iNeuron

Python

Interview Questions

1. What are the drawbacks to failure to execute Database Normalization?

The below are the big drawbacks:

● The existence of redundant terminology in a database, resulting in the waste of storage space.

● Inconsistency will arise due to redundant terms: if a modification is made in the data of one table but not in the same data of another table, inconsistency will occur, causing a maintenance issue and affecting the ACID properties.

2. Describe the various forms of normalization.

There are some levels of normalization to choose from. These are referred to as regular types. Each subsequent normal type is dependent on the one before it. In certain cases, the first three typical types are sufficient.

● No repeating classes inside rows in the First Normal Form (1NF)
● Any non-key (supporting) column value is based on the entire primary key in Second Normal Form (2NF).
● Third Normal Form (3NF) relies entirely on the main key, with no non-key (supporting) column values.

3. In a database, what is denormalization?

Denormalization is a technique for retrieving data from a database that is in a higher or lower regular form. It often incorporates data from similar tables into a table to process redundancy. Denormalization applies necessary redundant terms to tables to avoid complex joins and other complicated operations. Denormalization does not imply that normalization would not occur; however, it occurs during the normalization period.

4. In a database, what is the ACID property?

Atomicity, Consistency, Isolation, and Durability (ACID) are acronyms for ACID. It is used to ensure that data transfers in a computer system are processed reliably.

● Atomicity:
Atomicity applies to accomplished or unsuccessful transactions. It is when a transaction refers to a specific logical data process. It ensures that if one component of a process fails, the whole transaction fails as well, leaving the database state unchanged.

● Consistency:
Consistency means that the data adheres to one of the validity guidelines. In basic terms, the transaction never exits the ledger until it has completed its state.

● Concurrency:
Concurrency management is the primary objective of isolation.

● Durability:
It refers to the fact that after a transaction has been committed, it can continue regardless of what happens in the interim. Example: a power outage, a fire, or some other kind of malfunction.

5. In SQL, what is a view?

A view is a graphical table that holds a subset of a table's results. There are no views at first because it takes up less room to store. Data from one or more tables may be merged in a view, depending on the relationship. In SQL Server, views are used to implement authentication mechanisms. A database view is a searchable object that can be searched with the same query as the table.

6. In SQL, what is a subquery?

A subquery is a query specified within another query to extract details or information from the database. The outer query in a subquery is referred to as the key query. At the same time, the inner query is referred to as the subquery. You have first to run subqueries, and the subquery's answer is then moved over to the main query. One can embed this within every query, like SELECT, UPDATE, and OTHER. Some reference operators, such as >, or =, may be used in a subquery.

7. What is the distinction between SQL and PL/SQL programming languages?

● SQL, or Structured Query Language, is a programming language for interacting with relational databases. It allows you to build and manipulate databases. PL/SQL, on the other hand, is a SQL dialect that is used to extend SQL's functionality. Oracle Corporation created it in the early 1990s. SQL incorporates procedural functions from programming languages.

● A single query is executed in SQL, while a whole block of code is executed in PL/SQL.

● On the first side, SQL acts as a source of data that we need to view, while PL/SQL acts as a medium for displaying SQL data.

● PL/SQL statements can be embedded in SQL, but one can’t embed SQL statements in PL/SQL since SQL does not accept any programming languages or keywords.

8. What are the differences between aggregate and scalar functions?

Aggregate functions produce a single value after evaluating a statistical equation. These equations are made using data from a table's columns. E.g., max() and count() are measured with numeric in mind.

Based on the input value, scalar functions return a single value. UCASE() and NOW(), for example, are determined with string in view.

9. What is the differentiation between locking, blocking, and deadlocking?

When a link requires access to a piece of data in a database, it locks it for a certain use such that no other transaction may access it.

Blocking happens when a transaction attempts to achieve an incompatible lock on an asset that another transaction has already locked. If the blocking transaction breaks the safety, the blocked transaction stays blocked.

Deadlocking happens when two or more transactions lock a resource, and each transaction demands a lock on the resource that is already locked by another transaction. Since each transaction is waiting for the other to unlock the lock, neither will go on.

10. In SQL, what is ETL?

ETL is an acronym for Extract, Transform, and Load. We will have to start by extracting data from sources, which is a three-step operation. When we combine data from various sources, we are left with raw data. One can translate this unstructured data into a more manageable format in the second process. Finally, we'd have to feed

this clean data into software that would assist us in uncovering insights.

11. In SQL, what is a schema?

There are several different entities in our network, such as tables, stored procedures, features, database members, etc. A schema will be used to make sense of how many of these various bodies communicate. As a result, a schema may be thought of as the logical association between all of the database's various entities.

● This helps in a variety of respects until we have a good view of the schema:
● We may choose which users have access to which database tables.
● We may change or introduce new relationships between the database's various entities.

Overall, you might think of a schema as a database's blueprint, providing a full description of how various objects communicate with one another and which users have access to which entities.

12. In SQL, what is a unique key?

In SQL, a restriction is known as a unique key. But, before we look at what a primary key is, let's take a look at what a restriction is in SQL. Constraints are laws that are applied to data columns in a table. These are used to restrict the types of information that may be

entered into a chart. Constraints may be applied at the column or table stage.

Unique Key:

When we assign a column the restriction of a unique key, we're saying that the column can't have any repeat values in it. To put it another way, any of the documents in this column must be unique.

13. In SQL, what is the difference between a clustered index and a non-clustered index?

In SQL, there are two types of indexes: clustered indexes and non clustered indexes. From the standpoint of SQL results, the discrepancies between these two indexes are critical.

● There can only be one clustered index in each table, but there can be several non-clustered indexes. (Around 250)

● A clustered index determines the physical storage of data in the table. Data is stored in a clustered index, and similar data is stored together, making data retrieval simple.

● Non-clustered indexes save only the details and direct you to the data stored in clustered data, while clustered indexes store both the data information and the data itself.

● Reading from a clustered index from the same table is much easier than reading from a non-clustered index.

● Non-clustered indexes have a layout independent from the data row and sort and store data rows in the table or view based on their main value, while clustered indexes sort and store data rows in the table on their fundamental value.

14. What are some of the benefits and drawbacks of using a stored procedure?

Benefits:

● A Stored Procedure can be used as modular programming, which implies that it can be created once, stored, and called multiple times as required. It allows for quicker implementation.

● It also decreases network demand while also improving data protection.

Drawbacks:

The biggest drawback to a Stored Procedure is that it can only be performed in the archive, which consumes additional memory on the database system.

15. In SQL, what is a "TRIGGER"?

When an insert, change or remove order is executed against a particular table, a trigger enables you to run a batch of SQL code. A TRIGGER is a series of activities done if commands like insert, update, or delete are provided by queries.

As these commands are issued to the machine, the trigger is said to be active.

Triggers are a form of stored procedure specified to run automatically in the background or after data changes.

The CREATE TRIGGER argument is used to create triggers.

16. What are the differences between local and global variables?

● Variables at the local level:
These variables may be used outside of the function or just reside within it. Every other feature does not use or apply to these variables.

● Variables at a global level:
These are the variables that can be accessed at any time during the program. When that feature is named, you can’t create any global variables.

17. What is the difference between the operators' BETWEEN and IN?

To represent rows centred on a set of values, use the BETWEEN operator. Numbers, documents, and dates may all be used as values. The BETWEEN operator returns the total number of values that exist within a given set.

The IN condition operator is used to look for values inside a given range of values. When there are several values to choose from, the IN operator is used.

18. What is a Data warehouse, and how does it work?

A data warehouse is a central archive of data that has been compiled from various sources of data. This data is then consolidated, converted, and rendered usable for online analysis and mining. Data Marts are a category of data used in warehouses.

19. What is SQL injection, and how does it work?

SQL injection is a hacking tactic that black-hat hackers often use to extract data from tables or databases. For example, if you go to a website and enter the username and password, the intruder can place malicious code on the server to get the username and password straight from the database. If your database includes sensitive data, it's always a good idea to protect it from SQL injection attacks.

20. In SQL, how can you insert several rows?

We begin by entering the keywords INSERT INTO, followed by the name of the table into which the values will be inserted. We'll follow that up with a description of the columns we'll need to apply values. After that, we'll include the VALUES keyword and then the list of values.