

Stored Procedure

(Лаборатори №11)

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```
CREATE PROCEDURE sp_create_sp
    @tableName NVARCHAR(128),
    @newSPName NVARCHAR(128)
AS
BEGIN
    DECLARE @sql NVARCHAR(MAX);
    DECLARE @columns NVARCHAR(MAX) = '';
    DECLARE @params NVARCHAR(MAX) = '';
    DECLARE @setClause NVARCHAR(MAX) = '';
    DECLARE @whereClause NVARCHAR(MAX) = '';
    DECLARE @valuesClause NVARCHAR(MAX) = '';

    SELECT
        @columns = STRING_AGG(c.name, ', '),
        @params = STRING_AGG('@' + c.name + ' ' + t.name +
            CASE
                WHEN t.name IN ('nvarchar', 'nchar', 'varchar', 'char')
                THEN '(' +
                    IIF(c.max_length = -1, 'MAX', CAST(c.max_length AS
                                                                NVARCHAR)) + ')'
                ELSE ''
            END + ' = NULL', ', '),
        @setClause = STRING_AGG(c.name + ' = ISNULL(@' + c.name + ', ' + c.name + ')', ', '),
        @whereClause = STRING_AGG(c.name + ' = @' + c.name, ' OR '),
        @valuesClause = STRING_AGG('@' + c.name, ', ')
    FROM sys.columns c
    JOIN sys.types t ON c.user_type_id = t.user_type_id
    WHERE c.object_id = OBJECT_ID(@tableName);

    SET @sql = '
CREATE PROCEDURE ' + @newSPName + '
    @mode TINYINT,
    ' + @params + '
AS
BEGIN
    IF @mode = 1 -- Update
    BEGIN
        UPDATE ' + @tableName + '
        SET ' + @setClause + '
        WHERE ' + @whereClause + ';
    END
    ELSE IF @mode = 2 -- Delete
    BEGIN
        DELETE FROM ' + @tableName + '
        WHERE ' + @whereClause + ';
    END
END
'
```

```

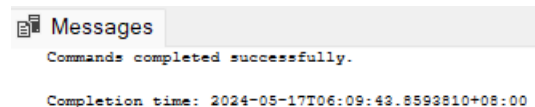
        ELSE IF @mode = 3 -- Insert
        BEGIN
            INSERT INTO ' + @tableName + ' (' + @columns + ')
            VALUES (' + @valuesClause + ');
        END
    END';

PRINT @sql;

EXEC sp_executesql @sql;
END;

```

Stored Procedure – г үүсгэхэд:



Тухайн Stored Procedure – г дуудахад Users хүснэгтэнд sp_tb_my гэсэн нэртэй Stored Procedure үүсгэж байна:



Users хүснэгтийн өгөгдлүүд:

	ID	Name1	DOB	RegionID
1	1	Tsegi	1980-01-01	1
2	2	Dogi	1985-05-05	2
3	3	gaaga	NULL	NULL
4	4	Tuvshi	2001-04-01	1
5	5	gaga	1990-01-01	1
6	6	Odgere	2002-06-01	1
7	7	Bataao	2001-02-01	1
8	8	Dorjoo	2002-02-01	1
9	9	Enkhba	2000-07-01	2
10	10	Nomin	2000-08-01	2
11	11	Dulam	2000-02-01	2
12	12	Naran	2000-02-01	2
13	13	Ganba	2001-09-01	2
14	14	Altan	2002-10-01	2
15	15	Munkh	2001-02-01	2
16	16	Bayar	2002-02-01	2
17	17	Munkh	2000-11-01	3
18	18	Bileg	2000-02-01	3
19	19	Enkhe	2001-02-01	3
20	20	bat	1980-01-01	1

system procedure дуудаж харахад орж ирсэн байна:

```
10 | SELECT * FROM sys.procedures;
```

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	name	object_id	principal_id	schema_id
1	sp_create_sp	226099846	NULL	1
2	sp_tb_my	242099903	NULL	1

Үүсгэсэн Stored Procedure – ыг ажилуулж шалгах үр дүн

mode=1 буюу Update хийхэд:

```
12 | EXEC sp_tb_my @mode = 1, @Name1 = 'NewName', @ID = 2;
```

```
13 | SELECT * FROM Users WHERE ID = 2;
```

results Messages

ID	Name1	DOB	RegionID
2	NewName	1985-05-05	2

Mode=2 буюу Delete хийхэд

```
15 | EXEC sp_tb_my @mode = 2, @ID = 1;
```

```
16 | SELECT * FROM Users
```

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ID	Name1	DOB	RegionID
2	NewName	1985-05-05	2
3	gaaga	NULL	NULL
4	Tuvshi	2001-04-01	1
5	gaga	1990-01-01	1
6	Odgere	2002-06-01	1
7	Bataao	2001-02-01	1
8	Dorjoo	2002-02-01	1
9	Enkhba	2000-07-01	2
10	Nomin	2000-08-01	2
11	Dulam	2000-02-01	2
12	Naran	2000-02-01	2
13	Ganba	2001-09-01	2
14	Altan	2002-10-01	2
15	Munkh	2001-02-01	2
16	Bayar	2002-02-01	2
17	Munkh	2000-11-01	3
18	Bileg	2000-02-01	3
19	Enkhe	2001-02-01	3
20	bat	1980-01-01	1

mode 3 буюу Insert хийхэд:

```
18 | EXEC sp_tb_my @mode = 3, @ID = 1, @Name1 = 'Bat',
```

```
19 | @DOB = '1980-01-01', @RegionID = 1;
```

```
20 | SELECT * FROM Users
```

Results Messages

ID	Name1	DOB	RegionID
1	Bat	1980-01-01	1
2	NewName	1985-05-05	2
3	gaaga	NULL	NULL
4	Tuvshi	2001-04-01	1
5	gaga	1990-01-01	1
6	Odgere	2002-06-01	1
7	Bataao	2001-02-01	1
8	Dorjoo	2002-02-01	1
9	Enkhba	2000-07-01	2
10	Nomin	2000-08-01	2
11	Dulam	2000-02-01	2
12	Naran	2000-02-01	2
13	Ganba	2001-09-01	2
14	Altan	2002-10-01	2
15	Munkh	2001-02-01	2
16	Bayar	2002-02-01	2
17	Munkh	2000-11-01	3
18	Bileg	2000-02-01	3
19	Enkhe	2001-02-01	3
20	bat	1980-01-01	1

Column, Parameter, Set, Where, Values утгуудыг

sys.columns болон sys.types хүснэгтээс авах

```
23 SELECT
24     STRING_AGG(c.name, ',') AS Columns,
25     STRING_AGG('@' + c.name + ' ' + t.name
26                 , ',') AS Parameters,
27     STRING_AGG(c.name + ' = ISNULL(@' + c.name + ', ' + c.name + ')', ',') AS SetClause,
28     STRING_AGG(QUOTENAME(c.name) + ' = @' + c.name, ' OR ') AS WhereClause,
29     STRING_AGG('@' + c.name, ',') AS ValuesClause
30 FROM sys.columns c
31 JOIN sys.types t ON c.user_type_id = t.user_type_id
32 WHERE c.object_id = OBJECT_ID('Users');
```

Results Messages

Columns	Parameters	SetClause	WhereClause	ValuesClause
ID, Name1, DOB, RegionID	@ID int, @Name1 varchar, @DOB date, @RegionID int	ID = ISNULL(@ID, ID), Name1 = ISNULL(@Name1, Nam...	[ID] = @ID OR [Name1] = @Name1 OR [DOB] = @DOB O...	@ID, @Name1, @DOB, @RegionID

sys.column болон sys.types хүснэгтээс User хүснэгтийн

багана, өгөгдлийн төрлийг авах

```
34 SELECT c.name, t.name as types
35 FROM sys.columns c
36 JOIN sys.types t ON c.system_type_id = t.system_type_id
37 WHERE object_id = OBJECT_ID('Users')
```

Results Messages

name	types
DOB	date
ID	int
RegionID	int
Name1	varchar