

Rollback Transaction

In the explicit transaction, if an error occurs in between we can rollback to the beginning of the transaction which cannot be done in implicit transaction.

What is the difference between a HAVING CLAUSE and a WHERE CLAUSE?

You can use Having Clause with the GROUP BY function in query and WHERE Clause is applied to each row before they are part of the GROUP BY function in a query.

How to change Database name in SQL Server?

Use following code

Supported in SQL Server 2000 and 2005

exec sp_renamedb "test", "test1"

Supported in SQL Server 2005 and later version

ALTER Database "test1" Modify Name="test"

Difference between Primary key Constraint and Unique key Constraint in SQL Server.

Unique Key Constraint:

The column values should retain uniqueness.

It allows null values in the column.

It will create non-clustered index by default.

Any number of unique constraints can be added to a table.

Primary Key Constraint:

Primary key will create column data uniqueness in the table.

It Won't allow Null values.

By default Primary key will create clustered index.

Only one Primary key can be created for a table.

Multiple columns can be consolidated to form a single primary key.

What is cursor in SQL Server?

A cursor is a set of rows together with a pointer that identifies a current row.

In other words, Cursor is a database object used by applications to manipulate data in a set on a row-by-row basis, it is like a recordset in the ASP and visual basic.

Typical syntax of cursor is

DECLARE @fName varchar(50), @lName varchar(50)

DECLARE cursorName CURSOR -- Declare cursor

LOCAL SCROLL STATIC

FOR

Select firstName, lastName FROM myTable

OPEN cursorName -- open the cursor

FETCH NEXT FROM cursorName

INTO @fName, @lName

PRINT @fName + ' ' + @lName -- print the name

WHILE @@FETCH_STATUS = 0

BEGIN

FETCH NEXT FROM cursorName

INTO @fName, @lName

PRINT @fName + ' ' + @lName -- print the name

END

CLOSE cursorName -- close the cursor

DEALLOCATE cursorName -- Deallocate the cursor

To know more about cursor, see

<http://www.mssqlcity.com/Articles/General/UseCursor.htm>

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When queries are run against a db, an index on that db basically helps in the way the data is sorted to process the query for faster and data retrievals are much faster when we have an index.

What command do we use to rename a db?

`sp_renamedb 'oldname', 'newname'`

What do you mean by COLLATION?

Collation is basically the sort order. There are three types of sort order Dictionary case sensitive, Dictionary - case insensitive and Binary.

What are the OS services that the SQL Server installation adds?

MS SQL SERVER SERVICE, SQL AGENT SERVICE, DTC (Distribution transac co-ordinator)

What is log shipping?

Logshipping is a new feature of SQL Server 2000. We should have two SQL Server - Enterprise Editions. From Enterprise Manager we can configure the logshipping. In logshipping the transactional log file from one server is automatically updated into the backup database on the other server. If one server fails, the other server will have the same db and we can use this as the DR (disaster recovery) plan.

Where do you think the users names and passwords will be stored in sql server?

They get stored in master db in the sysxlogins table.

What is a deadlock?

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.

What is ACID?

ACID (an acronym for Atomicity, Consistency, Isolation, Durability) is a concept that Database Professionals generally look for when evaluating databases and application architectures. For a reliable database all this four attributes should be achieved.

Atomicity is an all-or-none proposition.

Consistency guarantees that a transaction never leaves your database in a half-finished state.

Isolation keeps transactions separated from each other until they're finished.

Durability guarantees that the database will keep track of pending changes in such a way that the server can recover from an abnormal termination.

Above four rules are very important for any developers dealing with databases

What is DTS?

DTS is a set of tools you can use to import, export, and transform heterogeneous data between one or more data sources, such as Microsoft SQL Server, Microsoft Excel, or Microsoft Access. Connectivity is provided through OLE DB, an open-standard for data access. ODBC (Open Database Connectivity) data sources are supported through the OLE DB Provider for ODBC.

What is Log Shipping?

In Microsoft SQL Server, you can use log shipping to feed transaction logs from one database to another on a constant basis. Continually backing up the transaction logs from a source database and then copying and restoring the logs to a destination database keeps the destination database synchronized with the source database. This allows you to have a backup server and also provides a way to offload query processing from the main computer (the source server) to read-only destination servers.

What are sequence diagrams? What you will get out of this sequence diagrams?

Sequence diagrams document the interactions between classes to achieve a result, such as a use case. Because UML is designed for object-

What is the difference between a Local and a Global temporary table?

A local temporary table exists only for the duration of a connection or, if defined inside a compound statement, for the duration of the compound statement.

Global temporary tables (created with a double "##") are visible to all sessions. You should always check for existence of the global temporary table before creating it... if it already exists, then you will get a duplicate object error.

Global temporary tables are dropped when the session that created it ends, and all other sessions have stopped referencing it.

How to get @@ERROR and @@ROWCOUNT at the same time?

If @@Rowcount is checked after Error checking statement then it will have 0 as the value of @@Recordcount as it would have been reset. And if @@Recordcount is checked before the error-checking statement then @@Error would get reset. To get @@error and @@rowcount at the same time do both in same statement and store them in local variable. `SELECT @RC = @@ROWCOUNT, @ER = @@ERROR`

What is a table called, if it has no Cluster Index?

Unindexed table or Heap.

What command do we use to rename a db, a table and a column?

To rename db
`sp_renamedb 'oldname', 'newname'`

To rename Table
`SP_RENAME 'oldTableName', 'NewTableName'`

To rename Column
`sp_RENAME 'Table_First.Name', 'NameChange', 'COLUMN'`

Can we use Truncate command on a table which is referenced by Foreign Key?

No. We cannot use Truncate command on a table with Foreign Key because of referential integrity.

Can we use NEWID(), or RAND() in function?

No

Can we use "Print" statement in function?

No

Which of the following queries generates an error when executed? DECLARE @x VARCHAR(10), @y VARCHAR(10) SET @y = '' SELECT @x/0 -- query 1 SELECT @x/2 -- query 2 SELECT @y/0 -- query 3 SELECT @y/2 -- query 4

Answer: 3

Explanation: Queries 1 and 2 return NULL since @x is undefined. Query 4 returns 0 since the string '' is implicitly converted to 0. Query 3 returns a divide by 0 error.

What type of language is the SELECT command in SQL Server?

DML.

The SELECT statement is a Data Manipulation Language command, not a Data Definition Language command.

Is There any other Methods in SQL Server 2005 to Read XML Data?

NOTE: This is objective type question, Please click question title for correct answer.

Name the method used in SQL Server to Read XML Data?

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Query to Get List of Views?

*select * from information_schema.views*

Query to display List of All Databases in SQL Server 2005/2008?

*SELECT * FROM Sys.Databases*

How to get values of identitycolumn when you are not sure about the column name which is identity column?

SELECT IDENTITYCOL FROM TableName

What is the name of store procedure to send Email using SQL Server 2005/2008?

sp_send_dbmail in msdb database can be used to send email using SQL Server 2005/2008

I need to Add one column in a existing table and the max value of the column can be 10, which data type i need to use for that?

NOTE: This is objective type question, Please click question title for correct answer.

How we can add Description to the Column using Sql Command?

We can Add Description to Column using sp_addextendedproperty System Store Procedure

Sample Command to Insert Description for Column in a Table:

*EXEC sys.sp_addextendedproperty @name=N'MS_Description', @value=N'My Description for Column Here',
@level0type=N'SCHEMA',@level0name=N'db', @level1type=N'TABLE',@level1name=N'MyTableName',
@level2type=N'COLUMN',@level2name=N'ColumnName'*

Thanks & Regards
Lakhan Pal Garg

How To Update Description Value for a Column in Table using SQL Command?

We can Update Description to Column using sp_updateextendedproperty System Store Procedure.

Sample Command to Update Description for Column in a Table:

*EXEC sys.sp_updateextendedproperty @name=N'MS_Description', @value=N'My Description for Column Here',
@level0type=N'SCHEMA',@level0name=N'dbo', @level1type=N'TABLE',@level1name=N'MyTableName',
@level2type=N'COLUMN',@level2name=N'ColumnName'*

Thanks & Regards
Lakhan Pal Garg

How To Delete Description Value for a Column in Table using SQL Command?

We can Delete Description from Column using sp_dropextendedproperty System Store Procedure.

Sample Command to Delete Description from Column in a Table:

*EXEC sys.sp_dropextendedproperty @name=N'MS_Description', @value=N'My Description for Column Here',
@level0type=N'SCHEMA',@level0name=N'dbo', @level1type=N'TABLE',@level1name=N'MyTableName',
@level2type=N'COLUMN',@level2name=N'ColumnName'*

Thanks & Regards
Lakhan Pal Garg

Write a Query in SQL Server to get the Parameter list of given Store Procedure.

Suppose we want to get the name of the parameter for the Store Procedure Course Insert sp then following needs to be executed.

SELECT * FROM sys.parameters D INNER JOIN Sys.Objects O ON O.object_id=D.object_id WHERE O.name='Course Insert sp'

Thanks & Regards
Lakhan Pal Garg

Which system procedure is used to find out lock details about the databases, it's table and procedures.

sp_lock

Which system table holds the details of all the processes running on the Microsoft sql server?

The name of the system table is sysprocesses .

Select * from sysprocesses

Make sure you run this query in master database.

How can we find the open transactions details in sql server?

Yes, it is possible.

select * from sysprocesses where open_tran > 0

This query will provide list of all the open transaction details.

What is the name of command in sql server 2005 which is used to kill any process?

The command name is kill.

Syntax is below:

Kill [Process ID]

Name of the command to view the current amount of free (unallocated) space in the database in SQL Server?

Name of command is :sp_spaceused

This command displays the database size in MB, and it's also shows unallocated space for the database.

What is the command name to shrink the data file and log file size in SQL server 2005?

The command name is : DBCC SHRINKDATABASE (Database Name)

This command will shrink the data file and log file size. With this command you can specify that how much percentage space you want to free.

dbcc shrinkdatabase (TempDAabase,10)

This command will free only 10% space.

What are magic tables?

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In Database for any table or view When a trigger is fired for any DML command.
Then 2 tables automatically create on backend.
One table is for Insert and other one is for Delete.
These tables are called Magic Tables.
Number of records in both tables should be same.

What is the use of COALESCE function in SQL Server ?

Returns the first not null expression among its arguments.
COALESCE(X,Y,Z)

If X is Null then It'll check for Y,
If Y is Null It'll Check for Z.

Let X is NULL, Y='5' and Z='9'
Here Output is : Y

What type of Authentication does Microsoft SQL Server support?

2 Type of Authentication :

1. Windows Authentication and
2. SQL Server authentication

What is the difference between "dynamic SQL" and "stored procedure" ?

Dynamic sql is the bunch of statements that dynamically constructed at run time and not stored in database.
Where as Stored procedures are stored in data base in compiled form.

How to determine the service pack currently installed on SQL Server?

The global variable @@Version is used to determine the service pack installed.

Ex : SELECT @@Version

O/P : Microsoft SQL Server 2005 - 9.00.1399.06 (Intel X86) Oct 14 2005 00:33:53 Copyright (c) 1988-2005 Microsoft Corporation Developer Edition on Windows NT 5.2 (Build 3790) Service Pack 2

More than one IDENTITY column per table can be used in SQL Server . (True /False)

False.

There can only be one IDENTITY column per table in SQL Server.
Its auto Incremented Column defined by the user.

Is "FOR" available with SQL ?

Yes, it is. You can use FOR clause with XML or BROWSE options.

What is Wildcard character in SQL Server ?

Wildcard characters Determines whether a given character string matches a specified pattern.

A pattern can include regular characters and wildcard characters.

During pattern matching, regular characters must match exactly the characters specified in the character string. Wildcard characters, however, can be matched with arbitrary fragments of the character string.

Using wildcard characters makes the LIKE operator more flexible than using the = and != string comparison operators.

There are 2 Wildcard characters i.e. '%' and '_'

%

Any string of zero or more characters.

WHERE title LIKE '%computer%' finds all book titles with the word 'computer' anywhere in the book title.

_ (underscore)

Any single character.

WHERE au_fname LIKE '_ean' finds all four-letter first names that end with ean, such as Dean or Sean.

What are the major new features in SQL Server 2008 ?

Transparent Data Encryption. The ability to encrypt an entire database.

Tell me the difference between temporary table and table variable? Which is better?

Better one is table variable.

*In most of our real time scenario we are using the temp table which is physically created in tempdb. This creates overhead, but when you create a table Variable it only resides in the memory which clearly shows that it will be much faster than Temp table.
A table variable goes out of scope immediately after the batch end. If we use Table Variable then we no need to explicitly drop it.*

Write a sample syntax of table variable?

DECLARE @TableVariableSample table (ID int IDENTITY(1,1),Name VARCHAR(150) NOT NULL)

How to execute the stored procedure?

With exec keyword or directly we can execute a stored procedure

What is the use of Dense_Rank in Sqlserver?

Dense_Rank function produces the gaps in the ranking system

How to rename a database in SQLserver?

using the procedure sp_renamedb. Following is the syntax

Exec sp_renamedb 'olddbname','newdbname'

How do we Unlock Particular User in Sql Server

*First Login with Window Authentication then take a master Database
Afterwards, execute the below query*

alter login databasename01 with password='password' unlock

What is the purpose of DATENAME function?

DATENAME returns the part of the date in a literal form.

Following is the example

SELECT DATENAME(mm,GETDATE())

What is BCP?

The Bulk Copy Program (BCP) is a command-line utility that ships with SQL Server. It is used to transform data from one database to another.

What is DTS?

Data Transformation Services (DTS) in SQL Server 2000 provides a set of graphical tools and programmable objects to export and import data.

Which one is faster? BCP or DTS?

BCP is faster than DTS.

Which has more provisions for the export/import functionality? Whether we can customize the data through BCP?

Result:

The result should be : Command(s) completed successfully.

SQL Server connection is terminated after the query completes. Why ?

Scenario:

I run a simple query. The connection also Disconnected once the query completed. Why ? and How to fix it ?

Solution:

Query Menu --> Query Options... --> Select Advanced node under the Execution root node.

Un-Select the check box "Disconnect after the query executes" and Click OK.

What is constant folding ?

SQL Server evaluates some constant expressions early to improve the query performance. This is referred to as "constant folding"

What is Forced Service ?

Database mirroring provides forcing service (with possible data loss) as a disaster recovery method to allow you to use a mirror server as a warm standby server.

Forcing service is possible only if the principal server is disconnected from the mirror server in a mirroring session. Because forcing service risks possible data loss, it should be used cautiously.

Which objects can not be specified "FORCESEEK" table hint from the following list ?

Normally we can define hint on Tables, Views, Indexed Views, Table-valued function, CTE, DMV, Table variable, Inline Subquery, Openrowset.

But, we can not define FORCESEEK table hint on Table-valued function, Table variable and Openrowset objects/statements.

A Foreign Key constraint can be defined to reference the columns of a table primary key column ?

Yes. A FOREIGN KEY constraint does not have to be linked only to a PRIMARY KEY constraint in another table; it can also be defined to reference the columns of a UNIQUE constraint in another table.

A FOREIGN KEY constraint can contain null values.

What is Self-referencing table ?

FOREIGN KEY constraint can reference columns in the same table is called self-referencing tables.

Can a FOREIGN KEY constraint reference the column in tables in the different database ?

A FOREIGN KEY constraint can reference columns in tables in the same database or within the same table.

The following error occurred when we try to reference the different database

"The object name contains more than the maximum number of prefixes. The maximum is 2."

How to identify the "Full-Text search Installed or Not" on your current instance of SQL Server ?

SELECT CASE [Full-Text Search] WHEN 1 THEN 'Full-Text Search Installed' ELSE 'Full-Text Search Not Installed' END 'Status' FROM

(

SELECT SERVERPROPERTY('IsFullTextInstalled') 'Full-Text Search'

) AS X

What are the key points to be followed when implementing Full-Text Search on View ?

When we implement a Full-Text Search on View, We have to follow the key rules

1. View should be 'WITH SCHEMABINDING'. Otherwise the following Err will be thrown

- b) @@Rowcount is the number of rows affected by last statement
- c) @@Error means last error that has occurred during a Transact-SQL operation

What is Stored Procedure? What is the advantage of these?

Stored Procedure means a group of T-SQL statements stored under a name and executed as a single unit of work. A stored procedure can be called from another stored procedure, from a client application.

Advantages are given below:-

*Fast Execution
Network Load Reduction.
Security.*

What is error handling in stored procedures of SQL Server 2008?

In previous versions of SQL Server you would handle exceptions by checking the @@error global variable immediately after an INSERT, UPDATE or DELETE, and then perform some corrective action if @@error did not equal zero.

SQL Server 2005 provides structured exception handling through TRY CATCH block as other programming language like JAVA, C# etc.

Example:

BEGIN TRY

RAISERROR ('A problem is raised', 16,1)

END TRY

BEGIN CATCH

SELECT ERROR_NUMBER() as ERROR_NUMBER,

ERROR_SEVERITY() as ERROR_SEVERITY,

ERROR_STATE() as ERROR_STATE,

ERROR_MESSAGE() as ERROR_MESSAGE

END CATCH

- *ERROR_NUMBER() returns the number of the errors.*
- *ERROR_SEVERITY() returns the severity.*
- *ERROR_STATE() returns the error state number.*
- *ERROR_PROCEDURE() returns the name of the stored procedure or trigger where the error occurred.*
- *ERROR_LINE() returns the line number inside the routine that caused the error.*
- *ERROR_MESSAGE() returns the complete text of the error message. The text includes the values supplied for any substitutable parameters, such as lengths, object names and times etc.*

Describe how you can optimize stored procedures in SQL Server?

Below are some points to optimize stored procedure in SQL Server

- *Use as much as possible WHERE clause filters. Where Clause is the most important part for optimization.*
- *Select only those fields which really required.*
- *Joins are expensive in terms of time. Make sure that use all the keys that relate to the tables together and don't join to the unused tables, always try to join on indexed fields. The join type is important as well in (INNER, OUTER).*

Describe what is trigger in SQL Server?

In any database including SQL Server a trigger is a procedure that initiates on INSERT, DELETE or UPDATE actions.

Before SQL Server 2000 Triggers are also used to maintain the referential integrity. We can not execute triggers explicitly. The DBMS automatically fires the trigger when data modification events (INSERT, DELETE or UPDATE) happened in the associated table.

Triggers are same as stored procedures in terms of procedural logic that is stored at the database level. Stored procedures are executed explicitly and triggers are event-drive.

How can you describe RDBMS?

```

SELECT (total physical memory kb/1024.)/1024. 'Total Physical Memory(GB)',
_____(available physical memory kb/1024.)/1024. 'Available Physical Memory(GB)',
_____(100 / ((total physical memory kb/1024.)/1024.)) * (((total physical memory kb/1024.)/1024.) -
((available physical memory kb/1024.)/1024.)) 'Used Physical Memory(%)',
_____(100 / ((total physical memory kb/1024.)/1024.)) * ((available physical memory kb/1024.)/1024.) 'Available Physical
Memory(%)'.
_____(system memory state desc 'Memory Status'

FROM sys.dm_os_sys_memory

```

Which SQL Server Profiler event enables to trace the users involved in Deadlock cycle ?

NOTE: This is objective type question. Please click question title for correct answer.

How do you install SQL Server to take advantage of Microsoft Server Clustering ?

NOTE: This is objective type question. Please click question title for correct answer.

What are the various options to move the data/databases ?

We have lots of options, we have to choose our option depending upon our requirements.

- 1.BACKUP/RESTORE
- 2.Dettaching, Moving the files and attaching databases
- 3.Replication
- 4.Mirroring
- 5.Logshipping
- 6.Implementing Linked Server and accessing the data as a four / three part naming convention
- 7.DTS or DTSX
- 8.BCP
- 9.INSERT...SELECT or SELECT INTO
10. Creating INSERT scripts to generate data

What are the restrictions apply to compressed backups ?

The compressed backup was introduced in SQL Server 2008 Enterprise. So this technique applicable in SQL Server 2008 Enterprise Edition and Later.

The following are the compressed backup restrictions :

1. Compressed and uncompressed backups cannot co-exist in a media set.
2. Previous versions of SQL Server cannot read compressed backups.
3. NT backups cannot share a tape with compressed SQL Server backups.

How to enable compressed backup ?

Compressed backup was introduced in SQL Server 2008 Enterprises edition and later only.
EXEC sys.sp_configure N'backup compression default', N'1'

GO

RECONFIGURE WITH OVERRIDE

GO

Once you enable the compressed backup. When you perform the backup next time. The backup will be compressed by default.

What are the performance counters used to monitor the Backup I/O performance ?

1. Device Throughput Bytes/sec counter of SQLServer:Backup Device Performance object
2. Backup/Restore Throughput/sec counter of SQLServer:Databases Performance object

What is Network model?

A network model is a database model by which we can represent objects and their relationships. These models define a set of network layers and it provides greater flexibility and easy access to data. This model provides the logical relationship among many parent databases.

Explain about the hierarchical model of database?

The hierarchical data model means a base data can have its corresponding branches i.e. the data is organized into tree structure. In this all attributes of a specific record are listed under an entity type. In this model you can form relationship among many tables with certain concepts. Here each record is represented as a row and an attribute as a column.

Explain what is object oriented databases?

The object oriented database is a database management system which supports the creation and modeling of data as objects. It should support two criteria i.e. it should be a DBMS and it should be an object oriented system. These databases are used to store complex data, to store information related to multimedia, Engineering databases, spatial databases etc.

Explain about XML databases?

The XML database is use to organize data irrespective of whether it is organized or not. These are used in applications such as informational portals, document exchanges, and product catalogs. This data can exported and serialized into below mentioned format. There are two different XML database class exists.

XML-enabled: This is a traditional database such as a relational database which accepts XML as input and rendering XML as output. This shows that the database does the conversion to itself. Basically this is used to store data-centric documents which include highly structured information.

Native XML: These types of databases depend on XML and uses XML documents as a storage unit. Basically this is designed to store semi-structured information, such as marketing brochures or health data and that semi-structured contained data are referred to as document-centric. It manages the documents by grouping them into a logical collection and can manage multiple collections simultaneously.

Write disadvantage of File Processing System and what are the advantages of Database over File Processing System?

- The data redundancy and consistency is not easy in File System but in Database it is possible.
- It is difficult to access data in File Processing System but in Database it can be done easily.
- The File System is unable to provide data isolation but Database provides.
- In File System you will not get data integrity but the Database can have data integrity.
- Concurrent access is not possible in File System but possible in Database.
- There is no security in the File System but you get this facility in Database.

Define Rollback and Rollforward?

Rollback: The Rollback transaction is a transaction which rolls back the transaction to the beginning of the transaction. The transaction can be rolled back completely by specifying the transaction name in the Rollback statement or to cancel any changes to a database during current transaction. It is permissible to use before Commit transaction.

Rollforward: Recovering a database by applying different transactions that recorded in the database log files. It is nothing but re-doing the changes made by a transaction i.e. after the committed transaction and to over write the changed value again to ensure consistency.

Define Concurrency and Concurrency control? Explain what are the different techniques?

Concurrency allows us the simultaneous access of same data by different users. The process of managing simultaneous execution of transactions in a shared database, to ensure the serializability of transactions, is known as concurrency control. It avoids the adverse effect of one transaction to another transaction. These are of two types.

Pessimistic concurrency control: It assumes when a conflicts happen. This technique detects conflicts as soon as they occur and resolve them using locking. The system lock prevents users from modifying data in a way so that it will not affect other user. After a user performs an action that causes a lock to be applied, so that other users cannot perform any action on that.

Optimistic concurrency control: This is called optimistic because the conflicts between transactions are rare and it doesn't require locking. Here the transactions are executed without any restrictions. It is mainly used when there is low contention for data and it checks for conflicts before the commit.

What is a Database Transaction?

A Database Transaction is a logical unit of database operations and a unit of work in database management system. These are highly important to use transactions when working with databases. In this the SQL statement is treated as a transaction and will be automatically committed immediately after it is successfully executed. For this successful transaction that is from begin to end transaction, it follows the term ACID (Atomicity, Consistency, Isolation, Durability).

To implement Database Transaction we have to follow the following steps i.e.

```
beginTransaction();  
setTransactionSuccessful();  
endTransaction();
```

What is the difference between a Database Administrator and a Data Administrator?

Database Administrator: The basic role of a Database Administrator is to store and manage the information in the database. They are responsible for reviewing the contents in the database. They are performing all the activities related to maintaining the database and responsible for designing, implementing the database. Also their responsible is to backed up data regularly and prevent from unauthorized access. They are also known as Database Coordinator or Database Programmer.

The different functionalities of a database administrator are maintaining database system software, developing physical database structures and data dictionary.

Data Administrator: The Data Administrator is responsible for defining data elements, data names and their relationship with the database analyst. The basic responsible is how to install and configure the RDBMS applications and also they have to know the requirements of the software application in terms of functions and assure the data integrity. They are also known as Data Analyst. Following are some basic steps for a Data Administrator.

- Specification of organization data.
- The design and maintenance of data management application.
- Validating the data and files.
- Security of files or databases.

What is difference between SUBSTR and INSTR in the SQL?

The SUBSTR function returns a specific portion of a string.

Example: SUBSTR('DotNetFunda',6)

The result will be: DotNet

The INSTR function provides character position in a pattern of string.

Example: INSTR('Dot-Net-Funda','.',2)

The result will be: 8 (2nd occurrence of '.')

What is the difference between =, == and ===?

'=' is for assigning one value to the other variable.

'==' is for the comparison between string with number, number with number etc.

'===' is for the comparison between only number with number and string with string.

Example:

// for '=' operator

if(a=b+c)

{

 alert('true')

}

It will be true if it not contains any zero, false, and any empty string.

//for '==' operator

if(a==b+c)

{

 alert('true')

}

Suppose the value of x is "5" and the value of y, z is 8, -3 then the if condition will return value true. Here we are comparing string with the number.

//for '===' operator

if(x===y+z)

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referred to by some other Select statement

example:

2 tables emp and emp1 have got salary column. To calculate the maximum salary from the salary columns of 2 tables

select max(salary) from (select salary from emp union select salary from emp1) a

a: is the derived table that will provide the input to the outer query

Which of these statements cannot be written inside the block Begin tran Commit Tran

NOTE: This is objective type question, Please click question title for correct answer.

What is set_quoted_identifier?

It is a statement that allows us to use double quotes when naming the objects

for example:

1)create table "demo"
(ono int)

2)create table "select"
(sno int)

These 2 statements will work only when
set quoted_identifier on

if
set quoted_identifier off

Both the statements will fail

set quoted_identifier is on by default

Difference between Identity column and Primary Key?

Identity Column:

- 1.Identity column is auto incremented
- 2.Incremented numerical values only
- 3.Only one Identity column in table
- 4.All identity column is an primary Key
- 5.Values cannot be updated

Primary Key:

- 1.Primary Key value will be entered by the user.
- 2.Can be created more than one column (composite primary key).
- 3.All primary key is not an identity column.
- 4.Can be update the value
- 5.Can be refer by other table as a foreign key.

What are the different authentications in sql server

Sql server have 2 different authentication

- 1) Windows Authentication
- 2) SQL Authentication

Windows authentication uses the windows credentials to authenticate the user and takes it to the server

SQL authentication uses sql user name and password to authenticate the user and its secure as well

Microsoft suggests to use windows authentication inorder to maintain a single authentication by maintaining in active directory

What are computed Columns?

Computed columns are the columns that can be used to store the calculated results based upon some other columns of the table

create table emptytable

1. Backup the Log on Primary Server Job
2. Copy the Log backup file to Secondary Server Job
3. Restoring the Log on Secondary Server Job
4. Notifying alerts for errors (If any)

Can we use order by clause when defining a view?

Yes, we can use order by clause when defining a view.

The condition is we have to include either TOP or FOR XML clauses also in the query

example:

create view gt as select * from emp order by ename

--Wrong

But

create view gt as select top 5 * from emp order by ename

-- Correct

What is the difference between Stored Procedure and Function?

There are few differences between Stored Procedure and Function that are

• Stored Procedures are stored in a compiled format into the database where as Functions are compiled at run time.

• The Stored Procedures can perform certain tasks in the database by using insert, delete, update and create commands but in function you can't use these commands.

• Normally the Stored procedures are used to process certain task but the Functions are used to compute the value. That is we can pass some value as input and then it perform some task on the value and return output.

• Stored procedures can change in the server directly but Functions cannot change in the server directly.

• To run a Stored Procedure we have to use the Execute or Exec command whereas Functions can run as an executable file.

• Stored Procedure can return multiple values whereas Functions can return only single value.

• The Stored Procedures can be used directly in the program by using its command type but Functions can be used by using SQL Query.

• The Stored Procedure can have both IN and OUT parameter where as Functions are always having IN parameter, no OUT parameter is possible.

• Stored Procedures cannot be used as an inline with a select statement while Functions can.

• The temporary variable is required to hold the return value of a Stored Procedure but in Functions, the temporary variable is optional.

Which of these must be there in the delete command?

NOTE: This is objective type question. Please click question title for correct answer.

How to insert a single row only in a table

using INSTEAD OF trigger, validates row counts of both original and INSERTED tables

CREATE TRIGGER trInsertEmployee ON Employee

INSTEAD OF INSERT

AS

BEGIN

____ IF EXISTS

____ (

____ SELECT *

____ FROM dbo.Employee

Example:

Suppose I have an table Employee(EmpID,EmpName, DOJ,Managerid,DepartID)

Now am Creating a view

*Create View EmployeeDetails
with Schemabinding*

as

Select EmpId, EmpName,DOJ,ManagerId,DepartID from Employee

after it just try to execute delete table and alter table and delete column of employee table.

Sql server will not allow to change table schema. Because you are having Schema dependency.First you need to delete View then only database will allow to modify table.

If you are using Normal View. Sytem will Allow you to delete or modify table but when you run your View next time it will display error.

How many Foreign key can i have in my MS sql table ?

A Maximum of 253 Foreign Keys we can have in for a single table.

How many tables can be used in a single SELECT statement ? Have you tested that ?

It depends on Version

SQL Server 2005:

Maximum tables can be 256

SQL Server 2008:

Depends on resource availability

SQL Server 2008 R2:

Depends on resource availability

You can confirm by using script given below

*/*Creating 300 Tables for testing*/
Use [Master]*

Go

Declare @I Int, @Script Varchar(500)

Select @I = 1

While (@I <=300)

Begin

Select @Script = 'Create Table Table' + CAST(@I as varchar) + '(Id Int)'

Exec(@Script)

Select @I = @I + 1

End

Go

*/*Using all the tables in SELECT statement*/*

Use [Master]

Go

Declare @I Int, @Script Varchar(Max)

Select @I = 1

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There are four type's of index's available in Sql Server.

Cluster : We can create only index in Table. When we create primary key then cluster index create automatically.

Non Cluster: we can create 256 non cluster index in table but should be crate 3 index in table because effect on performance. when create unique key then non cluster index create automatically.

Unique: We can create unique index too.

Composite Key: when we create index with two columns together then composite key index create. like class name and roll no create one index.

In SQL Server Database, what is the basic difference between a table scan and an index scan ?

Table Scan --- Here, row by row scanning is done to get the data. In case, there are huge number of data in a table, it becomes an overhead.

Index Scan --- Here in the first, index is created in the table. It then uses the index to get to the data that you wanted. It increases the performance.

What is BCP ?

BCP is stand for Bulk copy Program in sql server, bulk copy is a tool used to copy huge amount of data from tables and views. BCP does not copy the structure same as source to destination.

What is MERGE statement?

MERGE is new feature in SQL Server 2008 that provide an efficient way to perform multiple operations. In previous version we had to write separate statement to INSERT,DELETE and UPDATE data based on certain conditions, but now using MERGE statement we can include the logic of such data modification in one statement that even checks when the data matched then not update it and when unmatched then insert it. most important advantage of MERGE statement is all the data is read and processed only once.

Write a sql query which will give result of the city name of the employee whose avg salary > 2000

```
select cityname, avg(salary) as avg_salary from employee group by cityname having avg(salary) > 2000
```

Find and Delete duplicate records in a table

Many times you can face problem of duplicate records in table. So How would you identify and delete duplicate records in a table? For that Firstly check if table has duplicate records or not using below query.

```
SELECT [FirstName] FROM tblTest GROUP BY [FirstName] HAVING COUNT(*) > 1
```

Then Delete duplicate records.

```
DELETE FROM tblTest WHERE ID NOT IN (SELECT MAX(ID) FROM tblTest GROUP BY [FirstName])
```

A stored procedure can be called from a trigger, another stored procedure or even from a client applications. Are all the above statements correct ?

NOTE: This is objective type question. Please click question title for correct answer.

A stored procedure must contains at least two parts: (1) stored procedure name (2) its body

NOTE: This is objective type question. Please click question title for correct answer.

What is the command that is used to set a set of privileges that can be granted to users or different roles?

NOTE: This is objective type question. Please click question title for correct answer.

Which command removes all the rows from the table without logging individual row deletions ?

INSERT INTO Employee values (102,'Steve Proell',40,NULL,60000.00);
INSERT INTO Employee values (103,'Matt McNair',35,NULL,5000.00);
INSERT INTO Employee values (104,'Amit Kr',29,NULL,1000.00);
INSERT INTO Employee values (105,'Jeff Yeary',32,NULL,1000.00);

Solution 1

select * from employee where id in (
select MAX(Id) from Employee
where Id in (select top(3) ID from Employee))

Solution 2

select top 1 *
from employee
where Id in (select top 3 Id from employee order by Id asc)
order by Id desc

Solution 3

SELECT * FROM
(SELECT ROW_NUMBER() OVER (ORDER BY ID) AS RowNum, * FROM Employee) sub
WHERE RowNum = 3

Please suggest if any other solution are there for the above problem

Is there a way to decrypt stored procedure?

No, there is no way to decrypt a stored procedure, once you have encrypted your stored procedure, you can not get your code.

So better to create your procedure without encryption and save script file in some location then alter procedure with encryption.

What is Collation ?

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.

What is Identity?

Identity is column that automatically generates numeric values, it is incremented by 1 by default but it can be set also.

Example:

Create table tabName

(
ID INT IDENTITY(1,1) NOT NULL,
NAME VARCHAR(20) NULL
)

What is the difference between SQL and SQL Server ?

SQLServer is an RDBMS just like oracle,DB2 from Microsoft.

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Structured Query Language (SQL), pronounced "sequel", is a language that provides an interface to relational database systems. SQL is used to perform various operations on RDBMS.

What is difference between Co-related sub query and nested sub query ?

Correlated subquery runs once for each row selected by the outer query. It contains a reference to a value from the row selected by the outer query.

Example:

```
select e1.empname, e1.basicsal, e1.deptno from emp e1
where e1.basicsal = (select max(basicsal) from emp e2 where e2.deptno = e1.deptno)
```

Nested subquery runs only once for the entire nesting (outer) query. It does not contain any reference to the outer query row.

Example:

```
select empname, basicsal, deptno from emp
where (deptno, basicsal) in (select deptno, max(basicsal) from emp group by deptno)
```

What Operator performs Pattern Matching ?

Pattern matching operator is LIKE and it is used with two attributes:

- 1. % - means matching zero or more characters*
- 2. _ (underscore) - means matching exactly one character*

How can i hide a particular table name of our schema ?

You can hide the table name of your schema by creating synonym

Example:

you can create a synonym y for table x

```
create synonym y for x;
```

What is difference between DBMS and RDBMS ?

The main difference between DBMS & RDBMS is

RDBMS have Normalization. Normalization means to refining the redundant and maintain the stabilization.
DBMS hasn't normalization concept.

What are Data Marts ?

Data Warehousing is a process in which the data is stored and accessed from central location.
Data Marts are smaller section of Data Warehouses which help data warehouses to collect data.
For example your company has lot of branches which are spanned across the globe. Head-office of the company decides to collect data from all these branches for anticipating market. So to achieve this IT department can setup data mart in all branch offices and a central data warehouse where all data will finally reside.

What is Snow Flake Schema design in database ? What's the difference between Star and Snow flake schema ?

The denormalization of star schema is known as snow flake design.
Star schema is good when you do not have big tables in data warehousing. But when tables start becoming really huge it is better to denormalize. When you denormalize star schema it is nothing but snow flake design.

We have an employee salary table, how do we find the second highest from it ?

Which of the following SQL statements is correct?

NOTE: This is objective type question, Please click question title for correct answer.

Which SQL keyword is used to retrieve only unique values?

NOTE: This is objective type question, Please click question title for correct answer.

Explain Composite Index in SQL Server.

In SQL 2005 and 2008 we can add up to 16 columns in a index. Such index that consists of more than one columns is referred as composite index.

Both clustered and non-clustered indexes can be composite index. The order of the columns are very important here.

Syntax

CREATE INDEX index_name

ON [table name] (col1,col2,...col16);

For example.

CREATE INDEX IX_Student_Composite

ON [Student] (student_Code, student_Name);

What is Job in Sql Server ?

It is a series of operations performed by SQL Server Agent sequentially.

It can do a wide range of activities, including running T-SQL scripts and ActiveX scripts, job actions on Services packages, Analysis Services commands and queries, or Replication tasks.

Jobs can run repetitive or scheduled tasks and they can automatically notify users of job status by generating alerts, thereby greatly simplifying SQL Server administration.

A job can be edited only by its owner or members of the sa-admin role.

Difference between Database Mail and SQLMail ?

Database mail :

Based on SMTP (Simple Mail Transfer Protocol).

Introduced in Sql 2005.

No need to install Outlook.

Depend on Service Broker service.

More secure than Sqlmail.

SQLMail :

Based on MAPI (Messaging Application Programming Interface).

Used prior versions of Sql server 2005.

Require Outlook to be installed.

Less secure than Database mail.

Explain different types of CASE expression with Example.

CASE

Evaluates a list of conditions and returns one result.

There are two types of CASE expressions in SQL.

1.Simple CASE

The simple CASE expression compares an expression to a set of simple expressions to determine the result.

2.Searched CASE

The searched CASE expression evaluates a set of Boolean expressions to determine the result.

Both formats support an optional ELSE argument.

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VendorID EmployeeName Orders

1 Rahul 5
1 Sourav 3
1 Sunil 9
2 Rahul 8
2 Sourav 4
2 Sunil 1 6

SELECT VendorID,[Rahul],[Sourav],[Sunil]

FROM PurchaseOrder

PIVOT

(sum (Orders)FOR EmployeeName IN ([Rahul],[Sourav],[Sunil]))

) AS p

Output

VendorID Rahul Sourav Sunil

1 5 3 9
2 8 4 6

UNPIVOT in SQL SERVER 2008 with an example?

PIVOT and UNPIVOT are non standard relational operators that are supported by Transact-SQL. You can use them to manipulate a table-valued expression into another table. PIVOT rotates a table-valued expression by turning the unique values from one column in the expression into multiple columns in the output, and performs aggregations where they are required on any remaining column values that are wanted in the final output. UNPIVOT performs the opposite operation to PIVOT by rotating columns of a table-valued expression into column values.

Example

Input Table

VendorID Rahul Sourav Sunil

1 5 3 9
2 8 4 6

SELECT VendorID,EmployeeName,Orders

FROM tempCTE

UNPIVOT

(Orders FOR EmployeeName IN ([Rahul],[Sourav],[Sunil])) AS unpvt

Example:

```
SELECT Name, COALESCE(Business_Phone, Cell_Phone, Home_Phone) Contact_Phone
FROM Contact_Info;
```

Result:

Name Contact_Phone

Jeff 531-2531

Laura 772-5588

Peter 594-7477

Explain about Has_perms_by_name function..

This function will let the user know whether he has the effective permission on a securable(Ex:Table).
This function cannot be used to check permissions on linked server.

If the user wants to know whether he has the permission for SELECT on the customer's table, he can use the below query:

```
select Has_perms_by_name('Customers', 'Objects', 'SELECT')
```

It will return either 1(true) or 0(false).

To check all the tables in which you have select permission, below query is used:

```
select Has_perms_by_name
```

```
(QUOTENAME(SCHEMA_NAME(schema_id)) + '.' + QUOTENAME(name),
'OBJECT', 'SELECT') As has_select_perm FROM sys.tables
```

What is the reason behind having both login and a user ?

By using both login and user, the database server can do the authentication process.

The authorization process can be scoped to the database.

With this advantage, if your database server is moved to another server, then also you can remap the user-login relationship on the database server, but your database need not to be changed.

What is the purpose of sys.dm_os_sys_info?

This DMV returns the information about the SQL Server machine, available resources and the resource consumption. It also provides information like

- a) CPU Count: Number of logical CPUs in the server
- b) Hyperthread-ratio: Ratio of logical and physical CPUs
- c) Physical_memory_in_bytes: Amount of physical memory available
- d) Virtual_memory_in_bytes: Amount of virtual memory available
- e) Bpool_committed: Committed physical memory in buffer pool
- f) OS_Priority_class: Priority class for SQL Server process
- g) Max_workers_thread: Maximum number of workers which can be created

What is the purpose of sys.dm_os_hosts?

This DMV returns all the hosts registered with SQL Server 2005. It also provides information like

- a) Name: Name of the host registered
- b) Type: Type of hosted component [SQL Native Interface/OLE DB/MSDART]
- c) Active_tasks_count: Number active tasks host placed
- d) Active_ios_count: I/O requests from host waiting

What is the purpose of sys.dm_os_schedulers?

```
select serverproperty('edition')
```

By using three queries you can get the product level, product version and edition

How to do custom sorting in SQL Server?

By using CASE statement in the ORDER BY clause we can achieve Custom Sorting on result set....

For example,

If you want to give the 1st preference to Mango, 2nd for banana, 3rd for Apple and so on

```
CREATE TABLE UserPreferences(FruitId int identity, FruitName varchar(40))
```

```
GO
```

```
INSERT INTO UserPreferences VALUES( 'Apple'), ('Cherry'), ('Mango'), ('Banana')
```

```
SELECT * FROM UserPreferences
```

```
/*Sample Data:
```

```
FruitId  FruitName
```

```
1      Apple
```

```
2      Cherry
```

```
3      Mango
```

```
4      Banana
```

```
*/
```

Answer should be:

```
SELECT * FROM UserPreferences ORDER BY CASE WHEN FruitName = 'Mango' THEN 1 WHEN FruitName = 'Banana' THEN 2 WHEN FruitName = 'Apple' THEN 3 ELSE 4 END
```

```
/*RESULT in custome order:
```

```
FruitId  FruitName
```

```
3      Mango
```

```
4      Banana
```

```
1      Apple
```

```
2      Cherry*/
```

What are the Different ways of importing data into SQL Server?

Many approaches are available to import data into SQL Server. Main approaches are:

1) Import and Export Data Wizard

1.1. Import and Export Wizard tool which comes with SQL Server

1.2. Right-click on Database name --> Tasks --> Import Data option --> follow wizard

2) Using T-SQL script:

2.1. BULK INSERT

2.2. bcp command

3) Hands-on approach

Direct approach from Excel: Place data(records) in the excel and generate INSERT statements by using CONCATENATE() function in excel then run the script in SSMS

Ex: You can use CONCATENATE for the function

```
=CONCATENATE("INSERT INTO table VALUES(",A1,",",B1,")")
```

4) Using SSIS tasks

NOTE: Mostly I will use 3rd approach for master data INSERT script generation

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