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Scalable Processing of Continuous K-Nearest Neighbour Queries in Spatio Temporal Database

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Abstract: Location Based Services and Geographical Information System together have enabled a new era of the development of a mobile based applications for various commercial and military applications. Unlike the current information services such as those on the web and as mobile apps, the GIS has benefited greatly from developments in various fields of computing. Better database software allows the management of vast amounts of information that is referenced to digital maps. Computer graphics techniques provide the data models for storage, retrieval and display of geographic objects. Geographic Information Science, the field of science behind GIS, offers specialized knowledge about spatial data collection and processing, data modeling as well as modeling of spatial processes for analysis purposes. In our project we propose a method for find the locations of various Places according to user location using Gps in online mode in our project the user can access the important unique data without unwanted data Information related to the searched location. And Location-based search is one of the great promises of the mobile era. Looking for a good searching option based on the user query.

Keywords: GIS, Location-Based Service LBS, GPS, Open Street Map(OSM).

I. INTRODUCTION

Advancements in Health Information System, Location Based Services and Geographical Information System together have enabled a new era of the development of a mobile based applications for various commercial and military applications. Unlike the current information services such as those on the web and as mobile apps, the GIS has benefited greatly from developments in various fields of computing. Better database software allows the management of vast amounts of information that is referenced to digital maps. Computer graphics techniques provide the data models for storage, retrieval and display of geographic objects. Geographic Information Science, the field of science behind GIS, offers specialized knowledge about spatial data collection and processing, data modeling as well as modeling of spatial processes for analysis purposes.

A GIS can be defined generally to be an information system that processes geographic data. Geographical Information System provides a powerful software tools for the manipulation and analysis of spatial data, making maps into dynamic objects. While services like GOOGLE EARTH (requires software downloaded) and GOOGLE MAPS are bringing GIS capabilities to the masses, having complete control of the software and data helps researchers precisely study their subjects and produce the exact outputs and displays needed.GIS are used for many different tasks and in many different fields of application. As such, a GIS often forms an interface between a variety of disciplines such as geography, information sciences, mathematics, surveying, or environmental sciences. A GIS is an integrated collection of computer software and data used to view and manage information connected with specific locations, analyze spatial relationships, and model spatial processes. The majority of data in public health has a spatial (location) component, to which GIS adds a powerful graphical and analytic dimension by bringing together the fundamental epidemiological triad of person, time, and the often-neglected place.GIS technology integrates common database operations, such as query and statistical analysis, with the unique visualization and geographic analysis benefits offered by maps. These abilities distinguish GIS from other information systems and make it valuable to environmental health organizations for explaining events, predicting outcomes, and planning strategies.

In this sense, GIS is much more than a computer map; it is a decision support system that integrates spatially referenced data and statistical analyses to address environmental health problems. GIS is a powerful tool for examining population-level effects of exposures as reflected in the geographic and spatial distribution of populations. Mapmaking and geographic analysis are not new, but a GIS performs these tasks better and faster than the old manual methods. Before GIS technology, only a few people had the skills necessary to use geographic information to help with decision making and problem solving.

II. LOCATION QUALITY OF SERVICE

The Location Request object is used to request a quality of service (QoS) for location updates from the Location Client. There are following useful setter methods which you can use to handle QoS. There are equivalent getter methods available which you can check in Android official documentation.

A location-based service (LBS) is a software application for a IP-capable mobile device that requires knowledge about where the mobile device is located. Location-based services can be query-based and provide the end user with

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useful information such as "Where is the nearest ATM?" or they can be push-based and deliver coupons or other marketing information to customers who are in a specific geographical area.

An LBS requires five basic components: the service provider's software application, a mobile network to transmit data and requests for service, a content provider to supply the end user with geo-specific information, a positioning component (see GPS) and the end user's mobile device. By law, location-based services must be permission-based. That means that the end user must opt-in to the service in order to use it. In most cases, this means installing the LBS application and accepting a request to allow the service to know the device's location.

III. CONTEXT SEARCH

They are replaced by the new place ID, a unique identifier that can be used to compare places and to retrieve information about a place. The Places API currently returns a place_id in all responses, and accepts a placeid in the Place Details and the API will stop returning the id and reference fields in responses. Sometime later, the API will no longer accept the reference in requests. We recommend that you update your code to use the new place ID instead of id and reference as soon as possible.

IV. CONTEXT DETAILS

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V. DISPLAYING A LOCATION ADDRESS

Once you have Location object, you can use Geocoder. getFromLocation() method to get an address for a given latitude and longitude. This method is synchronous, and may take a long time to do its work, so you should call the method from the doInBackground() method of an AsyncTask class.

The AsyncTask must be sub classed to be used and the subclass will overridedoInBackground(Params...) method to perform a task in the background and onPostExecute(Result)method is invoked on the UI thread after the background computation finishes and at the time to display the result.
There is one more important method available in AyncTask which is execute(Params... params), this method executes the task with the specified parameters.

Check following example to have better understanding on how we use Aynch Task in any Android application to get work done in the background without interfering main task.

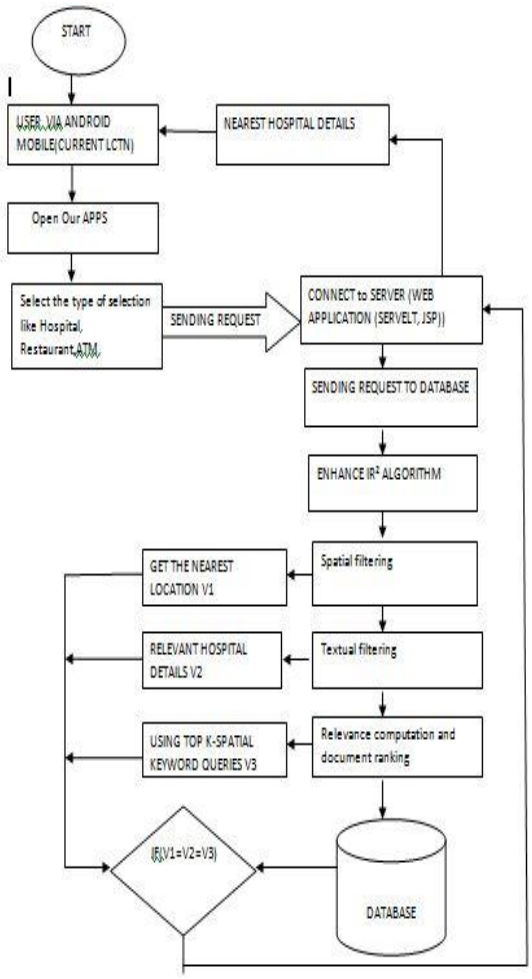
VI. GOOGLE MAP WITH DISTANCE, DURATION

We have to developed an Android application which displays driving distance and travel time between two locations in Google Map Android API V2. It also draws polyline along driving route from start location to end location.GPS and network providers are two different ways to get Android device location (latitude and longitude). GPS and network location providers have got their own advantages and we may have to use both in sync. In in-door situations GPS may not provide the location quickly and network location provider is quick. Network location provider uses our mobile connectivity provider and will give the nearest tower location. GPS gives the exact location of where we are standing.

Having said all the above, I just noticed that I have written an tutorial already. Though I feel like a buffoon, somehow I have to manage now. Its okay, it will do no harm if we have two different examples for the same purpose.

There is not much we need to do, Android API takes care of everything. We need to implement Location Listener and make it a service class by extending Android Service API. Then use the Android's Location Manager API to get the latitude and longitude location. Nothing much to discuss, lets jump into the code.

VII. USER INTERFACE DESIGN



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VIII. CONCLUSION AND FUTURE ENHANCEMENT

For first phase, the working of the ArcGIS software used for this project implementation is learnt in detail. The first stage of this study is the project planning where the study area and the hardware, software are keenly selected and studied. In addition to this the study area is selected using the Open Street Map(OSM) services and the data are exported with the geographical coordinates with which the OSM file is got and the OSM2KML conversion is done as the ArcGIS software does not accept raw data, hence the KML files are again converted to LAYER using the KML2LAYER conversion tool and thus the selected map's projection is got with which the Hospitals are categorized as points, the road network as polylines and the study area as the polygon. In order to calculate the shortest path and closest facility offered we are proposing a new shortest path algorithm called the Bidirectional ST algorithm which is used in the Visual Basic.NET.

In this paper, we presented the implementation and evaluation of map, which provides an autonomous construction of a personalized map for the development of advanced mobile services. The core component of this map is a location management scheme that provides offline and online location information in everyday lives. Each user search his/her own location in map incrementally with a help of centralized server and a local server. We minimized the energy consumption of a device by using a minimum set of sensors based on user activity. User privacy was also considered by designing a decentralized system. Our belief is that the proposed approach complements current localization technology, taking an important step to expand the domain of mobile services to indoor environments in daily lives. Although focuses on the major source of user context (i.e., location), we believe that our approach is a building block toward a sophisticated system that provides various user context, including both location and situation.

This project proposes a new field of secure transactions. Enhancements can be made by implementing newer techniques like image authentication, biometrics to authenticate users.

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