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Assignment 07
GITHUB: https://github.com/dlgiroux/DBFoundations-Module07

SQL Functions

Introduction

Functions are programs within SQL that can help automate repetitive tasks. Functions can either return a single row of data or data in a table with multiple rows and/or columns. Some functions are already defined within SQL Server and others the user can define.

When to Use a User-Defined Function (UDF)

User-defined functions (UDFs) are custom functions the user can create in SQL to accept parameters, perform functions, and return results. They are especially beneficial when the user needs to perform a specific repetitive task. The user can create a function to perform a complex task and then call up that function whenever necessary.

In the Assignment 07 homework, we utilized a UDF in the last bit of SQL code created:

```
CREATE FUNCTION dbo.fProductInventoriesWithPreviousMonthCountsWithKPIs(@KPI int)
RETURNS TABLE
AS
   RETURN
    (SELECT
    ProductName
    , InventoryDate
    , InventoryCount
    , PreviousMonthCount
    , CountVsPreviousCountKPI
FROM vProductInventoriesWithPreviousMonthCountsWithKPIs as vp
WHERE vp.CountVsPreviousCountKPI = @KPI)
go
```

Whenever the user needs to use this UDF, he or she can simply use a Select statement and input the '@KPI' variable to return whatever results are needed.

Scalar, Inline, and Multi-Statement Functions

Scalar functions return a single value based on an input value. THey help simplify complex code. Each time the user calls the function, they simply need to input the parameters and the

function will do the rest. For example, the Round() feature in SQL is a scalar function that will return a single result to the user once the user inputs the initial parameter in between the parentheses.

An inline function is very similar to a view and can only include one SELECT statement. Subqueries can be placed in the FROM portion of the function.

A multi-statement tabled valued function is a table that is created, defined and populated all within a function. This allows the user complete control over the setup of the table, down to the column names and constraints. Begin and End blocks as well as Returns Table blocks are required.

Summary

Functions are very useful in SQL for inputting parameters, performing actions, and returning results. They can be saved and utilized over and over again, simplifying code and creating efficiency in the user's work.