

Pattern Evaluation on Spatial Data, a Practical Approach on a Common Destination Algorithm: Unique Names Are Recognising for an Area On A large Scale

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Abstract: Pattern evaluation is performing on obtained data from different node. Here spatial data obtained as a location of the different cell phone. In the true sense data warehouse is performing on a relational database. Spatial data is need to add in to database. It is challenging to store the spatial data into database. The spatial data is too large in size for storing in data base. And it is very tough to process into data warehouse. Spatial data analysis is challenging task for the data warehouse process. The study is going through the practical working for pattern evaluation on spatial data. The work is also proposing an algorithm to overcome the present issues and achieve accuracy as a process of pattern evaluation.

Key Words: OLAP, OLTP, SMA.

I. Introduction

From the outset of the research work, there is a Data Warehouse process. At the bottom tier of Data warehouse, relation data base file is adding for the process. There is a need to store the spatial data in to database. It also a challenging task to store the bulky spatial data into database. Present work is detecting map based live location through satellite is processing spatial data. And initially, the data is adding in to Data Warehouse as database file. Here the work is proposing some initial proceeds before the pattern evaluation task perform. In the traditional way, there was not a kind of data like spatial data, so text, number and text and number based data can process in to data warehouse. The work is targeting desired result as accuracy, as important process of pattern evaluation on spatial data. For the accommodation of the advancement in the process of pattern evaluation, the work is processing with identical tools, techniques, data, data processing and background so topological arrangement suggesting an identical architecture. The work is suggesting an algorithm for the analysis purpose and obtains accuracy.

II. Literature Review

Mountain D, Raper J at el. [1] Modelling Human SpatioTemporal Behavior: A challenge for location-based services. The paper is instructing that the phone become "Location-Aware" over a future time. There are opportunities, we can obtain users physical location and can store the data and analyze a history of previous location. There is an instruction of Hypergeo System Architecture and the development of algorithms.

Widom, J. at el. [2] Research Problem in Data Warehousing. The work is indicating about the process of data warehouse as intelligent tool. Data Warehousing is a process of on analyse the data. It is called OLAP, Online Analytical Process. This is intelligent method for an organization. The architecture of the system shows that it has capacity to work practically and it has a capacity to overcome the problem practically. The work shows the technical issues and its solution.

Nath B, Borah A at el. [3] Comparative evaluation of pattern mining techniques: an empirical study. The work elaborates pattern mining it has emerged as a compelling field of data mining. The work is attempting to give comparative scrutiny of the fundamental algorithms in the field of pattern mining through performances analyses based on several decisive parameter. It instruct a structural classification of widely referenced techniques in four pattern mining categories, frequent maximal frequent, closed frequent and rare.

Ivanove V, Palyukh B V, Sotnikov A N at el. [4] features of warehouse support based on search agent and evolutionary modal for innovation information selection. The research work is giving the result of search on the data warehouse technology with an automatic data replenishment from heterogeneous sources. The work also is presenting the general architecture of the data warehouse, and describing the innovativeness.

Konikov A, Kulikova E, Stifeeva O at el. [5] Research of the possibilities of application of the data warehouse in the construction area. The aim of this work is to search of the possibilities of application of data warehouse in the constitution area. The paper suggests the new approach to data analysis in the construction area, based on the use of big data technology and element of OLAP analysis.

Tomingas K, Kliimask M, Tammet T at el. [6] Data Integration Patterns for Data Warehouse Automation. The work states a mapping-based Meta data driven modular data transformation framework

designed to solve extract-transform-load (ETL) automation, impact analysis, data quality and integration problems in data warehouse environment.

Roddick J, Spiliopoulou et al. [7] A Bibliography of Temporal, Spatial and Spatio-Temporal Data Mining Research. The work states that, it is a comment on a research and provides a bibliography of some important work which are based on temporal, spatiotemporal data mining. Bibliography is assembled into contributions for temporal, spatial and temporal data mining. Here temporal mining indicates on the search of casual relationships among events. The work shows the meaning of temporal data mining and also introduces the different terminologies for the present research based problems. The research work also states that the time series analysis have played important role.

III. Hypothesis

Spatial data have identical recognition.

Processed spatial data contain identical information.

Pattern evaluation is necessary to achieve accuracy on spatial data.

IV. Framework

- Cell Phone Node/ Computer Node.
- Internet services on a Cell Phone/ Computer Node.
- Special Data Collection Support Software Application on a Cell Phone/ Computer Node.
- Map services with satellite on a Cell Phone/ Computer Node.
- OLTP Server and its GUI Application Software.
- OLAP Server and its GUI Application Software with Special Manipulating Agent.
- Services with S.M.A, A Special Manipulating Agent on OLAP Server before Data to be stored permanently in to Data Warehouse.

V. Need for S.M.A, A Special Manipulating Agent

A data base file is not so competent at initial stage of the Data Warehouse. A competent data base is giving accurate result of the analysis on an OLAP server. So, as per subject oriented and as per business or organization requirement oriented manipulation is occurring before the data to be stored permanently in to Data Warehouse.

VI. S.M.A, A Special Manipulating Agent.

The study is proposing the S.M.A as a special manipulating agent on OLAP server. A onetime process on a S.M.A as a special manipulating agent at OLAP server. The function of the S.M.A, A Special Manipulating Agent on OLAP Server is to manipulate the data base file to be loaded on a Data Warehouse. A special manipulation services is also suggesting on SMA. A special GUI/CUI application is also proposing here. The manipulation is occurring before the data to be stored permanently in to Data Warehouse. A manipulation of data is also subject oriented and it will be purely based on requirement of business or organization. A partial language like SQL/ DMQL is supporting in manipulation process. Once the database file is updated then it will be permanently stored as historical perspective in Data Warehouse.

VII. Architecture

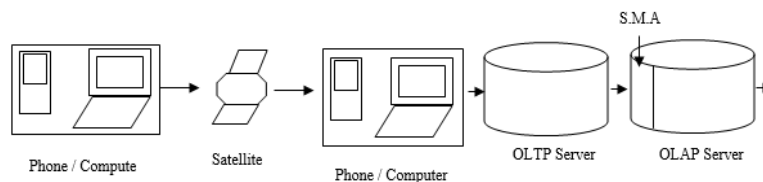
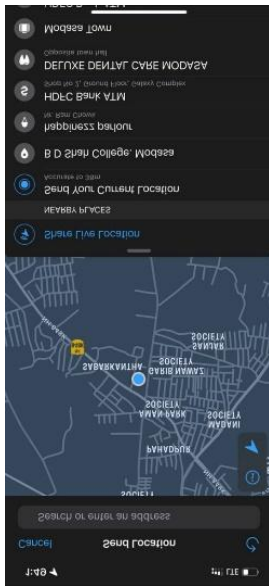


Figure 1: Combined Architecture

VIII. Detection of Data

Screen Shots: From Different Location of Gujarat, A state of India.



Sc. Shot.1



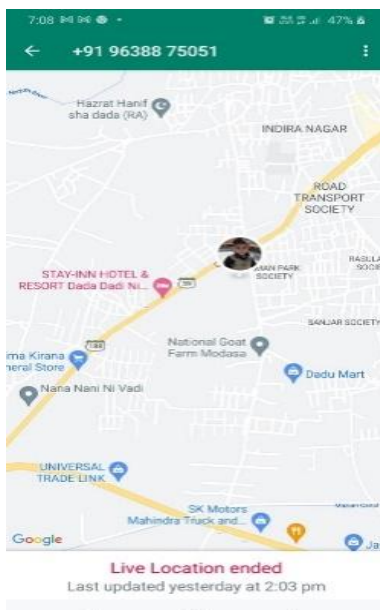
Sc. Shot 2



Sc. Shot 3



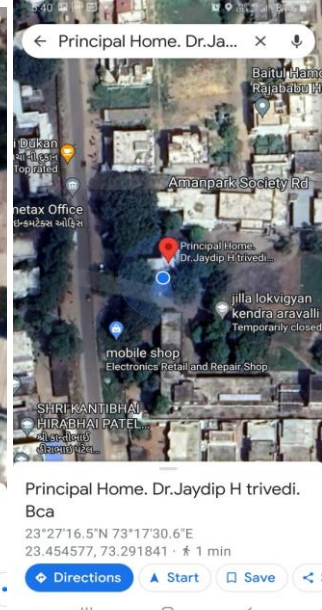
Sc. Shot 3



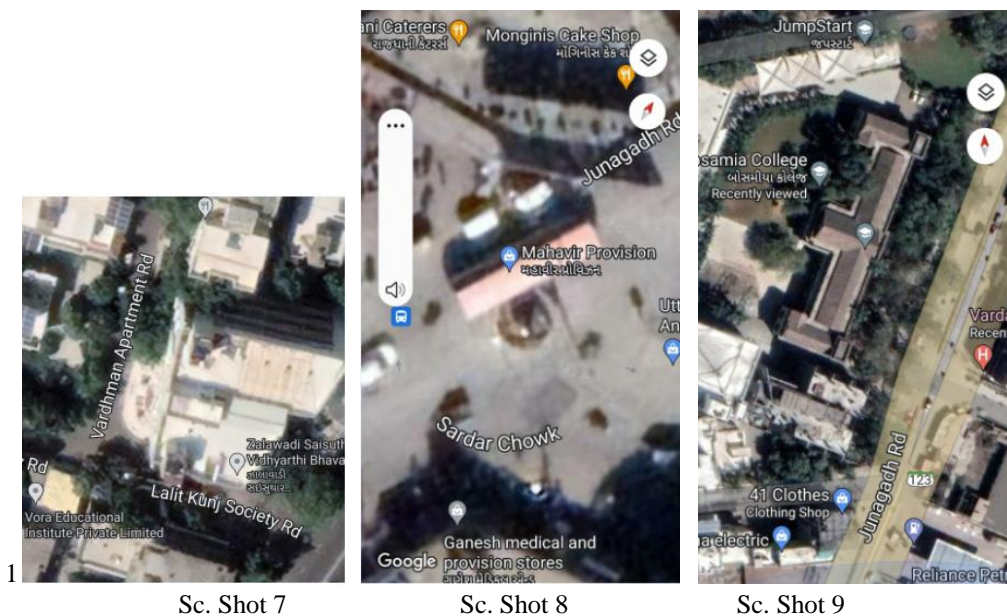
Sc. Shot 4



Sc. Shot 5



Sc. Shot 6



IX. Database Description

A database contain the values obtained from the real cell phone/computer based location.

Global Id	Main Place	Near Place 1	Near Place 2	Near Place 3	Near Place 4	City	State	Longitude	Latitud e	Result Global Id
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Table 1: Database Description

Variable is to be taken and consideration of database:

Most of the variables are taken from cell phone location based spatial data.

Near Place 1, Near Place 2, Near Place 3, Near Place 4, City, State, Latitude, Longitude, Result Global id, Main Place, Global id, and at another database Global Id, Spatial Map Image. A global id based comparison is performing and find image map. A type of related images obtained for each searching for a global id. At the end all images are recognising as particular pattern for a resulting mining process.

Process on Data:

Data to be stored in to special manipulating agent on OLAP server. As per the architecture of the present study, number of person have their cell phone / phone based location. The location has their reorganization if we analyse it properly. The image of the picture is obtained as a spatial data. The process of the study is not a simple process of searching, and updating spatial data from data database. The study is suggesting the process while the relation data enter at the bottom tier of the data warehouse. The study is suggesting the process on file which is entered as source file. A manipulation on a data source file is make source more competent for further process on data warehouse. A manipulation on a data source file is performing on the basis of requirement of enterprise, institute or organization. It is also subject oriented and integrated the source files. But once it is processed and become proper, become competent for the data mining process than it will stored permanently in data warehouse.

X. Data Modelling

At beginning, on a source file, while the data source file is entering in to data warehouse, a small scale data modelling is performing at S.M.A, a special manipulating agent on OLAP server. The small scale modelling is also making the source file competent for data mining purpose in data warehouse. If the source file is properly competent the analysis is also give perfect and accurate result through data mining process. Here the propose algorithm is suggesting for making file more competent for future analysis on data mining process in data warehouse so a kind of data pattern is available for the warehouse storage.

XI. Process of Algorithm

A 'Common Destination Algorithm' is searching the identical names of the location places indicated on spatial images of map from the database. And very interesting matter is that the places names of a particular area on a map are unique. For an area on a map or at the location indicated spatial images there are some places

names which are unique. The places name are not common for different area of the world. The unique names are instructing an area image. Here, we are observing in the screen shot depicted. The images of location is obtaining from different places and it stored in database. There are number of files of location and which is spatial on warehouse. A common name based files or spatial image is important for us. A significant pattern is recognise for an area based location on a spatial images. A common name based few spatial images is obtaining form the data source files, and it will be sent to data mining purpose and there is accurate result out of analysis done through data mining process of the data warehouse. Number of images are identifying and obtaining on a particular kind of pattern of data from the source file or the data base file, and obtained images is stored for further data mining purpose in data warehouse. This is how; the study achieves accurate analyses on processed data.

XII. The Important Suggestion

Global data base and its global server is requiring for storing images from the world. Even map services sites is achieving the location as a spatial data. Data mining performance is requiring on data warehouse application.

Like Google map, they don't need a process of acquiring data, they already instructed on map but they need to divide, split the map pictures with names of the places of area and using this algorithm. They need to perform analysis in the data warehouse at the end.

XIII Result Support

The result of the analysis is also supporting in the searching process from the map based data. More than two places are directly showing the result of the area map.

Algorithm

Step 1. Take Variables for a places.

Step 2. Link the database file for fetching variables, the name of variables are: Near Place 1, Near Place 2, Near Place 3, Near Place 4, Latitude, Longitude, Main Place, Global id, Result Global Id.

(The variable can fetch data from database file, Near Places 1 to 4 are location image based places of the phone/computer and Latitude, Longitude, Main Place, Global id)

Step 3. From the total variables, take 2near place variable for inputs the data from the user Side. That he/she wants to search on a map as spatial image of the phone location.

(The Criteria is given by user for searching the place on its related place name)

Step 4. For a raw, compare two input place variables, which are instructing nearby places with all database places variables.

Step 5. If the value of two input places variables = Any of the of the place variables;

Step 6. Go to step 10.

Step 7. If the value of two input places variables is not= Any of the ten places Variables.

Step 8. Data is not found.

Step 9. Else go to Step 10

Step 10. Do the same process for each raw (new) of the database.

Step 11. Store the resulting Variables as global id in to the database file.

Result Type 1: Global Id of a location obtaining. A Global id based spatial image is storing at Database. Result may be 1 one id or more than one id and its related to spatial One Image or more than one images.

Result Type 2: (Data Mining Based Result) If analysis perform on a data warehouse, Result may be 1 one id or more than one id and its related spatial one Image or more than one images. And data mining perform on it.

Why the Data Mining Process Need:

For analysis purpose the study is suggesting the data mining process. Number of spatial images of location is obtaining as result of the algorithm and the study needs the accurate result, so it is necessary to perform data mining.

XIV. Data Mining Process in Data Warehouse

Pattern recognition and implementation is occurred on the basis of added data. The whole process is occurred in Data Warehouse. A real time map location is taken from different cell phone of a person, and database is created. Database is added in Data Warehouse, but it is implemented at SMA, A special Manipulating Agent. The work is stating how spatial data is useful for constructing pattern. In the true sense, the places is given and available in the spatial image based Map. There is practical and mathematical approach for reaching accuracy level. In the indicated database, there is global Id and for each global Id there are some related places names found in the database. So, on the basis of global Id and it is indicated in the table, a global Id is contained Main Place, Near Place 1, Near Place 2, Near Place 3, Near Place 4 and State, city, Longitude, Latitude. As indicated in the table, for Global Id 1 there are 9 related places for each row. Searched result is stored at second database. Global id based images are available at the data base.

	A	B	C	D	E	F	G	H	I	J
1	Global Id	Main Place	Near Place 1	Near Place 2	Near Place 3	Near Place 4	state	city	Longitude	Latitude
2	1	Zalawadi SaiSuthar Vidhyarthi Bhavan	Lalit Kunj Society Rd	Vardhman Apartment	Vora Education Institute	Navarangpura road	Gujarat	Ahmedabad	23.0225	72.5714
3	1	St.Xaviers College	Dalpatbhai Museum	SP hostel	Sankar	Navarang pura	Gujarat	Ahmedabad	23.0225	72.5714
4	1	Xavier's College Ahmedabad	Near Museum	SP hostel	Suarajmal Zeveri road	Navarangpura	Gujarat	Ahmedabad	23.0225	72.5714
5	1	SaiSuthar Vidhyarthi Bhavan	Lalit Kunj Society Road	Vardhman Apartment	college road	Navarangpura road	Gujarat	Ahmedabad	23.0225	72.5714
6	2	Prakash Trivedi Gayatri Ashis	Tejasvi Hanuman	Tejasvidham	Junagadhrad	Behind Reliance Petrol pu	Gujarat	Jetpur	22.3369	73.8319
7	2	Trivedi Prakashkumar Gayatri A	Tejasvi Temple	Tejasvidham	Junagadhrad	Reliance petrolpump	Gujarat	Jetpur	22.3369	73.8319
8	2	Bosamia College	Jump start	spcg school	41 clothes	reliance petrol pump	Gujarat	Jetpur	21.75	70.61
9	2	Sardar chowk	Mahavir provision	rajdhani cateres	iceland-the creamery club	ganesh medical and provisio	Gujarat	Jetpur	21.74	70.61
10	3	Principal Home. Dr. Jaydip H T	Boys Hostel Gandhi coll	Incometax office	Amanpark Society	Jilla lokvigyan Kendra Ara	Gujarat	Modasa	23.4629	73.2999
11	3	Amanpark Society	Stay In Hotel	Road Transport Service	Dadu Mart	Dhansura Road	Gujarat	Modasa	23.4629	73.2999
12	3	Garib Navaz Society	Amanpark Society	Madani Society	Pahadpur	Dhansura Road	Gujarat	Modasa	23.4629	73.2999
13	3	Mahendra Bhuravala Motor	Mataji Temple	Dhansura Road	Hotel Dawat	Modasa	Gujarat	Modasa	23.4629	73.2999
14	3	Trivedi Jaydip	BoysHostel modasa	Behind Gandhi College	Dhansura Road	lokvigyan Kendra Aravalli	Gujarat	Modasa	23.4629	73.2999
15	3	Bhuravala Motor	kolikhad dhansura road	Hotal Dawat	Ahmedabad Highway	Dhansura Road	Gujarat	Modasa	23.4629	73.2999

Table 2: Database First

- For Global id 1 there are 4 rows and total number of places are 36.
- For Global id 2 there are 4 rows and total number of places are 36.
- For Global id 3 there are 6 rows and total number of places are 54.

If a person wants to put and want to search a place, he will have to put one or two places related to main searching place.

Evaluate Example 1:

For a global Id 1, total places are 36 related to global id 1. For searching 'Main Place'('Saisuthar Vidyarthi bhavan'), a person is entering at least two places like, 'Saisuthar Vidyarthi bhavan' and 'Navrangpura Road'. For Global id 1 there are 4 rows and total number of places are 36. The entering 2 (two) places is also available in total 36 places, so 3 places match are found from 36.

Global Id 1: For 2(two) places searching, 3 (three) places are found as perfect mach from total.

Places 36.

So, $3 \times 100 / 36$

8.33% Possibility and Accuracy.

Evaluate Example 2:

For a global Id 2, total places are 36 related to global id 2. For searching 'Main Place'('Bosamia College'), a person is entering at least two places like, 'Tejasvitemple' and 'Speg school'. For Global id 2 there are 4 rows and total number of places are 36. The entering 2 (two) places is also available in total 36 places, so 6 places match are found from 36. Global Id 2: For 2(two) places searching, 6 (six) places are found as perfect mach from total.

Places 36.

So, $6 \times 100 / 36$

16.66% Possibility and Accuracy.

Evaluate Example 3:

For a global Id 3, total places are 54 related to global id 3. For searching ‘Main Place’(‘Principal Home: Dr.Jaydip H Trivedi’), a person is entering at least two places like, ‘Amanpark Society’ and ‘Dhansura Road’. For Global id 3 there are 5 rows and total number of places are 54. The entering 2 (two) places is also available in total 54 places, so 6 places match are found from 54. Global Id 3: For 2(two) places searching, 6 (six) places are found as perfect mach from total.

Places 54.

So, $6 \times 100 / 54$

11.11% Possibility and Accuracy.

At a ‘Special Manipulating Agent’, there is another database, in which results are stored. A database contain as per below. There are more then 4 (four) column in which data kept.

For a Global Id there are number of Map based spatial data (Image) available in fundamental database, and obtained a particular type pattern based data obtained as per below.

At another database there is Global Id and spatial data is stored related to that Global Id.

No	Global Id	Spatial Picture1 (Image) of Map Regarding Global Id	Spatial Picture2(Image) of Map Regarding Global Id	Spatial Picture3 (Image) of Map Regarding Global Id	Spatial Picture4 (Image) of Map Regarding Global Id	Spatial Picture5(Image) of Map Regarding Global Id	Spatial Picture 6 (Image) of Map Regarding Global Id
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Table 3: Database Second

There are types of related images obtained for each searching for a global id and at the end all images are recognising as particular pattern for a resulting mining process.

XV. Result

For a three different search result from total $36+36+54=128$ places that are processed for evaluate example of 1, 2, 3. And the places is given in the spatial image based Map

No	Obtained Global Id	Global Id Based Row	Input Searching Place Number	Input Searching Main Place Name	Given Searching Input for a global id	Total Places for Global Id is available	Evaluate Possibility and Accuracy
1	1	4	1	Saisuthar Vidyarthi bhavan	1.‘Saisuthar Vidyarthi bhavan 2.‘Navrangpura Road’	36	8.33%
2	2	4	1	Bosamia College	1.‘Tejasvitemple’ 2.‘Speg school’	36	16.66%
3	3	6	1	Principal Home: Dr.Jaydip H Trivedi	1.‘Amanpark Society’ 2.‘Dhansura Road’	54	11.11%

Table 4: Result

XVI. Conclusion

Thus the data is to be stored at two different databases. First is using for processing in the algorithm and second database is keeping result. The result based database is keeping a spatial image for a global Id. For a global Id, there are more than four images obtained. And a type of pattern is available for an area. However, Data mining process occurs on available pattern based data. (Map Based Spatial Image) This is how the study is instructing ‘Pattern Evaluation on Spatial Data, a Practical Approach on A Common Destination Algorithm: Unique Names Are Recognising for an Area on a large Scale’.

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