Implementation of KOHA Integrated Library Management System in a Multilingual Environment of South Eastern University of Sri Lanka

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Abstract

KOHA is highly used open sources library management system in the world and that has the provisions for all library operation. This paper aims to elaborate the data migration process from WINISIS to KOHA and explains the methods and steps of the data migration from WINISIS to KOHA version 2.2.8 and from KOHA version 2.2.8 to KOHA version 3.6. This is a descriptive paper of a case study conducted at the South Eastern University of Sri Lanka. The paper identifies several issues and their solutions concerning data migration within a local scenario and elaborate how local consultant and support of the library staff obtained to accomplish task. This paper provides hands on experience of library data migration in multilingual environment and explains how to adopt low cost and universal recognized solution for library automation. The lesson learnt and the experience gained would stand in good stead to implement a similar kind of system at various places.

Keywords: Library automation, KOHA, Data migration, WINISIS

Introduction

The library of South Eastern University of Sri Lanka is serving to multilingual communities and the materials are available in English, Tamil, Sinhala and Arabic languages. These materials could be searchable in both languages English and the original language those were written in.

The concept of library automation was evolved with advancement of information technology. The library automation is associated with the development and accomplishment of works that are done by specific machines. Encyclopedia Britannica (2008) has defined automation as the removal of all manual work through the use of automatic controls that ensure accuracy and quality. In general, library automation describes a great paradigm shift in the system of management and the services of libraries to fulfil the requirements of clients.

Since the library professionals need to deliver prompt and adequate services to the clients, they must be able to adapt to the changing environment and the use of new technology and software to manage the usual routine activities. The clients expect quick response to the request and easy access of information in this information communication technology era. The software or the system that use for the library automation process, need to fulfill all the library activities and functions such as cataloguing, circulation, patron control, acquisition, serial control, public access catalogue, statistics etc. The integration of modules should eliminate duplication of work and data.

Omeluzor et al. (2012) have stated that libraries in this period must prove to be the hob of academic activity, a dynamic system that will incorporate new and yet to be conceived features must be the focus. And further stated libraries of today must be aggressive to provide access to information within and outside the library through a viable system.

A library system must ensure the security and accuracy of data to provide an effective and efficient service to its clients (Hettiarachchi and Fernando, 2010). In any automated library system, data must have to be protected without any changes, addition, deletion and malformation. It is very important when move one system to another system where need to consider the data format and field compatibility.

This paper aims to discuss the implementation of KOHA integrated library management system and conversion of data from WINISIS to KOHA in a multilingual environment of the South Eastern University of Sri Lanka with the following objectives:

1. To enumerate the experience of South Eastern university Library in the implementation of KOHA

2. To explain strategies towards migration of data from WINISIS to KOHA

3. To suggest strategies for successful implementation of KOHA

Automation History of SEUSL Library
South Eastern University Library was established on 23 October 1995, along with the establishment of the South Eastern University College and the University College was later upgraded as full flagged University named as South Eastern University of Sri Lanka (SEUSL) in 1996. It has been located in the Eastern Province of Sri Lanka. There are two libraries; the main library has been located in Oluvil campus and the branch of it in the Faculty of Applied Sciences (FAS), Sammanthurai. The distance between the main campus and the branch library is around 20 km.

The SEUSL library has started automation works in the year 1996 by using the free software named CDS ISIS for DOS operating system and subsequently migrated to window version WINISIS in 2000. The library has only concentrated and maintained fully computerized catalogue in CDS ISIS and WINISIS. Thereafter the library has introduced open source integrated library management system called KOHA, version 2.2.8 in March 2009 and it has utilized for cataloguing. From July 2010 the library has focused on starting circulation modules of the KOHA version 2.2.8. The KOHA version 2.2.8 has been upgraded to KOHA 3.6 in July 2013 and adopted to work on all the modules available in the version.

KOHA Integrated Library Software (ILS)

KOHA is a web based ILS with a SQL database (MySQL) backend, cataloguing data stored in MARC and accessible via Z39.50. KOHA user's interface is very configurable and adoptable which has been translated in to many languages. KOHA was initially developed in New Zealand by Katipo Communication Limited and first deployed in January 2000 for Horowhenua Library Trust (Projektlink, 2010). After the original implementation of KOHA, it has been adopted by thousands of libraries worldwide and each adding features and functions, deepening the capability 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.

Features of KOHA Software

- 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 is no need to install any special software on staff computers once there is an intranet in place.

- User records management: It allows management of detailed information about each person that is registered as a library user.

- Online renewals and reservations of item by users: Library patrons can self-renew their checkouts and make reservations. This has reduced the traffic at the circulation desk and has freed some circulation staff for other duties.

- Branches: Since the software is web-based it is easy to borrow a book in one branch and return it in another branch.

- Borrower history, comments and tags: Users can comment and review books, tag them and view their reading history. They can also view their records and make purchase suggestions.

- Customizable search: A library can choose the fields they want on their search form. For example, a search by author, title, subject, and keywords. There is also an advanced search option.

- Acquisitions: This includes orders from vendors, budgets, and pricing information.

- Serials: It allows easy cataloguing of journals and user can view holdings information through the OPAC.

- Book bag and virtual shelves: Users can have a virtual library where they keep books specific to their needs.

- Multi-lingual OPAC support: KOHA allows patrons to view the OPAC in different languages depending on the language chosen by the library.

- Overdue fines and notices: KOHA manages overdue fines and notices that can be sent to users by e-mail.

- Barcode printing and reader: KOHA fully supports the use of barcodes thereby removing the chances of human error.

- Security: KOHA provides effective security measures to protect unauthorized persons from accessing the system. For example, registered patrons are required to sign in with their user name and password to perform certain functions on the library database.

- Reports and statistics. KOHA can generate management reports and statistics in cataloging, acquisitions, serials, and circulation.

In addition to the above features, the latest version contains some more new features. Some of them are news, label/user card creator, upload patrons images, task scheduler, overdue notices, log viewer, SQL builders, comments, export and import Biblio information, Mobile interface etc.

Methodology

A work plan was developed in order to implement KOHA installation successfully and cautious steps were taken to migrate data from the existing database (WINISIS) to KOHA. The recommended techniques that were obtained through systematic search of available literature were appropriated to complete the task.

Work plan

KOHA implementation was started in 2009 and it was scheduled to complete the conversion within 18 Months. The work plan developed with the consultation of consultant is as follows:

1. Training programme to the Library staff
2. Installation and customization of KOHA ver 2.2.8
3. Data migration from WINISIS to KOHA 2.2.8
4. Data editing
5. Implementing circulation module

Implementation

In 2008, the library academic committee has decided to implement KOHA Library Integrated Management System at the both libraries located in Oluvil campus and in the branch in Sammanthurai. A survey was carried out in order to identify the libraries which are using KOHA in Sri Lanka in 2008 and another survey was carried out to identify the expert in KOHA in Sri Lanka. An important study was carried out to identify the existing basic information regarding staff, collection and IT equipment in both libraries of SEUSL.

Table 1, Table 2 and Table 3 show the basic information about the libraries of SEUSL. The collection of SEUSL is multilingual, such as English, Tamil, Sinhala and Arabic.

Table 1. Basic information of SEUSL library Staff

No	Staff details	Main Library	FAS Library
01	Professional/ Academic staff	03	01
02	Para professional staff	05	01
03	Other supportive staff	08	03

Table 2. Basic information of SEUSL library collection

No	Collection details	Main Library	FAS Library
01	Books	70,000	10,000
02	CDs	5,250	950
03	Journals and periodicals	1500	250
04	VHS	625	-
05	Audio Cassette	430	-

Table 3. Basic information of SEUSL library IT Equipment

No	IT Equipment	Main Library	FAS Library
01	Servers	-	-
02	Computers	18	08
03	Scanners	02	01
04	Barcode Readers/ Scanners	02	-
05	RFID work station pad	01	-
06	Security Gate	01	-
07	Digital Library Assistant (DLA)	01	-
08	Barcode printer	01	-

Library of University of Ruhuna is the pioneer in launching KOHA in Sri Lanka in 2008 and the Senior Assistant Librarian of University of Ruhuna, Nimal Hettiarchchi, one of the experts in this field in Sri Lanka has successfully installed and implemented the KOHA system at University of Ruhuna. The technical know-how of him was utilized to implement the system at SEUSL.

A Senior Assistant Librarian at SEUSL has been looking after the automation process of the Libraries and a group of Library Assistants worked with him in order to implement the KOHA system.

Since, the SEUSL libraries did not have any server for the installation of KOHA in 2008, a server, barcode readers and backup device have been purchased. The required Intra and Internet link also were requested and established to fulfill the requirements.

Staff Training
Staff training was an important activity for the successful implementation of KOHA automation process and it was an important task to uplift the skills of the library staff in library professional/Academics and paraprofessionals to well adopt to use the new software environment. Three training programmes were organized. The first was the awareness training to whole library staff to elaborate the benefits and the necessity of using KOHA.

The second training included modules on installation of KOHA, customization of basic features, customization of all the modules such as cataloguing, members, circulation acquisition, serials and reports, existing data editing and editing of multilingual records. The third training on "hands on experience in circulation with KOHA" was scheduled just before starting the circulation modules and it was held in April 2010.

Installation and Customization of KOHA ver 2.2.8

Debian was used as an operating system to install the KOHA in the main server. Debian is a Linux based open source operating system and which is highly recommended for KOHA. The required software such as apache, MySQL and Perl modules were installed before installing KOHA. Configuration and customization in operating system and back end database server (MySQL is the back end database for KOHA system) has been made in order to support and work with multilingual (English, Tamil, Sinhala and Arabic) environment.

OPAC and staff interface were customized to support and work with multi lingual and reflect the SEUSL. KOHA parameters such as item type, branch code, collection, circulation rule, member categories, fine rules etc. have been introduced and customized according to Library policy of the SEUSL. Another server was installed as a replication server (MySQL) to ensure the safety of the library data in KOHA system.

Data migration from WINISIS to KOHA 2.2.8

The migration of data from one system to another system is more crucial and some time it may complicated. SEUSL library has identified that KOHA version 2.2.8 has six tables according to bibliographic information such as:

1. Biblio
2. Biblio item
3. Items
4. Additional authors
5. Biblio subtitle and
6. Biblio subject.

However WINISIS is single table data base management system. Therefore, we had to convert single WINISIS data table to six table of KOHA database. The following steps were used to migrate data:

Step-01: In this step create six new Print Format (PFT) to WINISIS for match the six tables mentioned as above of the KOHA ver 2.2.8. A sample print format has been shown in the figure 1.
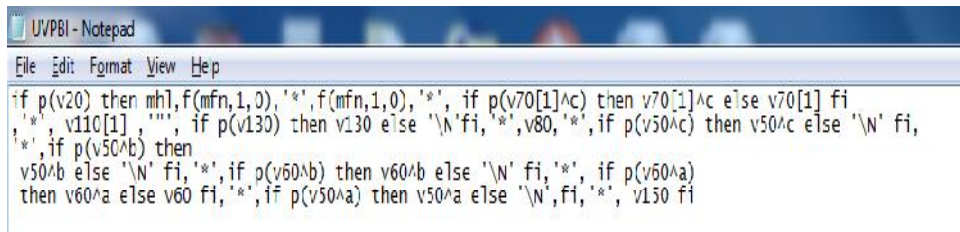

Figure 1. Sample print format used in WINISIS

Step-02: Using the above print format, six ASCII files could be generated using print command in WINISIS.

Step-03: These files had been opened in MS Excel and corrected errors and mistakes. Finally saved as text files (Tab delimited).

Step-04: The data in these six tables were successfully exported separately using SQL command into above mentioned six tables in the backend database of the KOHA.

Step-05: The above data had been converted into MARC format by using "KOHA2marc.pl" script available in the KOHA software.

Data Editing
As WINISIS is supported only Latin characters, non- Latin characters cannot be used to feed the data. The SEUSL library had collections of non-Latin character languages such as Arabic, Tamil and Sinhala. Thus the bibliographic data were entered in transliteration in the WINISIS. These transliterated data were edited in its own language in the KOHA ILS. This was the major data editing part and it took almost one year to complete the task. Barcode labels and RFID (Radio Frequency Identifier) tags have been pasted on the library materials during this period. Barcode labels facilitate quick and easy access of the library materials during the circulation process where as RFID facilitates for few library management activities such as searching of library materials, stock taking, security etc.

Implementing Circulation Module
Soon after completion of data editing, we have worked on to start 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;

1. The user information was obtained from the administration of the University in Excel format and they were edited to match with the Borrowers table in the KOHA backend database.

2. The data were successfully exported using SQL command into the Borrowers' tables in the backend database of the KOHA.

Step-02: Customized the KOHA software in order to introduce new features which were not available in KOHA version 2.2.8. Borrower activation privilege and stop the self-circulation of library staff were introduced to the system.

Step-03: The issuing and fine rules were setup based on the SEUSL library circulation policy.

Step-04: Cron-jobs were scheduled into the crontab file found in Linux (Debian)for automatic fine calculation and send overdue notice to Borrower through email.

Data Security
Data security was maintained in two ways:

1. Managing the data backups by using 'CronDemon'
   A cron-job was scheduled by including tar command into the crontab file to backup of data in two times per day (at 12 noon and 6.00 pm).

2. Managing data backups by using standard MySQL replication server.

   A separate server was introduced with same version of MySQL and KOHA as a replicated server (as a slave server). Since this service is capable to keeping backups to its last second of updating of the master server (Original KOHA server)

Upgrading KOHA 2.2.8 to KOHA 3.6

The SEUSL library has moved to KOHA version 3.6 in July 2013.Figure 2 shows the OPAC of the SEUSL library of the KOHA version 3.6. KOHA version 3.6 backend database structure differs from KOHA version 2.2.8 backend database structure. MySQL versions also differ from the KOHA version 2.2.8. Therefore, the data in KOHA version 2.2.8 was modified to match with KOHA version 3.6. In addition to item types in KOHA version 2.2.8 Collection code, Shelving location and authorize value were introduced. The backend data in KOHA version 2.2.8 has been cooked to match the KOHA version 3.6. It was a difficult task to convert data into KOHA version 3.6 since the database had non-Latin characters.
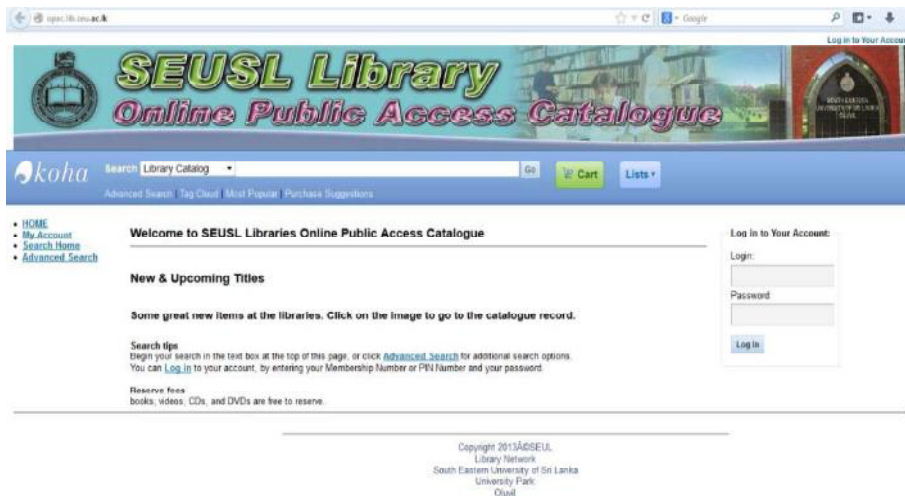

Figure 2: OPAC of the SEUSL library of the KOHA version 3.6.

Conclusion

There is no doubt that automation of library activities enhances the library operations and services. The automation can improve the libraries' relevance to the academic community. However library automation requires adequate planning and technical support. While converting the older system into any other new system, it is very much important to consider the factors which are critical. One of critical factors is that the data residing in the old system, because the existing data should not be changed, corrupt or lost while transforming into a new system.

The SEUSL libraries succeeded the conversion of WINISIS to KOHA and KOHA version 2.2.8 to KOHA version 3.6 and the library perfectly adopted to use open source software. Therefore, it is ascertained that with the automation of library, SEUSL has achieved

more economical benefits in terms of serving money to purchase commercial software and minimizing the maintenance cost of the software. Further the library entered into to the global community and the library system can be viewed through the Internet. The lesson learnt and the experience gained could further be explored, documented and communicated to implement a similar kind of system at various places.

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