CarConnect, a Car Rental Platform

Case Study - SQL

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1. Create following tables in SQL Schema

Creation of CarConnectDB:

```
mysql> create database CarConnectDB;
Query OK, 1 row affected (0.04 sec)

mysql> Use CarConnectDB;
Database changed
mysql>
```

1.1 Customer

```
mysql> create table Customer(
    -> CustomerID int primary key auto_increment,
    -> FirstName varchar(30) not null,
    -> LastName varchar(30) not null,
    -> Email varchar(200) unique not null check (Email regexp '^[a-zA-Z0-9._%+-]+@[a-zA-Z0-9.-]+\.[a-zA-Z]{2,}$'),
    -> PhoneNumber varchar(15) unique not null,
    -> Address varchar(300) not null,
    -> Username Varchar(20) unique not null,
    -> Password varchar(300) not null,
    -> RegistrationDate date
    -> );
Query OK, 0 rows affected (0.15 sec)

mysql> desc Customer;
+------------------+--------------+------+-----+---------+----------------+
| Field            | Type         | Null | Key | Default | Extra          |
+------------------+--------------+------+-----+---------+----------------+
| CustomerID       | int          | NO   | PRI | NULL    | auto_increment |
| FirstName        | varchar(30)  | NO   |     | NULL    |                |
| LastName         | varchar(30)  | NO   |     | NULL    |                |
| Email            | varchar(200) | NO   | UNI | NULL    |                |
| PhoneNumber      | varchar(15)  | NO   | UNI | NULL    |                |
| Address          | varchar(300) | NO   |     | NULL    |                |
| Username         | varchar(20)  | NO   | UNI | NULL    |                |
| Password         | varchar(300) | NO   |     | NULL    |                |
| RegistrationDate | date         | YES  |     | NULL    |                |
+------------------+--------------+------+-----+---------+----------------+
9 rows in set (0.01 sec)
```
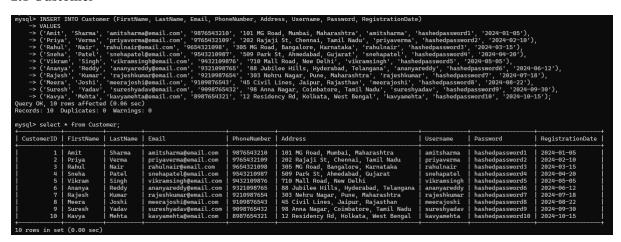
1.2 Vehicle

```
mysql> create table Vehicle(
    -> VehicleID int primary key auto_increment,
    -> Model varchar(30) not null,
    -> Make varchar(30) not null,
    -> Year year not null,
    -> Color varchar(30),
    -> RegistrationNumber varchar(30) unique not null,
    -> Availability boolean default true,
    -> DailyRate decimal(10,2) not null
    -> );
Query OK, 0 rows affected (0.05 sec)

mysql> desc Vehicle;
+--------------------+---------------+------+-----+---------+----------------+
| Field              | Type          | Null | Key | Default | Extra          |
+--------------------+---------------+------+-----+---------+----------------+
| VehicleID          | int           | NO   | PRI | NULL    | auto_increment |
| Model              | varchar(30)   | NO   |     | NULL    |                |
| Make               | varchar(30)   | NO   |     | NULL    |                |
| Year               | year          | NO   |     | NULL    |                |
| Color              | varchar(30)   | YES  |     | NULL    |                |
| RegistrationNumber | varchar(30)   | NO   | UNI | NULL    |                |
| Availability       | tinyint(1)    | YES  |     | 1       |                |
| DailyRate          | decimal(10,2) | NO   |     | NULL    |                |
+--------------------+---------------+------+-----+---------+----------------+
8 rows in set (0.00 sec)
```

1.3 Reservation

```
mysql> create table Reservation(
    -> ReservationID int primary key auto_increment,
    -> CustomerID int not null,
    -> VehicleID int not null,
    -> StartDate datetime not null,
    -> EndDate date not null,
    -> TotalCost decimal(10,2) not null,
    -> Status enum('Pending','Confirmed','Completed') not null default 'Pending',
    -> foreign key(CustomerID)references Customer(CustomerID) on delete cascade,
    -> foreign key(VehicleID) references Vehicle(VehicleID) on delete cascade,
    -> check(EndDate>StartDate)
    -> );
Query OK, 0 rows affected (0.07 sec)

mysql> desc Reservation;
+---------------+------------------------------------------+------+-----+---------+----------------+
| Field         | Type                                     | Null | Key | Default | Extra          |
+---------------+------------------------------------------+------+-----+---------+----------------+
| ReservationID | int                                      | NO   | PRI | NULL    | auto_increment |
| CustomerID    | int                                      | NO   | MUL | NULL    |                |
| VehicleID     | int                                      | NO   | MUL | NULL    |                |
| StartDate     | datetime                                 | NO   |     | NULL    |                |
| EndDate       | date                                     | NO   |     | NULL    |                |
| TotalCost     | decimal(10,2)                            | NO   |     | NULL    |                |
| Status        | enum('Pending','Confirmed','Completed')  | NO   |     | Pending |                |
+---------------+------------------------------------------+------+-----+---------+----------------+
7 rows in set (0.00 sec)
```

1.4 Admin

```
mysql> create table Admin(
    -> AdminID int primary key auto_increment,
    -> FirstName varchar(30) not null,
    -> LastName varchar(30) not null,
    -> Email varchar(200) unique not null check (Email regexp '^[a-zA-Z0-9._%+-]+@[a-zA-Z0-9.-]+\.[a-zA-Z]{2,}$'),
    -> PhoneNumber varchar(15) unique not null,
    -> UserName varchar(30) unique not null,
    -> Password varchar(300) not null,
    -> Role enum( 'Super Admin', 'Fleet Manager', 'Operations Manager',
    ->    'Customer Support', 'Finance Manager', 'Sales Manager',
    ->    'HR Manager')not null,
    -> JoinDate date not null
    -> );
Query OK, 0 rows affected (0.07 sec)

mysql> desc Admin;
+-------------+--------------------------------------------------------------------------------------------------------+------+-----+---------+----------------+
| Field       | Type                                                                                                   | Null | Key | Default | Extra          |
+-------------+--------------------------------------------------------------------------------------------------------+------+-----+---------+----------------+
| AdminID     | int                                                                                                    | NO   | PRI | NULL    | auto_increment |
| FirstName   | varchar(30)                                                                                            | NO   |     | NULL    |                |
| LastName    | varchar(30)                                                                                            | NO   |     | NULL    |                |
| Email       | varchar(200)                                                                                           | NO   | UNI | NULL    |                |
| PhoneNumber | varchar(15)                                                                                            | NO   | UNI | NULL    |                |
| UserName    | varchar(30)                                                                                            | NO   | UNI | NULL    |                |
| Password    | varchar(300)                                                                                           | NO   |     | NULL    |                |
| Role        | enum('Super Admin','Fleet Manager','Operations Manager','Customer Support','Finance Manager','Sales Manager','HR Manager') | NO   |     | NULL    |                |
| JoinDate    | date                                                                                                   | NO   |     | NULL    |                |
+-------------+--------------------------------------------------------------------------------------------------------+------+-----+---------+----------------+
9 rows in set (0.00 sec)
```

2. Insertion of 10 Sample Records in each Table

2.1 Customer

```
mysql> INSERT INTO Customer (FirstName, LastName, Email, PhoneNumber, Address, Username, Password, RegistrationDate)
    -> VALUES
    -> ('Amit', 'Sharma', 'amitsharma@email.com', '9876543210', '101 MG Road, Mumbai, Maharashtra', 'amitsharma', 'hashedpassword1', '2024-01-05'),
    -> ('Priya', 'Verma', 'priyaverma@email.com', '9765432109', '202 Rajaji St, Chennai, Tamil Nadu', 'priyaverma', 'hashedpassword2', '2024-02-10'),
    -> ('Rahul', 'Nair', 'rahulnair@email.com', '9654321098', '305 MG Road, Bangalore, Karnataka', 'rahulnair', 'hashedpassword3', '2024-03-15'),
    -> ('Sneha', 'Patel', 'snehapatel@email.com', '9543210987', '509 Park St, Ahmedabad, Gujarat', 'snehapatel', 'hashedpassword4', '2024-04-20'),
    -> ('Vikram', 'Singh', 'vikramsingh@email.com', '9432109876', '710 Mall Road, New Delhi', 'vikramsingh', 'hashedpassword5', '2024-05-05'),
    -> ('Ananya', 'Reddy', 'ananyareddy@email.com', '9321098765', '88 Jubilee Hills, Hyderabad, Telangana', 'ananyareddy', 'hashedpassword6', '2024-06-12'),
    -> ('Rajesh', 'Kumar', 'rajeshkumar@email.com', '9210987654', '303 Nehru Nagar, Pune, Maharashtra', 'rajeshkumar', 'hashedpassword7', '2024-07-18'),
    -> ('Meera', 'Joshi', 'meerajoshi@email.com', '9109876543', '45 Civil Lines, Jaipur, Rajasthan', 'meerajoshi', 'hashedpassword8', '2024-08-22'),
    -> ('Suresh', 'Yadav', 'sureshyadav@email.com', '9098765432', '98 Anna Nagar, Coimbatore, Tamil Nadu', 'sureshyadav', 'hashedpassword9', '2024-09-30'),
    -> ('Kavya', 'Mehta', 'kavyamehta@email.com', '8987654321', '12 Residency Rd, Kolkata, West Bengal', 'kavyamehta', 'hashedpassword10', '2024-10-15');
Query OK, 10 rows affected (0.06 sec)
Records: 10  Duplicates: 0  Warnings: 0

mysql> select * from Customer;
+------------+-----------+----------+-----------------------+-------------+----------------------------------------+-------------+------------------+------------------+
| CustomerID | FirstName | LastName | Email                 | PhoneNumber | Address                                | Username    | Password         | RegistrationDate |
+------------+-----------+----------+-----------------------+-------------+----------------------------------------+-------------+------------------+------------------+
|          1 | Amit      | Sharma   | amitsharma@email.com  | 9876543210  | 101 MG Road, Mumbai, Maharashtra       | amitsharma  | hashedpassword1  | 2024-01-05       |
|          2 | Priya     | Verma    | priyaverma@email.com  | 9765432109  | 202 Rajaji St, Chennai, Tamil Nadu     | priyaverma  | hashedpassword2  | 2024-02-10       |
|          3 | Rahul     | Nair     | rahulnair@email.com   | 9654321098  | 305 MG Road, Bangalore, Karnataka      | rahulnair   | hashedpassword3  | 2024-03-15       |
|          4 | Sneha     | Patel    | snehapatel@email.com  | 9543210987  | 509 Park St, Ahmedabad, Gujarat        | snehapatel  | hashedpassword4  | 2024-04-20       |
|          5 | Vikram    | Singh    | vikramsingh@email.com | 9432109876  | 710 Mall Road, New Delhi               | vikramsingh | hashedpassword5  | 2024-05-05       |
|          6 | Ananya    | Reddy    | ananyareddy@email.com | 9321098765  | 88 Jubilee Hills, Hyderabad, Telangana | ananyareddy | hashedpassword6  | 2024-06-12       |
|          7 | Rajesh    | Kumar    | rajeshkumar@email.com | 9210987654  | 303 Nehru Nagar, Pune, Maharashtra     | rajeshkumar | hashedpassword7  | 2024-07-18       |
|          8 | Meera     | Joshi    | meerajoshi@email.com  | 9109876543  | 45 Civil Lines, Jaipur, Rajasthan      | meerajoshi  | hashedpassword8  | 2024-08-22       |
|          9 | Suresh    | Yadav    | sureshyadav@email.com | 9098765432  | 98 Anna Nagar, Coimbatore, Tamil Nadu  | sureshyadav | hashedpassword9  | 2024-09-30       |
|         10 | Kavya     | Mehta    | kavyamehta@email.com  | 8987654321  | 12 Residency Rd, Kolkata, West Bengal  | kavyamehta  | hashedpassword10 | 2024-10-15       |
+------------+-----------+----------+-----------------------+-------------+----------------------------------------+-------------+------------------+------------------+
10 rows in set (0.00 sec)
```

2.2 Vehicle

```
mysql> INSERT INTO Vehicle (Model, Make, Year, Color, RegistrationNumber, Availability, DailyRate)
    -> VALUES
    -> ('Swift', 'Maruti Suzuki', 2022, 'White', 'MH01AB1234', true, 1200.00),
    -> ('City', 'Honda', 2021, 'Black', 'TN07CD5678', true, 1500.00),
    -> ('i20', 'Hyundai', 2020, 'Blue', 'KA05EF9012', false, 1100.00),
    -> ('Scorpio', 'Mahindra', 2023, 'Red', 'DL02GH3456', true, 1800.00),
    -> ('Fortuner', 'Toyota', 2022, 'Silver', 'GJ03IJ7890', false, 2500.00),
    -> ('Nexon', 'Tata', 2021, 'Grey', 'TS04KL4321', true, 1300.00),
    -> ('Verna', 'Hyundai', 2020, 'Maroon', 'RJ05MN8765', true, 1400.00),
    -> ('Baleno', 'Maruti Suzuki', 2022, 'White', 'WB06OP6543', false, 1250.00),
    -> ('Innova', 'Toyota', 2019, 'Black', 'KL07QR3210', true, 2000.00),
    -> ('Ertiga', 'Maruti Suzuki', 2023, 'Blue', 'AP08ST9876', true, 1600.00);
Query OK, 10 rows affected (0.01 sec)
Records: 10  Duplicates: 0  Warnings: 0

mysql> select * from Vehicle;
+-----------+----------+---------------+------+--------+--------------------+--------------+-----------+
| VehicleID | Model    | Make          | Year | Color  | RegistrationNumber | Availability | DailyRate |
+-----------+----------+---------------+------+--------+--------------------+--------------+-----------+
|         1 | Swift    | Maruti Suzuki | 2022 | White  | MH01AB1234         |            1 |   1200.00 |
|         2 | City     | Honda         | 2021 | Black  | TN07CD5678         |            1 |   1500.00 |
|         3 | i20      | Hyundai       | 2020 | Blue   | KA05EF9012         |            0 |   1100.00 |
|         4 | Scorpio  | Mahindra      | 2023 | Red    | DL02GH3456         |            1 |   1800.00 |
|         5 | Fortuner | Toyota        | 2022 | Silver | GJ03IJ7890         |            0 |   2500.00 |
|         6 | Nexon    | Tata          | 2021 | Grey   | TS04KL4321         |            1 |   1300.00 |
|         7 | Verna    | Hyundai       | 2020 | Maroon | RJ05MN8765         |            1 |   1400.00 |
|         8 | Baleno   | Maruti Suzuki | 2022 | White  | WB06OP6543         |            0 |   1250.00 |
|         9 | Innova   | Toyota        | 2019 | Black  | KL07QR3210         |            1 |   2000.00 |
|        10 | Ertiga   | Maruti Suzuki | 2023 | Blue   | AP08ST9876         |            1 |   1600.00 |
+-----------+----------+---------------+------+--------+--------------------+--------------+-----------+
10 rows in set (0.00 sec)
```

2.3 Reservation

```
mysql> INSERT INTO Reservation (CustomerID, VehicleID, StartDate, EndDate, TotalCost, Status)
    -> VALUES
    -> (1, 1, '2024-01-10 09:00:00', '2024-01-15', 6000.00, 'Confirmed'),
    -> (2, 2, '2024-02-12 10:00:00', '2024-02-14', 3000.00, 'Pending'),
    -> (3, 3, '2024-03-05 08:00:00', '2024-03-07', 2200.00, 'Completed'),
    -> (4, 4, '2024-04-08 11:00:00', '2024-04-12', 7200.00, 'Pending'),
    -> (5, 5, '2024-05-15 09:30:00', '2024-05-20', 12500.00, 'Confirmed'),
    -> (6, 6, '2024-06-22 12:00:00', '2024-06-25', 3900.00, 'Pending'),
    -> (7, 7, '2024-07-01 07:00:00', '2024-07-03', 2800.00, 'Completed'),
    -> (8, 8, '2024-08-10 10:30:00', '2024-08-12', 2500.00, 'Confirmed'),
    -> (9, 9, '2024-09-18 06:00:00', '2024-09-22', 8000.00, 'Pending'),
    -> (10, 10, '2024-10-25 08:00:00', '2024-10-30', 9600.00, 'Confirmed');
Query OK, 10 rows affected (0.01 sec)
Records: 10  Duplicates: 0  Warnings: 0

mysql> select * from Reservation;
+---------------+------------+-----------+---------------------+------------+-----------+-----------+
| ReservationID | CustomerID | VehicleID | StartDate           | EndDate    | TotalCost | Status    |
+---------------+------------+-----------+---------------------+------------+-----------+-----------+
|            11 |          1 |         1 | 2024-01-10 09:00:00 | 2024-01-15 |   6000.00 | Confirmed |
|            12 |          2 |         2 | 2024-02-12 10:00:00 | 2024-02-14 |   3000.00 | Pending   |
|            13 |          3 |         3 | 2024-03-05 08:00:00 | 2024-03-07 |   2200.00 | Completed |
|            14 |          4 |         4 | 2024-04-08 11:00:00 | 2024-04-12 |   7200.00 | Pending   |
|            15 |          5 |         5 | 2024-05-15 09:30:00 | 2024-05-20 |  12500.00 | Confirmed |
|            16 |          6 |         6 | 2024-06-22 12:00:00 | 2024-06-25 |   3900.00 | Pending   |
|            17 |          7 |         7 | 2024-07-01 07:00:00 | 2024-07-03 |   2800.00 | Completed |
|            18 |          8 |         8 | 2024-08-10 10:30:00 | 2024-08-12 |   2500.00 | Confirmed |
|            19 |          9 |         9 | 2024-09-18 06:00:00 | 2024-09-22 |   8000.00 | Pending   |
|            20 |         10 |        10 | 2024-10-25 08:00:00 | 2024-10-30 |   9600.00 | Confirmed |
+---------------+------------+-----------+---------------------+------------+-----------+-----------+
10 rows in set (0.00 sec)
```

2.4 Admin

```
mysql> INSERT INTO Admin (FirstName, LastName, Email, PhoneNumber, UserName, Password, Role, JoinDate)
    -> VALUES
    -> ('Arjun', 'Iyer', 'arjuni@email.com', '9876543211', 'arjun_admin', 'hashedadminpass1', 'Super Admin', '2023-01-01'),
    -> ('Neha', 'Kohli', 'nehakohli@email.com', '9765432108', 'neha_ops', 'hashedadminpass2', 'Operations Manager', '2023-02-10'),
    -> ('Sandeep', 'Menon', 'sandeepm@email.com', '9654321097', 'sandeep_fleet', 'hashedadminpass3', 'Fleet Manager', '2023-03-15'),
    -> ('Ritika', 'Das', 'ritikadas@email.com', '9543210986', 'ritika_sales', 'hashedadminpass4', 'Sales Manager', '2023-04-20'),
    -> ('Varun', 'Chopra', 'varunchopra@email.com', '9432109875', 'varun_support', 'hashedadminpass5', 'Customer Support', '2023-05-25'),
    -> ('Pooja', 'Singh', 'poojasingh@email.com', '9321098764', 'pooja_finance', 'hashedadminpass6', 'Finance Manager', '2023-06-30'),
    -> ('Ankit', 'Sharma', 'ankitsharma@email.com', '9210987653', 'ankit_hr', 'hashedadminpass7', 'HR Manager', '2023-07-15'),
    -> ('Nitin', 'Rao', 'nitinrao@email.com', '9098765431', 'nitin_tech', 'hashedadminpass8', 'Super Admin', '2023-09-05'),
    -> ('Swati', 'Verma', 'swativerma@email.com', '8987654320', 'swati_quality', 'hashedadminpass9', 'Operations Manager', '2023-10-20'),
    -> ('Rohan', 'Kapoor', 'rohankapoor@email.com', '8877665544', 'rohan_fleet', 'hashedadminpass10', 'Fleet Manager', '2023-11-25');
Query OK, 10 rows affected (0.01 sec)
Records: 10  Duplicates: 0  Warnings: 0

mysql> select * from Admin;
+---------+-----------+----------+-----------------------+-------------+---------------+-------------------+--------------------+------------+
| AdminID | FirstName | LastName | Email                 | PhoneNumber | UserName      | Password          | Role               | JoinDate   |
+---------+-----------+----------+-----------------------+-------------+---------------+-------------------+--------------------+------------+
|      11 | Arjun     | Iyer     | arjuni@email.com      | 9876543211  | arjun_admin   | hashedadminpass1  | Super Admin        | 2023-01-01 |
|      12 | Neha      | Kohli    | nehakohli@email.com   | 9765432108  | neha_ops      | hashedadminpass2  | Operations Manager | 2023-02-10 |
|      13 | Sandeep   | Menon    | sandeepm@email.com    | 9654321097  | sandeep_fleet | hashedadminpass3  | Fleet Manager      | 2023-03-15 |
|      14 | Ritika    | Das      | ritikadas@email.com   | 9543210986  | ritika_sales  | hashedadminpass4  | Sales Manager      | 2023-04-20 |
|      15 | Varun     | Chopra   | varunchopra@email.com | 9432109875  | varun_support | hashedadminpass5  | Customer Support   | 2023-05-25 |
|      16 | Pooja     | Singh    | poojasingh@email.com  | 9321098764  | pooja_finance | hashedadminpass6  | Finance Manager    | 2023-06-30 |
|      17 | Ankit     | Sharma   | ankitsharma@email.com | 9210987653  | ankit_hr      | hashedadminpass7  | HR Manager         | 2023-07-15 |
|      18 | Nitin     | Rao      | nitinrao@email.com    | 9098765431  | nitin_tech    | hashedadminpass8  | Super Admin        | 2023-09-05 |
|      19 | Swati     | Verma    | swativerma@email.com  | 8987654320  | swati_quality | hashedadminpass9  | Operations Manager | 2023-10-20 |
|      20 | Rohan     | Kapoor   | rohankapoor@email.com | 8877665544  | rohan_fleet   | hashedadminpass10 | Fleet Manager      | 2023-11-25 |
+---------+-----------+----------+-----------------------+-------------+---------------+-------------------+--------------------+------------+
10 rows in set (0.00 sec)
```