**Sql Server interview - May 7,  2011 by Swati Parakh**

**Explain various data region available in SSRS with their use.**

Data regions are report items used to display data from a single dataset. You can perform grouping, sorting and various aggregate functions on data in data region. In SSRS 2005, there were 4 data regions:-   
1. Table   
2. Matrix   
3. List   
4. Chart  
While in SSRS 2008, there are one additional data region namely Gauge.   
Let’s explain each one of them:

1. Table - Table Data region has fixed tabular structure i.e. fixed number of columns. It is useful for displaying data grouped by row. You can have maximum of 1 report item per cell. The size of table depends on number of rows dataset fetches i.e., if number of rows returned by dataset is more; it can expand to multiple pages.

2. Matrix – A matrix data region display data in pivot table format, hence also popularly known as pivot table or crosstab report. It has minimum of one row group and one column group. The size of matrix data region depends on columns and rows fetched.

3. List - A list data region is free layout. It is useful for complex reporting resign. The list can be used to display multiple table and matrix. Each getting data from different dataset.

4. Chart – This data region is for displays the data graphically i.e., in form of chart. A various chart types are available in SSRS 2008 namely line, pie chart, columns etc.

5. Gauge - This can be used in a table or matrix to show the relative value of a field in a range of values in the data region. You can also add a gauge to the design surface to show a single relative value.

**What are various ways to enhance the SSRS report? Explain.**

There are various ways in which you can enhance your report:

1. Display your data in graphic format using Chart Region.   
2. Use sorting.   
3. If couple of reports are related, you can make them interactive using connect them using bookmark link, hyper link or drill through report link.   
4. Adding sub-report. Sub-report is a stand-alone report which can be link to another report based on its content using parameter.   
5. Add custom fields. Custom fields provide with same functionality as alias columns provide in SQL server query. It is the timing of the operation that differs from the alias columns. The calculation is performed on dataset by report server.   
6. Using expression.   
7. Using custom code. SSRS allows including custom code written in VB.Net. 8. Add document map (navigational links to report item once report is rendered) to report.

**Sql Server interview - July 7,  2011 by Swati Parakh**

**What are various aggregate functions that are available?**

The following are various aggregate functions available:-   
1. SUM   
2. AVG   
3. COUNT   
4. COUNTDISTINCT   
5. MAX   
6. MIN   
7. STDEV   
8. STDEVP   
9. VAR   
10. VARP

By default, SUM is the aggregate function used for numeric data type.

**How do you integrate the SSRS reports in your application?**

There are 3 ways in which you can integrate reports into your application:-   
1. Navigating to URL i.e. https:\\servername\reportservername\reportname – This is simplest and most popular way. A separate login might be required since we are directly calling the report from report server. Address of report server gets expose to user.   
2. Using IFrame, Browser control or Report Viewer Control – In this approach, we embed the URL of report server in our application, hence address of reportserver is not exposed. No separate window opens. A user does not come to know that he has moved to different server.   
3. Programmatically sending a web request using SOAP to report server.

**Explain use of Expression builder.**

Expressions provide us with flexibility to customize our report. It is written in Visual basic and is used throughout the report to to retrieve, calculate, display, group, sort, filter, parameterize, and format the data in a report. They start with equal sign (=).

|  |  |  |  |
| --- | --- | --- | --- |
| **S.No.** | **Functionality** | **Property, Context and Dialog Box** | **Expression** |
| 1 | Format data in a text box depending on value | Colour for a placeholder inside of a text box in the details row for a Tablix | =IIF(Fields!TotalDue.Value < 10000,"Red","Black") |
| 2 | Dynamic page header or footer content. | Value for a placeholder inside of a text box that is placed in the page header or footer. | ="Page " & Globals!PageNumber & " of " & Globals!TotalPages |
| 3 | Specify page breaks for every 20 rows in a Tablix with no other groups. | Group expression for a group in a Tablix. | =Ceiling(RowNumber(Nothing)/20) |
| 4 | Shows the user ID of the person running the report | Value | =User!UserID |
| 5 | To get first day of the month | Value | =DateSerial(Year(Today()),Month(Today()),1) |
| 6 | To get the current date | Value | =Today() |
| 7 | To get last day of the month | Value | =DateAdd("d",-1,DateSerial(Year(Today()),Month(Today())+1,1)) |

**Sql Server interview - July 10,  2011 by Swati Parakh**

**Difference between drill down and drill through report.**

Both the drill down and drill through report provide interactive functionality to the SSRS report. The differences are as follows:-

|  |  |  |
| --- | --- | --- |
| **Trait** | **Drill Down** | **Drill Through** |
| Retrieves Data | Data retrieved at the same time as main report | Data retrieved one click on link of drill through report |
| Is processed and rendered when | With the main report | When link is clicked |
| Performance | Slower since retrieves all data with main report | Faster (but does not retrieve all data with main report) |
| Is displayed | Within main report | Separately either in separate window or tab |

**What’s the use of custom fields in report?**

Custom fields can be defined as alias column of the report since the operation is performed on report server rather than on database server. The custom field is very useful for the data manipulation like adding some fields whose value can be calculated based on expression, text e.g. instead of CName fetched from database, I want the dataset to display Customer Name etc.

We can add custom fields as right click on dataset, select add in Dataset window. The New field dialog box will open, we can add name of custom field and also mention whether it is database field or calculated one. If it is calculated, then we can mention the computation in this window.

**Can we use custom code in SSRS? If so, explain how we can do.**

Yes, we can. SSRS allows developer to add custom code in your report. You can write the code directly into embedded VB.Net and call it using property expression or you can write a custom class library and refer it in report server. The advantage of first method is that it is simple and easy to use but disadvantage is that it is available for that report only. While the second method has advantage of being available for multiple reports but it has much of configuration overhead.

To write custom code, right click on Report Designer outside report body and select Properties and go to Code tab and you can write custom code here.

To add custom class library, right click on Report Designer outside report body and select Properties and go to Reference tab and add the reference by browsing to the assembly of your class library. Note that you need to create class library and then compile it before referencing it in your SSRS report.

**Sql Server interview - July 16,  2011 by Swati Parakh**

**Difference between report and query parameter. Why do we need different type of parameter?**

|  |  |  |
| --- | --- | --- |
|  | **Query Parameter** | **Report Parameter** |
| Defined At | Database Level | Report Level |
| Created | Automatically if database query or stored procedure has a parameter | Automatically if report has some query parameter and is mapped to query parameter |
| processed | On Database Server | On Report Server |
| Use | Filtering of Data, Security of Data | Manipulate data, interconnect reports, filtering data |
| Processing Output | Number of records returned is based on query parameter | Number of records presented is based on query. Note- Records processed on report parameter would be same as records returned based on query parameter. |
| Filtering data based on them | Performance is good | Full set of records is retrieved then filtered. Hence, performance is low |

**How does your SSRS maintain security?**

Reporting services maintain role based security. When a user logs into reporting services, a Report Manager (whose duty is to maintain security of Reporting Services) first checks the identity of user and then determine what rights he have to perform on report.

Report Manager manages the security at 2 levels –   
1. System-level – Administer the report server globally   
2. Item-level – Security at report and dataset level

System-level roles are:-  
1. System Administrator – can manage report server and report manager security  
2. Site User - view basic information like report properties and schedules.

Item-level roles – User can use any of predefined item-level roles or create their own roles by using combination of predefined item-level roles.   
Pre-defined Item-level roles are:-   
1. Browser – can navigate to report and run them.   
2. My Reports – these users’ rights is restricted to reports present in their MyReports folder. However, they can create, view and manage reports in their folder.   
3. Publisher – As name suggest, publisher user has rights to publish reports to Reporting Server database.   
4. Content Manager – has all permission at item-level.

**SQL Server interview questions and answers - submitted by Arpit Jain**

**What is SQL Injection?**

* SQL Injection is an attack in which attacker take the advantage of insecure application over internet by running the SQL command against the database and to steal information from it that too using GUI of the website.
* This attack can happen with the applications in which SQL queries are generated in the code.
* The attacker tries to inject their own SQL into the statement that the application will use to query the database.
* For example suppose the below query string is used for a search feature in a website and a user may have the inserted “Arpit” as the keyword to search. If in the code behind the keyword is directly used into the SQL statement, it will be like.

String sql = “Select EmpName, City from EmployeeMaster where EmpName like ‘%” + txtSearch.Text + “%’”;  
  
But the attacker might enter the keyword like  
‘ UNION SELECT name, type, id from sysobjects;--

This way attacker can get details of all the objects of the application database and using that attacker can steal further information.

**What is DBCC? Give few examples.**

* DBCC stands for Database Consistency Checker.
* These commands are used to check the consistency of the database like validation tasks, maintenance and status checks.

For example –

1. DBCC CHECKALLOC – It is used to check that all pages are correctly allocated in database.  
2. DBCC CHECKDB – It is used to check that   
3. DBCC SQLPERF – It generates a report for the current usage of   
4. DBCC SQLFILEGROUP – It used to check all the tables file group for any design.

**What is difference between View and Materialized view?**

* View result set doesn’t save anywhere on disk and executes the query definition whenever they are called, while materialized view are disk based and its result set table is updated periodically.
* Materialized view is similar to regular views but the output of select query has been saved to a table.
* View shows the latest data all the time while the materialized view only shows the fresh data after its result table is updated either by setting a schedule or based on the change in the underlying tables.
* The performance of the view depends on how good the selected statement the view has. If the select statement has too many joins then it the view will perform poorly.
* While in the case of materialized view, we are querying a table, which may also be indexed, that increase its performance.

**What is CTE (Common Table Expression)?**

* When a complex SQL statement has number of joins then it can be made easier by using Common Table Expression.
* Consider the following SQL statement.

SELECT \* FROM (   
SELECT emp.EmpName,dept.Department,emp.Gender FROM Employee emp   
left join Department dept on emp.DeptID = dept.DeptID) E  
WHERE E.Gender = ‘Male’  
ORDER BY T.EmpName

The syntax of CTE is as follow  
  
- The CTE Name (followed by WITH keyword)  
- The Column List (Optional)  
- The Query (Appears within parentheses after the AS keyword)

If we write the above messy query using CTE it would be like  
  
With E(EmpName, Department, Gender)  
AS  
(  
SELECT emp.EmpName,dept.Department,emp.Gender FROM Employee emp   
left join Department dept on emp.DeptID = dept.DeptID  
)  
SELECT \* FROM E  
WHERE E.Gender = ‘Male’  
ORDER BY E.EmpName

This way the query can be made more readable and easy to understand.

**What is difference between clustered and non clustered index?**

* A table can have only one Clustered Index at a time which is generally created on primary key and can have more than one non clustered indexes (maximum up to 999)
* The leaf level of clustered index is actual data pages of the table. Whereas in case of non-clustered index the leaf level is a pointer to the data.
* Non-clustered index is faster than clustered index because when we use DML statement on clustered index, performance issues may occurred since it has to update the index every time a DML statement is executed.
* Syntax of creative clustered / non clustered index is as follow  
  CREATE [CLUSTERED | NON CLUSTERED] INDEX index\_name  
  ON <object> (column [ASC | DESC] [,…n])

**What is use of EXCEPT clause? How it differs from NOT IN clause.**

-When we combine two queries using EXCEPT clause, it will returns distinct rows from the first SELECT statement that are not returned by the second one.  
-EXCEPT clause works the same way as the UNION operator of SQL and MINUS clause in Oracle.  
-The syntax of EXCEPT clause is as follow  
SELECT column1 [, column2 ]  
FROM table1 [, table2 ]  
[WHERE condition]

EXCEPT  
  
SELECT column1 [, column2 ]  
FROM table1 [, table2 ]  
[WHERE condition]  
  
-The difference between EXCEPT and NOT IN clause is EXCEPT operator returns all distinct rows from the rows returned by first select statement which does not exist in the rows returned by second select statement. On the other hand “NOT IN” will return all rows from returned by first select statement which does not exist in the rows returned by second select statement.

**What is difference between Index Seek vs. Index Scan?**

* Index Seek and Index Scan are operation for query tuning in execution plans.
* Table Scan scans every record of the table. So the cost of proportional is the number of rows of that table.
* The Index Scan is preferred only when the table is small.
* Index Seek only touches the rows which qualify and the pages that contain that qualifying rows, so the cost of proportional is the number of qualifying rows and pages instead of the number of rows in the table.
* Index seek is preferred for highly sensitive queries.

**What is ROW\_NUMBER function?**

* RANK is one of the Ranking functions which are used to give rank to each row in the result set of a SELECT statement.
* For using this function first specify the function name, followed by the empty parentheses.
* Then specify the OVER function. For this function, you have to pass an ORDER BY clause as an argument. The clause specifies the column(s) that you are going to rank.
* For Example   
  SELECT ROW\_NUMBER() OVER(ORDER BY Salary DESC) AS [RowNumber], EmpName, Salary, [Month], [Year] FROM EmpSalary
* In the result you will see that the highest salary got the first rand and the lowest salary got the last rank. Here the rows with equal salaries will not get same ranks.

**What is Trigger?**

-In SQL the Trigger is the procedural code that executed when you INSERT, DELETE or UPDATE data in the table.   
  
-Triggers are useful when you want to perform any automatic actions such as cascading changes through related tables, enforcing column restrictions, comparing the results of data modifications and maintaining the referential integrity of data across a database.  
  
-For example, to prevent the user to delete the any Employee from EmpDetails table, following trigger can be created.  
  
create trigger del\_emp  
on EmpDetails  
for delete  
as  
begin  
rollback transaction  
print "You cannot delete any Employee!"  
end  
  
-When someone will delete a row from the EmpDetails table, the del\_emp trigger cancels the deletion, rolls back the transaction, and prints a message "You cannot delete any Employee!"

**What is Scheduled job and how to create it?**

-If we want to execute any procedural code automatically on specific time either once or repeatedly then we can create a Scheduled job for that code.  
-Following are the steps to create a Scheduled Job.  
  
1. Connect to your database of SQL server in SQL Server Management Studio.  
2. On the SQL Server Agent. There you will find a Jobs folder. Right click on jobs and choose Add New.  
3. A New Job window will appear. Give a related name for the job.  
4. Click next on the "Steps" in the left menu. A SQL job can have multiple steps either in the form of SQL statement or a stored procedure call.  
5. Click on the "Schedules" in the left menu. A SQL job can contain one or more schedules. A schedule is basically the time at which sql job will run itself. You can specify recurring schedules also.  
  
-Using scheduled job you can also create alert and notifications.

**What is OPENXML in SQL Server?**

-OPENXML provides an easy way to use an XML document as a data-source for your procedures.   
  
-OPENXML data can be manipulated the same way we deal with database tables by treating xml tags in the form of columns and the value in the form of rows.  
  
-By using OPENXML Data can be inserted or updated very quickly without multiple trips to the database.  
  
-Example:  
  
DECLARE @count int  
DECLARE @xml varchar(5000)  
SET @xml ='<Employees>  
<Employee id="1">  
<Name>Arpit</Name>  
<Employee >1234</ Employee >  
</Employee >  
<Employee id="2">  
<Name>Rahul</Name>  
<PhoneNo>2211</PhoneNo>  
</Employee >  
</Employees>'  
  
EXEC sp\_xml\_preparedocument @count OUTPUT, @xml  
SELECT \*  
FROM OPENXML (@count, Employees/Employee')  
WITH (id Varchar(10), Name varchar(100) 'Name' , PhoneNo Varchar(50) 'PhoneNo')  
EXEC sp\_xml\_removedocument @index  
  
It will give following result.   
1 Arpit 1234  
2 Rahul 2211

**What are Sparse columns?**

* Sparse column is a type of column which is used to optimize storage for null values.
* When a column there is big number of null then by defining that column as spars column we can save a large amount of disk space.
* The drawback of sparse column is that it requires more space for the non null values. When we define a column as sparse it requires additional 4 Byte for not null values.
* For example, a DATETIME column in a non-sparse column required 8 bytes of storage whereas if we define that column as a sparse column then it will require 12 bytes.
* It is not possible to set ROWGUIDCOL and IDENTITY properties in sparse column.

**What is RANK function?**

-RANK is one of the Ranking functions which are used to give rank to each row in the result set of a SELECT statement.

-For using this function first specify the function name, followed by the empty parentheses.

-Then specify the OVER function. For this function, you have to pass an ORDER BY clause as an argument. The clause specifies the column(s) that you are going to rank.

For Example   
  
SELECT RANK() OVER(ORDER BY Salary DESC) AS [RowNumber], EmpName, Salary, [Month], [Year] FROM EmpSalary

-In the result you will see that the highest salary got the first rand and the lowest salary got the last rank.   
  
Here the rows with equal salaries will get same ranks.  
  
-Remember that the rank depends on the row's position in the result set, not on the sequential number of the row.

**What are cursors and when they are useful?**

-When we execute any SQL operations, SQL Server opens a work area in memory which is called Cursor.   
  
-When it is required to perform the row by row operations which are not possible with the set-based operations then Cursor is used.  
  
-There are two of cursors

1. Implicate Cursor  
SQL Server automatically manages cursors for all data manipulation statements. These cursors are called implicit cursors.   
  
2. Explicit Cursor  
When the programmer wants to perform the row by row operations for the result set containing more than one row, then he explicitly declare a cursor with a name.  
They are managed by OPEN, FETCH and CLOSE.

%FOUND, %NOFOUND, %ROWCOUNT and %ISOPEN attributes are used in both types of cursors.

**What is log shipping?**

-SQL has introduced Log Shipping feature to synchronize the Distributed Database Server. Synchronize the database by copying Transaction logs, Backing up, Restoring data. SQL Server Job Agents is used to make these processes automatic.  
  
-In the case of failure the Log Shipping will not transfer the server. That means it will not redirect your application to other server. This has to be done manually.  
  
-Log shipping synchronizes the database only. The main functions of Log Shipping are as follows:  
  
1. To Back up the transaction log of the primary database  
2. To Copy the transaction log backup to every secondary server  
3. To Restore the transaction log backup on the secondary database

**What is SQL Profiler?**

-SQL Server provides a graphical tool which helps system administrators to monitor T-SQL statements of Database Engine.

-SQL Profiler can capture and store data related to every event to a file or a table.

-SQL Server Profiler can be used

1. To create a trace   
2. To store the trace results in a table.  
3. To watch the trace results when the trace runs   
4. To replay the trace results   
5. To start, stop, pause, and modify the trace results

**What is Similarity and Difference between Truncate and Delete in SQL?**

Similarity

-These both command will only delete data of the specified table, they cannot remove the whole table data structure.

Difference

-TRUNCATE is a DDL (data definition language) command whereas DELETE is a DML (data manipulation language) command.   
  
-We can’t execute a trigger in case of TRUNCATE whereas with DELETE command, we can execute a trigger.  
  
-TRUNCATE is faster than DELETE, because when you use DELETE to delete the data, at that time it store the whole data in rollback space from where you can get the data back after deletion. In case of TRUNCATE, it will not store data in rollback space and will directly delete it. You can’t get the deleted data back when you use TRUNCATE.  
  
-We can use any condition in WHERE clause using DELETE but you can't do it with TRUNCATE.  
  
-If table is referenced by any foreign key constraints then TRUNCATE will not work.

**What is Normalization of database? What are its benefits?**

-Normalization is set of rules that are to be applied while designing the database tables which are to be connected with each other by relationships. This set of rules is called Normalization.

-Benefits of normalizing the database are  
1. No need to restructure existing tables for new data.  
2. Reducing repetitive entries.  
3. Reducing required storage space   
4. Increased speed and flexibility of queries.

**What is Fill factor?**

* The 'fill factor' option indicate how full SQL Server will create each index page.
* When the index page doesn’t have free space for inserting a new row, SQL Server will create new index page and transfer some rows from the previous index page to the new index page. This process is called page split.
* If we want to reduce the number of page splits then we can use Fill factor option. Using Fill factor SQL will reserve some space on each index page.
* The fill factor is a value from 1 through 100 that indicates the percentage of the index page to be left empty. The default value for fill factor is 0.
* If the table contains the data which is not changed frequently then we can set the fill factor option to 100. When the table's data is modified frequently, we can set the fill factor option to 80% or as we want.

**What are different types of replication in SQL Server?**

There are three types of replication in SQL SERVER

1. Snapshot Replication.

* In Snapshot Replication snapshot of one database is transferred to another database.
* In this replication data can be refreshed periodically and all data will be copied to another database every time the table is refreshed.

2. Transactional Replication

* In transactional replication data will be same as in snapshot replication, but later only the transactions are synchronized instead of replicating the whole database.
* We can specify the refresh of database either continuously or on periodic basis.

3. Merge Replication

* Merge replication replicate data from multiple sources into a single central database.
* The initial load will be same as in snapshot replication but later it allows change of data both on subscriber and publisher, later when they come on-line it detects and combines them and updates accordingly.

**What is REPLACE and STUFF function in SQL Server?**

STUFF: This function is used to replace the part of string with some another string.

Syntax:

STUFF (String1, Position, Length, String2)  
String1 - String to be overwritten  
Position - Starting Position for overwriting  
Length - Length of replacement string  
String2- String to overwrite

Example:  
SELECT STUFF(‘Arpit',2,2,'mi')  
Output: Amit

REPLACE: This function is used to replace all the occurrences of particular string by another string.

Syntax:  
REPLACE(String1, String2, String3)

Example:  
SELECT REPLACE(‘Arpit Jain’,’i’,’m’)  
Output: Arpmt Jamn

If you want to replace the first occurrence of “I”, Replace wouldn't work, because it always replaces ALL occurrences of the string.

**Give a example to search for a string in all stored procedure in SQL Server.**

-Suppose we have a EmpDetails table in our database and there are certain number of stored procedures in database. We want to know in which stored procedure(s) table EmpDetails is used.  
  
-We can use following query

SELECT  
sys.objects.name, sys.objects.type, sys.objects.type\_desc,  
sys.objects.schema\_id, sys.syscomments.text  
FROM sys.objects  
INNER JOIN sys.syscomments ON sys.objects.object\_id = sys.syscomments.id  
where sys.syscomments.text like '%EmpDetails%'  
And type ='P'

**What are Magic tables in SQL Server?**

-In SQL Server there are two system tables “Inserted” and “Deleted” called Magic tables.

-These are not the physical tables but the virtual tables generally used with the triggers to retrieve the inserted, deleted or updated rows.

-When a record is inserted in the table that record will be there on INSERTED Magic table.

-When a record is updated in the table that existing record will be there on DELETED Magic table and modified data will be there in INSERTED Magic table.

-When a record is deleted from that table that record will be there on DELETED Magic table.

**What is difference between stored procedure and user defined function?**

* It is not possible to change the table data with the use of User defined functions but you can do it by using stored procedure.
* The execution of User defined function will be stopped if any error occurred in it. But in the case of Stored procedure when an error occurs the execution will ignore the error and jumps to the next statement.
* We can use User defined function in XML FOR clause but we can use stored procedure in XML FOR clause.
* It is not possible to make permanent changes to server environment whereas stored procedure can change some of the server environment.
* User defined functions do not return output parameters while stored procedure can return output parameters.

**What are ACID properties of Transaction?**

Following are the ACID properties for Database.

Atomicity – Transactions may be set of SQL statements. If any of statement fails then the entire transaction fails. The transaction follows all or nothing rule.

Consistency – This property says that the transaction should be always in consistent state. If any transaction is going to effect the database’s consistent state then the transaction could be rolled back.

Isolation – This property says that one transaction can not retrive the data that has been modified by any other transaction until its completed.

Durability – When any transaction is committed then it must be persisted. In the case of failure only committed transaction will be recovered and uncommitted transaction will be rolled back.

**What are COMMIT and ROLLBACK in SQL?**

COMMIT statement is used to end the current transaction and once the COMMIT statement is exceucted the transaction will be permanent and undone.

Syntax: COMMIT;

Example:   
BEGIN  
UPDATE EmpDetails SET EmpName = ‘Arpit’ where Dept = ‘Developer’  
COMMIT;  
END;  
  
ROLLBACK statement is used to end the current transaction and undone the changes which was made by that transaction.

Syntax: ROLLBACK [TO] Savepoint\_name;

Example  
BEGIN  
Statement1;  
SAVEPOINT mysavepoint;  
BEGIN  
Statement2;  
EXCEPTION  
WHEN OTHERS THEN  
ROLLBACK TO mysavepoint;  
Statement5;  
END;  
END;

**What is a Linked Server?**

* When we want to query on remote database server along with the local database server then we can add the remote SQL server to local SQL server in a same group using the concept called Linked Server.
* We can query on both servers using T-SQL.
* We can use stored Procedure sp\_addlinkedserver, sp\_addlinkedsrvlogin to add new Linked Server.
* By using Linked Server we can SQL statement in clean and easy way to retrieve, join and combine remote data with local data.

**What is a WITH(NOLOCK)?**

* WITH(NOLOCK) is used to unlock the data which is locked by the transaction that is not yet committed. This command is used before SELECT statement.
* When the transaction is committed or rolled back then there is no need to use NOLOCK function because the data is already released by the committed transaction.
* Syntax: WITH(NOLOCK)
* Example:   
  SELECT \* FROM EmpDetails WITH(NOLOCK)
* WITH(NOLCOK) is similar as READ UNCOMMITTED

**What are the basic functions for master, msdb, model, tempdb databases?**

* The Master database contains catalog and data for all databases of the SQL Server instance and it holds the engine together. Because SQL Server cannot start if the master database is not working.
* The msdb database contains data of database backups, SQL Agent, DTS packages, SQL Server jobs, and log shipping.
* The tempdb contains temporary objects like global and local temporary tables and stored procedures.
* The model is a template database which is used for creating a new user database.

**List few advantages of Stored procedure.**

* By using stored procedures we can reuse the code.
* Stored procedure helps in reducing network traffic and latency.
* Stored procedures provide better security to your data.
* Stored procedure is cached in SQL Server’s memory. So it helps to reduce the server overhead. It also enhances application performance.
* Stored procedures help us in the encapsulation of the code. The code of the stored procedure can be changed without affecting application.

[**Test your sql server knowledge with our multiple choice questions!**](http://www.careerride.com/sql-server-multiple-choice-questions.aspx)

[**Next**](http://www.careerride.com/SQL-Server-Interview-Questions-2.aspx)**>>** [**Part 1**](http://www.careerride.com/SQLServer-Interview-Questions.aspx) **|** [**Part 2**](http://www.careerride.com/SQL-Server-Interview-Questions-2.aspx) **|** [**Part 3**](http://www.careerride.com/SQL-Server-Interview-Questions-3.aspx) **|** [**Part 4**](http://www.careerride.com/SQL-Server-Interview-Questions-4.aspx) **|** [**part 5**](http://www.careerride.com/SQL-Server-Interview-Questions-5.aspx)**|** [**part 6**](http://www.careerride.com/SQL-Server-FAQ-6.aspx)**|** [**part 7**](http://www.careerride.com/SQL-Server-FAQ-7.aspx)**|** [**part 8**](http://www.careerride.com/SQL-Server-FAQ-8.aspx)**|** [**part 9**](http://www.careerride.com/SQL-Server-FAQ-9.aspx)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| [*Write your comment - Share Knowledge and Experience*](http://www.careerride.com/add-comment.aspx?Page=SQLServer-Interview-Questions.aspx)   |  | | --- | | **Discussion Board** | | **SQL Server interview questions and answers**   **What is Lock Escalation?** Lock escalation is the process of reducing the overhead of the system by converting many fine grain locks into fewer coarse grain locks. Lock escalation threshold is determined dynamically by SQL server. It doesn’t require any configuration hassles as SQL Server choose to keep lock on both row and column for the page query.  **What is RAID and what are different types of RAID levels?** RAID stands for Redundant array of independent disks which was earlier called as Redundant array of inexpensive disks. It is a storage technology that has one logical unit consisting of multiple disk drive components. It increases the performance by replicating and dividing the data through many levels between multiple physical drives. There are 12 Raid Levels which are as follows: - Level 0: it is a 'striped' disk array (provides data stripping) without fault tolerance. - Level 1: It is used in system for “mirroring” and “duplexing” purpose. - Level 2: in this error correction takes place - Level 3: it provides byte level stripping also called as “bit-interleaved parity” - Level 4: is used as “dedicated parity drive” and it provides block level striping - Level 5: is “block interleaved distributed parity” - Level 6: is “independent data disks with double parity. - Level 0+1: is “a mirror of stripes” and used for replication and sharing of data among disks - Level 10: is “a stripe of mirrors”. Multiple mirrors are created and then stripes over it. - Level 7: It adds caching to Level 3 or 4. - Level 50: implemented as striped array with fault tolerance - RAID S: it is proprietary striped parity RAID system    Rohit Sharma 12-7-2011 07:06 AM | | **SQL Server interview questions and answers**   **What's the difference between a primary key and a unique key?** - Primary key is a combination of columns which uniquely specify a row whereas a unique key is related to the superkey and can uniquely identify each row in the table. - Primary can only be one in each table as it is one of the special cases of the unique key whereas a unique key can be many.  - Primary key enforces the NOT NULL constraint whereas unique key doesn’t. Due to this values in the unique key columns may or may not be NULL.  **What is bit data type and what's the information that can be stored inside a bit column?** - Bit data type is the smallest type used in a language. It is used to store the boolean information of the form 1 (true) or 0 (false). The former versions of SQL server doesn’t support NULL type in this but recent version such as SQL server 7.0 onwards it supports NULL state as well.   **Define candidate key, alternate key, and composite key.** - Candidate Key is a key which provides the uniqueness of the column(s). It identifies each row of a table as unique. It can become the primary key of the table as well. Every tabular relationship will have atleast one candidate key. - Alternate Key is a type of candidate key which is formed when there are more than one candidate key and one of them is a primary key then other keys will act as an alternate keys. Unique keys also termed as alternate keys which prevent incorrect data from entering the table.  - Composite Key is a special type of candidate key as it is formed by combining two or more columns. This gives assurance of uniqueness of data when the columns are joined together.  **What are ACID properties?** ACID is used in database and it includes the following properties such as atomicity, consistency, isolation and durability. These properties allow easy, reliable and secure database transaction. Example: Transfer of money from one bank account to another. It is used to manage the concurrency in the database table.   **What is the difference between Locking and multi-versioning?** Locking is a means of not allowing any other transaction to take place when one is already in progress. In this the data is locked and there won’t be any modification taking place till the transaction either gets successful or it fails. The lock has to be put up before the processing of the data whereas  Multi-versioning is an alternate to locking to control the concurrency. It provides easy way to view and modify the data. It allows two users to view and read the data till the transaction is in progress.    Rohit Sharma 12-7-2011 07:06 AM | |  | | **SQL Server interview questions and answers**   **What is normalization? Explain different forms of normalization?**  Normalization is a process of organizing the data to minimize the redundancy in the relational database management system (RDBMS). The use of normalization in database is to decompose the relations with anomalies to produce well structured and smaller relations. There are 6 forms of normalization which are as follows:- - 1NF represents a relation with no repeating groups - 2NF represents no non-prime attribute in the table  - 3NF defines that every non-prime attribute is non-transitively dependent on every candidate key - 4NF defines that every non-trival multi-valued dependency in table is dependent on superkey. - 5NF defines that every non-trival join dependency in table is implied by superkey in table. - 6NF defines that a table features no non-trival join dependency.   **What is de-normalization and what are some of the examples of it?** De-normalization is used to optimize the readability and performance of the database by adding redundant data. It covers the inefficiencies in the relational database software. De-normalization logical data design tend to improve the query responses by creating rules in the database which are called as constraints.  Examples include the following: - Materialized views for implementation purpose such as: - Storing the count of “many” objects in one-to-many relationship - Linking attribute of one relation with other relations - To improve the performance and scalability of web applications   Rohit Sharma 12-7-2011 07:04 AM | | **SQL Server interview questions**   **What are the different index configurations a table can have?**  No indexes A clustered index A clustered index and many nonclustered indexes A nonclustered index Many nonclustered indexes   **What is BCP?**   It is used to copy huge amount of data from tables and views.  It does not copy the structures same as source to destination.   Dheeraj 12-6-2011 01:38 AM | |  | |

**Also read**

|  |  |
| --- | --- |
| [**SQL Profiler**](http://www.careerride.com/SQL-Server-SQL-Profiler.aspx)  What are the tasks performed by SQL Profiler? How can you use the SQL Profiler to ensure database security? How can you reduce the amount of data collected by a trace? What is SQL Profiler? When do you use SQL Profiler?............ | [**Sql Server DBA interview**](http://www.careerride.com/SQL-Server-DBA-interview-questions.aspx) What are the steps to take to improve performance of a poor performing query? What is a deadlock and what is a live lock? How will you go about resolving deadlocks? What is blocking and how would you troubleshoot it?............. |
| [**Sql Server database maintenance**](http://www.careerride.com/SQL-Server-Database-Maintenance.aspx) Explain the concepts of faster differential backups. Explain the concepts of Parallel Database consistency check (DBCC). Define Indexed view. Define Distributed partitioned views............ | [**SQL Server backup devices and methods**](http://www.careerride.com/SQL-Server-database-backup.aspx)  Database backup methods - Full Backups, Differential Backups, Transaction Log Architecture Backups, File and Filegroup Backups............... |
| [**RAID (Redundant Array of Inexpensive disks)**](http://www.careerride.com/SQL-Server-RAID.aspx) RAID is a mechanism of storing the same data in different locations. Since the same data is stored, it is termed as redundant............ | [**SQL Server 2005 XML support**](http://www.careerride.com/SQL-Server-2005-XML-support.aspx) Explain the concepts and capabilities of SOAP.  Explain the purpose of Native XML mode in SQL Server 2005. Native XML Access vs. SQLXML............. |
| [**XML Data type implementation in SQL 2005**](http://www.careerride.com/SQL-Server-2005-XML-Data-type.aspx) What is Untyped XML? Provide examples for : Create a table with a untype XML column, Insert into an untyped XML data type column. What is typed XML? The XML data type comes with five methods. Explain them Differentiate between Untyped XML and Typed XML................... | [**Querying & modifying XML data in SQL 2005**](http://www.careerride.com/SQL-Server-2005-Querying-modifying-XML-data.aspx) What is XQuery language? Explain the syntax rule of XQuery language.  XQuery expression contains two parts: the Prolog and the Body. Explain them Explain PATH expression in XQuery with an example..................... |
| [**Indexing XML data in SQL Server 2005**](http://www.careerride.com/SQL-Server-2005-Indexing-XML-data.aspx) Explain the concepts of indexing XML data in SQL Server 2005. Provide basic syntax for creating index on XML data type column. What is content indexing/full text indexing? Explain the reason to index XML data type column. What are the guidelines to be adhered when creating a XML index?................... | [**Indexing XML data in SQL Server 2005**](http://www.careerride.com/SQL-Server-2005-Indexing-XML-data.aspx) Explain the concepts of indexing XML data in SQL Server 2005. Provide basic syntax for creating index on XML data type column. What is content indexing/full text indexing? Explain the reason to index XML data type column. What are the guidelines to be adhered when creating a XML index?............... |
| [**XML Schemas in SQL Server 2005**](http://www.careerride.com/SQL-Server-2005-XML-Schemas.aspx)  Syntax and example for creating and dropping XML schema collection. Limitations of the XML Schema collections. Discuss about XML schema collection permission................... | [**FOR XML in SQL Server**](http://www.careerride.com/SQL-Server-2005-FOR-XML.aspx) Discuss the TYPE directive of FOR XML. Explain the RAW mode of FOR XML. Explain the AUTO mode of FOR XML. Explain the EXPLICIT mode of FOR XML.............. |
| [**CLR support for SQL Server 2005**](http://www.careerride.com/SQL-Server-2005-CLR-support.aspx) Overview of integration of CLR with SQL Server. Advantages of CLR integration............... | [**XSLT in SQL Server 2005**](http://www.careerride.com/SQL-Server-2005-XSLT.aspx) Overview of XSLT and the components that make up an XSLT style sheet. What is XSLCompiledTransform class of the .NET Framework? What is XSLTSetting class of the .NET Framework?................... |
| [**SOAP support in SQL Server 2005**](http://www.careerride.com/SQL-Server-2005-SOAP-support.aspx) Syntax and example for creating and dropping XML schema collection. Limitations of the XML Schema collections. Discuss about XML schema collection permission.............. | [**Transferring a View from Oracle 10G XE to an SQL Server 2005 Database**](http://www.careerride.com/Transferring-a-View-from-Oracle-to-SQL-Server-2005.aspx) Here you will learn how to copy a table on an Oracle 10G XE database to a database on the SQL Server 2005. You will also learn how to install an Oracle 10G XE server and work with its database objects........... |
|  |  |