Trigger vs Stored Procedure

- Definition :

- Triggers are special types of stored procedures that automatically execute in response to certain events on a table (e.g., INSERT, UPDATE, DELETE).

- Stored procedures are precompiled SQL code that can be executed on demand to perform operations.

- Key Differences :

- Triggers do not require explicit execution; stored procedures must be called.

- Triggers cannot accept parameters; stored procedures can take parameters for dynamic behavior.

- Stored Procedure vs Function

- Definition :

- Stored procedures are designed to perform actions and can return multiple values or result sets.

- Functions return a single value (scalar function) or a table (table-valued function) and can be used in SQL expressions.

- Key Differences :

- Functions can be used in SELECT statements, whereas stored procedures cannot be directly included in expressions.

- Functions have limitations on side effects; they typically do not modify the database state, while stored procedures can.

- DROP vs DELETE

- Definition :

- DROP is a DDL command that removes an entire database object, including its structure and data, from the database.

- DELETE is a DML command that removes rows from a table while keeping the table structure intact.

- Key Differences :

- DROP cannot be rolled back; DELETE can be part of a transaction and can be rolled back if necessary.

- DROP removes all permissions and constraints associated with the object; DELETE only affects the data.

- SELECT vs SELECT INTO

- Definition :

- SELECT retrieves data from one or more tables and returns it to the user as a result set.

- SELECT INTO creates a new table and populates it with the results of a SELECT query.

- Key Differences :

- SELECT is used to view data; SELECT INTO generates a new physical table based on query results.

- SELECT INTO is generally more efficient for bulk data operations compared to INSERT statements.

- DDL, DML, DCL, and DQL

- Definition :

- Data Definition Language (DDL) is used to define and modify the database schema (e.g., CREATE, ALTER, DROP).

- Data Manipulation Language (DML) is used for managing and manipulating data (e.g., INSERT, UPDATE, DELETE).

- Data Control Language (DCL) handles permissions and access controls (e.g., GRANT, REVOKE).

- Data Query Language (DQL) is focused on querying data (e.g., SELECT).

- Key Differences :

- DDL changes database structure; DML changes data.

- DCL controls user permissions; DQL retrieves data without modifying it.

- Table-Valued Function vs Multi-Statement Function

- Definition :

- A table-valued function returns a table data type and can be used in queries like a regular table.

- A multi-statement function returns a single value and can execute multiple SQL statements but cannot be used in joins or subqueries.

- Key Differences :

- Table-valued functions can be joined with other tables; multi-statement functions cannot be directly used in joins.

- Multi-statement functions can contain complex logic and calculations, but their return type is limited to a single value.

- VARCHAR(50) vs VARCHAR(MAX)

- Definition :

- VARCHAR(50) is a variable-length string data type that can hold up to 50 characters.

- VARCHAR(MAX) is a variable-length string data type that can hold up to 2GB of characters.

- Key Differences :

- VARCHAR(50) is suitable for smaller, fixed-length strings; VARCHAR(MAX) is used for larger strings or text data.

- Using VARCHAR(MAX) can incur performance overhead due to the potential size, whereas VARCHAR(50) is more efficient for smaller data.

- SQL Authentication vs Windows Authentication

- Definition :

- SQL Authentication allows users to connect to SQL Server using a username and password.

- Windows Authentication uses the Windows credentials of the user to access SQL Server.

- Key Differences :

- SQL Authentication is specific to SQL Server and is independent of Windows accounts; Windows Authentication integrates with Windows security.

- Managing SQL users is separate from Windows user management, which can simplify permissions in an Active Directory environment.

- Inline Function vs View

- Definition :

- An inline function is a user-defined function that returns a table and accepts parameters.

- A view is a virtual table based on a stored SELECT statement and does not accept parameters.

- Key Differences :

- Inline functions can return different results based on input parameters; views provide a static representation of data.

- Inline functions can be used in JOIN operations; views cannot be used directly as input for such operations.

- Identity vs Unique Constraint

- Definition :

- An identity constraint automatically generates a unique numeric value for new rows, often used for primary keys.

- A unique constraint ensures that all values in a specified column are distinct across rows in the table.

- Key Differences :

- Identity columns automatically manage their values; unique constraints can allow for manual entry as long as they maintain uniqueness.

- Identity constraints are commonly used for primary keys, while unique constraints can be applied to any column requiring distinct values.