

## 1. What's the difference between Full, Differential, and Transaction Log Backup?

Backup Type	Description	Storage Space	Restore Time
<b>Full Backup</b>	A complete backup of the entire database (all data + transaction log at that time).	High	Fast
<b>Differential</b>	Backs up only the changes made since the last <b>full</b> backup.	Medium	Medium
<b>Transaction Log</b>	Backs up the transaction log (every operation since the last log backup).	Low	Slow (requires chain of backups)

- **Use Full Backup** regularly (e.g., daily)
  - **Use Differential Backup** for more frequent backups without full size
  - **Use Transaction Log Backup** when you need point-in-time recovery and minimal data loss
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## 2. What is Permission, and What's the Difference Between GRANT and DENY?

- **Permission** = Control over what a user or role can do (e.g., SELECT, INSERT, EXECUTE)

### Levels of Permissions:

- **Server Level** (e.g., login, creating databases)
- **Database Level** (e.g., access to tables, views, procedures)
- **Object Level** (e.g., permission to read a specific table)

## GRANT vs DENY:

Keyword	Meaning	Priority
<b>GRANT</b>	Allows access to a resource or action	Low
<b>DENY</b>	Explicitly blocks access, even if GRANT exists	<b>High</b> (overrides GRANT)

### Important:

If a user is both **GRANTED** and **DENIED**, **DENY wins**.

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## 3. What is SQL Profiler and When to Use It?

- **SQL Server Profiler** is a tool to **monitor and trace SQL Server activities** in real-time.

### Use Cases:

- Debug slow queries
- Monitor performance
- Track login/logout activity
- Capture T-SQL executed by apps
- Audit suspicious behavior

 **Use with caution in production**, as it can affect performance.

#### 4. What is a Trigger, Why Use It, and How Is It Different from a Stored Procedure?

Feature	Trigger	Stored Procedure
Definition	Special procedure that automatically runs on events	User-defined set of SQL statements, called manually
Activation	Fires on DML events (INSERT, UPDATE, DELETE) or DDL	Manually executed
Use Case	Enforce rules, auto-log changes, validation	Reusable logic, business rules
Level	Table-level or database-level	Any level (can affect multiple tables/databases)

##### Why Use Triggers:

- Automatic enforcement of rules
- Auditing changes (e.g., record who updated what)
- Consistent behavior after certain actions

##### Main Difference:

- **Triggers are reactive:** they execute **automatically**
- **Stored Procedures are proactive:** they execute **when called**