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# APP BASED LIBRARY MANAGEMENT SYSTEM USING JAVA

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***Abstract:*** A library management system is an initiative that aims to provide an automated and computerised version of a library so that everyday operations can be quickly and effectively controlled and monitored. Previously, the librarian managed the entire workload manually using files and record books. Additionally, the manual management of adding new books, new students, issuing, and returning books was highly slow and ineffective. This issue is fixed and a better solution is provided by the App Based Library Management System. The librarian will have access to the module. He can use the application to carry out a variety of tasks, including adding new students and books to the database, issuing and returning books, updating student and book information. The student has the opportunity to view every book in the library, search for the availability of a specific book, view the number of books he has issued, view the total fine due, and do other activities. These modules are interconnected with each other and also with the database. The application is built using Java technology and SQL database.

## I. INTRODUCTION

In the past, the librarian handled all of the job manually or by keeping track of it in a record book. He is responsible for overseeing all library-related tasks such as assigning books to students, collecting books from them, keeping track of the books' details, adding new students, new books, etc. on a daily basis. However, as the number of users/students and volumes in a library has grown, the administration process has slowed down and gotten more difficult. Therefore, better library job management is needed.

Compared to the manual system, the library management system is significantly more user-friendly, quicker to operate, and simpler to manage. By using it, the librarian may handle all of the library's data in a single database across multiple tables with a lot more security than they could before. Daily tasks in a library include adding new students, issuing books, returning them, checking for discrepancies in the inventory, calculating fines for overdue books, etc. Using the Library Management System has made looking for books quick and simple; all the librarian needs to do is input the book id into the application's search field. Similar to the previous case, it is now quite simple to add a new student to the library's list of registered users or to delete an existing student from that list.

## II. LITERATURE REVIEW

By automating the majority of the tasks, the online library management system website lessens the workload of the librarian. Through the simple act of scanning a QR Code, even the processes of lending and returning books are automated. Numerous studies have been conducted in this area, and numerous applications have been created to manage libraries effectively.

Among the projects and studies completed are - Petal. (2020) has examined a library management system created with Microsoft.NET and C#. According to the research, the system automates numerous library duties that a librarian would typically perform manually.

The librarian finds it challenging to manage all the issues at once when working manually. The method enables librarians to simultaneously identify all issues. An analysis of a Java-based library management system was conducted by Prasanna & Gupta (2020).

They discovered because each time a student is registered with the library system, they should receive a new code. The librarian must keep a lot of records for it, which is exceedingly challenging to do manually. Automation can therefore be used to make it simpler.

## III. AIM AND OBJECTIVE

- A search column to check book availability;
- A login page for administrators where they can add books.

## IV. REQUIREMENT SPECIFICATION

- **Hardware Requirement:**
  - **Operating System:** Windows 7 or above operating system.
  - **Hard Disks:** 8GB/512GB
  - **Ram:** 2GB as it will give faster performance throughput.
- **Software Requirement:**
  - Java language. JAVA
  - Net beans IDE 7.0.1
  - MySQL.
  - PhpMyAdmin: As it can also easily handle server-side queries if any as well as compatible with tools for website designing

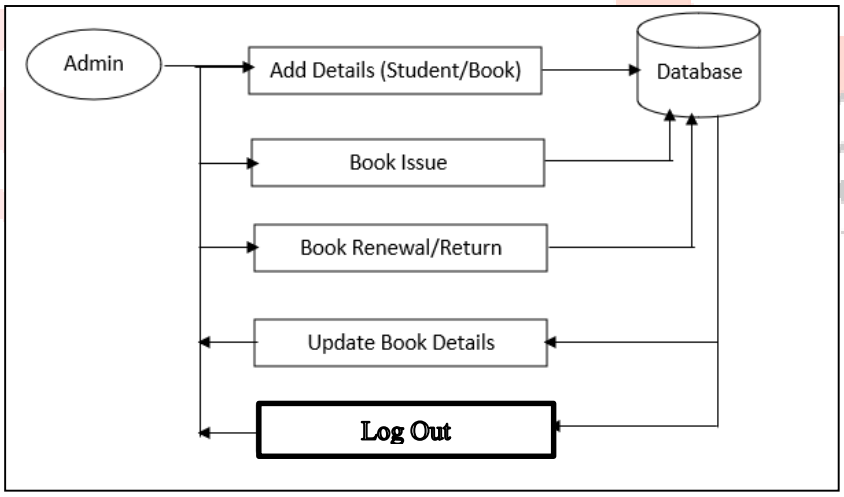
## V. SQL DATABASE

Standard Query Language, or SQL, is another name for the language that is used to communicate with databases. To run queries on the database and get data from the database, SQL statements are used. We can build a brand-new database, table, stored procedure, as well as edit, remove, and add table elements. Additionally, we may inspect the data and modify the view, procedure, and table permissions.

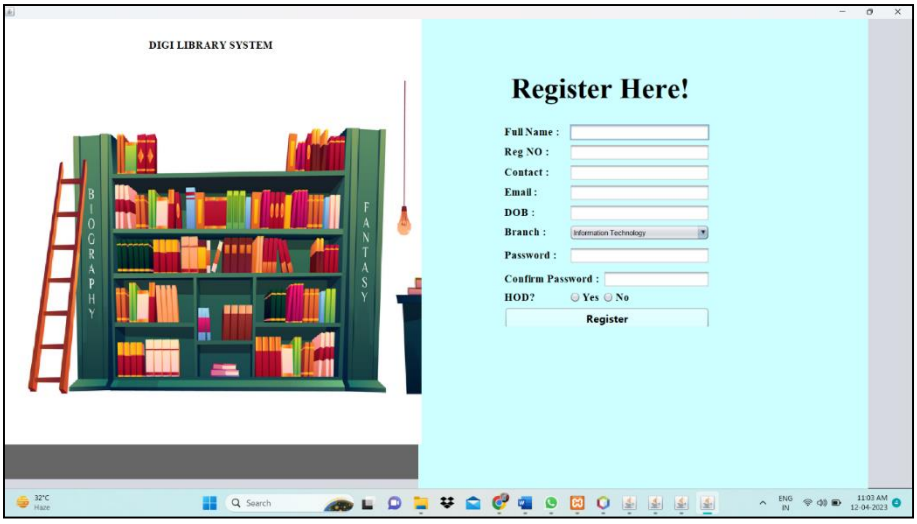
## VI. PROPOSED SYSTEM

The project Library Management System aims at developing a fully functional computerized system to maintain all the day-to-day activity of a library This project has many features which such as the facility of user login and teacher's login. Also, on top of all this, there is an admin who will be managing the entire application's authorization and authentication, not no intruder can log in and modify the data, as a login for admin is also available.

## VII. SYSTEM ARCHITECTURE



## VIII. RESULT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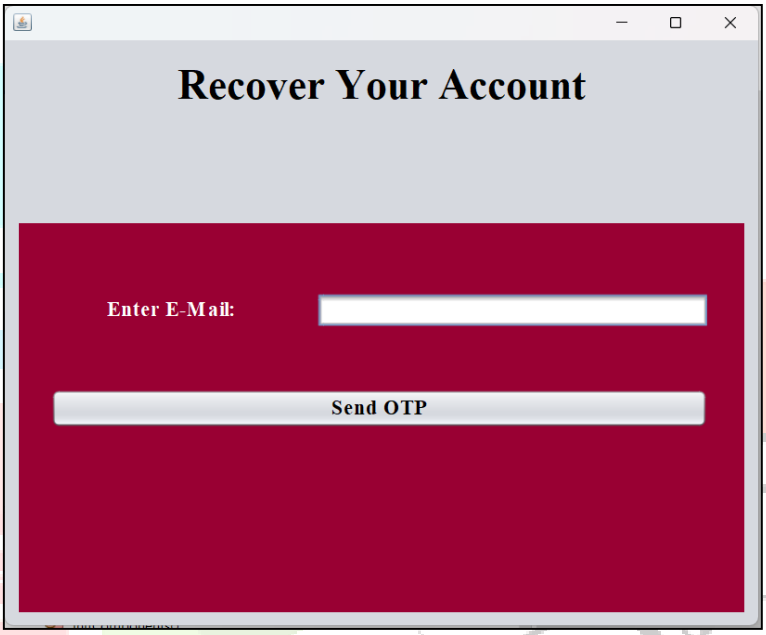
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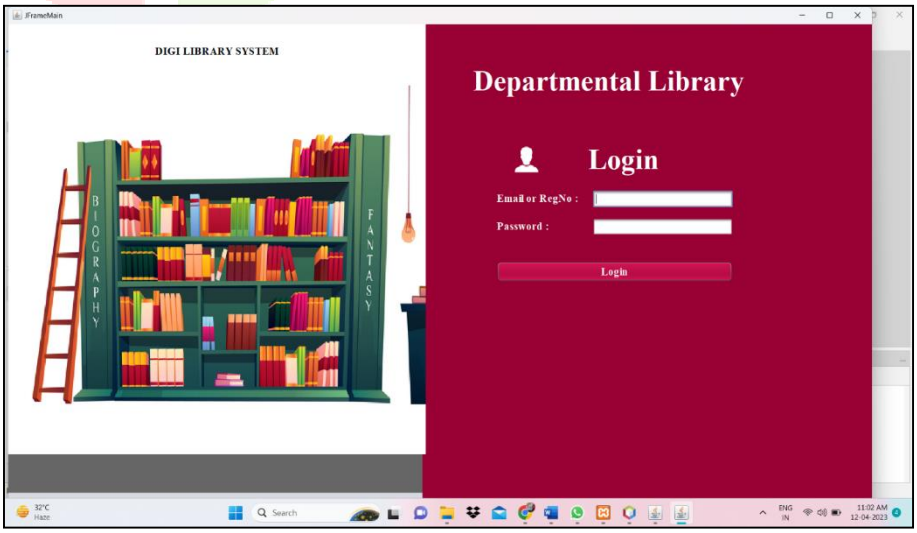
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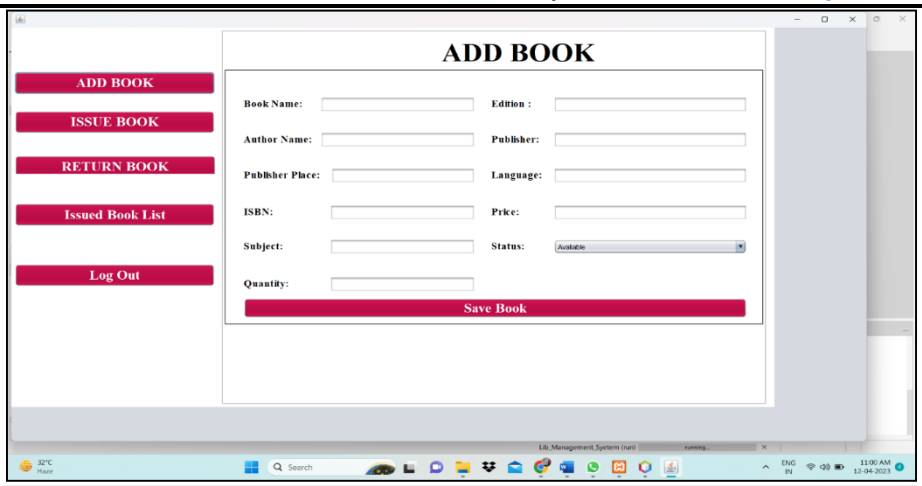
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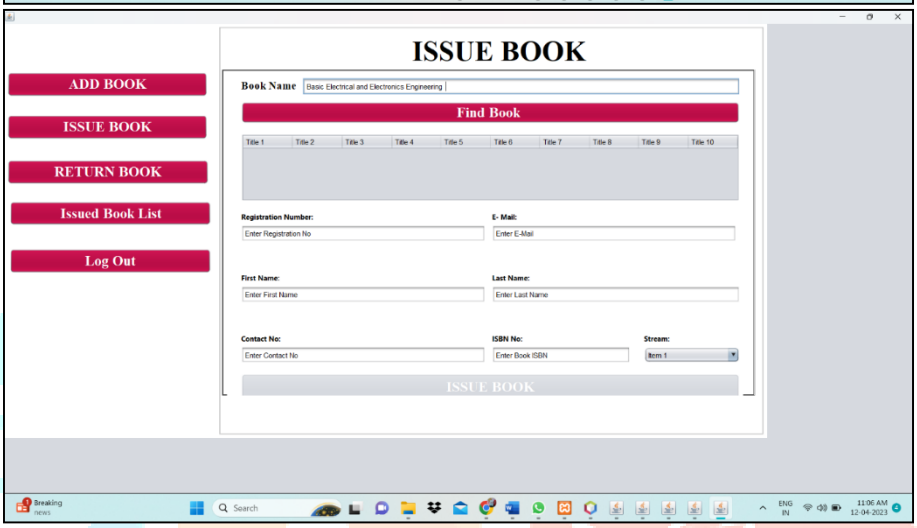
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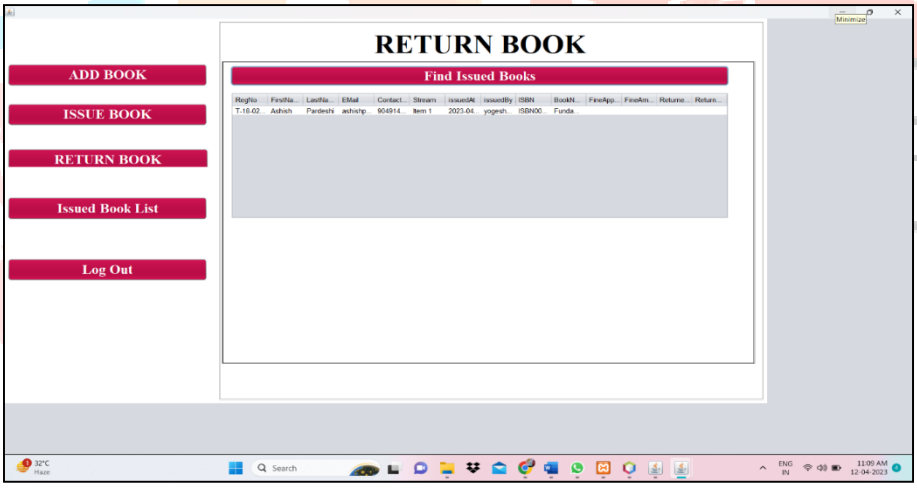
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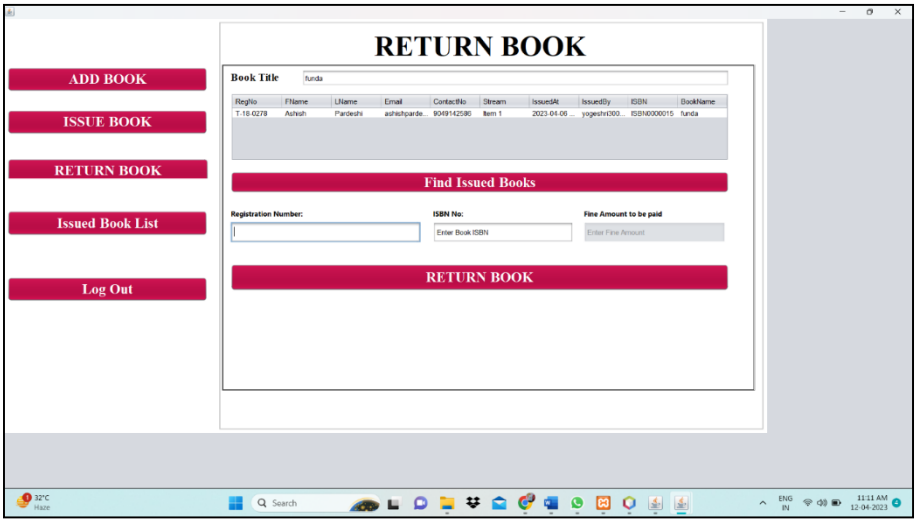
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## IX. CONCLUSION

Because the typical approach of operating a library involves doing everything manually, which is sluggish, inefficient, less secure, and challenging to maintain, this paper primarily focuses on how we may enhance it. An app-based library management system, which handles all the labour by automating and digitising the entire process, is the answer to this problem. Our Java-based application is connected to a relational database (SQL). Java and related libraries, including awt and swing, were used to code the frontend portion. Java and its libraries and APIs are used to support the backend and connect it to the database. The burden of the library will increase, allowing for the addition of additional features that will make the application more useful.

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