

Julia Nagle

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Foundations of Databases & SQL Programming

Assignment 06

<https://github.com/jcnagle/DBFoundations>

Views

Introduction

In this module we learned about Views, Functions, and Stored Procedures. They are very similar to each other but have some important differences. Generally, they are all some version of saved Select statements, although Stored Procedures can also use Insert, Update and Delete functions. One of the main purposes of using any of these is simply to be able to easily use code that may have taken significant time to write and to have it in a convenient place to use over and over.

When to Use a View

The most common use of a View is probably just when you want to save a rather complex query that will be used frequently, and you don't want to keep rewriting the code. For example, if you have a complicated select statement that you often use that joins multiple tables, it's a great reason to use a view – it makes your work a lot easier, and you can use the View as a sort of virtual table that you wish existed (but doesn't because it wouldn't have been good table design).

Views can also be used as a sort of protection for the table as well – you can do a basic view of the entire table, and by including the Schema binding option in your View, you can protect the table from users who may not know what they're doing from changing things that will break the View, yet still allowing them to view the information they need in the table.

```
GO
CREATE VIEW vProducts
WITH SCHEMABINDING
AS
SELECT ProductID, ProductName, CategoryID, UnitPrice
FROM dbo.Products;
GO
```

Figure 1: Creating a Basic table View with Schema Binding.

A View is also a good way to hide certain parts of a table from some users – if you have information that shouldn't be seen by some users, you can simply omit those columns from your View, and set the permissions so that they can only use that View, not the table itself, and they won't be able to see those parts of the table that are restricted.

Views, Functions and Stored Procedures – Differences and Similarities

In the most basic sense, Views, Functions and Stored Procedures are all just saved SQL scripts that you want to be able to use and reuse, and most likely also share with other people. One convenient aspect of Views, Functions and Stored Procedures is that they are stored with the database itself, so they can be easily found and shared.

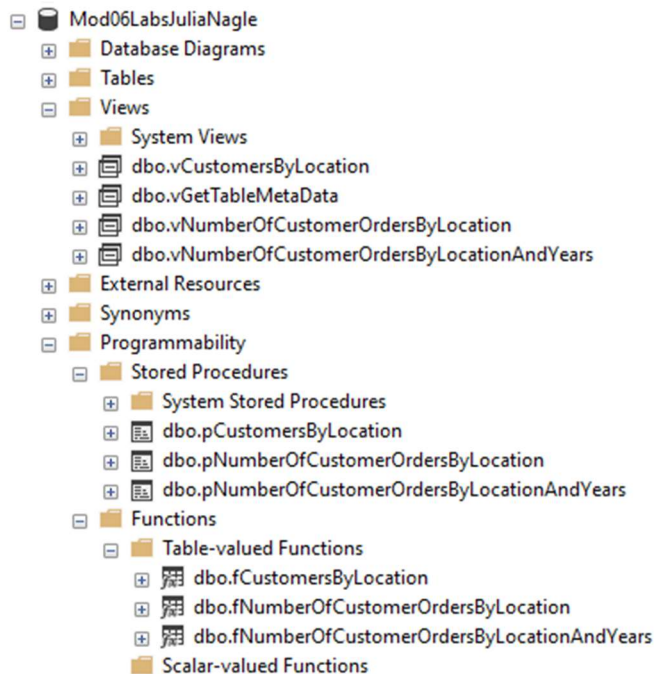


Figure 2: Views, Functions and Stored Procedures are kept with the Database they belong to.

Views are much like virtual tables – they are stored Select statements that combine to make a new “table” that can be accessed similarly to how a table can. They are the most limited of the three in function, but extremely useful for combining data from different tables and creating reports. Functions and Stored Procedures can take a parameter (if created to accept one) – so you can pass a value to the function or procedure, and this can make it more useful so that you don’t have a hard-coded parameter/value in the script itself. Stored Procedures also have an advantage over Functions and Views which is that they can modify tables with Insert, Update and Delete statements if needed – so they are a much more powerful type of saved script than a View or Function.

Summary

Views, Functions and Stored Procedures are all similar types of stored SQL scripts that can be used to access the data in your database without rewriting code every time you want to do it. Views are Select statements, but Functions and Stored Procedures can take parameters. Stored Procedures are the most flexible since they can actually modify data in tables with Insert, Update, and Delete statements.