

Lab 15: Cursors
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Purpose:

Create a function with a cursor.

Steps:

1. Create a function which will walk through the Enrollment table and calculate the average grades for each of the students¹. Provide a **screenshot** of script execution. *The function will take in a student id as a parameter and then calculate that student's average grade (round to hundredth).*
2. Execute the function. Provide a **screenshot** of execution, showing the results. Also provide a **screenshot** of the data, proving that your function worked as expected (please write a single SELECT statement that will provide the answers).

SCRIPT:

```
CREATE FUNCTION calcAvgGrade(@studentID as varchar(50)) RETURNS DECIMAL(10,2) AS
BEGIN
DECLARE @aG DECIMAL(10,2),@finalGrade int = 0, @c float=0.0, @grades int
DECLARE avgGradesCursor CURSOR FOR
SELECT FinalGrade FROM nsuryapr.CourseEnrollment WHERE StudentId = @studentID AND
FinalGrade is not NULL

OPEN avgGradesCursor
FETCH NEXT FROM avgGradesCursor INTO @grades

    WHILE @@FETCH_STATUS = 0
    BEGIN
        SELECT @c = @c + 1
        SELECT @finalGrade = @finalGrade + @grades
        FETCH NEXT FROM avgGradesCursor INTO @grades
    END

SELECT @aG = ROUND(@finalGrade / @c,2)

CLOSE avgGradesCursor
DEALLOCATE avgGradesCursor
RETURN @aG
END
```

¹ Please note that this can be done in easier ways, but the point here is to create a cursor and make sure it works.

CourseEnrollment table

Script:

```
SELECT * FROM nsuryapr.CourseEnrollment
```

The screenshot shows the SQL Server Enterprise Manager interface. The left pane displays the server hierarchy with 'LCS-VC-MSSQL.ad.syr.edu, CSE581labs (nsuryapr)' selected. The right pane shows the SQL query editor with the following query:

```
25 SELECT * FROM nsuryapr.CourseEnrollment
26
```

The 'RESULTS' pane displays the following data:

EnrollmentId	StudentId	CourseId	FinalGrade
1	01-HJPotter	3	96
2	03-HJGranger	3	92
3	03-HJGranger	4	99
4	02-RBWeasley	1	91
5	02-RBWeasley	6	NULL
6	01-HJPotter	2	NULL
7	03-HJGranger	2	NULL
8	03-HJGranger	2	NULL
9	03-HJGranger	7	NULL

The 'MESSAGES' pane shows the following information:

```
4:27:02 PM Started executing query at Line 25
(9 rows affected)
Total execution time: 00:00:00.047
```

The status bar at the bottom indicates: 9 rows, 00:00:00, LCS-VC-MSSQL.ad.syr.edu : CSE581labs, Ln 26, Col 1 (40 selected), Spaces: 4, UTF-8, LF, SQL, MSSQL.

Script execution

The screenshot shows the SQL Server Enterprise Manager interface. The left pane displays the server hierarchy with 'LCS-VC-MSSQL.ad.syr.edu, CSE581labs (nsuryapr)' selected. The right pane shows the SQL query editor with the following script:

```
1 CREATE FUNCTION calcAvgGrade(@studentID as varchar(50)) RETURNS DECIMAL(10,2) AS
2 BEGIN
3 DECLARE @aG DECIMAL(10,2),@finalGrade int = 0, @c float=0.0, @grades int
4 DECLARE avgGradesCursor CURSOR FOR
5 SELECT FinalGrade FROM nsuryapr.CourseEnrollment WHERE StudentId = @studentID AND
6 FinalGrade is not NULL
7
8 OPEN avgGradesCursor
9 FETCH NEXT FROM avgGradesCursor INTO @grades
10
11 WHILE @@FETCH_STATUS = 0
12 BEGIN
13 SELECT @c = @c + 1
14 SELECT @finalGrade = @finalGrade + @grades
15 FETCH NEXT FROM avgGradesCursor INTO @grades
16 END
17
18 SELECT @aG = ROUND(@finalGrade / @c,2)
19
20 CLOSE avgGradesCursor
21 DEALLOCATE avgGradesCursor
22 RETURN @aG
23 END
24
25
```

The 'MESSAGES' pane shows the following information:

```
4:25:57 PM Started executing query at Line 1
Commands completed successfully.
Total execution time: 00:00:00.048
```

The status bar at the bottom indicates: 0 rows, 00:00:00, LCS-VC-MSSQL.ad.syr.edu : CSE581labs, Ln 24, Col 1 (640 selected), Spaces: 4, UTF-8, LF, SQL, MSSQL.

Execution of function

Script:

```
SELECT nsuryapr.calcAvgGrade('03-HJGranger') as Avg_Grade
```

The screenshot displays the SQL Server Enterprise Manager interface. On the left, the 'SERVERS' tree shows the connection to 'LCS-VC-MSSQL.ad.syr.edu'. The central pane shows the SQL query editor with the following script:

```
24  
25 SELECT * FROM nsuryapr.CourseEnrollment  
26  
27 SELECT nsuryapr.calcAvgGrade('03-HJGranger') as Avg_Grade
```

The 'RESULTS' pane shows a single row of data:

Avg_Grade
95.50

The 'MESSAGES' pane shows the execution status:

4:28:18 PM Started executing query at Line 27
(1 row affected)
Total execution time: 00:00:00.052

The status bar at the bottom indicates: 1 rows 00:00:00 LCS-VC-MSSQL.ad.syr.edu : CSE581labs Ln 27, Col 58 (57 selected) Spaces: 4 UTF-8 LF SQL MSSQL