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A Comprehensive Survey on Hidden Web Crawler

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***Abstract** - Although internet seems to be the ocean of information which provides almost anything we want but abstracting the specified set of high quality data from internet becomes impossible in 99% cases.In most of the cases the user has to get satisfied with the surface web which constitutes only 1% of the total data available. Many a times user gets information only from static sites while most of the data available on net are stored in dyanamically generated sites which stands in complete contrast with the static sites both qualitatively and quantitatively. To help the user overcome such difficulties " THE HIDDEN WEB CRAWLERS"stands as a great source . The deep Web sources store their content in searchable databases that only produce results dynamically in response to a direct request in response to which a hidden web crawler starts the process of making dozens of direct queries simultaneously , using multiple-thread technology and thus is capable of identifying, retrieving, , classifying, and organizing "deep" content. This paper highlights the comparison between surface web and hidden web, basic working principles, components, importance and future scope of this indespensible tool i.e Hidden Web Crawler.*

Keywords: *URL, WWW, HiWE .*

INTRODUCTION

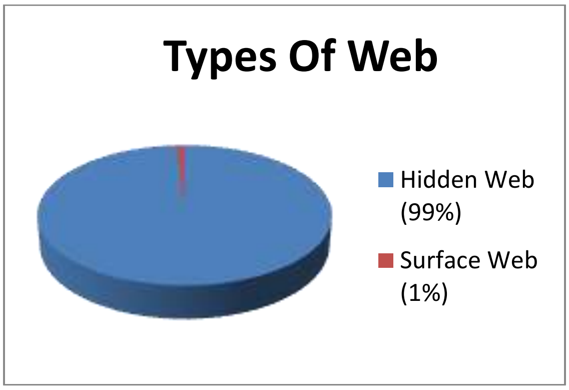
Today, Web has become one of the largest and most readily accessible collection and a rich resource of human knowledge. Surfing on the Internet can be compared to as moving a net across the surface of the ocean. While a great deal may be caught in the net, there is still a lot of wealth of information that is deep, and therefore, missed. This unretrieved information is referred to as hidden web. The term "Hidden web" refers to the large repository of information that our traditional search engines don't have direct access. Hidden web data, is stored in structured or unstructured databases, and is intrinsically hidden behind search forms. The hidden web is different both qualitatively and quantatively from the surface web which the user access most of the times. The quality index of the data stored in hidden Web is 1,000 to 2,000 times greater than that of the Surface Web . The hidden web is found to contain approximately 7,500 terabytes of data and 550 billion individual documents which is far greater than only 167 terabytes of surface web. The Deep Web is the most rapidly growing category of information on the Internet. On an average,Hidden websites receive double responses as compared to surface websites. With almost unlimited amount of information available, the Hidden Web is clearly an important source for data collection.

Comparison between Surface web and Hidden web

1.The surface Web which is also known as indexable Web constitutes that section of WWW that can be indexed by traditional search engines while hidden web which is also known as inviible or deep web constitutes that part of World Wide Web that cannot be crawled sufficedly by traditional search engines.

2. Surface web forms only 1% of total World Wide Web in comparison to 99% of hidden web indicating tht a large amount of data remains inaccesable to the users.

3. Surface Web has webpages with static or persistent URLs while hidden web contains information in form of dynamic webpages without persistent or static URL.



Hidden Web Crawler

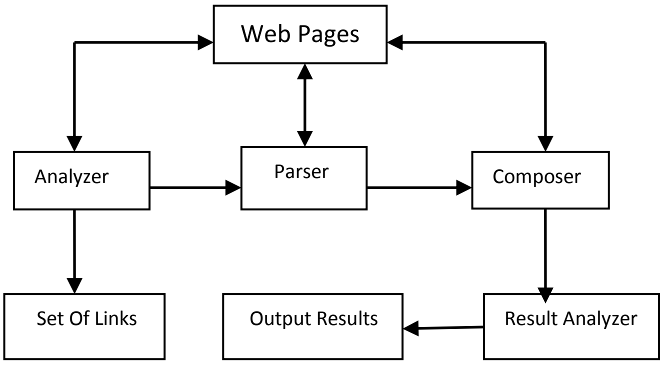
Hidden Web Crawler is used to obtain the web pages from different Hidden web sources. Hidden web crawler starts its process by taking each URL one by one from predetermined list of URLs of Hidden websites and extracts the search interfaces from them by using some domain features.

WORKING PRINCIPLE

The working of a hidden Web crawler is divided into three stages. In the first stage, the crawler chooses URLs one by one from the queue of URLs, downloads the web pages, obtains the links from the pages, which are send again to the URL queue. In second stage, it interprets the webpage for the search form. If a form is found, the attributes and their respective values are Choose URL Download Page Extract Links and it to queue of URLs Queue of URLs Queue of URLs Choose URL Download Page Extract Links Form Extract attributes and respective values Submit queries by Filling attribute values to the Form Download result pages yes Surface Web Crawler Hidden Web Crawler Phase 1 Phase 2 Phase 3 51 extracted and stored in the database for onward submission. In the third and the last stage, crawler submits the search form with attributes values and retrieves the result pages. The result pages are then refined to obtain the information required .

COMPONENTS OF HIDDEN WEB CRAWLER

There are four components of Hidden Web Crawler
i) Analyzer
ii) Parser
iii) Composer
iv) Result analyzer



Analyzer - The *Analyzer* inspect every Web page which the crawler searches. It examines the Web page to view if the Web page can be used as search page to obtain information or not. It basically looks for some form fields like article name, type of article or to which catgory the article belongs to. This kind of components are mainly used by websites which are having registration forms like Match Making Websites, Shoping Websites, Job Searching Websites etc.

Parser **-** Once the analyzer detected the Web page containing search form, job of *Parser* starts that is it looks for different kinds of forms which that Web page is having. As soon as a search query form is found it is dichatched from there and passed to the composer for filling the search form.

Composer **–** In this component, the user inputs the keywords that he/she wants to search and than it is sent to *Composer* for filling up forms. It is more probable that parser can select the incorrect form to fill. For example, WebCrawler may tries to search with keywords “Mobile Phone” in a shopping Website of jewelers. So, it is the responsibility of composer to fill the correct keywords in correct form. Now,after completing and submitting the forms, results acquired are then sent to result analyzer.

Result analyzer **–** When Result Analyzer receives the response pages it starts exmaining every web page for obtaining relevant results. If a particular Web page is having more number of applicable records then it is rated more relevant than the other web page. Therefore result analyzer determines the efficiency of the WebCrawler.

Importance

Many online databases makes available dynamic query-based data access by their query interfaces, instead of static URL links. This Query interface is considered as an entrance to Hidden Web, as the large amount of information is hidden behind these search forms in form of web pages and traditional web crawler are not capable of replacing the query submission carried out by users. E-commerce web search interface mainly consists of some HTML form control elements such as checkbox , textbox (i.e., a single line text input), radio button, and selection list (i.e., a pull-down menu) that allows a user to enter information to be searched. As traditional search engines are able to search only a very small portion of the web this fact makes the Hidden Web a very fascinating resource. There exists still a lot of information out there beyond our imagination which could be searched . Searching for books in a library illustrates a perfect example for this . If we asume web as a library and we want to find book of our interest on front table. But this is not possible ! We have to search it. This is where traditional search engines are not able to help us, but the Hidden web crawler will be .

ADVANTAGES OF HIDDEN WEB CRAWLER

1. The results from the hidden web repository are retrieved unquestionably and user will be ale search the required data from that repository.
2. It workimg can also be base on Multi-valued attributes .
3. It stores the databases from multiple web servers in its local repository and provides a web-service of information.
4. Defines fair conducted metric from which the crawler can be analyzed efficiently .
5. Enables the user to know drawbacks of technique from which future analyses can be done.
6. Directs readers to technical report which gives much more explanation of HiWE fulfillment.

CONCLUSION:

Hidden Web data assimilation is becoming a major challenge today . Because of uncontrolled and contrasted behaviour of hidden web data , traditional search engine offers an inadequate way to search this kind of content . They can neither combine the content nor they can query the hidden web sites. Hidden Web data needs linguistic and morphological coordination to attain completely automatic integration.