Implementation of Koha: An Open Source Integrated Library Management Software at St. Joseph's Institute of Management Library and Information Centre- A Study

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Abstract

Open-source software is one of the best solutions for the automation of any academic library. This study estimated the implementation of Koha software in the SJIM Library and Information Centre to automate its library operations by using Koha open source software. Koha is widely used library automation software in the world, and it has provisions for all library operations. It also provided digital content access to the library user from anywhere with an authorised login. This study elaborates on the method of Koha installation, steps for data migration from Excel to Koha, and the upgrading process from DOS-based personal software to Koha version 18.11.02, as well as the latest version, 22.05.10. It also discusses the challenges faced during Koha's implementation and offers solutions to some of these challenges. This is a descriptive case study conducted at SJIM.This paper identifies several issues related to data migration within a local scenario and elaborates on the installation and customization of Koha software for SJIM needs. Overall. The implementation of Koha Library software has enabled SJIM Library and Information Centre to improve its library services, providing better access to information and resources for its users/patrons.

Keywords: Open Source Software, SJIM Library, Koha Software,

1. Introduction

The Phenomenal growth in the area of Information Communication Technology (ICT) has changed the functions of the library and information system and responsibilities of the working professionals. The upcoming trends like the application of machine learning Artificial Intelligence, Data Science, Cloud Computing, Blockchain Technology, Big Data Internet of things and Radio Frequency Identification (RFID) technology are very few examples. If a Librarian is to deliver prompt and adequate services to the clients he/she must adept to the changing environment and the use of current software to manage library routine activities. Information and communication technology (ICT) brought a lot of challenging issues to all facts of the academic institutions system and the library is not an exemption. The library's use of ICT-computers development and uploading of materials an the intranet attracted curiosity by lecturers and students (Akintunde 2004). The technology are being applied principally for the large database for the generation of more authentic and accurate information (veeranjaneyalu 2018). The open source software is another technology booming in the area of library and information centre to overcome financial crunches in the academic institutions, open source software is free computer software that has source code available to the user this type of software doesn't require any license to adopt and use.

1.2 Open Source Software

Today Libraries are benefited from a lot of the latest technological tools to provide innovative services by the library also job satisfaction for working professionals. The open source software is one of the latest tools developed in the area of computer science.

Open source software contains source code available for free through World Wide Web. If anybody wants to utilize the open source software, they can download it along with source code and may modify the source code according to their needs. Koha, Greenstone Dspace, and e-prints are library related open source software examples. Commercial softwares also contains source code but it is not given by the creator, even though we paid money for the concerned software, only the original authors of commercial software can legally copy inspect and alter that software, Microsoft office and Adobe Photoshop are examples to do housekeeping and transactions activities most easily Dspace, e-prints and Greenstone (Institutional Repository Digital Library) Software are helping to build a libraries own collections they helps to organize the digital collections to the libraries taste language style etc. and brand them appropriately to reflect ownership of the collection Drupal and Joomla software are used to create and maintain content management in the internet environment.

2. About St. Joseph's Institute of Management (SJIM)

St. Joseph's Institute of Management (SJIM), Bangalore is an ever-evolving Centre of education and invention. Started in 1968 as an offshoot of St. Joseph's College of Commerce (SJCC) at Brigade Road, SJIM found itself growing and reshaping itself along with other Jesuit-run St Joseph's Colleges and Institutions in Bangalore. It was renamed from St. Joseph's College of Business Administration into St Joseph's Institute of Management (SJIM) with an independent campus in the heart of Garden City, M.G. Road, Bangalore. Approved by AICTE in 1996 for a Two Year Full-Time PGDM, accredited by NBA, is a member of Global Jesuits Network

International Association of Jesuit Business Schools (IAJBS) and Xavier Association of Management Institutions (XAMI).

SJIM is under the Management of the Bangalore Jesuit Educational Society (BJES) and is the only Jesuit Business School in Bangalore.

2.1 About SJIM Library and Information Centre

SJIM Library and Documentation Service was set up in June 1996. The main goal of the library is to back the Institution to achieve its goal of research-based students-centred teaching-learning tasks and knowledge transfer. The library is located in the heart of the campus. It gives 24/7 full library information service to 600 students and more than 50 staff and faculties to fulfil the vision and mission of the institution, the beautiful library was established with the initial collection of 5448 books and now it is rich with more than 24000+ books and unique titles of 12000+ approx. and regularly subscribed to more than 50 International and National Journals, and magazines and has 15 daily business and general newspapers. The College has also subscribed to EBSCO, Sage Journals, PROWESS, CRISIL Research, Capitaline, J-Gate, Indiastat, and more than 17,000 E-Books to support the research work of students and faculty. The library is fully automated, has a spacious reading hall and can accommodate more than one hundred users at any point of time.

3. Review of Literature

Automation of the library and information system starts with the implementation of powerful library management software. The software should provide maximum facilities for the professionals. Koha is one of the popular open source software for all types of libraries around the world. It is available free of cost various authors discussed on Koha and open-source software in their study.

VijaykumarBhimrao (2020) Described the benefits of Koha open source software in full integrated library system (ILS) features. They described from his study that there is no license cost the product can be modified to our needs etc. more than 300 libraries including academic public school and special libraries use Koha. Koha open source software is easy for people to create their library collections.

Chaputula and Kanyundo discussed the application of Koha software in educational institutes of Malawi. It is observed that the majority of the libraries are implemented Koha open source software in their library. It is also noticed that the implementation of Koha is very simple and those who have financial crunch they need minimal cost to adopt in their libraries.

As we knew that OPAC is the mirror of library Kumar Sarma (2016) study explained on a comprehensive evaluation of the OPAC Module in library management system examples Evergreen, Koha, NewGenlib, OpenBiblio, and PHP, MyBiblio, Open source software, The study concludes that Koha is one of the best Open source software for the library management system compared to others.

TK and Jayapradeep (2015) study the behavior of the working professionals on migration from commercial software to open-source software Koha in Libraries. The study recommends that the syllabus on the open-source software and open-source integrated library management software

implementation should be introduced in library and information science courses. This will help me acquire more information at the beginning of the professional life.

Lalith Kumar (2012) studied the automation status in LR Institute of Engineering Technology Solan Himachal Pradesh library automation refers to the mechanization of library housekeeping operations predominantly by computerization to develop and update the database using Koha library Integrated Software to carry out the functions of the circulation section book search books due by the member and overdue charges.

4. Methodology

The present study was conducted to implement Open-Source software for library operations at St. Joseph's Institute of Management Bangalore. The study examines technical Infrastructure and Koha library software installation customization process and data migration process from Excel sheet to Koha and based on my work experience in Ubuntu, Koha MarcEdit, etc.

5. Koha Software

Koha is an open-source software designed for library automation according to Collins English Dictionary Koha means 'Gift' or 'Donation' it originates from 'Maori'.

According to (wikipeadia.2019) Koha is a web-based ILS with SQL database (MYSQL) backend cataloguing data stored in MARC and accessible via Z39.50 Koha user's interface is very configurable and adaptable which was initially developed in New Zealand by Katipo Communication Limited and first deployed in January 2000 for Horowhenua Library Trust (Pat 2003) after the original implementation Koha it has been adopted by thousands of libraries worldwide (2013) and each adding features and functions deepening the capacity of the software now the Koha has state of the art Web Interface for clients and Librarians enriched content faceted navigation keyword searching user contribution and rich site summary (RSS) feeds. This

was supported by Hassan. The Koha is written in Perl and runs on open source operating software Linux with Apache Web Server database Management system Mysql (Tella 2017).

5.1 Koha Software Features

- Management/Staff Interface
- Online public access catalogue (OPAC): The OPAC is web-based and there is no need to install any software on a user's machine.
- Web-based circulation interface: can handle issues returns transfers etc. there no need to install any special software on staff computers once there is an intranet in place.
- Borrower history, comments and tags users can comment and review book tag them and view their reading history they can also view their records and make purchase suggestions.
- Branches: since the software is web-based it is easy to borrow a book in one branch and return it in another branch
- Koha uses a full-text indexing engine to allow for fast and powerful searching of all of your metadata.
- A full acquisition module complete with budgets, book funds, suppliers and exchange rates.
- Database of library users
- E-mail Overdue/fine notifications
- Management of serials i e. Subscription renewal etc
- MARC Import/Export
- Online Public Access catalogue of the library holdings

- Online reservations and renewals
- Barcode printing: Koha can be used to print barcodes and spine labels
- Barcode scanning: Koha works in a web browser
- Comprehensive advance search
- Multilingual web OPAC Support: Koha allows to view the OPAC in different languages depending on the languages chosen by the library.
- Web-based OPAC
- Self-check-in/out: Koha can used with any sip 2 complain self check machines
- Various web 2.0 facilities like tagging comments and social searching, RSS feed.
- Z39.50 server complaint
- Report and statistics: Koha can generate management reports and statistics in cataloguing acquisition serials and circulation
- Koha now supports a plugin system that allows libraries to extend and customize the functionality of their Koha installation without modifying the core code.
- Export Data: It is an essential feature to secure library information and create regular backups.

6. Objectives of the Study

- To implement the library automation process by using Koha open-source software more effectively at SJIM Library.
- To develop and update books of the SJIM Library
- To explain strategies towards migration of data from Excel to Koha
- To carry out the issuing and returning functions of the circulation section more effectively.

- To enumerate the experience of SJIM library in the implementation of Koha
- To provide speed productivity adequacy and efficiency for the library staff and readers.
- To provide the right information to the right user at the right time in the right form in the right personal way.
- To utilize the open-source software for various library activities

7. Automation History of SJIM Library

The SJIM Library and Information Centre began computerizing its library activities using a popular DOS-based personal library management software in the year 1996. This system was in use for almost 20 years, until 2016.

In 2017, we learned about Koha, a widely popular web-based library management system used around the world. Impressed by its features and global reputation, we decided to adopt Koha for our library. The software was procured from some Vendor's.

7.1 Work Plan for Koha Implementation

A work plan was developed to successfully implement Koha in the SJIM Library. Careful steps were taken during the installation process. We purchased the cloud-based Koha version 18.11.0200 on January 2, 2017.

Software consultants from some Vendors., Bangalore collected our data in Excel format. They began the data migration process and scheduled the export and customization of Koha to be completed within a month. By July 15, 2017, Koha version 18.11.0200 was fully installed and

ready to use. From then on, we started uploading data related to books and patrons and carried out daily transactions like book issuing and returning. Everything went well in the beginning.

However, after two years, in 2019, we began to face some issues such as:

- Server being busy
- Poor internet connectivity
- Slow transactions and difficulties in uploading data

Due to these challenges, we decided to take up the implementation ourselves. We began installing the latest version of Koha in the year December 2019 at SJIM Library to improve performance and reliability.

7.2. Implementation of Open Source Software at SJIM Library

The following Open-Source software are required to implement library automation at SJIM Library. The soft requirements are

- Linux-Ubuntu operating system
- Koha- An Integrated Library Management Software
- Data Migration from Excel to Koha 22.05.10
- MarcEdit: Data migration software
- Upgrading Koha 18.11.0200 to Koha 22.05.100

7.3 A Brief Description of the above software is as follows

7.3.1 Operating System-Ubuntu

Linux operating system is a program that is an interface between computer hardware and software. It controls all kinds of programs based on user needs, it is one of the important versions of the UNIX operating system and its source code is freely available anybody can download and install the Linux operating system in their Desktop/Computer at free of cost. Linux functionalities are similar to UNIX functionalities.

Ubuntu is one of the most important open-source software alternative solutions for libraries to upgrade to the new version of a computer. SJIM Library installed the Ubuntu operating system in June 2020. So it is running without any difficulties.

7.3.2 Installation and Customization of Koha Version 22.05.10

Traditionally installing the Koha Software is a complex task many times the library encountered bugs and errors during the process, although the library staff were quite familiar with using Koha modules such as cataloguing, acquisition and serial control. They were not experts in the installation process.

Eventually, the library discovered installation commands on the Koha Geek Website, then we started to follow commands step-by-step using the Ubuntu terminal, which was already installed.The commands provided on the Koha Geek Website guided us through the entire installation process. The following commands are under below.

Update Ubuntu

This process will update the Linux operating system by downloading new packages.

Sudo apt update

sudo apt upgrade

Install Mousepad text editor.

The mousepad is a lightweight text editor that requires opening configuration files during Koha's installation process. A text editor with a graphical interface is suitable for beginners. Text editors like Vim and Nano can also be used as text editors.

sudo apt -y install mousepad

Add Koha community repository.

Add Koha software channel into Ubuntu. Here, we add the old stable version of Koha. We can define which version to install when adding the repository. Visit the Koha Wiki for details. Apply the following two commands one by one:

sudosh -c 'wget -qO - https://debian.koha-community.org/koha/gpg.asc | gpg --dearmor -o /usr/share/keyrings/koha-keyring.gpg'

sudosh -c 'echo "deb [signed-by=/usr/share/keyrings/koha-keyring.gpg] https://debian.koha-community.org/kohaoldstable main" >> /etc/apt/sources.list.d/koha.list'

Update the software repository.

sudo apt update

Install MariaDB server

sudo apt install -y mariadb-server

Assign Root password for MariaDB.

If the password asks during installation, enter the password in the window. Apply the following command if the password window did not appear during the installation,

sudomysqladmin -u root password new pass [Replace '**new pass**']

Install Koha

The following command will install the old stable version of Koha.

sudo apt install -y koha-common

Server configuration

In this step, you must edit network information like domain name and port numbers.

sudo mousepad /etc/koha/koha-sites.conf

Here, I changed the port number of the Koha staff client to **8080**. Find the following line in the file and make changes.

INTRAPORT="8080"

Koha instance creation

Apply the following commands to create Apache configuration files.

sudo a2enmod rewrite

sudo a2enmod cgi

sudo service apache2 restart

Create a Koha instance using the name library.

sudokoha-create --create-db library

Add new port

We have assigned port number 8080 for the Koha staff client and 80 for OPAC.

Open the following file and add a new port.

sudo mousepad /etc/apache2/ports.conf

Copy-paste the following line below Listen 80

Listen 8080

Restart Apache,

sudo service apache2 restart

Enable modules and sites

sudo a2dissite 000-default

sudo a2enmod deflate

sudo a2ensite library

sudo service apache2 restart

Setup the library

After the successful installation, you must create initial parameters (e.g. branch, item type, superuser creation, etc) to start with Koha. We need to open the web interface of Koha and start the configuration of Koha to start.

Restart the Memcached service to open the Koha web installer.

sudo service memcached restart

Open the following URL in the web browser to open the Staff Client of Koha and set up the library,

localhost:8080

Enter the Koha staff client using the database username and password for **koha_library**. It can be found in the file, **/etc/koha/sites/library/koha-conf.xml**. Apply the following file in a terminal.

sudo mousepad /etc/koha/sites/library/koha-conf.xml

Search (**Ctrl+F**) for the segment **MySQL** in the text editor. Note down the database username and password and log into the Koha web installer.

After executing all the above commands, the software is finally installed on the server computer.

The OPAC and Staff interface was customized to support and work with user requirements, reflecting the SJIM Koha parameters, such as item type, branch code, collection, circulation rule, member categories, fine rules, etc. These parameters have been introduced and customized according to the library policy of the SJIM. After this, we started to install Postfix software in the Koha server for mail configuration for this we created a new mail ID especially it helped to store Koha backup in Google Drive and support sending alert messages for check-in, checkouts, and overdue notices to users. After this, we are migrating data into Koha version 18.11.200 to 22.05.100 following the commands below

Restoring Database

1. Backup of old Koha

Take the backup of your existing Koha database. Either you can make use of a database kept in your pen drive otherwise you can apply the following command to take the backup,

sudomysqldump -uroot -p koha_library | xz>koha_library.sql.xz

Put MySQL root password, when it asks.

2. Install Koha

Follow the instructions in Koha wiki

3. Restoration of old Koha database to a new one

Remove the existing database in the new Koha installation

sudomysql -uroot -p

[Enter the Linux password and after that enter MySQL Root password]

drop database koha_library;

create database koha_library;

quit;

Copy your database backup from your pen drive to home folder.

Extract the backup file, the extension will be .sql

Then restore the old backup to the new Koha installation.

Database Restoration commands,

sudomysql -uroot -p koha_library<koha_library.sql

[Check the name of your source Koha database]

exit

koha_library - name of the database in the new installation

koha_library.sql- the name of the database in the old installation

Enter the MySQL root password.

4. Upgrade Database Schema

The database schema of the old Koha should be upgraded to match the new version. Apply the following commands in a terminal one by one,

sudo service memcached restart

sudokoha-upgrade-schema library

5. Rebuild the Zebra Index.

Apply the following command in a terminal,

sudokoha-rebuild-zebra -v -f library

After executing all the above commands, the database is finally migrated to a new version of Koha.

8. KOHA LOGIN SCREEN

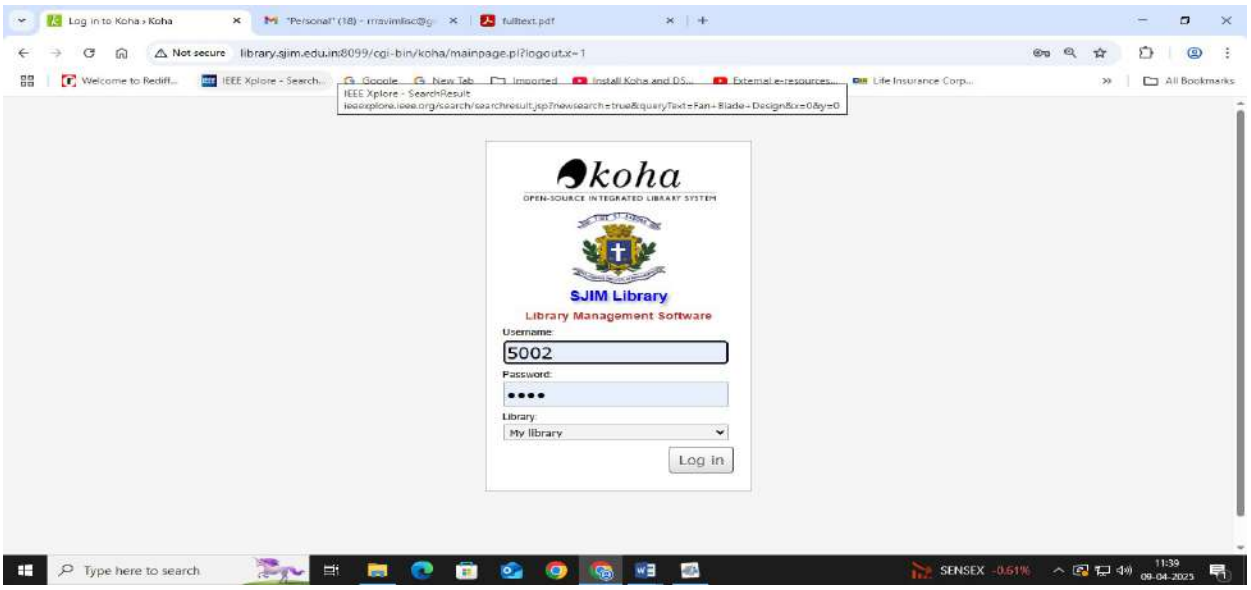


Fig.No.8.1 Staff Login Interface

Once we log in, we are directed to the Koha main page. On the homepage of the SJIM Library Koha system, all 14 sections are available, including Circulation (Check-out/Check-in), Patrons, Course Reserves, Advanced Search, Item Search, Lists,

Cataloguing, Authorities, Serials, Acquisitions, Reports, Tools, Koha Administration, and About Koha.

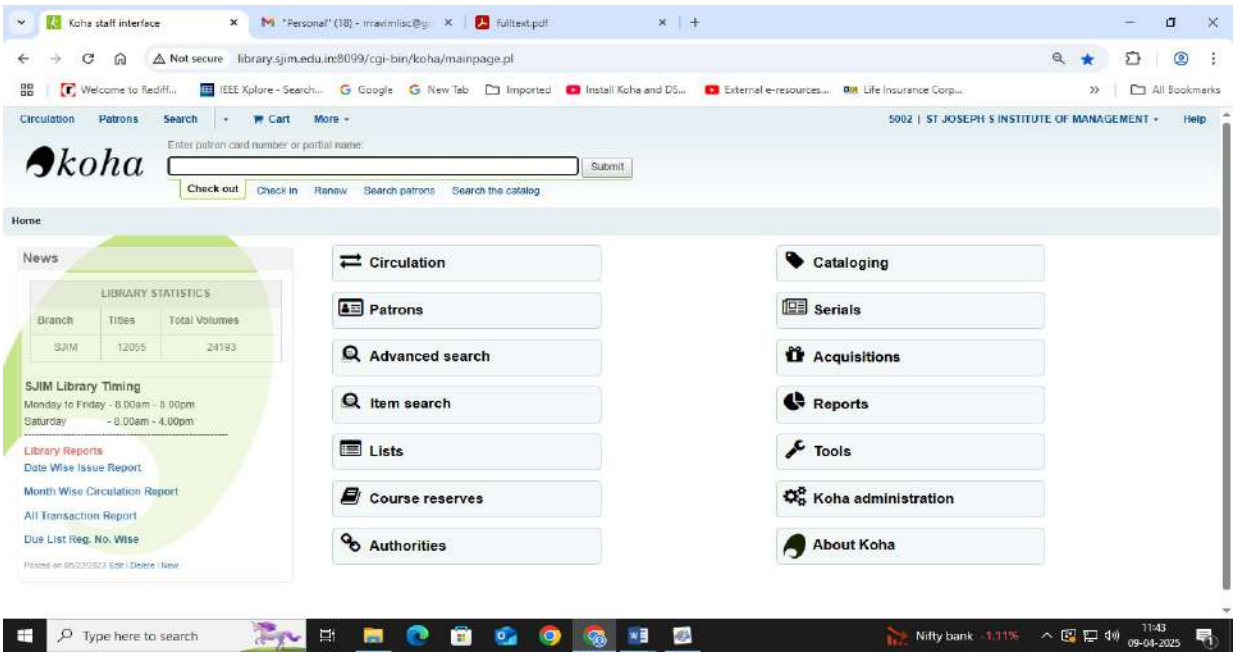


Fig.No.8.2 Koha software Home page

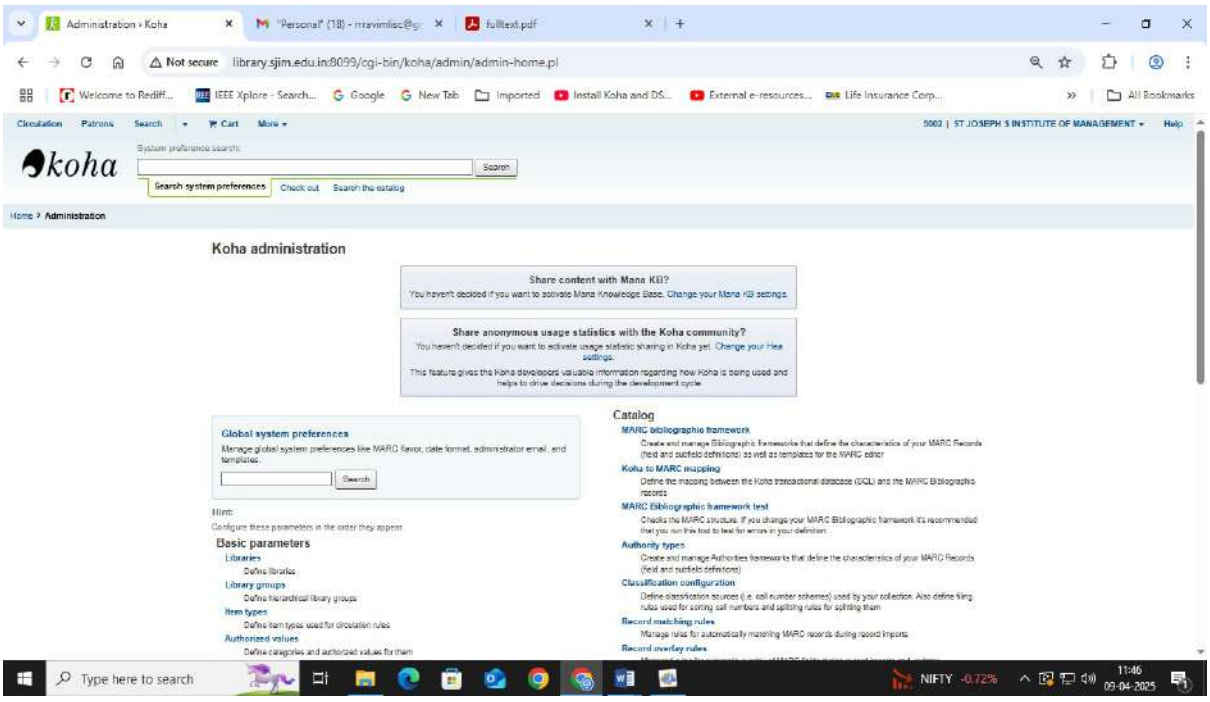


Fig.No.8.3 Koha Administration Module

The Koha Administration page shows various system parameters. It allows us to define different parameters for the functioning of Koha library branches, item types, the categories of borrowers, and the charges taken for the different types. A system preference is the most. Fig.No.8.3 Administration important module of Koha.

It deals with the administration and maintenance part of Koha. Only the Librarian, Administrator, or person of similar designation can hold access rights to this module.

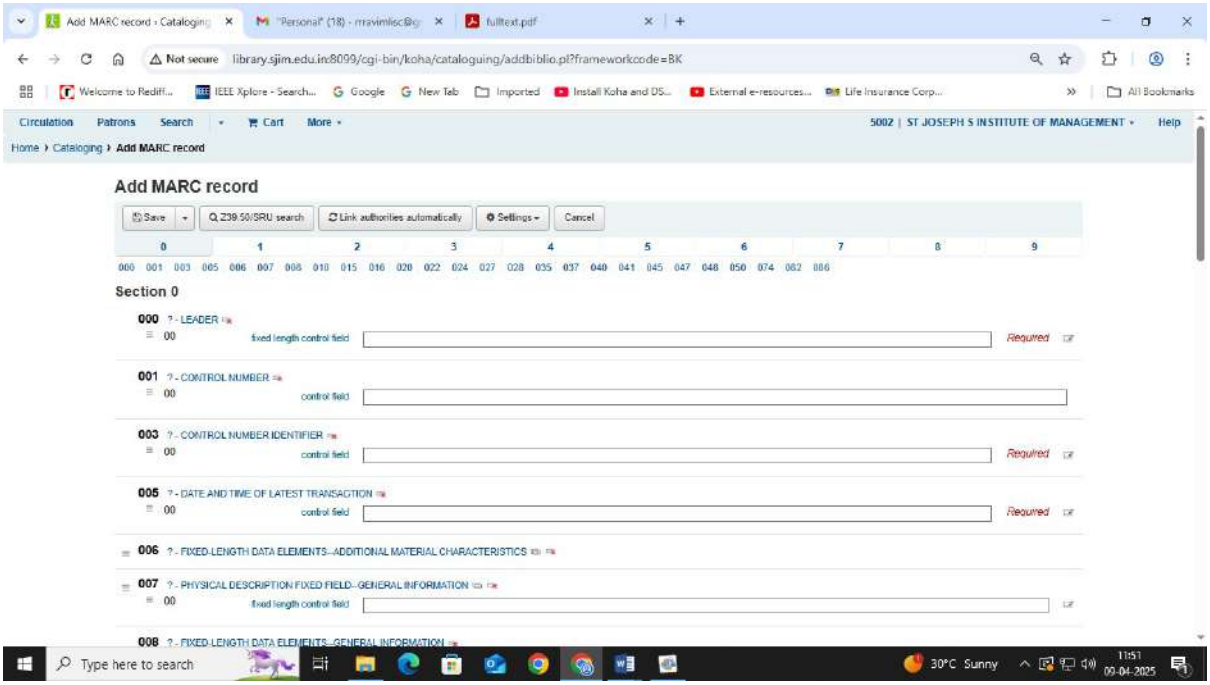


Fig.No.8.4 Koha Cataloguing Module

This module is meant for the cataloguing of all the Bibliographical details of library Resources in the database. Here we enter book data manually or We go for bulk entry by using MarcEdit Software.

9. Data migration from Excel to KOHA

The migration of data from one system to another system is more crucial and sometimes it may complicated. In general, Koha software supported to MARC format for migration

of data. If we have the data like books in Excel sheets that need to be converted into MARC format, then it is easy to export to KOHA. Moreover, the SJIM library has identified that KOHA version 22.05.10 has major 26 tables according to bibliographic and MARC code information. Such as:

1. ISBN	020$a
2. Class No.	082$a
3. Book No	082$b
4. Author	100$a
5. Title	245$a
6. Subtitle	245$b
7. Edition	250$a
8. Place of Publication	260$a
9. Name of Publisher	260$b
10.Year of Publisher	260$c
11. No. of Pages	300$a
12. Volume	490$v
13. General Note	500$a
14. Subject Added Entry	650$a
15. 2nd Author	700$a
16. Permanent Location	952$a
17. Current Location	952$b
18. Location	952$c
19. Date of Purchase	952$d
20. Vendor	952$e
21. Bill No	952$f
22. Price	952$g
23. Call No	952$o
24. Accession No	952$p
25. Item Type	952$y
26. Item Type	942$c

The following steps were used for the migration of data:

Step-01: Conversion of Excel Sheet Data First step, in the Excel sheet we created 26 columns for bibliographical data as follows for migration. shown in figure 9.1.

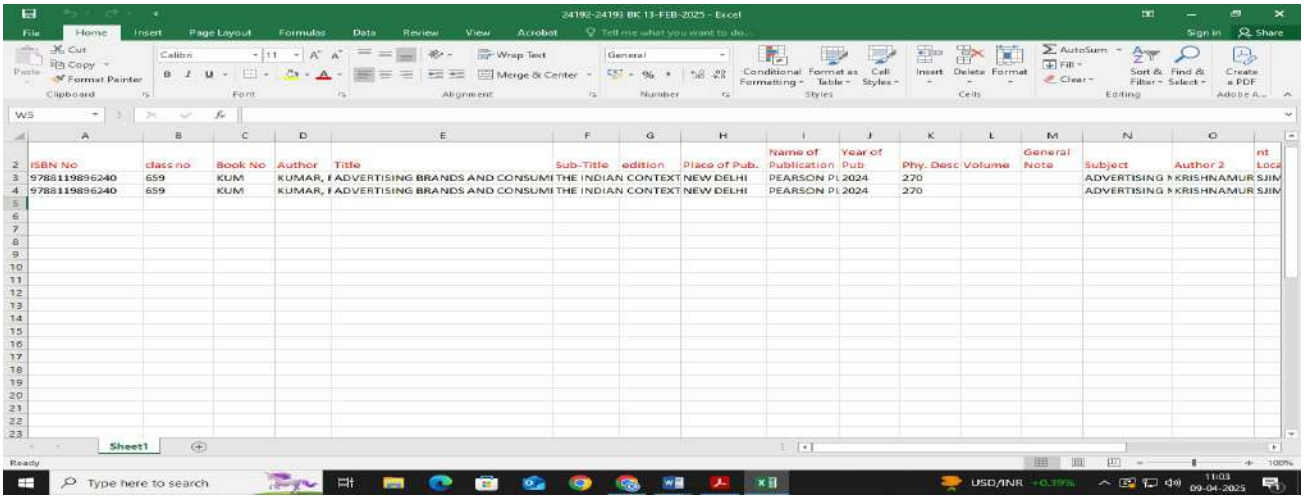


Figure 9.1. Sample print format used in Excel Sheet

Step-02: Installed "Marc Edit" software from the internet in Windows operating system. Then converted the Excel file into MRK format by using MARC edit software and succeeded to creating of MRK file.

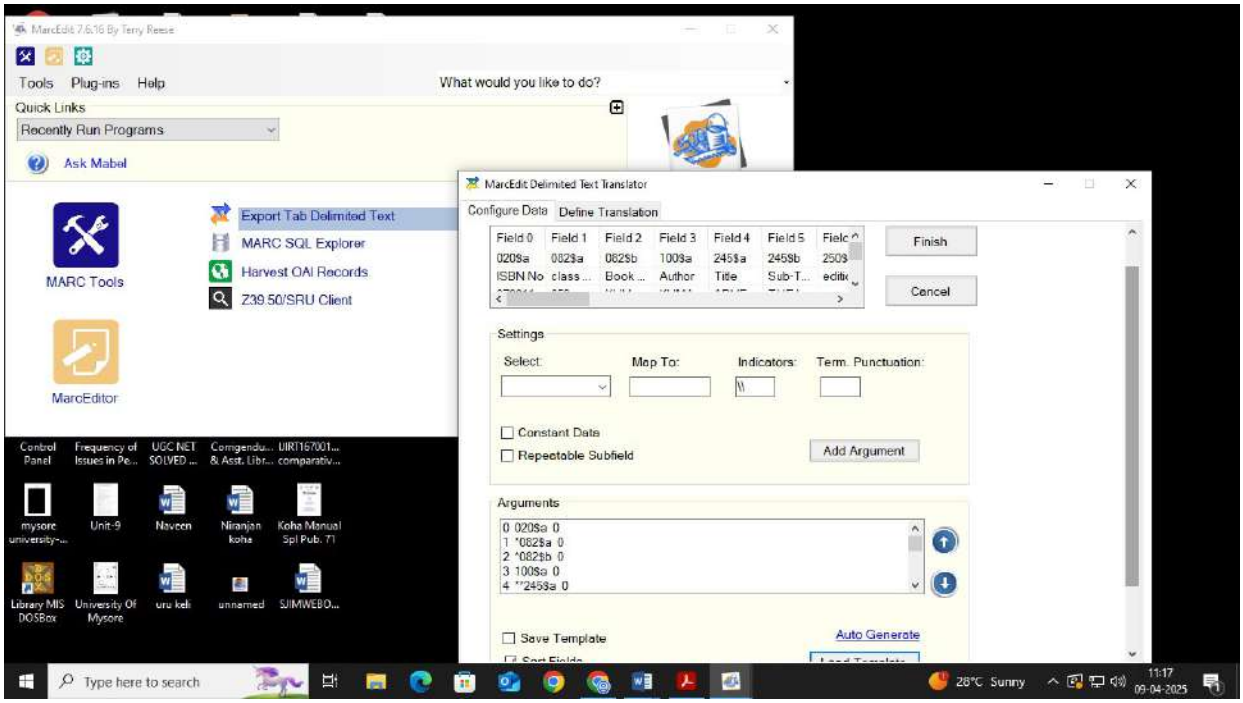


Figure 9.2. Converting to Excel to MRK format

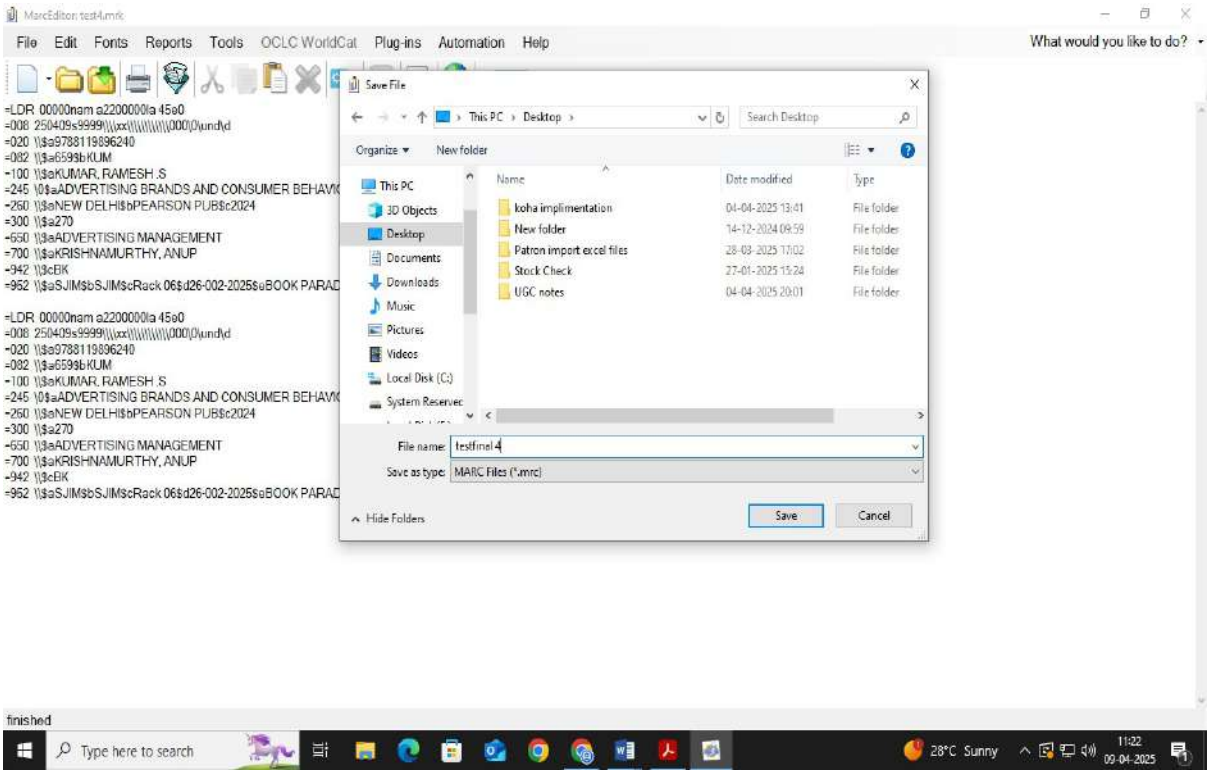


Figure 9.3. Converting to MRK to MARC format.

Step-03: Eventually, the MARC file was imported in Koha software at Tools---> Stage Marc File, The Result shows 2 records staged

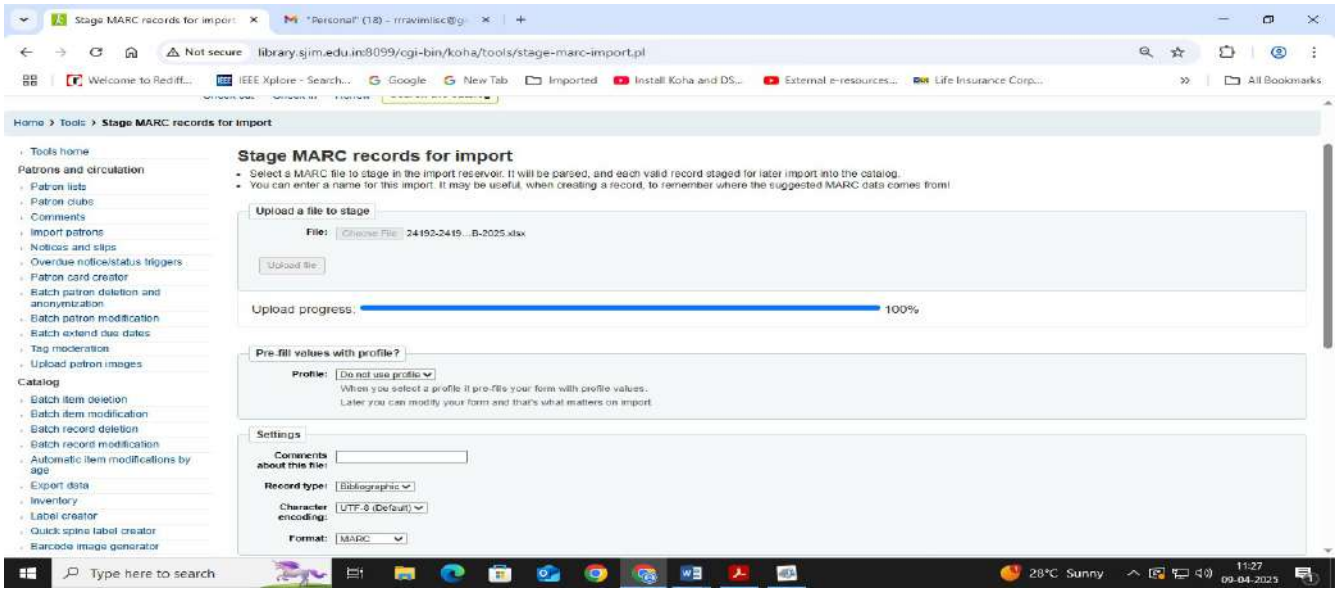


Figure 9.4. Importing MARC record into Koha

10. Implementing Circulation Module

Soon after the completion of data editing, we worked on starting the circulation module. The circulation has been started as shown in the following steps:

Step 01: Uploaded the patron information. It was done in the following ways;

- The user information was obtained from the administration of the St. Joseph's Institute of Management in Excel format. Then we downloaded the **Starter CSV file**from Koha – Tools-Import patrons-Notes so that we could edit it to match the Borrowers table in the KOHA backend database.
- The data were successfully exported using "patron_import.csv" which is available at Tools - Patron import option in KOHA.

Step 02: The issuing and fine rules were set up based on the SJIM library circulation policy.

- For email notification, postfix software was installed in the Koha server computer, sending the overdue notification to the borrowers.

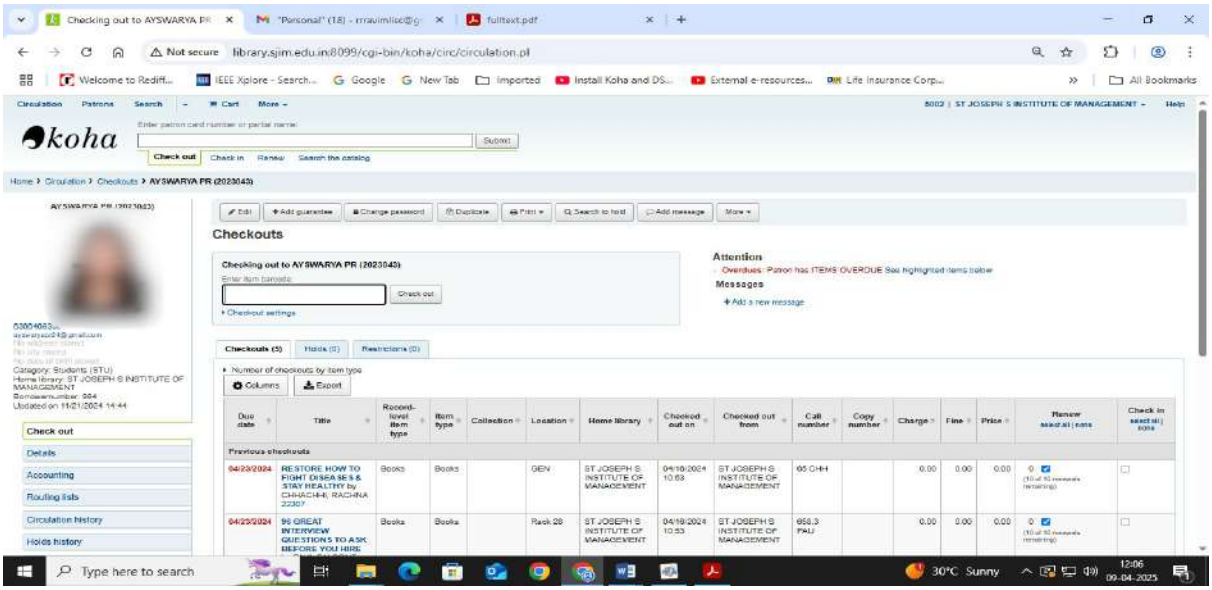
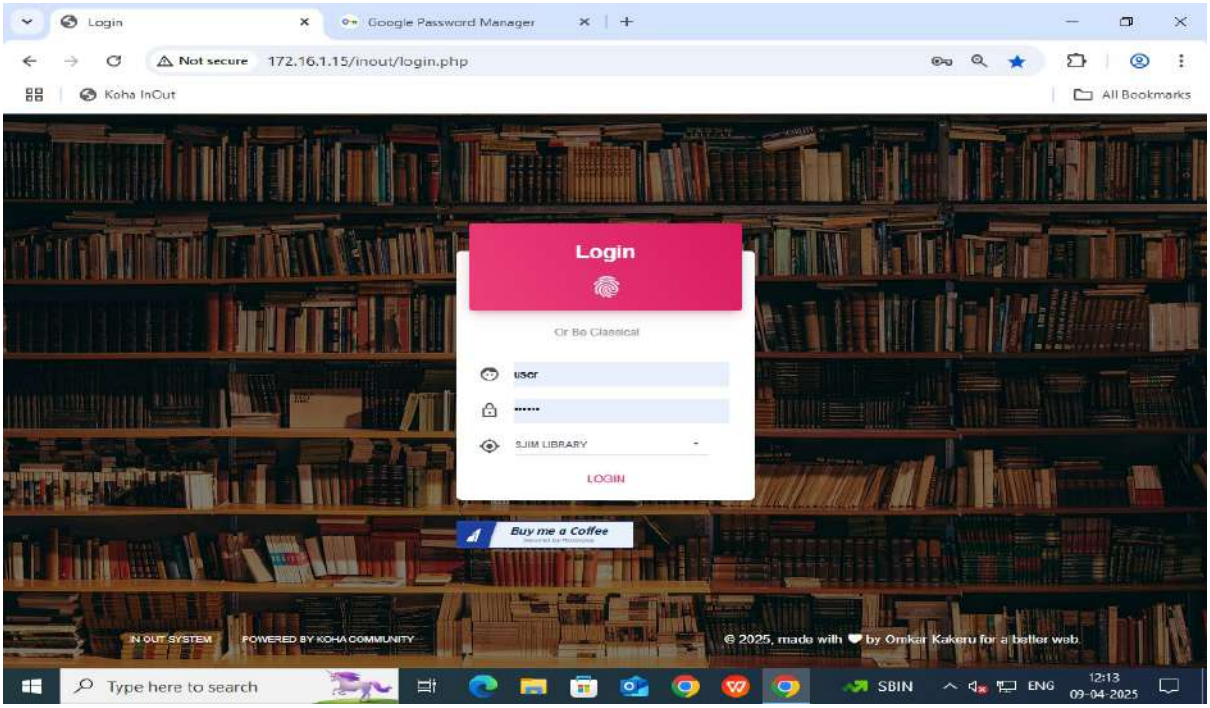


Figure 10.1. Circulation Module (Issue/Renewal/return)

We have started implementing the plug-in for in-out management in our library's Koha server by following the commands and guidelines provided on this website:

https://libpowertech.blogspot.com/2019/06/how-to-install-koha-in-out-management.html.



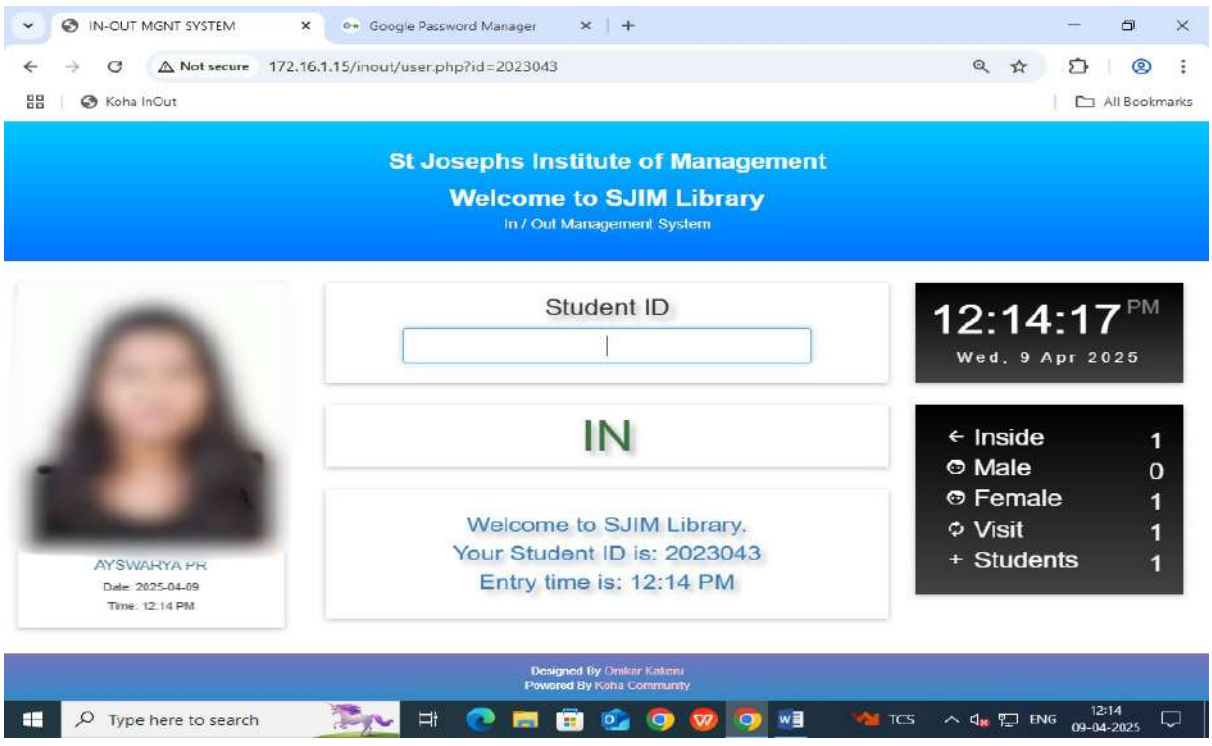
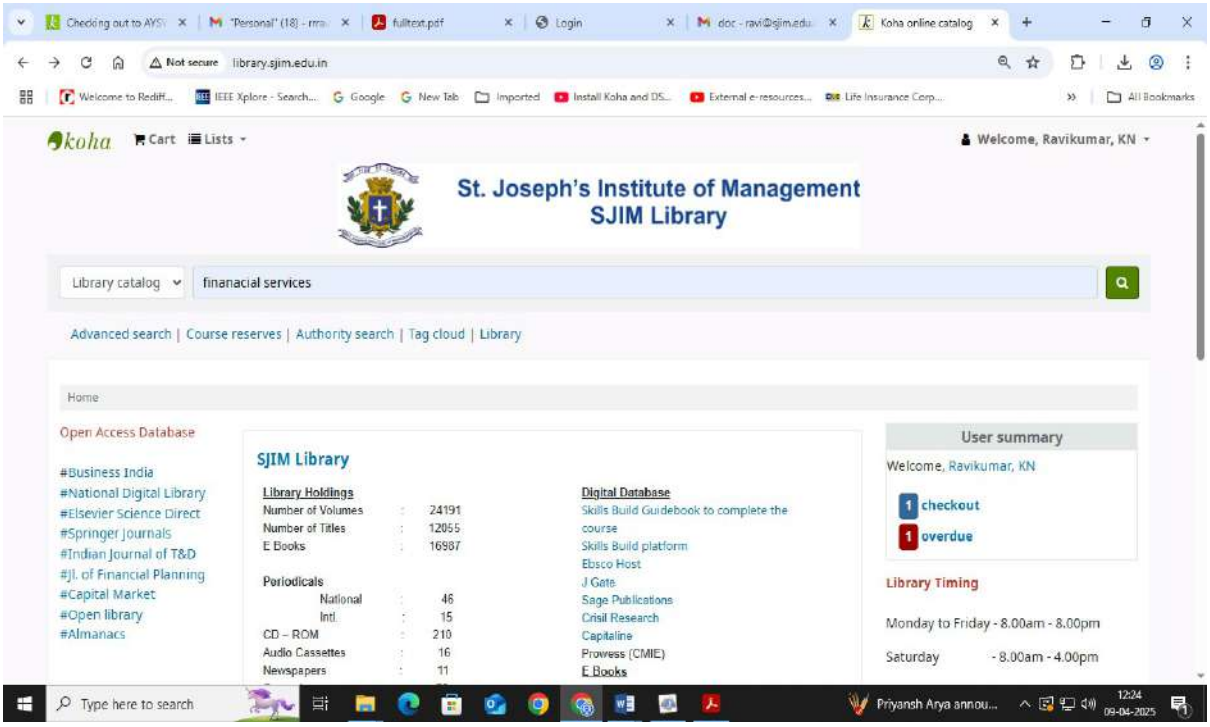


Figure 10.2. In & Out Management System/gate entry

In & Out Management System meant for gate entry, when users/patrons enter into the library they need to scan their ID cards incoming outgoing.



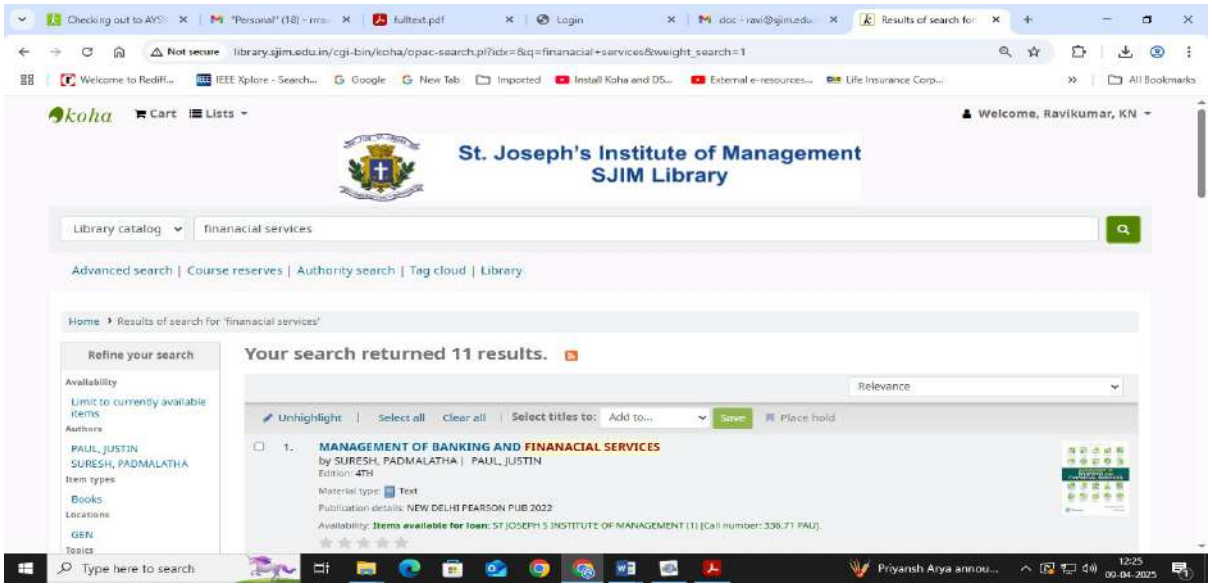


Figure 11. Web-OPAC (Online Public Access Catalogue)

11. KOHA OPAC

- The KOHA library management software is one of the most prominent open-source (ILS) available. The Online Public Access Catalogue (OPAC) in KOHA is the public interface that patrons use to search for and interact with the library's holdings. The break of the parts mentioned and how they can be customized is given below:

1. **Header:**

- Typically contains the logo of the organization with which the library is associated, the name of the Library and Organisation, and main navigation links.
- Customization: You can change the logo, background colour, and photographs, add new navigation links, etc. through CSS and possibly HTML tweaks.

2. Left Navigation (Upper & Bottom):

- Might contain links to various parts of the OPAC, such as advanced search, user account, etc.
- Customization: Professionals can add/remove links, change the style, or even embed widgets (e.g., events calendar). This would involve both HTML (for structure) and CSS (for styling).

3. **Main User Block:**

- This is the primary content area where search results, item details, user account info, and other dynamic content will appear.
- Customization: To change how search results appear, or how item details are displayed, Professionals often edit the template files responsible for these displays, which are written in Template Toolkit language. Styling is done through CSS.

4. **Right Navigation:**

- This could be similar to the Left Navigation but might contain different links or widgets. Proceedings of International Conference on Library Technology Relationship
- Customization: Similar to the Left Navigation, you can use HTML to adjust the content and CSS to adjust the style. Professionals may also utilize JavaScript to add interactive elements.

5. Footer:

- Contains copyright info, contact details, and sometimes additional links.
- Customization: Adjusting the footer's content and style is straightforward with some HTML and CSS tweaks.
- **Search capabilities:** The Koha OPAC includes a variety of search options, including author, title, keyword, subject, and ISBN/ISSN. Users can also browse the catalogue by call number, author, title, or subject.
- **Item availability**: The OPAC provides real-time information on the availability of library items, allowing users to see whether an item is available for checkout, on hold, or checked out to another patron.
- **Holds and renewals:** The OPAC allows users to place holds on items that are checked out or at another location, as well as renew items that are currently checked out to them.
- **Account management:** Users can access their library account through the OPAC to view their current checkouts, renew items, and pay fines and fees.

12. CONCLUSION:

KOHA, being an open-source ILS, provides libraries with various advantages over proprietary software The Koha OPAC provides a user-friendly interface for library users to search for and access items in the library's collection, while the circulation module supports efficient borrowing and returning of library materials. There is no doubt that automation of library activities enhances library operations and services. SJIM Library has stated that while converting the older system into any other new system, it is very important to consider the factors that are critical. One of the critical factors is that the data residing in the old system, we should ensure no data is corrupted or lost while transforming into a new system. The SJIM library succeeded the converting data from Excel sheet to Koha and Koha version 18.11.200 to Koha version 22.05.100 and the library was perfectly adapted to use open source software.

Open-source software is the best choice for fulfilling library needs. Various open-source software is available for library automation, digital library initiatives, and content management processes. To implement and manage this software, librarians must know the ICT activities. This paper has discussed the implementation of SJIM Library automation and its regular activities. Moreover, Koha open software has smooth functionality in SJIM Library automation and its day-to-day activities.

13. References:

Niranjana, K., Tolessa, D., & Vijaya Kumar, P. N. (2020). Implementation of KOHA Integrated Library Management System in Wollega University Main Library, Nekemte, Ethiopia. *Information Impact: Journal of Information and Knowledge Management.*

Sivasamy, K., & Vivekanandhan, S. (2024). Implementation of open source software in Thiru A. Govindasamy Government Arts College. *Journal of Advances in Library and Information Science, 13*(3), 142–148.

KohaGeek. (2015, May). *Install Koha on Ubuntu 14.04.* Koha Installation. https://kohageek.blogspot.com/2015/05/install-koha-on-ubuntu-1404.html

LibPowerTech. (2019, June). *How to install Koha IN-OUT management plug-in.* https://libpowertech.blogspot.com/2019/06/how-to-install-koha-in-out-management.html#google_vignette

Satish Kumar, H., & Lakshmamma. (2024). Implementation of Koha Integrated Library Management System (ILMS) in Acharya & BM Reddy College of Pharmacy Library & Information Centre: A study. *Library Philosophy and Practice (e-journal),* 8249. https://digitalcommons.unl.edu/libphilprac/8249

Bellary, R., & Sadlapur, S. (2022). Review of implementation and experience of Koha open-source software in SVKM institutes. *Journal of Indian Library Association, 58*(2).

Mohan, R., Deep, S., & Mishra, S. K. (2023). Analytical study of open source Koha-Integrated Library Management Software: With special reference to OPAC. *ResearchGate.* https://www.researchgate.net/publication/375800285

Omeluzor, S. U., Adara, O., Ezinwayi, M., Bamidele, A. I., & Umahi, F. O. (2012). Implementation of Koha Integrated Library Management Software (ILMS): The Babcock University experience. *Canadian Social Science, 8*(4), 211–221.

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