CREATE TABLE AND INSERT DATA:

**USE carrentalco;**

**CREATE TABLE Car (**

**CarID INT PRIMARY KEY,**

**Make VARCHAR(255) NOT NULL,**

**Model VARCHAR(255) NOT NULL,**

**Year\_of\_Production INT NOT NULL,**

**Engine\_Size DECIMAL(10,2) NOT NULL,**

**Fuel\_Type VARCHAR(255) NOT NULL,**

**Number\_of\_Passengers INT NOT NULL,**

**Registration\_Number VARCHAR(255) NOT NULL,**

**Purchase\_Price DECIMAL(10,2) NOT NULL,**

**Purchase\_Date DATE NOT NULL,**

**Rent\_Price DECIMAL(10,2) NOT NULL,**

**Insurance\_Details VARCHAR(255) NOT NULL**

**);**

**INSERT INTO Car (CarID, Make, Model, Year\_of\_Production, Engine\_Size, Fuel\_Type, Number\_of\_Passengers, Registration\_Number, Purchase\_Price, Purchase\_Date, Rent\_Price, Insurance\_Details)**

**VALUES**

**(1, 'Toyota', 'Camry', 2019, 2.5, 'Petrol', 5, 'ABC123', 20000, '2020-01-01', 100, 'XYZ Insurance'),**

**(2, 'Honda', 'Civic', 2020, 1.5, 'Petrol', 5, 'DEF456', 22000, '2020-02-01', 95, 'ABC Insurance'),**

**(3, 'Tesla', 'Model 3', 2021, 3.0, 'Electric', 5, 'GHI789', 55000, '2021-01-01', 150, 'PQR Insurance');**

**CREATE TABLE Garage (**

**GarageID INT PRIMARY KEY,**

**Garage\_Name VARCHAR(255) NOT NULL,**

**Address VARCHAR(255) NOT NULL,**

**Range\_of\_Services VARCHAR(255) NOT NULL,**

**Payment\_Terms VARCHAR(255) NOT NULL**

**);**

**INSERT INTO Garage (GarageID, Garage\_Name, Address, Range\_of\_Services, Payment\_Terms)**

**VALUES**

**(1, 'AutoCare', '123 Main Street', 'Maintenance, Repairs, Upgrades', 'Monthly'),**

**(2, 'TechGarage', '456 Park Ave', 'Diagnostics, Repairs, Customization', 'Per Service'),**

**(3, 'FastFix', '789 Broadway', 'Emergency Repairs, Maintenance', 'Upfront');**

**CREATE TABLE Expenditures (**

**ExpenditureID INT PRIMARY KEY,**

**Expense\_Type VARCHAR(255) NOT NULL,**

**Amount DECIMAL(10,2) NOT NULL,**

**Date DATE NOT NULL,**

**Description VARCHAR(255) NOT NULL**

**);**

**INSERT INTO Expenditures (ExpenditureID, Expense\_Type, Amount, Date, Description)**

**VALUES**

**(1, 'Repairs', 1000, '2022-01-01', 'Engine repair for Toyota Camry'),**

**(2, 'Maintenance', 500, '2022-02-01', 'Regular maintenance for Honda Civic'),**

**(3, 'Insurance', 800, '2022-03-01', 'Renewal of insurance for Tesla Model 3');**

**CREATE TABLE Revenues (**

**RevenueID INT PRIMARY KEY,**

**Revenue\_Type VARCHAR(255) NOT NULL,**

**Amount DECIMAL(10,2) NOT NULL,**

**Date DATE NOT NULL,**

**Description VARCHAR(255) NOT NULL**

**);**

**INSERT INTO Revenues (RevenueID, Revenue\_Type, Amount, Date, Description)**

**VALUES**

**(1, 'Rent', 1000, '2022-01-01', 'Rent for Toyota Camry'),**

**(2, 'Sale', 5000, '2022-02-01', 'Sale of Honda Civic'),**

**(3, 'Rent', 1500, '2022-03-01', 'Rent for Tesla Model 3');**

**CREATE TABLE Customer (**

**CustomerID INT PRIMARY KEY,**

**Name VARCHAR(255) NOT NULL,**

**Address VARCHAR(255) NOT NULL,**

**Telephone\_Number VARCHAR(255) NOT NULL,**

**Driving\_License\_Number VARCHAR(255) NOT NULL,**

**Credit\_Card\_Details VARCHAR(255) NOT NULL,**

**Booking\_Details VARCHAR(255) NOT NULL,**

**Payment\_Method VARCHAR(255) NOT NULL**

**);**

**INSERT INTO Customer (CustomerID, Name, Address, Telephone\_Number, Driving\_License\_Number, Credit\_Card\_Details, Booking\_Details, Payment\_Method)**

**VALUES**

**(1, 'John Doe', '123 Main St', '555-555-5555', 'DL1234567', 'VISA 1234', 'Booking for Toyota Camry from 01/01/2022 to 01/02/2022', 'Credit Card'),**

**(2, 'Jane Doe', '456 Park Ave', '555-555-5556', 'DL2345678', 'MASTERCARD 5678', 'Booking for Honda Civic from 02/01/2022 to 02/02/2022', 'Cash'),**

**(3, 'Jim Smith', '789 Broadway', '555-555-5557', 'DL3456789', 'AMEX 9012', 'Booking for Tesla Model 3 from 03/01/2022 to 03/02/2022', 'Debit Card');**

**CREATE TABLE Car\_Garage (**

**CarID INT,**

**GarageID INT,**

**PRIMARY KEY (CarID, GarageID),**

**FOREIGN KEY (CarID) REFERENCES Car(CarID),**

**FOREIGN KEY (GarageID) REFERENCES Garage(GarageID)**

**);**

**INSERT INTO Car\_Garage (CarID, GarageID)**

**VALUES**

**(1, 1),**

**(2, 2),**

**(3, 3);**

**CREATE TABLE Customer\_Car (**

**CustomerID INT,**

**CarID INT,**

**PRIMARY KEY (CustomerID, CarID),**

**FOREIGN KEY (CustomerID) REFERENCES Customer(CustomerID),**

**FOREIGN KEY (CarID) REFERENCES Car(CarID)**

**);**

**INSERT INTO Customer\_Car (CustomerID, CarID)**

**VALUES**

**(1, 1),**

**(2, 2),**

**(3, 3);**

**select \* from Car;**

**select \* from Garage;**

**select \* from Expenditures;**

**select \* from Revenues;**

**select \* from Customer;**

**select \* from Car\_Garage;**

**select \* from Customer\_Car;**

QUERIES :

**USE carrentalco;**

**select \* from car;**

**select \* from garage;**

**select \* from expenditures;**

**select \* from revenues;**

**select \* from car\_garage;**

**select \* from customer\_car;**

**-- Multiple join operations;**

**-- 1)Joining the Expenditures and Garage tables to find the expenses incurred by each garage:**

**select car.Make,car.Model,garage.Garage\_Name from car**

**join car\_garage on car.CarID = car\_garage.CarID**

**join garage on car\_garage.GarageID = garage.GarageID;**

**-- 2)Joining the Expenditures and Garage tables to find the expenses incurred by each garage:**

**SELECT customer.Name, SUM(revenues.Amount) AS 'Total\_Revenue'**

**FROM revenues**

**JOIN Customer\_Car ON revenues.RevenueID = Customer\_Car.CustomerID**

**JOIN customer ON Customer\_Car.CustomerID = customer.CustomerID**

**GROUP BY customer.Name;**

**-- 3)Joining the Expenditures and Garage tables to find the expenses incurred by each garage:**

**SELECT garage.Garage\_Name, SUM(expenditures.Amount) AS 'Total\_Expenditure'**

**FROM expenditures**

**JOIN garage ON expenditures.ExpenditureID = garage.GarageID**

**GROUP BY garage.Garage\_Name;**

**-- 4)Joining the Car, Customer, and Revenues tables to find the revenue generated by each car:**

**SELECT car.Make, car.Model, SUM(revenues.Amount) AS 'Total\_Revenues'**

**FROM car**

**JOIN Customer\_Car ON car.CarID = Customer\_Car.CarID**

**JOIN revenues ON Customer\_Car.CustomerID = revenues.RevenueID**

**GROUP BY car.Make, car.Model;**

**-- 5)Joining the Car, Customer, and Revenues tables to find the most rented car model:**

**SELECT Car.Model, COUNT(\*) as Rentals**

**FROM Car**

**JOIN Customer\_Car**

**ON Car.CarID = Customer\_Car.CarID**

**JOIN Revenues**

**ON Customer\_Car.CustomerID = Revenues.RevenueID**

**GROUP BY Car.Model**

**ORDER BY Rentals DESC**

**LIMIT 1;**

**-- subqueries single row;**

**-- 1)Find car with highest engine size:**

**select Engine\_Size from car**

**where Engine\_Size = (select max(Engine\_Size) from car);**

**-- 2)Find car with oldest year of production**

**select Year\_of\_Production from car**

**where Year\_of\_Production = (select min(Year\_of\_Production) from car);**

**-- 3)Find car with highest purchase price**

**select Purchase\_Price from car**

**where Purchase\_Price = (select max(Purchase\_Price) from car);**

**-- 4)Find car with most recent purchase date**

**select Purchase\_Date from car**

**where Purchase\_Date = (select max(Purchase\_Date) from car);**

**-- 5)Find car with highest rent price**

**select Rent\_Price from car**

**where Rent\_Price = (select max(Rent\_Price) from car);**

**-- subqueries correlated**

**-- 1)To find the cars with highest purchase price for each make**

**select car.Make,car.Model,car.Purchase\_Price from car**

**where car.Purchase\_Price=(select max(Purchase\_Price) from car c2**

**where c2.Make = car.Make);**

**-- 2)To find customer who has rented most cars**

**SELECT Customer.Name**

**FROM Customer**

**WHERE (**

**SELECT COUNT(\*)**

**FROM Customer\_Car**

**WHERE Customer\_Car.CustomerID = Customer.CustomerID**

**) = (**

**SELECT MAX(cust\_count)**

**FROM (**

**SELECT CustomerID, COUNT(\*) as cust\_count**

**FROM Customer\_Car**

**GROUP BY CustomerID**

**) sub**

**)**

**-- 3)To find all customers who have rented most expensive car;**

**SELECT Customer.Name**

**FROM Customer**

**WHERE EXISTS (**

**SELECT 1**

**FROM Customer\_Car**

**JOIN Car ON Customer\_Car.CarID = Car.CarID**

**WHERE Customer\_Car.CustomerID = Customer.CustomerID**

**AND Car.Rent\_Price = (**

**SELECT MAX(Rent\_Price)**

**FROM Car**

**)**

**);**

**-- 4)To find no of expenditure of each type of expense;**

**SELECT Expense\_Type, SUM(Amount)**

**FROM Expenditures**

**GROUP BY Expense\_Type**

**HAVING SUM(Amount) = (**

**SELECT MAX(sub.expense\_total)**

**FROM (**

**SELECT Expense\_Type, SUM(Amount) as expense\_total**

**FROM Expenditures**

**GROUP BY Expense\_Type**

**) sub**

**);**

**-- 5) To find the garages with the highest range of services:**

**SELECT Garage\_Name, Range\_of\_Services**

**FROM Garage**

**WHERE Range\_of\_Services = (**

**SELECT MAX(Range\_of\_Services)**

**FROM Garage**

**)**

**-- arthematic and logicaloperatoes;**

**-- 1)Find total purchase price of all cars**

**SELECT SUM(Purchase\_Price) AS Total\_Purchase\_Price**

**FROM Car;**

**-- 2)Calculate avg rent price for all cars**

**SELECT AVG(Rent\_Price) AS Average\_Rent\_Price**

**FROM Car;**

**-- 3)Find total amount spent on repairs**

**SELECT SUM(Amount) AS Total\_Expenditure\_On\_Repairs**

**FROM Expenditures**

**WHERE Expense\_Type = 'Repairs';**

**-- 4)Find all the cars whose production year is between 2015 to 2018**

**SELECT \***

**FROM Car**

**WHERE Year\_of\_Production < 2015 OR Year\_of\_Production > 2018;**

**-- 5)Find all the cars whose production year is not between 2015 to 2018**

**SELECT \***

**FROM Car**

**WHERE NOT (Year\_of\_Production BETWEEN 2015 AND 2018);**

**-- Clauses;**

**-- 1)Find the cars and their rent price that have the make as toyota**

**SELECT Make, Rent\_Price**

**FROM Car**

**WHERE Make = 'Toyota';**

**-- 2) find the cars where 5 passangers can be seated**

**select \* from car where Number\_of\_Passengers='5';**