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IT Foundations of Database Management

Assignment 06

GitHub: <https://github.com/jasonverberne/DBFoundations>

SQL VIEWS, FUNCTIONS, AND STORED PROCEDURES

INTRODUCTION

This paper will explain when to use a SQL View and the differences and similarities between a View, Function, and Stored Procedure.

SQL VIEWS – WHEN TO USE

SQL Views are virtual tables in a database that provide a way to encapsulate complex queries, simplify data access, and enhance security. Programmers may want to use SQL Views to:

- **Simplifying Complex Queries:** If a programmer has a complex query involving multiple joins, subqueries, and calculations, creating a view can simplify data retrieval for users. They can query the view as if it were a simple table.
- **Data Abstraction:** Views can provide a level of abstraction by presenting a consistent interface to the underlying data. This allows changes to the underlying schema without affecting the applications that rely on the view.
- **Enhanced Security:** By creating views, you can restrict user access to specific columns or rows of data. Users can be granted access to the view without having direct access to the underlying tables, enhancing data security.
- **Reusable Code:** Views enable the reuse of complex SQL queries. Instead of rewriting the same query multiple times, you can create a view and use it wherever needed.
- **Data Integrity:** Views can help maintain data integrity by hiding columns with sensitive information and exposing only the necessary data to the end-users.

SQL VIEW, FUNCTION, AND STORED PROCEDURE COMPARISON

SQL views, functions, and stored procedures are all database objects that encapsulate SQL logic, but they serve different purposes. Views are virtual tables based on SQL queries, used for presenting data without storing it physically. Functions are compiled SQL statements that accept parameters and return a value, often used for calculations or enforcing business rules; they can't modify the database state. Stored procedures are sets of SQL statements that can accept parameters, perform any database operation (including modifying data), and return multiple result sets or output parameters. While views are primarily for read-only data presentation, functions for returning specific values, and stored procedures for complex operations, all three enhance security and performance by encapsulating logic and limiting direct access to underlying tables.

SUMMARY

This paper explained when to use a SQL View and the differences and similarities between a View, Function, and Stored Procedure.