SQL Synonyms Explained

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What is Synonym in SQL server?

In SQL Server, **Synonyms** are database objects that serve as alternate names, or aliases, for other database objects. They provide a layer of abstraction that allows you to reference objects using different names, potentially simplifying queries and promoting flexibility in database design.

Key Features of Synonyms:

1. Simplification: They can simplify complex object names, especially when dealing with objects across different databases or servers.

2. Abstraction: By using synonyms, you can change the underlying object without altering the code that references the synonym.

3. Security: Synonyms can be used to control access to the underlying objects without giving direct permissions.

Synonyms Data base Objects:

1. Extended Stored Procedure:

   - An extended stored procedure is a function written in a programming language like C that can be executed from within SQL Server. These are usually created for tasks that are not possible to achieve with T-SQL alone, such as interacting with the operating system or accessing resources external to SQL Server. However, they are generally discouraged in modern SQL Server versions because they can lead to security risks and stability issues.

2. SQL Table-Valued Function:

   - A table-valued function (TVF) returns a table data type and can be used in a FROM clause just like a regular table. There are two types of table-valued functions:

     - Inline Table-Valued Function: Returns a table that is the result of a single SELECT statement.

     - Multi-Statement Table-Valued Function: Returns a table that can be constructed with multiple statements.

3. SQL Stored Procedure:

   - A stored procedure is a set of SQL statements that can be executed as a single unit. It can accept input parameters, execute a series of queries or other operations, and return a status or result set. Stored procedures are used to encapsulate logic and can be reused across multiple applications or queries.

4. Table (User-defined):

   - A user-defined table is a table created by the user in the database to store data. Unlike system tables, which are created and managed by SQL Server itself, user-defined tables are created to store application-specific data. They are defined by a schema that includes columns, data types, and constraints.

5. Replication-Filter-Procedure:

   - Replication-filter-procedure is a type of stored procedure used in SQL Server replication. It allows filtering rows that are to be replicated to a subscriber in transactional replication. This helps in replicating only the necessary data, reducing the amount of data transmitted and stored.

6. SQL Scalar Function:

   - A scalar function returns a single value (such as an integer, varchar, etc.) as a result. It is often used to encapsulate complex calculations or operations that return a single value. Scalar functions can be used in SELECT lists, WHERE clauses, or any other place where a single value is expected.

7. SQL Inline Table-Valued Function:

   - An inline table-valued function (ITVF) is a type of table-valued function that returns a table as the result of a single SELECT statement. It is similar to a view, but it can take parameters. The advantage of using an inline TVF is that it is more efficient and easier to maintain compared to multi-statement TVFs.

8. View:

   - A view is a virtual table that is based on the result set of a SELECT statement. It encapsulates a query that can be reused, providing a way to simplify complex queries, hide the complexity of underlying tables, and enhance security by restricting access to specific rows or columns. Views do not store data themselves but provide a window into the data in one or more underlying tables.