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# Assignment 6. SQL Views

## Introduction

This document discusses the nature and use of SQL Views in a Relational Database Management System (RDBMS). It begins with an overview of the primary ways Views are used and their benefits. After which, it compares Views with two other similar tools: Functions and Stored Procedures. Each of these tools will be discussed in turn, highlighting the similarities and differences between them.

## Using Views in SQL

The simplest way to think of a View is as a saved Select statement stored within the database. While one can always build and save SQL Select statements as scripts on their local machines, Views offer a way to store those statements where others can also make use of them. In addition to promoting collaboration, Views can also be leveraged to create an abstraction layer in the database.

Before diving too deep into View uses and benefits, we will first look at the types of Views. In general, views are divided into two key groups: basic views and report views. Basic views are simply a representation of the data in the underlying table. These views can include all the columns from the underlying table or alternate representations that better match user needs (e.g., combing separate first and last name fields to create a single full name). Report views, as the name suggests, are more complex views used for reporting. These views often join related data from separate tables together to make it easier to build comprehensive reports (e.g., supplier information and number of units sold in all orders for a given quarter.

The main uses of Views are collaboration, managing how table data is accessed, simplify extracting data, and creating an abstraction layer. These uses help protect underlying data sources from unintended alteration, limit access to confidential information, and reduce the effort needed to extract data from multiple tables. In addition, Views can help with application development through creating an abstraction layer that applications can leverage and can be adapted if there are changes to the underlying table.

## Views, Functions, and Stored Procedures

Like Views, Functions and Stored Procedures also offer SQL users ways to store Select statements. Each of these tools has additional unique strengths that make them more effective in some situations than others.

Functions in SQL are like functions in other programming languages; they received parameters, run a predefined set of code, and produce a value or set of results. The two key differences between Functions and Views are: 1) Functions accept parameters, meaning they will produce different outcomes based on user inputs; and 2) they can result is a single value or a table of values.

Stored Procedures are one or more SQL statements stored in a database. They can contain Select statements and other commands. Like Functions, Stored Procedure can accept parameters provided by the user that will impact the end results. A main difference between Stored Procedures and Views or Functions are that they are not limited to just Select statements.

## Summary

As discussed in the sections above, SQL offers several different tools to improve how users interact with table data with varying degrees of complexity. Views are the simplest of the tools; offering a way to limit table access or improve reporting effectiveness. Functions offer an alternative way to store Select statements and can accept parameters to alter outcomes. Stored Procedures also accept parameters and can include additional SQL statements beyond just Select Statements.

## References

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