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Course: IT FDN 130 A Sp 22: Foundations Of Databases & SQL Programming

## **Assignment06: Views**

### **Introduction**

As a set of SQL Select statements become complex, it may need to be saved in a text file for repeated use. Alternatively, a set of Select statements can be saved within a database's file as a SQL View, Function, or Stored Procedure.

SQL Views are "Named" Select statements whose code is stored in a database. This module looks at how you create and use this tool for selecting report data.

### **When you would use a SQL View**

A view is nothing more than a SQL statement that is stored in the database with an associated name. A view is actually a composition of a table in the form of a predefined SQL query.

A view can contain all rows of a table or select rows from a table. A view can be created from one or many tables which depends on the written SQL query to create a view.

Views, which are a type of virtual tables allow users to do the following –

- Structure data in a way that users or classes of users find natural or intuitive.
- Restrict access to the data in such a way that a user can see and (sometimes) modify exactly what they need and no more.
- Summarize data from various tables which can be used to generate reports.
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Any view that is used to extract data for reporting purposes is called a "Reporting View." They can save simple or complex Select statements, but more complex ones are typical.

### **What are the differences and similarities between a View, Function, and Stored Procedure.**

Views are similar to inline table valued function - they allow you centralize a query in an object that can be easily called from other queries. The results of the view can be used as part of that calling query, however parameters can't be passed in to the view.

Views also have some of the security benefits of a stored procedure; they can be granted access to a view with a limited subset of data from an underlying table that those same users don't have access to.

Views also have some performance advantages since they can have indexes added to them, essentially materializing the result set in advance of the view being called (creating faster performance). If considering between an inlined table function and a view, if you don't need to parameterize the input, a view is usually the better option.

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Functions and Views are similar. However unlike views, functions can use parameters to change the results of the query. Parameters in a function may seem a significant advantage, but remember that you can always apply a Where clause while using a View.

In addition to SQL Server's built-in functions, you can create custom functions. These are often called User Defined Functions or just UDFs. There are two basic types of functions; functions that return a table of values and functions that return a single value.

Stored procedures encapsulate SQL query statements for easy execution. They return result sets, but those result sets can't be easily used within another query.

This works great when you want to define single or multi-step processes in a single object for easier calling later.

Stored procedures also have the added benefit of being able to have more flexible security rules placed on them, allowing users to access data in specific ways where they don't necessarily have access to the underlying sources.

## **Summary**

SQL Server has several ways to store queries for later executions. The more code you have, the more difficult it is to maintain. Centralizing frequently used code into views, stored procedures and functions will make your SQL code more efficient.