Coding Challenge - Car Rental System – SQL

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BATCH_4

Table Vehicle:

create table vehicle (vehicle_id int primary key, make varchar(50), model varchar(50), year int, daily_rate decimal(10,2), status varchar(20), passengerCapacity int, engineCapacity int);

```
mysql> create table vehicle (vehicle_id int primary key, make varchar(50), model varchar(50), year int, daily_rate decim
al(10,2), status varchar(20), passengerCapacity int, engineCapacity int);
Query OK, 0 rows affected (0.11 sec)
```

```
mysql> desc vehicle;
+-------------------+---------------+------+-----+---------+-------+
| Field             | Type          | Null | Key | Default | Extra |
+-------------------+---------------+------+-----+---------+-------+
| vehicle_id        | int           | NO   | PRI | NULL    |       |
| make              | varchar(50)   | YES  |     | NULL    |       |
| model             | varchar(50)   | YES  |     | NULL    |       |
| year              | int           | YES  |     | NULL    |       |
| daily_rate        | decimal(10,2) | YES  |     | NULL    |       |
| status            | varchar(20)   | YES  |     | NULL    |       |
| passengerCapacity | int           | YES  |     | NULL    |       |
| engineCapacity    | int           | YES  |     | NULL    |       |
+-------------------+---------------+------+-----+---------+-------+
8 rows in set (0.04 sec)
```

insert into vehicle(vehicle_id,make,model,year,daily_rate,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);

```
mysql> insert into vehicle(vehicle_id,make,model,year,daily_rate,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);
Query OK, 10 rows affected (0.01 sec)
Records: 10  Duplicates: 0  Warnings: 0
```

```
mysql> select * from vehicle;
+------------+-----------+----------+------+------------+-------------+-------------------+----------------+
| vehicle_id | make      | model    | year | daily_rate | status      | passengerCapacity | engineCapacity |
+------------+-----------+----------+------+------------+-------------+-------------------+----------------+
|          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 |
+------------+-----------+----------+------+------------+-------------+-------------------+----------------+
10 rows in set (0.00 sec)
```

Table customer:

create table customer (customer_id int primary key, first_name varchar(50), last_name varchar(50), email varchar(100), phone_number varchar(20));

```
mysql> create table customer (customer_id int primary key, first_name varchar(50), last_name varchar(50),
 email varchar(100), phone_number varchar(20) );
Query OK, 0 rows affected (0.03 sec)

mysql> desc customer;
+--------------+--------------+------+-----+---------+-------+
| Field        | Type         | Null | Key | Default | Extra |
+--------------+--------------+------+-----+---------+-------+
| customer_id  | int          | NO   | PRI | NULL    |       |
| first_name   | varchar(50)  | YES  |     | NULL    |       |
| last_name    | varchar(50)  | YES  |     | NULL    |       |
| email        | varchar(100) | YES  |     | NULL    |       |
| phone_number | varchar(20)  | YES  |     | NULL    |       |
+--------------+--------------+------+-----+---------+-------+
5 rows in set (0.00 sec)
```

insert into customer(customer_id, first_name,last_name, email,phone_number) 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');

```
mysql> insert into customer( customer_id, first_name,last_name, email,phone_number) values (1, 'John', 'D
oe', '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');
Query OK, 10 rows affected (0.02 sec)
Records: 10  Duplicates: 0  Warnings: 0
```

```
mysql> select * from customer;
+-------------+------------+-----------+----------------------+--------------+
| customer_id | first_name | last_name | email                | phone_number |
+-------------+------------+-----------+----------------------+--------------+
|           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 |
+-------------+------------+-----------+----------------------+--------------+
10 rows in set (0.00 sec)
```

Table lease:

create table lease(lease_id int primary key, vehicle_id int, customer_id int, start_date date, end_date date, lease_type varchar(50), foreign key (vehicle_id) references vehicle(vehicle_id), foreign key(customer_id) references customer(customer_id));

```
mysql> create table lease( lease_id int primary key, vehicle_id int, customer_id int, start_date date, en
d_date date, lease_type varchar(50), foreign key (vehicle_id) references vehicle(vehicle_id), foreign key
(customer_id) references customer(customer_id) );
Query OK, 0 rows affected (0.07 sec)

mysql> desc lease;
+-------------+-------------+------+-----+---------+-------+
| Field       | Type        | Null | Key | Default | Extra |
+-------------+-------------+------+-----+---------+-------+
| lease_id    | int         | NO   | PRI | NULL    |       |
| vehicle_id  | int         | YES  | MUL | NULL    |       |
| customer_id | int         | YES  | MUL | NULL    |       |
| start_date  | date        | YES  |     | NULL    |       |
| end_date    | date        | YES  |     | NULL    |       |
| lease_type  | varchar(50) | YES  |     | NULL    |       |
+-------------+-------------+------+-----+---------+-------+
6 rows in set (0.00 sec)
```

insert into lease(lease_id, vehicle_id, customer_id, start_date, end_date, lease_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')

-> ;

```
mysql> insert into lease(lease_id, vehicle_id, customer_id, start_date, end_date, lease_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')
    -> ;
Query OK, 10 rows affected (0.01 sec)
Records: 10  Duplicates: 0  Warnings: 0
```

```
mysql> select * from lease;
+----------+------------+-------------+------------+------------+------------+
| lease_id | vehicle_id | customer_id | start_date | end_date   | lease_type |
+----------+------------+-------------+------------+------------+------------+
|        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    |
+----------+------------+-------------+------------+------------+------------+
10 rows in set (0.00 sec)
```

Table payment:

create table payment(payment_id int primary key, lease_id int, payment_date date, amount decimal(10,2), foreign key(lease_id) references lease(lease_id));

```
mysql> create table payment( payment_id int primary key, lease_id int, payment_date date, amount decimal(
10,2), foreign key(lease_id) references lease(lease_id) );
Query OK, 0 rows affected (0.04 sec)

mysql> desc payment;
+--------------+---------------+------+-----+---------+-------+
| Field        | Type          | Null | Key | Default | Extra |
+--------------+---------------+------+-----+---------+-------+
| payment_id   | int           | NO   | PRI | NULL    |       |
| lease_id     | int           | YES  | MUL | NULL    |       |
| payment_date | date          | YES  |     | NULL    |       |
| amount       | decimal(10,2) | YES  |     | NULL    |       |
+--------------+---------------+------+-----+---------+-------+
4 rows in set (0.00 sec)
```

insert into payment(payment_id, lease_id, payment_date, 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);

```
mysql> insert into payment(payment_id, lease_id, payment_date, 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);
Query OK, 10 rows affected (0.01 sec)
Records: 10  Duplicates: 0  Warnings: 0
```

```
mysql> select * from payment;
+------------+----------+--------------+---------+
| payment_id | lease_id | payment_date | amount  |
+------------+----------+--------------+---------+
|          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 |
+------------+----------+--------------+---------+
10 rows in set (0.00 sec)
```

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

update vehicle set daily_rate = 68 where make = 'mercedes';

```
mysql> update vehicle set daily_rate = 68 where make = 'mercedes';
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```

```
  8 | Mercedes   | C-Class   | 2022 |      68.00
```

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

delete from payment where lease_id in(select lease_id from lease where customer_id = 5);
delete from lease where customer_id = 5;

delete from customer where customer_id = 5;

```
mysql> delete from payment where lease_id in(select lease_id from lease where customer_id = 5);
Query OK, 1 row affected (0.01 sec)
```

```
mysql> delete from lease where customer_id = 5;
Query OK, 1 row affected (0.01 sec)

mysql> delete from customer where customer_id = 5;
Query OK, 1 row affected (0.01 sec)
```

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

alter table payment rename column payment_date to transaction_date;

```
mysql> alter table payment rename column payment_date to transaction_date;
Query OK, 0 rows affected (0.05 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

```
mysql> select * from payment;
+------------+----------+------------------+---------+
| payment_id | lease_id | transaction_date | amount  |
+------------+----------+------------------+---------+
```

4. Find a specific customer by email.

select * from customer where email = 'sarah@example.com';

```
mysql> select * from customer where email = 'sarah@example.com';
+-------------+------------+-----------+-------------------+--------------+
| customer_id | first_name | last_name | email             | phone_number |
+-------------+------------+-----------+-------------------+--------------+
|           4 | Sarah      | Brown     | sarah@example.com | 555-456-7890 |
+-------------+------------+-----------+-------------------+--------------+
1 row in set (0.00 sec)
```

5. Get active leases for a specific customer.

select * from lease where customer_id =4 and curdate() between start_date and end_date;

```
mysql> select * from lease where customer_id =4 and curdate() between start_date and end_date;
+----------+------------+-------------+------------+------------+------------+
| lease_id | vehicle_id | customer_id | start_date | end_date   | lease_type |
+----------+------------+-------------+------------+------------+------------+
|       11 |          6 |           4 | 2025-06-10 | 2025-06-20 | Daily      |
+----------+------------+-------------+------------+------------+------------+
1 row in set (0.00 sec)
```

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

select p.* from payment p join lease l on p.lease_id = l.lease_id join customer c on l.customer_id = c.customer_id where phone_number = '555-789-1234';

```
mysql> select p.* from payment p join lease l on p.lease_id = l.lease_id join customer c on l.customer_id
 = c.customer_id where phone_number = '555-789-1234';
+------------+----------+------------------+---------+
| payment_id | lease_id | transaction_date | amount  |
+------------+----------+------------------+---------+
|          3 |        3 | 2023-03-12       |   75.00 |
|          6 |        6 | 2023-06-18       | 1200.00 |
|          9 |        9 | 2023-09-09       |   80.00 |
+------------+----------+------------------+---------+
3 rows in set (0.00 sec)
```

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

select avg(daily_rate) from vehicle where status = 'available';

```
mysql> select avg(daily_rate) from vehicle where status = 'available';
+-----------------+
| avg(daily_rate) |
+-----------------+
|       53.714286 |
+-----------------+
1 row in set (0.00 sec)
```

8. Find the car with the highest daily rate.

select * from vehicle order by daily_rate desc limit 1;

```
mysql> select * from vehicle order by daily_rate desc limit 1;
+------------+----------+---------+------+------------+-----------+-------------------+----------------+
| vehicle_id | make     | model   | year | daily_rate | status    | passengerCapacity | engineCapacity |
+------------+----------+---------+------+------------+-----------+-------------------+----------------+
|          8 | Mercedes | C-Class | 2022 |      68.00 | available |                 8 |           2599 |
+------------+----------+---------+------+------------+-----------+-------------------+----------------+
1 row in set (0.00 sec)
```

9. Retrieve all cars leased by a specific customer.

select v.* from vehicle v join lease l on v.vehicle_id = l.vehicle_id where l.customer_id = 3;

```
mysql> select v.* from vehicle v join lease l on v.vehicle_id = l.vehicle_id where l.customer_id = 3;
+------------+--------+--------+------+------------+-------------+-------------------+----------------+
| vehicle_id | make   | model  | year | daily_rate | status      | passengerCapacity | engineCapacity |
+------------+--------+--------+------+------------+-------------+-------------------+----------------+
|          3 | Ford   | Focus  | 2022 |      48.00 | notAvailable |                 4 |           1400 |
|          4 | Nissan | Altima | 2023 |      52.00 | available    |                 7 |           1200 |
|          3 | Ford   | Focus  | 2022 |      48.00 | notAvailable |                 4 |           1400 |
+------------+--------+--------+------+------------+-------------+-------------------+----------------+
3 rows in set (0.00 sec)
```

10. Find the details of the most recent lease.

select * from lease order by start_date desc limit 1;

```
mysql> select * from lease order by start_date desc limit 1;
+----------+------------+-------------+------------+------------+------------+
| lease_id | vehicle_id | customer_id | start_date | end_date   | lease_type |
+----------+------------+-------------+------------+------------+------------+
|       12 |          9 |           8 | 2025-06-15 | 2025-06-25 | Monthly    |
+----------+------------+-------------+------------+------------+------------+
1 row in set (0.00 sec)
```

11. List all payments made in the year 2023.

select * from payment where transaction_date like '%2023%';

```
mysql> select * from payment where transaction_date like '%2023%';
+------------+----------+------------------+---------+
| payment_id | lease_id | transaction_date | amount  |
+------------+----------+------------------+---------+
|          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 |
|          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 |
+------------+----------+------------------+---------+
9 rows in set (0.00 sec)
```

12. Retrieve customers who have not made any payments.

select * from customer c where c.customer_id not in(select c.customer_id from customer c, payment p, lease l where c.customer_id = l.customer_id and l.lease_id = p.lease_id);

```
mysql> select * from customer c where c.customer_id not in(select c.customer_id from customer c, payment
p, lease l where c.customer_id = l.customer_id and l.lease_id = p.lease_id );
+-------------+------------+-----------+--------------------+--------------+
| customer_id | first_name | last_name | email              | phone_number |
+-------------+------------+-----------+--------------------+--------------+
|           6 | Laura      | Hall      | laura@example.com  | 555-234-5678 |
|           9 | William    | Taylor    | william@example.com | 555-321-6547 |
+-------------+------------+-----------+--------------------+--------------+
2 rows in set (0.00 sec)
```

13. Retrieve Car Details and Their Total Payments.

select v.vehicle_id, v.model, v.year ,sum(p.amount) as total_amount 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 vehicle_id;

```
mysql> select v.vehicle_id, v.model, v.year ,sum(p.amount) as total_amount 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 vehicle_id;
+------------+----------+------+--------------+
| vehicle_id | model    | year | total_amount |
+------------+----------+------+--------------+
|          1 | camry    | 2022 |       200.00 |
|          2 | Civic    | 2023 |      1000.00 |
|          3 | Focus    | 2022 |       155.00 |
|          4 | Altima   | 2023 |      2100.00 |
|          7 | 3 Series | 2023 |        40.00 |
|          8 | C-Class  | 2022 |      1100.00 |
|         10 | ES       | 2023 |      1500.00 |
+------------+----------+------+--------------+
7 rows in set (0.00 sec)
```

14. Calculate Total Payments for Each Customer.

select c.customer_id, c.first_name, c.last_name, sum(p.amount) as total_payment from customer c join lease l on c.customer_id = l.customer_id join payment p on l.lease_id = p.lease_id group by c.customer_id;

```
mysql> select c.customer_id, c.first_name, c.last_name, sum(p.amount) as total_payment from customer c jo
in lease l on c.customer_id = l.customer_id join payment p on l.lease_id = p.lease_id group by c.customer
_id;
+-------------+------------+-----------+---------------+
| customer_id | first_name | last_name | total_payment |
+-------------+------------+-----------+---------------+
|           1 | John       | Doe       |        200.00 |
|           2 | Jane       | Smith     |       1000.00 |
|           3 | Robert     | Johnson   |       1355.00 |
|           4 | Sarah      | Brown     |        900.00 |
|           7 | Michael    | Davis     |         40.00 |
|           8 | Emma       | Wilson    |       1100.00 |
|          10 | Olivia     | Adams     |       1500.00 |
+-------------+------------+-----------+---------------+
7 rows in set (0.00 sec)
```

15. List Car Details for Each Lease.

select v.vehicle_id, v.make, v.model from vehicle v join lease l on v.vehicle_id = l.vehicle_id group by l.lease_id;

```
mysql> select v.vehicle_id, v.make, v.model from vehicle v join lease l on v.vehicle_id = l.vehicle_id gr
oup by l.lease_id;
+------------+----------+----------+
| vehicle_id | make     | model    |
+------------+----------+----------+
|          1 | toyota   | camry    |
|          2 | Honda    | Civic    |
|          3 | Ford     | Focus    |
|          3 | Ford     | Focus    |
|          4 | Nissan   | Altima   |
|          4 | Nissan   | Altima   |
|          6 | Hyundai  | Sonata   |
|          7 | BMW      | 3 Series |
|          8 | Mercedes | C-Class  |
|          9 | Audi     | A4       |
|         10 | Lexus    | ES       |
+------------+----------+----------+
11 rows in set (0.00 sec)
```

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

select l.lease_id, v.vehicle_id, v.make, c.first_name, c.last_name from vehicle v join lease l on v.vehicle_id = l.vehicle_id join customer c on c.customer_id = l.customer_id where curdate() between l.start_date and l.end_date;

```
mysql> select l.lease_id, v.vehicle_id, v.make, c.first_name, c.last_name from vehicle v join lease l on
v.vehicle_id = l.vehicle_id join customer c on c.customer_id = l.customer_id where curdate() between l.st
art_date and l.end_date;
+----------+------------+---------+------------+-----------+
| lease_id | vehicle_id | make    | first_name | last_name |
+----------+------------+---------+------------+-----------+
|       11 |          6 | Hyundai | Sarah      | Brown     |
|       12 |          9 | Audi    | Emma       | Wilson    |
+----------+------------+---------+------------+-----------+
2 rows in set (0.00 sec)
```

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

```
select c.customer_id, c.first_name, c.last_name, c.email, c.phone_number, sum(p.amount) as
total_spent
from customer c
join lease l on c.customer_id = l.customer_id
join payment p on l.lease_id = p.lease_id
group by c.customer_id
order by total_spent desc
limit 1;
```

```
mysql> select c.customer_id, c.first_name, c.last_name, c.email, c.phone_number, sum(p.amount) as total_s
pent
    -> from customer c
    -> join lease l on c.customer_id = l.customer_id
    -> join payment p on l.lease_id = p.lease_id
    -> group by c.customer_id
    -> order by total_spent desc
    -> limit 1;
+-------------+------------+-----------+-------------------+--------------+-------------+
| customer_id | first_name | last_name | email             | phone_number | total_spent |
+-------------+------------+-----------+-------------------+--------------+-------------+
|          10 | Olivia     | Adams     | olivia@example.com | 555-765-4321 |     1500.00 |
+-------------+------------+-----------+-------------------+--------------+-------------+
1 row in set (0.00 sec)
```

18. List All Cars with Their Current Lease Information.

```
select v.vehicle_id, v.make, v.model, v.year, v.daily_rate, l.lease_id
    -> from vehicle v
    -> left join lease l on v.vehicle_id = l.vehicle_id
    ->   and curdate() between l.start_date and l.end_date;
```

```
mysql> select v.vehicle_id, v.make, v.model, v.year, v.daily_rate, l.lease_id
    -> from vehicle v
    -> left join lease l on v.vehicle_id = l.vehicle_id
    ->   and curdate() between l.start_date and l.end_date;
+------------+-----------+----------+------+------------+----------+
| vehicle_id | make      | model    | year | daily_rate | lease_id |
+------------+-----------+----------+------+------------+----------+
|          1 | toyota    | camry    | 2022 |      50.00 |     NULL |
|          2 | Honda     | Civic    | 2023 |      45.00 |     NULL |
|          3 | Ford      | Focus    | 2022 |      48.00 |     NULL |
|          4 | Nissan    | Altima   | 2023 |      52.00 |     NULL |
|          5 | Chevrolet | Malibu   | 2022 |      47.00 |     NULL |
|          6 | Hyundai   | Sonata   | 2023 |      49.00 |       11 |
|          7 | BMW       | 3 Series | 2023 |      60.00 |     NULL |
|          8 | Mercedes  | C-Class  | 2022 |      68.00 |     NULL |
|          9 | Audi      | A4       | 2022 |      55.00 |       12 |
|         10 | Lexus     | ES       | 2023 |      54.00 |     NULL |
+------------+-----------+----------+------+------------+----------+
10 rows in set (0.00 sec)
```