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Foundations of Databases & SQL Programming

Assignment06

Views

Introduction

As you become more experienced with working with SQL, the SQL select statements you will write will become more complex. SQL allows the user to save your complex select statement using the view, function, or stored procedure commands into a database instead of a text file or word document. All three commands will be discussed by defining what action they perform and when to use each command in a scenario.

SQL Views

As a user, you may have several monthly reports you run each month where you will need to write the query repeatedly.

Instead of writing these queries again each month, the view command allows you to save the select statement and run the query each month.

In some instances, the select statement can become complex if you have joined several tables, used an alias, grouped data, etc. (See Figure 1)

```
Create
View vAuthorsByTitles
AS
Select
    [Title] = T.title
    ,[Author]= A.au_fname + ' ' + A.au_lname
    ,[Order On Title] = Choose(TA.au_ord, '1st', '2nd', '3rd')
From pubs.dbo.titles as T
Join pubs.dbo.titleauthor as TA
    On T.title_id = TA.title_id
Join pubs.dbo.authors as A
    On TA.au_id = A.au_id
```

Figure 1

This in turn changes your complex select statement into a simplified select statement that was saved in the database (See figure 2) (Figure 1 and 2 are from Module06Notes, Randal Root, University of Washington)

```
Select * from vAuthorsByTitles;
```



	Title	Author	Order On Title
1	The Busy Executive's Database Guide	Abraham Bennet	1st
2	Fifty Years in Buckingham Palace Kitchens	Reginald Blotchet-Halls	1st
3	But Is It User Friendly?	Cheryl Carson	1st
4	The Gourmet Microwave	Michel DeFrance	1st
5	Silicon Valley Gastronomic Treats	Innes del Castillo	1st
6	Secrets of Silicon Valley	Ann Dull	1st
7	The Busy Executive's Database Guide	Marjorie Green	2nd

Figure 2

Comparison of a View, Function, and Store Procedure

A view and function command works very similarly by displaying the save select statement extract the table that was created for the user to display.

They're a couple of differences between the view and function command. The first that comes to mind is that the function command can "return a table of values or a single value". (Creating Views Functions and Stored Procedures Part 3, Randal Root, August 10, 2020).

The function command also can use parameters to give a specific result. This means if needed I can filter my results for a specific category, time frame, etc. from my select statement.

Just like a view and function command a stored procedure is another way to save your query into your database.

The main difference with a stored procedure is the query needs to be executed, so your results will be displayed. The view and function commands pull the data from the table to be displayed using the select statement.

The final last difference would be how the query would be written; each command has its requirements on how the query must be written to display the necessary result from the user. Figure 3 shows how each command would be written and displays the same results.

```

-- View
Create View vProducts
AS
    Select ProductID, ProductName, CurrentPrice = UnitPrice, CategoryID, Discontinued
    From Northwind.dbo.Products;
go
Select * from vProducts; -- 77rows
Go

-- Function
Create Function dbo.fProducts()
Returns Table
AS
    Return(
        Select ProductID, ProductName, CategoryId, Discontinued
        From Northwind.dbo.Products
        );
go
Select * from dbo.fProducts(); -- 77rows
Go

-- Stored Procedure
Create Procedure pProducts()
AS
    Select ProductID, ProductName, CategoryId, Discontinued
    From Northwind.dbo.Products;
go
Execute pProducts(); -- 77rows
Go

```

	ProductID	ProductName	CategoryId	Discontinued
1	1	Chai	1	0
2	2	Chang	1	0
3	3	Aniseed Syrup	2	0
4	4	Chef Anton's Cajun Seasoning	2	0
5	5	Chef Anton's Gumbo Mix	2	1

Figure 3 (Module06Notes, Randal Root, University of Washington)

Summary

Overall, the view, function, and stored procedures command provide the user the ability to save their complex script, easily retrieve their script, remove the redundancy of writing the same script multiple times, and allow readers of the script to easily read what the data contains for analysis.