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Foundations of Databases and SQL Programming

Assignment 05

Module 06: Views, Functions, & Stored Procedures

**Introduction**   
This week’s topics are Views, Functions, and Stored Procedures. I will answer the following questions:

* Explain when should a SQL View be used?
* What are the differences and similarities between a View, Function, and Stored Procedure?

In addition, this week’s process includes posting deliverables to GitHub.

**When to use a SQL View**

A View is used when users

* should have access only to the data they are authorized to see, not the entire base table.
* want a streamlined or simplified query such as SELECT \* FROM vView instead of a complex query joining multiple tables
* want a personalized view of the database in a way that makes sense to them
* want a consistent, unchanged presentation of the database structure even if the underlying tables are changed

Views may not be a good choice if performance must be maximized…views degrade system performance because of the extra step of translating queries of the view into the underlying source tables. The cost in performance grows with the complexity of the queries.

[Which-of-the-following-is-an-advantage-of-view?](https://testbook.com/question-answer/which-of-the-following-is-an-advantage-of-view-in--602cfcc6c3fa81c6f550fd9e) Testbook.com

**Differences & similarities: Views, Functions, & Stored Procedures**

* A View is one or more saved SELECT statements
* A Function includes the capability of a View, adds the ability to accept parameters and can return a single, scalar value or a table of values. A function is compiled each time it is called
* A Stored Function is a precompiled set of one or more SQL statements and executed on the server side. Results are returned to the client.   
  [Different Types of stored procedure sql Server](https://www.dotnettricks.com/learn/sqlserver/different-types-of-sql-server-stored-procedures), Shailendra Chauhan, dotNetTricks.com

**Common Features**

Views, Functions, and Stored Procedures   
from University of Washington IT Foundations, Module06Notes.docx, Spring Quarter, 2022.

* Are stored in a database (page 1)
* Return query data from one or more tables (page 15)

**Contrasting Views with Functions and Stored Procedures**

* Views cannot change results from a query; Functions and Stored Procedures can change results. (page 12)
* Views are not named SELECT statements; but Functions and Stored Procedures (page 1)

**Comparison of Functions to Stored Procedures**

* Returning a value is required of a Function, but optional for a Stored Procedure
* Functions can have only input parameters, Stored Procedures can have both input or output parameters.
* Functions can be called from Stored Procedures, but Stored Procedures cannot be called from a Function.
* A Stored Procedure can use SELECT as well as DML(INSERT/UPDATE/DELETE) statements. A Function can only use SELECT statements
* A Stored Procedure cannot be used in a SELECT statement, but a Function can be embedded in a SELECT statement.
* Functions can be used in SQL statements using WHERE/HAVING/SELECT clauses, but a Stored Procedure cannot be used in WHERE/HAVING/SELECT clauses.
* Try-Catch Blocks can be used in Stored Procedures to handle exceptions, but Functions cannot use Try-Catch Blocks
* A Stored Procedures can use Transactions, but Function cannot use Transactions

[Difference between Stored Procedure and Function in SQL Server](https://www.dotnettricks.com/learn/sqlserver/difference-between-stored-procedure-and-function-in-sql-server), Shailendra Chauhan, dotNetTricks.com

Weekly Progress   
This week, I started a new role as the Business Development Programmer Analyst for the Sales and Marketing team at the Boeing Defense and Space company. I’m thrilled and approaching my new duties with renewed confidence because of this class. In my last role, I worked with SQL and databases, but saw senior coworkers write vastly more efficient and effective code than anything I could produce. I may not ever reach their level of proficiency but being able to tackle self joins, common table expressions, and windowing functions gives me a sense of accomplishment I did not have before.

GitHub is an example of a topic I dealt with in the past without confidence or really knowing what I was doing. Posting this week’s files on my GitHub account went smoothly because I had instructions I didn’t have in the past. My new group uses GitHub and Team Foundation Server (TFS) so practicing makes using the repositories much less intimidating.

GitHub Link

My repository is <https://github.com/dadoris/DBFoundations>

**Summary**   
This week, I learned about views, functions, and stored procedures as well as posting class work to GitHub. I’m looking forward to using my new skills and knowledge in my new role at Boeing.