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IT FDN 130 A Au 23: Foundations Of Databases & SQL Programming
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Assignment 07
GitHub URL: https://github.com/PadmaBham/DBFoundations-Module07

FUNCTIONS

Introduction

For our lesson 07, we learnt about ***functions*** and how to use them to retrieve information from a database. SQL has many built-in functions. We learnt some of these very useful functions, such as *aggregate functions* and *partitioned or windowed functions*. Additionally, we also wrote our own (custom) functions a.k.a. UDFs or User-defined Functions in this module. Functions are often used in Reporting. The different types of functions are Scalar, Inline and Multi-statement functions. Custom Scalar functions are sometimes used for Check constraints because you cannot otherwise reference a column in another table.

In this module, we also learned to create Advanced GitHub pages, creating a Markdown file and to format a webpage. The same has been applied to our assignment this time!

The topics for this assignment's write-up are as follows –

Explain when you would use a SQL UDF

(Information picked from Bing AI)

A **SQL UDF (User-Defined Function)** is a function that you can create in a database. It is a powerful tool that can be used to perform complex calculations, manipulate data, and perform other tasks that are not possible with built-in SQL functions.
You would use a SQL UDF when you need to perform a specific task that is not possible with built-in SQL functions. For example, you might need to perform a calculation that requires a complex formula or manipulate data in a way that is not possible with built-in SQL functions. In such cases, you can create a SQL UDF that performs the required task and then use it in your SQL queries.

To create a SQL UDF, you can use the CREATE FUNCTION statement. The syntax for creating a SQL UDF is as follows:

```
CREATE FUNCTION function_name (parameters)
RETURNS data_type
AS
BEGIN
   SQL statements
```

```
    RETURN value
END;
```

Here, *function_name* is the name of the function, parameters are the input parameters that the function accepts, *data_type* is the data type of the value that the function returns, SQL statements are the statements that the function executes, and value is the value that the function returns.
Once you have created a SQL UDF, you can use it in your SQL queries just like any other built-in SQL function. For example, if you have created a SQL UDF called *my_function*, you can use it in your SQL queries as follows:

```
SELECT my_function(column_name) FROM table_name;
```

Here, *column_name* is the name of the column that you want to pass as input to the function, and *table_name* is the name of the table that contains the column.

Explain are the differences between Scalar, Inline, and Multi-Statement Functions

(Quoted from Bing AI)

Scalar, Inline, and Multi-Statement Functions are all types of User-Defined Functions in SQL.

- **Scalar Functions** are functions that accept any number of parameters and return a single value. They are used to perform calculations on a single value and return the result. Scalar functions are often used in SELECT, WHERE, and HAVING clauses.
- **Inline Functions** are functions that return a table. They contain a single SELECT statement and are used to return a result set based on the input parameters. Inline functions are often used in JOIN and FROM clauses.
- **Multi-Statement Functions** are functions that return a table. They contain multiple SELECT statements and are used to return a result set based on the input parameters. Multi-Statement Functions are often used when the logic is too complex for an Inline Function.

Assignment 07

In this assignment, we were asked to use BASIC views and functions to retrieve and / or manipulate the data displayed to suit the requirements.

Summary

In Lesson 07 of the course, we learnt about built-in and user-defined functions, that enable us to retrieve data and have it displayed in a specific format or manner to suit ‘user’ requirements. We also learnt to create a webpage and format it using Markdown.