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RETRIEVING THE SPATIAL DATA EFFICIENTLY USING SCORE BASED SPATIAL QUERY

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Abstract: Spatial Data is the data that has geographic location of features and retrieving the space related information. In existing, RKBSK (Reverse top-k Boolean Spatial Keyword query) algorithm is used to retrieve the exact query. The filter and refinement technique is used to satisfy the keyword constraint. The Spatial information is taken into the consideration and textual information is inefficient and no pre computation in existing. In proposed system, Score based spatial query and count tree algorithm is used in the agriculture application. The Score based spatial keyword query is used to retrieve and measures the combination of distance of the query location and the relevance of their textual descriptions to the query keywords. The count tree algorithm is used for the indexing purpose. When the user is giving the location name and the co-ordinates the user is provided with a growth of crops.

Keywords: Reverse top k Boolean spatial keyword query, Count Tree, Score based spatial query, K nearest neighbour, Boolean spatial retrieval query

I.INTRODUCTION

Spatial is an integrated set of functions and procedures that enables spatial data to be stored, accessed, and analyzed quickly and efficiently in a database. Spatial data represents the essential location characteristics of real or conceptual objects as those objects relate to the real or conceptual space in which they exist. It is also known as geospatial data or geographic information it is the data or information that identifies the geographic location of features and boundaries on Earth, such as natural or constructed features, oceans, and more. Spatial data is usually stored as coordinates and topology, and is data that can be mapped. Spatial data, also known as geospatial data, is information about a physical object that can be represented by numerical values in a geographic coordinate system. Spatial data is often accessed, manipulated or analyzed through Geographic Information Systems (GIS).

A spatial database or geo database is a database that is optimized to store and query data that represents objects defined in a geometric space. Most spatial databases allow representing simple geometric objects such as points, lines and polygons. Some spatial databases handle more complex structures such as 3D objects, topological coverage, and linear networks. Spatial data is used in geographical information systems (GIS) and other geo location or positioning services. Spatial data consists of points, lines, polygons and other geographic and geometric data primitives, which can be mapped by location, stored with an object as metadata or used by a communication system to locate end user devices. Spatial data may be classified as scalar or vector data. Each provides distinct information pertaining to geographical or spatial locations. The agriculture is considered as the application. By giving the location name as a keyword, the user will be provided with the latitude and longitude. Here the Score based spatial query is used to measure the distance of the query location that is the location which is considered as a keyword. The minerals of the soil value are used to calculate the growth of the crops in the field. A spatial database is a database that is enhanced to store and access spatial data or data that defines a geometric space. These data are often associated with geographic locations and features, or constructed features like cities. The common database systems use indexes for a faster and more efficient search and access of data. This index, however, is not fit for spatial queries. Instead, spatial databases use something like a unique index called a spatial index to speed up database performance. Spatial indexing is very much required because a system should be able to retrieve data from a large collection of objects without really searching the whole bunch. It should also support relationships between connecting objects from different classes in a better manner than just filtering.

II.METHODOLOGIES

The different methodologies are Collection of datasets, Count tree for indexing structure Score based spatial Query, retrieving the data.

a) Datasets

The soil dataset is taken in this paper. I here consider the location name as a keyword. The relevant dataset is collected and stored in the spatial database using JAR/jdk.The collected dataset consists of location name, type of soil, minerals of soil like phosphorous, nitrogen, density, calcium, Magnesium etc with latitude and longitude. The agriculture is considered as the application. By giving the location name as a keyword, the user will be provided with the latitude and longitude. The sample dataset is given below:

Location name	Thanjavur
Type of soil	Alluvial soil
Phosphate	5.4
Nitrogen	0.188
Density	0.92
Potassium	215
Magnesium	7.65
Conductivity	1.09
Latitude	10.7852300
Longitude	79.1390900

b) Count Tree for Indexing Structure

The value of co ordinates will be given and the indexing process will be taken in this module. The location name is given as a keyword. The count tree algorithm is used for indexing. . By analyzing the soil from the dataset, it is stored in the spatial database. Using the analyzer software the fertility of the soil is found. And the type of the soil is selected. Based upon the selected soil it gives details about the fertility of the soil such as high, medium, low. The different types of soil and crops that grew is shown in the below table,

TYPES OF SOIL	CROPS THAT GREW
Alluvial soil	Rice, Wheat, Sugarcane
Black soil	Rice,Wheat,Millet Sugarcane
Red soil	Wheat, Millet
Late rite soil	-----
Forest soil	Wheat, Millet
Desert soil	Wheat, Millet, Maize
Saline soil	------
Peaty soil	-------

c) Score Based Spatial Query

The properties and growth of the crops will be computed in this module**.** When the certain location is given with the type of the soil, it will display the type of crops (rice, wheat, maize, millet, sugarcane) growth. Based on the soil ph value of the soil, the crops that grew in that soil is analyzed and the crops that grow is taken as retrieved output.

```
Public Data Generato r () {
clear Blacklist();
SetNumExamplesAct (defaultNumExamplesAct ());
Set Seed(default Seed());
}
protected Vector
EnumToVector (Enumeration enm) {
Vector      result;
result = new Vector();
while (enm.hasMoreElements())
result. add(enm.nextElement());
return result;
}
public Enumeration list Options() {
Vector      result;
result = new Vector();
result.addElement
```

When the certain location is given with the type of the soil, it will display the type of crops (rice, wheat, maize) growth. The data is retrieved efficiently.

d) Retrieving the Output

When the location name is given as a keyword with the type of the soil, it will display the type of crops (rice, wheat, maize) growth. The data is retrieved efficiently.

e) System Architecture

Spatial data is the data that have a spatial component; it means that data are connected to a place in the Earth. Geographic Information System integrates the hardware, software, data and people to capture, manipulate, analyze and display all forms of geographically referenced information or spatial data. It allows seeing, understanding, consulting and interpreting data to reveal relationships, patterns and trends. Reverse top-k Boolean Spatial Keyword query (RKBSK) have a broad application base such as decision support, marketing and resource allocation. The spatial information is taken into the consideration and textual information is inefficient in the existing. Given a data set Count Tree is the algorithm used on the agriculture application. By giving the co-ordinates the user is provided with a growth of a paddy field, water resources and type of the soil. The Score based spatial keyword query aims to retrieve the k- objects with the highest ranking scores measures the combination of distance of the query location and the relevance of their textual descriptions to the query keywords.

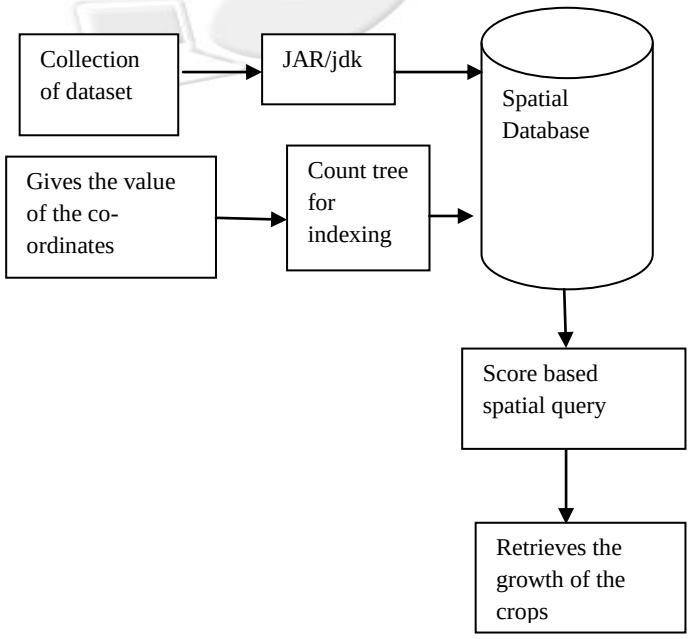

Figure 1: Architecture Diagram for Spatial Data

Location name	Thanjavur
Type of soil	Alluvial soil
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III .CONCLUSION

Thus the soil dataset is collected using the jar/jdk. Using the JAR/jdk the dataset is stored in the spatial database. Using the algorithm the soil fertility is analyzed. By analyzing the soil Fertility, the water resource and growth of the paddy field is analyzed and done in future. To extend our solution multi source RkBSK query is used. Finally the Queries on social network are also used. The main advantage is The Score based spatial query algorithm and agriculture application is used. The main aim is to consider the textual information. It is more efficient.

IV.REFERENCES

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