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**Assignment06**

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**Introduction**

In SQL, views are virtual tables that can be a great way to optimize our database experience. Not only are views good for defining a table without using extra storage, but they also accelerate data analysis and can provide your data extra security. A view contains the latest result of the table. It lists rows and fields from one or more tables in the database. We can add SQL statements and functions to a view just like in a real table in order to manipulate data.

1. Explain when you would use a SQL View.

Views can be deployed to achieve benefits not present with tables.

* Simplicity - Views can be used to hide and reuse complex queries. It provides a way to manipulate and present data without perturbing the content in the table.
* Security - Views can be made accessible to users while the underlying tables are not directly accessible. This allows administrators to give users only the data they need, while protecting other data in the same table. This is achieved by granting and denying access to specific group of users.
* Views can separate or join data from one or multiple tables. They can also act as aggregate tables to calculate result as part of the data (sum, average, etc).
* Views take up less memory to store comparing to tables.

Ultimately, views are abstraction layer. It provides a good interface between the table content and user application. Users use views for simplicity and security. It allows users to structure and tailor data output without perturbing table content.

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

View, Function, and Stored Procedure are all abstraction layers to simplify data manipulation and provide an interface for users to quickly and safely abstract data without perturbing table contents. They achieve similar function if structured properly.

A view is an output of a query. It is a virtual image of the table with the latest content. A function is a group of executed statements that can return a table or value. Similar to Function, a Stored Procedure is a group of SQL statements that are pre-executed and it accepts parameters. Key difference is that a view can only show the current data on the table. It allows users to manipulate and to the way they want to present them, but does not allow them to alter data. A Stored Procedure and function allows users to alter data by accepting parameters. One can interpret a view as a virtual table, and a Stored Procedure as an encapsulation of logic that can be called from an application.

Most simply, a view is used when only a SELECT statement is needed. Views should be used to store commonly-used JOIN queries and specific columns to build virtual tables of an exact set of data we want to see. Stored procedures hold the more complex logic, such as INSERT, DELETE, and UPDATE statements to automate large SQL workflows.

There are studies that show that, contrary to public opinion, the performance of Views and Stored Procedures are almost identical. Scholars found they achieve the same purpose with almost the same processing time even though they are completely different objects. It is up to personal preference and application to choose which one to use.