***Ali Murad; February 28, 2022; Foundations of SQL; Assignment 07***

[***https://github.com/Alimurad1/DBFoundations-Module07/blob/main/Assignment07\_Writeup.docx***](https://github.com/Alimurad1/DBFoundations-Module07/blob/main/Assignment07_Writeup.docx)

Introduction:

In this write up, I will try to explain when to use a SQL UDF and differences between Scalar, Inline, and Multi-Statement Functions.

1. Explain when you would use SQL UDF:

SQL UDF is used “to prevent us from writing the same logic multiple times. It is used to separate the complex calculations from the regular query so that we can understand and debug the query quicker and better. It is also used in WHERE Clause to limit the number of rows sent to the client”. (https://www.tutorialgateway.org/user-defined-functions-in-sql/#:~:text=User%20defined%20functions%20in%20SQL%20Server%20prevent%20us%20from%20writing,execution%20plan%20and%20reusing%20them.) (external site).

1. Explain the differences between Scalar, Inline, and Multi-Statement Functions:

User-defined Scalar Functions (SFs) return a single scalar data value of the type defined in the RETURNS clause. ... Inline Table-valued functions (ITVFs) have no function body; the scalar value that is returned is the result of a single statement without a BEGIN”.

“An inline table valued function definition specifies only RETURNS TABLE and not the table definition. The entire query batch or code or select query inside the function is a single RETURN statement. Multi-statement table valued function definition specifies RETURNS along with the definition of TABLE VARIABLE. (https://www.google.com/search?q=the+differences+between+Scalar%2C+Inline%2C+and+Multi-Statement+Functions.&source=hp&ei=Wn0eYvCfCLaIwbkP-vW\_mAI&iflsig=AHkkrS4AAAAAYh6Lan9puDWdSVh7vAjhQpf7ZdShPsaN&ved=0ahUKEwjwtOLh26X2AhU2RDABHfr6DyMQ4dUDCAk&uact=5&oq=the+differences+between+Scalar%2C+Inline%2C+and+Multi-Statement+Functions.&gs\_lcp=Cgdnd3Mtd2l6EAM6CAgAEIAEELEDOgsIABCABBCxAxCDAToRCC4QgAQQsQMQgwEQxwEQ0QM6BQgAEIAEOg4ILhCABBCxAxDHARDRAzoLCC4QgAQQxwEQowI6BQguEIAEOg4ILhCABBCxAxDHARCjAjoLCC4QgAQQsQMQ1AI6CwguELEDEMcBEKMCOggILhCABBCxAzoICC4QgAQQ1AI6BwgAELEDEAo6BwgAEIAEEAo6CgguEIAEENQCEAo6CwguEIAEEMcBEK8BOgYIABAWEB46CAgAEIYDEIsDOgQIABANOgYIABANEB46CAgAEAgQDRAeOgoIABAIEA0QChAeOggIABANEAUQHjoICAAQFhAKEB46BQghEKABUABY3qQDYP6xA2gJcAB4AIABnwGIAYsTkgEEMjAuN5gBAKABAaABArgBAg&sclient=gws-wiz) (external site)

Summary:

In summary, “the User Defined Functions in SQL Server are like functions in any other programming language that accepts the parameters, performing complex calculations, and returning the result value” https://www.tutorialgateway.org/user-defined-functions-in-sql/#:~:text=User%20defined%20functions%20in%20SQL%20Server%20prevent%20us%20from%20writing,execution%20plan%20and%20reusing%20them..) (external site)

“A Scalar user defined function returns a single value as a result of actions perform by function. Inline table-valued function returns a table variable as a result of actions perform by function. A Multi-Statement Table-Valued user-defined function returns a table. It can have one or more than one T-SQL statement”. (https://excelkingdom.blogspot.com/2018/01/how-to-create-scalar-inline-and-multi.html). (external site)