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Foundations of Databases & SQL Programming (IT FDN 130 A)

Assignment 06

# SQL Views, Functions, and Stored Procedures

## Introduction

This week, I built on my understanding of structured query language (SQL) by learning how SQL Views, Functions, and Stored Procedures work within a database. In this paper, I will explain when to use a SQL View as well as describe the key differences and similarities between a SQL View, Function, and Stored Procedure. I’ll incorporate a few examples to bring clarity to some of the concepts discussed.

When to use a SQL View

A SQL View is a virtual database table that is based on a predefined result set and can contain data from one or more tables. Similar to a real table in a database, a SQL View consists of rows and columns. Often times, a SQL View is created to save a complex SQL Select within a database file without having to rewrite the code each time you want to use it. A “Reporting View”, shown in Figure 1 below, is one way to deploy a SQL View in practice. This type of SQL View allows a database programmer to control user access to data within a database as well as share the result set with users less experienced in writing SQL statements.

Create

View vBicyclesByPrice

As

Select

c.Category

,p.BicycleName

,p.Price

From dbo.Categories as c

Inner Join dbo.Products as p

On c.CategoryID = p.CategoryID;

go

**Figure 1:** A SQL “Reporting” View is created in order to show a list of bicycle categories (e.g., Mountain Bicycle, Road Bicycle, etc.) and names of the bicycles, and the price of each bicycle.

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

Similar to a SQL View, both a SQL Function and SQL Stored Procedure can also be classified as a “named” set of SQL statements that exist within a database. All three promote code reusability for more advanced queries and as a result save time for a programmer. A SQL Function and Stored Procedure are similar because either one allows for the use of parameters to alter the results of a query. A SQL Function is different from a SQL View or Stored Procedure because it allows for SQL User Defined Functions to be created, which will return a single value as an expression, as shown in Figure 2.

-- Create the function

Create Function dbo.AddValues (@Value1 Float, @Value2 Float)

Returns Float

As

Begin

Return(Select @Value1 + @Value2);

End

go

-- Retrieve a single value after running the function

Select Bicycles.dbo.AddValues(99, 20);

go

**Figure 2:** A SQL User Defined Function is created and then executed to obtain a single value from an expression, which is to add @Value1 and @Value2 together.

## Summary

In conclusion, SQL Views, Functions, and Stored Procedures should be used by database programmers who are seeking to centralize and simplify frequently used code. Understanding the similarities and differences between all of the options is key for deploying them in the right situation.