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Assignment 06

GitHub repository : https://github.com/erictran03/DBFoundations

Understanding SQL Views

Introduction

In Assignment 06, I explored SQL Views, a powerful feature that allows for the creation of virtual tables based on the results of a query. Views are useful for simplifying complex queries, improving security by restricting access to certain columns, and enhancing database performance by precomputing commonly used queries. This assignment required reading about views, implementing them in a database, and answering specific business-related questions using SQL queries.

When to Use a SQL View

A SQL View is used when we need to simplify complex queries by abstracting underlying table structures. Views help in data security by allowing access to only specific columns or filtered data while preventing direct modification of the underlying tables. Additionally, they enhance maintainability, as modifications to query logic can be applied within the view without altering dependent applications or reports. For instance, in a business setting, a view could be created to display only active customers without exposing sensitive details such as payment information.

Differences and Similarities Between a View, Function, and Stored Procedure

While Views, Functions, and Stored Procedures all contribute to improving database efficiency, they have key differences:

- **View:** A View is a virtual table that represents the result of a SQL query. It does not store data but allows querying like a table. Views are typically used for simplifying queries and enforcing security.
- **Function:** A Function is a reusable SQL block that returns a single value or table. Functions allow for computations and logic to be applied within queries, similar to mathematical or string manipulation functions.
- **Stored Procedure:** A Stored Procedure is a collection of SQL statements that can execute logic, return multiple results, and modify data. Unlike views, stored procedures support input/output parameters and control structures like loops and conditions.

Similarities include their ability to encapsulate query logic and improve reusability. However, Views are static representations, while Functions and Stored Procedures allow for dynamic execution of logic.

Summary

This assignment enhanced my understanding of SQL Views and their role in database management. Views offer advantages in terms of abstraction, security, and efficiency, making them a valuable tool for organizing and presenting data. Additionally, understanding the differences between Views, Functions, and Stored Procedures helped clarify their appropriate use cases in database applications. Overall, learning how to create and use views has strengthened my ability to manage data more effectively in SQL-based systems.