**Course: Advanced Bioinformatics**

**Module title: Search Engine**

**Module no. : 14**

In this module, we’ll learn about the search engines.

A Web search engine is a search engine designed to search for information on the World Wide Web

Information may consist of web pages, images and other types of files.

Working of Search Engine:

* User submits a query in the form of word/phase
* Searches the database
* Returns a list of suitable URLs which match the query.
* User can revise and resubmit.

List of Some Popular Search Engines

* AOL anywhere ­ search.aol.com
* AltaVista ­ altavista.digital.com
* Excite ­ www.excite.com
* HotBot ­ www.hotpot.com
* Magellan ­ www.mckinley.com
* Google ­ [www.google.com](http://www.google.com)

**Web Directories**

A Web Directory or Web Guide is a hierarchical representation of hyperlinks.

The top level is typically a wide range of very general topics.

Each topic contains hyperlinks of more specialized sub-topics. It is very easy to use since all the information is hyperlinked with each other.

* Below is the list of Some Popular Directories
* AOL anywhere ­ search.aol.com
* CNET Search.com ­ www.search.com
* Excite ­ www.excite.com
* E-Wild life ­ www.ewildlife.com
* Lycos ­ www.lycos.com
* Yahoo! ­ www.yahoo.com
* Google ­ www.google.com

**Operation of Search Engine:** A search engine operates, in the following order

* 1. Web crawling
  2. Indexing
  3. Searching

1. **Web Crawler:** Browses WWW in methodical, automated manner. It always maintains up-to-date data. It keeps copy of visited sites.

Internet bots are quite common while refereeing web crawlers. They automate "spiders" that follows links and then analyses content in pages to determine what should be indexed.

1. **Indexing:** Indexing collects, parses, and stores data to facilitate fast and accurate information retrieval. Data about web pages are stored in an index database for use in later queries. Some search engines, such as Google, store all or part of the source page (referred to as a cache) as well as information about the web pages. The engine looks up the index and provides a listing of best-matching web pages according to its criteria.
2. **Searching:** Searching is done by presented some query which can be any of the following.

* Textual Query
* Image Query
* Audio Query

Evaluation: Precision and recall are measures used for evaluation of search engines.