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A Framework For Processing Keyword-Based Queries In Relational Databases For Exact Record

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Abstract— Database management system a very strong concept used that is relational database management system. A relational database is often operated by means of a structured query language (SQL). When composing SQL-queries one must have an understanding of the SQL syntax to be able to produce a query the database can execute. Additionally, one must be familiar with the attributes and relations in the database to be able to retrieve the data desired. When one wants to search the available data stored in the relational database, these requirements can be discouraging. In this case keyword-based search functionality could improve the accessibility of the data. The main advantage of RDBMS is its fast accurate, standard way to store data on permanent basis extraction of data is done using SQL its secure (different level of security) data can be managed in proper manner. ACID properties are features if RDBMS stands for Accuracy Consistency Isolation Durability.

***Keywords*— RDBMS, Keyword Serach, Efficiency, Effectiveness**

I. INTRODUCTION

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Currently, databases are used in almost all corporate and business applications that handle a huge amount of data. Databases provide the ability to search for relevant information that the user is interested in.

In many situations, the relevant information that is to be retrieved from a relational database requires writing sophisticated SQL statements. Since the size of data stored in relational databases increases over time, the number and complexity of SQL queries that need to be written increases proportionally. To make it easier to query such databases, a keyword-based approach is used, which alleviates the need to write complex query statements. This approach can be useful when the database has large number of fields of type text (varchar). Each value in such a field can be considered as a small text document that can be used for keyword-based search. In this paper we present a framework for keyword-based queries, where users do not need to know the database schema or SQL (Structured Query Language). Instead of that, they submit a list of keywords. The system then searches for the relevant records describes how the system computes the degree of correlation between relevant records and the keywords based query. In this paper we present a framework for keyword .There are two aspects, namely efficiency and effectiveness, that must be taken into account when retrieving the relevant records from relational database. Efficiency measures "how fast a result is obtained from a database" [1].Efficiency can be expressed in terms of response time (i.e., time needed to search and return the results from the database).Effectiveness is a measure used to find relevant records which are more relevant to the query than others [1]. Effectiveness describes how the system computes the degree of correlation between relevant records and the keywords based query. The framework which we will introduce takes into account efficiency and effectiveness. Efficiency is improved when the search operation relates different records to each other. On the other hand, effectiveness is improved through two steps. The first step is by finding the degree of correlation between relevant records and the query. The degree of correlation takes into account the appearance of keywords based query inside relevant records [4]. The next step is to improve effectiveness through ranking of relevant records and sorting them in descending order according to matched keywords.

I. (a) RELATIONAL DATABASE MANAGEMENT SYSTEM

RDBMS stands for Relational Database Management System. RDBMS data is structured in database tables, fields and records. Each RDBMS table consists of database table rows. Each database table row consists of one or more database table fields.
RDBMS store the data into collection of tables, which might be related by common fields (database table columns). RDBMS also provide relational operators to manipulate the data stored into the database tables. Most RDBMS use SQL as database query language.

I. (b) ADVANTAGE

A RDBMS is easily accessible. You execute commands in them Structured Query Language (SQL) to manipulate data. SQL is the international Standards Organization (ISO) standard language for interacting with a RDBMS.
An RDBMS provides full data independence. The organization of the data is independent of the applications

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that use it. You do not need to specify the access routes to tables or know how data is physically arranged in a database.

A relational database is a collection of individual, named objects [3]. The basic unit of data storage in a relational database is called a table. A table consists of rows and columns used to store values. For access purpose, the order of rows and columns is insignificant. You can control the access order as required.

When querying the database, you use conditional operations such as joins and restrictions. A join combines data from separate database rows. A restriction limits the specific rows returned by a query.

An RDBMS enables data sharing between users. At the same time, you can ensure consistency of data across multiple tables by using integrity constraints [7]. An RDBMS uses various types of data integrity constraints. These types include entity, column, referential and user-defined constraints. The constraint, entity, ensures uniqueness of rows, and the constraint column ensures consistency of the type of data within a column [5]. The other type, referential, ensures validity of foreign keys, and user-defined constraints are used to enforce specific business rules.

An RDBMS minimizes the redundancy of data. This means that similar data is not repeated in multiple tables.

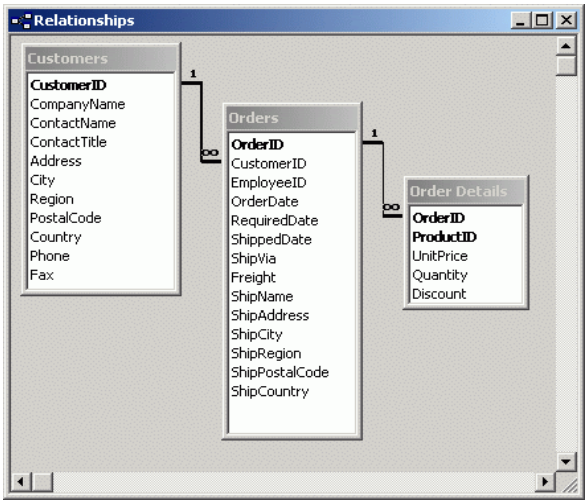

Figure 1. Relational database

I. (C) OPERATION IN RELATIONAL DATABASE

There are two groups of operations in relational database -

(i) Mathematical set theory based relations: UNION, INTERSECTION, DIFFERENCE, and CARTESIAN PRODUCT. Special database operations:

(ii) SELECT (not the same as SQL SELECT), PROJECT, and JOIN.

(1) Union of R and S the union of two relations is a relation that includes all the tuples that are either in R or in S or in both R and S. Duplicate tuples are eliminated.

(2) Intersection of R and S the intersection of R and S is a relation that includes all the tuples that are both in R and S.

(3) Difference of R and the difference of R and S is the relation that contains all the tuples that are in R but that are not in S.

(4) Cartesian products is also an operator which works on two sets. It sometimes called the CROSS PRODUCT or CROSS JOIN. It combines the tuples of one relation with all the tuples of the other relation.

(5) Join is used to combine related tuples from two relations.

II. LITRETURE REVIEW:

We first describe about keyword based search in relational database. We also show our framework fulfil the user need and get the exact result without redundancy. The entire keyword search is very useful as compare to previous approach. In this method we design a algorithms to solve the problem easily. Generally relational database is a collection of data items organized as a set of formally described tables from which data can be accessed easily. A relational database is created using the relational model. The software used in a relational database is called a relational database management system (RDBMS) [8]. A relational database is the predominant choice in storing data, over other models like the hierarchical database model or the network model.

Example:
Suppose we have a student record like student name, father's name, DOB, contact no, address etc.
Table 1: Student Table

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S.No	Name	Father name	Dob	Address	City	Contact	Qualifi	Require
1.	Ram	Shyam	26-01-1985	Ymca hostel	Faridabad	9899652497	M.tech	P.hd
2.	Anuj	Shiv	12-03-1995	Sarita vihar	New delhi	9839349070	B.tech	M.tech
3.	Ram	Shyam	26-01-1985	IIT hostel	New delhi	9999955555	M.tech	P.hd

Table 1: Shows a various records of a student .In this table if user searches for the information regarding Ram then result is Ram with city Faridabad and ram New Delhi both are display. But if user enters many keywords regarding ram e.g ram shyam 9899652497 then show only specific result of ram which one is already stored in the table.

Many of researchers and all search engine are basically used a method for extract a record on the basis of indexing but in this case we can always see that we can't find the exact record.

But in my work we use a algorithms to find the exact record using AND operator with my proposed algorithms .if user knowing about two are more than information about record .they entered and they found the exact record.

II. (a) PROPOSED ALGORITHMS:

(For Keyword based search)

1. DB as database
2. rs as record set
3. td as table definition
4. fl as field
5. Take query from user
6. set database=current db
7. for each table def in database.tabledef
8. if(td.string AND DBsystemobject)=0
9. THEN
10. set rs=TD.openRecordSet();
11. string Query="select tabledef(*from student where"

```
String[]arr=TextBox1.Text.Split(' ');

For(int i=0; i<arr lenth; i++)
  {

Query=query+"(name like'%'

+arr[i]+'%'…….upto last field.)"

 }

Query =query. Remove(query length-4);
```

12. open sql connection;

13.next fld;

14.rs.movenext; 15.loop;

16.rs.close;

17.next tdf;

18.DB.close;

19.Exit;

II. (b) EXPLANATION

Firstly take a query from user and select a database as db from record set and set database as current database. For each table, definition connects the database then select string with table definition equal to zero then open the record set. If user searches more than one keyword, according to this algorithms we take an array corresponding to attribute and split them .we have also store the value in form of array and add a next string which are related to column. At last the space is removed which occurs in the textbox and finally keyword search is searched easily .At last closed the database and exit.

II. (c) ADVANTAGES:

There are many advantage of this proposed work.

1. In this proposed work remove the redundant information.
2. User can find the exact record whatever they want.
3. Take less time to find the information in database.

II. (d) IMPLEMENTATION AND RESULTS

(i) RECORD:

We have inserted a record of various students in the student table as shown in Table 2.

Table 2: Student Record

id	name	fname	dob	address	city	contact	quali	requir
1	mn	jhjh	jhjj	huuu	kkoiko	okoo	ohhhhh	....okoj
2	anshu	R.B dwivedi	26-01-1980	ymca hostel	faridabad	9899652497	b.tech	m.tech
3	rahul	ram	26-02-1999	bombay juhu	bombay	99999999999	10	12
4	ravi	raj	12-03-1986	gorakhpur	kushinagar	985612365	B.A	M.A
5	priyanka	pradeep	12-12-1989	sabarmati	ahamdabad	9638936936	m.com	p.hd
6	anshu	rbd	26-01-1985	sarita vihar	new delhi	9839349070	m.tech	p.hd

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(ii) SEARCH**:**

When user fires a query and presses the search button, he/ she will found the result. If user enters a one key or more than one key result come automatically if all keyword found in the database.

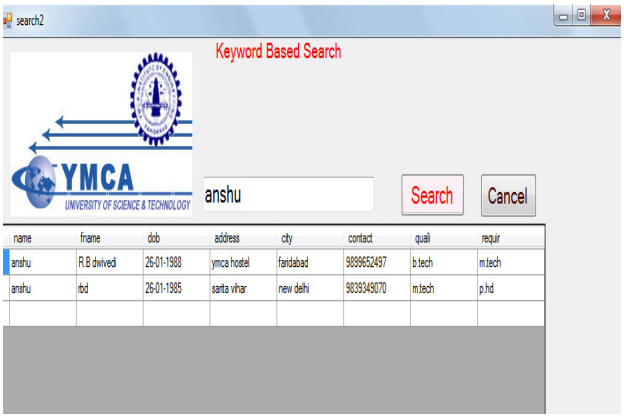

Figure 2: single keyword search

In figure 2, if user enters the single keyword then he/she will get all relevant record in the database and if user enters more than one key result shown as below in figure 3.

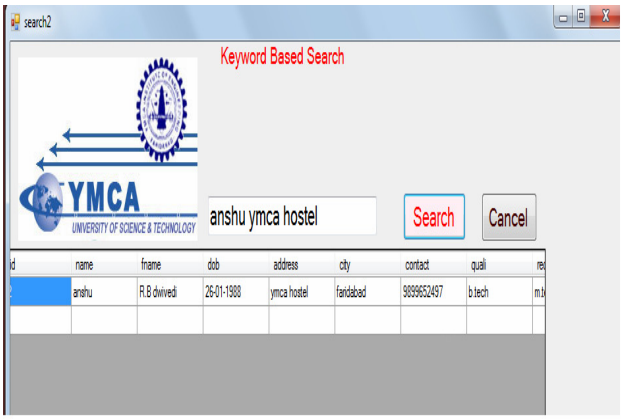

Figure 3: multiple key search

III. CONCLUSIONS

I presented a search application that enables keyword-based search in the available relational database. I employed several techniques to be able to retrieve meaningful answers to queries consisting of multiple keywords.

These answers are based on the following assumption: if the keywords in a keyword query are related in the relational database that contains the relational data, then retrieving this relating data yields results likely to be meaningful given the keyword query. I state that my objective in this thesis is to show that keyword-based search in a relational database can yield meaningful results given the available relational data.

I have presented several keyword queries and the results retrieved by the presented search application. These results show that although the control and exactness of SQL queries is lost, the results are likely to be meaningful given the available relational data.

In the experiment I observed that the presented search application can be demanding in some cases. Based on the experiments I conclude that keyword query execution time increases if the intersection work that needs to be performed by the presented search application increases. I also conclude that the more SQL queries the search application proposes to be executed by the relational database, the more the overall query execution time will increase.

IV. REFERENCES:

[1] B. Aditya, G. Bhalotia, S. Chakrabarti, A. Hulgeri, C. Nakhe, P. Parag, S.Sudarshan. BANKS: browsing and keyword searching in relational databases. In Proceedings of the 28th international conference on Very Large Databases, 2011.

[2] C.D Manning, P.Raghavan, H.Schütze. Introduction to information retrieval. ISBN 978-0-521-86571-5. Cambridge university press, Newyork, 2011.

[3] B.B. Dalvi, M. Kshirsagar, S. Sudarshan. Keyword search on external memory graphs. In Proceedings of the VLDB Endowment, Vol 1 visited on July 3th, 2010.

[4] V. Hristidis, Y Papakonstantinou. Discover: keyword search in relational databases. In Proceedings of the 28th international conference on Very Large Databases, 2002. visited on May 15th, 2009.

[5] Gaurav Bhalotia, Charuta Nakhe, Arvind Hulgeri, Soumen Chakrabarti, and Sudarshan, "Keyword Searching and Browsing in Databases UsingBANKS," In Proceedings of International Conference on Data Engineering (ICDE), pp. 431–440, 2012.

[6] Margaret Dunham, “Data Mining Introductory and Advanced Topics,”Prentice Hall, 2003.

[7] Ophir Frieder, David Grossman, Abdur Chowdhury and Gideon Frieder,“Efficiency Considerations for Scalable Information Retrieval Servers,” Journal of Digital Information (JDI), Vol. 1, No.5, 2000.

[8] Sanjay Agrawal, Surajit Chaudhuri, and Gautam Das, "DBXplorer: A system for Keyword-Based Search Over Relational Databases," In Proceedings of International Conference on Data Engineering (ICDE), pp. 5–16.

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