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November 30, 2022
IT FDN 130 A
Assignment07
RebGol/DBFoundations-Module07 (github.com)

Functions

Introduction

Functions were the topic this seventh week. Within SQL, user defined functions can be created that are outside of the standard set available within the SQL language. We took what we learned with user defined scalar functions last week, and now are introducing In-line and Multi-Statement Functions. This paper will discuss when a SQL User Defined Function (UDF) would be used, and the differences between Scalar, Inline, and Multi-Statement Functions

Topic 1 - Explain when you would use a SQL UDF

A User Defined Function, or UDF, allows the user to create a function with a SQL expression. They are designed to perform a specific task. These functions helps users create operations that are not typically available with the system defined and commonly available functions. When functions are used in queries, they can effectively carry out intricate steps, while the basic query may remain quite simple.

Topic 2 - Explain the differences between Scalar, Inline, and Multi-Statement Functions

The basic commonalities between Scalar, Inline, and Multi-Statement Functions is that they are all User Defined Functions and accept parameters, or variables, and the one used will depend upon the results the user is looking to query. Scalar Functions may accept any number of parameters and they only return a single value, unlike In-line Table Value Functions and Multi-Statement Table-Valued Functions.

In-line Table Value Functions return a data set, or table, which is similar to a view. The data return type is set to table within the function's definition. As a result, the data is displayed in a tabular format. With Inline functions, the return clause cannot define the table structure that the function is to return. Additionally, the Inline function cannot have Begin and End blocks. However, Inline functions are considered better performers than their multi-statement counterparts due to SQL treating the Inline function as a view. So, if the task can be accomplished using Inline versus functions multi-statement table value functions, it is preferred (*Multi statement table valued function in SQL server*. Dot Net Tutorials. (2021, August 6).

Finally, the Multi-Statement Table-Valued Function, or MSTV, returns what looks like a table, however, it is constructed with script. The return clause in MSTVs defines the structure of the table the that function is going to return. Additionally, it contains the Begin and End blocks. As its name indicates, it can contain more than one statement, unlike Inline functions. Like all other functions, MSTVs accept a number of parameters and MSTVs are commonly used with developing a virtual table immediately (*Multi statement table valued function in SQL server*. Dot Net Tutorials. (2021, August 6)..

Summary

In summary, using functions can prove to be quite valuable, especially when needing to define parameters. Functions may be designed to return a single value, or building in complexity with returning a table, all the way to creating a temporary table where the user has the ability to define the table structure. While MSTVs can contain multiple statements, unlike In-line functions, the In-line function is preferred for SQL performance.