

# Top SQL Interview Questions

- What is SQL?  
SQL stands for Structured Query Language, which is a programming language used to manage relational databases. SQL is used to create and modify database schema, insert, update and delete data, and retrieve data from databases.
- What is a primary key?
- A primary key is a constraint which applies on column or group of columns that uniquely identify each row in a table. A primary key must contain unique values and cannot contain null values. A table can only have one primary key.
- What is a foreign key?
- A foreign key is a column or group of columns that references the primary key of another table. A foreign key creates a relationship between two tables, ensuring referential integrity. A table can have multiple foreign keys.
- What is normalization?
- Normalization is the process of organizing data in a database to reduce redundancy and improve data integrity. There are several levels of normalization, with each level reducing the amount of redundancy in a table.
- What is a join?
- A join is used to combine data from two or more tables based on a related column between them. There are several types of joins, including inner join, left join, right join, and full outer join.
- What is a subquery?

- A subquery is a query within another query, used to retrieve data for a specific condition. A subquery can be used in the SELECT, FROM, WHERE, and HAVING clauses of a query.
- What is a view?
- A view is a virtual table that is based on the result of a query, used to simplify complex queries. A view can be used to hide the complexity of a query from the user and to provide a simplified view of the data.
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- What is a trigger?
- A trigger is a set of instructions that are automatically executed in response to a specific event in a database. Triggers can be used to enforce data integrity, audit changes t
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- o the database, and automate repetitive tasks.
- What is a stored procedure?
- A stored procedure is a set of SQL statements that are stored in a database and can be executed repeatedly. Stored procedures can be used to encapsulate complex logic and simplify repetitive tasks.
- What is a cursor?
- A cursor is used to iterate over a set of rows returned by a query, allowing for more complex processing of the data. Cursors can be used to perform operations on individual rows returned by a query.
- What is the difference between a clustered and non-clustered index?
- A clustered index determines the physical order of data in a table, while a non-clustered index creates a separate structure for the index. A table can only have one clustered index, but multiple non-clustered indexes.

- What is the difference between a LEFT JOIN and INNER JOIN?
- A LEFT JOIN returns all rows from the left table and matching rows from the right table, while an INNER JOIN only returns rows with matching values in both tables. In a LEFT JOIN, rows from the left table with no matching rows in the right table will have null values in the result set.
- What is the difference between UNION and UNION ALL?
- UNION combines the results of two queries and removes duplicates, while UNION ALL includes all results without removing duplicates. UNION ALL is faster than UNION but may return duplicates.
- What is the difference between GROUP BY and HAVING?
- GROUP BY is used to group results by a specified column, while HAVING is used to filter results based on a condition applied to the grouped results. HAVING is used after the GROUP BY clause and can filter the results of a grouped query.
- What is the difference between UNION and JOIN in SQL?
- UNION combines the result sets of two or more SELECT statements into a single result set, while JOIN combines rows from two or more tables based on a related column between them.
- What is a self join in SQL?
- A self join is a join operation where a table is joined with itself. It is useful when you want to combine rows within the same table based on a related column.
- What is the purpose of the SQL NULL value?
- The NULL value represents the absence of data or an unknown value in a column. It is used when a value is not available or not applicable.
- What is the difference between DELETE and TRUNCATE in SQL?
- DELETE is a DML (Data Manipulation Language) statement used to remove rows from a table based on a condition. TRUNCATE is a DDL (Data Definition

Language) statement used to remove all rows from a table, effectively resetting the table.

- What is a correlated subquery in SQL?
- A correlated subquery is a subquery that depends on the outer query for its results. It uses values from the outer query in its own WHERE or HAVING clause.
- What is a temporary table in SQL?
- A temporary table is a table that is created and used for a specific session or transaction. It allows you to store and manipulate temporary data that is not required for long-term storage.
- What is the purpose of the SQL LIKE operator?
- The LIKE operator is used in a WHERE clause to search for a specified pattern in a column. It is often used with wildcard characters (%) to perform pattern matching.
- What are SQL views?
- A view is a virtual table derived from one or more tables or views. It is defined by a query and can be used like a table in SQL statements. Views provide an additional layer of abstraction and security.
- What is the purpose of the SQL COALESCE function?
- The COALESCE function is used to return the first non-null expression in a list of expressions. It is helpful when you want to replace null values with alternative values.
- What is the difference between a left outer join and a right outer join?
- In a left outer join, all the rows from the left (first) table and the matching rows from the right (second) table are returned. In a right outer join, all the rows from the right table and the matching rows from the left table are returned.