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Assignment 07

https://github.com/samcolgan/DBFoundations-Module07.

Functions in SQL

Introduction

In addition to making views and stored procedures to simplify their code, SQL users have the option of creating their own functions. The advantage of writing a user-defined function (UDF) is that the resulting object can be selected from like a view but also allows parameters like a stored procedure. UDFs may either be scalar, returning a single value; in-line, returning a table of values by running a Select statement; or multi-statement; returning a table of values by running some combination of statements that includes a Select statement.

UDFs

The circumstances in which someone would write a UDF are fairly specific. First, there must not be any built-in SQL functions that perform the same task. If there are, the user can rely on the bult-in functions instead of crafting a UDF from scratch. For tabular functions, the user must want to perform the desired task multiple times and the task must require a parameter value. If the task requires a parameter value but is only performed one time, the user can meet their goals just as easily by adding a Where clause to a Select statement. However, if the user needs to filter the data multiple times according to a changing parameter value, then a UDF is up to the task. With these guideline in place, users will only write UDFs when they are the most effective choice.

Scalar, Inline, and Multi-Statement Functions

There are three different kinds of UDFs, which differ from one another based on the way they are written and the values they return. Scalar functions return a single value while in-line and multi-statement functions return a table of values. In-line functions differ from multi-statement functions in that the former are composed of a single Select statement while the latter builds a table from a combination of statements working together, like an Insert and a Select. Or, to put it more generally, “A multi-statement table-valued function… is a function which returns a table of data, but only after some additional processing.” (www.wiseowl.co.uk/blog/s347/multi-statement.htm.) (External Site). As to similarities, all three functional forms allow parameter values and all three may be inserted into the From clause of a Select statement.

Summary

While they may be less intuitive to use than views, functions are still an invaluable tool to have in SQL. In particular, UDFs allow users to pull different sets of rows from a table without needing to write a new Select statement each time. UDFs can also produce a single value—provided that a built-in function does not already perform the same operation. Whether printing a scalar, offering up a table of values, or building a table with multiple statements, UDFs are effective tools when they are used correctly.