2021

# SQL Server

TEST OF SQL SERVER

JYOT HATHI

# Index

# A. Given Reference Table Creation and Data Insertion

## 1. Employee Table:

```
/*Creation of Table tblEmployee*/
create table tblEmployee
(
    Employee_Id int identity(1,1) primary key,
    First_Name  varchar(50) not null,
    Last_Name varchar(50) not null,
    Salary    int not null,
    Joining_Date datetime not null,
    Department_Id int,
    constraint check_Salary_Employee check(Salary >= 0),
    constraint fk_tblDepartment_tblEmployee
        foreign key(Department_Id) references tblDepartment(Deptid)
);
Insert Into tblEmployee
(First_Name,Last_Name,Salary,Joining_Date,Department_Id)
values('John','Abraham',1000000,'01-JAN-13 12:00:00 AM',1);

Insert Into tblEmployee
(First_Name,Last_Name,Salary,Joining_Date,Department_Id)
values('Michael','Clarke',800000,'01-JAN-13 12:00:00 AM',2);

Insert Into tblEmployee
(First_Name,Last_Name,Salary,Joining_Date,Department_Id)
values('Roy','Thomas',700000,'01-FEB-13 12:00:00 AM',1);

Insert Into tblEmployee
(First_Name,Last_Name,Salary,Joining_Date,Department_Id)
values('Tom','Jose',600000,'01-FEB-13 12:00:00 AM',2);

Insert Into tblEmployee
(First_Name,Last_Name,Salary,Joining_Date,Department_Id)
values('Jerry','Pinto',650000,'01-FEB-13 12:00:00 AM',2);

Insert Into tblEmployee
(First_Name,Last_Name,Salary,Joining_Date,Department_Id)
values('Philip','Mathew',750000,'01-JAN-13 12:00:00 AM',3);

Insert Into tblEmployee
(First_Name,Last_Name,Salary,Joining_Date,Department_Id)
values('TestName1','123',650000,'01-JAN-13 12:00:00 AM',3);

Insert Into tblEmployee
(First_Name,Last_Name,Salary,Joining_Date,Department_Id)
values('TestName2','Lname%',600000,'01-FEB-13 12:00:00 AM',2);
```

**2. Department Table (To Normalize Employee Table):**

```
create table tblDepartment
(
    Deptid int identity(1,1) primary key,
    Department varchar(20) not null
)
/*As Initial Data is Available so Inserting data in tblDepartment*/
Insert into tblDepartment values('Banking');
Insert into tblDepartment values('Insurance');
Insert into tblDepartment values('Services');
```

**3. Incentive Table:**

```
create table tblIncentives
(
    Incentive_Id int Identity(1,1) primary key,
    Employee_ref_id int,
    Incentive_date date not null,
    Incentive_amount int not null,
    constraint fk_tblEmployee_tblIncentives
        foreign key(Employee_ref_id) references tblEmployee(Employee_Id),
    constraint check_Incentive_amount_Incentives check(Incentive_amount >= 0),
);
/*As Initial Data is Available so Inserting data in tblIncentives*/
Insert into tblIncentives
(Employee_ref_id,Incentive_date,Incentive_amount)
values(1,'01-FEB-13',5000);

Insert into tblIncentives
(Employee_ref_id,Incentive_date,Incentive_amount)
values(2,'01-FEB-13',3000);

Insert into tblIncentives
(Employee_ref_id,Incentive_date,Incentive_amount)
values(3,'01-FEB-13',4000);

Insert into tblIncentives
(Employee_ref_id,Incentive_date,Incentive_amount)
values(1,'01-JAN-13',4500);

Insert into tblIncentives
(Employee_ref_id,Incentive_date,Incentive_amount)
values(2,'01-JAN-13',3500);
```

## B. Execution of Give Queries:

1. **Get First_Name from employee table using alias name “Employee Name”**

```
/*Query 1: Get First_Name from employee table using alias name “Employee Name” */
select First_Name as [Employee Name] from tblEmployee;
```

Editor | Results | Messages

| | Employee Name |
|---|---|
| 1 | John |
| 2 | Michael |
| 3 | Roy |
| 4 | Tom |
| 5 | Jerry |
| 6 | Philip |
| 7 | TestName1 |
| 8 | TestName2 |

2. **Get position of 'o' in name 'John' from employee table**

```
/*Query 2: Get position of 'o' in name 'John' from employee table */
select CHARINDEX('o',First_Name) as Position from tblEmployee where First_Name='John';
```

Editor | Results | Messages

| | Position |
|---|---|
| 1 | 2 |

3. **Get FIRST_NAME ,Joining year,Joining Month and Joining Date from employee table**

```
/*Query 3: Get FIRST_NAME ,Joining year,Joining Month and Joining Date from employee table  */
select
First_Name,DATENAME(YEAR,Joining_Date) as [Joining year],
DATENAME(Month,Joining_Date) as [Joining Month],
DATENAME(day,Joining_Date) as [Joining Date]
from tblEmployee;
```

Editor | Results | Messages

| | First_Name | Joining year | Joining Month | Joining Date |
|---|---|---|---|---|
| 1 | John | 2013 | January | 1 |
| 2 | Michael | 2013 | January | 1 |
| 3 | Roy | 2013 | February | 1 |
| 4 | Tom | 2013 | February | 1 |
| 5 | Jerry | 2013 | February | 1 |
| 6 | Philip | 2013 | January | 1 |
| 7 | TestName1 | 2013 | January | 1 |
| 8 | TestName2 | 2013 | February | 1 |

4. **Get all employee details from the employee table order by First_Name Ascending and Salary descending.**

```
/*Query 4: Get all employee details from the employee table order by First_Name Ascending and Salary
descending */
select First_Name,Last_Name,Salary,Convert(varchar,Joining_Date,0)as Joining_Date,Department from
tblEmployee
inner join
tblDepartment on tblDepartment.Deptid=tblEmployee.Department_Id
order by First_Name,Salary DESC
```

Editor | Results | Messages

| | First_Name | Last_Name | Salary | Joining_Date | Department |
|---|---|---|---|---|---|
| 1 | Jerry | Pinto | 650000 | Feb 1 2013 12:00AM | Insurance |
| 2 | John | Abraham | 1000000 | Jan 1 2013 12:00AM | Banking |
| 3 | Michael | Clarke | 800000 | Jan 1 2013 12:00AM | Insurance |
| 4 | Philip | Mathew | 750000 | Jan 1 2013 12:00AM | Services |
| 5 | Roy | Thomas | 700000 | Feb 1 2013 12:00AM | Banking |
| 6 | TestName1 | 123 | 650000 | Jan 1 2013 12:00AM | Services |
| 7 | TestName2 | Lname% | 600000 | Feb 1 2013 12:00AM | Insurance |
| 8 | Tom | Jose | 600000 | Feb 1 2013 12:00AM | Insurance |

5. **Get employee details from employee table whose employee name are not "John" and "Roy".**

```
/*Query 5: Get employee details from employee table whose employee name are not "John" and "Roy"  */
select First_Name,Last_Name,Salary,Convert(varchar,Joining_Date,0)as Joining_Date,Department from
tblEmployee
inner join
tblDepartment on tblDepartment.Deptid=tblEmployee.Department_Id
where First_Name NOT IN ('John','Roy');
```

Editor | Results | Messages

| | First_Name | Last_Name | Salary | Joining_Date | Department |
|---|---|---|---|---|---|
| 1 | Michael | Clarke | 800000 | Jan 1 2013 12:00AM | Insurance |
| 2 | Tom | Jose | 600000 | Feb 1 2013 12:00AM | Insurance |
| 3 | Jerry | Pinto | 650000 | Feb 1 2013 12:00AM | Insurance |
| 4 | Philip | Mathew | 750000 | Jan 1 2013 12:00AM | Services |
| 5 | TestName1 | 123 | 650000 | Jan 1 2013 12:00AM | Services |
| 6 | TestName2 | Lname% | 600000 | Feb 1 2013 12:00AM | Insurance |

6. **Get employee details from employee table whose first name ends with 'n'.**

```
/*Query 6: Get employee details from employee table whose first name ends with 'n' */
select First_Name,Last_Name,Salary,Convert(varchar,Joining_Date,0) as Joining_Date,Department from
tblEmployee
inner join
tblDepartment on tblDepartment.Deptid=tblEmployee.Department_Id
where First_Name LIKE '%n';
```

Editor | Results | Messages

| | First_Name | Last_Name | Salary | Joining_Date | Department |
|---|---|---|---|---|---|
| 1 | John | Abraham | 1000000 | Jan 1 2013 12:00AM | Banking |

7. **Get employee details from employee table whose first name ends with 'n' and name contains 4 letters.**

```
/*Query 7:  Get employee details from employee table whose first name ends with 'n' and letters.*/
select First_Name,Last_Name,Salary,Convert(varchar,Joining_Date,0) as Joining_Date,Department from
tblEmployee
inner join
tblDepartment on tblDepartment.Deptid=tblEmployee.Department_Id
where First_Name LIKE '___n'
```

Editor | Results | Messages

| | First_Name | Last_Name | Salary | Joining_Date | Department |
|---|---|---|---|---|---|
| 1 | John | Abraham | 1000000 | Jan 1 2013 12:00AM | Banking |

8. **Get employee details from employee table whose Salary less than 800000**

```
/*Query 8: Get employee details from employee table whose Salary less than 800000 */
select First_Name,Last_Name,Salary,Convert(varchar,Joining_Date,0) as Joining_Date,Department from
tblEmployee
inner join
tblDepartment on tblDepartment.Deptid=tblEmployee.Department_Id
where Salary < 800000;
```

Editor | Results | Messages

| | First_Name | Last_Name | Salary | Joining_Date | Department |
|---|---|---|---|---|---|
| 1 | Roy | Thomas | 700000 | Feb 1 2013 12:00AM | Banking |
| 2 | Tom | Jose | 600000 | Feb 1 2013 12:00AM | Insurance |
| 3 | Jerry | Pinto | 650000 | Feb 1 2013 12:00AM | Insurance |
| 4 | Philip | Mathew | 750000 | Jan 1 2013 12:00AM | Services |
| 5 | TestName1 | 123 | 650000 | Jan 1 2013 12:00AM | Services |
| 6 | TestName2 | Lname% | 600000 | Feb 1 2013 12:00AM | Insurance |

9. **Get employee details from employee table who joined before January 1st 2013**

```
/*Query 9: Get employee details from employee table who joined before January 1st 2013 */
select First_Name,Last_Name,Salary,Convert(varchar,Joining_Date,0) as Joining_Date,Department from
tblEmployee
inner join
tblDepartment on tblDepartment.Deptid=tblEmployee.Department_Id
where Joining_Date < CAST('01-JAN-13' as datetime);
```

Editor | Results | Messages

| First_Name | Last_Name | Salary | Joining_Date | Department |
|---|---|---|---|---|

**10. Get difference between JOINING_DATE and INCENTIVE_DATE from employee and incentives table**

```
/*Query 10: Get difference between JOINING_DATE and INCENTIVE_DATE from employee and incentives
table */
select First_Name+SPACE(1)+Last_Name as Employee_Name,
DATEDIFF(day,Joining_Date,Incentive_date) as [Insentive_Date - Joining_Date (In Days)]
from tblEmployee inner join tblIncentives
on tblEmployee.Employee_Id=tblIncentives.Employee_ref_id
order by Employee_Name,[Insentive_Date - Joining_Date (In Days)]
```

Editor | Results | Messages

| | Employee_Name | Insentive_Date - Joining_Date (In Days) |
|---|---|---|
| 1 | John Abraham | 0 |
| 2 | John Abraham | 31 |
| 3 | Michael Clarke | 0 |
| 4 | Michael Clarke | 31 |
| 5 | Roy Thomas | 0 |

**11. Print database date.**

```
/*Query 11: Print database date. */
print GETDATE();
```

Editor | Messages

```
Feb 20 2021 12:07PM

Completion time: 2021-02-20T12:07:07.8177857+05:30
```

**12. Get department,total salary with respect to a department from employee table.**

```
/*Query 12: Get department,total salary with respect to a department from employee table. */
select Department,SUM(Salary) as [Total Salary] from
tblEmployee
inner join
tblDepartment on tblDepartment.Deptid=tblEmployee.Department_Id
group by Department
```

Editor | Results | Messages

| | Department | Total Salary |
|---|---|---|
| 1 | Banking | 1700000 |
| 2 | Insurance | 2650000 |
| 3 | Services | 1400000 |

**13. Get department,no of employees in a department,total salary with respect to a department from employee table order by total salary descending .**

```
/*Query 13: Get department,no of employees in a department,total salary with respect to a department
from employee table order by total salary descending . */
select Department,Count(Employee_Id) as [Total Employee],SUM(Salary) as [Total Salary] from
tblEmployee
inner join
tblDepartment on tblDepartment.Deptid=tblEmployee.Department_Id
group by Department
order by [Total Salary] DESC
```

Editor | Results | Messages

| | Department | Total Employee | Total Salary |
|---|---|---|---|
| 1 | Insurance | 4 | 2650000 |
| 2 | Banking | 2 | 1700000 |
| 3 | Services | 2 | 1400000 |

**14. Select no of employees joined with respect to year and month from employee table.**

```
/*Query 14: Select no of employees joined with respect to year and month from employee table */
select
ISNULL([Joining Year],'ALL') as [Joining Year],
ISNULL([Joining Month],'ALL') as [Joining Month] ,
COUNT(Employee_Id) as [Number of Employee] from
(select
Employee_Id,
DATENAME(YEAR,Joining_Date) as [Joining Year],
DATENAME(MONTH,Joining_Date) as [Joining Month]
from tblEmployee
)
as tblYearlyRecuritemnt
group by ROLLUP([Joining Year],[Joining Month])
order by [Joining Year] ASC,[Joining Month] DESC
```

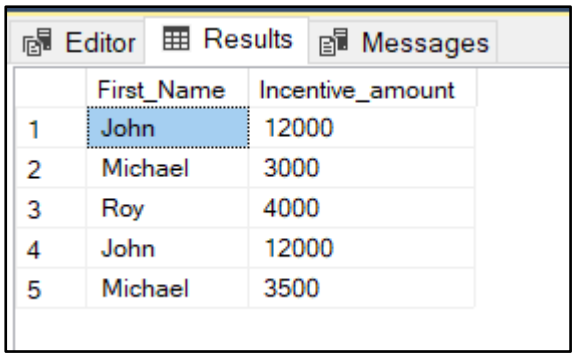
Editor | Results | Messages

| | Joining Year | Joining Month | Number of Employee |
|---|---|---|---|
| 1 | 2013 | January | 4 |
| 2 | 2013 | February | 4 |
| 3 | 2013 | ALL | 8 |
| 4 | ALL | ALL | 8 |

**15. Update incentive table with employee's Incentive_amount as '12000' where employee name is 'John'**

```
/*Query 15: 15. Update incentive table with employee's Incentive_amount as '12000'
where employee name is 'John'  */
update tblIncentives
set Incentive_amount=12000
where
Employee_ref_id=(select Employee_Id from tblEmployee where First_Name='John')

select First_Name, Incentive_amount from
tblEmployee join tblIncentives on tblIncentives.Employee_ref_id = tblEmployee.Employee_Id
```

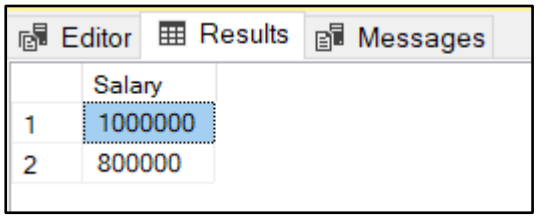


Editor | Results | Messages

| | First_Name | Incentive_amount |
|---|---|---|
| 1 | John | 12000 |
| 2 | Michael | 3000 |
| 3 | Roy | 4000 |
| 4 | John | 12000 |
| 5 | Michael | 3500 |

**16. Select TOP 2 salary from employee table**

```
/*Query 16: Select TOP 2 salary from employee table */
select top 2 Salary from tblEmployee;
```

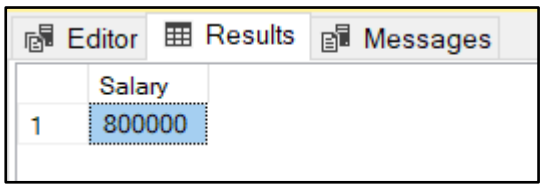


Editor | Results | Messages

| | Salary |
|---|---|
| 1 | 1000000 |
| 2 | 800000 |

**17. Select 2nd Highest salary from employee table**

```
/*Query 17: Select 2nd Highest salary from employee table */
select top 1 Salary from
(select top 2 Salary from tblEmployee order by Salary DESC) as tbltempEmployee
order by Salary;
```



Editor | Results | Messages

| | Salary |
|---|---|
| 1 | 800000 |

**18. Write. What is the difference between UNION and UNION ALL?**

Ans:

1. Union All Not Remove the Duplication of Records
2. Whereas UNION First Remove Duplication and Then Display Data.

**19. Write a syntax for CREATE Employee Table.**

Ans:

```
Create table tblEmployee
(
    EmployeeId int Identity(1,1) primary key,
    First_Name   varchar(50) not null,
```

```
Last Name varchar(50) not null,
Salary int not null,
Joining_Date datetime not null,
Department varchar(50),
Constraint ck_Salary_tblEmployee CHECK(Salary >=0)
);
```

**Note**: Here We Can Normalize the table By Create Department Table and then have to set reference of that to employee table instead of Department Manually.

**20. Write a syntax for truncate all data from Emplyee Table.**

Ans.

```
TRUNCATE table tblEmployee;
```

**21. Write a syntax for CREATE Procedure to display the Employee details by passing the "Employee Id" in the procedure.**

Ans.

```
Create proc sp_tblEmployee
@EmployeeId int =0
As
Begin
        Select * from tblEmployee where [Employee Id] = @ EmployeeId;
End
```

**22. Write a syntax for CREATE SQL function, which accept three number as argument and return the highest number.**

Ans.

```
Create function fc_HighestNumber(@number1 int, @number2 int ,@number3 int)
Returns int
As
Declare @highest int;
Begin
```

```
If @number1 > @number2 AND @number1 > @number3
 Set @ highest= @number1;
Else if @number2 > @number3
 Set @ highest= @number2;
Else
 Set @ highest= @number3;
Return @ highest;
End
```

**23. Write a syntax for Update the Employee's salary whose department is "Insurance".**

Ans:

1. If Employee Is Not Normalized by creating Separate Department table

```
Update tblEmployee
Set Salary=<new Salary>
Where Department = 'Insurance'
```

2. If Employee Is Normalized by creating Separate Department table

```
Update tblEmployee
Set Salary=<new Salary>
Where DepartmentId = (select DeptId from tblDepartment where
Department = 'Insurance');
```

**24. State the difference between varchar and nvarchar.**

Ans:

1. varchar store data as 8-bit representation so it requires less size to store
2. nvarchar store data as Unicode Format (16-Bit Representation) so It Take More Amount of storage in compare of varchar.

**25. Write a query that insert the data into Employee table, data as mentioned. {First name : 'Critiano' , Last name : 'Ronaldo' , Salary : '30000' , Joining Date : '01-FEB-13 12.00.00 AM' , Department : 'Banking' }**

Ans:

1. If Employee Is Not Normalized by creating Separate Department table

   Insert into tblEmployee
   (First_Name,Last_Name,Salary,Joining_Date,Department)

   Values('Critiano', 'Ronaldo', 30000, 01-FEB-13 12:00:00 AM, 'Banking');

2. If Employee Is Normalized by creating Separate Department table

   Insert into tblEmployee
   (First_Name,Last_Name,Salary,Joining_Date,Department_Id)
   Values('Critiano', 'Ronaldo', 30000, 01-FEB-13 12:00:00 AM,1);

   **Note**: Here 1 is Department id from tblDepartment whose Department Value is Banking