3.0 Introduction

Libraries accumulate and manage knowledge recorded in various forms and formats such as books, periodicals, newspapers, government documents, pictorial reproduction, motion pictures, phonograph records, manuscripts, maps, and microforms. In order to provide speedy and easy access to such material in the collection of the libraries for selecting, locating and retrieving desired materials, the libraries adopt several tools and techniques. The two main tools are classification and catalogue. Classification helps in arranging the documents on the shelves in a helpful and systematic order and catalogue helps in organizing, identifying and locating the required documents. It enables the user to locate the documents by its authors, by some words in the titles, subjects, series and editors. The forms of catalogue are varied. The catalogue in libraries is considered to be a very efficient tool to disclose the resources of the library to user and without appropriate catalogue no library can be useful and popular.

3.1 Library catalogue

A Library catalogue is a list of and an index to a collection of books as well as other materials in a library or a number of libraries. It enables the user to find out what document is present and where this document may be available in the library. The library catalogue serves the purpose of communicating briefly the essential facts about the reading materials in the collection.

ALA Glossary of Library Terms defines catalogue is “a list of books, maps, etc. arranged according to some definite plan. As distinguished from the bibliography, it is a list which records, describes and indexes the resources of a collection, a library or group of libraries.”

According to C.A. Cutter, a catalogue is "a list of books which is arranged on some definite plan. As distinguished from a bibliography, it is a list of books in some library collections."\(^2\)

According to Dorothy\(^3\) a library catalogue is "a list of books and other graphic materials in a library, arranged according to a recognised order and containing specific terms of bibliographic information, for the purpose of identification and location of material catalogued."\(^3\)

According to Margaret S. Taylor, "bibliography is a list of books or manuscripts on a particular subject. A catalogue is also a list but its scope is limited to a particular collection".\(^4\)

In essence, a library catalogue is a record of entries describing the documents (books, journals, microfilms, microfiches, etc.) along with their location details which a library holds. In a library, the documents are arranged in a particular sequence according to their location details. But the document may have one or more characteristics such as author, title, series, subjects, etc., the approach of the user may be through any one of the above stated characteristics. To satisfy any of approaches, the catalogue is needed in a library, which explains essential facts about the documents in the form of entries or unit records.

Catalogue is prepared on the basis of a set of rules prescribed by a catalogue code. After emergence of concept like ‘union catalogue’ a catalogue sometimes is a catalogue of more than one library. Library not only acquires the books but as other reading materials such as CD-ROM, cassettes, microforms, etc. also which are commonly known as “other materials” and form important part of library and part of library stock.\(^5\)

Thus, a library catalogue is an index or a list of library resources in any medium in a library or group of libraries, arranged in recognized order and containing bibliographical information (the name of author, title, edition, collaborator, call

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number, details of imprints and collation etc.) for locating the indexed resources of library easily.

3.2 Purpose of library catalogue

Libraries acquire a wide variety of documents on different subjects and in different formats. These documents are consulted by the users for study, reference, research and other purposes. But these documents are located in different areas of the library as per their concerned subject areas, type of collections and most appropriate forms of storage. In view of these reasons, a library prepares a public record in the form of catalogue of all the documents in order to give the users an idea of the entire collection possessed by it. Library catalogue allows the user to know the availability or unavailability of a particular document in the library. It communicates the required information briefly about the documents in a collection. The information provided in the catalogue allows the user in identifying and locating particular items in the collection to select relevant items for specific purposes. It also offers the users a variety of approaches to the collection in making use of collection of a library. Hence, the purpose of a library catalogue is, thus, to serve as a guide to the collection of materials.

3.3 Functions of library catalogue

One of the essential functions of the library is to provide the document to a user which he/she requires and it is the catalogue, in whatever form it is available, catalogue performs this function. It brings the needs of the user into relations with the resources of the library. It provides sufficient information regarding the documents to locate and identify them for the purpose of study, teaching and research.

According to Ranganathan, the function of the catalogue is “to help the exploitation of resources of the library in conformity with the laws of library science.”

Shera and Egan stated that basically there are two functions of the catalogues:

- Accurate and speedy determination of whether or not an item known by author or title is in the collection and if so where it may be found.
- What materials the library contains upon a given subject and where they may be found.

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Seymour Lubetzky, one of the leading experts in cataloguing, stressed “the catalogue of a library must be designed not only (i) to show whether or not the library has a particular item or under certain title, but also (ii) to identify the author and the work represented by the item or publication and to relate the various works of the author and various editors and translation of the work.”

Thus, the catalogue is an instrument of communication to provide the information about the documents identified by its author or title or a substitute for it. It communicates the information of collaborator, publisher, year of publication, physical description, edition, etc. of the document. It also provides information for the location of a particular reading material in the library.

### 3.4 Forms of catalogue

Although the basic information has not been changed yet, the form of library catalogue has varied widely since the ancient days. Library catalogues appear in various forms. The predominant forms are book catalogue, card catalogue, microform catalogue and online catalogue. Besides these commonly recognized forms of the catalogue, there are also other forms such as guard catalogue, sheaf catalogue and Kardex card index. The four main forms of the catalogue are discussed briefly below:

#### 3.4.1 Book catalogue

The book catalogue is a list in book form of the holdings of a particular library collection or a group of collection. The cataloguing records are displayed in page format. This is the oldest form of library catalogue. The oldest manuscript catalogue goes back as far as the Pinakes (tables) compiled by Callimachus for the Alexandrian Library in early third century BC. This catalogue was the predominant form until the late nineteenth century, when the idea of the card catalogue began to spread. The major disadvantages of this catalogue in the early days were cost of updating, the difficulty to revise and susceptible to wear and tear.

#### 3.4.2 Card catalogue

In card catalogue, catalogue entries are made on 12.5x7.5 cm card and kept in trays or cabinet. Each card represents bibliographic record of a single document. At the bottom of the cards, there are punched holes through which passes a locking rod.

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holding them secured together. The card catalogue was first introduced in 1743 in France by Abbi Rosier at the Paris Academy of Science and at Bibliotheque du Roi, now Bibliotheque Nationale. During the early decades of 20th century, the card catalogue largely displaced book form catalogues and libraries in the United States began adopting this format. It remained popular form of bibliographic record throughout the world including India for nearly a century.

3.4.3 Microform catalogue

A microform catalogue contains cataloguing record in micro image and requires the use of a microform reader for viewing and catalogue records are greatly reduced in this form of catalogue. There are various media for microform catalogue, such as microfilm and microfiche. This form may be directly produced from a computer database and this method is called Computer Output Microform (COM). The COM device converts the digital information into print displayed on microform. While libraries had been using COM for book form catalogue production and other technical service applications since 1960s, but the widespread implementation of COM catalogues began in the mid-1970s.

3.4.4 Online catalogue

Computerized catalogue contains records in machine-readable form. Cataloguing records are transferred into a format which is recognisable to the computer. When the records are stored in the computer, these are retrieved instantly and it is called an online catalogue. A cumulated file of computerized records is called a database. Online cataloguing is performed on a terminal which is connected to a central database. Cataloguing records are displayed on the screen as they are called up by means of search keys. It is made clear here that all online catalogues are not public catalogues. If an online catalogue is primarily intended for a library user (as opposed to library staff), it is described as an Online public Access Catalogue (OPAC). Such a catalogue is never outdated, because items may be added to database as soon as they are acquired by the library. At present, this form of catalogue is getting momentum in India.


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12 Ibid, p.252
3.5 Historical development of catalogue

In ancient period, the libraries devoted their functions to the acquisition and preservation of reading materials. Libraries used some systems of bibliographical organization or control so that the material available in the libraries could be located. Such systems did not have the universal rules. Many attempts were made to obtain some standardization of bibliographic entries among library catalogues. Primitive methods of bibliographic control have existed since the beginning of the first library. The Archaeological Excavations Assurbanipal (1668–626 B.C) revealed that bibliographic information was recorded on clay tablets that served as simple location devices. The Alexandria Library supposedly had an extensive catalogue compiled by Callimachus in the forms of Pinakes in 250 B.C.

There was scanty information regarding catalogues and cataloguing during the Roman period. Public and private libraries were common during this period. The Romans continued the method as established by Callimachus. This system was continued without any change in the first seven centuries of Christian era. The fall of Rome in the sixth century brought about a deliberate destruction and dispersion of the private, public and temple libraries. The libraries of the Western World in the next ten centuries managed a small collection of manuscripts in many monasteries established during this period. The monasteries played a major role for education and they were primary places for preservation and production in the middle ages (300-1100 A.D). However, during this early period the need for library catalogues was limited and the efforts were made only towards an inventory record.

During the 12th century and 13th century, the catalogue arrangement represented the same casual pattern. In the twelfth century, the typical catalogue however remained an inventory list. The earliest information regarding the libraries of the universities came to light in the catalogue of the Sorbonne at the University of Paris in 1289. The fourteenth century catalogues included the author index appended to an inventory list which could conceivably be as a true catalogue. In 1327, the catalogue of the Exeter Cathedral library was an author catalogue with only one subject heading. In the fifteenth century, the concept of the finding list was slowly taking place through the addition of author indexes. The sixteenth century was influenced by great
bibliographers like Gesner, Treflerus, and Maunsell. Their efforts paved the way towards a systematic approach rather than the individualistic method of the past.¹³

Seventeenth Century marked further progress in catalogue practice and brought the Bodleian catalogue. It was the first printed catalogue in the classified form compiled by Thomas James in 1605. By the eighteenth century, the catalogues were supposed the finding lists rather than being used as inventories only. The entry of the surname was usual and the use of imprint in the entry and ‘bound with’ with notes, references and analytical entries was a very common feature of the catalogue.

In nineteenth century, many great codes were emerged. The catalogues were continued to be considered the finding list. At the beginning of nineteenth century, the dictionary catalogue was little known. But some sort of subject entries were often visible in author catalogue due to the tendency of making ‘catch word’ entries for anonymous works. In later half of the nineteenth century, various cataloguing codes were designed. By the end of this century, the pattern of catalogue construction was well defined with subject headings, main entry, classification, unit entry, added entries and adequate bibliographical description, all well-developed elements. Co-operative cataloguing was in its beginning stage.¹⁴

### 3.6 Development of catalogue codes

In the early stage, cataloguing was local and individual library practice. Each library constructed its own catalogue which was most suitable for its purpose. Bibliographic records were presented in the forms and styles that varied from library to library. It lacked a system. Gradually, librarians realized the advantage of co-operation among libraries and standardization of practice. The need for codification of cataloguing practice became apparent. Since the middle of the nineteenth century, a series of cataloguing codes came into existence. The codes were developed to standardize the practice and to improve on the preceding ones. The earlier codes were the efforts of individuals and the later ones were results of corporate undertakings. The prominent developments of cataloguing are discussed briefly below.

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¹⁴ Tripathi, S. M. Op.cit. p.15
3.6.1 Pre-AACR Era

British Museum catalogue was considered to be the first major cataloguing code and developed in 1839; it influenced the cataloguing practice of many libraries. It was also known as Panizzi’s ninety-one rules. It reflected the functions of catalogues as inventory list and finding list. This code had provision only for author entry. The arrangement was alphabetically in which only main entry would contain fairly bibliographical details with shorter ‘added entries’ after being prepared in the form of simple cross references. Professor Charles Jewett, an American, was greatly influenced by Panizzi’s code and published a code of 39 rules named Charles Jewett’s Rules based on Panizzi’s code. His discussion of subject headings represented the earliest attempt at codifying subject headings practice. Another landmark was the publication of Cutter’s Rules for a Dictionary Catalogue in 1876 containing 205 rules. This has been regarded as epoch-making year in the history of cataloguing. The rules were specially designed for a dictionary catalogue rather than a particular library. Cutter established the principles of specific subject entry and the rules governing the choice of subject heading.

American Library Association and British Library Association jointly prepared AA Code 1908 to secure greater uniformity in catalogue rules. This was the first attempt to achieve international co-operation in the field of catalogue. The joint code could not prove to be perfect to meet the required need. With the break of Second World War both associations could not work together. But ALA constituted a committee to revise AA Catalogue code 1908. It produced ALA Draft Code in 1941 in which 174 original rules of AA Code have been expanded to 375. ALA revised the first part of the 1941 draft and published ALA Rules in 1949. The second part of this draft was revised by Library of Congress and published its own Rules for Descriptive Cataloguing in 1949 called the Library of Congress Descriptive Cataloguing 1949.

As one of the most important events in the history of cataloguing was International Conference on Cataloguing Principles (ICCP) known as ‘Paris Principles’ held at Paris in 1961 and the delegates from fifty three countries and twelve international organizations participated. Many countries had been greatly influenced by ICCP. But in certain areas, it did not provide a satisfactory basis for agreement. Hence, some national committees rejected certain clauses of the statement.

In India, S. R. Ranganathan designed Classified Catalogue Code (CCC) and the first edition was published in 1934. It appeared in five editions and the last came in
1964. Each new edition sought to improve on the preceding ones. The subject approach has been recognized as dominant one in CCC. It is free from the restriction of language unlike the other codes which are of non-local nature. The fifth edition of this catalogue code appeared with additional rules for dictionary catalogue in 1964. It also includes a feature of economy as it does not cover the use of imprint and collation in its entries.

3.6.2 Post-AACR Era

New code, Anglo-American Cataloguing Rules (AACR), appeared in 1967. It was on the basis of the Paris principles and published in two editions, British and North American. In AACR, there were again some variations between the British and the American texts. Library of Congress 1949 was used as the basis for the description of monographs, serials and non-book material. The logical arrangement and its emphasis on the conditions of authorship rather than on the types of works were considered as a great improvement over the previous ones.

The next step towards international agreement after the Paris conference was taken at the International Meeting of Cataloguing Experts (IMCE) held in Copenhagen in 1969. As a result of this meeting, International Standard Bibliographic Description (ISBD) was formulated and issued in 1971. In 1975, the General International Standard Bibliographic Description (ISBD (G)) was developed. The primary aim of this code was to prescribe the order of bibliographic elements and punctuation marks on a record so that uniformity could be maintained in the cataloguing.

Keeping in view the ISBDs, the appropriate time came for an overhaul of the Anglo-American Cataloguing Code. A Joint Steering Committee for the Revision of AACR was formed to redraft the AACR provisions for bibliographic description to promote international standard. As a result, the AACR 2 was published in 1978. The ISBD (G) was incorporated into AACR 2 as the general framework for bibliographic description. It contains rules applicable to all types of materials. In course of application of AACR 2 (1978), new developments took place in new forms of reading material. Although this code resolved the problems of authorship more satisfactorily, the rules were found inadequate to accommodate new media. Therefore, the revision was made in AACR 2 (1978). The revised code was named as AACR 2 R, 1988. Although AACR2 R is the result of ongoing revisions, yet it maintains the same principles and guidelines as AACR2. Other changes are related to material for the
blind, sound recordings, music, etc. for the purpose to achieve greater conformity in establishing the headings; a few rules were also changed.\textsuperscript{15-16}

The revisions in AACR are continued. The amendments are made in 1998 and 2001 in chapter 3, 9 and 12 and the changes were made to amend the rules for cartographic materials, electronic resources and serials which were approved by Joint Steering Committee in 2001. Finally, the 2002 revision of AACR 2 appeared and incorporated the aforesaid amendments. Now, new Joint Steering Committee for revision of AACR is Joint Steering Committee for Development of Resource Description and Access (RDA). It is working on new code.\textsuperscript{17}

\section*{3.7 Modern trends}

Libraries started the applications of computer for the catalogue in sixties. New developments of Information Technology (IT) revolutionized the catalogue gradually and consequently, Online Public Access Catalogue (OPAC) emerged. An improvement over OPAC, Web-OPAC, has been used for a long period of time in developed countries and it is also taking place in some libraries in India. Both these forms of the catalogue are described below.

\subsection*{3.7.1 Online Public Access Catalogue (OPAC)}

According to ALA Glossary, “OPAC is a computer based and supported library catalogue (bibliographic database) designed to be accessed via terminals so that library user may directly and effectively search for and retrieve bibliographic records with the assistance of a human intermediary such as a specially trained member of the library staff.”\textsuperscript{18}

Harrod’s Librarian’s Glossary and reference book defines “An OPAC is the catalogue of a library or information centre made available to users online and generally providing a variety of additional facilities such as loan information, online reservation, and library news. With the demise of the card catalogue, the need for

\textsuperscript{17} The Joint Steering Committee for Development of RDA web site (http://www.rda-jsc.org/index.html)
stressing the ‘Online Public Access’ part has disappeared and they are now frequently just ‘catalogue’. 19

Online Dictionary for Library and Information Science defines, “OPAC as an acronyms for Online Public Access catalog, a database composed of bibliographic records describing the books and other materials owned by a library or library system, accessible via public terminals or workstations usually concentrated near the reference desk to make it easy for users to request the assistance of a trained reference librarian. Most online catalogues are searchable by author, title, subject, and keywords and allow users to print, download or export record to an e-mail account.” 20

Gorman has characterized an online catalogue as an ‘integrationist’ and defined it as “a bibliographic control system that shows access by means of a number of access points (conventional and unconventional; single and in combination) to bibliographic data stored in machine-readable form. The data retrieved is displayed on a terminal screen or printed out on demand. Terminals are housed in the library or elsewhere. The user retrieves information about items held by the library and by other libraries.” 21

According to Wells, the library OPAC has at least three distant functions. First, it acts as bibliographic database, an electronic version of the card catalogue that it replaced, acting as an index for users in search, for example of a particular book. As a logical extension of this, OPAC increasingly also provides links to electronic texts, freeing the user from the necessity of physically locating material on the library’s shelves.

Second, it functions as a ‘portal’ in a way not dissimilar to a library homepage, providing links to non-bibliographical data, either relating to users themselves - information about overdue books, fines etc – or to other library information such as opening hours. In principle, this portal function could be extended indefinitely to connect to a variety of data considered to be of interest to library users.

Third, OPAC functions as a promotional artifact, advertising the presence of the library and the services it can provide and at the same time making a statement of authority about communicative links that are supported and facilitated.

OPAC potentially has a fourth function as the management of full-text data and management of bibliographic data coverage and the bibliographic functions of OPAC itself become enabled for full-text searching rather than remaining primarily an index. This technology is not widely implemented in current OPAC installations, but it is likely to develop.\(^{22}\)

Thus, OPAC is one of the forms of catalogue. OPAC is computerized catalogues containing records of the items in a library or information centre, which is used for storage and retrieval of information. OPAC searches provide basic search, advanced search, browsing search, Boolean search, search through access points such as author, title, subject, keyword, call number, etc. It also provides information and facilities for loan status, location, availability and reservation of document. Therefore, it has more search capabilities and facilities than traditional catalogue.

### 3.7.1.1 Historical development of OPAC

Computer applications firstly occurred in library activities other than the catalogue. Computers were used in libraries mainly for housekeeping operations such as circulation control, acquisitions and serial control. After sometime, libraries started computerization of library catalogues and as a result, OPAC came into existence. With the passage of time, there have been a number of developments in OPAC improving over the previous ones which are given as below.

#### 3.7.1.1.1 Sixties and early seventies

Earlier some libraries in sixties used computers for the production of the catalogues. Eighty column punched cards were used to print the catalogues on the paper. The computer systems of that time were not capable of searching the catalogue online.

The concept of MARC (Machine Readable Catalogue) heralded a new era in the libraries. MARC stimulated the development of library automation and information networks. Library of Congress launched MARC-I as an experiment when there was no established bibliographic record in machine-readable form. There was no consensus as to which access points were required to take full advantage of an automated cataloging system. Four months before the end of MARC-I project, MARC-II had been begun after substantial evaluation of MARC-I format and developed in 1968 as a result of

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Anglo-American cooperation. British Library adopted MARC record format in 1967 and later on it received increasing acceptance all over the world.

3.7.1.1.2 Mid seventies

By the mid seventies, computers started to affect more library processes, particularly circulation control. Computer Output on Microfilm (COM) began to become a popular way of generating the catalogue. Philip Bryant at the Bath University Centre for catalogue research conducted early experiments on catalogue use for physical forms of catalogue (COM fiche, COM film, card and line printer paper).

Cooperative cataloguing systems and resource sharing started to take place in the libraries. The OCLC (Ohio College Library Centre) had been the prime example of cooperative system in the USA. BLCMP (Birmingham Libraries Cooperative Mechanization Project), SWALCP (South Western Academic Libraries Co-operative Automation Project), LASER (London and South Eastern Library Region) and SCOLCAP (Scottish Libraries Cooperative Automation Project) were examples of cooperative systems in the UK. These systems made catalogue records for participating libraries either in COM form or on catalogue cards.

3.7.1.1.3 Late seventies and early eighties

Some companies started to develop hardware and software package or turnkey system for libraries. The co-operative systems such as BLCMP and SWALCP also began to develop local stand-alone production which could be linked into the central database of record. Some suppliers of systems in North America started to promote their products in the UK and Europe. One of them was Geac. It developed turnkey circulation system for the Universities of Guelph and Waterloo in Canada in 1977. It was installed first time in 1979 in a UK library and became popular in university libraries in the 1980s.

The ability to search bibliographic records online came to be referred as an OPAC. The first generation OPACs allowed only direct searching using the actual author or title by matching the exact phrase to the library holding. This meant that they had no ability to browse the catalogue, and a mistake in the search term would leave the user without any correct match. These OPACs had access points similar to those of a traditional card or COM catalogue. Some OPACs were primarily book-finding and locating tools and so were fully good for known item searching. They were phrase-indexed or pre-co-ordinate OPACs with access points similar to those of a traditional
card or COM catalogue i.e. author, title (as a phrase), class mark or call number (as a phrase) or possibly subject headings (as a phrase).

3.7.1.4 Mid eighties to late eighties

OPACs became very popular and were rapidly available during 1980s. The first demonstration of OPAC from University of Adelaide held at Biennial Victorian Association for Library Automation (VALA) in 1981 and it boosted many of universities and institutes of technology. By 1985, some public libraries implemented integrated library management systems such as URICA, VTLA, GEAC, DOBIS/LIBIS with OPAC modules. European Library Automation Group held a meeting in 1986 which concentrated on OPACs. The British Library Research and Development Department made a policy of funding OPAC research in 1985.

A large number of suppliers provided integrated systems for library management which included modules for various subsystems such as cataloguing, acquisition, circulation, serial control, interlibrary lending and also OPAC in the mid eighties. These OPACs were considered to be second generation. Some new suppliers, such as Dynix, came into market which included second generation OPACs based on information retrieval techniques developed by the online search services, such as Dialog in 1990s. These OPACs were termed as keyword or post-co-ordinate OPACs. The words from titles, subject headings, authors or other names were access points in these types of OPACs and search statements might be combined by linking Boolean operators, user did not require an exact author or title match to find information. These OPACs had an in-built circulation system, which let users know the copy status of documents and allowed them to place reserves or holds on books.

Keyword search, Boolean search and the increasing or reducing of search results were among the features of second generation OPACs. Interfaces were usually in two modes, menu driven and command-driven. This made the interaction between the user and OPAC more flexible. In terms of user assistance, these provided more options including, help access, error messages and suggestive prompts. Ease of use and user friendliness were two major features of this generation of OPACs. Many OPACs

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supported the ability to restrict searches to specified record fields to limit the results by date, language, place of publication, etc. and bibliographic records might also be viewed in a number of different display formats. This started a trend towards making online catalogues more user-friendly, and providing user with many available options as possible.

3.7.1.1.5 Nineties

Library management systems witnessed a further evolution and development in 1990s. Some systems required to install only one manufacture’s hardware. There were a variety of systems which required a network to be installed and some of the systems were not compatible with university’s networks and other networks. The market was fastly changing at the moment and many of suppliers were offering products which run on a range of hardware platforms. These systems made use of low cost, high performance hardware as well as standards for communicating systems and relational database management systems and other similar building-blocks. Some of these new systems developed their architecture to separate software into a ‘client’ and a ‘server’. In client-server communication, clients and servers on disparate systems become interconnected seamlessly. National Information Standards Organization (NISO) Z39.50 is an example of this type of protocol in the USA.

OPACs of further improvements were regarded a third generation OPACs and in general began in 1996. Only a few systems have moved beyond second generation OPACs into third generation OPACs which have enhanced more sophisticated characteristics. Free text search and enriched database are among the retrieval capabilities. OPACs of this generation have a user-friendly interface and improved search capabilities such as the ability to perform both simplified and complicated searches. These OPACs are also capable of providing links to external full-text indexes, databases, and e-journals on the Internet. These OPACs enhanced records including additional and uncontrolled access points (such as chapter title in books). Some of these systems include partial match techniques instead of Boolean operators. They have provision context-dependent automatic help and use terms from relevant records retrieval to enhance the search strategy. The retrieved sets display most relevant records first.

The most recent development which OPACs have achieved in providing easy access to bibliographic information is by using graphical user interfaces (GUIs) such as Windows. These systems can be considered as fourth generation OPACs and have moved from the traditional menu-type interfaces. These OPACs are more associated with client server and graphical user interface. They use WIMP (Windows, icons, mouse and pointer) interfaces to speed and simplify searching. With the Windows style user interface which is available through personal computer, there is much more functionality. In these systems, the user has the flexibility to click on various buttons, each of which carries a special function. Access is possible via mouse or keyword or a combination of both.

Searching capabilities in the Windows version of OPACs are greater than those found in earlier OPACs. Pointer capabilities allow the user to select exactly the term he/she is looking for. By using scroll bars and pull-down menus, browsing in different indexes is very simple. Boolean operators can also be used to narrow down or broaden search results. Such strings can be constructed using the mouse alone. A number of OPACs provide the facility to refine the search results by year, language, and type of publication. Most recent additional advanced feature of this OPAC is the hypertext function. Through this function, any word that the user selects or highlights can be used to search all fields and sub-fields in all the records in the database. This dynamic feature helps the search to navigate the database to find more relevant documents.²⁶

3.7.1.2 General features of OPAC

Not all library management softwares have the same features in OPACs. There are certain variations in the features of OPACs of different library softwares. However, some general features are given below:

i. Interactive Interface

OPACs have the interfaces through which the bibliographic information is searched, retrieved and displayed. Present interfaces are interactive. Interactive interface allow communication between user and the system in interactive way. Users can interact with the system, and alter search methods and information displays in order

to optimise search results as per their information needs. Graphical user interfaces (GUIs) have made OPACs more interactive and easier.

ii. **Access points**

With regard to search capabilities, OPAC is a significant departure from the traditional library catalogues. One of its most interesting features over the manual catalogues is to enable the user to search the required information in a variety of ways that are not available in the traditional catalogue. OPACs are able to search the catalogue through a greater number of access points with little information to hand.

- *Searching by author, title, call number, ISBN, series, etc.* These are basically string or phrase search options and consequently the end-user has to provide words from any of these access points in the search box of OPACs. The facility of combined search terms using Boolean or other operators may be provided.

- *Searching by subject:* Subject search is a very important search option. This is general phrase search. The user has to provide either the complete subject heading or the left part of the phrase or a search expression. The user may use the search terms or keywords from the same subject headings list or thesaurus that was used while the input was prepared for the databases.

- *Searching by keywords:* Keyword access is a very powerful tool and provides more flexibility to user to search the items for which he/she has not exact information. This is very different in the manual catalogue. Keyword search makes the index from all bibliographic fields such as author, title, series, subject etc. and it is appropriate alternative for the users who cannot match the exact bibliographic information in the catalogue. In many OPACs, there are options for limiting keyword searching to fields such as author, title and subject. The user can enter one or more keywords and these can be combined using Boolean operators. Other functions such as truncation or limiting search options may also be used through it.

iii. **Types/methods of searches**

Some library softwares offer different types of searches namely simple or basic and advanced/expert or complex searches. The term “simple/basic search” means a search by any word or phrase from any one bibliographic field of OPAC and “advanced/expert/complex search” means searching by more than one field of the bibliographic elements of OPAC record. Basic and advanced searches are shown in figure 3.1 and 3.2. In these types of search, some OPACs provide different search
methods such as Boolean logic, truncation, exact searching, word proximity and phrase searching.

In the use of Boolean Operators such as AND, OR and NOT, user can combine two or more terms from title index, author index and subject index in a search statement. User can broaden up or narrow down their search with the help of Boolean operator.

Majority of OPACs permit the user to broaden the search through truncation method. This is a strategy to search information by entering the root part of a word with multiple variants or spellings using a symbol (usually *) but the symbol varies in some softwares. The search word can be truncated from both right hand side and left hand side. For example, librar* would retrieve library, libraries, librarian, librarians, etc. This search method is generally used when character-by-character exact match does not help.

Figure 3.1
Simple Search
iv. **Browse searching**

In this type of searching, list of index terms are presented in alphabetical order and searchers can navigate the database by going forward or backward through the desired index until he/she finds the index term(s) which may lead him/her to relevant records. Through graphical user interface, this approach helps user to browse different indexes such as author index, title index, subject heading, etc. This facility removes the problem of search specification.

v. **Search output and bibliographic display**

Each OPAC has its own capability for manipulation of the search results. This is usually a list of bibliographic records retrieved in OPACs with some holding information. The output may be listed alphabetically or by the publication date. There
may be provision to print and save the retrieved records, or for the transmission of results by e-mail. OPAC permits displaying bibliographic information in a variety of ways. OPACs show short display or full display or a combination of both. Most OPACs first display a short record, which can be expanded to show more details of the documents. Some OPACs display card catalogue form or a local format and fewer have MARC format display. Some even use the Common Communication Format (CCF). The examples of search output and bibliographic display are illustrated in Figure 3.3 and Figure 3.4.

Figure 3.3
Search output

Database: Books AACR-2
Displaying 1-10 of 194 total records
Awaaz ki parchhayian / Adib, Krishan, 1925- / O168,1N254x L4
Awaaz ki parchhayian / Adib, Krishan, 1925- /
Sahir : yaadon ke aaine mein / Adib, Krishan, 1925- / O168,1N21: g M5-M5:2
Aadhunik aarthik siddhant / Ahula. H.L / X 152L4:6
Aaina aur parchhavin / Ashak. Bimal krishan / OMINASx L1-L1:1
Jadeed Urdu shairi pur ek uchatati nazr / Ashk. Bimal Krishan / Q168.1:oN N31
Maziyana / Ashk, Bimal Krishan / O168,1NAS1x M2
Naam, badan aur main / Ashk, Bimal Krishan / O168,1NAS1x M1
Roshni phir mshini hai / Ashk, Bimal Krishan / O168,1NAS1x M0
Voyage of Komagata Maru or India' & slavery abroad / Baba,Gurdit Singh / 954.50356 GU-VL
vi. Search limits

Provision of search limit gives an essential means for making the search meaningful. In terms of refining search results, OPAC has a great advantage over the traditional catalogue. This option enables the end-user to limit/refine search results by year of publication, types of document, language, and location, etc. When many records are retrieved, the user may limit them through the above mentioned options. Thus, the user can limit all the search results to the works in a particular language, in a particular type of material or all the works published prior to, during or after a given year. Another feature of OPACs is to provide the facility to user to sort the search results by
vii. Search strategy

Search strategy is the planning process to apply an effective search to find relevant information on a topic in a database. It is a generalized set of techniques of how to enter the search into the database or index. Some possible strategies include controlled vocabulary searches, specific entry searches, browsing, broad to narrow searches, adjacent item browsing, subject tracings searches, keyword searches, and cross reference searches. OPACs display the methods how to make a search. Some OPACs display the search strategy during searching. OPACs have different search strategy tools such as display of search strategy, provision of examples under each type of search, display of your search history, and sorting of records according to relevance.

viii. User assistance/online help

It is a valuable feature of OPAC and is a major advantage over the manual catalogue as the system can provide the assistance user to search the documents. It is a great tool to make user familiar about OPAC and its facilities. OPACs have the ability to provide user assistance in a variety of ways and at different levels. Most OPACs have textual information on the user screens/interfaces. Some OPACs have a provision of in-built help message and procedural learning/training to user in order to enhance optimum use of OPACs.

ix. Status, holdings and location information

A major feature of OPACS is to provide holding information and to show status and location of the needed item. OPACs are able to show the status of the volume and copy of the document and whether the document is available on the shelf or on loan or missing. These features help the user saving the time in knowing the status and location of the required documents.

x. Services/facilities

OPACs provide an interface with the circulation system and a provision for the options such as ILL, renewal, reservation, etc. Some OPACs offer provision of online mailboxes for comments or suggestions. Now, a small number of OPACs have the facility to accommodate multilingual documents of a library.

xi. Access and availability

Unlike in a manual system, the user of OPACs has access to bibliographic database, circulation, acquisition, holding and location information at the same
terminal. Unlike the card catalogue, OPAC is accessible through terminals located at the different places in the library and outside the library via local area networks (LANs) and also via wide area networks (WANs). Thus different users at the same time can search the same record simultaneously. In terms of access to library catalogues, distance has now become irrelevant. Technology has enabled us to have decentralized bibliographic information. Now OPACs are accessible through the Internet.

xii. External links

With advances in computer and internet technology, it is possible now to have access to electronic texts and files stored any where in the world over the networks. Some OPACs provide the ability to link to electronic source such as electronic journals and books by using hypertext links of these resources. Different OPACs may be searched by using the standard known as Z39.50. This standard is a protocol for information search and retrieval in a client-server environment.

xiii. General points

Most of OPACs show the name of library software and the owning library. Some OPACs display the brief overview of the library. Logging on and logging off are usually optional features. Some OPACs explain the contents and coverage in them and provide logging and logging off instructions. The time out feature is also optional in some OPACs but a useful feature to avoid slow retrieval of information on the network.²⁷-²⁸

3.7.2 Web-OPAC

Web-OPAC is an advanced technological form of OPAC. It is a library catalogue on the Web or Internet and is a next generation of OPAC. It utilizes the World Wide Web protocol to deliver a library’s catalogue. It is programmed to facilitate the library user to access OPAC remotely. The concept of Web-OPAC is very well established and practiced successfully in developed countries, especially in USA and UK. Majority of their libraries are well equipped with it and offer regular service to their members. Today in India, some libraries are also providing Web based OPAC.


Harmsen defines, “Web-OPACs are an advanced generation of traditional OPACs serving as a gateway to the resources not only held by particular library but also to the holdings of other linked to full-text resources.”

Harrod’s Librarians Glossary and Reference Book defines, “Web-OPAC, as a library OPAC made available to users via a Web browser.”

According to ODLIS, “an Online Public Access Catalogue (OPAC) uses a graphical user interfaces (GUI) accessible via the World Wide Web, as opposed to a text based interface accessible via telnet.”

Thus, Web-OPACs are those OPACs which make the searching of resources of a library possible through the World Wide Web. The major advantage of Web-OPACs is that their usage is global, a person can access anytime and from anywhere in the world. They perform all the functions of OPACs.

3.7.2.1 Features of Web-OPAC

The important features of Web-OPAC are furnished below:

- Graphical user interface (GUI), which is typically thought of as a combination of windows with pull-down or drop down menus, icons and a pointing device such as mouse or trackball to manipulate information.
- The usual features of traditional OPACs such as, storing bibliographical and sometimes full text databases; providing direct access to a library’s bibliographical database by means of terminal or PC, providing instructional help, display of search results in readily understandable form, sometimes remote access from the library’s location, information about community events, providing links to circulation files, reference help etc., providing search through a variety of access points such as author, title, keyword, subject, periodical title, series, call number, ISSN or ISBN, etc.
- The ability to use hypertext links to facilitate navigation through bibliographic records.
- A move towards emulation of the appearance and search features similar to those found in search engines.

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• Linking to full text when available.
• Ability to help bring a conveyance in searching of all electronic information available through one interface e.g. Catalogue, CD-ROMs, Internet Sources, etc.\(^\text{32}\)

### 3.8 Summing up

To summarize, there have been continuous changes through the ages in both conventional and non-conventional catalogues. Conceptually, the objectives and functions of the catalogues are independent of its physical forms and arrangement. Technology, however, influenced the way in which the functions are carried out. Computer and communication technology have added additional features in the catalogue. New developments in computer technology from time to time are being incorporated in OPAC. The libraries are also adopting new trends in OPACs. OPACs have been accepted widely in Indian libraries. OPACs should provide easy approach and all possible means to the user for searching the library resources. Therefore, OPACs should be studied periodically to examine their effectiveness and user friendliness from the user’s point of view.

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