# **Coding Challenge: Car Rental System**

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

```
UPDATE Vehicle
SET dailyRate = 68.00
WHERE make = 'Mercedes';
select * from vehicle;
```

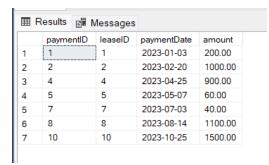
|    | vehicleID | make      | model    | year | dailyRate | status       | passengerCapacity | engineCapacity |
|----|-----------|-----------|----------|------|-----------|--------------|-------------------|----------------|
| 1  | 1         | Toyota    | Camry    | 2022 | 50.00     | available    | 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);

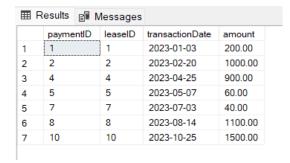
DELETE FROM Lease
WHERE customerID = 3;

DELETE FROM Customer
WHERE customerID = 3;
select * from payment;
```



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

```
EXEC sp_rename 'Payment.paymentDate', 'transactionDate', 'COLUMN';
select * from payment;
```



### 4. Find a specific customer by email.



### 5. Get active leases for a specific customer.

paymentID

4

leaseID



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

amount

900.00

transactionDate

2023-04-25

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

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

Results Messages

averageDailyRate
1 53.714285
```

# 8. Find the car with the highest daily rate.

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



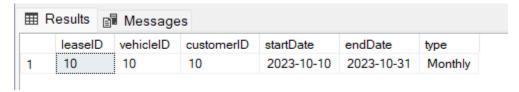
# 9. Retrieve all cars leased by a specific customer.

```
SELECT V.* FROM Vehicle V
JOIN Lease L ON V.vehicleID = L.vehicleID
JOIN Customer C ON L.customerID = C.customerID
WHERE C.phoneNumber = '555-456-7890';
```



#### 10. Find the details of the most recent lease.

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



# 11. List all payments made in the year 2023.

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

| ⊞ F | Results 📳 N | 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 |

#### 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;
```



#### 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;
```



### 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       |
| 3 | 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;
```



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



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

#### 18. List All Cars with Their Current Lease Information.

