Task-2 Sql Fundamentals and DML

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Date: 04-11-2024

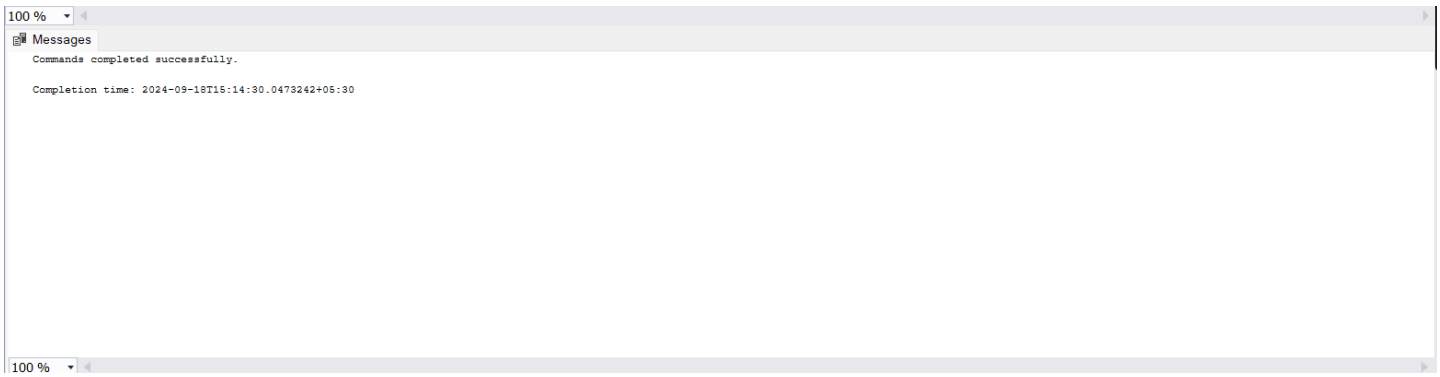
Database Design

1. Create the database named "SISDB"

Query:

```
CREATE DATABASE SISDB;

USE SISDB;
```

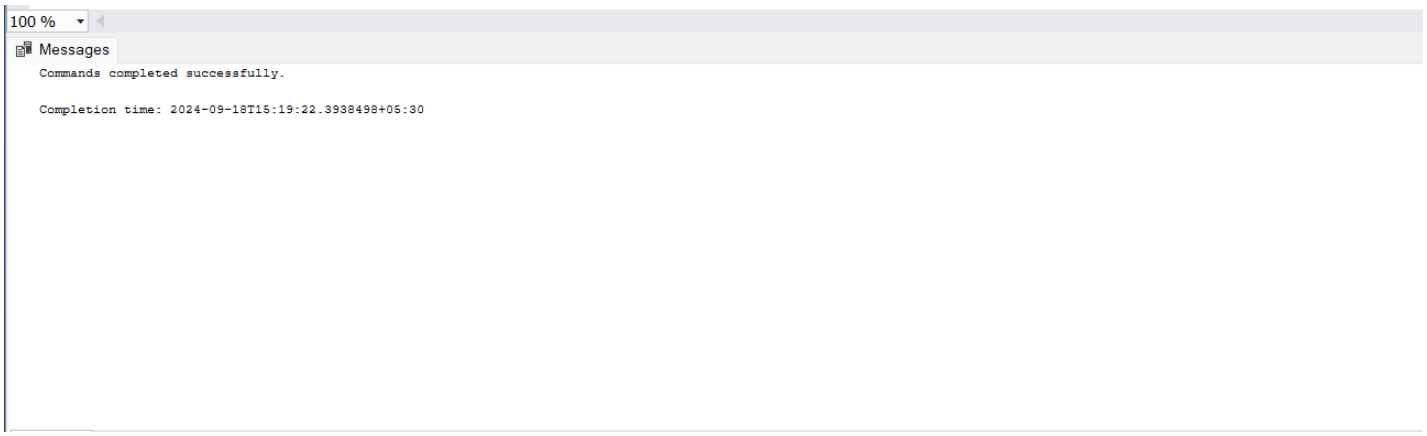


2. Define the schema for the Students, Courses, Enrollments, Teacher, and Payments tables based on the provided schema.

a. Students

Query:

```
CREATE TABLE Students (
    student_id INT PRIMARY KEY IDENTITY(1,1),
    first_name NVARCHAR(50) NOT NULL,
    last_name NVARCHAR(50) NOT NULL,
    date_of_birth DATE,
    email NVARCHAR(100) UNIQUE,
    phone_number NVARCHAR(15)
);
```

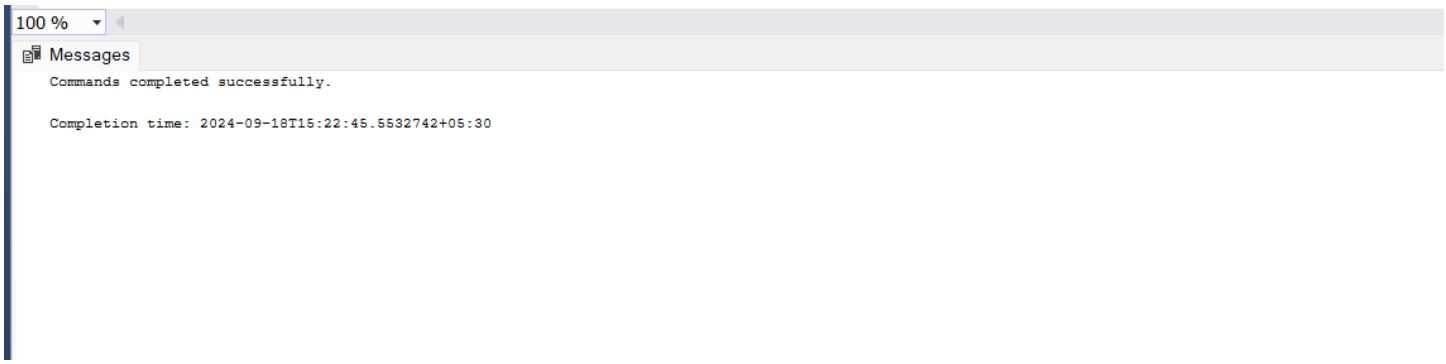


b. Courses

Query:

```
CREATE TABLE Courses (
    course_id INT PRIMARY KEY IDENTITY(1,1),
    course_name NVARCHAR(100) NOT NULL,
    credits INT CHECK (credits > 0),
    teacher_id INT FOREIGN KEY REFERENCES Teacher(teacher_id)
);
```

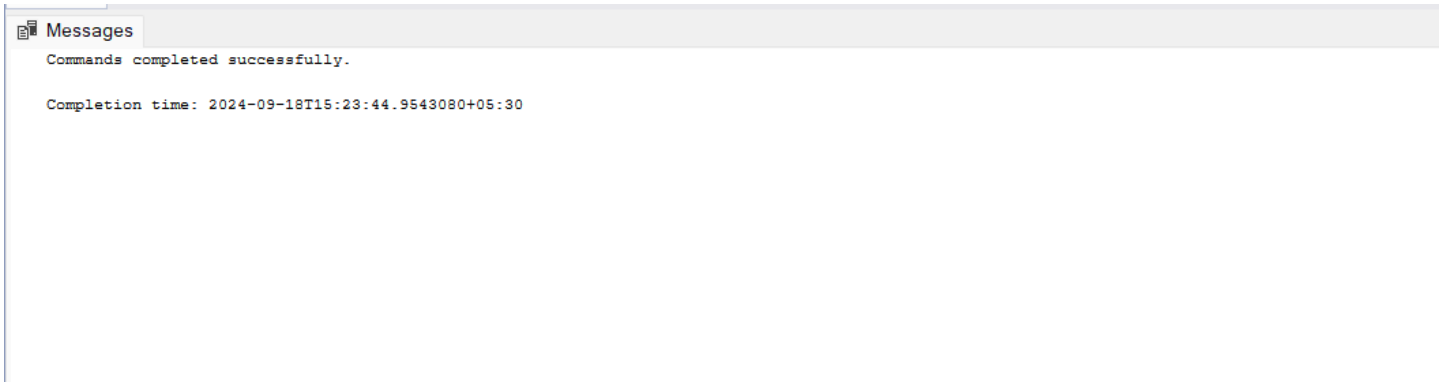
);



c. Enrollments

Query:

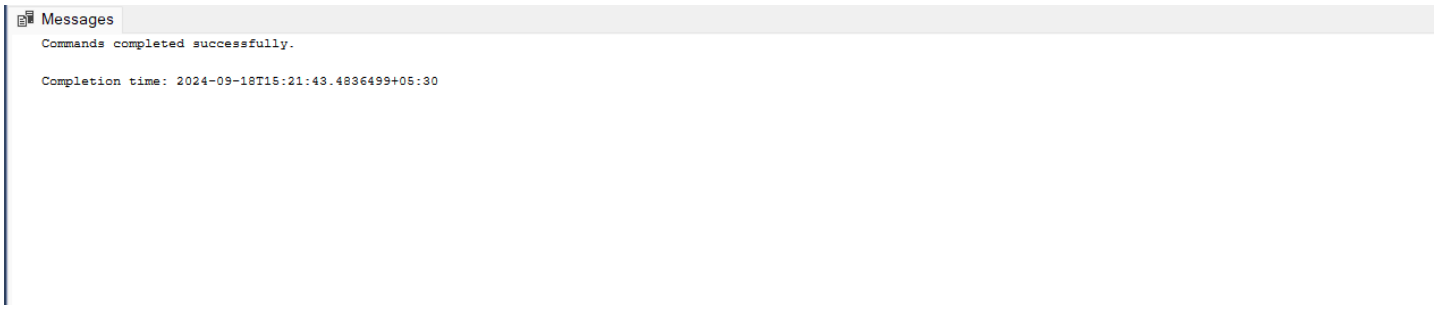
```
CREATE TABLE Enrollments (
    enrollment_id INT PRIMARY KEY IDENTITY(1,1),
    student_id INT FOREIGN KEY REFERENCES Students(student_id),
    course_id INT FOREIGN KEY REFERENCES Courses(course_id),
    enrollment_date DATE
);
```



d. Teacher

Query:

```
CREATE TABLE Teacher (
    teacher_id INT PRIMARY KEY IDENTITY(1,1),
    first_name NVARCHAR(50) NOT NULL,
    last_name NVARCHAR(50) NOT NULL,
    email NVARCHAR(100) UNIQUE
);
```



e. Payments

Query:

```
CREATE TABLE Payments (
    payment_id INT PRIMARY KEY IDENTITY(1,1),
    student_id INT FOREIGN KEY REFERENCES Students(student_id),
    amount DECIMAL(10,2),
    payment_date DATE
);
```

i. Students

Query:

```
INSERT INTO Students VALUES
('Aadhithya', 'Srinivasan', '2001-04-10', 'aadhithya.srinivasan@example.com', '9876543210'),
('Aarushi', 'Narayan', '2000-08-22', 'aarushi.narayan@example.com', '9123456789'),
('Karthik', 'Venugopal', '1999-11-30', 'karthik.venugopal@example.com', '9988776655'),
('Priya', 'Balasubramaniam', '2002-02-14', 'priya.balasubramaniam@example.com', '9876541234'),
('Anirudh', 'Ramasamy', '1998-07-05', 'anirudh.ramasamy@example.com', '9123450987'),
('Divya', 'Rajendran', '2000-10-25', 'divya.rajendran@example.com', '9876098765'),
('Vignesh', 'Iyer', '2001-12-17', 'vignesh.iyer@example.com', '9988771234'),
('Lakshmi', 'Sankaran', '2002-01-09', 'lakshmi.sankaran@example.com', '9876545678'),
('Shyam', 'Kumar', '1999-03-15', 'shyam.kumar@example.com', '9123009876'),
('Sowmya', 'Narayanan', '2003-05-21', 'sowmya.narayanan@example.com', '9988775432');

select * from Students;
```

100 %

Results | Messages

	student_id	first_name	last_name	date_of_birth	email	phone_number
1	1	Aadhithya	Srinivasan	2001-04-10	aadhithya.srinivasan@example.com	9876543210
2	2	Aarushi	Narayan	2000-08-22	aarushi.narayan@example.com	9123456789
3	3	Karthik	Venugopal	1999-11-30	karthik.venugopal@example.com	9988776655
4	4	Priya	Balasubramaniam	2002-02-14	priya.balasubramaniam@example.com	9876541234
5	5	Anirudh	Ramasamy	1998-07-05	anirudh.ramasamy@example.com	9123450987
6	6	Divya	Rajendran	2000-10-25	divya.rajendran@example.com	9876098765
7	7	Vignesh	Iyer	2001-12-17	vignesh.iyer@example.com	9988771234
8	8	Lakshmi	Sankaran	2002-01-09	lakshmi.sankaran@example.com	9876545678
9	9	Shyam	Kumar	1999-03-15	shyam.kumar@example.com	9123009876
10	10	Sowmya	Narayanan	2003-05-21	sowmya.narayanan@example.com	9988775432

ii. Courses

Query:

```
INSERT INTO Courses (course_name, credits, teacher_id) VALUES
('Tamil Literature', 3, 1),
('Mathematics', 4, 2),
('Physics', 4, 3),
('Chemistry', 3, 4),
('Computer Science', 5, 5),
('Biology', 4, 6),
('History', 2, 7),
('Geography', 2, 8),
('Political Science', 3, 9),
('Economics', 4, 10);

select * from Courses;
```

select * from Courses;

Results Messages

	course_id	course_name	credits	teacher_id
1	2	Tamil Literature	3	1
2	3	Mathematics	4	2
3	4	Physics	4	3
4	5	Chemistry	3	4
5	6	Computer Science	5	5
6	7	Biology	4	6
7	8	History	2	7
8	9	Geography	2	8
9	10	Political Science	3	9
10	11	Economics	4	10

iii. Enrollments

Query:

```
INSERT INTO Enrollments (student_id, course_id, enrollment_date) VALUES
(1, 2, '2024-01-15'),
(2, 3, '2024-02-12'),
(3, 4, '2024-03-10'),
(4, 5, '2024-04-08'),
(5, 6, '2024-05-05'),
(6, 7, '2024-06-20'),
(7, 8, '2024-07-15'),
(8, 9, '2024-08-22'),
(9, 10, '2024-09-17'),
(10, 11, '2024-10-05');


SELECT * FROM Enrollments;
```

100 %

Results Messages

	enrollment_id	student_id	course_id	enrollment_date
1	4	1	2	2024-01-15
2	5	2	3	2024-02-12
3	6	3	4	2024-03-10
4	7	4	5	2024-04-08
5	8	5	6	2024-05-05
6	9	6	7	2024-06-20
7	10	7	8	2024-07-15
8	11	8	9	2024-08-22
9	12	9	10	2024-09-17
10	13	10	11	2024-10-05

iv. Teacher

Query:

```
INSERT INTO Teacher (first_name, last_name, email) VALUES
('Ram', 'Narayan', 'ram.narayan@example.com'),
('Janani', 'Sivakumar', 'janani.sivakumar@example.com'),
('Saravanan', 'Raja', 'saravanan.raja@example.com'),
('Muthu', 'Palanisamy', 'muthu.palanisamy@example.com'),
('Vijaya', 'Lakshmi', 'vijaya.lakshmi@example.com'),
('Kamal', 'Mani', 'kamal.mani@example.com'),
('Radhika', 'Sankar', 'radhika.sankar@example.com'),
('Ganesh', 'Perumal', 'ganesh.perumal@example.com'),
('Thiru', 'Arasan', 'thiru.arasan@example.com'),
('Madhavi', 'Natesan', 'madhavi.natesan@example.com');

select * from Teacher;
```

100 %

Results | Messages

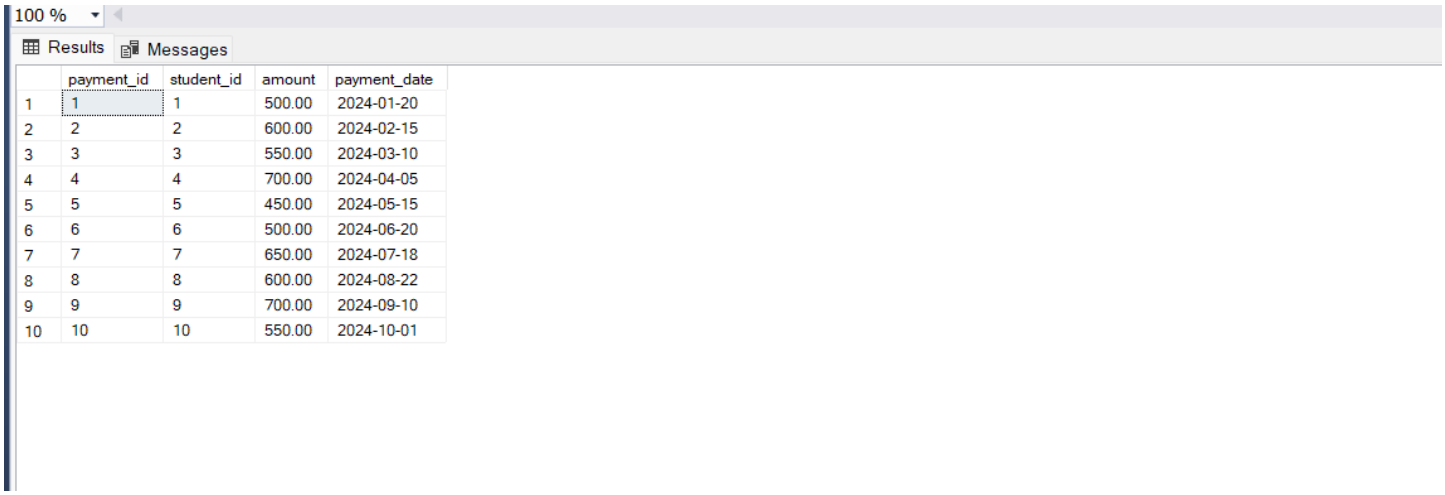
	teacher_id	first_name	last_name	email
1	1	Ram	Narayan	ram.narayan@example.com
2	2	Janani	Sivakumar	janani.sivakumar@example.com
3	3	Saravanan	Raja	saravanan.raja@example.com
4	4	Muthu	Palanisamy	muthu.palanisamy@example.com
5	5	Vijaya	Lakshmi	vijaya.lakshmi@example.com
6	6	Kamal	Mani	kamal.mani@example.com
7	7	Radhika	Sankar	radhika.sankar@example.com
8	8	Ganesh	Perumal	ganesh.perumal@example.com
9	9	Thiru	Arasan	thiru.arasan@example.com
10	10	Madhavi	Natesan	madhavi.natesan@example.com

v. Payments

Query:

```
INSERT INTO Payments VALUES
(1, 500.00, '2024-01-20'),
(2, 600.00, '2024-02-15'),
(3, 550.00, '2024-03-10'),
(4, 700.00, '2024-04-05'),
(5, 450.00, '2024-05-15'),
(6, 500.00, '2024-06-20'),
(7, 650.00, '2024-07-18'),
(8, 600.00, '2024-08-22'),
(9, 700.00, '2024-09-10'),
(10, 550.00, '2024-10-01');


SELECT * FROM Payments;
```



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Results | Messages

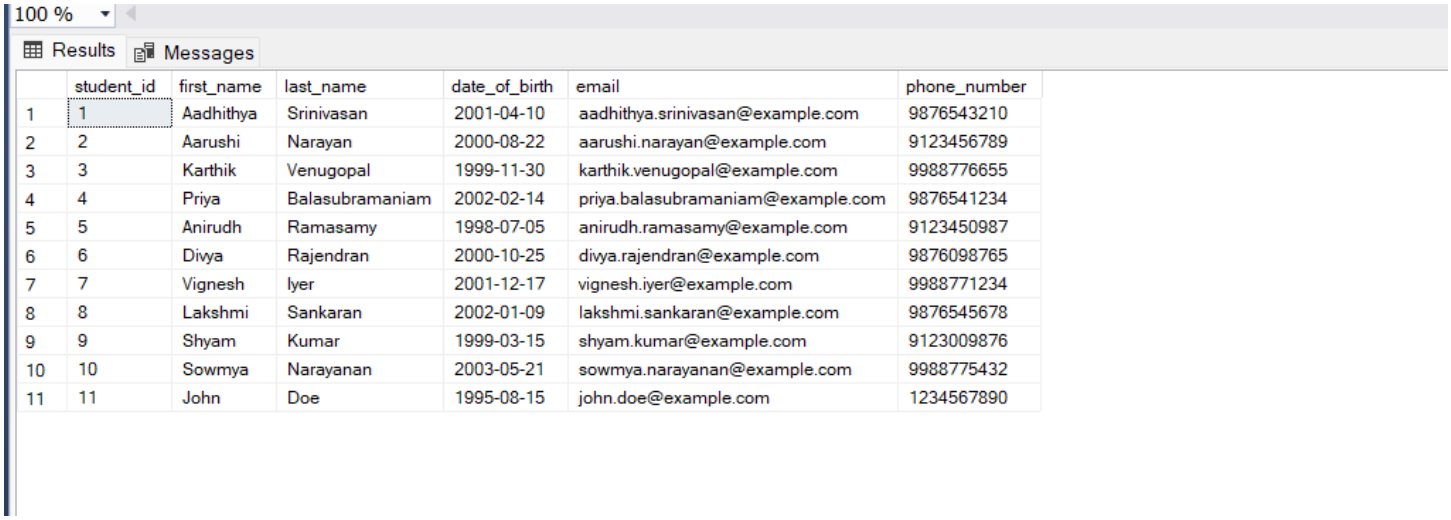
	payment_id	student_id	amount	payment_date
1	1	1	500.00	2024-01-20
2	2	2	600.00	2024-02-15
3	3	3	550.00	2024-03-10
4	4	4	700.00	2024-04-05
5	5	5	450.00	2024-05-15
6	6	6	500.00	2024-06-20
7	7	7	650.00	2024-07-18
8	8	8	600.00	2024-08-22
9	9	9	700.00	2024-09-10
10	10	10	550.00	2024-10-01

Select,Update delete, Where, Between, In, OR, AND, LIKE:

1.Insert:

```
INSERT INTO Students VALUES ('John', 'Doe', '1995-08-15', 'john.doe@example.com', '1234567890');

select * from Students;
```



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Results | Messages

	student_id	first_name	last_name	date_of_birth	email	phone_number
1	1	Aadhithya	Srinivasan	2001-04-10	aadhithya.srinivasan@example.com	9876543210
2	2	Aarushi	Narayan	2000-08-22	aarushi.narayan@example.com	9123456789
3	3	Karthik	Venugopal	1999-11-30	karthik.venugopal@example.com	9988776655
4	4	Priya	Balasubramaniam	2002-02-14	priya.balasubramaniam@example.com	9876541234
5	5	Anirudh	Ramasamy	1998-07-05	anirudh.ramasamy@example.com	9123450987
6	6	Divya	Rajendran	2000-10-25	divya.rajendran@example.com	9876098765
7	7	Vignesh	Iyer	2001-12-17	vignesh.iyer@example.com	9988771234
8	8	Lakshmi	Sankaran	2002-01-09	lakshmi.sankaran@example.com	9876545678
9	9	Shyam	Kumar	1999-03-15	shyam.kumar@example.com	9123009876
10	10	Sowmya	Narayanan	2003-05-21	sowmya.narayanan@example.com	9988775432
11	11	John	Doe	1995-08-15	john.doe@example.com	1234567890

```
INSERT INTO Enrollments
VALUES (1, 2, '2024-09-20');

select * from Enrollments;
```

100 %

Results | Messages

	enrollment_id	student_id	course_id	enrollment_date
1	4	1	2	2024-01-15
2	5	2	3	2024-02-12
3	6	3	4	2024-03-10
4	7	4	5	2024-04-08
5	8	5	6	2024-05-05
6	9	6	7	2024-06-20
7	10	7	8	2024-07-15
8	11	8	9	2024-08-22
9	12	9	10	2024-09-17
10	13	10	11	2024-10-05
11	14	1	2	2024-09-20

1. Update the email address of a specific teacher in the "Teacher" table.

Query:

```
UPDATE Teacher
SET email = 'newemail@example.com'
WHERE teacher_id = 1;

select * from Teacher;
```

100 %

Results | Messages

	teacher_id	first_name	last_name	email
1	1	Ram	Narayan	newemail@example.com
2	2	Janani	Sivakumar	janani.sivakumar@example.com
3	3	Saravanan	Raja	saravanan.raja@example.com
4	4	Muthu	Palanisamy	muthu.palanisamy@example.com
5	5	Vijaya	Lakshmi	vijaya.lakshmi@example.com
6	6	Kamal	Mani	kamal.mani@example.com
7	7	Radhika	Sankar	radhika.sankar@example.com
8	8	Ganesh	Perumal	ganesh.perumal@example.com
9	9	Thiru	Arasan	thiru.arasan@example.com
10	10	Madhavi	Natesan	madhavi.natesan@example.com

2. Write an SQL query to delete a specific enrollment record from the "Enrollments" table.

Query:

```
DELETE FROM Enrollments
WHERE student_id = 1 AND course_id = 2;

select * from Enrollments;
```

100 %

Results | Messages

	enrollment_id	student_id	course_id	enrollment_date
1	5	2	3	2024-02-12
2	6	3	4	2024-03-10
3	7	4	5	2024-04-08
4	8	5	6	2024-05-05
5	9	6	7	2024-06-20
6	10	7	8	2024-07-15
7	11	8	9	2024-08-22
8	12	9	10	2024-09-17
9	13	10	11	2024-10-05

3. Update the "Courses" table to assign a specific teacher to a course.

Query:

```
UPDATE Courses
SET teacher_id = 2
WHERE course_id = 3;

select * from Courses;
```

100 %

Results | Messages

	course_id	course_name	credits	teacher_id
1	2	Tamil Literature	3	1
2	3	Mathematics	4	2
3	4	Physics	4	3
4	5	Chemistry	3	4
5	6	Computer Science	5	5
6	7	Biology	4	6
7	8	History	2	7
8	9	Geography	2	8
9	10	Political Science	3	9
10	11	Economics	4	10

4. Delete a specific student from the "Students" table and remove all their enrollment records from the "Enrollments" table.

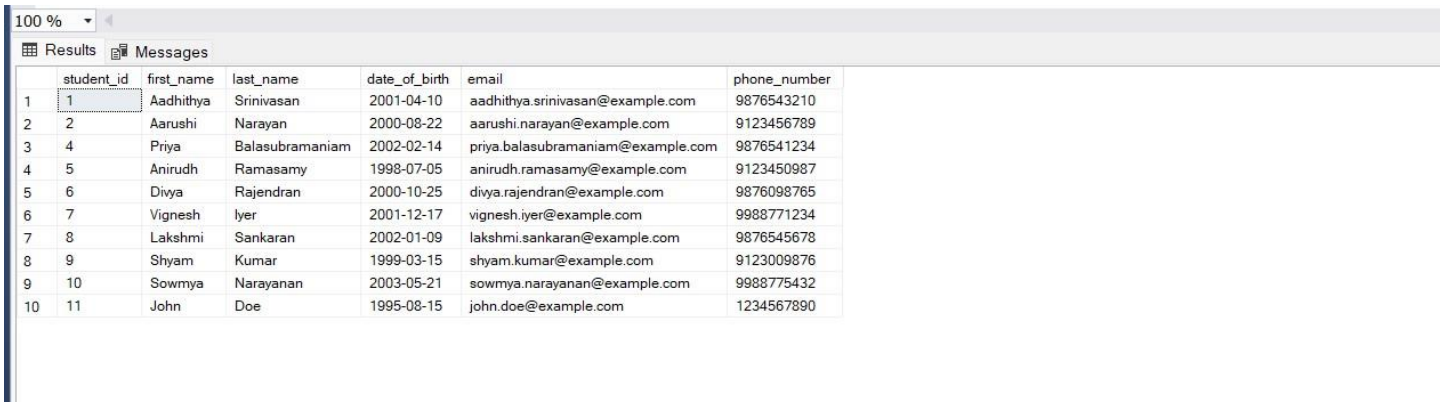
Query:

```
DELETE FROM Payments
WHERE student_id = 3;

DELETE FROM Enrollments
WHERE student_id = 3;

DELETE FROM Students
WHERE student_id = 3;

select * from Students;
select * from Enrollments;
```



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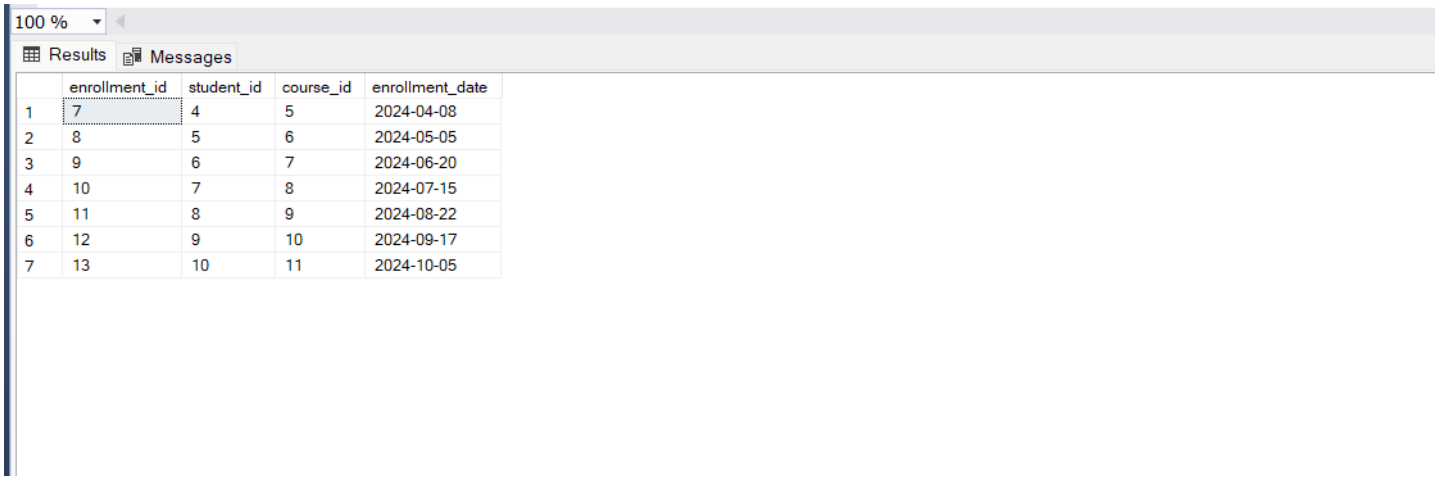
Results | Messages

	student_id	first_name	last_name	date_of_birth	email	phone_number
1	1	Aadhithya	Srinivasan	2001-04-10	aadhithya.srinivasan@example.com	9876543210
2	2	Aarushi	Narayan	2000-08-22	aarushi.narayan@example.com	9123456789
3	4	Priya	Balasubramaniam	2002-02-14	priya.balasubramaniam@example.com	9876541234
4	5	Anirudh	Ramasamy	1998-07-05	anirudh.ramasamy@example.com	9123450987
5	6	Divya	Rajendran	2000-10-25	divya.rajendran@example.com	9876098765
6	7	Vignesh	Iyer	2001-12-17	vignesh.iyer@example.com	9988771234
7	8	Lakshmi	Sankaran	2002-01-09	lakshmi.sankaran@example.com	9876545678
8	9	Shyam	Kumar	1999-03-15	shyam.kumar@example.com	9123009876
9	10	Sowmya	Narayanan	2003-05-21	sowmya.narayanan@example.com	9988775432
10	11	John	Doe	1995-08-15	john.doe@example.com	1234567890



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Results | Messages

	enrollment_id	student_id	course_id	enrollment_date
1	7	4	5	2024-04-08
2	8	5	6	2024-05-05
3	9	6	7	2024-06-20
4	10	7	8	2024-07-15
5	11	8	9	2024-08-22
6	12	9	10	2024-09-17
7	13	10	11	2024-10-05

5. Update the payment amount for a specific payment record in the "Payments" table.

Query:

```
UPDATE Payments
SET amount = 750.00
WHERE payment_id = 1;

select * from Payments;
```

100 %

Results | Messages

	payment_id	student_id	amount	payment_date
1	1	1	750.00	2024-01-20
2	2	2	600.00	2024-02-15
3	4	4	700.00	2024-04-05
4	5	5	450.00	2024-05-15
5	6	6	500.00	2024-06-20
6	7	7	650.00	2024-07-18
7	8	8	600.00	2024-08-22
8	9	9	700.00	2024-09-10
9	10	10	550.00	2024-10-01

6.Retrieving Specific Attributes:

Query:

```
select student_id,first_name
from Students;
```

Output:

91 %

Results | Messages

	student_id	first_name
1	1	Aadhithya
2	2	Aarushi
3	3	Karthik
4	4	Priya
5	5	Anirudh
6	6	Divya
7	7	Vignesh
8	8	Lakshmi
9	9	Shyam
10	10	Sowmya
11	11	John
12	12	Jane

7. Retrieve selected Rows:

```
select *
from Students
where student_id in (1,3,5,6);
```

91 %

Results | Messages

	student_id	first_name	last_name	date_of_birth	email	phone_number	outstanding_balance
1	1	Aadhithya	Srinivasan	2001-04-10	aadhithya.srinivasan@example.com	9876543210	NULL
2	3	Karthik	Venugopal	1999-11-30	karthik.venugopal@example.com	9988776655	NULL
3	5	Anirudh	Ramasamy	1998-07-05	anirudh.ramasamy@example.com	9123450987	NULL
4	6	Divya	Rajendran	2000-10-25	divya.rajendran@example.com	9876098765	NULL

```
select *
from Students
where student_id = 3 or last_name='Venugopal';
```

91 %

Results | Messages

	student_id	first_name	last_name	date_of_birth	email	phone_number	outstanding_balance
1	3	Karthik	Venugopal	1999-11-30	karthik.venugopal@example.com	9988776655	NULL

```
select *
from Students
where first_name like 'A%';
```

91 %

Results | Messages

	student_id	first_name	last_name	date_of_birth	email	phone_number	outstanding_balance
1	1	Aadhithya	Srinivasan	2001-04-10	aadhithya.srinivasan@example.com	9876543210	NULL
2	2	Aarushi	Narayan	2000-08-22	aarushi.narayan@example.com	9123456789	NULL
3	5	Anirudh	Ramasamy	1998-07-05	anirudh.ramasamy@example.com	9123450987	NULL