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Assignment 06

# <https://github.com/Gabriela-Tedeschi/DBFoundations>

# SQL Views

## **Introduction**

In this document, I will define views, functions, and stored procedures and explain the similarities and differences between these features. I will also discuss some of the ways these features are commonly used and how they both help protect the integrity of a database and make the database easier to use.

## 1. Explain when you would use a SQL View.

A SQL view, which is a stored Select statement, can be used to add an abstraction layer over the tables of a database for protection and to help database users perform complex Select statements simply and quickly. By denying some users access to tables and giving them access to views that provide the same data, you allow them to access the data they need without taking the risk of tables being altered. With this idea in mind, a database developer may create a base view for every table (meaning a view that is identical to the table) in a database.

By creating views for complex Select statements that are useful to yourself or other database users, you make the process of accessing that statement’s results much simpler in the future. This can save users time and help users who don’t have extensive SQL programming knowledge make better use of the database. When a view is used to help users extract data for reporting purposes, it is called a reporting view.

## 2. Explain the differences and similarities between a View, Function, and Stored Procedure.

Functions can be used to return a table of values, much in the way that views can, but they can also be used to return a single value or to fill a column with calculated values. To return a table of values with a function, as with a view, you store a Select statement. The difference is that with functions, you can use parameters. This involves specifying a variable name when you name the function and using the variable somewhere in the Select statement, like in the Where clause. When you later perform a Select on the function, you plug a value into the place of that variable. By plugging in different variables, you’re able to generate multiple result tables with one function. That being said, functions are not frequently used this way, as you can apply the Where clause to views.

Scalar functions are more common. A scalar function works like an expression and returns a single value. You specify variables when you create the function and the operations that will be performed. When you Select on the function, you plug in values and a calculated value is returned. You can use a function like this in a results table by using the function as a column and plugging existing column names into the function. This will perform a calculation and provide a value for each row.

Stored procedures are similar to views and functions because they also allow you to store Select statements and easily return a results table. As with views, you do not use parameters to perform operations within your stored procedures. The syntax for creating stored procedures also makes them similar to views. However, unlike both, stored procedures can store multiple statements, which makes them very useful for complex reporting. You also use the command Execute rather than Select to access stored procedures.

## Summary

Learning the information outlined in this document about views, functions, and stored procedures has helped me understand how these features allow us to protect database tables and more easily access data for reporting and in which situations each feature is most useful.