**SQL CODING CHALLENGE – CAR RENTAL SYSTEM**

create database carrentalsystem;

use carrentalsystem;

create table vehicle(

vehicleid int primary key,

make varchar(50),

model varchar(50),

year int,

dailyrate decimal(10,2),

status enum('available','notAvailable'),

passengercapacity int,

enginecapacity int

);

create table customer(

customerid int primary key,

firstname varchar(30),

lastname varchar(30),

email varchar(100) unique,

phonenumber varchar(20) unique

);

create table lease(

leaseid int primary key ,

vehicleid int,

customerid int,

startdate date,

enddate date,

leasetype enum('Daily','Monthly'),

constraint fk\_lease\_vehicle foreign key (vehicleid) references vehicle(vehicleid) on delete cascade,

constraint fk\_lease\_customer foreign key (customerid) references customer(customerid) on delete cascade

);

create table payment(

paymentid int primary key ,

leaseid int,

paymentdate date,

amount decimal(10,2),

constraint fk\_payment\_lease foreign key (leaseid) references lease(leaseid) on delete cascade

);

insert into vehicle 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 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

set sql\_safe\_updates = 0;

update vehicle set dailyrate = 68

where make = 'Mercedes';

set sql\_safe\_updates = 1;

-- 2

delete from customer where customerid = 5;

-- 3

alter table payment rename column paymentdate to transactiondate;

-- 4

select \* from customer

where email = 'laura@example.com';

-- 5

select \* from lease

where customerid = 4 and enddate >= curdate();

update lease set enddate = '2025-12-31' where leaseid = 4;

-- 6

select p.\* from payment as p

join lease as l on p.leaseid = l.leaseid

join customer as c on l.customerid = c.customerid

where c.phonenumber = '555-876-5432';

-- 7

select avg(dailyrate) as avgdailyrate

from vehicle

where status = 'available';

-- 8

select \* from vehicle

order by dailyrate desc

limit 1;

-- 9

select v.\* from vehicle as v

join lease as l on v.vehicleid = l.vehicleid

where l.customerid = 3;

-- 10

select \* from lease

order by startdate desc

limit 1;

-- 11

select \* from payment

where year(transactiondate) = 2023;

-- 12

select \* from customer

where customerid not in (select distinct customerid from lease where leaseid in (select distinct leaseid from payment));

-- 13

select v.\*, sum(p.amount) as totalpayments

from vehicle as v

join lease as l on v.vehicleid = l.vehicleid

join payment as p on l.leaseid = p.leaseid

group by v.vehicleid;

-- 14

select c.\*, sum(p.amount) as totalpayments

from customer as c

join lease as l on c.customerid = l.customerid

join payment as p on l.leaseid = p.leaseid

group by c.customerid;

-- 15

select l.leaseid, v.\*

from lease as l

join vehicle as v on l.vehicleid = v.vehicleid;

-- 16

select l.\*, c.\*, v.\* from lease as l

join customer as c on l.customerid = c.customerid

join vehicle as v on l.vehicleid = v.vehicleid

where l.enddate >= curdate();

-- 17

select c.\*, sum(p.amount) as totalspent from customer as c

join lease as l on c.customerid = l.customerid

join payment as p on l.leaseid = p.leaseid

group by c.customerid

order by totalspent desc

limit 1;

-- 18

select v.\*, l.\*

from vehicle v

left join lease l on v.vehicleid = l.vehicleid and (l.enddate is null or l.enddate >= curdate());