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A Novel Approach for Low-cost Library Management System

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Abstract: ***The library management always produces a large amount of information every day. These data have become valuable resources for data mining and machine learning. A Library Management System is a system that is used to store and maintain library entries. It is also used for storing the records of the books available or returning the books. It helps to keep a record of the new books with the date of submission. It reduces the work of librarians and also saves time. It is also user-friendly for the librarian to operate. It is also useful for students and teachers to maintain the records of the book.***

Keywords: library management, machine learning, Book management, Library User

I. INTRODUCTION

The used software in the system is Library Management system. The SRS (System Requirement Specification) [1] covers the complete description of the Library Management System and this aims at simplifying the effort of the librarian and book lenders, thus increasing the productivity by using tools that simplify the book lending process.

The Library Management System will be fully automatic and can be operated by the librarian. The user will be able to check the availability of the book he/she needs. It will be managed by the admin user to keep the record of the book issued or returned. So with the help of this online system the work load on librarian can be reduced an their productivity can be increased.

II. RELATED WORKS

Online Library Management System is an Automated Library System that handles the various functions of the library. It is an important part of every school and college and it helps the librarian to keep records of available books as well as issued books. A. J. A. Baetiong et al. shows in [2] that mobile and web application integrates the library process such as circulation, inventory, acquisition, and cataloging into a one web application. Recently W. Zhigang in [3] designs the information infrastructure and key mechanism of library management system, and discusses the innovation of system service mode from the aspects of readers' information acquisition and modification, fast management and delivery of books. In 2012, J. Hou, Z. Zhu and J. Zong in [4] designed the network library management system operated on the company backbone network and it consists of eight subsystems of book cataloguing, book acquisitioning, book circulation, periodical management, standard management, data management, system maintenance and Web query.

TABLE I Comparison of existing work and its performance

S.NO	AUTHOR(S)	TITLE OF THE WORK	PROPOSED MODEL	LIMITATIONS
1	A.J.A Baetiong.et.al,2022	Mobile and Web application	LMS	Risk of cyber-attack.
2	W. Zhingang	Information infrastructure	LMS	Complicated to operate.
3	Hou , Z.Zhu and J.Zong	Library Network	LMS`	Risk of computer virus and data loss.

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III.PROPOSED SYSTEM

Existing system does not have availability of teacher's login or student login whereas this system provides teachers login as well as students login. In existing system book cannot be reserved online whereas in the proposed system he can reserve the book he/she wants to have. Existing system does not have any facility of online notice board where the upcoming event details are issued. In the existing system teachers does not have the facility of uploading their lecture notes online whereas this system provides. Existing system does not have any facility for book request and suggestions where as in proposed system after logging in to their accounts student can request books as well as provide suggestions to improve library [8]



Fig.1: Architecture of Library Management System

A. Architecture and Working

Library management system is a python-based programming application and database connected system especially designed for staff members in an institution which eases the library management in a more systematic and cost-effective manner [5]. This project makes the entire library management automated so that the staff does not need to work manually or any hand written samples.

Firstly, from the application icon situated in the desktop, it will take user to the login page. In this page the user has to create an ID and Password, at the time of login if by chance the user has entered any wrong ID or Password the system will generate a message or else it will show the option of Forgot Password in order to create a new one. The login window will provide the following functions which is made under My SQL.

B. Functional Requirements

Signing In/Signup: The person has to sign in to his account, if he/she has already created an account. Creation of a new account, User ID and verification mail sent to the user [6].



Fig. 2. Library Management System window

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1) *Issuing of Books:* The user searches for a particular book using the book name and author. The book is then searched in the database and the details of the book is displayed, including the availability and duration for borrowing. The user can then issue the book accordingly. It is searched by the name of the book and name of the author.
2) *Returning of Books:* The user selects a time slot and the name of the book which is to be returned. If there is any fine, the user pays the fine accordingly. Selecting the book. After returning the book from the site the data of the book issued by the student is deleted. If any overdue is there the message will automatically reach the user to pay the fine of overdue.

C. Flow diagram for students Login and Issuing the books

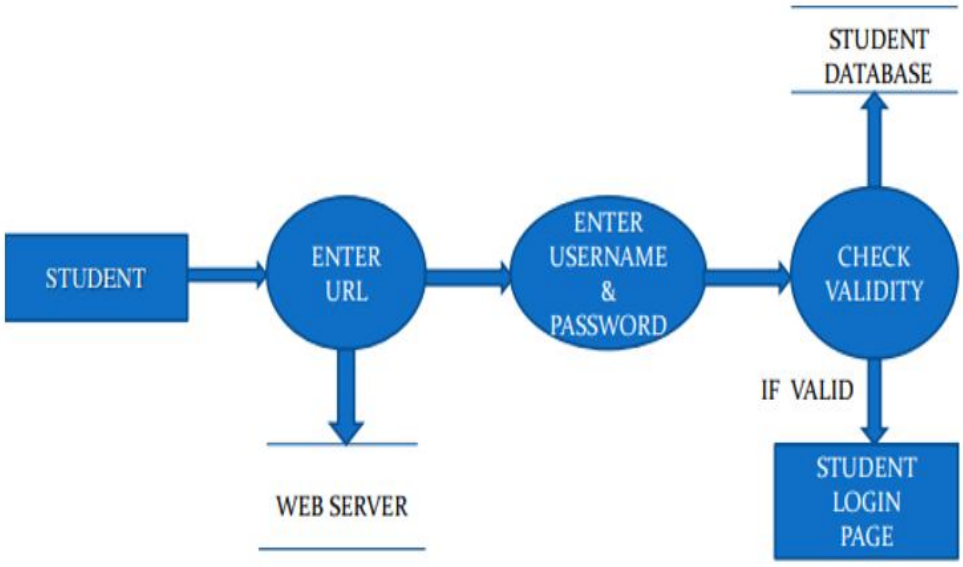


Fig. 3 Flow diagram for student's login portal process

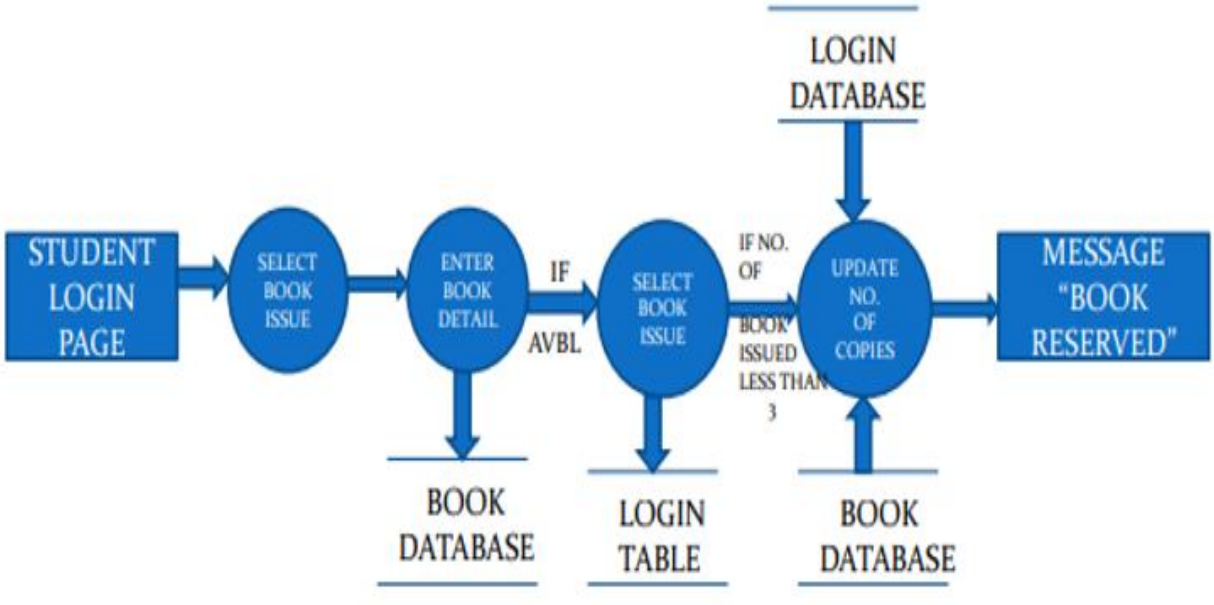


Fig. 4 Process for issues the books

The above figures represented particular procedure of student's login and issues the text books. It is very easiest and convenient way for access the books in the library as well as the library management to maintain the proper protocol

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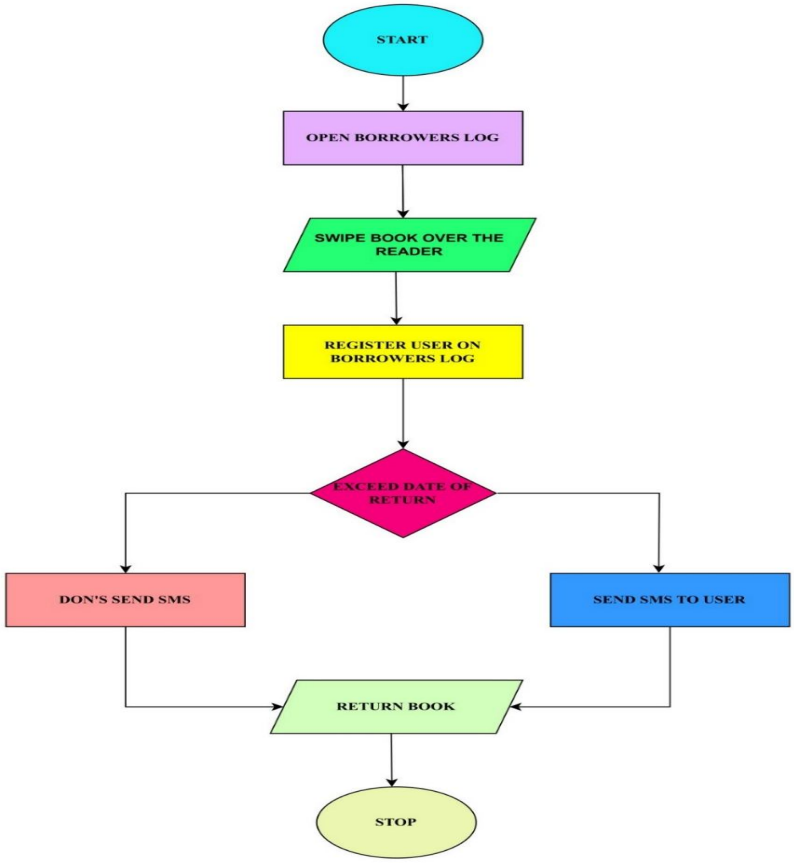


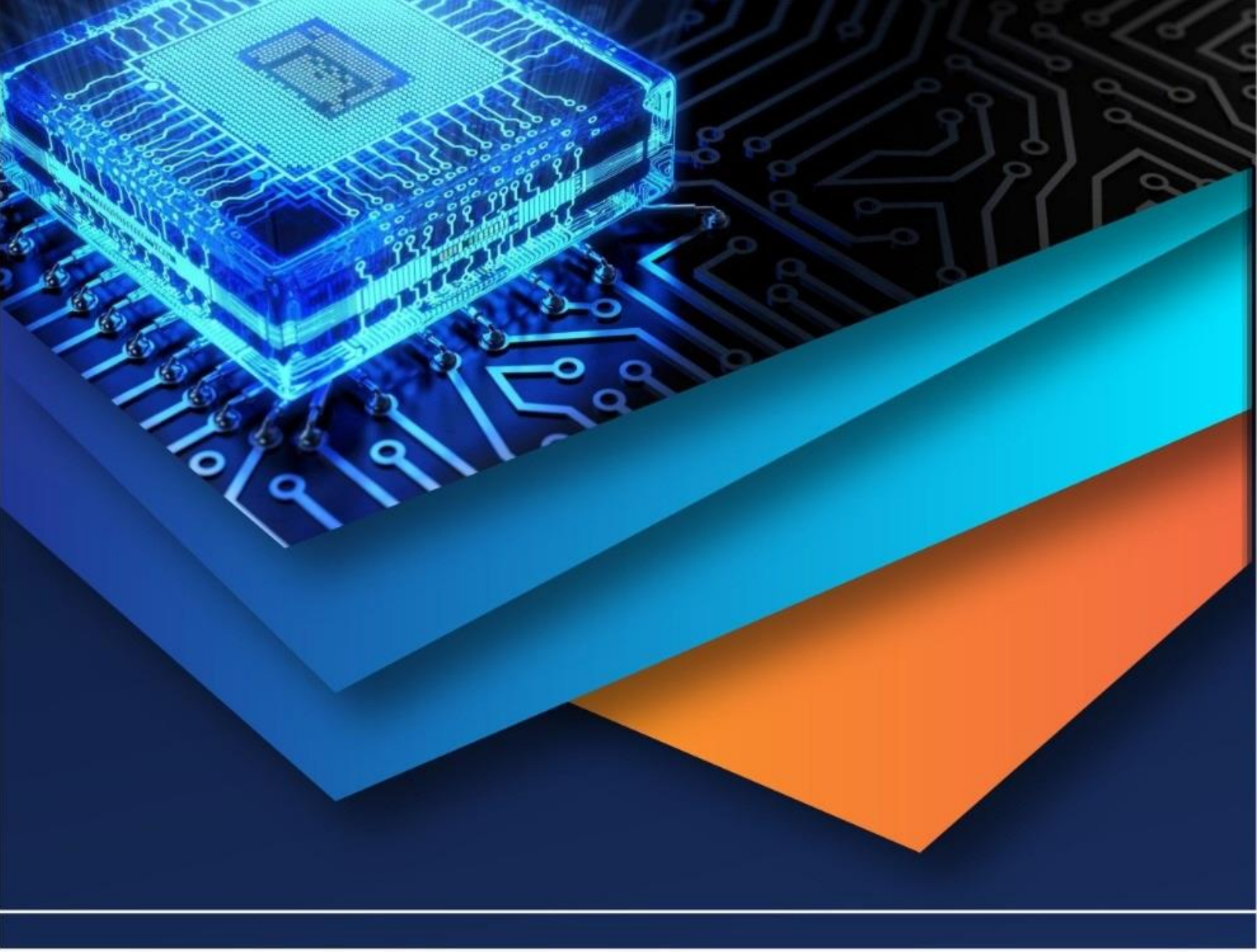
Fig. 5 Library management system Process for accessing and issues the books

IV. CONCLUSIONS

Computerization of various operations is a result of the objective to simplify life and speed up processing. Numerous industries have been transformed by computer technology, particularly education. A web-based LMS has been created to manage all library operations, including the addition of new books, updating user records, the procedure for borrowing books, etc., in order to promote technology-driven education. In conclusion, it can be fairly said that the created system is an effective, useful, and dependable LMS based on careful analysis and assessment. It is functioning well and effectively satisfies the initial suggested minimum requirements. The efficient use of the library system is anticipated to be an advantage of the novel approach for both users and employees. While this mechanism responds.

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