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Course: Foundations of Databases and SQL Programming

Assignment: Assignment 6

GitHub Link: <https://github.com/sonakshiarya03/DBFoundations>

Views

# *Introduction*

In the assignment, we will be discussing when to use a SQL view and then we will discuss the differences between a View, Function and Stored Procedure.

# When would you use a SQL View

A SQL view can be used to store complex **SELECT** statements for easy re-usability. The code of a SQL view is stored in a database. At a high level, based on the usage scenario of views, there are two types of views:

1. **Reporting view**: Any view that is used to extract data for reporting purposes is called a “Reporting View”.
2. **Base or Basic view:** A base view is a view created on top of a table to show data from a table. Base views help in allowing read-only access to table data by providing un-restricted access to base view while restricting access to the table which the view uses.
   1. All reporting views should be made on top of base views to ensure that reporting views work well even if the table schema is changed.
   2. It is a good practice to use Schema bindings with base view. This helps prevent change to underlying table in a manner such that the view does not work anymore.

# Differences and Similarities between View, Function and Stored Procedure

Functions and views are quite similar and they both store SELECT statements. The difference arises by the fact that Functions allow for parameters. Here is an example of a parameterized function:

Create Function dbo.fProducts(@CategoryId int)

Returns Table

AS

Return(

Select ProductID, ProductName

From Northwind.dbo.Products

Where CategoryID = @CategoryId

);

go

Select \* From dbo.fProducts(**1**); -- 12 rows

go

A similar functionality can be achieved by using a WHERE clause with a view as well.

Difference between view and functions: A major difference between Views and Function is that unlike views, one can create functions to return a single scalar value as an expression. Such a function is called Scalar Function, and are very useful. Here is an example of a scalar function that multiplies two given values:

Create Function **dbo**.**MultiplyValues**(@Value1 Float, @Value2 Float)

Returns Float

As

Begin

Return(Select @Value1 \* @Value2);

End

go

-- Calling the function

Select Tempdb.**dbo**.**MultiplyValues**(4, 5);

go

**Stored Procedures:** Like a view or function, stored procedures are a named set of SQL Statements. Here is how one can create and execute a stored procedure:

-- Stored Procedure

Create **Procedure pProducts**()

AS

Select ProductID, ProductName, CategoryId, Discontinued

From Northwind.dbo.Products;

go

**Execute pProducts();**

Go

Differences: Unlike a view, stored procedures are not limited to SELECT statement and can use INSERT or DELETE statements as well and can modify tables. Also, unlike views or functions, a stored procedure cannot be used as a building block in a larger query.

# Summary

This document explains when one should use a view. It also discusses the differences and similarity between SQL Views, Function and Stored Procedure.