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Library Management System

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ABSTRACT:

With the advancement of technology, it is imperative to exalt all the systems in a user-friendly manner. The Library Management system (LMS) acts as a tool to transform traditional libraries into digital libraries. In traditional libraries, the students/user has to search for books which is a hassle process and there is no proper maintenance of the database about issues/fines. The overall progress of work is slow and it is impossible to generate a fast report. The librarians have to work allotted for arranging, and sorting books in the book sales. At the same time, they have to check and monitor the lend/borrow book details with its fine. It is a tedious process to work simultaneously in different sectors. LMS will assist the librarians to work easily. The LMS supports the librarians to encounter all the issues concurrently. The users need not stand in a queue for a long period to return/borrow a book from the library. The single PC contains all the data in it. The librarians have to assess the system and provide an entry into it. Through LMS the librarian can find the book on the bookshelves. The LMS is designed with basic features such as librarians can add/view/update/delete books and students' details in it. Once he/she ingress into the system they can modify any data in the database. The authorized person can only access the LMS system, they have to log in with their user id and password. As aforementioned that the LMS is designed in a user-friendly manner, so the admin can smoothly activate the system without expert advice. The complete model is developed by using Java. All data is stored and retrieved from the MongoDB database so it is highly secure. Thus, our system contributes its new approach to the digital library setup.

INTRODUCTION:

Library management systems are designed to manage the movement of books and maintain records of the users in a library and the record of Books in a library. The software solution is designed to make work easy for both librarian and the user. We can reduce the time taken to take and return the book and even save time for searching for the book.

The system requirement in library management focuses on the possibility of searching for books by title, author, or subject by the member. They should be able to locate a book physically by the unique identification code and the rack number and the row number for each book. The system should provide details on the books held by the users. The system should limit the number of books that can be taken and the number of days that a book can be kept. The system should generate fines when due from the user.
The next step focuses on the functions of the librarian, the member, and the system. Managing books by the librarian, searching for books by the user.

The third step in the design of the library management system software is based on the different aspects of a library. The name of the library, the book details, user details, membership cards allotted by a librarian, book reservations, book lending, fines, book racks, and rows.

It shows the issued date of the book to the user and the returned date, if it is past due then the system automatically calculates the fines and will be shown to the user and the fine should be paid to the librarian. It also shows the History of books taken from the library and the History of books that users took and returned in past days.

OBJECTIVES:

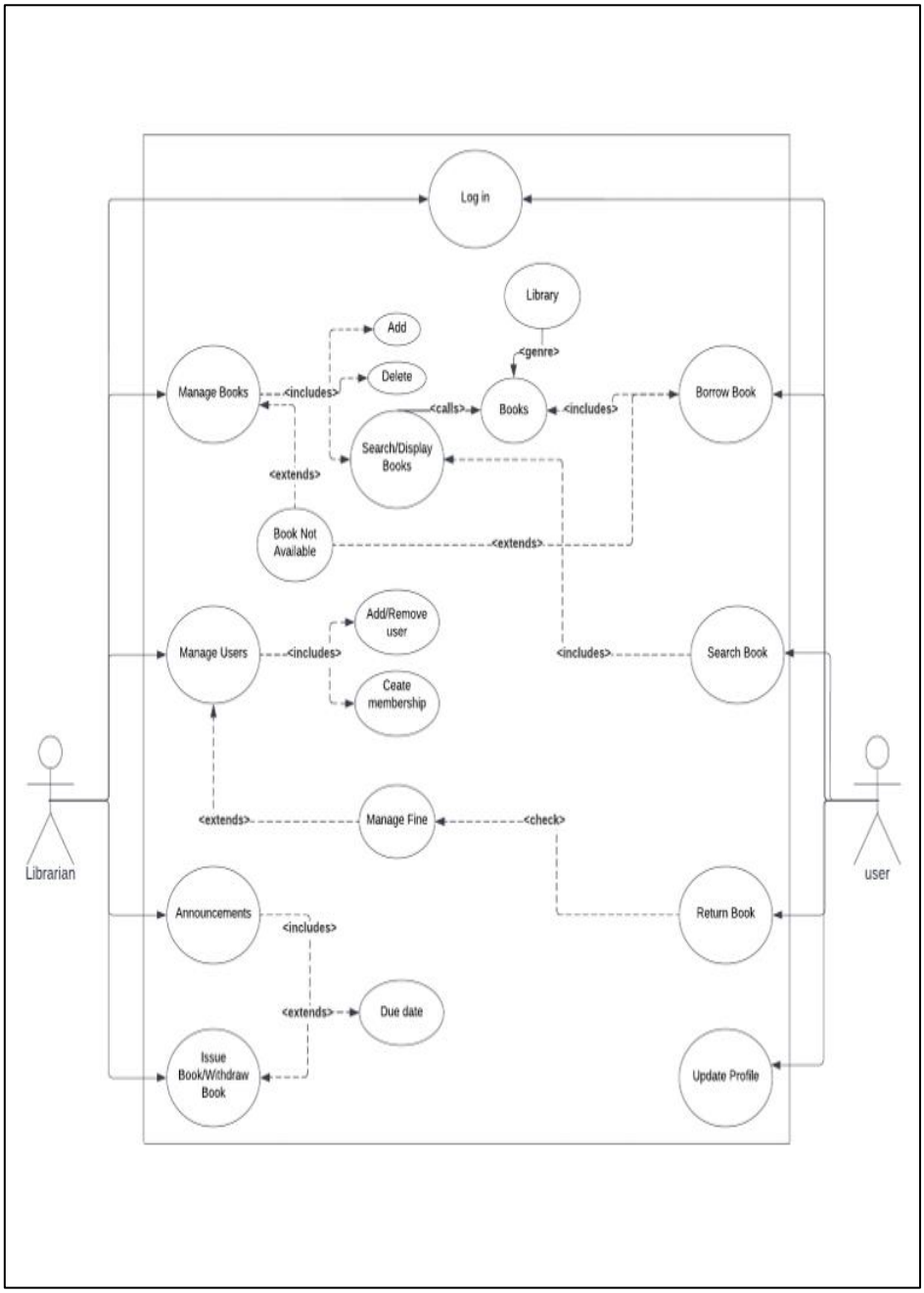
The objective of this project is to transform traditional libraries into digital ones. Time can be saved and new functionalities can be implemented easily. History can be noted easily and librarians can have control over things.

PRODUCT SCOPE:

To assist the staff in capturing the effort spent on their respective working areas. To utilize resources efficiently by increasing their productivity through automation.

USE CASE DIAGRAM:

P.T.O



PRODUCT FEATURES:

- Librarian
  - Manage Books
    - Add Book
    - Delete Book
    - Search Book
  - Manage User
    - Add User
    - Remove User
    - Create Membership for user
    - Manage Fine

    - Announcement
    - Issue Book / Withdraw Book
- User
    - Borrow Book
    - Search Book
    - Return Book
    - Update Profile

- Library
    - Genre
        - Novels
            - Books
                - Name
                - Rack and row
                - Author and published year
                - Rating for the book
        - Documentaries
        - Finance
        - Biography
        - Comics
        - General Knowledge
        - Subjects

USE CASES AND CHARACTERISTICS:

- **Manage Books**: Librarian has this functionality to manage books like deletion of books and adding of new books etc…
- **Manage User**: A librarian can manage users, he/she can add or delete or suspend the user. He can also allow membership for the user.
- User can log in through his credentials and he can do things like Borrow book, Search book, Return book, and Update profile.
    - Userser can borrow the book through the Borrow Book portal
    - If he/she returns the book then he can update it through the return book portal. Librarians can also access this portal.
    - User can update his/her profile through the Update profile portal.
- Library has 7 genres in total that are Novels, Documentaries, Finance, Biography, Comics, General Knowledge, and Subjects.

    - This is further divided into sub-topics based on the genre we pick. Example Finance can further be divided into different topics like Stock market Books, Banks, Country finance, Financial Management, etc
- If we search for a book or we find any book from any genre then we can see the Book name, Book Author and Publication year, Book location like its rack and row, and The Rating for the book.
- Login page has Librarian login and User login according to the credentials it will log in. By entering the wrong credentials, we can't log in. Users can change their password by clicking on the change password option on the login page.

PRODUCT FUNCTIONALITY:

- ✧ Due to date Announcement.
- ✧ Borrowing of Book and Returning of Book.
- ✧ Checking books based on your interest.
- ✧ Showing the Rating on that book.
- ✧ Displaying the fines for those who missed the dues.
- ✧ Showing the history of books that different users took.
- ✧ Showing the history of books that users took from the past few days.

SOFTWARE AND INTERFACE REQUIREMENTS:

- ✧ The whole project is implemented using ***Java.***
- ✧ ***Mongo dB*** is used as Database for this Library Management System.

USER INTERFACE:

- ✓ Terminal

HARDWARE INTERFACE:

- ✓ Laptop or PC

DATA STRUCTURE'S USED:

1) Stack

2) Linked List

3) Binary search

4) Binary Search Tree

5) Arrays

THE END