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**Date:** November 30, 2021

**Course:** Foundations of Databases & SQL Programming

**URL:** <https://github.com/bdvesel21/DBFoundations-Module07>

## **Assignment 07 Functions**

### **Introduction**

Module Seven this week focused on functions and how to use both preprogrammed functions available in SQL Server and how to write a custom user created function to use. The following paper covers when to use a user defined function and the differences between the three types: scalar, inline, and multi-statement functions.

### **When to Use a SQL User Defined Function**

A user defined function is a custom SQL function created by a user. These can contain multiple statements or clauses and can be used with pre-programmed functions. One of the most common uses of this is to create “Check constraints because you cannot otherwise reference a column in another table” (Root, 2021). Microsoft provides the following definition: “SQL Server user-defined functions are routines that accept parameters, perform an action, such as a complex calculation, and return the result of that action as a value. The return value can either be a single scalar value or a result set” (2021). The three uses they provide are: the functions provide modular programming, allow faster execution, and can reduce network traffic” (Microsoft, 2021).

### **Differences Between Scalar, Inline, and Multi-Statement Functions**

Microsoft defines a scalar as a function that “returns a single value, such as a string, integer, or bit value” (2020). This means that the function will only return one value or row of data for the function being run. Microsoft defines an inline table function as a result “defined through a single SELECT statement. Inline functions do not have associated return variables (2021). This is opposite of the multi-statement table function, which has a return variable that is “used to store and accumulate the rows that should be returned as the value of the function” (2021). Inline and multi-statement functions both return as tables of data. Scalar functions also require the use of Begin and End, where as the Inline and Multi-statement require the use of Returns Table.

### **Conclusion**

This week focused on learning when to use functions and what kinds of data transformation they can provide. Whether they come pre-programmed or are created by a database administrator, they are a valuable tool for SQL creators.

## Citations

- Microsoft. (2021, November 30). *CLR Table-Valued Functions*. Microsoft. <https://docs.microsoft.com/en-us/sql/relational-databases/clr-integration-database-objects-user-defined-functions/clr-table-valued-functions>
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- Root, Randall. (2021). *Module07 Notes* [Class Notes]. University of Washington. [https://canvas.uw.edu/courses/1483787/files/84044849?module\\_item\\_id=13270418](https://canvas.uw.edu/courses/1483787/files/84044849?module_item_id=13270418)