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Assignment07
<https://github.com/KatieLondon/DBFoundations-Module07>

Assignment 7 - Functions

Introduction

This week in Module 7 we learned about functions, specifically, user-defined functions also known as UDFs. Functions are an important concept, as they are used in all programming languages including SQL. In general, it is best to wrap a block of code into a function when we intend to run that code multiple times. There are several different types of functions in SQL: scalar function, inline function and a multi-statement table valued function. What differentiates these types of functions is what these functions return when the function is executed.

SQL User-Defined Function

A user-defined function is a block of code within a certain syntax that allows that block of code to be reused many times. This is different from built-in functions which are functions included in a programming language that are ready for use by a user such as the upper function that converts all the characters in a string to uppercase letters or the rand function that returns a random number between 0 and 1. A user-defined function is made up of optional parameters passed to the function, logic to perform a task and a return value. The benefit to creating user-defined functions is that they are simple to reuse and makes your code more readable.

Types of Functions

There are three primary types of user-defined functions: scalar function, inline function and a multi-statement table valued function (MSTVF). A scalar function returns a single value. An inline function, also known as a simple table valued function and a multi-statement table valued function both return a table. Additionally, these three types of function differ slightly in their syntax. In the return statement of a scalar function you must specify the datatype of the single value to be returned. This is different from the inline function where right after the Returns keyword you specify that the output will be a table but you don't have to provide any datatypes for the columns. Finally, in a multi-statement table valued function, it is a table variable that is returned which we indicated by providing a table variable name that starts with @ right after the Returns keyword. Other than the syntax differences between an inline function and a MSTVF a MSTVF can contain multiple select statements and thus create more complex tables.

Summary

In conclusion, functions are a powerful tool in computer programming. Functions are created when we expect to reuse a block of code multiple times. Using functions can also make your code more readable. A user-defined function is one where the programmer creates their own functions as opposed to using a built-in function. There are several different types of user-defined functions in SQL. The scalar function returns a single values. The inline function returns a table. Finally the multi-statement table valued function returns a table variable.