Overview

The next step in organizing information once we have a system for representing information objects is to collect the representations in an information system that allows users to search the representations and discover useful resources. Information systems usually have some part that supports the searching of the representations, and we call this the information retrieval system. This module provides a brief introduction to these two concepts.

Information systems

MacMullin and Taylor (1984) provide a general description of the purpose of an information system:

*The major—and perhaps only—reason for the existence of an information system is to store and provide information in usable chunks to those who live and work in certain environments, and who as a result, have certain problems which information may help to clarify or even solve.*

Please note the use of the (not really) technical term "chunks"! An information system can be considered broadly. For example, the library is an information system, in that it has information (in the form of books and other materials). Through the tools available in the library (i.e., the information system), people can identify and access information, ideally in usable chunks. Certainly, one component of the library as system is the organization systems that bring order to a small section of the bibliographic universe.

The concept of a system is important. We can define a system as a set of components working together toward some goal. With the library as an example of an information system, we can identify some of its components:

- collection of information objects
- organization systems
- computer systems
- personnel

These work together for the purpose of maintaining a collection of resources to serve the needs of a community of users. Thinking of a library as a system allows us to focus on the parts while at the same time realizing that they interact toward a common goal.

One special component of an information system is the information retrieval system.
Information retrieval systems

Within an information system, there are several components of particular interest when we organize information. One is the approach we choose for representing information objects. Associated with that is the metadata scheme used to structure the representations, and the words and terms in the representations (e.g., how do we list an author's name and which name to use?).

Another essential component is the system that allows the user to search for the representations we have created. We will call this the information retrieval (IR) system. The information retrieval system stores the structured representations (i.e., the metadata records) and provides users with one or more ways to search them.

We call this a system because it is comprised of multiple components:

- An interface where a user interacts with the IR system (could be a person or a computer screen)
- A language the user and system share to communicate
- A set of representations of information objects
- A matching component that takes the users request and matches it against the representations
- An interaction component that allows iterative requests and responses
- A set of messages between the user and system (searches, results, error messages, etc).

For illustration, we can think of the library catalog as an information retrieval system. An information retrieval system may be electronic/digital (online catalog) or it might be manual/analog (card catalog). We go to the library catalog, interact with it by putting requests to it and receiving responses. In the online catalog, software inside the catalog takes our request and matches the words we use in the request with words in the representations it has stored. Those that match are retrieved by the system and presented to the user.

An information retrieval system is at the same time quite a simple tool (i.e., takes requests, matches requests with representations, and displays results) and a very complex one. The card catalog seems on first glance a very simple tool, but a closer inspection reveals the complex structures that make it work. Online catalogs are even more complex because they rely on numerous software programs interacting successfully.

For now, though, this simple description of an information retrieval system will suffice until we get to other Module Series that address databases and models of information retrieval.

Summary

This module introduced the concepts of systems, information systems, and information retrieval systems. Of particular interest is the information retrieval (IR) system the user interacts with to search for the representations of the information objects. An IR system encompasses numerous components working together to connect users with representations of information objects that may contain the information they need or want.

Cites & sites