

Database Management System – cs422 DE

Lab 3 – Week 7

This Lab is based on Transact-SQL.

- Submit your *own work* on time. No credit will be given if the lab is submitted after the due date.
 - Note that the completed lab should be submitted in .doc, .docx, .rtf, .pdf or .zip format only.
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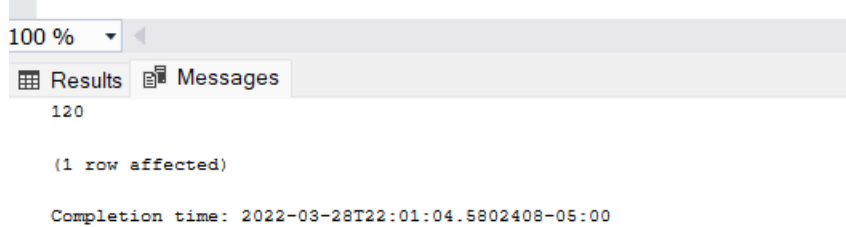
- 1) [3] Write and execute a T-SQL stored procedure *Factorial(n)*, which computes and outputs the factorial of the input parameter *n*. If *n* is negative, then the procedure prints an error message.

Attach the screenshots of the output and the command which you used to execute the SP.

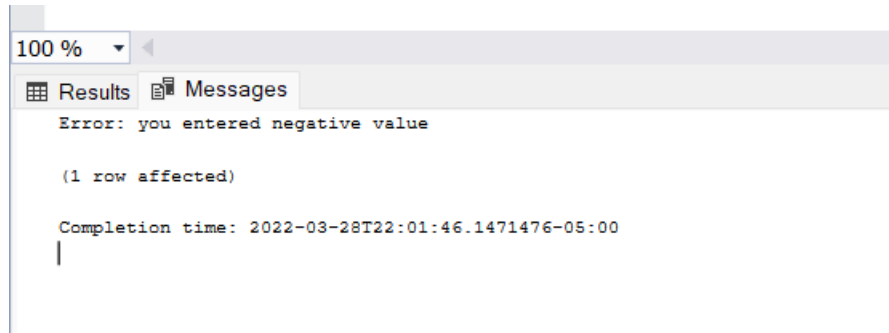
ANS:

```
CREATE PROCEDURE Factorial (@param INT) AS
BEGIN
    DECLARE @fact bigint
    IF(@param < 0)
        BEGIN
            print 'Error: The value should not be negative.'
        END
    ELSE
        BEGIN
            SET @fact = 1
            IF(@param = 0)
                BEGIN
                    SET @fact = 1
                END
            ELSE
                BEGIN
                    WHILE(@param > 0)
                    BEGIN
                        SET @fact = @fact * @param
                        SET @param = @param - 1
                    END
                END
            print @fact
        END
    END
END
```

Factorial(5)



Factorial(-3)



- 2) [7] Create a Table *Employee* with the fields: social security no. (primary key), name, position, no. of dependents, annual salary.

Write and execute a T-SQL procedure *Compute_Tax* to do the following:

- Create a new table *Tax* with fields: social security no., income tax.
- Fill the table *Tax* with data by computing the income tax for each person in the *Employee* Table.

The income tax is computed from the annual salary *S* and the number of dependents *D*.

Net Salary: $S - (7000 + D \cdot 950)$

Tax Computed as follows:

- 10% of the first 15,000 of net salary;
- plus 15% of the next 15,000 of net salary;
- plus 28% of any net salary over 30,000.

For getting full credit for this problem, you need to show me the complete code for the *Compute_Tax* SP. Also attach the screenshots of the *Employee* and the new *Tax* table.

ANS:

```
CREATE PROCEDURE compute_Tax AS
BEGIN
    DECLARE @SSN VARCHAR(30)
    DECLARE @NoOfDependent INT
```

```

DECLARE @AnnualSalary float
DECLARE @NetSalary float
DECLARE @Tax float
        DECLARE @Done bit

DECLARE empCur CURSOR FOR
        SELECT SSN, NoOfDependent, AnnualSalary FROM Employee;

OPEN empCur;
FETCH next from empCur INTO @SSN, @NoOfDependent, @AnnualSalary;
IF not exists (select * from sysobjects where Name='TAX')
Begin
CREATE TABLE TAX (SSN VARCHAR(30), incomeTax float);
End
WHILE @@FETCH_STATUS = 0
BEGIN

        SET @NetSalary = @AnnualSalary - (7000 + @NoOfDependent * 950);

        IF (@NetSalary < 0 )
                begin
                BREAK;
                End

        IF (@NetSalary < 15000)
                begin
                SET @Tax = 0.1 * @NetSalary;
                end
        ELSE
                begin
                IF (@NetSalary > 15000)
                        begin
                IF (@NetSalary > 30000)
                        begin
                SET @Tax = 0.10 * 15000 + 0.15 * 15000 + 0.28 * (@NetSalary -
30000);
                        end
                        ELSE
                                begin
                                SET @Tax = 0.10 * 15000 + 0.15 * (@NetSalary -
15000);
                                end
                        end
                end
                INSERT INTO TAX(SSN, incomeTax) VALUES(@SSN, @Tax);
                FETCH next from empCur INTO @SSN, @NoOfDependent, @AnnualSalary;
END
CLOSE empCur;
DEALLOCATE empCur;
END;

```

Employee Table:

```
select * from Employee
```

100 %

Results Messages

	SSN	Name	Position	NoOfDependent	AnnualSalary
1	010-03-2505	John	Application Developer	8	80000
2	232-78-7910	Chrish	Software Engineer	9	95000
3	319-84-4463	Johnathan	Recruiter	5	65000
4	526-35-3476	Steve Johnson	VP	8	75000
5	530-38-1628	Nick	Director	9	85000

Tax Table:

```
exec compute Tax  
select * from Tax
```

100 %

Results Messages

	SSN	incomeTax
1	010-03-2505	13662
2	232-78-7910	17596
3	319-84-4463	10260
4	526-35-3476	12262
5	530-38-1628	14796