International Journal of Innovative Technology and Exploring Engineering (IJITEE)
ISSN: 2278-3075 (Online), Volume-4 Issue-12, May 2015

Personalized Mobile Search Engine Using Hashing Concept

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Abstract*—The main goal of the our system is to search results according to location and content concept with multiple preferences. In our system effort of nearest neighbor algorithm is applied for efficient and effective search result. Personalize Mobile Search Engine System is associated with web based application and mobile application. In mobile application, GPS is used for searching nearest location. The purpose of this paper is to search result with minimum execution time using data mining algorithm and hashing concept .We can find nearest result to our query by using nearest neighbor algorithm in web application and nearest location concept in mobile application. Our main aim is to reduce execution time for searching query that we will implementing in our application.

***Index Terms*— Content concept, Hashing, Location concept, Nearest Neighbor, Personalized mobile search engine (PMSE).**

I. INTRODUCTION

In today's world, the Internet can enable people to get the information more efficiently. This leads to information in enormous forms, and thus network information grows exponentially. This application make use of data mining concept for collecting user's multiple preference from clickthrough data using nearest neighbor algorithm. The collecting user preference is based on the category and the location concepts. We propose a personalized mobile search engine (PMSE) that captures the users' preferences in the form of concepts by mining their click through data. Due to the importance of location information in mobile search, PMSE classifies these concepts into content concepts and location concepts. In addition, users' locations (positioned by GPS) are used to supplement the location concepts in PMSE. In our Mobile Application, GPS will automatically detect nearest Location of a device. While in analysis of existing system and proposed system having same information, though their result search time is different. As compared to existing system, proposed system has reduced result search time by using indexing and hashing concept.

1. Scope

- The system can be used in any firm which is related to searching according to category and location concept.
- This system can be useful to developer, student, common people, professor and researcher also.
- This system can be useful for search using Nearest Neighbor and Nearest Location that gives efficient result.
- Result time is reduced by applying Indexing and Hashing Method.

Manuscript published on 30 May 2015.
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II. RELATED WORK

Personalized Mobile search engine have been used to provide search result according to the priority of the user preference. Some of the existing personalized web search systems are based on the clickthrough data to determine users' preferences one among them [1] where Joachims proposed to mine preferences from clickthrough data. Leung et al,[2] introduced an efficient approach to determine users' conceptual preferences from clickthrough data. In our search engine, we are implementing hashing concept that is useful for reducing searching time. In mobile application, GPS is using for searching nearest location. A realistic design for PMSE by adopting the search approach which relies on one of the commercial search engines, such as Google, Yahoo, or Bing, to perform an actual search. The client is responsible for receiving the user's requests, submitting the requests to the PMSE server, displaying the returned results, and collecting his/her click through in order to derive his/her personal preferences. The PMSE server, on the other hand, is responsible for handling heavy tasks such as forwarding the requests to a commercial search engine, as well as nearest neighbor algorithm and nearest location of search results before they are returned to the client.

I. Nearest Neighbor Algorithm

Nearest Neighbor Search (NNS) is an optimization problem for finding closest (or most similar) points. It is also known as proximity search, similarity search or closest point search. The nearest-neighbor (NN) search problem is defined as follows: given a set S of points in a space M and a query point $q \in M$, find the closest point in S to q. In nearly all applications, the closest point is of interest only if it lies within a user specified distance e. Searching for nearest neighbor is to prove itself as an important problem in many fields of science and engineering. The nearest neighbor problem is stated as follows: given a set of n points and a novel query point Q in a d-dimensional space, "find a point in the set such that its distance from Q is lesser than, or equal to, the distance of Q from any other point in the set."

II. PMSE Client

In the PMSE's client server architecture, PMSE clients are responsible for storing the user clickthrough derived from the PMSE server[3].

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Moreover, in order to minimize the data transmission between client and server. The PMSE client would only need to submit a query together with the nearest word to the PMSE server, and the server would automatically return a set of search results according to related query in the database. The data transmission cost is minimized, because only the essential data are transmitted between client and server during the personalization process. In addition, client can search query using content concepts and location concepts.

III. PMSE Server

A practical approach to capturing user's interests for personalization is to analyze the user's clickthrough data.[4],[5],[6]. PMSE Server sends result to client according to content concept and location concept. In particular, recognizing the importance of location information in mobile search, we separate concepts into location concepts and content concepts. For example if user new to our college gives a query "restaurant" and click on the search result about the restaurants around our college. Accordingly, PMSE[7] will favor results that are concerned with restaurant information in our college for future results on "restaurants".

I. Content Concept:

Our Content concept methods first extracts all the keywords from query. If a keyword exists frequently in the query, we would treat it as an important concept related to the query, as it co-exists in close proximity with the query in the top documents in database. Using content concept, user can get fast result for their query.

II. Location Concept :

Our approach for location concept is completely different from the content concept. In Location concept, we can find nearest location using GPS, while in content concept results are extracting from database. While user wants to search any restaurant or another place nearest to their area , then location concept of PMSE is useful and gives efficient result.

III. PROPOSED SYSTEM

Most of the previous work assumed that all concepts are of the same type. Observing the need for different types of concepts, Personalized Mobile Search Engine (PMSE) is implemented to fulfill user's query with improved performance of Result Time Concept. In particular, recognizing the importance of location information in mobile search, we separate concepts into location concepts and content concepts. Since this information can be conveniently obtained by GPS in Mobile Application by detecting particular device's locations. GPS locations play an important role in mobile web search. Additionally, most important approach of this proposed system is that proposed system reduces time of result comparatively existing system. Hashing and Indexing concept is implemented in proposed system. This approach gives less searching time in comparison with existing system. We studied many research paper and articles related to personalized mobile search engine and hashing concept, but hashing concept with personalized mobile search engine is new approach in this existing system. Proposed system, naming as PROPOSED SYSTEM reduces time for submitting search result of queries to the client.

A.Hashing Concept:

Hashing methods were used in many different applications of computer science discipline. These applications are spread from spell checker, database management applications, symbol tables generated by loaders, assembler, and compilers. Hashes are generally very fast. A simple algorithm will immediately determine the hash value for the record. This is both their strength, and their weakness. The strength comes from the speed and the fact that they don't need disk I/O to find anything. The weakness comes from the limitation of having only one hash value for a record. In nearest neighbor search, hashing concept is used.

B. Indexing Concept:

Hashing is used to index and retrieve items in a database because it is faster to find the item using the shorter hashed key to find it using the original value. There are different types of indexes that can be created on tables in a database, all of which serve the same goal—to improve database performance by expediting data retrieval. Index can find using views. Steps for finding indexes are as follows:

1) Filtering the documents in database to find those relevant to a particular process.
2) Extracting data from database and presenting it in a specific order.
3) Use these indexes to represent relationships among documents.
4) Finally, with views you can make all sorts of calculations on the data in documents.

Hashing is used with indexes and then it reduces searching time and gives fast result with less time.

IV. COMPARATIVE ANALYSIS

Existing System, naming EXISTING SYSTEM contains content concept and location concept while searching query and it gives efficient result. Though Proposed system naming, PROPOSED SYSTEM also contains content concept and location concept for displaying result to client but most important approach of this PROPOSED SYSTEM is that it reduces time for searching result in comparison to EXISTING SYSTEM. This paper is written for special approach that PROPOSED SYSTEM gives result in minimum time compare to EXISTING SYSTEM. PROPOSED SYSTEM contains hashing and indexing concept that reduces searching time. EXISTING SYSTEM and PROPOSED SYSTEM extracts results from same database but in different time. EXISTING SYSTEM takes more execution time then PROPOSED SYSTEM.

Fig. 1: Execution time of existing system

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Above figure shows that when we are searching query in EXISTING SYSTEM or in existing system then it shows 0000.31 seconds for query data. Now, when we are searching same query in PROPOSED SYSTEM then it shows results in 0000.25 seconds which shows that PROPOSED SYSTEM takes less time. Fig 2 shows time in PROPOSED SYSTEM that says that it is PROPOSED SYSTEM is better then EXISTING SYSTEM. Fig 3 displays the graph between comparison EXISTING SYSTEM and PROPOSED SYSTEM.

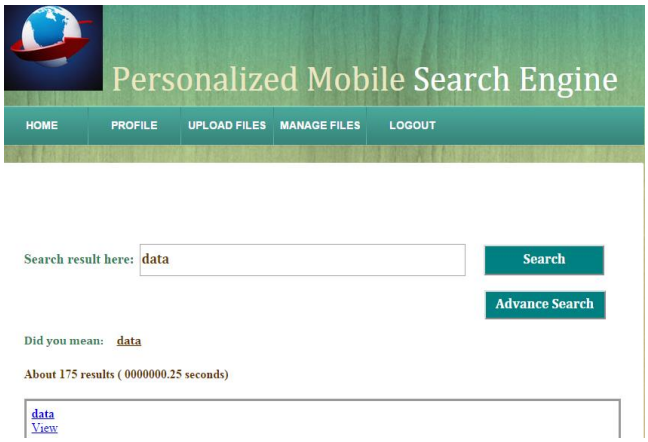

Fig. 2: Execution time of proposed system

Table 1 shows observations for proposed system.

Table 1: Observation table of execution time

Data	Time(second)	
	Existing System	Proposed System
100	0.37	0.23
125	0.5	0.25
150	0.58	0.48
175	0.65	0.52
200	0.73	0.6
225	0.78	0.72
250	0.84	0.79

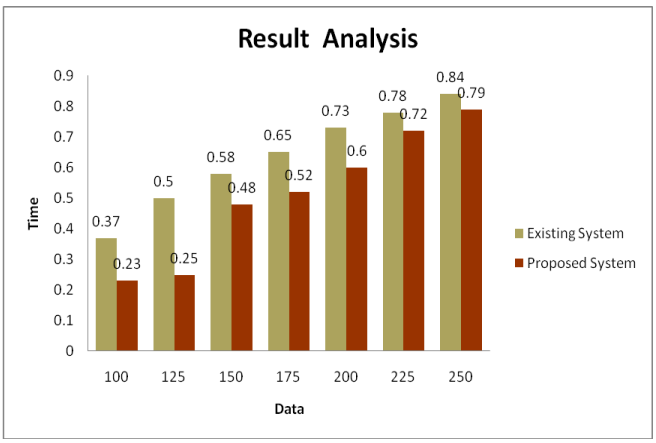

Fig 3: Comparison between existing system and proposed system.

Above graph shows that PROPOSED SYSTEM takes less time for searching result in compare to EXISTING SYSTEM. X-axis shows the total count of search result and Y-axis shows the time in seconds. From graph, we can analyze that in every search of query EXISTING SYSTEM takes more time. Finally, we can say that hashing concept with PMSE is better then simple PMSE application.

V. CONCLUSION

The proposed personalized mobile search engine is an innovative approach for personalizing web search results. By mining content and location concepts for user profiling, it utilizes both the content and location preferences to personalize search result for a user. The possible outcome will improve retrieval effectiveness for location queries (i.e., queries that retrieve lots of location information).In web application, user can get nearest result to their query by nearest neighbor algorithm and can check their correct spell of search query with spell check algorithm. In mobile application, nearest location concept is used to find immediate nearest area of particular device. Proposed system reduces execution time by using hashing and indexing and it takes minimum execution time for users' search query

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