
SLIM 21 Software: An Effective Tool for Accessing Hindi And Sanskrit Books in A.C. Joshi Library

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ABSTRACT

Providing library services in a range of community languages has long been important. The advent of the Internet and development of Unicode has provided many opportunities to advance these services. The first part of the paper will focus on multilingual cataloguing and Unicode issues from a practical perspective. The complexities of implementing and operating a system that supports a multi-language environment are explored, using the implementation of the Slim 21 Software in A.C. Joshi Library, Panjab University as a case study. To conclude, I as a cataloguer and classifier of Multilingual Books, have found SLIM 21 Software as an efficient tool as it manages voluminous textual and semi-structured information, adheres to international standards in the field of Library Science, encourages resource sharing with other libraries through web opac, and last but not the least, it fulfills the requirement of bibliographic records in multi-script in huge libraries as ours which is the need of the hour.

Keywords: Library Automation, Information retrieval, Library Software, Resource Sharing, University Libraries, Multilingual text

Introduction

Libraries of all types should reflect, support and promote cultural and linguistic diversity at the international, national and local levels, and thus work for cross-cultural dialogue and active citizenship. Most of the libraries mainly public and academic libraries should cater to the multilingual demands of the readers as they come from different backgrounds and multilingual services, and collections become a community space to bring people together.

Definition of Multilingual according to Online dictionary² is “Pertaining to multiple languages”. Hence multilingual libraries mean the libraries that hold books in multiple languages.

Multilingual Access

Language is one of the most official factors in access to information. Information is usable and useful only if it is in a language that can be read or otherwise understood. Providing access to information in multiple languages is a challenge inherent in constructing a global information infrastructure. It is also fundamental to tailoring and interoperability. When,

given a choice, people generally prefer to communicate in their native language, both online and offline. Communication in international environments frequently involves multiple languages, however, and people often need information written in unfamiliar languages. The problem of multilingual access to information affects not only users in countries in which several languages are spoken (like India), but also all those who search material in information sources or databases containing material in more than one language.

Challenges

A fundamental challenge of constructing a global information infrastructure and a global digital library is to provide access to these collections, regardless of the language of the content and the language of the information seeker.

Little attention is paid to character encoding, multilingual documents, or the specific requirements of particular languages and scripts. Consequently, the vast majority of WWW browsers still do not support multilingual data representation and recognition.

Basic Components of Multilingual Access

Multilingual access to information is a complex problem. According to Peters and Picchi ³ it has been divided into two basic parts:

- Multiple-language recognition, manipulation, and display — involving matters such as encoding character sets and symbols so that they can be manipulated (sorted, searched, or otherwise exploited), and
- Multilingual or cross-lingual search and retrieval — referring to search for content in other languages, otherwise known as “cross-language information retrieval.”
- The main requirements of a multilingual application are to:
- Support the character sets and encodings used to represent the information being manipulated;
- Present the data meaningfully;
- Manipulate multilingual data internally

Character Encoding

Character encoding is at the heart of the data-recognition, data-manipulation, and display components of multilingual information access. The creation of characters in electronic form involves hardware and software to support input, storage, processing, sorting, displaying, and printing. Each character – or ideograph in languages such as Chinese, Japanese, and Korean – needs a unique code to ensure that it sorts, displays, prints, and is matched properly upon searching. Additional codes are required for punctuation, direction of text (left to right or right to left), carriage returns, and line feeds. The internal representation of each character determines how it is treated by the hardware (keyboard, printer, display, etc.) and the application software (sorting, searching, etc.).

Effective data exchange is heavily dependent on character encoding. Characters produced from different applications may appear the same on a screen or a printout but have different internal representations. Merging or transferring data between applications requires a common character-encoding standard or software to map variant encoding formats. Searchers need to have the appropriate keyboards and software to generate characters in the encoding standard in which the contents of a digital library are stored, whether locally resident or

available through mapping software located at the digital library site or elsewhere. Local printers and displays must have the appropriate software to interpret and produce characters accurately. These factors are not specific to digital libraries; rather, they are issues for all distributed applications on a global information infrastructure.

Encoding standards for Indian languages

The two main standards in character representation of Indian languages are ISCII and Unicode.

- ISCII (Bureau of Indian Standards, 1991) – ISCII is an 8-bit code. It covers ten Indian scripts (Devanagari, Gujarati, Punjabi, Bengali, Assamese, Oriya, Telugu, Tamil, Malayalam, Kannada). ISCII uses extended ASCII and uses last 128 characters position for characters representation in Indian scripts. The arrangement of characters is phonetic.
- Unicode and Indian languages – The Unicode Consortium was initiated in January 1991, under the name Unicode, Inc., to promote the Unicode Standard as an international encoding system for information interchange, to aid in its implementation, and to maintain quality control over future revisions Inc.” and provide a solution to the localization problem of the world’s languages. Currently, Unicode is in version 5.0.0. The Unicode standard provides with three encoding formats: UTF-8, UTF-16 and UTF-32. Any one of these forms can be used to represent the Unicode characters. Each of these is used in different environments. The default encoding form of Unicode is UTF-16. Operating System level support for Unicode encoding of Indian language scripts is available both on Windows XP and Linux. Unicode fonts for many of the Indian languages are now available. In addition, HTML supports Unicode.

Unicode

Unicode ^{4,6} is an encoding scheme designed to be a universal character set (UCS) for written characters and text; it is international in scope and includes characters from all of the major scripts of the world (more than 40,000). In addition, it includes commonly used technical symbols, ideographs, etc. using the same structure. Unicode provides a unique number for every character, no matter what the platform, no matter what the program, no matter what the language.

Unicode is not hardware or software; it is a formal standard for multilingual encoding, which enables a single software product or a single Web site to be targeted across multiple platforms, languages and countries without reengineering.

It allows data to be transported through many different systems without corruption.

Academic Libraries & Need for automation of multilingual texts

Academic libraries whether they are of School, College or University, need to upgrade not only its collections but also the technology from time to time so as to provide readers coming from diverse cultures, belonging to different backgrounds with pinpointed information just in time. The various reasons that push these libraries towards automation are:

- Academic libraries’ mission is to serve its readers, which in more or less cases is multicultural and multilingual, or becoming increasingly culturally diverse.

- Academic libraries services needs to ensure equality of service and access to multilingual information.
- In an era of globalization with more ease in transborder communication and travel, individuals need to learn about other cultures, languages, and peoples, which foster appreciation for different experiences and broaden one`s outlook on life.
- Information in languages and through channels accessible to diverse user communities enables their democratic participation in civil society.
- Information on one`s own heritage as well as others enforces one`s own culture and promotes understanding of other experiences and perspectives, respectively, and contributes in the development of a more harmonious society.
- Information in languages and through channels appropriate to diverse user communities promotes multiple literacies, which facilitate the acquisition of new knowledge and skills to ensure equality of opportunity in all realms of civil society.
- The world`s knowledge, creative forms of expression, and cultural practices are documented in diverse formats and languages, thus, the offering of a multicultural collection should be made available for all to access.
- Learning of different forms of creative expression, work and problem solving lead to fresh insights and opinions which can result in novel ways to innovate, act and resolve situations.
- Information about and for a library`s multicultural community demonstrates that members and their cultures are valued.
- Academic libraries are spaces for intellectual and recreational engagement and libraries offering multicultural and multilingual services, and collections become a community space to bring people together.

Implementation of Multilingual books access via implementation of SLIM software at A.C. Joshi Library

Overview:

The Panjab University Library, named officially as "A. C. Joshi Library", after the name of an illustrious Vice-Chancellor of this University, was established in the U.S. Club, Shimla in the year 1948 after the Partition of the country. The Panjab University started shifting its offices to Chandigarh, the new Capital of Punjab, in 1955-56. The foundation stone of the new Library building was laid in 1958 by Dr. S. Radhakrishnan, the then Vice-President of India. It is Interstate body corporate.

The university has 75 teaching and research departments and 15 centres/chairs for teaching and research at the main campus located at Chandigarh. It has 188 affiliated colleges spread over Haryana, Himachal Pradesh, Chandigarh & Regional Centres Muktsar, Ludhiana and Hoshiarpur.

Students and Research scholars come for seeking education from all over these places and become the members of this university library. Moreover this university is a hub for Research Scholars and our Panjab University caters to their needs by providing them with latest information through hundreds of databases in different subjects which can be accessed in Digital Library located on fourth floor of the library building and the books can be issued to them with the help of fully automated system.

Automation of Multilingual Books – Initialization

Panjab University Library started using Techlib Plus software for library automation from January 1,1997, which was a comprehensive library automation package customized to perform all the operations and activities of a fully electronic library. It supported OPAC, Catalog maintenance, Circulation, Serial Management, Acquisition, Processing and MARC Cataloguing. Initially English language books were taken for retro-conversion.

After entering collection of English language, a look out for solutions for other Indian languages in general and Hindi and Punjabi, and Sanskrit in particular. After lot of survey Indian language retroconversion Graphic and Intelligence based Script Technology (GIST) solution developed by Centre for Development of Advance Computing (CDAC), Pune was chosen to implement in the library. GIST card was chosen to install in the PC of Technical Section for retro-conversion of Hindi language books. According to Garg, V.K. and Bansal, J.¹ GIST CARD system was the best option for multilingual books and almost all the Hindi language were entered in database through GIST card. Since Techlib Plus software supported OPAC feature, and to utilize this large database, another GIST card was installed in one of the OPAC terminals - enabling the library users to search for Hindi language books through OPAC instead of printed catalogue cards. Similarly same procedure was followed for Punjabi, next rich collection after Hindi in University library. The Techlib plus being a text based application did not support printing on laser printer. The files generated through Techlibplus software were transferred through FTP in Windows based environment. Then after editing and setting work in MS-Word, finally prints were taken through laser printer. The same process when done for catalogue generation of Indian languages, the MS WORD did not support Indian languages script entered through GIST. In order to retain the Indian language scripts in catalogue cards, a 'MS-WORD' like application 'ISM Office' developed by same agency CDAC is now being used by the library

Transition from Techlib Plus to Slim 21

Although Techlib Plus Software had all those inherent features that were essential in performing all the operations and activities of our University Library, yet due to constantly emerging new technologies and rising needs of the readers and a need for an integrated software that could perform all the in-house operations and activities keeping in mind to meet the expectations of the readers in the best possible way without wasting their time, the change was inevitable. Moreover A.C. Joshi Library was given 1.75 crore for RFID implementation, for automation and digitization of books for which a new integrated library software was required to take our library to new heights. Apart from this there were certain reasons that lead to a switch over from one Library management systems to another. The reasons are:

- Phasing out of the existing software by its vendor
- Change of version by the vendor
- Lack of required features in existing version software
- Cost of maintenance of the existing software
- Change due to the hardware/software environment /platform
- Change forced due to the technological advancements

Expansion of access to Indic languages using Slim 21 software at the A.C. Joshi Library

India is a multilingual country and the second most populated country on earth. There are a quite a number of languages spoken in India. Some of these languages are accepted nationally while others are accepted as dialects of that particular region. The Indian languages belong to four language families namely Indo-European, Dravidian, Austroasiatic (Austic) and Sino-Tibetan. Majority of India's population are using Indo-European and Dravidian languages. The former are spoken mainly in northern and central regions and the latter in southern India. India has 22 officially recognised languages. But around 33 different languages and 2000 dialects have been identified in India. Hindi, in the Devanagari script is the official language of the Federal government of India. English is an associate official language.

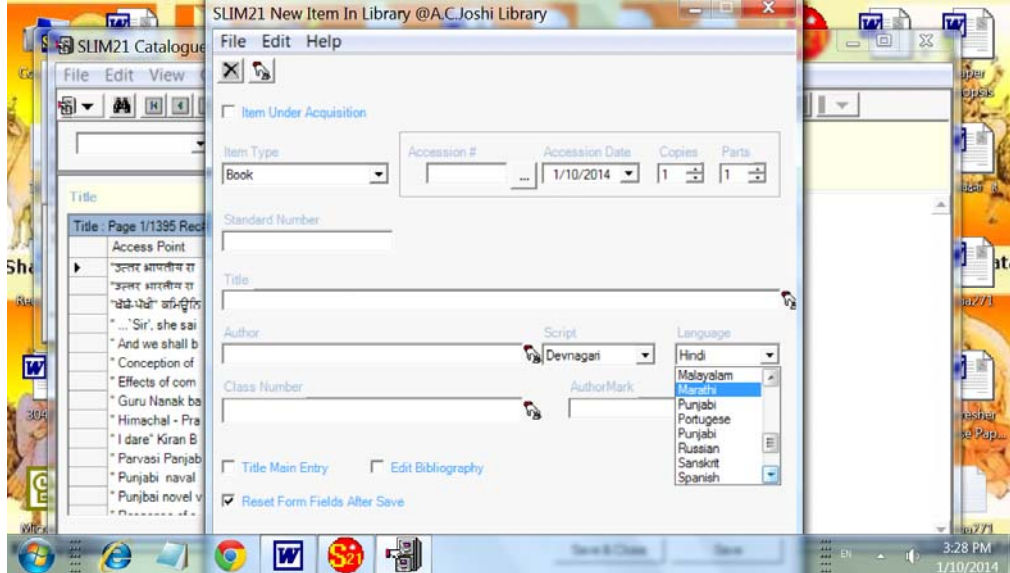
The University Library has Rs.18 cr. annual budget for both English and other language books and Rs. 1 cr. budget for journals. It has 7,13,501 books both in English and other multilingual languages mainly Hindi, Punjabi and Sanskrit.

Language wise approximate distribution of the total titles along with total copies entered into the computer database of Slim 21 software as shown till 30th September 2009 is given in the table below:

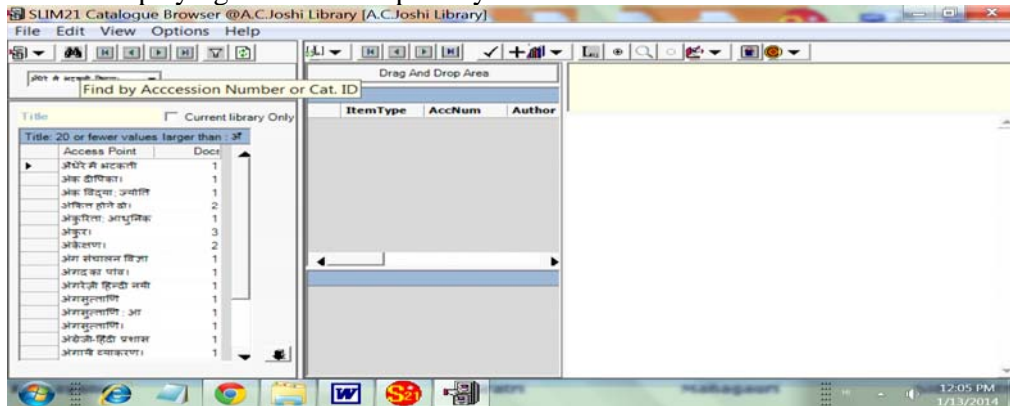
Language	Total Titles	Total Copies
Hindi	26076	43730
Punjabi (GM)	11233	29045
Punjabi (PN)	2513	6347
Sanskrit	1588	2640
Marathi	34	83
Bengali	1	1
Maithili	4	6
Assamese	1	1

Cataloguing of Multilingual books with special reference to Hindi and Sanskrit books has been made extensively possible by using Slim 21 Software. SLIM(System for Library Information and Management, is a leading Library Management System is a software first designed and developed in 1988. SLIM 21 is a multi-tasking integrated library management software working either on a single machine or in a client-server multi-platform environment. Its cataloguing module is specially designed for entering multilingual data in Unicode script which makes it stand out from other softwares. No other software is more compatible for handling multi-scripts. SLIM21 provides for data entry and storage in Unicode. Use of the Unicode technology makes it possible to install as many scripts as required on the computer and use them in every interaction with the computer. The screenshots show the practical benefits of SLIM21.

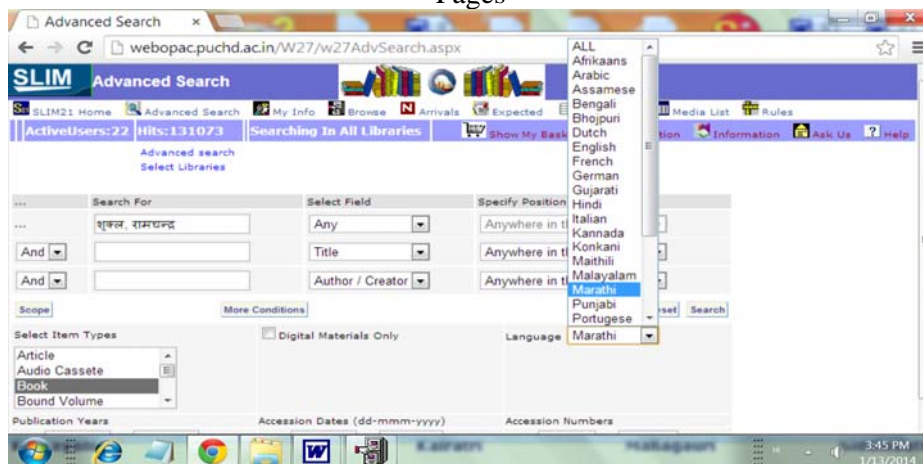
- Screenshot displaying software's ability to enter information in multiple languages



- Screenshot displaying software's capability to view a list of related Hindi/ Sanskrit words



- Screenshot displaying the readers' access to view Hindi / Sanskrit data on the library's Web Pages



The other benefits of SLIM 21 Software for accessing other hidden details of multilingual data are:

- Copy Hindi/Sanskrit text from the SLIM forms onto other capable applications, and vice-versa
- Prepare letters where standard and the varying part appears in Hindi/Sanskrit
- Send such Hindi/Sanskrit letters as e-mail messages
- Prepare bibliographies in Hindi/Sanskrit
- Decide which Hindi/ Sanskrit terms from the library science field should appear on data entry and other screens
- Enter names of suppliers, library members and their addresses in Hindi/Sanskrit
- Prepare mailing labels in Hindi/Sanskrit
- Print reports in Hindi/Sanskrit

Conclusion

India being a country with rich diversity in languages, cultures, customs, and religions, which are stored in print media as well as in numerous manuscripts, diversity of languages has imposed tough hurdles in the way of digitization and access to Indian literature. To remove these hurdles for the time being Romanization and use of transliteration was introduced. Later on Unicode was introduced which was praised by Prasad⁵ and Sadagopan⁵. To further initialize Unicode, proper Open Source Software was essential for improved efficiency of library operations, improved quality of existing services, introduction of new services, improved collection management, improved accuracy and control, rapid communication, elimination of duplication of efforts and hence SLIM 21 Software was introduced in A.C. Joshi Library which proved to be a milestone in accessing multilingual collection, quenching the thirst of knowledge for hundreds of students, research scholars and teachers belonging to diverse cultures and speaking different languages.

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