International Journal of Research
Available at https://edupediapublications.org/journals
p-ISSN: 2348-6848
e-ISSN: 2348-795X
Volume 03 Issue 14
October 2016

Quick Search of the Nearest Neighbor with Words

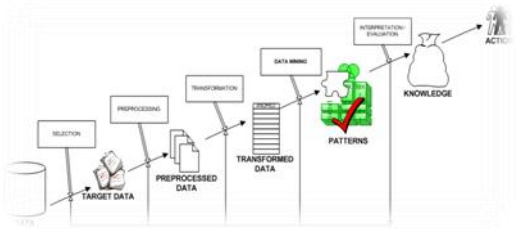
[1]MADASU GANESH [2]V RAMA RAO

[1] PG Scholar , Department Of CSE. Gandhi Academy Of Technical Education, Ramapuram (kattakommu Gudem), Chilkur(M), Kodad, Telangana 508206.

[2]Assistant Professor, Department Of CSE. Gandhi Academy Of Technical Education, Ramapuram (kattakommu Gudem), Chilkur(M), Kodad, Telangana 508206

ABSTRACT—Conventional spatial queries, such as range search and nearest neighbor retrieval, involve only conditions on objects' geometric properties. Today, many modern applications call for novel forms of queries that aim to find objects satisfying both a spatial predicate, and a predicate on their associated texts. For example, instead of considering all the restaurants, a nearest neighbor query would instead ask for the restaurant that is the closest among those whose menus contain "steak, spaghetti, brandy" all at the same time. Currently, the best solution to such queries is based on the IR2 -tree, which, as shown in this paper, has a few deficiencies that seriously impact its efficiency. Motivated by this, we develop a new access method called the spatial inverted index that extends the conventional inverted index to cope with multidimensional data, and comes with algorithms that can answer nearest neighbor queries with keywords in real time. As verified by experiments, the proposed techniques outperform the IR2 -tree in query response time significantly, often by a factor of orders of magnitude.

1.INTRODUCTION



Structure of Data Mining

Generally, data mining (sometimes called data or knowledge discovery) is the process of analyzing data from different perspectives and summarizing it into useful information - information that can be used to increase revenue, cuts costs, or both. Data mining software is one of a number of analytical tools for analyzing data. It allows users to analyze data from many different dimensions or angles, categorize it, and summarize the relationships identified. Technically, data mining is the process of finding correlations or patterns among dozens of fields in large relational databases.

How Data Mining Works?

While large-scale information technology has been evolving separate transaction and analytical systems, data mining provides the link between the two. Data mining software analyzes relationships and patterns in stored transaction data based on open-ended user queries. Several types of analytical software are available: statistical, machine learning, and neural networks. **Generally, any of four types of relationships are sought:**

Classes: Stored data is used to locate data in predetermined groups. For example, a restaurant chain could mine customer purchase data to determine when customers visit and what they typically order. This information could be used to increase traffic by having daily specials.

Clusters: Data items are grouped according to logical relationships or consumer preferences. For example, data can be mined to identify market segments or consumer affinities.

Associations: Data can be mined to identify associations. The beer-diaper example is an example of associative mining.

Sequential patterns: Data is mined to anticipate behavior patterns and trends. For example, an outdoor equipment retailer could predict the likelihood of a backpack being purchased based on a consumer's purchase of sleeping bags and hiking shoes.

2.PROBLEM DEFINITIONS

Let P be a set of multidimensional points. As our goal is to combine keyword search with the existing location-finding services on facilities such as hospitals, restaurants, hotels, etc., we will focus on dimensionality 2, but our technique can be extended to arbitrary dimensionalities with no technical obstacle. We will assume that the points in P have integer coordinates, such that each coordinate ranges in½0; t_, where t is a large integer. This is not as restrictive as it may seem, because even if one would like to insist on realvaluedcoordinates, the set of different coordinates representable under a space limit is still finite and enumerable; therefore, we could as well convert everything to integers with proper scaling

3.EXISTING SYSTEM:

Spatial queries with keywords have not been extensively explored. In the past years, the community has sparked enthusiasm in studying keyword search in relational databases.

It is until recently that attention was diverted to multidimensional data. The best method to date for nearest neighbor search with keywords is due to Felipe et al.. They nicely integrate two well-known concepts: R-tree, a popular spatial index, and signature file, an effective method for keyword-based document retrieval. By doing so they develop a structure called the IR2 -tree, which has the strengths of both R-trees and signature files.

Like R-trees, the IR2 - tree preserves objects' spatial proximity, which is the key to solving spatial queries efficiently. On the other hand, like signature files, the IR2 -tree is able to filter a considerable portion of the objects that do not contain all the query keywords, thus significantly reducing the number of objects to be examined.

DISADVANTAGE OF EXISTING SYSTEM:

Fail to provide real time answers on difficult inputs.The real nearest neighbor lies quite far away from the query point, while all the closer neighbors are missing at least one of the query keywords.

4.PROPOSED SYSTEM:

In this paper, we design a variant of inverted index that is optimized for multidimensional points, and is thus named the spatial inverted index (SI-index). This access method successfully incorporates point coordinates into a conventional inverted index with small extra space, owing to a delicate compact storage scheme.

Meanwhile, an SI-index preserves the spatial locality of data points, and comes with an R-tree built on every inverted list at little space overhead. As a result, it offers two competing ways for query processing.

We can (sequentially) merge multiple lists very much like merging traditional inverted lists by ids. Alternatively, we can also leverage the R-trees to browse the points of all relevant lists in ascending order of their distances to the query point. As demonstrated by experiments, the SI-index significantly outperforms the IR2 -tree in query efficiency, often by a factor of orders of magnitude.

ADVANTAGES OF PROPOSED SYSTEM:

Distance browsing is easy with R-trees. In fact, the best-first algorithm is exactly designed to output data points in ascending order of their distances

It is straight forward to extend our compression scheme to any dimensional space

5.CONCLUSION

We have seen plenty of applications calling for a search engine that is able to efficiently support novel forms of spatial queries that are integrated with keyword search. The existing solutions to such queries either incur prohibitive space consumption or are unable to give real time answers. In this paper, we have remedied the situation by developing an access method called the spatial inverted index (SI-index). Not only that the SI-index is fairly space economical, but also it has the ability to perform keyword-augmented nearest neighbor search in time that is at the order of dozens of milli-seconds.

6.REFERENCES

[1] S. Agrawal, S. Chaudhuri, and G. Das, "Dbxplorer: A System for Keyword-Based Search over Relational Databases," Proc. Int'l Conf. Data Eng. (ICDE), pp. 5-16, 2002.

[2] N. Beckmann, H. Kriegel, R. Schneider, and B. Seeger, "The R- tree: An Efficient and Robust Access Method for Points and Rectangles," Proc. ACM SIGMOD Int'l Conf. Management of Data, pp. 322-331, 1990.

[3] G. Bhalotia, A. Hulgeri, C. Nakhe, S. Chakrabarti, and S. Sudarshan, "Keyword Searching and Browsing in Databases Using Banks," Proc. Int'l Conf. Data Eng. (ICDE), pp. 431-440, 2002.

[4] X. Cao, L. Chen, G. Cong, C.S. Jensen, Q. Qu, A. Skovsgaard, D. Wu, and M.L. Yiu, "Spatial Keyword Querying," Proc. 31st Int'l Conf. Conceptual Modeling (ER), pp. 16-29, 2012.

[5] X. Cao, G. Cong, and C.S. Jensen, "Retrieving Top-k Prestige- Based Relevant Spatial Web Objects," Proc. VLDB Endowment, vol. 3, no. 1, pp. 373-384, 2010.

[6] X. Cao, G. Cong, C.S. Jensen, and B.C. Ooi, "Collective Spatial Keyword Querying," Proc. ACM SIGMOD Int'l Conf. Management of Data, pp. 373-384, 2011.

[7] B. Chazelle, J. Kilian, R. Rubinfeld, and A. Tal, "The Bloomier Filter: An Efficient Data Structure for Static Support Lookup Tables," Proc. Ann. ACM-SIAM Symp. Discrete Algorithms (SODA), pp. 30- 39, 2004.

[8] Y.-Y. Chen, T. Suel, and A. Markowetz, "Efficient Query Processing in Geographic Web Search Engines," Proc. ACM SIGMOD Int'l Conf. Management of Data, pp. 277-288, 2006.

[9] E. Chu, A. Baid, X. Chai, A. Doan, and J. Naughton, "Combining Keyword Search and Forms for Ad Hoc Querying of Databases," Proc. ACM SIGMOD Int'l Conf. Management of Data, 2009.

[10] G. Cong, C.S. Jensen, and D. Wu, "Efficient Retrieval of the Top-k Most Relevant Spatial Web Objects," PVLDB, vol. 2, no. 1, pp. 337- 348, 2009.

[11] C. Faloutsos and S. Christodoulakis, "Signature Files: An Access Method for Documents and Its Analytical Performance Evaluation," ACM Trans. Information Systems, vol. 2, no. 4, pp. 267-288, 1984.

[12] I.D. Felipe, V. Hristidis, and N. Rishe, "Keyword Search on Spatial Databases," Proc. Int'l Conf. Data Eng. (ICDE), pp. 656-665, 2008

AUTHOR'S PROFILE:

MADASU GANESH

PG Scholar , Department Of CSE. Gandhi Academy Of Technical Education, Ramapuram (kattakommuGudem), Chilkur(M), Kodad, Telangana 508206

V RAMA RAO

Assistant Professor, Department Of CSE. Gandhi Academy Of Technical Education, Ramapuram (kattakommu Gudem), Chilkur(M), Kodad, Telangana 508206