MODERN APPROACH FOR LIBRARY MANAGEMENT IN HEI USING BIGDATA

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ABSTRACT

The library is a crucial tool for enhancing research, instruction, and learning as well as the focal point of all academic activities intended to demonstrate academic quality. As long as there are sufficient and effective library information resources, a library should be seen as the centre of academic endeavours. The current library management system, the software that maintains and stores book information electronically in accordance with the needs of library managers, employees, and students, was reviewed in this study. This application sought to create a programme that could be accessed online and automated the operation of the university library. Finally, the paper is the library service in the higher education system is primarily impacted, enhanced, and found to have seen the most changes in its method of service delivery. A major way that information technology has changed higher education is in how knowledge is transmitted, stored, and moved from one location to another. A successful library system must have appropriate administration and organization of the books available, high-quality and pertinent content, easy and rapid access for users, and all of this must be complemented by knowledgeable and accommodating library personnel.
Index Terms: LMS, Library Resources, Processes in Library, Library Management, Library types.

I. INTRODUCTION

A complement and an adjunct to education, libraries are a powerful source of knowledge [6]. Users and service providers always personally interact with one another every time in the service sector known as libraries. In order to meet the demands of both patrons and staff, a library must always maintain a comfortable environment [3]. The term "library" can refer to a systematic, organized, or methodical collection of information sources and related materials that are made available to an academic community for use in research or borrowing [9]. Books especially high-quality books are the most crucial component of fostering a positive educational environment in educational institutions. Every educational institution has a library that serves the books. A library's fundamental tenet is to give its users access to current

information, reading material for research projects, and assistance with classroom instructions [3].

Specifically, brochures, ephemera, photographs, slides, audio tapes, filmstrips, motion pictures, video tapes, realia, computer storage devices, periodicals, books, newspapers, and pamphlets are arranged to broaden or expand the reading and learning horizons of library users, particularly students. It has been proven that using library resources and having access to them helps students perform better academically [9]. Any academic institution's library resources are crucial for teaching and learning.

Library materials are helpful for education, research, teaching, self-improvement, and knowledge upkeep. Information sources and other materials are included in the library's collection of resources for its patrons. The facilities and tools used by libraries to perform essential services for learning and teaching are called resources. The importance of the library to the health and effectiveness of any academic institution cannot be overstated. The library serves as the structural support for academic institutions [9].

II. REVIEW OF LITERATURE

Sangsuree Vasupongayya et.al (2011) reviewed a number of library management system-related open source programmes. Traditional services, electronic document management, interlibrary loan support, and common services including user administration, security, and the capacity to generate statistical reports are the four primary areas of focus of the review. Features like RFID support, alarm system, different language support, and remote access capability are also stated in addition to these four basic components. The supported environment required programming language, fundamental requirements, active software support forums or organizations, and the accessibility of online documents are all examined in order to organize the technical compatibility of any software package.

Linda Ashcroft, Stephanie McIvor (2015) examined a portfolio of LIS journals' content across volumes from a single year. This content study covers the identification of key themes included in a range of journals and "niche" topics present in only a few journals, as well as discussion of the problems with LIS education. In order to draw the English-speaking world's attention to the research and professional skills from nations with minority national languages, a number of options were put forth. According to the results of a pilot study, authors whose first language is not English contribute to a sizable portfolio of English-language LIS journals to reflect topics that are current and of global interest. This includes LIS education, which focuses on the rising demands for professional skill sets not only for academics but also for practitioners.

Sharma Chitra and Kadyan Sanjiv (2015) Studies show that companies that successfully implement quality management strategies in their libraries perform better overall and foster an environment where employees and customers are happy. It has been discovered that quality management in libraries advances the creation of the library's benchmark and also makes it easier to enhance the aptitude and resources of the library staff.

Balalojanan et.al (2016) created Library Management System with the functional modules as a safe, computerized, and user-friendly system for the management of the public library in Jaffna. Operations that had been manually maintained had been computerized. As a

result, the system was developed to efficiently overcome the issues without introducing data or information corruption.

Harischandra et.al (2016) said that the Library Management System is a contemporary invention that will aid in the registration of users and the circulation of processed books. Moreover, the effect of the automated system on personnel, job satisfaction, and client interactions was explored. The designed system had a substantial impact on the management of high-quality library services, according to the results.

Susan Nnadozie Umeozor (2018) discussed motivation ideas and staff motivation in libraries. Extrinsic variables that relate to the circumstances in which a task is conducted and intrinsic motivators that promote job happiness and therefore boost productivity are examples of motivating factors. The need factor motivation and the profession-related motivation were the two levels of motivation found in the library. The lower cadre of library employees, such as library assistants, clerical workers, and porters, who prioritize economic necessities, exhibits a strong need-factor motivation. Professionally trained librarians who are motivated by a sense of fulfillment gained through professional advancement exhibit profession-related motivation. Job design, which includes job rotation, job enlargement, and job enrichment, is another driving aspect in the library.

Edwin Maitato (2020) studied the demographics of students and their awareness of e-resources, as well as the frequency and purpose of e-resource use at Sardar Vallabhbhai Patel University of Agriculture and Technology. According to a study, students use electronic resources on a regular basis, with the internet being the most popular at 98.4% and electronic books coming in at 85.6%. When it comes to the reason for use, it has been discovered that research academics utilize e-resources more frequently than other users, primarily for class work, assignments, and leisure. Additionally, the results showed that SVPUA&T students are very aware of online resources.

Victoria Imabong Omole (2020) attempted to establish and postulate reasons why library education should be taught in secondary schools in Nigeria. The paper makes the case that teaching library education will aid in preparing students with an efficient method of utilizing libraries and an understanding of what constitutes librarianship. Additionally, the issue of reading will be resolved, and a reading club will be established. The report also indicates that some library officers and librarians in the school library will have career chances if library education is taught in secondary schools. The study of library education will also help in other subjects, to sum it up. In other words, it will aid in the pupils' development of reading and research skills.

Maimuna Izah (2020) aimed at identifying the methods employed in Nigerian federal university libraries for staff recruitment and selection. The results showed that the traditional tactics were primarily used by the university libraries under study for recruitment. The study suggested using employment agencies and the Internet to advertise jobs that can draw the top candidates from around the world from a pool of highly qualified and qualified people.

Nkechi Priscilla Nwanekezie (2022) examined the use of information technology in the Imo State-based Eastern Palm University (EPU) library. According to the study, information technology is being used at the university library, and the vast majority of patrons and employees are interested in making use of its technological resources. The study also

discovered that the use of information technology in the library has improved staff efficiency, registration of library customers, and information sharing. In order to lessen the inconsistent public power supply to the library, the study recommended hasty construction, furnishing, and use of the new library as well as the availability of alternate power sources such solar power.

Nkechi Priscilla Nwanekezie and Basilia Igbokwe (2022) KOMU (Kingsley Ozumba Mbadiwe University), in Imo State, conducted a study on how its faculty of arts students used the library. According to the survey, most students are taking advantage of the university's extensive collection of library materials, which are all readily available. The study also revealed that a significant number of students regularly visit the library with the goal of studying there. They report facing few, if any, obstacles to using the resources effectively. The report recommended more staffing for the library as well as overall increased budget for the library from the university administration, while also emphasising the value of procurement improvements for library supplies.

Vikash Prajapat and Rupali Dilip Taru (2022) demonstrate how effective network design for libraries can help them fulfill their library information management goals. To analyze the mean and standard deviation of the feedback that was received, a dataset consisting of a range of adjacent cells on an Excel worksheet with data was produced. The Cronbach's alpha, a measure of internal consistency, is calculated in addition to the dependability coefficient's alpha. Finally, it was determined that the networking structure must specify the access policy control, backup facility, online payment structure, and error handling procedure. Finally, it was determined that internal management is essential for maintaining an operational and functional structure in good order as well as a continuous flow of outside assistance.

Lu Pang (2022) proposed a data mining and clustering-based library management system. The hybrid clustering method in the data mining platform Weka is utilized for library data mining. The library management model is constructed using data mining technologies and clustering algorithms. According to the testing findings, the hybrid clustering algorithm processes data from 0 to 300 in 5.5 seconds, which is at least one second faster than the other two algorithms.

Ashima Sindhu Mohanty et.al (2016) in order to lower maintenance costs and improve user convenience, a web-based library management system based on HTML, PHP, and MySQL was developed. The administration, book seeking, leasing, and email features of a typical library management system are all included in the web-based version of that system. Additionally, it performs more humanistic tasks like tracking library dues. The features of the system-specific development tools and the system itself are taken into consideration when selecting them. This project's website provided a highly functional, secure, reliable, and easy-to-maintain environment.

III. RESEARCH MODEL

The library is a crucial tool for enhancing instruction, learning, and research, and it serves as the centre of all academic activities meant to demonstrate academic excellence. Since there are sufficient library information resources that are properly utilized, a library should be seen as the centre of academic endeavours [9]. Many educational programmes are becoming more and more generalized by offering a variety of generic and specialized skills along with a

comprehension of the fundamentals of information management, allowing library and information science (LIS) graduates to pursue a variety of professional career paths.

An institution, a private person, or a governmental body may organize and maintain a library, which is a collection of sources, services, and resources. However, many libraries are now also repositories and access points for maps, prints, or other documents as well as various storage media like microform (microfilm/microfiche), audio tapes, CDs, cassettes, videotapes, and DVDs. Additionally, public access to paid databases and the Internet may be made available by libraries. As a result, modern libraries are increasingly reimagined as locations where people can access knowledge without limitations in a variety of formats and from a variety of sources. The word "library" has come to denote "a collection of useful material for common use," and is now used in disciplines like computer science, mathematics and statistics, electronics, and biology in this sense.

TYPES OF LIBRARIES

Libraries can be divided into categories by several methods by the entity (institution, municipality or corporate body) that supports or perpetuates them. They are

Academic libraries: These libraries are located on the campuses of colleges and universities and serve primarily the students and faculty of that and other academic institutions. Some academic libraries, especially those at public institutions, are accessible to members of the general public in whole or in part.

Public libraries or public lending libraries: These libraries provide service to the general public and make at least some of their books available for borrowing, so that readers may use them at home over a period of days or weeks. Typically, libraries issue library cards to community members wishing to borrow books. Many public libraries also serve as community organizations that provide free services and events to the public, such as reading groups and toddler story time.

Research libraries: These libraries are intended for supporting scholarly research, and therefore maintain permanent collections and attempt to provide access to all necessary material. Research libraries are most often academic libraries or national libraries, but many large special libraries have research libraries within their special field and a very few of the largest public libraries also serve as research libraries.

School libraries: Most public and private primary and secondary schools have libraries designed to support the school's curriculum.

Special libraries: All other libraries fall into this category. Many private businesses and public organizations, including hospitals, museums, research laboratories, law firms, and many government departments and agencies, maintain their own libraries for the use of their employees in doing specialized research related to their work. Special libraries may or may not be accessible to some identified part of the general public. Branches of a large academic or research libraries dealing with particular subjects are also usually called "special libraries": they are generally associated with one or more academic departments. Special libraries are distinguished from special collections, which are branches or parts of a library intended for rare books, manuscripts, and similar material.

IV. PROPOSED RESEARCH

An enterprise resource planning (ERP) system for libraries is a library management system, or LMS. According to the needs of library managers, employees, and students, the Library Management System is a piece of software that organizes and maintains book information electronically. They can constantly keep track of all the volumes in the library, whether they have been checked out or not, thanks to the system. It offers the option to look for the desired books because it is typically required for universities to keep an ongoing check on the books issued by providing the issue date, last book return date, and even calculate fine, which would be a laborious task to achieve with a manual system and the likelihood of various types of mistakes occurrence would be high. This application sought to create a programme that would automate library operations at the university and be accessible online.

The key benefit of this online application is that it makes it much easier for the university's employees and students to find the information they need than it was in the past. LMIS automates all of these fundamental functions, including keeping track of all book information, locations, issues, returns, and fines. As a result, by enabling a seamless flow of library activities and minimizing the possibility of detail errors, this system greatly minimizes the amount of human effort. Libraries of today need to create an atmosphere that draws kids in. A successful library system must have appropriate administration and organization of the books available, high-quality and pertinent content, easy and rapid access for users, and all of this must be complemented by knowledgeable and accommodating library personnel.
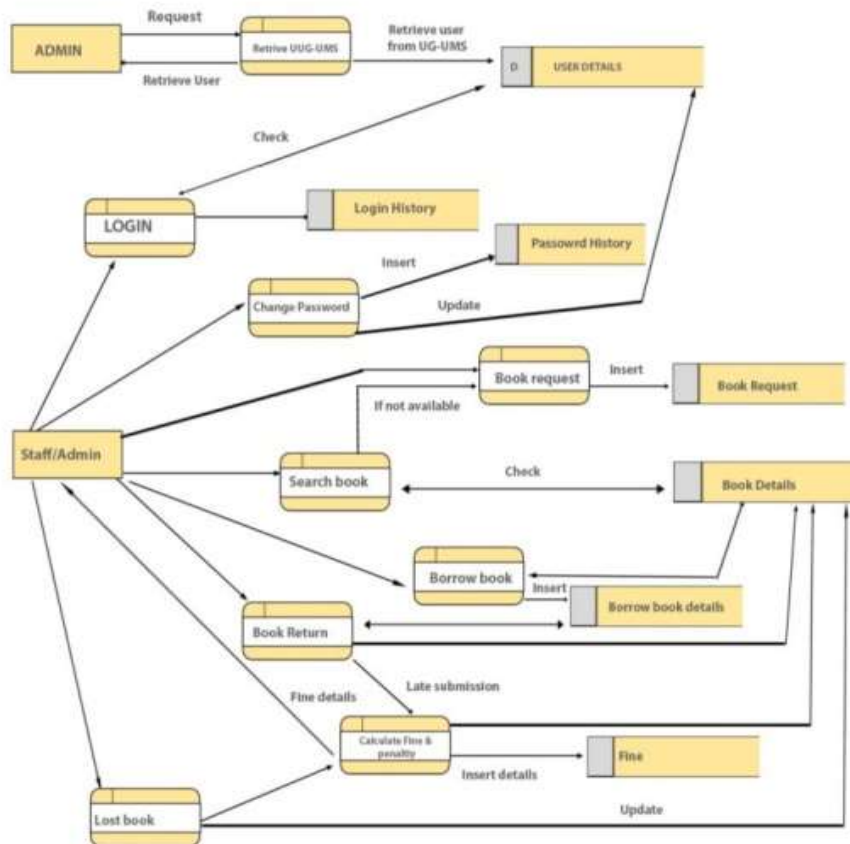

Figure 1: Working process of Proposed Library Management System

The multiple causes make managing libraries a common task. A library's main responsibility is to offer its customers the desired service as soon as feasible. The term "service" in this context refers to requests for books or journals to be issued, access to the resources available on a certain topic, administration of a member's library account, and many other things. Maintaining the books and other materials it contains, giving readers a suitable study space, encouraging students to utilize the library, etc., are some of the other tasks.

V. RESULT AND DISCUSSION

These days, terminals allow access to library resources from homes and workplaces. Today, there are countless databases, journals, learning tools, and monographic materials that are accessible online and in electronic form from anywhere [8]. University libraries' primary objective is to advance teaching, learning, and research in a way that is consistent with and supportive of the institution's mission and vision. Additionally, in order to support or enhance the academic curriculum at the institution, library information resources and services must be appropriate and acceptable in terms of quality, scope, diversity, and timeliness.

VI. CONCLUSION

The library is one of the most crucial locations in every academic establishment and is still the go-to site for knowledge for many people, including students, instructors, and others. The adoption of new technology by libraries will enable them to operate and function effectively, boosting productivity and enhancing user services without adding staff. Fortunately, new technologies have produced radio frequency identification (RFID), digital libraries, quick response codes, and barcode systems. The promotion of reading among the public, especially among academics, is one of libraries' main goals. The library service in the higher education system is primarily impacted, enhanced, and found to have seen the most changes in its method of service delivery. A major way that information technology has changed higher education is in how knowledge is transmitted, stored, and moved from one location to another.

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