Part2: What is the difference between the following objects in SQL Server

1. batch, script and transaction

A batch is a group of two or more SQL statements or a single SQL statement that has the same effect as a group of two or more SQL statements. In some implementations, the entire batch statement is executed before any results are available. You cannot rollback a Batch it may fail or success.

Script is a collection of structured query language (SQL) commands that are stored in a text file and perform some operation or task. These tasks are usually repetitive, meaning they're executed over and over on a regular basis. The commands contained in a script can be any supported by the SQL language.Used to delete or Create or edit database objects.

Transactions group a set of tasks into a single execution unit. Each transaction begins with a specific task and ends when all the tasks in the group successfully complete. If any of the tasks fail, the transaction fails. Therefore, a transaction has only two results: success or failure. can be rollback .

2. trigger and stored procedure

Trigger is a stored procedure that runs automatically when various events happen (eg update, insert, delete). It can execute automatically based on the events. It cannot take input as parameter. we can't use transaction statements inside a trigger. Triggers cannot return values

Stored procedures are pieces of the code in written to do some specific task. It can be invoked explicitly by the user. It can take input as a parameter. We can use transaction statements like begin transaction, commit transaction, and rollback inside a stored procedure. Stored procedures can return values.

3. stored procedure and functions

Stored procedure does not have a return type. But it returns values using the OUT parameters. You can use DML queries such as insert, update, select etc… with

procedures. A procedure allows both input and output parameters. You can manage transactions inside a procedure. You can call a function from a stored procedure. You cannot call a procedure using select statements.

A function has a return type and returns a value. You cannot use a function with DML. Only Select queries are allowed in functions. A function does not allow output parameters. You cannot manage transactions inside a function. You cannot call stored procedures from a function. You can call a function using a select statement.

4. drop, truncate and delete statement

Drop is a Data Definition Language Command (DDL). It is used to drop the whole table. we can't rollback the data after using the DROP command. constraints will be removed as table will be removed.

Truncate is a Data Definition Language Command (DDL). It is used to delete all the rows of a relation (table) in one go. we also can't rollback the data after using the this command. constraints will remain as table will remain.

Delete is a Data Manipulation Language Command (DML). It is used to delete one or more tuples of a table. Can be rolled back. Constraints will remain as table Itself won't be deleted.

5. select and select into statement

   Select is used to select data from a database. The data returned is stored in a result table, called the result-set.

   SELECT INTO statement copies data from one table into a new table.

6. local and global variables

Local Variables are declared within a function block. The scope is limited and remains within the function only in which they are declared. Any change in the local variable does not affect other functions of the program. A local variable is

created when the function is executed, and once the execution is finished, the variable is destroyed.

Global variables are declared outside all the function blocks. The scope remains throughout the program. Any change in global variable affects the whole program, wherever it is being used. A global variable exists in the program for the entire time the program is executed.

7. convert and cast statements

CONVERT is SQL implementation-specific. It converts data from one type to another. CONVERT differences lie in that it accepts an optional style parameter that is used for formatting.

CAST is part of the ANSI-SQL specification. Ansi stand for American National standards institute. It converts data from one type to another.

8. DDL,DML,DCL,DQL and TCL

DDL Stand for data definition language. It contains: 1-create 2-drop 3-alter 4-truncate

DML Stand for data manipulation language. It contains: 1-insert 2-update 3-delete 4-call 5-explain call 6-lock

DCL Stand for data control Language It contains: 1-grant 2-revoke

DQL stands for data Query language It contains: Select

TCL stands for transaction control Language. It contains: 1-commit 2-rollback 3-set transaction 4-set constraint 5-save point

9. For xml raw and for xml auto

For construct at the end of the Select query is responsible for generating the XML content.

AUTO mode produces only attributes or elements from each column.

10.Table valued and multi statement function

Table valued do not use the BEGIN/END syntax. Faster. You simply state RETURNS TABLE and the return table's definition will be based on the function's SELECT statement. No need to specify the structure of the return table.

Multi Statement function use the BEGIN/END syntax. Slower. Your RETURNS syntax explicitly specifies the structure of the return table. This is done by declaring a TABLE variable that will be used to store and accumulate the rows that are returned as the value of the function.

11.Varchar(50) and varchar(max)

Varchar(50) Non-Unicode Variable Length character. It can store maximum 8000 Non-Unicode characters (i.e. maximum storage capacity is 8000 bytes of storage). It uses the normal data pages to store the data i.e. it stores the value 'in a row'.

Varchar(max) Non-Unicode large Variable Length. It can store maximum of 2 147 483 647 Non-Unicode characters (i.e. maximum storage capacity is: 2GB). it will store the value 'out of row'. i.e. It uses the normal data pages until the content actually fills 8k of data. When overflow happens, data is stored as old TEXT Data Type and a pointer is replacing the old content.

12.Datetime, datetime2(7) and datetimeoffset(7)

Datetime: 8 bytes

Datetime2(7): 6 to 8 bytes, depending on the precision*

Datetimeoffset(7) : 10 bytes fixed

13.Default instance and named instance

Default instance One instance can be the default instance

The default instance has no name.

Named instance is one where you specify an instance name when installing the instance.

14.SQL and windows Authentication

Windows Authentication Need to mention server name only. It won't require a username and password. you have all read/write access. The user name and password always grayed out.

SQL Server Authentication We have to mention the Server name as well as user name along with the password. We have to mention the Server name as well as user name along with the password. We have to mention the Server name as well as user name along with the password.

15.Clustered and non-clustered index

A clustered index is used to define the order or to sort the table or arrange the data by alphabetical order just like a dictionary. It is faster than a non-clustered index. It demands less memory to execute the operation.

A non-clustered index collects the data at one place and records at another place. It is slower than the clustered index. It demands more memory to execute the operations.

16.Group by rollup and group by cube

Group by rollup Produces only some possible subtotal combinations.

Group by cube Produces all possible combinations of subtotals specified in GROUP BY clause and a Grand Total

17.Sequence object and identity

Sequence is a database-level object so it is independent of tables. Can be controlled by application code. Using the CYCLE property, we can restart the counter after a specific interval.

Identity is a table level object, in other words it is dependent on the table. Cannot be controlled by application code. We cannot restart the Identity counter after the specified interval.

18.Inline function and view

View can be indexed so it performs faster than function. View can have triggers .Views cannot accept parameters

Inline function Cannot be indexed. Function cannot have triggers. Function accept parameters.

19.Table variable and temporary table

Table variable involves the effort when you usually create the normal tables. Table variable can be used by the current user only.

A Temp table is easy to create and back up data. Temp table result can be used by multiple users.

20.Row_number() and dense_Rank() function

Row_number() function is used to retrieve ranked rows based on the condition of the ORDER BY clause And give each row distinct number Even if it was duplicated.

DENSE_RANK() function is similar to RANK function however the DENSE_RANK function does not skip any ranks if there is a tie between the ranks of the preceding records it takes the same rank .