Name: Rachel Foote
Date: 5/24/23
Course: IT FDN 130
GitHubURL: https://github.com/RFoote42/DBFoundations

Assignment 06
Views, Functions & Stored Procedures

Introduction

Views, Functions, and Stored Procedures in SQL are similar but do have distinct usages. Views are frequently used as an abstraction layer. It is a best practice is to create a view for every table in a database which can then be queried in the place of a source table. While similar, functions evaluate an expression while stored procedures are flexible and can store many different statements.

Views in SQL

In SQL, a view is a dynamic way to store and access information. Generally, a view contains a select statement and returns a table (although views are not restricted to select statements). Views allow users to query this virtual table rather than the source table itself. This can be helpful when access to certain information needs to remain private. Access to a source table can be locked down while a modified view with public information and more general access can be created. This abstraction layer also allows for easier updates to source tables as the views users query can remain static while the fields in tables they have drawn data from can be edited. Finally, a view can hold different types of field organization and joins (among others) rather requiring the creation of a new table in the database.

Views, Functions, and Stored Procedures

Views, Functions, and Stored Procedures are very similar in SQL. They are named code which allows for more flexibility in database design and easier retrieval of different types of information stored in a relational database.

Functions

Unlike views, functions are not limited to returning a table. While a function could return a table, it could also return a single value. When coding, the return statement is used rather than the select statement. This is because, primarily, a function is evaluating an expression rather than selecting data. That evaluation could return a table, but could also return a date or a numerical value.

Stored Procedures

Stored procedures are code that must be executed (rather than returned as with functions or selected with views).   There can be a large number of statements and code with a stored procedure which makes it useful for complex, regular reporting. Stored Procedures cannot be selected from which differs from functions and views.

Summary

Views, Functions, and Stored Procedures have somewhat similar roles in SQL. They are named code that allows for ease of access for data retrieval and reporting. They do differ in key ways including the statements used (such as return for functions and execute for stored procedures) and in their uses. Views are frequently used and provide a key abstraction layer that can be regularly queried in the place of the database's tables while functions have the ability to return a value rather than a table and stored procedures can execute a large number of complex statements.