

About Functions

Introduction:

Functions in SQL have various purposes that are useful to the every-day programmer. They can return values or tables. This paper will focus on user defined functions and the different types they can be.

When to Use UDF:

UDF's have advantages when used in a database. To name a few, they can be stored in the database and called upon any number of times, allow for faster execution, and can be used for complex code that can't be expressed in a single scalar expression (<https://docs.microsoft.com/en-us/sql/relational-databases/user-defined-functions/user-defined-functions?view=sql-server-ver15>, External Site, 2020). Knowing this, there are three types of functions that will be focused on that will be useful when creating a UDF – scalar, inline, and multi-statement functions.

Different Functions:

Scalar Functions:

Scalar functions will return only a single value. This function can be stored in the database so it won't have to be written out each time (<https://www.sqlservertutorial.net/sql-server-user-defined-functions/sql-server-scalar-functions/>, External Site, 2020).

Inline Functions:

Inline functions, unlike scalar, do not return a single value. Instead, a table is returned based on the select statement and what parameter you are filtering for inside the select statement. This function is also called an inline table-valued function (ITVF) (<https://www.red-gate.com/simple-talk/sql/t-sql-programming/sql-server-user-defined-functions/>, Phil Factor, External Site, 2020).

Multi-Statement Functions:

A multi-statement table-valued function (MSTVF) is also another table-valued function that can return the results of multiple statements. This allows you to execute multiple queries within and aggregate them into one table (<https://www.sqlservertutorial.net/sql-server-user-defined-functions/sql-server-table-valued-functions/#:~:text=A%20multi%2Dstatement%20table%2Dvalued,results%20into%20the%20returned%20table.>, External Site, 2020).

Summary:

To summarize, user defined functions have a wide range of use in any database. It is important to know when it is appropriate to use and the type of result you are looking for – a single value, or a table. This should give you enough information to get started and understand the range of uses user defined functions have in databases.