Clarisse Benson
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Assignment 6 – Views

Introduction

In SQL, there are several constructs that serve different purposes to enhance data management and query operations. Three such constructs are SQL views, functions, and stored procedures. This document aims to explain when and why you would use a SQL view and highlight the differences and similarities between views, functions, and stored procedures.

When to Use a SQL View

A SQL view is a virtual table derived from the result of a SQL query. It does not store any data on its own but rather represents a saved query that can be referenced and used like a table. Here are some scenarios when using a SQL view is beneficial:

1. Data Abstraction: Views provide a way to abstract complex queries or joins into a more manageable and readable format. By creating a view, you can encapsulate the underlying complexity and present a simplified and focused interface to the users.

2. Security: Views can act as a security mechanism by restricting access to sensitive data. Instead of granting direct access to the base tables, you can grant access only to specific views that expose a subset of the data, hiding sensitive columns or rows.

3. Reusing Queries: When you have frequently used or complex queries, creating a view allows you to define the query once and reuse it multiple times without rewriting the entire query every time. This promotes code reusability and simplifies maintenance.

Views, Functions, and Stored Procedures

Views: Views are virtual tables derived from a SQL query. They provide a way to simplify complex queries, enhance security, and improve reusability and performance. However, views are read-only, meaning you cannot directly modify the underlying base tables through a view.

Functions: Functions are reusable code blocks that accept parameters, perform calculations or operations, and return a single value. Unlike views, functions can be included within a SQL statement, and their results can be used as part of an expression. Functions are commonly used for calculations, data transformations, and manipulating individual data rows.

Stored Procedures: A stored procedure is a named collection of SQL statements that are stored in the database for later use. Unlike views and functions, stored procedures are named

collections of SQL statements that can include control flow logic, accept input parameters, modify data, and return multiple result sets.

Summary

In summary, SQL views are useful when you want to simplify complex queries, enhance security, improve reusability, or optimize performance. They act as virtual tables derived from SQL queries.