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IT FDN 130 A: Foundations Of Databases & SQL Programming

Assignment 06

Views

Introduction

This week, I learned how to **save** my Select statements **within a database's file as a SQL View, Function, or Stored Procedure**. And I also learned what are the differences and similarities between a View, Function, and Stored Procedure.

Topic 1: Explain when you would use a SQL View.

- An SQL view is called a virtual table because it does not store the rows and columns on the disk like a concrete table. Instead, it just contains the SQL query.
- From the Videos, I learned there are 2 scenarios to use a SQL View below:
  1. Scenario #1:

     When we have a long and complex query. To save time on retyping and running the query, we can store it in a view and simply run the SELECT statement on that view.
     - Simple Example – The basic syntax of Creating Views

       ```
       go
       Create View vCustomersByLocation
         As
           Select
            CustomerName = CompanyName
           ,City
           ,Region = IsNull(Region, Country)
           ,Country
           From Northwind.dbo.Customers;
       go
       Select * From vCustomersByLocation Order By CustomerName;
       ```
  2. Scenario #2:
     The access control to the data stored in the database is another reason why you should use SQL views. For example, we **set permissions, so that the public group CANNOT select data from each table but can select data from each view**.
     - Simple Example – The basic syntax of Grant/Deny Views
       ```
       Deny Select On dbo.Categories to Public;
       Grant Select On dbo.vCategories to Public;
       ```
- We can use view to save time and effort and to avoid any side effects of database administrative tasks.
  (Above Reference What is an SQL View? | LearnSQL.com),2020

Topic 2: Explain the differences and similarities between a View, Function, and Stored Procedure.

- Similarities: From Module 6, we learned SQL Views and Functions are "Named" <u>Select</u> statements whose **code is stored in a database**. Stored Procedures are similar, but they are <u>not</u> <u>restricted to just Select</u> statements.

  - ➢ Simple Example – Creating Views, Functions, and Stored Procedures are all similar, as shown in these three examples:

    - Views   - Functions

```
go
Create View vCustomersByLocation
 As
    Select
    CustomerName = CompanyName
    ,City
    ,Region = IsNull(Region, Country)
    ,Country
    From Northwind.dbo.Customers;
go
Select * From vCustomersByLocation Order By CustomerName;
```

```
go
Create or Alter Function dbo.fCustomersByLocation()
 Returns Table
 As
    Return(
    Select
    CustomerName = CompanyName
    ,City
    ,Region = IsNull(Region, Country)
    ,Country
    From Northwind.dbo.Customers
    );
go
Select * From dbo.fCustomersByLocation() Order By CustomerName;
```

    - Stored Procedures   - We get same read back table as below

```
go
Create or Alter Procedure pCustomersByLocation
 As
    Select
    CustomerName = CompanyName
    ,City
    ,Region = IsNull(Region, Country)
    ,Country
    From Northwind.dbo.Customers
    Order By CustomerName;
go
Exec pCustomersByLocation;
```

	CustomerName	City	Region	Country
1	Alfreds Futterkiste	Berlin	Germany	Germany
2	Ana Trujillo Emparedados y helados	México D.F.	Mexico	Mexico
3	Antonio Moreno Taquería	México D.F.	Mexico	Mexico
4	Around the Horn	London	UK	UK
5	Berglunds snabbköp	Luleå	Sweden	Sweden
6	Blauer See Delikatessen	Mannheim	Germany	Germany
7	Blondesddsl père et fils	Strasbourg	France	France
8	Bólido Comidas preparadas	Madrid	Spain	Spain
9	Bon app'	Marseille	France	France
10	Bottom-Dollar Markets	Tsawassen	BC	Canada

- Differences:

  You cannot pass parameters to the view. Unlike views, functions can use parameters to change the results of the query as it is executed, and you can also create UDFs (User Defined Functions) to return a single (scalar) value as an expression.

- With Stored Procedure, we execute the code, not selecting from it, like it was a table. We cannot select from the Stored Procedure, but we can have many statements in the Stored Procedure, and we can even create a table in the Stored Procedure.

Summary

When I first learned and watched the Transaction Statement (videos), it was confusing for me to understand the differences between View, Function, and Stored Procedure. However, after doing a few research, I realized their differences. I would expect to learn more about them in the coming learnings.