## Table Creation:

-- Create Vehicle Table

CREATE TABLE Vehicle (

vehicleID INT PRIMARY KEY,

make VARCHAR(255),

model VARCHAR(255),

year INT,

dailyRate DECIMAL(10, 2),

status VARCHAR(20) CHECK (status IN ('available', 'notAvailable')),

passengerCapacity INT,

engineCapacity INT

);

-- Create Customer Table

CREATE TABLE Customer (

customerID INT PRIMARY KEY,

firstName VARCHAR(255),

lastName VARCHAR(255),

email VARCHAR(255),

phoneNumber VARCHAR(20)

);

-- Create Lease Table

CREATE TABLE Lease (

leaseID INT PRIMARY KEY,

vehicleID INT,

customerID INT,

startDate DATE,

endDate DATE,

type VARCHAR(20) CHECK (type IN ('DailyLease', 'MonthlyLease')),

FOREIGN KEY (vehicleID) REFERENCES Vehicle(vehicleID),

FOREIGN KEY (customerID) REFERENCES Customer(customerID)

);

-- Create Payment Table

CREATE TABLE Payment (

paymentID INT PRIMARY KEY,

leaseID INT,

paymentDate DATE,

amount DECIMAL(10, 2),

FOREIGN KEY (leaseID) REFERENCES Lease(leaseID)

);

## Entering the given data

-- Insert data into Vehicle Table

INSERT INTO Vehicle (vehicleID, make, model, year, dailyRate, 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);

-- Insert data into Customer Table

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 data into Lease Table

INSERT INTO Lease (leaseID, vehicleID, customerID, startDate, endDate, type)

VALUES

(1, 1, 1, '2023-01-01', '2023-01-05', 'DailyLease'),

(2, 2, 2, '2023-02-15', '2023-02-28', 'MonthlyLease'),

(3, 3, 3, '2023-03-10', '2023-03-15', 'DailyLease'),

(4, 4, 4, '2023-04-20', '2023-04-30', 'MonthlyLease'),

(5, 5, 5, '2023-05-05', '2023-05-10', 'DailyLease'),

(6, 4, 3, '2023-06-15', '2023-06-30', 'MonthlyLease'),

(7, 7, 7, '2023-07-01', '2023-07-10', 'DailyLease'),

(8, 8, 8, '2023-08-12', '2023-08-15', 'MonthlyLease'),

(9, 3, 3, '2023-09-07', '2023-09-10', 'DailyLease'),

(10, 10, 10, '2023-10-10', '2023-10-31', 'MonthlyLease');

-- Insert data into Payment Table

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

## Exercise Queries

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

UPDATE Vehicle

SET dailyRate = 68

WHERE make = 'Mercedes';

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

DELETE FROM Payment

WHERE leaseID IN (SELECT leaseID FROM Lease WHERE customerID = 3);

DELETE FROM Lease

WHERE customerID = 3;

DELETE FROM Customer

WHERE customerID = 3;

## Rename the "paymentDate" column in the Payment table to "transactionDate"

EXEC sp\_rename 'Payment.paymentDate', 'transactionDate', 'COLUMN';

## Find a specific customer by email.

SELECT \* FROM Customer

WHERE email = 'robert@example.com';

## Get active leases for a specific customer.

SELECT \* FROM Lease

WHERE customerID = 1

AND GETDATE() BETWEEN startDate AND endDate;

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

SELECT Payment.\*

FROM Payment

JOIN Lease ON Payment.leaseID = Lease.leaseID

JOIN Customer ON Lease.customerID = Customer.customerID

WHERE Customer.phoneNumber = '555-555-5555';

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

## 

SELECT AVG(dailyRate) AS AverageDailyRate

FROM Vehicle

WHERE status = 'available';

## 

## Find the car with the highest daily rate.

SELECT TOP 1 \*

FROM Vehicle

ORDER BY dailyRate DESC;

## Retrieve all cars leased by a specific customer.

SELECT Vehicle.\*

FROM Vehicle

JOIN Lease ON Vehicle.vehicleID = Lease.vehicleID

WHERE Lease.customerID = 2;

## Find the details of the most recent lease.

SELECT TOP 1 \*

FROM Lease

ORDER BY startDate DESC;

## List all payments made in the year 2023.

SELECT \*

FROM Payment

WHERE YEAR(transactionDate) = 2023;

## Retrieve customers who have not made any payments.

SELECT \*

FROM Customer

WHERE customerID NOT IN (SELECT DISTINCT customerID FROM Payment);

## Retrieve Car Details and Their Total Payments.

SELECT Vehicle.\*, ISNULL(SUM(Payment.amount), 0) AS TotalPayments

FROM Vehicle

LEFT JOIN Lease ON Vehicle.vehicleID = Lease.vehicleID

LEFT JOIN Payment ON Lease.leaseID = Payment.leaseID

GROUP BY Vehicle.vehicleID, Vehicle.make, Vehicle.model, Vehicle.year, Vehicle.dailyRate, Vehicle.status, Vehicle.passengerCapacity, Vehicle.engineCapacity;

## Calculate Total Payments for Each Customer.

SELECT Customer.\*, ISNULL(SUM(Payment.amount), 0) AS TotalPayments

FROM Customer

LEFT JOIN Lease ON Customer.customerID = Lease.customerID

LEFT JOIN Payment ON Lease.leaseID = Payment.leaseID

GROUP BY Customer.customerID, Customer.firstName, Customer.lastName, Customer.email, Customer.phoneNumber;

## List Car Details for Each Lease.

SELECT Lease.\*, Vehicle.\*

FROM Lease

JOIN Vehicle ON Lease.vehicleID = Vehicle.vehicleID;

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

SELECT Lease.\*, Customer.\*, Vehicle.\*

FROM Lease

JOIN Customer ON Lease.customerID = Customer.customerID

JOIN Vehicle ON Lease.vehicleID = Vehicle.vehicleID

WHERE GETDATE() BETWEEN Lease.startDate AND Lease.endDate;

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

SELECT TOP 1 Customer.\*, ISNULL(SUM(Payment.amount), 0) AS TotalPayments

FROM Customer

LEFT JOIN Lease ON Customer.customerID = Lease.customerID

LEFT JOIN Payment ON Lease.leaseID = Payment.leaseID

GROUP BY Customer.customerID, Customer.firstName, Customer.lastName, Customer.email, Customer.phoneNumber

ORDER BY TotalPayments DESC;

## List All Cars with Their Current Lease Information

SELECT Vehicle.\*, Lease.\*, Customer.\*

FROM Vehicle

LEFT JOIN Lease ON Vehicle.vehicleID = Lease.vehicleID

LEFT JOIN Customer ON Lease.customerID = Customer.customerID;

## 