Coding Challenge

Car Rental System

Tables with schema:

Vehicle:

```
create database carrentalsystem;
use carrentalsystem;
create table vehicle(vehicleID int primary key,make text, model varchar(255), year varchar(10), dailyrate decimal(10,2),
status boolean, passengercapacity int, enginecapacity varchar(10));
desc vehicle;
```

```
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);
select * from vehicle;
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap

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
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
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

Customer:

```
20 • create table customer(customerid int primary key, firstname text,lastname text, email text,phoneNumber varchar(20));
21 • desc customer;
```

```
22 •  insert into customer values
23    (1, "John", "Doe", "johndoe@example.com", 5555555555),
24    (2, "Jane", "Smith", "janesmith@example.com", 5551234567),
25    (3, "Robert", "Johnson", "robert@example.com", 5557891234),
26    (4, "Sarah", "Brown", "sarah@example.com", 5554567890),
27    (5, "David", "Lee", "david@example.com", 5559876543),
28    (6, "Laura" ,"Hall" ,"laura@example.com" ,5552345678),
29    (7, "Michael", "Davis", "michael@example.com", 5558765432),
30    (8 ,"Emma", "Wilson" ,"emma@example.com" ,5554321098),
31    (9, "William", "Taylor", "william@example.com", 5553216547),
32    (10 ,"Olivia" ,"Adams" ,"olivia@example.com" ,5557654321);
33 •  select * from customer;
```

Result Grid | Filter Rows: | Edit: | Export/Import:

customerid	firstname	lastname	email	phoneNumber
1	John	Doe	johndoe@example.com	5555555555
2	Jane	Smith	janesmith@example.com	5551234567
3	Robert	Johnson	robert@example.com	5557891234
4	Sarah	Brown	sarah@example.com	5554567890
5	David	Lee	david@example.com	5559876543
6	Laura	Hall	laura@example.com	5552345678
7	Michael	Davis	michael@example.com	5558765432
8	Emma	Wilson	emma@example.com	5554321098
9	William	Taylor	william@example.com	5553216547
10	Olivia	Adams	olivia@example.com	5557654321
NULL	NULL	NULL	NULL	NULL

Lease:

```
35 • create table lease(leaseid int primary key, vehicleID int ,foreign key(vehicleID) references vehicle(vehicleid), customerid int,
36   foreign key(customerid) references customer(customerid), startdate date, enddate date, type text);
37 • desc lease;
38
```

```
39 • insert into lease values
40   (1, 1, 1, "2023-01-01", "2023-01-05", "Daily"),
41   (2 ,2 ,2 ,"2023-02-15" ,"2023-02-28", "Monthly"),
42   (3, 3, 3, "2023-03-10", "2023-03-15", "Daily"),
43   (4, 4, 4, "2023-04-20", "2023-04-30", "Monthly"),
44   (5 ,5 ,5 ,"2023-05-05" ,"2023-05-10", "Daily"),
45   (6, 4, 3, "2023-06-15", "2023-06-30", "Monthly"),
46   (7, 7, 7, "2023-07-01", "2023-07-10", "Daily"),
47   (8, 8, 8, "2023-08-12", "2023-08-15", "Monthly"),
48   (9, 3, 3, "2023-09-07", "2023-09-10", "Daily"),
49   (10, 10, 10, "2023-10-10", "2023-10-31", "Monthly");
50 • select * from lease;
51
52 • alter table lease add column lease_status varchar(255);
53 • update lease set lease_status="not active" where leaseid=1;
54 • update lease set lease_status="not active" where leaseid=2;
55 • update lease set lease_status="not active" where leaseid=3;
56 • update lease set lease_status="not active" where leaseid=4;
57 • update lease set lease_status="active" where leaseid=5;
58 • update lease set lease_status=" active" where leaseid=6;
```

```
59 •  update lease set lease_status="active" where leaseid=7;
60 •  update lease set lease_status="active" where leaseid=8;
61 •  update lease set lease_status="active" where leaseid=9;
62 •  update lease set lease_status="active" where leaseid=10;
```

esult Grid | Filter Rows: | Edit: | Export/Import:

leaseid	vehicleID	customerid	startdate	enddate	type	lease_status
1	1	1	2023-01-01	2023-01-05	Daily	not active
2	2	2	2023-02-15	2023-02-28	Monthly	not active
3	3	3	2023-03-10	2023-03-15	Daily	not active
4	4	4	2023-04-20	2023-04-30	Monthly	not active
5	5	5	2023-05-05	2023-05-10	Daily	active
6	4	3	2023-06-15	2023-06-30	Monthly	active
8	8	8	2023-08-12	2023-08-15	Monthly	active
9	3	3	2023-09-07	2023-09-10	Daily	active
10	10	10	2023-10-10	2023-10-31	Monthly	active
NULL	NULL	NULL	NULL	NULL	NULL	NULL

Payment:

```
63 •  create table payment(paymentid int primary key, leaseid int, foreign key (leaseid) references lease(leaseid),
64     paymentdate date, amount decimal(10,2));
65 •  desc payment;
66
```

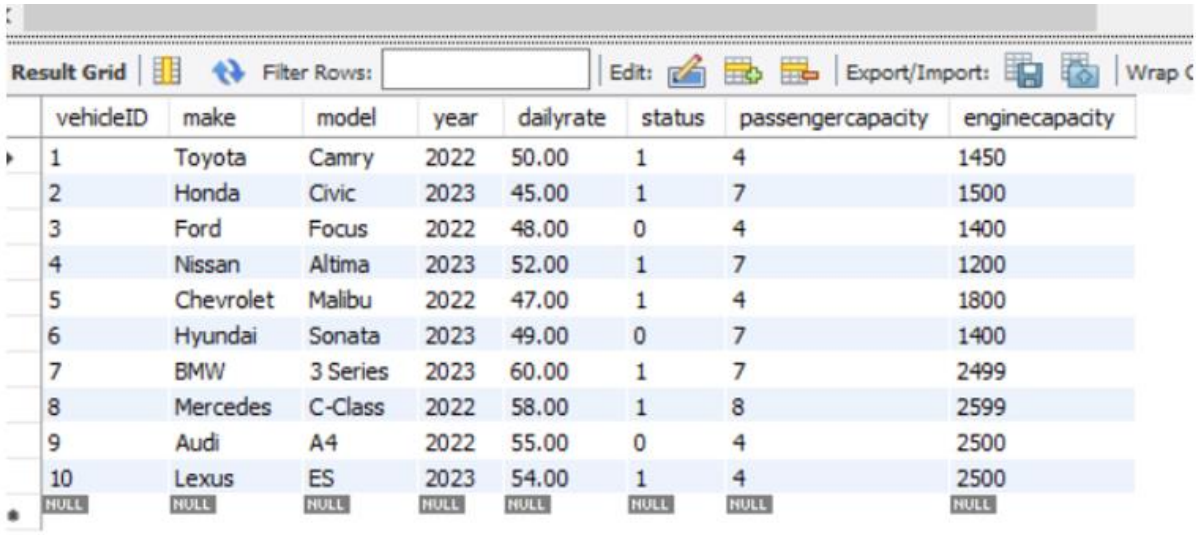
```
56 •  insert into payment values
57    (1, 1, "2023-01-03" ,200.00),
58    (2, 2, "2023-02-20" ,1000.00),
59    (3 ,3 ,"2023-03-12" ,75.00),
60    (4, 4, "2023-04-25", 900.00),
61    (5 ,5 ,"2023-05-07" ,60.00),
62    (6, 6, "2023-06-18", 1200.00),
63    (7 ,7 ,"2023-07-03" ,40.00),
64    (8, 8, "2023-08-14", 1100.00),
65    (9 ,9 ,"2023-09-09" ,80.00),
66    (10, 10, "2023-10-25", 1500.00);
67 •  select * from payment;
```

Result Grid | Filter Rows: | Edit:

paymentid	leaseid	paymentdate	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
NULL	NULL	NULL	NULL

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

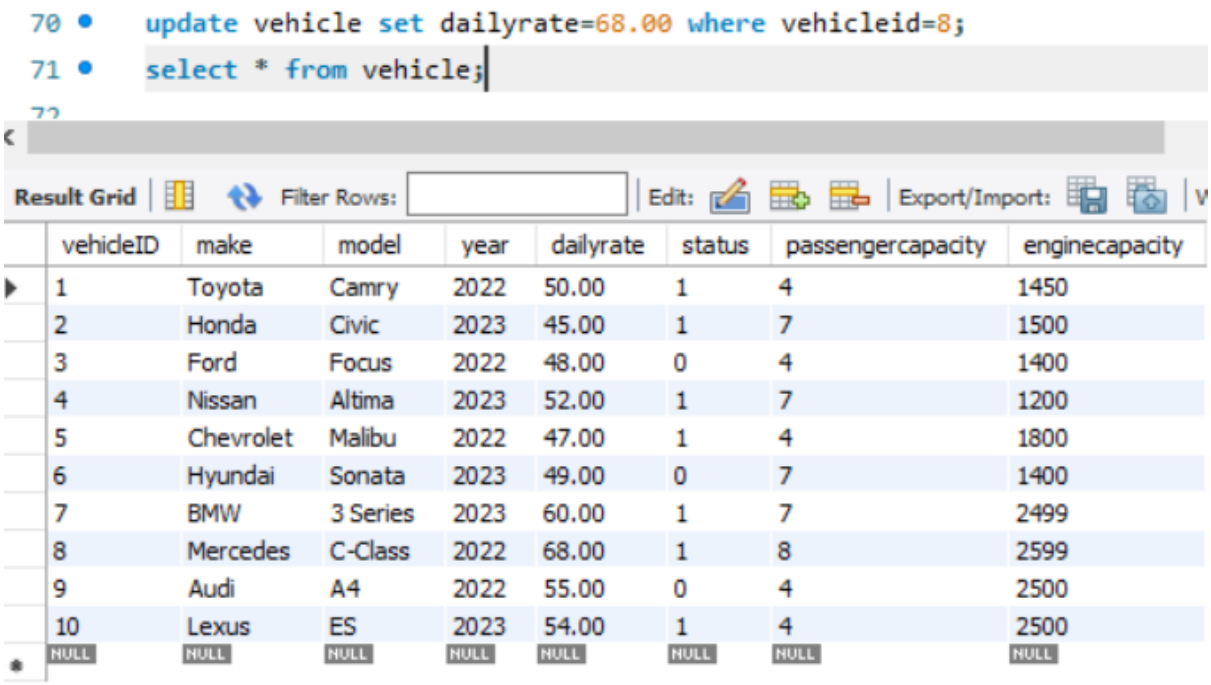
Before update:



Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap

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
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
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

After update:



```
70 •  update vehicle set dailyrate=68.00 where vehicleid=8;
71 •  select * from vehicle;
```

Result Grid | Filter Rows: | Edit: | Export/Import:

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
7	BMW	3 Series	2023	60.00	1	7	2499
8	Mercedes	C-Class	2022	68.00	1	8	2599
9	Audi	A4	2022	55.00	0	4	2500
10	Lexus	ES	2023	54.00	1	4	2500
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

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

Customer table:

```
75 •  delete from payment where leaseid in (select leaseid from lease where customerid = '7');
76 •  delete from lease where customerid = 7;
77 •  delete from customer where customerid = '7';
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

customerid	firstname	lastname	email	phoneNumber
1	John	Doe	johndoe@example.com	5555555555
2	Jane	Smith	janesmith@example.com	5551234567
3	Robert	Johnson	robert@example.com	5557891234
4	Sarah	Brown	sarah@example.com	5554567890
5	David	Lee	david@example.com	5559876543
6	Laura	Hall	laura@example.com	5552345678
8	Emma	Wilson	emma@example.com	5554321098
9	William	Taylor	william@example.com	5553216547
10	Olivia	Adams	olivia@example.com	5557654321
NULL	NULL	NULL	NULL	NULL

Lease table:

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
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
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
NULL	NULL	NULL	NULL	NULL	NULL

Payment table:

paymentid	leaseid	transactionDate	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
8	8	2023-08-14	1100.00
9	9	2023-09-09	80.00
10	10	2023-10-25	1500.00
NULL	NULL	NULL	NULL

Here I have deleted customer id with 7 .

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

```
74 •  alter table payment rename column paymentdate to transactionDate;
75 •  select * from payment;
76
```

Result Grid | Filter Rows: | Edit: | Export/Import:

paymentid	leaseid	transactionDate	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
NULL	NULL	NULL	NULL

4, Find a specific customer by email.

```
78 •  select * from customer where email= "robert@example.com";
```

Result Grid | Filter Rows: | Edit: | Export/Import:

customerid	firstname	lastname	email	phoneNumber
3	Robert	Johnson	robert@example.com	5557891234
NULL	NULL	NULL	NULL	NULL

5, Get active leases for a specific customer

```
99 •  select lease.* from lease
100   join customer on lease.customerid = customer.customerid
101   where customer.customerid = '3' and lease.lease_status = 'active';
102
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

leaseid	vehicleID	customerid	startdate	enddate	type	lease_status
9	3	3	2023-09-07	2023-09-10	Daily	active

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

```
88 •  select payment.* from payment
89    join lease on payment.leaseid = lease.leaseid
90    join customer on lease.customerid = customer.customerid
91    where customer.phonenumber = '5557891234';
92
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

paymentid	leaseid	transactionDate	amount
3	3	2023-03-12	75.00
6	6	2023-06-18	1200.00
9	9	2023-09-09	80.00

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

```
82 •  select avg(dailyrate) from vehicle where status=1;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Conte

avg(dailyrate)
53.714286

8, Find the car with the highest daily rate.

```
85 •  select * from vehicle order by dailyrate desc limit 1;
86
```

Result Grid | Filter Rows: | Edit: | Export/Import: | W

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

With distinct keyword:

```
88 •  select distinct vehicle.* from vehicle join lease on vehicle.vehicleid = lease.vehicleid
89    join customer on lease.customerid = customer.customerid where customer.customerid = 3;
90
91
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

vehicleID	make	model	year	dailyrate	status	passengercapacity	enginecapacity
3	Ford	Focus	2022	48.00	0	4	1400
4	Nissan	Altima	2023	52.00	1	7	1200

Without distinct:

```
88 •  select  vehicle.* from vehicle join lease on vehicle.vehicleid = lease.vehicleid
89    join customer on lease.customerid = customer.customerid where customer.customerid = 3;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

vehicleID	make	model	year	dailyrate	status	passengercapacity	enginecapacity
3	Ford	Focus	2022	48.00	0	4	1400
4	Nissan	Altima	2023	52.00	1	7	1200
3	Ford	Focus	2022	48.00	0	4	1400

Here the customer has taken same car two times so I have used distinct keyword to know the car e had taken and I had also displayed output without distinct keyword.

10, Find the details of the most recent lease.

```
93 •  select c.firstname,c.lastname,l.* from lease l join customer c on c.customerid=l.customerid order by  startdate desc limit 2  ;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content: | Fetch rows:

firstname	lastname	leaseid	vehicleID	customerid	startdate	enddate	type
Olivia	Adams	10	10	10	2023-10-10	2023-10-31	Monthly
Robert	Johnson	9	3	3	2023-09-07	2023-09-10	Daily

11, List all payments made in the year 2023

```
102 •  select * from payment where year(transactiondate) = 2023;
```

Result Grid | Filter Rows: | Edit: | Export/Import:

paymentid	leaseid	transactionDate	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
8	8	2023-08-14	1100.00
9	9	2023-09-09	80.00
10	10	2023-10-25	1500.00
NULL	NULL	NULL	NULL

12, Retrieve customers who have not made any payments

```
105 •   select customer.* from customer
106     left join lease on customer.customerid = lease.customerid
107     left join payment on lease.leaseid = payment.leaseid
108     where payment.paymentid is null;
109
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

customerid	firstname	lastname	email	phoneNumber
6	Laura	Hall	laura@example.com	5552345678
9	William	Taylor	william@example.com	5553216547

13, Retrieve Car Details and Their Total Payments.

```
111 •   select vehicle.*,SUM(payment.amount) as total_payments from vehicle
112     join lease on vehicle.vehicleid = lease.vehicleid
113     left join payment on lease.leaseid = payment.leaseid
114     group by vehicle.vehicleid;
115
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

vehicleID	make	model	year	dailyrate	status	passengercapacity	enginecapacity	total_payments
1	Toyota	Camry	2022	50.00	1	4	1450	200.00
2	Honda	Civic	2023	45.00	1	7	1500	1000.00
3	Ford	Focus	2022	48.00	0	4	1400	155.00
4	Nissan	Altima	2023	52.00	1	7	1200	2100.00
5	Chevrolet	Malibu	2022	47.00	1	4	1800	60.00
8	Mercedes	C-Class	2022	68.00	1	8	2599	1100.00
10	Lexus	ES	2023	54.00	1	4	2500	1500.00

14, Calculate Total Payments for Each Customer.

```
117 •  select customer.*,SUM(payment.amount) as total_payments from customer
118    join lease on customer.customerid = lease.customerid
119    left join payment on lease.leaseid = payment.leaseid
120    group by customer.customerid;
121
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

customerid	firstname	lastname	email	phoneNumber	total_payments
1	John	Doe	johndoe@example.com	5555555555	200.00
2	Jane	Smith	janesmith@example.com	5551234567	1000.00
3	Robert	Johnson	robert@example.com	5557891234	1355.00
4	Sarah	Brown	sarah@example.com	5554567890	900.00
5	David	Lee	david@example.com	5559876543	60.00
8	Emma	Wilson	emma@example.com	5554321098	1100.00
10	Olivia	Adams	olivia@example.com	5557654321	1500.00

15, List Car Details for Each Lease.

```
123 •  select lease.leaseid,vehicle.* from lease
124    join vehicle on lease.vehicleid = vehicle.vehicleid;
125
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

leaseid	vehicleID	make	model	year	dailyrate	status	passengercapacity	enginecapacity
1	1	Toyota	Camry	2022	50.00	1	4	1450
2	2	Honda	Civic	2023	45.00	1	7	1500
3	3	Ford	Focus	2022	48.00	0	4	1400
9	3	Ford	Focus	2022	48.00	0	4	1400
4	4	Nissan	Altima	2023	52.00	1	7	1200
6	4	Nissan	Altima	2023	52.00	1	7	1200
5	5	Chevrolet	Malibu	2022	47.00	1	4	1800
8	8	Mercedes	C-Class	2022	68.00	1	8	2599
10	10	Lexus	ES	2023	54.00	1	4	2500

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

```
150 •  select lease.*,customer.firstname,customer.lastname, vehicle.model,vehicle.dailyrate,vehicle.passengercapacity from lease
151    join customer on lease.customerid = customer.customerid
152    join vehicle on lease.vehicleid = vehicle.vehicleid
153    where lease.lease_status = 'active';
154
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

leaseid	vehicleID	customerid	startdate	enddate	type	lease_status	firstname	lastname	model	dailyrate	passengercapacity
5	5	5	2023-05-05	2023-05-10	Daily	active	David	Lee	Malibu	47.00	4
8	8	8	2023-08-12	2023-08-15	Monthly	active	Emma	Wilson	C-Class	68.00	8
9	3	3	2023-09-07	2023-09-10	Daily	active	Robert	Johnson	Focus	48.00	4
10	10	10	2023-10-10	2023-10-31	Monthly	active	Olivia	Adams	ES	54.00	4

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

```
127 •   select customer.*, SUM(payment.amount) as total_spent from customer
128     join lease on customer.customerid = lease.customerid
129     left join payment on lease.leaseid = payment.leaseid
130     group by customer.customerid
131     order by total_spent desc limit 1;
132
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content: | Fetch rows:

customerid	firstname	lastname	email	phoneNumber	total_spent
10	Olivia	Adams	olivia@example.com	5557654321	1500.00

18, List All Cars with Their Current Lease Information.

```
164 •   select vehicle.*,lease.* from vehicle
165     left join lease on vehicle.vehicleid = lease.vehicleid
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

vehicleID	make	model	year	dailyrate	status	passengercapacity	enginecapacity	leaseid	vehicleID	customerid	startdate	enddate	type	lease_status
1	Toyota	Camry	2022	50.00	1	4	1450	1	1	1	2023-01-01	2023-01-05	Daily	not active
2	Honda	Civic	2023	45.00	1	7	1500	2	2	2	2023-02-15	2023-02-28	Monthly	not active
3	Ford	Focus	2022	48.00	0	4	1400	3	3	3	2023-03-10	2023-03-15	Daily	not active
3	Ford	Focus	2022	48.00	0	4	1400	9	3	3	2023-09-07	2023-09-10	Daily	active
4	Nissan	Altima	2023	52.00	1	7	1200	4	4	4	2023-04-20	2023-04-30	Monthly	not active
4	Nissan	Altima	2023	52.00	1	7	1200	6	4	3	2023-06-15	2023-06-30	Monthly	active
5	Chevrolet	Malibu	2022	47.00	1	4	1800	5	5	5	2023-05-05	2023-05-10	Daily	active
6	Hyundai	Sonata	2023	49.00	0	7	1400	NULL	NULL	NULL	NULL	NULL	NULL	NULL
7	BMW	3 Series	2023	60.00	1	7	2499	NULL	NULL	NULL	NULL	NULL	NULL	NULL
8	Mercedes	C-Class	2022	68.00	1	8	2599	8	8	8	2023-08-12	2023-08-15	Monthly	active
9	Audi	A4	2022	55.00	0	4	2500	NULL	NULL	NULL	NULL	NULL	NULL	NULL
10	Lexus	ES	2023	54.00	1	4	2500	10	10	10	2023-10-10	2023-10-31	Monthly	active

Here the lease for cars with id 6,7,9 are null because here we have deleted payment,lease and customer for vehicle id 7 and 6 and 9 cars with vehicle id has not undergone into lease.

Submitted By:

Devaki Akash