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

# Assignment 07 - Functions

## Introduction

SQL functions are a useful tool when trying to visualize or analyze data sets. User defined functions (UDF) are created by a user to produce a unique or complex result. UDF's can be developed with a scalar function, in-line function, or a multi statement function. The discussion below will walk through when a user would use a UDF and the types of functions within.

## User Defined Function

UDF's can be used in SQL to create a custom set of data. They are useful for looking at individual results such as a yearly average or selecting specific rows that meet a certain criteria. UDF's are useful if the user wants to quickly and easily change the necessary criteria for the data. For example, if the user wants to look at a data set of films with different film lengths it is easy to just quickly change the length of film of interest and run the function instead of perhaps creating another view.

## Types of User Defined Functions

There are two primary types of UDF's, the first returns a single value, the second returns a table. The single value function is considered a scalar function. It is useful for when the user wants to look at an average, minimum, maximum, etc. Functions that return tables have two different types. The in-line table function and the multi statement table function. The in-line table function is much simpler than the multi statement. It takes in certain parameters and then returns the rows in the table that meet those parameter requirements. The multi statement table function is slightly more complex in that it creates or builds a new table based on criteria passed into the function.

## Summary

To briefly summarize, UDF's are an important tool when a user wants to create a custom set of data or perform an analysis on a set of data and be able to quickly change the input for a different result. Scalar functions return a single value such as an average of the data. In line table functions return the rows from an existing table that meet the criteria that was passed into the function. Multi statement table functions create a table based on criteria in the function and the parameters passed through. Functions and each function type each have an important purpose when writing SQL code.