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IT FDN 130 A Sp 22: Foundations of Databases & SQL Programming

<https://github.com/samkspringer/DBFoundations>

# Assignment 07 –User Defined, Scalar, Inline, and Multi-Statement Functions

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## Introduction

In relational databases, Functions are a versatile SQL tool for manipulating data to improve reporting within a database. All SQL management systems have a variety of built-in functions. However, it can occasionally be useful to create functions specific to a database; these are called user-defined functions or UDFs. Three types of functions are scalar, inline, and multi-statement.

## Uses for User-Defined Functions

A UDF can be used in SQL reporting to return desired information. UDFs can be used to create custom functions that either return a single value or be applied to every row in a table. They can be used:

- to save time for calculations that you use frequently,
- to create a calculation that does not exist in the built-in SQL functions,
- to create a function that doesn't exist within the system functions, and
- as a check constraint for data entry.

## Comparison of Scalar, Inline, and Multi-Statement Functions

Three categories of functions are scalar, inline, and multi-statement.

Scalar functions are one of the two basic types of functions. These return a single value as an expression. The value can be a number, string of text, or a date.

Inline functions are functions that return a table of values. Once the function is created it can be used in any place that a table is used.

Multi-statement functions return a table of data, it can also be used in any place that a table would be used otherwise. The difference from an inline function is that it involves the combination of statements. For example, you can join rows from two or more tables.

## Summary

User defined functions are useful for customizing or creating functions that don't already exist within the server management system.

In the two basic categories of functions, scalar and table, there are three types:

- Scalar, which return single values,
- Inline, which return a table of values, and
- Multi-statement, which return a table of values from more than one table.