1. Views in SQL are virtual table. It defines a customized query that retrieves data from a table/tables.

Views can be used to present specific data to users, restrict access to data, and summarize data from several tables to create reports.

1. User-Defined Views

Users define these views to meet their specific requirements. It can also divide into two:

* The simple view is based on the single base table without using any complex queries.
* The complex view is based on more than one table along with group by clause, order by clause, and join conditions.

2. System-Defined Views

System-defined views are predefined and existing views stored in SQL Server. Each system views has its own properties and functions. They can automatically attach to the user-defined databases. We can divide the System-defined views into three types: Information Schema, Catalog View, and Dynamic Management View.

1. A function is a set of SQL statements that that takes parameters as inputs, executes SQL commands, and outputs either a single value or a table.

A function cannot call a stored procedure but a stored procedure can be called a function.

Syntax: CREATE FUNCTION [schema\_name.] function\_name ( [ @parameter [ AS ] [type\_schema\_name.] datatype [ = default ] [ READONLY ] , @parameter [ AS ] [type\_schema\_name.]

Stored procedures are reusable sets of SQL statements that can accept parameters and return results. Stored procedures don't require results to be returned, don't require any parameters, and can change database objects.

Syntax: CREATE PROCEDURE procedure\_name

AS

sql\_statement

GO;

1. Index in SQL is a tool used to quickly identify rows with specific column values. If there were no indexes, the SQL server would have to start with the first row and then go through the entire table until it discovers the relevant rows. It accelerate query processing.
   * A primary key is a field or a combination of fields in a database table that uniquely identifies each record (row) in that table. A primary key index is an automatically generated index associated with the primary key column(s) to enhance data retrieval and enforce data uniqueness.
   * A unique index in a relational database is a data structure that enforces the uniqueness constraint on one or more columns within a table. Its primary purpose is to ensure that values stored in the indexed column(s) are unique across all records in the table.
   * A clustered index sorts and stores the rows of a table based on the values in one or more specified columns. It affect the physical order of data rows within a table.
   * Non-clustered indexes create separate data structures to allow fast access to specific data subsets. It is a type of index used in relational databases to improve the efficiency of data retrieval operations.
2. To handle exceptions in SQL, TRY...CATCH blocks are used. Statements that could cause an exception are put in the TRY block and a CATCH block immediately after it. If there is an error in code within the TRY block, the control will automatically jump to the corresponding CATCH blocks.

Example: Divide by zero to generate Error

BEGIN TRY

DECLARE @num INT, @msg varchar(200)

SET @num = 5/0

PRINT 'This will not execute'

END TRY

BEGIN CATCH

PRINT 'Error occurred'

set @msg=(SELECT ERROR\_MESSAGE())

print @msg;

END CATCH

GO

1. Select value from STRING\_SPLIT(‘Stephen;Peter;Berry;Olivier;Caroline;’ , ‘;’)
2. A temporary table is a base table that is not stored in the database, but instead exists only while the database session in which it was created is active.

These tables act as the normal table and are used when there is large amounts of data for which accessing by index will be faster.

Syntax: CREATE TABLE #TableName (id INT, name VARCHAR(25))

To create Temporary Table Single “#” is used as the prefix of a table name.