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Assignment 06—Views

# Introduction

Views are used in SQL to store code in the database itself, simplify complex code to make it easier to use, and protect the database and application built upon it. Similarly, functions and stored procedures store code in the database, but are written and executed slightly differently, and can include parameters.

# Using Views with SQL

Views are a way to store code in the database. They are SELECT statements that are saved by a given name for a specific purpose. They can be used for that purpose again and again.

One reason to use Views is to save complex code, such as multi-table joins formatted with column aliases, which can then be run with simple SELECT statements. This makes it easy for others to use your code to retrieve the results they need for their reports or other use.

Another reason to use Views is to hide a subset of the data. Through use of the view, we can limit the results to a subset of rows (horizontally dividing a table) or columns (vertically dividing the table), which is known as partitioning. Partitioning allows you to tailor the results to only those relevant to the user, or to grant or restrict access to particular data.

A third reason to use a View is to protect the database and the use of its data. If a Base View is created for each table, and that Base View is used for developing reports or applications, it allows the table to be modified, when needed, without breaking any of those links. In this case, the View can be modified to be consistent before and after the underlying table is changed, which maintains the structures and relationships that an application uses. This preserves the function of those applications. Likewise, creating a Base View with Schema Binding ensures that tables are not mistakenly dropped, orphaning the View.

# Views, Functions, and Stored Procedures

Views, Functions, Stored Procedures are all mechanisms for saving code in a database. Each can be used to simplify complex code or make it easier to use.

Functions are similar to Views in that they are saved SELECT statements. Functions differ from View in that they can contain parameters where you can add variables when functions are created and used. Functions can return tables or scalar values. Creating a Function is like creating a View, except that the name space is required to be included in the function name. Additionally, Functions require RETURNS TABLE and RETURN clauses in the CREATE statement.

Stored procedures, like Views and Functions, are another way to save and simplify code. However, rather than working with them like tables by using SELECT, for example, Stored Procedures are called with EXECUTE. Stored procedures are executed as code, not treated as tables. They can contain many and various types of statements in one procedure, including Order By, which cannot be included in Views or Functions. Like functions, they can include parameters. They are very flexible.

# Summary

Views, Functions, and Stored Procedures are all ways to store code in a database. They are used to streamline and enhance the way a user works with data, to protect the database and reports or applications linked to it, and protect the data and database from inappropriate access or modification.

# References

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