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IT Foundations of Database Management

Assignment 06

GitHub: <https://github.com/jasonverberne/DBFoundations>

## SQL VIEWS, FUNCTIONS, AND STORED PROCEDURES

### INTRODUCTION

This paper will explain when to use a SQL View and the differences and similarities between a View, Function, and Stored Procedure.

### SQL VIEWS – WHEN TO USE

SQL Views provide a way to display complex queries, simplify data access, and enhance security. Programmers may want to use SQL Views for a variety of reasons, including:

- Simplify Complexity: If a programmer has a complex query involving multiple joins, subqueries, and calculations, creating a view can simplify data retrieval for users. The user can query the view as if it were a table.
- Data Abstraction: Views can provide a level of abstraction by presenting a consistent interface to needed data. Changes can be made to the underlying tables without affecting the information accessed through the view.
- Data Security: By creating views, the programmer can restrict user access to specific tables, columns of data, or rows of data. Users can be granted access to the view without having direct access to the underlying tables.
- Reusable Code: Views enable the reuse of complex SQL queries. Instead of rewriting the same query multiple times, you can create a view and use it wherever needed.
- Data Integrity: Views can help maintain data integrity by hiding columns with sensitive information and exposing only the necessary data to the end-users.

### SQL VIEW, FUNCTION, AND STORED PROCEDURE COMPARISON

SQL views, functions, and stored procedures are all database objects that encapsulate SQL logic, but they serve different purposes. “[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. The fields in a view are fields from one or more real tables in the database.” (SQL Views, W3Schools, [https://www.w3schools.com/SQL/sql\\_view.asp](https://www.w3schools.com/SQL/sql_view.asp)) SQL functions are, “accepts parameters [and] performs an action such as a complex calculation, and returns the result of that action as a value. (Create Functions (Transact-SQL), Learn Microsoft, <https://learn.microsoft.com/en-us/sql/t-sql/statements/create-function-transact-sql?view=sql-server-ver16>) Functions are compiled SQL statements that accept parameters and return a value, often used for calculations or enforcing business rules. “A stored procedure is a prepared SQL code that you can

save, so the code can be reused over and over again. So if you have an SQL query that you write over and over again, save it as a stored procedure, and then just call it to execute it.” (SQL Stored Procedures for SQL Server, W3Schools, [https://www.w3schools.com/SQL/sql\\_stored\\_procedures.asp](https://www.w3schools.com/SQL/sql_stored_procedures.asp)) Stored procedures are sets of SQL statements that can accept parameters, perform any database operation (including modifying data), and return multiple result sets or output parameters. While views are primarily for read-only data presentation, functions for returning specific values, and stored procedures for complex operations, all three enhance security and performance by encapsulating logic and limiting direct access to underlying tables.

#### SUMMARY

This paper explained when to use a SQL View and the differences and similarities between a View, Function, and Stored Procedure.