

## Lab 11: Stored Procedures

Nidhi Surya Prakash

SUID:215895619

### Purpose:

Create a stored procedure **in database CSE581labs**. Execute it.

### Deliverables:

Multiple screenshots, as described through the lab.

Scripts that you used to carry out the actions.

### Steps:

1. Create a stored procedure. Input for the stored procedure will be Course Id and Student Id. The stored procedure will check if the student is enrolled in the class yet.
  - a) If the student has already been enrolled, display a message that says "The student is already enrolled".
  - b) If the student has not been enrolled yet, and the course doesn't have a faculty yet, display a message that says "Cannot enroll until faculty is selected".
  - c) If the student has not been enrolled yet, and the course does have a faculty assigned, then enroll the student in the course and display a message that says "Student enrolled".

Provide a **screenshot** of script execution that creates the stored procedure.

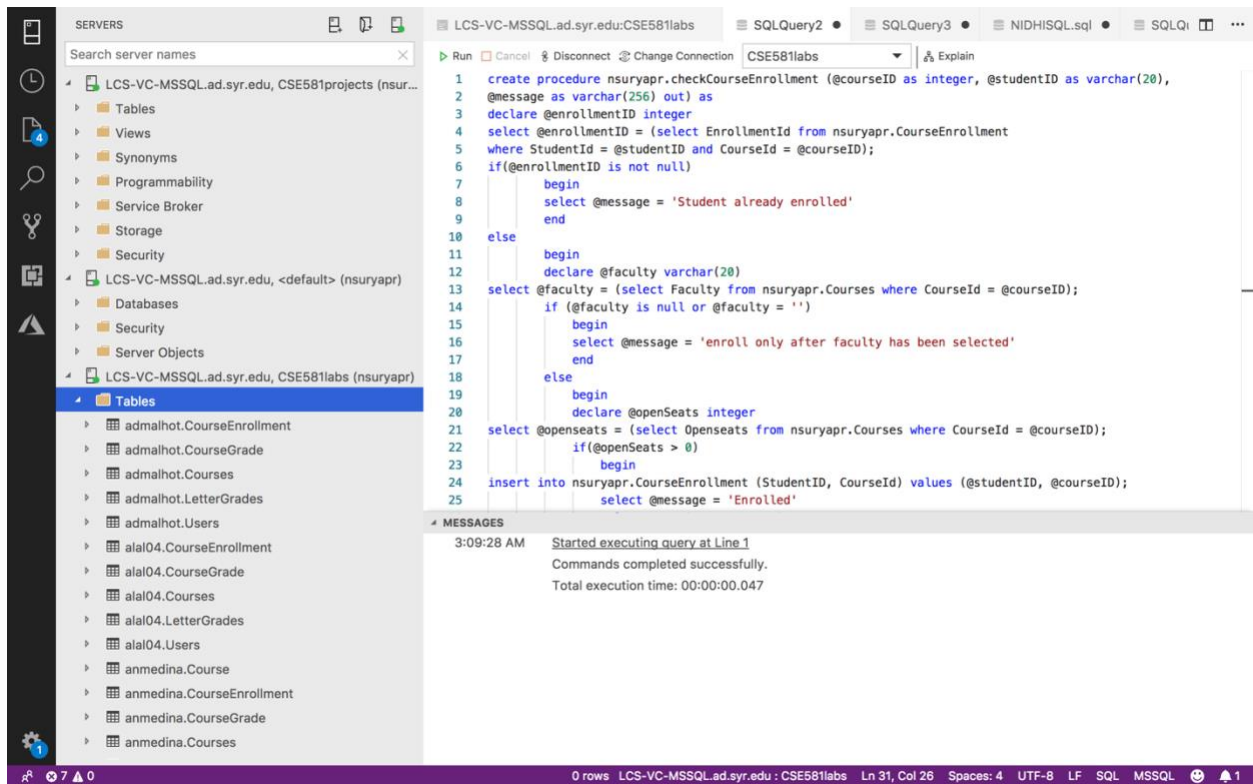
### Script:

```
create procedure nsuryapr.checkCourseEnrollment (@courseID as integer, @studentID as varchar(20),
@message as varchar(256) out) as
declare @enrollmentID integer
select @enrollmentID = (select EnrollmentID from nsuryapr.CourseEnrollment
where StudentID = @studentID and CourseID = @courseID);
if(@enrollmentID is not null)
begin
select @message = 'Student already enrolled'
end
else
begin
```

```

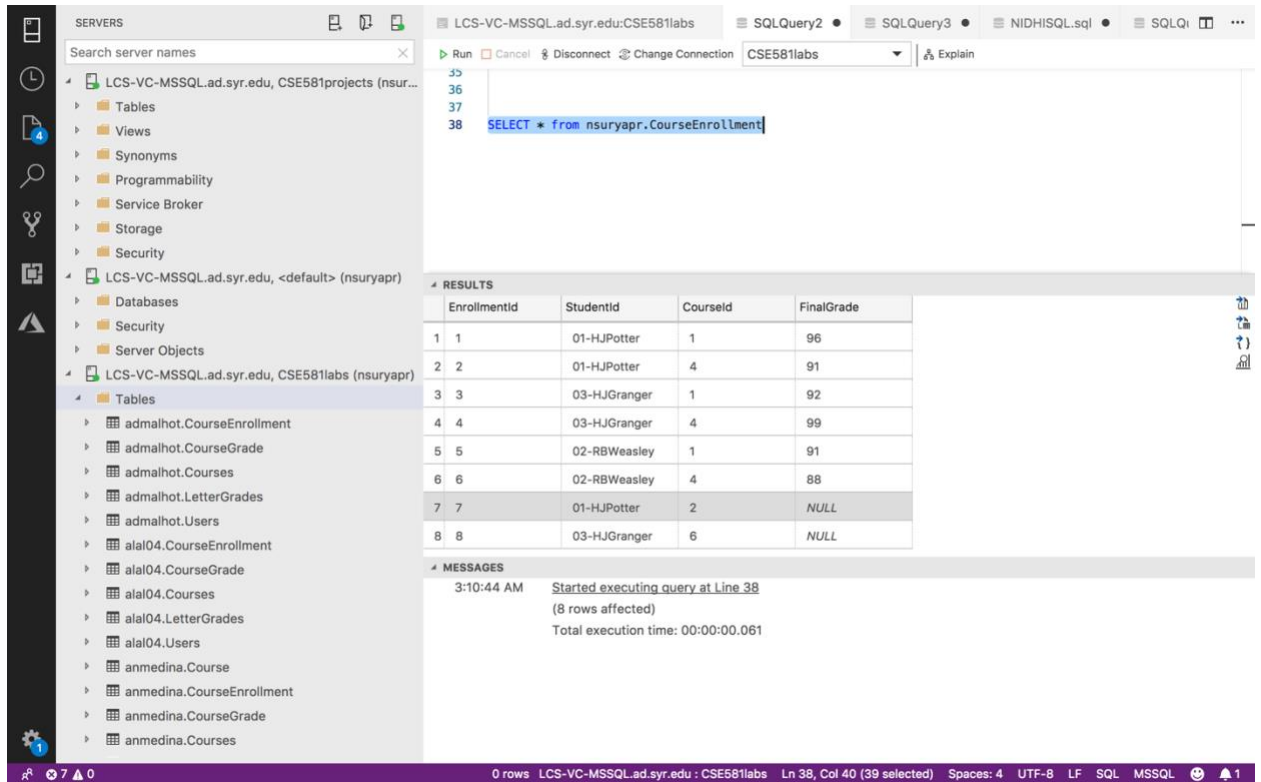
declare @faculty varchar(20)
select @faculty = (select Faculty from nsuryapr.Courses where CourseId = @courseId);
if (@faculty is null or @faculty = "")
begin
select @message = 'enroll only after faculty has been selected'
end
else
begin
declare @openSeats integer
select @openSeats = (select OpenSeats from nsuryapr.Courses where CourseId = @courseId);
if(@openSeats > 0)
begin
insert into nsuryapr.CourseEnrollment (StudentID, CourseId) values (@studentID, @courseId);
select @message = 'Enrolled'
select @openSeats = @openSeats -1
update nsuryapr.Courses set OpenSeats = @openSeats where CourseId = @courseId;
end
else
begin
select @message = 'Seats not available'
end
end
end

```



2. Select from the Enrollment table, to see data prior to execution. Provide a **screenshot**.

Script: `SELECT * from nsuryapr.CourseEnrollment`



- Run the stored procedure to prove that all 3 cases work. For each case, provide a **screenshot** of script execution and **screenshots** of Enrollment and Courses table after execution.

CASE 1: Student is already enrolled in course

Script :

```
declare @outputmessage as varchar(256);
Exec nsuryapr.checkCourseEnrollment @courseID = 1,@studentID = '03-HJGranger',
@message = @outputmessage out;
print @outputmessage;
```

SQL Server Enterprise Edition (64-bit) - LCS-VC-MSSQL.ad.syr.edu:CSE581labs

Search server names

SERVERS

- LCS-VC-MSSQL.ad.syr.edu, CSE581projects (nsur...)
  - Tables
  - Views
  - Synonyms
  - Programmability
  - Service Broker
  - Storage
  - Security
- LCS-VC-MSSQL.ad.syr.edu, <default> (nsuryapr)
  - Databases
  - Security
  - Server Objects
- LCS-VC-MSSQL.ad.syr.edu, CSE581labs (nsuryapr)
  - Tables
    - admalhot.CourseEnrollment
    - admalhot.CourseGrade
    - admalhot.Courses
    - admalhot.LetterGrades
    - admalhot.Users
    - alal04.CourseEnrollment
    - alal04.CourseGrade
    - alal04.Courses
    - alal04.LetterGrades
    - alal04.Users
    - anmedina.Course
    - anmedina.CourseEnrollment
    - anmedina.CourseGrade
    - anmedina.Courses

SQLQuery2

```
39
40 declare @outputmessage as varchar(256);
41 Exec nsuryapr.checkCourseEnrollment @courseID = 1,@studentID = '03-HJGranger',
42 @message = @outputmessage out;
43 print @outputmessage;
44
```

MESSAGES

3:23:06 AM Started executing query at Line 40  
Student already enrolled  
Total execution time: 00:00:00.050

0 rows LCS-VC-MSSQL.ad.syr.edu : CSE581labs Ln 43, Col 22 (171 selected) Spaces: 4 UTF-8 LF SQL MSSQL

SQL Server Enterprise Edition (64-bit) - LCS-VC-MSSQL.ad.syr.edu:CSE581labs

Search server names

SERVERS

- LCS-VC-MSSQL.ad.syr.edu, CSE581projects (nsur...)
  - Tables
  - Views
  - Synonyms
  - Programmability
  - Service Broker
  - Storage
  - Security
- LCS-VC-MSSQL.ad.syr.edu, <default> (nsuryapr)
  - Databases
  - Security
  - Server Objects
- LCS-VC-MSSQL.ad.syr.edu, CSE581labs (nsuryapr)
  - Tables
    - admalhot.CourseEnrollment
    - admalhot.CourseGrade
    - admalhot.Courses
    - admalhot.LetterGrades
    - admalhot.Users
    - alal04.CourseEnrollment
    - alal04.CourseGrade
    - alal04.Courses
    - alal04.LetterGrades
    - alal04.Users
    - anmedina.Course
    - anmedina.CourseEnrollment
    - anmedina.CourseGrade
    - anmedina.Courses

SQLQuery2

```
35
36
37
38 SELECT * from nsuryapr.CourseEnrollment
39
40 declare @outputmessage as varchar(256);
41 Exec nsuryapr.checkCourseEnrollment @courseID = 1,@studentID = '03-HJGranger',
42 @message = @outputmessage out;
43 print @outputmessage;
44
```

RESULTS

EnrollmentId	StudentId	CourseId	FinalGrade
1	01-HJPotter	1	96
2	01-HJPotter	4	91
3	03-HJGranger	1	92
4	03-HJGranger	4	99
5	02-RBWeasley	1	91
6	02-RBWeasley	4	88
7	01-HJPotter	2	NULL
8	03-HJGranger	6	NULL

MESSAGES

3:24:00 AM Started executing query at Line 38  
(8 rows affected)  
Total execution time: 00:00:00.059

0 rows LCS-VC-MSSQL.ad.syr.edu : CSE581labs Ln 39, Col 1 (40 selected) Spaces: 4 UTF-8 LF SQL MSSQL

SQL Server Enterprise Manager interface showing the execution of a query in the CSE581labs database.

**Query:**

```

35
36
37
38 SELECT * from nsuryapr.CourseEnrollment
39
40 SELECT * from nsuryapr.Courses
41
42 declare @outputmessage as varchar(256);
43 Exec nsuryapr.checkCourseEnrollment @courseID = 1,@studentID = '03-HJGranger',
44 @message = @outputmessage out;
45 print @outputmessage;
46

```

**RESULTS:**

CourseId	CourseCode	CourseTitle	Faculty	OpenSeats
1	1	DADA101	Defence Again...	16-Rhagrid
2	2	DADA201	Defence Again...	16-Rhagrid
3	3	DADA301	Defence Again...	16-Rhagrid
4	4	CHMS101	Charms BASIC	11-Fflitwick
5	5	CHMS201	Charms INTER...	11-Fflitwick
6	6	CHMS301	Charms ADVA...	11-Fflitwick
7	7	HOM101	History of Magi...	NULL

**MESSAGES:**

```

3:24:38 AM Started executing query at Line 40
(7 rows affected)
Total execution time: 00:00:00.053

```

CASE 2: Student has not been enrolled yet, and the course doesn't have a faculty yet

Script:

```

declare @outputmessage1 as varchar(256);
Exec nsuryapr.checkCourseEnrollment @courseID = 7,@studentID = '01-HJPotter',
@message = @outputmessage1 out;
print @outputmessage1;

```

SQL Server Enterprise Edition (64-bit) - SQL Query window

SERVERS: LCS-VC-MSSQL.ad.syr.edu:CSE581labs

Search server names

SQLQuery2

Run Cancel Disconnect Change Connection CSE581labs Explain

```
48 declare @outputmessage1 as varchar(256);
49 Exec nsuryapr.checkCourseEnrollment @courseID = 7,@studentID = '01-HJPotter',
50 @message = @outputmessage1 out;
51 print @outputmessage1;
52
53
```

MESSAGES

3:31:22 AM Started executing query at Line 48  
enroll only after faculty has been selected  
Total execution time: 00:00:00.047

0 rows LCS-VC-MSSQL.ad.syr.edu : CSE581labs Ln 53, Col 1 (175 selected) Spaces: 4 UTF-8 LF SQL MSSQL

SQL Server Enterprise Edition (64-bit) - SQL Query window

SERVERS: LCS-VC-MSSQL.ad.syr.edu:CSE581labs

Search server names

SQLQuery2

Run Cancel Disconnect Change Connection CSE581labs Explain

```
46 declare @outputmessage1 as varchar(256);
47 Exec nsuryapr.checkCourseEnrollment @courseID = 7,@studentID = '01-HJPotter',
48 @message = @outputmessage1 out;
49 print @outputmessage1;
50
51 SELECT * from nsuryapr.CourseEnrollment
52
53 SELECT * from nsuryapr.Courses
54
55
```

RESULTS

EnrollmentId	StudentId	CourseId	FinalGrade
1	01-HJPotter	1	96
2	01-HJPotter	4	91
3	03-HJGranger	1	92
4	03-HJGranger	4	99
5	02-RBWasley	1	91
6	02-RBWasley	4	88
7	01-HJPotter	2	NULL
8	03-HJGranger	6	NULL

MESSAGES

3:32:55 AM Started executing query at Line 51  
(8 rows affected)  
Total execution time: 00:00:00.047

0 rows LCS-VC-MSSQL.ad.syr.edu : CSE581labs Ln 51, Col 40 (39 selected) Spaces: 4 UTF-8 LF SQL MSSQL

The screenshot shows the SQL Server Enterprise Manager interface. The left pane displays the server hierarchy for 'LCS-VC-MSSQL.ad.syr.edu'. The right pane shows the execution of a T-SQL script in the 'CSE581labs' database. The script includes a declaration, a call to a stored procedure, and a print statement. Below the script, the 'RESULTS' pane displays a table with 7 rows of course data. The 'MESSAGES' pane shows the execution status and timing.

```

46 declare @outputmessage1 as varchar(256);
47 Exec nsuryapr.checkCourseEnrollment @courseID = 7,@studentID = '01-HJPotter',
48 @message = @outputmessage1 out;
49 print @outputmessage1;
50
51 SELECT * from nsuryapr.CourseEnrollment
52
53 SELECT * from nsuryapr.Courses
54
55

```

CourseId	CourseCode	CourseTitle	Faculty	OpenSeats	
1	1	DADA101	Defence Again...	16-Rhagrid	3
2	2	DADA201	Defence Again...	16-Rhagrid	2
3	3	DADA301	Defence Again...	16-Rhagrid	1
4	4	CHMS101	Charms BASIC	11-Fflitwick	2
5	5	CHMS201	Charms INTER...	11-Fflitwick	0
6	6	CHMS301	Charms ADVA...	11-Fflitwick	4
7	7	HOM101	History of Magi...	NULL	10

MESSAGES

3:34:09 AM Started executing query at Line 53  
(7 rows affected)  
Total execution time: 00:00:00.048

CASE 3:

PART a: Student has not been enrolled and faculty has been assigned (open seats are available)

Script:

```

declare @outputmessage3 as varchar(256);
Exec nsuryapr.checkCourseEnrollment @courseID = 2,@studentID = '03-HJGranger',
@message = @outputmessage3 out;
print @outputmessage3;

```



SQL Server Enterprise Edition (64-bit) - LCS-VC-MSSQL.ad.syr.edu:CSE581labs

Search server names

SERVERS

- LCS-VC-MSSQL.ad.syr.edu, CSE581projects (nsur...)
  - Tables
  - Views
  - Synonyms
  - Programmability
  - Service Broker
  - Storage
  - Security
- LCS-VC-MSSQL.ad.syr.edu, <default> (nsuryapr)
  - Databases
  - Security
  - Server Objects
- LCS-VC-MSSQL.ad.syr.edu, CSE581labs (nsuryapr)
  - Tables

SQLQuery2

```
55 declare @outputmessage3 as varchar(256);
56 Exec nsuryapr.checkCourseEnrollment @courseID = 2,@studentID = '03-HJGranger',
57 @message = @outputmessage3 out;
58 print @outputmessage3;
59
60
61
```

MESSAGES

3:42:01 AM Started executing query at Line 55  
(1 row affected)  
(1 row affected)  
Enrolled  
Total execution time: 00:00:00.050

0 rows LCS-VC-MSSQL.ad.syr.edu : CSE581labs Ln 58, Col 23 (174 selected) Spaces: 4 UTF-8 LF SQL MSSQL

SQL Server Enterprise Edition (64-bit) - LCS-VC-MSSQL.ad.syr.edu:CSE581labs

Search server names

SERVERS

- LCS-VC-MSSQL.ad.syr.edu, CSE581projects (nsur...)
  - Tables
  - Views
  - Synonyms
  - Programmability
  - Service Broker
  - Storage
  - Security
- LCS-VC-MSSQL.ad.syr.edu, <default> (nsuryapr)
  - Databases
  - Security
  - Server Objects
- LCS-VC-MSSQL.ad.syr.edu, CSE581labs (nsuryapr)
  - Tables

SQLQuery2

```
50
51 SELECT * from nsuryapr.CourseEnrollment
52
53 SELECT * from nsuryapr.Courses
54
55 declare @outputmessage3 as varchar(256);
56 Exec nsuryapr.checkCourseEnrollment @courseID = 2,@studentID = '03-HJGranger',
57 @message = @outputmessage3 out;
58 print @outputmessage3;
59
60
61
```

RESULTS

EnrollmentId	StudentId	CourseId	FinalGrade
1	01-HJPotter	1	96
2	01-HJPotter	4	91
3	03-HJGranger	1	92
4	03-HJGranger	4	99
5	02-RBWeasley	1	91
6	02-RBWeasley	4	88
7	01-HJPotter	2	NULL
8	03-HJGranger	6	NULL
9	03-HJGranger	2	NULL

MESSAGES

3:42:53 AM Started executing query at Line 51  
(9 rows affected)  
Total execution time: 00:00:00.049

0 rows LCS-VC-MSSQL.ad.syr.edu : CSE581labs Ln 52, Col 1 (40 selected) Spaces: 4 UTF-8 LF SQL MSSQL

SQL Query window showing the execution of a query on the CSE581labs database. The query is a SELECT statement from nsuryapr.CourseEnrollment. The results table shows 7 rows of data. The messages pane shows the execution started at 3:43:26 AM and affected 7 rows.

```

51 SELECT * from nsuryapr.CourseEnrollment
52
53 SELECT * from nsuryapr.Courses
54
55 declare @outputmessage3 as varchar(256);
56 Exec nsuryapr.checkCourseEnrollment @courseID = 2,@studentID = '03-HJGranger',
57 @message = @outputmessage3 out;
58 print @outputmessage3;
59
60
61

```

CourseId	CourseCode	CourseTitle	Faculty	OpenSeats	
1	1	DADA101	Defence Again...	16-Rhagrid	3
2	2	DADA201	Defence Again...	16-Rhagrid	1
3	3	DADA301	Defence Again...	16-Rhagrid	1
4	4	CHMS101	Charms BASIC	11-Fflitwick	2
5	5	CHMS201	Charms INTER...	11-Fflitwick	0
6	6	CHMS301	Charms ADVA...	11-Fflitwick	4
7	7	HOM101	History of Magi...	NULL	10

MESSAGES

3:43:26 AM Started executing query at Line 53  
(7 rows affected)  
Total execution time: 00:00:00.047

PART b: Student has not been enrolled, Faculty is assigned but Open seats are 0

Script:

```

declare @outputmessage2 as varchar(256);
Exec nsuryapr.checkCourseEnrollment @courseID = 5,@studentID = '03-HJGranger',
@message = @outputmessage2 out;
print @outputmessage2;

```

SERVERS

Search server names

LCS-VC-MSSQL.ad.syr.edu, CSE581projects (nsur...)

- Tables
- Views
- Synonyms
- Programmability
- Service Broker
- Storage
- Security

LCS-VC-MSSQL.ad.syr.edu, <default> (nsuryapr)

- Databases
- Security
- Server Objects

LCS-VC-MSSQL.ad.syr.edu, CSE581labs (nsuryapr)

- Tables
- admalhot.CourseEnrollment
- admalhot.CourseGrade
- admalhot.Courses
- admalhot.LetterGrades
- admalhot.Users
- alal04.CourseEnrollment
- alal04.CourseGrade
- alal04.Courses
- alal04.LetterGrades
- alal04.Users
- anmedina.Course
- anmedina.CourseEnrollment
- anmedina.CourseGrade
- anmedina.Courses

SQLQuery2

Run Cancel Disconnect Change Connection CSE581labs Explain

```
60 SELECT * from nsuryapr.CourseEnrollment
61
62 SELECT * from nsuryapr.Courses
63
64 declare @outputmessage2 as varchar(256);
65 Exec nsuryapr.checkCourseEnrollment @courseID = 5,@studentID = '03-HJGranger',
66 @message = @outputmessage2 out;
67 print @outputmessage2;
68
69
70
```

MESSAGES

3:47:37 AM Started executing query at Line 64  
Seats not available  
Total execution time: 00:00:00.043

0 rows LCS-VC-MSSQL.ad.syr.edu : CSE581labs Ln 67, Col 23 (174 selected) Spaces: 4 UTF-8 LF SQL MSSQL

SERVERS

Search server names

LCS-VC-MSSQL.ad.syr.edu, CSE581projects (nsur...)

- Tables
- Views
- Synonyms
- Programmability
- Service Broker
- Storage
- Security

LCS-VC-MSSQL.ad.syr.edu, <default> (nsuryapr)

- Databases
- Security
- Server Objects

LCS-VC-MSSQL.ad.syr.edu, CSE581labs (nsuryapr)

- Tables
- admalhot.CourseEnrollment
- admalhot.CourseGrade
- admalhot.Courses
- admalhot.LetterGrades
- admalhot.Users
- alal04.CourseEnrollment
- alal04.CourseGrade
- alal04.Courses
- alal04.LetterGrades
- alal04.Users
- anmedina.Course
- anmedina.CourseEnrollment
- anmedina.CourseGrade
- anmedina.Courses

SQLQuery2

Run Cancel Disconnect Change Connection CSE581labs Explain

```
60 SELECT * from nsuryapr.CourseEnrollment
61
62 SELECT * from nsuryapr.Courses
63
64 declare @outputmessage2 as varchar(256);
65 Exec nsuryapr.checkCourseEnrollment @courseID = 5,@studentID = '03-HJGranger',
66 @message = @outputmessage2 out;
67 print @outputmessage2;
68
69
70
```

RESULTS

EnrollmentId	StudentId	CourseId	FinalGrade
1	01-HJPotter	1	96
2	01-HJPotter	4	91
3	03-HJGranger	1	92
4	03-HJGranger	4	99
5	02-RBWeasley	1	91
6	02-RBWeasley	4	88
7	01-HJPotter	2	NULL
8	03-HJGranger	6	NULL
9	03-HJGranger	2	NULL

MESSAGES

3:48:49 AM Started executing query at Line 60  
(9 rows affected)  
Total execution time: 00:00:00.049

0 rows LCS-VC-MSSQL.ad.syr.edu : CSE581labs Ln 61, Col 1 (40 selected) Spaces: 4 UTF-8 LF SQL MSSQL

SERVERS

Search server names

LCS-VC-MSSQL.ad.syr.edu, CSE581projects (nsur...)

Tables

Views

Synonyms

Programmability

Service Broker

Storage

Security

LCS-VC-MSSQL.ad.syr.edu, <default> (nsuryapr)

Databases

Security

Server Objects

LCS-VC-MSSQL.ad.syr.edu, CSE581labs (nsuryapr)

Tables

admalhot.CourseEnrollment

admalhot.CourseGrade

admalhot.Courses

admalhot.LetterGrades

admalhot.Users

alal04.CourseEnrollment

alal04.CourseGrade

alal04.Courses

alal04.LetterGrades

alal04.Users

anmedina.Course

anmedina.CourseEnrollment

anmedina.CourseGrade

anmedina.Courses

LCS-VC-MSSQL.ad.syr.edu:CSE581labs

SQLQuery2

SQLQuery3

NIDHISQL.sql

SQLQ...

...

Run

Cancel

Disconnect

Change Connection

CSE581labs

Explain

```
60 SELECT * from nsuryapr.CourseEnrollment
61
62 SELECT * from nsuryapr.Courses
63
64 declare @outputmessage2 as varchar(256);
65 Exec nsuryapr.checkCourseEnrollment @courseID = 5,@studentID = '03-HJGranger',
66 @message = @outputmessage2 out;
67 print @outputmessage2;
68
69
70
```

RESULTS

	CourseId	CourseCode	CourseTitle	Faculty	OpenSeats
1	1	DADA101	Defence Again...	16-Rhagrid	3
2	2	DADA201	Defence Again...	16-Rhagrid	1
3	3	DADA301	Defence Again...	16-Rhagrid	1
4	4	CHMS101	Charms BASIC	11-Fflitwick	2
5	5	CHMS201	Charms INTER...	11-Fflitwick	0
6	6	CHMS301	Charms ADVA...	11-Fflitwick	4
7	7	HOM101	History of Magi...	NULL	10

MESSAGES

3:49:08 AM

Started executing query at Line 62

(7 rows affected)

Total execution time: 00:00:00.049

0 rows

LCS-VC-MSSQL.ad.syr.edu : CSE581labs

Ln 63, Col 1 (31 selected)

Spaces: 4

UTF-8

LF

SQL

MSSQL

1