

Library automation software packages in India: A study of the cataloguing modules of Alice for Windows, Libsys and Virtua

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Introduction of computers in libraries has immensely enhanced the effectiveness of library services including efficient organization and retrieval of information activities. Since the application of information technology in libraries, one of the greatest challenges before the library managers is the selection of a good library automation software package which can cater to the needs of a particular library. In India, library automation process started in the last decade of the previous century. Many Indian as well as foreign software companies had entered into the market. Nevertheless, only a couple of library automation software packages gained success in making their presence felt into Indian market. The present article discusses the salient features of cataloguing module of three such packages, namely, Alice for Windows, Libsys and Virtua and their acceptability in a developing nation.

Introduction

Latest advancements in the field of information technology have compelled libraries to embrace automation as the facilities provided by automated libraries go far beyond the activities of traditional libraries. In developed countries computerization of libraries started in 1940s¹. The first use of computers in library and information centres in India was reported in 1965 at INSDOC, now known as National Institute of Science Communication and Information Resources (NISCAIR), New Delhi². INSDOC initially computerized the author and subject indexes of *Indian Science Abstracts* and in 1967 brought out, "Roster of Indian Scientific and Technical Translators' using computers³. Later on, several Indian libraries particularly those attached to scientific and industrial research organizations used mainframe computers of their parent bodies in 1970s. The 1980s witnessed a gradual increase in the use of computers in library operations.

Library automation gathered momentum in 1990s driven by the sharply dwindling prices of hardware, increasing availability of library software packages and also ever increasing enthusiasm on the part of library professionals to embrace information technology along with other factors.

There are a number of library automation packages in India. Some of the well-known library softwares of foreign origin are Alice for Windows, Virtua, Techlib Plus etc. Among the indigenous library software packages, Libsys is the widely used software. Other library software packages developed in India are Granthalaya, Maitreyi, Sanjay, DELMS (Defence Library Management System), Librarian, WYLYSYS (Wipro Library System), DELDOS, TLMS, Libsuite ASP⁺ etc. Few of them have been developed by the Government organizations, while others by private software companies.

Though developed world has taken a clear cut lead in the field of library automation, the scenario in developing nations such as India is not encouraging. The selection of relevant software is an important step in the library automation process. In any library automation system, cataloguing module is an important module as it caters to the needs of data base creation of library holdings.

Scope

In the present library scenario, a number of foreign as well as indigenous library automation software packages are being used in India. However, for the present study, three library software packages, namely, Alice for Windows, Libsys and Virtua have been studied.

Libsys has an installation base of more than 1000 users across the country⁴. Alice for Windows with almost 200 installations and Virtua is also being used in some of the libraries such as National Library, Kolkata; Jawaharlal Nehru Univeristy, New Delhi; Central Institute of Indian Languages, Mysore; etc.

The three packages are integrated with several modules. For the present study, only the cataloguing module has been studied.

Methodology

The Department of Library and Information Science, Aligarh Muslim University (AMU) has licensed copies of Libsys and Alice for Windows. One of the authors had received training on Virtua Software in VTLIS Headquarters at Blacksburg (USA). The cataloguing modules in particular of the three softwares were studied and analysed by the authors.

Alice for Windows (AfW)

Alice for windows (AfW), an integrated library automation software package is the product of Softlink, a Brisbane based Australian company. Since its inception in 1983 in Brisbane and as Softlink Asia (New Delhi) in 1996, Softlink has grown steadily and is now considered as one of the leading suppliers of library automation software with over 13000 installations world wide, including about 150 in India, making it only second to Libsys⁵.

AfW has the following modules:

- a) Acquisition
- b) Management
- c) Circulation
- d) Periodicals
- e) Journal Indexing
- f) Multimedia
- g) Subject Authority
- h) Web enquiry
- i) Book hire
- j) Multilingual
- k) Patron self checking

Cataloguing in AfW

Apart from the above, the software has a number of function-specific sub-modules such as Union Catalogue, Inter Library Loan, and Library Services, etc.

Cataloguing is covered under the Management module. The information to be recorded for the purpose of Cataloguing of a resource includes-

Title, author, edition details, publication details, collation, general material description (GMD), ISBN, keywords, notes (unlimited length), series, subjects, multimedia (images, video, sound, slide shows), topics, suitability levels, country of origin, call number, barcode accession number, loan category, accession date, supplier, price, budget and department.

It is worth mentioning here that out of the above fields, GMD, barcode, accession date and loan category fields are mandatory to be recorded to navigate further. The class number field of a catalogue entry may make use of any of the two classification systems, i.e. Dewey Decimal Classification (DDC) or Library of Congress (LC) classification scheme. Notably, Alice supports USMARC format.

Entering the title of any resource triggers automatic duplicate-checking that brings the closest match, provided the title is not present in the database. AfW caters for cataloguing multiple copies of individual titles which may be shelved at one or multiple locations. A wide variety of materials may be catalogued including video recordings, sound recordings, bits maps, equipment, World Wide Web sites, electronic documents, etc.

AfW facilitates automatic generation of keywords for every significant word in the title and edition fields, if desired. The facility for creation of keywords manually also exists which can be used particularly when title is misleading or ambiguous.

Authority files are maintained for all the authors, publishers, subject headings, series, suppliers, departments, GMD and location. System facilitates to append full name from the appropriate authority files with simply typing the first few letters. There are no limits on the number of subjects, keywords, series that may be added in a record. Significantly, a fast track input approach is also provided for a skeleton entry to be registered in the library.

Images such as photographs, diagrams, maps and text can also be attached to catalogue records for display in enquiry (OPAC). *See* and *See also* references may be

added into the subject authority file. It is also possible to automatically generate *See* references from any multiple-word subject heading. For example, when the subject heading "Medieval History" is created, the cross reference History-Medieval will be created automatically. This means that resources with this subject heading will be retrieved via the word, 'Medieval' as well as 'History'. Provision of 'Stop word list' helps in defining which words to ignore while automatically generating keywords from title, notes and edition. The stop list is updated as and when required

The software also provides for advanced facilities for data import from CD-ROM, other library software packages, locally developed databases, bibliographic information providers, bookseller databases or any source of MARC records as well as for printing catalogues of printed catalogues such as Subject, Author, Title, Series and other reports.

Libsys

Libsys is the most popular library software in India having more than 1000 installations in different types of libraries. It has a contract with the British Council Divisions of South Asia, to provide automation and related services for its libraries.

Libsys is an integrated library management software developed in C and C++. Although the software is based on its own bibliographic database, it is available for systems using ORACLE and SQL Server as back-end RDBMS. Libsys provides full graphic user interface front end for the Windows client. It runs on a wide spectrum of hardware and operating systems, including UNIX, Linux, and Windows NT Operating System on the server side and having any version of Windows at the client side. Thus in choosing operating platform, users find greater flexibility in comparison to other softwares.

Libsys is built around its own centralized bibliographic database based on MARC format supporting various types of materials in print as well as non-print form. The cataloguing data entry also accepts data in standard machine readable formats such as USMARC, OCLC etc., thus facilitating import and export of bibliographic data in both MARC and non-MARC formats.

Catalogue maintenance utility allows changes in any bibliographic data including data removal facility.

Moreover, Libsys software also provides title entry for retrospective conversion following simple procure.

The various modules of Libsys are as follows:

- a) Acquisition
- b) Cataloguing
- c) Circulation
- d) Serial control
- e) Article Indexing
- f) Online Public Access Catalogue (OPAC)

Cataloguing of documents in Libsys

Cataloguing module of Libsys has many unique features such as- maintenance of 'in-process title'; production of catalogue by importing bibliographic data from elsewhere; facilitating the cataloguing of various user defined types of materials; updating of cataloguing details for the titles entered in 'Acquisition module', thereby avoiding the reentering of the bibliographic information; allowing modifications of bibliographic data as and when required; enabling resource sharing in networked environment through Z.39.50 protocol; maintenance of authority files; holding updates; generation of holding summary with regard to the titles and accession number to assess strength and weakness of the collection; generation of catalogue cards as per AACR-II and Classified Catalogue Code (CCC).

In contrast to AfW, Libsys can generate a list of recent arrivals, special bibliographies for the purpose of providing current awareness service (CAS) and selective dissemination of information (SDI). Another feature of Libsys is its ability to construct an inbuilt thesaurus for the benefit of users as well as library staff.

Virtua

Virginia-Tech Library System (VTLS) Inc specializes in library automation and information management solutions with corporate office located at Blacksburg (Virginia), USA and having offices in many countries including India. VTLS is the first library automation vendor that has received ISO certification in 1997. VTLS Inc has developed an integrated library systems known as 'Virtua' with more than one thousands libraries as its user covering thirty five countries of the globe.

Virtua Library Software package is a Windows based Client/Server application. The Virtua software is based on six key technologies: Relational Database

Management Systems, Rapid Development Tools, Three tier Client/Server Architecture, Database Warehousing, Unicode support and ATM Network optimized applications. These technologies facilitate handling data management, software development and network delivery

Support of Unicode, Multilingual dialogue, access to external tools such as OCLC, RLIN, unique data entry templates, adherence to a variety of international MARC formats are special features of the cataloguing module of Virtua.

The various modules of Virtua are as follows:

- a) Acquisitions and fund accounting
- b) Cataloguing
- c) Circulation
- d) Serials control
- e) OPAC
- f) Statistics and reporting
- g) Chameleon Gateway

Cataloguing of documents in Virtua

Cataloguing module of Virtua is equipped with seamless access to tools and resources from a unified set of screens. Cataloguers can directly access external copy cataloguing data from within the Virtua software. Interfaces are available for a variety of sources such as online bibliographic utilities and CD ROMs including Bibliofile, OCLC, RLIN etc. Moreover, electronic versions of cataloguing rules and authorities such as Library of Congress (LC)'s Cataloger's Desktop can be searched directly without coming out from the software.

Virtua supports all formats, character sets, and classification schemes. The system can accommodate all MARC21 bibliographic formats for Serials, Music, Maps, Mixed materials, books, electronic files etc. Furthermore, Virtua accommodates different versions of the MARC standard such as USMARC, UKMARC, CANMARC, SWEMARC etc. The software is compatible to the MARC21 formats for authority Data, Community Information and Holdings Data.

More than 3,000 rules have been written for the purpose of validation of cataloguing copy. These rules ensure the validation of content designation for any type of

record stored in MARC format. The software also takes care of import/export of MARC record.

Virtua's cataloguing system is compatible with the character repertoire of the Unicode™ standard. The Unicode standard supports hundreds of characters while the keyboard can be used for a single language. To facilitate the editing of records having words and characters from many languages, Virtua allows for switching of keyboards. It also facilitates entry of the Arabic, Persian, Hebrew, and Urdu (these languages are written from left to right) records persevering their original scripts. Significantly these records can be viewed by the users in OPAC in the natural scripts.

In addition to these features, the cataloguing module is fully integrated with other modules of the software. Through the 856 MARC fields it supports Multimedia files. Facilities for maintenance of authority files report generation comprising a range of reports is also provided in Virtua.

The full MARC editor provides wrap around text editing capabilities, variable size edit boxes, and a special display for bib-level and type fields. MARC editor supports present work forms that contain fixed data, amenable for editing as and when required. There is no restriction on the number of workforms and hence different original cataloguing workforms can be generated for various record types and materials formats simultaneously. Significantly these work forms can also be designed for specialized needs, such as monographic series, metadata (like Dublin Core) and institutional publications. Multiple workforms can be kept open simultaneously enabling utilization of 'cut and paste' facility between records.

The fixed field editor allows a formatted display of fixed field elements that can be individually edited. The layout and display in the field editor changes with each record format. The labeled editor maps the MARC record into user defined form where each tag and sub field can have a separate label. This helps a novice user in easy handling of MARC format.

Analysis

Libsys supports a wide range of operating systems such as UNIX, Linux, Windows NT or NOVELL Server

Table 1– Selected cataloguing features in AfW, Libsys and Virtua

S.No.	Features	AfW	Libsys	Virtua
1	Operating System	Windows	Windows NT, UNIX, Linux, NOVELL	UNIX, Linux
2	RDBMS	None	Oracle or SQL Server	Oracle
3	Restriction in the number of database/ records in a database	No	No	No
4	Direct data access from external sources	Yes	Yes	Yes
5	Availability of multiple work forms to facilitates 'cut and paste' between records	No	No	Yes
6	Option for different MARC formats	No	Yes	Yes
7	Automatic creation of keywords generation	Yes	No	No
8	Library Map facility	Yes	No	No
9	Facility of multimedia files	Yes	Yes	Yes
10	Support for Classified Catalogue Code (CCC)	No	Yes	No
11	SDI facility	No	Yes	Yes
12	Does software support UNICODE standards	No	Yes	Yes

having any version of Windows at Client side. In contrast, Virtua could be installed only on Linux or UNIX server with Windows clients whereas AfW can be run on the server with Windows NT platform. Virtua compulsorily requires Oracle RDBMS at the back-end. However, in Libsys, ORACLE or any other RDBMS is optional depending upon the user's choice. No RDBMS is required for AfW as it runs on its own database.

The key concept behind cataloguing today is access to internal tools and resources. Hence facilities are available for data import from CD-ROM, though in varied capacity in all the three software under study. This facility is available in AfW through Rapid Retrospective module which facilitates data import from CD-ROM, other library software packages, home grown databases, bibliographic information provider, bookseller databases or any source of MARC records. Libsys provides data import/export possible in both standard exchange formats (MARC) and non-standards format (ASCII text file). In Virtua, cataloguers can

directly access external copy cataloguing data from within the Virtua source, such as Online Bibliographic utilities and CDROMS including Bibliofile, OCLC, RLIN, WLN etc. Electronic version of cataloguing rules and authorities, such as LC's Cataloguer's Desktop can be searched directly without coming out from Virtua.

The multimedia module of AfW allows images, slide shows, video clips and sound files that have been attached to catalogue record to be accessed from inquiry by clicking on the relevant button. In Virtua too, access to sound, text and graphic image and video files, as well as Internet sites of all types (web pages, gopher serves, FTP services, etc.) is possible for the users. Though images and multimedia files of a document are integrated with Libsys Search engine. However, facility to display library Map is only available in Alice for Windows, which saves time, energy and other resources. Automatic creation of keyword for every significant word in the title, notes and some other fields makes AfW unique in comparison to the other two software under study for

the same facility. While Virtua is the first library automation software that fully supports UNICODE Standard the most important aspect of the Virtua is that all data in all records is stored in its encoding Schema. In a nutshell, Virtua supports Unicode which facilitates to add new languages and records to the catalogues in any script that is supported by UNICODE. This feature of Virtua makes it as one of the most popularly used software around the world as it allows entry in the native script of the language. Lack of this facility in Libsys and AfW, adversely affects their usability in different countries having different languages. Libsys with its Indian origin is compatible with Classified Catalogue Code (CCC). It however, remains to be seen how many libraries in India are still adopting CCC that does not fulfill the requirements of modern day librarianship.

Conclusion

The study of the three software packages namely Alice for Windows, Libsys and Virtua reveals that each package has got its own capabilities and limitations. If AfW has a unique feature of tracing a document at a particular location in the library (Map facility), Virtua

supports Unicode Standards. This facility makes Virtua to deal with the library collection in many different languages especially oriental one. While AfW and Virtua run on selected platforms, Libsys has got its uniqueness to run on any platforms which makes Libsys one of the most popular Indian library software. The powerful data entry facility in Libsys provides option to import data in MARC and non-MARC formats from established bibliographic databases. Cataloguing module of Libsys also includes Catalogue production, Catalogue maintenance, Catalogue cards generation, Thesaurus Construction, Authority files, etc

It however remains the decision of the individual library to select software that serves its requirements in the best way.

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