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Assignment 07—Functions

Introduction

Functions in SQL can be useful for retrieving and transforming data. We can use built-in functions or create user defined functions to customize tasks. Functions can return a single value, or a table of values.

User Defined Functions

Functions are useful whenever you have a task you will do multiple times, especially if you may want to use a variety of values for that task. Functions can pass in one or more parameters, making it easy to modify the results without creating new or altering existing views each time. For example, if you want to work with a subset of products in a table based on a price range, where the price range may differ each time you work with the data, a function is a good way to do so.

While there are many built-in functions in MS SQL, a user can also create their own functions to return values as needed, called User Defined Functions, or UDFs. UDFs can be handy for customizing tasks like reporting, Extract-Transform-Load (ETL) processes, and creating check constraints, especially when needing to refer to a column from another table.

Types of Functions

There are two main types of UDFs: Scalar functions and Table Value functions. Scalar functions return a single value each time it is called. Table Value functions return a table of data. They can be Simple Table Value functions, also known as Inline functions, and Multi-Statement Table Value functions. Inline functions contain only one statement. They cannot include Begin/End in the Return clauses of these functions. Multi-Statement functions also return a table of data, but these functions can contain more than one statement. To use a multi-statement function, you need to define a table variable. They also require a Begin/End Block.

Summary

Functions are useful tools to simplify complex code or automate tasks. In addition to the many available pre-built functions, users can create their own custom functions, called User Defined Functions or UDFs. They range from simple to complex: Scalar functions return a single value, whereas Tabular functions return a table of data. Inline tabular functions contain a single statement. Multi-Statement functions contain many statements.

References

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