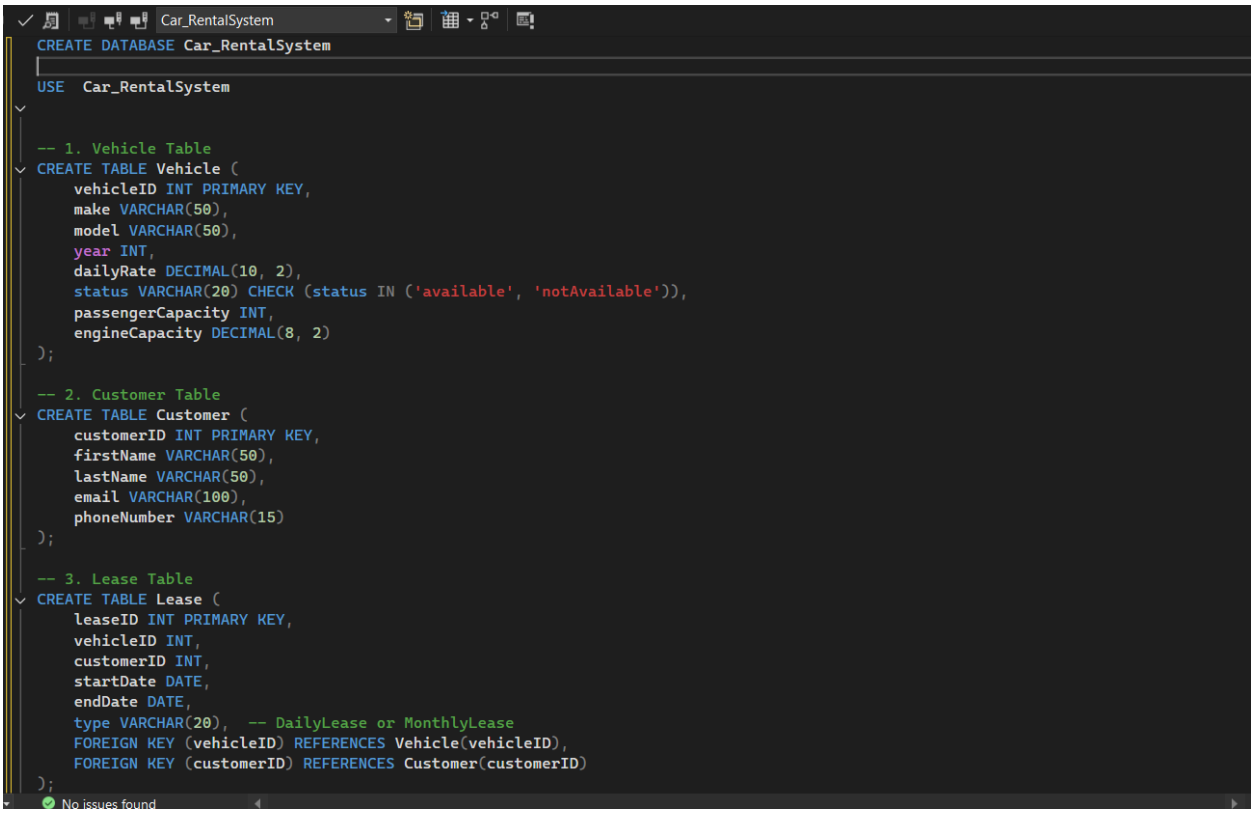
SQL server code challenge

```
-- Create database
CREATE DATABASE Car_RentalSystem
USE  Car_RentalSystem

-- Vehicle Table
CREATE TABLE Vehicle (
    vehicleID INT PRIMARY KEY,
    make VARCHAR(50),
    model VARCHAR(50),
    year INT,
    dailyRate DECIMAL(10, 2),
    status VARCHAR(20) CHECK (status IN ('available', 'notAvailable')),
    passengerCapacity INT,
    engineCapacity DECIMAL(8, 2)
);

--  Customer Table
CREATE TABLE Customer (
    customerID INT PRIMARY KEY,
    firstName VARCHAR(50),
    lastName VARCHAR(50),
    email VARCHAR(100),
    phoneNumber VARCHAR(15)
);
```

-- Lease Table

```
CREATE TABLE Lease (
    leaseID INT PRIMARY KEY,
    vehicleID INT,
    customerID INT,
    startDate DATE,
    endDate DATE,
    type VARCHAR(20),  -- DailyLease or MonthlyLease
    FOREIGN KEY (vehicleID) REFERENCES Vehicle(vehicleID),
    FOREIGN KEY (customerID) REFERENCES Customer(customerID)
);
```



```
CREATE DATABASE Car_RentalSystem

USE  Car_RentalSystem


-- 1. Vehicle Table
CREATE TABLE Vehicle (
    vehicleID INT PRIMARY KEY,
    make VARCHAR(50),
    model VARCHAR(50),
    year INT,
    dailyRate DECIMAL(10, 2),
    status VARCHAR(20) CHECK (status IN ('available', 'notAvailable')),
    passengerCapacity INT,
    engineCapacity DECIMAL(8, 2)
);

-- 2. Customer Table
CREATE TABLE Customer (
    customerID INT PRIMARY KEY,
    firstName VARCHAR(50),
    lastName VARCHAR(50),
    email VARCHAR(100),
    phoneNumber VARCHAR(15)
);

-- 3. Lease Table
CREATE TABLE Lease (
    leaseID INT PRIMARY KEY,
    vehicleID INT,
    customerID INT,
    startDate DATE,
    endDate DATE,
    type VARCHAR(20),  -- DailyLease or MonthlyLease
    FOREIGN KEY (vehicleID) REFERENCES Vehicle(vehicleID),
    FOREIGN KEY (customerID) REFERENCES Customer(customerID)
);
```

No issues found

-- Payment Table

```
CREATE TABLE Payment (
```

paymentID INT PRIMARY KEY,

leaseID INT,

paymentDate DATE,

amount DECIMAL(10, 2),

FOREIGN KEY (leaseID) REFERENCES Lease(leaseID)

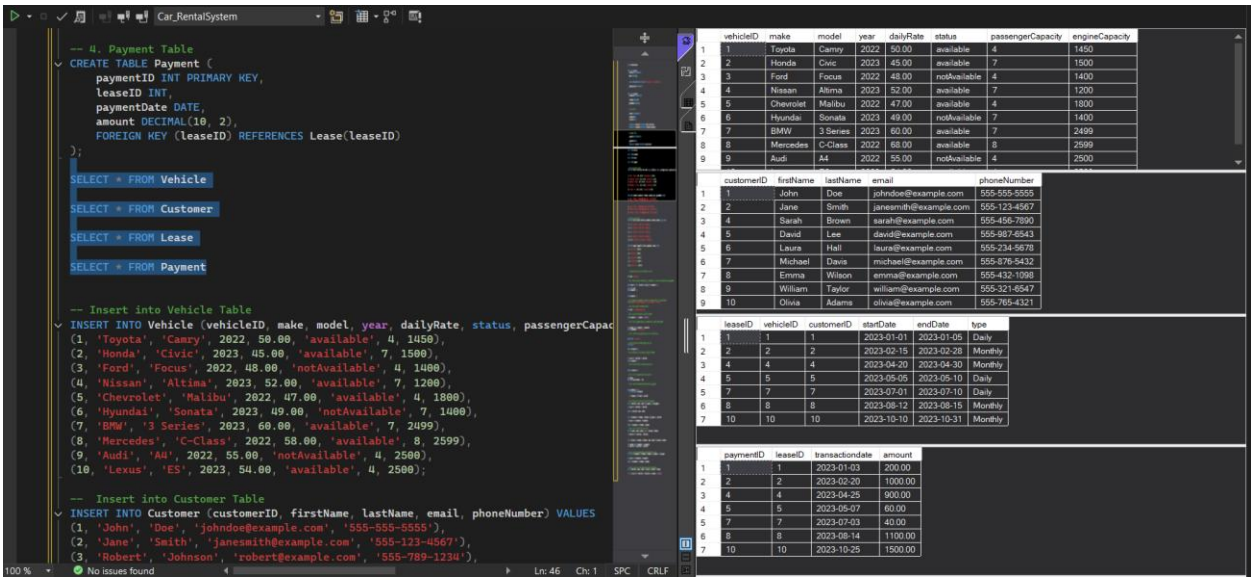
);

SELECT * FROM Vehicle

SELECT * FROM Customer

SELECT * FROM Lease

SELECT * FROM Payment



-- Insert into Vehicle Table

INSERT INTO Vehicle (vehicleID, make, model, year, dailyRate, status, passengerCapacity, engineCapacity)
VALUES

(1, 'Toyota', 'Camry', 2022, 50.00, 'available', 4, 1450),

(2, 'Honda', 'Civic', 2023, 45.00, 'available', 7, 1500),

(3, 'Ford', 'Focus', 2022, 48.00, 'notAvailable', 4, 1400),

(4, 'Nissan', 'Altima', 2023, 52.00, 'available', 7, 1200),

(5, 'Chevrolet', 'Malibu', 2022, 47.00, 'available', 4, 1800),

(6, 'Hyundai', 'Sonata', 2023, 49.00, 'notAvailable', 7, 1400),

(7, 'BMW', '3 Series', 2023, 60.00, 'available', 7, 2499),

(8, 'Mercedes', 'C-Class', 2022, 58.00, 'available', 8, 2599),

(9, 'Audi', 'A4', 2022, 55.00, 'notAvailable', 4, 2500),

(10, 'Lexus', 'ES', 2023, 54.00, 'available', 4, 2500);

-- Insert into Customer Table

INSERT INTO Customer (customerID, firstName, lastName, email, phoneNumber) 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 Table

INSERT INTO Lease (leaseID, vehicleID, customerID, startDate, endDate, type) 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 Table

INSERT INTO Payment (paymentID, leaseID, paymentDate, amount) 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),

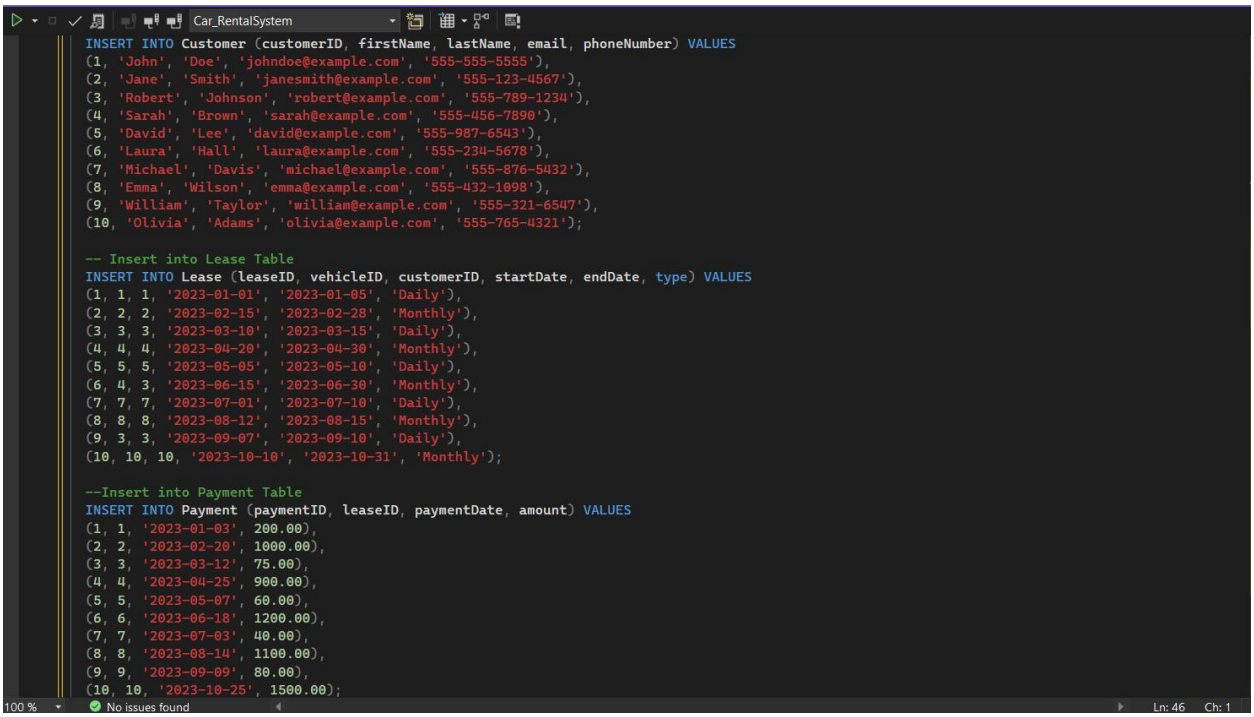
(6, 6, '2023-06-18', 1200.00),

(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);



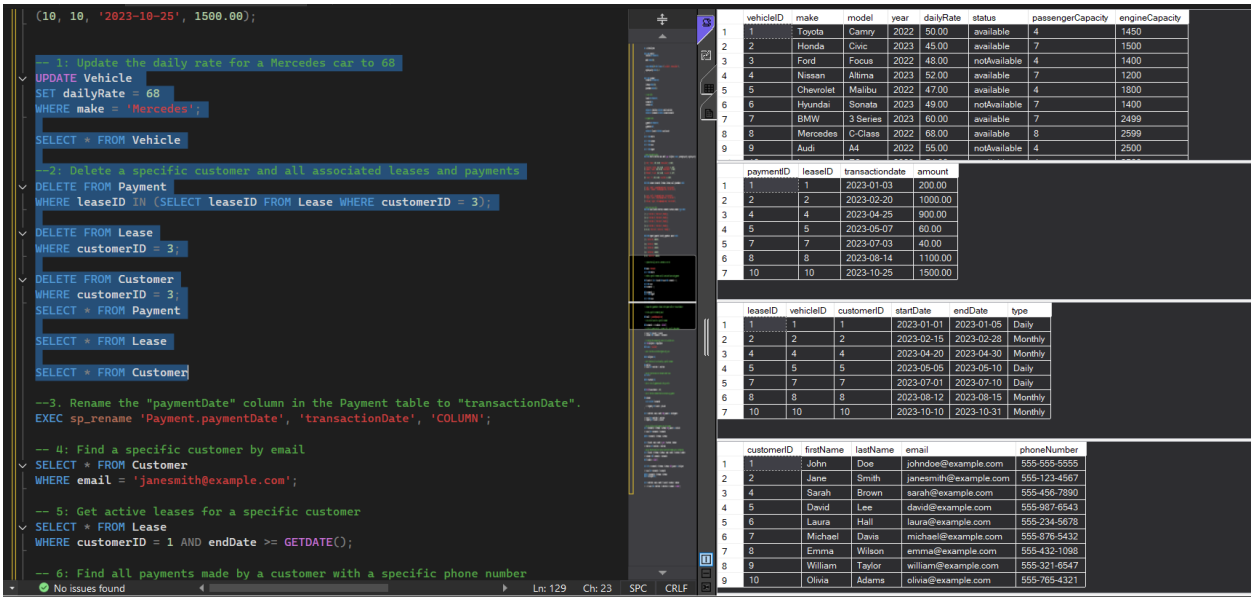
```
INSERT INTO Customer (customerID, firstName, lastName, email, phoneNumber) VALUES
(1, 'John', 'Doe', 'johndoe@example.com', '555-555-5555'),
(2, 'Jane', 'Smith', 'janesmith@example.com', '555-123-4567'),
(3, 'Robert', 'Johnson', 'robert@example.com', '555-789-1234'),
(4, 'Sarah', 'Brown', 'sarah@example.com', '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 Table
INSERT INTO Lease (leaseID, vehicleID, customerID, startDate, endDate, type) 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 Table
INSERT INTO Payment (paymentID, leaseID, paymentDate, amount) 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

WHERE make = 'Mercedes';
```

-- 2: Delete a specific customer (e.g., customerID = 3) 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;
```



-- 3: Rename the "paymentDate" column in the Payment table to "transactionDate"

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

-- 4: Find a specific customer by email

SELECT * FROM Customer

WHERE email = 'janesmith@example.com';

-- 5: Get active leases for a specific customer

SELECT * FROM Lease

WHERE customerID = 1 AND endDate >= GETDATE();

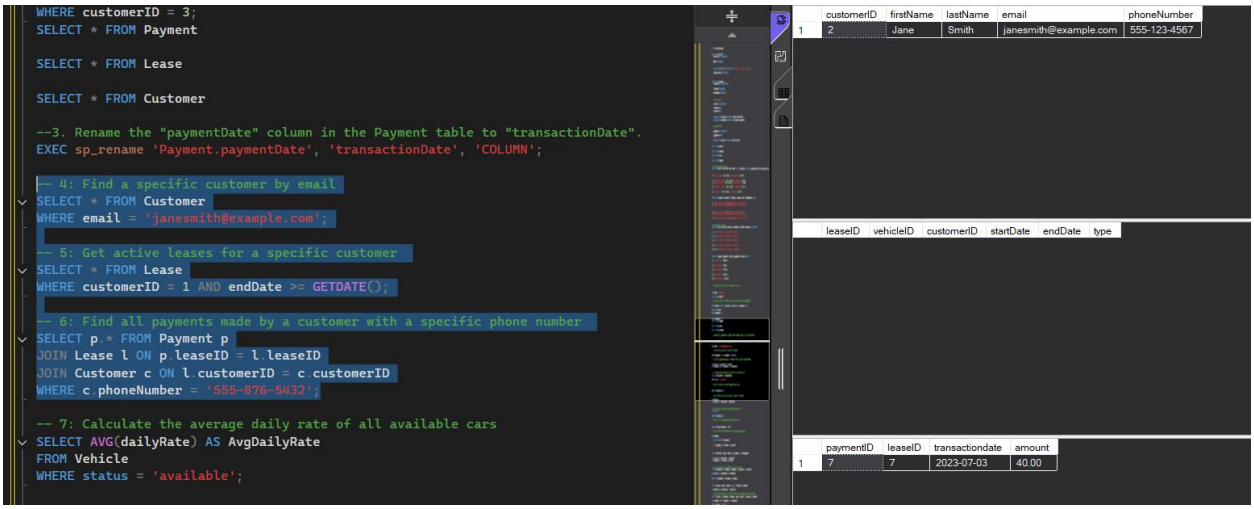
-- 6: Find all payments made by a customer with a specific phone number

SELECT p.* FROM Payment p

JOIN Lease l ON p.leaseID = l.leaseID

JOIN Customer c ON l.customerID = c.customerID

WHERE c.phoneNumber = '555-876-5432';



-- 7: Calculate the average daily rate of all available cars

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

-- 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

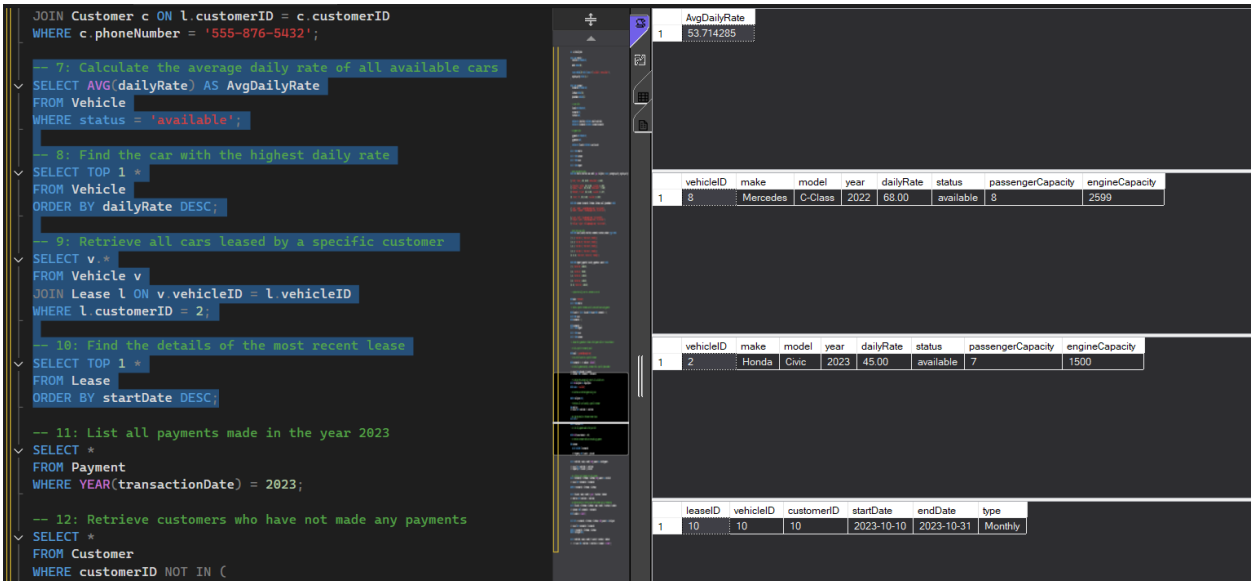
```
SELECT v.*
FROM Vehicle v
JOIN Lease l ON v.vehicleID = l.vehicleID
WHERE l.customerID = 2;
```

-- 10: Find the details of the most recent lease

SELECT TOP 1 *

FROM Lease

ORDER BY startDate DESC;



-- 11: List all payments made in the year 2023

SELECT *

FROM Payment

WHERE YEAR(transactionDate) = 2023;

-- 12: Retrieve customers who have not made any payments

SELECT *

FROM Customer

WHERE customerID NOT IN (

  SELECT DISTINCT l.customerID

  FROM Lease l

  JOIN Payment p ON l.leaseID = p.leaseID

);

-- 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, v.make, v.model;

-- 14: Calculate Total Payments for Each Customer

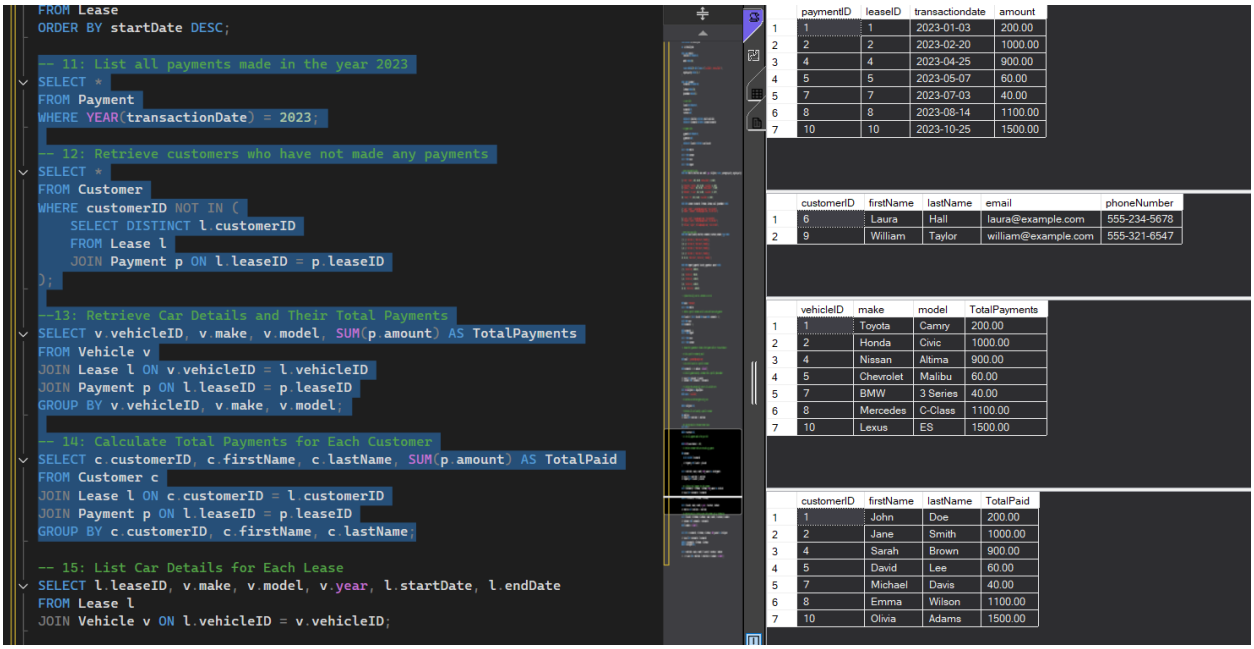
SELECT c.customerID, c.firstName, c.lastName, SUM(p.amount) AS TotalPaid

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;



```
FROM Lease
ORDER BY startDate DESC;

-- 11: List all payments made in the year 2023
SELECT *
FROM Payment
WHERE YEAR(transactionDate) = 2023;

-- 12: Retrieve customers who have not made any payments
SELECT *
FROM Customer
WHERE customerID NOT IN (
    SELECT DISTINCT l.customerID
    FROM Lease l
    JOIN Payment p ON l.leaseID = p.leaseID
);

--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
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GROUP BY v.vehicleID, v.make, v.model;

-- 14: Calculate Total Payments for Each Customer
SELECT c.customerID, c.firstName, c.lastName, SUM(p.amount) AS TotalPaid
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;

-- 15: List Car Details for Each Lease
SELECT l.leaseID, v.make, v.model, v.year, l.startDate, l.endDate
FROM Lease l
JOIN Vehicle v ON l.vehicleID = v.vehicleID;
```

	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

	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

	vehicleID	make	model	TotalPayments
1	1	Toyota	Camry	200.00
2	2	Honda	Civic	1000.00
3	4	Nissan	Altima	900.00
4	5	Chevrolet	Malibu	60.00
5	7	BMW	3 Series	40.00
6	8	Mercedes	C-Class	1100.00
7	10	Lexus	ES	1500.00

	customerID	firstName	lastName	TotalPaid
1	1	John	Doe	200.00
2	2	Jane	Smith	1000.00
3	4	Sarah	Brown	900.00
4	5	David	Lee	60.00
5	7	Michael	Davis	40.00
6	8	Emma	Wilson	1100.00
7	10	Olivia	Adams	1500.00

-- 15: List Car Details for Each Lease

SELECT l.leaseID, v.make, v.model, v.year, l.startDate, l.endDate

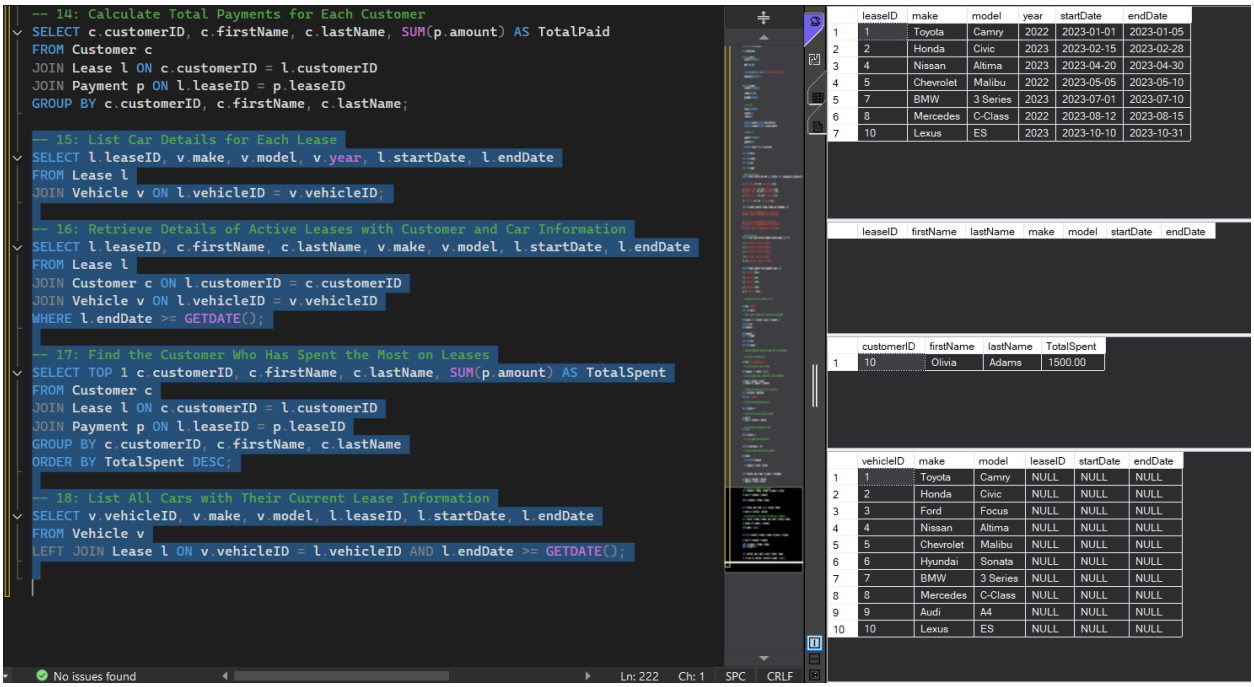
FROM Lease l

```
JOIN Vehicle v ON l.vehicleID = v.vehicleID;

-- 16: Retrieve Details of Active Leases with Customer and Car Information
SELECT l.leaseID, c.firstName, c.lastName, v.make, v.model, l.startDate, l.endDate
FROM Lease l
JOIN Customer c ON l.customerID = c.customerID
JOIN Vehicle v ON l.vehicleID = v.vehicleID
WHERE l.endDate >= GETDATE();

-- 17: Find the Customer Who Has Spent the Most on Leases
SELECT TOP 1 c.customerID, c.firstName, c.lastName, 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
ORDER BY TotalSpent DESC;

-- 18: List All Cars with Their Current Lease Information
SELECT v.vehicleID, v.make, v.model, l.leaseID, l.startDate, l.endDate
FROM Vehicle v
LEFT JOIN Lease l ON v.vehicleID = l.vehicleID AND l.endDate >= GETDATE();
```



```sql
-- 14: Calculate Total Payments for Each Customer
SELECT c.customerID, c.firstName, c.lastName, SUM(p.amount) AS TotalPaid
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;

-- 15: List Car Details for Each Lease
SELECT l.leaseID, v.make, v.model, v.year, l.startDate, l.endDate
FROM Lease l
JOIN Vehicle v ON l.vehicleID = v.vehicleID;

-- 16: Retrieve Details of Active Leases with Customer and Car Information
SELECT l.leaseID, c.firstName, c.lastName, v.make, v.model, l.startDate, l.endDate
FROM Lease l
JOIN Customer c ON l.customerID = c.customerID
JOIN Vehicle v ON l.vehicleID = v.vehicleID
WHERE l.endDate >= GETDATE();

-- 17: Find the Customer Who Has Spent the Most on Leases
SELECT TOP 1 c.customerID, c.firstName, c.lastName, 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
ORDER BY TotalSpent DESC;

-- 18: List All Cars with Their Current Lease Information
SELECT v.vehicleID, v.make, v.model, l.leaseID, l.startDate, l.endDate
FROM Vehicle v
LEFT JOIN Lease l ON v.vehicleID = l.vehicleID AND l.endDate >= GETDATE();
```

No issues found Ln: 222 Ch: 1 SPC CRLF

	leaseID	make	model	year	startDate	endDate
1	1	Toyota	Camry	2022	2023-01-01	2023-01-05
2	2	Honda	Civic	2023	2023-02-15	2023-02-28
3	4	Nissan	Altima	2023	2023-04-20	2023-04-30
4	5	Chevrolet	Malibu	2022	2023-05-05	2023-05-10
5	7	BMW	3 Series	2023	2023-07-01	2023-07-10
6	8	Mercedes	C-Class	2022	2023-08-12	2023-08-15
7	10	Lexus	ES	2023	2023-10-10	2023-10-31

	leaseID	firstName	lastName	make	model	startDate	endDate

	customerID	firstName	lastName	TotalSpent
1	10	Olivia	Adams	1500.00

	vehicleID	make	model	leaseID	startDate	endDate
1	1	Toyota	Camry	NULL	NULL	NULL
2	2	Honda	Civic	NULL	NULL	NULL
3	3	Ford	Focus	NULL	NULL	NULL
4	4	Nissan	Altima	NULL	NULL	NULL
5	5	Chevrolet	Malibu	NULL	NULL	NULL
6	6	Hyundai	Sonata	NULL	NULL	NULL
7	7	BMW	3 Series	NULL	NULL	NULL
8	8	Mercedes	C-Class	NULL	NULL	NULL
9	9	Audi	A4	NULL	NULL	NULL
10	10	Lexus	ES	NULL	NULL	NULL