

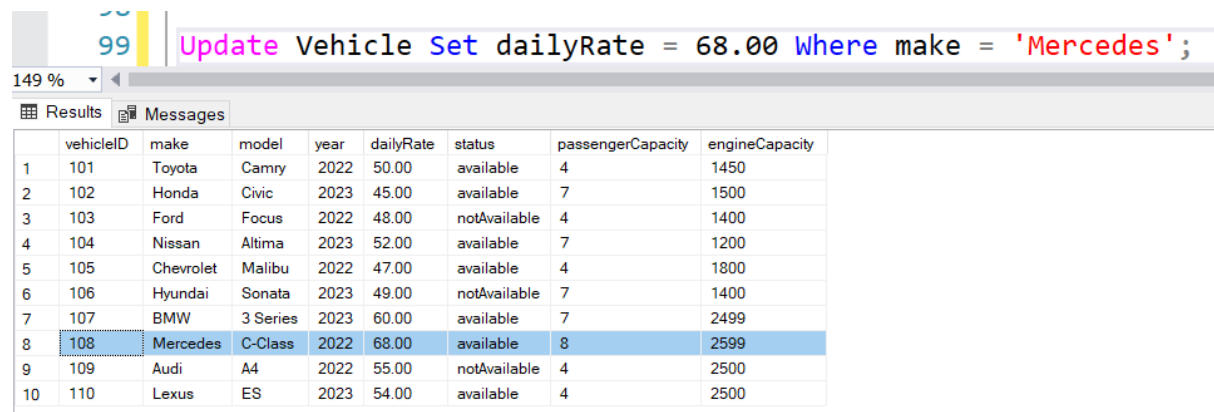
CODING CHALLENGE

Car Rental System

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

Ans)

Update Vehicle Set dailyRate = 68.00 Where make = 'Mercedes';



The screenshot shows a SQL query editor with the query: `Update Vehicle Set dailyRate = 68.00 Where make = 'Mercedes';`. Below the query, the 'Results' tab displays a table with 10 rows and 9 columns: vehicleID, make, model, year, dailyRate, status, passengerCapacity, and engineCapacity. Row 8, which corresponds to vehicleID 108 (Mercedes C-Class), is highlighted in blue, indicating it was updated.

	vehicleID	make	model	year	dailyRate	status	passengerCapacity	engineCapacity
1	101	Toyota	Camry	2022	50.00	available	4	1450
2	102	Honda	Civic	2023	45.00	available	7	1500
3	103	Ford	Focus	2022	48.00	notAvailable	4	1400
4	104	Nissan	Altima	2023	52.00	available	7	1200
5	105	Chevrolet	Malibu	2022	47.00	available	4	1800
6	106	Hyundai	Sonata	2023	49.00	notAvailable	7	1400
7	107	BMW	3 Series	2023	60.00	available	7	2499
8	108	Mercedes	C-Class	2022	68.00	available	8	2599
9	109	Audi	A4	2022	55.00	notAvailable	4	2500
10	110	Lexus	ES	2023	54.00	available	4	2500

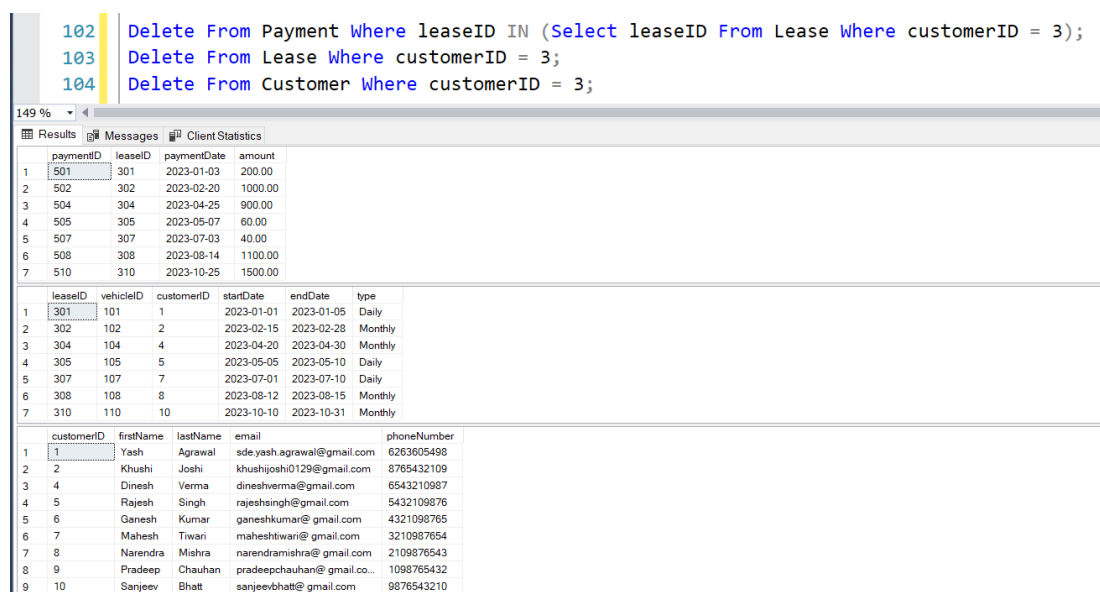
2. Delete a specific customer and all associated leases and payments.

Ans)

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;



The screenshot shows three SQL queries being executed in a database client. The first query is `Delete From Payment Where leaseID IN (Select leaseID From Lease Where customerID = 3);`. The second query is `Delete From Lease Where customerID = 3;`. The third query is `Delete From Customer Where customerID = 3;`. Below the queries, the 'Results' tab displays three tables. The first table shows payment records for customer 3 (leaseID 301, 302, 304, 305, 307, 308, 310). The second table shows lease records for customer 3 (leaseID 301, 302, 304, 305, 307, 308, 310). The third table shows customer records for customer 3 (customerID 1, 2, 3, 4, 5, 6, 7, 8, 9, 10).

	paymentID	leaseID	paymentDate	amount
1	501	301	2023-01-03	200.00
2	502	302	2023-02-20	1000.00
3	504	304	2023-04-25	900.00
4	505	305	2023-05-07	60.00
5	507	307	2023-07-03	40.00
6	508	308	2023-08-14	1100.00
7	510	310	2023-10-25	1500.00

	leaseID	vehicleID	customerID	startDate	endDate	type
1	301	101	1	2023-01-01	2023-01-05	Daily
2	302	102	2	2023-02-15	2023-02-28	Monthly
3	304	104	4	2023-04-20	2023-04-30	Monthly
4	305	105	5	2023-05-05	2023-05-10	Daily
5	307	107	7	2023-07-01	2023-07-10	Daily
6	308	108	8	2023-08-12	2023-08-15	Monthly
7	310	110	10	2023-10-10	2023-10-31	Monthly

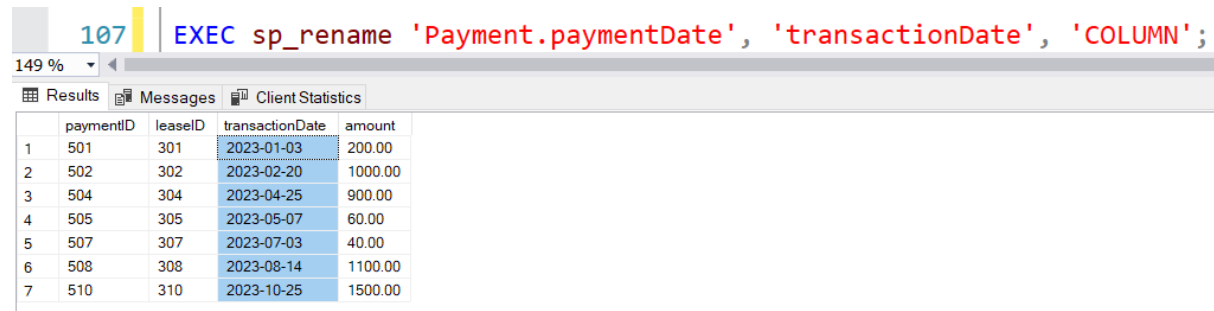
	customerID	firstName	lastName	email	phoneNumber
1	1	Yash	Agrawal	sde.yash.agrawal@gmail.com	6263605498
2	2	Khushi	Joshi	khushijoshi0129@gmail.com	8765432109
3	4	Dinesh	Verma	dineshverma@gmail.com	6543210987
4	5	Rajesh	Singh	rajeshsingh@gmail.com	5432109876
5	6	Ganesh	Kumar	ganeshkumar@gmail.com	4321098765
6	7	Mahesh	Tiwari	maheshitiwari@gmail.com	3210987654
7	8	Narendra	Mishra	narendramishra@gmail.com	2109876543
8	9	Pradeep	Chauhan	pradeepchauhan@gmail.co...	1098765432
9	10	Sanjeev	Bhatt	sanjeevbhatt@gmail.com	9876543210

Name – Yash Agrawal
Topic – Car Rental System

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

Ans)

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



107 | EXEC sp_rename 'Payment.paymentDate', 'transactionDate', 'COLUMN';

149 %

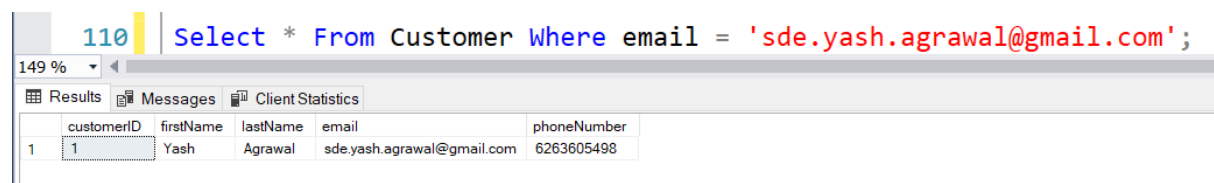
Results Messages Client Statistics

	paymentID	leaseID	transactionDate	amount
1	501	301	2023-01-03	200.00
2	502	302	2023-02-20	1000.00
3	504	304	2023-04-25	900.00
4	505	305	2023-05-07	60.00
5	507	307	2023-07-03	40.00
6	508	308	2023-08-14	1100.00
7	510	310	2023-10-25	1500.00

4. Find a specific customer by email.

Ans)

```
Select * From Customer Where email = 'sde.yash.agrawal@gmail.com';
```



110 | Select * From Customer Where email = 'sde.yash.agrawal@gmail.com';

149 %

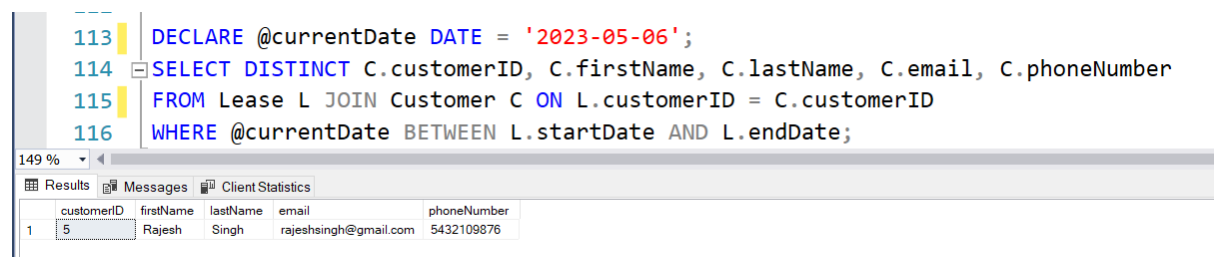
Results Messages Client Statistics

	customerID	firstName	lastName	email	phoneNumber
1	1	Yash	Agrawal	sde.yash.agrawal@gmail.com	6263605498

5. Get active leases for a specific customer.

Ans)

```
DECLARE @currentDate DATE = '2023-05-06';  
SELECT DISTINCT C.customerID, C.firstName, C.lastName, C.email,  
C.phoneNumber FROM Lease L JOIN Customer C ON L.customerID =  
C.customerID WHERE @currentDate BETWEEN L.startDate AND L.endDate;
```



113 | DECLARE @currentDate DATE = '2023-05-06';
114 | SELECT DISTINCT C.customerID, C.firstName, C.lastName, C.email, C.phoneNumber
115 | FROM Lease L JOIN Customer C ON L.customerID = C.customerID
116 | WHERE @currentDate BETWEEN L.startDate AND L.endDate;

149 %

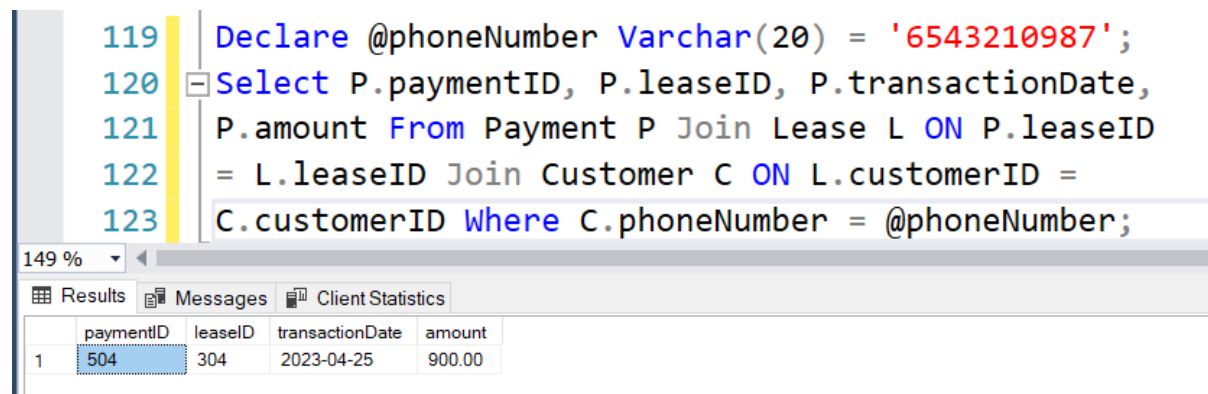
Results Messages Client Statistics

	customerID	firstName	lastName	email	phoneNumber
1	5	Rajesh	Singh	rajeshsingh@gmail.com	5432109876

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

Ans)

```
Declare @phoneNumber Varchar(20) = '6543210987';  
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;
```



The screenshot shows a SQL query window with the following code:

```
119 Declare @phoneNumber Varchar(20) = '6543210987';  
120 Select P.paymentID, P.leaseID, P.transactionDate,  
121 P.amount From Payment P Join Lease L ON P.leaseID  
122 = L.leaseID Join Customer C ON L.customerID =  
123 C.customerID Where C.phoneNumber = @phoneNumber;
```

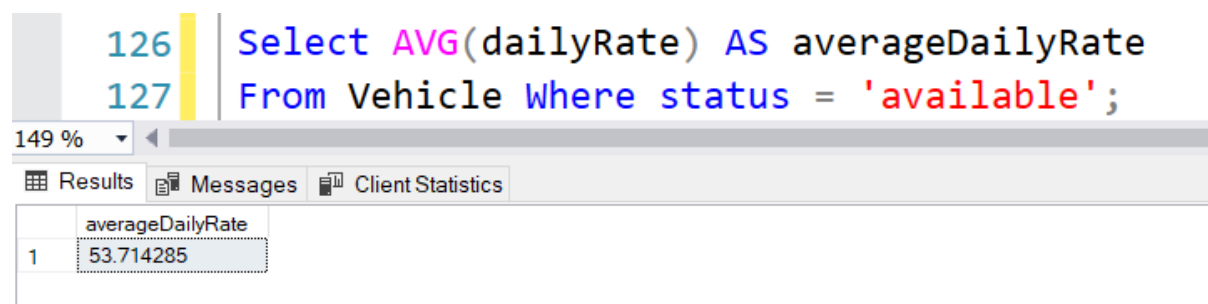
Below the query window, the 'Results' tab is active, displaying a table with the following data:

	paymentID	leaseID	transactionDate	amount
1	504	304	2023-04-25	900.00

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

Ans)

```
Select AVG(dailyRate) AS averageDailyRate From Vehicle Where status  
= 'available';
```



The screenshot shows a SQL query window with the following code:

```
126 Select AVG(dailyRate) AS averageDailyRate  
127 From Vehicle Where status = 'available';
```

Below the query window, the 'Results' tab is active, displaying a table with the following data:

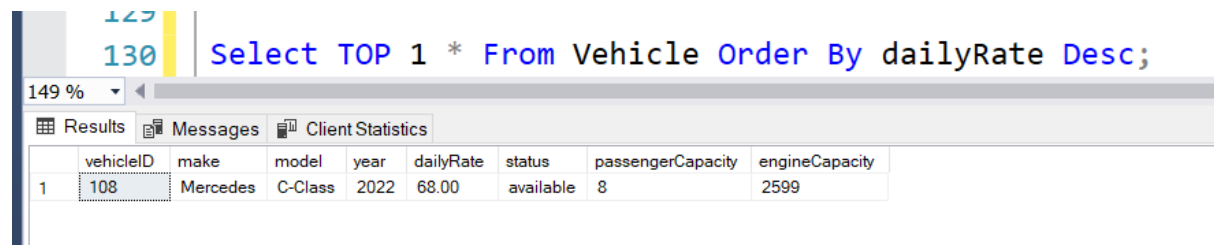
	averageDailyRate
1	53.714285

8. Find the car with the highest daily rate.

Ans)

```
Select TOP 1 * From Vehicle Order By dailyRate Desc;
```

Name – Yash Agrawal
Topic – Car Rental System



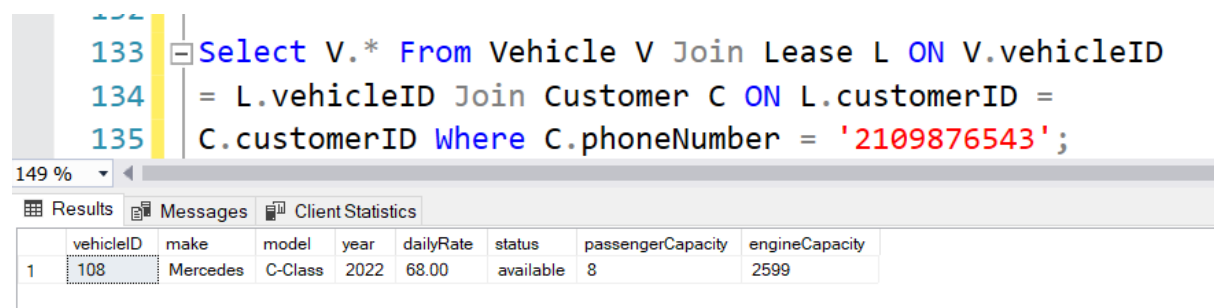
```
Select TOP 1 * From Vehicle Order By dailyRate Desc;
```

	vehicleID	make	model	year	dailyRate	status	passengerCapacity	engineCapacity
1	108	Mercedes	C-Class	2022	68.00	available	8	2599

9. Retrieve all cars leased by a specific customer.

Ans)

```
Select V.* From Vehicle V Join Lease L ON V.vehicleID = L.vehicleID  
Join Customer C ON L.customerID = C.customerID Where C.phoneNumber =  
'2109876543';
```



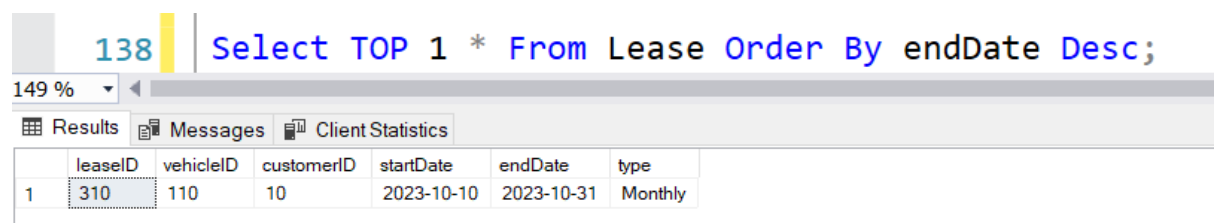
```
Select V.* From Vehicle V Join Lease L ON V.vehicleID  
= L.vehicleID Join Customer C ON L.customerID =  
C.customerID Where C.phoneNumber = '2109876543';
```

	vehicleID	make	model	year	dailyRate	status	passengerCapacity	engineCapacity
1	108	Mercedes	C-Class	2022	68.00	available	8	2599

10. Find the details of the most recent lease.

Ans)

```
Select TOP 1 * From Lease Order By endDate Desc;
```



```
Select TOP 1 * From Lease Order By endDate Desc;
```

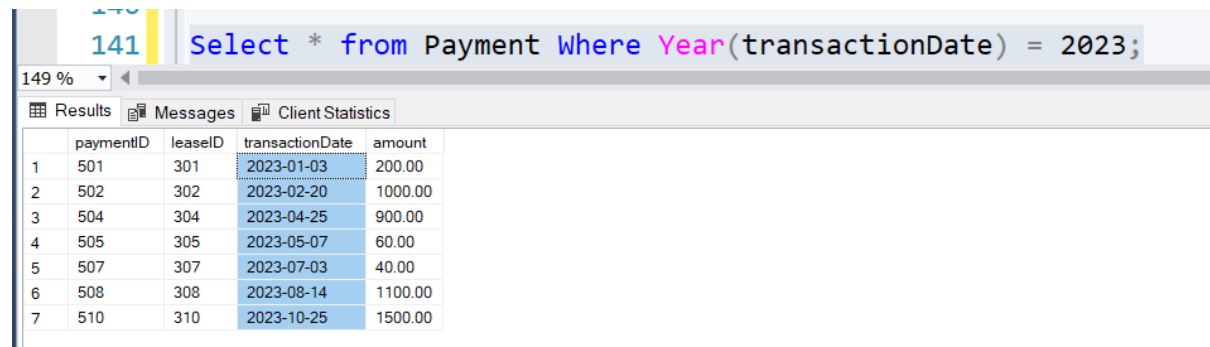
	leaseID	vehicleID	customerID	startDate	endDate	type
1	310	110	10	2023-10-10	2023-10-31	Monthly

11. List all payments made in the year 2023.

Ans)

```
Select * from Payment Where Year(transactionDate) = 2023;
```

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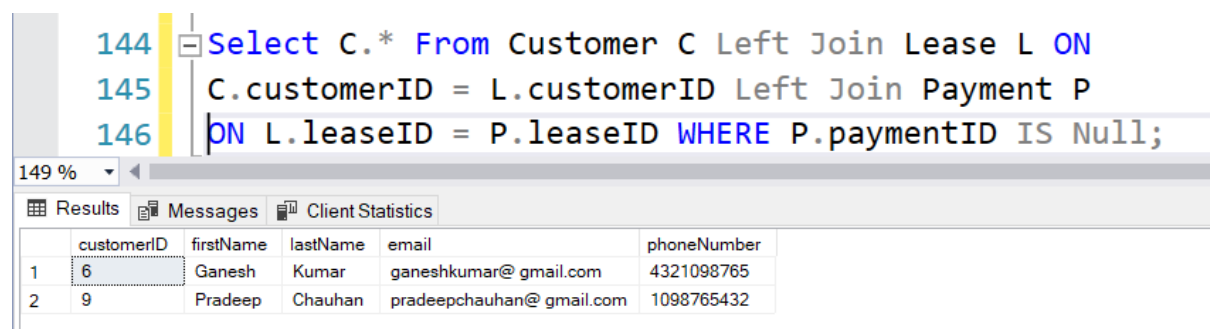
The screenshot shows a SQL query window with the query: `Select * from Payment Where Year(transactionDate) = 2023;`. The results pane displays a table with 7 rows of payment data.

	paymentID	leaseID	transactionDate	amount
1	501	301	2023-01-03	200.00
2	502	302	2023-02-20	1000.00
3	504	304	2023-04-25	900.00
4	505	305	2023-05-07	60.00
5	507	307	2023-07-03	40.00
6	508	308	2023-08-14	1100.00
7	510	310	2023-10-25	1500.00

12. Retrieve customers who have not made any payments.

Ans)

```
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;
```



The screenshot shows a SQL query window with the 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;`. The results pane displays a table with 2 rows of customer data.

	customerID	firstName	lastName	email	phoneNumber
1	6	Ganesh	Kumar	ganeshkumar@gmail.com	4321098765
2	9	Pradeep	Chauhan	pradeepchauhan@gmail.com	1098765432

13. Retrieve Car Details and Their Total Payments.

Ans)

```
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;
```

```

149 Select V.vehicleID, V.make, V.model, V.year,
150 V.dailyRate, ISNULL(Sum(P.amount), 0) AS
151 totalPayments From Vehicle V Left Join
152 Lease L ON V.vehicleID = L.vehicleID
153 Left Join Payment P ON L.leaseID = P.leaseID
154 Group By V.vehicleID, V.make, V.model,
155 V.year, V.dailyRate Order By V.vehicleID;

```

149 %

Results Messages Client Statistics

	vehicleID	make	model	year	dailyRate	totalPayments
1	101	Toyota	Camry	2022	50.00	200.00
2	102	Honda	Civic	2023	45.00	1000.00
3	103	Ford	Focus	2022	48.00	0.00
4	104	Nissan	Altima	2023	52.00	900.00
5	105	Chevrolet	Malibu	2022	47.00	60.00
6	106	Hyundai	Sonata	2023	49.00	0.00
7	107	BMW	3 Series	2023	60.00	40.00
8	108	Mercedes	C-Class	2022	68.00	1100.00
9	109	Audi	A4	2022	55.00	0.00
10	110	Lexus	ES	2023	54.00	1500.00

14. Calculate Total Payments for Each Customer.

Ans)

```

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;

```

```

158 Select C.customerID, C.firstName, C.lastName, C.email,
159 C.phoneNumber, ISNULL(Sum(P.amount), 0) AS totalPayments
160 From Customer C Left Join Lease L ON C.customerID = L.customerID
161 Left Join Payment P ON L.leaseID = P.leaseID Group By
162 C.customerID, C.firstName, C.lastName, C.email, C.phoneNumber
163 Order By C.customerID;

```

149 %

Results Messages Client Statistics

	customerID	firstName	lastName	email	phoneNumber	totalPayments
1	1	Yash	Agrawal	sde.yash.agrawal@gmail.com	6263605498	200.00
2	2	Khushi	Joshi	khushijoshi0129@gmail.com	8765432109	1000.00
3	4	Dinesh	Verma	dineshverma@gmail.com	6543210987	900.00
4	5	Rajesh	Singh	rajeshsingh@gmail.com	5432109876	60.00
5	6	Ganesh	Kumar	ganeshkumar@gmail.com	4321098765	0.00
6	7	Mahesh	Tiwari	maheshtiwari@gmail.com	3210987654	40.00
7	8	Narendra	Mishra	narendramishra@gmail.com	2109876543	1100.00
8	9	Pradeep	Chauhan	pradeepchauhan@gmail.com	1098765432	0.00
9	10	Sanjeev	Bhatt	sanjeevbhatt@gmail.com	9876543210	1500.00

15. List Car Details for Each Lease.

Ans)

```
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;
```

The screenshot shows a SQL query window with the following query:

```
166 Select L.leaseID, L.vehicleID, L.customerID, L.startDate, L.endDate,  
167 L.type AS leaseType, V.make, V.model, V.year, V.dailyRate, V.status,  
168 V.passengerCapacity, V.engineCapacity From Lease L Join Vehicle V ON  
169 L.vehicleID = V.vehicleID Order By L.leaseID;
```

Below the query window, the 'Results' tab is active, displaying a table with 13 columns: leaseID, vehicleID, customerID, startDate, endDate, leaseType, make, model, year, dailyRate, status, passengerCapacity, and engineCapacity. The table contains 7 rows of data.

	leaseID	vehicleID	customerID	startDate	endDate	leaseType	make	model	year	dailyRate	status	passengerCapacity	engineCapacity
1	301	101	1	2023-01-01	2023-01-05	Daily	Toyota	Camry	2022	50.00	available	4	1450
2	302	102	2	2023-02-15	2023-02-28	Monthly	Honda	Civic	2023	45.00	available	7	1500
3	304	104	4	2023-04-20	2023-04-30	Monthly	Nissan	Altima	2023	52.00	available	7	1200
4	305	105	5	2023-05-05	2023-05-10	Daily	Chevrolet	Malibu	2022	47.00	available	4	1800
5	307	107	7	2023-07-01	2023-07-10	Daily	BMW	3 Series	2023	60.00	available	7	2499
6	308	108	8	2023-08-12	2023-08-15	Monthly	Mercedes	C-Class	2022	68.00	available	8	2599
7	310	110	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.

Ans)

```
Declare @CurDate 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 @CurDate Between L.startDate And  
L.endDate Order By L.leaseID;
```

The screenshot shows a SQL query window with the following query:

```
172 Declare @CurDate Date = '2023-05-06';  
173 Select L.leaseID, L.vehicleID, V.make, V.model, V.year, V.dailyRate, L.customerID,  
174 C.firstName, C.lastName, C.email, C.phoneNumber, L.startDate, L.endDate, L.type AS  
175 leaseType From Lease L Join Vehicle V ON L.vehicleID = V.vehicleID Join Customer C  
176 ON L.customerID = C.customerID Where @CurDate Between L.startDate And L.endDate  
177 Order By L.leaseID;
```

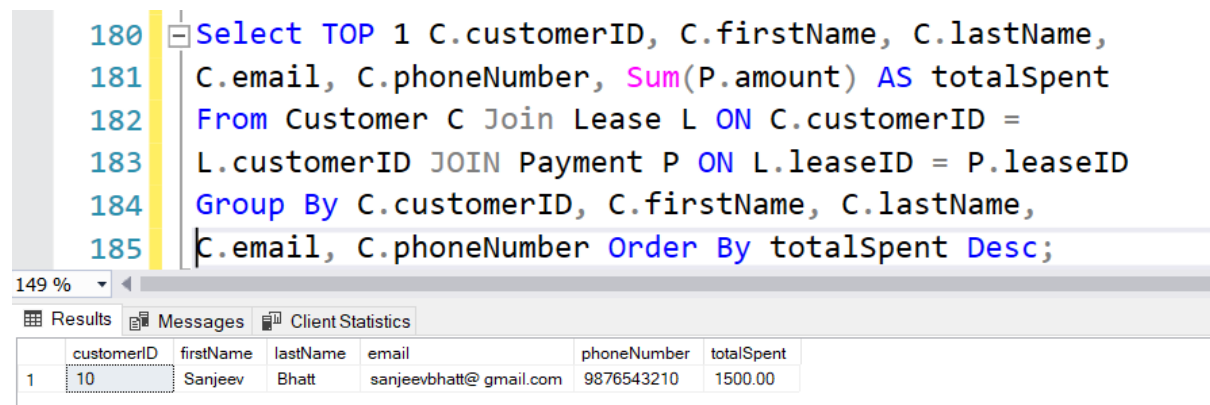
Below the query window, the 'Results' tab is active, displaying a table with 13 columns: leaseID, vehicleID, make, model, year, dailyRate, customerID, firstName, lastName, email, phoneNumber, startDate, endDate, and leaseType. The table contains 1 row of data.

	leaseID	vehicleID	make	model	year	dailyRate	customerID	firstName	lastName	email	phoneNumber	startDate	endDate	leaseType
1	305	105	Chevrolet	Malibu	2022	47.00	5	Rajesh	Singh	rajeshsingh@gmail.com	5432109876	2023-05-05	2023-05-10	Daily

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

Ans)

```
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;
```



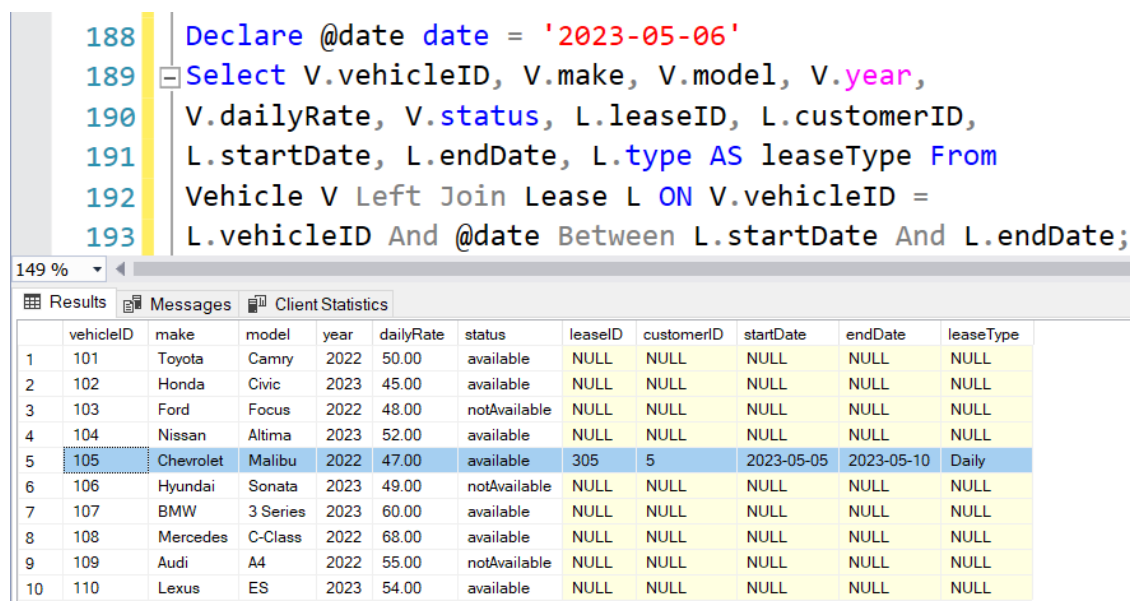
The screenshot shows a SQL query being executed in a database client. The query is: `Select TOP 1 C.customerID, C.firstName, C.lastName, C.email, C.phoneNumber, Sum(P.amount) AS totalSpent From Customer C Join Lease L ON C.customerID = L.customerID JOIN Payment P ON L.leaseID = P.leaseID Group By C.customerID, C.firstName, C.lastName, C.email, C.phoneNumber Order By totalSpent Desc;` The results pane shows a single row with the following data:

	customerID	firstName	lastName	email	phoneNumber	totalSpent
1	10	Sanjeev	Bhatt	sanjeevbhatt@gmail.com	9876543210	1500.00

18. List All Cars with Their Current Lease Information.

Ans)

```
Declare @date date = '2023-05-06' 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 And @date Between L.startDate  
And L.endDate;
```



The screenshot shows a SQL query being executed in a database client. The query is: `Declare @date date = '2023-05-06' 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 And @date Between L.startDate And L.endDate;` The results pane shows a table with 11 columns and 10 rows of data:

	vehicleID	make	model	year	dailyRate	status	leaseID	customerID	startDate	endDate	leaseType
1	101	Toyota	Camry	2022	50.00	available	NULL	NULL	NULL	NULL	NULL
2	102	Honda	Civic	2023	45.00	available	NULL	NULL	NULL	NULL	NULL
3	103	Ford	Focus	2022	48.00	notAvailable	NULL	NULL	NULL	NULL	NULL
4	104	Nissan	Altima	2023	52.00	available	NULL	NULL	NULL	NULL	NULL
5	105	Chevrolet	Malibu	2022	47.00	available	305	5	2023-05-05	2023-05-10	Daily
6	106	Hyundai	Sonata	2023	49.00	notAvailable	NULL	NULL	NULL	NULL	NULL
7	107	BMW	3 Series	2023	60.00	available	NULL	NULL	NULL	NULL	NULL
8	108	Mercedes	C-Class	2022	68.00	available	NULL	NULL	NULL	NULL	NULL
9	109	Audi	A4	2022	55.00	notAvailable	NULL	NULL	NULL	NULL	NULL
10	110	Lexus	ES	2023	54.00	available	NULL	NULL	NULL	NULL	NULL