

Deborah Briggs

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Foundations Of Databases & SQL Programming

Assignment 07

<https://github.com/jdbriggs3/DBFoundations-SQL-Mod07>

Functions

Introduction

In Module 06 we were introduced to views, functions and stored procedures. Each allows complex queries to be saved and reused without rewriting the code each time. This week in Module 07 we focus on the role of functions. SQL provides many built in functions and the flexibility of creating user-defined functions (UDF). The primary purpose of a function is to compute and return values based on given inputs. The three main types of user-defined functions are scalar, inline, and multi-statement functions.

SQL User-Defined Functions (UDF)

A user-defined function allows the user to create custom reusable code, calling the function when needed rather than rewriting the same logic repeatedly. Functions accept input parameters, returning either a single result or a table of results depending on the type of function. By centralizing logic and calculations, UDFs provide consistency, accuracy and efficiency.

Types of Functions

Scalar

Scalar functions accept zero or more input parameters and return a single value. For example, the built in SQL functions MIN() or MAX() return a single value from a set of data. Similarly, user-defined scalar functions accept parameters and return a single calculated value. These functions are useful for creating custom calculations that are used frequently.

Inline

Inline functions also accept parameters but instead of returning a single value return a table of values using a single SELECT statement defining the contents and structure of the returned table.

Multi-Statement Functions

Similar to inline functions, multi-statement functions return a table of values. However, instead of relying on a single SELECT statement they can utilize multiple SQL statements such as SELECT, INSERT, UPDATE and DELETE to construct and populate the return table. Because of this added flexibility multi-statement functions are often used for more complex operations that require conditional logic.

Summary

This week in Module 07 we focused on the role of functions. SQL provides built in functions and the flexibility of creating user-defined functions (UDF). The primary purpose of a function is to compute and return values based on given inputs. The three types of UDF discussed included scalar, inline, and multi-statement functions. Scalar functions return single values, while inline functions return tables of values. Multi-statement functions also return tables of values but allow for complex processing through multiple SQL statements.