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Course: IT130: Foundations of Databases & SQL Programming

Assignment 6- Views

Introduction

The document's purpose is to summarize the learning objectives within this week's module 6, "Views." In addition, this document explains when to use a SQL View and the differences and similarities between a View, Function, and Stored Procedure.

When to Use a SQL View

It is recommended to use a SQL View when one wishes to simplify and secure a database for reporting purposes. SQL Views are a subset of query data that can be seen as a 'table' and limit the user's ability to make changes. Also, a SQL View provides a saved, repeatable query workflow that improves efficiency. SQL Views are objects within a database; data within a SQL View is a virtual table that does not exist on a disk. (<https://youtu.be/Y-Qk4vpkJJ8?feature=shared> (external site)).

The Differences and Similarities Between a View, Function, and Stored Procedure

SQL View, Function, and Procedure are three file types that can be stored within a SQL database.

View

An SQL View or Reporting View is used to extract data to generate reports. These SQL Views can be shared and can cause the same reports. Each base SQL View will require an identification, including its own unique name to establish its identity for SSMS to call. It is recommended to place a 'v' in front of the name of the table view to indicate it's a view with a one-to-one match. (https://youtu.be/N_rPXAj-74o?feature=shared (external site)),

SQL Views are also used to restrict what data can be displayed and split data by partitioning either rows or columns of the data, then divide data further through implementing a WHERE clause to determine the criteria. Creating an abstracted base view layer encourages users to utilize a granted view rather than accessing a restricted table by implementing deny statements. It is important to note that data and design changes will occur in a database, and one best practice method is to implement views to continue the functionality of the database and hide its changes while it is being modified. Schema binding is the binding of a view to lock the design of a table to prevent unwanted modifications and errors, such as a mistaken table drop. Schema binding develops an error message if unwanted changes occur. The user must use the namespace and name of the object when implementing schema binding. GRANT, DENY, and REVOKE are commands to administer permissions within the database. (<https://youtu.be/2kDyLrVH5iY?feature=shared> (external site)).

Function

SQL View and SQL Functions are stored as SQL Statements that can be called to increase efficiency generated by not needing to retype code or develop more complex code. (https://youtu.be/N_rPXAj-74o?feature=shared (external site)). An SQL View is used as a reporting method, while SQL functions

return specific values or other information. Returning a singular value as an expression from a SQL Function is known as a Scalar Function. SQL Functions can be very helpful for a check constraint measure. User-defined Functions are customized functions developed by users. A “dbo” preface is required to establish and use User Defined Functions. A RETURNS must be defined within a SQL function. “()” must also come after the SQL Function when within a SQL SELECT statement. SQL Function uses variables as parameters. One does not have to declare a variable to establish a parameter. Variables can be used as a parameter or argument. However, arguments must go into parameters. (<https://youtu.be/wdMk2YG2sBo?feature=shared> (external site)).

Stored Procedure

An SQL Procedure differentiates from a SQL View and Function because a SQL Procedure is not restricted to SQL Statements, unlike SQL Views and SQL Functions. (https://youtu.be/N_rPXAj-74o?feature=shared (external site)). A set of named SQL Statements is known as SQL Stored Procedures (Sprocs or Procs). Stored Procedures require fewer criteria than SQL functions. A SQL Stored Procedure is executed rather than selected in a Function or View. Nor can a SQL Stored Procedure be evaluated in a table. Several SQL statements can be stored within a Stored Procedure. Microsoft uses “SP_” for its stored procedures, and it is advised not to use this format to minimize overriding Microsoft’s Stored Procedures. (<https://youtu.be/22yz763fAg0?feature=shared> (external site)).

Summary:

This week’s learning objectives of understanding when to use a SQL View and the differences and similarities between a View, Function, and Stored Procedure were achieved by using module 6, “Views,” documentation, videos, and supplemental websites. It is recommended to use a SQL View when one wishes to simplify and secure a database for reporting purposes. An SQL View is used as a reporting method, while SQL functions return specific values or other information. An SQL Procedure differentiates from a SQL View and Function because a SQL Procedure is not restricted to SQL Statements, unlike SQL Views and SQL Functions.