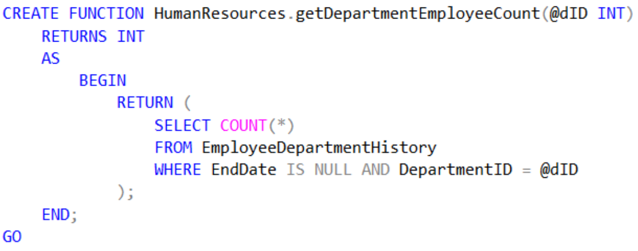
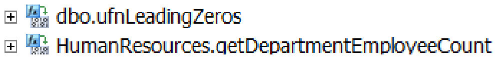
Лабораторная работа №5

Вариант 2

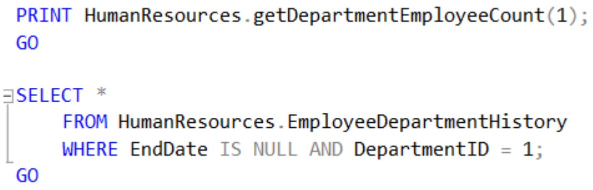
1)Создайте scalar-valued функцию, которая будет принимать в качестве входного параметра id отдела (HumanResources.Department.DepartmentID) и возвращать количество сотрудников, работающих в отделе.



```
CREATE FUNCTION HumanResources.getDepartmentEmployeeCount(@dID INT)
    RETURNS INT
    AS
        BEGIN
            RETURN (
                SELECT COUNT(*)
                FROM EmployeeDepartmentHistory
                WHERE EndDate IS NULL AND DepartmentID = @dID
            );
    END;
GO
```

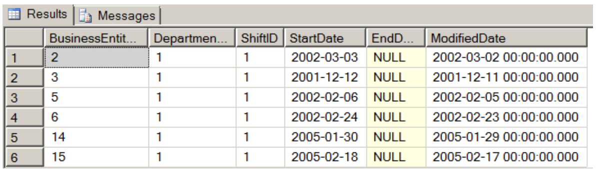


```
⊞ dbo.ufnLeadingZeros
⊞ HumanResources.getDepartmentEmployeeCount
```



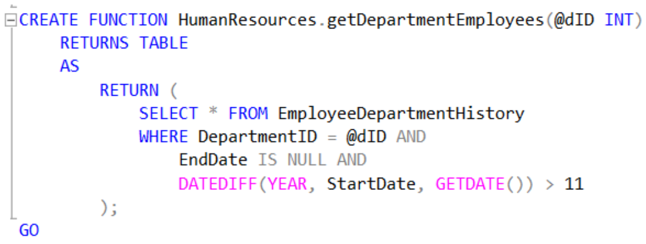
```
PRINT HumanResources.getDepartmentEmployeeCount(1);
GO

SELECT *
    FROM HumanResources.EmployeeDepartmentHistory
    WHERE EndDate IS NULL AND DepartmentID = 1;
GO
```

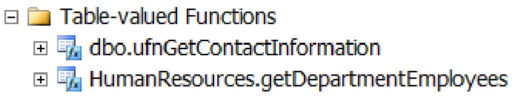


	BusinessEntit...	Departmen...	ShiftID	StartDate	EndD...	ModifiedDate
1	2	1	1	2002-03-03	NULL	2002-03-02 00:00:00.000
2	3	1	1	2001-12-12	NULL	2001-12-11 00:00:00.000
3	5	1	1	2002-02-06	NULL	2002-02-05 00:00:00.000
4	6	1	1	2002-02-24	NULL	2002-02-23 00:00:00.000
5	14	1	1	2005-01-30	NULL	2005-01-29 00:00:00.000
6	15	1	1	2005-02-18	NULL	2005-02-17 00:00:00.000

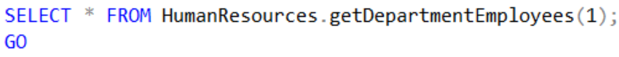
2) Создайте inline table-valued функцию, которая будет принимать в качестве входного параметра id отдела (HumanResources.Department.DepartmentID), а возвращать сотрудников, которые работают в отделе более 11 лет.



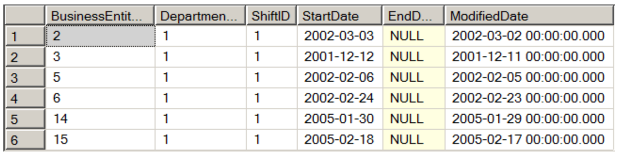
```
CREATE FUNCTION HumanResources.getDepartmentEmployees(@dID INT)
    RETURNS TABLE
    AS
        RETURN (
            SELECT * FROM EmployeeDepartmentHistory
            WHERE DepartmentID = @dID AND
                EndDate IS NULL AND
                DATEDIFF(YEAR, StartDate, GETDATE()) > 11
        );
GO
```



```
⊟ Table-valued Functions
    ⊞ dbo.ufnGetContactInformation
    ⊞ HumanResources.getDepartmentEmployees
```

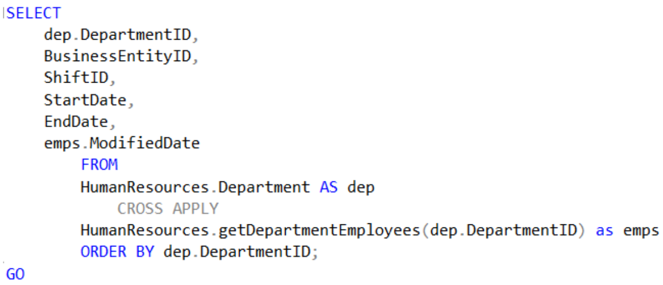


```
SELECT * FROM HumanResources.getDepartmentEmployees(1);
GO
```

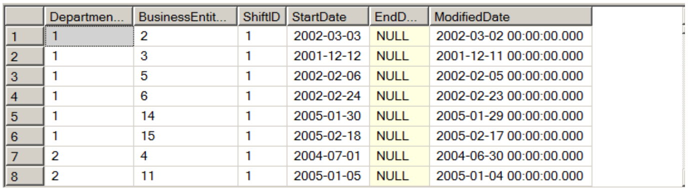


	BusinessEntit...	Departmen...	ShiftID	StartDate	EndD...	ModifiedDate
1	2	1	1	2002-03-03	NULL	2002-03-02 00:00:00.000
2	3	1	1	2001-12-12	NULL	2001-12-11 00:00:00.000
3	5	1	1	2002-02-06	NULL	2002-02-05 00:00:00.000
4	6	1	1	2002-02-24	NULL	2002-02-23 00:00:00.000
5	14	1	1	2005-01-30	NULL	2005-01-29 00:00:00.000
6	15	1	1	2005-02-18	NULL	2005-02-17 00:00:00.000

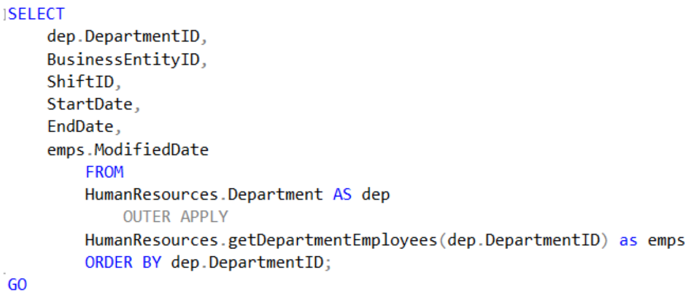
3) Вызовите функцию для каждого отдела, применив оператор CROSS APPLY. Вызовите функцию для каждого отдела, применив оператор OUTER APPLY.



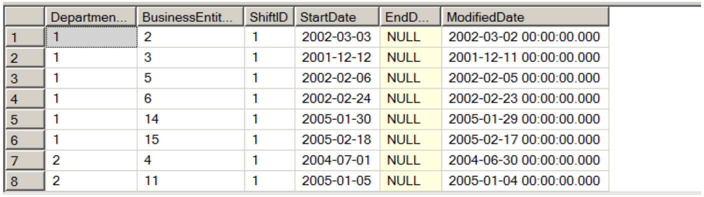
```
SELECT
    dep.DepartmentID,
    BusinessEntityID,
    ShiftID,
    StartDate,
    EndDate,
    emps.ModifiedDate
        FROM
        HumanResources.Department AS dep
            CROSS APPLY
        HumanResources.getDepartmentEmployees(dep.DepartmentID) as emps
        ORDER BY dep.DepartmentID;
GO
```



	Departmen...	BusinessEntit...	ShiftID	StartDate	EndD...	ModifiedDate
1	1	2	1	2002-03-03	NULL	2002-03-02 00:00:00.000
2	1	3	1	2001-12-12	NULL	2001-12-11 00:00:00.000
3	1	5	1	2002-02-06	NULL	2002-02-05 00:00:00.000
4	1	6	1	2002-02-24	NULL	2002-02-23 00:00:00.000
5	1	14	1	2005-01-30	NULL	2005-01-29 00:00:00.000
6	1	15	1	2005-02-18	NULL	2005-02-17 00:00:00.000
7	2	4	1	2004-07-01	NULL	2004-06-30 00:00:00.000
8	2	11	1	2005-01-05	NULL	2005-01-04 00:00:00.000

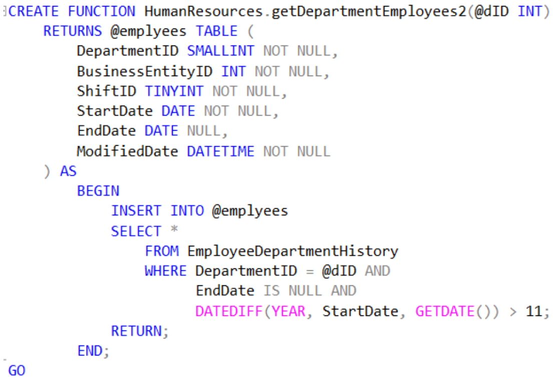


```
SELECT
    dep.DepartmentID,
    BusinessEntityID,
    ShiftID,
    StartDate,
    EndDate,
    emps.ModifiedDate
        FROM
        HumanResources.Department AS dep
            OUTER APPLY
        HumanResources.getDepartmentEmployees(dep.DepartmentID) as emps
        ORDER BY dep.DepartmentID;
GO
```

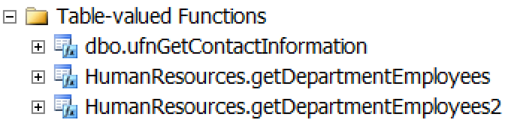


	Departmen...	BusinessEntit...	ShiftID	StartDate	EndD...	ModifiedDate
1	1	2	1	2002-03-03	NULL	2002-03-02 00:00:00.000
2	1	3	1	2001-12-12	NULL	2001-12-11 00:00:00.000
3	1	5	1	2002-02-06	NULL	2002-02-05 00:00:00.000
4	1	6	1	2002-02-24	NULL	2002-02-23 00:00:00.000
5	1	14	1	2005-01-30	NULL	2005-01-29 00:00:00.000
6	1	15	1	2005-02-18	NULL	2005-02-17 00:00:00.000
7	2	4	1	2004-07-01	NULL	2004-06-30 00:00:00.000
8	2	11	1	2005-01-05	NULL	2005-01-04 00:00:00.000

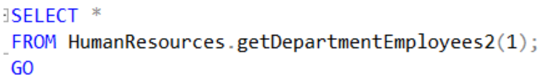
4) Измените созданную inline table-valued функцию, сделав ее multistatement table-valued (предварительно сохранив для проверки код создания inline table-valued функции).



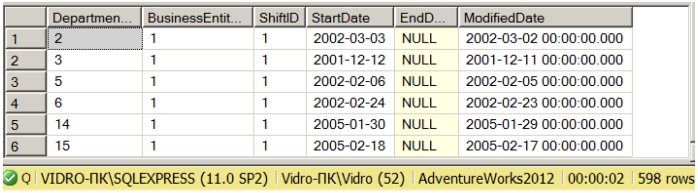
```
CREATE FUNCTION HumanResources.getDepartmentEmployees2(@dID INT)
    RETURNS @emplyees TABLE (
        DepartmentID SMALLINT NOT NULL,
        BusinessEntityID INT NOT NULL,
        ShiftID TINYINT NOT NULL,
        StartDate DATE NOT NULL,
        EndDate DATE NULL,
        ModifiedDate DATETIME NOT NULL
    ) AS
        BEGIN
            INSERT INTO @emplyees
            SELECT *
                FROM EmployeeDepartmentHistory
                WHERE DepartmentID = @dID AND
                      EndDate IS NULL AND
                      DATEDIFF(YEAR, StartDate, GETDATE()) > 11;
            RETURN;
        END;
GO
```



```
⊟ Table-valued Functions
    ⊞ dbo.ufnGetContactInformation
    ⊞ HumanResources.getDepartmentEmployees
    ⊞ HumanResources.getDepartmentEmployees2
```



```
SELECT *
FROM HumanResources.getDepartmentEmployees2(1);
GO
```



	Departmen...	BusinessEntit...	ShiftID	StartDate	EndD...	ModifiedDate
1	2	1	1	2002-03-03	NULL	2002-03-02 00:00:00.000
2	3	1	1	2001-12-12	NULL	2001-12-11 00:00:00.000
3	5	1	1	2002-02-06	NULL	2002-02-05 00:00:00.000
4	6	1	1	2002-02-24	NULL	2002-02-23 00:00:00.000
5	14	1	1	2005-01-30	NULL	2005-01-29 00:00:00.000
6	15	1	1	2005-02-18	NULL	2005-02-17 00:00:00.000

```
✓ Q | VIDRO-ПК\SQLEXPRESS (11.0 SP2) | Vidro-ПК\Vidro (52) | AdventureWorks2012 | 00:00:02 | 598 rows
```