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Smart Internet Bot: A Topic-Specific Crawler for locating Deep Data of Web

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ABSTRACT: A huge proportion of information is available on web through web interfaces. The term "Deep Web" was introduced. It is a part of WWW, which includes the contents and search engines are not sequentially numbered those content. Term "Surface Web Data" is an opposite term of deep web. It needs to be identified deep data of web. We proposed a framework, "Smart Web Crawler", that helps to maximize unseen URLs, and improve the accurate result of the form classifier using pre-query approach and post-query approach. We combine the pre-query approach and post-query approach to maximize the unseen URLs and improve the accuracy of the classifier. This Crawler includes two stages. First Stage helps to achieve wide coverage. Second Stage helps to achieve high effectiveness.

KEYWORDS*:* Smart Web Crawler, Deep data of web, pre-query, post-query, Architecture of Topic-Specific crawler.

I. INTRODUCTION

A large amount of available web databases and nature of deep web is dynamic. So, obtaining broad area of web and high effectiveness is challenging issue. It needs to achieve high effectiveness and broad area of web. The term "Deep Web" is newest term in the Internet World. Deep data of web can be termed as data found behind search interface and search engines are not sequentially numbered those content. Dr. Jill Ellsworth first was introduced the deep web concept in 1994 [13].

Deep data of web includes nearly 96 % of data available on internet. A huge proportion of information is available on web through web interfaces. The term "Deep Web" was introduced. It is a part of WWW, which includes the contents and search engines are not sequentially numbered those content. Term "Surface data of web" is an opposite of deep web. Deep data of web is bigger than surface data of web [1]. It has an issue to identify the deep data of web databases due to search engines are not sequentially numbered those content and those data are distributed sparsely and changed constantly. To show this issue, they gave 2 crawlers previously: Generic, Focused. It is built for identifying deep data of web, directory building that do not focus on particular subject but tries to retrieve all forms.

II. RELATED WORK

Web Crawler is a process or automated program used to fetch the web pages for future operations by search engine that register fetched pages to obtain fast searches. Web crawler is also called as Web spiders, Internet Bots. Internet has a huge amount of information. Filtering relevant information needs efficient mechanism. Web crawlers provide that scope to the search engine.

Feng Zhao suggested the Smart Crawler. It proposed two stage architecture, named, Smart web Crawler for collecting deep data on web. One stage gives broad area of web whereas latter stage gives high effectiveness. This searches related sites for the given subject in the one stage. It searches forms from site in the latter stage [1].

Juliana Freireand Luciano Barbosa suggested a new method to systematically find unseen databases on web. This recommended method directed on a particular subject. It means the choosing the URLs within topic. It is much probably to retrieve pages that include forms with some criteria [2].

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Juliana Freireand Lucianco suggested a new framework. In that the crawlers learned style of links and it adapts their focus as the crawl progresses [3].

III. PROPOSED ALGORITHM

Smart Crawler consists of two stages. They are used to comfortably and completely find out deep data of web. They are as Stage One : Locating Site and Stage Two : Exploring in the site. Stage 1:Locating Site searches the maximum related site for a specific topic and then Stage 2: Exploring in the site focuses on the effectiveness. Stage One is starting with a initial set of sites in a site database. Initial set of sites are provided to the Crawler to begin crawling. It starts next URLs from selected initial set of sites to explore extra pages and area of interests. This crawler applied the reverse searching algorithm if count of unseen URLs is smaller extent than pre-defined value in database during crawling.

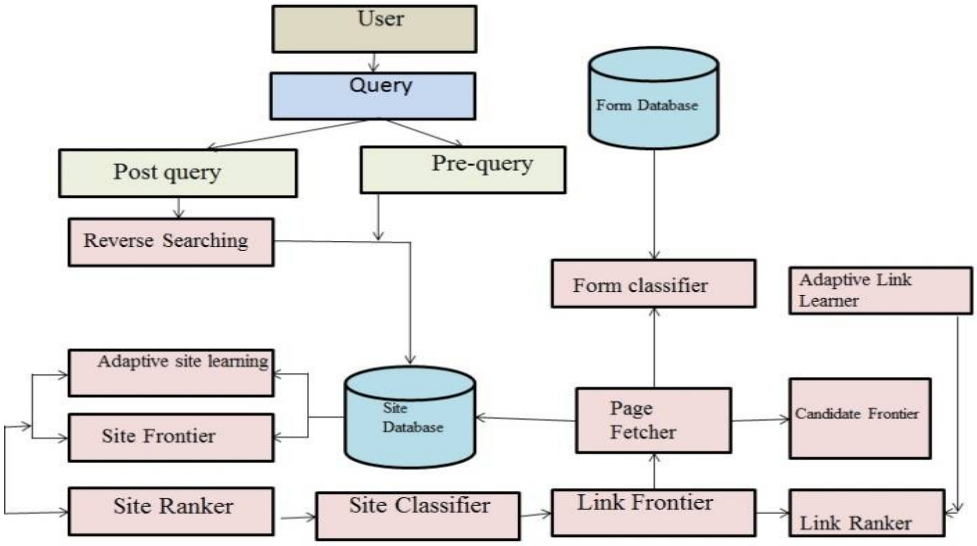

Figure 1 Smart Web Crawler: A Topic-Specific Crawler For Identifying Deep Data of Web

Site Frontier retrieves homepage URLs from site database. These URLs are ranked by Ranker to give priority to mostly relevant sites. During crawling process, Ranker is sophisticated by Adaptive Site Learner. It learns adaptively from characteristics of deep sites on web exposed. Site Classier classifies URLs into related or not related for a particular topic to obtaining much perfect results. After getting maximum related site in one stage, the stage two achieves active examination into the site for searchable forms.

Links are added in Link Frontier and respective pages are downloaded and embedded forms are categorized by form classier. The links in that fetched pages are captured into candidate frontier. URLs in it are prioritized. This Crawler prioritizes URLs with Link Ranker. Stage 1:Locating site and Stage 2: Exploring into the site are intertwined. If crawler sends a newly site, sites URL is stored in Site Database.

Pre-query approach find out searchable forms in sites by examining the characteristics of forms. And Post-query approach find out searchable forms by giving the penetrating queries and examining result pages. Query prober gives some topic-specific keywords, positive queries, and stop words called as negative queries to found forms. It determines that form is searchable or not by checking result. Pre-query is used for obtained characteristics automatically to figure forms and algorithm of decision tree learning is used to classify characteristics on the basis of obtained set of characteristics.

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IV. ALGORITHM

Algorithm 1:Pre-query
INPUT: Set of preferences
OUTPUT: Ordered Form
Step 1: All match Form.
Step 2: Select form from index where Key.word=”key”.
Step 3: for i=0; number of all match Form.
Step 4:$\text{Score(i)} = \frac{\text{number of match in form}}{\text{Total preferences}} + \text{rating of Form}$
Step 5: Sort all match Form on score.
Step 6: Return all match Form.

Algorithm 2:Post-query
INPUT: selected form.
OUTPUT: forms and links that are outside of sites
Step 1: Selected Form, Rating.
Step 2: Update rating in Database.
Step 3: Where Form name=Form;
Step 4: return to the form

The combination of two algorithms is implemented in this paper. Initially User has to register in this system by filling the Registration Form.

V. RESULT AND ANALYSIS

1. USER LOGIN

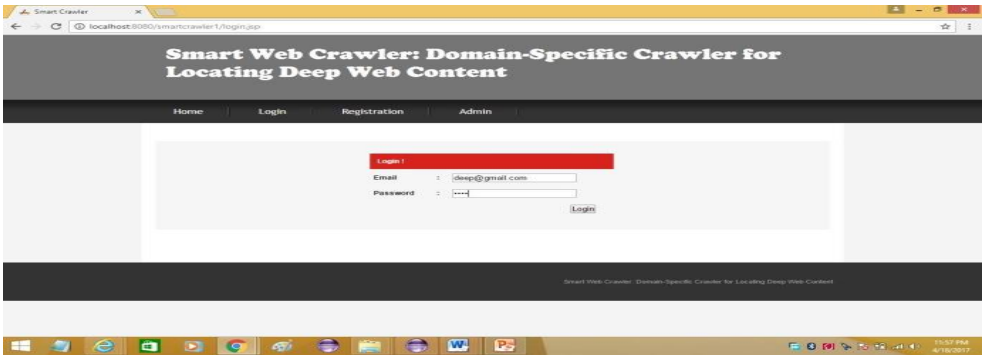

Figure 2 User Login

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2. ACCOUNT INFORMATION

Figure 3 Account Information

3. SEARCH INTERFACE

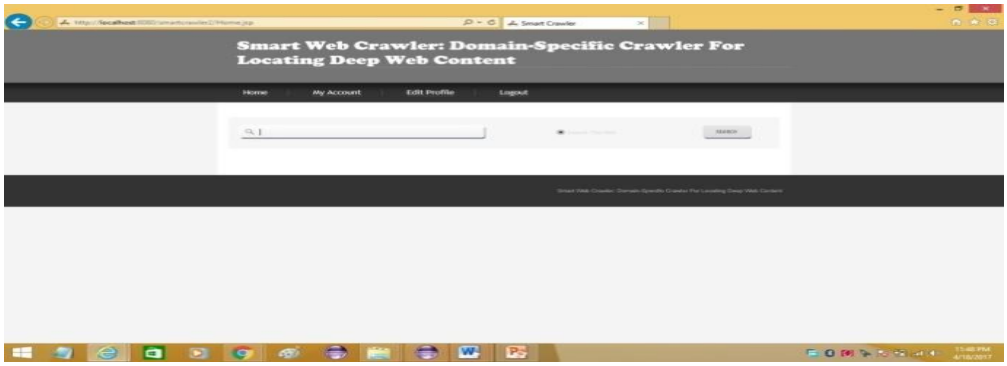

Figure 4 Search Interface

4. SEARCH RESULTS

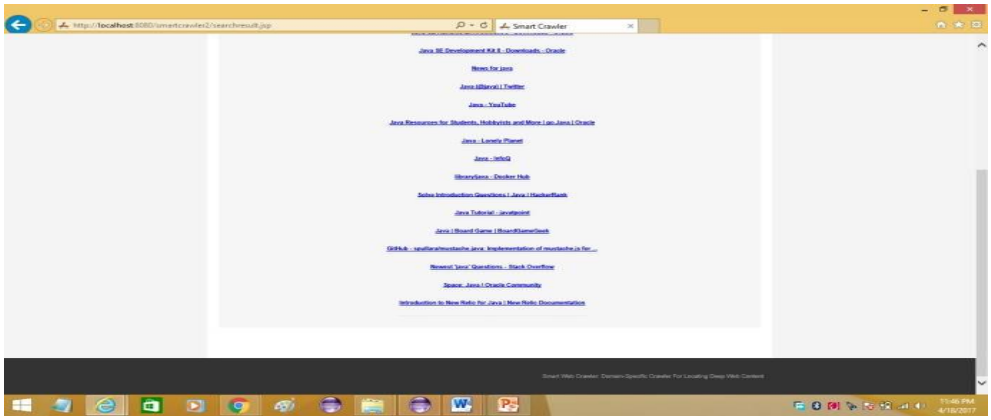

Figure 5 Search Results

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5. POST-QUERY

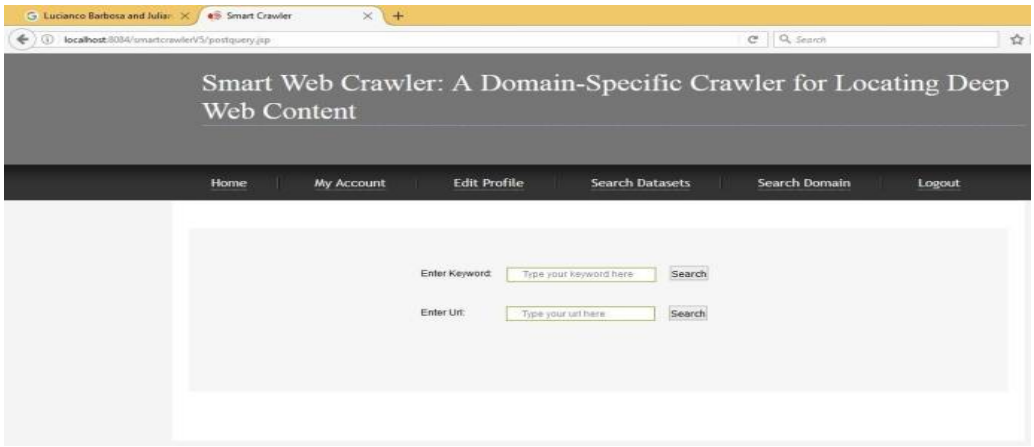

Figure 6 Post Query

6. SEARCH BY KEYWORDS

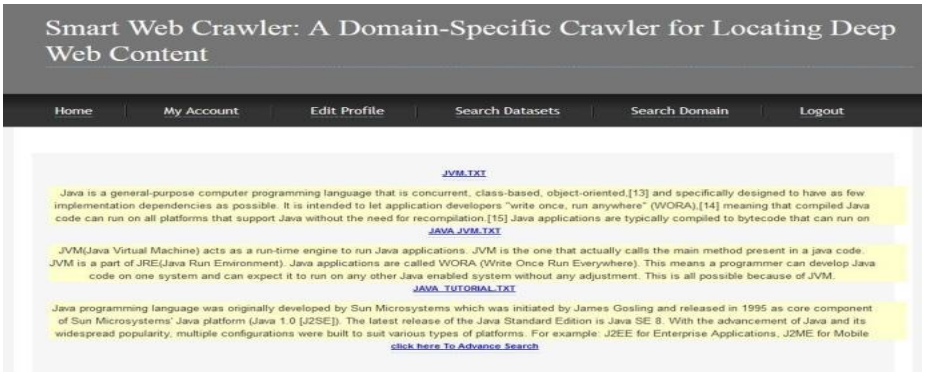

Figure 7 Search By Keywords

7. SEARCH BY URL

Figure 8 Search By URL

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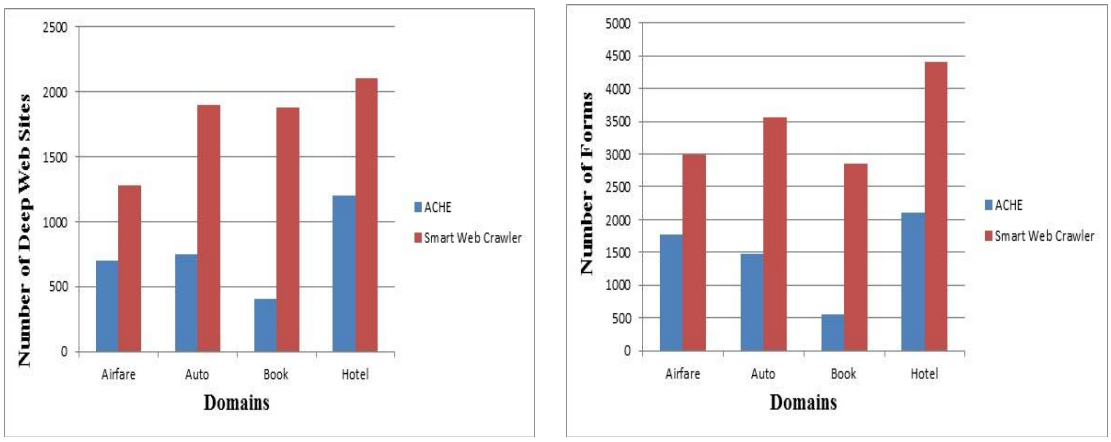

Figure 9 Results

VI. CONCLUSION AND FUTURE WORK

This paper proposed domain specific crawler for locating deep web content, namely, Smart Web Crawler. It achieves both high efficiency and broad coverage. Smart Web Crawler is a focused crawler, which consists of two stages such as Site locating and In-site Exploring. Smart Web Crawler minimizes the number of visited URLs and simultaneously maximizes the number of deep websites.

REFERENCES

1. Feng Zhao, Chang Nie, Heqing, Hai Jin, "SmartCrawler: A Two-stage Crawlers for Efficiently Harvesting Deep-Web Interfaces", IEEE Transactions On Services Computing, vol. 9, no. 4, July/August. 2016.
2. Lucianco Barbosa and Juliana Freire, "Searching for Hidden-Web Databases", In WebDB, pages 1-6, 2005.
3. Lucianco Barbosa and Juliana Freire, "An adaptive crawler for locating hidden-web entry points", In Proceedings of the 16th international conference on World Wide Web, pages 441-450.
4. Lucianco Barbosa and Juliana Freire, "Combining classifiers to identify online databases", In Proceedings of the 16th international conference on World Wide Web, pages 431-440. ACM, 2007.
5. Kevin Chen-ChuanChang, Bin He, and Zhen Zhang, "Toward large scale integration: Building a metaquerier over databases on the web", In CIDR, pages 44–55, 2005.
6. Luciano Barbosa and Juliana Freire, "Combining classifiers to identify online databases", In Proceedings of the 16th international conference on World Wide Web, pages 431–440. ACM, 2007.
7. Jared Cope, Nick Craswell, and David Hawking, "Automated discovery of search interfaces on the web", In Proceedings of the 14th Australasian database conference-Volume 17, pages 181–189. Australian Computer Society, Inc.,2003.
8. SoumenChakrabarti, Martin Van den Berg, and Byron Dom, "Focused crawling: a new approach to topic-specic web resource discovery", Computer Networks,31(11):1623–1640, 1999.
9. Peter Lyman and Hal R. Varian, "How much information? 2003", Technical report,UC Berkeley, 2003.
10. Roger E. Bohn and James E. Short. "How much information? 2009 report on american consumers", Technical report ,University of California ,San Diego,2009.
11. Michael K. Bergman. White paper: "The deep web: Surfacing hidden value", Journal of electronic publishing, 7(1), 2001.
12. Yeye He, Dong Xin, VenkateshGanti, SriramRajaraman, and Nirav Shah,"Crawling deep web entity pages", In Proceedings of the sixth ACM international conference on Web search and data mining, pages 355–364. ACM, 2013.

BIOGRAPHY

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