SQL Coding Challenge

#Database creation

```
CREATE DATABASE Car_Rental_System;

use Car_Rental_System;
```

#Vehicle Table

```
CREATE TABLE vehicle (
    vehicle_id INT PRIMARY KEY IDENTITY(1,1),
    make VARCHAR(50),
    model VARCHAR(50),
    year INT,
    daily_rate DECIMAL(10, 2),
    status VARCHAR(20) CHECK (status IN ('available', 'notavailable')),
    passenger_capacity INT,
    engine_capacity DECIMAL(5, 2)
);


INSERT INTO vehicle (make, model, year, daily_rate, status, passenger_capacity, engine_capacity)
VALUES
('Nissan', 'Altima', 2022, 32.00, 'available', 5, 2.5),
('Chevrolet', 'Cruze', 2021, 28.00, 'notavailable', 5, 1.8),
('BMW', 'X5', 2023, 70.00, 'available', 5, 3.0),
('Mercedes', 'C-Class', 2022, 75.00, 'available', 5, 2.0),
('Audi', 'A4', 2021, 68.00, 'notavailable', 5, 2.0),
('Kia', 'Seltos', 2020, 30.00, 'available', 5, 1.5),
('Volkswagen', 'Jetta', 2023, 34.00, 'available', 5, 1.4),
('Renault', 'Duster', 2021, 27.00, 'notavailable', 5, 1.6),
('Jeep', 'Compass', 2023, 50.00, 'available', 5, 2.0),
('Mazda', 'CX-5', 2022, 36.00, 'available', 5, 2.5),
('Skoda', 'Octavia', 2020, 33.00, 'available', 5, 1.8),
('Peugeot', '208', 2021, 26.00, 'available', 5, 1.2),
```

('Fiat', 'Punto', 2020, 22.00, 'available', 5, 1.3),

('Volvo', 'XC60', 2023, 65.00, 'available', 5, 2.0),

('Suzuki', 'Swift', 2022, 24.00, 'available', 5, 1.2),

('Toyota', 'Yaris', 2021, 27.00, 'available', 5, 1.3),

('Honda', 'Accord', 2023, 45.00, 'available', 5, 2.0),

('Ford', 'Focus', 2020, 29.00, 'available', 5, 1.6),

('Hyundai', 'Elantra', 2022, 33.00, 'available', 5, 1.8),

('MG', 'Hector', 2023, 50.00, 'available', 5, 2.0);

#Customer Table

```
CREATE TABLE customer (
    customer_id INT PRIMARY KEY IDENTITY(1,1),
    first_name VARCHAR(50),
    last_name VARCHAR(50),
    email VARCHAR(100) UNIQUE,
    phone_number VARCHAR(20)
);
```

INSERT INTO customer (first_name, last_name, email, phone_number) VALUES

('Alice', 'Smith', 'alice@example.com', '1234567890'),

('Bob', 'Johnson', 'bob@example.com', '0987654321'),

('Charlie', 'Brown', 'charlie@example.com', '1112223333'),

('Diana', 'Prince', 'diana@example.com', '4445556666'),

('Evan', 'Williams', 'evan@example.com', '7778889999'),

('Fiona', 'Garcia', 'fiona@example.com', '1111111111'),

('George', 'Martin', 'george@example.com', '2222222222'),

('Hannah', 'Lee', 'hannah@example.com', '3333333333'),

('Ian', 'Wright', 'ian@example.com', '4444444444'),

('Jane', 'Doe', 'jane@example.com', '5555555555'),

('Kyle', 'Young', 'kyle@example.com', '6666666666'),

('Laura', 'Green', 'laura@example.com', '7777777777'),

('Mike', 'Taylor', 'mike@example.com', '8888888888'),

('Nina', 'Patel', 'nina@example.com', '9999999999'),

('Oscar', 'Clark', 'oscar@example.com', '1010101010'),

('Paula', 'Hill', 'paula@example.com', '1212121212'),

('Quentin', 'Wood', 'quentin@example.com', '1313131313'),

('Rachel', 'King', 'rachel@example.com', '1414141414'),

('Steve', 'Adams', 'steve@example.com', '1515151515'),

('Tina', 'Lopez', 'tina@example.com', '1616161616');

#Lease Table

```
CREATE TABLE lease (
    lease_id INT PRIMARY KEY IDENTITY(1,1),
    vehicle_id INT,
    customer_id INT,
    start_date DATE,
    end_date DATE,
    type VARCHAR(10) CHECK (type IN ('daily', 'monthly')),
    FOREIGN KEY (vehicle_id) REFERENCES vehicle(vehicle_id),
    FOREIGN KEY (customer_id) REFERENCES customer(customer_id)
);


INSERT INTO lease (vehicle_id, customer_id, start_date, end_date, type) VALUES
(1, 1, '2025-06-01', '2025-06-05', 'daily'),
(2, 2, '2025-06-10', '2025-07-10', 'monthly'),
(3, 3, '2025-06-15', '2025-06-20', 'daily'),
(4, 4, '2025-06-05', '2025-07-05', 'monthly'),
(5, 5, '2025-06-25', '2025-06-30', 'daily'),
(6, 6, '2025-07-01', '2025-07-10', 'daily'),
(7, 7, '2025-07-01', '2025-08-01', 'monthly'),
(8, 8, '2025-07-02', '2025-07-07', 'daily'),
(9, 9, '2025-07-03', '2025-08-03', 'monthly'),
(10, 10, '2025-07-04', '2025-07-09', 'daily'),
(11, 11, '2025-07-05', '2025-08-05', 'monthly'),
```

(12, 12, '2025-07-06', '2025-07-11', 'daily'),

(13, 13, '2025-07-07', '2025-08-07', 'monthly'),

(14, 14, '2025-07-08', '2025-07-13', 'daily'),

(15, 15, '2025-07-09', '2025-08-09', 'monthly'),

(16, 16, '2025-07-10', '2025-07-15', 'daily'),

(17, 17, '2025-07-11', '2025-08-11', 'monthly'),

(18, 18, '2025-07-12', '2025-07-17', 'daily'),

(19, 19, '2025-07-13', '2025-08-13', 'monthly'),

(20, 20, '2025-07-14', '2025-07-19', 'daily');

#Payment Table

```
CREATE TABLE payment (
    payment_id INT PRIMARY KEY IDENTITY(1,1),
    lease_id INT,
    payment_date DATE,
    amount DECIMAL(10, 2),
    FOREIGN KEY (lease_id) REFERENCES lease(lease_id)
);
```

INSERT INTO payment (lease_id, payment_date, amount) VALUES

(1, '2025-06-01', 100.00),

(2, '2025-06-10', 1050.00),

(3, '2025-06-15', 200.00),

(4, '2025-06-05', 1500.00),

(5, '2025-06-25', 125.00),

(6, '2025-07-01', 180.00),

(7, '2025-07-01', 1020.00),

(8, '2025-07-02', 150.00),

(9, '2025-07-03', 1100.00),

(10, '2025-07-04', 160.00),

(11, '2025-07-05', 1300.00),

(12, '2025-07-06', 170.00),

(13, '2025-07-07', 1250.00),

(14, '2025-07-08', 175.00),

(15, '2025-07-09', 1400.00),

(16, '2025-07-10', 185.00),

(17, '2025-07-11', 1350.00),

(18, '2025-07-12', 190.00),

(19, '2025-07-13', 1450.00),

(20, '2025-07-14', 195.00);

-- Average Payment Per Vehicle

```
select v.vehicle_id, v.make + ' ' + v.model as vehicle_name,avg(p.amount) as avg_payment
from vehicle v join lease l on v.vehicle_id = l.vehicle_id join payment p on l.lease_id = p.lease_id
group by v.vehicle_id, v.make, v.model;
```

	vehicle_id	vehicle_name	avg_payment
1	1	Nissan Altima	100.000000
2	2	Chevrolet Cruze	1050.000000
3	3	BMW X5	200.000000
4	4	Mercedes C-Class	1500.000000
5	5	Audi A4	125.000000
6	6	Kia Seltos	180.000000
7	7	Volkswagen Jetta	1020.000000
8	8	Renault Duster	150.000000
9	9	Jeep Compass	1100.000000
10	10	Mazda CX-5	160.000000
11	11	Skoda Octavia	1300.000000
12	12	Peugeot 208	170.000000
13	13	Fiat Punto	1250.000000
14	14	Volvo XC60	175.000000
15	15	Suzuki Swift	1400.000000
16	16	Toyota Yaris	185.000000
17	17	Honda Accord	1350.000000
18	18	Ford Focus	190.000000
19	19	Hyundai Elantra	1450.000000
20	20	MG Hector	195.000000

-- Total Leases Per Customer

```
select c.customer_id,c.first_name + ' ' + c.last_name as customer_name, count(l.lease_id) as
total_leases
```

from customer c join lease l on c.customer_id = l.customer_id

group by c.customer_id, c.first_name, c.last_name;

	customer_id	customer_name	total_leases
1	1	Alice Smith	1
2	2	Bob Johnson	1
3	3	Charlie Brown	1
4	4	Diana Prince	1
5	5	Evan Williams	1
6	6	Fiona Garcia	1
7	7	George Martin	1
8	8	Hannah Lee	1
9	9	Ian Wright	1
10	10	Jane Doe	1
11	11	Kyle Young	1
12	12	Laura Green	1
13	13	Mike Taylor	1
14	14	Nina Patel	1
15	15	Oscar Clark	1
16	16	Paula Hill	1
17	17	Quentin Wood	1
18	18	Rachel King	1
19	19	Steve Adams	1
20	20	Tina Lopez	1

-- Total Amount Paid Per Lease

select l.lease_id,l.type,sum(p.amount) as total_paid

from lease l join payment p on l.lease_id = p.lease_id

group by l.lease_id, l.type;

	lease_id	type	total_paid
1	1	daily	100.00
2	2	monthly	1050.00
3	3	daily	200.00
4	4	monthly	1500.00
5	5	daily	125.00
6	6	daily	180.00
7	7	monthly	1020.00
8	8	daily	150.00
9	9	monthly	1100.00
10	10	daily	160.00
11	11	monthly	1300.00
12	12	daily	170.00
13	13	monthly	1250.00
14	14	daily	175.00
15	15	monthly	1400.00
16	16	daily	185.00
17	17	monthly	1350.00
18	18	daily	190.00
19	19	monthly	1450.00
20	20	daily	195.00

-- Max, Min Payment Grouped By Lease Type

```
select l.type,max(p.amount) as max_payment,min(p.amount) as min_payment
from payment p join lease l on p.lease_id = l.lease_id
group by l.type;
```

	type	max_payment	min_payment
1	daily	200.00	100.00
2	monthly	1500.00	1020.00

-- Avg Payment Grouped By Lease Type

```
select l.type,avg(p.amount) as avg_payment
from payment p join lease l on p.lease_id = l.lease_id
group by l.type;
```

	type	avg_payment
1	daily	166.363636
2	monthly	1268.888888