Abstract - Existing meta search engines use common approach in terms of displaying search result on screen with no role of indexing. They basically send request for links on individual search engine and retrieve results and display aggregate result on screen based on own ranking formula. In existing meta search engines there is no availability of index database for efficient search process. There is a need to have role of index database for storage and retrieval of search results. This paper discusses the need of index database for search results in a meta search engine and discusses a model, which allows user to get search results in an efficient manner for input search text. A new model of the meta search engine comparatively retrieves speedily aggregate search results according to assigned rank in database.

Keywords - meta search engine; index database; response time; aggregate results; performance analysis

I. INTRODUCTION

A meta search engine is a tool that combines the search results of multiple search engines. Each search engine on the Web has different pros and cons in terms of usage of different ranking methods to display information about web pages, usage of different resources, etc. Users might have seen how these differences cause different search engines to return hugely different search results for the same input search text. To perform absolute search for a query, users might need to use various individual search engines. Using a meta search engine users can search different engines at the same time, so user does not need to conduct the same search several times on different search engine. Meta search engines do not have their own databases for indexing of the Web information; instead, a meta search engine sends user input search text to several other search engines, search engines run the search text against their databases of the Web information and return results to the meta search engine. The meta search engine then returns consolidated results from all the search engines. The problem with existing scenario is, meta search engines do not have their own databases for indexing purpose like general search engines and takes time for result retrieval. And because of that it causes problem of time out, which is there with mother of meta search engines “mamma” also. The results are combined from various individual search engines by meta search engine. They are sorted and displayed on screen in a logical way using ranking formula. A new model of the meta search engine includes concept of introducing databases for indexing with meta search engine, like databases with common search engines for indexing. In database oriented meta search engine, to search text based contents first it will look in the database whether search text containing keywords are available in it or not. If user search keywords are already in database, then will retrieve web information from the database by sending simple query. Otherwise, search query will be send to multiple individual search engines and retrieved result will be stored in the database and then through procedure web information from database will be displayed on user screen. Communication between engine and database will be faster than communication between engine and the web. In addition to this work there is a requirement of periodical updating services which will run queries and report results automatically to the database like updating database of common search engines.

Goal of using meta search engine is to get consolidated web results by sending queries to multiple individual search engine. It is used to have limited number of hits on screen. Dealing with multiple individual search engines for this may retrieve large number of search results with duplicates. Instead let have database containing unique web results for specific search text will help user to get web information in an efficient way. Newly introduced concept deal with own database of meta search engine itself will increase efficiency and will not have chance of timeout problem. Necessary thing here is database updation over a period of time to increase reliability like common search engines.

II. The Model

Following are sequence of activities performed by the model:

i. The model initially takes input from user with or without stop words. Performs stop word elimination if exists, with user input (i.e. search text).
ii. The model first search for availability of search terms in database. If exists, displays resultant links on screen as per new ranking formula.
iii. If not then prepares URL (Uniform Resource Locator) query string with input search text.
iv. Then model sends request to multiple search engines, retrieves search results, performs titles and URLs separation process and stores them in arrays.

v. Stores retrieved results from each search engine in different databases.

vi. Merges all individual search results available in separate search engine wise databases by eliminating duplications.

vii. Stores merged results in merge database.

viii. Find and assign rank to result using ranking formula.

ix. Displays resultant links on screen as per new ranking formula.

### III. Performance Analysis

Performance analysis for the sample data sets for proposed model as well as existing meta search engines has been made. Response time has been examined of a new model of the meta search engine and other existing meta search engines using webwait tool (URL: http://webwait.com).

Following Fig. 1 is a screen showing home page of webwait tool with input URL of search text on a new model.

![Fig. 1 webwait home page screen with input URL of a new model](image)

![Fig. 2 Screen with response time for input URL of on a new model](image)
Fig. 2 shows preview of search result for input search text “software” with response time on a new model. Fig. 3 shows home page of webwait tool with input URL of search text on Dogpile meta search engine.

Fig. 3 webwait home page screen with input URL on Dogpile

Fig. 4 Screen with response time for input URL on Dogpile

Fig. 4 shows preview of search result for input search text “software” with response time on Dogpile meta search engine. Fig. 3 and Fig. 4 shows response time for search URL on a new model of the meta search engine and existing meta search engine Dogpile with output preview. Webwait is an online tool used to test response time of different meta search engines, which shows average response time after five continuous runs. Using same tool response time for same search URL (Uniform Resource Locator) has been made for different meta search engine of same kind like mamma, info.com, metacrawler, webcrawler.
Fig. 5 presents performance of various meta search engines including a new model of meta search engine. This shows that new model of meta search engine, which uses database concept has powerful performance than other existing meta search engines.

IV. Conclusion

In existing meta search engines there is no concept of database for indexing purpose. In a new model of meta search engine introduced concept of indexing of searched keywords has been introduced, which enables user to get search text in an efficient way and eliminates problem related to time out. Hence, this new model of meta search engine retrieves results in efficient way.

References


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