

## Part 48 – Derived Tables & CTE

Venkat  
PRAGIM Technologies  
[kudvenkat@gmail.com](mailto:kudvenkat@gmail.com)  
<http://csharp-video-tutorials.blogspot.com>

PRAGIM Technologies | [www.pragimtech.com](http://www.pragimtech.com) | 9900113931

# In this session we will learn

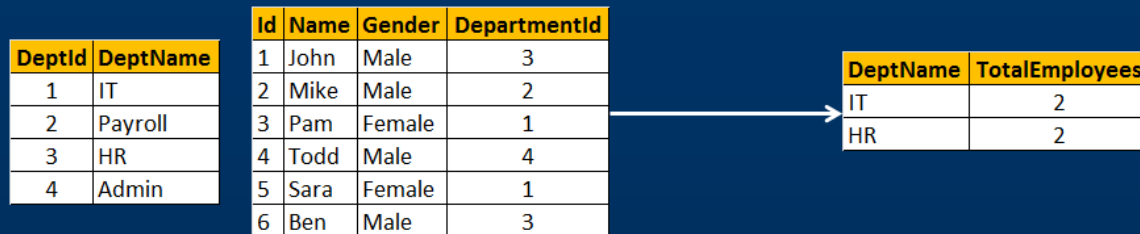
- Derived tables and common table expressions
- Compare with – Views, Table Variable, Local and Global Temp Tables

PRAGIM Technologies | [www.pragimtech.com](http://www.pragimtech.com) | 9900113931

<http://csharp-video-tutorials.blogspot.com>

# Views

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



DeptName	TotalEmployees
IT	2
HR	2

```
Create view vwEmployeeCount
as
Select DeptName, DepartmentId, COUNT(*) as TotalEmployees
from tblEmployee
join tblDepartment
on tblEmployee.DepartmentId = tblDepartment.DeptId
group by DeptName, DepartmentId

Select DeptName, TotalEmployees from vwEmployeeCount
where TotalEmployees >= 2
```


**Note:** Views get saved in the database, and can be available to other queries and stored procedures. However, if this view is only used at this one place, it can be easily eliminated using other options, like CTE, Derived Tables, Temp Tables, Table Variable etc.

# Temp Tables

DeptId	DeptName
1	IT
2	Payroll
3	HR
4	Admin

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

DeptName	TotalEmployees
IT	2
HR	2



```
Select DeptName, DepartmentId, COUNT(*) as TotalEmployees
into #TempEmployeeCount
from tblEmployee
join tblDepartment
on tblEmployee.DepartmentId = tblDepartment.DeptId
group by DeptName, DepartmentId


Select DeptName, TotalEmployees
From #TempEmployeeCount
where TotalEmployees >= 2

Drop Table #TempEmployeeCount
```

**Notes:** Temporary tables are stored in TempDB. Local temporary tables are visible only in the current session, and can be shared between nested stored procedure calls. Global temporary tables are visible to other sessions and are destroyed, when the last connection referencing the table is closed.

# Table Variable

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



DeptName	TotalEmployees
IT	2
HR	2

```
Declare @tblEmployeeCount table (DeptName nvarchar(20), DepartmentId int,  
TotalEmployees int)
```

```
Insert @tblEmployeeCount  
Select DeptName, DepartmentId, COUNT(*) as TotalEmployees  
from tblEmployee  
join tblDepartment  
on tblEmployee.DepartmentId = tblDepartment.DeptId  
group by DeptName, DepartmentId
```

```
Select DeptName, TotalEmployees  
From @tblEmployeeCount  
where TotalEmployees >= 2
```

**Note:** Just like TempTables, a table variable is also created in TempDB. The scope of a table variable is the batch, stored procedure, or statement block in which it is declared. They can be passed as parameters between procedures.

# Derived Tables

DeptId	DeptName
1	IT
2	Payroll
3	HR
4	Admin

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

DeptName	TotalEmployees
IT	2
HR	2


```
Select DeptName, TotalEmployees
from
(
    Select DeptName, DepartmentId, COUNT(*) as TotalEmployees
    from tblEmployee
    join tblDepartment
    on tblEmployee.DepartmentId = tblDepartment.DeptId
    group by DeptName, DepartmentId
)
as EmployeeCount
where TotalEmployees >= 2
```

EmployeeCount is the derived table

**Note:** Derived tables are available only in the context of the current query.

# CTE

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



DeptName	TotalEmployees
IT	2
HR	2

```
With EmployeeCount (DeptName, DepartmentId, TotalEmployees)
as
(
    Select DeptName, DepartmentId, COUNT(*) as TotalEmployees
    from tblEmployee
    join tblDepartment
    on tblEmployee.DepartmentId = tblDepartment.DeptId
    group by DeptName, DepartmentId
)

Select DeptName, TotalEmployees
from EmployeeCount
where TotalEmployees >= 2
```

**Note:** A CTE can be thought of as a temporary result set that is defined within the execution scope of a single SELECT, INSERT, UPDATE, DELETE, or CREATE VIEW statement. A CTE is similar to a derived table in that it is not stored as an object and lasts only for the duration of the query.

# Additional Resources

- PRAGIM Home Page:

- [www.PragimTech.com](http://www.PragimTech.com)

- Resources:

- ASP.NET Interview Questions
  - [www.VenkatASPInterview.Blogspot.com](http://www.VenkatASPInterview.Blogspot.com)
  - C# Interview Questions
  - [www.VenkatCSharpInterview.Blogspot.com](http://www.VenkatCSharpInterview.Blogspot.com)
  - SQL Server Interview Questions
  - [www.venkatsqlinterview.Blogspot.com](http://www.venkatsqlinterview.Blogspot.com)