

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);
```

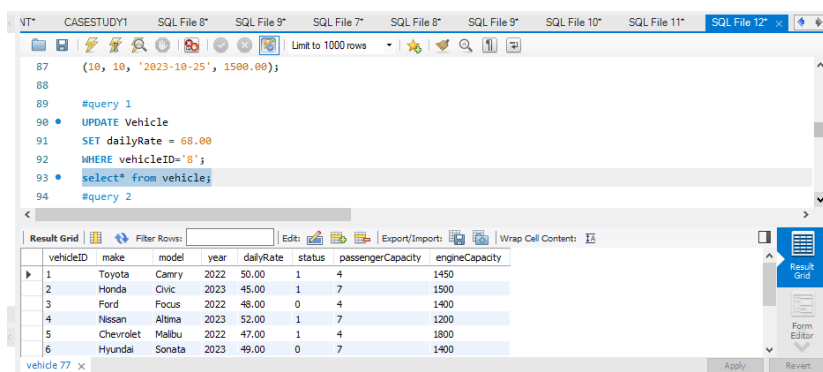
1 .Update the daily rate for a Mercedes car to 68.

UPDATE Vehicle

SET dailyRate = 68.00

WHERE vehicleID='8';

select* from vehicle;



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;

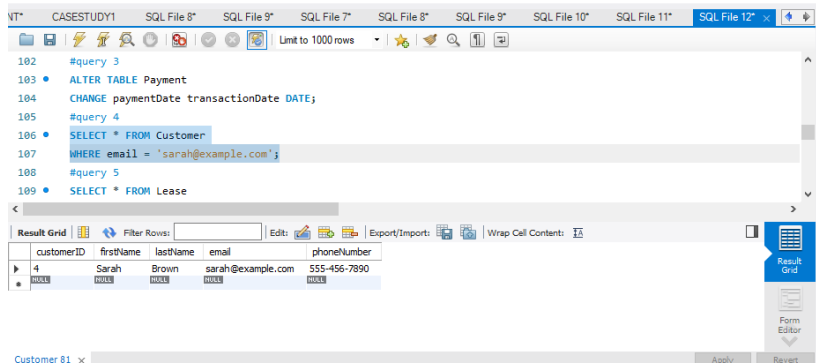
select* from customer;

select* from payment;

4. Find a specific customer by email.

```
SELECT * FROM Customer
```

```
WHERE email = 'sarah@example.com';
```



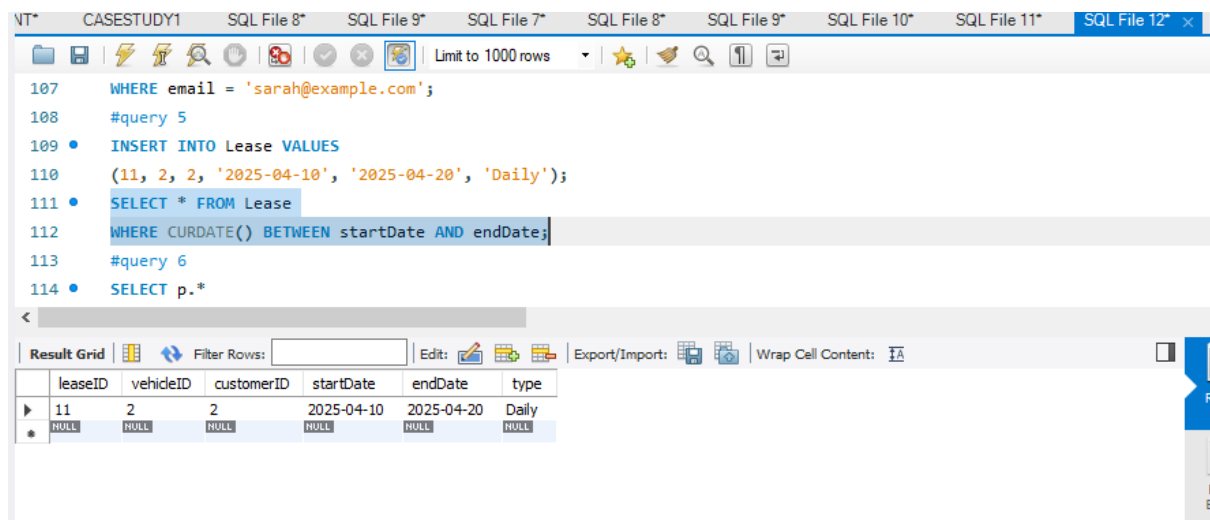
5. Get active leases for a specific customer.

```
INSERT INTO Lease VALUES
```

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

```
SELECT * FROM Lease
```

```
WHERE CURDATE() BETWEEN startDate AND endDate;
```



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';

The screenshot shows a SQL Studio window with a query editor and a result grid. The query editor contains the following SQL code:

```
112 WHERE CURDATE() BETWEEN startDate AND endDate;
113 #query 6
114 • SELECT p.*
115 FROM Payment p
116 JOIN Lease l ON p.leaseID = l.leaseID
117 JOIN Customer c ON l.customerID = c.customerID
118 WHERE c.phoneNumber = '555-456-7890';
119 #query 7
```

The result grid shows the following data:

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';

The screenshot shows a SQL Studio window with a query editor and a result grid. The query editor contains the following SQL code:

```
118 WHERE c.phoneNumber = '555-456-7890';
119 #query 7
120 • SELECT AVG(dailyRate) AS avgAvailableRate
121 FROM Vehicle
122 WHERE status = '1';
123 #query 8
124 • SELECT *
125 FROM Vehicle
```

The result grid shows the following data:

avgAvailableRate
53.714286

8. Find the car with the highest daily rate.

SELECT *

FROM Vehicle

ORDER BY dailyRate DESC

LIMIT 1;

NT* CASESTUDY1 SQL File 8* SQL File 9* SQL File 7* SQL File 8* SQL File 9* SQL File 10* SQL File 11* SQL File 12*

```

121 FROM Vehicle
122 WHERE status = '1';
123 #query 8
124 • SELECT *
125 FROM Vehicle
126 ORDER BY dailyRate DESC
127 LIMIT 1;
128 #query 9

```

Result Grid

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;

NT* CASESTUDY1 SQL File 8* SQL File 9* SQL File 7* SQL File 8* SQL File 9* SQL File 10* SQL File 11* SQL File 12*

```

127 LIMIT 1;
128 #query 9
129 • SELECT v.*
130 FROM Vehicle v
131 JOIN Lease l ON v.vehicleID = l.vehicleID
132 WHERE l.customerID = 2;
133 #query 10
134 • SELECT *

```

Result Grid

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;

SQL File 12*

```

132 WHERE l.customerID = 2;
133 #query 10
134 • SELECT *
135 FROM Lease
136 ORDER BY startDate DESC
137 LIMIT 1;
138 #query 11
139 • SELECT *

```

Result Grid

	leaseID	vehicleID	customerID	startDate	endDate	type
▶ 11	2	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;

SQL File 12*

```

137 LIMIT 1;
138 #query 11
139 • SELECT *
140 FROM Payment
141 WHERE YEAR(transactionDate) = 2023;
142 #query 12
143 • SELECT c.*
144 FROM Customer c

```

Result Grid

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

The screenshot shows a SQL Developer window with a query titled "#query 12". The query is as follows:

```

142 #query 12
143 SELECT c.*
144 FROM Customer c
145 WHERE c.customerID NOT IN (
146     SELECT DISTINCT l.customerID
147     FROM Lease l
148     JOIN Payment p ON l.leaseID = p.leaseID);
149 #query 13
  
```

Below the query editor, the "Result Grid" is displayed, showing the results of the query. The grid has five columns: customerID, firstName, lastName, email, and phoneNumber. The results are as follows:

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;

The screenshot shows a SQL Developer window with a query titled "#query 13". The query is as follows:

```

149 #query 13
150 SELECT v.vehicleID, v.make, v.model, SUM(p.amount) AS totalPayments
151 FROM Vehicle v
152 JOIN Lease l ON v.vehicleID = l.vehicleID
153 JOIN Payment p ON l.leaseID = p.leaseID
154 GROUP BY v.vehicleID;
155 #query 14
156 SELECT c.customerID, concat(c.firstName, ' ', c.lastName) as customername, SUM(p.amount) AS totalPayments
  
```

Below the query editor, the "Result Grid" is displayed, showing the results of the query. The grid has four columns: vehicleID, make, model, and totalPayments. The results are as follows:

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;
```

The screenshot shows a SQL Server Enterprise Manager window with a query editor and a results grid. The query editor displays the following SQL code:

```
155 #query 14  
156 • SELECT c.customerID, concat(c.firstName, ' ', c.lastName) as customername, SUM(p.amount) AS totalPayments  
157 FROM Customer c  
158 JOIN Lease l ON c.customerID = l.customerID  
159 JOIN Payment p ON l.leaseID = p.leaseID  
160 GROUP BY c.customerID;  
161 #query 15  
162 • SELECT v.vehicleID, v.make, v.model, l.LEASEID
```

The results grid shows the following data:

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;
```

The screenshot shows a SQL Server Enterprise Manager window with a query editor and a results grid. The query editor displays the following SQL code:

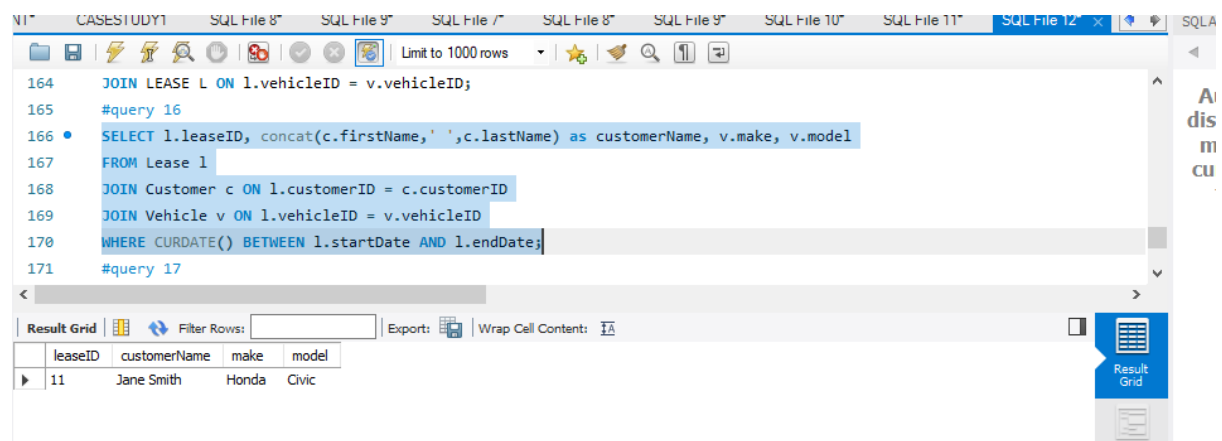
```
160 GROUP BY c.customerID;  
161 #query 15  
162 • SELECT v.vehicleID, v.make, v.model, l.LEASEID  
163 FROM Vehicle v  
164 JOIN LEASE l ON l.vehicleID = v.vehicleID;  
165 #query 16  
166 • SELECT l.leaseID, concat(c.firstName, ' ', c.lastName) as customerName, v.make, v.model  
167 FROM Lease l
```

The results grid shows the following data:

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;
```



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;
```

The screenshot shows a SQL IDE window with multiple tabs. The active tab is 'SQL File 12'. The SQL editor displays the following query:

```

171 #query 17
172 • SELECT c.customerID, CONCAT(c.firstName, ',c.lastName) AS CUSTOMERNAME, SUM(p.amount) AS totalSpent
173 FROM Customer c
174 JOIN Lease l ON c.customerID = l.customerID
175 JOIN Payment p ON l.leaseID = p.leaseID
176 GROUP BY c.customerID
177 ORDER BY totalSpent DESC
178 LIMIT 1;

```

Below the editor, the 'Result Grid' shows the following data:

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;

The screenshot shows a SQL IDE window with multiple tabs. The active tab is 'SQL File 12'. The SQL editor displays the following query:

```

177 ORDER BY totalSpent DESC
178 LIMIT 1;
179 #query 18
180 • SELECT v.vehicleID, v.make, v.model, l.leaseID, l.startDate, l.endDate, concat(c.firstName, ',c.lastName) as customername
181 FROM Vehicle v
182 LEFT JOIN Lease l ON v.vehicleID = l.vehicleID AND CURDATE() BETWEEN l.startDate AND l.endDate
183 LEFT JOIN Customer c ON l.customerID = c.customerID;
184

```

Below the editor, the 'Result Grid' shows the following data:

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