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Course: IT FDN 130A Foundations of Databases and SQL Programming

Assignment 06 - Views, Functions and STored Procedures

Introduction

In this module, I explored advanced techniques in SQL for managing and organizing complex queries using Views, Functions, and Stored Procedures. These tools help improve code reusability, simplify data access, and support abstraction by encapsulating logic within named objects in a database.

1. Explain when you would use a SQL View.

A SQL View is used when there is a need to simplify complex SELECT statements, enforce abstraction, or restrict access to underlying tables. Views are especially useful for reporting and application layers where developers or users do not need to interact directly with base tables. For example, if we need to present customer names and order history frequently in multiple queries, creating a view encapsulating this logic helps maintain consistency and reuse. Views can also improve security by limiting access to sensitive columns and protecting the base tables from direct modification when permissions are configured appropriately.

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

Views, Functions, and Stored Procedures are all named SQL objects used to encapsulate reusable logic, but they differ in capabilities and use cases. A View is a virtual table based on a SELECT query, typically used for abstraction and reporting. It cannot accept parameters and is mainly used to simplify data retrieval. A Function, particularly a table-valued or scalar function, allows parameter input and returns a value or table. Functions are useful when query results need to vary based on input. Stored Procedures are the most flexible—they can include multiple SQL statements, support parameters, and even perform control-of-flow logic (like IF, WHILE). They are often used for data modification, transaction control, and batch processing. All three provide a layer of abstraction and help in organizing SQL code, but only stored procedures can execute multiple operations, making them ideal for more complex tasks.

Summary

I gained practical knowledge of how to use views, functions, and stored procedures to simplify and manage SQL code efficiently. I learned that views are best suited for abstraction and read-only scenarios, functions are excellent for reusable computations with parameters,

and stored procedures provide full programmability. These tools are essential for developing scalable, maintainable, and secure database systems in professional environments.