Coding Challenge

Car Rental System

SUBMITED BY: E.R HARISH

DATE OF SUBMISSION: 26/09/2024

Coding Challenge: Car Rental System

GITHUB link:

https://github.com/Harish0562/E.R-Harish-Coding-Challenge-Car-Rental-System-Hexaware.git

Creating Database named Car Rental System:

```
Messages
  Commands completed successfully.

  Completion time: 2024-09-23T14:11:08.4520340+05:30
```

Creating Tables:

Vehicle Table:

```
CREATE TABLE Vehicle (
    vehicleID INT PRIMARY KEY,
    make VARCHAR(50),
    model VARCHAR(50),
    year INT,
    dailyRate DECIMAL(5, 2),
    status TINYINT,  -- 1 = available, 0 = notAvailable
    passengerCapacity INT,
    engineCapacity DECIMAL(6, 2)
);
```

Customer Table:

```
CREATE TABLE Customer (
    customerID INT PRIMARY KEY,
    firstName VARCHAR(50),
    lastName VARCHAR(50),
    email VARCHAR(100),
    phoneNumber VARCHAR(20)
);
```

Lease Table:

```
CREATE TABLE Lease (
    leaseID INT PRIMARY KEY,
    vehicleID INT,
    customerID INT,
    startDate DATE,
    endDate DATE,
    leaseType VARCHAR(20),  -- 'Daily' or 'Monthly'
    FOREIGN KEY (vehicleID) REFERENCES Vehicle(vehicleID),
    FOREIGN KEY (customerID) REFERENCES Customer(customerID)
);
```

Payment Table:

```
CREATE TABLE Payment (
    paymentID INT PRIMARY KEY,
    leaseID INT,
    transactionDate DATE,
    amount DECIMAL(10, 2),
    FOREIGN KEY (leaseID) REFERENCES Lease(leaseID)
);
```

Inserting records into each tables Vehicle and Customer Table:

```
INSERT INTO Vehicle (vehicleID, make, model, year, dailyRate, status, passengerCapacity, engineCapacity)
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);
```

```
INSERT INTO Customer (customerID, firstName, lastName, email, phoneNumber)
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');
```

Inserting into Lease table:

```
INSERT INTO Lease (leaseID, vehicleID, customerID, startDate, endDate, leaseType
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');
```

Inserting into Payment table:

```
INSERT INTO Payment (paymentID, leaseID, transactionDate, 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);
```

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

Before updating the daily rate of Mercedes:

	vehicleID	make	model	year	dailyRate	status	passengerCapacity	engineCapacity
1	1	Toyota	Camry	2022	50.00	1	4	1450.00
2	2	Honda	Civic	2023	45.00	1	7	1500.00
3	3	Ford	Focus	2022	48.00	0	4	1400.00
4	4	Nissan	Altima	2023	52.00	1	7	1200.00
5	5	Chevrolet	Malibu	2022	47.00	1	4	1800.00
6	6	Hyundai	Sonata	2023	49.00	0	7	1400.00
7	7	BMW	3 Series	2023	60.00	1	7	2499.00
8	8	Mercedes	C-Class	2022	58.00	1	8	2599.00
9	9	Audi	A4	2022	55.00	0	4	2500.00
10	10	Lexus	ES	2023	54.00	1	4	2500.00

After Updating the daily rate for a Mercedes car to 68:

```
--1)
UPDATE Vehicle SET dailyRate = 68 WHERE make = 'Mercedes';
```

	vehicleID	make	model	year	dailyRate	status	passengerCapacity	engineCapacity
1	1	Toyota	Camry	2022	50.00	1	4	1450.00
2	2	Honda	Civic	2023	45.00	1	7	1500.00
3	3	Ford	Focus	2022	48.00	0	4	1400.00
4	4	Nissan	Altima	2023	52.00	1	7	1200.00
5	5	Chevrolet	Malibu	2022	47.00	1	4	1800.00
6	6	Hyundai	Sonata	2023	49.00	0	7	1400.00
7	7	BMW	3 Series	2023	60.00	1	7	2499.00
8	8	Mercedes	C-Class	2022	68.00	1	8	2599.00
9	9	Audi	A4	2022	55.00	0	4	2500.00
10	10	Lexus	ES	2023	54.00	1	4	2500.00

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

```
--2)
DELETE FROM Payment WHERE leaseID IN (SELECT leaseID FROM Lease WHERE customerID = 1);
DELETE FROM Lease WHERE customerID = 1;
DELETE FROM Customer WHERE customerID = 1;
```

Deleting customer details from payment table based on their customer and lease ID

	paymentID	leaseID	transactionDate	amount
1	2	2	2023-02-20	1000.00
2	3	3	2023-03-12	75.00
3	4	4	2023-04-25	900.00
4	5	5	2023-05-07	60.00
5	6	6	2023-06-18	1200.00
6	7	7	2023-07-03	40.00
7	8	8	2023-08-14	1100.00
8	9	9	2023-09-09	80.00
9	10	10	2023-10-25	1500.00

	leaseID	vehicleID	customerID	startDate	endDate	leaseType
1	2	2	2	2023-02-15	2023-02-28	Monthly
2	3	3	3	2023-03-10	2023-03-15	Daily
3	4	4	4	2023-04-20	2023-04-30	Monthly
4	5	5	5	2023-05-05	2023-05-10	Daily
5	6	4	3	2023-06-15	2023-06-30	Monthly
6	7	7	7	2023-07-01	2023-07-10	Daily
7	8	8	8	2023-08-12	2023-08-15	Monthly
8	9	3	3	2023-09-07	2023-09-10	Daily
9	10	10	10	2023-10-10	2023-10-31	Monthly

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

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

```
--3)
EXEC sp_rename 'paymentDate',  'transactionDate', 'COLUMN';
```

	paymentID	leaseID	transactionDate	amount
1	2	2	2023-02-20	1000.00
2	3	3	2023-03-12	75.00
3	4	4	2023-04-25	900.00
4	5	5	2023-05-07	60.00
5	6	6	2023-06-18	1200.00
6	7	7	2023-07-03	40.00
7	8	8	2023-08-14	1100.00
8	9	9	2023-09-09	80.00
9	10	10	2023-10-25	1500.00

4. Find a specific customer by email.

```
--4)
SELECT * FROM Customer WHERE email = 'janesmith@example.com';
```

100 %

Results Messages

	customerID	firstName	lastName	email	phoneNumber
1	2	Jane	Smith	janesmith@example.com	555-123-4567

5. Get active leases for a specific customer.

```
--5)
SELECT * FROM Lease JOIN Vehicle ON Lease.vehicleID=Vehicle.vehicleID
WHERE Lease.customerID = 2 AND Vehicle.status=1;
```

100 %

Results | Messages

	leaseID	vehicleID	customerID	startDate	endDate	leaseType	vehicleID	make	model	year	dailyRate	status	passengerCapacity	engineCapacity
1	2	2	2	2023-02-15	2023-02-28	Monthly	2	Honda	Civic	2023	45.00	1	7	1500.00

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

```
--6)
SELECT p.* FROM Payment p JOIN Lease l ON p.leaseID = l.leaseID JOIN Customer c ON l.customerID = c.customerID
WHERE c.phoneNumber = '555-123-4567';
```

100 %

Results | Messages

	paymentID	leaseID	transactionDate	amount
1	2	2	2023-02-20	1000.00

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

```
--7)
SELECT AVG(dailyRate) AS avgDailyRate FROM Vehicle WHERE status = 1;
```

100 %

Results | Messages

	avgDailyRate
1	53.714285

8. Find the car with the highest daily rate.

```
--8)
SELECT TOP(1)* FROM Vehicle ORDER BY dailyRate DESC;
```

100 %

Results | Messages

	vehicleID	make	model	year	dailyRate	status	passengerCapacity	engineCapacity
1	8	Mercedes	C-Class	2022	68.00	1	8	2599.00

9. Retrieve all cars leased by a specific customer.

```
--9)
SELECT * FROM Vehicle WHERE vehicleID IN( SELECT vehicleID FROM Lease WHERE customerID=(SELECT customerID
FROM Customer WHERE firstName='Sarah'));
```

100 %

Results | Messages

	vehicleID	make	model	year	dailyRate	status	passengerCapacity	engineCapacity
1	4	Nissan	Altima	2023	52.00	1	7	1200.00

10. Find the details of the most recent lease.

```
--10)
SELECT * FROM Lease WHERE endDate = (SELECT MAX(endDate) FROM Lease);
```

100 %

Results | Messages

	leaseID	vehicleID	customerID	startDate	endDate	leaseType
1	10	10	10	2023-10-10	2023-10-31	Monthly

11. List all payments made in the year 2023.

```
--11)
SELECT * FROM Payment WHERE YEAR(transactionDate) = 2023;
```

100 %

Results | Messages

	paymentID	leaseID	transactionDate	amount
1	2	2	2023-02-20	1000.00
2	3	3	2023-03-12	75.00
3	4	4	2023-04-25	900.00
4	5	5	2023-05-07	60.00
5	6	6	2023-06-18	1200.00
6	7	7	2023-07-03	40.00
7	8	8	2023-08-14	1100.00
8	9	9	2023-09-09	80.00
9	10	10	2023-10-25	1500.00

12. Retrieve customers who have not made any payments.

```
--12)
SELECT c.* FROM Customer c JOIN Lease l ON l.customerID=c.customerID WHERE leaseID NOT IN(
SELECT leaseID FROM Payment);
```

100 %

Results | Messages

customerID	firstName	lastName	email	phoneNumber

The result is empty set because every customer who have taken lease had mad their payments as seeing the following tables:

```
SELECT * FROM Lease;
```

100 %

Results | Messages

	leaseID	vehicleID	customerID	startDate	endDate	leaseType
1	2	2	2	2023-02-15	2023-02-28	Monthly
2	3	3	3	2023-03-10	2023-03-15	Daily
3	4	4	4	2023-04-20	2023-04-30	Monthly
4	5	5	5	2023-05-05	2023-05-10	Daily
5	6	4	3	2023-06-15	2023-06-30	Monthly
6	7	7	7	2023-07-01	2023-07-10	Daily
7	8	8	8	2023-08-12	2023-08-15	Monthly
8	9	3	3	2023-09-07	2023-09-10	Daily
9	10	10	10	2023-10-10	2023-10-31	Monthly

```
SELECT * FROM Payment;
```

100 %

Results | Messages

	paymentID	leaseID	transactionDate	amount
1	2	2	2023-02-20	1000.00
2	3	3	2023-03-12	75.00
3	4	4	2023-04-25	900.00
4	5	5	2023-05-07	60.00
5	6	6	2023-06-18	1200.00
6	7	7	2023-07-03	40.00
7	8	8	2023-08-14	1100.00
8	9	9	2023-09-09	80.00
9	10	10	2023-10-25	1500.00

13. Retrieve Car Details and Their Total Payments.

```
--13)
SELECT v.vehicleID, v.make, v.model, 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, v.make, v.model;
```

100 %

Results | Messages

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

14. Calculate Total Payments for Each Customer.

```
--14)
SELECT c.customerID, c.firstName, c.lastName, SUM(p.amount) 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, c.firstName, c.lastName;
```

100 %

Results Messages

	customerID	firstName	lastName	TotalPayments
1	2	Jane	Smith	1000.00
2	3	Robert	Johnson	1355.00
3	4	Sarah	Brown	900.00
4	5	David	Lee	60.00
5	6	Laura	Hall	NULL
6	7	Michael	Davis	40.00
7	8	Emma	Wilson	1100.00
8	9	William	Taylor	NULL
9	10	Olivia	Adams	1500.00

15. List Car Details for Each Lease.

```
--15)
SELECT l.leaseID, v.make, v.model, v.year, l.startDate, l.endDate, l.leaseType FROM Lease l
JOIN Vehicle v ON l.vehicleID = v.vehicleID;
```

100 %

Results Messages

	leaseID	make	model	year	startDate	endDate	leaseType
1	2	Honda	Civic	2023	2023-02-15	2023-02-28	Monthly
2	3	Ford	Focus	2022	2023-03-10	2023-03-15	Daily
3	4	Nissan	Altima	2023	2023-04-20	2023-04-30	Monthly
4	5	Chevrolet	Malibu	2022	2023-05-05	2023-05-10	Daily
5	6	Nissan	Altima	2023	2023-06-15	2023-06-30	Monthly
6	7	BMW	3 Series	2023	2023-07-01	2023-07-10	Daily
7	8	Mercedes	C-Class	2022	2023-08-12	2023-08-15	Monthly
8	9	Ford	Focus	2022	2023-09-07	2023-09-10	Daily
9	10	Lexus	ES	2023	2023-10-10	2023-10-31	Monthly

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

```
--16)
SELECT l.leaseID,l.leaseType,c.firstName,v.make,v.model,v.status FROM Lease l JOIN Customer c ON l.customerID=c.customerID
JOIN Vehicle v ON l.vehicleID=v.vehicleID WHERE v.status=1;
```

100 %

Results Messages

	leaseID	leaseType	firstName	make	model	status
1	2	Monthly	Jane	Honda	Civic	1
2	4	Monthly	Sarah	Nissan	Altima	1
3	5	Daily	David	Chevrolet	Malibu	1
4	6	Monthly	Robert	Nissan	Altima	1
5	7	Daily	Michael	BMW	3 Series	1
6	8	Monthly	Emma	Mercedes	C-Class	1
7	10	Monthly	Olivia	Lexus	ES	1

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

```
--17)
SELECT TOP 1 c.customerID, c.firstName, c.lastName, SUM(p.amount) AS TotalSpent FROM Customer c
JOIN Lease l ON c.customerID = l.customerID JOIN Payment p ON l.leaseID = p.leaseID
GROUP BY c.customerID, c.firstName, c.lastName ORDER BY TotalSpent DESC;
```

100 %

Results | Messages

	customerID	firstName	lastName	TotalSpent
1	10	Olivia	Adams	1500.00

18. List All Cars with Their Current Lease Information.

```
--18)
SELECT v.vehicleID,v.make,v.model,v.dailyRate,l.* FROM Vehicle v LEFT JOIN
Lease l ON v.vehicleID=l.vehicleID;
```

100 %

Results | Messages

	vehicleID	make	model	dailyRate	leaseID	vehicleID	customerID	startDate	endDate	leaseType
1	1	Toyota	Camry	50.00	NULL	NULL	NULL	NULL	NULL	NULL
2	2	Honda	Civic	45.00	2	2	2	2023-02-15	2023-02-28	Monthly
3	3	Ford	Focus	48.00	3	3	3	2023-03-10	2023-03-15	Daily
4	3	Ford	Focus	48.00	9	3	3	2023-09-07	2023-09-10	Daily
5	4	Nissan	Altima	52.00	4	4	4	2023-04-20	2023-04-30	Monthly
6	4	Nissan	Altima	52.00	6	4	3	2023-06-15	2023-06-30	Monthly
7	5	Chevrolet	Malibu	47.00	5	5	5	2023-05-05	2023-05-10	Daily
8	6	Hyundai	Sonata	49.00	NULL	NULL	NULL	NULL	NULL	NULL
9	7	BMW	3 Series	60.00	7	7	7	2023-07-01	2023-07-10	Daily
10	8	Mercedes	C-Class	68.00	8	8	8	2023-08-12	2023-08-15	Monthly
11	9	Audi	A4	55.00	NULL	NULL	NULL	NULL	NULL	NULL
12	10	Lexus	ES	54.00	10	10	10	2023-10-10	2023-10-31	Monthly

CODE:

```
use coding_challenge_car_rental_system;


CREATE TABLE Vehicle (
    vehicleID INT PRIMARY KEY,
    make VARCHAR(50),
    model VARCHAR(50),
    year INT,
    dailyRate DECIMAL(5, 2),
    status TINYINT,  -- 1 = available, 0 = notAvailable
    passengerCapacity INT,
    engineCapacity DECIMAL(6, 2)
);
```

```
CREATE TABLE Customer (
    customerID INT PRIMARY KEY,
    firstName VARCHAR(50),
    lastName VARCHAR(50),
    email VARCHAR(100),
    phoneNumber VARCHAR(20)
);

CREATE TABLE Lease (
    leaseID INT PRIMARY KEY,
    vehicleID INT,
    customerID INT,
    startDate DATE,
    endDate DATE,
    leaseType VARCHAR(20),  -- 'Daily' or 'Monthly'
    FOREIGN KEY (vehicleID) REFERENCES Vehicle(vehicleID),
    FOREIGN KEY (customerID) REFERENCES Customer(customerID)
);


CREATE TABLE Payment (
    paymentID INT PRIMARY KEY,
    leaseID INT,
    transactionDate DATE,
    amount DECIMAL(10, 2),
    FOREIGN KEY (leaseID) REFERENCES Lease(leaseID)
);
```

```
INSERT INTO Vehicle (vehicleID, make, model, year, dailyRate, status, passengerCapacity, engineCapacity)
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);

INSERT INTO Customer (customerID, firstName, lastName, email, phoneNumber)
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');

INSERT INTO Lease (leaseID, vehicleID, customerID, startDate, endDate, leaseType)
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');

INSERT INTO Payment (paymentID, leaseID, transactionDate, 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);

--1)
UPDATE Vehicle SET dailyRate = 68 WHERE make = 'Mercedes';

--2)
DELETE FROM Payment WHERE leaseID IN (SELECT leaseID FROM Lease WHERE
customerID = 1);
DELETE FROM Lease WHERE customerID = 1;
DELETE FROM Customer WHERE customerID = 1;
```

```
select * from Payment;


--3)
EXEC sp_rename 'paymentDate',  'transactionDate', 'COLUMN';


--4)
SELECT * FROM Customer WHERE email = 'janesmith@example.com';



--5)
SELECT * FROM Lease JOIN Vehicle ON Lease.vehicleID=Vehicle.vehicleID
WHERE Lease.customerID = 2 AND Vehicle.status=1;


--6)
SELECT p.* FROM Payment p JOIN Lease l ON p.leaseID = l.leaseID JOIN Customer c ON l.customerID = c.customerID
WHERE c.phoneNumber = '555-123-4567';


--7)
SELECT AVG(dailyRate) AS avgDailyRate FROM Vehicle WHERE status = 1;


--8)
SELECT TOP(1)* FROM Vehicle ORDER BY dailyRate DESC;


--9)
SELECT * FROM Vehicle WHERE vehicleID IN( SELECT vehicleID FROM Lease
WHERE customerID=(SELECT customerID
FROM Customer WHERE firstName='Sarah'));


--10)
SELECT * FROM Lease WHERE endDate = (SELECT MAX(endDate) FROM Lease);
```

--11)

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

--12)

```
SELECT c.* FROM Customer c JOIN Lease l ON l.customerID=c.customerID WHERE
leaseID NOT IN(
SELECT leaseID FROM Payment);
```

```
SELECT * FROM Payment;
```

--13)

```
SELECT v.vehicleID, v.make, v.model, 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, v.make, v.model;
```

--14)

```
SELECT c.customerID, c.firstName, c.lastName, SUM(p.amount) 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, c.firstName, c.lastName;
```

--15)

```
SELECT l.leaseID, v.make, v.model, v.year, l.startDate, l.endDate, l.leaseType FROM Lease l
JOIN Vehicle v ON l.vehicleID = v.vehicleID;
```

--16)

SELECT l.leaseID,l.leaseType,c.firstName,v.make,v.model,v.status FROM Lease l JOIN Customer c ON l.customerID=c.customerID

JOIN Vehicle v ON l.vehicleID=v.vehicleID WHERE v.status=1;

--17)

SELECT TOP 1 c.customerID, c.firstName, c.lastName, SUM(p.amount) AS TotalSpent FROM Customer c

JOIN Lease l ON c.customerID = l.customerID JOIN Payment p ON l.leaseID = p.leaseID

GROUP BY c.customerID, c.firstName, c.lastName ORDER BY TotalSpent DESC;

--18)

SELECT v.vehicleID,v.make,v.model,v.dailyRate,l.* FROM Vehicle v LEFT JOIN

Lease l ON v.vehicleID=l.vehicleID;