

Выполнил: Кунцевич Владимир Сергеевич

Группа: 751001

Вариант: 8

### Лабораторная работа №5

1. Создайте scalar-valued функцию, которая будет принимать в качестве входного параметра id подкатегории для продукта (Production.ProductSubcategory.ProductSubcategoryID) и возвращать количество продуктов указанной подкатегории (Production.Product).

```
CREATE FUNCTION Production.subcategoryProductCount(  
    @ProductSubcategoryID INT  
)  
RETURNS INT  
AS  
BEGIN  
    DECLARE @ret INT;  
    SELECT  
        @ret = COUNT(*)  
    FROM  
        Production.Product as p  
    WHERE  
        p.ProductSubcategoryID = @ProductSubcategoryID;  
    IF (@ret IS NULL)  
        SET @ret = 0;  
    RETURN @ret;  
END;
```

2. Создайте inline table-valued функцию, которая будет принимать в качестве входного параметра id подкатегории для продукта (Production.ProductSubcategory.ProductSubcategoryID), а возвращать список продуктов указанной подкатегории из Production.Product, стоимость которых более 1000 (StandardCost).

```

CREATE FUNCTION Production.subcategoryProducts1000(
    @ProductSubcategoryID INT
)
RETURNS TABLE
AS
RETURN (
    SELECT
        ProductSubcategoryID, ProductID
    FROM
        Production.Product as p
    WHERE
        p.ProductSubcategoryID = @ProductSubcategoryID AND p.StandardCost > 1000
);

```

3. Вызовите функцию для каждой подкатегории, применив оператор CROSS APPLY. Вызовите функцию для каждой подкатегории, применив оператор OUTER APPLY.

```

SELECT
    *
FROM
    Production.ProductSubcategory as ps
    CROSS APPLY
        Production.subcategoryProducts1000(ps.ProductSubcategoryID) as p
ORDER BY
    ps.ProductSubcategoryID;

```

```

SELECT
    *
FROM
    Production.ProductSubcategory as ps
    OUTER APPLY
        Production.subcategoryProducts1000(ps.ProductSubcategoryID) as p
ORDER BY
    ps.ProductSubcategoryID;

```

Results Messages							
	ProductSubcategor...	ProductCategor...	Name	rowguid	ModifiedDate	ProductSubcategor...	Product...
1	1	1	Mountain Bikes	2D364ADE-264A-433C-B092-4FCBF3804E01	2002-06-01 00:00:00.000	1	771
2	1	1	Mountain Bikes	2D364ADE-264A-433C-B092-4FCBF3804E01	2002-06-01 00:00:00.000	1	772
3	1	1	Mountain Bikes	2D364ADE-264A-433C-B092-4FCBF3804E01	2002-06-01 00:00:00.000	1	773
4	1	1	Mountain Bikes	2D364ADE-264A-433C-B092-4FCBF3804E01	2002-06-01 00:00:00.000	1	774
5	1	1	Mountain Bikes	2D364ADE-264A-433C-B092-4FCBF3804E01	2002-06-01 00:00:00.000	1	775
6	1	1	Mountain Bikes	2D364ADE-264A-433C-B092-4FCBF3804E01	2002-06-01 00:00:00.000	1	776
7	1	1	Mountain Bikes	2D364ADE-264A-433C-B092-4FCBF3804E01	2002-06-01 00:00:00.000	1	777
8	1	1	Mountain Bikes	2D364ADE-264A-433C-B092-4FCBF3804E01	2002-06-01 00:00:00.000	1	778
9	1	1	Mountain Bikes	2D364ADE-264A-433C-B092-4FCBF3804E01	2002-06-01 00:00:00.000	1	779
10	1	1	Mountain Bikes	2D364ADE-264A-433C-B092-4FCBF3804E01	2002-06-01 00:00:00.000	1	780
11	1	1	Mountain Bikes	2D364ADE-264A-433C-B092-4FCBF3804E01	2002-06-01 00:00:00.000	1	781
12	1	1	Mountain Bikes	2D364ADE-264A-433C-B092-4FCBF3804E01	2002-06-01 00:00:00.000	1	782
13	1	1	Mountain Bikes	2D364ADE-264A-433C-B092-4FCBF3804E01	2002-06-01 00:00:00.000	1	783
14	1	1	Mountain Bikes	2D364ADE-264A-433C-B092-4FCBF3804E01	2002-06-01 00:00:00.000	1	784
15	2	1	Road Bikes	000310C0-BCC8-42C4-B0C3-45AE611AF06B	2002-06-01 00:00:00.000	2	789
16	2	1	Road Bikes	000310C0-BCC8-42C4-B0C3-45AE611AF06B	2002-06-01 00:00:00.000	2	790
17	2	1	Road Bikes	000310C0-BCC8-42C4-B0C3-45AE611AF06B	2002-06-01 00:00:00.000	2	791
18	2	1	Road Bikes	000310C0-BCC8-42C4-B0C3-45AE611AF06B	2002-06-01 00:00:00.000	2	792
19	2	1	Road Bikes	000310C0-BCC8-42C4-B0C3-45AE611AF06B	2002-06-01 00:00:00.000	2	793
20	2	1	Road Bikes	000310C0-BCC8-42C4-B0C3-45AE611AF06B	2002-06-01 00:00:00.000	2	794
21	2	1	Road Bikes	000310C0-BCC8-42C4-B0C3-45AE611AF06B	2002-06-01 00:00:00.000	2	795

Results Messages							
	ProductSubcategor...	ProductCategor...	Name	rowguid	ModifiedDate	ProductSubcategor...	Product...
22	2	1	Road Bikes	000310C0-BCC8-42C4-B0C3-45AE611AF06B	2002-06-01 00:00:00.000	2	796
23	2	1	Road Bikes	000310C0-BCC8-42C4-B0C3-45AE611AF06B	2002-06-01 00:00:00.000	2	749
24	2	1	Road Bikes	000310C0-BCC8-42C4-B0C3-45AE611AF06B	2002-06-01 00:00:00.000	2	750
25	2	1	Road Bikes	000310C0-BCC8-42C4-B0C3-45AE611AF06B	2002-06-01 00:00:00.000	2	751
26	2	1	Road Bikes	000310C0-BCC8-42C4-B0C3-45AE611AF06B	2002-06-01 00:00:00.000	2	752
27	2	1	Road Bikes	000310C0-BCC8-42C4-B0C3-45AE611AF06B	2002-06-01 00:00:00.000	2	753
28	2	1	Road Bikes	000310C0-BCC8-42C4-B0C3-45AE611AF06B	2002-06-01 00:00:00.000	2	973
29	2	1	Road Bikes	000310C0-BCC8-42C4-B0C3-45AE611AF06B	2002-06-01 00:00:00.000	2	974
30	2	1	Road Bikes	000310C0-BCC8-42C4-B0C3-45AE611AF06B	2002-06-01 00:00:00.000	2	975
31	2	1	Road Bikes	000310C0-BCC8-42C4-B0C3-45AE611AF06B	2002-06-01 00:00:00.000	2	976
32	3	1	Touring Bikes	02C5061D-ECDC-4274-B5F1-E91D76BC3F...	2002-06-01 00:00:00.000	3	954
33	3	1	Touring Bikes	02C5061D-ECDC-4274-B5F1-E91D76BC3F...	2002-06-01 00:00:00.000	3	955
34	3	1	Touring Bikes	02C5061D-ECDC-4274-B5F1-E91D76BC3F...	2002-06-01 00:00:00.000	3	956
35	3	1	Touring Bikes	02C5061D-ECDC-4274-B5F1-E91D76BC3F...	2002-06-01 00:00:00.000	3	957
36	3	1	Touring Bikes	02C5061D-ECDC-4274-B5F1-E91D76BC3F...	2002-06-01 00:00:00.000	3	966
37	3	1	Touring Bikes	02C5061D-ECDC-4274-B5F1-E91D76BC3F...	2002-06-01 00:00:00.000	3	967
38	3	1	Touring Bikes	02C5061D-ECDC-4274-B5F1-E91D76BC3F...	2002-06-01 00:00:00.000	3	968
39	3	1	Touring Bikes	02C5061D-ECDC-4274-B5F1-E91D76BC3F...	2002-06-01 00:00:00.000	3	969
40	4	2	Handlebars	3EF2C725-7135-4C85-9AE6-AE9A3BDD9283	2002-06-01 00:00:00.000	NULL	NULL
41	5	2	Bottom Brack...	A9E54089-8A1E-4CF5-8646-E3801F685934	2002-06-01 00:00:00.000	NULL	NULL
42	6	2	Brakes	D43BA4A3-EF0D-426B-90EB-4BE4547DD3...	2002-06-01 00:00:00.000	NULL	NULL
43	7	2	Chains	E93A7231-F16C-4B0F-8C41-C73FDEC62DA0	2002-06-01 00:00:00.000	NULL	NULL
44	8	2	Cranksets	4F644521-422B-4F19-974A-E3DF6102567E	2002-06-01 00:00:00.000	NULL	NULL
45	9	2	Derailleurs	1830D70C-AA2A-40C0-A271-5BA86F38F8BF	2002-06-01 00:00:00.000	NULL	NULL
46	10	2	Forks	B5F9BA42-B69B-4FDD-B2EC-57FB7B42E3...	2002-06-01 00:00:00.000	NULL	NULL
47	11	2	Headsets	7C782BBE-5A16-495A-AA50-10AFE5A84AF2	2002-06-01 00:00:00.000	NULL	NULL
48	12	2	Mountain Fra...	61B21B65-E16A-4BE7-9300-4D8E9DB861...	2002-06-01 00:00:00.000	NULL	NULL
49	13	2	Pedals	6D24AC07-7A84-4849-864A-865A14125BC9	2002-06-01 00:00:00.000	NULL	NULL
50	14	2	Road Frames	5515F857-075B-4F9A-87B7-43B4997077B3	2002-06-01 00:00:00.000	14	680
51	14	2	Road Frames	5515F857-075B-4F9A-87B7-43B4997077B3	2002-06-01 00:00:00.000	14	706

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

```
CREATE FUNCTION Production.subcategoryProducts(  
    @ProductSubcategoryID INT  
)  
RETURNS @productsResult TABLE(  
    ProductSubcategoryID INT,  
    ProductID INT  
)  
AS  
BEGIN  
    INSERT INTO @productsResult  
        SELECT  
            p.ProductSubcategoryID, p.ProductID  
        FROM  
            Production.Product as p  
        WHERE  
            p.ProductSubcategoryID = @ProductSubcategoryID AND p.StandardCost > 1000;  
    RETURN;  
END;
```