



1. Data Manipulation Language (DML)

``SELECT``: Retrieve data from one or multiple tables, with options for filtering and aggregation.

``INSERT``: Add new records to a table, commonly discussed with unique keys and constraints.

``UPDATE``: Modify existing records, often used with conditional updates or joins.

``DELETE``: Remove specific records, with emphasis on secure and efficient deletion.

2. Data Definition Language (DDL)

``CREATE``: Set up new tables, views, indexes, and constraints.

``ALTER``: Modify database structures without data loss; e.g., adding columns or changing data types.

``DROP``: Remove database objects, often discussed for safe deletion without compromising data integrity.

3. Data Control Language (DCL)

``GRANT``: Assign permissions to users for enhanced database security.

``REVOKE``: Remove permissions from users, ensuring secure access management.

4. SQL Functions

Aggregate Functions: ``COUNT``, ``SUM``, ``AVG``, ``MIN``, ``MAX`` for calculations on data sets.

Date and Time Functions: Handle date-based calculations, differences, and formatting.

String Functions: Manipulate strings, often in data cleaning and formatting.

Mathematical Functions: Calculate values for numeric data, especially in reporting.

5. SQL Joins

``INNER JOIN``: Returns matching rows between tables; key for combining datasets.

``LEFT JOIN``: Returns all rows from the left table and matched rows from the right.

``RIGHT JOIN``: Returns all rows from the right table and matched rows from the left.

`FULL OUTER JOIN`: Returns all rows when there's a match in either table, filling gaps with nulls.

6. SQL Subqueries

Nested queries often filter or aggregate data in multiple steps. Subqueries are frequently asked in interviews for their application in complex scenarios.

7. SQL Window Functions

Functions like `RANK`, `DENSE_RANK`, `ROW_NUMBER`, `LEAD`, and `LAG` perform calculations across specific rows, without collapsing groups, useful in advanced reporting and analytics.

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Series 1

