Coding Challenge - Car Rental System – SQL

Create database CarRental

use CarRental

create table Vehicle (

vehicleID INT PRIMARY KEY,

Make VARCHAR(50),

Model VARCHAR(50),

Year INT,

DailyRate DECIMAL(10, 2),

Status VARCHAR(20),

PassengerCapacity INT,

EngineCapacity INT

);

create table Customer (

customerID INT PRIMARY KEY,

firstName VARCHAR(50),

lastName VARCHAR(50),

email VARCHAR(50),

phoneNumber VARCHAR(20)

);

create table Lease (

leaseID INT PRIMARY KEY,

vehicleID INT,

customerID INT,

startDate DATE,

endDate DATE,

type VARCHAR(20),

FOREIGN KEY (vehicleID) REFERENCES Vehicle(vehicleID),

FOREIGN KEY (customerID) REFERENCES Customer(customerID)

);

create table Payment (

paymentID INT PRIMARY KEY,

leaseID INT,

paymentDate 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 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 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 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 Question

Update Vehicle set DailyRate = 68 where Make = 'Mercedes'

select \* from Vehicle where Make = 'Mercedes'

--2 Question

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;

select\*from payment

select\*from Lease

select\*from Customer

--3 Question

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

select \* from Payment

--4 Question

select \* from Customer where email='sarah@example.com'

--5 Question

select Lease.\*, Vehicle.\*

from Lease

join Vehicle on Lease.vehicleID = Vehicle.vehicleID

join Customer on Lease.customerID = Customer.customerID

where Customer.email = 'sarah@example.com'

and Vehicle.status = 1;

--6 Question

select Customer.customerID,Customer.firstName,

Customer.lastName,lease.type,lease.startDate,Lease.endDate,Payment.\* from

Payment

join Lease

on Payment.leaseID=Lease.leaseID

join Customer on Lease.customerID=Customer.customerID

join vehicle on lease.vehicleID=Vehicle.vehicleID

where customer.phoneNumber='555-987-6543'

-- 7 Question

select avg(dailyRate) as averageDailyRate

from Vehicle

where status = 1

--8 Question

select top 1 make from Vehicle

order by DailyRate desc

-- 9 Question

select Vehicle.\* from Vehicle

join Lease on Vehicle.vehicleID = Lease.vehicleID

join Customer on Lease.customerID = Customer.customerID

where Customer.email = 'emma@example.com';

-- 10 Question

select top 1 Lease.\*, Vehicle.\*, Customer.\*

from Lease

join Vehicle on Lease.vehicleID = Vehicle.vehicleID

join Customer on Lease.customerID = Customer.customerID

order by Lease.endDate desc

--11 Question

select\*from Payment

where year(transactionDate)= 2023;

--12 Question

select Customer.\*from Customer

left join Lease on Customer.customerID = Lease.customerID

left join Payment on Lease.leaseID = Payment.leaseID

where Payment.paymentID is null;

--13 Question

select Vehicle.\*,SUM(Payment.amount) 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;

--14 Question

select Customer.\*, sum(Payment.amount) 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;

-- 15 Question

select Lease.\*, Vehicle.\*, concat(Customer.firstName,' ',Customer.lastName) as CustomerName from Lease

join Vehicle on Lease.vehicleID= Vehicle.vehicleID

join Customer on Lease.customerID = Customer.customerID;

--16 question

select Lease.\*,Vehicle .\*, Customer.\* from Lease

join Vehicle on Lease.vehicleID = Vehicle.vehicleID

join Customer on Lease.customerID = Customer.customerID

where

Lease.startDate <= GETDATE()

and Lease.endDate >= GETDATE()

--17 Question

select top 1 Customer.\*,sum(Payment.amount) AS TotalSpentOnLeases 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 TotalSpentOnLeases desc

--18 Question

select Vehicle.\*,Lease.\*,concat(Customer.firstname,' ',Customer.lastName) as Customer\_Name from Vehicle

left join Lease on Vehicle.vehicleID = Lease.vehicleID

left join Customer on Lease.customerID = Customer.customerID

where Lease.startDate <= GETDATE() and Lease.endDate >= GETDATE();