Information Storage and Retrieval

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Abstract:
Information retrieval is the process of recovering specific piece of information from stored data. The term information storage and retrieval indicates the system used for organizing knowledge for subject retrieval. Information storage and retrieval is definitely not a new concept. It is an integral part of the communication process of direct result of the desire of human beings human beings to communicate with one another. Information has been recorded throughout the ages, and techniques and methods for storing and retrieving it have long been available. But the pharse 'information retrieval' as we understand today is, of recent origin, being coined by Calvin Moores in 1950 in connection with bibliographical control of macro and micro documents.

Thoughts of Moores, J.H. Shera and B.C. Vickery regarding information retrieval are briefly described here. Their thoughts are almost the same only the expression differs.

There is difference as well. B.C. Vickery brings in the terms: descriptors, specifications and 'addresses' in the construction of an information retrieval system.

Keywords: *Information, Library, Retrieval, Storage, System*

1. Introduction

"It is through the technology that science interfaces the library. The information revolution implied in this technology is very real and highly pertinent to all forms of librarianship. Libraries as institutions, like human beings, operate in a sea of information, selecting, organizing and storing items on same presumably rational basis. New insights to this context are being gained through the inchoate sociological models of information processing systems".

-Robert S. Taylor

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The term 'Information Retrieval' is interpreted by Moores to mean searching and retrieval of information from storage according to specification by subject". To J.H. Shera it is the process of locating and selecting data, relevant to a given requirement. And to B.C. Vickery, information

retrieval is essentially concerned with the structure and operation of devices to select documentary information in response to search questions.
Both traditional and new methods are employed to retrieve information. But, in face of the information explosion and proliferation of subjects a need for mechanizing or automating the techniques for retrieving information is being increasingly felt. But, at present the operations associated with a retrieval system range from simple indexing to digital computers.

In the whole operation of information retrieval one can recognize four phases:

1. Word retrieval-in which one identifies the words that will adequately describe the information.
2. Reference retrieval-in which one identifies references that are probably pertinent to the enquiry. Reference retrieval system is typified by the library card catalogue or other indexes, which yield a complete reference to a document in response to a general search quest. Many of the mechanized retrieval systems, provide reference retrieval only.
3. Document retrieval-in which a complete copy of the document instead of just a citation or reference is provided.
4. Data retrieval in which the sought information is extracted from the documents.

Retrieval systems serve two main functions. The first is current awareness-to call to the attention of users newly acquired items of potential interest to them. The second is retrospective search-to provide for a search throughout the whole of a store for items of interest to a particular user. Many existing systems serve only one of these functions, or consist of two unrelated sub-systems each serving one function. For instance, a library catalogue is only used for retrospective search, while accessions list/bulletin only for awareness. A system should be designed to serve both functions.

2. Information Retrieval Process

Any information storage and retrieval system will have a complex series of operations before documentary information can be used:

1. Information must be recorded in documents;
2. Each document must be stored with others in some accessible place and its location known;
3. Characteristic aspects of each document profile, and this must be recorded with others in same file;
4. The potential user must formulate some query or express some interest in terms of characteristics recorded about documents;
5. This user profile must be compared with document profiles and the locations of matching documents identified;
6. The documents must be located and presented to the user.

Allen Kent too maintains that the information retrieval system, whether structured on traditional methods or on machine-oriented techniques, involves a series of 'unit operations', which according to him are as under:

1. Analysis, involving perusal of the record and the selection of the points of view or analytics.
2. Terminology and subject-heading control, involving establishment of some arbitrary relationships among 'analytics' in the system.
3. Recording of results of analysis on a searchable medium, involving the use of card, tape, film or other media on which the 'analytics' can be transcribed.
4. Storage of records or Source documents, involving the physical placement of the record in same location.

5. Question analysis and development of search strategy, involving the expression of a question or a problem, the selection of 'analytics' based on the analysis of the question, the expression of these 'analytics' in terms of a particular search mechanism, finding a link between the question and the records on file, as analysed.
6. Conducting of search, involving the manipulation or operation of the search mechanism in order to identify records from the file; and
7. Delivery of results of search, involving the physical removal or copying of a record from file, in order to provide it, in response to a request.

One can very well note that both Vickery and Kent have explained almost identical series of steps as the basis of techniques of 'Information Storage and Retrieval' only the expression differs. Both of them have put emphasis on the analysis of printed data and documents; using key-words or heading terms; index card; storage of documents; matching the terms of query with those of documents; conducting of search; identifying the document; and eventually providing the identified documents from the storage of the users.

There is difference as well B.C. Vickery brings in the terms: descriptors, specifications and 'addresses' in the construction of an information retrieval system. The descriptors are, in fact, the keywords which analyze the thought-contents of the documents. 'Specifications' pin-point information about the author, title, publisher or host document, pagination, etc, followed sometimes by abstract or annotation. By 'address' Vickery means the code number/call number, shelf-number, or file number which facilitates retrieval of documents. All the three taken together complete the description of documents and is an Integral part of the information storage and retrieval system.

In summary, this field is concerned with the generation, management and explanation of recordable knowledge. Though a vast amount of material has been published on the subject of information storage and retrieval, yet there is no recognizable or accepted body of theory, much less practice, which can be taken as an established discipline. As Vickery has succinctly remarked: There is an attempt at a unified presentation of the whole problem of information retrieval, treating the subject on general theoretical lines. The attempt is presumptions. There is as yet no unified theory of information retrieval systems, and a good deal of retrieval practice is still an empirical art, unsullied by theory.

Nevertheless, the growth and complexity of literature has posed a problem particularly to the special librarians-how to retrieve the information. The indexing technique, the purpose of which is to provide a means of retrieving every bit of information once it has been put into any kind of filing location has been found quite effective in dealing with information retrieval. It may be easy to make an index as to make a broom, but to make an index tied up and light is not an easy task. The development of so many indexing techniques is clear reflection of this idea. However, each indexing project requires study and individual decision as to what approach will adequately take care of it.

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