

Part 50 – Updatable CTEs

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In this session we will learn

- Updatable CTEs

Prerequisite:

Part 49 – CTE (Common Table Expressions)

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CTE on one base table

Is it possible to UPDATE a CTE – Yes & No

Id	Name	Gender	DepartmentId
1	John	Male	3
2	Mike	Male	2
3	Pam	Female	1
4	Todd	Male	4
5	Sara	Female	1
6	Ben	Male	3

```
--CTE with one base table
With Employees_Name_Gender
as
(
    Select Id, Name, Gender
    from tblEmployee
)
Select * from Employees_Name_Gender
```

Id	Name	Gender
1	John	Male
2	Mike	Male
3	Pam	Female
4	Todd	Male
5	Sara	Female
6	Ben	Male

```
With Employees_Name_Gender
as
(
    Select Id, Name, Gender from tblEmployee
)
Update Employees_Name_Gender
Set Gender = 'Female' where Id = 1
```

Id	Name	Gender	DepartmentId
1	John	Female	3
2	Mike	Male	2
3	Pam	Female	1
4	Todd	Male	4
5	Sara	Female	1
6	Ben	Male	3

So, if a CTE is created on **one base table**, then **it is possible to UPDATE the CTE**, which in turn will update the underlying base table.

In this case, UPDATING **Employees_Name_Gender** CTE, updates **tblEmployee** table.

CTE on 2 base tables

Id	Name	Gender	DepartmentId
1	John	Male	3
2	Mike	Male	2
3	Pam	Female	1
4	Todd	Male	4
5	Sara	Female	1
6	Ben	Male	3

DeptId	DeptName
1	IT
2	Payroll
3	HR
4	Admin

Id	Name	Gender	DeptName
1	John	Female	HR
2	Mike	Male	Payroll
3	Pam	Female	IT
4	Todd	Male	Admin
5	Sara	Female	IT
6	Ben	Male	HR

```
--CTE on 2 base tables, Update affecting only one base table
With EmployeesByDepartment
as
(
    Select Id, Name, Gender, DeptName
    from tblEmployee
    join tblDepartment
    on tblDepartment.DeptId = tblEmployee.DepartmentId
)
Update EmployeesByDepartment set Gender = 'Male' where Id = 1
```

Note: If a CTE is based on **more than one table**, and if the **UPDATE** affects only **one base table**, then the **UPDATE** is allowed.

CTE on 2 base tables

Id	Name	Gender	DepartmentId
1	John	Male	3
2	Mike	Male	2
3	Pam	Female	1
4	Todd	Male	4
5	Sara	Female	1
6	Ben	Male	3

DeptId	DeptName
1	IT
2	Payroll
3	HR
4	Admin

Id	Name	Gender	DeptName
1	John	Female	HR
2	Mike	Male	Payroll
3	Pam	Female	IT
4	Todd	Male	Admin
5	Sara	Female	IT
6	Ben	Male	HR

```
--CTE on 2 base tables, Update affecting more than one base table
With EmployeesByDepartment
as
(
    Select Id, Name, Gender, DeptName
    from tblEmployee
    join tblDepartment
    on tblDepartment.DeptId = tblEmployee.DepartmentId
)
Update EmployeesByDepartment set Gender = 'Female', DeptName = 'IT'
where Id = 1
```

Note: If a CTE is based on multiple tables, and if the UPDATE statement affects more than 1 base table, then the UPDATE is not allowed.

CTE on 2 base tables

Id	Name	Gender	DepartmentId
1	John	Male	3
2	Mike	Male	2
3	Pam	Female	1
4	Todd	Male	4
5	Sara	Female	1
6	Ben	Male	3

DeptId	DeptName
1	IT
2	Payroll
3	HR
4	Admin

Id	Name	Gender	DeptName
1	John	Female	HR
2	Mike	Male	Payroll
3	Pam	Female	IT
4	Todd	Male	Admin
5	Sara	Female	IT
6	Ben	Male	HR



```
With EmployeesByDepartment
as
(
    Select Id, Name, Gender, DeptName
    from tblEmployee
    join tblDepartment
    on tblDepartment.DeptId = tblEmployee.DepartmentId
)
Update EmployeesByDepartment set
DeptName = 'IT' where Id = 1
```

Id	Name	Gender	DeptName
1	John	Male	IT
2	Mike	Male	Payroll
3	Pam	Female	IT
4	Todd	Male	Admin
5	Sara	Female	IT
6	Ben	Male	IT

DeptId	DeptName
1	IT
2	Payroll
3	IT
4	Admin

Note: A CTE is based on more than **one base table**, and if the **UPDATE** affects only **one base table**, the **UPDATE succeeds** (but not as expected always)

Updatable CTE

1. If a CTE is based on a single base table, then the UPDATE succeeds and works as expected.
2. If a CTE is based on more than one base table, and if the UPDATE affects multiple base tables, the update is not allowed and the statement terminates with an error.
3. If a CTE is based on more than one base table, and if the UPDATE affects only one base table, the UPDATE succeeds (but not as expected always)

Additional Resources

- PRAGIM Home Page:

- www.PragimTech.com

- Resources:

- ASP.NET Interview Questions
 - www.VenkatASPInterview.Blogspot.com
 - C# Interview Questions
 - www.VenkatCSharpInterview.Blogspot.com
 - SQL Server Interview Questions
 - www.venkatsqlinterview.Blogspot.com