JAVA TECHNICAL FOUNDATION – BATCH 4

CODING CHALLENGE - MYSQL

Database Name: Car Rental System

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

```
101     -- QUESTION 1:
102
103 •   update VehicleTable set dailyRate = 68.00 where make = 'Mercedes';
104
105 •   select * from VehicleTable where make='Mercedes';
```

vehicleID	make	model	year	dailyRate	status	passengerCapacity	engineCapacity
8	Mercedes	C-Class	2022	68.00	1	8	2599

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

```
106     -- QUESTION 2:
107 •   set @CustomerID = 1;
108
109 •   delete from PaymentTable where leaseID in(select leaseID from LeaseTable where customerID=@CustomerID);
110
111 •   delete from LeaseTable where customerID = @CustomerID;
112
113 •   delete from CustomerTable where customerID = @CustomerID;
114
115 •   select * from CustomerTable;
```

customerID	firstName	lastName	email	phoneNumber
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

```
106    -- QUESTION 2:
107 ●  set @CustomerID = 1;
108
109 ●  delete from PaymentTable where leaseID in(select leaseID from LeaseTable where customerID=@CustomerID);
110
111 ●  delete from LeaseTable where customerID = @CustomerID;
112
113 ●  delete from CustomerTable where customerID = @CustomerID;
114
115 ●  select * from LeaseTable;
```

leaseID	vehicleID	customerID	startDate	endDate	type
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

```
106    -- QUESTION 2:
107 ●  set @CustomerID = 1;
108
109 ●  delete from PaymentTable where leaseID in(select leaseID from LeaseTable where customerID=@CustomerID);
110
111 ●  delete from LeaseTable where customerID = @CustomerID;
112
113 ●  delete from CustomerTable where customerID = @CustomerID;
114
115 ●  select * from PaymentTable;
```

paymentID	leaseID	transactionDate	amount
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

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

```
116     -- QUESTION 3:
117
118 •   alter table PaymentTable change column paymentDate transactionDate date;
119 •   select * from PaymentTable;
```

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

paymentID	leaseID	transactionDate	amount
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	2023-0 2023-08-14 .00	
10	10	2023-10-25	1500.00

4. Find a specific customer by email.

```
122     -- QUESTION 4:
123
124 •   select * from CustomerTable where email='sarah@example.com';
125
```

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

customerID	firstName	lastName	email	phoneNumber
4	Sarah	Brown	sarah@example.com	555-456-7890

5. Get active leases for a specific customer.

```
126     -- QUESTION 5:
127
128 •   select v.status,c.*,l.* from CustomerTable c join
129     LeaseTable l on c.customerID=l.customerID join
130     VehicleTable v on l.vehicleID=v.vehicleID where v.status=1 and c.customerID=3;
131
```

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

status	customerID	firstName	lastName	email	phoneNumber	leaseID	vehicleID	customerID	startDate	endDate	type
1	3	Robert	Johnson	robert@example.com	555-789-1234	6	4	3	2023-06-15	2023-06-30	Monthly

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

```
132     -- QUESTION 6:
133
134 •   select sum(amount) from PaymentTable p join
135     LeaseTable l on p.leaseID=l.leaseID join
136     CustomerTable c on l.customerID=c.customerID where c.phoneNumber = '555-789-1234';
137
```

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

sum(amount)
1355.00

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

```
138     -- QUESTION 7:
139
140 •   select avg(dailyRate) from VehicleTable where status = 1;
```

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

avg(dailyRate)
53.714286

8. Find the car with the highest daily rate.

```
142     -- QUESTION 8:
143
144 •   select vehicleID,make,model,dailyRate from VehicleTable order by dailyRate desc limit 1;
```

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

| vehicleID	make	model	dailyRate
8	Mercedes	C-Class	68.00

9. Retrieve all cars leased by a specific customer.

```
146     -- QUESTION 9:
147
148 •   select distinct c.customerID,c.firstName,c.lastName,v.vehicleID,v.make,v.model from CustomerTable c join
149     LeaseTable l on c.customerID = l.customerID join VehicleTable v on
150     l.vehicleID = v.vehicleID where c.customerID = 3;
```

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

customerID	firstName	lastName	vehicleID	make	model
3	Robert	Johnson	3	Ford	Focus
3	Robert	Johnson	4	Nissan	Altima

10. Find the details of the most recent lease.

```
152     -- QUESTION 10:
153
154 •   select * from LeaseTable order by endDate desc, startDate desc limit 1;
155
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content: ⊼A | Fetch rows:

leaseID	vehicleID	customerID	startDate	endDate	type
10	10	10	2023-10-10	2023-10-31	Monthly

11. List all payments made in the year 2023.

```
156     -- QUESTION 11:
157
158 •   select * from PaymentTable where year(transactionDate) = 2023;
```

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

paymentID	leaseID	transactionDate	amount
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

12. Retrieve customers who have not made any payments.

```
160     -- QUESTION 12:
161
162 ●   select c.* from CustomerTable c left join
163     LeaseTable l on c.customerID = l.customerID left join
164     PaymentTable p on l.leaseID = p.leaseID
165     where p.leaseID is null;
```

Result Grid	Filter Rows:		Export:	Wrap Cell Content:

customerID	firstName	lastName	email	phoneNumber
6	Laura	Hall	laura@example.com	555-234-5678
9	William	Taylor	william@example.com	555-321-6547

13. Retrieve Car Details and Their Total Payments.

```
168     -- QUESTION 13:
169
170 ●   select v.vehicleID,v.make,v.model,v.year,
171     coalesce(sum(p.amount),0) as totalPayments from VehicleTable v left join
172     LeaseTable l on v.vehicleID = l.vehicleID left join
173     PaymentTable p on l.leaseID =p.leaseID group by v.vehicleID,v.make,v.model,v.year;
174
175
```

Result Grid	Filter Rows:		Export:	Wrap Cell Content:

vehicleID	make	model	year	totalPayments
1	Toyota	Camry	2022	0.00
2	Honda	Civic	2023	1000.00
3	Ford	Focus	2022	155.00
4	Nissan	Altima	2023	2100.00
5	Chevrolet	Malibu	2022	60.00
6	Hyundai	Sonata	2023	0.00
7	BMW	3 Series	2023	40.00
8	Mercedes	C-Class	2022	1100.00
9	Audi	A4	2022	0.00
10	Lexus	ES	2023	1500.00

14. Calculate Total Payments for Each Customer.

```
176     -- QUESTION 14:
177
178 ●   select coalesce(sum(p.amount),0) as TotalPayments,c.* from CustomerTable c left join
179     LeaseTable l on c.customerID = l.customerID left join
180     PaymentTable p on l.leaseID = p.leaseID group by c.customerID,c.firstName,c.lastName;
181
```

TotalPayments	customerID	firstName	lastName	email	phoneNumber
1000.00	2	Jane	Smith	janesmith@example.com	555-123-4567
1355.00	3	Robert	Johnson	robert@example.com	555-789-1234
900.00	4	Sarah	Brown	sarah@example.com	555-456-7890
60.00	5	David	Lee	david@example.com	555-987-6543
0.00	6	Laura	Hall	laura@example.com	555-234-5678
40.00	7	Michael	Davis	michael@example.com	555-876-5432
1100.00	8	Emma	Wilson	emma@example.com	555-432-1098
0.00	9	William	Taylor	william@example.com	555-321-6547
1500.00	10	Olivia	Adams	olivia@example.com	555-765-4321

15. List Car Details for Each Lease.

```
182     -- QUESTION 15
183
184 ●   select l.leaseID, v.* from LeaseTable l left join
185     VehicleTable v on l.vehicleID=v.vehicleID order by l.leaseID asc;
186
187
```

leaseID	vehicleID	make	model	year	dailyRate	status	passengerCapacity	engineCapacity
2	2	Honda	Civic	2023	45.00	1	7	1500
3	3	Ford	Focus	2022	48.00	0	4	1400
4	4	Nissan	Altima	2023	52.00	1	7	1200
5	5	Chevrolet	Malibu	2022	47.00	1	4	1800
6	4	Nissan	Altima	2023	52.00	1	7	1200
7	7	BMW	3 Series	2023	60.00	1	7	2499
8	8	Mercedes	C-Class	2022	68.00	1	8	2599
9	3	Ford	Focus	2022	48.00	0	4	1400
10	10	Lexus	ES	2023	54.00	1	4	2500

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

```
188    -- QUESTION 16:
189
190 •  select v.*,c.*,l.* from VehicleTable v join
191    LeaseTable l on v.vehicleID = l.vehicleID join
192    CustomerTable c on l.customerID = c.customerID where v.status=1;
193
```

vehicleID	make	model	year	dailyRate	status	passengerCapacity	engineCapacity	customerID	firstName	lastName	email	phoneNumber	leaseID
2	Honda	Civic	2023	45.00	1	7	1500	2	Jane	Smith	janesmith@example.com	555-123-4567	2
4	Nissan	Altima	2023	52.00	1	7	1200	4	Sarah	Brown	sarah@example.com	555-456-7890	4
4	Nissan	Altima	2023	52.00	1	7	1200	3	Robert	Johnson	robert@example.com	555-789-1234	6
5	Chevrolet	Malibu	2022	47.00	1	4	1800	5	David	Lee	david@example.com	555-987-6543	5
7	BMW	3 Series	2023	60.00	1	7	2499	7	Michael	Davis	michael@example.com	555-876-5432	7
8	Mercedes	C-Class	2022	68.00	1	8	2599	8	Emma	Wilson	emma@example.com	555-432-1098	8
10	Lexus	ES	2023	54.00	1	4	2500	10	Olivia	Adams	olivia@example.com	555-765-4321	10

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

```
195    -- QUESTION 17:
196
197 •  select sum(p.amount) as TotalPayments,c.* from CustomerTable c left join
198    LeaseTable l on c.customerID = l.customerID left join
199    PaymentTable p on l.leaseID = p.leaseID group by c.customerID,c.firstName,c.lastName
200    order by TotalPayments desc limit 1;
```

TotalPayments	customerID	firstName	lastName	email	phoneNumber
1500.00	10	Olivia	Adams	olivia@example.com	555-765-4321

18. List All Cars with Their Current Lease Information.

```
203    -- QUESTION 18:
204
205 •  select v.vehicleID,v.make,v.model,v.year,l.startDate,l.endDate,c.customerID from
206    VehicleTable v join LeaseTable l on v.vehicleID = l.vehicleID join
207    CustomerTable c on l.customerID = c.customerID
208    where l.startDate <= CURDATE() and l.endDate >= CURDATE();
209
210    -- The output is empty as there are no leases currently active.
```

vehicleID	make	model	year	startDate	endDate	customerID