Implementing Personalized Web Searching Model for Secure and Private Searching

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Abstract- *Due to tremendous increase in the use of internet searching, and along with this the rate of hacker or shoulder surfing attack the privacy protection is very important to preserve user search behaviors and their profiles. In this paper, we have performed the personalized web searching using UPS framework. This performs searching on the web browser and at the same time it stores the individual searching results privately in our own searching records only. This make our system much more secure as our own searching records history is visible to only us and not by any other, instead of they are using the same system. In this paper, we have given our own work of performing personalized web searching. By analyzing the results, we reveal that in our personalized Web searching, several features to automatically predict when a query will benefit from a specific personalization technique. Experimental results show that using a personalization techniques for queries to search selected by our prediction model is better and more secure than using it simply for all queries.*

Keywords- Privacy Protection, Personalized Web Search, Profile.

I. INTRODUCTION

The web search engine is the most important portal for ordinary people looking for useful information on the web. However, users generally experience failure and get improper results when search engines return irrelevant results that do not meet their real intentions.

A typical search engine provides similar set of results without considering of who submitted the query. Therefore, the requirement arises to have personalized web search system which gives outputs appropriate to the user as highly ranked pages. Personalized Web Search (PWS) is a general category of search techniques which aims to provide better search results, according to the individual user needs. So, for this user information has to be collectedand analyzed so that the perfect search results required for the user behind the issued query is to be given to the user. The solution to this is Personalized Web Search (PWS). It can generally be categorized into two types namely click –log-based methods and profile-based ones. The click- log based methods are simple and straightforward .This method performs the search based upon clicked pages in the user's query history. Although this method has been demonstrated to perform consistently and considerably well, it can only work on repeated queries from the same user, which is a strong limitation [3]. Different users may have completely different information needs and goals when using precisely the same query. For example, a biologist may query "mouse" to get information about rodents, while programmers may use the same query to find information about computer peripherals. When such a query is issued, search engines will return a list of documents that mix different topics. It takes time for a user to choose which information he/she wants. The concept behind personalized search is that by knowing some things about user, a search engine might refine user results to make them more relevant [5].Thus, a balance must be struck between search quality and privacy protection. Hence, privacy protection in PWS applications that model user preferences as hierarchical user profiles is proposed using a PWS framework called UPS that can adaptively generalize profiles by queries while respecting user specified privacy requirements. Along with Personalized Search and Privacy Protection the Custom Search functionality will also be provided so that the users get relevant information [1]. To protect user privacy in profile-based PWS, researchers have to consider two important and contradicting issues during the search process. The first issue is that, they attempt to improve the search quality with the personalization utility of the user profile. On the other hand the second issue is, they need to hide the privacy contents existing in the user profile to place the privacy risk under control.

Sometimes people are willing to compromise privacy. If the personalization by supplying user profile to the search engine yields better search quality. In an identical situation, significant gain can be obtained by personalization at the expense of only a small (and less-sensitive) portion of the user profile, namely a generalized profile. Thus, user privacy can be protected without compromising the personalized search quality. In general, there is a compromise between the search quality and the level of privacy protection achieved from generalization [4].

II. ADVANCE FEATURES ADDED

A) Privacy protection in PWS System:

We propose a PWS framework called UPS that can generalize profiles in for each query according to user specified privacy requirements. Two predictive metrics are proposed to evaluate the privacy breach risk and the query utility for hierarchical user profile. We develop two simple but effective generalization algorithms for user profiles allowing for query-level customization using our proposed metrics. We also provide an online prediction mechanism based on query utility for deciding whether to personalize a query in UPS. Extensive experiments demonstrate the efficiency and effectiveness of our framework.

B) Generating User Profile:

The generalization process has to meet specific prerequisites to handle the user profile. This is achieved by preprocessing the user profile. At first, the process initializes the user profile by taking the indicated parent user profile into account. The process adds the inherited properties to the properties of the local user profile. Thereafter the process loads the data for the foreground and the background of the map according to the described selection in the user profile. Additionally, using references enables caching and is helpful when considering an implementation in a production environment. The reference to the user profile can be used as an identifier for already processed user profiles.It allows performing the customization process once, but reusing the result multiple times. However, it has to be made sure, that an update of the user profile is also propagated to the generalization process. This requires specific update strategies, which check after a specific timeout or a specific event, if the user profile has not changed yet. Additionally, as the generalization process involves remote data services, which might be updated frequently, the cached generalization results might become outdated. Thus selecting a specific caching strategy requires careful analysis.

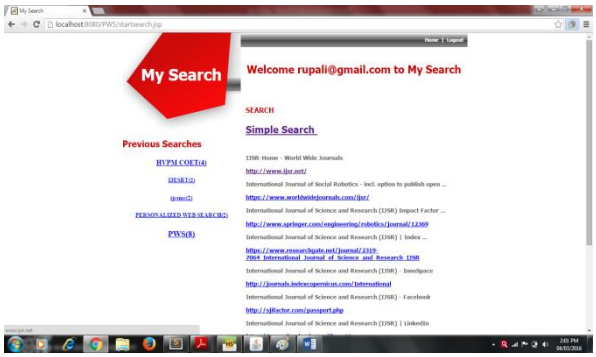

Fig 1: Searching Result

The above figure shows the results of the query that we have search in the search bar. It gives us all the related links along with the information about that links. The information suggest us to visit links that are most proper to which we have to visit. Along with this on the left hand side, it gives us the history information of the previous searched links. It also maintains the hit counts of the links that the user has personally visited in the past. This type of user friendly interface and personalized security will improve the performance of normal searching.

III. PERFORMANCE AND RESULT ANALYSIS

We now the personalize web search and terminologies used in the prior work explained the security and privacy challenges in PWS environment. PWS has generated significant interest in both the world, but it is yet an evolving paradigm. Essentially, it aims to combine the utility search model and privacy with the evolutionary development. Many doubts exists in IT communities about how a PWS differs from existing web search and how these differences affect its adoption. He proposed a new web search personalization approach that uses online profiler as a key component; UPS which can foster generalize profiles by queries. User profiles either learnt from historical activities or specified by themselves. The novel features supported in this paper are

1. It supports runtime profiling i.e. “one profile fits all” strategy is replaced by online profiler which considers separate profile for each user. It helps to improve the search quality and privacy by taking online decision on whether to personalize a query or not.
2. Takes into account the customization of privacy requirements. It effectively addresses individual privacy needs.
3. Not require iterative user search while creating personalized search results. To ensure privacy many solutions have been proposed such as Private information retrieval (PIR).The paper focus on a new kind of search engine, which focus on recognizing the results according to user’s location. The architecture uses ontology based approach to organize user preferences which can be used for adaptation of personalized ranking function. To protect privacy in client server model proposed by author the information is restricted in the user profile and click through data is collected and stored by client locally, whereas tasks like re-ranking and concept extraction are performed at server. The paper focuses on improving effectiveness, to measure the effectiveness. Proposed framework uses click based data works on the principle, frequently clicked pages are more relevant than those seldom clicked by the user. These user clicks are utilized

as relevance judgment to evaluate search accuracy. This method can rerank most relevant documents higher in the list, so user would be more satisfied. A novel technique is proposed to improve PWS for retrieval effectiveness it gather user profiles from users' search histories and for better retrieval effectiveness in web searching. Two profiles are maintained namely user profile and general profile. User profile is maintained by each and every user by themselves while general profile uses i.e. “one profile fits for all” terminology. These two profiles are combined and web search is conducted based on both queries, proves effective and efficient.

IV.RESULT

Results show that, click-based personalization worked well. This framework is more useful for evaluating precision when experimenting with large number of queries. The output form of an information system should accomplish the following graphs.

Fig 2: Profile Statics Graph

In this section, we present the experimental results of UPS after performing the personalized Web Searching. The First Graph shows the statics of the number of users profile created verses the Links visited by that user with our framework. The above graph shows that currently there are two user profile are registered with our PWS framework. The vertical statistic shows that the first profile has visited 9 links with our search engine while the second user has visited only 3 links.

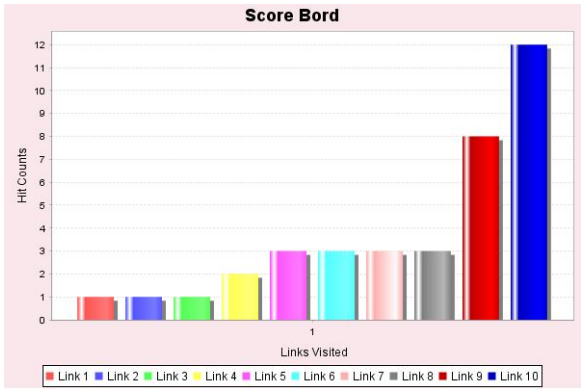

Fig3: Hit count Graph

The Second Graph shows the statics related to only personal profile. This graph shows the number of Links Visited by that user personally verses how many times he has visited that link. The above graph on the horizontal scale shows that currently the user has visited to 9 links with our PWS framework. And the vertical statistic shows that how many time the particular link is visited.

Advantages:

1. It achieves better search results.
2. It achieves the privacy results when applying the background knowledge to the user profiling results.
3. It has less computational time and communicational time.
1. It achieves better accuracy when compared with the Existing Works.

V. CONCLUSION

Personalized web search (PWS) has illustrated its effectiveness by improving the quality of search services on the Internet. But, evidence shows that users’ hesitation to disclose their private information during search has become a major barrier for PWS**.** Privacy protection in web searching is an important issue as the data searching on the web is gone through the use of network. So to overcome this we have designed the model of personalized web searching based on UPS framework that serve as the best technique for protecting privacy of any user. By studying literature we come to know that among recent works, some incur high information loss, some result in data hard to interpret, and some suffer from performance drawbacks. So, in this paper we have propose the novel techniques to address the efficiency and scalability challenges in searching web. Our result shows that our proposed framework is useful for protecting the privacy of individual by keeping the log of his all the previous search information. This will also result in time efficient searching and more secure browsing.

REFERENCES

[1] Reshma Y. Totare, MeenakshiRathod, PrajaktaRaskar, "Personalized Web Search protecting privacy using Greedy Algorithm", International Journal of Emerging Technology and Innovative Engineering ,Volume I, Issue 2, February 2015 ,ISSN: 2394 – 6598.

[2] LidanShou, He Bai, Ke Chen, and Gang Chen, "Supporting Privacy Protection in PersonalizedWeb Search", IEEE Transactions On Knowledge And Data Engineering, Vol.26, No.2,February 2014.

[3] V.Aruna1 ,K.Palanivel , "A Privacy-Preserving Personalized Web Search Framework UPS", Globala Journal of Advanced Engineering Technologies, Vol.3, Issue4- 2014 ISSN (Online): 2277-6370 & ISSN: 2394-0921.

[4] Ms. A. S. Patil,Prof. M.M.Ghonge,Dr. M. V. Sarode, "User customizable Privacy-preserving Search Framework-UPS for Personalized Web Search", International Journal of Research in Advent Technology, Vol.2, No.4, April 2014 ,E-ISSN: 2420-14141.

[5] Chanchala Joshi, TeenaJaiswal, Himanshu Gaur, "An Overview Study of Personalized Web Search", International Journal of Scientific and Research Publications, Volume 3, Issue 1, January 2013 ISSN 2250-3153.

[6] ArchanaUkande, Nitin Shivale, "Supporting Privacy Protection in Personalized Web Search with Secured User Profile", International Journal of Science and Research (IJSR) ISSN (Online): 2319-7064

[7] R. R. Shelke, Dr. R. V. Dharaskar, Dr. V. M. Thakare, "Data Mining For Mobile Devices Using Web Services", International Conference on Industrial automation And Computing (ICIAC - 12th & 13th April 2014) , Jhulelal Institute of Technology, Nagpur.

[8] R. R. Shelke ,Dr. V. M. Thakare, Dr. R . V. Dharaskar, "Study of Data Mining Approach for Mobile Computing Environment",International Journal on Computer Science and Engineering (IJCSE) , ISSN : 0975-3397, Vol. 4, 12 Dec 2012.

[9] Zhicheng Dou, Ruihua Song, Ji-Rong Wen, and Xiaojie Yuan, "Evaluating the Effectiveness of Personalized Web Search", IEEE Transaction on Knowledge and Data Engineering, VOL. 21, NO. 8, August 2009.

[10] T.Manirathnam, R.Devi, Dr.A.Muthukumaravel, "Supporting Privacy Protection in Personalized Web Search", IJISET - International Journal of Innovative Science, Engineering & Technology.