Implementation of Library Automation in BLDEA's Vachana Pitamaha P.G.Halakatti Research Center using KOHA Open Source Integrated Library Management System

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LIST OF ABBREVIATIONS

Abbreviation	Full Form / Expansion
MARC 21	Machine-Readable Cataloging, 21st Edition
ILL	Inter-Library Loan
P.G	Phakirappa Gurubasappa
GPL	General Public License
UNIX	Uniplexed Information and Computing System
HTML	Hypertext Markup Language
URL	Uniform Resource Locator
CD	Compact Disc
DVD	Digital Versatile Disc
LAN	Local Area Network
SQL/MySQL	Structured Query Language / My Structured Query Language
OPAC (Web OPAC)	Web-based Online Public Access Catalogue
AACR2	Anglo-American Cataloguing Rules, Second Edition
TCP/IP	Transmission Control Protocol / Internet Protocol
MARCXML	Machine-Readable Cataloging Extensible Markup Language
LC-MS	Liquid Chromatography–Mass Spectrometry
INFLIBNET	Information and Library Network Centre (India)
DSpace	Digital Repository Software for Institutional Repositories
IR	Institutional Repository Plus
CAS	Current Awareness Service
SDI	Selective Dissemination of Information
PDF	Portable Document Format
ISBN	International Standard Book Number
GUI	Graphical User Interface
HTML/XML	Hypertext Markup Language / Extensible Markup Language
CPU	Central Processing Unit
UI	User Interface
MARC File (.mrk)	Machine-Readable Cataloging File Format
OAI-PMH	Open Archives Initiative Protocol for Metadata Harvesting

API	Application Programming Interface
PDF	Portable Document Format
ICT	Information and Communication Technology
ILMS	Integrated Library Management System
ILS	Integrated Library System
OPAC	Online Public Access Catalogue
OSS	Open Source Software
DDC	Dewey Decimal Classification
SQL	Structured Query Language
GSDL	Greenstone Digital Library Software

LIST OF FIGURES

ABSTRACT

Implementation of Library Automation in BLDEA's Vachana Pitamaha P.G.Halakatti Research Center using KOHA Open Source Integrated Library Management System

Background:

The swift progress of information and communication technology has thrown overboard the traditional library operations and created vibrant, automated systems in their place. Academic libraries are switching to automation more and more for better access, efficient operations, and improved user experience. But the top dollar of licensed software is still a considerable impediment to many organizations. Open-source Integrated Library Management Systems, for instance, KOHA, are offering a budget-friendly, malleable, and eco-friendly option for the automation of library services.

Objective:

The principal objective of this research was to create and execute a complete automated library system with KOHA for the Vachana Pitamaha P.G. Halakatti Research Center of BLDEA. The project aimed at making the library operations easier, enhancing accessibility, and building a single digital space where students, researchers, and faculty could work together.

Method:

The research was carried out through a descriptive and a practical design. It involved a manual gathering of data from approximately 11,000 library resources, recording it in Microsoft Excel, which contained the bibliographic information viz., title, author, publisher, accession number, and cost. Besides, MARC 21 format was also applied for the data later uploaded to KOHA ILMS. The complete system was set up and configured on a Linux server using the Apache, MySQL, and Perl stack. The main modules of KOHA—Acquisitions, Cataloguing, Circulation, Serial Control, and OPAC—were personalized according to the requirements of the research center. Library users and staff received training.

Results:

KOHA was a big winner when it came to turning the main library operations into high-tech ones with considerable improvements in data accuracy, information access, and circulation speed. The software provided around-the-clock supervision of library materials, searching in the catalog through the internet, and user access from afar via OPAC interface. The workload was lessened because of the manual elimination, cataloging and issue-return became more efficient, and the users were more satisfied. Besides that, KOHA's open-source platform cut down the operational costs and allowed for the possibility of future flexibility in terms of updates and integrations.

Conclusion:

The adoption of the KOHA open-source ILMS demonstrated that it was possible for academic libraries to automate on a complete scale without being reliant on costly proprietary systems. The initiative raised library management efficiency, promoted digital literacy, and improved access to academic material. KOHA was a stable, scalable, and sustainable solution for research and education institutions seeking modernization on tight budgets.

Keywords:

Library Automation, KOHA, Open Source Software, Integrated Library Management System (ILMS), MARC 21, Academic Library, Digital Transformation, Information Management

CHAPTER-1

INTRODUCTION

Technology is a part of the life of stakeholders in all sectors because it is accessible, affordable, scalable, immersive, and easy to use. Automation is essential in upgrading the performance of any system, even higher learning institutions. Academic libraries globally have led the way in merging databases and user systems to provide more effective and efficient services. The rise of business and social platforms in digital form is mainly a consequence of the mechanization and automation initiatives of the 1980s and 1990s, especially in libraries and other such centers. Library automation refers to the process of computerizing to meet the needs of library users. The application of computer technology changes library processes radically upon implementation. Computers provide instant, efficient access to internal and external resources. Application of computers in libraries prevents cumbersome tasks, saves time and effort, accelerates procedures, and makes the effective utilization of resources possible. Besides processing information, computers are required for information storage and retrieval.

Computerizing a Research Center library involves restructuring its operations and redesigning its services. Through setting up a central database, automation integrates new information technologies and old-fashioned library procedures. An automated library serves the academic population more effectively by optimizing standard activities, freeing staff to provide more customized services. While library automation has just recently gained speed in a few nations, it takes deliberate planning and dedicated implementation to serve the changing needs of students and professors. Upgrading library media centers provides students with excellent information literacy skills, positioning them as independent and lifelong learners. (Ramesha & Jagadeesha, 2015)

1.1 Definition

As defined by “Webster's Dictionary, automation is the process of making a device, process, or system work automatically”. Essentially, it is equipment that mathematically processes, stores, accesses, displays, and prints data—externally entered or internally generated. The term "automation" generally describes automatic technical processes. Within libraries, it is used to refer to automating internal

functions like circulation, cataloging, acquisitions, and serials management. (*Merriam-Webster's Collegiate Dictionary*, 2003).

Automation is generally the act of making a system self-regulating or self-operating, commonly by means of electronic equipment. Thus, library automation is the practice of employing machines to execute the repetitive, routine, and clerical work inherent in library services and operations.

1.2 What is Library Automation?

Library automation means applying automatic or semi-automatic data processing systems for performing traditional library operations like acquisitions, cataloging, serials control, and circulation, and reference service— operations that, on an average, take lots of manual labor. These operations are critically important for the efficient operation of a library, but they tend to hold up staff time that could otherwise be devoted to user services and library development.

The growing importance of computerizing libraries also necessitated standardized practice in the profession. International studies of library computer systems investigate a variety of modules, including automated acquisitions, cataloging, serials control, circulation, and bibliographic services. Studies in this field show the growing prominence of computers in the library environment.

Like in most areas of library administration, the increasing demand for quick delivery of information and, on the other hand, the reduction of accessible resources has led librarians to consider the advantages of automation. In order to solve these problems, libraries are striving to integrate computer technology in as many areas of activity as can be managed, using advances in hardware, software, and telecommunications to increase efficiency and service. (Comsa et al., 2012)

1.3 Historical Background of Library Automation

Punched cards, which Hollerith invented in 1880, were first used to tabulate U.S. census data. The University of Texas Library became the first library to implement punched cards for circulation control in about 1936. In 1950, the Library of Congress was printing catalogues using unit record machines, a process that eventually came to other libraries in the United States to automate several functions The automation of libraries turned a corner in the 1960s with the introduction of computers. Some of the major developments of the time included MEDLARS and MARC (Machine-Readable Cataloging), which had a profound effect on cataloging

and indexing functions (Avram, 1975). During the early 1990s, library automation focused largely on the same general functions established by the introduction of machine-readable cataloging in the late 1960s. Libraries constructed comprehensive, text-based systems through micro or minicomputers to implement automated traditional housekeeping activities, all linked to a common library database (Gorman, 2001).

Library automation has progressed significantly in the past decade as a result of changing views on library services and increasing needs for convenient access to information. International networks such as the internet, affordable technologies, and new digital media have made this development easier (Breeding, 2015).

The ILS of today extends beyond the automation of the standard tasks. They now allow the integration of the local system with outside databases, internet resources, and online information providers, greatly increasing the library's access to knowledge and services (Kochtanek & Matthews, 2002).

1.4. Area of Library automation

As the first task in computerization planning for libraries, it is necessary to formulate a model that details and ranks all the information systems presently handled manually. This involves dissecting every process into its discreet elements. By further sub-dividing these activities, every element can be analyzed according to its unique function. The identified systems and subsystems in this process are examples and can vary according to the specific structure and demands of each library setting.

These are:

Acquisition

- Selection
- Ordering
- Claiming/cancellation
- Receiving/invoice processing
- Extended procurements
- Gift tracking
- Fund Control
- Maintains information about all library related funds
- Ability to group funds (nesting)
- Track fund allocations and adjustments

- Fund encumbrance
- Fund expenditure
- Cash Balance
- Free Balance
- Automatic updating of fiscal information through recording of specific
- transactions
- Track year-to-date expenditures
- Create Purchase Orders

Technical Services

- **Cataloguing**
- Books
- Serials
- Special Collection
- **Circulation**

Charge-Renewal

- Discharge
- Loan Periods
- Processing Schedules
- Holds
- Messages
- Blocks
- Notices
- Instruments Used to Record Transactions in a Store
- Member Control
- Inventory Control
- **Serials Control**
- Receipt check-in
- Claiming
- Bindery Control
- Replacement
- Monographic Serials
- Invoice Processing

Reference Services

- Desk Services
- User tools
- Bibliographic Utilization
- Reprographic
- Inter Library Communication
- General Administration
- Grant Administration
- Library Publication
- Bindery
- Periodical citation searching

OPAC (Online Public Access Control)

A bibliographic database that enables searching based on multiple criteria, such as author, title, subject, keyword, publisher, ISBN (International Book Number), etc., and is accessible to end users both through the Intranet and the Internet.

1.5. Need for Library Automation

The increased adoption of Information and Communication Technology (ICT) in various sectors has led to library automation becoming one of the primary needs, with education as a major sector. Automation helps in daily library activities by allowing the creation and management of both resources and users' databases. It even ensures that all the required elements for complete and accurate record-keeping are there. Through automation, libraries can set up standard databases that are interoperable with an Integrated Library Management System (ILMS), which also brings consistency in the routine activities. As a result, the procedure helps the library to be productive, accurate and to improve the quality of library services. The vision of library automation in the long run is to turn the libraries into systematic, user-friendly, and digital-progress-ready ones.

Automation is:

- Exponential growth of information.
- Ongoing growth in library collections.
- Users' inability to efficiently search through all the available literature and information.
- Computer and communication technology developments at a fast pace.

- Extensive amounts of user and staff time spent in searching for information.
- Requirement to make wider access to resources, both inside and outside the library.
- Greater accessibility.
- Enhanced quality of service.

  Facilitating cooperative activities like resource sharing.

1.6 Why Library Automation?

Library automation entails the use of computers and special software designed to facilitate the handling of various library functions in an efficient way. The entire library process could already be done digitally, hence the term 'automation', which is the opposite of carrying out the whole process manually like recording borrowed books, creating catalog cards, or keeping track of records. Library automation technology, in spite of its drawbacks, can be regarded as ultra-modern and very much above the entire library operation (manual processes: cataloging, circulation, and others). Such a library database collects all needed data on books, journals, and users in one place; and it is very easy to access such data via an Online Public Access Catalog (OPAC). Therefore, the user may be able to locate the desired literature, check whether or not it is available, and have the option of renewing or booking it online. Apart from lightening the load imposed on librarians, the technology also contributes to the reduction of errors from human sources and fosters better information organization. Besides, it also enables libraries that belong to a system to maintain better communication with each other and the management to get accurate reports and statistics for making decisions. To conclude, library automation has not only raised the library's productivity but also made it more user-friendly and up-to-date so that both staff and patrons would be the first ones to enjoy prompt and trustworthy information.

1.7. Advantages of Library Automation

- Improves library services by overall quality, efficiency, and responsiveness.
- Routine clerical tasks are done automatically, thereby reducing the professional staff’s workload.
- Users located outside the library premises can access library resources more.
- Library resources and services can be more widely circulated and shared.

- Library networks (e.g., union catalogs) are facilitated in their interaction and resource sharing.
- Libraries have quicker and better communication with each other.
- Management of physical collections and financial resources is less complicated and more effective.
- Maximize effective management of physical collections and money**.**

1.8. Disadvantages of Library Automation

- **High Initial Cost**: The firm will have to bear a large initial cost that will encompass the purchasing of the software and hardware, installation of the whole system, and also keeping it operational.
- **Requirement of Technical Expertise**: A very well-trained staff would be the only way for the system to be operated without any problems; otherwise, the librarians will just have to fight with the technology.
- **Data Migration Issues**: Transferring the old paper or already existing system data into the digital format would be a lengthy process and might result in data that are partly wrong.
- **System Failures and Downtime**: The library may have to stop its operations in case of power failure or any other technical glitch.
- **Security Risks:** Security would be a big challenge in a digital environment due to the fact that digital setups are susceptible to many security threats including hacking, unauthorized access, and data leakage.
- **Maintenance and Upgrading Costs**: System maintenance that is very expensive and continuous operation to stay current and functional is the requirement.
- **Resistance to Change**: There is no doubt that some of the staff and patrons will be against the automated system adoption.
- **Dependence on Technology**: The complete system failure will stop all library services.
- **Privacy Issues**: Poor protection of user data and lending logs can cause them to be released without authorization.
- **Digital Divide:** Users who are not tech-savvy or do not have access to the internet will face great difficulty in using automated services.

1.9 Modules

- Acquisition
- Cataloguing
- Circulation
- Serial Control
- Administration
- OPAC (Open Access Catalog)
- User Services

1.10. Automated Library System Framework

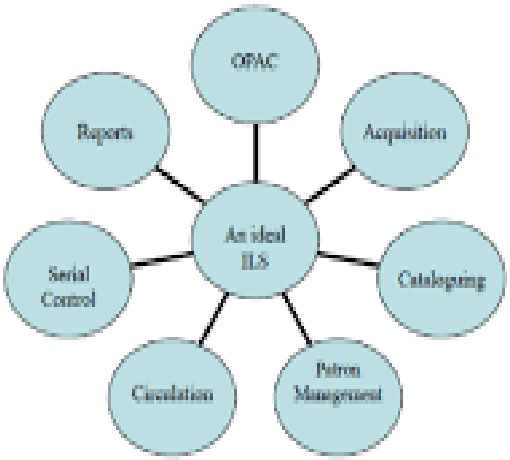


Figure. 1 Automated Library System Framework

Automated Library System Framework

Most commercial software products that can automate library services are highly expensive and unaffordable to smaller libraries. Not only is the initial cost of acquiring them high, but also additional costs for continued maintenance fees and the upgrade to newer versions are additional burdens on library finances.

In order to combat these issues, most libraries are now choosing open-source and freeware automation software. These tools offer modern technology and useful features at a fraction of the costs, making them a more feasible and cost-saving option for libraries with small budgets.

1.10.1 Commercial Library Software

Numerous commercial software solutions exist that can automate library operations. The list of widely accepted commercial library software contains:

- SOUL
- LIBSYS
- AUTOLIB
- EASYLIBSOFT
- NIRMALS
- VTLS
- SLIM++
- LIBRARIAN
- LIBSUIT
- ROVAN LMS, etc.

These software programs provide functionalities for cataloging, circulation, acquisitions, and administration of users. By using them, libraries get more productive, less error-prone and can offer better services**.**

1.10.2. Free and Open Source Software (OSS)

Open Source Software (OSS) is the name given to software that was developed in such a way that its source code is available to the public, which enables the users to see, change and improve the software. The rights that are normally held by the copyright owner are transferred through special licenses that follow the rules of the Open Source Definition. Some open-source software is even made available to the public directly.

Typically, OSS is made in a way that is very much collaborative and openly done in the community which can be seen as a model of open and participatory development. Due to the nature of its creation, it is often referred to as user-generated content. The phrase "open source software" was first used in the context of the free software movement. In 2008, the Standish Group wrote in a report that the global use of open-source software resulted in an estimated saving of $60 billion per year to consumers (Anuradha et al., 2011).

Open Source Software for Library Automation

Different open-source tools are there for automating library operations and managing digital resources.

Open-source library automation software that is frequently used include:

- KOHA
- WINISIS
- EVERGREEN
- OPENBIBLIO
- Library Management System (LMS)
- Fedora
- IR+
- Simple-DL, etc.

These software systems help in the process of cataloguing, circulation, acquisitions, and also manage digital resources. Besides, they bring about efficiency, accessibility, and collaboration in library services.

1.2 Statement of the Problem

Implementation of Library Automation in BLDEA's Vachan Pitamaha P.G.Halakatti Research Center by using KOHA open source Integrated Library Management System.

1.3 Objectives

The main goal of adopting KOHA, an open-source Integrated Library Management System (ILMS), in BLDEA's Vachan Pitamaha P.G. Halakatti Research Center is to mechanize and simplify library operations to enhance efficiency, accessibility, and user satisfaction. Some specific goals are:

- To mechanize library functions like cataloging, circulation, acquisitions, and serials management into automated processes with the help of KOHA.
- To offer users (students, researchers, and teaching staff) an online public access catalog (OPAC) for simple searching, reserving, and borrowing of library materials.
- To ensure that books and other library resources are accurately and real-time recorded, thus minimizing loss, duplication, and inefficiencies.
- To ease administration work for librarians and allow them better inventory management, report generation, and user handling.
- In order to provide remote access to library materials and facilitate integration with other systems of the institution, improving the digital environment of the research center.

- To foster cost-efficient and customizable library solutions through the implementation of KOHA, sidestepping proprietary and costly software.
- To enable research through the provision of effective access to scholarly materials, bibliographic data, and reference services.

1.4 Scope and Limitations

The scope of implementing library automation at BLDEA's Vachana Pitamaha P.G. Halakatti Research Center Library using KOHA Open Source ILMS includes automating core library functions like cataloging, circulation, and acquisitions. It aims to improve efficiency, enhance user experience, and ensure easy access to digital resources. The system will enable real-time tracking of library materials and generate detailed reports. Additionally, it provides scalability for future growth and technological integration.

The study is limited to the implementation of library automation at BLDEA's Vachan Pitamaha P.G. Halakatti Research Center Library using the KOHA Open Source ILMS. It focuses specifically on automating core library functions such as cataloging, circulation, and acquisitions, and does not extend to other potential aspects of library services. The study is also limited to the scope of improving operational efficiency and user access within the library's existing infrastructure.

CHAPTER-2

REVIEW OF LITERATURE

The literature in relation to the design, development, and automation of libraries, as well as other aspects pertinent to the study objectives, has been extensively reviewed. All types of resources, such as printed and electronic, have been scrutinized and deliberated upon to the extent that a thorough review is located in the annexure.

- The article titled "The use of KOHA library management software for information services delivery in selected federal university libraries in Northwestern Nigeria" by Bala Ahmed and Abdulkadir Mammam Tsagem, published in the Journal of Library Services and Technologies (2024), explores the application and challenges of KOHA library management software (LMS) in improving information service delivery within three federal university libraries in Northwestern Nigeria. The study utilizes a descriptive survey design, focusing on 148 practicing librarians, with data collected through a questionnaire and analyzed using descriptive statistics.
- Vandana and Rajesh Kumar Singh's article explores the benefits and challenges of using KOHA, an open-source library management system, for automation in libraries, highlighting its cost-efficiency, adaptability, and customization potential, while addressing deployment and maintenance issues
- Bamidele and Umahi provide an empirical study of the effective installation of KOHA Integrated Library Management Software at Babcock University Library. The paper emphasizes such critical points as smooth data migration, good preparation for facing the difficulties of implementation, and the requirement of employee training. Additionally, it points the international KOHA user community as a contributor to the gradual improvement and support. The research shows that open-source software is able to easily adapt to the needs of the institution. It gives advice to libraries that are thinking of moving to KOHA or a similar system in a very considerate way.
- source library management system Koha at the University Library of the Central University of Kerala. Besides, it discusses about the system's functionality, its benefits, and the challenges faced during the process of adoption. The library comes up with the potential of Koha to support the running of the library, better organize the resources, and provide user-friendly

services. Moreover, it points out the need of training and technical support for the successful integration of Koha. The review ends with a statement that if Koha is properly managed it can be a great source of enhancement in library's efficiency and service delivery. (P SenthilKumaran, KP Sreeja, n.d)

- The work of Ogbenege (2013) elaborates on the necessity of efficient information and library management in the digital era. Libraries are credited with providing access to information and sharing of knowledge, which is their main function. The author enumerates the difficulties that libraries encounter, including the pace of technology and the restriction of funds. Additionally, it brings forward the points of view concerning the improvement of library services and the ways of adapting to the changing information environment. All in all, the article underlines the library's continuous innovation in practices as the only way to satisfy user's needs.
- A comparative study was conducted by Anubhaw Kumar Suman and others (2024) in which Koha was compared with e-Granthalaya ILMS software. The result of the study was that Koha was more powerful in acquisitions and OPAC due to its advanced and user-friendly interface. However, the opposite was true for e-Granthalaya which fared better in cataloguing, circulation and managing serials. The study further indicated the areas where e-Granthalaya required improvement. It also highlighted a gap in the available literature and thus called for more research on e-Granthalaya and its comparative analysis with other systems like Koha..
- In the paper by Maharazu N. and Suleiman H. (2021), it was reported that KOHA ILS had been adopted at the library of Umaru Musa Yar'adua University. The study revealed that circulation and cataloguing were the two major automated services. The process of KOHA was favoured due to its free source and the possibility of innovations. However, the main problems were staff's digital illiteracy and the retrospective conversion. The study suggested that automation should be invested in to a greater extent since it is the only way to achieve success during the implementation.
- Aderonke O. Otunla and Esther A. Akanmu-Adeyemo (2010) highlight the differences between library systems that are fully automated and those that are still operating manually. They give an account of the automation process at

Bowen University Library, Iwo, Nigeria, using the open-source Library Management Software, Koha. The article gives a detailed account of the different stages of the automation process, including the selection of software, installation, staff and user training, data conversion, and the problems faced. The paper also presents the outcome of a user satisfaction survey, which indicates that users prefer the automated system to the manual one. Besides, the research discusses how automation has improved the efficiency of library operations and information services delivery. The authors cautiously recommend that libraries should invest in open-source solutions for automation, accept the demographic changes brought by ICT in the library sector, and ensure a stable power supply before starting any automation work.

- Srinivasa Ragavan S. et al. (2010) highlight that libraries are constantly changing and that conventional techniques of managing them are not adequate to cater to the changing needs of users. The use of advanced technologies has become a need in order to provide effective services. An efficiently computerized library can provide quicker and more interactive service to its users. Library automation is the application of computers to automate routine library functions. This research undertaken with the objective of developing a current database of materials and books in Bharathidasan University School of Chemistry Library. It was with the purpose of installing an automated system based on Koha, an open-source library integrated software, to improve circulation procedures like issuance and return of books. The system was also devised to provide advanced search facilities for easy verification of availability of material by users. Koha is presented in a holistic and adaptable form applicable to libraries of different sizes, and the research suggests it for institutions looking to computerize their library operations.
- Jayaprakash, M. and Balasubramani, R. (2011) stress that to improve efficiency and user convenience, library operations and services should be automated. Their research reviews the automation practice in university libraries in Tamil Nadu, India, one of the most progressive states in this regard. It presents the notion of automation, its relevance, and its realization in higher education libraries. Moreover, the research reveals the difficulties met

by library personnel and management during the automation transition. For the data gathering, a very carefully constructed questionnaire was employed.

- Anuradha, K.T., Sivakaminathan, R., and Kumar, P.A. (2011) point out that one of the biggest drawbacks of open-source library automation solutions is the non-existence of a complete-text search feature in their OPAC (Online Public Access Catalogue) modules. These systems are equipped with advanced bibliographic search facilities but do not provide the option of searching the entire text of the documents. On the other hand, a number of open-source digital library systems allow full text to be indexed and retrieved. This study is aimed at assessing the compatibility of Koha, a well-known open-source library automation software, with two digital library software products—Greenstone Digital Library Software (GSDL) and Fedora Generic Search Service (FGSS)—in order to provide the full-text searching capability. The integration uses the SRU (Search and Retrieval by URL) protocol to allow Koha to communicate with GSDL or FGSS. As a result, the full-text documents are indexed in both Koha and the library system's digital. The study concludes that full-text searching can be efficiently incorporated in Koha through this integration which is a step forward in library automation.
- Maureen, A., and Blessing, O. (2011) have talked about the concept of library automation which includes the computerization of some library processes such as registration of users, cataloging, borrowing and return of books, searching for items, and the calculation of overdue charges. The study makes an extensive examination of the situation of automated library management systems in state universities in Nigeria by means of site visits and interviews with academic staff, non-academic staff, students, and researchers. After analyzing the current conditions, the authors proposed a library automation system that is directly tailored to the needs of university libraries. The library automation system they proposed would include reliable tracking of user transactions, efficient material location, smooth book lending and return processes, as well as automated computation of overdue fines. In addition to this, the system would generate relevant data that will empower library management in their decision-making processes. The resultant design was specifically implemented for Delta State University in Nigeria.

- Comsa, A., and colleagues (2012) made an effort to clarify library automation within the framework of the integration of robotic book handling systems in library operations. The authors viewed automation as an entire process made up of hardware and software that would be able to handle the complete management of books from retrieving them to shelving to labeling and so on. The paper brings to light the technical developments related to this and introduces two CAD models of the proposed linear drive robotic book manipulator. These models are conceptual enhancements to the automation of manual physical library staff work..
- Ochando and Martinez-Comanche (2012) investigate the inter-library exchange of bibliographic records which has, so far, been strictly controlled via the Z39.50 protocol. Their work aims at outlining a totally different approach by the use of content syndication techniques. They developed a software prototype in order to test the practicality of exchanging and transferring library catalogs of different sizes through various syndication formats, namely ATOM, RSS 1.0, RSS 2.0, and MARC-XML, ranging from small to large ones with as many as one million records. The experiments showed that for small catalogs of around 25,000 records, the import or insertion time is less than one minute. Their finding substantiates that content syndication opens up an efficient and effective channel for transmitting and accessing bibliographic data between libraries.
- Breeding (2009) discusses the increasing adoption of open source integrated library systems (ILS) within U.S. libraries. He brings to light a change in the library automation field, which had previously been dominated by closed-source, proprietary solutions, to more activity and attention on open source alternatives. According to reports, it has become common for libraries to adopt open source ILS applications, and such systems are fast catching on across the country. Breeding also adds that the commercial vendors backing such systems have several key features in common.
- De Smet (2009) presents the ABCD software, an open-source and free library automation system based on ISIS technology. As an integrated web-based solution, ABCD merges numerous functions from other systems such as KOHA but maintains the flexibility of (Win)ISIS to develop and maintain

databases with different structures. The article details the software's major technical features and mentions pertinent management issues. It also addresses future development strategies and the particular challenge represented by the particular requirements of the ISIS user community.

- In his work, JI Adeyomoye (2008) enlightened us about the automation taking place in Igbinedion University Library, Okada, and described various impediments that prevented a totally automated system from being in place. Among the obstacles pointed out, insufficient funds, inconsistent power supply, a lack of skilled librarians, no Local Area Network (LAN), problems with software choice, and absence of support and maintenance agreements were the main ones. The researcher also suggested some measures to tackle the problems and make successful automation possible. It was stated that the automation journey of Igbinedion University Library is still very much in the initial phases, thereby emphasizing that the university authority should immediately make available enough money to back and finish the project which was started by Chief Achike Udenwa.
- Bansode, Sadanand Y., and Periera, Shamin (2008) performed a research survey on the implementation of technology and automation in academic libraries of the universities and colleges in Goa state, Taleigao, India. The purpose of the study was to evaluate the present condition of library automation in the college libraries of this area. It took into account how many libraries had gone for automation, pointed out which are already automated, and assessed the number of staff fit to support automation projects. The study furthermore shed light on the dilemma that the college libraries in India have been going through during the automation period.
- In their work, Mahmood and Khan (2008) provide a detailed analysis of the Pakistan Library Automation Group (PakLAG), which is an aide-driven project established in October 2000 by a mix of people from the library and information science (LIS) as well as computer science background. Financial support was almost non-existent; nevertheless, PakLAG's vision was to create awareness and acceptance of information and communication technologies (ICT) in libraries of Pakistan. The group got over a period of little more than 6 years, several major milestones, like building a website, making an LIMS

(Library Information Management System), developing a multilingual web OPAC, and setting up a search interface for the national digital library. To mention some of the other achievements, there are an online directory of LIS professionals, a variety of publications including the Pak-LIS News, an email list for discussion, job announcements, a virtual library, training in ICT for librarians, and free automation consultancy for libraries. The research also details the future objectives of PakLAG and ends on a note that the commitment of professionals, even without the backing of huge financial resources, can turn out to be a significant factor in pushing ICT usage in the libraries of developing countries.

- According to Husain and Ansari (2007), the entrance of computers into libraries has significantly improved the effectiveness of the library operations, especially in the area of information organization and retrieval. On the other hand, one of the big problems that came along with the modern technology was the issue of library managers having difficulty in choosing the right software that would not only be compatible with the library's operations but also would suit its requirements. The 20th century saw the start of library automation in India which lured the international and local software developers. However, only a few of the automation software packages could establish a firm presence in the Indian market. Therefore, this paper addresses the issue by evaluating the cataloguing features of three such software systems: Alice for Windows, LibSys, and Virtual; studying their adequacy and popularity in a developing country.
- Adanu (2007) narrates a three-year library automation project at the University of Ghana Library, which was funded by the Carnegie Corporation and evaluates its implementation progress after two and a half years. The paper describes the situation of automation prior to the project and mentions the main elements that have helped the automation process so far. Besides, it points out the big impact of outside helpers, speaks of the difficulties faced in the project and discloses what has been learned. The research ends with the evaluation of the experiences and the obstacles yet to be cleared before the system can be fully operational.

- Lines (2006) tells the story of a fully automatic ordering system, which was first introduced at the University Library in Newcastle in April 1966. It goes on to discuss the author's firsthand encounters with the old method of orders being processed manually and the factors that pushed the library to switch to automation. It elaborates on the various stages that the automated system went through before becoming fully operational. Among the results obtained is a fact that the slip processing time was 30% shorter compared to the period before the advent of machines. Furthermore, the system not only allowed the printing of valuable data but also the generation of printouts, thus eliminating clerical work and automating the accounting functions. The research is also recognized for bringing to light one of the early steps in the journey toward library automation in the form of its historical impact.
- Suku and Pillai (2005) confront the situation concerning the automation activities in university libraries throughout Kerala. The research they conducted clarifies several aspects of library automation, such as IT infrastructure, in-house operations, information services and their utilization, staff training, and budget allocation. Their publication underscores the crucial function of the INFLIBNET Centre in pushing forward automation initiatives, mainly through the UGC-Infonet program coming into effect. Moreover, it points out the difficulties met during the automation and suggests solutions to those problems via recommendation..
- Chandrakar (2003) mentions that whereas the worldwide library community has reached the point of full automation—characterized by the existence of electronic, digital, and virtual libraries—the Internet has taken the field to a new level by introducing ideas like libraries without walls. More and more library staff members are getting involved in areas such as knowledge management, Internet and copy cataloguing, metadata, the Z39.50 retrieval protocol, and sharing of resources through interlibrary loans, document delivery, and online services. Nevertheless, the situation is quite the opposite in Indian libraries where most of them are still in the early phase of automation and digitization. This paper discusses the main factors that are blocking the way to progress in these areas in Indian university libraries.

- Saarti (2003) provides us with a survey from the year 2000 that looks into the different types and costs of library automation systems across the public libraries of Finland. Amongst the library systems that had been surveyed, the study noticed that almost all Finnish public libraries were to some extent automated and 80% of them were already making their services available over the Internet. The total amount of money spent in setting up library automation was approximately 16.8 million euros while the yearly cost of operation was around 5.7 million euros which translates to about 1.2 euros per Finnish person. Nonetheless, the research pointed out that the salaries of the staff working on the development and maintenance of these systems were not properly accounted for. As a result, the article recommends the introduction of a more effective and all-encompassing cost-analysis model for the management of automation in the public libraries of Finland.
- Choi, Hercules, Sepetov, Issakova, and Gusev (2002) created a smart automation plan for LC-MS (liquid chromatography–mass spectrometry) analysis that used Microsoft Visual Basic macros for compound library screening. The strategy allowed the compounds' initial characterization to be done through universal analytic methods. Compounds that did not meet pre-defined analytical criteria were automatically sent back for a secondary or alternative analysis. Thus, the method allowed for high-throughput automation of analysis of the compounds with a wide range of chemical properties while keeping both the sample throughput and the data quality at a high level.
- According to McCallum (2002), the cataloging and the maintenance of catalogs—libraries' fundamental and expensive operations—were not manageable for the automation to become effective till the mid-1960s. The situation changed with the creation of the MARC format for data records by the Library of Congress, which turned out to be the basis upon which modern library automation systems were built. The MARC format not only allowed a wide data sharing among libraries but also opened the door to technological advancements which ultimately resulted in the present-day online catalog scenario.

- Porat (2001) presents the argument that cost cutting together with the longing for less labor-intensive procedures led the Interlibrary Loan (ILL) department at the University of Haifa Library, located in Israel, to resort to automation. The paper outlines the journey and the strides made in the automation project and examines its effects on the betterment of customer service. Furthermore, it points out the different aspects through which the library has gained from the automation, such as the raising of efficiency and the taking up of service quality.
- According to Francis (1998), one of the main problems that library professionals in India had to face in relation to software was the incompatibility and selection of proper library software bringing in various issues as well. The paper suggests that these issues have been an impediment to the library computerization process. Furthermore, it would be very helpful if the libraries had access to current and complete information of the software available in India so that many difficulties of the implementation would be eliminated. The research also proposes to set up such a system where an agency or mechanism would always be there monitoring and assessing the performance of the software to meet this need.
- Davies (2004) gives an account of the ELAG 2004 seminar held in Trondheim where the main topic was "Interoperability: New Challenges and Solutions." The journal highlights that interoperability problems were mainly discussed in the context of library portals. Several presentations focused on design, implementation, and integration of portals. A couple of papers even talked about larger information processing movements in Norway. Davies emphasizes the necessity of collaboration and integration of systems in library automation today. The paper provides a snapshot of the prevailing trends in digital library tech all over Europe.
- The choice of Koha software for Web OPAC at the University of Mysore is an indicator of the open-source library automation system's increasing acceptance in academic institutions. Surveys have indicated the wide-ranging features and reasonable pricing of Koha along with its user-friendly interface. Researchers have referred to its adaptability to different library needs such as research centers and P.G. departments. The advantages of web-based OPACs

in improving resource accessibility and user engagement have also been widely discussed in several publications. The University of Mysore's experience has been a good example of such advantages where there has been a positive impact on library management and service delivery. It can thus be said that Koha's open-source nature and collaborative development have been highly appreciated in the literature for being innovative in library automation. (Ramesha & Jagadeesha, 2015)

- Carassiti and Tajoli (2009) did an extensive study on the Italian academic libraries' adoption and implementation of the Koha Integrated Library System (ILS). They found that the system's flexibility, scalability, and interoperability with international library standards made it an excellent open-source alternative to proprietary ILS solutions. The research also pointed out the necessity of institutional readiness, staff training, and support as a key factor for Koha implementation to be successful. The open-source characteristic of Koha gives the liberty to libraries to adjust the system to their personal needs that lead to more control over data and software. Moreover, web-based interface and standards such as MARC 21 and Z39.50 make it easier for libraries to connect with other systems and resources. The modular design of the system covers a wide range of library functions such as acquisitions, cataloging, circulation, serials management, and OPAC. The Carassiti and Tajoli study highlights the importance of planning strategically and, at the same time, working together library staff with IT and external support to make Koha a success in academic libraries.
- The adoption of Koha ILS by academic libraries is increasingly recognized in recent studies as a measure for meeting global standards and improving competitiveness. As an open-source software, Koha provides an easy and low-cost way for libraries to customize, automate, and integrate themselves into the digital world. The transition to Koha has been viewed as an essential step towards ICT skills development for librarians and strengthening the relationship of libraries with their patrons. Koha enjoys a so-called smart use to boost efficiency in cataloging, circulation, and overall resource usage. Periodic research does assert that the ILS is a good generator of useful analytics that can lead to better and more informed decision-making. To sum it up, Koha gets the full credit for being a revolutionary tool for the creation of

modern and user-centered library environments. (“Smart Usage of Koha: An Open-Source Library Management System,” 2023)

- The world of library automation has undergone a rapid transformation, mainly because of the need to improve the efficiency of library operations and provide better access to users. The focus of the first systems was on the automation of cataloging and circulation processes. However, digital technologies did not stop there; ILS started to provide web-based access and user-initiated services as the case goes on with the development of technology. Today’s library solutions connect regional library holdings to worldwide databases and cloud platforms. This is nothing but a gradual shift from retrieving information, sharing resources, and providing services to a higher level of sophistication. Present trends of interoperable, flexible, and user-friendly systems are setting the course of the future (Library Technology Guides,).
- The library's main function has always been cataloging, which has undergone a significant transformation with the introduction of automation. Gorman (2001) criticized modern cataloging practices for moving too far away from the established norms, arguing that every now and then, technological progress weighs down quality and uniformity. Nevertheless, automation has opened the door to faster and easier, cleaner data handling. Gradually, libraries have begun to use the digital tools for controlling and sharing their bibliographic records between different systems. This shift is in line with the broader tendencies of user-centered services and resources sharing. The trade-off between efficiency and accuracy remains the major challenge (Gorman, 2001).
- Over the years, library automation has progressed from basic systems to sophisticated, distributed information access systems. Kochtanek and Matthews (2002) mention this trend and underline how ILS adapted to changing user needs and electronic interconnectedness. Besides automating the regular operations, the systems also give access to the electronic content and remote databases. Consequently, the libraries are no longer limited to their physical locations. Modern ILS are playing a larger role in user

experience enhancement and information offering. This is a revolutionary phase in the modernization of library services (Kochtanek & Matthews, 2002).

- The introduction of digital libraries has altered the methods of storing, accessing, and spreading information. Witten, Bainbridge, and Nichols (2001) guide to digital library construction is extensive and offers great insight into the territories that could be opened up through accessibility. They discuss the merging of different types of materials, the establishment of standards for metadata, and the design of user interfaces in digital environments. Digital libraries provide versatile, scalable information systems that can quickly adapt to different user needs. This new approach greatly improves the preservation of, discovery of, and access to information on a worldwide basis. Their contributions are still very influential in the areas of designing and building digital libraries (Witten et al., 2001).

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Type of Research and Rationale

The applied research method is employed in this study which focuses on finding practical methods to solve the problems that exist in the real world. The main goal of this research is to install and evaluate the KOHA Open Source Integrated Library Management System (ILMS) at the Vachana Pitamaha P.G. Halakatti Research Center Library of BLDEA.

One of the major aims of this study is to improve library operations in general, reduce manual processes, and provide quick as well as user-friendly services to the library users.It is considered that the applied research is most suitable for this particular study as it opens up the possibility of testing and operating the practical system—which is KOHA in this case—so as to improve library management processes. Also, the results of this study can act as a significant source of information for the other libraries that are thinking about the open-source automation solutions as a means to provide better services.

3.2 Koha Implementation Methodology

The study made use of both the implementation and evaluation methods. The entire process was composed of many important stages: planning, installation, configuration, data migration, testing, and feedback collection.

Among the planning conventions were the following steps in the KOHA implementation:

Planning and Needs Assessment:

The first stage consisted of an exhaustive library system examination to uncover the existing problems and the required automation features accordingly.

System Installation and Configuration:

During this phase, KOHA was installed on the library server, the relevant modules were activated, the modules were adapted according to the library's policies and workflows.

Data Migration:

KOHA obtained all the current data consisting of bibliographic records, user information, and transaction history through manual entry or previous systems.

Testing and Validation:

The examination of the systems and their features was done, the correctness of the data was confirmed and the library staff was trained.

Evaluation and Feedback:

The library staff and users were asked for their opinions about and their satisfaction with the new system, which was considered a part of evaluation.

The organized approach of the research not only made the transition to KOHA smooth but also allowed for a great reduction in the disruptions of regular library operations.

3.3 Phased Approach for Implementation

The KOHA Integrated Library Management System was implemented in five stages, with each stage focusing on a specific activity thus making the transition from the old system to the new one smooth and without any problems.

Phase I - Needs Assessment

First of all, the library's needs were determined. The current activities and processes of the library were the factors that indicated the automation needs.

In addition, the scrutinizing of the present manual system was very thorough and it resulted not only in revealing the problems and inefficient areas but also in pointing out the potential automation needs.

- The KOHA modules were selected according to the library's requirements and included the basic ones—cataloguing, circulation, acquisition, serials, and OPAC.
- The library prepared data concerning the users' expectations, the staff's abilities, and the technological resources that could help.
- The project goals and limits were set in such a way that the deployment of KOHA would be without any complications

.**Phase II - Installation**

- The main task of this phase was the technical installation of the KOHA system.
- KOHA was installed on a Linux (Ubuntu) server to guarantee that the installation was not only safe but also sound.

- One of the major actions taken was to enhance the performance of the main components such as Apache (web server), MySQL/MariaDB (database), and Perl (scripting language) by tuning them for best performance.
- After the initial setup was completed, an admin/user access was given for controlling the daily management.

Phase III – Configuration

- KOHA was modified during the phase to reflect the library's policies and workflows.
- The library branches and user categories (students, faculty, external users, etc.) were included in the configuration.
- The borrowing limits and fine regulations were established in accordance with the library's rules.
- The cataloging standards such as MARC21 and Z39.50 were set up to facilitate the management of records with uniformity.
- The OPAC interface was customized with the institution's name, logo, and design to make it look professional and friendly to the users.

Phase IV – Data Migration

- This phase was concerned with shifting all the current data to KOHA.
- The book and member records were changed over into the MARC21 format to ensure they were KOHA-compatible.
- The bulk import tools were used to upload the converted files for the purpose of making the process fast and smooth.
- Data was checked for mistakes, duplicates, and missing items to guarantee rightness and uniformity.
- The system was tested to make sure that it ran without any problems and all records were retrievable.
- In conclusion, the phased implementation approach overall provided a systematic framework for KOHA introduction, disruption minimization, data accuracy assurance, and system transition success.

3.4 Tools and Techniques for Data Collection and Validation

In order to carry out a thorough evaluation of the KOHA implementation's success, the study utilized a combination of qualitative and quantitative methods. With this mixed method, it became possible to have a double view of the system through the angle of the users and the quantifiable performance aspects.

3.4.1 Data Collection Tools

Interviews

Interviews were conducted with the librarian and IT support staff to get a clearer picture of the technical and operational difficulties that was encountered during setting up. The qualitative data provided a deeper knowledge of how the system was installed and managed.

Observation

Worker at the library was directly observed and watched with the KOHA system being installed and then after to see the impact. This was a great means for the researcher to record the improvements in workflow, the reduction in time taken, and the quality of service being rendered, thus, showing the merits of the new system over the manual one in terms of automation.

Document Analysis

The documents already existing like accession registers, catalogues, and transaction logs were analyzed to find out the differences between the manual system and the automated one. The exercise yielded proof of the data being organized, accurate, and processed faster.

3.4.2 Data Validation Techniques

In order to guarantee the correctness and trustworthiness of the data utilized in the research, a number of validation measures were put in place:

Data Verification during Migration: All records moved into KOHA were checked to make sure that no information was lost, duplicated, or damaged during the migration process.

Verification through Random Checks of Records: A random selection of records was checked for accuracy and consistency with the original data.

Comparison of Feedback: Library staff's and users' feedback were matched to determine consistency and to validate the findings' trustworthiness.

Review of System Reports: Automatically generated KOHA reports, e.g. circulation statistics and cataloguing summaries, were scrutinized to confirm that they were based on accurate and up-to-date data.

These instruments and validation techniques collectively worked to ensure that the obtained data was accurate, reliable, and thorough, thus giving a solid ground for the evaluation of KOHA implementation effectiveness.

CHAPTER-4

OVERVIEW OF KOHA

4.1 Introduction

In the context of Integrated Library Systems (ILS), Koha has been the first open-source ILS with a strong feature set to the level of an enterprise. It covered all aspects of the library operations like circulation, cataloging, acquisitions, serials, and user services, and even allowed multiple branches of a library to operate under one system. Additionally, its use of standard library protocols has always made it very compatible with numerous systems and technologies, thus being a non-platform-dependent solution. The very first to develop such software was Katipo Communications Ltd. in New Zealand which also had it installed at the Horowhenua Library Trust in the month of January 2000. Since then, the Library System has become a favorite with libraries worldwide. It is open-source in nature, which means its distribution is under the General Public License (GPL) and it continues to be developed through the efforts of an international community of librarians and software developers who are very active and providing constant contributions.

4.1.1 Historical Background of Koha (Integrated Library Management System)

Koha first saw the light as a software solution in 1999, when Katipo Communications crafted it for the Horowhenua Library Trust in New Zealand. Its rollout to the public took place in January 2000. In the next year, Paul Poulain from France made remarkable contributions by adding multi-language capability, through which Koha could be translated into French, Chinese and Arabic among others. The following year Poulain again expanded Koha, making it able to handle international cataloging standards, including MARC and Z39.50, with funding from Nelsonville Public Library**.**

4.1.2 Koha Features

Koha is a modern Integrated Library System (ILS) that is feature-rich, helping library management in all areas. Being open-source, it is a completely free solution with no licensing costs and a long history of awards for the quality of its service.

The application is cross-platform and moves seamlessly in the Linux, Unix, or Mac environment without any downtime. The web-based installation and user-interface

access makes it a delightful experience for the library staff and users, and for libraries to easily reach it.

Koha supports the principal cataloging standards, MARC21 and UNIMARC, and its multilingual, multi-user feature renders it fit for different library environments. The library community regards Koha as a trailblazer that adheres to the industry's current practices and standards such as Z39.50.

The system offers a flexible web-based OPAC for public catalog search and user access. The main modules are online reservations, cataloging, circulation, acquisitions, and stock management.koha can process various database formats, including SQL and MySQL, and is equipped with a serials management module for periodicals.

Additionally, the system can generate barcodes for library materials. Also, it can handle bibliographic records in ISO 2709 format, both import and export. This feature not only adds to its functionality but also to its interoperability.

4.1.3 Koha module:

- Acquisition – Takes care of the whole process of ordering, receiving, and invoicing of library materials.
- Cataloguing – Creates, updates, and keeps comprehensive bibliographic records of resources.
- OPAC – Enables patrons to look for and get to the online library's collection.
- Circulation – Looks after besides, sends back, and monitors the whole borrowing of items.
- Serial Control – Takes care of magazine and journal subscriptions plus the issues.
- Management/Reporting – Prepares reports and statistics for the library's executive management.
- System Maintenance – Sets up configurations for system settings and keeps the library operations uninterrupted.

Acquisition:

The term acquisition is used to describe the procuring of library resources through the methods of buying, giving, or swapping. It comprises diverse activities such as seeking bibliographic data prior to ordering, receipt, and

processing of orders, invoice management, and maintaining acquisition records. The main aspects of the library's acquisition process are effective tracking, documentation, and management of all such materials.

- **Item selection**: Library personnel determine which materials will be procured, e.g., books, CDs, or DVDs. In the case of books, the type may differ—hardcopy, softcopy, or original copies.
- **Duplicate checking**: This functionality enables staff to verify whether an item already exists within the collection of the library, to prevent unnecessary duplication.
- **Vendor selection**: Library staff may pick a vendor from the list of approved vendors to buy items. The system facilitates convenient selection of a preferred and eligible vendor.
- **Ordering goods**: After the library has picked a supplier, it can legally place the order for the necessary materials.
- **Accepting deliveries**: By the supplier, the staff can keep track of when the ordered products have been received as per the schedule.
- **Vendor claims**: In case of a delay, the library may claim against the vendor for not adhering to timeframes.
- **Management of funds**: An allocated budget is allotted to every department. The "Fund Control" feature in the ILS allows management and control of these budgets effectively.
- **Report generation**: The system is capable of generating elaborate reports on resources gained, such as books, journals, CDs, and DVDs.

Cataloguing:

- **Creation of records:**
- Library items such as books, CDs, and DVDs are added to the system in a standard format like MARC 21 for consistency and interoperability.
- **Duplicate checking:**
- This feature assists staff in determining whether a duplicate item is already stored in the library database, enabling them to compare records and prevent duplication.
- **Record editing:**

- Staff can edit or make adjustments to information regarding library items whenever necessary to ensure the database is up to date and accurate.
- **Authority files:**
- These are master lists of subject headings, authors' names, and series titles applied in the online catalog for consistency and greater search ability.
- **Cataloguing copies**:
- This function assists in minimizing errors in data entry (e.g., wrong call numbers or edition information) when entering records into the database by enabling precise replication of existing catalog entries.
- **Keyword search with Boolean logic**
- In online catalogs, one can narrow down searches via keywords and Boolean operators (AND, OR, NOT) to obtain better results.
- **Data import and export**:
- The system is capable of creating reports on materials received from or exchanged with other libraries, facilitating efficient resource sharing and collection maintenance.

  OPAC (Online Public Access Catalogue):

  An OPAC is a digital system that takes over old-fashioned card catalogs, permitting users to perform easeful searches for library material like books, journals, CDs, and others.
- **Basic search**: Users are able to conduct simple searches using keywords, title of books, or name of authors.
- **Advanced and refined search options:** Allows more focused searches, like searching by exact author name, title, or other, and to initiate a new or altered search with ease.
- **Item status checking**: Displays the status of a particular item. If it is borrowed, users can hold it but not check it out until its return.
- Following a book borrowing, borrowers are able to print out a receipt or document of the borrowed item from the system itself.
- **Help messages and prompts**: The system provides users with guidance messages on navigating and using the library catalog efficiently.
- **Personal user account**: Registered users are able to save their personal details in the system and handle borrowing history, holds, and preferences.

- **Online accessibility**: OPAC is accessible through the internet or intranet, making it possible to search remotely from any location.
- **Display features**: Indicates the newest notices or announcements (e.g., new arrivals, events).
- Displays accessible books and journals through integrated mechanisms such as Library Thing to support discoverability and recommendations.

Circulation:

- **Patron and item records:**

  The system maintains comprehensive details of all registered users of the library (patrons) and items (books, CDs, etc.).
- **Setting borrowing and return rules:**

  Issue and return parameters such as due dates, renewal limits, and loan periods for various materials can be set.
- **Fines and overdue reminders:**

  The system identifies items not returned within their due date and can automatically calculate fine amounts and issue reminders to users.
- **Holds and recalls:**

  If a book is put on hold, then it would be kept aside for the user who is requesting it when it is returned so that they have priority access.
- **Reservations:**

  This option displays whether a particular book is available or has already been reserved by someone.
- **Renewals:**

  Users may renew the borrowing period of borrowed materials as long as no one else has a pending request. Renewals in person, over the phone, or online are possible.
- **Short-term loans:**

  In case a book is very popular and in demand by many users, it might be lent out for a shorter borrowing period (e.g., one week) to ensure equitable access.

Serial Control:

Serial control is responsible for handling materials including journals, periodicals, magazines, almanacs, annual reports, and numbered monographs—usually referred to as “periodicals” in a broad sense. This module includes taking actions like ordering,

receiving, claiming, collecting, and binding. Binding is organizing and preparing the journals within the library for easier access.

Management:

The management module is essential to the library as it integrates all the activities in one location, hence making it almost instant for the employees to acquire any information.

The system maintenance instruments assure that library software will be in the most excellent condition possible and will not experience any downtime.

The module can provide various user interfaces according to the user's role or access level.It has a good security system that protects the confidentiality of information such as user profiles and passwords from being accessed by non-users.

Library staff can generate reports and stats to monitor the library's usage, the performance, and the resources available.

The library can really customize the fields, forms, and workflows to its precise needs.

The module aids in monitoring circulation and acquisition data per library policies.

However, it guarantees that the library operates without any hiccups while giving users security, flexibility, and easy access at the same time.

4.1.4. Koha System Architecture

- Koha uses the client-server architecture.
- Network Server: It is possible to use Koha within various operating systems, the most popular ones being Linux, Unix, and Mac. Debian Linux (stable version) is the advised platform; however, there are several other current OSs where Koha can also be installed.
- Client Workstations: Users can connect to Koha through any web browser and can select a graphical OPAC or a text-based interface. As a result, Koha can be used on any computer with an operating system of Windows, Linux, Mac, or UNIX.
- Koha can be installed on every TCP/IP network and its bandwidth requirement is not high. In fact, it can work quite well on ordinary phone line connections, particularly for the librarian interface, with a negligible impact on OPAC's response time.

4.1.5. Technical Requirement

- Server operating system: Linux
- Web server application: Apache
- Scripting language: Perl
- Data storage: MySQL
- Koha Version: 25.05.04

4.2: Installation of Koha

The Koha ILM is a situation where an elaborate action plan is necessary as the right software environment is a critical factor for a proper installation. At the outset, it is essential to ascertain the readiness of both hardware and software. Koha is predominantly a Linux-based application and its users usually pick either Ubuntu or Debian as their operating system. Thus, if you are one of those users who have correctly set up Apache web server, MySQL/MariaDB database, and Perl modules, you can expect the installation to be carried out quickly and effortlessly. After this, you must be able to get Koha repository added to your system and be able to use your system's package manager to install the most recent version (25.05.04). Only then can you proceed to the Koha web installer via your browser for finishing the installation. At this point, your database, library instance, and admin account will be created automatically and available for use.

STEP-1

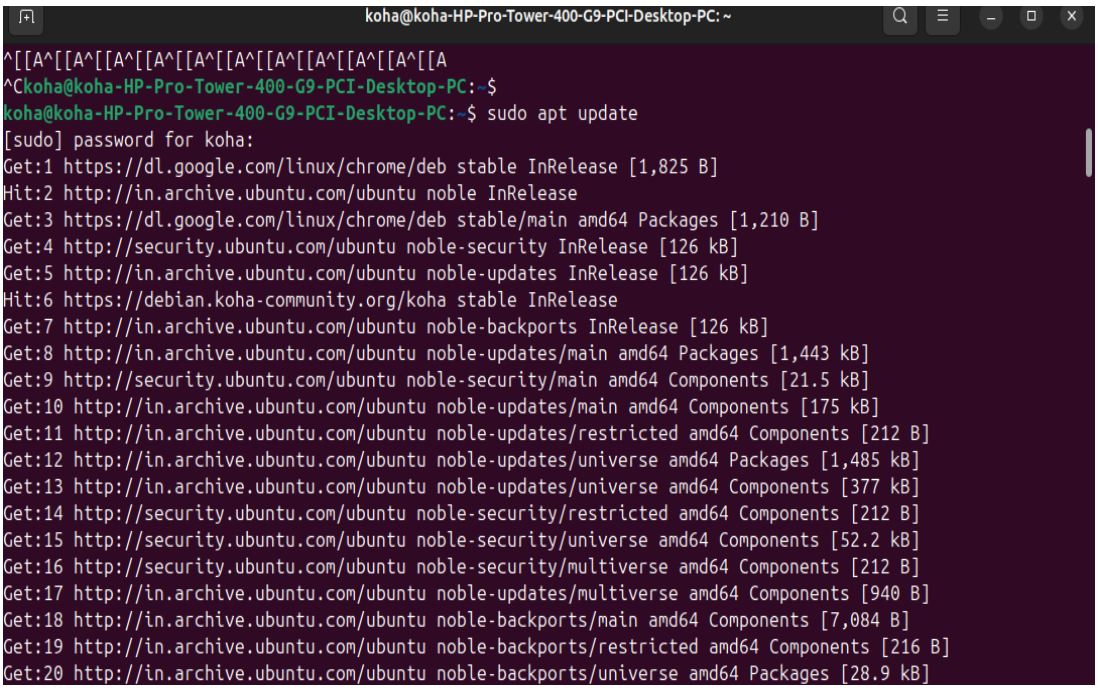
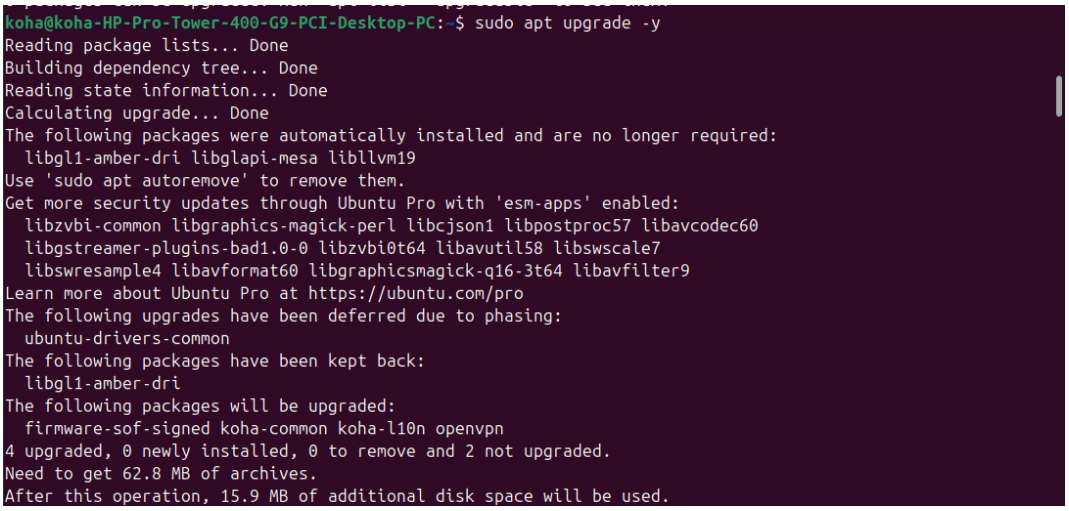


Figure. 4.2.1 Installation steps

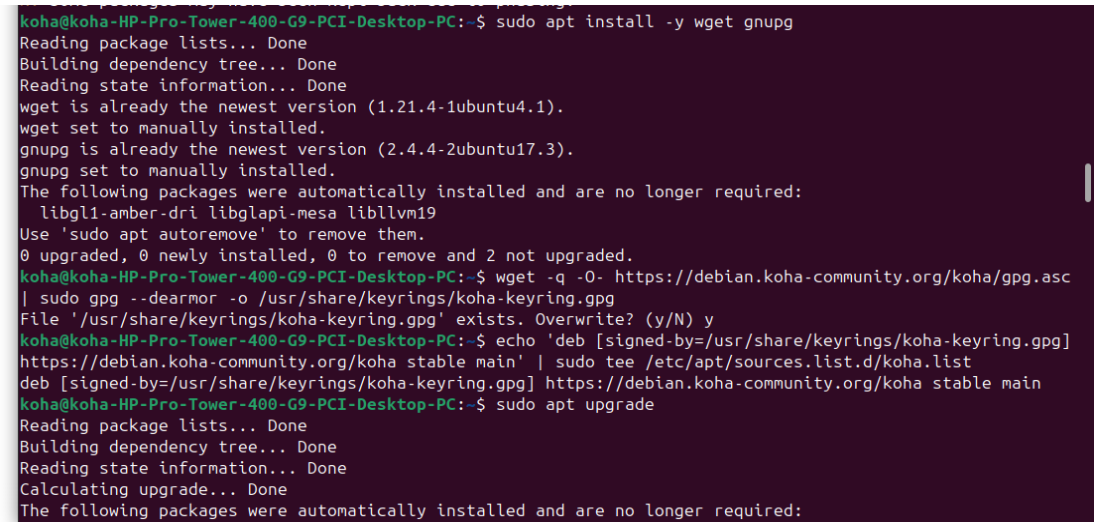
The image depicts an Ubuntu terminal with the user typing in the command sudo apt update. The above command prompts Ubuntu to look for updates from various repositories and PPAs. It gets in touch with the sources such as Google Chrome, Ubuntu archives, Koha, and security updates. This operation guarantees that the computer has the latest software versions installed at all times.

STEP-2



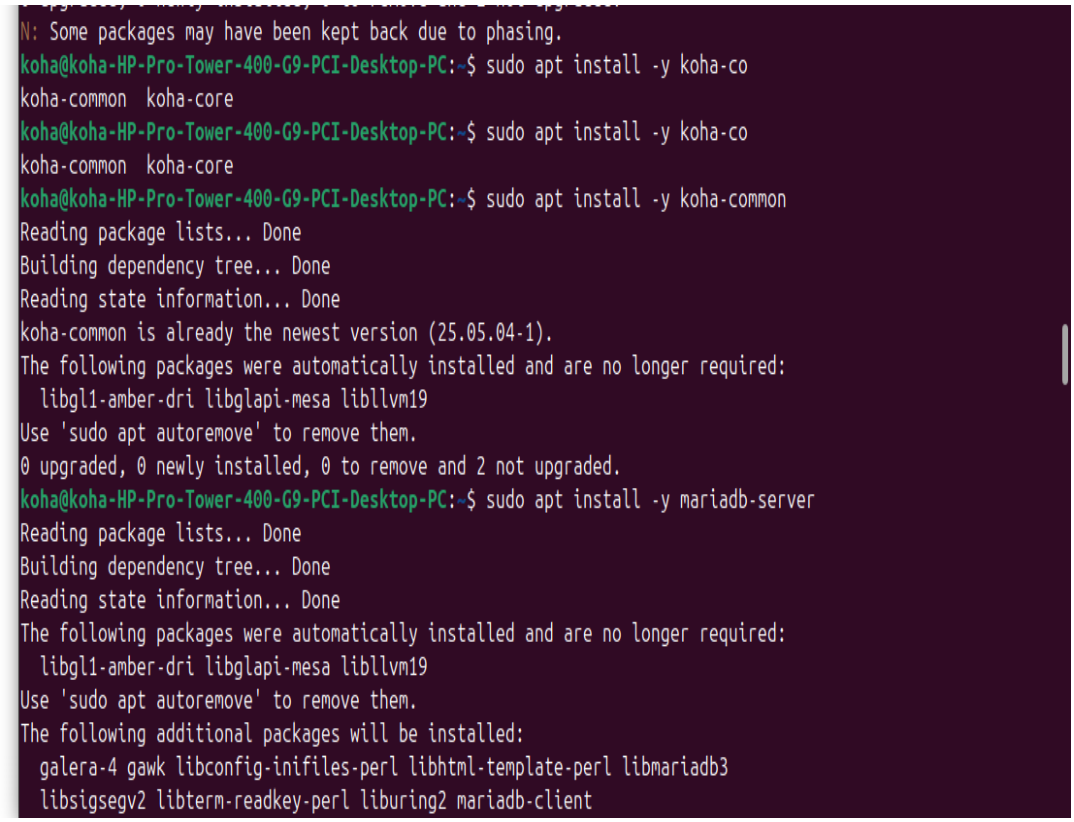
The terminal output of command sudo apt upgrade -y is shown in the picture. This command will install, in the background, all the latest versions of the existing packages on the computer. Delays or skips were observed for some packages while other packages such as koha-common and openvpn went through upgrading without any issues. The total size of updates is 15.9 MB which is more than what has already been installed on the system..

STEP-3



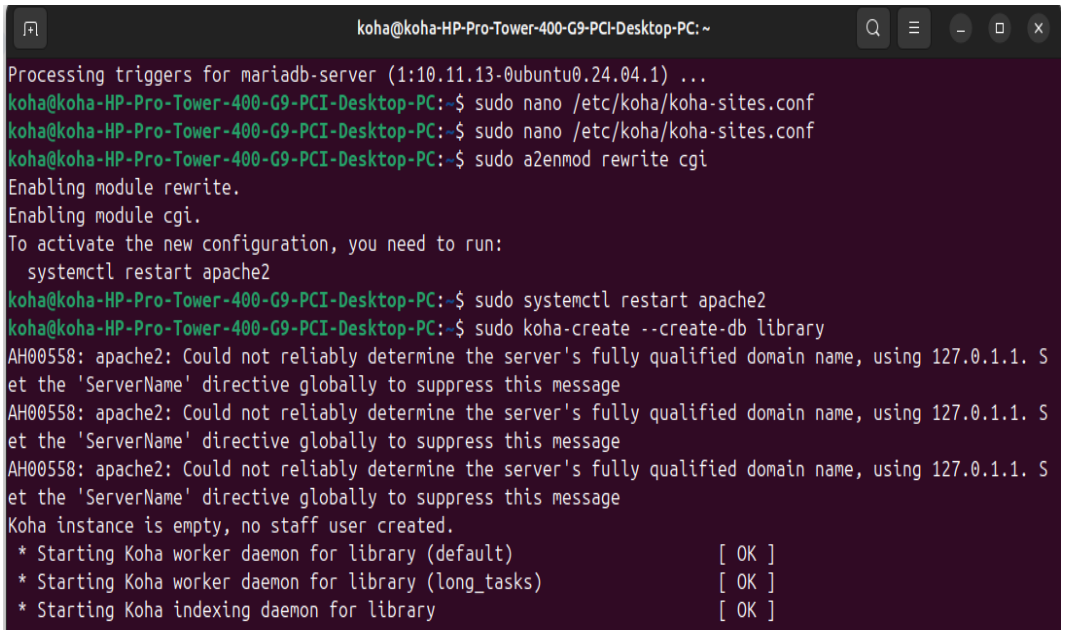
The image depicts the commands that were employed to download and set up the Koha repository on an Ubuntu machine. Initially, the installation of the tools wget and gnupg was performed to handle the downloads and to authenticate with the keys. Subsequently, the fetching of the Koha GPG key and its addition to the system's keyring for the verification of package authenticity were done. The last step was to include the Koha repository in the system sources and to update the system with sudo apt upgrade in order to apply the new repository.

STEP-4



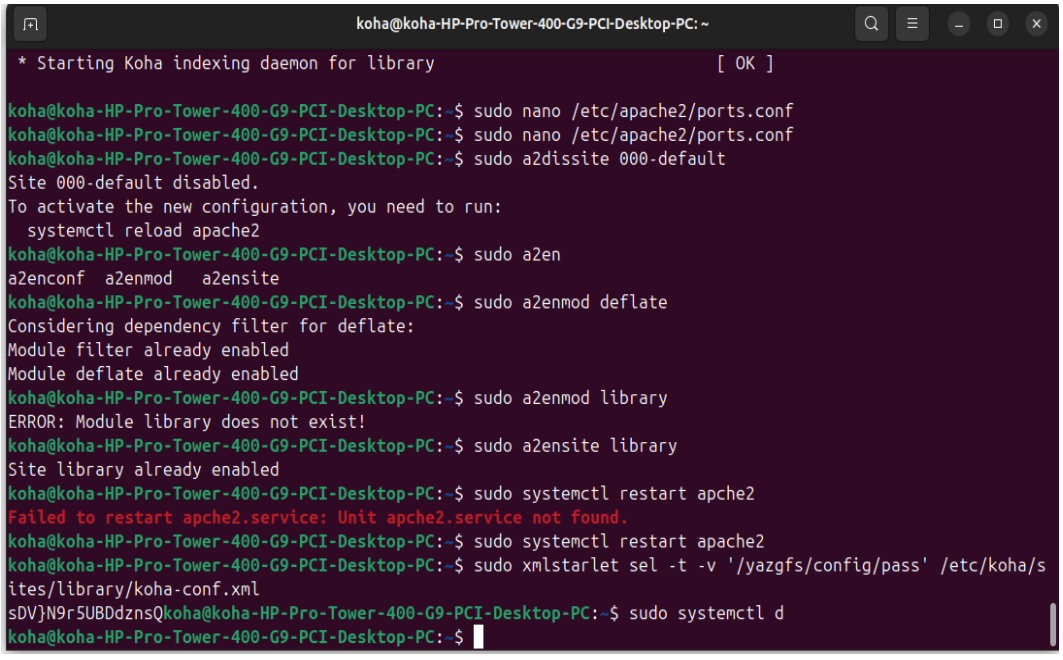
The picture illustrates the step-by-step process of installing Koha and the MariaDB server via command line instructions. Initially, the installation of koha-common is checked for the latest version. After that, the installation of MariaDB, which is the database for Koha, is completed without any issues. The installation automatically includes other packages like libmariadb3, galera-4, and mariadb-client.

STEP-5



The Koha Library Management System installation is demonstrated in the image on an Ubuntu system. The new Koha instance called “library” is created with all important Apache modules activated. The [OK] messages assure that all Koha services have been started without problems..

STEP-6



The image illustrates the steps of installing Apache and activating the Koha library site. The standard Apache site is disabled, and the required modules are enabled. An error is shown during the restart of Apache, but the Koha installation goes forward without any problems.

STEP-7

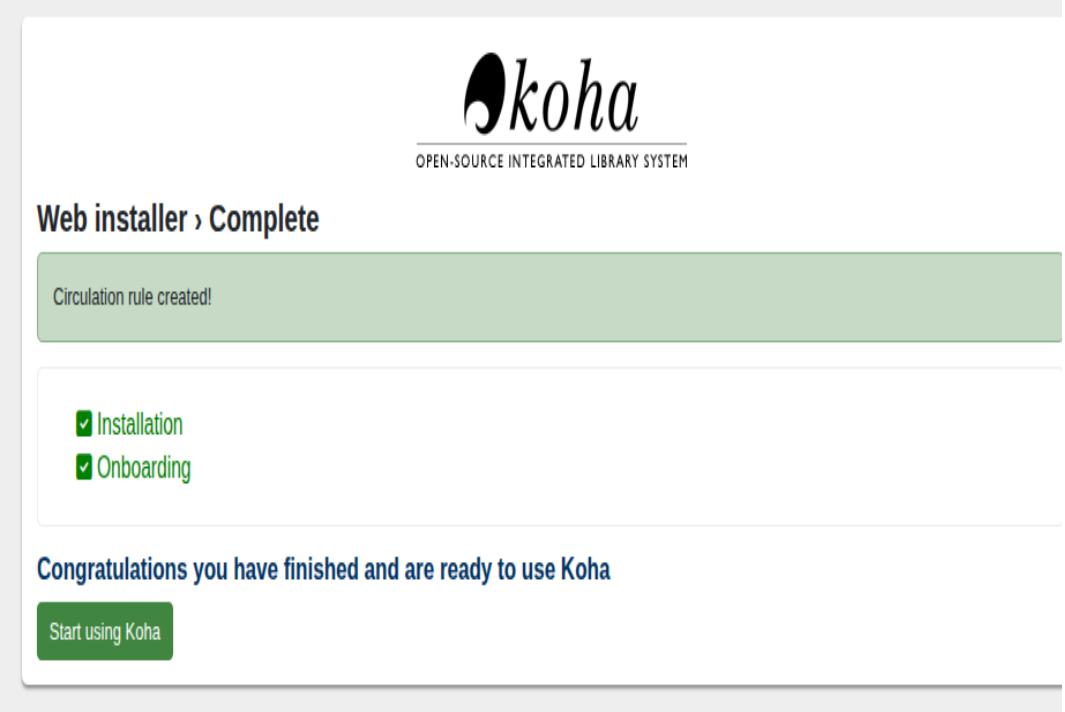


Figure.4.2.2 Web Installer complete

The picture represents the last screen of the Koha web installation process. It indicates that the circulation rule has been created successfully and that both installation and onboarding processes are finished. The notification assures the user that Koha is now fully set up and ready to be used. The “Start using Koha” button allows the user to enter the Koha Library Management System.

STEP-8

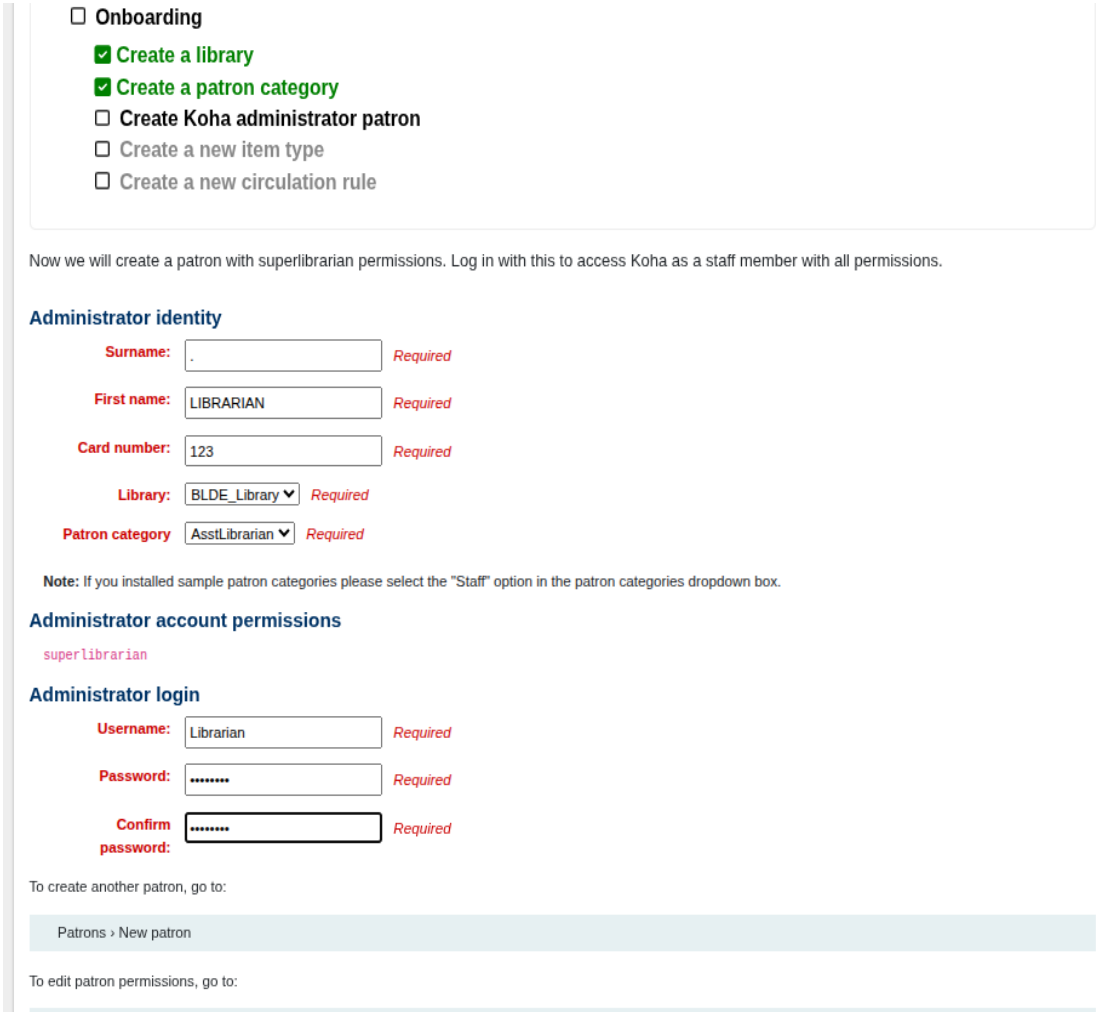


Figure..4.2.3 Onboarding

The exhibit portrays the Koha initial setup wherein a fresh library and user type are generated. It also has a document to configure an admin account with complete (superlibrarian) rights. A few pieces of information such as the name, card number, library and login credentials are filled in to get access to Koha as an administrator.

STEP-9

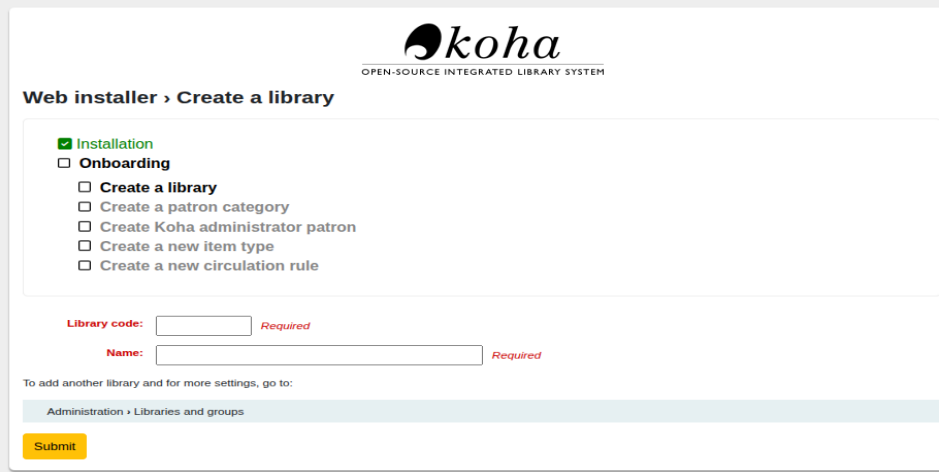


Figure..4.2.4 Create Library

The image depicts the Koha web installer interface at the "Create a library" phase. At this point, the user needs to enter a Library code and Name to establish a new library. After the information is filled in and Submit is clicked, the setup moves on to the next onboarding steps.

STEP-10

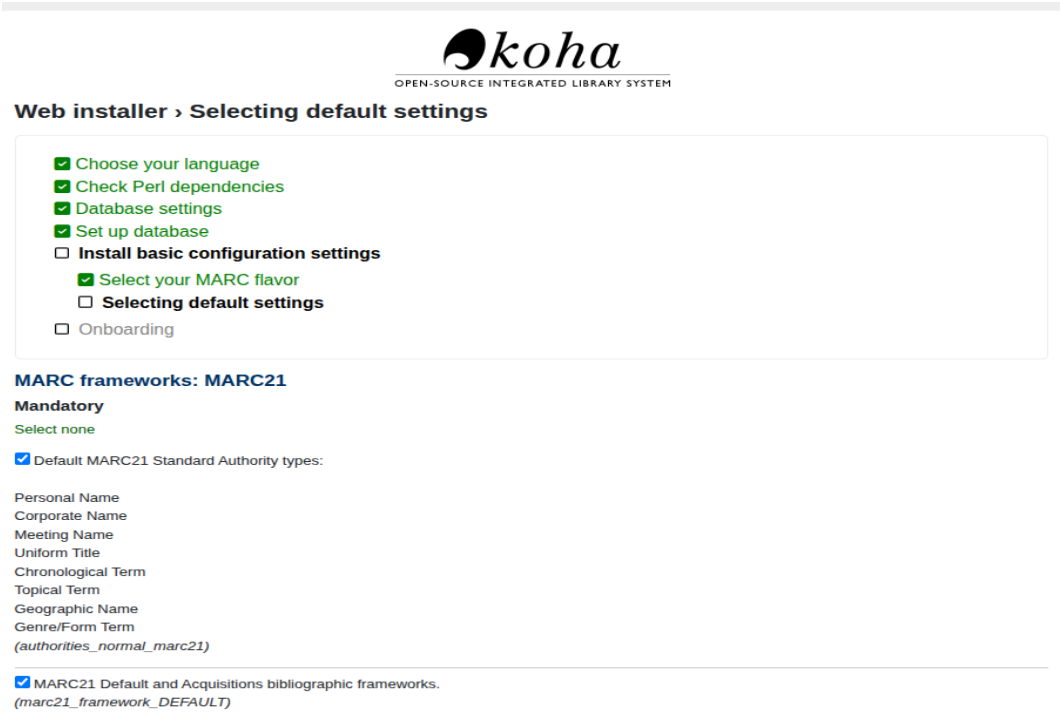


Figure. 4.2.5 Selecting default settings

The Koha web installer at the "Selecting default settings" step is depicted in the picture. It indicates that the language, dependencies, database setup, and MARC framework selection have been done. The MARC21 framework has been selected as the default standard for cataloguing bibliographic and authority records.

STEP-11

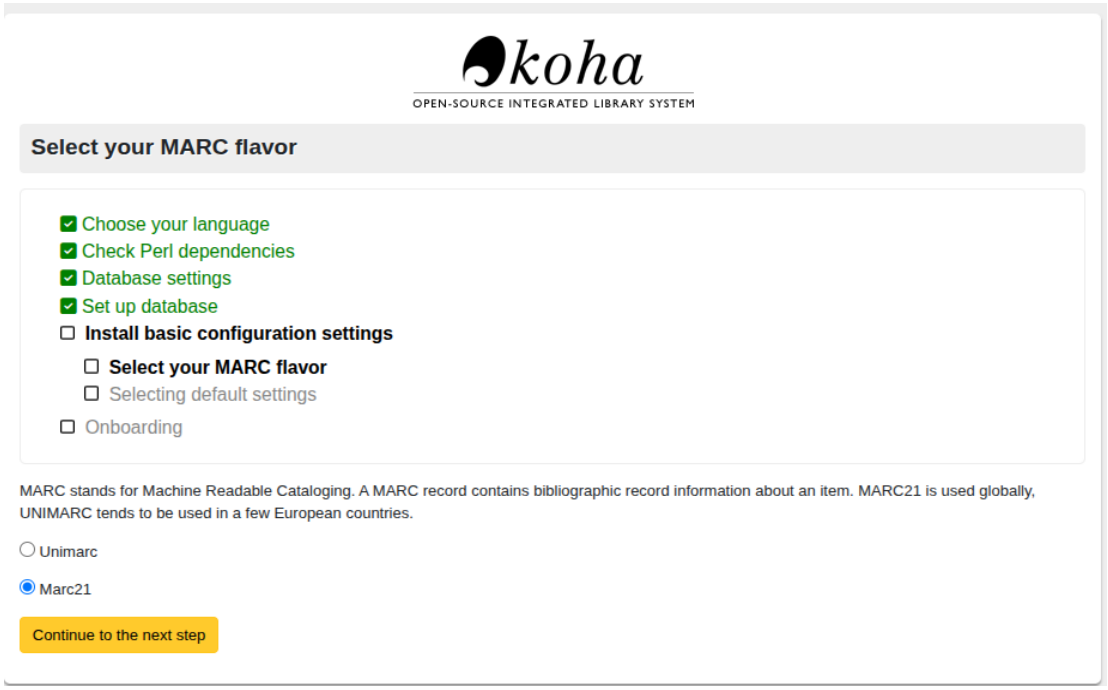


Figure. 4.2.6 Select mark flavor

The picture illustrates the Koha web installer at the point "Select your MARC flavor." In this stage, the MARC21 format is selected by the user, which is the most common standard for bibliographic records to be used across the world. By the way of selecting MARC21, the user moves on by pushing the button “Continue to the next step.”

STEP-12

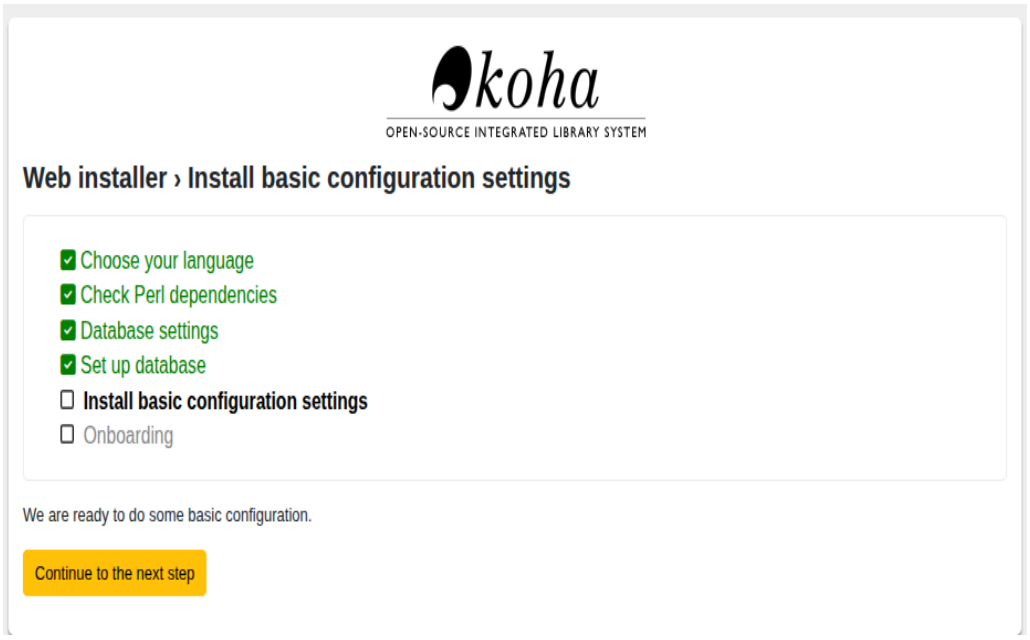


Figure 4.2.7 Install basic configuration settings

The image displays the Koha web installer page with the option "Install basic configuration settings." It shows that the user has already done the language selection and installed the Perl dependencies, completed the database settings, and the setup. Now, the system is in basic configuration and the user may go on by pressing "Continue to the next step."

STEP-13

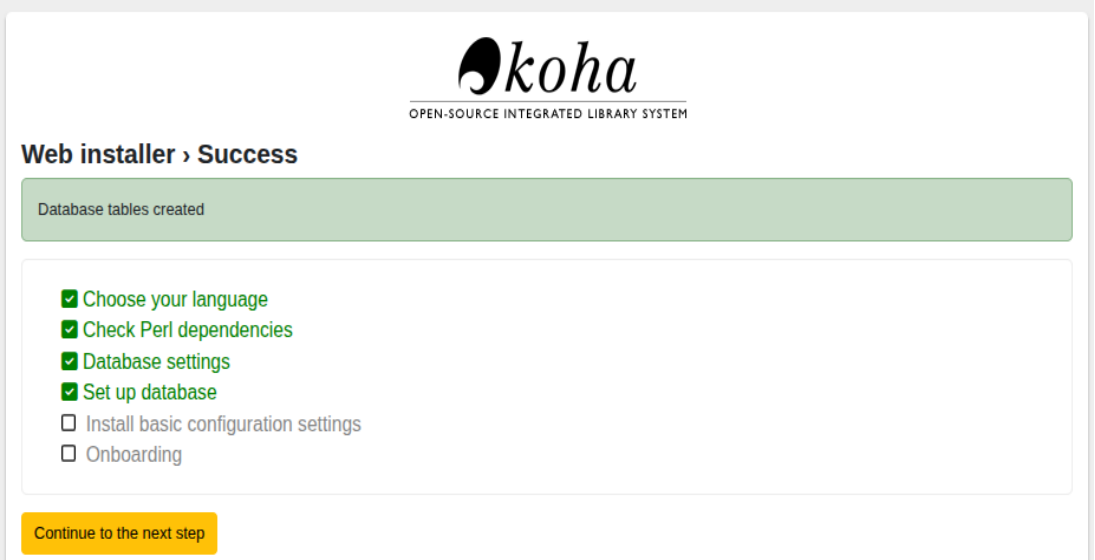


Figure.4.2.8 Database tables created continue to the next step

The Koha web installer interface present in the illustration confirms the successful installation of the database. A green message is shown to indicate that the database tables have been created, The user had already done the language selection, Perl dependencies checking, and database setting processes prior to this. The user is than invited to press the "Continue to the next step" button so that the software installation can go on.

STEP-14

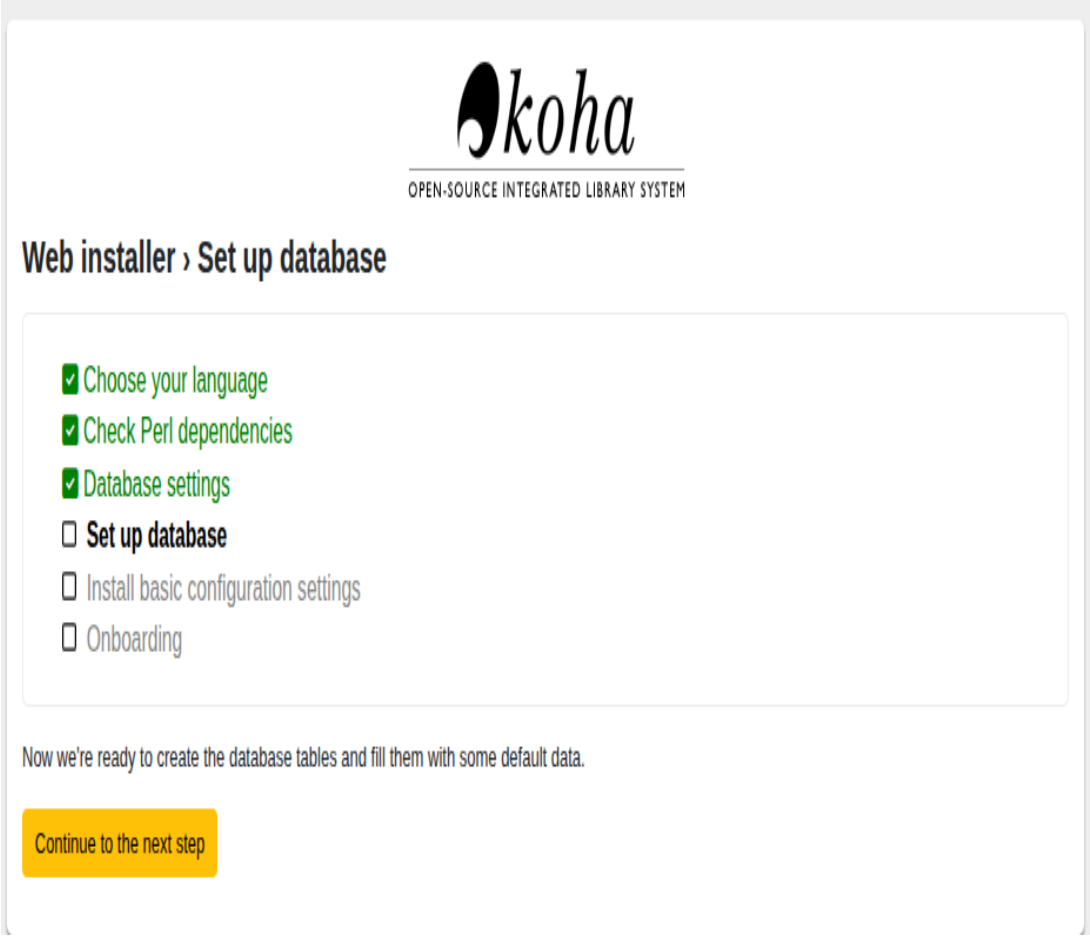


Figure 4.2.9 Set up database

Koha web installer is seen in the image at the "Set up database" phase. The earlier actions like choosing a language and checking dependencies are done already. Now the user has to click "Continue to the next step" for creating database tables and including default data.

STEP-15

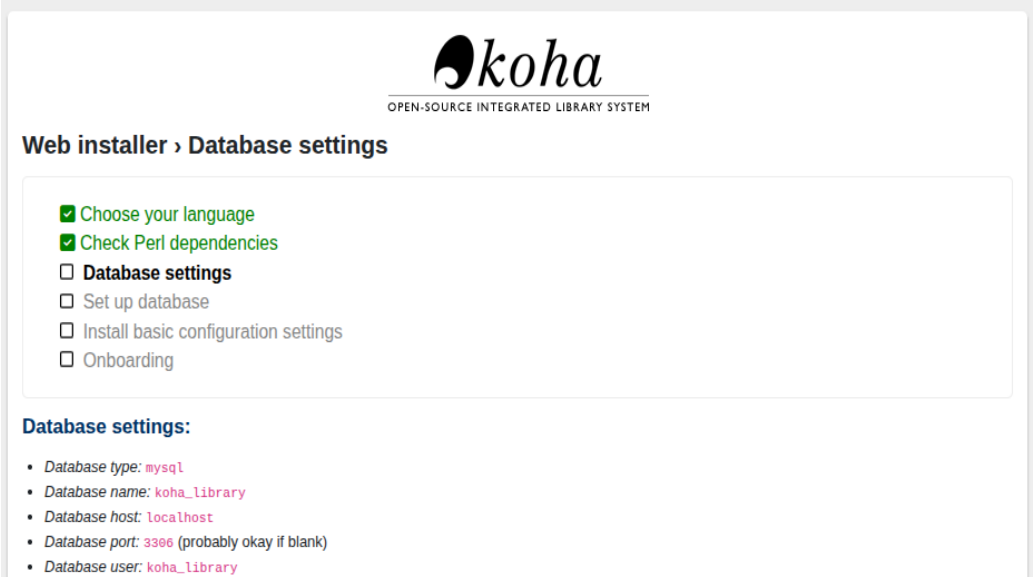


Figure. 4.2.10 Database settings

In the image, the Koha web installer is shown at the stage of "Database settings". Language selection and Perl dependency verification have been completed already. It shows the configuration details of the database like type, name, host, and port, and user. Afterward, the user is to click on "Continue to the next step" to commence the setup of the database.

STEP-16

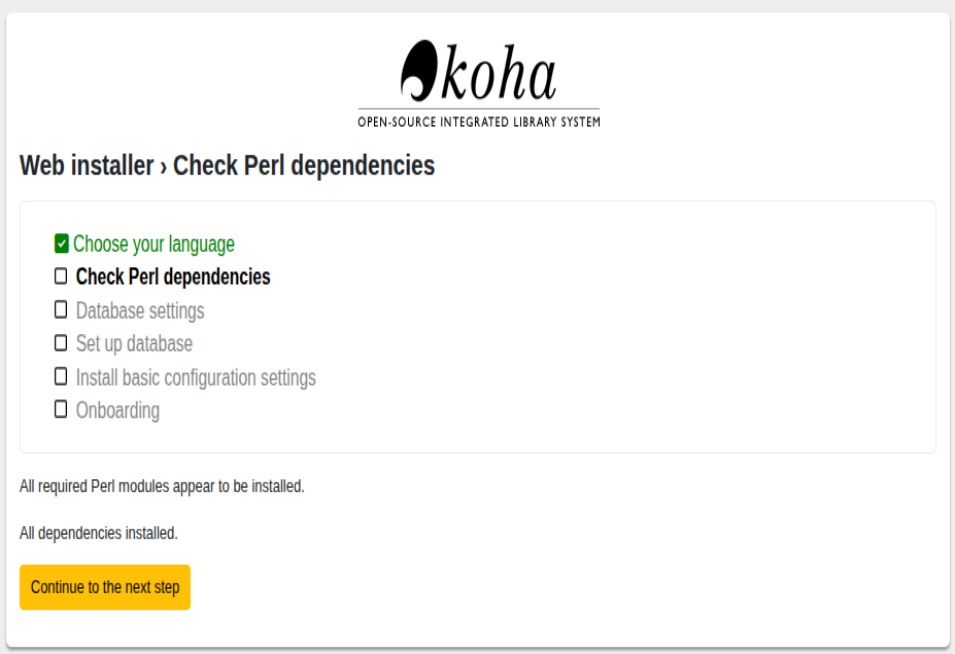


Figure. 4.2.11 Check perl dependencies

The image present at the "Check Perl dependencies" step shows the Koha web installer. It is affirmed that every required Perl module and dependency is installed correctly and there are no problems. The user is advised to click on "Continue to the next step" button so that he can move forward.

STEP-17

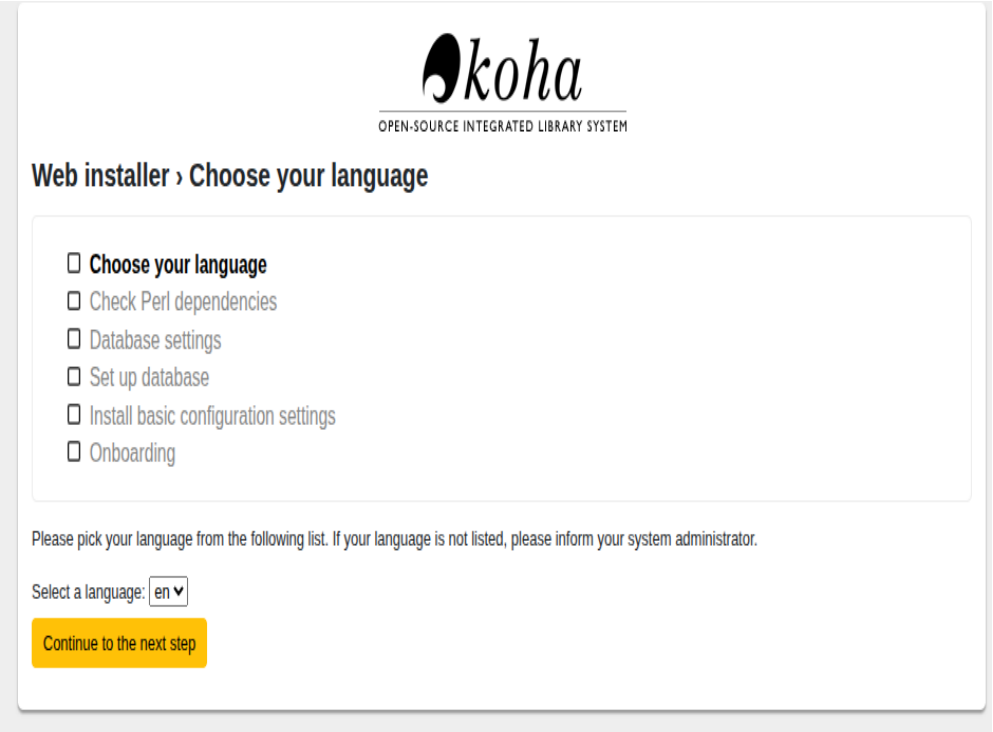


Figure 4.2.12 Choose your language

The Koha web installer is shown in the image as being on the “Choose your language” page. The user has to select a language from the dropdown list that is available. After the user has made their selection, they can proceed by clicking “Continue to the next step”.

4.3 Importing Excel Data into Koha

- Koha does not allow direct importing of Excel files.
- For the data transfer, Excel records need to be KMARC formatted first.
- uploaded records can be easily imported into Koha after converted into MARC format.
- Koha Integrated Library Management Software would be set up at the Vachan Pitamaha P.G. Halakatti Research Center Library.
- Along with the system, a Web OPAC with a personalized interface will be set up.
- All the metadata would comply with the MARC 21 standard.
- The library will migrate approximately 11,000 bibliographic records.
- MARC 21 format will be the first destination for these records.
- After the transformation, the records will be imported into Koha.
- With this step, data from the library gets seamlessly integrated into the Koha system.

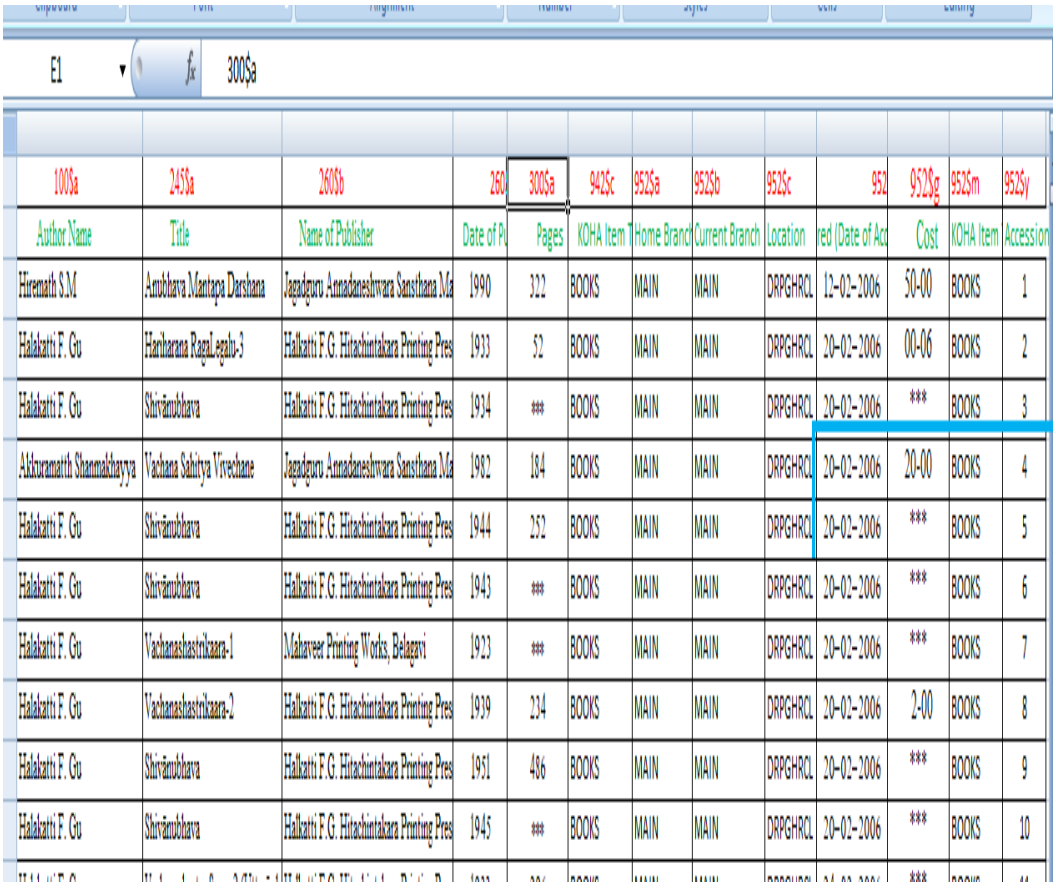
Different types of records are described by assigning specific MARC tags.

TAG	DESCRIPTION
100$a	Author Name
245$a	Title
260$b	Name of Publisher
260$c	Date of Publication
300$a	Pages
942$c	Koha Item Type
952$a	Home Branch
952$b	Current Location
952$c	Location
952$d	Date of Acquired (Date Of Accessioning)
952$g	Cost
952$p	Accession Number
952$y	Koha Item Type

4.3.1 MARC Import

The section gives the directions for the Excel record import into Koha.

STEP: 1



E1 fx 300$a

100$a	245$a	260$b	260	300$a	942$c	952$a	952$b	952$c	952	952$g	952$m	952$y
Author Name	Title	Name of Publisher	Date of Pu	Pages	KOHA Item T	Home Branch	Current Branch	Location	red Date of Acq	Cost	KOHA Item	Accession
Hiremath S.M	Amrutdhara Mantapa Darshana	Jagadguru Annadaneshwara Sansthana Ma	1990	322	BOOKS	MAIN	MAIN	DRPGHRCL	12-02-2006	50-00	BOOKS	1
Halakatti F. Gu	Harsharana RagaLegalu-3	Halkatti F.G. Hitachintakara Printing Pres	1933	52	BOOKS	MAIN	MAIN	DRPGHRCL	20-02-2006	00-06	BOOKS	2
Halakatti F. Gu	Shivanubhava	Halkatti F.G. Hitachintakara Printing Pres	1934	***	BOOKS	MAIN	MAIN	DRPGHRCL	20-02-2006	***	BOOKS	3
Akkuramatth Shanmakhayya	Vachana Sahitya Vivechane	Jagadguru Annadaneshwara Sansthana Ma	1982	184	BOOKS	MAIN	MAIN	DRPGHRCL	20-02-2006	20-00	BOOKS	4
Halakatti F. Gu	Shivanubhava	Halkatti F.G. Hitachintakara Printing Pres	1944	252	BOOKS	MAIN	MAIN	DRPGHRCL	20-02-2006	***	BOOKS	5
Halakatti F. Gu	Shivanubhava	Halkatti F.G. Hitachintakara Printing Pres	1943	***	BOOKS	MAIN	MAIN	DRPGHRCL	20-02-2006	***	BOOKS	6
Halakatti F. Gu	Vachanashastrikaara-1	Maharveer Printing Works, Belagavi	1923	***	BOOKS	MAIN	MAIN	DRPGHRCL	20-02-2006	***	BOOKS	7
Halakatti F. Gu	Vachanashastrikaara-2	Halkatti F.G. Hitachintakara Printing Pres	1939	234	BOOKS	MAIN	MAIN	DRPGHRCL	20-02-2006	2-00	BOOKS	8
Halakatti F. Gu	Shivanubhava	Halkatti F.G. Hitachintakara Printing Pres	1951	486	BOOKS	MAIN	MAIN	DRPGHRCL	20-02-2006	***	BOOKS	9
Halakatti F. Gu	Shivanubhava	Halkatti F.G. Hitachintakara Printing Pres	1945	***	BOOKS	MAIN	MAIN	DRPGHRCL	20-02-2006	***	BOOKS	10

Figure.4.3.1.1 The details of the Books have been entered into an Excel file.

The Excel document revealed in FIG.4.3.1.1 possesses an entire catalogue of books represented in a structured way. A single row in the document stands for a single book with the title, author, publisher, ISBN and year of publication as the columns with their respective bibliographic data. The data so organized is converted to MARC format. The Excel document is then prepared for transformation into a delimited text file, most of the time in either CSV or tab-delimited format. This file type works with MarcEdit to carry out the subsequent processing. The sorting out of data in Excel guarantees the users getting proper mapping to MARC fields. This is an important step in the cataloging process. It permits the entry of large quantities of data before being imported into the library management system. The use of Excel makes it user-friendly and error-free during the conversion to MARC format.

STEP: 2

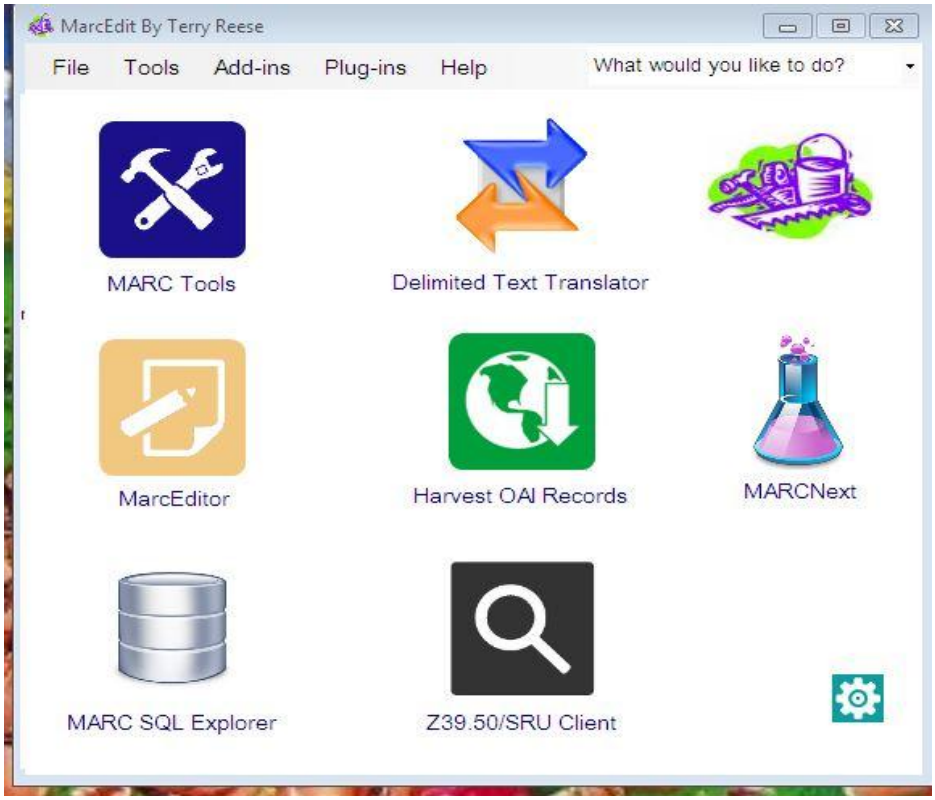


Figure .4.3.1.2 marc editor

The image shows the principal interface of MarcEdit, a software developed by Terry Reese. It provides a variety of tools for processing and editing MARC bibliographic data. MARC Tools, Delimited Text Translator, MarcEditor, Harvest OAI Records, MARCNext, MARC SQL Explorer, and Z39.50/SRU Client are among the available choices. With these functionalities, the libraries get the support of technology to easily carry out metadata records editing, converting, validating, and managing process.

STEP-3

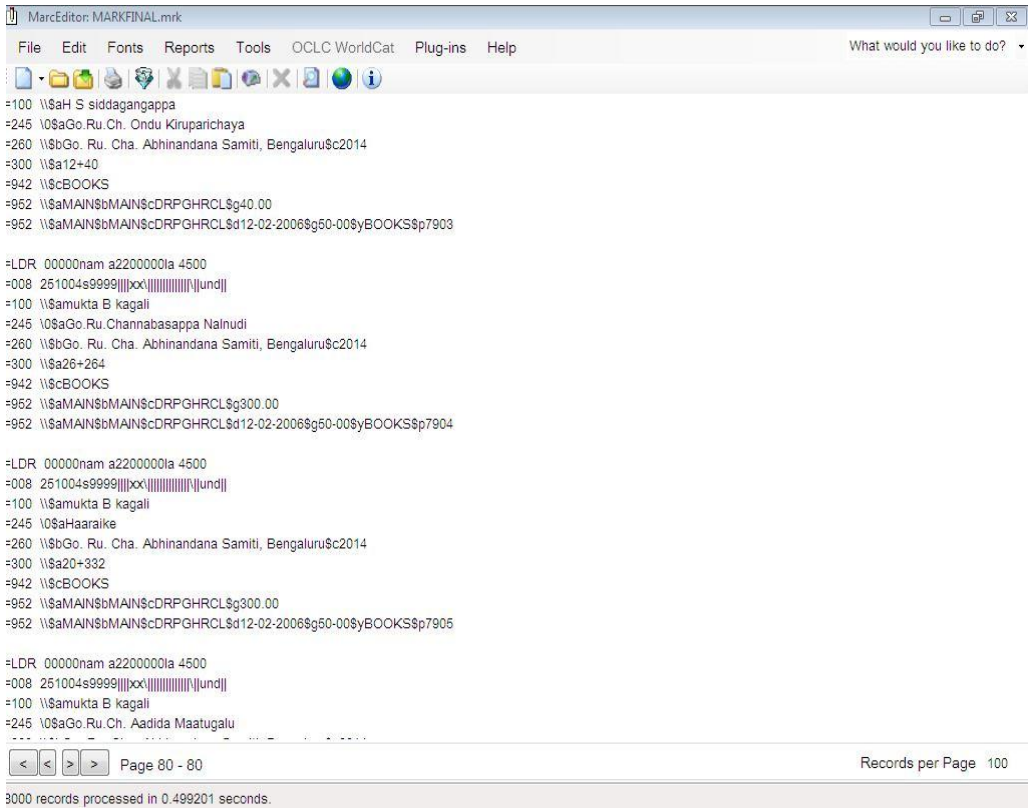


Figure.4.3.1.3 The data entered in the excel has being converted into Tab delimit format

The image depicts the graphical user interface of the MarcEdit software's MarcEditor. MARC records consist of bibliographic records with the author's name, title, publisher, and year along with the subject. The record is structured by means of MARC codes and subfields such as 100, 245, 260, and 952. The notice at the bottom vouches the rapid processing of 11000 records in under a second.

STEP: 4

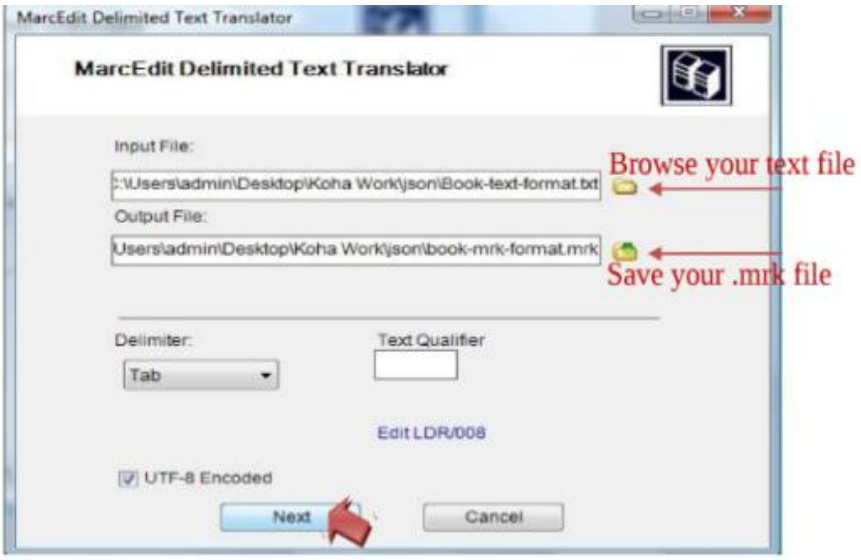


Figure..4.3.1.4 Add the txt format file into it. Here the txt file has been converted into mrk format file and save delimiter as tab.

The interface of MarcEdit Delimited Text Translator is shown in the image. the tool facilitates the conversion of a .txt text file into a .mrk MARC file. The user selects the input file and specifies the location to save the resulting .mrk file. It also features a delimiter selection, a text qualifier specification, and a UTF-8 encoding option, and the user proceeds by clicking Next.

STEP – 4

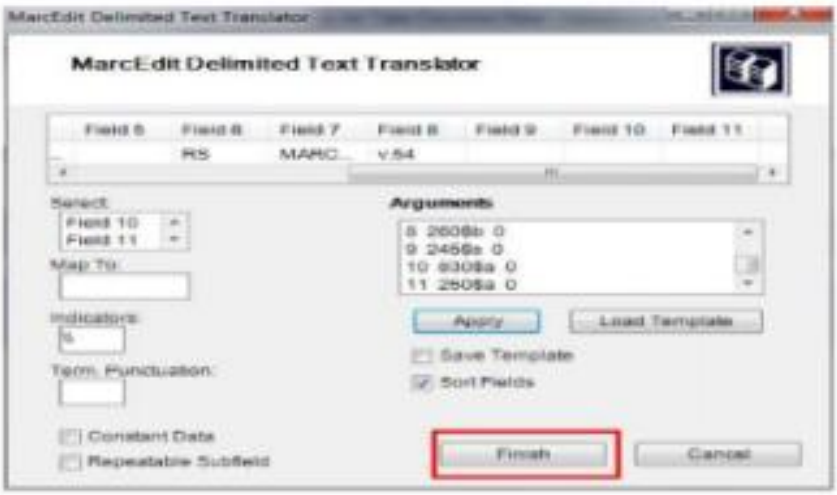


Figure.4.3.1.5. Then select the field and enter the field number apply and finish place.

The image presents the MarcEdit Delimited Text Translator window at the point of field mapping. In this process, the users connect fields from a delimited text file (CSV

or TXT) to the corresponding MARC tags for bibliographic conversion. Customization of record formatting is enabled through the choices offered such as Constant Data, Repeatable Subfield, and Sort Fields. When all mappings have been made, clicking the Finish button completes the procedure and results in the MARC (.mrk) file being created.

STEP-5

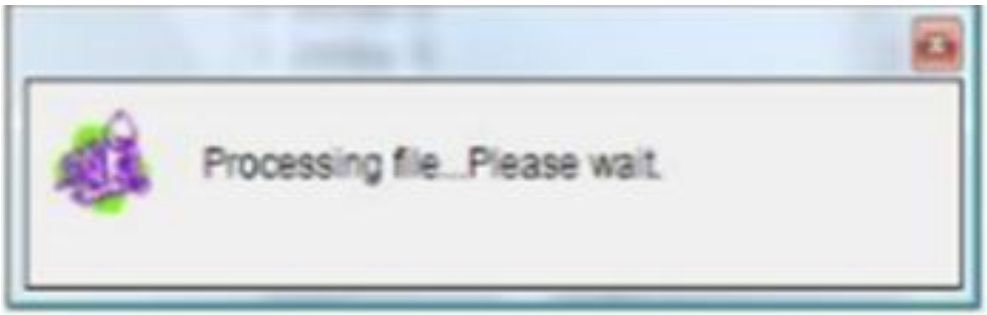


Figure.4.3.1.6 Then file processing takes place.

STEP-6.

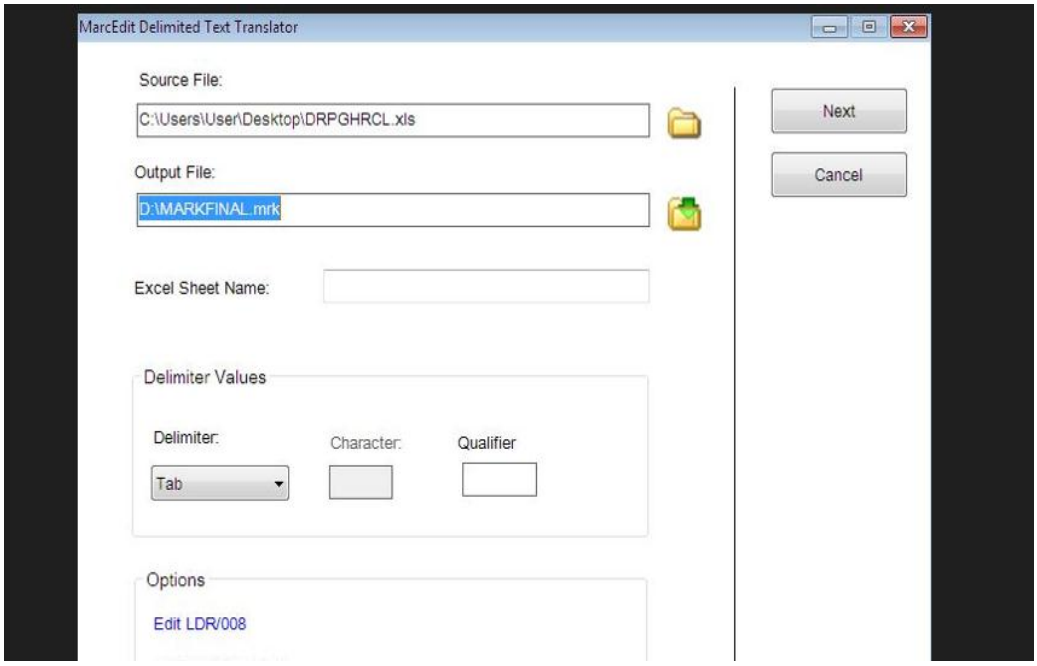


Figure.4.3.1.7 Then upload the mrk file into it

The tag shows the MarcEdit Delimited Text Translator interface. This is a software program that converts Microsoft Excel (.xls) or delimited files into MARC (.mrk) format. Users select the source file, specify where the output MARC file will be located, and set the delimiter options as either tab, character, or qualifier. Once all the required information is provided, the conversion from the fields mapping step is performed by hitting the Next button.

STEP: 7

- Access the official page of Koha software. Locate the "Tools" option and proceed to click on it.
- Subsequently, pick "MARC Records Import Staging" from the dropdown list.
- Navigate to the directory in your computer where MARC records are located.
- Transfer the files to the import area.
- Deliver the document to Koha. And thus, the records will be incorporated into Koha by the machine.
- Additionally, it is absolutely vital to verify that all records are mapped to their MARC fields.
- In addition, it is necessary to confirm that the records created by the import process are in the catalog and are displayed properly.
- The described procedure results in a smooth transfer of MARC records to Koha.

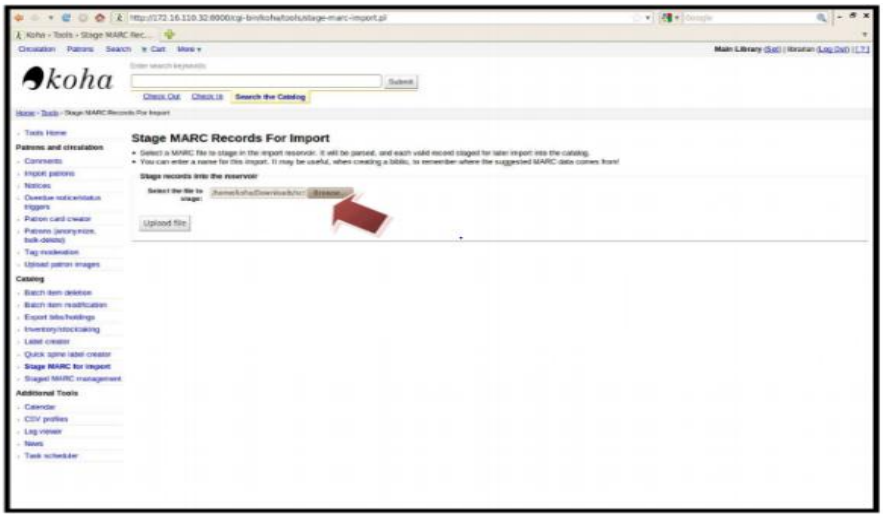


Figure.4.3.1.7 MARC Converted file Importing

Importing MARC converted file is a process that is both simple and efficient, letting the users load MARC records in bulk with ease. During import, the system guarantees correct mapping of bibliographic data that is very suitable for libraries switching over from other cataloging systems. The interface is very friendly, and the import process is guided through different stages which minimizes the possibility of errors. Validation checks are integrated in the system so that the problems are caught and corrected at the earliest, thus maintaining data integrity. The system can work with different MARC formats which results in its wide compatibility with the existing

records. It can perform large datasets with ease and very quickly without losing accuracy. This feature is particularly useful in the context of libraries bringing their collections up to date and connecting them to a central system. It has made the catalog import process much simpler and it therefore requires less manual work and saves time significantly.

CHAPTER-5

Implementation of Library Automation in BLDEA's Vachana Pitamaha P.G.Halakatti Research Center using koha open source Integrated Library Management System

5.1. Overview the of P.G.Halakatti Research Center Library

Overview & History

The Dr. P. G. Halakatti Research Centre was established by the BLDE Association (Bijapur Lingayat District Education Association) in 2003, originally as a memorial hall to honor Dr. P. G. Halakatti's contributions to Kannada literature, especially the revival of Vachana literature. Over time it has evolved into a full-fledged research centre engaging in literary, cultural, and scholarly activities in Kannada and related fields. The centre is publicly acknowledged; in 2005 it was recognized by Hampi Kannada University for conducting PhD-level work.

Objectives, Functions & Activities

The centre conducts a range of literary, cultural, and research activities:

- It facilitates research and publication in Kannada literature, particularly in the area of Sharana traditions (Vachanas, Sharanas' works). One of its major projects was to publish 15 volumes (12,500 pages) of Dr. P. G. Halakatti's

own research and compiled works, which were completed and released in 2008.

- It also engages in translation work: for example, it translated literature of the Adil Shahi period (originally in Dakhani Urdu) into Kannada. This project led to the publication of 21 books in 18 volumes.
- It organizes seminars, conferences, lectures, and cultural events under its "Chinthana Balaga" (thought / discussion forum) and other programs. The centre is also engaged in career counseling and facilitates research work in the area.

Structure, Recognition & Academic Role

- The centre operates under the umbrella of the BLDE Association.It possesses a building expansion (over the initial memorial hall), funded partially by the Karnataka Department of Kannada & Culture.
- It is approved by respective academic institutions, allowing supervision for PhD-level students at the centre. Some students have been awarded PhDs through the centre; a number more are underway there.
- The centre is engaged in promoting regional literary culture and heritage conservation. Link with PG Centre of Rani Channamma University, Vijayapura
- Although the "research centre" and the "PG Centre" are separate, there is a close link in the area: Dr. P. G. Halakatti Post Graduate Centre, Vijayapura, is a constituent of Rani Channamma University, Belagavi.
- This PG Centre runs two-year postgraduate courses in courses like History & Archaeology, Social Work, English, Commerce, Kannada, Computer Science, and a one-year PG Diploma in Tourism It also runs PhD courses in various disciplines (History & Archaeology, English,
- Reserve, a total of 20,460 volumes, the P.G. Halakatti Research Center Library manages a significant collection of academic and research resources that help students, faculty and researchers to the learning and scholarly activities.

Dr. P. G. Halakatti: The Man behind the Name

To comprehend the importance of the centre, here's a brief on Dr. P. G. Halakatti:

- Full name: Phakirappa Gurubasappa Halakatti, commonly "P. G. Halakatti.
- He was a Kannada scholar, writer, social worker, and a key person in reviving Vachana literature (Sharana tradition) in Karnataka. He compiled, edited, published numerous Vachana literature (Basavanna's and other Sharanas') works from manuscripts and palm‑leaf collections. He established the printing press "Hithachinthaka," initiated the Kannada newspaper Shivanubhava, and initiated Navakarnataka weekly.He was conferred an honorary D.Litt by Karnataka University in acknowledgment of his literary and social services, and his name is still carried on by institutions.

5.2. Implementation of Koha (ILMS) Library Software for Dr. P.G.Halakatti Research Center Library

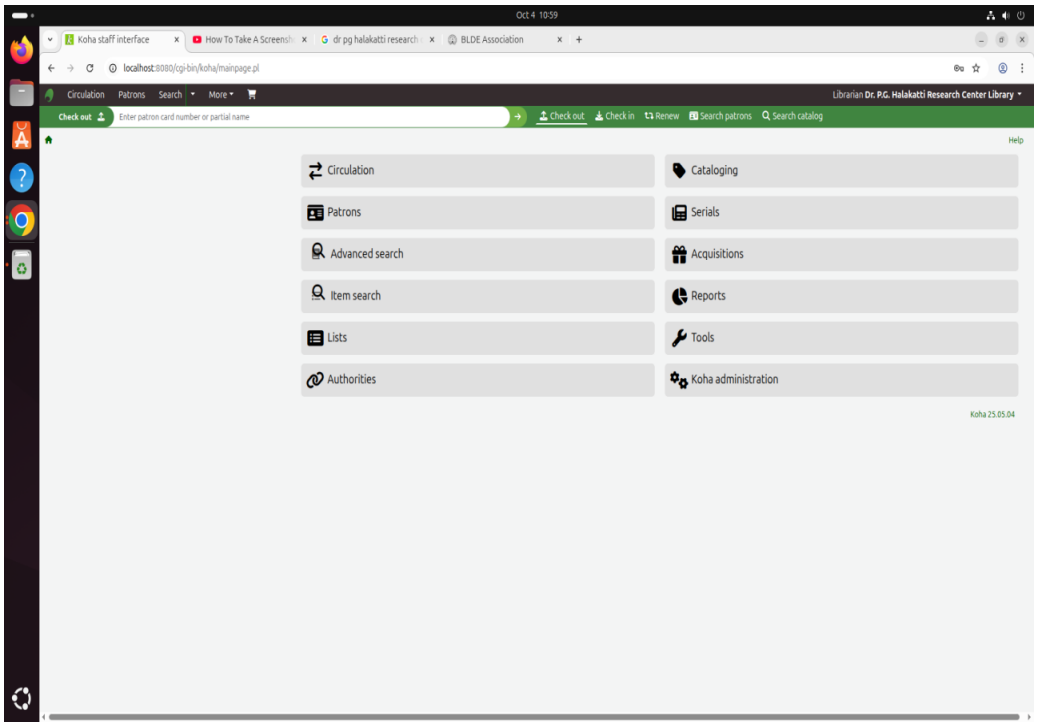


Figure.5.2.1 Home page

The Koha Staff Interface (Home Page) is shown in the image above. It has several different modules which help the library staff with Circulation, Cataloging, Patrons, Serials, Acquisitions, Reports, Lists, Tools, Authorities, and Koha Administration. The upper menu offers fast options for Check out, Check in, Renew, and Search functions. The interface allows librarians to do their daily library operations efficiently with the Koha Integrated Library System.

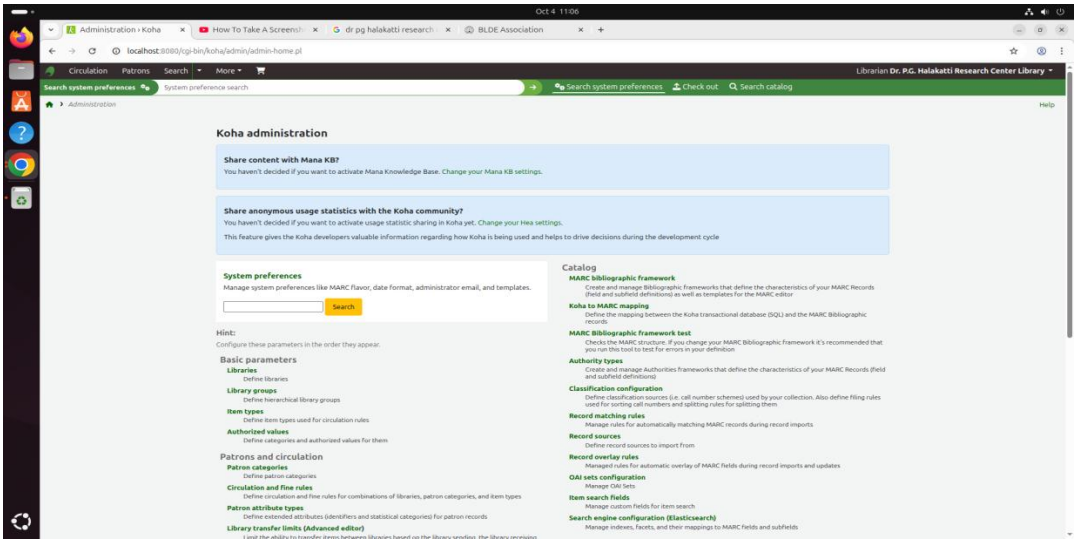


Figure. 5.2.2 Administration Page

The administration of parameters is one important feature of the intranet in Koha that allows users to change different default settings. The system helps define many operative features like library branches, funds for books, currencies, item types, types of borrowers, and their fees, for instance. The “System Preferences” module is a place that is very crucial from the point of administration and maintenance and should be accessed by the Chief Librarian, Chief Administrator, or a similar authority only. Koha operates two varieties of acquisitions: Normal and Simple. Normal acquisition is the choice when there is a need to manage the budget; on the other hand, Simple acquisition fits small libraries with a limited budget where strict budgeting is not necessary. Through the intranet home page, users can go by clicking on the acquisition link to place new orders, change existing ones, look at the exchange rates, and check their budgets and book funds before they do so. The system under each category shows the total budget, the cost incurred, and the remaining balance, therefore, ensuring the library's acquisition financial management being clear and orderly through the transparency it provides.

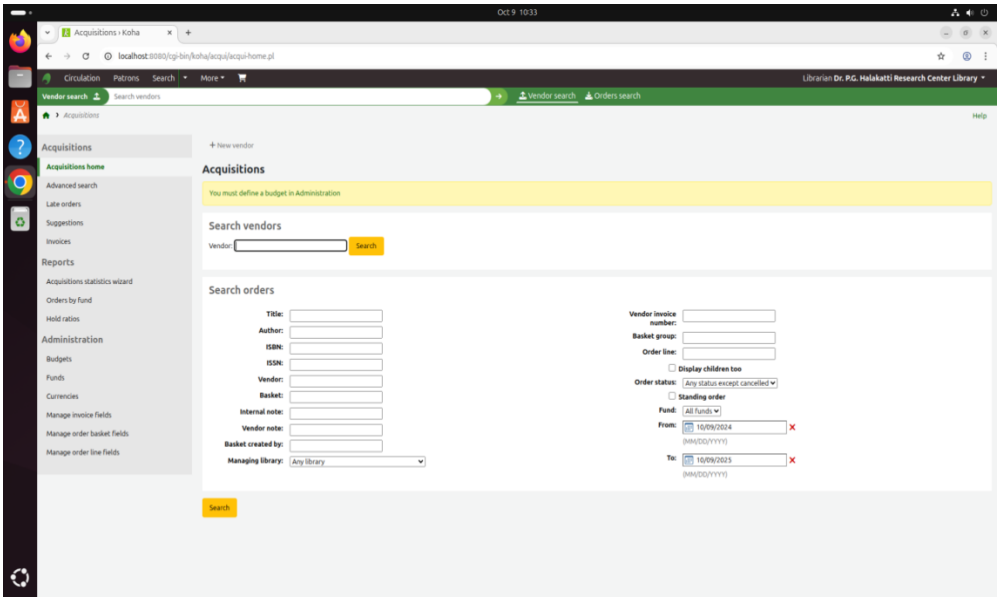


Figure. 5.2.3 Acquisition Page

The Koha acquisition module takes care of the entire process from picking to ordering and receipt of books. It allows you to create records for books that are being ordered, purchase orders, and lists of suppliers. The module also supports advance payments, tracks items supplied, and handles invoices. Furthermore, it has features for checking duplicates as well as managing budgets and funds, which together make acquisition workflow seamless and systematic.

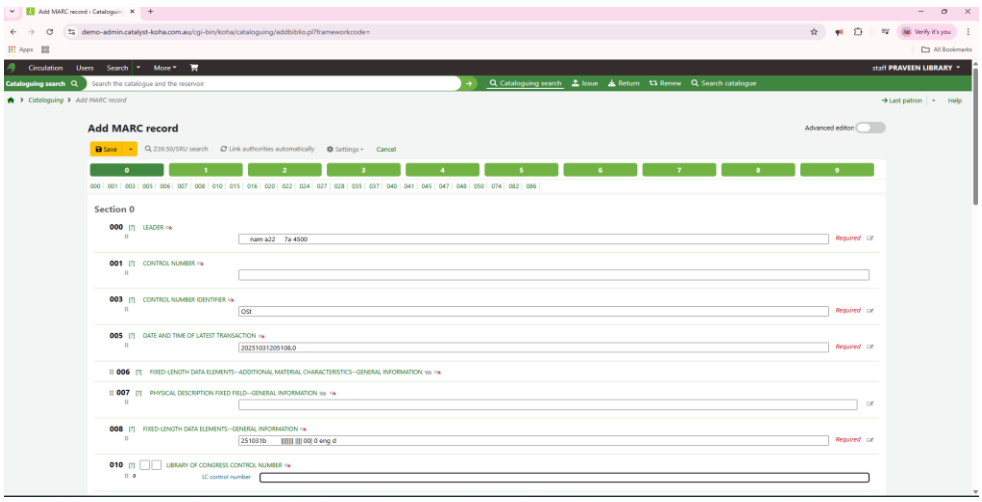


Figure. 5.2.4 Cataloguing Model

The cataloguing module is vital for Koha, as it enables both library staff and users to take full advantage of library resources through accurate cataloguing. Koha is compatible with full MARC records, uses the Dewey Decimal Classification, and applies AACR2 cataloguing rules. The system provides security and data protection at the levels of the system, terminals, and users. User access is simple yet variable depending on the operator—be it library staff carrying out data entry, management,

and retrieval, or patrons accessing information from the database. Koha's interface is built to be intuitive for users, so patrons can easily find their way around the system with very little guidance through controlled menus and front-end programs.

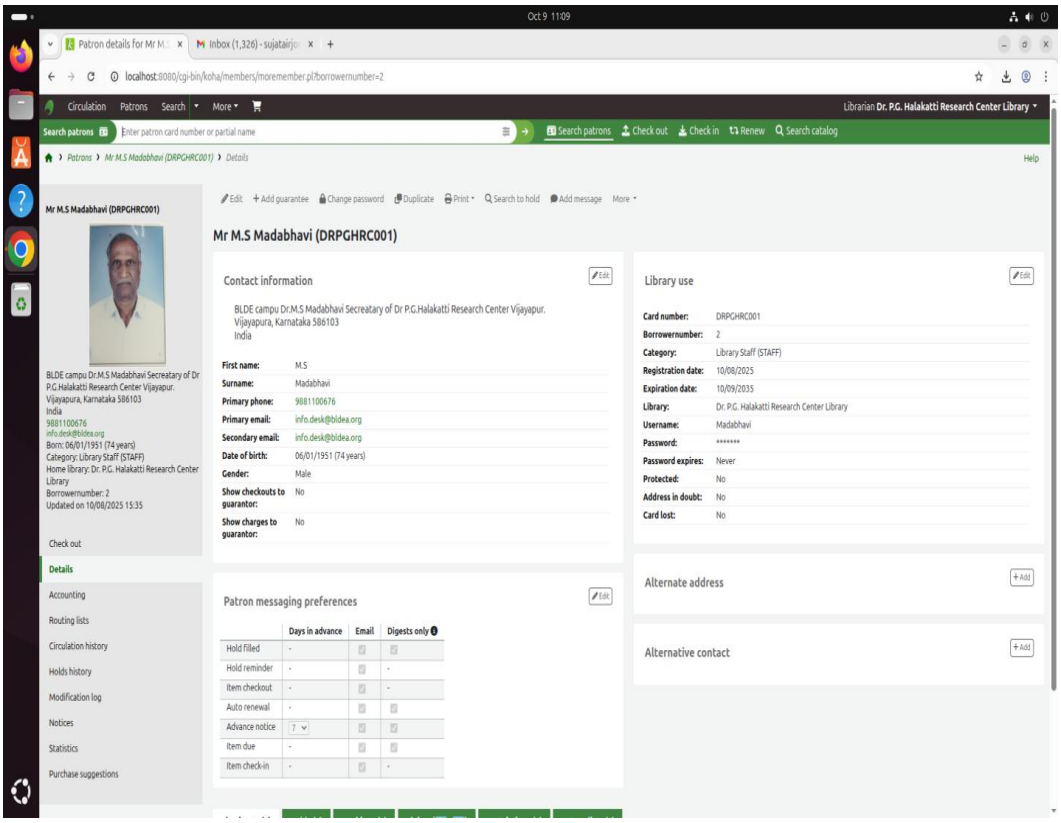


Figure. 5.2.5 Patron Created page

Patron creation is so simple and fast that users can easily generate a lot of accounts in no time. At the time of setting up, it is possible to upload pictures and give special permissions. The whole system is made very efficient and pleasant to work with so the whole process is smooth. Patrons can be uploaded in bulk, which is a time saver for large numbers of patrons. Besides that, it is possible to bulk upload the pictures along with the patron data. This is a very beneficial function for the organizations that have a lot of patrons coming in and going out. The interface is designed in such a way that the workflow gets simplified and the manual effort is greatly reduced. At the time of creation, the special access permissions can be assigned. In conclusion, the process is fast, streamlined, and optimized. It is a perfect solution for quick and large-scale patron management.

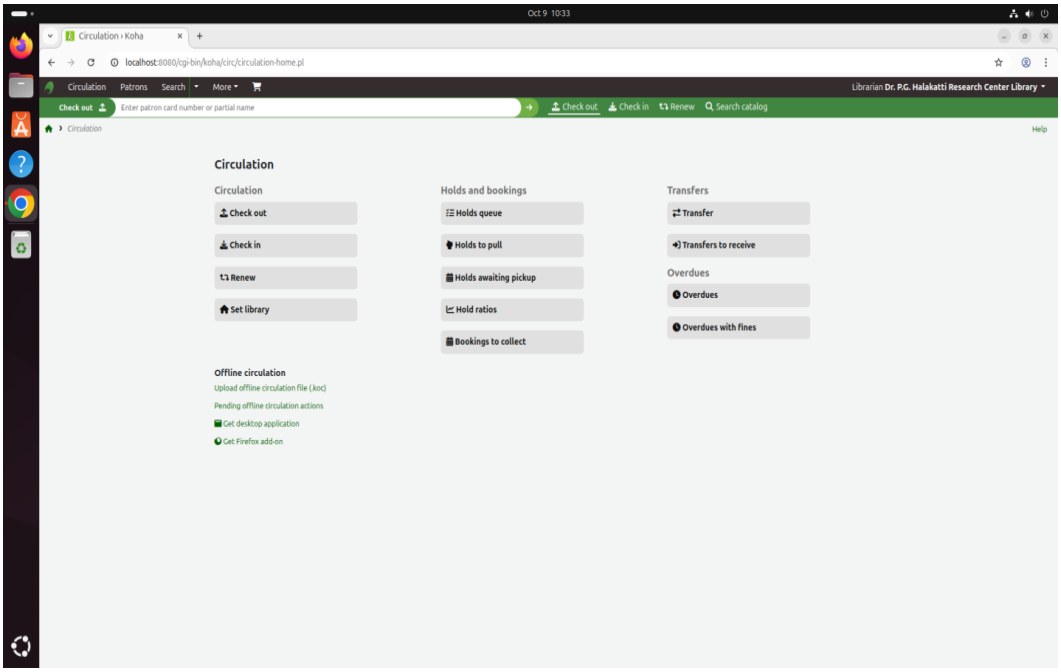


Figure..5.2.6 Circulation Model

The Koha circulation module is primarily crafted to serve library materials to patrons for a predetermined time span, whilst at the same time providing everybody an equal opportunity to access the resources. The module is fast, practical, and user-friendly. It is possible to log in to a user account by either typing in a part of the user's name or scanning the code on the ID. The process of book checkout is equally simple - just scan the book's barcode or type in its accession number. The circulation module is also an impeccable record keeper as it maintains meticulous records of issued items, borrower details, due dates, items issued, overdue items, fines, and circulation history, thus empowering the library management system to be both efficient and organized**.**

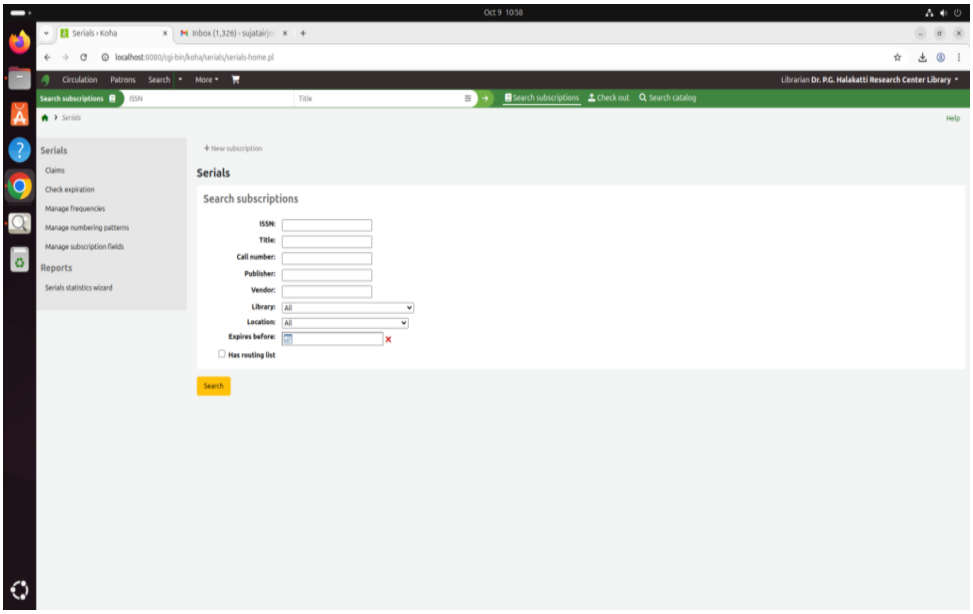


Figure. 5.2.7 Serial Control Model

Serial control means creating regulations, methods, and activities for the acquisition of materials and the development of the collection as a whole in a library. The automation of serial control is still perceived as one of the most difficult areas in the library automation process. Despite that, Koha's serial control module has certain features that automatically help in making the process easier. It allows for the straightforward upkeep of updated records of periodicals, the adding of new serials, and the sharing of information about the libraries that participate and the resources they own. Furthermore, it helps the users to search the catalog in an efficient way, thus, the serial management becomes more effective and systematic.

CHAPTER-6

SUMMARY OF FINDINGS, SUGGESTIONS AND CONCLUSION

Summary of Findings

1. Library Overview and Importance

Dr. P. G. Halakatti Research Centre Library is a specialized library for research purposes that mainly supports Kannada literature and Vachana literature along with the Sharana traditions.

This library is a hub for research, publication, and translation, cultural activities, and supervising PhD research.

2. **Implementation of KOHA**

KOHA, a powerful open-source Library Management System, was adopted as a solution to automate the entire library system.

The following modules were implemented:

- **Home Page**: A centralized location from where catalog, circulation, reports, and administrative tools can be accessed.
- **Administration**: A configurable system with branches, funds, user types, and fees that can be set as per the preferences of the library.
- **Acquisition**: Order your books effortlessly, manage your suppliers, track your budget, and check for duplicates all in one place.
- **Cataloguing**: MARC records-compatible, Dewey Decimal Classification, AACR2 rule compliance with secure access.
- **Patron/User Management**: Fast generation of users, bulk uploads, and allocation of permissions.
- **Circulation**: Easy check-in/check-out process along with the maintenance of records for issued items, overdue items, and fines.
- **Serial Control**: Very good handling of periodicals, newly-acquired serials, and resource sharing.

3. Effectiveness of Automation

- The trial run proved KOHA's superiority in database management, circulation operations, and record tracking.
- Automation brought about better management of resources, accuracy, and ease of access for both the librarians and the users.
- KOHA also offers interconnection with other libraries, thus opening up resource sharing and collaborative access.

Suggestions

- **Expand System Use**: KOHA will be used in totality in all library operations including the full management of serials and acquisitions.
- **Staff Training**: System benefits are to be maximized through regular training sessions that will be organized for the staff.
- User Awareness Programs: The self-service will become more effective if the users are made aware of the catalog search, circulation, and account management.
- **Integration with Other Libraries**: Other PG Centre and research libraries will be connected which would allow easier access and partnership in research.
- **Regular Maintenance**: The continually running program, database, and security measures will ensure that reliable and secure data is accessible at any time.

CONCLUSION

The KOHA system implemented at Dr. P. G. Halakatti Research Centre Library has turned the entire library operation into an automated one, so that the efficiency, accuracy, and availability are increased. The circulation, cataloguing, acquisitions, and serials management proved to be reliable, cost-effective, and practical. In addition, KOHA facilitates resource sharing and enables libraries to work together, which in turn, reinforces the library's position as a resource in academic research. In sum, it offers a good solution for both librarians and users in terms of resource management and information access in an efficient way.

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