personal information and details about the books they have issued. The "User Info" page is designed to provide users with an intuitive way to retrieve their personal library information. It includes a simple form for entering the user's register number and displays the issued book details once the number is submitted.

1. Header Section:

  - Institution Name and Logo: The top-left corner features the logo and name of Rajalakshmi Institute of Technology.

  - Navigation Links: The top-right corner contains links to other sections of the LMS: Dashboard, User Info, Book Requisition, and Search.

2. User Info Section:

  - The title "User Info" clearly indicates the purpose of the page.

  - Register Number Input: A text input field labeled "Enter your Register Number" where users can enter their register number.

- Submit Button: A button labeled "Submit" that users click to retrieve their information.

3. Information Display Section:

- User Information: This section is designed to display user-specific details upon submission of the register number.

- Issued Book Details: This table lists the books issued to the user with the following columns:

- S.No: Serial number of the issued book.

- Access No: Access number of the book.

- Title: Title of the issued book.

- Issue Date: Date when the book was issued.

- Due Date: Due date for returning the book.

Users are required to enter their unique register number in the input field and click the "Submit" button. Upon submission, the page will display the user's information, including details of books they have issued, ensuring they can easily track their library usage and manage their borrowed materials.

3.2. Book requisition:

The "Book Requisition" page is designed to facilitate the request process for new books. Users can submit detailed information about the books they wish to request, ensuring that the library staff has all the necessary information to procure the requested items.

Book Requisition Form:

- Title: The title "Book Requisition" clearly indicates the purpose of the page.

- Input Fields: The form includes various input fields for users to provide detailed information about the book they are requesting:

- Title: Input field for the book's title.

- Author: Input field for the author's name.

- Year: Input field for the year of publication.

- Page No: Input field for the total number of pages.

- Call No: Input field for the book's call number (library classification).

- Edition: Input field for the edition of the book.

- Publisher: Input field for the publisher's name.

- Price: Input field for the price of the book.

   - Submit Button: A button labelled "Request" that users click to submit their book requisition form.

Users are required to fill in the form with as much detail as possible about the book they wish to request. After completing the form, they need to click the "Request" button to submit their requisition. The detailed information provided in the form helps the library staff to efficiently locate and acquire the requested book.

3.3. Resources Search:

The module includes a specific section for library staff where librarian can enter details like register number or access to view details of books:
- Register Number: Input field to enter the member's register number.
- Submit Button: Displays fine details for the specified member, including register number, access number, issue date, due date, and the fine amount.
- Data of members and books will be displayed in tabular format.

4. Attendance (Entry and Exit):

   - Register Number Field: A text input field where users can enter their registration numbers.

   - Login Button: A blue button labelled "Login" for users to submit their credentials.

Users are required to enter their unique register number in the provided text field and click the "Login" enter in the library and same process for "Exit". This system likely records attendance like entry and exit of people accessing library.