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Assignment 07

https://github.com/yogibear24/DBFoundations-Module07

Assignment 07 – Functions

Introduction

In this paper I will explain when to use a SQL User Defined Function (UDF). I will also go over the differences between Scalar, Inline, and Multi-Statement Functions.

When to Use a SQL User Defined Function (UDF)

We can use a SQL UDF when a couple of single Built-In SQL Functions do not meet the needs of the user, such as in a View. In addition, we can use a SQL UDF when we would like to return a View but with certain parameters, since Functions can accept argument parameters unlike Views. SQL UDFs can return a table of values or a single value. UDFs that return a single value as an expression are called Scalar Functions. See Figure 1 below for an example of a User Defined Function.

```
CREATE FUNCTION fProductInventoriesWithPreviousMonthCountsWithKPIs(@KPIValue int)
RETURNS Table
AS
RETURN(
        SELECT TOP 1000000000
            ProductName, InventoryDate, InventoryCount, PreviousMonthCount,
            CountVsPreviousCountKPI
        FROM vProductInventoriesWithPreviousMonthCountsWithKPIs
        WHERE CountVsPreviousCountKPI = @KPIValue
        ORDER BY ProductName, Month(InventoryDate)
        );
GO

SELECT * FROM fProductInventoriesWithPreviousMonthCountsWithKPIs(1);
SELECT * FROM fProductInventoriesWithPreviousMonthCountsWithKPIs(0);
SELECT * FROM fProductInventoriesWithPreviousMonthCountsWithKPIs(-1);
GO
```

Figure 1: An example of a SQL UDF. The output Table Result can be changed by inputting a different integer value into the UDF parameter, and the output Table Result could not have been generated by only a simple Built-In SQL Function.

The Differences Between Scalar, Inline, and Multi-Statement Functions

The differences between Scalar, Inline, and Multi-Statement Functions are in what they return. Scalar Functions return a single value, Inline Functions return a single statement table, while Multi-Statement Functions return a table using multiple statements.

Summary

I have learned a lot about SQL Built-In Functions and UDFs in this module, such as with the situations in when to use a SQL UDF, as well as the differences between Scalar, Inline, and Multi-Statement Functions, and we have specifically discussed in-detail about most of these topics in this writeup.