1. Order of SQL Query Keyword Execution:

When executing an SQL statement, the order of keyword execution is:

FROM / JOIN: Retrieve data from tables.

WHERE: Filter retrieved data.

GROUP BY: Group data into subsets.

HAVING: Filter grouped data.

SELECT: Produce the final output.

DISTINCT: Remove duplicates.

ORDER BY: Sort the output.

LIMIT / OFFSET: Limit rows returned / Skip rows.

2. Advantages of Stored Procedures & Syntax for Recompiling:

Advantages:

Performance: Execution plans can be cached, leading to faster execution.

Reduced Network Traffic: Only the call to execute the procedure is sent over a network, not individual statements.

Reusable and Modular: Can be executed by multiple applications.

Security: Provides an additional layer between the user and the underlying database tables.

Syntax:

To create a stored procedure:

CREATE PROCEDURE ProcedureName

AS

BEGIN

  -- procedure body

END;

To recompile a stored procedure each time it's executed (in SQL Server):

CREATE PROCEDURE ProcedureName

WITH RECOMPILE

AS

BEGIN

```
  -- procedure body
```

END;

3. Example of a Derived Table:

A derived table is a table that's defined within a SELECT statement.

SELECT DerivedTable.ProductName, DerivedTable.Quantity

FROM (

   SELECT ProductName, Quantity

   FROM Orders

   WHERE OrderDate > '2022-01-01'

) AS DerivedTable

WHERE DerivedTable.Quantity > 10;

4. Database Triggers & Their Types:

A database trigger is a set of actions that the database should undertake when certain operations (INSERT, UPDATE, DELETE) are performed on a table or view.

Types of Triggers:

AFTER / FOR Trigger: Executes after an action is performed. Often called "post-action triggers".

BEFORE Trigger: Executes before an action is performed.

INSTEAD OF Trigger: Executes instead of the action that fired the trigger. Commonly used with views.

5. Benefits and Drawbacks of Triggers:

Benefits:

Data Integrity: Automatically check constraints on data.

Auditing: Automatically log changes.

Automatic Data Modification: For example, automatically update timestamps.

Drawbacks:

Complexity: Can make systems harder to understand and maintain.

Performance: Can slow down data modification operations.

Hidden Logic: Triggers operate "behind the scenes", which can be confusing.

6. Stored Procedure to Call Other Stored Procedures:

CREATE PROCEDURE MainProcedure

AS

BEGIN

  EXEC FirstProcedure;

  EXEC SecondProcedure;

END;

This MainProcedure when executed will call FirstProcedure followed by SecondProcedure.