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# A Proposed System for Personifying Web Search Using Browsing History and Domain Knowledge

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## ABSTRACT

Generic Web search engines are built to serve all users, for retrieving relevant information from web, independent of the special needs of any individual user. Personalization of Web search is to carry out information retrieval for each user assimilating his/her interests. We propose a novel technique for constructing an Enhanced User Profile by using user's browsing history and enriching it using domain knowledge. A user profile and a general profile are learned from the user's search history and domain hierarchy, respectively. These two profiles are combined to map a user query into a set of categories which represent the user's search intention and serve as a context to disambiguate the words in the user's query. Web search is conducted based on both the user query and the set of categories. The enhanced user profiles are then used to improve retrieval effectiveness in Web search.

*Keywords:-*  Personalized Search, Retrieval Effectiveness, User Profile, Domain Knowledge

## I.  INTRODUCTION

When different users give same query, same result will be returned by a typical search engine, no matter which user submitted the query. This might not be appropriate for users which require different information. While searching for the information from the web, users need information based on their interest. For the same keyword two users might require different piece of information. This fact can be explained as follows: a biologist and a programmer may need information on "virus" but their fields are is entirely different. Biologist is searching for the "virus" that is a microorganism and programmer is searching for the malicious software. For this type of query, a number of documents on distinct topics are returned by generic search engines. Hence it becomes difficult for the user to get the relevant content. Moreover it is also time consuming. Personalized web search is considered as a promising solution to handle these problems, since different search results can be provided depending upon the choice and information needs of users. It exploits user information and search context to learning in which sense a query refer.

## II.  EXISTING SYSTEM

Now a days, the World Wide Web has contributed a lot in searching information.But still there is room for improvement because current search engines do not consider the specific user's interest and serves each user equally. For the generic search engine, it become difficult to identify what the user actually want.

### DISADVANTAGES:

1. It is difficult for the user to get relevant content.
2. Typical search engine returns same result for different users hitting same query.

## III.  PROPOSED SYSTEM

### A. *Framework for proposed system*

Usually, with the help of present websearch engines users often miss the goal of their searching or receive the ambiguous results. But the framework of personalized web search considers the specific user's interest and suggests the relevant pages of his/her interest. We have proposed a simple

and efficient model which ensures good suggestions as well as promises for effective and relevant information retrieval.

**ADVANTAGES:**

**1.**It will be easy for the user to get relevant content.

**2.**Unlike typical search engine, result for different users hitting same query will be according to the user.
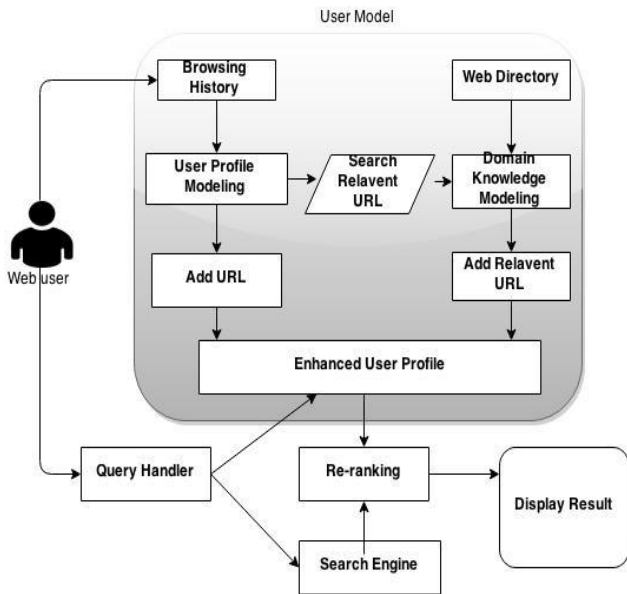


*Fig. 3.1Architecture of Proposed Framework*

**B. Module Description**

After careful analysis the system has been identified to have the following modules:

1.Personalized Web Search Module.

2. User Profile Modeling Module.

3.Domain Knowledge Modeling Module.

4. Enhanced User Profile Module.

1. **Personalized Web Search Module:**

Personalized web search which considers individual's interest and enhances thetraditional web search by suggesting the relevant pages. We have proposed a simple and efficient model which ensures good suggestions as well as promises for efficient information retrieval.

2. **User Profile Modeling Module:**

User profile is used to predict the user's intention behind every new search. It also helps to solve the problem of ambiguity in search queries. User profile is created using particular user's past browsing history and domain knowledge. Domain knowledge is used to predict in which category the user is interested.

3. **Domain Knowledge Modeling Module:**

Domain knowledge is the background knowledge that we use for creating enhanced user profile. The source which we have used for preparing Domain Knowledge is DMOZ directory. For preparing Domain Knowledge, first we have crawled the web pages from DMOZ directory for some specified categories.

Now we form a term-category matrix, which specifies weight of each term in each category. The weight may be represented by frequency of the term in that category. Here $W_{jj}$ represents number of times the term $t_j$ is present in Category Catj. The matrix may be represented as follows:

TABLE I

TERMS-CATEGORY MATRIX(TCM)

| Term/ Category | Cat 1 | Cat 2 | … | Cat 3 |
|---|---|---|---|---|
| t1 | W11 | W12 | ... | W1n |
| t2 | W21 | W22 | ... | W2n |
| ... | ... | ... | ... | ... |
| tm | Wm1 | Wm2 | ... | Wmn |

4. **Enhanced User Profile Module**

An Enhanced User Profile makes use of User Profile and Domain Knowledge. We have considered each URL of the User Profile, match it with Domain Knowledge URLs and add most relevant URLs to the Enhanced User Profile Module.

Following steps explain the process of preparing the Enhanced User Profile:

1. Select the URL from the User Profile.

2. Add the URL to the Enhanced User Profile.

3. Find the cosine similarity of this URL with the URLs

4. present in user specific categories from the Domain

5. Knowledgebase Rank the URLs on descending order of cosine similarity.

6. Retrieve top 20 URLs.

7. Calculate the average of the cosine similarity of these top 20URLs.From the top 20 URLs add only those URLs to the enhanced user profile whose similarity value is above the average value.

The cosine formula used for the similarity of the URL u in Client Profile to each web pages dj in Domain Knowledge is as follows:

$$Cosine(dj,u) = \frac{<dj * u>}{\| dj \| * \| u \|}$$

A cosine similarity measure is the angle between the web page in User Profile u and the document vector dj.

# IV. CONCLUSION AND FUTURE WORK

In this paper, we have proposed a framework for personalized web search for creating Enhanced User Profile using Domain Knowledge and browsing history. This Enhanced user profile is then used for suggesting relevant web pages to the user. Our work is significant as it improves the overall search efficiency, catering to the personal interest of the user. In future this framework may be applied for re-ranking the web pages retrieved by search engines on the basis of user priorities. We may also apply collaborative filtering for personalized web search in our framework. Also we may provide some extra security factors to this system.

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