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IT FDN 130 A Au 23: Foundations Of Databases & SQL Programming

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Assignment 06

GitHub URL: [PadmaBham/DBFoundations: SQL scripts from Assignments posted here \(github.com\)](#)

VIEWS

Introduction

For our lesson 06, we learnt about **Views** in detail. When a SQL query becomes complex and has repeated use, we can store it in a text file as a SQL script or within a SQL database as a SQL **View**, **Function** or a **Stored Procedure**. In this module, we learnt to create and use these tools. We learned that *Views* cannot have the ORDER BY clause and how to 'trick the system' to allow us to use this clause. We learned how to create Reporting views and to apply **Schema Binding** to take care of not orphaning *Views* due to development activities on the original table(s).

We then learnt to write *Functions*, *Functions* with parameters, *Scalar functions* and finally *Stored Procedures*.

The 3 Labs helped us to practice the same!

The topics for this assignment's write-up are as follows –

Explain when you would use a SQL View

(Information picked from Bing AI, W3Schools)

A View is a **virtual table based on the result-set of an SQL statement**. A view contains rows and columns, just like a real table, but it does not hold the actual data. A view stores a SQL query that is executed whenever you refer to the view. You can use views to perform complex operations, such as selecting data from multiple tables or applying filters and functions, and to present the data as if it were coming from one single table.

SQL *Views* are virtual tables that are created by a query. They can be used to simplify complex queries, provide a backward compatible interface to emulate a table that used to exist but whose schema has changed, and improve performance when copying data to and from SQL Server. *Views* can also be used to simplify a complex table structure, simplify your security model by allowing you to filter sensitive data and assign permissions in a simpler fashion, and allow you to change the logic and behavior without changing the output structure (the output remains the same, but the underlying SELECT could change significantly).

Views can be used to ensure that users only have access to a set of records - for instance, a view of the tables for a particular client and no security rights on the tables can mean that the users for that client can only ever see the data for that client.

In summary, SQL *Views* can be used to simplify complex queries, provide a backward compatible interface, improve performance, simplify table structure, simplify security model, and limit or restrict data access.

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

(Quoted from Bing AI)

Views, functions and **stored procedures** are all database objects that can be used to manipulate data in a database.

Here are some differences and similarities between them:

- **Views** are virtual tables that are created by a query joining one or more tables. Views can be used to simplify queries and provide a logical representation of data. They are read-only and do not store data themselves. Views can be used to restrict access to sensitive data by allowing users to access only the data they need
- **Functions** are database objects that can be used to encapsulate complex database logic and provide a simple interface for users to interact with the database. Functions can return a single value or a table of values. They can be used in queries, stored procedures, and other functions.
- **Stored procedures** are precompiled SQL statements that can be executed on demand. Stored procedures can be used to encapsulate complex database logic and provide a simple interface for users to interact with the database. Stored procedures can return values, but they are primarily used to modify data in the database.

Here are some similarities between them:

- All three can be used to encapsulate complex database logic and provide a simple interface for users to interact with the database.
- All three can be used to restrict access to sensitive data by allowing users to access only the data they need.
- All three can be used in queries, stored procedures, and other functions.

In summary, views are used to simplify queries and provide a logical representation of data, functions are used to encapsulate complex database logic and provide a simple interface for users to interact with the database, and stored procedures are used to modify data in the database

Assignment 06

In this assignment, we were asked to create BASIC views, apply SCHEMA BINDING to avoid orphaning Views, to use Views, to grant access to Views and deny (restrict) access to tables, and to use the trick that allows us to use the ORDER BY clause in Views.

Summary

In Lesson 06 of the course, we learnt about **Views** in detail, including the challenges faced if we want to use the ORDER BY clause. We also learnt to write queries for reporting, how to apply SCHEMA BINDING to 'protect' View from getting 'orphaned', and to write a SQL **BASIC View, Function, Functions with parameters, Scalar functions** and **Stored Procedures**. We practiced these in labs. And in Assignment 06, we wrote queries using Views.