

**Noura ALmaskari**

**University Database - DQL & DML Tasks**

إضافة الأعمدة الناقصة في جدول الطلاب--

```
ALTER TABLE student ADD EnrollmentDate DATE, Status VARCHAR(20), GPA  
DECIMAL(3,2), Advisor VARCHAR(100);
```

```
UPDATE student SET EnrollmentDate = '2021-09-01', Status = 'Active',  
GPA = 3.4, Advisor = 'Dr. Ali' WHERE StuID = 1000;
```

```
UPDATE student SET EnrollmentDate = '2022-09-01', Status = 'Active',  
GPA = 3.8, Advisor = 'Dr. Sara' WHERE StuID = 1001;
```

```
UPDATE student SET EnrollmentDate = '2020-09-01', Status = 'Active',  
GPA = 2.9, Advisor = NULL WHERE StuID = 1002;
```

```
UPDATE student SET EnrollmentDate = '2021-02-01', Status =  
'Inactive', GPA = 3.1, Advisor = 'Dr. Mona' WHERE StuID = 1003;
```

```
UPDATE student SET EnrollmentDate = '2019-09-01', Status = 'Active',  
GPA = 3.6, Advisor = NULL WHERE StuID = 1004;
```

**DQL**

## 1. Display all student records.

The screenshot shows the Microsoft SQL Server Management Studio interface. The query editor contains the following SQL code:

```
UPDATE student SET
EnrollmentDate = '2019-09-01',
Status = 'Active',
GPA = 3.6,
Advisor = NULL
WHERE StuID = 1004;

SELECT * FROM student;
```

The Results pane displays the following data:

StuID	SFname	Lfname	phoneno	DOB	DepID	HID	EnrollmentDate	Status	GPA	Advisor
1000	Ahmed	Al Hassan	91234567	2002-05-12	1	100	2021-09-01	Active	3.40	Dr. Ali
1001	Fatma	Al Sad	92345678	2001-08-20	2	101	2022-09-01	Active	3.80	Dr. Sara
1002	Salim	Al Riyam	93456789	2003-01-15	3	102	2020-09-01	Active	2.90	NALL
1003	Aisha	Al Balushi	94567890	2002-11-30	4	103	2021-02-01	Inactive	3.10	Dr. Mona
1004	Khalid	Al Harthy	95678901	2001-03-25	5	104	2019-09-01	Active	3.60	NALL

## 2. Display each student's full name, enrollment date, and current status.

The screenshot shows the Microsoft SQL Server Management Studio interface. The query editor contains the following SQL code:

```
UPDATE student SET
EnrollmentDate = '2019-09-01',
Status = 'Active',
GPA = 3.6,
Advisor = NULL
WHERE StuID = 1004;

SELECT * FROM student;

SELECT
SFname + ' ' + Lfname AS FullName,
EnrollmentDate,
Status
FROM student;
```

The Results pane displays the following data:

FullName	EnrollmentDate	Status
Ahmed Al Hassan	2021-09-01	Active
Fatma Al Sad	2022-09-01	Active
Salim Al Riyam	2020-09-01	Active
Aisha Al Balushi	2021-02-01	Inactive
Khalid Al Harthy	2019-09-01	Active

## 3. Display each course title and credits.

The screenshot shows the Microsoft SQL Server Management Studio interface. The left pane displays the 'Object Explorer' with the 'college' database selected. The central pane contains the following SQL query:

```
SELECT * FROM student;

SELECT
    SName + ' ' + LName AS FullName,
    EnrollmentDate,
    Status
FROM student;

SELECT
    courseName,
    cDuration AS Credits
FROM course;
```

The bottom pane shows the 'Results' tab with the following data:

courseName	Credits
Database Systems	60
Networking Basics	50
Electrical Circuits	70
Principles of Management	45
Linear Algebra	55

#### 4. Display each student's full name and GPA as GPA Score.

The screenshot shows the Microsoft SQL Server Management Studio interface. The left pane displays the 'Object Explorer' with the 'college' database selected. The central pane contains the following SQL query:

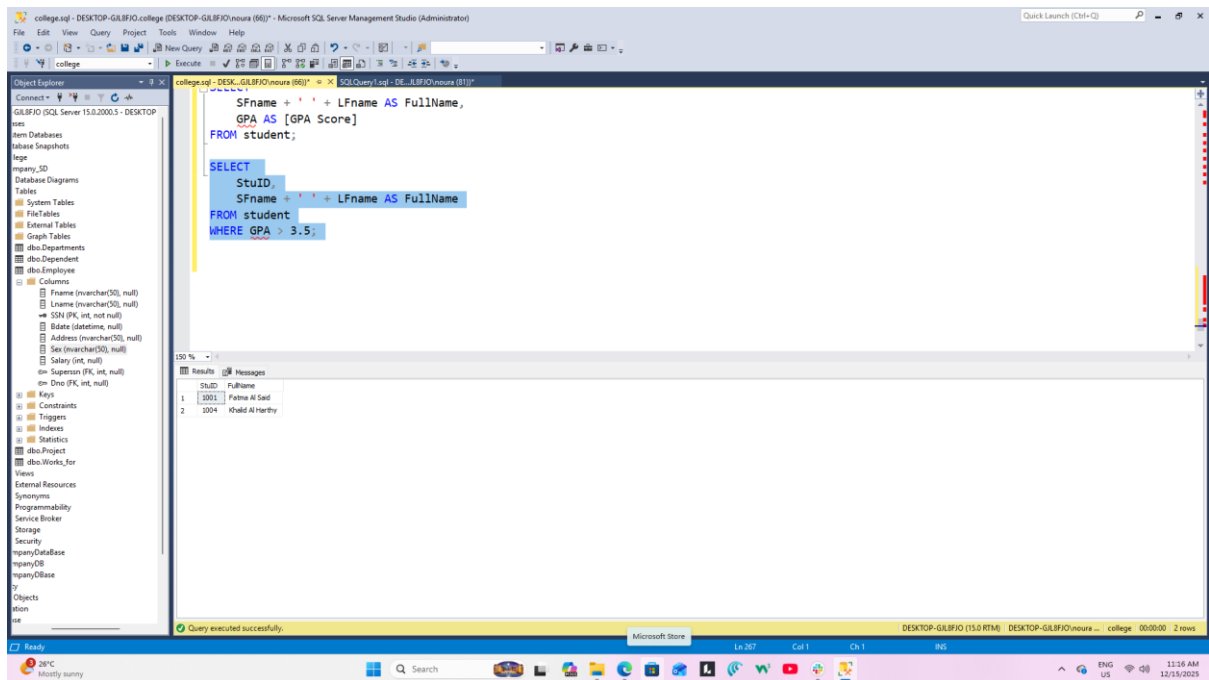
```
courseName,
cDuration AS Credits
FROM course;

SELECT
    SName + ' ' + LName AS FullName,
    GPA AS [GPA Score]
FROM student;
```

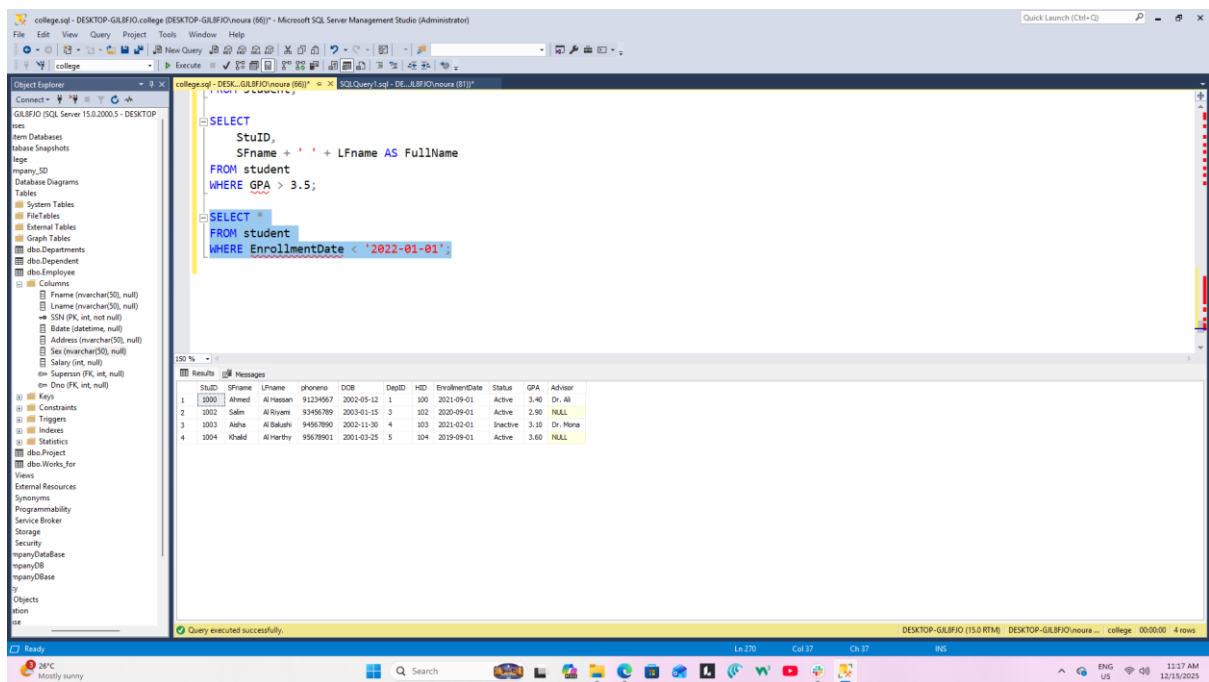
The bottom pane shows the 'Results' tab with the following data:

FullName	GPA Score
Ali Hameed Al Hameed	3.40
Fatma Al Sad	3.80
Salim Al Riyami	2.90
Alma Al Baluchi	3.10
Khalid Al Harthy	3.60

#### 5. List student IDs and names of students with GPA greater than 3.5.



## 6. List students who enrolled before 2022.



## 7. Display students with GPA between 3.0 and 3.5.

The screenshot shows the Microsoft SQL Server Management Studio interface. The query editor contains the following SQL code:

```
SELECT *
FROM student
WHERE EnrollmentDate < '2022-01-01';

SELECT *
FROM student
WHERE GPA BETWEEN 3.0 AND 3.5;
```

The Results pane displays the following data:

StuID	SFname	Lfname	phoneno	DOB	DepID	HID	EnrollmentDate	Status	GPA	Advisor
1000	Ahmed	Al Hassan	91234567	2002-05-12	1	100	2021-09-01	Active	3.40	Dr. Ali
1003	Asha	Al Balushi	94567890	2002-11-30	4	103	2021-02-01	Inactive	3.10	Dr. Mona

## 8. Display students ordered by GPA descending.

The screenshot shows the Microsoft SQL Server Management Studio interface. The query editor contains the following SQL code:

```
SELECT *
FROM student
WHERE GPA BETWEEN 3.0 AND 3.5;

SELECT *
FROM student
ORDER BY GPA DESC;
```

The Results pane displays the following data:

StuID	SFname	Lfname	phoneno	DOB	DepID	HID	EnrollmentDate	Status	GPA	Advisor
1001	Fatma	Al Saad	92345678	2001-08-20	2	101	2022-09-01	Active	3.80	Dr. Sara
1004	Khaled	Al Harthy	95678901	2001-03-25	5	104	2019-09-01	Active	3.60	NALL
1000	Ahmed	Al Hassan	91234567	2002-05-12	1	100	2021-09-01	Active	3.40	Dr. Ali
1003	Asha	Al Balushi	94567890	2002-11-30	4	103	2021-02-01	Inactive	3.10	Dr. Mona
1002	Salim	Al Roayem	93456789	2003-01-15	3	102	2020-09-01	Active	2.90	NALL

## 9. Display the maximum, minimum, and average GPA.

The screenshot shows the Microsoft SQL Server Management Studio interface. The 'Object Explorer' on the left displays the database structure for 'college'. The 'Query Editor' in the center contains the following SQL query:

```
FROM student
ORDER BY GPA DESC;

SELECT
    MAX(GPA) AS MaxGPA,
    MIN(GPA) AS MinGPA,
    AVG(GPA) AS AvgGPA
FROM student;
```

The 'Results' pane at the bottom shows the output of the query:

	MaxGPA	MinGPA	AvgGPA
1	3.80	2.90	3.360000

The status bar at the bottom indicates 'Query executed successfully.' and '1 rows'.

10. Display total number of students.

The screenshot shows the Microsoft SQL Server Management Studio interface. The 'Query Editor' in the center contains the following SQL query:

```
SELECT
    MAX(GPA) AS MaxGPA,
    MIN(GPA) AS MinGPA,
    AVG(GPA) AS AvgGPA
FROM student;

SELECT COUNT(*) AS TotalStudents
FROM student;
```

The 'Results' pane at the bottom shows the output of the query:

	TotalStudents
1	5

The status bar at the bottom indicates 'Query executed successfully.' and '1 rows'.

11. Display students whose names end with 'a'.

The screenshot shows the Microsoft SQL Server Management Studio interface. The query editor contains the following SQL code:

```

MIN(GPA) AS MinGPA,
AVG(GPA) AS AvgGPA
FROM student;

SELECT COUNT(*) AS TotalStudents
FROM student;

SELECT *
FROM student
WHERE SFname LIKE '%a';

```

The Results pane displays the output of the third query, showing two rows of student data:

StudID	SFname	LName	phoneNo	DOB	DepID	HID	EnrollmentDate	Status	GPA	Advisor
1001	Fatma	Al Sad	92345678	2001-09-20	2	101	2022-09-01	Active	3.80	Dr. Sara
1003	Asha	Al Bakshi	94567890	2002-11-30	4	103	2021-02-01	Inactive	3.10	Dr. Nona

## 12. Display students with NULL advisor.

The screenshot shows the Microsoft SQL Server Management Studio interface. The query editor contains the following SQL code:

```

FROM student;

SELECT *
FROM student
WHERE SFname LIKE '%a';

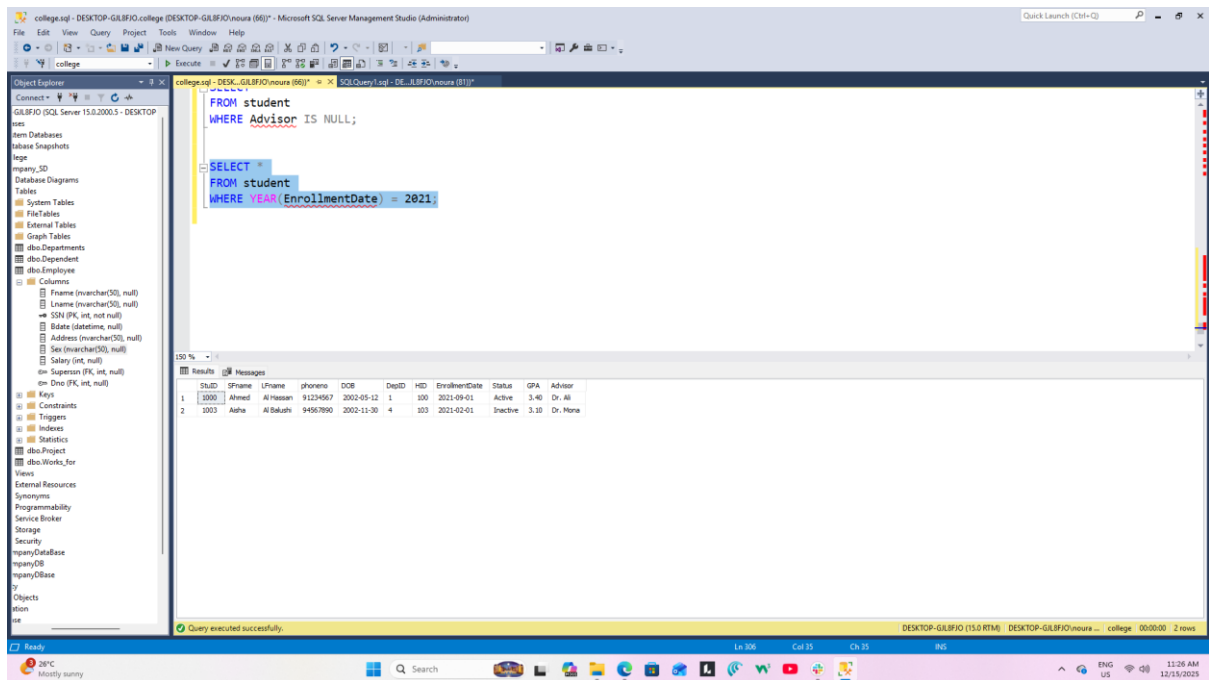
SELECT *
FROM student
WHERE Advisor IS NULL;

```

The Results pane displays the output of the third query, showing two rows of student data with NULL advisor:

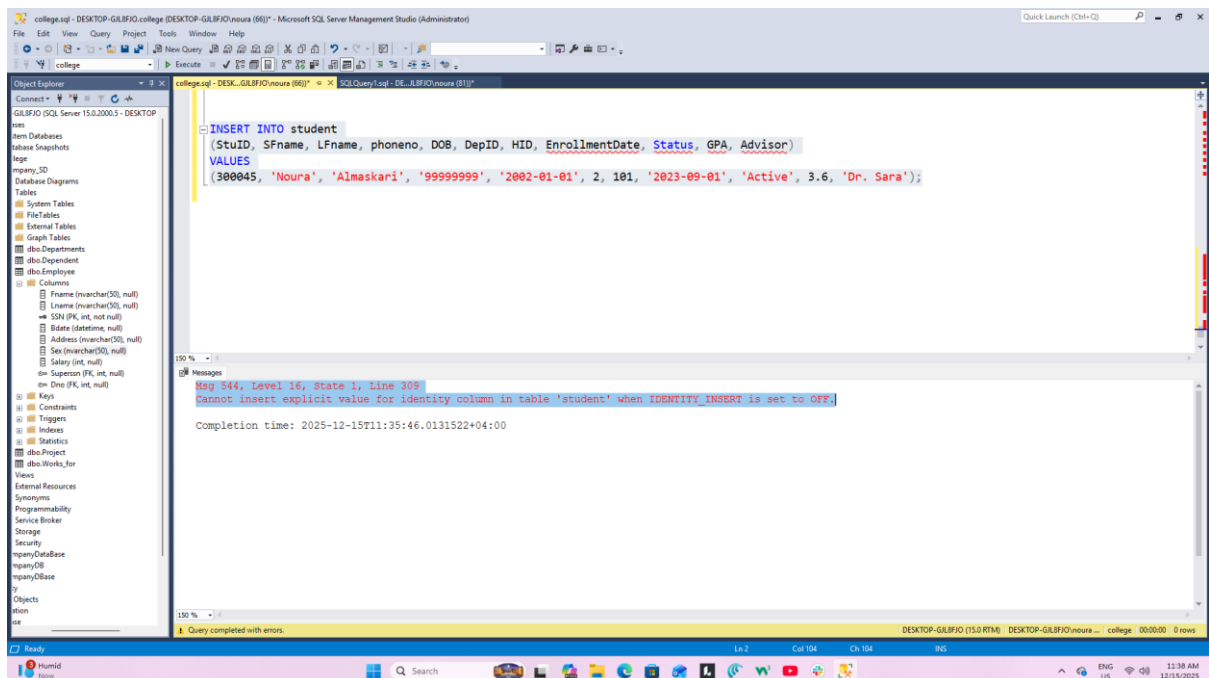
StudID	SFname	LName	phoneNo	DOB	DepID	HID	EnrollmentDate	Status	GPA	Advisor
1002	Salim	Al Riyami	92456789	2003-01-15	3	102	2020-09-01	Active	2.90	NULL
1004	Khalid	Al Harthy	95678901	2001-03-25	5	104	2019-09-01	Active	3.60	NULL

## 13. Display students enrolled in 2021.



## DML

14. Insert your data as a new student (Student ID = 300045, Program ID = 2, GPA = 3.6).



StuID INT PRIMARY KEY IDENTITY(1000,1)



يعني:

- هو الذي يولد الرقم تلقائيًا SQL Server
  - لا يسمح بإدخال قيمة يدويًا
  - لذلك عند كتابة:

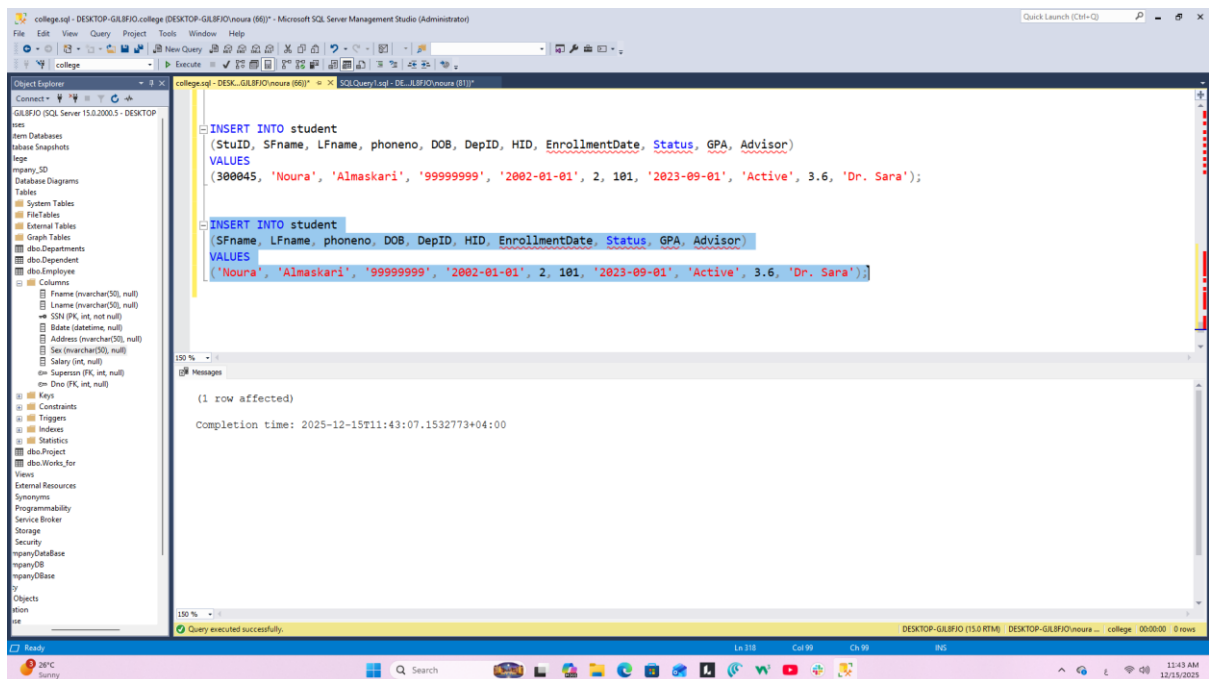
StuID = 300045

يظهر خطأ:

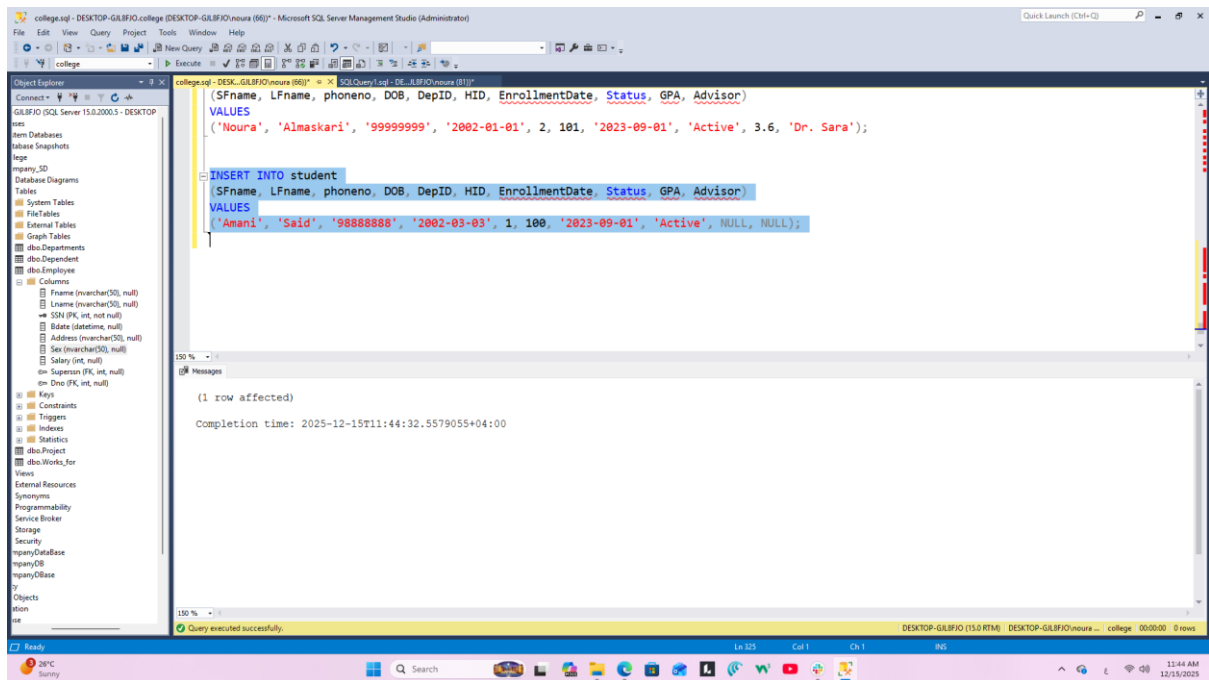
Cannot insert explicit value for identity column

سأترك StuID لـ IDENTITY

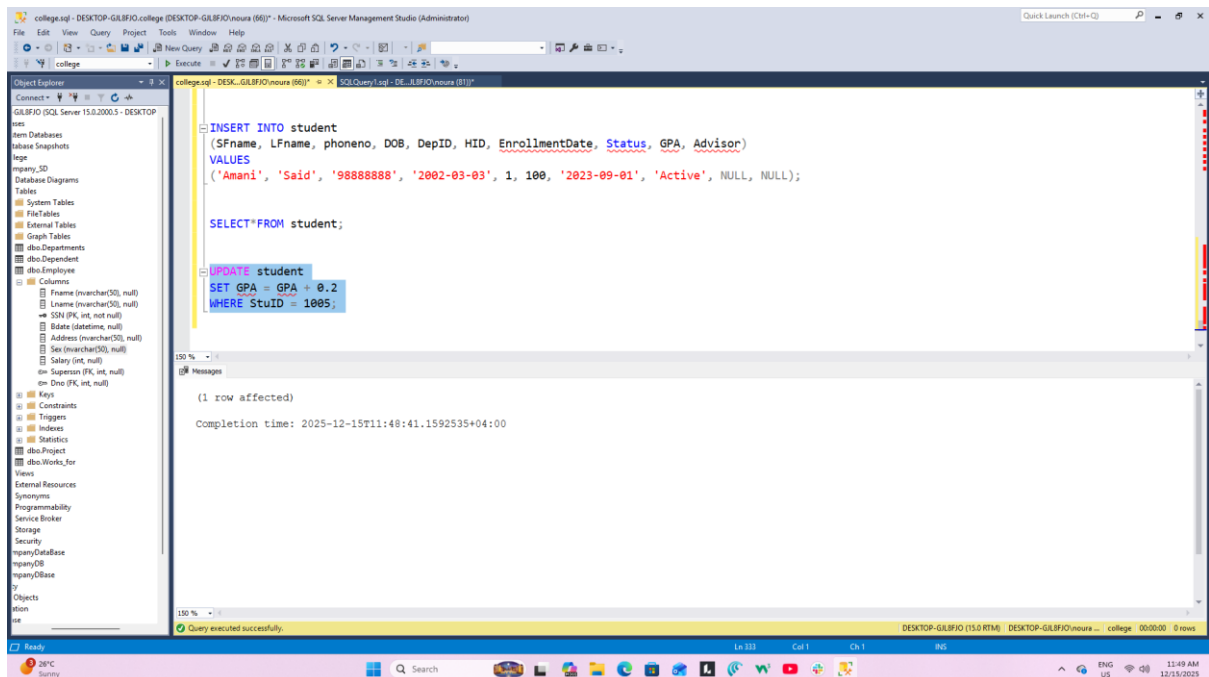
ولن اكتب StuID في INSERT



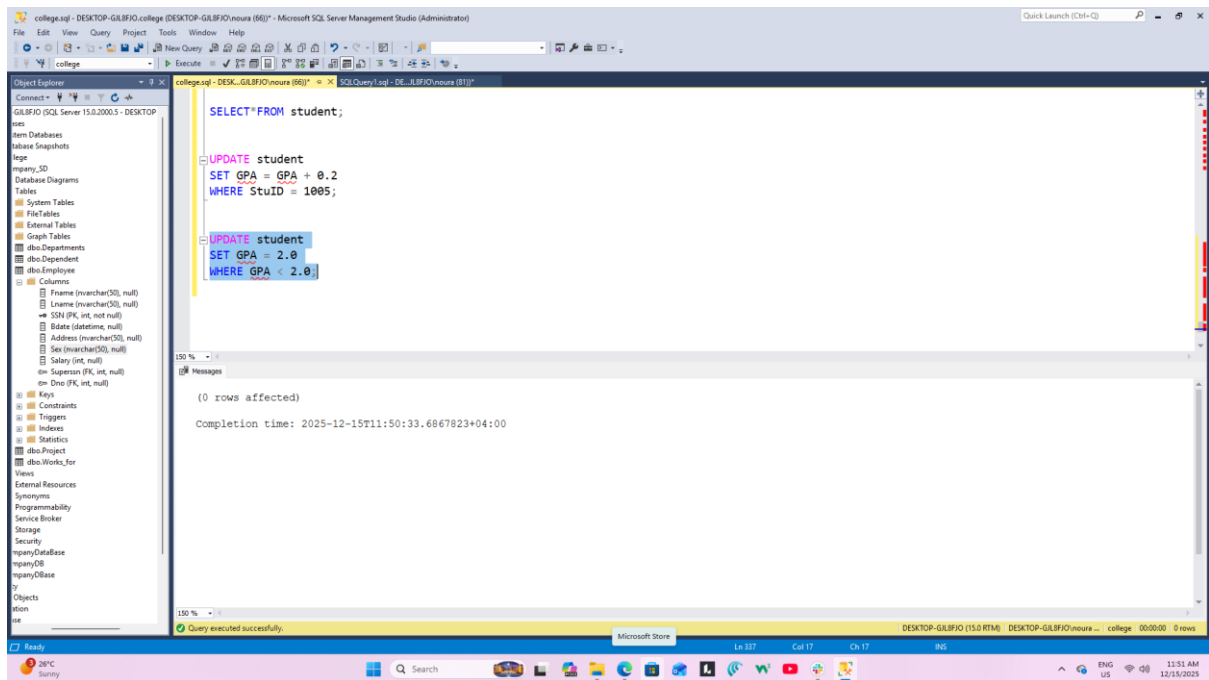
**15. Insert another student (your friend) with GPA and advisor set to NULL.**



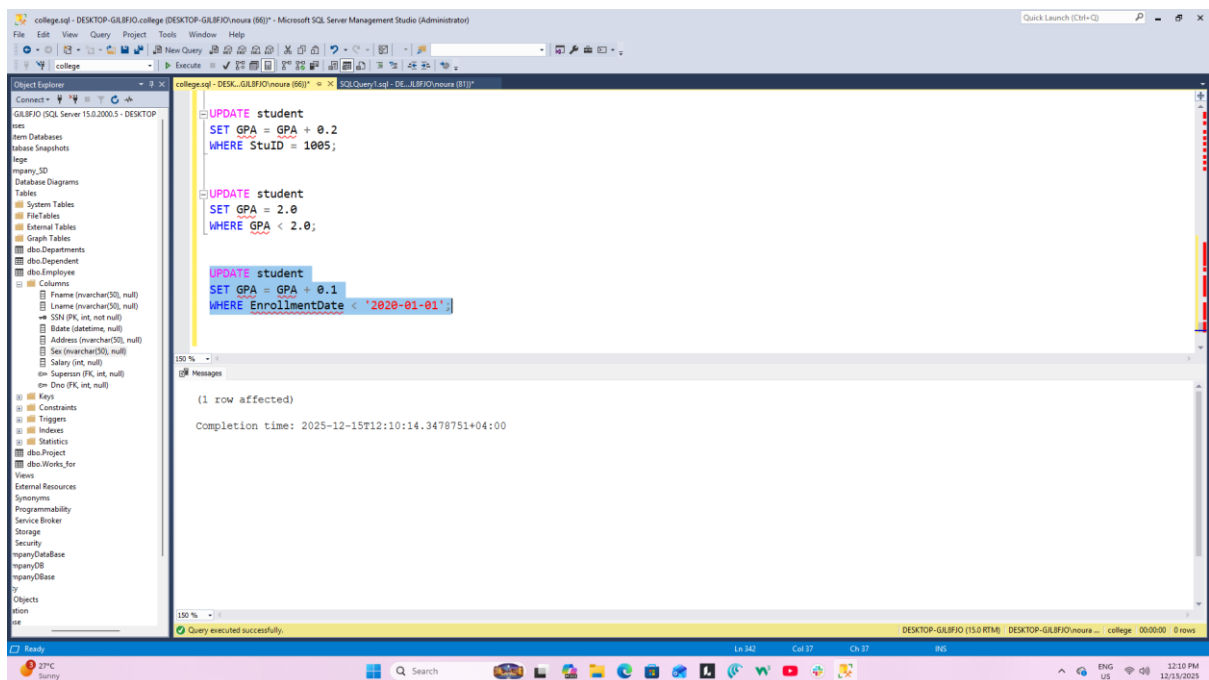
## 16. Increase your GPA by 0.2.



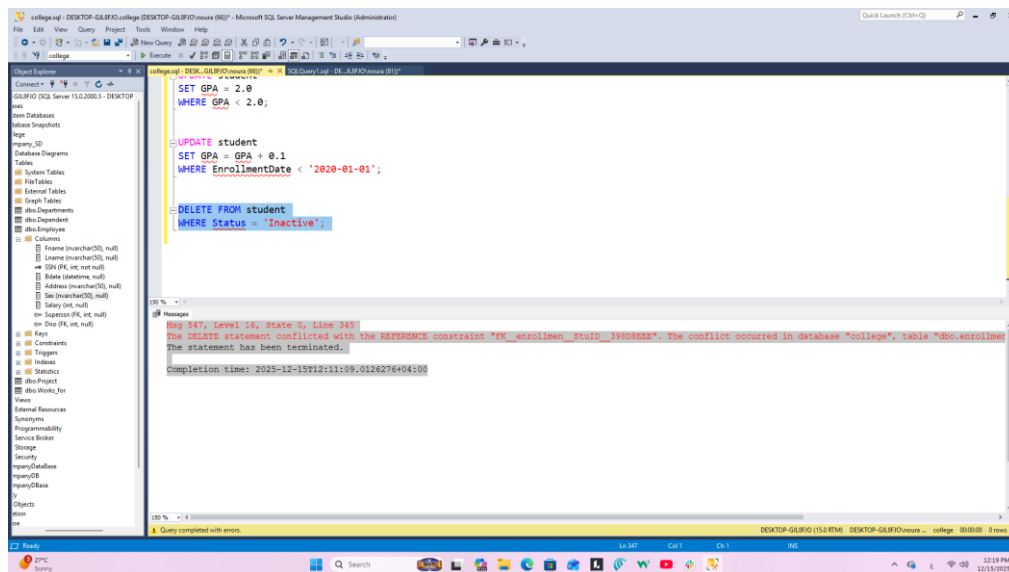
## 17. Set GPA to 2.0 for students with GPA below 2.0.



## 18. Increase GPA by 0.1 for students enrolled before 2020.



## 19. Delete students with status 'Inactive'.



enrollment الطالب مربوط بسجلات في جدول:

student (StuID) ← FK — enrollment (StuID)  
SQL Server يمنع الحذف لأن:

لا يمكن حذف سجل أب (Parent) له سجلات أبناء (Child))

اقدر اعمل Soft Delete

UPDATE student

SET Status = 'Deleted'

WHERE Status = 'Inactive';

او احذف السجلات التابعة أولاً ثم الطالب

-- 1. حذف من الجداول التابعة

DELETE FROM enrollment WHERE StuID IN ( SELECT StuID FROM student  
WHERE Status = 'Inactive' );

DELETE FROM studentsubject WHERE StuID IN ( SELECT StuID FROM student  
WHERE Status = 'Inactive' );

DELETE FROM studentexam WHERE StuID IN ( SELECT StuID FROM student  
WHERE Status = 'Inactive' );

-- 2. حذف الطالب

DELETE FROM student WHERE Status = 'Inactive';