# Day 2-Interview questions

**1. What is the purpose of the SELECT statement in SQL?**
The SELECT statement is used to retrieve data from one or more tables in a database.

**2. Explain the basic syntax of the SELECT statement.**
The basic syntax is: SELECT column1, column2, ... FROM table_name WHERE condition;

**3. How do you retrieve all columns from a table using the SELECT statement?**
You can use an asterisk (*) to select all columns. For example: SELECT * FROM table_name;

**4. What is the purpose of the INSERT statement in SQL?**
The INSERT statement is used to add new records (rows) into a table.

**5. Explain the basic syntax of the INSERT statement.**
The basic syntax is: INSERT INTO table_name (column1, column2, ...) VALUES (value1, value2, ...);

**6. What is the difference between the INSERT INTO statement and the INSERT INTO SELECT statement?**
The INSERT INTO statement adds new records with explicitly specified values, while the INSERT INTO SELECT statement inserts records by selecting data from an existing table.

**7. How do you insert multiple rows into a table using a single INSERT statement?**
We can use multiple sets of VALUES in the INSERT statement to insert multiple rows at once.

**8. What is database normalization, and why is it important?**
Database normalization is the process of organizing data in a relational database efficiently by reducing data redundancy and ensuring data integrity. It involves breaking down large tables into smaller related tables and establishing relationships between them. Normalization is essential because it:

- Reduces data duplication, which saves storage space.
- Improves data accuracy by preventing update anomalies.
- Simplifies data maintenance and ensures consistent data throughout the database.

**9. What are the key principles of normalization, and how are they achieved?**
The key principles of normalization are achieved through a series of normal forms, including:

- **First Normal Form (1NF):** Ensures that each column contains only atomic (indivisible) values, and there are no repeating groups.
- **Second Normal Form (2NF):** Eliminates partial dependencies by removing attributes that depend on only part of a composite primary key.
- **Third Normal Form (3NF):** Eliminates transitive dependencies by removing non-prime attributes that depend on other non-prime attributes.
- **Boyce-Codd Normal Form (BCNF):** Ensures that for every non-trivial functional dependency, the left-hand side is a superkey.

**10.What is the difference between a super key and a primary key?**
A superkey is a set of one or more columns that can be used to uniquely identify rows in a table. A primary key is a specific type of superkey that is chosen as the main unique identifier for a table. It is unique, non-null, and minimal (no subset of the primary key is a unique identifier).