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GUI Database – A Review

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Abstract

This paper will explain the concept of creating a Graphical User Interface for Relational Database Management Systems. This is a general-level GUI, which can be connected to the database system i.e SQL server. As a result, the database manipulation can be performed using single interface. Moreover, the queries can be executed very easily, since the user needs not to type any queries, but can simply select the appropriate options according to their requirements. Thus, this software can be used by a person with no knowledge of SQL. This software is developed using .net as front end and SQL Server as backend. This paper provide only the operations most commonly required, thereby reducing complexity. Code optimization is the refining process in database administration and it helps to bring down speed of execution. Some object-oriented languages allows to express queries explicitly in the code, which are optimized using the query optimization techniques from the database domain

Keywords: *Relational database, query optimization*

INTRODUCTION

Database Management Systems or DBMS has evolved from a specialized computer application to a central component of modern computing environment [01]. DBMS consists of a collection of interrelated data and a set of programs to access those data. This collection of data is referred to as a database. Database Management System involves both the definition of structures for the storage of information and provision of mechanisms for the manipulation of information. A collection of conceptual tools for describing data, data relationships, data semantics and consistency constraints is called a data model[02]. There are different data models, among which Relational Database Management System (RDBMS) is the most popular choice for large scale application. The RDBMS uses a collection of tables to represent both data and the relationships among those data. Each table has multiple columns and each column has unique name and fixed data type. Each table in the database has a unique name assigned to it. The RDBMS has established itself as the primary data model for commercial data processing applications. RDBMS is now being used in numerous applications outside the domain of traditional data processing. To interact with the database and work with the tables in it, one need to use Structured Query Language (SQL) which includes features on defining structure of the data, for modifying data in the database and for specifying security constraints[01]. The project entitled 'Graphical user interface for RDBMS is aimed at providing a user friendly and single interface for working with different RDBMS like SQL Server, Oracle etc. The main objective of the system is to enable a user work with the databases and tables in a RDBMS even if he/she doesn't have any knowledge of SQL. The product is aimed at accomplishing the following:

Create, rename and drop databases
View and work with database objects like tables, queries,
View the database profile and table that exists in a particular RDBMS.

STUDY OF EXISTING SYSYTEM

There are many database management systems available in the market, many of them with friendly Graphical User Interfaces, using which the users can execute queries and handle tables and other objects. However, the GUIs provided by each database server are exclusive to its own database. Moreover, a person with little technical knowledge will find it difficult to use one.

Limitations of the Existing System

A GUI that provides a friendly environment to a user with little knowledge of SQL in such a way that he can work with more than one type of databases is hard to find.

STUDY OF PROPOSED SYSTEM

The product entitled GUI for RDBMS is developed with the keen intention of creating a Graphical User Interface for commonly used Relational Database Management System like SQL Serve. This is a general-level GUI, which can be connected to database residing on the system. As a result, any database manipulation can be performed using a single product. Moreover, the queries can be executed very easily, since the user need not type any queries, but can simply select the appropriate options according to their requirements. Thus, this product can be used by a person with no knowledge of SQL.

Database Creation

In SQL Server, by clicking on the corresponding icon, a new database can be created.

Database Login

Once a database is created, a user can login to his/her database and, after which he/she can work with the objects in the database.

Objects

The user can access the opened database through a Graphical User Interface. Through this interface, the user can view and work with the database objects like tables, queries.

Create Table

The user can create tables in the selected database. A design view is provided, through which the user can simply enter the field name, select the data type from a select list.

Execute Queries

The user can execute any query on the database using the user-friendly graphical interface. All the tables in the database are listed, from which the user can select the one(s) in which he/she has to execute the query. The user can select the type of query to be executed (like select, update, make- table and delete).

Select

User can first select a table, and then execute select queries on it. Select query can be executed in different ways:

Specific fields or all fields in a table can be displayed.
Only distinct fields can be displayed if required

Alter

Any alteration on the table can be made on a selected table using this option. Alterations that can be made includes the following
Altering the selected table by adding a new field to the table
Altering the selected table by dropping an existing field in the table.
Altering the selected table by dropping a constraint specified on the field in the table execute a query and make changes to databases. Query execution unit will also provide result to user.

Update
This option is used for making any updating on a selected table. Any condition for updating can also be specified if required.

Delete
This option is used for deleting rows from a selected table. Deletion can also be performed by specifying condition so that only rows satisfying that condition is deleted.

Drop
This option allows a user to drop an already existing table from a database.

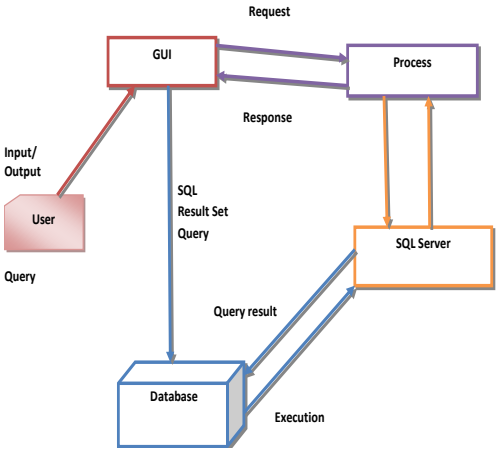

Fig1.1: *System Architecture*

Fig. Login page

Output

Insert
Using this option the user can insert rows into an existing table.

System design
User selects database system such as SQL server. After selecting database system user will perform either DDL or DML commands. Query execution unit will execute a query and make changes to databases. Query execution unit will also provide result to user.

Methodology
This paper will explain the code optimization unique. Code optimization is any method code modification to improve code quality d efficiency. A program may be optimized that it requires less execution time, consumes less memory, executes more rapidly.

Fig1.2 *Select record page*

Fig1.3 *User login page*

Fig1.4 Process page

In general processor executes any query in its convenient style .This style is decided in collaboration with operating system.The concept used shortest execution time in which the CPU time is calculated and time required for query execution is calculated by SET algorithm.
Now the time which matches with the CPU time comes in action.Asp.net contains in- built procedures to perform these activities. These inbuilt procedures are invoked automatically by specified classes.
Integrated Security-
It is use for windows authenticaton. If it is specified with true then it enhances process uses.

ExecuteNonQuery-
This is use for perform a catalog operation. For example query insert, delete ,update ,etc. with SET algorithm.ExecuteNonQuery returns values with the mapped (filtered) parameters.

SqlCommand-
It is useful to fire stored procedures or SQL statements against the server database.

RESULT
The proposed system used departmental student's data, it contains thousands records and also contains attributes like name, phone no, email-id, address etc.
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Delete
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Insert
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CONCLUSION

This SQL client GUI provides efficiency in many ways to use SQL Database by using this project, database access time will be reduced significantly to those who are using it. In this paper where users express queries against the database schema, we assert that the semantics of data can often be understood by viewing the data in the context of the user interface (UI) of the software tool used to enter the data. That is, the users will understand the data in a database by seeing the labels, drop-down menus, tool tips, or other help text that are built into the user interface. In this paper we proposed one of the methods of query optimization depending on rewriting. Optimization by rewriting concerns queries containing so called independent subqueries. It consists in detecting them and then factoring The system is developed aiming at helping a user easily access and work with databases in RDBMS, even he/she have little knowledge of SQL. Also the developed system provides a single interface for communicating with RDBMS. The new system is developed in .net using SQL Server. SQL Server is commonly used in RDBMS, very efficient back end tool for handling databases.

Future Scope

For making the system adaptive to the changing environment, it will be necessary that the system will be required to handle some more functions in the future to satisfy the requirements, we can write separate program modules and combine them to the main program. For e.g.: the system can be further enhanced to handle nested queries, sub queries etc .An option for backing up databases and restoring them is another enhancement.

Currently the project is implemented in RDBMS and in future it will be implemented in object oriented database management system i.e OODBMS.

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