Efficient Compution of Range Aggregates Against Uncertain Location Based Queries

Author : - D.John Sujay

Abstract:

In many applications, including location based services, queries may not be precise. In this paper, we study the problem of efficiently computing range aggregates in a multidimensional space when the query location is uncertain. We propose novel, efficient techniques to solve the problem following the *filtering-and-verification* paradigm.

Existing System:

The existing techniques for processing location based spatial queries regarding certain query points and data points are not applicable or inefficient when uncertain queries are involved.

Disadvantages:

- ❖ Query location is uncertain.
- ❖ In those applications, searching such a location may not only request targets but may also damage other civilian objects details.

Proposed System:

Our techniques will be presented based on the aggregate *count*. Nevertheless, they can be immediately extended to cover other aggregates, such as min, max, sum, avg, etc. In this application, the risk of civilian casualties may be measured by the total number n of civilian objects which are within γ distance away from a possible blast point with at least θ probability. It is important to avoid the civilian casualties by estimating the likelihood of damaging civilian objects once the aiming point of a distance (km) is determined.

Advantages:

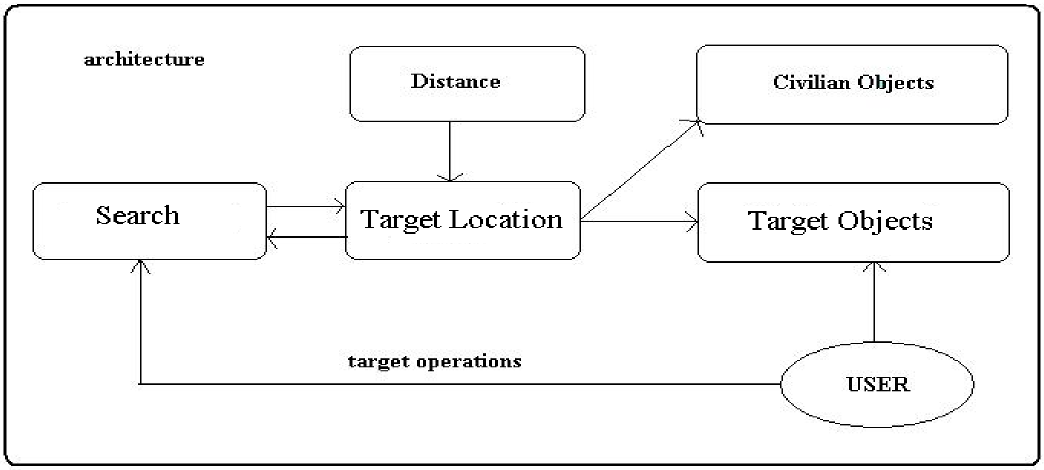
- ✓ Avoid damaging civilian objects.
- ✓ Filtering technique is applied.

INTRODUCTION

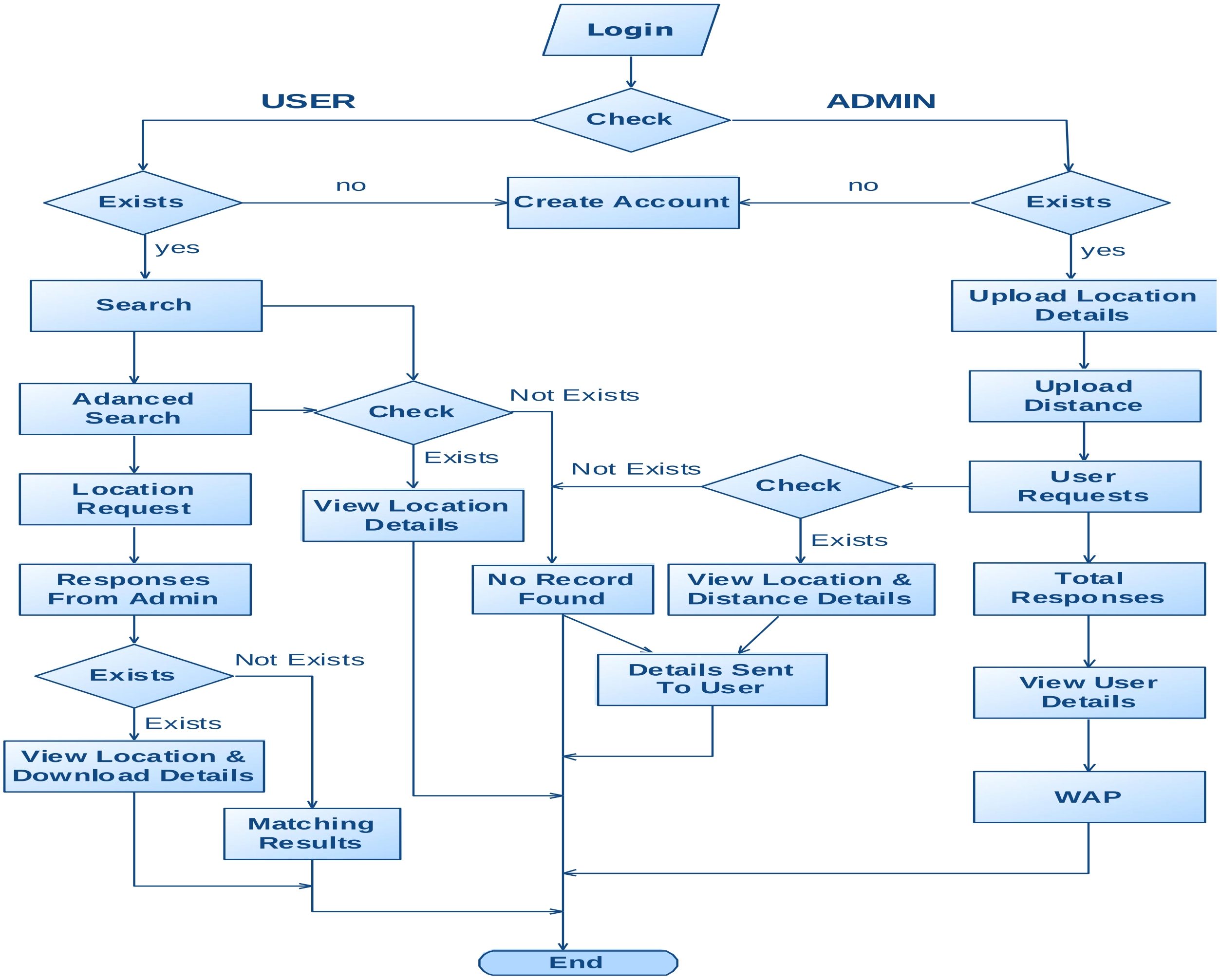
Query imprecision or uncertainty may be often caused by the nature of many applications, including location based services. The existing techniques for processing location based spatial queries regarding certain query points and data points are not applicable or inefficient when uncertain queries are involved. In this paper, we investigate the problem of efficiently computing distance based range aggregates over certain data points and uncertain query points as described in the abstract. In general, an uncertain query Q is a multi-dimensional point that might appear at any location x following a probabilistic density function pdf(x) within a region Q.region. There is a number of applications where a query point may be uncertain. Below are two sample applications.

Motivating Application : A blast warhead carried by a missile may destroy things by blast pressure waves in its lethal area where the lethal area is typically a circular area centered at the point of explosion (blast point) with radius γ and γ depends on the explosive used. While firing such a missile, even the most advanced laser-guided missile cannot exactly hit the aiming point with 100% guarantee. The actual falling point (blast point) of a missile blast warhead regarding a target point usually follows some probability density functions (PDFs); different PDFs have been studied in [24] where bivariate normal distribution is the simplest and the most common one. In military applications, firing such a missile may not only destroy military targets but may also damage civilian objects. Therefore, it is important to avoid the civilian casualties by estimating the likelihood of damaging civilian objects once the aiming point of a blast missile is determined. Points {pi} for $1 \leq i \leq 7$ represent some civilian objects (e.g., residential buildings, public facilities). The actual falling point of the missile, then objects p1 and p5 will be destroyed. Similarly, objects p2, p3 and p6 will be destroyed if the actual falling point is q2. In this application, the risk of civilian casualties may be measured by the total number n of civilian objects which are within γ distance away from a possible blast point with at least θ probability.

Architecture



Data Flow Diagram:



Algorithm:

Filtering-and-Verification Algorithm:

This motivates us to follow the *filtering-and-verification* paradigm for the uncertain aggregate query computation. Particularly, in the *filtering phase*, effective and efficient filtering techniques will be applied to *prune* or *validate* the points. The algorithm consists of two phases. In the *filtering* phase for each entry e of RS to be processed, we do not need to further process e if it is *pruned* or *validated* by the filter F. We say an entry e is *pruned* (*validated*) if the filter can claim P_{fall} (p, γ) < θ (P_{fall} (p, γ) ≥ θ) for any point p within e_{mbb}. The counter cn is increased by |e| if e is *validated* where |e| denotes the aggregate value of e (i.e., the number of data points in e). Otherwise, the point p associated with e is a candidate point if e corresponds to a data entry and all child entries of e are put into the queue for further processing if e is an intermediate entry. The *filtering phase* terminates when the queue is empty. In the *verification* phase candidate points are *verified* by the integral calculations.

Modules:

Filtering and verification:

When User wants to Search any Civilian Objects like Hotels, Hospitals, Banks, etc., to generate & verify the database then gave exact details. If, he wants to Advanced Search, to give exact range values, apart from that civilian objects details to be displayed with Civilian Objects categorized and calculate the distance details.

Query Processing:

Admin Verify the User Requests and check the user requests is contain in our database or not. If the database contains the user requests to calculate the Range (Distance) value, and then send Response to the Appropriate Values, suppose the request doesn't contain in the database send response is 'Record Not Found' that query sent to the particular User.

Response Results:

User Verify the Admin Responses and the user requests is match with database the query produce with the Correct Results and Download the word file, otherwise not download. If the database contains the user requests to calculate the Range (Distance) value, suppose the request doesn't contain in the database received response is 'Record Not Found' but if matching results are retrieved.

Upload Civilian Objects with Distance:

Admin can upload the Civilian Objects details with Correct Location (area), Address, Phone and Upload Civilian Objects Profile (.doc) file. If calculate distance in one location to another location so the admin entry the details for distance and admin can view the User Details also.

System Requirements

Hardware Requirements:

• System	: Pentium IV 2.4 GHz.
• Hard Disk	: 40 GB.
• Floppy Drive	: 1.44 Mb.
• Monitor	: 15 VGA Colour.
• Mouse	: Logitech.
• Ram	: 512 Mb.

Software Requirements:

• Operating system	: Windows XP.
• Coding Language	: ASP.Net with C#
• Database	: Sql Server 2005.

REFERENCE:

Ying Zhang, Xuemin Lin, Yufei Tao, Wenjiee Zhang, Haixun Wang, "Efficient Computation of Range Aggregates against Uncertain Location Based Queries", **IEEE Transactions on Knowledge and Data Engineering, 2011.**