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Foundations Of Databases & SQL Programming

Assignment 06

<https://github.com/jdbriggs3/DBFoundations>

Views, Functions, and Stored Procedures

Introduction

Module06 introduced reusable methods to save SQL statements in database files: Views, Functions, and Stored Procedures. To understand them in SQL I looked up the general definition of each word in Dictionary.com. The dictionary gives lists of definitions, sometimes according to differing contexts and sometimes to give further nuance. Not surprisingly the general definition of each word gives insight into its purpose in SQL.

Views

According to Dictionary.com the definition of view includes: the act of seeing or observing something, the range or scope of what can be seen, a particular manner or perspective of looking at something, and a sight afforded from a specific position. In SQL a view is a saved query that displays data from tables. Like its general definition a SQL view provides a particular manner of looking at data, it offers a specific perspective or subset of information from underlying tables. It is important to note a view does not store data. Instead, it dynamically draws from tables when the query/view is run. Additionally, a view can provide security by limiting access to specific rows or columns of data. Below is an example from Assignment06 along with a portion of its corresponding output. (Figure 1) The view created, vProductsByCategories provides a view of columns from the two views vProducts and vCategories created from tables Products and Categories.

GO
CREATE OR ALTER
VIEW vProductsByCategories
AS
SELECT TOP 1000000
vC.CategoryName,
vP.ProductName,
vP.UnitPrice
FROM vCategories as vC
INNER JOIN vProducts as vP
ON vC.CategoryID = vP.CategoryID
ORDER BY vC.CategoryName, vP.ProductName;
GO
Select * From [dbo].[vProductsByCategories]
GO

Columns

Views of Tables

	CategoryName	ProductName	UnitPrice
1	Beverages	Chai	18.00
2	Beverages	Chang	19.00
3	Beverages	Chartreuse verte	18.00
4	Beverages	Côte de Blaye	263.50
5	Beverages	Guaraná Fantástica	4.50
6	Beverages	Ipoh Coffee	46.00
7	Beverages	Lakkalikööri	18.00
8	Beverages	Laughing Lumberjack Lager	14.00
9	Beverages	Outback Lager	15.00
10	Beverages	Röhnbräu Klosterbier	7.75
11	Beverages	Sasquatch Ale	14.00
12	Beverages	Steeleye Stout	18.00
13	Condiments	Aniseed Syrup	10.00
14	Condiments	Chef Anton's Cajun Seasoning	22.00
15	Condiments	Chef Anton's Gumbo Mix	21.35
16	Condiments	Genen Shouyu	15.50
17	Condiments	Grandma's Bourbonberry Syrup	16.00

Figure 1: VIEW

Functions

The general definition of function according to Dictionary.com is the specific action, activity or purpose for which something is designed. In mathematics a function also describes how one thing depends on another, for example time traveled is a function of distance and speed. SQL includes built in functions that perform specific tasks and has the flexibility of user defined functions. A few built-in functions we have discussed in class include Count(), Max(), and Min(). A user defined function may return a single value or a table of values, depending on its design and purpose.

Stored Procedures

The general definition of store according to Dictionary.com is a place to stock or save something to use in the future while procedure describes a particular course of action and an act of proceeding in any action or process. In SQL a stored procedure is a collection of SQL statements stored for future use. Stored Procedures may contain both SELECT statements and other SQL operations such as INSERT, UPDATE, and DELETE commands.

Similarities and Differences

Views, Functions and Stored Procedures all allow complex queries to be saved and reused without rewriting the code each time, and each serve distinct purposes much like their dictionary definitions suggest. Views offer a window into the data, providing a specific perspective or inspection of information. Views are read only and use SELECT commands to display data. Functions perform their defined purpose of computing and returning values based on given inputs, also using SELECT commands to retrieve data for calculations. Stored Procedures can perform multiple database operations modifying data by using SELECT, INSERT, UPDATE, and DELETE commands.

Conclusion

Module06 introduced reusable methods to save SQL statements in database files: Views, Functions, and Stored Procedures. Each tool serves specific purposes as their general definitions suggest, and each provides efficient methods to reuse code.