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Course: Foundations of Databases and SQL Programming

SQL Views

Introduction

Creating SQL Views, functions, and stored procedures are necessary for a database administrator to establish after building tables within the database structure itself. SQL Views allows anyone with access to the database to review Tables and Queries within the database itself using predefined Queries and easy to understand View names created by the administrator without compromising the tables they are querying.

Explain when you would use a SQL View

A SQL view, at its core, is a Query developed by a database administrator which creates a new table, or “view”, without risking the integrity of the data from the original table or tables being queried. This also allows the administrator to protect the original tables from being altered by anyone with access to the database while still granting the user access to complex queries which are embedded within the view itself. It is essentially a virtual table which does not have any effect on the original table or tables it is querying. A view also allows the administrator to simplify the tables and makes it easier for any user with access to the database to easily utilize the predetermined queries without creating a new query themselves. They add that much needed layer of security to the database by ensuring users can still access and review the tables and data within without endangering the original tables or datasets.

Explain the differences and similarities between a View, Function, and Stored Procedure

Views and Functions share numerous similarities in their structure and how they are utilized within a database. Functions can be created in a similar fashion as a view in that they can return the specified columns and rows from any table that is specified within the function itself. However, one of the key differences between a view and a function is that functions can use various parameters which allow the administrator to perform complex calculations or implement logic into the function being created. An administrator is also able to create Scalar Functions in a database which will return data with a single scalar value. Functions tend to be extremely complex while still providing the same basic concepts of a view, so it is recommended to use views when possible. Finally, Stored Procedures share a lot of the benefits of both views and functions in that the administrator can create complex SQL codes or queries embedded within the stored procedure itself while branding it with a name which makes it easier to access and utilize when using the same set of codes repeatedly within the database itself. Stored Procedures essentially automate complex queries for the administrator and make it easier to replicate code for reusability throughout the database itself. All the administrator or user must do is enter the name given to the procedure by the administrator in order to execute the query or SQL codes defined within the procedure to execute the code itself without having to write the code out repetitively.

Conclusion

Views, Functions, and Stored Procedures truly make life easier for not only the database administrator themselves, but for any user accessing the database. As discussed in this paper; by utilizing views and functions the administrator can create virtual tables created by complex queries of one or more tables without giving other users direct access to the original data itself, adding an extra layer of security to the database and ensuring the data therein retains its integrity and cannot be compromised. Similarly, by creating stored procedures the administrator can establish a system where they will not need to repeatedly type out complex codes or queries and can instead create multiple SPs which can be reused within the database itself as many times as needed. All 3 aspects of SQL are absolutely necessary for establishing data integrity, creating additional layers of security to the original data, and simplifying the database itself for both the administrator and any user with access to the database.