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Foundations of Databases and SQL Programming

Assignment 07

Github URL: <https://github.com/jschmid-1/DBFoundations-Module07>

Github Webpage: <https://jschmid-1.github.io/dbfoundations_webpage/>

SQL Functions

# Introduction

This document introduces SQL functions and discusses some of the ways SQL functions are used.

# SQL User Defined Functions

SQL user defined functions can be used in many ways. User defined functions can be used to store complex select statements or pieces of code and becomes particularly useful when the code is expected to be used often. The ability of a user defined function to accept a parameter is also very useful and can be utilized to allow for where clauses within a complex select statement to be updated easily without the need to recreate the code. Figure 1 provides an example of a user defined function being used to store a complex select statement. User defined functions can also be used to achieve something that built-in SQL functions do not achieve. This does not occur often, but user defined functions can be useful in this setting.

Graphical user interface, text, application, email

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Figure 1. User defined function containing select statement.

# Types of User Defined Functions

This section will discuss scalar, inline, and multi-statement functions.

## Scalar

User defined scalar functions return a single value or “scalar” and otherwise behave in the same way as other user defined functions. Parameters can be very useful for scalar functions (Randal Root Module 7 Notes).

## Inline

Differing from scalar functions, user defined inline functions return a table of values using a single select statement. The syntax of an inline function is very straight forward and matches the function presented in Figure 1 (**External Link:** <https://www.wiseowl.co.uk/blog/s347/in-line.htm>).

## Multi-statement

User defined multi-statement functions return a table of values like inline functions but allow for multiple select statements to be included in the function. Unlike inline functions, multi-statement functions require that a new table be defined within the syntax of the function where data selected from multiple tables can be placed (**External Link:** <https://www.wiseowl.co.uk/blog/s347/multi-statement.htm>).

Figure 2 presents the syntax of a multi-statement function.

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Figure 2. Multi-statement function (**External Link:** <https://www.wiseowl.co.uk/blog/s347/multi-statement.htm>).

# Conclusion

This document aims to introduce scalar, inline, and multi-statement user defined functions in SQL, in addition to common uses of user defined functions.