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Foundations of Databases & SQL Programming

Assignment 06

<https://github.com/konorevalexey/DBFoundationsCourse>

# Assignment 06

## Introduction

In this module we got acquainted with Views, Functions and Stored Procedures, with more focus on the first. Views form so-called abstraction layer of the database. Views provide a consistent environment for developers and analyst who use the database, since View’s structure typically do not change whereas underlying table’s structure might change based on the needs.

## When I would use SQL view

It is good practice to use Views instead of tables in daily database operation for Selecting data. As I already mentioned above, the main advantage of Views is that their structure is kept unchanged even if underlying table schema got changed. View provides robustness in how database users interact with the database. Also, it is very handy to use Views as a security mechanism, i.e. to restrict access to certain sensitive tables or even table columns (horizontal partitioning) and table rows (vertical partitioning). Another advantage is that View can store pretty complex query inside, and it is also very handy not to store a complex SQL select statement in a side file (like I usually do).

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

View, Function and Stored Procedure can be used for Select statement execution, as shown in the lecture notes. They have slightly different syntax for declaring, as well as for execution : for View and Function you will have to use Select statement, whereas for procedure you will have to use “Execute”.

Here is a good summary of View vs Stored Procedure (<https://stackoverflow.com/questions/5194995/what-is-the-difference-between-a-stored-procedure-and-a-view>, 2021)

**A Stored Procedure**:

* Accepts parameters
* Can NOT be used as building block in a larger query
* Can contain several statements, loops, IF ELSE, etc.
* Can perform modifications to one or several tables
* Can NOT be used as the target of an INSERT, UPDATE or DELETE statement.

**A View:**

* Does NOT accept parameters
* Can be used as building block in a larger query
* Can contain only one single SELECT query
* Can NOT perform modifications to any table
* But can (sometimes) be used as the target of an INSERT, UPDATE or DELETE statement.

As for the functions, there are two types of UDFs – one which return a single value (scalar) and UDFs which return a table. Table type UDFs are very similar to Views in terms of usage. Functions DO accept parameters. Functions (scalars) can be applied to every row of the result set – which make them a very powerful tool for building more flexible queries in SQL.

## Summary

Views are common (and good) practice in databases. They provide robustness in the way users get the data from the database. Views encapsulate select statement and can be used as building blocks for another queries. We also considered differences and commonalities of Views, Stored Procedures and Functions – although may produce same result set, these three have slightly different application in practice.