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Assignment Module06: Views
Github: https://github.com/kguite/DBFoundations

Module06: Views

Introduction:

This week, we created several views as well as read about views, functions, and stored procedures. They are all similar in the sense that we are encapsulating queries or calculations with a name in order for them to be reused, or called, again. For the developer, it helps to limit errors and makes code more reusable. For users, they can use the code we created to query the database, or perform a calculation, without necessarily needing to see or understand the complex queries within it.

When to use a SQL View:

A SQL view is useful for setting up a defined query. Within a view, we can make simple or complex select statements. Views provide a level of abstraction, and also help to minimize rewriting code and making errors. Because of the level of abstraction, views also add a level of security. A user can access the view, without having access to all the table columns or data.

The similarities and differences between a View, Function, and Stored Procedure

View: A view is a select statement stored by a given name. A view is not saved to the harddrive, rather, it's a virtual table or a temporary table created from the result of a set of select statements.

A view is just for looking at the database. An analogy could be: A view is a telescope focused on a specific object. It's used to look at something in a particular way, but the object itself is not affected.

Function: A function takes in something (a parameter), does something to what it takes in (in the code block), and returns something (in the return statement). An example of a use for a function vs a view would be if you wanted to perform math on columns. There are built-in SQL functions we can use, or we can create our own (called "user-defined functions" (UDF)'s).

SQL Server's Built in Functions can be found here:
https://www.w3schools.com/sql/sql_ref_sqlserver.asp (external site)

Stored Procedure:

A stored procedure is a named set of SQL statements. A stored procedure can take in parameters, and a stored procedure is "executed". Here's a great example at w3schools.com (Figure3):

Figure3: a screenshot of a SQL stored procedure from https://www.w3schools.com/sql/sql_stored_procedures.asp (external site)

Example

```
CREATE PROCEDURE SelectAllCustomers @City nvarchar(30), @PostalCode
nvarchar(10)
AS
SELECT * FROM Customers WHERE City = @City AND PostalCode = @PostalCode
GO;
```

Execute the stored procedure above as follows:

Example

```
EXEC SelectAllCustomers @City = 'London', @PostalCode = 'WA1 1DP';
```

Summary:

To summarize, use a view for reusing select queries, use a function for doing something to the data (such as calculations, or adding a conditional statement), and a stored procedure for storing reusable select statements (like a view), but with the additional ability to use variables to customize the query.