

Day-11 Interview Questions

1. What is the purpose of the SQL SELECT statement?

The SQL SELECT statement is used to retrieve data from one or more tables in a database. It allows you to specify the columns you want to retrieve and can include filtering, sorting, and grouping of data.

2. How do you retrieve all records from a table in SQL?

To retrieve all records from a table in SQL, you can use the following query:

```
SELECT * FROM table_name;
```

3. What is a primary key in a database table, and why is it used?

A primary key is a column or a set of columns in a database table that uniquely identifies each row. It ensures data integrity and enforces the uniqueness constraint, preventing duplicate records.

4. How do you define a primary key when creating a table in SQL?

You can define a primary key when creating a table using the PRIMARY KEY constraint.

For example:

```
CREATE TABLE table_name (  
    column1 datatype PRIMARY KEY,  
    column2 datatype,  
    ...  
);
```

5. Can a table have multiple primary keys? Explain.

No, a table can have only one primary key. However, a primary key can consist of multiple columns, known as a composite primary key.

6. What happens when you try to insert a duplicate value into a column that is part of the primary key?

The database system will raise a constraint violation error, and the insertion of the duplicate value will fail. Primary keys must contain unique values for each row in the table.

7. What are the characteristics of a good primary key?

The characteristics of a good primary key are uniqueness, non-null values, stability, irrelevance to business logic, efficiency, simplicity, indexing, non-changing, applicability, easy generation, uniqueness across tables, and consistent data type.

8. Can a primary key contain NULL values? Why or why not?

No, a primary key cannot contain NULL values. A primary key must have a unique value for each record and must be non-null to ensure reliable identification of each record in the table.

9. Explain the concept of composite primary keys and when they are used?

A composite primary key consists of multiple columns, and it is used when a single column cannot uniquely identify each record in a table. It's employed in situations where the combination of multiple attributes is needed to ensure uniqueness and accurate record identification.

10. What is SQL, and why is it important in the context of databases?

SQL (Structured Query Language) is a domain-specific language used for managing, querying, and manipulating relational databases. It is important because it allows users to interact with databases, retrieve, insert, update, and delete data, define database structures, enforce constraints, and perform complex operations. SQL serves as a standardized and powerful means of communicating with databases, making it a fundamental tool for working with data and databases efficiently and effectively.

11. Explain the key differences between SQL and MySQL.

SQL is a language used for managing and querying databases, while MySQL is a specific database management system (DBMS) that uses SQL as its query language. The key difference is that SQL is a language, while MySQL is a software system that uses SQL for interacting with databases. MySQL is just one of several relational database management systems that implement SQL, with others including PostgreSQL, Oracle, and Microsoft SQL Server.

12. What are the basic components of an SQL statement?

The basic components of an SQL statement include keywords (e.g., SELECT, INSERT, UPDATE, DELETE), clauses (e.g., WHERE, FROM, JOIN), table names, column names, values, and operators. SQL statements are structured using these components to perform various database operations such as querying data, modifying records, and defining database structures.