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Assignment 7 - Functions

Introduction

The purpose of this document is to define a SQL User Defined Function, and to discuss the differences between commonly used functions.

SQL User Defined Functions

A User Defined Function (UDF) is used in SQL when a user wishes to create their own custom function. There are two main types of functions that you can create – ones that return a single value, and ones that return a table. These are separate from the built-in (pre-defined) functions that exist in SQL Server. UDFs are useful when developing reporting views, since they offer an increased level of customization and modularity, while reducing redundant code writing. Take the following example from Assignment 7:

```
SELECT ProductName, InventoryDate, InventoryCount, PreviousMonthCount,
CountVsPreviousCountKPI
FROM vProductInventoriesWithPreviousMonthCountsWithKPIs
WHERE CountVsPreviousCountKPI = 1
ORDER BY ProductName, CONVERT(DATE, InventoryDate);
```

Instead of writing this lengthy code each time you wish to view a different parameter, you can simplify and reduce error by defining a function once, storing it, and then simply calling the function with the desired parameters:

```
SELECT * FROM fProductInventoriesWithPreviousMonthCountsWithKPIs(1);
```

Types of Functions

The previous section mentioned that there are two types of functions – ones that return single values, and ones that return tables.

- For functions that return single values (known as scalar functions), the user is normally trying to calculate something, usually a custom operation or process resulting in a single value response.
- The other kind of function returns tables when called (known as inline functions). This kind of function is like a basic query or view in SQL, but as shown above, can offer less redundancy and flexibility.
- Multi-Statement functions are either scalar or inline functions which require multiple steps or statements. These statements allow for more complex logic, or procedural logic that otherwise could not be executed in a single statement.

Summary

In this document we discussed what a UDF is and defined several types of UDFs. In addition, there was a discussion on the benefits of the types of functions.