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4.1 INTRODUCTION:

Library is the storage facility of information through in books and other computerized materials. Human learning can be recorded and protected in distinctive media, as in palm takes off. A few years back records composed or imprinted in paper were considered as the best medium. In any case, with the advancement of science and innovation in this current day’s computerized media have been broadly utilized for safeguarding of information as a part of the libraries of any sort whether it might be open, academic or unique library. Subsequent to the start of old civilization individuals have been putting accentuation on putting away of data in diverse routines. Thusly, we watched that libraries in ancient times were not care for those of the now-a-days.

In ancient period the gathering of the conventional libraries are for the most part print media, original copies, dairies, and books are not all around composed. The archives are breaking down at the fast rate, the gathered the data is difficult to find and put away. Such data does not achieve the user of the libraries on time. The greater part of the data are saved in unique penmanship styles. For this situation the data is distributed after numerous years. When it is distributed, the data gets to be old and lost its legitimacy. Be that as it may, step by step libraries are creating alongside human civilization. The crisis of social, economic, educational and cultural change requires the improvement of various types of libraries.

The cutting edge academic library frameworks and administrations has been no more reliant just on customary frameworks and moved on PC frameworks. Human creatures made PC is use as tooling of library housekeeping works and benefits. Today the requests of academic library users are not fulfilled by the printed archives
just but rather their required electronic duplicate too. By in 2005 'Users of academic libraries usual with utilization of PC and surfing Internet get their required data from the site'. So the academic libraries need to ventured with electronic environment so user's requests might be fulfilled.

**Emergency of Academic Library Automation**

From the old days of hollow life to the present cutting edge society, information is having exponentially proceeded with multidimensional element development. The fundamental goal of the academic library is to give right record to the right user of the library at the correct time. The expanding interest for information, academic libraries is implied for accumulation, recovered and scattering of information, through library administrations. The volume of productions will keep on developing which makes issues for determination, obtaining, association and administrations in academic libraries. Then again, it is crucial to satisfy the necessities of the collecting so as to instruct learning group, arranging, recovering and scattering the information through the production of bibliographic database of the academic libraries.

Lack of the Fund in spending plan makes snag to the academic libraries to gather all the library materials on a specific subjects as well as every one of the subjects. The fundamental prerequisite in the present times of academic libraries ought to be adaptable in nature and obliges every one of the offices of library administrations for the advancement of libraries and PC can assume the critical part to give these administrations. Routine idea of library is a spot where books, compositions musical scores or other scholarly and imaginative materials are put away for use not available to be purchased.

Man is just animals on the earth, which has capacity to recollect and examine occasions in the past and to make contentions that permit us to record our insight or experience and thoughts in unendingness. It can be recouped and comprehended and even be re-connected to the descendants.
Man can impart crosswise over time and space and built up specific frameworks and gadgets that empower us to do as such. These improvements expressed occurring even in the beginning of civilization, with the development of dialect and later creation of the early frameworks for recording and protection of dialect in a reasonable material structure.

The main intentionally made records, maybe, are the representations of day by day life, which have been found in different holes. The most punctual histories of 'composing structure' were non-alphabetic and got from the act of picture-drawing. The move from absolutely pictorial stems or pictographs to an arrangement of mix of both pictographs and characters for more conceptual ideas occurred autonomously in China and Egypt.

Be that as it may, it is entirely clear that in this stage information and human correspondence were held for the rich and intense men. The second stage is the historical backdrop of mechanical procedure, known as 'printing'. It was concocted and connected for dispersal of information which was in this manner recorded. Mishra in 2005 expressed that “The Invention” of printing can be portrayed as a huge snippet of society, religion and governmental issues and correspondence co modified and the printed book is considered as the first mass medium of correspondence of information and learning".

This stage is dismissed following a century long conflict and impact and moved crosswise over different social orders, where technology was pushed to another level with the staggering progression of electromechanical machines and formation of plants and processes by between associating arrangement of apparatus under a solitary rooftop.

Information has been perceived as critical assets for the advancement of showing learning group. Thus, full abuse of each wellspring of information can be made
available to the potential users whose number is expanding quickly. The power of the academic library reexamines the way and intends to misuse the wellspring of information completely.

An academic library needs to assemble a solid gathering as physical, electronic and advanced gadgets to serve the learning and information of its individuals. From the initiation of the library, it’s essential capacities comprises of specialized preparing, serial control and reference administrations and every one of these capacities and administrations were performed physically. These fundamental exercises were performed by the customary modes are tedious and a percentage of the occupations are dull in nature.

Bhowmik, in 2005 demonstrated that, information is the imperative variables for improvement of the general public and it requires to gathering, game plan and dispersal when it is required by the user. Presently different offices and associations are safeguarding information to satisfy the enthusiasm of their establishments. In 2007, as indicated by Das, 'Blast of information is a testing work for present day libraries and curators. They need to chooses the important information for their users from the recently produced information. In such manner by utilization of Information and Communication Technology will help the libraries and curators to adapt to the circumstance and rendered nature of administrations to its users'.

A midst the twentieth century, curators were confronted with the more prominent test when the improvement of science and technology and different subjects in the academic fields got to be colossal and training was spread to the all group of the World and utilization of information was quickly expanding.

Administrators and library organization were searching for presenting new technology which will help them to address the issues of the user's group in suitable behavior. For this, PC was acquainted with library to perform library works and benefits in the better ways.
4.2 ORIGIN & GROWTH OF COMPUTER APPLICATION IN LIBRARY.

The advancement of ICT has influenced library as a crucial apparatus to create library exercises and expanded requirements for information. At the one hand libraries confronting lack of asset and other hand expanding interest of the library users. The academic library in this condition is to keep up right harmony between expanded interest for information assets, benefits and constrained accounts. The library is the bleeding edge to receiving new advancements, for example, PC. Library automation speaks to the stride towards this heading for improvement of library operations and administrations.

Thapa demonstrated that in 2005, the endeavor towards library computerization was made by INSDOC in 1969 and by DRTC amid 1960s . In 1980s a walk towards library computerization was begun in India and the essential variables created amid the late 1990s are information Networked. Exceptional library have been mechanized their library benefits first and different libraries thusly joined in this walk of robotization. There were a few endeavors have been done to utilize PC in libraries as semi-mechanized systems, for example, punch card paper tape, and so forth to the present days. The historical backdrop of library robotization is worry with equipment and programming. The advancement of equipment is checked by "era" and programming is 'automation age'. The product improvement can amass into four periods.

1) The first time is described by the utilization of PC in library operations either business library bundle or created in house. This time implies by duplicate listing and correspondence technology for coordinated effort and collaboration inside of the library group.

2) The second time is touched base at the phase of community. i.e. OPAC which supplant the card inventory and online access of
indexing and abstracting database, union lists, asset sharing Network and library consortia;

3) This period connotes by full content access to electronic archive with the coming of Internet as a worldwide distributed stage; and

4) This period known as Networked information transformation and support by advanced substance administrations through the Network.

The computerization is not a long one and it goes back to the 1950s and 1960s in America and Europe. Most recent headways in the field of information technology have constrained libraries to hold onto computerization as the offices gave via robotized libraries go to past the exercises of customary libraries. In created nations computerization of libraries began in 1940s. Twice as of late bookkeepers, joined by personnel and college/school organizations, have assembled, to consider advancements in interchanges and processing technology and their consequences for the insightful undertaking. The initially meeting was held at Conoco's Purple Sage Ranch in Bandera, Texas, in November 1985 under the support of the Research Libraries Group. The second supported by OCLC at the Johnson Foundation's Wingspread Conference Center in Racine, Wisconsin. These social affairs showed a promise to "Make an institutional ability to rehash the college and schools in the electronic age". For a long time learning has been conveyed and put away generally through the utilization of printed archives. This technology is quickly being supplemented and supplanted by one that is computerized and electronic. The force of the new media and the failings of the old framework are driving insightful organizations toward change. However for a long time the library has been the essential instructing apparatus outside of the classroom, and with the exception of personnel, custodians have been the main school staff of help expansive quantities of understudies in the academic procedure. The utilization of different advancements will require new aptitudes and will include other staff in academic exercises outside the classroom.
In India the first utilization of PCs in library and information focuses was accounted for in 1965 at INSDOC, now known as National Institute of Science correspondence, and Information Resources (NISCAIR) New Delhi. INSDOC at first modernized the creator and subject lists of Indian Science Abstracts and in 1967 brought out, 'List of Indian Scientific and Technical Translators' utilizing processes. Later on a few Indian libraries especially those joined to investigative and mechanical exploration associations utilized centralized computer PCs of their guardian bodies in 1970s. The 1980s saw a slow increment in the utilization of PCs in library operations.

PC uses of the library accumulated energy in 1990s driven by the strongly rises the costs of equipment, expanding accessibility of library programming bundles furthermore regularly expanding eagerness with respect to library expert to grasp information technology alongside different variables.

The term 'Information Technology' covers all exercises and advances which include the treatment of information by electronic technology and it is utilizations for information securing capacity, recovery, preparing, transmission and control. It is otherwise called 'electronic technology' used to gathering, putting away, handling, conveying information for the most part by PC based information administration frameworks. It is the mix of four key components and these four components are, for example,

I. Hardware;

II. Software;

III. Manpower; and

IV. Networks.
The 'modernized techniques' for information administration frameworks pulled in the consideration of curators, information researchers alongside the other related experts. The library systemized by manual routines will have the extension to modernize initial three variables referred to above. It additionally specified here that the field, information administration, including individuals who create, use oversee and examine information framework in association. PCs are the center part of the information administration arrangement of the library and information focuses. The advancement of Information Communication Technology is influences the library frameworks and this technology require as an instrument with the end goal of improvement and update operations and administrations.

A PC capacities with the assistance of physical segments and circuits and this known as "equipment" and equipped for performing distinctive operations with the assistance of developers, is called "programming"

Library computerization is currently picking up significance and need to build up of calling wide models. Complete investigations of library PC framework world over of machine oversaw procurement, recording, serial control, flow and bibliographic administrations module. The significant parts of PC's part in library environment should be highlighted.

An all around planned automated library framework can perform present day libraries exercises. The information of taking care of ICT and web association academic libraries likewise renders advanced library administrations to its users. Web helps library staff to get to the recently produced information from the site for its users. Administrator can download or transfer required information through web association.

PC can perform numerous occupations, as coveted by the library users, for example, to make database, serial control, course, information recovery and administrative operations and disposes of dreary works. Presently processes have moved into the zone of library and information exercises.
The improvement of science and technology conceived an offspring of PC and it demonstrates the best electronic gadget among all innovations. The PC is an exceptional of machine that can perform numerous occupations and capacities according to the requirements of library and its users.

Agreeing of Yadav & Nigam in 2007, the utilization of PC in libraries expanded because of its proficiency to perform work rapidly and adequacy in operations and administrations. PC additionally gives wide capacity limit in a short space. The improvement of ICT empowers the libraries not just to offer to its users for its proper information accessible inside of the libraries, additionally access indexes of others libraries, both neighborhood and outstations.

Library automation in India has begun in the late 1970s in 'extraordinary libraries' and now it has come to all the college libraries and some college libraries in India. It is the obligations with respect to academic libraries and custodians to give most recent information in correct time. These administrations can't be rendered without having a proficient administrator, PC, network of net and information framework inside of the library at its charges.

Information technology has acquired an extraordinary change the library association. For better administration and created library administrations, it ought to introduce instantly and must use every one of its gadgets which were effectively accessible in the business sector. The utilization of information technology implies PC, programming, machine-intelligible information and correspondence in libraries.

The robotization helps in expanding productivity in administrations gave by the academic library and figures or information base frameworks can make any system for library housekeeping work and benefits and the custodian of academic library must be adjusted with the bookkeeper's staff and benefits rendered to figure out how to render regarding courses taught and examine embraced by its individuals. Genuine
administrator needs to assume the part as pioneer to rouse her staff. Academic library
automation alludes to utilization of PCs, and its related contraptions. The utilization of
PCs required because of development of information and learning, the space is
contracting, access of library materials has changed, the cost of library materials are
expansions and the diminishing of library spending plan and moved towards the
execution of new technology. The endeavors were made to modernized the library
housekeeping work to start with of 1980s.

So that library robotization frameworks are intricately composed and
actualized with the utilizations of PCs and it requires the PC programming ability and
practical information library staff who can execute and run the necessities based
library operations and administrations. It could be said that library automation was in
its early stages amid the period somewhere around 1954 and 1970. The soonest
utilization of PC ventures of subject records utilizing of uniterms and listing in the
MARC design and library housekeeping operations are begins in USA and took after
by the computerization of course control frameworks in the same period.

The current circumstance of academic libraries is not in a position to cover
every single conceivable capacity by the manual frameworks inside of the library
hours. The requirement for academic library 'automation felt as a result of the work
heap of library, snappy and expedient library benefits and avant-garde the database
and clear pending works. Notwithstanding that for housekeeping handle, a 'well plan
PC framework' can render numerous more administrations in the field of information
recovery, indexing, and recording of library databases.

To take points of interest of "ICT" in academic libraries, for the most part
College and College libraries need to receive 'PC for housekeeping work and benefits.
Computerization of and their systems administration picked up force amid 1980 in
our nation. The principal utilization of in libraries was finished by 'Exceptional
Libraries' in India and College joined the fight late, when the College Grant
Commission of India (UGC) setup INFLIBNET.
4.3 LIBRARY AUTOMATION: CONCEPT

The present stage with every single fast improvement in Computers and Telecommunication Technologies and the systems administration force of Internet, Intranets is by all accounts a time of quick change - an outlook change for experts and information focuses. This can be seen as a start of another age for the calling where information experts are at a crossing point of applying Information Science to Information Communication Technology. Truly LIS calling is confronting numerous difficulties. The unassuming headways are occurring each day in the field of Information and Communication Technology (ICT ) Information frames the focal, imaginative and strong piece of business, government and instruction. As the librarianship moves relentlessly from print to computerized media, it has gotten to be important to create methods and components that encourage users to successfully and proficiently find significant electronic information assets for the reasons of choice making, critical thinking, learning and examine.

One of the significant improvements in Libraries and Information Systems in the previous two decades is the coming and spread of electronic information assets (EIRs), benefits and arranges essentially as an aftereffect of advancements in Information and Communication Technologies (ICT). The change is essentially of physical structure where information substance is progressively being caught, prepared, put away and dispersed in electronic structure. The usually accessible EIRs, viz. Disc ROMs, online databases, OPACs and the Internet and other organized information sources, are contending, and in a few examples supplanting, the print-based information sources which have been set up for a considerable length of time as the essential media for the capacity and correspondence of recorded information content. The sum and assortment of information substance in electronic structure is developing and at the rate it is growing, some trust that all information will in the long run be electronically gotten too. The pervasiveness of the move to the electronic information environment can be watched best from the accompanying remark: "Any perusing of the world press, let alone of library and information sources, makes it clear that the move from conventional correspondence channels to advanced channels commands current talk of information."
Information technology has been one of the central points bringing about changes in the way individuals convey, find, recover, and utilize information. The effect of automation on the library is entirely evident and has made new sorts of work, incited redefinition of specific capacities, impacted interpersonal connections, and changed conventional authoritative structures into new institutional substances. Libraries today are confronted with getting ready for automation inside of a quickly changing and questionable mechanical environment. At the danger of being desolate, thusly, this part endeavors to classify a percentage of the known pitfalls and issues, as a manual for the attentive and a notice to the sincere devotee. Tries to break down the different components, for example, administration issues, assets accessible with the libraries, level of ability of staff, accessibility of suitable programming, geographic area zone. That straightforwardly or in a roundabout way influence the advancement of library Automation.

**Meaning of Library Automation**

Library robotization is the general term that is utilized when information correspondence advancements (ICT) are utilized to supplant manual frameworks in the library. The term 'Library Automation' in the past was utilized to allude to the automation of the conventional library operations like securing, serials control, and indexing and course control. Today, it alludes to computerization of customary library exercises as well as such related exercises as information association, information stockpiling, recovery and utilization.

In the 1970s and mid 1980s Integrated Library Systems were known as automation frameworks or robotized frameworks. Prior to the appearance of PCs, libraries as often as possible utilized a card list to record its property. PCs were utilized to mechanize the card index, consequently the term computerization framework. Subsequent to the late 1980s, Windows and multi-tasking modules permitted modules to be incorporated. Rather than opening up isolated applications, library staff could now utilize a solitary application with different utilitarian modules. As the Internet developed, ILS merchants offered more usefulness identified with the Internet. Significant ILS frameworks now offer electronic entrances where library
A robotized library framework as a rule comprises of various useful modules, for example, acquisitions, course, recording, serials, and an OPAC (Online Public Access Catalog). An "incorporated" library framework is a robotized framework, in which all the utilitarian modules share a typical bibliographic database.

The National Library of Medicine utilized the expression "incorporated" in alluding to a framework in which all mechanized library capacities are handled against a solitary, expert bibliographic document. Later the extended definition portrayed the coordinated online library framework (IOLS) as "a library framework that uses a typical machine-intelligible database and has two or more subsystems operational and open online".

Academic library needs innovative guides to adapt to the circumstance which physically get to be unimaginable. The purpose behind college library computerization are talked about here:

I. Growing Information and Shrinking Space

The tremendous development of information in every region, multi disciplinary subject in number, and expanding specialization in each field of learning library robotization is vital. Generally spare the season of per users will be hampered and in the meantime the assets of the academic library may not be legitimately used. The putting away immense main part of information in small space, in CD-ROM, can be conceivable with the assistance of PC application in the library. Current Awareness Service (CAS) and Selective Dissemination of Information (DSI) should be possible with easily and immediately by method for automation.
II. Increasing of Users requests and dealing with the surge of information:

Ordinary information is producing the world over at each minute and to gathers the required information is impractical because of scarcity of asset, absence of space and gathering information legitimately orchestrated and dispersal of information to appropriate individual in correct time. PC based library framework with the assistance of web address the issue.

III. CT awareness of users

Computer is an electronic device which automatically performed specific sequences of operations of processing data to achieved desired information. Generally digital computers are used to store and retrieved the information, perform the calculations, process the transaction and sort the data with a high speed and accurately.

Industrial revolution of Europe has change the life of society and change status of some countries as the developed countries in the World. Development in the field of Science and Technology affects our daily life. Development in Science & Technology give birth of information and this information is growing at such rapid pace, which could not be managed by manual method and librarians are searching the alternative process to manage the situation.

IV. Internet facilities

The uses of Internet are gradually increases everyday and academic purpose college and college are also available these facilities for users community. This is the medium of both to access information as well as disseminate the same and provides the link between the two connected libraries, if desires (Singh, 2003). The new generated information has also affects the library users, operation and services. This information has transformed the whole World into a single borderless entity and we are stepping into new era and recount ‘Information Technology’ in the field of information revolution has contributed, all of us those who have the knowledge to
handle IT, can visualized its wonderfulness and meet the challenge and opportunity of these information revolution.

The development and recount information technology in the fields. These information can use and retrieved who have the knowledge of handling these. The users can visualized the information and select the required information from the Website by taking advent of computer technology.

Application of Information Technology are erupting and moving faster than one’s imagination and resulting in information explosion crossing geographical boundaries. Information overload, quality of information, management of information and speed of accessibility are the key issues of Information Technology driven world.

Factors for library automation

The traditional concept of a library is being redefined from a place to access paper records or books to one that also houses the most advanced media, including CD-ROM, the Internet, virtual libraries, and remote access to a wide range of resources. Consequently, librarians or information professionals increasingly are combining traditional duties with tasks involving quickly changing technology. Librarians assist people in finding information and using it effectively for personal and professional purposes.

Library automation represents another step in the development of library operations and services. Resources for library automation is depending upon several factors and some of the vital and essential factors are needs to be discuss here.
1. Fund for library automation

It is the most vital factors for library automation. The resource includes the financial resources and human resources for the purpose. In general academic library spending their budget on books and journals and authority do not allow this fund to spend for other purpose. U.G.C. of India guidelines are permits to use of certain percentages towards these activities in 8th plan it was 15% and in 9th plan 10%.

2. Structure of the Academic libraries and space provides for computer.

Traditional library building needs huge area for stack room for shelving of books, journals, conference papers etc. And the growth of academic libraries is generally depends on its collection which is always increasing by means of acquisitions. As these collection increases more space required to accommodate the new arrivals and there should be the provision further extension, as it is growing organ. In many academic libraries has been provides only one room. Now the authority has realized that academic library should allot sufficient space, so that future extension and provision for accommodate space for automation.

3. Manpower of Academic Library Automation

Manpower is the most vital and important factor for implementing and managing the structure and technology to achieve the task is also greatly considered. Due to Govt. policy libraries are facing acute shortage of staff and application of technology required more manpower and technological awareness. Otherwise application of computer and related technology will create overburdened to library staff. Because they have not only performed manual work as well as also to automate library activities.

According to Rawtani in 2002 that, the management of Information Technology (IT) has not been given proper attention and handling the IT which
requires specialized skilled, technique and knowledge. Specialized manpower equipped with advanced skilled and techniques should come up with full vigor and energy to combat a perplexing situation which has emerged as a result of the introduction of the computer and communication technology.

4. Computer in library automation

The word ‘computer’ is an old word which has changes its meaning several times and remained associated with human activity up to the middle of the 20th century when it became applied to ‘a programmable electronic device which can be store, retrieve and process data’. The computer is a device which can process data according to a set of instruction that are stored earlier in the memory either temporarily or permanently.

Computing device was first used to design the ABACUS, Shickard in 1621 and Polini in 1709 and it was a wooden instrument. Subsequently developed by Blaise Pascal and it was a made by metal in 1642 and known as one of the most remembered person among the ‘computer scientist’ and his inventor of the ‘calculator’ machine, known as ‘Pascaline’. The electronic machine, which can be stored program internally in computer, is used at present with several and rapid development and can be classified according to the capacity of the machine. These electronic machines are:

1. Microcomputer has the lowest level of capacity made of semiconductors fabricated on silicon chips;

2. Minicomputer is a smaller stand-alone machine has the memory storage capacity of 8k to 256k;

3. Medium-size computer systems provide faster operating speed and larger storage capacities and support disk drives.
4. Large computer have the bigger storage capacity and the internal operating speeds measured in terms of nanosecond; and

5. Supercomputer is the biggest and fastest machine.
   As the technology improved, computer became smaller and smaller, much faster and more powerful. It is most important features of computer, users point of view, is more affordable and user friendly and it is the real success of the computer. It is transform from ‘huge monoliths’ to ‘personal assistants’.

Presently college libraries are using computer for their housekeeping work and services. Previously libraries known as learning resource centers and now it becomes e-resource centre as well. The use of computer in library work and its services made the libraries in modern form and able to render up to date information within very short time.

Components of the Computer:

Computer is a set of device which works together and depends on each other and these devices are the essential parts of the machine. These devices are mentioned below: Central Processing Unit (C P U);

I. Input Device;

II. Output Devices;

III. Memory and Auxiliary; and

IV. Uninterrupted Power Supply (UPS).
These parts are considered as a computer, but cannot communicate with the user without any supporting devices. It has to rely on some other devices to communicate and these devices are known as peripherals. These peripherals are used to input data to the computer for processing. These peripherals are includes keyboard, punch, card, mouse and optical character reader. These peripherals are used to obtain the required information from the computer after processing the data. These include monitor, printer and plotter. All these five modules have undergone remarkable change over the last four decades and CPU is considered the heart of the Computer. It contained electronic circuit for performing arithmetic and logical operation and controlling the operation of all the peripherals units which accept input, printout, store information, retrieved information process, plot information, and are always subservient to CPU.

The input devices which started with cards in which the information is punched by series of holes and now the whole operational through Visual Display Unit (VDU). The VDU with keyboard are connecting thorough CPU to the picture tube and it gives information from and to the systems on an electronic screen. Other type of input devices is the digitizer which can accept information in graphical form, graphical terminals, hard copy terminals and telephone terminals. The output devices normally are line printers, plotters and videos are electronic tapes, or magnetic tapes like disk, tape, drum, and cassettes.

The monitor (VDU) also act as an output device in displaying information from enter in the computer and the U.P.S is the devices, which keeps steady the supply of power line for a certain period to run the computer for complete the entry and save the job within the time.

Introduction of the new automated library system has much impetus in ‘library operation’, ‘staff of the library’ and the ‘users services’. Academic libraries, mainly College and College libraries have some meaningful and important
contribution towards the quality of education through library services. A modern academic library helps its users to steps into the world of learning.

5. **Geographical Location of the College**

The geographical position of the college is another important factor for academic library automation. If the college is situated in a metropolitan city or district town or at least in the sub-division is benefitted by the availability of resources, such as electricity, better telecommunication network etc. Coastal Karnataka all the colleges have the electricity but some of the colleges situated in remote area have this problem.

6. **Human factors in library automation**

Professional Skilled has the vital factor in library automation and enables a person to plan, design and execute to achieve goal. Therefore, skills necessary to face the challenges on account of following reasons;

1. Economic reasons: Libraries is considered as a non-profitable service oriented organizations and generally face the shortage of funds to provide services to its members.

2. Social and cultural reasons; society is moving form ‘Agrarian’ to ‘Industrial’ and finally to ‘Information and Knowledge society’. The life style of the people has changes, such as work style, food habits information seeking pattern etc. In the changed environment of the society, only skilled personnel may understand and adjust in a better way to achieve objectives of the institutions.

3. Other reasons: Library professionals are coming out from the ‘library schools’ may not competent to face the challenge of new modern library environment due to lack of good quality of teachings, infrastructure facilities and skill based curriculum etc.
Librarians, staff and authority of the college must convert their positive attitude towards library automation and main area of automation will affects library operations and services. The relationship between users, library and the staff of library will creates a new dimension and the technology have change the systems such as traditional systems to modern systems, which will help to rendered better and modernized library services efficiently.

Automation of College library:

Khan in 2008 indicates that, library Automation is process which helps the libraries in improving libraries by using information technology and activities and accelerates their working and saved the time, manpower and efforts of libraries. In the automated systems of library, the information can be altered, manipulate and updated without repetitive work involved in the manual systems. With the development of computer, any information can be converted into sequences. So, the users may access into the sequence without any trouble and delay. It saves the time of the users, staff and extended developed services with the existing staff.

College library automation may be defined as the application of computer to perform traditional work of the library by computer. It means the housekeeping work and information dissemination job are done by the machine. Computer is devices which can stores data, process it and retrieved information as and when required.

In 1975 Dekker defined that automation is the term which denotes the use of automatic device and control in mechanized production lines. The term ‘library automation’ is the use of automatic and semi-automatic data processing mechanism to perform library housekeeping work and services. The library automation thus is distinguished from related fields such as information retrieval, automatic indexing and abstracting, and automatic textual analysis.
The pattern of modern library and information systems has been changed due to the growth of information and knowledge on various existing subjects as well as various newly interdisciplinary subjects. It is obviously not only in the traditional format but also in non-book format. These newly generated information and knowledge creates problems for selection, acquisition, organization and services in any library. On the one hand these information and knowledge, in the related fields of study, it is essential to fulfill the needs of users by generating, collecting, retrieving and dissemination the information and knowledge through creation of bibliographical database of libraries (Lathika, 1995).

Use of electronic devices in library housekeeping work and services, it may also be called the mechanical process and it needs to know the technical operation of machine. Computer is performed job on logical operations to do specific work.

The use of computer and communication technologies, which are jointly termed as ICT, has affected library for improvement its operations and services. The prime matters of this technology are better information management and communication to its users.

The principle motivation behind library automation is to enhance the effectiveness of library and render ideal user administrations by greatest use of library materials. The robotized library frameworks is equipped for taking care of substantial volume of archives and of giving opportune viable information administrations to staff, research researchers and students in accomplishing their objectives.

The move from paper-based books and diaries to insightful e-assets has constrained us to utilize most recent innovations in academic libraries. Utilization of innovations is not just accommodating in confining the impacts of information blast
additionally it overcomes numerous issues connected with mass digitization in late year.

All housekeeping operations and production of library should be finished with the assistance of PC. All information section requires using so as to enter in the database made simpler PC and this information can be utilized for different reason by stage of the database. That is to say, on the off chance that buy library books present status of books effectively known and it could locate the important information inside of a brief timeframe. Automation in academic library is a testing work due changed nature of accumulation, association and administrations of the library included. College's library computerization intends to bolster their general exercises and can plan to acknowledge little workstations for library use.

Library automation is required for utilization of Local Area Network(LAN) in library. LAN is essentially a transmission framework for connecting PCs over a confined land region. It directs the stream of information movement among the interconnected PCs through the links, connectors, PCs, processors and interface programming and related gadgets.

**Level of ability of the library staff for library automation**

The ability of the library staff played a critical in college library automation. In any case, the truth of the matter is, there are no standard for capability of the library sub-staff for enlistment in the academic library in India. The academic organizations having the qualified library staff will be better situated forward in imaginative intuition and commendable for automation process.
4.3 SOFTWARES FOR COMPUTERIZATION OF COLLEGE LIBRARIES

Essentially programming is the system that runs the PCs to create the required bearings and it is a critical element of automation. A PC without programming is equivalent to a man without cerebrum (Rajaraman, 1999). Programming is the mind of equipment frameworks and it runs the PC to a specific task. Programming comprises of projects or an arrangement of guidelines, which control the PC to perform certain handling work or works.

Mechanizing Indian libraries has been a fairly moderate procedure up to this point, to a great extent on account of absence of prepared labor and accessibility of suitable savvy library automation virtual products. The automation schedules and information administrations were started in the mid 1960s. INSDOC, Delhi and DRTC Bangalore were in the cutting edge with respect to doing tests in utilization of PCs in the libraries. Subsequent to late 1980s computerization has picked up energy. Libraries of BARC, IIT, TIFR Mumbai had begun utilizing PCs as a part of their exercises. In the late 1990s the circumstance has changed totally, more library experts are getting prepared in PC application. N1SSAT and Library Networks additionally assumed a noteworthy part in doing tests in use of PCs in the libraries. To encourage the modernization and to advance asset sharing among the libraries and information focuses appended to these academic organizations, the College Grants Commission built up Information and Library Network (INFLIBNET) in 1991. One of the significant goals of INFL1BNET Program is to modernize libraries and information focuses.

The automation of libraries and their systems administration has turned into a critical undertaking of today for successful asset sharing among libraries. Along these lines there is a need of good equipment and programming which libraries can use for computerizing. Their everyday capacities, making databases of their holding and giving online access to the users. In India numerous virtual products are accessible for these exercises and numerous libraries have robotized their different capacities. Some
of these are coordinated bundles covering numerous capacities while others focus on particular capacities including classifying and administration of information. The library administration virtual products being utilized by chose college libraries are depicted beneath.

Library automation alludes to utilization of PCs, related fringe media, for example, circles, optical media, PC systems and so on and use of PC based items and administrations in the execution of all kind of library capacities and operations. The usage of PC and related systems make the procurement to give the right information to right per user at the ideal time in a right shape in a right individual manner. Automation of library exercises gives the administrations proficiently, quickly, viably, sufficiently and economically. The present day libraries and information middle encourages free correspondence on the grounds that entrance to information has turned into a key right of the demographic. The part of PCs and their related fringe media are by and large progressively utilized as a part of library and information administrations for securing, stockpiling controlling, handling and repackaging, dispersal, transmission, an enhancing the nature of items and administrations of library and information focuses. Library programming has turned into the most capable apparatus for changing the situation of libraries structure conventional to robotized, structure mechanized to electronic, from electronic to advanced, and from computerized to virtual. Programming has turned out to be progressively all the more capable and the presentation of new applications have expanded. Creating modified projects has gotten to be simpler with programming improvement bundles. Various programming bundles have been produced for use in the administration and dispersal of information in libraries. Some have been produced by business organizations; others have been created indigenously by establishments for in-house assembled and there is yet another class where redone applications have been produced on the bases of existing programming.

Library automation assembled energy in 1990s driven by the forcefully diminishing costs of equipment, expanding accessibility of library programming bundles furthermore regularly expanding excitement with respect to library experts to grasp information technology alongside different components.
There are various library automation bundles in India. A percentage of the surely understood library programming projects of remote starting point are KOHA for Window, Libsoft, and Easylib and so on. Among the indigenous library programming bundles, Libsys is the broadly utilized programming.

The employment of the product is to give guidelines that permit all the equipment segments in the computer framework to work one another. The capacity of computer framework guarantees its suitability for a given circumstance. In spite of the fact that the choice criteria of equipment must guarantee its suitability for a library and ought to have the extent of redesign the machine for speedier execution and different parts of the computer. Programming has two sections:

**Operation Programming**

**Application Programming.**

The product bundles are the cerebrum of the computer and its runs the frameworks. Giri in 2011 expressed that, a library administration programming is typically includes a social database, programming to communicate with the database, and two graphical user interfaces (one for supporter, one for staff). It is capacities into modules and incorporated with a bound together interface.

Numerous product bundles are accessible to perform the work for particular reason and there are programming's are of two sorts, one is the working programming it is likewise know as framework programming and other is the application programming. Library administration programming is application programming and a decent number library programming bundles are accessible in the business sector. Framework programming is an accumulation of projects that control the fundamental operations of the computer equipment. It is chiefly communication between equipment gadgets (with respect to case, C.P.U. what's more, Monitor), peripherals (for instance Printer), application programming (word handling software engineers) and user might get required information from the database put away as memory.
Framework programming is a project in an assembly language that permits the computer to run rapidly and proficiently. The framework programming performs all the everyday operations that we frequently underestimated while utilizing computer. For example, redesigning the framework's clock, printing reports or storing information on a plate. It is control the essential operations straightforwardly. The most widely recognized sort of interface for Personal Computer is called Graphical User Interface (GUI). It utilizes pictures, symbols and menus to send guidelines from users to computer framework.

There is much programming for library and information focus reason and they are principally for content recovery or information recovery. Furthermore some database administration, content recovery bundle, online recovery frameworks programming and housekeeping software's. All these are application programming. Application programming bundle is readied to perform for particular undertaking for users and associate with the framework programming, with computer equipment.

This application programming is of two sorts and they are:

**a.** Operational or exclusive programming created to work particularly or for a specific Organization; and

**b.** Library administration application programming, acquired off-the-rack and utilized by an assortment of individuals as well as associations to meet their particular needs.

Operational application programming is created according to necessity of an Organization. It might be created by in-house by the Organization's own staff or done on contract premise or by outsources to a particular merchant accused of building up the product. Working programming is Linux, Unix, MS Dos and Windows XP and so on.
Library administration application programming is off-the-Shelf application programming is ordinarily used to bolster normal business process, which does not required any customizing.

Library programming bundle again can be isolated into two gatherings from the sources perspective. One gathering of library administration programming bundles are accessible, 'free of expense' or with no charge, from the sources and others are accessible on installment for utilizing the product.

Today Library programming businesses are all around sorted out parts. In any case, toward the starting, library programming bundles are to a great extent limited to some 'prime foundations' and private areas has no contribution in this period. Library automation endeavors were limited in house aptitude on PC. The bundle for library programming was utilized are dBase, FoxPro and in a few libraries has been utilized abnormal state of programming dialects, for example, COBOL, BASIC, C, C++ and Pascal and library working are finished with it just procurement, dissemination and indexing (Pal, 2011).

Incorporated Library Management Software Packages are created by different bodies and Organizations. Some of them are appropriated free of cost, means open sources programming and other one are business. A wide range of library housekeeping work and administrations can be performed effectively with the assistance of these bundles and has solidifies and minimal the library working and benefits. From the sources perspective there are numerous product in the area of library automation.

In the present library situation, various remote and indigenous library automation programming bundles are being utilized as a part of India. These are as per the following.

**EASYLIB**

Easylib is whole automation framework for curators a progressed and best in class of library automation system. The first installation of Easylib was in March
Developing library automation programming has been Easylib’s center focus. This applications programming bundles has been utilized as a part of libraries in Karnataka and all over India. The organization has head quarters in Bangalore and branch office in Hyderabad and U.S.A. It is an integrated framework with broad elements and multi dialect ability.

Easylib gives different administrations identified with Barcoding and RFID. It has discharged Easylib Net an office for part libraries to have their library information on the web. With this office, the individuals from the part libraries can see the library information on the web whenever of the day and from anyplace. The information is as precise as the last transfer done by the staff. The accompanying components are given in the framework. They are listing, Accessioning, By catchphrases title, creator, Membership framework, course framework, periodicals ,news papers memberships, Multilanguage offices, Barcode Generation, Requisition, Budgeting and Acquisition, Digital library, Graphical Reports administrations, Purchase Recommendation administrations and so on.

LIBSOFT

LIBSOFT is a multi user bundle planned and created by a group of library experts and programming experts for powerful administration of a library from all viewpoints. This bundle has been intended to handle enormous volumes at lightning speed hence sparing labor. Libsoft is a Windows/Web based programming and it keeps running in any Windows environment and henceforth it has superb Graphical User Interface.

Library is a viable wellspring of information of assorted types to be shared by individuals of numerous sorts. Complete automation of the considerable number of libraries and a devoted, unified server to host information accessible at diverse libraries will help in compelling sharing of information. A library is totally
computerized just if the user, regardless of foundation or learning, can get to information accessible in the library from anyplace just by typing few words.

**WINSANJAY (CDS/ISIS)**

Compact discs/ISIS (Computerized Documentation System Integrated Set of Information System), created by UNESCO is a menu-driven summed up information stockpiling and recovery framework outlined particularly for the organized non-numerical databases (CDS/ISIS UNESCO Portak.2005). Compact discs/ISIS is not a turnkey apparatus for computerizing the libraries. Be that as it may it gives an arrangement of instruments which can be utilized to create library automation bundle. Numerous library automation bundles have been created utilizing CDS/ISIS. SANJAY is one such application, created by NISSAT in a joint effort with DESIDOC. Compact discs/ISIS is accessible from the national merchants of individual nations.

The automation of library exercises began in India with the presentation of CDS/ISIS. NISSAT, a national merchant of CDS/ISIS composed, with the other expert bodies, various instructional classes on utilization of programming in information exercises therefore, a substantial pool of prepared labor built up everywhere throughout the nation. A few associations from the experience of utilization of CDS/ISIS, MINISIS and so on, added to their own particular LMSs e.g. DESIDOC created DLMS (Defense Library Management System), INSDOC under NISSAT venture by expanding CDS/ISIS {Ver. 2.3} for E7 library administration exercises.

The product is exceptionally valuable and quick in making bibliographical E-databases for information stockpiling and recovery. Be that as it may, the menus gave in the bundle are not adequate for housekeeping operations and different administrations, for example, procurement and course. Be that as it may, the product permits formation of extra menus and composing programs for every one of these exercises through Pascal Turbo dialect. Information can be traded by standard ISO
It can be keep running on neighborhood and very much expounded documentation is accessible. Its most recent rendition 3.071 was discharged in December 1995 and later on overhauled form was additionally discharged. Different diaries and list serves on web distribute consistent sections on the advancement in CDS/ISIS. Prior numerous colleges and establishments offered consistent courses on CDS/ISIS, and many bookkeepers have now gotten to be prepared users. At first INFLIBNET Center likewise advanced this product via preparing experts from college libraries to computerize their libraries.

**LIBSYS**

LibSys is incorporated library programming created by Info tech Consultants Pvt., Ltd., New Delhi. Nonstop development of ILS throughout the previous 15 year has made LibSys a true standard for libraries in India, Its acknowledgment in worldwide business sector has further fortified its notoriety the nation over as the most demonstrated library framework in a wide range of libraries with unmatchable profundity in usefulness and highlights.

With an open framework structural planning (3-level) since its beginning and its ceaseless move from a host multi-user framework to customer server usage lastly an aggregate online arrangement, LibSys makes a progressed multidimensional library framework.

LibSys handles Indian dialects and scripts utilizing ISM Publisher and GIST of C-DAC. There is an extra "Unicode" support in LibSys that encourages treatment of both International and Indian dialects and scripts. Also, it accommodates scientific indexing of diaries, and a propelled user-accommodating OPAC interface to get to all library materials through a web program and additionally Windows based OPAC.
SLIM

SLIM library management software is a product of Algorithm Consultant Pvt. Ltd., Pune, established in 1989. The software is constantly upgraded to remain in the forefront of technological development and to cater to the changing scenarios in managing libraries. SLIM++ is a 32 bit application developed on the Windows platform. This software comes in various modules and each one of them can get integrated with the other modules at any given point of time. This software comes with an unlimited multi user license.

The latest product-SLIM21, a product on Microsoft Dot Net technology, offers remarkable features to serve the requirements of a digital library. It provides for inclusion or exclusion of the metadata elements that are used in the creation of the catalogue entry- The cataloguing of digital items is done by using exactly what the library chooses. It provides initial versions of data entry formats for various types of items. Libraries can build their own formats by modifying.

KOHA

Since the original implementation in 1999, Koha functionality has been adopted by thousands of libraries worldwide, each adding features and functions, deepening the capability of the system. With the 3.0 release in 2005, and the integration of the powerful Zebra indexing engine, Koha became a viable, scalable solution for libraries of all kinds. Koha is built on this foundation. With its advanced feature set, Koha is the most functionally advanced open source ILS on the market today.

E-Granthalaya

E-Granthalaya is a library automation software from NIC, Ministry of Communications and Information Technology, Government of India. The software has been designed by a team of experts from software as well as library and
Information Science discipline. Using this software the libraries can automate in-house activities as well as user services. The software can be implemented either in stand-alone or in client-server mode where database and Web OPAC are installed on the server PC while the data entry program is installed on client PCs.

**RFID (Radio Frequency Identification)**

For a modern library having Electronic Surveillance Gate based security system installed, the Smarts interface in Easylib and Libsoft supports various self check-out counters. Book drop stations, etc. based on RFID or any other advance technology. RFID is an inevitable technology in libraries, both for financial and human reasons. RFID means Radio Frequency Identification is the wireless non contact use of Radio Frequency electromagnetic fields to transfer data for the purposes of automatically identifying and tracking tags attached to objects. The tags contain electronically stored information. RFID is not a new technology and has passed through many decades of use in military, airline, library, security, health care, sports, animal farms and other areas.

RFID readers, the antennas and choice of Radio characteristics, and the computer network that is used to connect the readers. Library management system implementing RFID system in libraries will aid tasks such as:

- **Circulation**: Checking out books and other items and checking them back in again.
- **Inventory Management**: Ensuring items are properly located in the collection.
- **Book Processing**: Adding items to the library’s collection.
- **Theft detection**.

BARCODING:

Barcoding is the process of placing a barcode on each item in the database. A barcode identifies a specific item and allows it to be checked in and out by using a barcode scanner or by keying the barcode number into the automated system. A barcode identifies its respective item without scanning it in the author in addition to the name of the institution.

Barcodes are acquired through a vendor or are generated in-house using a barcode production software package that is compatible with an existing automated system. A few automated systems have barcode generator software. Before making a decision to purchase barcodes or generate them in-house, perform a cost analysis to determine the most cost-effective method.

DIGITAL LIBRARY SOFTWARE:

Library staff can recognize potential substance for an institutional store by looking over departmental and personnel we destinations; chatting with academic and regulatory offices about their yield and distributions; perusing grounds pamphlets to find out about gatherings, presentations, and addresses that may justify consideration in the chronicle; and investigating print productions and reaching editors to check whether they are willing to file the advanced renditions from which all print productions begin today. The beginning vision of IRs as a spot to catch completed personnel yield was excessively constrained. Such a dream places these files in direct rivalry with customary production models and expects defective and college managers to surrender a model they know and trust for an indeterminate one that appears to require more exertion on their part with a less sure result.

A computerized library is a gathering of advanced records or protests. This definition is the overwhelming view of numerous individuals of today. Never the less, Smith (2001) characterized a computerized library as a composed and centered accumulation of advanced items, including content, pictures, video and sound, with the
routines for access and recovery and for the choice, creation, association, support and sharing of gathering.

Despite the fact that the center of this definition is on the archive accumulation, it focuses on the way that the computerized libraries are considerably more than an arbitrary get together of advanced articles. They hold the few characteristics of conventional libraries, for example, a characterized group of users, centered accumulations, long haul accessibility, and the likelihood of selecting, sorting out, safeguarding and sharing assets.

"Advanced Libraries are association that gives the assets, including the specific staff to choose, structure, offer scholarly access to decipher circulates, save the honesty of and guarantee the industriousness after some time of accumulations of computerized works with the goal that they are promptly and economically accessible for use by a characterized group or set of groups."

The point in this definition is on the computerized library as a dynamic, developing creature. As advanced libraries develop and turn into the overwhelming method of access to information and learning, systematization of computerized libraries seems, by all accounts, to be on the expansion.

There are three main needs for digitization; two or all the three of them may apply to your digital library project.

- To preserve the Documents: That is to allow people to read older or unique documents without damage to the originals.

- To make documents more accessible: This is to serve the existing users better; e.g. to allow the users to search the full text of the documents or to serve more users than envisaged in remote location, example, and more than one person at a time.
To reuse the documents, it means to convert documents into different formats; for example to use images in a slideshow and to adopt the content for a different purpose.

Digitize Documents

Another vital variable to consider is the means by which simple it will be to digitize the archives. Not all the printed copy records can be effortlessly changed over to electronic configuration. There is the need to check the physical qualities of the records to see how simple it will be to digitize them. On the off chance that you have a ton of reports that are difficult to digitize, we may pick not to incorporate them in the advanced library. It is fitting to place them in the picture records, instead of in the searchable content archives.

Maxine in 2000 expressed that "making a computerized library accumulation includes the accompanying steps:

• Planning
• Implementation
• Promotion

These are key if the completed item is to effectively address the user's issues and acclimate with the acknowledged quality benchmarks.

Different Stages in Digitizing Documents

Cornell University Library/Research Departments (2000), provides six stages in digitizing documents for a digital library: Registering, Scanning, Optical Character Recognition, Proofreading and formatting and producing the Final Version.
• **Registering**

Before scanning large number of documents, there is the need to first register them and use a filing system to keep their track. If not, you risk misplacing hardcopies, losing files, skipping steps in the process or duplicating work, perhaps without realizing it. There is also the risk of losing electronic versions of files because they have been misnamed or saved in the wrong subdirectory. Moreover, a good filing system is vital, so everyone in the digitizing team knows what he is supposed to do, and he can fill in for another person in case of absence.

• **Scanning documents**

It is necessary to clean and dust off the documents to be scanned; make sure that all the pages are present and in the right order. If the document is in poor condition, try to find a fresh copy. If it is a sheet fed scanner, cut the document open to get individual sheets to feed through the scanner. It necessary, you can rebind the documents later. If you do not want to damage the documents, you can photocopy each page and feed in the photocopy through the scanner, though this uses a lot of paper and reduces the quality of the scan.

To scan a document on a flatbed scanner, place it face down on the scanner platen or put the pages into the sheet feeder. Then, in the software, choose a setting, resolution and color and scan each page of the document at the settings we have chosen.

Optical Character Recognition (OCR) software converts a scanned image into a text file that a word processor can read. To do this, it must first recognize where the text is on the page. The software breaks the text blocks down into lines or into an individual character. It tries to match the image of each letter against patterns it recognizes as an “a”, “b”, etc. There is a problem to encounter with languages that use Latin scripts with accented characters. As a solution, you should use the OCR software that is specific for language.
The Optical Character Recognition (OCR) software may produce a document that consists of straight text, no columns, no headers and footers. There is the need to reinsert these by hand or correct where they appear on the page. There may be also need to change the typeface, heading styles and so on, to make the documents more attractive and readable. Alternatively, you may be able to adjust the settings of your OCR program to preserve the layout of the page.

For many documents, there is a need to add some information to the text so that readers can identify it easily. As for a book you must make sure that the book title, the author or the editor, the publisher and the publication date are all included, as for chapter in a book, you should include the title and the author of that chapter and the original page numbers in the printed version of the book. As for the journal articles you should include the journal title, the date, the volume and the issue number, the article title and the authors and the page numbers in the original printed journal. In other words there is the need to add Metadata to describe each document.

A digital library project would typically require the following equipment: Server computer, Desktop computers, Digitization equipment, Network connectivity and other equipment.

Another aspect is the software to be used in digital library. The Digital library software works with the web server in providing various digital library functionalities including creation, organization, maintenance, indexing, search and retrieval. In choosing the software, some features should be taken into consideration. These include: Support for different document types, Support for customized metadata, Collection administration, Support for standards like Dublin core metadata standard, Search and retrieval and Multi-lingual support.

Several free digital library software packages are now available which could facilitate the easy creation and sharing of information through digital library collections. Examples of open source free digital library software include: Greenstone digital Library software by New Zealand Digital Library: Academic Research in the
Digital libraries provide an integrated set of services for capturing, cataloguing, storing, searching, protecting and retrieving information, which provide a coherent organization and convenient access to typically large amounts of digital information.

**Greenstone Digital Library Software**

Greenstone is a uninhibitedly accessible suite of programming for building and disseminating advanced library accumulations. It gives another method for sorting out information and distributed it on the Internet or on the CD-ROM. The Greenstone Digital Library programming was created by the New Zealand advanced library venture at the College of Waikato in the mid 2000s, and gives a suite of open source programming for building and dispersing computerized library accumulations. Greenstone is currently created and dispersed. GSDL keeps running under UNIX and Windows and intends to accommodate usability as users can make documents utilizing differing groups, e.g. PDF, Postscript, MS-Word or ftp.

**DSpace**

DSpace is a computerized library framework intended to catch, store, file, preserve, and redistribute the scholarly yield of a college's examination personnel in advanced arrangements. It was produced mutually wlett Pckard (HP) Laboratories and Massachusetts Institute of Technology libraries. The DSpace structural planning comprises of three layers: application layer; business layer; capacity layer. The application layer covers the interface to the frameworks, the web and user and interface and group loader, specifically. The capacity layer is actualized utilizing the social database administration framework Postgre SQL.
E-Prints

E-prints is additionally a sample of open source programming for institutional storehouses. It was produced at the College of Southampton and was composed at first to make a pre-print institutional storehouse for academic exploration, however is presently utilized for other material including reprints, specialized reports, gathering distributions or different method for electronic correspondence.

EASYLIB

Easylib constructed a computerized library. It can make Pre-manufactured Digital library and import and send out met.

Commercial Softwares

Commercial systems have had a mixed experience in library automation. Several large companies have been active for many years in the field, but have been more successful in supplying hardware to libraries than in designing complete systems. Lack of the market seems to be the problem, rather than lack of technological capability. Systems proposed were based on the company’s experience in running its own special libraries, without any apparent realization that larger libraries and libraries of different types have different problems and operate in different ways. To some extent, the failure of some commercial designs may also be due to the fact that the companies involved where large and had interest in other fields.

Many of the better-run firms seem to have established themselves on a reasonably sound footing, however, and in recent years have made a significant contribution to library automation. Several have offered book catalogs successfully for so many years that the service is now routine, a few have found markets for
cataloging and searching services, and “Package system” companies have been successful in installing dozens of ready-made acquisitions and circulating systems.

The package (or “turn-key”) systems appear to offer numerous advantages. Normally they include all necessary equipment programs, instruction manuals and prepaid training for staff members as well as maintains contracts and guarantees; in short everything necessary to operate a well-defined area of library operation, such as circulation. The cost of a library systems staff is thus avoided as in cost of program development efforts to reach fruition, so common with earlier projects, are also bypassed, and the problems of relations with a central computer do not arise. The problem of over inflated claims, both for operation necessary, however, just as caution has always been necessary in the purchase of equipment alone. An additional cause for caution is that such systems are a relatively recent development and it is just as easy for their designers to underestimate the difficulty of automating library operations as it was for library systems staff before them. For some types of projects and in some libraries, moreover, a local, in-house effort may continue be the only feasible alternative, and without continued experimentation little further progress in the field is likely to result. Commercial firms do have risk capital, however, and most libraries do not, so the availability of well-designed and fully supported commercial systems offers a welcome alternative for library automation.

**The Open Source Software Movement**

Open Source Software is a software source code which is made freely available for inspection, modification and incorporation into other software, as distinct from being a closely guarded trade secret of owner companies. The licenses typically specify that applications and source code are free to use, modify and distribute, so long as these modifications, uses and redistributions are similarly licensed.

In the last few years Open Source has entered the main stream software market, with the widespread adoption of packages such as Linux (operating system), my SQL (relational database), PHP, Perl, Python (scripting and
programming languages), Apache Web Server, and the Zope content management system. Its effects have begun to be felt in the library automation market as Open Source projects develop within the library community.

It is claimed by its advocates that the Open Source approach has the advantage of giving libraries direct control over the technology they use. Systems librarians can have a direct role in developing the software and can focus on functional enhancements which are of local value but which would not be viable commercially for a mainstream supplier. These can then be shared with the library community, compensating for the relatively small size of the library systems market.

Development of Open Source products is generally rapid and more responsive to users compared with that of commercial software. The Open Source system has the advantage of promoting software quality and reliability through peer review. Where adequate technical resources exist, it has the advantage of relatively low cost.

**Hardware and Software compatibility for college library automation**

Automated systems are composed to two main components, one is hardware and other is software. The hardware is the machine itself (with all the internal electronic and mechanical elements) and all the peripherals, such as the VDU and UPS, Printer, Processor etc. while the software is the controlling sequences of commands for data, information and so on that determines the operations to be performed and the results obtained. In the other words, the software is the written, displayed, printed or stored word, while hardware includes all the physical elements of the system. Automated system used to run the machine for specific purpose and to match this will satisfy the users need and library functions.
The strength of a computer is depends on, both the hardware design and the quality of the software. The most advanced system is of little value if the software lacks the sophistication to be efficient and friendly and to provide the results in a recognizable, useful and fashion.

For the users, would prefer not to get involved with the programming techniques, there is a vase amount of software available today with a range that will undoubtedly cover primary areas of interest.

4.5 IMPACT OF INTERNET FOR ACADEMIC LIBRARY AUTOMATION

As per the definition provided by Wikipedia, information network mean utilizing information in versatile human and technical networks to enhance knowledge, business or social aims. In particular, it involves research, educational and professional networking. It may utilize information portal or other type of collaborative networking for sharing information. Information networks refer to utilizing the contemporary networking technologies such as internet and wireless communication for distributing and sharing information among these different technical networks that any human network can benefit. Information network is linked to exchanging information between interest groups within and between human institutions such as companies, universities, research organizations and communities.

Library Networking.

Networking is a specialized type of library operation for centralizing development of cooperative programmes and services including the use of computers and telecommunications and requiring the establishment of a central office to accommodate network programmes rather than merely coordinate them. Network is a group of individuals or organizations that are interconnected to form a system to
accomplish some specific goal. The linkage must include a communication mechanism for facilitating exchange of communication among the members. They further points that how information demands of the present day society can be effectively managed through networking of libraries and information centers. Certain factors such as escalating cost of library materials, shrinking library budget and information explosion are responsible for the paradigm shift in the basic philosophy of the library—“Ownership to Access”. A library network provide i) Information Services to users, such as inter library loan, access to databases, reference assistance, etc., ii) support services to member libraries in technical processing, cooperative collection development etc., iii) services for network administration such as evaluation of network, training, communication of activities through meetings, newsletters etc.,

Some basic characteristics of library and information network are i) Equal opportunity ii) Interdependence iii) Creation of large databases iv) Adoption of Standards v) Shared decision-making vi) Integration and coordination and vii) Internationalization. Some of the important objectives are i) Inter-connectivity ii) Creation of union catalogues iii) Access to online databases iv) Document Delivery Services v) Human resource development and vi) Uniform standards and guidelines for techniques, methods, procedures, software for all operational purposes.

Manjunath stated that internet is known as net and network of networks and its uses is constantly increasing. Internet allows users many activities like mailing, downloading, searching, learning, chatting, conferencing, shopping, business, banking, and many others. It has started in the year 1969 when US Govt. founded ARPANET (Advanced Research Project Agency Network) for research in the field electronic communication.

With emergence and popularity of library networks such as INFLIBNET, DELNET, BOMNET, GGATE etc. and internet a limited free access facility can be provided to user of other libraries and users located at other geographical locations. Library networks may install Host Server for creating union catalogues or other
services for library users. Otherwise, users can log on to a site set up by library and retrieved information regarding books and non-print items as well as their availability interact their queries and requirements through E-Mails and Messaging services.

Globally interconnected set of computers through which everyone could access data and programs form any site. In general, feasibility of communication of using packets rather than circuits, this was a major step towards computer networking.

Internet is the new mantra of the ‘information Technology’ era and sources of current information. It is the World-wide network of computer networks. The computers spread over different locations can be linked up in a manner so that they can communicate between each other. The is what Internet is all about global network linking millions of computers and people cutting across all barriers and boundaries of the countries, race, class, or sex. Internet can be described as a collection of government, academic, commercial and individuals’ sites.

In 2000 Singh defined the internet is wide range of opportunity for information accessioning and resource sharing and this technological development occurred in the year 1970s. This development had profound and far reaching responses on library automation. In 1990s the content and use of internet has been extended to business, industries, education, research, governmental uses and entertainment purposes etc.

It has opened the information superhighway and wide channel of communication. Large storehouse of information can be easily made available through telecommunication.

Dr. S.R. Ranganathan has visualized such a mechanical device using electronic principles, which he named as ‘Electronic Document Finder” and librarians have now got such finder in the form of digital computers. These machines, with the
enormous storage and processing capabilities, have ushered in the era of library automation and networking.

The significance feature of Internet is its popularity and impact on society. It has penetrated in the government organizations, businesses, academic institutions, libraries and our individual life. Internet is growing an extraordinary pace and so the traffic on many of today’s private and public Networks has increased many folds and as a result Internet to evolve a ‘broadband infrastructure’.

Internet has allows easy and inexpensive access to a wealth of information and knowledge and growing convergence between IT and Telecommunication offers a key opportunity to use the Internet. It also provides the video and voice transmission over the internet is being extensively explored and provides security of its ever-increasing size and complexity. It becomes the part of our life.

The term ‘resource sharing’ consist of two words, ‘resource’ and ‘sharing’ and resource means weal and assets available in the of the people and sharing means, to have or use with others.

Libraries in the past had only printed or written documents and manuscripts. These documents are not shared with other libraries and users are expected to visit the library for consultation and printing by movable types, books started appearing in good number and libraries have started the concept of ‘sharing’ of their books with the other libraries. After the II World War a large number of non-book materials are started entering the library. Such as microforms, audio-visual aids etc. The advent of computer brought in several other documents like tapes, floppies, databases on CDs etc.

In case of rich library, it is impossible to acquire and store all the documents within its four walls in order to satisfy the needs of its users and it may have to depend on other libraries. There has been specialization in the collections of libraries and one has to need such special collection to meet the special need of its users.
Library budgets are decreasing and cost of the documents are increasing; result is decrease in number of the documents.

Inter-Library-Loan is the most common and age old form of resource sharing among the libraries. The equipments like computers, reprographic systems, scanners, microfilming devices, CD etc. can be shared by a group of libraries to get advantages of resource sharing and maximum utilization of the library materials can be possible. The advent of computer and telecommunication technology made networking a global phenomenon and library may take advantages of this.

4.6 ROLE OF INFLIBNET CENTRE IN COMPUTERIZATION OF COLLEGE LIBRARIES.

Information Library Network (INFLIBNET) has made a great contribution in the field of resource sharing and providing vast online resources to the members of the university library system. This is a major national effort to improve capability in information transfer and access to scholarly publications. It also happens to be a major program towards modernization of university libraries in the country. This is an autonomous inter-university center of the University Grants Commission (UGC) under the Ministry of Human Resource Development, Government of India. INFLIBNET cooperative project contributes to pooling, sharing and optimizing resources, facilities and services of the libraries in the university systems. A detailed study on the INFLIBNET program has been conducted by Arora (1991). The study delineates network structure, information system hierarchy, network traffic, communication system and system description. According to this study INFLIBNET supports 400 nodes comprising of regional centers, university libraries, college libraries, sectoral information centers and document resource centers. The Planning Commission had set up a Working Group on Modernization of Library Services and Informatics for the Seventh Five Year Plan (1985-90) under the Chairmanship of Dr.N.Seshagiri. The Working Group suggested developing a computer network interlinking all special libraries in India by 2000 A.D.
In 1988, the UGC constituted a Committee on National Network System under the Chairmanship of Prof. Yash Pal, the then UGC Chairman to suggest measures for networking of libraries and information centers in universities, deemed universities, institutions of national importance, UGC Information Centers, R&D institutions and colleges. The main objective of the Committee was to share the existing resources to optimize utilization and avoid duplications of holdings so as to have an access to wide range of literature. In the first meeting on April 24, 1988, the Committee decided to constitute a Working Group to prepare a project report on ‘Information and Library Network’ (INFLIBNET) within three months. The members of the Working Group were experts and officials of some representative organizations, libraries, information centers, computer and communication fields, etc. They commenced their work on June 2, 1988 and completed the assignment on August 31, 1988. The Working Group referred to the views of the policy documents such as: Scientific Policy Resolution and Technology Policy Statement; National Policy on Education; and Proposed National Policy on Library and Information System.

UGC (India) realized the importance of ‘sharing of information resources’ by the academic libraries in India due to financial crunch as well as the rise of prices of reading materials. To overcome these problems UGC (India) constitute a committee in 1988 on a National Network system for University and Libraries. The Committee constituted a Working Group to prepare a project for consideration and further action their terms of references as follows:

I. To review the existing library automation scenario and bibliographic information services and proposed mechanism to established a network;

II. To identify the possible areas of cooperation and resource sharing;

III. To propose a mechanism for using such network for scientific communication among the research community;
IV. To suggest a suitable architecture for network;

V. To define the area of standardization required in the network and effective communication;

VI. To suggest action plan for implementation and management mechanism, including financial and personal requirements to maintain and sustain the network in long-term and short-term;

VII. To prepare a project report for developing Network based activities to maintain the above factors.

The working group submits its report and set out a proposal for the establishment and development of an Information and Library Network (INFLIBNET). This network was set up during the Eight Five year plan in 1990-91—1994-95. As a result, four major Networks INFLIBNET, DELNET, CALIBNET and BONET have been started functioning.

The working group of the Planning Commission of India on ‘Modernization of Library and Information Services’ for the 7th Five Year Plan too had emphasized on automation and resource sharing and created an ‘inter-Agency Working Group (IAWG) to prepare a project report for developing a Library and Information Network and a Steering Committee on Library and Information Network (SCLIS) was framed, chairman also Prof. Yashpal. The significant recommendation of this Committee was that the INFLIBNET be the common network for educational Intuitions, Research and Development Laboratories or Institutions, Institutions for National Importance and other Agencies of such type.

The INFLIBNET, an Autonomous Inter University Centre of UGC (India) was established with the objectives of:

1) Modernize the libraries;
2) Establish a mechanism for Information transfer;
3) Provide facilities for pooling, sharing and optimization of library resources.
4) Optimize the library services at lowest level of libraries by means of affordable cost and maximize the benefit of the academic library users.

4.7 AREAS OF LIBRARY AUTOMATION

Information Library Network (INFLIBNET) has made a great contribution in the field of resource sharing and providing vast online resources to the members of the university library system. This is a major national effort to improve capability in information transfer and access to scholarly publications. It also happens to be a major program towards modernization of university libraries in the country. This is an autonomous.

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universities, institutions of national importance, UGC Information Centers, R&D institutions and colleges. The main objective of the Committee was to share the existing resources to optimize utilization and avoid duplications of holdings so as to have an access to wide range of literature. In the first meeting on April 24, 1988, the Committee decided to constitute a Working Group to prepare a project report on ‘Information and Library Network’ (INFLIBNET) within three months. The members of the Working Group were experts and officials of some representative organizations, libraries, information centers, computer and communication fields, etc. They commenced their work on June 2, 1988 and completed the assignment on August 31, 1988. The Working Group referred to the views of the policy documents such as: Scientific Policy Resolution and Technology Policy Statement; National Policy on Education; and Proposed National Policy on Library and Information System.

The automation is generic term used to denote the various activities attached with the acquisition, location, storage, update, manipulation, processing, repackaging, dissemination, communication, and services. It helps to develop or upgrade the existing system by using or taking help of machines.

Library has to perform sets of functions. One is on-scene functions, such as acquisition, processing, etc. and other is behind the scene, that circulation, information retrieval, etc. most of these functions can be automated with the help of computer. The areas of computerization are mentioned here:

**Acquisition**

The responsibility of acquisition subsystem is selection, ordering, receiving and accessioning of library resources. It also includes the works related to budget allocation, fund accounting and generation of outputs in relation to MIS support and user services. In an integrated automation package, acquisition and cataloguing works in harmony. The bibliographical data of newly acquired documents are transferred
from acquisition module to the cataloguing module. In the cataloguing module, the bibliographical data elements of documents are standardized through necessary addition and modification.

**Cataloguing**

The bibliographical data format is based on any internationally adopted content designator scheme to allow exchange of cataloguing data. Computerized cataloguing includes three groups of work namely, authority control, data entry and downloading. The catalogue records act as the central bibliographic database in a library system. Regular backup of the catalogue database on suitable media and its easy recovery at the time of need is another important area of computerized cataloguing work.

**Serials Control**

The computerization of serials control activities helps library staff in the management of frequent and repetitive record addition and modification related to serials. Serials control module of modern Library Management Software (LMS) attempts not only to mechanize ordering, receiving, claiming, binding, and other such functions but also performs predication of arrival of issues, schedule preparation and auto-reminder generation. Serials control work starts with the creation of the master database and records of the master database are made available to all the sub-modules. It follows three groups of activities – subscription and acquisition, cataloguing and article indexing and circulation and binding. Computerized serials control subsystems are able to generate a variety of outputs and these are very useful for the design and development of information products and user services in the required forms and formats.
Circulation

Apart from the issue, return and renewal of documents, a circulation system performs reservation of documents; inter library loans, maintenance of statistics and other supportive activities. Computerized circulation systems can manage all these primary operations along with the additional tasks of member card generation, notification of document status (issued or not), reminder generation, automatic calculation of overdue charges, and maintenance of records related to lost, damaged or missing documents. The circulation module of LMSs centers on the transaction file as the central database. It draws necessary dataset from the document file (catalogue database) and user file (member database). Modern circulation modules extend their support to a variety of data-capture devices of which RFID, smart card, barcode reader and other light scanning devices are quite useful.

Data Entry.

These activities such as, preparation of worksheets, generation of machine readable records of different types entries, generating printed catalogue entries, maintaining OPAC, generation of index etc.

Documentation and allied functions:

This function includes thesaurus construction, complication of union catalogue, bibliographic control, CAS, literacy search, SDI. Etc.

Information retrieval

Information and Communication Technology has one of the major factor causing changes in the fields of library services which users can communicate, retrieve and disseminate and used information. Modern library services are fast changing and automated activities are taken up by the librarians and increasing awareness of information technology and its application to all types of the libraries.
4.8. CURRENT AND FUTURE TRENDS IN TECHNOLOGIES FOR MODERNIZATION OF LIBRARIES.

The substance of the incorporated library frameworks industry has drastically changed. Once utilized principally as a bibliographic stockpiling and recovery framework for index, course records and acquisitions records, coordinated online library frameworks are today considered part of the "learning" or "information automation arrange" that deals with organization's inward and outer database assets. This pattern presents information experts with new difficulties. Coordinated library frameworks are likewise influenced by quick changes. Occasional upgrades for library frameworks don't as a matter of course improve the elements of existing frameworks or framework assets. Current information technology requires programming that permits simple reconciliation with neighborhood system assets and is intended to oblige a library's continually changing needs and benefits. The Internet dramatically affects the instruments which libraries use to list, supply, and convey information. Intrarets have an equivalent effect, a truth tragically not generally perceived by information experts and sellers.

Future Trends in Integrated Library Systems

The meaning of a coordinated framework has started to transform from a framework which shares bibliographic records among neighborhood capacities and modules to a framework which trades information with numerous different frameworks outside the library. Mechanical advancements, for example, customer/server architectures and institutionalized conventions for passing information starting with one framework then onto the next encourage this reconciliation of outside information sources into nearby frameworks. For instance, a web requesting framework may permit an administrator to look a distributor's bibliographic database, select records of books to be bought, and download those records from the distributor's database into the library list. Likewise, a few libraries with extended coordinated frameworks offer supporter’s access, through their neighborhood OPACs to other bibliographic and non-bibliographic databases both inside and outside the library and to OPACs of different libraries. Highlights likewise
required notwithstanding the customary incorporated library programming are, for example, Digital Library System, join resolver, Meta look interface, substance administration System, Electronic Resource Management, and so forth.

**Future Development**

Expecting that the patterns said above proceed with the improvement of library automation sooner rather than later can be anticipated with some level of certainty. For list card creation, not very many new activities are liable to be joining a system attached to OCLC or a comparative administration, utilizing it for card generation. Endeavors to utilize such systems helpful acquisitions are more averse to succeed, and appear to be bound to fall into disapproval. Acquisitions work will probably be done on business bundle frameworks Development exertion of Columbia, Chicago, and Stanford College found that obtaining techniques varied so broadly that a joint exertion at frameworks improvement in this field was unrealistic. This circumstance is unrealistic to change sooner rather than later, and nearby frameworks will in this way keep on being constructed, with an expanded utilization of on-line systems.

Book list will presumably stay mainstream with open libraries where the simplicity of creating numerous duplicates makes them especially alluring, yet a large portion of them will originate from one of the different business book inventory benefits as opposed to from new activities started by the libraries themselves. Academic libraries will keep on utilizing book inventories to a lesser degree, despite the fact that the expanding need to share assets and the accompanying need to make existing assets all the more generally known my lead to a more noteworthy utilization of book lists than to this point.

Course control will be overwhelmed by business, stand along frameworks, which seem prone to increment quickly; a late phone survey uncovered actually many libraries wanting to arrange or as of now introducing such frameworks. Just in serials
control is the photo still overcast. The CONSER task is vigorous and energizing right now, and the way that OCLC, with its demonstrated record of accomplishment, will have the undertaking offers trust in its prosperity. The experience of most different serials extends be that as it may, offers next to no consolation, and CONSER's way to deal with the issues induced by the "puzzling bibliographic flimsiness" of serials framework like the one at UCLA's Biomedical Library, the change in library operations and administration might be colossal. In the event that they fall, it might be years before another endeavor is made.

Expectations in view of current patterns disregard one essential component. Mechanical advances are regularly erratic, and every now and again the most energizing and the most huge are those which can slightest be anticipated. The chances are likely magnificent that one or all the more genuine leaps forward will happen inside of the following decade and offer another methodology, maybe even start another period in library reduced backing were just developing torments, we might trust and the reports of latest tasks how a skill in arranging, achievements come, along these lines it appears to be sensible to surmise that the calling will be prepared for them, and enthusiastic to put to successful use.

4.9 CONCLUSION

The libraries since their existence have been continuously adapting to contemporary changes in consonance the educational system, influence by the media changes and also adopting to current technological developments. For instance the main objective of the libraries were to lend books and other reading materials in the earlier days has changed gradually to adding reference services, user education programs as the complexities in the educational system added gradually with passage of time. There was also a gradual shift in higher education management, not ignoring the fact that it is also happening in elementary and higher secondary education, the privatization of higher education catching up from the early part of the last century. Today there are academic institutions imparting undergraduate, graduate and professional courses under the Government management, aided institutions and under
private management. Accordingly the infrastructure also varied in these categories however, all of them would come under the common regulatory authority, either the Universities under the respective jurisdiction and/ or the College Grants Commission. This has also influenced and impacted upon the library management and administration.

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