Library Automation: An overview

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Abstract:
The library application software, integrating all the activities and routines of the library is essential software for the libraries. There are many integrated library management packages available in the market suiting to the needs as well as budgets. In this article I have discuss an overview of library automation, its concept, objectives of library automation, need of automation and some software packages.

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1. Introduction

A process of great change has been taking place today in libraries due the impact of information technology and application of computers in library work. We hear a lot about library automation in libraries and library automation is nothing but application of machines viz. computers to the routine library housekeeping operations such as acquisition, serial control cataloguing and circulation. In India, some libraries and information centers made efforts to 'automate' their library routines and information services in 1960s with punch card and with a couple of second generation general computers that were available at Kanpur and Bombay. INSDOC was the leader in experimenting with computers for their application in documentation and information work in 1964. Initially they made use of the IBM 1620 Model I that was available at IIT Kanpur. The first attempt was with work on data collected for union catalogue of scientific serial. (Raizada, 1965).

Haravu carried out an experiment with IBM 1620 in computerized data retrieval as part of this course in documentation and reprography, conducted by INSDOC, with the cooperation of Raizada who initiated computerization in INSDOC. The objective of his experiment was to find out the suitability of IBM 1620 computer for storage and retrieval of data. The program for this experiment was written in FORTRAN 11 D language. The programming done in this experiment may be considered under three heads: For storage of data, Retrieval of data and Presenting the data in an intelligible form. The data on the code sheets was key punched and verified. (Haravu & Raizada, 1967).

The next experiment carried out at INSDOC in computerization was on preparing author and subject indexes to Indian Science Abstracts. In 1969, an attempt was made to develop a complete and integrated program deck to process union catalogue for Mysore (now Karnataka) using the computer facility at Delhi School of Economics. It is said that the computer system posed certain problems for this data file, through finally the main part with indexes was produced. To overcome the problem of on-line storage limitations, the INSDOC completely redesigned the work to suit the IBM 360/44 computer at the Delhi University computer centre. (Murty & Arora, 1974).

Harold Borko of the system Development Corporation Santa Monica California submitted a paper on 'Experimental Studies in Automated Document Classification' wherein he presented his studies in the use of Factor Analysis- a mathematical technique for deriving classification categories for a set of documents. In an automated classification, the class membership is determined on the basis of the words contained in the documents and the documents can be ordered into classes on the basis of similarities or differences in vocabulary. He had investigated the application of factor analysis to these problems of document classification. He concluded that the techniques of automated document classification can be used to organize specialized document collections. (Harold, 1966).

Dr. H.P. Luhn had organized computerized indexes in 1950s. Computers entered and found some place in American libraries during this decade. However their use and application was very limited and restricted due to the high cost of hardware and non-availability of application software packages. During 1960s the cost of hardware was slashed down and appreciable attempts were made towards development of library application packages. This led to increased use of computers in libraries and printing industries. In April 1960 the American Chemical Society published its 'Chemical Titles' through computers. In this direction was seen in MARC I. In the year 1963 W.K. Gilbert prepared a report on computerization of Library of Congress. On the basis of this report of MARC I project was started in 1966, and the work of bringing out of the Library of Congress Catalog in Machine Readable Catalog (MARC) form was started and completed. Now-a-days computers have become almost essential components of library work in developing countries.

The Indian Statistical Institute, Calcutta was first in India to install a computer system in 1955, and to develop an indigenous computer in 1964. In India computers were used in library work for the first time possibly by INSDOC when they computerized the author and subject indexes of 'Indian Science Abstract' in 1965. In 1967 the INSDOC brought out the 'Roster of Indian Scientific and Technical Translators' with the help of computers. In 1978 INSDOC initiated SDI service as a NISSAT project with Chemical Abstracts and INSPEC data-bases, with the use of CAN/SDI software of IIT, Madras. In 1970s many libraries ventured in preparing computerized databases. Through the initiative and financial support of NISSAT many library networks were initiated and are operative.

The real boost in library automation came from the establishment of INFLIBNET, Before INFLIBNET; scattered efforts were being made in academic libraries especially in institution of special characters like IITS, IIMS etc. INFLIBNET proved a real catalyst by providing finance and laying standards. (Singh, 2003).

2. Meaning of Library Automation
The word "automation" has been derived from Greek word "automose" means something, which has power of spontaneous motion or self-movement. The term "automation" was first introduced by D.S. Harder in 1936, who was then with General Motor Company in the U.S. He used the term automation to mean automatic handling of parts between progressive production processes. Library automation, stated in single term, is the application of computers and utilization of computer based product and services in the performance of different library operations and functions in provision of various services and production of output products.

There is a great impact of computers and information technology and its application on the libraries due to which a process of great change is taking place in libraries. Modern technology is tending to alter radically the nature of our society and affect the prevailing economic, political and social values and libraries are also in the process. Industrialized countries were the first to realize that in the context of

stock of knowledge, classical approaches relating to storage, retrieval and utilization of the information were no longer adequate and effective and that the solution lay in making fullest use of new developments in electronics, computer, telecommunications and micro-recording etc.

Our country is very much behind in computer application in library operations and services. The reasons could be many; however, the situation is changing fast. Conditions are turning to be favorable and also the government is laying great emphasis on modernization, which covers libraries as well. Above all library professionals are getting motivated and showing keenness to get trained to take up computer based work. (Harinarayana, 1991).

Library automation implies a high degree of mechanization of various routine and repetitive tasks to be performed by human beings. With the advent of automation, the human intervention is reduced to a great extent. The appearance of computer has greatly increased the library automation. In addition to computer advancement, telecommunication and audio-visual technologies gave way to new possibilities in information handling In India; the use of computers is limited to only some specialized libraries unlike the case of developed countries. Library automation includes use of computers and other semi-automatic devices like punched cards to reprography. These are semi-automatic because human intervention is greater in extent. So, when we talk of library automation, these days, it is principally the use of computers; associated peripheral media (magnetic tapes, disks, optical media, etc); computer based products and services in library work.

3. Definition of Library Automation

(1) Library automation may be defined as the application of automatic and semiautomatic data processing machines (computers) to perform traditional library housekeeping activities such as acquisition, circulation, cataloguing and reference and serials control. Today "Library Automation" is by far the most commonly used terms to describe the mechanization of library activities using the computer. (Uddin, 2009).

(2) "Library Automation is the use of automatic and semiautomatic data processing machines to perform such traditional library activities as acquisitions, cataloguing, and circulation. These activities are not necessarily performed in traditional ways, the activities themselves are those traditionally associated with libraries; library automation may thus be distinguished from related fields such as information retrieval fields such as information retrieval, automatic indexing and abstracting and automatic textual analysis" (Kent, 1977).

4. Objectives of Library Automation

There are some important objectives of library automation are below:
1. To maintain bibliographical records of all the materials, in a computerized form.
2. To provide bibliographical details through a single enumerative access point of holdings of a library.
3. To reduce the repetition in the technical processes of housekeeping operations. 4 To provide access to information at a faster rate.
4. To share the resources through library networking.
5. To implement new IT processes to provide high quality information.

5. Need for Library Automation

Need of computers is present in all areas depending upon its usage. They range from acquisition control, serial control, and cataloguing and circulation control. They are also used for library manager's evaluation of reports, statistics, etc. For the good administration of the library computers are used in all

levels of work. Above all, the unique characteristics of computer made it the right choice for the library world. Computers right from the beginning are considered to aid man, in doing various operations.

(A) Computers help in the following are.
1. Capacity to handle any amount of data and information.
2. Participating in network programmers and resource sharing.
3. Flexibility in information search.
4. Standardization of library procedures.
5. Speedy processing of information and its retrieval.
6. Provide better bibliographic control at local/regional/national and international level.
7. Facilitate interdisciplinary nature of research and information.
8. Economic implication of latest information technology.
9. Overcome geographical and other barriers to communication.

(B) The library services, products and increase its awareness to promote the use of libraries:
1. Avoid retyping if we want to include or delete any matter, thus saving time and energy.
2. Retrieve much more precise and accurate information in less time as compared to manual search.
3. Get printed list of a specific subject within a few minutes.
4. Heavy bulk of data can be stored in the computer and thus certain problems, which arise with storing records in wooden cabinet, are avoided. (Jain,1987).

Due to these advantages of a computer, computer became a universally accepted tool to provide assistance to man in all fields. In the field of Library Science, the need for making use of computers i.e. library automation was felt due to the following reasons:

(i) **Traditional methods for handling information are inadequate:**
This age is termed as the 'information age' because large amount of information is being generated every moment. This information which is generated is stored and retrieved in a library which is used by the users. In the libraries, there are various methods of handling of information like providing reference service, cataloguing etc. due to the information explosion, these traditional methods of handling information have become inadequate and hence automation is necessary.

(ii) **Difficult to update information due to voluminous increase and rise in degree of specialization:**
Due to increase in research activities, and interdisciplinary specialization in different fields, there is the result of information explosion and due to this it becomes very difficult for the libraries and information centers to update the information. Hence library automation is necessary.

(iii)**Techniques are suggested for applying the computers with its advantage of speed, vast storage capacity and accuracy in library work:**
These three, viz. speed, storage and accuracy are some of the characteristics of a computer, which permits humans to rely on computers in dong certain operations.

(iv)**Need for co-operation and resource sharing:**
No library in this world is self-sufficient and therefore to satisfy its users' demands, the concept of resource sharing comes into existence. In resource sharing the resources of one library are lent to another library for a stipulated period of time. So, library automation helps to promote resource sharing by saving a lot of time and effort of library staff as well as the users.

(v) **Operational advantages of computer are:**
(Dhiman, 2003) has given the following operational advantages of computers are.
1. Offers flexibility.
2. Speed up processing.
3. Greater accuracy, efficiency, consistency and improved work control.

4. Reduce repetitive clerical work.
5. Permit bibliographic control, checking and updating.
6. Inability of users to explore unlimited literature and information of interest.
7. Wastage of lot of precious time in handling routine and repetitive library operations.
8. To introduce and provide new services revitalize the existing services by providing faster access to the resources.
9. Retrieval of information and dissemination of information in user defined format becomes easy.

6. Library Automation Softwares

There are so many automation software available in market. The term software refers to a set of computer programmes, procedures, and associated documents (flow charts, manuals, etc.) that describe the programme and how they are to be used. To be precise, software is a collection of programmes to enhance the working capabilities of the hardware. Software is a set of programmes written or developed to enable the computer to do desired operations. (Pandey, 1995).It is one of the most important components which should be taken notice of, while automation. Today, a number of application software are available in the market manufactured by different companies of India and abroad with distinct feature and hence while selecting software. Mahapatra & Ramesh (2004) has given the following table provides a list of different software's packages used for automation and the name of their manufacturing companies.

7. Name of the Software and Manufacturer

Sr.	Name of the Software	Manufacturer	Place
1	ARCHIVES	MIFIFAX Electronics Ltd.	Mumbai
2	CDS/ISIS	UNESCO	Paris
3	DELSIS	Libsys Corporation	New Delhi
4	GRANTHALAYA	NISCAIR	New Delhi
5	LIBMAN	Datapro Consultancy Service	Pune
6	LIBRIS	Frontier.I.T. Pvt. Ltd.	Hyderabad
7	LIBSUITE	Softaid Computer Pvt. Ltd.	Pune
8	LIBSYS	Libsys Corporation	New Delhi
9	MAITRAYEE	CMC Ltd.	Kolkata
10	NEWGENLIB	Kesavan Institute of Information and Knowledge Management	Hyderabad
11	MINISIS	International Development Research Centre	Canada
12	OASIS for DOS	Softlink Pvt.	Australia
13	SANJAY	DESIDOC	New Delhi
14	SLIM	ALGORYTHMS Co.	Pune
15	SOUL	INFLIBNET	Ahmedabad
16	TULIP	Tata Unisys	Noida
17	WILISYS	WIPRO India	Bangalore

In India now a day there is good scope for library automation but till we have not create healthy environment for it. Today old generation is still not accepting library automation because of their

ignorance of IT knowledge. But we haven't ignore very long library automation because of automation also facilitates generation of a number of reports for better decision making in the effective management of the library. Availability of various statistical and other usage reports and performance reports will ensure better appreciation from library users. For example, vendor performance analysis is possible. Subject-wise or project department-wise budget can be monitored. Circulation data can provide information on titles that are in great demand so that more copies can be procured if needed. Many current awareness services like current additions, contents of books and journals, etc can also be provided to users. So, it is a time to awaking and accept the presence of It sector and automated library concept. UGC have done good efforts about it in academic libraries.

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