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<https://github.com/BHamamoto/DBFoundations.git>

Assignment 07: Functions

**Introduction**

In this write-up, I will discuss SQL functions.

**User Defined Functions**

A User Defined Function (UDF) is a piece of code that returns a specific value or outcome. They help you to maintain consistency in calculations and data manipulation by organizing actions into smaller components while making sure that it is applied in the same way every time. UDFs can also make things more user-friendly and simpler so that you don’t need to get into the finer details every time you want to retrieve information. On top of that, when changes or adjustments need to be made, it’s easier to do so within a function rather than hunting down every single occurrence throughout the code.

**Scalar, Inline, and Multi-Statement Functions**

These are different types of user-defined functions. Scalar functions return a single value based on the parameters set up in the query. These are commonly used in SELECT statements, WHERE clauses, and expressions that compute a single value. To use an example, if you want to determine how much an employee bonus should be based on their current salary, you would use a scalar function.

Inline functions return a table and are generally used in the FROM clause of a SELECT statement. These are reuseable queries and are often treated like a SELECT statement. If you are looking at an employee list and was to retrieve a list of employees from a specific department, you would use an inline function to do so. Since this list involves a straightforward SELECT statement, inline functions are preferred for simplicity and readability.

Multi-Statement functions also return table results but are used when multiple SQL statements are needed to generate the result set. Using that same employee list from the inline function example, you could use a multi-statement function to retrieve employees who have annual salaries over a certain dollar amount and provide you with the department the employee is in. Since this query requires multiple steps and logic, you would choose a multi-statement function to perform this instead of an inline function.

**Summary**

In this write-up, I explained what functions were, described scalar, inline, and multi-statement functions, and provided a real-world example of when you would see or use them.