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# SEARCH ENGINE

## **WHAT IS SEARCH ENGINE:**

A `World Wide Web Search Engine` is defined as a retrieval service consisting of a database (or databases) describing mainly resources available on the WWW search software and a user interface also available via WWW.

**Functions:** - Search Engine locates web sites on a particular subject, reduce the surfing time and provide a list to find the sites of one's interest.

**Key Components:** - Search Engines have three major components:-

1. *Spider /Crawler:* - The spider visits a web page, reads it and then follows links to other pages within the site.
2. *Index:*-Everything the spider finds goes to the second part of the search engines, the **index**. Index sometimes called the **catalogue** is like a giant book containing a copy of every web page that the spider finds.
3. *Search Software:* -It searches through the millions of term recorded in the index to find matches to a search and it ranks the retrieved records (web pages) in the order it believes to be the most relevant.

## **HOW SEARCH ENGINE'S WORKS**

Search engines match the query with the content in their databases and present the information about such pages

along with URL's to such pages on the web. A search engine has a database of information from the world-wide-web stored mostly as a document consisting of the information presented on that particular web page.

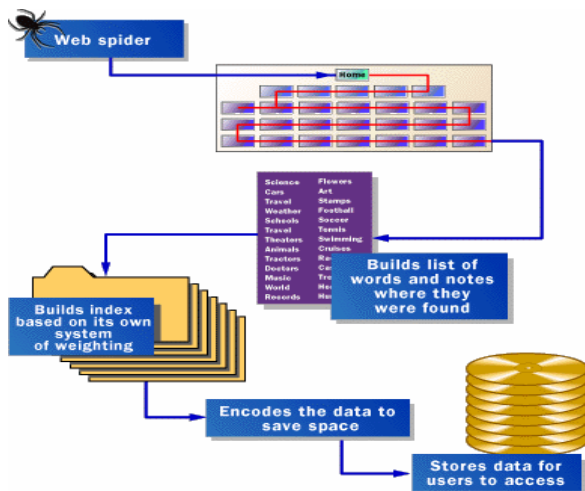
Search engines build their databases by using programs called '**spiders**'. These programs are designed to search the World Wide Web via the Internet, visit sites and databases collecting information. They operate continuously, updating the search engine databases. Most large search engines operate several of these programs all the time. When a query is presented it is only matched with the information existing in the search engines database. The spiders may collect information by following links on the existing pages in their database.

Some web pages having information on the query may not be displayed by the search engine for various reasons. Such pages are called '**invisible**' pages. However such pages may be added by submitting the URL manually to the database.

## **HOW A DATABASE IS BUILT**

Internet search engines are special sites on the Web that are designed to help people find information stored on other sites. There are differences in the ways various search engines work, but they all perform three basic tasks:

- They search the Internet -- or select pieces of the Internet -- based on important words.
- They keep an index of the words they find, and where they find them.
- They allow users to look for words or combinations of words found in that index.



### Building lists:

Before a search engine can tell you where a file or document is, it must be found. To find information on the hundreds of millions of Web pages that exist, a search engine employs special software robots, called **spiders**, to build lists of the words found on Web sites. When a spider is building its lists, the process is called Web Crawling. In order to build and maintain a useful list of words, a search engine's spiders have to look at a lot of pages. The spider will begin with a popular site, indexing the words on its pages and following every link found within the site. In this way, the spidering system quickly begins to travel, spreading out across the most widely used portions of the Web.

### Building index:

Once the spiders have completed the task of finding information on Web, the search engine must store the information in a way that makes it useful. There are two key components involved in making the gathered data accessible to users:

- The information stored with the data
- The method by which the information is indexed

A search engine could just store the word and the URL where it was found.

An index has a single purpose: It allows information to be found as quickly as possible.

## TYPES OF SEARCH ENGINES:

1. **Directory Based:** - These are arranged by subject or material type.  
E.g. - Yahoo.
2. **Keyword/Crawler Search Engines:** - There are indices of internet material compiled by robots or spiders programs. The programs regularly navigate through data tags, links and the text of the web pages for new and updated information. E.g. Hot bot and Infoseek
3. **Meta Search Engines:** - Which search multiple search engines database concurrently and present the combined results.  
E.g.:-Meta Crawler and Askjeeves.

Another type of categorization of search engines is:-

1. General Search Engines, e.g. Google
2. Specific Search Engines, e.g. Custom search engines



## SEARCH FEATURES OF SEARCH ENGINES:-

Almost all search engines provide basic text search facility like Boolean Search, Proximity Search, Phrase Search, Truncation, Field Specific Search and Limiting Search (by language, domain, country and so on). The search operators vary from one search engine to another.



### 1. Boolean Search:-

Boolean search facilities allows a user to combine search terms in a given search prescription with certain conditions imposed. These conditions specify whether more than one search term should simultaneously be present in the desired records (use of AND operator), whether any of some chosen words should be present (use of OR operator), or whether one or more terms should be present while another term should not be present (use of NOT operator) in the desired records.

- **Google:** - provide this facility using AND OR NOT operator in capital form with search term.

- **AltaVista:-** provide +sign for AND –sign for NOT

**2. Proximity Search:-** This search facility allows the user to specify whether two search terms should occur adjacent to each other, whether one or more words occurs in between the search terms, whether the search terms should occur in the same paragraph irrespective of the intervening words.

- **Google:-** Same as AltaVista
- **AltaVista:** - use NEAR operator for this.

**3. Limiting Search:** - This allows a user to limit the search in one or more fields (language, file formats, etc.) in his /her query formulation

- **Google:-** provide search limiting by date, file formats (PDF, html), language and occurrence (in title, or anywhere in the page)
- **AltaVista:** - by date and file formats.

**4. Phrase Search:** - This allows a user to search an exact phrase in the document.

- **Google:** - provide this facility to entering a phrase within double quotes, e.g. "surgical oncology".
- **AltaVista:** - provide this facility to entering a phrase within double quotes, e.g. "surgical oncology".

**5. Search refinement:** - facility to refine the search.

- **Google:** - provide facility to search within results.
- **AltaVista:** - same as Google.

# NATIONAL RESOURCE CENTERS

Details about major national information resource centers

Part-IV

K. V. Ratnakar

Resource Centers on various topics /subjects interests were established in India by NISSAT (National Information System for Science and Technology, Dept. of Scientific. & Industrial Research, G.O.I).These resource centers provide maximum information from the related subjects /topics to the users/researchers. These centers maintain an extensive

collection of published and unpublished documents in the form of books, periodicals, research reports, patents, technical publications etc., pertaining to the relevant subject areas. Details about some of the major National Resource Centers were given in earlier parts. The remaining descriptions of National Resource Centers are given in this part.

## **NICAC**

NISSAT was established different sectoral information centers to support the specialists in their area of interest with all necessary information required by them, in this direction NISSAT took a giant leap

by setting up a National Information Center on Advanced Ceramics (NICAC) in Central Glass and Ceramics Research Institute (CGCRI), Kolkata.

### *Objectives:-*

1. To prepare and maintain a computerized database on superconducting ceramics, high-tech ceramics, optical materials, ceramics composites, etc.

2. To establish linkage with data center on ceramics and related subject worldwide.

3. To generate and provide information services on the subject etc.

## **NICRYS**

The International Information Center for Crystallography (NICRYS) is the first hard data center established at the University of Madras, Madras in 1981. The center

obtains global information compiled and collated at Cambridge on organic and organometallic compounds and stored on magnetic tapes.

### *Services:-*

The center extends services to a large cross-section of scientists in major institutions by providing them with

copies of data files on bulk change basis. Protein Crystallography Structural Data (PCSD) and Nucleic Acid Sequence Data (Gene Bank) are also currently available.

### **NICDROM**

The National Information Center on CD-ROM (NICDROM) at National Aeronautic Laboratory (NAL), Bangalore, and Karnataka established in 1988 supplies

information on CD-ROM, hardware, software and their suppliers, reference tools and databases available on CD-ROM and also provide information from NTIS.

### *Services:-*

NICDROM caters to the information professionals and institutions providing information on CD-ROM a reference collection of books and journals on CD-

ROM, technical specifications, choice & cost of the CD-ROM equipment, CD-ROM database and services.

### **NCB**

The National Center on Bibliometrics (NCB) was established in 1988 at NISCAIR, New Delhi with the support of NISSAT. It is

possibly the greatest contribution of NISCAIR to bibliometrics.

### *Objectives:-*

1. To create S&T citation databases of Indian contributions appearing in Indian S&T journals.
2. To develop tools, techniques and modalities for the analysis of research

output based on SCI data and the Indian S&T citation database.

3. To analyze the research outputs of selected research institutions, agencies, universities and other similar bodies.

### *Services:*

The services of the center among other comprise the following:

1. Analysis of research outputs of individual scientist, teams, institutions etc.

2. Organization of training courses on Bibliometrics.
3. Consultancy relating to Bibliometrics studies, improvement of impact factor of journals, etc.

4. Supply of impact factor of all S&T journals including those not covered by SCI.
5. Reply to queries pertaining to Bibliometrics etc.

*Publications:*

1. **CSIR Research Output** is a regular publication brought out by the National Center on Bibliometrics annually.
2. **In Search of Knowledge** is another important publication brought out by the center. The best papers were selected by

the respected laboratories first and from among these papers only those were included in the volume that fulfilled the citation criterion fixed for each subject.

*Training:*

Ever since the inception entitled the INSDOC (now NISCAIR), course titled Associateship in Documentation and Reprography (now known as Associateship

in Information Science), bibliometrics is being taught. J S Ghosh produced the first dissertation on bibliometrics as student of INSDOC.

**NICMAT**

National Information Center on Tea Manufacturing and Marketing (NICMAT) was established at Calcutta, West Bengal. The main aim behind setting this information center is to provide bibliographic as well as factual and numeric information to meet the various information needs of

academicians, scientists, technology entrepreneurs, management executives & decision makers. Tea plantation and manufacturing is one of the traditional industries of India and an important livelihood for the people of north-east and south to facilitate timely information on latest techniques and practices in tea.

## Recent Additions

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# NEWS

- Workshop on **Greenstone Digital Library Software**, IIM –Khozikode, November 26 – December 1, 2007.  
**Organizer:** IIM – Khozikode Library.
  
- **IASLIC-2007:** XXVI All India Conference 2007 on Digital Media and Library and Information Services, Dec 26-29, 2007, Jamia Millia Islamia, New Delhi.  
**Organizers:** **IASLIC** and Jamia Millia Islamia, New Delhi.
  
- 53<sup>rd</sup> all India Conference of Indian Library Association On Developing Library and Information resources & Services in The Internet Era, Dec. 13 – 16, 2007, Osmania University, Hyderabad.  
**Organizers:** Department of library and information science, University College of Engineering (under TEQIP) , University College of Technology, (Under TEQIP), Osmania University, Hyderabad.
  
- **NACLIN-2007:** Tenth National Convention on Knowledge, Library and Information Networking, November 20-23, 2007, India International Centre, New Delhi.  
**Theme of the conference:** Libraries without boundaries: Reaching the Unreachable in Knowledge Era.  
**Organizer:** DELNET, New Delhi.