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Github: <https://github.com/anitabeec/DBFoundations-Module7>

Assignment 7 - Functions

Introduction

User-Defined Functions (UDFs) allow developers to reuse logic, improving efficiency and database management. Understanding when and how to use UDFs effectively is crucial for database management. This paper explores the primary scenarios for employing SQL UDFs and the differences between Scalar, Inline, and Multi-Statement Functions.

Using SQL UDFs

SQL UDFs are handy to utilize when logic needs to be reused across queries, thus reducing redundancy. They're primarily used when database queries require complex calculations, data transformations, or business rules. Through enclosing these operations in UDFs, developers can simplify code and enhance reusability.

Scalar, Inline, and Multi-Statement Functions

There are three main types of UDFs:

- **Scalar Functions** take one or more input values and return a single output value (i.e., ABS(), ROUND(), SQRT()). They are designed to perform calculations or data transformations typically within SQL statements like SELECT, WHERE, and JOIN clauses. They are the simplest and most common type of UDFs.
- **Inline Functions** return a table-like result as their output and can be used in the FROM clause of a SELECT statement, essentially acting. They are suitable for scenarios returning a set of rows based on input parameters or calculations.
- **Multi-Statement Functions** return a table of data and contain variables and control-of-flow logic like IF-ELSE statements. They are used when logic requires more than a single SELECT statement and tend to be less efficient than Scalar and Inline functions.

Summary

In conclusion, SQL UDFs offer developers the ability to enclose and reuse logic efficiently. Knowing when to employ them depends on the specific requirements of the database. Scalar Functions are best suited for straightforward calculations, while Inline Functions for returning table data. Multi-Statement Functions are reserved for complex logic. Through understanding the differences between types of UDFs and when to select them, developers can simplify database management.

