## Introduction

This week we learned about SQL Views, Functions, and Stored Procedures, with a focus on Views. Below, I will explain when to use a SQL View, and compare Views, Functions, and Stored Procedures.

## When to Use a SQL View

A SQL View is used to create an abstraction layer for database users to indirectly access tables. This allows non-admin users to see data without the risk of changing data or data structures. For example, you may want Customer Service employees, who are in the role/group of ‘Public’ to be able to view customers’ information, but not to change it directly. To accomplish this, you would deny access to applicable tables, and grant access to views of those tables. See below for example code – creating a basic view of the table ‘Customers’ and subsequently forcing ‘Public’ users to use the view rather than allowing direct access to the table.

Create View vCustomers

As Select

Column1, Column2, Column3, Column4

From Customers; go

Deny Select on Customers To Public;

Grant Select on vCustomers To Public;

## Views, Functions, and Stored Procedures: Differences and Similarities

Views, Functions, and Stored Procedures are all stored code that allow for using the same lines of code without needing to rewrite them. Views are stored Select statements for reporting data (tables). Functions are stored code for returning either a table of data or scalar values. Procedures can be more complicated and can have multiple sets of statements. In simple cases, any of the three options could be used to achieve the same result.

See below for simple examples of syntax to create and run each to see highlighted differences.

Create View v*NameOfView*

AS Select *Columns*

From *Table(s);*

Select \* from v*NameOfView*; go

Create Function dbo.f*NameOfFunction*()

Returns Table

AS Return(Select ….);

Select \* from dbo.fNameofFunction();

Create Procedure p*NameOfSProc*

AS Select….; go

Exec p*NameOfSProc*;go

The parentheses used for Functions may contain variables; the parentheses are required regardless of whether variables are being used. Procedures may also use variables, but the parentheses are not required if no variables are being used.

## Summary

Three ways to store sections of SQL code for reuse are Views, Functions, and Stored Procedures. They may be interchangeable for some operations. Views are basically for reporting data. Functions would be used for performing an operation on data. Stored Procedures function similarly to Views and Functions but are better for storing sets of SQL statements that may be larger and more complex than what can be handled in Views or Functions.