***10 Advance SQL Interview questions and Answers:***

**Advanced Questions (10)**

1. Is a blank space or ZERO the same as a NULL Value in SQL?

A NULL value is not same as zero or a blank space. A NULL value is a value which is 'unavailable, unassigned, unknown or not applicable'. Whereas, zero is a number and blank space is a character.

1. What is UNION, MINUS and INTERSECT commands?

The most commonly used command, UNION combines the two answer sets into a single answer set. It automatically removes duplicate rows from the results. INTERSECT gives you the rows that are found in both queries by eliminating rows that are only found in one or the other query. MINUS.

**UNION:**

SELECT (coloumn\_names) from table1 [WHERE condition] UNION SELECT (coloumn\_names) from table2 [WHERE condition];

**UNION ALL:**

SELECT color\_name FROM colors\_a UNION ALL SELECT color\_name FROM colors\_b;

The MySQL query for the minus operation using the 'NOT IN' operator can be as follows

SELECT color\_name FROM colors\_a WHERE color\_name NOT IN(SELECT color\_name FROM colors\_b);

**INTERSECT:**

The MySQL query for the intersection operation using the 'IN' operator can be as follows:

SELECT color\_name FROM colors\_a WHERE color\_name IN(SELECT color\_name FROM colors\_b);

1. What do you mean by ACID Property in SQL?

In the context of transaction processing, the acronym ACID refers to the four key properties of a transaction: atomicity, consistency, isolation, and durability. Atomicity. All changes to data are performed as if they are a single operation. That is, all the changes are performed, or none of them are.

1. What do you mean by Normalization in a Database? What are the various forms of Normalizations?

Database normalization is a process used to organize a database into tables and columns. There are three main forms: first normal form , second normal form, and third normal form. The main idea is each table should be about a specific topic and only supporting topics included

1NF (First Normal Form) Rules

Each table cell should contain a single value.

Each record needs to be unique

2NF (Second Normal Form) Rules

Rule 1- Be in 1NF

Rule 2- Single Column Primary Key that does not functionally dependant on any subset of candidate key relation

3NF (Third Normal Form) Rules

Rule 1- Be in 2NF

Rule 2- Has no transitive functional dependencies

To move our 2NF table into 3NF, we again need to again divide our table.

BCNF (Boyce-Codd Normal Form)

Even when a database is in 3rd Normal Form, still there would be anomalies resulted if it has more than one **Candidate**Key.

Sometimes is BCNF is also referred as **3.5 Normal Form.**

1. What are the disadvantages of not using Normalizations in databases?

Non-normalized tables generally means that the same data is stored in more than one location. If this is the case, absent application code to prevent it, it's very possible that one of the values will be updated without updating all copies of the same value in other tables.

1. What is Denormalization?

Denormalization is a strategy used on a previously-normalized database to increase performance. The idea behind it is to add redundant data where we think it will help us the most. We can use extra attributes in an existing table, add new tables, or even create instances of existing tables

1. What is an index in SQL? Explain different types of indexes in SQL?

Indexes are used to speed-up query process in SQL Server, resulting in high performance. ... On the other hand, if you create indexes, the database goes to that index first and then retrieves the corresponding table records directly. There are two types of Indexes in SQL Server: Clustered Index. Non-Clustered Index

1. What is the difference between clustered and Non-Clustered index?

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1. What do you mean by a view in SQL?

In SQL, a view is a virtual table based on the result-set of an SQL statement. A view contains rows and columns, just like a real table. The fields in a view are fields from one or more real tables in the database

CREATE VIEW DetailsView AS

SELECT NAME, ADDRESS

FROM StudentDetails

WHERE S\_ID < 5;

To see the view

SELECT \* FROM DetailsView;

1. What are the differences between OLTP and OLAP?

OLTP is a transactional processing while OLAP is an analytical processing system. ... The basic difference between OLTP and OLAP is that OLTP is an online database modifying system, whereas, OLAP is an online database query answering system

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| OLAP (Online analytical processing) | OLTP (Online transaction processing) |
| Consists of historical data from various Databases. | Consists only operational current data. |
| It is subject oriented. Used for Data Mining, Analytics, Decision making,etc. | It is application oriented. Used for business tasks. |