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Foundations Of Databases & SQL Programming

Assignment 06

https://github.com/patanomai/DBFoundations

Understanding SQL Views, Functions, and Stored Procedures

Introduction

This paper explores when to use SQL views, the differences and similarities among Views, Functions and Stored Procedures.

When to Use a SQL View

"SQL views can be used to simplify the process of accessing and analyzing data stored in a database. An SQL view is a virtual table derived from one or more existing database tables created based on a specific SQL query. In simple terms, an SQL view is a stored query that creates a virtual table consisting of rows and columns when executed. Using SQL views, you can store SQL queries as templates and retrieve data from different tables as if coming from a single table." (dbvis.com, https://www.dbvis.com/thetable/sql-views-a-comprehensive-guide/, 2025) (External Site)

For example, you might create an employee directory view that shows only names, departments, and phone numbers—while hiding personal details like salaries or home addresses. This lets you share public-facing data securely and efficiently.

Differences and similarities between a View, Function, and Stored Procedure

Differences

- View: A virtual table based on a SQL query, used to simplify complex queries and restrict access to specific columns. It does not store data and can be used directly in a select statement.
- Function: Performs a calculation or operation and returns a value. It accepts parameters, is often used inside select, where, or join clauses, and cannot modify data.

- Stored Procedure: A block of SQL code that performs one or more actions. It accepts parameters, can modify data, and is executed using Exec or Call. It may include control flow logic such as IF, WHILE, and error handling.

Similarities

- All three encapsulate SQL code that can be reused across multiple queries —reducing duplication and improving maintainability.
- Once created, they're stored in the database schema and can be referenced by name.
- Permissions can be set on Views, Functions, and Stored Procedures to control who can execute or access them.
- They help abstract complex logic or calculations, making queries cleaner and easier to understand

These distinctions and commonalities are clarified with support from Microsoft Copilot (2025).

Summary

SQL views, functions, and stored procedures simplify complex tasks. Views display data, functions compute values, and stored procedures handle logic. Together, they reduce repetition, improve efficiency, and make database operations easier to manage.