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IT FDN 130 A: Foundations of Databases & SQL Programming

Assignment 07

https://github.com/bestiems/DB-Foundations

SQL FUNCTIONS

INTRODUCTION

SQL Functions are useful objects that are used to manipulate or calculate data and returns a result that can be used in data analysis or in further SQL logic. SQL comes with many pre-defined functions, but a User Defined Function is a function that allows the user to define the logic and the output and reuse the block of code repeatedly to perform those operations.

WHEN TO USE A UDF

A User Defined Function is useful to use when a pre-existing function does not already exist in SQL. It allows the user to write a block of SQL code with the desired logic, inputs, and outputs, which can then be used and re-used throughout the code. This helps to reduce the workload of writing the code multiple times. It also improves readability and simplicity within the code: write the complex SQL statement only once and use then call the function statement when needed. Another useful use of UDFs is when formulating check constraints

SCALAR, INLINE, AND MULTI-STATEMENT FUNCTIONS

UDFs (and all SQL Functions) can be defined by their data output. A *Scalar Function* is a type of function that outputs a single value based on input parameters. This single value can be a number, date, a string, etc. An example of a predefined scalar function is GETDATE, which returns the current date when used.

An *Inline Function* is an UDF function that returns results as a table instead of a scalar value. It must be paired with a SELECT statement to define the columns that will be returned. The resulting table can then be used in further SQL operations such as JOIN and SELECT just like any other database table.

A Multi-Statement Function is the most complex type of UDF. It allows for multiple SQL statements and procedural logic, such as IF…ELSE, WHILE, and other logical loops, which the other type of functions do not. Multi-statement functions can output results either as a scalar value, or as a table. They offer the database administrator the most complexity and flexibility when performing SQL functions.

SUMMARY

User Defined Functions (UDFs) are useful objects in SQL and allow analysts and administrators to simplify and re-use complex code. Whether scalar, inline, or multi-statement, the differences between each type are noteworthy and each has its unique applications.