CODING CHALLENGE - CAR RENTAL SYSTEM – SQL

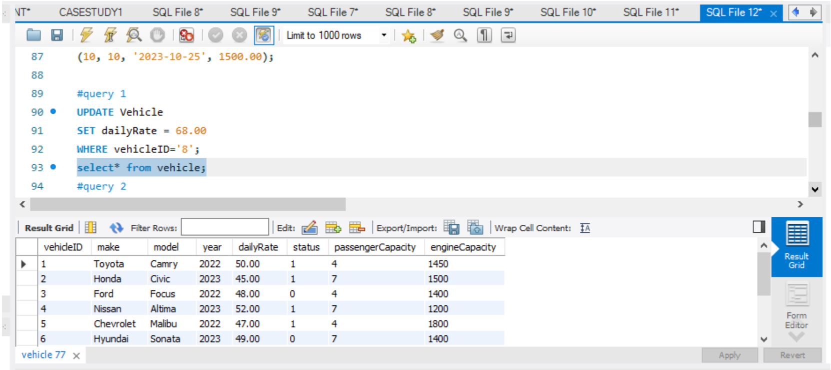
NAME: JEEVEEKA K

```
CREATE DATABASE CarRentalSystem;
use CarRentalSystem;
#Vehicle Table
CREATE TABLE Vehicle (
   vehicleID INT PRIMARY KEY,
   make VARCHAR(50),
   model VARCHAR(50),
   year INT,
   dailyRate DECIMAL(10,2),
   status VARCHAR(20),
   passengerCapacity INT,
   engineCapacity INT
);
#Customer Table
CREATE TABLE Customer (
   customerID INT PRIMARY KEY,
   firstName VARCHAR(50),
   lastName VARCHAR(50),
   email VARCHAR(100),
   phoneNumber VARCHAR(20)
);
#Lease Table
CREATE TABLE Lease (
   leaseID INT PRIMARY KEY,
   vehicleID INT,
   customerID INT,
   startDate DATE,
   endDate DATE,
   type VARCHAR(20),
   FOREIGN KEY (vehicleID) REFERENCES Vehicle(vehicleID),
   FOREIGN KEY (customerID) REFERENCES Customer(customerID)
);
#Payment Table
CREATE TABLE Payment (
   paymentID INT PRIMARY KEY,
   leaseID INT,
   paymentDate DATE,
   amount DECIMAL(10,2),
   FOREIGN KEY (leaseID) REFERENCES Lease(leaseID)
);
INSERT INTO Vehicle VALUES
(1, 'Toyota', 'Camry', 2022, 50.00, '1', 4, 1450),
(2, 'Honda', 'Civic', 2023, 45.00, '1', 7, 1500),
(3, 'Ford', 'Focus', 2022, 48.00, '0', 4, 1400),
(4, 'Nissan', 'Altima', 2023, 52.00, '1', 7, 1200),
(5, 'Chevrolet', 'Malibu', 2022, 47.00, '1', 4, 1800),
(6, 'Hyundai', 'Sonata', 2023, 49.00, '0', 7, 1400),
(7, 'BMW', '3 Series', 2023, 60.00, '1', 7, 2499),
(8, 'Mercedes', 'C-Class', 2022, 58.00, '1', 8, 2599),
(9, 'Audi', 'A4', 2022, 55.00, '0', 4, 2500),
(10, 'Lexus', 'ES', 2023, 54.00, '1', 4, 2500);

INSERT INTO Customer VALUES
```

```
(1, 'John', 'Doe', 'johndoe@example.com', '555-555-5555'),
(2, 'Jane', 'Smith', 'janesmith@example.com', '555-123-4567'),
(3, 'Robert', 'Johnson', 'robert@example.com', '555-789-1234'),
(4, 'Sarah', 'Brown', 'sarah@example.com', '555-456-7890'),
(5, 'David', 'Lee', 'david@example.com', '555-987-6543'),
(6, 'Laura', 'Hall', 'laura@example.com', '555-234-5678'),
(7, 'Michael', 'Davis', 'michael@example.com', '555-876-5432'),
(8, 'Emma', 'Wilson', 'emma@example.com', '555-432-1098'),
(9, 'William', 'Taylor', 'william@example.com', '555-321-6547'),
(10, 'Olivia', 'Adams', 'olivia@example.com', '555-765-4321');

INSERT INTO Lease VALUES
(1, 1, 1, '2023-01-01', '2023-01-05', 'Daily'),
(2, 2, 2, '2023-02-15', '2023-02-28', 'Monthly'),
(3, 3, 3, '2023-03-10', '2023-03-15', 'Daily'),
(4, 4, 4, '2023-04-20', '2023-04-30', 'Monthly'),
(5, 5, 5, '2023-05-05', '2023-05-10', 'Daily'),
(6, 4, 3, '2023-06-15', '2023-06-30', 'Monthly'),
(7, 7, 7, '2023-07-01', '2023-07-10', 'Daily'),
(8, 8, 8, '2023-08-12', '2023-08-15', 'Monthly'),
(9, 3, 3, '2023-09-07', '2023-09-10', 'Daily'),
(10, 10, 10, '2023-10-10', '2023-10-31', 'Monthly');

INSERT INTO Payment VALUES
(1, 1, '2023-01-03', 200.00),
(2, 2, '2023-02-20', 1000.00),
(3, 3, '2023-03-12', 75.00),
(4, 4, '2023-04-25', 900.00),
(5, 5, '2023-05-07', 60.00),

(6, 6, '2023-06-18', 1200.00),

(7, 7, '2023-07-03', 40.00),

(8, 8, '2023-08-14', 1100.00),

(9, 9, '2023-09-09', 80.00),

(10, 10, '2023-10-25', 1500.00);
```

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

```
UPDATE Vehicle

SET dailyRate = 68.00

WHERE vehicleID='8';

select* from vehicle;
```

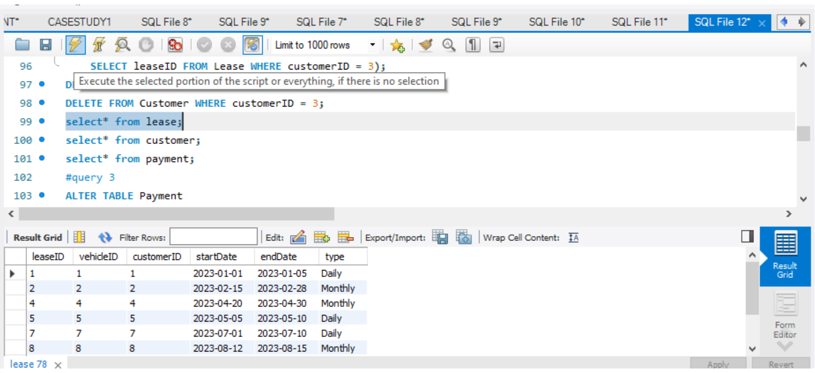


```
(10, 10, '2023-10-25', 1500.00);

#query 1
UPDATE Vehicle
SET dailyRate = 68.00
WHERE vehicleID='8';
select* from vehicle;
#query 2
```

vehicleID	make	model	year	dailyRate	status	passengerCapacity	engineCapacity
1	Toyota	Camry	2022	50.00	1	4	1450
2	Honda	Civic	2023	45.00	1	7	1500
3	Ford	Focus	2022	48.00	0	4	1400
4	Nissan	Altima	2023	52.00	1	7	1200
5	Chevrolet	Malibu	2022	47.00	1	4	1800
6	Hyundai	Sonata	2023	49.00	0	7	1400

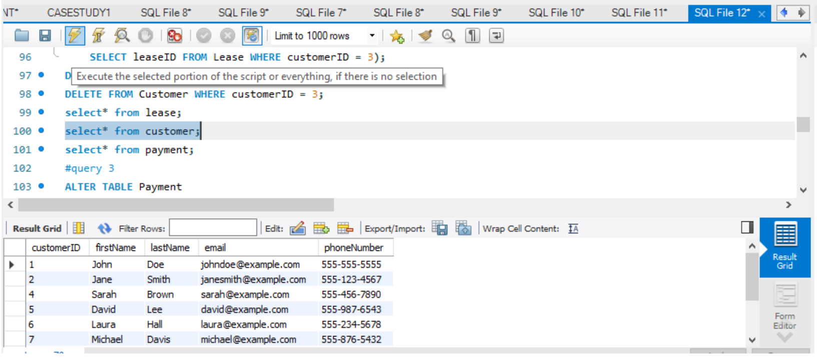
2.Delete a specific customer and all associated leases and payments.

```
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 lease;

select* from customer;

select* from payment;
```



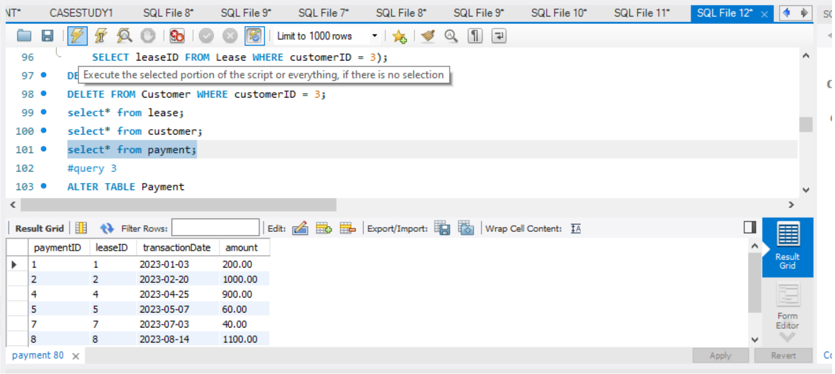
```
    SELECT leaseID FROM Lease WHERE customerID = 3);
D
DELETE FROM Customer WHERE customerID = 3;
select* from lease;
select* from customer;
select* from payment;
#query 3
ALTER TABLE Payment
```

leaseID	vehicleID	customerID	startDate	endDate	type
1	1	1	2023-01-01	2023-01-05	Daily
2	2	2	2023-02-15	2023-02-28	Monthly
4	4	4	2023-04-20	2023-04-30	Monthly
5	5	5	2023-05-05	2023-05-10	Daily
7	7	7	2023-07-01	2023-07-10	Daily
8	8	8	2023-08-12	2023-08-15	Monthly



```
    SELECT leaseID FROM Lease WHERE customerID = 3);
D
DELETE FROM Customer WHERE customerID = 3;
select* from lease;
select* from customer;
select* from payment;
#query 3
ALTER TABLE Payment
```

customerID	firstName	lastName	email	phoneNumber
1	John	Doe	johndoe@example.com	555-555-5555
2	Jane	Smith	janesmith@example.com	555-123-4567
4	Sarah	Brown	sarah@example.com	555-456-7890
5	David	Lee	david@example.com	555-987-6543
6	Laura	Hall	laura@example.com	555-234-5678
7	Michael	Davis	michael@example.com	555-876-5432



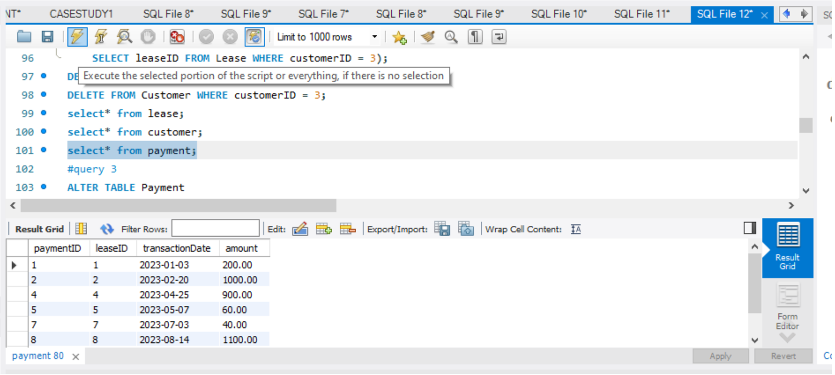
```
    SELECT leaseID FROM Lease WHERE customerID = 3);
DE
DELETE FROM Customer WHERE customerID = 3;
select* from lease;
select* from customer;
select* from payment;
#query 3
ALTER TABLE Payment
```

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

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

ALTER TABLE Payment

CHANGE paymentDate transactionDate DATE;



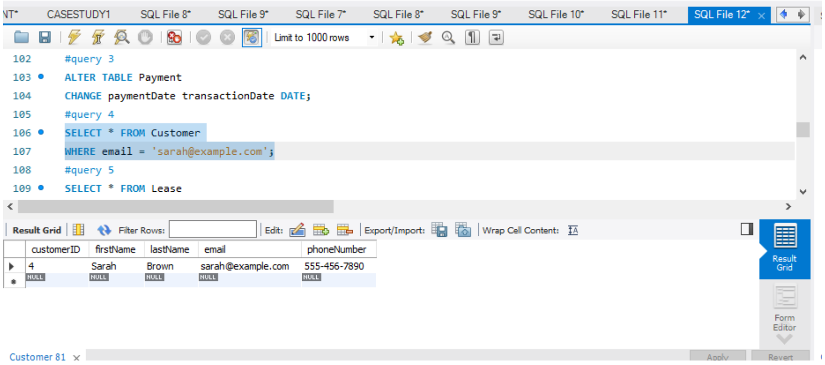
```
    SELECT leaseID FROM Lease WHERE customerID = 3);
DE
DELETE FROM Customer WHERE customerID = 3;
select* from lease;
select* from customer;
select* from payment;
#query 3
ALTER TABLE Payment
```

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

4.Find a specific customer by email.

SELECT * FROM Customer

WHERE email = 'sarah@example.com';



```
#query 3
ALTER TABLE Payment
CHANGE paymentDate transactionDate DATE;
#query 4
SELECT * FROM Customer
WHERE email = 'sarah@example.com';
#query 5
SELECT * FROM Lease
```

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

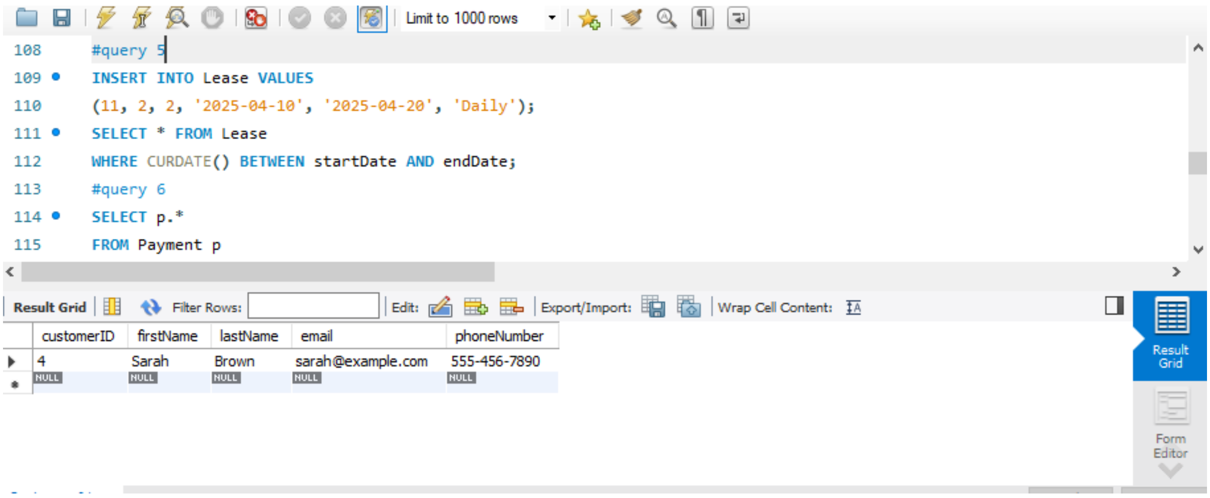
5.Get active leases for a specific customer.

INSERT INTO Lease VALUES

(11, 2, 2, '2025-04-10', '2025-04-20', 'Daily');

SELECT * FROM Lease

WHERE CURDATE() BETWEEN startDate AND endDate;



```
#query 5
INSERT INTO Lease VALUES
(11, 2, 2, '2025-04-10', '2025-04-20', 'Daily');
SELECT * FROM Lease
WHERE CURDATE() BETWEEN startDate AND endDate;
#query 6
SELECT p.*
FROM Payment p
```

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

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

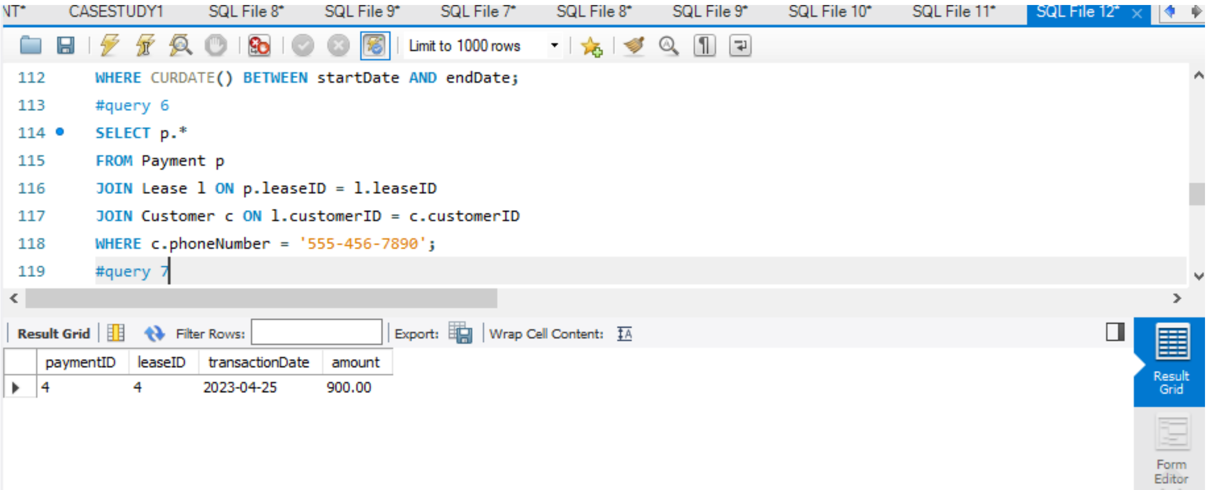
SELECT p.*

FROM Payment p

JOIN Lease l ON p.leaseID = l.leaseID

JOIN Customer c ON l.customerID = c.customerID

WHERE c.phoneNumber = '555-456-7890';



```
WHERE CURDATE() BETWEEN startDate AND endDate;
#query 6
SELECT p.*
FROM Payment p
JOIN Lease l ON p.leaseID = l.leaseID
JOIN Customer c ON l.customerID = c.customerID
WHERE c.phoneNumber = '555-456-7890';
#query 7
```

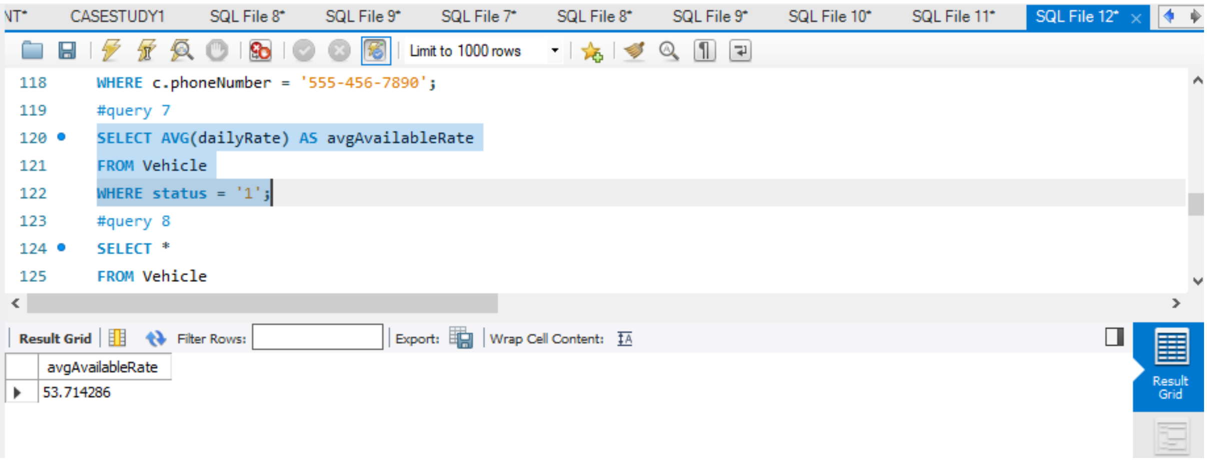
paymentID	leaseID	transactionDate	amount
4	4	2023-04-25	900.00

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

SELECT AVG(dailyRate) AS avgAvailableRate

FROM Vehicle

WHERE status = '1';



```
WHERE c.phoneNumber = '555-456-7890';
#query 7
SELECT AVG(dailyRate) AS avgAvailableRate
FROM Vehicle
WHERE status = '1';
#query 8
SELECT *
FROM Vehicle
```

avgAvailableRate
53.714286

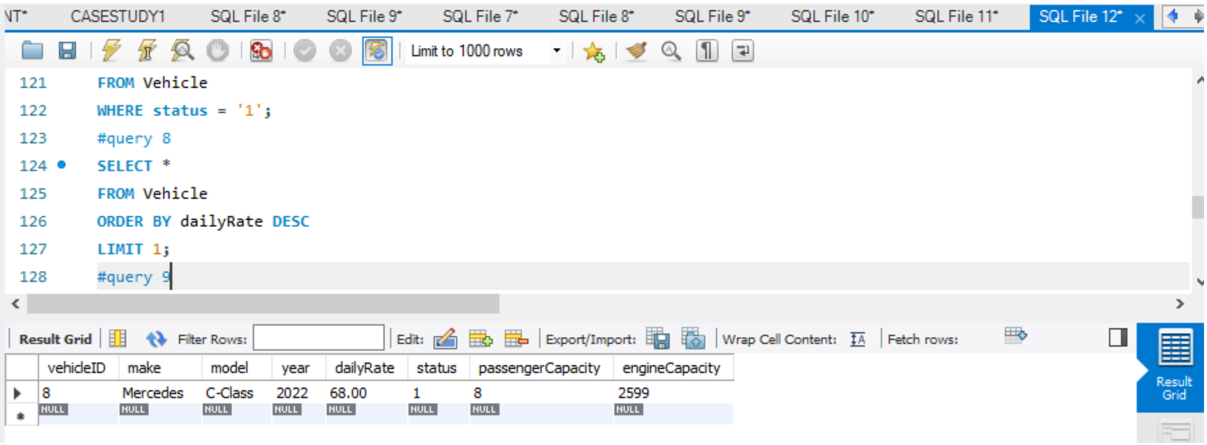
8.Find the car with the highest daily rate.

SELECT *

FROM Vehicle

ORDER BY dailyRate DESC

LIMIT 1;



```
FROM Vehicle
WHERE status = '1';
#query 8
SELECT *
FROM Vehicle
ORDER BY dailyRate DESC
LIMIT 1;
#query 9
```

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

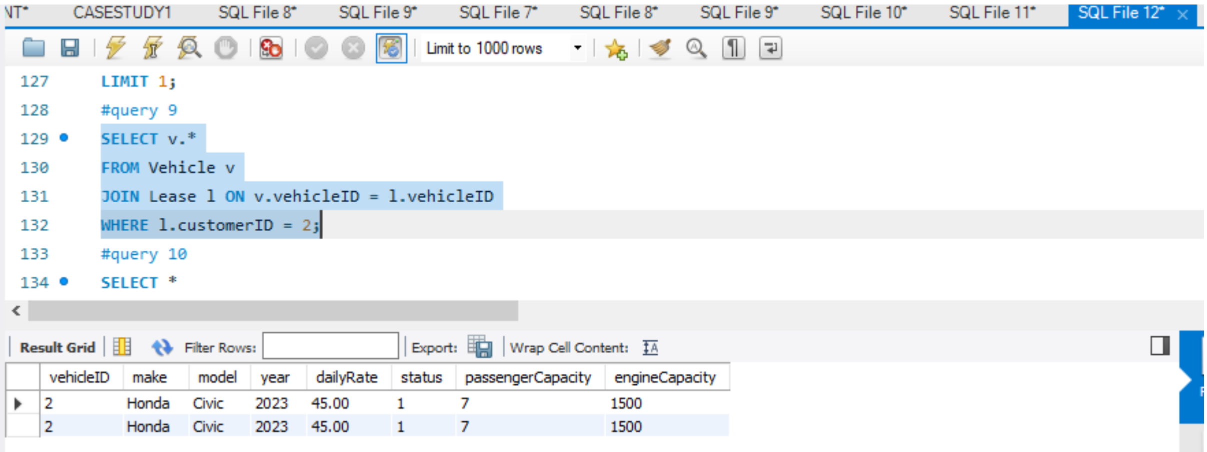
9.Retrieve all cars leased by a specific customer.

SELECT v.*

FROM Vehicle v

JOIN Lease l ON v.vehicleID = l.vehicleID

WHERE l.customerID = 2;



```
LIMIT 1;
#query 9
SELECT v.*
FROM Vehicle v
JOIN Lease l ON v.vehicleID = l.vehicleID
WHERE l.customerID = 2;
#query 10
SELECT *
```

vehicleID	make	model	year	dailyRate	status	passengerCapacity	engineCapacity
2	Honda	Civic	2023	45.00	1	7	1500
2	Honda	Civic	2023	45.00	1	7	1500

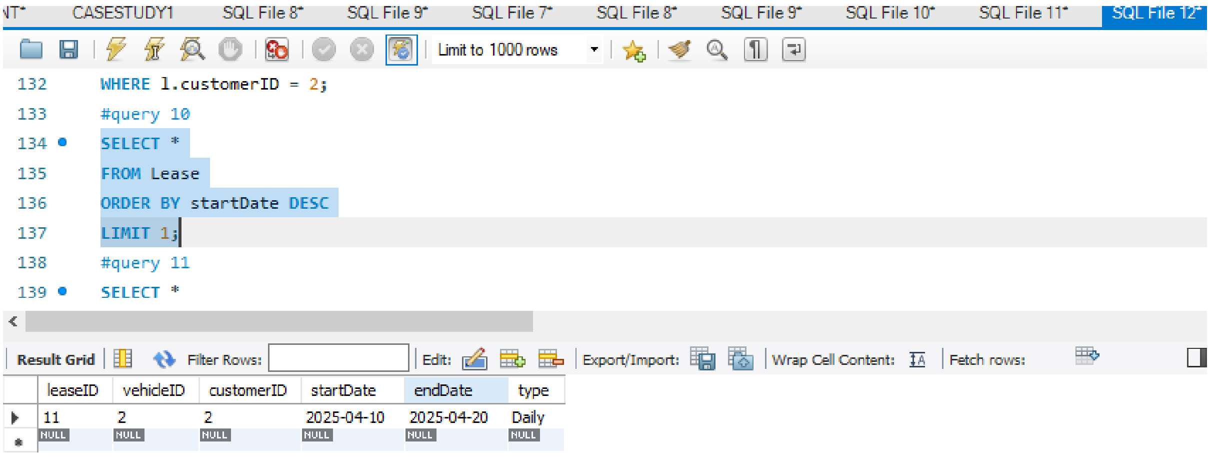
10.Find the details of the most recent lease.

SELECT *

FROM Lease

ORDER BY startDate DESC

LIMIT 1;



```
WHERE l.customerID = 2;
#query 10
SELECT *
FROM Lease
ORDER BY startDate DESC
LIMIT 1;
#query 11
SELECT *
```

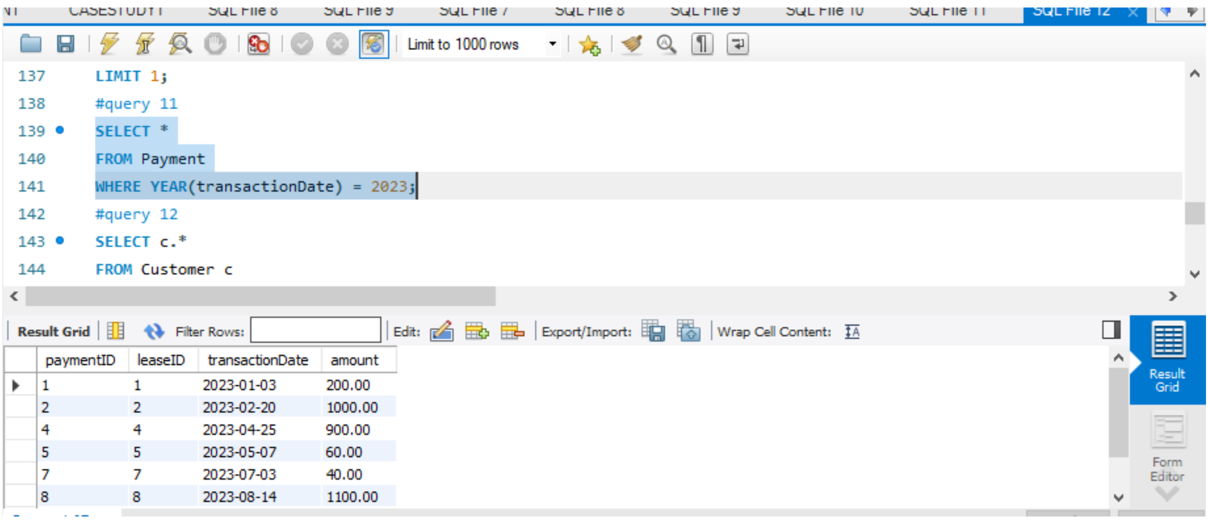
leaseID	vehicleID	customerID	startDate	endDate	type
11	2	2	2025-04-10	2025-04-20	Daily
NULL	NULL	NULL	NULL	NULL	NULL

11.List all payments made in the year 2023.

SELECT *

FROM Payment

WHERE YEAR(transactionDate) = 2023;



```
LIMIT 1;
#query 11
SELECT *
FROM Payment
WHERE YEAR(transactionDate) = 2023;
#query 12
SELECT c.*
FROM Customer c
```

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

12.Retrieve customers who have not made any payments

SELECT c.*

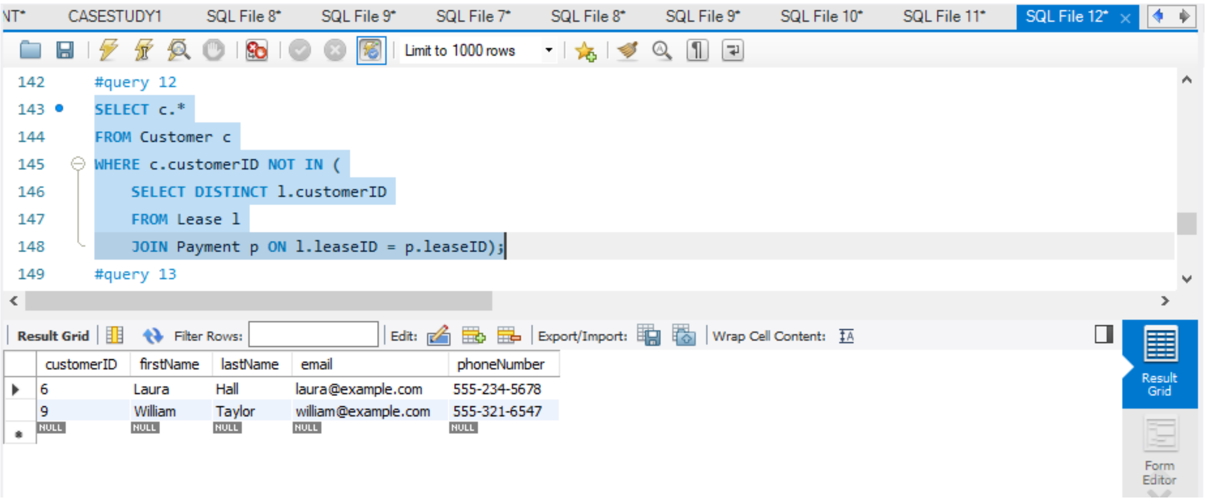
FROM Customer c

WHERE c.customerID NOT IN (

  SELECT DISTINCT l.customerID

  FROM Lease l

JOIN Payment p ON l.leaseID = p.leaseID);



```
#query 12
SELECT c.*
FROM Customer c
WHERE c.customerID NOT IN (
    SELECT DISTINCT l.customerID
    FROM Lease l
    JOIN Payment p ON l.leaseID = p.leaseID);
#query 13
```

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

13.Retrieve Car Details and Their Total Payments.

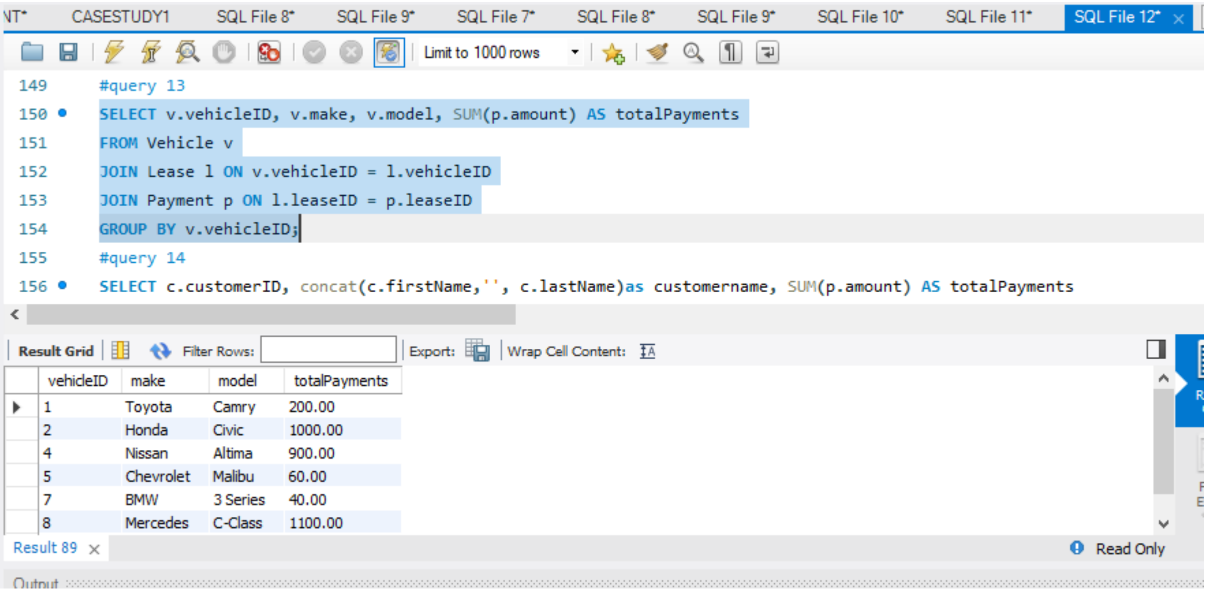
SELECT v.vehicleID, v.make, v.model, SUM(p.amount) AS totalPayments

FROM Vehicle v

JOIN Lease l ON v.vehicleID = l.vehicleID

JOIN Payment p ON l.leaseID = p.leaseID

GROUP BY v.vehicleID;



```
#query 13
SELECT v.vehicleID, v.make, v.model, 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;
#query 14
SELECT c.customerID, concat(c.firstName,'', c.lastName)as customername, SUM(p.amount) AS totalPayments
```

vehicleID	make	model	totalPayments
1	Toyota	Camry	200.00
2	Honda	Civic	1000.00
4	Nissan	Altima	900.00
5	Chevrolet	Malibu	60.00
7	BMW	3 Series	40.00
8	Mercedes	C-Class	1100.00

14.Calculate Total Payments for Each Customer.

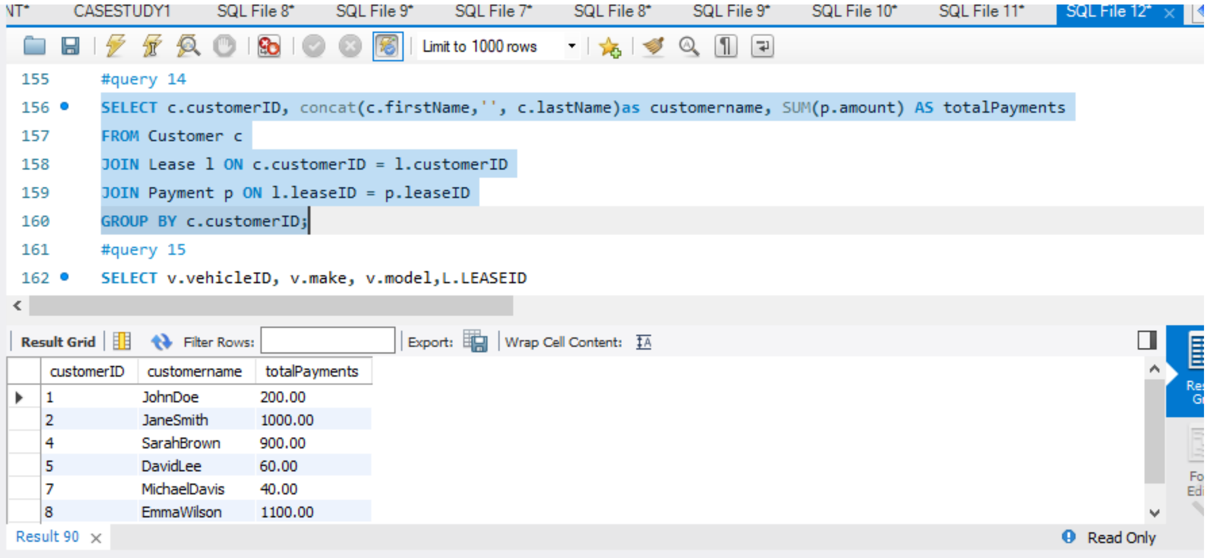
SELECT c.customerID, concat(c.firstName,'', c.lastName)as customername, SUM(p.amount) AS totalPayments

FROM Customer c

JOIN Lease l ON c.customerID = l.customerID

JOIN Payment p ON l.leaseID = p.leaseID

GROUP BY c.customerID;



```
#query 14
SELECT c.customerID, concat(c.firstName,'', c.lastName)as customername, 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;
#query 15
SELECT v.vehicleID, v.make, v.model,L.LEASEID
```

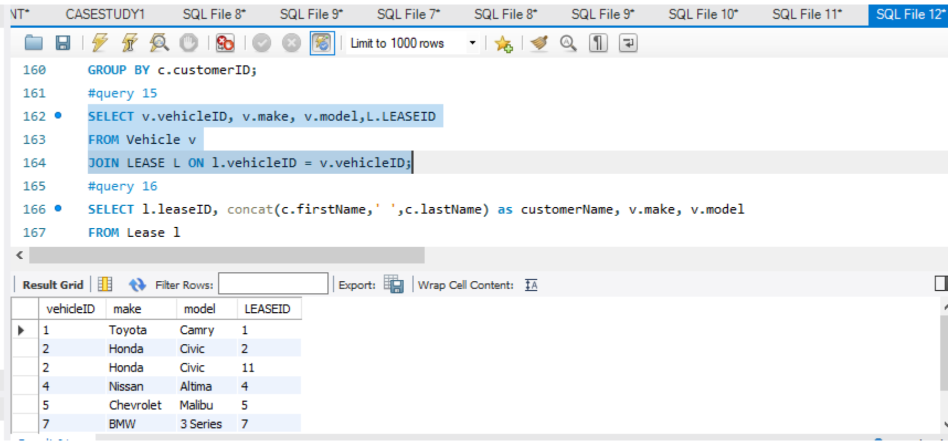
customerID	customername	totalPayments
1	JohnDoe	200.00
2	JaneSmith	1000.00
4	SarahBrown	900.00
5	DavidLee	60.00
7	MichaelDavis	40.00
8	EmmaWilson	1100.00

15.List Car Details for Each Lease

SELECT v.vehicleID, v.make, v.model,L.LEASEID

FROM Vehicle v

JOIN lease L ON l.vehicleID = v.vehicleID;



```
GROUP BY c.customerID;
#query 15
SELECT v.vehicleID, v.make, v.model,L.LEASEID
FROM Vehicle v
JOIN LEASE L ON l.vehicleID = v.vehicleID;
#query 16
SELECT l.leaseID, concat(c.firstName,' ',c.lastName) as customerName, v.make, v.model
FROM Lease l
```

vehicleID	make	model	LEASEID
1	Toyota	Camry	1
2	Honda	Civic	2
2	Honda	Civic	11
4	Nissan	Altima	4
5	Chevrolet	Malibu	5
7	BMW	3 Series	7

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

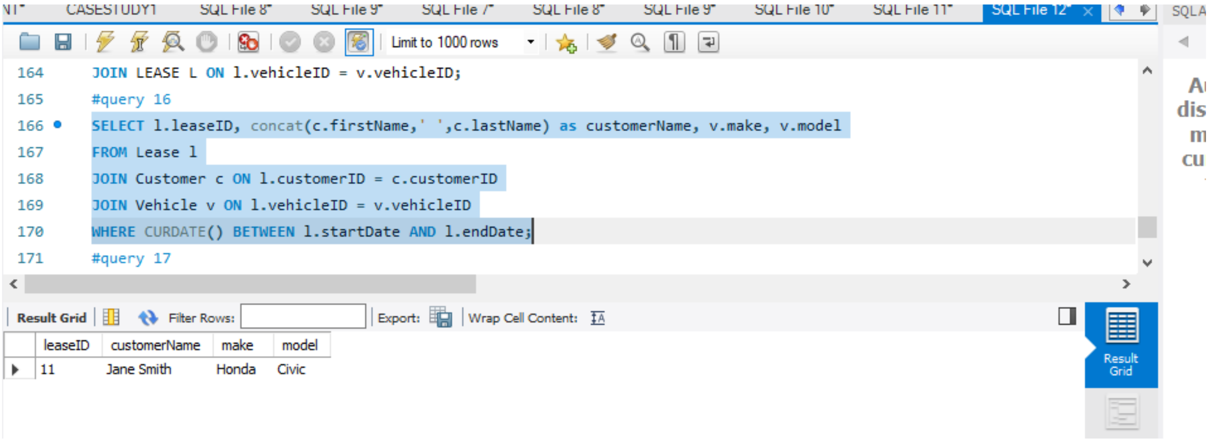
SELECT l.leaseID, concat(c.firstName,' ',c.lastName) as customerName, v.make, v.model

FROM Lease l

JOIN Customer c ON l.customerID = c.customerID

JOIN Vehicle v ON l.vehicleID = v.vehicleID

WHERE CURDATE() BETWEEN l.startDate AND l.endDate;



```
JOIN LEASE L ON l.vehicleID = v.vehicleID;
#query 16
SELECT l.leaseID, concat(c.firstName,' ',c.lastName) as customerName, v.make, v.model
FROM Lease l
JOIN Customer c ON l.customerID = c.customerID
JOIN Vehicle v ON l.vehicleID = v.vehicleID
WHERE CURDATE() BETWEEN l.startDate AND l.endDate;
#query 17
```

leaseID	customerName	make	model
11	Jane Smith	Honda	Civic

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

SELECT c.customerID, CONCAT(c.firstName, '',c.lastName) AS CUSTOMERNAME, SUM(p.amount) AS totalSpent

FROM Customer c

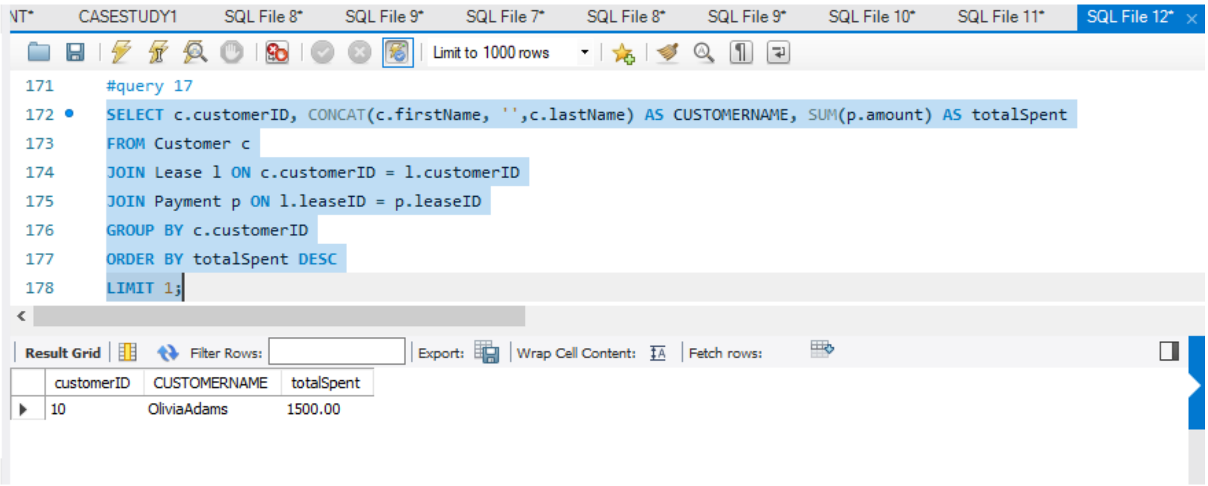
JOIN Lease l ON c.customerID = l.customerID

JOIN Payment p ON l.leaseID = p.leaseID

GROUP BY c.customerID

ORDER BY totalSpent DESC

LIMIT 1;



```
#query 17
SELECT c.customerID, CONCAT(c.firstName, '',c.lastName) AS CUSTOMERNAME, 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
ORDER BY totalSpent DESC
LIMIT 1;
```

customerID	CUSTOMERNAME	totalSpent
10	OliviaAdams	1500.00

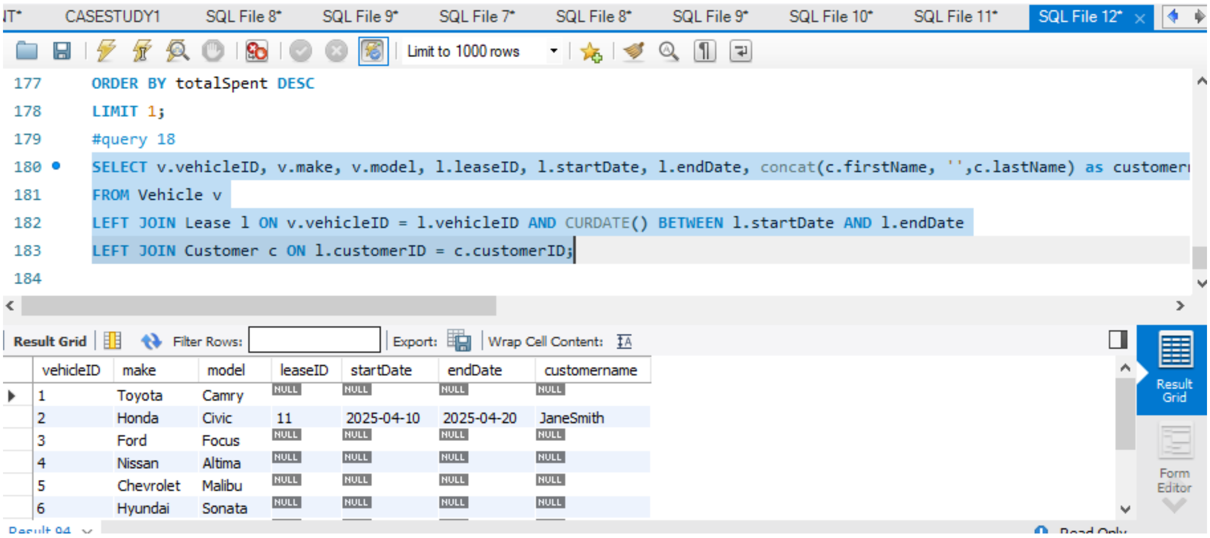
18.List All Cars with Their Current Lease Information.

SELECT v.vehicleID, v.make, v.model, l.leaseID, l.startDate, l.endDate, concat(c.firstName, '',c.lastName) as customername

FROM Vehicle v

LEFT JOIN Lease l ON v.vehicleID = l.vehicleID AND CURDATE() BETWEEN l.startDate AND l.endDate

LEFT JOIN Customer c ON l.customerID = c.customerID;



```
ORDER BY totalSpent DESC
LIMIT 1;
#query 18
SELECT v.vehicleID, v.make, v.model, l.leaseID, l.startDate, l.endDate, concat(c.firstName, '',c.lastName) as customer
FROM Vehicle v
LEFT JOIN Lease l ON v.vehicleID = l.vehicleID AND CURDATE() BETWEEN l.startDate AND l.endDate
LEFT JOIN Customer c ON l.customerID = c.customerID;
```

vehicleID	make	model	leaseID	startDate	endDate	customername
1	Toyota	Camry	NULL	NULL	NULL	NULL
2	Honda	Civic	11	2025-04-10	2025-04-20	JaneSmith
3	Ford	Focus	NULL	NULL	NULL	NULL
4	Nissan	Altima	NULL	NULL	NULL	NULL
5	Chevrolet	Malibu	NULL	NULL	NULL	NULL
6	Hyundai	Sonata	NULL	NULL	NULL	NULL