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IT FDN 130 Au 23: Foundations Of Databases & SQL Programming

Assignment07

GitHubURL: https://github.com/TarasSolo/DBFoundations_Module07

SQL User Defined Functions

Introduction

In module 7 we learned about the various types of SQL functions, both built-in the SQL server software and designed by the used – user defined functions or UDFs.

When to use SQL UDF

There are many functions built in and coming with the SQL server software, they can be found in "Programmability" folder of a database. Those built-in functions cover a wide variety of potentially needed manipulations with data. When many built in functions used in more complex queries, we can encapsulate the logic of the query in a custom User Defined Function or UDF to be repeatedly used for calculations or data manipulations and return a result. Based on the form of the result there are two types of UDFs – a *scalar*, which return a single value result and a *table-valued*, which return a table as a result.

The differences between Scalar, Inline, and Multi-Statement Functions

As it was mentioned in the previous topic, there are two main types of UDFs – scalar and table-valued UDFs.

Scalar or scalar-valued user defined functions return a single value result in a form of text, value, or date. Inline table-valued functions are the simplest type of table-valued functions, which contain one line of select statement and returns a table as a result. Multi-statement functions are table-valued functions, which have a return table variable in it and a select statement(s) calculating the input into the table variable like in the example below.

```
Create Function fProductInventoriesWithPreviousMonthCountsWithKPIs (@KPI Int)
Returns @TBL Table
    (ProductName Varchar (40)
    , InventoryDate Varchar (40)
    , InventoryCount Int
    , PreviousMonthCount Int
    , CountVsPreviousCountKPI Int)
As
Begin
    Insert Into @TBL
    Select
    ProductName
    , InventoryDate
    , InventoryCount
    , PreviousMonthCount
    , CountVsPreviousCountKPI
    From vProductInventoriesWithPreviousMonthCountsWithKPIs
    Where CountVsPreviousCountKPI = @KPI
Return
End
```

Summary

SQL User Defined Functions (UDFs) come in two main types – scalar UDFs, which return a single value result and table-valued UDFs, which return a table as a result. Table-valued UDFs can be inline and multi-statement functions.