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IT FDN 130A Foundations of Databases & SQL Programming

Assignment 06

<https://github.com/mm-ackerman/DBFoundations>

# Views, Functions, and Stored Procedures

## Introduction

In this assignment I will first explain when to use a SQL View. Next, I will define a View, a Function, and a Stored Procedure. Finally, I will discuss some similarities and differences between a View, Function, and Stored Procedure.

## Usage of a SQL View

A SQL View is used to show either a subset of data or all the data from a table or multiple joined tables in a database. It allows other users to see the data of interest, but not actually have access to the table or tables itself. A SQL View helps maintain the integrity and security of the information from a table or multiple tables. Additionally, a table can have many Views depending on need and level of access.

## Definition of a View

A View is a SQL SELECT statement saved in a database itself that can be called since the View is named. It’s often thought of as a virtual table of the original data.

## Definition of a Function

A Function is another type of a SQL SELECT statement that is named and saved within a database. If a user creates a Function, this is often known as a User Defined Function (UDF) in comparison to the pre-built functions within SQL Server.

## Definition of a Stored Procedure

A Stored Procedure is a third type of a named SQL statement that can be saved and called from a database. Stored Procedures are not limited to SELECT statements only.

## Similarities between a View, Function, and a Stored Procedure

A View, Function, and a Stored Procedure all consist of prepared and named SQL code that are stored in a database. All can use SELECT statements to call the desired information from one or more tables. JOINS and WHERE clauses can be used in a View, Function, or Stored Procedure to either combine or partition data as needed.

## Differences between a View, Function, and a Stored Procedure

Access to a View can be restricted to anyone or everyone. However, this is not true of Functions or Stored Procedures. Additionally, an owner can add particular settings to a View, called a schema binding, that will probit any changes to a View that would break the View itself. This is not possible with a Function or Stored Procedure. A Function can use parameters that can be specified as needed when calling the Function. A View cannot accept parameters, but a WHERE clause could be potentially substituted. Additionally, a Function can return a scalar expression allowing a user to pull the desired data at the same time as running math equations over columns and rows. Scalar expressions cannot be used in Stored Procedures or Views. A Stored Procedure is closer in syntax to a View, however, an EXECUTE statement must be used to run a Stored Procedure, while a SELECT statement is used to call a View or a Function. Also, a Stored Procedure can contain more than just a SQL SELECT statement, while a View and a Function can only contain a SELECT statement. Lastly, you can use properly use an ORDER BY in Stored Procedure unlike with both Functions and Views.

## Summary

In conclusion, I started this assignment by explaining when to use a SQL View. Next, I defined a View, a Function, and a Stored Procedure. Last, I reviewed some similarities and differences between a View, a Function, and a Stored Procedure.