

70+ SQL CONCEPTS

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- Primary Key A column that uniquely identifies each row in a table. No duplicates or empty values.
- Foreign Key A column that links one table to another. It connects related data.
- Unique Makes sure all values in a column are different.
- Not Null The column must have a value. It can't be left empty.
- Default Gives a column a value automatically if no value is provided.
- Check Makes sure the data in a column meets a certain condition.
- Index Speeds up searches in a table by quickly finding data.
- View A virtual table that shows results of a stored SQL query.
 It doesn't store real data.
- Stored Procedure A saved set of SQL commands that you can run whenever needed.
- Trigger Automatically runs some SQL code when something changes in a table (like insert, update, delete).



- Function A small piece of code that returns a result. Used inside queries.
- Cursor Used to go through each row in a result, one by one.
- Transaction A group of SQL operations that are done together.
 All succeed or all fail.
- Commit Saves the changes made in a transaction.
- Rollback Cancels changes if something goes wrong
- Savepoint A marker inside a transaction to roll back to if needed.
- Select Used to get data from a table.
- Insert Adds new data into a table.
- Update Changes existing data in a table.
- Delete Removes data from a table.
- Cross Join Returns every possible combination of rows from two tables.
- Union Combines data from two queries and removes duplicates.



- Union All Combines data from two queries and keeps all duplicates.
- Exists Checks if a subquery returns any results.
- In Checks if a value exists in a list of values.
- Between Checks if a value is within a range.
- Like Used for simple pattern matching (like searching names that start with 'A').
- Is Null Checks if a value is missing.
- Distinct Removes duplicate rows from the results.
- Alias Gives a temporary name to a column or table.
- Case Works like "if-else" to create conditions inside queries.
- Rank Gives a rank to rows with possible gaps in the numbers.
- Dense Rank Gives a rank without gaps in the numbers.
- Row Number Gives a unique number to each row in the result.
- Window Functions Do calculations across a group of rows without grouping them.



- Schema The structure or blueprint of a database (tables, columns, types, etc.)
- Normalization Organizing data to remove repetition and save space.
- Denormalization Adding some repetition to improve speed of access.
- Constraints Rules that protect the data (like primary key, foreign key, etc.)
- Subquery A query inside another query. It helps in filtering calculating.
- Data Definition Language (DDL) Commands that define the structure of the database (like CREATE, ALTER, DROP).
- Data Manipulation Language (DML) Commands that deal with data changes (like INSERT, UPDATE, DELETE).
- Data Query Language (DQL) Commands used to fetch data (SELECT is the main one).
- Data Control Language (DCL) Commands that handle permissions
- Truncate Removes all rows from a table quickly, but keeps the table structure.

- Drop Deletes a table or database completely.
- Alter Changes an existing table (like adding/removing columns).
- Temporary Table A table that exists temporarily for one session or query.
- Materialized View A view that stores data physically and updates i periodically.
- Auto Increment Automatically increases a numeric column value for each new row.
- Data Type Defines the type of data a column holds (e.g., INT, VARCHAR, DATE).
- Metadata Data about data (like table name, column types, etc.)
- Constraint Violation Happens when data breaks a rule (e.g., duplicate in a PRIMARY KEY).
- Referential Integrity Ensures relationships between tables stay consistent.
- Surrogate Key A unique identifier for a record, usually an autoincremented number.



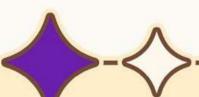
- Composite Key A combination of two or more columns to make a unique key.
- Derived Table A temporary result set created inside a query (like a subquery with an alias).
- Scalar Subquery A subquery that returns only one value.
- Correlated Subquery A subquery that uses values from the outer query.
- Null Handling Special treatment for missing or unknown values.
- Coalesce Returns the first non-null value from a list of inputs.
- NVL (Oracle) Similar to Coalesce; replaces NULL with a given value.
- IFNULL / ISNULL Functions that handle NULL values depending on the database.
- Set Operators Commands like UNION, INTERSECT, EXCEPT that combine or compare results.
- Execution Plan Shows how SQL will run a query behind the scenes (for performance tuning).





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