SQL Server Concepts Comparison Report

Trigger vs Stored Procedure

• Trigger is automatically executed when a specific database event occurs (INSERT, UPDATE, DELETE).
• Stored Procedure is executed manually using EXEC command.
• Trigger cannot be called directly by the user, while a stored procedure can.
• Triggers are often used for auditing, validation, and enforcing business rules.

Stored Procedure vs Function

• Stored Procedure can perform actions (like INSERT, UPDATE) and return multiple results.
• Function returns a single value or table and cannot modify data.
• Functions can be used in SELECT, but stored procedures cannot.
• Stored procedures can have output parameters; functions cannot.

DROP vs DELETE

• DELETE removes rows from a table but keeps the table structure.
• DROP removes the entire table structure and data.
• DELETE can be rolled back (if inside a transaction), DROP cannot.
• DELETE can have a WHERE clause; DROP does not.

SELECT vs SELECT INTO

• SELECT retrieves data from one or more tables.
• SELECT INTO creates a new table and inserts the selected data into it.
• SELECT INTO is useful for creating backups or temporary tables.

DDL, DML, DCL, DQL

• DDL (Data Definition Language): CREATE, ALTER, DROP – modifies structure.
• DML (Data Manipulation Language): INSERT, UPDATE, DELETE – changes data.
• DCL (Data Control Language): GRANT, REVOKE – controls access.
• DQL (Data Query Language): SELECT – retrieves data.

Table-Valued Function vs Multi-Statement Function

• Table-Valued Function returns a table from a single SELECT query.
• Multi-Statement Function allows multiple statements and builds table step by step.
• Multi-statement functions are more flexible but slower.

VARCHAR(50) vs VARCHAR(MAX)

• VARCHAR(50) can store up to 50 characters.
• VARCHAR(MAX) can store up to 2GB of text data.
• Use VARCHAR(MAX) for large text; use fixed length for performance.

SQL Authentication vs Windows Authentication

- SQL Authentication uses a username and password stored in SQL Server.
- Windows Authentication uses Active Directory credentials.
- Windows Authentication is more secure and integrated.
- SQL Authentication is useful for mixed-platform access.

Inline Function vs View

- Inline function returns a table and can accept parameters.
- View is a virtual table based on SELECT, cannot take parameters.
- Inline functions can be used like parameterized views.

IDENTITY vs UNIQUE Constraint

- IDENTITY auto-generates sequential numbers for new rows.
- UNIQUE ensures that all values in a column are different.
- IDENTITY is not a constraint, UNIQUE is.
- You can have multiple UNIQUE constraints, but only one IDENTITY column per table.