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IT Foundations of Databases and SQL Programming

Assignment 06

https://github.com/mrahrig/DBFoundations

SQL Views, Functions, and Stored Procedures

# Introduction

Views, functions, and stored procedures are very handy tools that help to simplify certain SQL tasks. Each of these tools is used to save and name SQL statements so that they can be easily used multiple times. Not only does this simplify tasks and save time, but in some cases, it also allows one to grant or deny permissions to groups of people to view or edit data.

Below, I explore in greater detail the uses for and similarities and differences between views, functions, and stored procedures.

# When Would You Use a SQL View?

## What is a View?

A view is a saved query with a name, and it produces a dynamic result from one or more base relational operations. It looks like and can be treated like a table. The data lives in other base tables – it doesn’t live on disk – and you cannot update data directly from a view.

## When to Use a View

Views are used to make data more secure. You can deny or grant permission to different groups of people so they can only see certain customized views.

A benefit of using views at a company is that you can name them, so when certain groups of people are looking for the information stored in that view, they can more easily identify the view that’s most relevant to them by the custom view name.

Views are also used as a way to save a query so that you don’t have to rewrite the query over and over if you or your coworkers need to pull it again.

(<https://youtu.be/Y-Qk4vpklJ8>, 2021) (External site)

# The Differences and Similarities Between Views, Functions, and Stored Procedures

## Similarities

Views, functions, and stored procedures serve different purposes and thus have different abilities and restrictions. However, their similarities are made clear in figure 1, shown below. As seen in figure 1, views, functions, and stored procedures are created in a similar way. They all pull from existing data in a database table using the Select command.

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## Figure 1. Examples of views, functions, and stored procedures from homework notes.

Views, functions, and stored procedures are also similar in that they all are saved codes that allow users to use and reuse them easily without having to recreate it every time.

## Differences

Unlike stored procedures and functions, views simply show data from a table or tables in a database as a “virtual” table using a Select command. In contrast, stored procedures actually execute transaction statements using the Execute command and they return a result set.

While views and functions typically cannot be used to update database objects, stored procedures can.

Unlike views, user defined functions can be used to return a scalar value, which is just a single value. Unlike with stored procedures, however, functions *must* return a value, whereas stored procedures can return zero or more values.

(<https://www.c-sharpcorner.com/article/stored-procedures-vs-user-defined-functions-and-choosing-which-one-to-use/>, 2021) (External site)

# Conclusion

While views, functions, and stored procedures have different abilities and limitations, they do have a unique similarity that sets them apart from other SQL actions. Views, functions, and stored procedures are all types of named and saved SQL statements that allow users to easily use and reuse them.