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Efficient Keyword-Aware Representative Travel Route Recommendation

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Abstract:

Optimal route search using spatial keyword query focus on keyword searching using best keyword cover query which is a form of spatial keyword query. It operates on spatial objects stored in spatial database and comes with algorithms that can retrieve answer in a fast manner. Best keyword cover query aims to find objects associated with keywords. The method proposed considers keyword rating, keyword relevance and spatial relevance . It also helps to retrieve data based on Boolean range query.

Keywords : Spatial keyword query , spatial objects, spatial database, best keyword cover query.

1. INTRODUCTION

Data mining is the means of extracting data from a dataset for users to use it in various purpose. The purpose of such data plays a significant role in keyword searching. Searching is a common activity happening in data mining. Searching for spatial objects from spatial database has recently sparked enthusiasm among researchers. This motivated to develop methods to retrieve spatial objects. Spatial objects consists of objects associated with spatial features. In other words, spatial objects involve spatial data along with longitude and latitude of location. Querying such data is called best keyword cover querying. Search is called best keyword cover search. Existing method to such data consider either minimum inter objective distance and keyword search. As a result new methods for best keyword cover search was developed. Traditional nearest neighbour search compute nearest neighbour by considering distance as feature. In this context, nearest neighbour search focus on finding nearest neighbours where keywords and spatial data plays a major impact. It comes with algorithms to answer such query. (Size 10 & Normal)This document is a template. n electronic copy can be downloaded from the conference website. For questions on paper guidelines, please contact the conference publications committee as indicated on the conference website. Information about final paper submission is available from the conference website.

2. RELATED WORK

The content used for querying takes the form of spatial database. Best keyword cover query takes form of keywords or objects. For example, college. Given a spatial database P, which consist of set of points. For a query q, where q belong to set of objects, it search for nearest neighbour within the object by searching its or better decision making, concept of keyword rating was introduced along with its features other than distance. For such search , query will take form of feature of objects. It search for nearest neighbour based on a new similarity measure, named weighted average of index rating which combine keyword rating, keyword search and nearest neighbour search. Baseline algorithm requires spatial objects in the form of

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files which include fields like spatial location and its document identifier and its address. Spatial objects are objects obtained from spatial data. All operations revolve around spatial objects. Input to baseline algorithm require single query keyword in the form of objects. The first step in baseline algorithm is to set a variable bkc as zero. The next step is to generate candidate keyword cover. Candidate keyword cover generate spatial objects that contain those query keywords. Keyword significance has been calculated using term frequency inverse document frequency as similarity measure. Term frequency inverse document frequency is a combination of term frequency and inverse document frequency.

The default value is set as zero. The score obtained is compared with first score. If its value is greater than zero, it has been set as best keyword cover. Score calculation can be obtained as a pruning strategy. The next step is to perform nearest neighbour search upon candidate keyword covers generated. Nearest neighbour search algorithm has been computed using a traditional similarity measure named Euclidean distance. This similarity measure is based on distance. Nearest neighbour search algorithm sets its default value in terms of users current user location. Based on that location, rest of distance with respect to that location has been calculated. The one least distance with respect to query location has been considered best keyword cover. When number of query keywords increases, its performance drops. It running time is very high.

3. LITERATURE SURVEY

Ke Deng [1] comes with algorithms to find nearest neighbour using keywords. Joao B Rocha [2] proposed spatial inverted index, a variant of inverted index to store keywords. Xin Cao [3] proposed the concept of collective spatial keyword querying. The central idea is to search for collective objects that collectively satisfy a query. Nearest neighbour search also comes under category of searching process. With this concept in mind, Gisli R [4] proposed distance browsing algorithm in spatial databases. Ronald Fagin [5] dealt with optimal aggregation algorithm which helps in fast keyword search.

Yufei Tao [6] proposed method for finding nearest neighbours using tree structure as index. Lisi Chen [7] provide a survey of indices to store keywords as well as spatial location. Xin Cao [8] dealt with various spatial keyword queries. The concept of Boolean range query fall under the category of spatial keyword query. DongXiang Zhang [9] proposed scalable integrated inverted index for storing spatial data. Bolin Ding [10] provides method to efficiently process keyword queries. Shuyao [11] proposed the concept of keyword query. Jianhua [12] considered a form of index named keyword pair based structure for finding top k answers using keyword search.

4. PROPOSED SYSTEM

Since all performance operations depend on objects, there exist a problem of choosing which objects first for querying when given multiple features of different objects. For this purpose keyword rating has been associated with objects. Rating is based day to day importance of object in daily life. Rating takes value of integer ranging from 1 to 5. This algorithm not only involve keyword rating but also involve features of objects as well. Objects must be selected to add features.

Input to keyword nearest neighbour expansion variant algorithm is a set of query keywords in the form of features associated with objects. The first step is to select principle query keyword to perfIorm search. In

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other words, to identify the first object in which feature has been associated for searching. Objects linked with principle query keyword are called principle objects. Indexing has been used to find required object associated with keyword. After identifying the object, it search for objects having highest keyword rating. The one with highest keyword rating are usually set as the first object in which search has to be carried out.

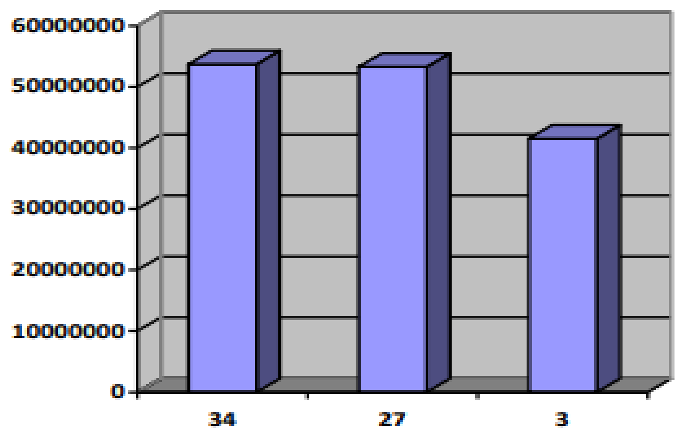

Fig.1. Proposed sytem

It also helps to find best route search. If feature is set as input, first step is to identify the object with highest keyword rating to perform search. Then nearest neighbour search algorithm has been performed to find nearest neighbour of user's query with respect to current location. From current object, next object with highest keyword rating has been identified. Then is feature with respect to second object has been calculated and value is obtained . Thus best route search has been obtained. This paper also helps to find Boolean range query using keyword search. Query takes form of keyword and its range. Object nearest to that range will be displayed as a result.

5. ANALYSIS

The proposed method comes with two algorithms. Our experiment is based on real data. The dimensionality is always 2. Baseline algorithm applied on real data focus on retrieving data using single query keyword. Keyword nearest neighbour expansion variant algorithm retrieve data using multiple query keyword. Fig 1 shows barchart representing execution time of baseline algorithm versus dataset count or number of files searched for a particular query keyword. Vertical axis indicate execution time during search process. Execution time is the difference between start time and run time when search procedure occur. When a single query keyword is searched in a file of thirty four, its execution time is 8433 milliseconds. Similarly, when searching takes in a file count of three for one query keyword, its execution time is 508 milliseconds. When searching takes place in a file count of twenty seven , execution time is 5071 milliseconds. It has been observed that execution time increases as files to be searched increases. File count is linearly proportional to execution time. keyword cover count of keyword nearest neighbour expansion variant algorithm. When keyword cover count is one , its execution time is 82 milliseconds. When keyword cover count is two, its execution time is 121 milliseconds. When keyword cover count is three, its execution time is 127 milliseconds.

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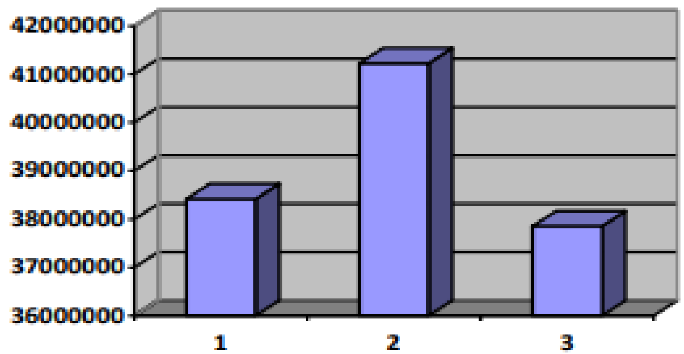

Fig.2.Memory analysis

With the popularity of social media (e.g., Facebook and Flicker), users can easily share their check-in records and photos during their trips. In view of the huge number of user historical mobility records in social media, we aim to discover travel experiences to facilitate trip planning. When planning a trip, users always have specific preferences regarding their trips. Instead of restricting users to limited query options such as locations, activities, or time periods, we consider arbitrary text descriptions as keywords about personalized requirements. Moreover, a diverse and representative set of recommended travel routes is needed. Prior works have elaborated on mining and ranking existing routes from check-in data. To meet the need for automatic trip organization, we claim that more features of Places of Interest (POIs) should be extracted. Therefore, in this paper, we propose an efficient Keyword-aware Representative Travel Route framework that uses knowledge extraction from users historical mobility records and social interactions. Explicitly, we have designed a keyword extraction module to classify the POI-related tags, for effective matching with query keywords. We have further designed a route reconstruction algorithm to construct route candidates that fulfill the requirements. To provide befitting query results, we explore Representative Skyline concepts, that is, the Skyline routes which best describe the trade-offs among different POI features. To evaluate the effectiveness and efficiency of the proposed algorithms, we have conducted extensive experiments on real location-based social network datasets, and the experiment results show that our methods do indeed demonstrate good performance compared to state-of-the-art works.

CONCLUSION

A detailed report of two algorithms to retrieve best keyword cover was presented. Best keyword cover query aims to recover spatial objects with respect to user's requirement. Algorithms are used to find answer to such query. It also comes with best keyword cover route search which helps to find best route.

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