Name: Jennifer Tarrach
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Assignment #6 - SQL Views and Abstraction Layers

1. Explain when you would use a SQL View.

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

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Introduction

Abstraction layers are used in database design to efficiently call up information. There are three types of abstraction layers: Views, Functions, and Stored Procedures. All three of these database objects are saved SELECT statements, and they serve slightly different functions.

Using SQL Views

Views are a commonly used abstraction layer in SQL databases. Views are virtual tables which allow for a subset of the columns in one or more tables to be presented rather than an entire table. This can enhance user experience, and provide administrators a way to control what individual users or groups of users can see. Views bring back columns from multiple tables in one object, which means developers don't have to recreate the joins every time they need to write a query. Views also allow for changes to happen in the underlying tables while maintaining a consistent structure for users or an application.

View, Function and Stored Procedures

Views, functions and stored procedures are all SELECT statements that are saved in the databases. They act as an abstraction layer in the database, which enables users to access the information in the database, without touching the underlying structure of the table.

- Views are also called virtual tables. They are tables that provide information from one or more tables in the database.
- Functions can return a table of values, like views, but can also bring back a singular value. Functions can also use parameters to change the results of the table.
- Stored Procedures are a named set of SQL Statements. Stored Procedures allows for a series of steps that are frequently run together to be combined and run in one step.

Summary

Abstraction Layers are useful tools in database design. They allow administrators to control access, simplify outputs and protect underlying data. All three types of abstraction layers have similarities, but each has its own structure and serves a different purpose. Using abstraction layers will help a database with continuity, flexibility and ease of use.