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Distance Based Query Processing System for Mobile Applications

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***Abstract*— In recent years, there has been a proliferation of traveler information system (TIS) providers that offer mobile users a variety of route planning applications. Users are now equipped with the ability to plan their ideal paths from one point to another. In addition, the mobile user may want to know interesting "points-of interest" (gas stations, hotels, restaurants, rest-areas, post offices, florists and so on) that are within a specified size of the planned path to visit along the route. A spatial network is a network of spatial elements and it consists of geospatial objects. The space map is then broken into units, these might be road segments. The road segments (the nodes of the graph) can be linked into a network via their intersections (the edges of a graph). Mobile accessories application bargain wireless networks, applications to admission absorption altar and their paths in the spatial world are accepting added in demand. We propose a new concept based on distance based kNN for query processing in Mobile Systems. Finding the shortest distance path which starts from the query point and goes through the k interest objects. By following this distance path, the user can visit all k interest objects one by one. This distance path has the shortest distance and below in user distance among all other possible paths.**

***Index Terms*—Digital Ecosystem, k Nearest Neighbor, Query processing, Road Network**

I. INTRODUCTION

The objective of paper is to argue the crisis associated to the responsibility of private and terminal mobility and query processing in the mobile surroundings. The promptly improving technology of mobile communication will provide mobile users ability of accessing information from somewhere and sometime. The wireless technology has made it likely to accomplish continuous connectivity in mobile environment. At that time the query is indicated as uninterrupted, the requesting mobile user can achieve continuously shifting outcome. Within organize to offer exact as well as timely outcome to requesting mobile client, the locality of stirring object has to be closely observed. Distributed wireless mobile network is the one of the most important technology in a digital ecosystem. It permit information trade and information services to be conveyed, which is essential for digital ecosystems. One of the most notorious and raising applications of mobile information services is mobile navigation, owing to the improvement of traffic loads and the complexity of road connections. More and more mobile users require a variety of application that will help them to find the way on crowded roads, show them to the preeminent path, and even give answers to their queries.

With the improvement on GPS and mobile device technologies, it is necessary to proffer location-based services (LBS) to moving objects which move into spatial networks, like road networks. That is, geo-information and geo processing services are delivered to users with mobile phones, according to their current locations and their points of interests. In this paper, we spotlight on the issue of achieving data objects in their order of distance from a given query object. Location dependent data access is an significant characteristic of mobile computing application. Mobile devices are in movement majority of the time and the outcome of the query depends upon the locality of mobile devices. To develop efficient query processing strategies that can resolve several limitation of mobile environment like limited battery power, frequent disconnection, less bandwidth is an important area of research in query processing. Some kinds of locality reliant inquiry are significant in LBS, for instance range queries, k-nearest neighbor (k-NN) queries, reverse nearest neighbor queries, and continuous queries. Among them, the most basic and important queries are pkNN ones.

The existing pkNN query processing algorithms basic expansions, pruning conditions, accelerated approach, and special issues in turn. Given a set of candidate interest objects, a query point, and the number of objects k, pkNN finds the shortest path that goes through all k interest objects with the minimum shortest distance among all possible paths. pkNN is useful when users would like to visit all k interest objects one by one from the query point, in which pkNN will give the users the shortest path. Starting from the query point, dkNN does a full expansion whenever an intersection node or an interest point is found. Then, the expansion results are updated and kept in an expansion set. The next expansion will start from the node Which has the shortest distance from the query point. In the expansion process, one pruning condition are introduced to accelerate the processing efficiency, to ensure the accuracy of the results. But pkNN used four pruning conditions in the expansion process to accelerate the processing efficiency, to ensure the accuracy of the results.

II. RELATED WORK

In [2] It is to reduce the query access time of the client when acquiring broadcast information while, simultaneously, minimizing a client's tuning time. More exclusively the novel structure and access for mobile data broadcast approach addresses the tradeoff issue of having

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optimized query-access and tuning times and aspires to reach the best of both worlds by introducing a new data and index access and structure. A familiar metric to estimate the cost of data access in a mobile broadcast environment was established in, and it contains the following:1) access time: the time that elapses from the time a request is commenced until all data items of interest are obtained and 2) tuning time: the quantity of time that the client expends listening for the desired broadcast data item(s).Tuning time contains two modes: active and doze modes. The novel structure and access for mobile data broadcast approach fuses the data and index into a single message structure and introduces a new client access mechanism. This approach is independent of the data-packet scheduling and can be applied to any appropriate scheduling. The offerings of this paper consist of the following: 1) establishing a innovative message structure for data broadcast that join together both data and index items;2)characterizing the new access and processing in the mobile client; 3) examining the performance of the future approach using a simulation-based tested; 4) conducting evaluations with conservative techniques in the data broadcast field. The novel structure and access for mobile data broadcast approach is affirmed to be superior to the existing methods,and it is effective in achieving both minimum access and tuning times in a single operation.

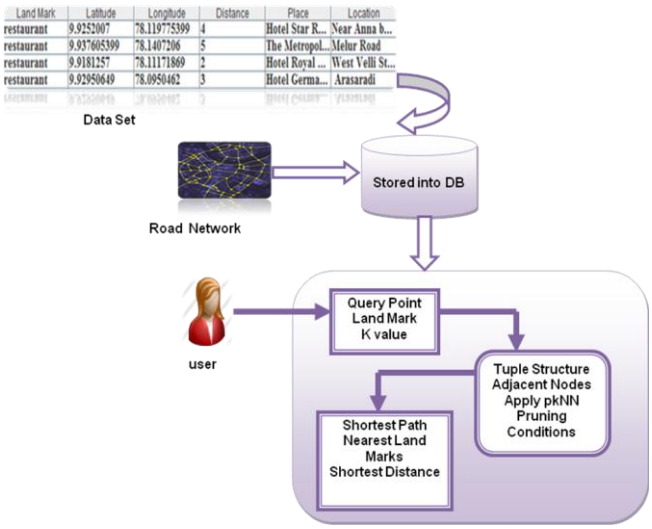
In [4] Given a data set P, an obstacle set O, and a query point q in a 2D space, a VRNN query retrieves the points in P that have q as their visible nearest neighbor.An efficient algorithm for VRNN query processing, assuming that P and O are indexed by R-trees. The techniques do not require any preprocessing and employ half-plane property and visibility check to prune the search space. To extend the solution to several variations of VRNN queries, including: 1) visible reverse k-nearest neighbor (VRkNN) search, which finds the points in P that have q as one of their k visible nearest neighbors; 2) $_{\delta}$-VRkNN search, which handles VRkNN retrieval with the maximum visible distance δ constraint; and 3) constrained VRkNN (CVRkNN) search, which tackles the VRkNN query with region constraint. Extensive experiments on both real and synthetic data sets have been conducted to demonstrate the efficiency and effectiveness of the proposed algorithms under various experimental settings.Single query points only.Focused only on a 2D space.High query cost.

In [3] Most information and query services in a mobile environment are continuous mobile query processing or continuous k nearest neighbor (CKNN), which finds the locations where interest points or interest objects change while mobile users are moving.These locations are known as "split nodes." All of the existing works on CKNN divide the query path into segments, which is a segment of road separated by two intersections, and then, the process to find split nodes is applied to each segment. Since there are many segments (due to many intersections, obviously),processing each segment is naturally inefficient. An alternative solution to overcome this problem to use the Voronoi diagram for CKNN [called Voronoi CKNN (VCKNN)].The proposed approach does not need to divide the query path into segments, hence improving the overall query processing performance. The experiment verified the applicability of the VCKNN approach to solve CKNN queries.Performs better only if density is low.Only works for low interest objects.

In [1]Given a set of candidate interest objects, a query point, and the number of objects k, pkNN finds the shortest path that goes through all k interest objects with the minimum shortest distance between every one of the probable paths. pkNN is beneficial while users would like to visit all k interest objects one by one from the query point, in which pkNN will give the users the shortest path. The approach of pkNN performs network expansion, which is similar with INE. The expansion starts from query point q to all adjacent vertices and stores the pkNN tuples into RS. Every time, one pkNN tuple will pop out to do further expansion until the boundary set(BS)is found. In the processing progress, are going to use pruning conditions to prune some redundant pkNN tuples to speed up the expansion and then keep updating the boundary distance (dmax) until RS has been cleared. In INE, the visited nodes will not be expanded during the expansion, while in pkNN, all adjacent nodes are expanded no matter whether the nodes have been visited or not. As the state before, in every expansion, all adjacent nodes are expanded; this will cause a lot of redundant pkNN tuples because allow go-and-back expansion.

III. PROPOSED SYSTEM

A spatial network is a network of spatial elements and it consists of geospatial objects. The space map is then broken into units, these might be road segments. The road segments (the nodes of the graph) can be linked into a network via their intersections (the edges of a graph). Mobile accessories application bargain wireless networks, applications to admission absorption altar and their paths in the spatial world are accepting added in demand. We propose a concept for k nearest neighbors based on distance called Distance-based kNN (dkNN).for query processing in Mobile Systems. A new concept for k nearest neighbors based on distance called Distance-based kNN (dkNN). Finding the shortest distance path which starts from the query point and goes through the k interest objects. This distance path has the shortest distance and below in user distance among all other possible paths. Distance based knn supports both small and large number of nodes. The Distance based k Nearest Neighbor increasing the result accuracy.



IV. CONCLUSION

A novel approach called dkNN based on network distance on a road network has been introduced. The basis of dkNN is network expansion. The proposed approach, dkNN, gives users correct paths, even when the route is complex like that in real world. The algorithms perform well if the density is high and the number of interest objects is smaller than seven. However, as expected, if the density of the interest objects is low and the number of interest objects is large, the performance of dkNN will degrade sharply. The Distance based k nearest neighbor used to increase the result accuracy for query processing.

REFERENCES

[1] Geng Zhao, Kefeng Xuan, and David Taniar ,"Path kNN Query Processing in Mobile Systems", IEEE Transactions On Industrial Electronics, Vol. 60, No. 3, March 2013

[2] Agustinus Borgy Waluyo, Wenny Rahayu, David Taniar, and Bala Srinivasan "A Novel Structure and Access Mechanism for MobileData Broadcast in Digital Ecosystems", IEEE Transactions On Industrial Electronics, Vol. 58, No. 6, June 2011

[3] G. Zhao, K. Xuan, W. Rahayu, D. Taniar, M. Safar, M. Gavrilova, and B. Srinivasan, "Voronoi-based continuous k nearest neighbor search in mobile navigation,"IEEE Trans. Ind. Electron., vol. 58, no. 6, pp. 2247–2257, Jun. 2011.

[4] Y. Gao, B. Zheng, G. Chen, W.-C. Lee, K. C. K. Lee, and Q. Li, "Visible reverse k-nearest neighbor query processing in spatial databases,"IEEE Trans. Knowl. Data Eng., vol. 21, no. 9, pp. 1314–1327, Sep. 2009

[5] K. Mouratidis and D. Papadias, "Continuous nearest neighbor queries over sliding windows,"*IEEE Trans. Knowl. Data Eng.*, vol. 19, no. 6, pp. 789–803, Jun. 2007.

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