

Coding challenge – Car Rental System – Sarthak Londhey

1. Update the daily rate for a Mercedes car to 68.

```
UPDATE Vehicle
SET dailyRate = 68.00
WHERE make = 'Mercedes';

select * from Vehicle;
```

119 %

Results Messages

	vehicleID	make	model	year	dailyRate	status	passengerCapacity	engineCapacity
1	1	Toyota	Camry	2022	50.00	available	4	1450
2	2	Honda	Civic	2023	45.00	available	7	1500
3	3	Ford	Focus	2022	48.00	notAvailable	4	1400
4	4	Nissan	Altima	2023	52.00	available	7	1200
5	5	Chevrolet	Malibu	2022	47.00	available	4	1800
6	6	Hyundai	Sonata	2023	49.00	notAvailable	7	1400
7	7	BMW	3 Series	2023	60.00	available	7	2499
8	8	Mercedes	C-Class	2022	68.00	available	8	2599
9	9	Audi	A4	2022	55.00	notAvailable	4	2500
10	10	Lexus	ES	2023	54.00	available	4	2500

2. Delete a specific customer and all associated leases and payments.

```
DELETE FROM Payment
WHERE leaseID IN (SELECT leaseID FROM Lease WHERE customerID = 3);

DELETE FROM Lease
WHERE customerID = 3;

DELETE FROM Customer
WHERE customerID = 3;

select * from Payment;
```

119 %

Results Messages

	paymentID	leaseID	paymentDate	amount
1	1	1	2023-01-03	200.00
2	2	2	2023-02-20	1000.00
3	4	4	2023-04-25	900.00
4	5	5	2023-05-07	60.00
5	7	7	2023-07-03	40.00
6	8	8	2023-08-14	1100.00
7	10	10	2023-10-25	1500.00

3. Rename the "paymentDate" column in the Payment table to "transactionDate".

```
EXEC sp_rename 'Payment.paymentDate', 'transactionDate', 'COLUMN';

select * from Payment;
```

119 %

Results Messages

	paymentID	leaseID	transactionDate	amount
1	1	1	2023-01-03	200.00
2	2	2	2023-02-20	1000.00
3	4	4	2023-04-25	900.00
4	5	5	2023-05-07	60.00
5	7	7	2023-07-03	40.00
6	8	8	2023-08-14	1100.00
7	10	10	2023-10-25	1500.00

4. Find a specific customer by email.

```
SELECT *
FROM Customer
WHERE email = 'sarah@example.com';

select * from Customer;
```

119 %

Results Messages

	customerID	firstName	lastName	email	phoneNumber
1	4	Sarah	Brown	sarah@example.com	555-456-7890

5. Get active leases for a specific customer.

```
DECLARE @customerID INT = 5;

SELECT DISTINCT C.customerID, C.firstName, C.lastName, C.email, C.phoneNumber
FROM Lease L
JOIN Customer C ON L.customerID = C.customerID
WHERE C.customerID=@customerID;
```

100 %

Results Messages

	customerID	firstName	lastName	email	phoneNumber
1	5	David	Lee	david@example.com	555-987-6543

6. Find all payments made by a customer with a specific phone number.

```
DECLARE @phoneNumber NVARCHAR(20) = '555-456-7890';

SELECT P.paymentID, P.leaseID, P.transactionDate, P.amount
FROM Payment P
JOIN Lease L ON P.leaseID = L.leaseID
JOIN Customer C ON L.customerID = C.customerID
WHERE C.phoneNumber = @phoneNumber;
```

100 %

Results Messages

	paymentID	leaseID	transactionDate	amount
1	4	4	2023-04-25	900.00

7. Calculate the average daily rate of all available cars.

```
SELECT AVG(dailyRate) AS averageDailyRate
FROM Vehicle
WHERE status = 'available';
```

100 %

Results Messages

	averageDailyRate
1	53.714285

8. Find the car with the highest daily rate.

```
SELECT TOP 1 *  
FROM Vehicle  
ORDER BY dailyRate DESC;
```

100 %

Results Messages

	vehicleID	make	model	year	dailyRate	status	passengerCapacity	engineCapacity
1	8	Mercedes	C-Class	2022	68.00	available	8	2599

9. Retrieve all cars leased by a specific customer.

```
--9  
SELECT V.*  
FROM Vehicle V  
JOIN Lease L ON V.vehicleID = L.vehicleID  
JOIN Customer C ON L.customerID = C.customerID  
WHERE C.customerID = 4;
```

100 %

Results Messages

	vehicleID	make	model	year	dailyRate	status	passengerCapacity	engineCapacity
1	4	Nissan	Altima	2023	52.00	available	7	1200

10. Find the details of the most recent lease.

```
SELECT TOP 1 *  
FROM Lease  
ORDER BY endDate DESC;
```

100 %

Results Messages

	leaseID	vehicleID	customerID	startDate	endDate	type
1	10	10	10	2023-10-10	2023-10-31	Monthly

11. List all payments made in the year 2023.

```
SELECT *
FROM Payment
WHERE YEAR(transactionDate) = 2023;
```

	paymentID	leaseID	transactionDate	amount
1	1	1	2023-01-03	200.00
2	2	2	2023-02-20	1000.00
3	4	4	2023-04-25	900.00
4	5	5	2023-05-07	60.00
5	7	7	2023-07-03	40.00
6	8	8	2023-08-14	1100.00
7	10	10	2023-10-25	1500.00

12. Retrieve customers who have not made any payments.

```
SELECT C.*
FROM Customer C
LEFT JOIN Lease L ON C.customerID = L.customerID
LEFT JOIN Payment P ON L.leaseID = P.leaseID
WHERE P.paymentID IS NULL;
```

	customerID	firstName	lastName	email	phoneNumber
1	6	Laura	Hall	laura@example.com	555-234-5678
2	9	William	Taylor	william@example.com	555-321-6547

13. Retrieve Car Details and Their Total Payments.

```
SELECT V.vehicleID, V.make, V.model, V.year, V.dailyRate,
ISNULL(SUM(P.amount), 0) AS totalPayments
FROM Vehicle V
LEFT JOIN Lease L ON V.vehicleID = L.vehicleID
LEFT JOIN Payment P ON L.leaseID = P.leaseID
GROUP BY V.vehicleID, V.make, V.model, V.year, V.dailyRate
ORDER BY V.vehicleID;
```

	vehicleID	make	model	year	dailyRate	totalPayments
1	1	Toyota	Camry	2022	50.00	200.00
2	2	Honda	Civic	2023	45.00	1000.00
3	3	Ford	Focus	2022	48.00	0.00
4	4	Nissan	Altima	2023	52.00	900.00
5	5	Chevrolet	Malibu	2022	47.00	60.00
6	6	Hyundai	Sonata	2023	49.00	0.00
7	7	BMW	3 Series	2023	60.00	40.00
8	8	Mercedes	C-Class	2022	68.00	1100.00
9	9	Audi	A4	2022	55.00	0.00
10	10	Lexus	ES	2023	54.00	1500.00

14. Calculate Total Payments for Each Customer.

```
SELECT C.customerID, C.firstName, C.lastName, C.email, C.phoneNumber,
       ISNULL(SUM(P.amount), 0) AS totalPayments
FROM Customer C
LEFT JOIN Lease L ON C.customerID = L.customerID
LEFT JOIN Payment P ON L.leaseID = P.leaseID
GROUP BY C.customerID, C.firstName, C.lastName, C.email, C.phoneNumber
ORDER BY C.customerID;
```

	customerID	firstName	lastName	email	phoneNumber	totalPayments
1	1	John	Doe	johndoe@example.com	555-555-5555	200.00
2	2	Jane	Smith	janesmith@example.com	555-123-4567	1000.00
3	4	Sarah	Brown	sarah@example.com	555-456-7890	900.00
4	5	David	Lee	david@example.com	555-987-6543	60.00
5	6	Laura	Hall	laura@example.com	555-234-5678	0.00
6	7	Michael	Davis	michael@example.com	555-876-5432	40.00
7	8	Emma	Wilson	emma@example.com	555-432-1098	1100.00
8	9	William	Taylor	william@example.com	555-321-6547	0.00
9	10	Olivia	Adams	olivia@example.com	555-765-4321	1500.00

15. List Car Details for Each Lease.

```
SELECT L.leaseID, L.vehicleID, L.customerID, L.startDate, L.endDate, L.type AS leaseType,
       V.make, V.model, V.year, V.dailyRate, V.status, V.passengerCapacity, V.engineCapacity
FROM Lease L
JOIN Vehicle V ON L.vehicleID = V.vehicleID
ORDER BY L.leaseID;
```

	leaseID	vehicleID	customerID	startDate	endDate	leaseType	make	model	year	dailyRate	status	passengerCapacity	engineCapacity
1	1	1	1	2023-01-01	2023-01-05	Daily	Toyota	Camry	2022	50.00	available	4	1450
2	2	2	2	2023-02-15	2023-02-28	Monthly	Honda	Civic	2023	45.00	available	7	1500
3	4	4	4	2023-04-20	2023-04-30	Monthly	Nissan	Altima	2023	52.00	available	7	1200
4	5	5	5	2023-05-05	2023-05-10	Daily	Chevrolet	Malibu	2022	47.00	available	4	1800
5	7	7	7	2023-07-01	2023-07-10	Daily	BMW	3 Series	2023	60.00	available	7	2499
6	8	8	8	2023-08-12	2023-08-15	Monthly	Mercedes	C-Class	2022	68.00	available	8	2599
7	10	10	10	2023-10-10	2023-10-31	Monthly	Lexus	ES	2023	54.00	available	4	2500

16. Retrieve Details of Active Leases with Customer and Car Information.

```
DECLARE @currentDate DATE = '2023-05-06';

SELECT L.leaseID, L.vehicleID, V.make, V.model, V.year, V.dailyRate,
       L.customerID, C.firstName, C.lastName, C.email, C.phoneNumber,
       L.startDate, L.endDate, L.type AS leaseType
FROM Lease L
JOIN Vehicle V ON L.vehicleID = V.vehicleID
JOIN Customer C ON L.customerID = C.customerID
WHERE @currentDate BETWEEN L.startDate AND L.endDate
ORDER BY L.leaseID;
```

	leaseID	vehicleID	make	model	year	dailyRate	customerID	firstName	lastName	email	phoneNumber	startDate	endDate	leaseType
1	5	5	Chevrolet	Malibu	2022	47.00	5	David	Lee	david@example.com	555-987-6543	2023-05-05	2023-05-10	Daily

17. Find the Customer Who Has Spent the Most on Leases.

```

SELECT TOP 1
    C.customerID,
    C.firstName,
    C.lastName,
    C.email,
    C.phoneNumber,
    SUM(P.amount) AS totalSpent
FROM Customer C
JOIN Lease L ON C.customerID = L.customerID
JOIN Payment P ON L.leaseID = P.leaseID
GROUP BY C.customerID, C.firstName, C.lastName, C.email, C.phoneNumber
ORDER BY totalSpent DESC;

```

100 %

Results Messages

	customerID	firstName	lastName	email	phoneNumber	totalSpent
1	10	Olivia	Adams	olivia@example.com	555-765-4321	1500.00

18. List All Cars with Their Current Lease Information.

```

SELECT
    V.vehicleID,
    V.make,
    V.model,
    V.year,
    V.dailyRate,
    V.status,
    L.leaseID,
    L.customerID,
    L.startDate,
    L.endDate,
    L.type as leaseType
FROM Vehicle V
LEFT JOIN Lease L on V.vehicleID=L.vehicleID;

```

100 %

Results Messages

	vehicleID	make	model	year	dailyRate	status	leaseID	customerID	startDate	endDate	leaseType
1	1	Toyota	Camry	2022	50.00	available	1	1	2023-01-01	2023-01-05	Daily
2	2	Honda	Civic	2023	45.00	available	2	2	2023-02-15	2023-02-28	Monthly
3	3	Ford	Focus	2022	48.00	notAvailable	NULL	NULL	NULL	NULL	NULL
4	4	Nissan	Altima	2023	52.00	available	4	4	2023-04-20	2023-04-30	Monthly
5	5	Chevrolet	Malibu	2022	47.00	available	5	5	2023-05-05	2023-05-10	Daily
6	6	Hyundai	Sonata	2023	49.00	notAvailable	NULL	NULL	NULL	NULL	NULL
7	7	BMW	3 Series	2023	60.00	available	7	7	2023-07-01	2023-07-10	Daily
8	8	Mercedes	C-Class	2022	68.00	available	8	8	2023-08-12	2023-08-15	Monthly
9	9	Audi	A4	2022	55.00	notAvailable	NULL	NULL	NULL	NULL	NULL
10	10	Lexus	ES	2023	54.00	available	10	10	2023-10-10	2023-10-31	Monthly

Query executed successfully.