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Database Search Strategies in Lis Professionals

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Abstract

Search specialists can be found in libraries of all kinds, but are located especially in college and university libraries and in the information centre and other special libraries associated with business and industrial organizations, law firms and medical establishments. Some search specialists are freelance entrepreneurs, in business for themselves and actively marketing their services to special user populations. clients of online information retrieval search specialists include undergraduate and graduate students and faculty in academic libraries, and scientists, engineers, businessmen, doctors, lawyers, and many others using special libraries and information centres to help satisfy their information needs.

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DATABASE

It should be noted that the word "database" is often used outside the library and information field to describe any set of computer-held structured records, which can be approached using search keys, and that the world "databank" is sometimes used synonymously.

In the field of library and information science, the words database and databank are now usually taken to have the following meanings: a database generally provides details of bibliographic references, which the searcher uses as keys in order to consult the original source literature to obtain the detailed knowledge he is seeking.

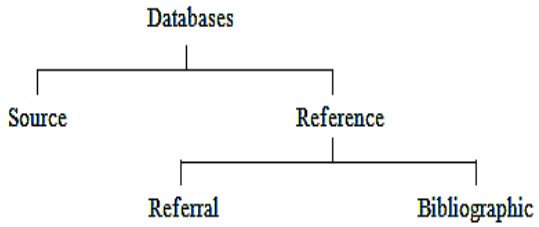
Increasingly, the online record will contain an abstract or indeed full-text detail, which answers the enquirer's question without reference to other documentation; a databank, on the other hand, concentrates on factual information and generally gives a direct answer without further reference to original source documents [1].

DATABASE DESIGN FOR ONLINE SEARCHING

Harrod's Librarian's glossary defines a database as information stored in computer files and accessible via remote terminal and telecommunication link. In other words, a database is a collection of data/information and records of documents organized in a machine-readable form.

TYPES

The database may be divided into two classes primary/source database and reference or secondary database. The source database includes numeric, textual numerical and full-text forms. While the latter includes only bibliographic reference on a subject. This can be showed in diagrammatic form as follows.



The reference database is again categorized as referral and bibliographic. Referral database directs the user to address of persons or organizations.

The bibliographic database is a surrogate or representation of journals, monographs, reports, conference proceedings, dissertations, books, etc. [2]. Rowley and turner grouped bibliographic databases as follows:

1. Large discipline oriented database, corresponding to major abstracting journal E.g. Chemical Abstracts.
2. Interdisciplinary database with coverage based on core journals, e.g. SciSearch.
3. Cross-disciplinary database, e.g. MetaDex
4. Smaller, more specialized mission—oriented databases serving a particular information technology with information needs cutting across national disciplines E.g. Food science and technology abstracts.
5. Database covering any particular type of publication, e.g. dissertation abstracts.
6. Re-packaged information, new smaller packages at prices an individual can afford base on major services or combination of major services, e.g. HEEP.

ONLINE DATABASES

The online file is usually derived from the machine-readable version of an abstracting or indexing journal. Bibliographic records held in this form are not, of course, directly useful to users and it is the function of online "systems" to make the details held on these disk files accessible to users.

The number of bibliographic records readily available online is extremely impressive-about 159 million items per year. Allowing for duplications, some 100 million unique references are potentially at the enquirer's fingertips [3]. Quantitatively, while this can be matched in hard-copy form by a few very large libraries, it represents for most libraries a resource-pool far larger than anything could possibly hope to afford as shelf-stock, particularly in disciplines not close to their main subject field. In online information retrieval, the searcher uses a computer terminal usually linked by telephone to a remote computer.

The computer stores the database of bibliographic records on rotating magnetic disks always available for immediate access. The database can be searched and re-searched using special computer programs, which allow the searcher to carry out a two-way conversation or dialogue with the computer [4].

ADVANTAGES

Online retrieval offers many advantages, the following being particularly noteworthy:

- In-depth searches of computer-held files can be carried out at a speed which no human can hope to match.
- The user is an active participant and can instantly adapt his request to the reality of what is actually in the reference file—perhaps very different from what he expects—and also readily recover from errors in the information of queries.
- Databases can easily be re-searched, using new clues.
- The user has easy access to an extremely wide range of indexes and databases, many of which may not be available locally.
- Database searchable online often offer a far greater number of access points than the corresponding printed indexes.
- There is almost no need for the irksome note taking.

WHO SHOULD SEARCH?

Established vendors of scientific and scholarly information and data, such as DIALOG and BRS, have expanded their services to appeal to direct searching by a mass popular audience. DIALOG's "Knowledge Index" and "BRS after Dark," both introduced in early 1983, represent direct attempts to market online search services to a growing population of personal computer owners, although neither system includes the powerful and sophisticated search features available in the parent system used by search specialists. Gateway systems-microcomputer interfaces between host search systems and the microcomputer/terminal of the end-user-are also increasing the extent of end-user searching. These ideas are discussed more fully in [5].

However, despite an inevitable increase in end-user searching, it is likely that most online information retrieval will continue to be carried out by intermediaries, at least for complex, difficult information needs, for the same reasons that most of us leave other specialized and complex tasks to the experts in

our society. There may come a time when knowledge-based expert systems—computer programs functioning as search specialists—will be able to handle most simple searchers well. However, search intermediaries promise to play an important role in online information retrieval for the foreseeable future.

A complex and powerful tool is most efficiency wielded by one who not only possesses an aptitude for an interest in the work, but also has been educated in the concepts and principles underlying the design of the tool and who frequently practices and hones the skills required in its use. Specialist in online information retrieval is no exception to this generalization. As intermediaries between end-users and search systems, they play an important role in the solution of the information problems of their clients.

Unfortunately, these is an obvious difficulty with the client/intermediary relationship that arises from the necessity for the information problem to be accurately communicated to and understood by the search specialist, if good results are to be achieved. If the search problem is conceptually complex, or if communication problems occur at one or more levels, a significant loss or distortion of information can occur [6]. This could result, in the worst case, in the worst case, in the solution of a different information problem than that initially posed.

SEARCH STRATEGY

User and user Needs: Satisfying the information needs of users is the sole function of an information-retrieval system. Hence, the user at the output end is more important than anything else. The latest trend in machined IRS is to train the user to interact with the information system avoiding the intermediary or information officer. The end-user's involvement in the search, results in maximum success. However, many of the IRS has the information officers, as intermediary, who receives the enquiry from the user, formulate search strategy and retrieve the output (Figure 1)

A search may be made using a word or term of the sort occurring in sides, index or terms or abstracts. These are called as entry points. The conceptual analysis of the request translated into the language of the system is search strategy.

Although there several methods of relating the terms selected to apply to a search, the most successful method has been the use of Boolean Logic. Other methods, which have been used are weighted terms and Truncation.

1. Boolean logic search method makes use of the logic operators AND OR NOT, which allows to construct fairly sophisticated search strategies linking the terms together using any of the three operators.

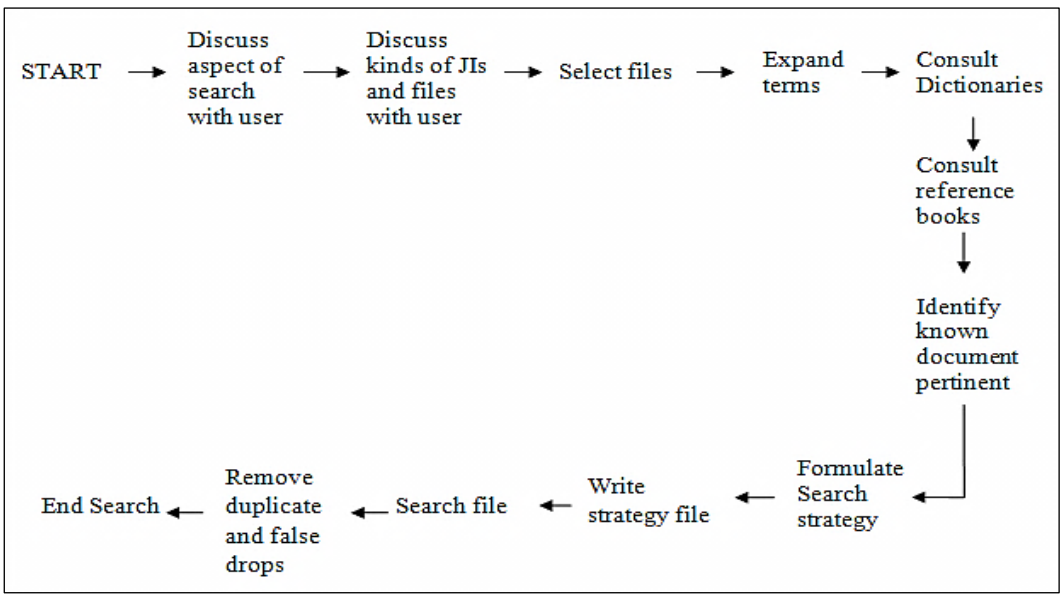


Fig. 1: *Search Strategy.*

Eq:
(i) Sound or noise or acoustic
The use of link OR retrieve more item but there will be greater number of relevant items.
(ii) Sound and Suppression and Industry
Hence, the search is for items in which all the three terms have been used in the title or abstract. This retrieves less but relevant items.
(iii) Insulating not Heat.
The use of logical relationship 'NOT' allows excluding particular terms.

Boolean logic search is used in both computer based derived term, natural language system and also in manual based assigned—term controlled vocabulary systems.

2. Weighted Term Search

Weighting is another approach to the relationship between terms. A relative numerical weight is assigned to each of the search terms and represents the importance of each of the search terms in the strategy. After a weighted search, documents are ranked according to the total scores. Those with high scores contain the highest concentration significant indexing term.

In other words, 'a hit' occurs when the sum of the numerical weights of the index terms of a document achieves a predetermined threshold weight, for example: in search on the subject of the marine corrosion of stainless or specialty steels weight must be assigned as follows:

Term	Weight
Stainless	50
Speciality	50
Chromium	20
Nickel	20
Steel	30
Corrosion	40
Seawater	50
Marine	50
Threshold weight for retrieval of term	100
Stainless steel, Corrosion, Seawater	170
Chromium, Nickel, Steel, Corrosion	100

3. Truncated subject terms are used in search, which is a device by which the computer will search under any terms with the stem irrespective of word ending.

Eq: Compute
Computed
Computer
Computers The stem is COMPUT
Computes
Computing

Truncation may be used in free or controlled language systems but is far more powerful in free-text systems. Once the search strategy has been developed, the search will be matched against the database of index records. A search will be carried out other by indexing or by text searching [7].

Matching: 'Matching' process includes matching a reader's request with the records in the database. The search profile, which consists of key words relating to the user's subject, is matched with the whole database of document representation in a retrospective search. If it is matched with recently published articles, it is called as CAS. When a match occurs, the information is transferred to the user as data output, which in a mechanized system is called as a 'Hit'. If there is no match then it is 'Miss'.

The online information retrieval industry: the online information retrieval industry, which has been developing since the early 1970s, has three main sectors:

1. The producers of the database.
2. The online services hosts or suppliers sometimes referred as 'Spinners' of Vendors.
3. The users of the system: Libraries information services, information Brokers and end-users.

The producers of bibliographic databases are professional institutions or societies, which are already well established in providing secondary information services by organizing the primary literature covering their field.

Ed: Chemical Abstract by American Chemical Society, Index Medicus by National Library of Medicine, USA. Now, there are thousands of database producers in the world.

The machine database: These are produced by the learned societies and leased to the online service hosts/venders who have sufficient hardware capacity to store and communicate

with the user. The establish interaction between host and searcher/user using remote computer terminals linked by national and International telecommunication networks. The pioneers of online hosts/venders are Lockheed Missile and Space Corporation (SDC), etc. From 1966, the DIALOG system was introduced and from 1972, it was lunched as a commercial venture.

The SDC was developing online information retrieval system as long as 1965. It has developed ORBIT online Retrieval of Bibliographical Information Time-Shared. Bibliographic retrieval service information technologies began operating 1977. The Wilson line Service was introduced in 1984.
ESA-IRS, BLAISE, DATASTAR, Routers, Pergamum, Financial data services, EURONET/DIANE, etc., are some of the popular database hosts. Now, there are large numbers of vendors who provide online information retrieval. The utilizers of these online databases are libraries, information centres and information brokers.
The information brokers function on commercial basis for end-users and the number of information brokers have increased since 1980s.

However, majority of libraries or information centres are offering the service either free or charging incremental charges, for their users in the industrial, commercial, public, medical, legal and academic sectors. The online vendors develop user-friendly, menu-driven software packages to search the databases directly. Hence, the end-user also can directly search a database without a mediator.

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