**1.What is difference between unique and distinct?**

**Answer :**

There is no difference between unique and distinct keywords apart from one difference. Unique is applied before insertion and retrieval. It consists of non-duplicate values. If unique constraint is given it does not take duplicate values. Distinct is used in retrieval it gives the suppressed row(ex if two rows are same it will show single row and non-duplicate row) therefore distinct is the combination of suppressed duplicate and non-duplicate rows. Specify [**DISTINCT**](https://dictionary.cambridge.org/dictionary/english/distinct) or **UNIQUE** if you want Oracle to return only one copy of each set of duplicate rows selected (these two keywords are synonymous). Duplicate rows are those with matching values for each expression in the select list.

**So, there is no functional difference between Unique and distinct both have same functionalities.**

**2.What is Normalization?(100% asked Interview Questions for Deloitte)**

**Answer :**

Database Normalization is organizing non structured data in to structured data. Database normalization is nothing but organizing the tables and columns of the tables in such way that it should reduce the data redundancy and complexity of data and improves the integrity of data.

Database Normalization is nothing but technique of designing the database in structured way to reduce redundancy and improve data integrity.

**3.What is purpose of Normalization?**

**Answer :**

Normalization is used for following purpose:

* To Eliminate the redundant or useless data
* To Reduce the complexity of the data
* To Ensure the relationship between tables as well as data in the tables
* To Ensure data dependencies and data is logically stored.

**4.What is Self join?**

**Answer :**

Self join is nothing but the table joins with itself. There are lot of tables which contains more than one functionality at that time the concept of self join comes to the picture.

**Syntax:**

SELECT a.column\_name, a.column\_name…  
FROM table1 a, table1 b  
WHERE a.common\_field = b.common\_field;

**Real Example:**

If one table contains Employee and its position. If we need to fetch the Employees and its managers then self join is used.

**5.Consider following tables:**

create table table\_a(id numeric);

create table table\_b(id numeric);

insert into table\_a(id) values  
(10),  
(20),  
(30),  
(40),  
(50);

insert into table\_b(id) values  
(10),  
(30),  
(50);

**Write a query to fetch values in table table\_a that are and not in table\_b without using the NOT keyword?**

**Answer :**

The Query for the same is:

select \* from table\_a  
except  
select \* from table\_b;

**6.What are different forms of Database Normalization?**

**Answer :**

There are following Four Normal Forms used in Database Normalization:

1.First Normal Form

2.Second Normal Form

3.Third Normal Form

4. Boyce-code Normal Form(BCNF)

**7.Explain First Normal Form with example.**

**Answer :**

The first normal form is the normal form of database where data must not contain repeating groups. The database is in First normal form If,

1.It contains only automic values.

**Automic values:-** The Single cell have only single value

2.Each Record needs to be unique and there are no repeating groups.

**Repeating Groups:-** Repeating group means a table contains 2 or more values of columns that are closely related.

**Example:**

Consider following table which is not normalized:

Employee Table:

|  |  |  |
| --- | --- | --- |
| Employee No | Employee Name | Department |
| 1 | Amit | OBIEE,ETL |
| 2 | Divya | COGNOS |
| 3 | Rama | Administrator |

To bring it in to first normal form We need to split table into 2 tables.

First table: Employee Table

|  |  |
| --- | --- |
| Employee No | Employee Name |
| 1 | Amit |
| 2 | Divya |
| 3 | Rama |

Second Table: Department table

|  |  |
| --- | --- |
| Employee No | Department |
| 1 | OBIEE |
| 1 | ETL |
| 2 | COGNOS |
| 3 | Administrator |

We have divided the table into two different tables and the column of each table is holding the Automicvalues and duplicates also removed.

**8.What is difference between view vs materialized view?(100% asked Interview Questions for Deloitte)**

**Answer :**

|  |  |
| --- | --- |
| View | Materialized Views(Snapshots) |
| 1.View is nothing but the logical structure of the table which will retrieve data from 1 or more table. | 1.Materialized views(Snapshots) are also logical structure, but data is physically stored in database. |
| 2.You need to have Create view privileges to create simple or complex view | 2.You need to have create materialized view ‘s privileges to create Materialized views |
| 3.Data  access is not as fast as materialized views | 3.Data retrieval is fast as compare to simple view because data is accessed from directly physical location |
| 4.There are 2 types of views:  1.Simple View  2.Complex view | 4.There are following types of Materialized views:  1.Refresh on Auto  2.Refresh on demand |
| 5.In Application-level views are used to restrict data from database | 5.Materialized Views are used in Data Warehousing. |

**9.What is Fast Refresh and Incremental Refresh by considering snapshot?**

**Answer :**

When in database level some DML changes are done then Oracle Database stores rows describing those changes in the materialized view log and then uses the materialized view log to refresh materialized views based on the master table. This process is called **incremental or fast refresh.**

In this situation materialized view is not full refresh and it only refresh the data on incremental basic and only incremental data is added in to materialized view.

**10.What is Truncate in SQL? Explain with example.**

**Answer :**

[**Truncate**](http://www.complexsql.com/basic-sql-commands/)**:**

1.Truncate is [Data Definition Language](http://www.complexsql.com/basic-sql-commands/) command which is used to remove the all Rows from the table.

2.You cannot Filter rows while truncate data from the database because it does not allows where clause.

3.Truncate does not return number of rows truncated from the table.

4.Truncate deallocates the memory for that object and other object will use that deallocated space.



5.Truncate operation cannot roll backed because it does not operate on individual row. It directly processes all rows from the table.

6.Truncate is faster than delete.

7.You cannot use conditions in case of truncate.

**Syntax:**

Truncate table <Tablename>

**Real Life Example:**

Suppose you want to delete or remove all records from table named department which has following table structure:

Name of Table: Department

|  |  |
| --- | --- |
| Department ID | Employee Name |
| 100 | Amit |
| 100 | Rohan |
| 101 | Rohit |
| 102 | Null |

Truncate table Department;

So, the all values are truncated.

If we want to check the count of that table:

Select count(\*) from Department;

0 rows displayed

Use Roll back and check the Count:

     Rollback;

Select count(\*) from Department;

0 rows displayed

After Rollback statement also the count is Zero. So truncate table is used to truncate all the rows from the table.

**11.Explain Rank function in SQL.(90% asked Interview Questions for Deloitte)**

**Answer :**

Rank function is used as analytical function in SQL/PLSQL/SQL server which is used to give the rank to the specific record in the table. Rank function is giving you ranking in ordered partitions. Means Ties are assigned to the same values after using the order by clause. So, Rank function is not useful where same data is repeated again and again. It is useful in Unique data where user can make partition and order  the data properly.

Syntax of Rank:

**RANK () OVER (PARTITION BY expression ORDER BY expression)**

Example:

**SELECT Employee\_Name,Department\_No,Salary,RANK() OVER (PARTITION BY Department\_No ORDER BY Salary) “Rank” FROM EMPLOYEE;**

**12.What is the Query to fetch last record from the table?**

**Answer:**

Select \* from Employee where Rowid= select max(Rowid) from Employee;

**16.How do I fetch only common records between 2 tables.**

**Answer :**

Select \* from Employee;

Intersect

Select \* from Employee1;

**17.What are indexes in SQL?(90% asked Interview Questions for Deloitte)**

**Answer:**

***“Index is optional structure associated with the table which may or may not improve the performance of Query”***

In simple words suppose we want to search the topic in to book we go to index page of that book and search the topic which we want. Just like that to search the values from the table when indexing is there you need not use the full table scan.

**18.What is the Query to fetch first record from Employee table?**

**Answer:**

 Select \* from Employee where [Rownum](http://www.complexsql.com/rowid-rownum/)=1;

**19.What is Query to display last 5 Records from Employee table?**

**Answer:**

Select \* from Employee e where rownum <=5

union

select \* from (Select \* from Employee e order by rowid desc) where rownum <=5;

**20.How to get 3 Highest salaries records from Employee table?**

**Answer:**

select distinct salary from employee a where 3 >= (select count(distinct salary) from employee b where a.salary <= b.salary) order by a.salary desc;

**21.How Can I create table with same structure of Employee table?**

**Answer:**

Create table Employee\_1 as Select \* from Employee where 1=2;

**22.What are advantages of Indexes?**

**Answer:**

Indexes are memory objects which are used to improve the performance of queries which allows faster retrieval of records.

Following are advantages of Indexes:

1.It allows faster retrieval of data

2.It avoids the Full table scan so that the performance of retrieving data from the table is faster.

3.It avoids the table access all together

4.Indexes always speeds up the select statement.

5.Indexes used to improve the Execution plan of the database

4.What are disadvantages of Indexes?(80 % asked in Performance Tuning Interview Questions)

**Answer:**

1.Indexes slows down the performance of insert and update statements. So always we need follow best practice of disabling indexes before insert and update the table

2.Indexes takes additional disk space so by considering memory point indexes are costly.

**23.What is parser?**

**Answer:**

When SQL Statement has been written and generated then first step is parsing of that SQL Statement. Parsing is nothing but checking the syntaxes of SQL query. All the syntax of Query is correct or not is checked by SQL Parser.

There are 2 functions of parser:

1.Syntax analysis

2.Semantic analysis

**24.What is composite index?(90% asked Interview Questions for Deloitte)**

**Answer:**

When 2 or more columns are related to each other in the table and the same columns are used in where condition of the query then user can create index on both columns.These indexes are known as composite indexes.

**Example:**

Create index CI\_Employee on Employee(Eno,Deptno);

**25.What is mean by Clustered index?**

**Answer:**

1.The clustered indexes are indexes which are physically stored in order means it stores in ascending or descending order in Database.

2.Clustered indexes are created once for each table. When primary key is created then clustered index has been automatically created in the table.

3.If table is under heavy data modifications the clustered indexes are preferable to use.

===================================================================

**How To Concatenate Two Character Strings?**  
If you want concatenate multiple character strings into one, you need to use the CONCAT() function. Here are some good examples:  
  
SELECT CONCAT(’Welcome’,’ to’) FROM DUAL;  
Welcome to  
SELECT CONCAT(wj’,’center’,’.com’) FROM DUAL;  
wisdomjobs.com  
  
**How To Enter Characters As Hex Numbers?**  
If you want to enter characters as HEX numbers, you can quote HEX numbers with single quotes and a prefix of (X), or just prefix HEX numbers with (Ox). A HEX number string will be automatically converted into a character string, if the expression context is a string. Here are some good examples:  
  
SELECT X313233’ FROM DUAL;  
123  
SELECT 0x414243 FROM DUAL;  
ABC

**How To Enter Boolean Values In Sql Statements?**  
If you want to enter Boolean values in SQL statements, you use (TRUE), (FALSE), (true), or (false). Here are some good examples:  
  
SELECT TRUE, true, FALSE, false FROM DUAL;

**How To Convert Numeric Values To Character Strings?**  
You can convert numeric values to character strings by using the CAST(value AS CHAR) function as shown in the following examples:  
  
SELECT CAST(4123.45700 AS CHAR) FROM DUAL;  
4123.45700  
 **How To Get Rid Of The Last 2 0's?**  
  
SELECT CAST(4.12345700E+3 AS CHAR) FROM DUAL;  
4123.457  
SELECT CAST(1/3 AS CHAR);  
0.3333  
  
**How To Use In Conditions?**  
An IN condition is single value again a list of values. It returns TRUE, if the specified value is in the list. Otherwise, it returns FALSE. Some examples are :  
  
SELECT 3 IN (1,2,3,4,5) FROM DUAL;  
1  
SELECT 3 NOT IN (1,2,3,4,5) FROM DUAL;  
0  
SELECT Y’ IN (‘F’,’Y’,I) FROM DUAL;  
1  
 **How To Use Like Conditions?**  
  
A LIKE condition is also called pattern patch. There are 3 main rules on using LIKE condition:  
  
is used in the pattern to match any one character.  
% is used in the pattern to match any zero or more characters.  
ESCAPE clause is used to provide the escape character in the pattern.  
  
**How To Present A Past Time In Hours, Minutes And Seconds?**  
If you want show an article was posted “n hours n minutes and n seconds ago’, you can use the TIMEDIFF(NOWO, pastTime) function as shown in the following are:  
  
SELECT TIMEDIFF(NOWO, ‘2006-07-01 04:09:49’) FROM DUAL;  
06:42:58  
SELECT TIM E\_FORMAT(TI M EDI FF( NOWO, ‘2006-06-30 04:09:49’),  
 ‘%H hours, %i minutes and %s seconds ago.’) FROM DUAL;  
30 hours, 45 minutes and 22 seconds ago.  
  
**How To Add A New Column To An Existing Table In Mysql?**  
ALTER TABLE tip ADD COLUMN author VARCHAR(40);  
Query OK, 1 row affected (0.18 sec)  
Records: 1 Duplicates: 0 Warnings: 0  
  
**How To Delete An Existing Column In A Table?**  
ALTER TABLE tip DROP COLUMN create\_date;  
Query OK, 1 row affected (0.48 sec)  
Records: 1 Duplicates: 0 Warnings: 0  
  
**How To Rename An Existing Column In A Table?**  
ALTER TABLE tip CHANGE COLUMN subject title VARCHAR(60);  
  
**How To Rename An Existing Table In Mysql?**  
ALTER TABLE tip RENAME TO faq;  
  
**How To Create A Table Index In Mysql?**  
If you have a table with a lots of rows, and you know that one of the columns will be used often as a search criteria, you can add an index for that column to improve the search performance. To add an index, you can use the “CREATE INDEX” statement as shown in the following script:  
  
<pre>mysql> CREATE TABLE tip (id INTEGER PRIMARY KEY,  
subject VARCHAR(80) NOT NULL,  
description VARCHAR(256) NOT NULL,  
create\_date DATE NULL);  Query OK,  
0 rows affected (0.08 sec)</pre>  
mysql> CREATE INDEX tip\_subject ON tip(subject);  
Query OK,  
0 rows affected (0.19 sec)  
Records: 0 Duplicates: 0 Warnings: 0  
  
**How To Get A List Of Indexes Of An Existing Table?**  
If you want to see the index you have just created for an existing table, you can use the “SHOW INDEX FROM tableName” command to get a list of all indexes in a given table.  
  
**How To Drop An Existing Index In Mysql?**  
If you don’t need an existing index any more, you should delete it with the “DROP INDEX indexName ON tableName” statement. Here is an example SQL script :  
  
mysqi> DROP INDEX tip\_subject ON tip;  
Query OK, 0 rows affected (0.13 sec)  
Records: 0 Duplicates: 0 Warnings: 0  
  
**How To Drop An Existing View In Mysql?**  
If you have an existing view, and you dont want it anymore, you can delete it by using the “DROP VIEW viewName” statement  
  
**How To Create A New View In Mysql?**  
You can create a new view based on one or more existing tables by using the  
  
“CREATE VIEW viewName AS selectStatement” .  
  
**How To Increment Dates By 1111 Mysql?**  
If you have a date, and you want to increment it by 1 day, you can use the DATE\_ADD(date, INTERVAL 1 DAY) function. You can also use the date interval add operation as “date + INTERVAL 1 DAY.  
  
**Differentiate between FLOAT and DOUBLE?**  
  
Following are differences for FLOAT and DOUBLE:

• Floating point numbers are stored in FLOAT with eight place accuracy and it has four bytes.  
  
• Floating point numbers are stored in DOUBLE with accuracy of 18 places and it has eight bytes.  
  
**Differentiate CHAR\_LENGTH and LENGTH?**  
  
CHAR\_LENGTH  is character count whereas the LENGTH is byte count. The numbers are same for Latin characters but they are different for Unicode and other encodings.  
  
**How to represent ENUMs and SETs internally?**  
  
ENUMs and SETs are used to represent powers of two because of storage optimizations.  
  
**What is the usage of ENUMs in MySQL?**  
  
ENUM is a string object used to specify set of predefined values and that can be used during table creation.  
  
Create table size(name ENUM('Small', 'Medium','Large');  
1  
Create table size(name ENUM('Small', 'Medium','Large');  
  
**Define REGEXP?**  
  
REGEXP is a pattern match in which  matches pattern anywhere in the search value.  
  
**Difference between CHAR and VARCHAR?**  
  
Following are the differences between CHAR and VARCHAR:  
  
CHAR and VARCHAR types differ in storage and retrieval  
CHAR column length is fixed to the length that is declared while creating table. The length value ranges from 1 and 255  
When CHAR values are stored then they are right padded using spaces to specific length. Trailing spaces are removed when CHAR values are retrieved.  
  
**What are the technical features of MySQL?**  
  
MySQL database software is a client or server system which includes  
  
Multithreaded SQL server supporting various client programs and libraries  
Different backend  
Wide range of application programming interfaces and  
Administrative tools.

**Why MySQL is used?**  
  
MySQL database server is reliable, fast and very easy to use.  This software can be downloaded as freeware and can be downloaded from the internet.

**1. Tell me about yourself.**  
**2. So how much you rate yourself in your current technologies** i.e. Asp.net, Sql server, SSRS and SSIS out of five.  
  
SQL SERVER  
**3. How can you optimize a complex Stored procedure?**ANS:  
1. The first criteria for any efficient stored procedure is its Total Time. The total time can be defined as the time taken for the query to return all records. There is another concept known as, Response time, it is the time taken for a query to return the first record. Now it depends on our requirement, if we want the whole set of records or few records from our database depending on the parameters.  
2. In a Stored Procedure, we have to secondly analyze the poor performing SQL Server Queries.

3. Managing Indexes: Applying Indexes to the appropiate table columns can increase the query performance drastically. After adding an index, rerun the query to see if performance is improved. If it is not, remove the index. When we create a primary key for a table, a clustered index is automatically created and all the data pages and all the rows for the data pages are physically sorted according to the primary key values. If the table structure is complicated or the query demands very particular rows in return then we can further add non-clustered index there by taking the combination of particular columns as unique.  
But then we have to consider the query type also. For search operations i.e. SELECT queries and parametrized queries(queries with where clauses)run faster with Indexes. But if we have more DML operations like UPDATE/DELETE then index decrease the performance as we have physically sort the rows after each modification.  
4. Joins: Join is a very important factor in our stored procedure performance. Sometimes we can replace our IN,EXISTS OR GROUP BY clauses and subqueries with our JOINS to achieve better results. On the other-hand, the same JOIN takes much longer time in certain situations. The OUTER JOIN takes more time than an INNER JOIN so we can restrict them as much as possible.

5. We should practice to write queries to return distinct and definite results. To achieve that we can use more parametrized queries. We have to again check if our stored procedure is calling some other SP or functions, and then their response time also.  
  
4. Can a SP call itself?  
Ans: Yes a SP can call itself. Such a SP is called as recursive SP.  
  
5. Can you call one SP inside another SP ?How to do that? How many number of times we can do that?  
Yes we can call SP inside another. We can use EXEC(Execute) command to execute one SP inside another. We can nest stored procedures and managed code references up to 32 levels.  
  
6. How can we replace cursor in a query?  
We can replace cursor by using table variable or temp table. We can create the same cursor effect of row-by-row iteration by using a While loop and insert data into the table variable/temp table.  
  
7.Write the syntax of 'FOR Loop' in Sql Server?(Gives me a paper)  
There is no For Loop in Sql server.  
  
8. What is a trigger?  
A trigger is a special kind of a store procedure that executes in response to certain actions like INSERT,DELETE or UPDATE data in a table. It is a database object which is bound to a table and is executed automatically. we can't explicitly invoke triggers.  
  
9. How many types of Trigger are there?  
Basically, triggers are of two main types:  
1.After Triggers (For Triggers)  
2.Instead of Triggers

========================================================

**1) What is blocking and how would you troubleshoot it?**

Blocking happens when one connection from an application holds a lock and a second connection requires a conflicting lock type. This forces the second connection to wait, blocked on the first.

### 2) What are the steps you will take to improve the performance of a poor-performing query?

This is a very open-ended question and there could be a lot of reasons behind the poor performance of a query. But some general issues that you could talk about would be: No indexes, table scans, missing or out of date statistics, blocking, excess recompilations of stored procedures, procedures, and triggers without SET NOCOUNT ON, poorly written query with unnecessarily complicated joins, too much normalization, excess usage of cursors and temporary tables.

**Some of the tools/ways that help you troubleshooting performance problems are:**

* SET SHOWPLAN\_ALL ON
* SET SHOWPLAN\_TEXT ON
* SET STATISTICS IO ON
* SQL Server Profiler
* Windows NT /2000 Performance monitor
* Graphical execution plan in Query Analyzer.

### 3) You are being you being assigned a task to move 5 million rows from one server to another using T-SQL with a linked server. What will you consider to avoid transaction log fill up at destination server?

We will prefer to use SET ROWCOUNT and a while loop to commit data in batches.

### 4) What is the optimal Disk configuration for a database server and what RAID configurations would you use if budget is not a constraint?

1. RAID 1 for the OS / Applications
2. RAID 1 for the page file
3. RAID 10 for the Data file (or RAID 5 for few writes)
4. RAID 1 (or 10) for the transaction log

### ) What is a deadlock and what is a live lock? How will you go about resolving deadlocks?

Deadlock is a situation when two processes, each having a lock on one piece of data, attempt to acquire a lock on the other’s piece. Each process would wait indefinitely for the other to release the lock unless one of the user processes is terminated. SQL Server detects deadlocks and terminates one user’s process.

A livelock is one, where a  request for an exclusive lock is repeatedly denied because a series of overlapping shared locks keeps interfering. SQL Server detects the situation after four denials and refuses further shared locks. A livelock also occurs when read transactions monopolize a table or page, forcing a write transaction to wait indefinitely.

### 6) What is blocking and how would you troubleshoot it?

Blocking happens when one connection from an application holds a lock and a second connection requires a conflicting lock type. This forces the second connection to wait, blocked on the first.

**7) What are statistics, under what circumstances do they go out of date, how do you update them?**

Statistics determine the selectivity of the indexes. If an indexed column has unique values then the selectivity of that index is more, as opposed to an index with non-unique values. The query optimizer uses these indexes in determining whether to choose an index or not while executing a query.

Some situations under which you should update statistics:

1. If there is a significant change in the key values in the index
2. If a large amount of data in an indexed column has been added, changed, or removed (that is if the distribution of key values has changed), or the table has been truncated using the TRUNCATE TABLE statement and then repopulated
3. The database is upgraded from a previous version

Look up [SQL Server](https://www.microsoft.com/en-us/sql-server/sql-server-2017) books online for the following commands:

UPDATE STATISTICS,

STATS\_DATE,

DBCC SHOW\_STATISTICS,

CREATE STATISTICS,

DROP STATISTICS,

sp\_autostats,

sp\_createstats,

sp\_updatestats

**8) Could you please some items which you may see in an execution plan indicating the query is not optimized.**

1. Index Scan or Table Scan
2. Hash Joins
3. Thick arrows (indicating large work tables)
4. Parallel streams (Parallelism)
5. Bookmark lookup (or key lookup)

**9) What structure can you implement for the database to speed up table reads?**

Follow the rules of DB tuning we have to:

* properly use indexes ( different types of indexes)
* properly locate different DB objects across different tablespaces, files, and so on.
* 3 create a special space (tablespace) to locate some of the data with special datatype ( for example CLOB, LOB, and …)

**10) Difference between SQL Server and Postgre SQL**

| **SQL Server vs PostgreSQL** | | |
| --- | --- | --- |
| **Feature** | **Microsoft SQL Server** | **PostgreSQL** |
| Operating System | Windows | Windows, IOS, Unix, and [Linux](https://mindmajix.com/linux-tutorial) |
| Licensing | Free and commercial | Open Source |
| Installation and Maintenance | Expert advice needed | Medium |
| Windows default drivers | Yes | No |
| Drivers available | ODBC, JDBC, ADO.NET | ODBC, JDBC, ADO.NET |
| Read-Only Views | Yes | Yes |
| Open Source | Other than CodePlex/.NET | Moderately |
| Modifying columns | Can modify without dropping | Cannot |
| Dropping tables and views | Can drop tables and views | Can't drop tables |

=============================================================

**1) In what sequence SQL statements are processed?**

The clauses of the select are processed in the following sequence

1. FROM clause
2. WHERE clause
3. GROUP BY clause
4. HAVING clause
5. SELECT clause
6. ORDER BY clause
7. TOP clause

**2) Can we write a distributed query and get some data that is located on another server and on Oracle Database?**

SQL Server can be lined to any server provided it has an OLE-DB provider from Microsoft to allow a link.

For E.g. Oracle has an OLE-DB provider for oracle that Microsoft provides to add it as a linked server to the SQL Server group.

**3) If we drop a table, does it also drop related objects like constraints, indexes, columns, defaults, Views, and Stored Procedures?**

**YES**, SQL Server drops all related objects, which exist inside a table like, constraints, indexes, columns, defaults, etc. BUT dropping a table will not drop Views and Stored Procedures as they exist outside the table.

How would you determine the time zone under which a database was operating?

**4) Can we add an identity column to the decimal datatype?**

**YES**, SQL Server support this

**5) What is the difference between LEFT JOIN with WHERE clause & LEFT JOIN with nowhere clause?**

OUTER LEFT/RIGHT JOIN with WHERE clause can act like an INNER JOIN if not used wisely or logically.

**6) What are the multiple ways to execute a dynamic query?**

* EXEC sp\_executesql,
* EXECUTE()

### 7) What is the Difference between COALESCE() & ISNULL()?

ISNULL accepts only 2 parameters. The first parameter is checked for a NULL value, if it is NULL then the second parameter is returned, otherwise, it returns the first parameter.  
  
COALESCE accepts two or more parameters. One can apply 2 or as many parameters, but it returns only the first non NULL parameter,

### 8) How do you generate file output from SQL?

While using SQL Server Management Studio or Query Analyzer, we have an option in Menu BAR.QUERTY >> RESULT TO >> Result to FILE

### 9) How do you prevent SQL Server from giving you informational messages during and after a SQL statement execution?

SET NOCOUNT OFF

### 10) By Mistake, Duplicate records exists in a table, how can we delete the copy of a record?

with T as

(

select \* , row\_number() over (partition by Emp\_ID order by Emp\_ID) as rank

from employee

)

delete

from T

where rank > 1

### 11) WHAT OPERATOR PERFORMS PATTERN MATCHING?

The pattern matching operator is LIKE and it has to use with two attributes

1. %  means matches zero or more characters and

2. \_ ( underscore ) means matching exactly one character

### 12) What’s the logical difference, if any, between the following SQL expressions?

-- Statement 1

SELECT COUNT ( \* ) FROM Employees

-- Statement 2

SELECT SUM ( 1 ) FROM Employees

They’re the same unless table Employee table is empty, in which case the first yields a one-column, a one-row table containing zero, and the second yields a one-column, one-row table "containing a null."

### 13) Is it possible to update the Views? If yes, How, If Not, Why?

Yes, We can modify views but a DML statement on a join view can modify only one base table of the view (so even if the view is created upon a join of many tables, only one table, the key preserved table can be modified through the view).

### 14) Could you please name different kinds of Joins available in SQL Server?

* OUTER JOIN – LEFT, RIGHT, CROSS, FULL ;
* INNER JOIN

### 15) How important do you consider cursors or while loops for a transactional database?

would like to avoid cursor in the OLTP database as much as possible, Cursors are mainly only used for maintenance or warehouse operations.

### 16) What is a correlated subquery?

When a subquery is tied to the outer query. Mostly used in self joins.

### 17) What is faster, a correlated subquery or an inner join?

Correlated subquery.

### 18) You are supposed to work on SQL optimization and given a choice which one runs faster, a correlated subquery or an exists?

Exists

### 19) Can we call. DLL from the SQL server?

YES, We can call. Dll from SQL Server.

### 20) What are the pros and cons of putting a scalar function in a queries select list or in the where clause?

Should be avoided if possible as Scalar functions in these places make the query slow down dramatically.

### 21) What are user-defined data types and when you should go for them?

User-defined data types let you extend the base SQL Server data types by providing a descriptive name, and format to the database. Take for example, in your database, there is a column called Flight\_Num which appears in many tables. In all these tables it should be varchar(8). In this case, you could create a user-defined data type called Flight\_num\_type of varchar(8) and use it across all your tables.

See sp\_addtype, sp\_droptype in books online.

### 22) Can You Explain Integration Between SQL Server 2005 And Visual Studio 2005?

This integration provides a wider range of development with the help of CLR for database servers because CLR helps developers to get flexibility for developing database applications and also provides language interoperability just like Visual C++, Visual Basic .Net and Visual C# .Net.

The CLR helps developers to get the arrays, classes and exception handling available through programming languages such as Visual C++ or Visual C# which is used in stored procedures, functions and triggers for creating database application dynamically and also provide more efficient reuse of code and faster execution of complex tasks. We particularly liked the error-checking powers of the CLR environment, which reduces run-time errors

### 23) What are Index, cluster index, and non-cluster index?

**Clustered Index:-** A Clustered index is a special type of index that reorders the way records in the table are physically stored. Therefore table may have only one clustered index.

**Non-NonClustered Index:-**A Non-Clustered index is a special type of index in which the logical order of the index does not match the physical stored order of the rows in the disk. The leaf nodes of a non-clustered index do not consist of the data pages. instead, the leaf node contains index rows.

### 24) Write down the general syntax for a SELECT statement covering all the options.

Here’s the basic syntax: (Also checkout SELECT in books online for advanced syntax)

SELECT select\_list

[INTO new\_table\_]

FROM table\_source

[WHERE search\_condition]

[GROUP BY group\_by\_\_expression]

[HAVING search\_condition]

[ORDER BY order\_\_expression [ASC | DESC] ]

### 25). What is a join and explain different types of joins?

Joins are used in queries to explain how different tables are related. Joins also let you select data from a table depending upon data from another table.

Types of joins:

INNER JOINs,

OUTER JOINs,

CROSS JOINs

OUTER JOINs are further classified as

LEFT OUTER JOINS,

RIGHT OUTER JOINS and

FULL OUTER JOINS.

For more information see pages from books online titled: "Join Fundamentals" and "Using Joins".

### 26) What is the OSQL utility?

OSQL is a command-line tool that is used to execute the query and display the result the same as a query analyzer but everything is in command prompt.

### 27) What Is the Difference Between OSQL And Query Analyzer?

OSQL is the command-line tool that executes the query and displays the result same as a query analyzer but the query analyzer is graphical and OSQL is a command-line tool. OSQL is quite useful for batch processing or executing remote queries.

### 28) What Is Cascade delete/update?

CASCADE allows deletions or updates of key values to cascade through the tables defined to have foreign key relationships that can be traced back to the table on which the modification is performed.

## SQL Server Interview Questions For 2-5 Years Experienced

### 29) What are some of the join algorithms used when SQL Server joins tables.

1. Loop Join (indexed keys unordered)
2. Merge Join (indexed keys ordered)
3. Hash Join (non-indexed keys)

### 30) What is the maximum number of tables that can join in a single query?

256, check SQL Server Limits

### 31) What are Magic Tables in SQL Server?

The MAGIC tables are automatically created and dropped; in case you use TRIGGERS. SQL Server has two magic tables named, INSERTED and DELETED

These are maintained by the SQL server for their Internal processing. When we use update insert or delete on tables these magic tables are used. These are not physical tables but are Internal tables. Whenever we use insert statement is fired the Inserted table is populated with newly inserted Row and whenever delete statement is fired the Deleted table is populated with the deleted row.

But in case of update statement is fired both Inserted and Deleted table used for records the original row before updating get store in the Deleted table and the new row Updated gets store in Inserted table.

### 32) Can we disable a trigger? if yes HOW?

YES, we can disable a single trigger on the database by using  “DISABLE TRIGGER triggerName ON <>”

we also have an option to disable all the triggers by using, “DISABLE Trigger ALL ON ALL SERVER”

### 33) Why do you need indexing? where is Stored and what do you mean by schema object? For what purpose we are using view?

We can’t create an Index on an Index... The index is stored in the user\_index table. Every object that has been created on Schema is Schema Object like Table, View etc. If we want to share the particular data to various users we have to use the virtual table for the Base table. So that is a view.

Indexing is used for faster search or to retrieve data faster from the various tables. Schema containing a set of tables, basically schema means logical separation of the database. The view is crated for faster retrieval of data. It’s a customized virtual table. we can create a single view of multiple tables. Only the drawback is..view needs to be get refreshed for retrieving updated data.

### 34) What is the difference between UNION and UNION ALL?

Union will remove the duplicate rows from the result set while Union all doesn't.

### 35) Which system table contains information on constraints on all the tables created?

USER\_CONSTRAINTS,

system table contains information on constraints on all the tables created

## SQL Server Joins Interview Questions

### 35) What are the different Types of Join?

Below are the different types of [SQL Server Joins](https://mindmajix.com/joins-sql-server):

1. **Cross Join:** A cross join that does not have a WHERE clause produces the Cartesian product of the tables involved in the join. The size of a Cartesian product result set is the number of rows in the first table multiplied by the number of rows in the second table. A common example is when a company wants to combine each product with a pricing table to analyze each product at each price.
2. **Inner Join:** A join that displays only the rows that have a match in both joined tables is known as inner Join. This is the default type of join in the Query and View Designer.
3. **Outer Join:** A join that includes rows even if they do not have related rows in the joined table is an Outer Join. You can create three different outer joins to specify the unmatched rows to be included:
   1. **Left Outer Join:** In Left Outer Join all rows in the first-named table i.e. "left" table, which appears leftmost in the JOIN clause are included. Unmatched rows in the right table do not appear.
   2. **Right Outer Join:** In Right Outer Join all rows in the second-named table i.e. "right" table, which appears rightmost in the JOIN clause are included. Unmatched rows in the left table are not included.
   3. **Full Outer Join:** In Full Outer Join all rows in all joined tables are included, whether they are matched or not.
4. **Self Join:** This is a particular case when one table joins to itself, with one or two aliases to avoid confusion. A self-join can be of any type, as long as the joined tables are the same. A self-join is rather unique in that it involves a relationship with only one table. A common example is when a company has a hierarchal reporting structure whereby one member of staff reports to another. Self Join can be Outer Join or Inner Join.

### 36) What is Data-Warehousing?

1. **Subject-oriented**, meaning that the data in the database is organized so that all the data elements relating to the same real-world event or object are linked together;
2. **Time-variant**, meaning that the changes to the data in the database are tracked and recorded so that reports can be produced showing changes over time;
3. **Non-volatile**, meaning that data in the database is never over-written or deleted, once committed, the data is static, read-only, but retained for future reporting.
4. **Integrated**, meaning that the database contains data from most or all of an organization’s operational applications and that this data is made consistent.

### 37) What is a live lock?

A livelock is one, where a request for an exclusive lock is repeatedly denied because a series of overlapping shared locks keeps interfering. SQL Server detects the situation after four denials and refuses further shared locks. A livelock also occurs when read transactions monopolize a table or page, forcing a write transaction to wait indefinitely.

### 38) How SQL Server executes a statement with nested subqueries?

When SQL Server executes a statement with nested subqueries, it always executes the innermost query first. This query passes its results to the next query and so on until it reaches the outermost query. It is the outermost query that returns a result set.

### 39) How do you add a column to an existing table?

ALTER TABLE Department ADD (AGE, NUMBER);

### 40) Can one drop a column from a table?

**YES**, to delete a column in a table, use  ALTER TABLE table\_name DROP COLUMN column\_name

### 41) Which statement do you use to eliminate padded spaces between the month and day values in a function TO\_CHAR(SYSDATE,’Month, DD, YYYY’)?

To remove padded spaces, you use the "fm" prefix before the date element that contains the spaces. TO\_CHAR(SYSDATE,’fmMonth DD, YYYY’)

### 42) Which operator do you use to return all of the rows from one query except rows are returned in a second query?

You use the **EXCEPT**operator to return all rows from one query except where duplicate rows are found in a second query. The UNION operator returns all rows from both queries minus duplicates. The UNION ALL operator returns all rows from both queries including duplicates. The INTERSECT operator returns only those rows that exist in both queries.

### 43) How will you create a column alias?

The **AS**keyword is optional when specifying a column alias.

### 44) In what sequence SQL statements are processed?

The clauses of the subselect are processed in the following sequence (DB2):

1. FROM clause
2. WHERE clause
3. GROUP BY clause
4. HAVING clause
5. SELECT clause
6. ORDER BY clause
7. FETCH FIRST clause

### 45) How can we determine what objects a user-defined function depends upon?

**sp\_depends**system stored procedure or query the says depends on system table to return a list of objects that a user-defined function depends upon

SELECT DISTINCT so1.name, so2.name FROM sysobjects so1

INNER JOIN sysdepends sd

ON so1.id = sd.id

INNER JOIN sysobjects so2

ON so2.id = sd.depid

WHERE so1.name = '<>'

### 46). What is lock escalation?

A query first takes the lowest level lock possible with the smallest footprint (row-level). When too many rows are locked (requiring too much RAM) the lock is escalated to a range or page lock. If too many pages are locked, it may escalate to a table lock.

### 47) What are the main differences between #temp tables and @table variables and which one is preferred?

1. SQL Server can create column statistics on #temp tables
2. Indexes can be created on #temp tables
3. @table variables are stored in memory up to a certain threshold.

### 48) What are Checkpoint In SQL Server?

When we did the operation on SQL SERVER that is not committed directly to the database. All operations must be logged in to Transaction Log files after that they should be done on to the main database. Checkpoint is the point that alerts SQL Server to save all the data to the main database if no checkpoint is there then log files get full we can use the Checkpoint command to commit all data in the SQL SERVER. When we stop the SQL Server it will take a long time because Checkpoint is also fired.

**49) Why we use the OPEN XML clause?**

OPENXML parses the XML data in SQL Server in an efficient manner. Its primary ability is to insert XML data into the DB.

**50) Can we store PDF files inside the SQL Server table?**

**YES,**we can store this sort of data using a blob datatype.

**51) Can we store Videos inside the SQL Server table?**

**YES,**we can store Videos inside SQL Server by using FILESTREAM data type, which was introduced in SQL Server 2008.

**52) Can we hide the definition of a stored procedure from a user?**

YES, while creating stored procedure we can use WITH ENCRYPTION which will convert the original text of the CREATE PROCEDURE statement to an encrypted format.

**53) What have included columns when we talk about SQL Server indexing?**

Indexed with included columns were developed in SQL Server 2005 that assists in covering queries. Indexes with Included Columns are non clustered indexes that  
  
have the following benefits:

* Columns defined in the include statement, called non-key columns, are not counted in the  
  a number of columns by the Database Engine.
* Columns that previously could not be used in queries, like nvarchar(max), can be included  
  as a non-key column.
* A maximum of 1023 additional columns can be used as non-key columns.

**54). What is an execution plan? How would you view the execution plan?**

An execution plan is basically a road map that graphically or textually shows the data retrieval methods chosen by the SQL Server query optimizer for a stored procedure or ad-hoc query and is a very useful tool for a developer to understand the performance characteristics of a query or stored procedure since the plan is the one that SQL Server will place in its cache and use to execute the stored procedure or query.

From within Query Analyzer is an option called "Show Execution Plan" (located on the Query drop-down menu). If this option is turned on it will display the query execution plan in a separate window when the query is run again.

**55). Explain UNION, MINUS, UNION ALL, INTERSECT?**

INTERSECT returns all distinct rows selected by both queries.  
  
**MINUS:**returns all distinct rows selected by the first query but not by the second.

**UNION:** returns all distinct rows selected by either query

**UNION  ALL:**  returns  all  rows  selected  by  either query, including all duplicates

**SQL Server DATEADD() Function**

### 56) Write a Query to display the date after 15 days?

SELECT DATEADD(dd, 15,getdate())

### 57) Write a Query to display the date after 12 months?

SELECT DATEADD(mm, 2, getdate())

### 58) Write a Query to display the date before 15 days?

SELECT DATEADD(dd, -15, getdate())

**SQL Server DATEDIFF() Function**

### 59) Write a Query to display employee details along with exp?

SELECT \*

DATEDIFF(yy, doj, getdate()) AS ‘Exp’ FROM employee

### 60) Write a Query to display employee details who is working in ECE department & who his having more than 3 years of exp?

SELECT \*

DATEDIFF(yy, doj, getdate()) AS ‘Exp’

FROM employee

WHERE DATEDIFF(yy, doj, getdate())>3 AND dept\_name=’ECE’

### 61) Write a Query to display employee details along with age?

SELECT \*

DATEDIFF(yy, dob, getdate()) AS ‘Age’ FROM employee

### 62) Write a Query to display employee details whose age >18?

SELECT \*

DATEDIFF(yy, dob, getdate()) AS ‘Age’ FROM employee

WHERE DATEDIFF(yy, dob, getdate())>18

**SQL Server Multi-Row Functions**

### 63) Write a Query to display the minimum salary of an employee?

SELECT MIN (salary)

FROM employee

### 64) Write a Query to display the maximum salary of an employee?

SELECT MAX(salary)

FROM employee

### 65) Write a Query to display the total salary of all employees?

SELECT SUM(salary) FROM employee

### 66) Write a Query to display the average salary of an employee?

SELECT AVG(salary) FROM employee

### 67) Write a Query to count the number of employees working in the company?

SELECT COUNT(\*) FROM employee

### 68) Write a Query to display the minimum & maximum salary of the employee?

SELECT MIN(salary) AS ‘min sal’, MAX(salary) AS ‘max sal’ FROM employee

### 69) Write a Query to count the number of employees working in the ECE department?

SELECT COUNT(\*) FROM employee WHERE dept\_name=’ECE’

### 70) Write a Query to display the second max salary of an employee?

SELECT MAX(salary)

FROM employee

WHERE salary < (SELECT MAX(salary) FROM emp)

### 71) Write a Query to display the third max salary of an employee?

SELECT MAX(salary)

FROM employee

WHERE salary < (SELECT MAX(salary) FROM emp where salary < (SELECT MAX(salary) FROM emp))

**SQL SERVER: GROUP BY Clause**

### 72) Write a Query to display the total salary of employees based on the city?

SELECT city, SUM(salary)

FROM employee

GROUP BY city;

### 73) Write a Query to display a number of employees based on the city?

SELECT city, COUNT(emp\_no)

FROM employee

GROUP BY city;

**(OR)**

SELECT city, COUNT(emp\_no) AS ‘no.of employees’

FROM employee

GROUP BY city;

### 74) Write a Query to display the total salary of employees based on region?

SELECT region, SUM(salary) AS ‘total\_salary’

FROM employee

GROUP BY region;

### 75) Write a Query to display the number of employees working in each region?

SELECT region, COUNT(gender)

FROM employee

GROUP BY region;

**(OR)**

SELECT region, COUNT(gender) AS ‘no.of males’

FROM employee

GROUP BY region;

### 76) Write a Query to display minimum salary & maximum salary based on dept\_name?

SELECT dept\_name, MIN(salary) AS ‘min sal’, MAX(salary) AS ‘max sal’

FROM employee

GROUP BY dept\_name

### 77) Write a Query to display the total salary of employees based on dept\_name?

SELECT dept\_name, SUM(salary) AS ‘total\_sal’

FROM employee

GROUP BY dept\_name

### 78) Write a Query to display no. of males in each department?

SELECT dept\_name, COUNT(gender)

FROM employee

GROUP BY dept\_name

WHERE gender=’male’

**(OR)**

SELECT dept\_name, COUNT(gender) AS ‘no.of males’

FROM employee

WHERE gender=’male’

GROUP BY dept\_name;

**Note:**We cannot apply where condition in GROUP BY CLAUSE if we want to apply use having clause.

We have to use WHERE condition before GROUP BY but cannot apply where condition after GROUP BY.

**SQL SERVER: Having Clause**

### 79) Write a Query to display the total salary of employees based on whose total salary > 12000?

SELECT city, SUM(salary) AS ‘total\_salary’

FROM employee

GROUP BY city

HAVING SUM(salary)>12000;

### 80) Write a Query to display the total salary of all employees based on a city whose average salary >= 23000?

SELECT city, SUM(salary) AS ‘total\_salary’

FROM employee

GROUP BY city

HAVING AVG(salary) >= 23000;

**SQL SERVER: SUB QUERIES**

### 81) Write a Query to display employee details whose employee numbers are 101, 102?

SELECT \*

FROM employee

WHERE Emp\_No in (101, 102)

**(OR)**

SELECT \* FROM employee

WHERE Emp\_No in (select emp\_no from emp)

### 82) Write a Query to display employee details belongs to the ECE department?

SELECT Emp\_No, Emp\_Name, Salary

FROM employee

WHERE dept\_no in (select dept\_no from dept where dept\_name = ‘ECE’)

**SQL SERVER TOP Clause**

### 83) Write a Query to display the first record from the table?

SELECT TOP 1 \*

FROM employee

### 84) Write a Query to display the top 3 records from the table?

SELECT TOP 3 \*

FROM employee

### 85) Write a Query to display the last record from the table?

SELECT TOP 1 \*

FROM employee

ORDER BY emp\_no descending

**SQL SERVER: Ranking Functions**

**Student Details Table:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Student\_No** | **Student\_Name** | **Percentage** | **Row\_ID** | **Rank\_ID** | **DenseRank\_ID** |
| 105 | James | 87 | 1 | 1 | 1 |
| 106 | John | 83 | 2 | 2 | 2 |
| 101 | Anil | 83 | 3 | 2 | 2 |
| 104 | Vijay | 83 | 4 | 2 | 2 |
| 108 | Rakesh | 76 | 5 | 5 | 3 |
| 102 | Sunil | 76 | 6 | 5 | 3 |
| 103 | Ajay | 76 | 7 | 5 | 3 |
| 107 | Ram | 75 | 8 | 8 | 4 |

### 86) Write a Query to display student details along with the row\_no order by student name?

SELECT \*, ROW\_NUMBER() OVER (ORDER BYstudent\_name) AS ‘Row\_ID’

FROM employee

### 87) Write a Query to display even records from the table?

SELECT \* FROM ( SELECT \*, ROW\_NUMBER() OVER (ORDER BY student\_no) AS ‘ Row\_ID’ FROM student)

WHERE row\_id %2=0

### 88) Write a Query to display odd records from the student table?

SELECT \* FROM (SELECT \*, ROW\_NUMBER() OVER (ORDER BY student\_no) AS Row\_ID FROM student)

WHERE row\_id %2!=0

ASP.NET  
Mostly he asked about the project description and then few questions he asked for which he handed me papers to write down the codes.  
1. Can we use a dropdown to the editable gridview?  
2. Write the code how to bind the dropdown list to the gridview?  
3. In which event of the gridview we can write the code to get the selected value of the dropdown list?

4. Write down the code to update the database with the selected value of the dropdown list from the gridview?

1. How many different types of attributes that is available in database?  
2. What are entity sets?  
3. What are composite attributes? Explain with one example?  
4. Define NULL values? How to represent it?

1. I think you are over qualified for this position, then why should I hire you?  
2. If you will get a better company in few months after joining this company, what you will do?  
3. Where do you see yourself five years, from now?  
4. Describe your ideal company, location and job?