Hexaware Foundation Training (MSSql & Python)
SQL Coding Challenge(Car Rental System)

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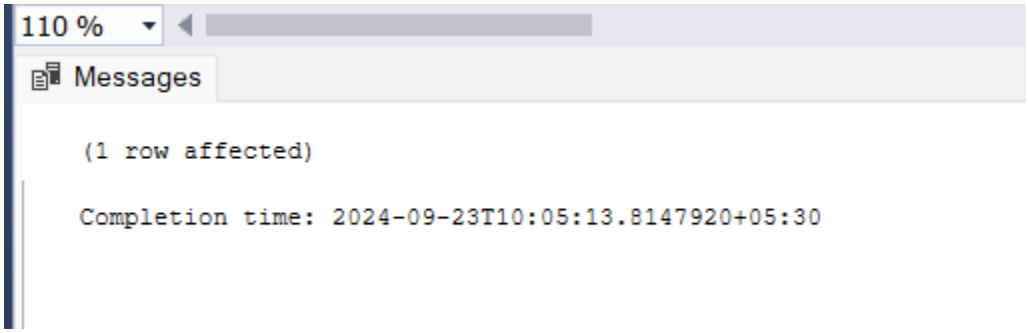
Date: 18-09-2024

Tasks:

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

```
UPDATE Vehicle
SET dailyRate = 68
WHERE make = 'Mercedes' AND model = 'C-Class';
select * from Vehicle WHERE make = 'Mercedes';
```



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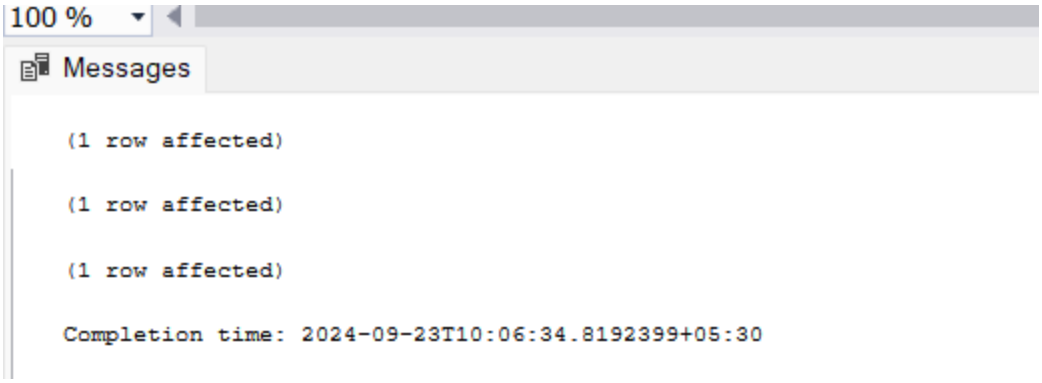
Results | Messages

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

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

```
DELETE FROM Payment WHERE leaseID IN (SELECT leaseID FROM Lease WHERE customerID = 2);
DELETE FROM Lease WHERE customerID = 2;
DELETE FROM Customer WHERE customerID = 2;
```



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

Query:

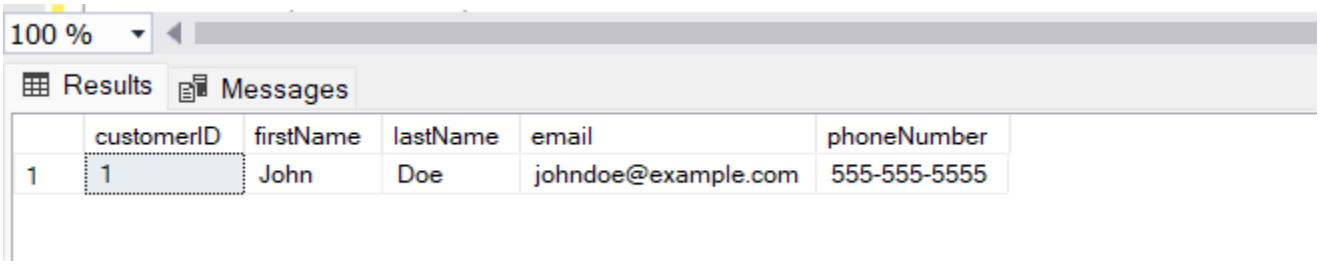
```
EXEC sp_rename 'Payment.paymentDate', 'transactionDate', 'COLUMN';
select * from Payment;
```

	paymentID	leaseID	transactionDate	amount
1	1	1	2023-01-03	200.00
2	3	3	2023-03-12	75.00
3	4	4	2023-04-25	900.00
4	5	5	2023-05-07	60.00
5	6	6	2023-06-18	1200.00
6	7	7	2023-07-03	40.00
7	8	8	2023-08-14	1100.00
8	9	9	2023-09-09	80.00
9	10	10	2023-10-25	1500.00

4. Find a specific customer by email.

Query:

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

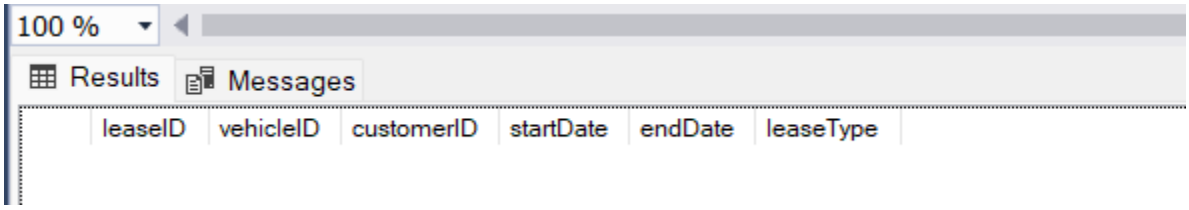


	customerID	firstName	lastName	email	phoneNumber
1	1	John	Doe	johndoe@example.com	555-555-5555

5. Get active leases for a specific customer.

Query:

```
SELECT * FROM Lease
WHERE customerID = 3 AND endDate >= GETDATE();
```

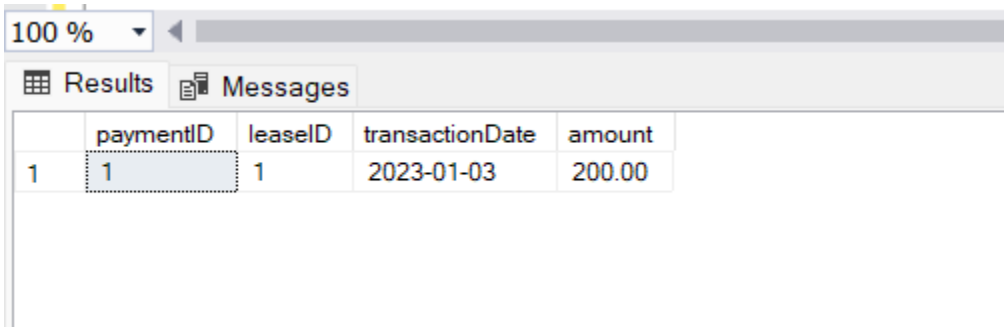


This indicates that there are no active leases for the customer with customerId-3.

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

Query:

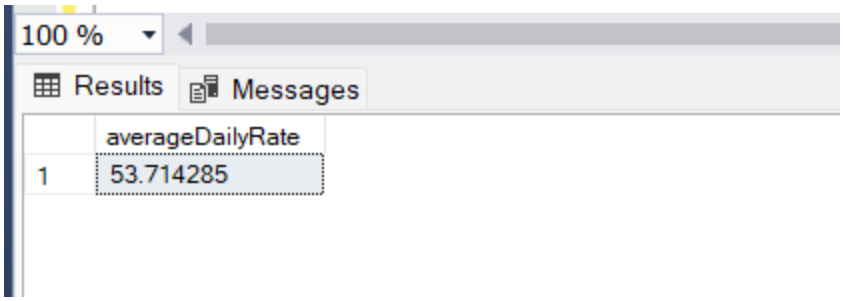
```
SELECT P.*
FROM Payment P
JOIN Lease L ON P.leaseID = L.leaseID
JOIN Customer C ON L.customerID = C.customerID
WHERE C.phoneNumber = '555-555-5555';
```



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

Query:

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



	averageDailyRate
1	53.714285

8. Find the car with the highest daily rate.

Query:

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

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.

Query:

```
SELECT V.*
FROM Vehicle V
JOIN Lease L ON V.vehicleID = L.vehicleID
WHERE L.customerID = 3;
```

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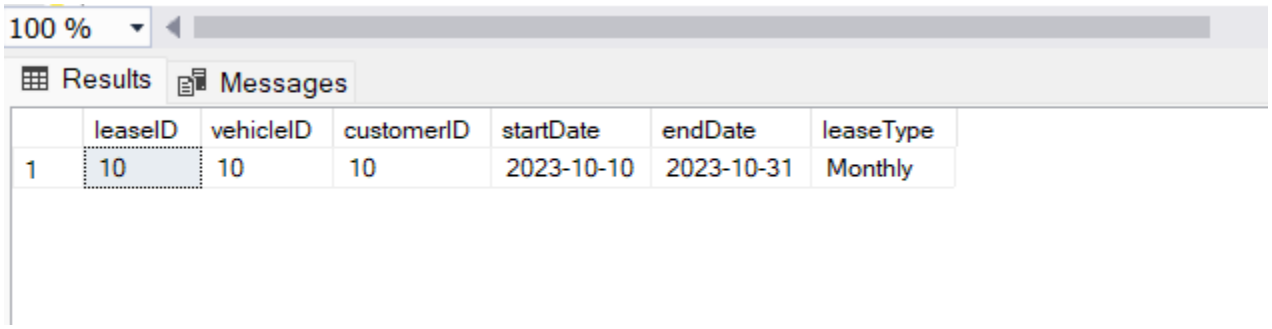
Results Messages

	vehicleID	make	model	year	dailyRate	status	passengerCapacity	engineCapacity
1	3	Ford	Focus	2022	48.00	notAvailable	4	1400
2	4	Nissan	Altima	2023	52.00	available	7	1200
3	3	Ford	Focus	2022	48.00	notAvailable	4	1400

10. Find the details of the most recent lease.

Query:

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



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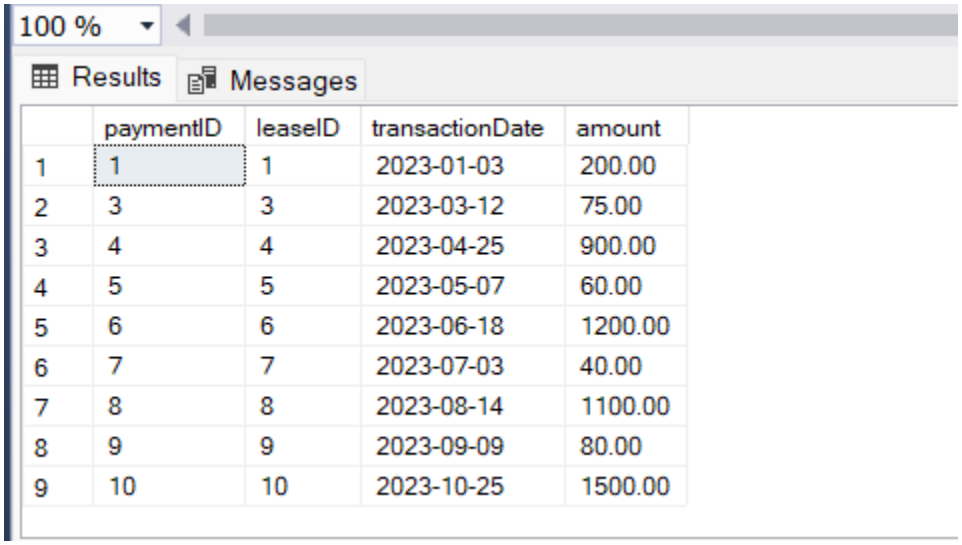
Results | Messages

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

11. List all payments made in the year 2023.

Query:

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



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Results | Messages

	paymentID	leaseID	transactionDate	amount
1	1	1	2023-01-03	200.00
2	3	3	2023-03-12	75.00
3	4	4	2023-04-25	900.00
4	5	5	2023-05-07	60.00
5	6	6	2023-06-18	1200.00
6	7	7	2023-07-03	40.00
7	8	8	2023-08-14	1100.00
8	9	9	2023-09-09	80.00
9	10	10	2023-10-25	1500.00

12. Retrieve customers who have not made any payments.

Query:

```
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;
```

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Results | Messages

	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.

Query:

```
SELECT V.*, SUM(P.amount) AS totalPayments
FROM Vehicle V
JOIN Lease L ON V.vehicleID = L.vehicleID
JOIN Payment P ON L.leaseID = P.leaseID
GROUP BY V.vehicleID, V.make, V.model, V.year, V.dailyRate, V.status, V.passengerCapacity, V.engineCapacity;
```

Results | Messages

	vehicleID	make	model	year	dailyRate	status	passengerCapacity	engineCapacity	totalPayments
1	1	Toyota	Camry	2022	50.00	available	4	1450	200.00
2	3	Ford	Focus	2022	48.00	notAvailable	4	1400	155.00
3	4	Nissan	Altima	2023	52.00	available	7	1200	2100.00
4	5	Chevrolet	Malibu	2022	47.00	available	4	1800	60.00
5	7	BMW	3 Series	2023	60.00	available	7	2499	40.00
6	8	Mercedes	C-Class	2022	68.00	available	8	2599	1100.00
7	10	Lexus	ES	2023	54.00	available	4	2500	1500.00

14. Calculate Total Payments for Each Customer.

Query:

```
SELECT C.*, SUM(P.amount) AS totalPayments
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;
```

100 %

Results | Messages

	customerID	firstName	lastName	email	phoneNumber	totalPayments
1	1	John	Doe	johndoe@example.com	555-555-5555	200.00
2	3	Robert	Johnson	robert@example.com	555-789-1234	1355.00
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	7	Michael	Davis	michael@example.com	555-876-5432	40.00
6	8	Emma	Wilson	emma@example.com	555-432-1098	1100.00
7	10	Olivia	Adams	olivia@example.com	555-765-4321	1500.00

15. List Car Details for Each Lease.

Query:

```
SELECT L.*, V.make, V.model, V.year
FROM Lease L
JOIN Vehicle V ON L.vehicleID = V.vehicleID;
```

100 %

Results | Messages

	leaseID	vehicleID	customerID	startDate	endDate	leaseType	make	model	year
1	1	1	1	2023-01-01	2023-01-05	Daily	Toyota	Camry	2022
2	3	3	3	2023-03-10	2023-03-15	Daily	Ford	Focus	2022
3	4	4	4	2023-04-20	2023-04-30	Monthly	Nissan	Altima	2023
4	5	5	5	2023-05-05	2023-05-10	Daily	Chevrolet	Malibu	2022
5	6	4	3	2023-06-15	2023-06-30	Monthly	Nissan	Altima	2023
6	7	7	7	2023-07-01	2023-07-10	Daily	BMW	3 Series	2023
7	8	8	8	2023-08-12	2023-08-15	Monthly	Mercedes	C-Class	2022
8	9	3	3	2023-09-07	2023-09-10	Daily	Ford	Focus	2022
9	10	10	10	2023-10-10	2023-10-31	Monthly	Lexus	ES	2023

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

Query:

```
SELECT L.*, C.firstName, C.lastName, V.make, V.model, V.year
FROM Lease L
JOIN Customer C ON L.customerID = C.customerID
JOIN Vehicle V ON L.vehicleID = V.vehicleID
WHERE L.endDate >= GETDATE();
```

100 %

Results | Messages

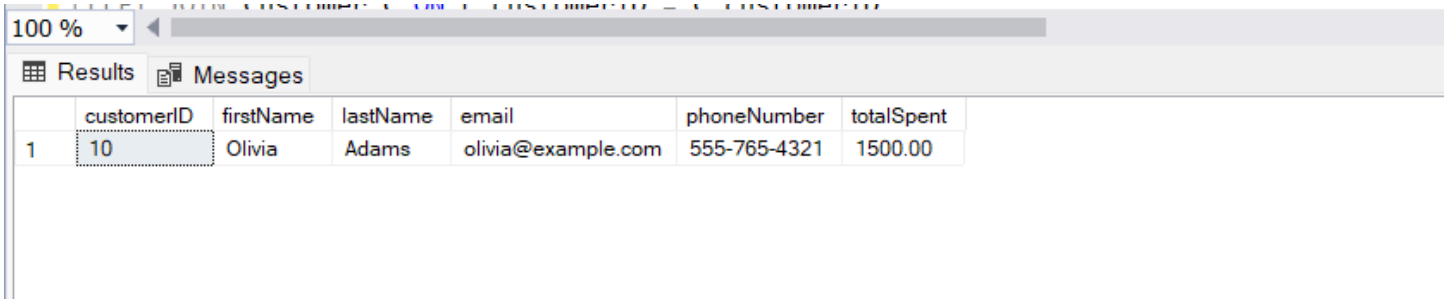
leaseID	vehicleID	customerID	startDate	endDate	leaseType	firstName	lastName	make	model	year

There are no active leases by the given data as of 23-09-2024.

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

Query:

```
SELECT TOP 1 C.*, 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;
```



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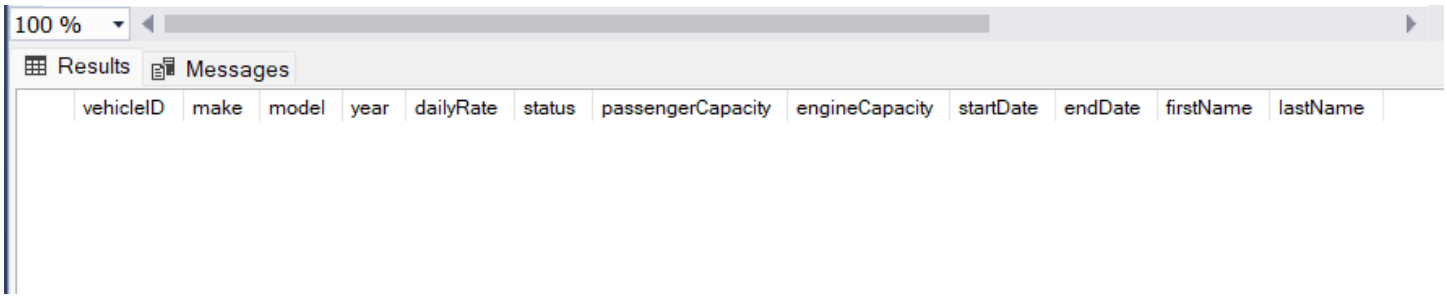
Results | Messages

	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.

Query:

```
SELECT V.*, L.startDate, L.endDate, C.firstName, C.lastName
FROM Vehicle V
LEFT JOIN Lease L ON V.vehicleID = L.vehicleID
LEFT JOIN Customer C ON L.customerID = C.customerID
WHERE L.endDate >= GETDATE();
```



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Results | Messages

vehicleID	make	model	year	dailyRate	status	passengerCapacity	engineCapacity	startDate	endDate	firstName	lastName

There are no current leases because the given data had only leases active till 2023.