Name: HRios
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https://github.com/hriosss/DBFoundations7

Assignment 7 – SQL Functions

Understanding SQL Functions

In SQL development, functions are powerful tools of programming code. There are canned built-in functions in SQL that help streamline operations, improve code readability, and promote consistency across queries. You can also create User Defined Functions (UDF) which are custom functions that either return single values also known as scalar functions and tables of values, known as tabular functions (Root, 2017). Whether you're performing calculations, formatting data, or returning structured results, UDFs offer a modular approach to solving repetitive tasks efficiently.

When to Use a SQL UDF

You would use a SQL UDF when you need to encapsulate logic that will be reused across multiple queries or procedures. For example, if you frequently calculate tax, format dates, or apply business rules to data, wrapping that logic in a UDF allows you to call it as needed without rewriting the same code. UDFs are especially useful when working with reporting systems or data transformations, where consistent output and maintainability are key. They also help isolate logic from the main query, making it easier to debug and update.

Differences Between Scalar, Inline, and Multi-Statement Functions

Scalar functions return a single value, such as a number or string (Gould, n.d.). These are ideal for simple calculations or formatting tasks for instance, things like converting a date to a specific format. Inline table value functions return a table and consist of a single SELECT statement. They are efficient and often used when you want to filter or transform data sets without the overhead of procedural logic. Multi-statement tabular functions, on the other hand, allow for more complex operations. They can include multiple SELECT statements, temporary variables, and conditional logic, making them suitable for scenarios where you need to build a result set step-by-step or choose between different data sources.

Conclusion
SQL functions offer a structured way to manage logic within your database environment. By understanding when to use them and how each type scalar, inline, and multi-statement differs, you can write cleaner, more maintainable SQL code. Whether you're simplifying a calculation or constructing a dynamic result set, UDFs are an essential part of any SQL developer’s toolkit.

Works Cited

Gould, A. (n.d.). *Scalar User-Defined Functions in SQL Server*. Retrieved from Wise Owl: https://www.wiseowl.co.uk/sql/guides/scalar-functions/scalar-udfs/

Root, R. (2017, August 8). *Functions-02 User Defined Functions UDFs*. Retrieved from YouTube: https://www.youtube.com/watch?v=XEiQ3M2LhU4&list=PLfycUyp06LG9wAGPKBZ7poKBcbDZrmXpi&index=2