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

1-batch, script, and transaction?

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-transaction: is a collection of SQL queries run as a single unit. If a transaction is succeeded without fails all changes in data are committed and if it fails it rolled back all the changes done on the database.

-batch: is a collection of SQL queries that don’t depend on each other and if one command fails the other continues executing normally.

-script: a file containing blocks of SQL queries that runs on the server.

2-trigger and stored procedure?

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Stored procedure: is a block of code that can be saved and called anytime in code, it can contain DML and DDL queries. most of the time doesn’t return value

Trigger: is a special type of stored procedure called automatically when an event occurs on the database

3-stored procedure and functions?

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Stored procedure: is a block of code that can be saved and called anytime in code, it can contain DML and DDL queries.

Functions: is a block of code that executes anytime we call it can work with select query. Can receive parameters and return scaler values and also tables

4-drop, truncate and delete statement?

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Drop: remove an object structure from the database

Delete: delete data of the table and can be used with where the condition

Truncate: also remove rows of the table but all the records, can’t be used with where the condition

5-select and select into a statement?

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Select: DQL query that select records from table according to some conditions

Select into: copy records that return from select to another column with the same structure as returned results

6-local and global variables?

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Local variables: only accessible in batch, can be edit

Global variables: can not be declared or edited, can be accessed in the whole code

7-convert and cast statements?

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Convert: convert data types with formatting

Cast: converts data types without formatting

8-DDL,DML,DCL,DQL and TCL?

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DDL: data definition language it creates and edits the structure of database(create/alter/drop/truncate)

DML: data manipulation language it insert, update and delete the records in database (insert / update/ delete)

DQL: data query language, it selects some records and show them from database (select)

DCL: data control language it give control and permissions on database (Grant/revoke)

TCL: transactional control language, it manga the transactions such COMMIT, ROLLBACK)

9-For xml raw and for xml auto?

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raw: returns the column as attributes and wraps each row element

auto: returns column as attributes and wraps each row in an element name after the table it came from

10-Table valued and multi statement function?

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Table-valued: a user-defined function that returns data of a table type.

Multi-statement table-valued function: returns a table as output and this output table structure can be defined by the user.

11-Varchar(50) and varchar(max)?

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Varhchar(50): a string variable of max length 50

Varhchar(max): string variable of max storage value (2GB)

12-Datetime(3), datetime2(7) and datetimeoffset(7)?

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Datetime (3): data type stores date & time (24 hours clock, 60 minutes, accuracy of 3.33milliseconds)

Datetime2 (7): data type stores date & time . (24 hours clock, 60 minutes, fractional seconds to 7 decimal places)

Datetimeoffset(7): data type stores date & time . (24 hours clock, 60 minutes, fractional seconds to 7 decimal places) and time zone

13-Default instance and named instance?

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Default instance: it will be created unless the user specifies a named instance. There can only be one default instance(MSSQLSERVER)

Named instance: is identified by the network name of the computer plus the instance name that we specify during installation)

14-SQL andWindowss Authentication?

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SQL Authentication: authentication (who) composed of a username and a password. (access permissions)

Windows Authentication: is used when you are accessing SQL Server from the same computer it is installed on the highest access permission.

15-Clustered and non-clustered index?

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Clustered index: is a type of index in which table records are physically reordered in memory and only one clustered index can be added to a table and it automatically assigned to the primary key in any table

Non-Clustered: is a special type index in which logical order of index on column other than id

16-Group by rollup and group by cube?

Rollup: operator generates aggregated results for the selected columns in a hierarchical way.

Cube: generates an aggregated result that contains all the possible combinations for the selected columns.

17-Sequence object and identity?

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Sequence object: automatically generation of unique values but it isn’t tied to a particular column in a table.

Can be cycled also have minimum value and maximum value

Identity: automatically generation of unique values but it is tied to a particular column in a table

18-Inline function and view?

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View: used to create an abstract layer between database user and the actual table. But any update in view relflect on actual tables

Inline function: is a function that returns a table. It can contain parameters.

19-Table variable and temporary table?

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Temporary table: are physical tables created in database, act as normal tables but deleted after execution

20-Row\_number() and dense\_Rank() function?

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Row\_number(): generates a new row number for every row, regardless of duplicates within a partition.

Dense\_rank(): generates a new row number for every distinct row, leaving no gaps between groups of duplicates within a partition.