**1. What are the two authentication modes in SQL Server?**

There are two authentication modes –

* Windows Mode
* Mixed Mode

Modes can be changed by selecting the tools menu of SQL Server configuration properties and choose security page.

**2. What Is SQL Profiler?**

SQL Profiler is a tool which allows system administrator to monitor events in the SQL server. This is mainly used to capture and save data about each event of a file or a table for analysis.

**3. What is recursive stored procedure?**

SQL Server supports recursive stored procedure which calls by itself. Recursive stored procedure can be defined as a method of problem solving wherein the solution is arrived repetitively. It can nest up to 32 levels.

CREATE PROCEDURE [dbo].[Fact]

(

@Number Integer,

@RetVal Integer OUTPUT

)

AS

DECLARE @In Integer

DECLARE @Out Integer

IF @Number != 1

BEGIN

SELECT @In = @Number – 1

EXEC Fact @In, @Out OUTPUT - Same stored procedure has been called again(Recursively)

SELECT @RetVal = @Number \* @Out

END

ELSE

BEGIN

SELECT @RetVal = 1

END

RETURN

GO

**4. What are the differences between local and global temporary tables?**

* Local temporary tables are visible when there is a connection, and are deleted when the connection is closed.

CREATE TABLE #<tablename>

* Global temporary tables are visible to all users, and are deleted when the connection that created it is closed.

CREATE TABLE ##<tablename>

**5. What is CHECK constraint?**

A CHECK constraint can be applied to a column in a table to limit the values that can be placed in a column. Check constraint is to enforce integrity.

[](https://www.guru99.com/images/1/101818_0824_Top50SQLSer1.jpg)

**6. Can SQL servers linked to other servers?**

SQL server can be connected to any database which has OLE-DB provider to give a link. Example: Oracle has OLE-DB provider which has link to connect with the SQL server group.

**7. What is sub query and its properties?**

A sub-query is a query which can be nested inside a main query like Select, Update, Insert or Delete statements. This can be used when expression is allowed. Properties of sub query can be defined as

* A sub query should not have order by clause
* A sub query should be placed in the right hand side of the comparison operator of the main query
* A sub query should be enclosed in parenthesis because it needs to be executed first before the main query
* More than one sub query can be included

**8. What are the types of sub query?**

There are three types of sub query –

* Single row sub query which returns only one row
* Multiple row sub query which returns multiple rows
* Multiple column sub query which returns multiple columns to the main query. With that sub query result, Main query will be executed.

**9. What is SQL server agent?**

The SQL Server agent plays a vital role in day to day tasks of SQL server administrator(DBA). Server agent's purpose is to implement the tasks easily with the scheduler engine which allows our jobs to run at scheduled date and time.

**10. What are scheduled tasks in SQL Server?**

Scheduled tasks or jobs are used to automate processes that can be run on a scheduled time at a regular interval. This scheduling of tasks helps to reduce human intervention during night time and feed can be done at a particular time. User can also order the tasks in which it has to be generated.

**11. What is COALESCE in SQL Server?**

COALESCE is used to return first non-null expression within the arguments. This function is used to return a non-null from more than one column in the arguments.

Example –

Select COALESCE(empno, empname, salary) from employee;

**12. How exceptions can be handled in SQL Server Programming?**

Exceptions are handled using TRY----CATCH constructs and it is handles by writing scripts inside the TRY block and error handling in the CATCH block.

**13. What is the purpose of FLOOR function?**

FLOOR function is used to round up a non-integer value to the previous least integer. Example is given

FLOOR(6.7)

Returns 6.

**14. Can we check locks in database? If so, how can we do this lock check?**

Yes, we can check locks in the database. It can be achieved by using in-built stored procedure called sp\_lock.

**15. What is the use of SIGN function?**

SIGN function is used to determine whether the number specified is Positive, Negative and Zero. This will return +1,-1 or 0.

Example –

SIGN(-35) returns -1

**16. What is a Trigger?**

Triggers are used to execute a batch of SQL code when insert or update or delete commands are executed against a table. Triggers are automatically triggered or executed when the data is modified. It can be executed automatically on insert, delete and update operations.

**17. What are the types of Triggers?**

There are four types of triggers and they are:

* Insert
* Delete
* Update
* Instead of

**18. What is an IDENTITY column in insert statements?**

IDENTITY column is used in table columns to make that column as Auto incremental number or a surrogate key.

**19. What is Bulkcopy in SQL?**

Bulkcopy is a tool used to copy large amount of data from Tables. This tool is used to load large amount of data in SQL Server.

**20. What will be query used to get the list of triggers in a database?**

Query to get the list of triggers in database-

Select \* from sys.objects where type='tr'

**21. What is the difference between UNION and UNION ALL?**

* UNION: To select related information from two tables UNION command is used. It is similar to JOIN command.
* UNION All: The UNION ALL command is equal to the UNION command, except that UNION ALL selects all values. It will not remove duplicate rows, instead it will retrieve all rows from all tables.

**22. How Global temporary tables are represented and its scope?**

Global temporary tables are represented with ## before the table name. Scope will be the outside the session whereas local temporary tables are inside the session. Session ID can be found using @@SPID.

**23. What are the differences between Stored Procedure and the dynamic SQL?**

Stored Procedure is a set of statements which is stored in a compiled form. Dynamic SQL is a set of statements that dynamically constructed at runtime and it will not be stored in a Database and it simply execute during run time.

**24.** **What is Collation?**

Collation is defined to specify the sort order in a table. There are three types of sort order –

1. Case sensitive
2. Case Insensitive
3. Binary

**25. How can we get count of the number of records in a table?**

Following are the queries can be used to get the count of records in a table -

Select \* from <tablename> Select count(\*) from <tablename> Select rows from sysindexes where id=OBJECT\_ID(tablename) and indid<2

**26. What is the command used to get the version of SQL Server?**

Select SERVERPROPERTY('productversion')

is used to get the version of SQL Server.

**27. What is UPDATE\_STATISTICS command?**

UPDATE\_STATISTICS command is used to update the indexes on the tables when there is a large amount of deletions or modifications or bulk copy occurred in indexes.

**28. What is the use of SET NOCOUNT ON/OFF statement?**

By default, NOCOUNT is set to OFF and it returns number of records got affected whenever the command is getting executed. If the user doesn't want to display the number of records affected, it can be explicitly set to ON- (SET NOCOUNT ON).

**29. Which SQL server table is used to hold the stored procedure scripts?**

Sys.SQL\_Modules is a SQL Server table used to store the script of stored procedure. Name of the stored procedure is saved in the table called Sys.Procedures.

**30. What are Magic Tables in SQL Server?**

During DML operations like Insert, Delete, and Update, SQL Server creates magic tables to hold the values during the DML operations. These magic tables are used inside the triggers for data transaction.

**31. What is the difference between SUBSTR and CHARINDEX in the SQL Server?**

The SUBSTR function is used to return specific portion of string in a given string. But, CHARINDEX function gives character position in a given specified string.

SUBSTRING('Smiley',1,3)

Gives result as Smi

CHARINDEX('i', 'Smiley',1)

Gives 3 as result as I appears in 3rd position of the string

**32. How can you create a login?**

You can use the following command to create a login

CREATE LOGIN MyLogin WITH PASSWORD = '123';

**33. What is ISNULL() operator?**

ISNULL function is used to check whether value given is NULL or not NULL in sql server. This function also provides to replace a value with the NULL.

**34. What is the use of FOR Clause?**

FOR clause is mainly used for XML and browser options. This clause is mainly used to display the query results in XML format or in browser.

**35. What will be the maximum number of index per table?**

For SQL Server 2008 100 Index can be used as maximum number per table. 1 Clustered Index and 999 Non-clustered indexes per table can be used in SQL Server.

1000 Index can be used as maximum number per table. 1 Clustered Index and 999 Non-clustered indexes per table can be used in SQL Server.

1 Clustered Index and 999 Non-clustered indexes per table can be used in SQL Server.

**36. What is the difference between COMMIT and ROLLBACK?**

Every statement between BEGIN and COMMIT becomes persistent to database when the COMMIT is executed. Every statement between BEGIN and ROOLBACK are reverted to the state when the ROLLBACK was executed.

**37. What is the difference between varchar and nvarchar types?**

Varchar and nvarchar are same but the only difference is that nvarhcar can be used to store Unicode characters for multiple languages and it also takes more space when compared with varchar.

**38. What is the use of @@SPID?**

A @@SPID returns the session ID of the current user process.

**39. What is the command used to Recompile the stored procedure at run time?**

Stored Procedure can be executed with the help of keyword called RECOMPILE.

Example

Exe <SPName> WITH RECOMPILE

Or we can include WITHRECOMPILE in the stored procedure itself.

**40. How to delete duplicate rows in SQL Server?**

Duplicate rows can be deleted using CTE and ROW NUMER feature of SQL Server.

**41. Where are SQL Server user names and passwords stored in SQL Server?**

User Names and Passwords are stored in sys.server\_principals and sys.sql\_logins. But passwords are not stored in normal text.

**42. What is the difference between GETDATE and SYSDATETIME?**

Both are same but GETDATE can give time till milliseconds and SYSDATETIME can give precision till nanoseconds. SYSDATE TIME is more accurate than GETDATE.

**43. How data can be copied from one table to another table?**

INSERT INTO SELECT

This command is used to insert data into a table which is already created.

SELECT INTO

This command is used to create a new table and its structure and data can be copied from existing table.

**44. What is TABLESAMPLE?**

TABLESAMPLE is used to extract sample of rows randomly that are all necessary for the application. The sample rows taken are based on the percentage of rows.

**45. Which command is used for user defined error messages?**

RAISEERROR is the command used to generate and initiates error processing for a given session. Those user defined messages are stored in sys.messages table.

**46. What do mean by XML Datatype?**

XML data type is used to store XML documents in the SQL Server database. Columns and variables are created and store XML instances in the database.

**47. What is CDC?**

CDC is abbreviated as Change Data Capture which is used to capture the data that has been changed recently. This feature is present in SQL Server 2008.

**48. What is SQL injection?**

SQL injection is an attack by malicious users in which malicious code can be inserted into strings that can be passed to an instance of SQL server for parsing and execution. All statements have to checked for vulnerabilities as it executes all syntactically valid queries that it receives.

Even parameters can be manipulated by the skilled and experienced attackers.

**49. What are the methods used to protect against SQL injection attack?**

Following are the methods used to protect against SQL injection attack:

* Use Parameters for Stored Procedures
* Filtering input parameters
* Use Parameter collection with Dynamic SQL
* In like clause, user escape characters

**50. What is Filtered Index?**

Filtered Index is used to filter some portion of rows in a table to improve query performance, index maintenance and reduces index storage costs. When the index is created with WHERE clause, then it is called Filtered Index

<https://www.guru99.com/sql-server-questions.html>

**Q #1) Which TCP/IP port does SQL Server run on?**

**Ans.** By default SQL Server runs on port 1433.

**Q #2) What is the difference between clustered and non-clustered index?**

**Ans. A clustered index**is an index that rearranges the table in the order of the index itself. Its leaf nodes contain data pages. A table can have only one clustered index.

**A non-clustered index** is an index that does not re-arranges the table in the order of the index itself. Its leaf nodes contain index rows instead of data pages**.**A table can have many non-clustered indexes.

**Q #3) List the different index configurations possible for a table?**

**Ans.** A table can have one of the following index configurations:

* No indexes
* A clustered index
* A clustered index and many non-clustered indexes
* A non-clustered index
* Many non-clustered indexes

**Q #4) What is the recovery model? List the types of recovery models available in SQL Server?**

**Ans.** The recovery model tells SQL Server what data should be kept in the transaction log file and for how long. A database can have only one recovery model.

It also tells SQL server which backup is possible in a particular recovery model selected. There are three types of recovery model:

* Full
* Simple
* Bulk-Logged

**Q #5) What are the different backups available in**[**SQL Server**](http://www.microsoft.com/en-in/server-cloud/products/sql-server/)**?**

**Ans.** **Different possible backups are:**

* Full backup
* Differential Backup
* Transactional Log Backup
* Copy Only Backup
* File and Filegroup backup

**Q #6) What is a Full Backup?**

**Ans.** A full backup is the most common type of backup in SQL Server. This is the complete backup of the database. It also contains part of the transaction log so it can be recovered.

**Q #7) What is OLTP?**

**Ans.** OLTP means Online transaction processing which follows rules of data normalization to ensure data integrity. Using these rules complex information is broken down into a most simple structure.

**Q #8) What is**[**RDBMS**](http://en.wikipedia.org/wiki/Relational_database_management_system)**?**

**Ans.** RDBMS or Relational Data Base Management Systems are database management systems that maintain data in the form of tables. We can create relationships between the tables. An RDBMS can recombine the data items from different files, providing powerful tools for data usage.

**Q #9) What are the properties of the Relational tables?**

**Ans. Relational tables have six properties:**

* Values are atomic.
* Column values are of the same kind.
* Each row is unique.
* The sequence of columns is insignificant.
* The sequence of rows is insignificant.
* Each column must have a unique name.

**Q #10) What's the difference between a primary key and a unique key?**

**Ans.**The differences between the primary key and a unique key are:

* The primary key is a column whose values uniquely identify every row in a table. Primary key values can never be reused. They create a clustered index on the column and cannot be null.
* A Unique key is a column whose values also uniquely identify every row in a table but they create a non-clustered index by default and it allows one NULL only.

**Q #11) When is the UPDATE\_STATISTICS command used?**

**Ans.** As the name implies UPDATE\_STATISTICS command updated the statistics used by the index to make the search easier.

**Q #12) What is the difference between a HAVING CLAUSE and a WHERE CLAUSE?**

**Ans. The differences between HAVING CLAUSE and WHERE CLAUSE is:**

* Both specify a search condition but Having clause is used only with the SELECT statement and typically used with GROUP BY clause.
* If GROUP BY clause is not used then Having behaved like WHERE clause only.

**Q #13) What is Mirroring?**

**Ans.** Mirroring is a high availability solution. It is designed to maintain a hot standby server which is consistent with the primary server in terms of a transaction. Transaction Log records are sent directly from the principal server to a secondary server which keeps a secondary server up to date with the principal server.

**Q #14) What are the advantages of the Mirroring?**

**Ans. Advantages of Mirroring are:**

* It is more robust and efficient that Log shipping.
* It has an automatic failover mechanism.
* The secondary server is synced with the primary in near real-time.

**Q #15) What is Log Shipping?**

**Ans.** Log shipping is nothing but the automation of backup and restores of a database from one server to another standalone standby server. This is one of the disaster recovery solutions. If one server fails for some reason we will have the same data available on the standby server.

**Q #16) What are the advantages of Log shipping?**

**Ans. Advantages of Log Shipping:**

* Easy to set up.
* The secondary database can be used as a read-only purpose.
* Multiple secondary standby servers are possible
* Low maintenance.

**Q #17) Can we take the full database backup in Log shipping?**

**Ans.** Yes, we can take the full database backup. It won’t affect the log shipping.

**Q #18) What is an execution plan?**

**Ans.** An execution plan is a graphical or textual way of showing how the SQL server breaks down a query to get the required result. It helps a user to determine why queries are taking more time to execute and based on the investigation user can update their queries for the maximum result.

In 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 a query execution plan in a separate window when a query is run again.

**Q #19) What is the Stored Procedure?**

**Ans.** A stored procedure is a set of SQL queries that can take input and send back output. And when the procedure is modified, all clients automatically get the new version. Stored procedures reduce network traffic and improve performance. Stored procedures can be used to help ensure the integrity of the database.

**Q #20) List the advantages of using Stored Procedures?**

**Ans. Advantages of using Stored procedures are:**

* Stored procedure boosts application performance.
* Stored procedure execution plans can be reused as they cached in SQL Server's memory which reduces server overhead.
* Stored procedures can be reused.
* Stored procedures can encapsulate logic. You can change the stored procedure code without affecting clients.
* Stored procedures provide better security for your data.

**Q #21) What is identity in SQL?**

**Ans.** An identity column in the SQL automatically generates numeric values. We can be defined as a start and increment value of the identity column. Identity columns do not need to be indexed.

**Q #22) What are the common performance issues in SQL Server?**

**Ans. Following are the common performance issues:**

* Deadlocks
* Blocking
* Missing and unused indexes.
* I/O bottlenecks
* Poor Query plans
* Fragmentation

**Q #23) List the various tools available for performance tuning?**

**Ans. There are various tools available for performance tuning:**

* Dynamic Management Views
* SQL Server Profiler
* Server Side Traces
* Windows Performance monitor.
* Query Plans
* Tuning advisor

**Q #24) What is a performance monitor?**

**Ans.** Windows performance monitor is a tool to capture metrics for the entire server. We can use this tool for capturing events of the SQL server also.  
Some useful counters are – Disks, Memory, Processors, Network, etc.

**Q #25) What are 3 ways to get a count of the number of records in a table?**

**Ans.** SELECT \* FROM table\_Name  
SELECT COUNT(\*) FROM table\_Name  
SELECT rows FROM indexes WHERE id = OBJECT\_ID(tableName) AND indid< 2

**Q #26) Can we rename a column in the output of the SQL query?**

**Ans.** Yes by using the following syntax we can do this.

SELECT column\_name AS new\_name FROM table\_name;

**Q #27) What is the difference between a Local and a Global temporary table?**

**Ans.** If defined inside a compound statement a local temporary table exists only for the duration of that statement but a global temporary table exists permanently in the database but its rows disappear when the connection is closed.

**Q #28) What is the SQL Profiler?**

**Ans.** SQL Profiler provides a graphical representation of events in an instance of SQL Server for monitoring and investment purpose. We can capture and save the data for further analysis. We can put filters as well to captures the specific data we want.

**Q #29) What do you mean by authentication modes in SQL Server?**

**Ans.** There are two authentication modes in SQL Server.

* Windows mode
* Mixed Mode – SQL and Windows.

**Q #30) How can we check the SQL Server version?**

**Ans.** By running the following command:

SELECT @@Version

**Q #31) Is it possible to call a stored procedure within a stored procedure?**

**Ans.** Yes, we can call a stored procedure within a stored procedure. It is called the recursion property of the SQL server and these types of stored procedures are called nested stored procedures.

**Q #32) What is the SQL Server Agent?**

**Ans.** SQL Server agent allows us to schedule the jobs and scripts. It helps in implementing the day to day DBA tasks by automatically executing them on a scheduled basis.

**Q #33) What is the PRIMARY KEY?**

**Ans.** The primary key is a column whose values uniquely identify every row in a table. Primary key values can never be reused.

**Q #34) What is a UNIQUE KEY constraint?**

**Ans.** A UNIQUE constraint enforces the uniqueness of the values in a set of columns, so no duplicate values are entered. The unique key constraints are used to enforce entity integrity as the primary key constraints.

**Q #35) What is FOREIGN KEY**

**Ans.** When a one table’s primary key field is added to related tables to create the common field which relates the two tables, it called a foreign key in other tables.

Foreign Key constraints enforce referential integrity.

**Q #36) What is a CHECK Constraint?**

**Ans.** A CHECK constraint is used to limit the values or type of data that can be stored in a column. They are used to enforce domain integrity.

**Q #37) What are a Scheduled Jobs?**

**Ans.** The scheduled job allows a user to run the scripts or SQL commands automatically on a scheduled basis. The user can determine the order in which commands need to execute and the best time to run the job to avoid the load on the system.

**Q #38) What is a heap?**

**Ans.** A heap is a table that does not contain any clustered index or non-clustered index.

**Q #39) What is BCP?**

**Ans.** BCP or Bulk Copy is a tool by which we can copy a large amount of data to tables and views. BCP does not copy the structures the same as source to destination. BULK INSERT command helps to import a data file into a database table or view in a user-specified format.

**Q #40) What is Normalization?**

**Ans.** The process of table design to minimize the data redundancy is called normalization. We need to divide a database into two or more tables and define relationships between them. Normalization usually involves dividing a database into two or more tables and defining relationships between the tables.

**Q #41) List the different normalization forms?**

**Ans.** Different normalization forms are:

**1NF (Eliminate Repeating Groups)**: Make a separate table for each set of related attributes, and give each table a primary key. Each field contains at most one value from its attribute domain.

**2NF (Eliminate Redundant Data)**: If an attribute depends on only part of a multi-valued key, remove it to a separate table.

**3NF (Eliminate Columns Not Dependent On Key)**: If attributes do not contribute to a description of the key, remove them to a separate table. All attributes must be directly dependent on the primary key.

**BCNF (Boyce-Codd Normal Form):** If there are non-trivial dependencies between candidate key attributes, separate them into distinct tables.

**4NF (Isolate Independent Multiple Relationships):** No table may contain two or more 1:n or n:m relationships that are not directly related.

**5NF (Isolate Semantically Related Multiple Relationships):** There may be practical constraints on information that justifies separating logically related many-to-many relationships.

**ONF (Optimal Normal Form):** A model limited to only simple (elemental) facts, as expressed in Object Role Model notation.

**DKNF (Domain-Key Normal Form):** A model free from all modification is said to be in DKNF.

**Q #42) What is De-normalization?**

**Ans.** De-normalization is the process of adding redundant data to a database to enhance the performance of it. It is a technique to move from higher to lower normal forms of database modeling to speed up database access.

**Q #43) What is a Trigger and types of a trigger?**

**Ans.** The trigger allows us to execute a batch of SQL code when a tabled event occurs (Insert, update or delete command executed against a specific table). Triggers are stored in and managed by DBMS. It can also execute a stored procedure.

**3 types of triggers that are available in the SQL Server are as follows:**

* **DML Triggers:** DML or Data Manipulation Language triggers are invoked whenever any of the DML commands like INSERT, DELETE or UPDATE happens on the table or the view.
* **DDL Triggers:** DDL or Data Definition Language triggers are invoked whenever any0 changes occur in the definition of any of the database objects instead of actual data. These are very helpful to control the production and development of database environments.
* **Logon Triggers:** These are very special triggers that fire in case of the logon event of the SQL Server. This is fired before the setup of a user session in the SQL Server.

**Q #44) What is the Subquery?**

**Ans.** A Subquery is a subset of select statements whose return values are used in filtering conditions of the main query. It can occur in a SELECT clause, FROM clause and WHERE clause. It nested inside a SELECT, INSERT, UPDATE, or DELETE statement or inside another subquery.

**Types of Sub-query:**

* Single-row sub-query: where the subquery returns only one row
* Multiple-row sub-query: where the subquery returns multiple rows, and
* Multiple column sub-query: where the sub-query returns multiple columns

**Q #45) What is a Linked Server?**

**Ans.** Linked Servers is a concept by which we can connect another SQL server to a Group and query both the SQL Servers database using T-SQL Statements sp\_addlinkedsrvloginisssed to add link server.

**Q #46) What is Collation?**

**Ans.** Collation refers to a set of rules that determine how data is sorted and compared. Character data is sorted using rules that define the correct character sequence, with options for specifying case-sensitivity, accent marks, kana character types, and character width.

**Q #47) What is View?**

**Ans.** A view is a virtual table that contains data from one or more tables. Views restrict data access of the table by selecting only required values and make complex queries easy.

Rows updated or deleted in the view are updated or deleted in the table the view was created with. It should also be noted that as data in the original table changes, so does data in the view, as views are the way to look at part of the original table. The results of using a view are not permanently stored in the database

**Q #48)** **Where SQL server usernames and passwords are stored in a SQL server?**

**Ans.** They get stored in System Catalog Views sys.server\_principals and sys.sql\_logins.

**Q #49) What are the properties of a transaction?**

**Ans.** Generally, these properties are referred to as ACID properties. They are:

* Atomicity
* Consistency
* Isolation
* Durability

**Q #50) Define UNION, UNION ALL, MINUS, INTERSECT?**

**Ans.** **UNION –** returns all distinct rows selected by either query.

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

**MINUS –** returns all distinct rows selected by the first query but not by the second.

**INTERSECT –** returns all distinct rows selected by both queries.

**Q #51) What is** **SQL Server used for?**

**Ans.**SQL Server is one of the very popular Relational Database Management Systems. This is a product from Microsoft to store and manage the information in the database.

**Q #52) Which language is supported by SQL Server?**

**Ans.**SQL Server is based upon the implementation of the SQL also known as Structured Query Language to work with the data inside the database.

**Q #53) Which is the latest version of SQL Server and when it is released?**

**Ans. SQL Server 2017**is the latest version of SQL Server that is available in the market and Microsoft launched this on **2 October 2017** with the support of the Linux O/S.

**Q #54) What are the various editions of SQL Server 2017 that are available in the market?**

**Ans. SQL Server 2017 is available in 4 editions. These are as follows:**

* **Enterprise:** This supports leading the high performance for **the Tier 1** database along with the capability of supporting business intelligence and workloads of advanced analytics.
* **Standard:** This supports **mid-tier** applications to achieve fast performance. This can be easily upgraded to an enterprise edition also without having any changes in the coding part.
* **Express:** This is available for free and supports the building of **web** and **mobile** applications up to 10 GB in the size.
* **Developer:** This supports building, testing and demonstrating applications in a **non-production.**

**Q #55) What are functions in the SQL Server?**

**Ans.**Functions are the sequence of the statements which accept inputs, process the inputs to perform some specific task and then provide the outputs. Functions should have some meaningful name but these should not start with a special character such as %,#,@, etc.

**Q #56) What is a User-Defined function in the SQL Server and what is its advantage?**

**Ans. User-Defined**Function is a function that can be written as per the needs of the user by implementing your logic. The biggest **advantage** of this function is that the user is not limited to pre-defined functions and can simplify the complex code of pre-defined function by writing a simple code as per the needs.

This returns Scalar value or a table.

**Q #57) Explain the creation and execution of a user-defined function in the SQL Server?**

**Ans.**  A User-Defined function can be created in the following way:

**Create Function** fun1(@num **int**)

**returns table**

**as**

**return select \* from** employee **where** empid=@num

This function can be **executed** as follows:

**select \* from** fun1(12)

So, in the above case, a function with the name of ‘fun1’ is created to fetch employee details of an employee having empid=12.

**Q #58) What are the Pre-Defined functions in the SQL Server?**

**Ans.**These are Built-In functions of the SQL Server like String functions which are provided by SQL Server like ASCII, CHAR, LEFT, etc. string functions.

**Q #59) Why are Views required in the SQL Server or any other database?**

**Ans.  Views are very beneficial because of the following reasons:**

* Views are required to hide the **complexity** that is involved in the database schema and also to customize the data for a particular set of users.
* Views provide a mechanism to control **access** to particular rows and columns.
* These help in aggregating the data to improve the **performance** of the database.

**Q #60) What is TCL in SQL Server?**

**Ans.**TCL is **Transaction Control Language Commands**which are used to manage the transactions in the SQL Server.

**Q #61) Which TCL Commands are available on the SQL Server?**

**Ans.** There are 3 TCL Commands in the SQL Server. These are as follows:

* **Commit:** This command is used to save the transaction permanently in the database.
* **Rollback:** This is used to roll back the changes that are done i.e. to restore the database in the last committed state.
* **Save Tran:** This is used for saving the transaction to provide the convenience that the transaction can be rolled back to the point wherever required.

**Q #62) What are the 2 types of classifications of constraints in the SQL Server?**

**Ans.**Constraints are classified into the following 2 types in the SQL Server:

* **Column Types Constraints:** These constraints are applied to the **columns** of a table in the SQL Server. The definition of these can be given at the time of the creation of a table in the database.
* **Table Types Constraints:**These constraints are applied on a table and these are defines after the creation of a table is completed. **Alter** command is used to apply the table type constraint.

**Q #63) How is table type constraint applied to a table?**

**Ans.**Table Type Constraint is applied in the following way:

**Alter Table Name of the Constraint**

Alter Table Constraint\_1

**Q #64) What are the different types of Columns Types Constraints in the SQL Server?**

**Ans.**SQL Server provides 6 types of Constraints. These are as follows:

SQL Server provides 6 types of Constraints. These are as follows:

1. **Not Null Constraint:** This puts a constraint that the value of a column  
   cannot be null.
2. **Check Constraint:** This puts a constraint by checking some particular  
   condition before inserting data in the table.
3. **Default Constraint**: This constraint provides some default value that can  
   be inserted in the column if no value is specified for that column.
4. **Unique Constraint:** This puts a constraint that each row of a particular  
   column must have a unique value. More than one unique constraint can  
   be applied to a single table.
5. **Primary Key Constraint:** This puts a constraint to have a primary key in the  
   table to identify each row of a table uniquely. This cannot be null or  
   duplicate data.
6. **Foreign Key Constraint:** This puts a constraint that the foreign key should  
   be there. A Primary key in one table is the foreign key of another table.  
   Foreign Key is used to create a relation between 2 or more tables.

**Q #65) What command is used to delete a table from the database in the SQL Server and how?**

**Ans. Delete Command**is used to delete any table from the database in the SQL Server. Following is the way to use this command:

**Delete Name of the table**

**Example**: If the name of a table is “employee” then delete command to delete this table can be written as **Delete employee**.

**Q #66) Why is replication required on the SQL Server?**

**Ans. Replication**is the mechanism that is used to synchronize the data among the multiple servers with the help of a **replica set**.

This is mainly used to increase the **capacity** of the reading and to provide an option to its users to select among various servers to perform the read/write operations.

**Q #67) What command is used to create a database in the SQL Server and how?**

**Ans. CREATEDATABASE Command**is used to create any database in the SQL Server. Following is the way to use this command:

**CREATEDATABASE Name of the Database**

**Example**: If the name of a database is “employee” then create command to create this database that can be written as **CREATEDATABASE employee**.

**Q #68) What function does a database engine serve in the SQL Server?**

**Ans. Database Engine**is a type of **service** in the SQL Server which starts as soon as the Operating System starts. This may run by default depending upon the settings in the O/S.

**Q #69) What are the advantages of having an index on the SQL Server?**

**Ans. The index has the following advantages:**

* Index supports the mechanism of having **faster** data **retrieval** from the database.
* This forms a data structure in a way that helps in **minimizing** data comparisons.
* This improves the **performance** of the retrieval of the data from the database.

Conclusion

This is all about SQL Server Interview Questions. I hope this article must have provided insight regarding the questions that can be asked in an interview and you can now confidently handle your interview process.

Practice all the important SQL Server topics for better understanding and appearing for the interview confidently.

<https://www.softwaretestinghelp.com/sql-server-interview-question-for-testers-2/>

### Q1) What is blocking and how would you troubleshoot it?

**Ans.** 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.

### Q2) What are the steps you will take to improve the performance of a poor performing query?

**Ans.** 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.

### Q3) 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?

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

### Q4) 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

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### Q5) What is a deadlock and what is a live lock? How will you go about resolving deadlocks?

**Ans.** 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.

Also Read: [**Advanced SQL Server Interview Questions**](https://mindmajix.com/sql-server-interview-questions)

### SQL Server Interview Questions And Answers For Experienced

### Q6) What is blocking and how would you troubleshoot it?

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**Ans.**  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.

### Q7) What are statistics, under what circumstances they go out of date, how do you update them?

**Ans.** 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:

|  |  |
| --- | --- |
| 1  2  3  4  5  6  7  8  9  10  11  12  13  14  15 | UPDATE STATISTICS,    STATS\_DATE,    DBCC SHOW\_STATISTICS,    CREATE STATISTICS,    DROP STATISTICS,    sp\_autostats,    sp\_createstats,    sp\_updatestats |

### Q8) 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)

### Q9) What structure can you implement for the database to speed up table reads?

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A) Follow the rules of DB tuning we have to:

1] properly use indexes ( different types of indexes)

2] 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 …)

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### Q1). In what sequence SQL statement are processed?

**Ans.** 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

### Q2). Can we write a distributed query and get some data which is located on other server and on Oracle Database ?

**Ans.** SQL Server can be lined to any server provided it has an OLE-DB provider from Microsoft to allow a link.  
  
E.g. Oracle has a OLE-DB provider for oracle that Microsoft provides to add it as linked server to SQL Server group.

### Q3). If we drop a table, does it also drop related objects like constraints, indexes, columns, defaults, Views and Stored Procedures?

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

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

### Q4). Can we add an identity column to decimal datatype? ****Ans.**** ****YES****, SQL Server support this

### Q5). What is the difference between LEFT JOIN with WHERE clause & LEFT JOIN with nowhere clause?

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

### Q6). What are the multiple ways to execute a dynamic query?

**Ans.** EXEC sp\_executesql, EXECUTE()

### Q7). What is the Difference between COALESCE() & ISNULL() ?

**Ans.** 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,

### Q8). How do you generate file output from SQL?

**Ans.** While using [SQL Server Management Studio](https://mindmajix.com/sql-server/in-memory-oltp-architecture-overview) or Query Analyzer, we have an option in Menu BAR.QUERTY >> RESULT TO >> Result to FILE

### Q9). How do you prevent SQL Server from giving you informational messages during and after a SQL statement execution?

**Ans.** SET NOCOUNT OFF

### Q10). By Mistake, Duplicate records exists in a table, how can we delete copy of a record ?

<span style="color: #e74c3c;"><strong>Ans.</strong></span><span style="font-family: -apple-system, BlinkMacSystemFont, 'Segoe UI', Roboto, Oxygen, Ubuntu, Cantarell, 'Open Sans', 'Helvetica Neue', sans-serif;"> <br></span>

|  |  |
| --- | --- |
| 1  2  3  4  5  6  7  8  9 | 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 |

<span style="font-family: -apple-system, BlinkMacSystemFont, 'Segoe UI', Roboto, Oxygen, Ubuntu, Cantarell, 'Open Sans', 'Helvetica Neue', sans-serif;"> </span>

### Q11). WHAT OPERATOR PERFORMS PATTERN MATCHING?

**Ans.** Pattern matching operator is LIKE and it has to used with two attributes

1. %  means matches zero or more characters and

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

###### Q12). What’s the logical difference, if any, between the following SQL expressions?

<span style="color: #008000;"> </span>

|  |  |
| --- | --- |
| 1  2  3  4  5 | -- Statement 1  SELECT COUNT ( \* ) FROM Employees    -- Statement 2  SELECT SUM ( 1 ) FROM Employees |

<span style="color: #008000;"> </span>

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

## SQL Server Interview Questions And Answers

### Q13). Is it possible to update the Views? If yes, How, If Not, Why?

**Ans.** 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).

### Q14). Could you please name different kinds of Joins available in SQL Server?

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

### Q15). How important do you consider cursors or while loops for a transactional database?

**Ans.** would like to avoid cursor in [OLTP database](https://mindmajix.com/sql-server/in-memory-oltp-integration-and-application-migration) as much as possible, Cursors are mainly only used for maintenance or warehouse operations.

### Q16). What is a correlated subquery?

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

### Q17). What is faster, a correlated subquery or an inner join?

**Ans.** Correlated subquery.

### Q18). You are supposed to work on SQL optimization and given a choice which one runs faster, a correlated sub query or an exists?

**Ans.** Exists

### Q19). Can we call .DLL from SQL server?

**Ans.** YES, We can call .Dll from SQL Server.

### Q20). What are the pros and cons of putting a scalar function in a queries select list or in the where clause?

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

### Q21). What are user-defined data types and when you should go for them?

**Ans.** 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 calledFlight\_num\_type of varchar(8) and use it across all your tables.

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

### Q22). Can You Explain Integration Between SQL Server 2005 And Visual Studio 2005 ?

**Ans.** This integration provides a wider range of development with the help of CLR for database server 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 use 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

### SQL Server Interview Questions And Answers For Experienced

### Q23). What is Index, cluster index and non cluster index ?

**Ans.** 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-Clustered 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 does not consists of the data pages. instead the leaf node contains index rows.

### Q24). Write down the general syntax for a SELECT statements covering all the options.

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

*SELECT select\_list  
  
[INTO new\_table\_]*

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*FROM table\_source*

*[WHERE search\_condition]*

*[GROUP BY group\_by\_\_expression]*

*[HAVING search\_condition]*

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

### Q25). What is a join and explain different types of joins?

**Ans.** 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".

### Q26). What is OSQL utility ?

**Ans.** OSQL is a command-line tool which is used execute the query and display the result same a query analyzer but everything is in command prompt.

### Q27). What Is the Difference Between OSQL And Query Analyzer?

**Ans.** OSQL is the command-line tool that executes the query and displays the result same 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.

### Q28). What Is Cascade delete/update?

**Ans.** 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

### Q29). 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)

### Q30). What is the maximum number of tables that can joins in a single query?

**Ans.** 256, check SQL Server Limits

### Q31). What is Magic Tables in SQL Server?

**Ans.** The MAGIC tables are automatically created and dropped, in case you use TRIGGERS. [SQL Server](https://mindmajix.com/sql-server-interview-questions)has two magic tables named, INSERTED and DELETED

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These are maintained by the SQL server for there 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 delete

d 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 new row Updated get store in Inserted table.

### Q32). Can we disable a triger?, 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 trigger by using, “DISABLE Trigger ALL ON ALL SERVER”

##### Q33). Why you need indexing? where that is Stored and what you mean by schema object? For what purpose we are using view?

We can’t create an Index on Index.. Index is stoed in 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 various table. Schema containing set of tables, basically schema means logical separation of the database. View is crated for faster retrieval of data. It’s 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.

##### Q34). What the difference between UNION and UNIONALL?

Union will remove the duplicate rows from the result set while Union all does’nt.

##### Q35). 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

[Frequently Asked SQL Server Interview Questions & Answers](https://mindmajix.com/sql-server-dba-interview-questions)

### SQL Server Joins Interview Questions

### Q35). What are different Types of Join?

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. The common example is when 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 join 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. The common example is when company has a hierarchal reporting structure whereby one member of staff reports to another. Self Join can be Outer Join or Inner Join.

#### **Q36). 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.

##### Q37). What is a live lock?

A live lock 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 live lock also occurs when read transactions monopolize a table or page, forcing a write transaction to wait indefinitely.

##### Q38). 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.

##### Q39). How do you add a column to an existing table?

ALTER TABLE Department ADD (AGE, NUMBER);

##### Q40). 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

##### Q41). 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’)

##### Q42). 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.

##### Q43). How will you create a column alias?

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

##### Q44). In what sequence SQL statement 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

##### Q45). How can we determine what objects a user-defined function depends upon?

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

|  |  |
| --- | --- |
| 1  2  3  4  5  6 | 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 = '<>' |

##### Q46). What is lock escalation ?

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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.

##### Q47). 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.

##### Q48). What are Checkpoint In SQL Server ?

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

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##### Q49). Why we use OPENXML clause?

OPENXML parses the XML data in SQL Server in an efficient manner. It’s primary ability is to insert XML data to the DB.

##### Q50). Can we store we store PDF files inside SQL Server table ?

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

###### Q51). Can we store Videos inside SQL Server table ?

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

###### Q52. 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.

##### Q53). What are included columns when we talk about SQL Server indexing?

Indexed with included columns were developed in [SQL Server 2005](https://mindmajix.com/sql-server/platform-hybrid-cloud-with-sql-server) 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  
    
  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.

###### Q54). 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 query execution plan in separate window  when query is ran again.

###### Q55). 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

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### SQL SERVER Query Interview Questions with Answers

**SQL Server DATEADD() Function**

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

|  |  |
| --- | --- |
| 1 | SELECT DATEADD(dd, 15,getdate()) |

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

|  |  |
| --- | --- |
| 1 | SELECT DATEADD(mm, 2, getdate()) |

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

|  |  |
| --- | --- |
| 1 | SELECT DATEADD(dd, -15, getdate()) |

**SQL Server DATEDIFF() Function**

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

|  |  |
| --- | --- |
| 1  2 | SELECT \*  DATEDIFF(yy, doj, getdate()) AS ‘Exp’ FROM employee |

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

|  |  |
| --- | --- |
| 1  2  3  4 | SELECT \*  DATEDIFF(yy, doj, getdate()) AS ‘Exp’  FROM employee  WHERE DATEDIFF(yy, doj, getdate())>3 AND dept\_name=’ECE’ |

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

|  |  |
| --- | --- |
| 1  2 | SELECT \*  DATEDIFF(yy, dob, getdate()) AS ‘Age’ FROM employee |

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

|  |  |
| --- | --- |
| 1  2  3 | SELECT \*  DATEDIFF(yy, dob, getdate()) AS ‘Age’ FROM employee  WHERE DATEDIFF(yy, dob, getdate())>18 |

#### SQL Server Multi Row Functions

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

|  |  |
| --- | --- |
| 1  2 | SELECT MIN (salary)  FROM employee |

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

|  |  |
| --- | --- |
| 1  2 | SELECT MAX(salary)  FROM employee |

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

|  |  |
| --- | --- |
| 1 | SELECT SUM(salary) FROM employee |

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

|  |  |
| --- | --- |
| 1 | SELECT AVG(salary) FROM employee |

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

|  |  |
| --- | --- |
| 1 | SELECT COUNT(\*) FROM employee |

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

|  |  |
| --- | --- |
| 1 | SELECT MIN(salary) AS ‘min sal’, MAX(salary) AS ‘max sal’ FROM employee |

##### Q) Write a Query to count the number of employee working in ECE department?

|  |  |
| --- | --- |
| 1 | SELECT COUNT(\*) FROM employee WHERE dept\_name=’ECE’ |

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

|  |  |
| --- | --- |
| 1  2  3 | SELECT MAX(salary)  FROM employee  WHERE salary < (SELECT MAX(salary) FROM emp) |

###### Q) Write a Query to display third max salary of an employe?

|  |  |
| --- | --- |
| 1  2  3 | SELECT MAX(salary)  FROM employee  WHERE salary < (SELECT MAX(salary) FROM emp where salary < (SELECT MAX(salary) FROM emp)) |

**SQL SERVER: GROUP BY Clause**

###### Q) Write a Query to display total salary of employee based on city?

|  |  |
| --- | --- |
| 1  2  3 | SELECT city, SUM(salary)  FROM employee  GROUP BY city; |

##### Q) Write a Query to display number of employee based on city?

|  |  |
| --- | --- |
| 1  2  3 | SELECT city, COUNT(emp\_no)  FROM employee  GROUP BY city; |

**(OR)**

|  |  |
| --- | --- |
| 1  2  3 | SELECT city, COUNT(emp\_no) AS ‘no.of employees’  FROM employee  GROUP BY city; |

##### Q) Write a Query to display total salary of employee based on region?

|  |  |
| --- | --- |
| 1  2  3 | SELECT region, SUM(salary) AS ‘total\_salary’  FROM employee  GROUP BY region; |

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

|  |  |
| --- | --- |
| 1  2  3 | SELECT region, COUNT(gender)  FROM employee  GROUP BY region; |

**(OR)**

|  |  |
| --- | --- |
| 1  2  3 | SELECT region, COUNT(gender) AS ‘no.of males’  FROM employee  GROUP BY region; |

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

|  |  |
| --- | --- |
| 1  2  3 | SELECT dept\_name, MIN(salary) AS ‘min sal’, MAX(salary) AS ‘max sal’  FROM employee  GROUP BY dept\_name |

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

|  |  |
| --- | --- |
| 1  2  3 | SELECT dept\_name, SUM(salary) AS ‘total\_sal’  FROM employee  GROUP BY dept\_name |

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

|  |  |
| --- | --- |
| 1  2  3  4 | SELECT dept\_name, COUNT(gender)  FROM employee  GROUP BY dept\_name  WHERE gender=’male’ |

**(OR)**

|  |  |
| --- | --- |
| 1  2  3  4 | 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 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**

##### Q) Write a Query to display total salary of employee based on whose total salary > 12000?

|  |  |
| --- | --- |
| 1  2  3  4 | SELECT city, SUM(salary) AS ‘total\_salary’  FROM employee  GROUP BY city  HAVING SUM(salary)>12000; |

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

|  |  |
| --- | --- |
| 1  2  3  4 | SELECT city, SUM(salary) AS ‘total\_salary’  FROM employee  GROUP BY city  HAVING AVG(salary)  >= 23000; |

**SQL SERVER: SUB QUERIES**

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

|  |  |
| --- | --- |
| 1  2  3 | SELECT \*  FROM employee  WHERE Emp\_No in (101, 102) |

**(OR)**

|  |  |
| --- | --- |
| 1  2 | SELECT \* FROM employee  WHERE Emp\_No in (select emp\_no from emp) |

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

|  |  |
| --- | --- |
| 1  2  3 | 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**

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

|  |  |
| --- | --- |
| 1  2 | SELECT TOP 1 \*  FROM employee |

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

|  |  |
| --- | --- |
| 1  2 | SELECT TOP 3 \*  FROM employee |

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

|  |  |
| --- | --- |
| 1  2  3 | 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 |

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

|  |  |
| --- | --- |
| 1  2 | SELECT \*, ROW\_NUMBER() OVER (ORDER BYstudent\_name) AS ‘Row\_ID’  FROM employee |

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

|  |  |
| --- | --- |
| 1  2 | SELECT \* FROM ( SELECT \*, ROW\_NUMBER() OVER (ORDER BY student\_no) AS ‘ Row\_ID’ FROM student)  WHERE row\_id %2=0 |

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

|  |  |
| --- | --- |
| 1  2 | SELECT \* FROM (SELECT \*, ROW\_NUMBER() OVER (ORDER BY student\_no) AS Row\_ID FROM student)  WHERE row\_id %2!=0 |

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