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Views in SQL

Assignment 06

Introduction

This paper is tries to discuss basic uses of views, pros and cons of views, Stored Procedure, and functions. This is an assignment is given to partially fulfill the requirements for the IT FDN 130 A Su 22: Foundations of Databases & SQL Programming course

1. Explain when you would use a SQL View

Views are virtual tables that contain queries. They do not store any data of their own. A concrete table means that you create a physical copy of your data on the hard drive. A virtual table means that you store your data as an object in memory.

A view is a virtual table. You can use views to avoid repeating certain queries or calculations repeatedly. Views also allow you to combine several tables into one logical table.

Uses For Views

Views are useful when you want to present subsets of your data. A view acts as an aggregate table, where the database engine calculates values such as sums or averages. Views can be used to filter out unwanted information. Views can also be joined together to form a new table.

A view is a logical construct that hides the complexity of the underlying data structure. Views take up very little storage space. Views aren't stored in the same place as the original data.

Views can be used to protect sensitive information. Users can manipulate nested views, making it easy to perform complex joins. Without views, normalizing databases into third normal form would be much harder. View functions allow users to create abstractions.

Rows in a base table lack defined order. Rows available through a view do show up but without any default sorting.

Views are relational tables, and the relational model says that a table is a set of rows. Sets are not ordered, so rows of a view are not ordered either.

Therefore, an ORDERBY clause in the view definition doesn't make sense. The SQL standard (SQL:2003) doesn't allow an ORDERBY clause in a sub-query of a CREATEWITH statement. But, you can sort data from a view in the same way as from any other table.

Some database management systems (DBMSs), such as Oracle Database, don't follow this SQL standard rule.

Read-Only And Updatable Views

Updatable views are defined as those views whose schema can be mapped back to the base table schema. Database systems can perform updates on these views. Views without this feature are called read-only views. These views do not support updates.

To enable updates on views, we need to use INSTEAD OF triggers. An INSTEAD OF trigger is used to execute some code whenever an INSERT, UPDATE, or DELETE operation occurs on the view.

Pros And Cons of Views

A view is a virtual table created from the real table. It helps us to simplify complex queries and reduce the number of joins needed. Security views can be used to restrict access to sensitive information. View aggregation can be used to summarize large amounts of data.

Views have a lot of advantages. You can easily use them in your application. However, there are some disadvantages too.

For example, if you want to create an application using MySQL database, then you need to know about views. You should consider these disadvantages before creating views.

Advantages Of Views

Easy to Create

Easier to Use

Faster Queries

No Need for Triggers

Can Be Used with Different DBMS's

Can Be Created Dynamically

Can Be Joined Together

Can Filter Out Unwanted Information

Can Protect Sensitive Data

Saves Space

Can Be Updated

Can Be Deleted

Disadvantages Of Views

Cannot Sort

Not Stored in Same Place

Cannot Join with Other Tables

Cannot Have Order by Clause

When To Use SQL Views

If you are looking for performance improvement and simplification in your query, then you may want to use views. They help you to get better performance when querying. They also help you to write less complex queries.

When Not to Use SQL Views

You shouldn't use views if they will increase the size of your database. If you are going to delete a view, then you must drop all the indexes associated with that view first. This will ensure that you won't lose any data. [What Is A View In SQL? - Open Query/](#) External Site

2. Explain are the differences and similarities between a View, Function, and Stored Procedure.

a. View

A view is a “virtual” table consisting of a SELECT statement, by means of “virtual”, no physical data has been stored by the view. *By definition you cannot pass parameters to the view and there is NO DML operations (e.g., INSERT, UPDATE, and DELETE) are allowed inside the view; ONLY SELECT statements.*

Most of the time, view encapsulates complex joins so it can be reusable in the queries or stored procedures. It can also provide level of isolation and security by hiding sensitive columns from the underlying tables.

b. Stored Procedure

A stored procedure is a group of Transact-SQL statements compiled into a single execution plan or in other words saved collection of Transact-SQL statements.

Here is a good summary from SQL MVP Hugo Kornelis (was posted in an internet newsgroup few years ago)

A stored procedure:

- * Accepts parameters
- * Can NOT be used as building block in a larger query
- * Can contain several statements, loops, IF ELSE, etc.
- * Can perform modifications to one or several tables

- * Can NOT be used as the target of an INSERT, UPDATE or DELETE statement. But

A view:

- * Does NOT accept parameters
- * Can be used as building block in a larger query
- * Can contain only one single SELECT query
- * Can NOT perform modifications to any table
- * But can (sometimes) be used as the target of an INSERT, UPDATE or DELETE statement

c. User Defined Functions

Functions are subroutines made up of one or more Transact-SQL statements that can be used to encapsulate code for reuse

There are three types (scalar, table valued and inline mutlistatement) UDF and each of them server different purpose you can read more about functions or UDF in BOL

UDF has a big limitation; it cannot change the state of the database. What I mean by this you cannot perform data manipulation operation inside UDF (INSERT, UPDATE, DELETE) etc.
[Difference between View, Procedure and Function \(microsoft.com\)](#)/External Site