Hexaware’s SQL Coding Assessment (Test)

Database name : Car Rental System (Assignment 4)

- *Personal Details*
  - *Name : Pradum singh*
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- ***Database/Tables***
  - ***VehicleTable***
    - ```
      CREATE TABLE Vehicle (
      vehicleID INT PRIMARY KEY,
      make VARCHAR(255),
      model VARCHAR(255),
      year INT,
      dailyRate DECIMAL(8, 2),
      status ENUM('available', 'notAvailable'),
      passengerCapacity INT,
      engineCapacity INT
      );
      ```

carID	make	model	Year	dailyRate	available	passenger Capacity	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

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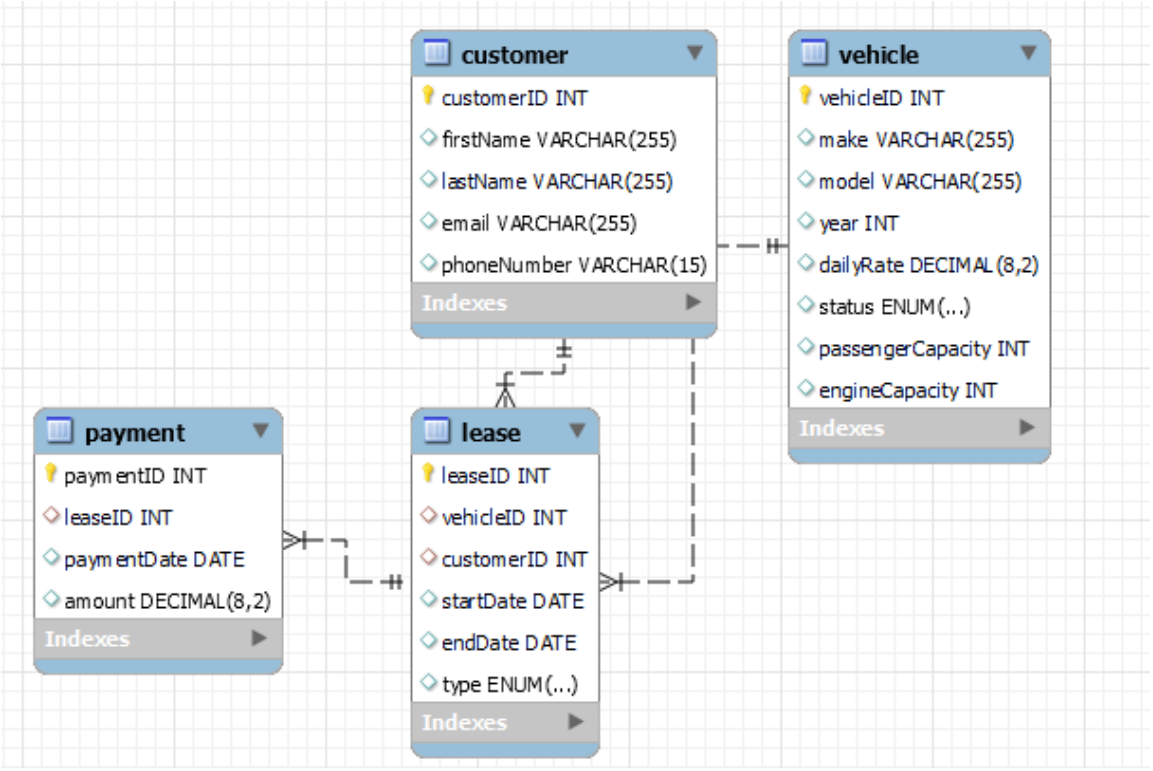
carID	make	model	Year	dailyRate	available	passenger Capacity	engineCapacity
8	Mercedes	C-Class	2022	58.00	1	8	2599
9	Audi	A4	2022	55.00	0	4	2500
10	Lexus	ES	2023	54.00	1	4	2500
      ```

- ***CustomerTable***
  - ```
    CREATE TABLE Customer (
    customerID INT PRIMARY KEY,
    firstName VARCHAR(255),
    lastName VARCHAR(255),
    email VARCHAR(255),
    phoneNumber VARCHAR(15)
    );
    ```

customerID	firstName	lastName	email	phoneNumber
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

- ***leaseTable***
  - ```
    CREATE TABLE Lease (
    leaseID INT PRIMARY KEY,
    vehicleID INT,
    customerID INT,
    startDate DATE,
    endDate DATE,
    type ENUM('Daily', 'Month'),
    FOREIGN KEY (vehicleID) REFERENCES Vehicle(vehicleID),
    FOREIGN KEY (customerID) REFERENCES Customer(customerID)
    );
    ```

leaseID	carID	customerID	startDate	endDate	leaseType
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

- ***PaymentTable***

- ```
  CREATE TABLE Payment (
  paymentID INT PRIMARY KEY,
  leaseID INT,
  paymentDate DATE,
  amount DECIMAL(8, 2),
  FOREIGN KEY (leaseID) REFERENCES Lease(leaseID)
  );
  ```

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

1. +++

paymentID	leaseID	paymentDate	amount
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

- ***Schema/ER Diagram***
  -
  ```



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

   a.
```
SET SQL_SAFE_UPDATES = 0;
UPDATE Vehicle
SET dailyRate = 68.00
WHERE make = 'Mercedes';
SET SQL_SAFE_UPDATES = 1;
```

vehicleID	make	model	year	dailyRate	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	68.00	available	8	2599
9	Audi	A4	2022	55.00	notAvailable	4	2500

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

   a.
```
DELETE FROM Payment
WHERE leaseID IN (SELECT leaseID FROM Lease WHERE customerID = 1);
```

   -
```
- Delete leases associated with the customer
DELETE FROM Lease
WHERE customerID = 1;
```

   -
```
- Delete the customer
DELETE FROM Customer
WHERE customerID = 1;
```

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

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

   a.
```
ALTER TABLE Payment
CHANGE COLUMN paymentDate transactionDate DATE;
```

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
NULL	NULL	NULL	NULL

4. ***Find a specific customer by email.***

   a.
```
SELECT *
FROM Customer
WHERE email = 'emma@example.com';
```

	customerID	firstName	lastName	email	phoneNumber
▶	8	Emma	Wilson	emma@example.com	555-432-1098
*	NULL	NULL	NULL	NULL	NULL

5. ***Get active leases for a specific customer.***

   a.
```
SELECT *
FROM Lease
WHERE customerID = 2
AND startDate <= CURDATE()
AND endDate >= CURDATE();
```

	leaseID	vehicleID	customerID	startDate	endDate	type
*	NULL	NULL	NULL	NULL	NULL	NULL

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

   a.
```
SELECT Payment.* FROM Payment
JOIN Lease ON Payment.leaseID = Lease.leaseID
```

   b.
```
 JOIN Customer ON Lease.customerID = Customer.customerID
WHERE Customer.phoneNumber = '555-432-1098'
```

	paymentID	leaseID	transactionDate	amount
▶	8	8	2023-08-14	1100.00

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

   a.
```
SELECT AVG(dailyRate) AS avgDailyRate
FROM Vehicle
WHERE status = 'available';
```

	avgDailyRate
▶	53.714286

8. ***Find the car with the highest daily rate.***

   -
```
SELECT *FROM Vehicle
ORDER BY dailyRate DESC
LIMIT 1;
```

	vehicleID	make	model	year	dailyRate	status	passengerCapacity	engineCapacity
▶	8	Mercedes	C-Class	2022	68.00	available	8	2599
*	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

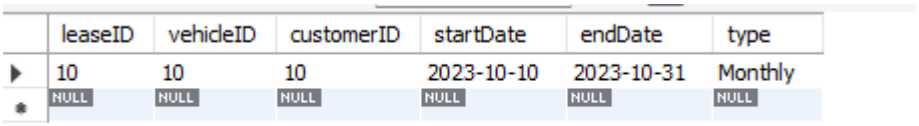
9. ***Retrieve all cars leased by a specific customer.***

   a.
```
SELECT Vehicle.*
FROM Vehicle
INNER JOIN Lease ON Vehicle.vehicleID = Lease.vehicleID
INNER JOIN Customer ON Lease.customerID = Customer.customerID
WHERE Customer.email = 'emma@example.com';
```

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

10. ***Find the details of the most recent lease.***

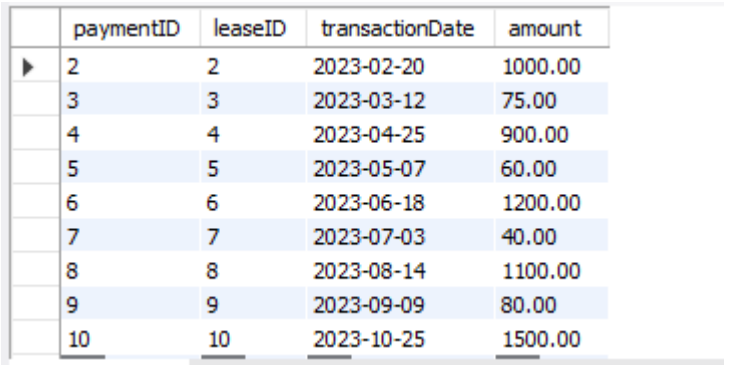
a.
```
SELECT *
FROM Lease
ORDER BY endDate DESC
LIMIT 1;
```



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

11. ***List all payments made in the year 2023.***

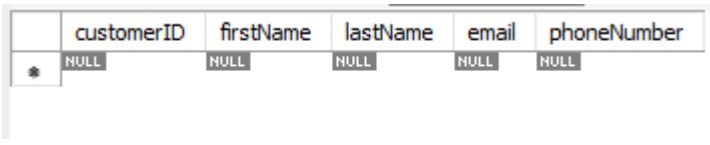
a.
```
SELECT *
FROM Payment
WHERE YEAR(transactionDate) = 2023;
```



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.***

a.
```
SELECT *FROM Customer
WHERE customerID NOT IN (SELECT DISTINCT customerID FROM Payment);
```



customerID	firstName	lastName	email	phoneNumber
NULL	NULL	NULL	NULL	NULL

13. ***Retrieve Car Details and Their Total Payments.***

a.
```
SELECT v.*,
COALESCE(SUM(p.amount), 0) AS totalPayments
FROM Vehicle v
LEFT JOIN Lease l ON v.vehicleID = l.vehicleID
LEFT JOIN Payment p ON l.leaseID = p.leaseID
GROUP BY
v.vehicleID;
```

vehicleID	make	model	year	dailyRate	status	passengerCapacity	engineCapacity	totalPayments
1	Toyota	Camry	2022	50.00	available	4	1450	200.00
2	Honda	Civic	2023	45.00	available	7	1500	1000.00
3	Ford	Focus	2022	48.00	notAvailable	4	1400	155.00
4	Nissan	Altima	2023	52.00	available	7	1200	2100.00
5	Chevrolet	Malibu	2022	47.00	available	4	1800	60.00
6	Hyundai	Sonata	2023	49.00	notAvailable	7	1400	0.00
7	BMW	3 Series	2023	60.00	available	7	2499	40.00
8	Mercedes	C-Class	2022	68.00	available	8	2599	1100.00
9	Audi	A4	2022	55.00	notAvailable	4	2500	0.00
10	Lexus	ES	2023	54.00	available	4	2500	1500.00

14. ***Calculate Total Payments for Each Customer.***

a.
```
SELECT c.*, COALESCE(SUM(p.amount), 0) AS totalPayments
FROM Customer c
LEFT JOIN Lease l ON c.customerID = l.customerID
LEFT JOIN Payment p ON l.leaseID = p.leaseID
GROUP BY c.customerID;
```

customerID	firstName	lastName	email	phoneNumber	totalPayments
1	John	Doe	johndoe@example.com	555-555-5555	200.00
2	Jane	Smith	janesmith@example.com	555-123-4567	1000.00
3	Robert	Johnson	robert@example.com	555-789-1234	1355.00
4	Sarah	Brown	sarah@example.com	555-456-7890	900.00
5	David	Lee	david@example.com	555-987-6543	60.00
6	Laura	Hall	laura@example.com	555-234-5678	0.00
7	Michael	Davis	michael@example.com	555-876-5432	40.00
8	Emma	Wilson	emma@example.com	555-432-1098	1100.00
9	William	Taylor	william@example.com	555-321-6547	0.00
10	Olivia	Adams	olivia@example.com	555-765-4321	1500.00

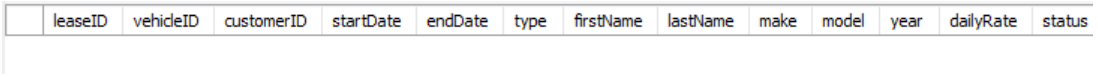
15. ***List Car Details for Each Lease.***

a.
```
SELECT l.*,v.make,v.model,v.year,v.dailyRate,v.status,v.passengerCapacity,
v.engineCapacity
FROM Lease l
JOIN Vehicle v ON l.vehicleID = v.vehicleID;
```

leaseID	vehicleID	customerID	startDate	endDate	type	make	model	year	dailyRate	status
1	1	1	2023-01-01	2023-01-05	Daily	Toyota	Camry	2022	50.00	available
2	2	2	2023-02-15	2023-02-28	Monthly	Honda	Civic	2023	45.00	available
3	3	3	2023-03-10	2023-03-15	Daily	Ford	Focus	2022	48.00	notAvailable
4	4	4	2023-04-20	2023-04-30	Monthly	Nissan	Altima	2023	52.00	available
5	5	5	2023-05-05	2023-05-10	Daily	Chevrolet	Malibu	2022	47.00	available
6	4	3	2023-06-15	2023-06-30	Monthly	Nissan	Altima	2023	52.00	available
7	7	7	2023-07-01	2023-07-10	Daily	BMW	3 Series	2023	60.00	available
8	8	8	2023-08-12	2023-08-15	Monthly	Mercedes	C-Class	2022	68.00	available
9	3	3	2023-09-07	2023-09-10	Daily	Ford	Focus	2022	48.00	notAvailable
10	10	10	2023-10-10	2023-10-31	Monthly	Lexus	ES	2023	54.00	available

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

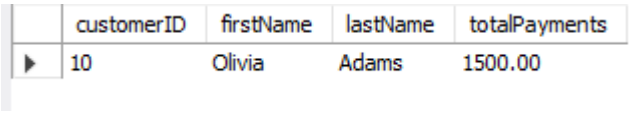
a.
```
SELECT l.*, c.firstName, c.lastName, v.make, v.model, v.year, v.dailyRate,
v.status, v.passengerCapacity, v.engineCapacity
FROM Lease l
left JOIN Customer c ON l.customerID = c.customerID
left JOIN Vehicle v ON l.vehicleID = v.vehicleID
WHERE l.endDate >= CURDATE();
```



	leaseID	vehicleID	customerID	startDate	endDate	type	firstName	lastName	make	model	year	dailyRate	status

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

a.
```
SELECT c.customerID, c.firstName, c.lastName, COALESCE(SUM(p.amount), 0) AS
totalPayments
FROM Customer c
LEFT JOIN Lease l ON c.customerID = l.customerID
LEFT JOIN Payment p ON l.leaseID = p.leaseID
GROUP BY c.customerID
ORDER BY totalPayments DESC
LIMIT 1;
```



	customerID	firstName	lastName	totalPayments
▶	10	Olivia	Adams	1500.00

18. ***List All Cars with Their Current Lease Information.***

a.
```
SELECT v.vehicleID, v.make, v.model,v.year,v.dailyRate,l.startDate,l.endDate
FROM Vehicle v
LEFT JOIN Lease l ON v.vehicleID = l.vehicleID
WHERE l.endDate >= CURDATE() OR l.endDate IS NULL;
```

vehicleID	make	model	year	dailyRate	startDate	endDate
1	Toyota	Camry	2022	50.00	NULL	NULL
6	Hyundai	Sonata	2023	49.00	NULL	NULL
9	Audi	A4	2022	55.00	NULL	NULL