**22 May**

create database Demo\_DB;

create table tblTest

(Id bigint,

SmallId smallint);

create table tbleTest1

(DecimalCoulm decimal, NumricColum numeric(10,5));

insert into tbleTest1 values(12345,12345.34);

select \* from tbleTest1;

Drop table tbleTest1;

create table tbleTest2

(price money)

insert into tbleTest2 values(12345.29);

select \* from tbleTest2;

create table product

(id int,

p\_name varchar(50),

valid\_from date,

valid\_to datetime,

p\_amount money);

insert into product values(1,'P1','2023-01-01','2024-01-01',345.67);

drop table product;

select \* from product;

create table tblTest3

(Id uniqueidentifier default NewId(), Name varchar(100));

insert into tblTest3(Name) values('Name1');

insert into tblTest3(Name) values('Name2');

insert into tblTest3(Name) values('Name3');

select \* from tblTest3;

create table tblTest4

(Id int,Tbl\_Data xml);

truncate table tblTest4;

insert into tblTest4 values(1,'<employee>

<emp\_id type="textbox">111</emp\_id>

<emp\_name type="textbox">Emp1</emp\_name>

<emp\_salary type="textbox">1000</emp\_salary>

</employee>');

insert into tblTest4 values(2,'<employee>

<emp\_id type="textbox">222</emp\_id>

<emp\_name type="textbox">Emp2</emp\_name>

<emp\_salary type="textbox">2000</emp\_salary>

</employee>');

select \* from tblTest4;

select t4.Tbl\_Data.query('/employee/emp\_id[1]/text()') as ID,

t4.Tbl\_Data.query('/employee/emp\_name[1]/text()') as EmpName,

t4.Tbl\_Data.query('/employee/emp\_salary[1]/text()') as Salary

from tblTest4 t4;

select t4.Tbl\_Data.value('(/employee/emp\_id)[1]','int') as ID,

t4.Tbl\_Data.value('(/employee/emp\_name)[1]','varchar(max)') as EmpName,

t4.Tbl\_Data.value('(/employee/emp\_salary)[1]','int') as Salary

from tblTest4 t4;

create table tblTest5

(id int,GeometryData geometry);

insert into tblTest5 values(1,'point(9 24)');

insert into tblTest5 values(1,'linestring(0 0,7 8)');

insert into tblTest5 values(2,'polygon((0 0,7 8,10 0,9 6,0 0))');

select \* from tblTest5;

create table tblTest6

(id int,GeometryData geography);

insert into tblTest6 values(2,'polygon((0 0,15 0,9 6,15 10,0 0))');

create table Employee

(Id int,

EmpName varchar(50),

hId hierarchyid);

select \* from Employee;

select Id,EmpName,hId,hId.ToString() as HId from Employee;

insert into Employee values(1,'Emp1','/');

insert into Employee values(2,'Emp2','/1/');

insert into Employee values(3,'Emp3','/1/1/');

insert into Employee values(4,'Emp4','/1/2/');

select \* from tblTest6;

create type EmailAddress

from varchar(100) not null;

create table Student

(S\_Id int,

S\_Name varchar(30),

EmailId EmailAddress);

drop table Student;

insert into Student values(101,'S1','s1@gmail.com');

select \* from Student;

drop type EmailAddress;

create schema Test\_Schema;

create table Test\_Schema.Customers

(C\_id int,

C\_Name varchar(30))

drop table Test\_Schema.Customers;

drop schema Test\_Schema;

create table Marks

(Test1 int, Test2 int, TestAvg as (Test1+Test2)/2);

drop table Marks;

insert into Marks(Test1,Test2) values(10,20);

insert into Marks(Test1,Test2) values(5,25);

select \* from Marks;

create table tblTest\_identity

(Id int identity(10,5),

Name varchar(30));

drop table tblTest\_identity;

insert into tblTest\_identity(Name) values('Name1');

insert into tblTest\_identity(Name) values('Name2');

insert into tblTest\_identity(Name) values('Test1');

insert into tblTest\_identity(Name) values('Test2');

delete from tblTest\_identity

select \* from tblTest\_identity;

truncate table tblTest\_identity;

create sequence S1

As Int

start with 5

increment by 5;

select Next value for S1;

create table Test\_sq

(Id int, Name varchar(20));

insert into Test\_sq values(Next value for S1,'Test1');

insert into Test\_sq values(Next value for S1,'Test2');

insert into Test\_sq values(Next value for S1,'Test3');

select \* from Test\_sq;

create table tblDefault

(Id int,

Name Varchar(30),

Contact varchar(30) default 'Unknown',

DOJ date default Getdate());

select \* from tblDefault;

insert into tblDefault values(101,'N1','9123456789','2023-02-12');

insert into tblDefault(Id,Name) values(102,'N2');

create table tblDefault

(Id int,

Name Varchar(30),

Contact varchar(30),

DOJ date);

--Check Constraint

create table tbl\_check

(Id int,

Name Varchar(30),

Age int check(Age between 18 and 60));

insert into tbl\_check values(1,'Name1',18);

insert into tbl\_check values(2,'Name2',59);

insert into tbl\_check values(3,'Name2',59);

select \* from tbl\_check;

create table tbl\_check

(Id int,

Name Varchar(30),

Age int);

alter table tbl\_check

add constraint chk\_age check(Age between 18 and 25);

insert into tbl\_check values(1,'Name1',19);

insert into tbl\_check values(2,'Name2',25);

select \* from tbl\_check;

--Primary Key

create table Employees

(Id int primary key,

Name Varchar(30),

Age int);

alter table tbl\_check

add constraint chk\_age check(Age between 18 and 25);

insert into Employees values(1,'Name1',19);

insert into Employees values(2,'Name2',29);

insert into Employees values(2,'Name2',25);

select \* from Employees;

create table Employees

(Id int not null,

Name Varchar(30),

Age int);

Alter table Employees

Add constraint pk\_Id primary key(Id);

--Unique Key

create table tblOrder

(Order\_Id int unique,

Order\_Name Varchar(30),

Order\_date date);

alter table tbl\_check

add constraint chk\_age check(Age between 18 and 25);

insert into tblOrder values(1,'Order1','2023-04-02');

insert into tblOrder values(2,'Order2','2023-05-02');

insert into tblOrder values(2,'Name2',25);

select \* from tblOrder;

create table tblOrder

(Order\_Id int,

Order\_Name Varchar(30),

Order\_date date);

Alter table tblOrder

Add constraint un\_OrderId unique(Order\_Id);

--Foreign Key

create table tblOrder

(Order\_Id int primary key,

Order\_Name Varchar(30),

Order\_date date);

create table tblCustomer

(Customer\_Id int primary key,

Customer\_Name Varchar(30),

Order\_Id int foreign key references tblOrder(Order\_Id));

insert into tblCustomer(Customer\_Id,Customer\_Name) values(1,'C1');

insert into tblCustomer values(2,'C2',111);

insert into tblOrder values(111,'Order1','2023-04-02');

insert into tblOrder values(2,'Order2','2023-05-02');

insert into tblOrder values(2,'Name2',25);

select \* from tblCustomer;

select \* from tblOrder;

delete from tblCustomer where Customer\_Id=2

delete from tblOrder where Order\_Id=111;

create table tblCustomer

(Customer\_Id int primary key,

Customer\_Name Varchar(30),

Order\_Id int);

Alter table tblCustomer

Add constraint fk\_OrderId Foreign Key(Order\_Id)

references tblOrder(Order\_Id);

--Enabling/ Disabling Constraint

--Check Constraint

insert into tbl\_check values(1,'Name1',18);

insert into tbl\_check values(2,'Name2',59);

insert into tbl\_check values(3,'Name2',62);

insert into tbl\_check values(4,'Name4',62);

select \* from tbl\_check;

--disable constraint

Alter table tbl\_check

Nocheck constraint chk\_age;

--Enable Constraint

Alter table tbl\_check

check constraint chk\_age;

**23 May**

create table Customers

(Id int,

Customer\_Name varchar(50),

Phone Varchar(15),

Customer\_Age int

);

select \* from Customers;

create default Def\_phone

As '000-0000000'

insert into Customers(Id,Customer\_Name,Customer\_Age) values(1,'C1',22);

insert into Customers(Id,Customer\_Name,Customer\_Age) values(2,'C2',23);

execute sp\_bindefault Def\_phone, 'Customers.Phone';

exec sp\_unbindefault 'Customers.Phone';

--Rule

create rule r\_age

As @AgeRange>=18 and @AgeRange<=25;

create rule r\_age1

As @AgeRange>=18;

create rule r\_age2

As @AgeRange>=5;

insert into Customers(Id,Customer\_Name,Customer\_Age) values(1,'C1',26);

select \* from Customers;

insert into Customers(Id,Customer\_Name,Customer\_Age) values(3,'C3',25);

insert into Customers(Id,Customer\_Name,Customer\_Age) values(4,'C4',8);

insert into Customers(Id,Customer\_Name,Customer\_Age) values(5,'C5',8);

insert into Customers(Id,Customer\_Name,Customer\_Age) values(6,'C6',4);

exec sp\_bindrule r\_age,'Customers.Customer\_Age';

exec sp\_bindrule r\_age1,'Customers.Customer\_Age';

exec sp\_bindrule r\_age2,'Customers.Customer\_Age';

exec sp\_unbindrule 'Customers.Customer\_Age';

select Id,Customer\_Name,Customer\_Age from Customers;

select Id,Customer\_Name,Customer\_Age from Customers order by Customer\_Age asc;

select Id,Customer\_Name,Customer\_Age from Customers order by Customer\_Age desc;

select Customer\_Name from Customers;

select distinct Customer\_Name from Customers;

create table Student

(Id int,name varchar(30),Subject1 int, Subject2 int,totalmarks int);

insert into Student(Id,Subject1,Subject2) values(1,80,85);

update Student set totalmarks =Subject1+Subject2;

--Logical Oper

create table Product

(Product\_Id int,

Product\_Name varchar(30));

create table [Order]

(Order\_Id int,

Order\_date date,

Quantity int,

Product\_Id int)

select \* from Product;

select \* from [Order];

insert into [Order] values(101,'2023-04-01',8,111);

insert into [Order] values(102,'2023-05-01',3,111);

insert into [Order] values(103,'2023-05-02',13,222);

insert into [Order] values(104,'2023-05-03',20,333);

select \* from Product where Product\_Id=Any(select distinct Product\_Id from [Order] where Quantity<10);

select \* from Product where Product\_Id=Any(select distinct Product\_Id from [Order] where Quantity>10);

select \* from Product where Product\_Id=All(select Product\_Id from [Order] where Quantity<25);

select \* from Employee;

create table Employee

(Id int,

Name varchar(40),

Country varchar(50),

City varchar(50));

select \* from Employee where Country='India' and City='Mumbai';

select \* from Customers where Customer\_Age between 1 and 10;

select \* from Product where exists (select Product\_Id from [Order] where Quantity=3);

delete from [Order] where exists (select Product\_Id from [Order] where Quantity=25);

select \* from [Order]

insert into [Order] values(104,'2023-05-03',20,333);

select \* from Employee where City IN('Pune','Delhi');

select \* from Employee where City Not IN('Pune','Delhi');

select \* from Employee where Name like 'A%';

select \* from Employee where Name like '\_a%';

select \* from Customers;

--select \* from Customers where Phone=Null;//not use = operator

--select \* from Customers where Phone<>Null;not use <> operaor

select \* from Customers where Phone is Null;

select \* from Customers where Phone is not Null;

--Replace

select REPLACE('Hi Test','Hi','Hello');

select \* from Customers;

update Customers set Phone=REPLACE(Phone,'+93','+91') where Customer\_Name='C6';

--Left()

select Left('SQL Server',3);

--Right()

select Right('SQL Server',6);

select STR(123);

select SUBSTRING('This is SQL Server Demo',5,7);

SELECT len('Server');

Select REVERSE('SQL');

select Lower('Sql Server');

select Upper('Sql Server');

select CONCAT('Sql Server','Database');

select 'Sql Server'+'Database';

--Date Function

Select GETDATE();

Select GETUTCDATE();

Select CURRENT\_TIMESTAMP;

Select SYSDATETIME();

--Datename()

Select DATENAME(Year,'2023-04-02');

Select DATENAME(MONTH,'2023-04-02');

Select DATENAME(MONTH,GETDATE());

Select DATENAME(Day,GETDATE());

--Datepart

Select DATEPART(MONTH,GETDATE());

--Datediff

select DATEDIFF(Month,'2023-01-01','2023-05-23');

--DateADD

Select DATEADD(DAY,3,GETDATE());

Select DATEADD(Month,3,GETDATE());

--

Select ABS(-12.34);

select Round(18.56789,3);

select SQRT(16);

--Agreeagte Function

select \* from [Order]

insert into [Order] values(105,'2023-05-23',25,111);

insert into [Order] values(106,'2023-05-22',50,222);

insert into [Order] values(107,'2023-05-23',5,111);

insert into [Order] values(108,'2023-05-23',12,111);

Select min(Quantity) from [Order];

Select max(Quantity) from [Order];

Select Avg(Quantity) from [Order];

Select Count(\*) from [Order];

Select Sum(Quantity) from [Order];

select \* from [Order]

select HOST\_NAME();

select HOST\_ID();

select cast(25.5 as Int);

select cast(25.5 as varchar);

select cast('2023-05-23' As datetime);

--Convert

select Convert(varchar,25.6);

select Convert(datetime,'2023-05-23');

--Group By

create table Employee

(emp\_id int,

emp\_name varchar(50),

DOJ datetime,

dept\_id int,

[Location] varchar(30));

create table Department

(dept\_id int,

dept\_name varchar(40));

select \* from Employee;

select \* from Department;

insert into Employee values(1,'Emp1','2023-05-22',101,'Pune');

insert into Employee values(2,'Emp2','2023-05-22',104,'Pune');

insert into Employee values(3,'Emp3','2023-05-22',101,'Mumbai');

insert into Employee values(4,'Emp4','2023-05-22',102,'Pune');

insert into Employee values(5,'Emp5','2023-05-22',103,'Pune');

insert into Employee values(6,'Emp6','2023-05-22',104,'Delhi');

insert into Employee values(7,'Emp7','2023-05-23',101,'Mumbai');

select [Location],count(emp\_id) as "number of employees"

from Employee

where dept\_id in(101,102,103)

Group by [Location]

order by [Location] desc;

--Grouping Set

create table Products(

product\_id int,

product\_price numeric,

product\_brand varchar(30),

product\_date date,

product\_category varchar(50));

select \* from Products;

select product\_category,sum(product\_price) as "Price" from Products

group by product\_category

union All

select product\_brand,sum(product\_price) as "Price" from Products

group by product\_brand;

select \* from Products;

select product\_category,product\_brand,sum(product\_price) as "Price" from Products

group by GROUPING Sets(product\_category,product\_brand);

select product\_id As ID,product\_name as Name from Products

union

select P\_id,P\_name from Product;

select product\_id,product\_name from Products

union all

select P\_id,P\_name from Product;

select product\_id,product\_name from Products

Intersect

select P\_id,P\_name from Product;

select product\_id as ID,product\_name As Name from Products

Except

select P\_id,P\_name from Product;

---SQL Join

create table tblEmployee

(EmpId int identity(1,1) primary key,

EmpName varchar(50),

EmpSalary money,

DeptId int);

create table tblDepartment

(DeptId int identity(101,1) primary key,

DeptName varchar(50));

select \* from tblEmployee;

select \* from tblDepartment;

--Equi join

select E.EmpName,E.EmpSalary,D.DeptName from tblEmployee as E inner join tblDepartment as D

on E.DeptId=D.DeptId

select E.EmpName,E.EmpSalary,D.DeptName from tblEmployee as E,tblDepartment as D

where E.DeptId=D.DeptId;

--Non Equi Join

select E.EmpName,E.EmpSalary,D.DeptName from tblEmployee as E inner join tblDepartment as D

on E.DeptId>D.DeptId

--Left Outer join

select E.EmpName,E.EmpSalary,D.DeptName from tblEmployee as E left outer join tblDepartment as D

on E.DeptId=D.DeptId

--Right Outer join

select E.EmpName,E.EmpSalary,D.DeptName from tblEmployee as E right outer join tblDepartment as D

on E.DeptId=D.DeptId

--Full Outer join

select E.EmpName,E.EmpSalary,D.DeptName from tblEmployee as E full outer join tblDepartment as D

on E.DeptId=D.DeptId;

--Self Join

CREATE TABLE [dbo].[tblEmployees](

[EmpId] [int] IDENTITY(1,1) primary key NOT NULL,

[EmpName] [varchar](50) NULL,

[EmpSalary] [money] NULL,

[DeptId] [int] NULL,

[ManagerId] int null);

insert into tblEmployees values('Amit',2000,101,null);

insert into tblEmployees values('Jatin',3000,101,1);

insert into tblEmployees values('Anil',4000,102,2);

insert into tblEmployees values('Raj',4000,102,2);

select \* from tblEmployees;

select E.EmpId,E.EmpName,E.ManagerId,M.EmpName from tblEmployees as E join tblEmployees as M

on E.ManagerId=M.EmpId;

--Cross join

select E.EmpName,E.EmpSalary,D.DeptName from tblEmployee as E

cross join tblDepartment as D;

select \* from tblEmployee;

select \* from tblDepartment;

**24 May**

select \* from [Order];

select \* from Products;

select Order\_Id,Order\_date,Quantity from [Order]

where Product\_Id in (select product\_id from Products);

select product\_name from Products

where product\_id in (select Product\_Id from [Order] where Quantity>10);

select product\_name from Products

where product\_id in (select Product\_Id from [Order] where Quantity<10);

Select Order\_Id,Order\_date from [Order] where Quantity=(select max(Quantity) from [Order]);

select product\_name from Products

where exists (select Product\_Id from [Order] where Quantity>10);

select product\_name from Products

where not exists (select Product\_Id from [Order] where Quantity>10);

select \* from Products;

select \* from [Order];

update [Order] set Quantity=5 where Product\_Id=(select max(Product\_Id) from Products);

Delete from [order] where Product\_Id=(select max(Product\_Id) from Products);

select max(Quantity) from [order];

create table EmployeeDetails

(Id int not null,

Emp\_Name varchar(30),

Emp\_PAN varchar(20),

DOJ date);

Select \* from EmployeeDetails;

create Clustered Index CIN\_EmpDetails\_ID

On EmployeeDetails(Id);

create Index CIN\_EmpDetails1

On EmployeeDetails(Id);

create NonClustered Index CIN\_EmpDetails\_ID12

On EmployeeDetails(Emp\_PAN,DOJ);

Drop Index CIN\_EmpDetails\_ID on EmployeeDetails;

Drop Index CIN\_EmpDetails\_ID12 on EmployeeDetails;

--columnStore Index

create NonClustered columnstore Index NonColumnStore\_In

On EmployeeDetails(Emp\_PAN);

exec sp\_helpindex 'NonClusteredIndex-202305';

exec sp\_help 'EmployeeDetails';

exec sp\_rename 'EmployeeDetails.NonColumnStore\_In','EmployeeDetails.MyNonClusteredIndex-201';

exec sp\_rename 'Employees','MyEmployees';

create procedure Test

As

print 'This is SP Test'

exec sp\_rename 'Test','MyTest';

--View

select \* from EmployeeDetails;

select \* from tblEmployee;

select \* from tblDepartment;

create view v\_EmployeeDet

As

Select Emp\_Name,DOJ from EmployeeDetails where DOJ<'2023-01-01';

select \* from v\_EmployeeDet;

create view v\_Emp

As

select E.EmpName,E.EmpSalary,D.DeptName from tblEmployee as E inner join tblDepartment as D

on E.DeptId=D.DeptId;

select \* from v\_Emp;

Alter view v\_Emp

As

select E.EmpName,E.EmpSalary,D.DeptName from tblEmployee as E Left outer join tblDepartment as D

on E.DeptId=D.DeptId;

DROP view v\_EmployeeDet;

exec sp\_rename 'v\_Emp','v\_MyEmployeeView';

exec sp\_helptext 'v\_MyEmployeeView';

create view v\_EmployeeWithEnc

With Encryption

As

Select Emp\_Name,DOJ from EmployeeDetails where DOJ<'2023-01-01';

exec sp\_helptext 'v\_EmployeeWithEnc';

DROP view v\_EmployeeWithEnc;

create view v\_EmployeeWithEnc

As

Select Emp\_Name,DOJ from EmployeeDetails where DOJ<'2023-01-01';

Alter procedure p\_GetEmployeeData

As

select \* from EmployeeDetails where DOJ>'2022-12-01';

exec p\_GetEmployeeData;

drop procedure p\_GetEmployeeData;

Alter procedure p\_GetEmployeeDataByID

(@empid int,@emppan varchar(20))

As

select Emp\_Name,DOJ from EmployeeDetails where Id=@empid and Emp\_PAN=@emppan;

exec p\_GetEmployeeDataByID 1,AS32423;

select \* from EmployeeDetails;

create procedure p\_InsertEmployeeData

(@empid int,

@empname varchar(40),

@emppan varchar(20),

@empdateofj varchar(20),

@totalRecord int output)

As

insert into EmployeeDetails values(@empid,@empname,@emppan,@empdateofj);

select @totalRecord=(select count(\*) from EmployeeDetails);

declare @result int

exec p\_InsertEmployeeData 21,'E21','GG1232','2023-05-24',@result output

select @result as "Total Employee"

create procedure p\_EDetails

As

select E.EmpName,E.EmpSalary,D.DeptName from tblEmployee as E inner join tblDepartment as D

on E.DeptId=D.DeptId;

exec p\_EDetails;

create procedure #LocalPro

As

print 'This is local stored procedure';

exec #LocalPro;

create procedure ##GlobalPro

As

print 'This is Global stored procedure';

exec ##GlobalPro;

create procedure p\_TestProcedure

with recompile

As

select \* from EmployeeDetails;

exec p\_TestProcedure;

--drop procedure p\_TestProcedure;

create procedure p\_TestProcedure

As

select \* from EmployeeDetails;

exec p\_TestProcedure with recompile;

exec p\_TestProcedure;

exec sp\_recompile 'p\_TestProcedure';

exec sp\_helptext 'p\_EDetails';

create table Employee

(emp\_id int,

Emp\_Name varchar(30),

Emp\_Salary money check(Emp\_Salary>10000),

[Address] varchar(30))

insert into Employee values(1,'Emp1',7000,'Add1')

if @@ERROR>0

print 'Error occured'

else

print 'No Error'

Begin Try

insert into Employee values(1,'Emp1',8000,'Add1');

End try

Begin Catch

print 'Error occurred while inserting the data';

End Catch

--RaiseError

Begin Try

insert into Employee values(1,'Emp1',8000,'Add1');

End try

Begin Catch

raiserror(N'Error occured',16,3);

End Catch

--Throw

--RaiseError

Begin Try

insert into Employee values(1,'Emp1',8000,'Add1');

End try

Begin Catch

Throw 50000,N'Unable to insert record',1;

End Catch

**25th May**

select \* from Employee;

create Trigger AfterTrigger\_Emp

on Employee

For Insert

AS

Begin

Print 'After Trigger Executed';

End

Insert into Employee values(3,'Emp3',12000,'Add3');

Alter Trigger AfterTrigger\_Emp

on Employee

After Insert,Delete,update

AS

Begin

Print 'After Trigger Executed';

select \* from Employee;

End

Delete from Employee where Emp\_Name='Emp2';

Alter table Employee

Add constraint pk\_empid primary key (emp\_id);

CREATE TABLE [dbo].[Employee](

[emp\_id] [int] Not NULL,

[Emp\_Name] [varchar](30) NULL,

[Emp\_Salary] [money] NULL,

[Address] [varchar](30) NULL

);

update Employee set Emp\_Salary=20000 where emp\_id=3;

DROP Trigger AfterTrigger\_Emp;

--Instead Of trigger

create trigger InsteadOfTrigger\_Employee

on Employee

Instead of Insert

As

Begin

Print 'Instead of Trigger Executed';

End

Insert into Employee values(3,'Emp4',12000,'Add4');

create trigger InsteadOfTrigger1\_Employee

on Employee

Instead of Delete

As

Begin

Print 'Instead of Trigger1 Executed';

End

disable trigger InsteadOfTrigger\_Employee on Employee;

enable trigger InsteadOfTrigger\_Employee on Employee;