Interview questions and Answers

1.What is MySQL?
Answer: MySQL is an open-source relational database management system (RDBMS) that uses Structured Query Language (SQL) to manage and manipulate data.

2.What is the difference between MySQL and SQL?
Answer: SQL is a standard query language for databases, while MySQL is an RDBMS that uses SQL to manage data.

3.What are the main features of MySQL?
Answer: Open-source, multi-threaded, scalable, supports multiple storage engines, and cross-platform compatibility.

4.What are MySQL data types?
Answer: Common data types include:

- Numeric: INT, FLOAT, DOUBLE
- String: VARCHAR, CHAR, TEXT
- Date/Time: DATE, TIME, DATETIME

5.What is SQL?
Answer:
SQL (Structured Query Language) is a standard language used to interact with relational databases. It is used to perform operations like querying, updating, inserting, and deleting data, as well as creating and modifying database structures.

6.What is the SELECT statement used for?
Answer:
The SELECT statement is used to retrieve data from a database.
Example:

```
SELECT * FROM Employees;
```

7. What is the WHERE clause used for?
Answer:
The WHERE clause is used to filter records based on specified conditions.
Example:

```
SELECT * FROM Employees WHERE Name = 'John';
```

8.What are ACID properties in a database?

Answer:

ACID stands for **Atomicity, Consistency, Isolation, and Durability**. These properties ensure reliable database transactions.

- **Atomicity**: Ensures that a transaction is either fully completed or fully rolled back (all-or-nothing).
- **Consistency**: Ensures that the database remains in a valid state before and after a transaction.
- **Isolation**: Ensures that concurrent transactions do not affect each other.
- **Durability**: Ensures that once a transaction is committed, the changes are permanent even in case of a system failure.

9. What is the difference between DELETE and TRUNCATE?

Answer:

- DELETE: Deletes specific rows based on a condition. It can be rolled back.
- TRUNCATE: Deletes all rows in a table. It cannot be rolled back.

10.What is the difference between CHAR and VARCHAR?

Answer:

- CHAR: Fixed-length string. Example: CHAR(5) will always store 5 characters, padding with spaces if necessary.
- VARCHAR: Variable-length string. Example: VARCHAR(5) will store up to 5 characters without padding.

11.What is a database?

Answer:

A **database** is an organized collection of data stored electronically. It allows for efficient storage, retrieval, and manipulation of data. Databases are managed using **Database Management Systems (DBMS)**, such as MySQL, PostgreSQL, and Oracle.

12.What is a database schema?

Answer:

A **schema** is the blueprint or structure of a database that defines how data is organized. It includes definitions of tables, columns, data types, relationships, indexes, views, and other database objects.