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Functions

# Introduction

In SQL user defined functions (UDFs) stand out as versatile components. This document aims to describe how UDFs are deployed and explain the distinctions between scalar, inline, and multi-statement functions.

# Topic - User Defined Functions

UDFs come into play when there's a need for encapsulating specific logic or calculations for reuse within queries. Whether performing intricate calculations, data transformations, or custom operations, UDFs provide a modular and efficient means to enhance the expressiveness and maintainability of SQL code.

# Topic - Comparing Scalar, Inline, and Multi-Statement Functions.

Scalar functions return a single value, making them mostly useful for calculations or transformations. Inline functions, also known as table-valued functions, return a table variable. They are more efficient than multi-statement functions, since they can be optimized by the query processor. Multi-statement functions can perform complex operations and return multiple results using the return statement. While more flexible in terms of logic, they are less efficient than inline functions. Multi-statement functions are used when a more intricate and multi-step computation is necessary.

## Summary

The choice between scalar, inline, and multi-statement functions depends on the nature of the operation. Scalar functions are suitable for single-value calculations, inline functions for efficient table-valued results, and multi-statement functions for more complex, multi-step operations. Understanding the nuances between each type of functions allows for the optimal utilization of UDFs.