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IT Foundations of Database Management

Assignment 07

GitHub: https://github.com/jasonverberne/DBFoundations-Module07

SQL UDFs and Scalar, Inline, and Multi-Statement Function Comparison

Introduction

This paper will explain when to use a SQL User Defined Function (UDF) and explain the differences between Scalar, inline, and Multi-Statement Functions.

SQL UDF

A User Defined Function (UDF) in SQL is a custom function used to perform specific operations or calculations within SQL queries. These can have parameters but are not required to. Programmers should use User Defined Functions (UDFs) in SQL when they need to encapsulate and reuse complex logic, calculations, and/or data transformations that aren't supported or are too cumbersome to express directly in SQL queries. Some scenarios could include when the code will be reused multiple times, when the calculation or logic is complex (thus encapsulating the logic into a single function for code simplification and easier maintenance), when the programmer wants to improve readability of the code, improving performance, and data abstraction.

Scalar, Inline, and Multi-Statement Function Comparison

User Defined Functions come in three main types: Scalar, Inline, and Multi-Statement.

Scalar functions return a single value of a specified data type (INT, VARCHAR, DATE, etc). An example of this might be where a function takes a first name as the first parameter and the last name as the second parameter and returns the full name. Adding, subtracting, multiplying, and dividing two provided arguments would be another example.

Inline functions return a table data type by using the ‘SELECT’ statement. An example of this might be if a table with employee and salary data was provided, the function would receive an argument of a certain salary amount, then return a table of all employee and salary data where the salary is more the provided amount.

Multi-statement functions are similar to Inline functions, except that they allow multiple SQL statements to populate the table. An example of this might be if the function used two ‘SELECT’ statements to put information from two tables into a single table.

SUMMARY

This paper will explained when to use a SQL User Defined Function (UDF) and explain the differences between Scalar, inline, and Multi-Statement Functions.