

# ONLINE PUBLIC ACCESS CATALOGUE

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## Abstract

Developments in stand-alone systems led libraries to use these systems and streamline their data processing operations. Apart from routine operations, the libraries started developing bibliographic databases by inputting the bibliographic details of the books available in the particular library. Now the scenario is that these databases are available on networks.

## 1. WHAT IS OPAC

Catalogues of an increasing number of libraries are now available for searching online. These are known as Online Public Access Catalogues (OPACs). Such OPACs may be searched from a terminal within the originating library or at a terminal elsewhere in the organisation or remotely via national or international telecommunication networks. Obviously, searching a library catalogue at a distance marks a notable development in the use of library catalogues.

### 1.2 OPAC Versus Card Catalogue

The library catalogue exists primarily to indicate the books available in a particular library.

The objectives of the library catalogue, first set out by Cutter in 1967, were:

- (1) To enable a person to find a book about which one of the following is known
  - the author
  - the title
  - the subject
- (2) To show what the library has

- by a given author
  - on a given subject
  - in a given kind of literature
- (3) To assist in the choice of a book
    - as to its edition

OPAC meets all these objectives. Then what is the difference between OPAC and card catalogue?

OPAC allows rapid retrieval and post-coordinated retrieval. Post-coordinated retrieval allows a user to define interactively search specifications that precisely describe the information being sought. Card catalogues support pre-coordinated retrieval through standardised headings (entry points) and a built-in cross-reference structure.

### 1.3 OPAC and Library Automation

Libraries progressed in automation by automating the house keeping procedures, i.e., acquisition, circulation control, serials control, etc. However, integrating (linking) these activities is much more beneficial.

Thus, it is possible to link the catalogue to the circulation file so that not only it is possible to know whether a book is in the collection of a particular library, but also whether it is available on the shelf or on loan at a particular time.

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It is important to note that OPACs are not only designed as an information retrieval system but as a module of an integrated library management system.

In organisations where LAN/Intranet is implemented, it is possible for the user to search OPAC from the workplace rather than by a visit to the library. The linking of these networks to national and possibly international networks creates the possibility of searching the catalogue from far-off places.

## 1.4 OPAC and Information Retrieval

There is a growing similarity between the second generation OPAC and traditional Information Retrieval (IR) system. Many developments in IR systems have led to developments in OPAC.

However, we can differentiate the OPAC and IR system as shown in the following table:

### Difference between OPAC and Information Retrieval System

OPAC	Information Retrieval System
1. OPAC is designed for the end-users. It can be easily used by any user for any type of query. To make it user friendly, many facilities like menus, online user helps, online indexes with different approach points etc. are provided (e.g., author, ISBN, class number, etc.).	IR systems are not designed for the end-users and require the skills of information professional. The search negotiation is carried out by the librarians. The librarian has to interact with users to know their information needs, then formulate search strategy using vocabulary control devices and modify the Strategy if required.
2. Records in OPAC database lack abstracts, and subject description is inadequate.	Records are well-indexed (through descriptors, key words) and are supported usually with abstracts.
3. OPAC database includes a library's entire collection, hence its coverage is on a wide variety of disciplines and subject areas.	Coverage is limited in subject scope either to a single subject or to a range of disciplines linked to a particular mission.
4. The underlying assumption in the creation of OPAC has been that most searches will be on known documents (documents whose bibliographic details are known, atleast partially).	IR systems can be searched by a whole range of features, such as author, corporate body, document type etc. The underlying assumption in this case is that most searching will be for documents containing information on a particular subject.
5. OPAC provides card catalogue-like pre-coordinated phrase searching and browsing options.	IR systems mostly provide post-coordinated search.

## 2. TYPES OF OPAC

### 2.1 First-generation OPACs

First-generation OPACs have been derived from traditional catalogues or computerised circulation systems. They are also referred as phrase-indexed or pre-coordinated OPACs. The number of access keys are limited and they are similar to manual catalogues, i.e., author, title, class number and possibly subject headings.

First-generation OPACs have the benefit that usually something is displayed on the terminal as a result of a search. Thus, if there is not an exact match, it may display those records which are nearest to the particular search key. For example, an incorrectly keyed author search entered as 'SMTH' may include in the response a display including items by 'SMYTH'. If there are facilities for browsing backwards and forwards through a sequence this may give the location of items by the desired author 'SMITH'.

Unfortunately, these OPACs often produce an output that may not be required because there might have been an error at the input stage. One of the findings of OPAC research has been that many users do not spell accurately. There is no indication to the searcher that the search term was entered inaccurately.

## 2.2 Second-generation OPACs

Second-generation OPACs have their origin from commercial bibliographic information retrieval systems of the 1970s, and accordingly, have greater similarity to the search services provided by these systems.

These OPACs are operated by a command language, which is simplified for use by inexperienced users. These OPACs provide keyword searching, that is post-coordinate searching. Thus, they offer the additional benefits of search flexibility. They give greater opportunities for subject access to the records within the database than the first-generation OPACs, but this improved subject access is inhibited by the lack of detailed content representation within the records.

The searches in second-generation OPACs are basically of two types:

- (a) Phrase searching on pre-coordinated subject headings, and
- (b) Keyword searches on indexing data in the bibliographic records. These searches are discussed in detail in next section.

Second-generation OPACs suffer from two problems:

- (a) It is very difficult to browse through the records, and
- (b) Large size and wide subject coverage of many catalogues in comparison with other bibliographic databases probably have led to too many searches suffering from false drops and/or too many hits.

## 3. SEARCHING OPACs

Two fundamentally different search approaches can be found in OPACs — Querying/Query searching and Browsing.

### 3.1 Query Searching

Query searching is an appropriate, useful search option when the aim of the search is specific, i.e., users information need is fairly well defined, and this request can be expressed in the language of the database.

A query consists of term/terms/character/number/word or words or a phrase, and the specification (sometimes called the query formulation), which defines how the component term(s) of the query are to be interpreted or related for matching purposes (e.g., using word truncation, range search, field level search, Boolean combinations, and word adjacency/proximity operators). The matching function of an OPAC is the mechanism through which the retrieval software makes a comparison between index terms which represent documents and query terms to effect retrieval. The matching criteria are specified through the query by the user, or applied automatically by the system. Query searching of either kind utilises an exact matching function on the manner in which the matching criteria are specified.

Query searching is of two types:

#### 3.1.1 Phrase searching/Pre-coordinated search

Phrase searching is done on pre-coordinated subject headings. This type of search is automatically processed straightforward and the system looks for the character string or word adjacency in the specified order. Successful subject phrase searching in most OPACs still requires exact match on at least the initial, main portion of the subject heading in the catalogue records.

In some OPACs, when no match occurs on the user's search term, the system displays headings in the alphabetical neighbourhood of the term. This may or may not help the searcher to find a heading which expresses his search interest.

#### 3.1.2 Keyword searching/Post-coordinated search

In keyword subject search or post-coordinated search, query is formulated using Boolean expressions. This allows search to

be performed which can combine terms from various fields. In Boolean queries, the system's matching mechanism makes a binary (yes/no) split of the database between bibliographic records that confirm exactly to the requirements of the query. Partial or 'closest' matching operations are generally not supported in second-generation OPACs and conventional IR systems. The search history is presented at every stage.

### 3.2 Browsing

In browsing, user's information needs are not precisely defined. Browsing can take place in the set of bibliographic items itself or in the dictionary—in the set of words or phrases which appear in the bibliographic item description.

Although browsing may be considered as an alternative to the matching approach provided by query searching, in the online context it is equivalent to browsing the system's indexes.

Browsing is useful for (i) determining the exact form of entry of a subject heading or author name, and (ii) finding items similar to an item known to be useful.

In browsing, the method of indicating the starting position and direction of browsing also forms the part of the syntax of system's language.

Traditional approach of browsing to a search in a library has been to locate the classification codes for items under subject headings appropriate to the search and then to browse

the surrounding shelves for additional/related items. Hence, APPUPA pattern has much been advocated. Such browsing could be carried out equally well using OPAC, if it has a browsing capability by making links in the thesaurus, classification code, subject headings and between records using Hypertext approach.

### 4. LIMITATIONS OF OPAC

Despite the increasing use of OPACs now-a-days, there are many limitations of OPACs. These are listed below:

- Do not provide sufficient assistance in the translation of the query terms into the vocabulary used in the catalogue.
- Do not provide online thesaurus aids useful for subject focussing/identifying terms that are broader or narrower than the topic of search.
- Do not automatically assist the user by providing alternative formulation of the search statement when the initial approach fails.
- Do not lead the searcher from successful free-text search terms (e.g. title words) to the corresponding subject headings or class numbers assigned to a broader range of related materials.
- Do not provide sufficient information in the retrieved bibliographic records (e.g., table of contents, abstracts, and book reviews) to enable the user to judge the usefulness of the documents.
- Do not rank the retrieval sets in decreasing order of probable relevance to the user's search criteria.

#### I. Querying

(A) *Phrase Matching* (Text strings or controlled vocabulary)

(B) *Keyword Matching* (Words with Boolean or proximity formulations)

**\*\*Query search requirement:** Search aim/criteria specific and precisely defined.

#### II. Browsing

(A) *Pre-sequenced, linear:* Typically, lists of index terms, headings, descriptors or brief titles)

(B) *Non-linear, multidirectional* (Navigation, chain, relational browsing)

**\*\*Browse search requirement:** Search aim/criteria not specific, not known, and/or cannot be expressed in appropriate query/indexing language. Two online catalogue search/access options.

Two online catalogue searches/access options

- Do not provide open-ended, exploratory browsing through pre-established linkages between records in the database to retrieve materials related to those already found.

## 5. OPAC OF SUCHIKA

At this point, it is appropriate to evaluate OPAC module of SUCHIKA software—an integrated software package developed mainly for DRDO libraries by DESIDOC.

Following are some of the observations on the OPAC module of SUCHIKA:

- It allows query searching of both types—*Phrase Searching* and *KeyWord Searching*.

- It provides the following search techniques:

(a) *Word truncation/stemming*—It provides right truncation by '?' mark. e.g. Computer?

(b) *Word adjacency operator/proximity operator*—It is possible to search a phrase that has two or more search terms adjacent to each other in the same field, e.g., Allergic reaction.

Punctuation is taken care by treating it as equivalent to space or alternatively use For example, e.g., CP M not CP/M

But if two search terms are separated by one or more stop word(s), it cannot retrieve, e.g., Allergic cross-reaction

Allergic-type reaction

Bay of Bengal

(c) *Field level search*—This search can be done by using 'IN' operator for following fields—TI, AU, IB, DN, SE, CN, DE and AN. If IN operator is not used then search is done on the fields TI, SE and DE, e.g., Opac in ti

(d) *Limitfields/Range search*—A search can be further narrowed down by using limit operators i.e. '<', '>', '=', '<=', '=>' on field 'Document type (DT)' and 'Publication year (PY)', e.g., dt=115 PY>1990

It doesn't take 'Language' field as limit field.

(e) *Combining concepts*—It allows combining two or more search terms by using all three logical Boolean operators, i.e., 'AND', 'OR', 'NOT', e.g., Libraries and Computer?

- Complex searches are possible with the help of parenthesis, e.g., ((Classification IN TI) and (Ranganathan In TI))

- It doesn't provide negotiation in search expression, if there have been typographical errors.

- It provides online indexes on different access points, i.e., *BASIC INDEX—KEY WORDS* and *ADDITIONAL INDEX—AUTHOR, ISBN, REPORT NUMBER., CLASS NUMBER* and *ACCESSION NUMBER*.

- This allows users to know how exactly the particular author/search term is rendered and also allows to Browse on these indexes.

- It doesn't provide index of pre-coordinated (using vocabulary control) terms given in Descriptors field. Basic index gives the list of words from Title, Part, Series and Descriptor fields.

- Every time the records are added to database, BASIC INDEX and ADDITIONAL INDEX have to be updated separately giving the range of record numbers, which is cumbersome.

- Data merging details and the index updation details are to be maintained manually in a register, which is not practical.

- It doesn't provide online thesaurus to help searcher in knowing NTs and BTs for his search terms to improve his search expression.

- It doesn't provide cross-reference index for acronyms, synonyms, etc.

- To display the search results, it provides three-options, i.e., titles, short citation and full citation. First option displays 'Browsing Screen' of titles of the retrieved records for browsing. Then, it allows to mark the selected record for display of short/ full citation or for downloading. This facility to some extent satisfies the user's browsing activity.

- As it is a module of integrated library management system, it provides the option to show the issue status of the current record, i.e., whether the document retrieved is on circulation or not.

- It provides online help to users in conducting their search.

- It is user-friendly as it is menu-driven.

- Keeping in view the latest technological developments, this OPAC should include Hypertext/Hypermedia features for emulating Browsing.

- It allows remote access through dial-up mode/I-Net.

It can be concluded that OPAC module of SUCHIKA falls under second-generation OPACs. Though it has some limitations (can be sorted out in future versions), it is a fairly good OPAC package.

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