

## **Project Name: Car rental system.**

### **Abstract:**

A car rental system is used to book cars for travelling on rent. This system will manage customer information, car information, and rent information. A car rental vehicle can be used temporarily for specified period. Getting rental car helps people get around besides the fact they do not own a vehicle at all. In this system customer contacts with car rental company and book the car. The customer have choice to select car, time of pickup, return date and kilometer(km) as per their need.

The rental car company can store customers name, their unique id, address , phone number and email id. The rental company have data about cars i.e car name , car type, car id etc.

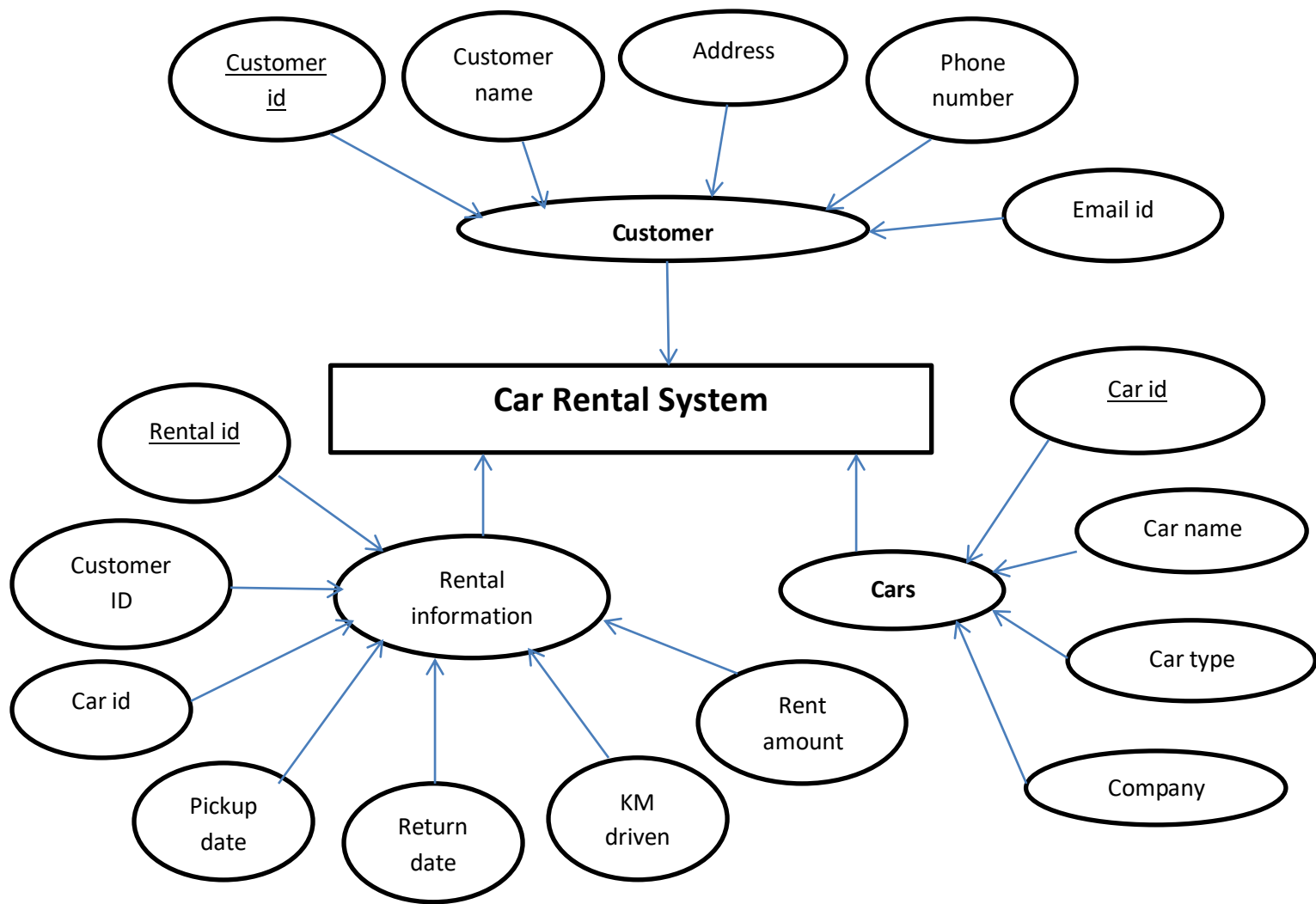
### **Aim of project:**

This system is managed using MYSQL. In this project we can add, remove the customers or update the tables as per requirement. We are also able to fetch the data using MYSQL.

### **Objectives of project:**

1. This company will easily achieve data from tables using mysql.
2. This will give accurate information as per recorded earlier .
3. It will manage payment information, date information.
4. Shows the information and description of cars and customers.

## ER diagram:



## DATABASE CREATION:

```
mysql> create database car_rental_system;
Query OK, 1 row affected (0.02 sec)

mysql> use car_rental_system;
Database changed
mysql>
```

## CREATE TABLE AND STRUCTURE OF TABLE:

- **Customer table**

```
mysql> create table customer(Customer_id int primary key, customer_name varchar(100), Address varchar(100), Phone_no int(10), Email_id varchar(50));
Query OK, 0 rows affected, 1 warning (0.08 sec)

mysql> desc customer;
+-----+-----+-----+-----+-----+-----+
| Field      | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| Customer_id | int           | NO   | PRI | NULL    |       |
| customer_name | varchar(100)  | YES  |     | NULL    |       |
| Address      | varchar(100)  | YES  |     | NULL    |       |
| Phone_no     | int           | YES  |     | NULL    |       |
| Email_id     | varchar(50)   | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
```

- **Cars table**

```
mysql> create table cars(Car_id int, Car_name varchar(30), Car_type varchar(20), Company varchar(30));
Query OK, 0 rows affected (0.02 sec)

mysql> desc cars;
+-----+-----+-----+-----+-----+-----+
| Field      | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| Car_id     | int           | YES  |     | NULL    |       |
| Car_name   | varchar(30)   | YES  |     | NULL    |       |
| Car_type   | varchar(20)   | YES  |     | NULL    |       |
| Company    | varchar(30)   | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
4 rows in set (0.00 sec)
```

- **Rental information table**

```
mysql> create table Rental_info(Rental_id int Primary key, Customer_id int, Car_id int, Pickup_date date, Return_date date,
    -> km_driven int, Rent_amount int);
Query OK, 0 rows affected (0.03 sec)

mysql> desc rental_info;
+-----+-----+-----+-----+-----+-----+
| Field      | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| Rental_id  | int  | NO   | PRI | NULL    |       |
| Customer_id | int  | YES  |     | NULL    |       |
| Car_id     | int  | YES  |     | NULL    |       |
| Pickup_date | date | YES  |     | NULL    |       |
| Return_date | date | YES  |     | NULL    |       |
| km_driven  | int  | YES  |     | NULL    |       |
| Rent_amount | int  | YES  |     | NULL    |       |
+-----+-----+-----+-----+-----+-----+
7 rows in set (0.01 sec)
```

## INSERT VALUES IN TABLE:

### Customer table Query:

```
mysql> insert into customer (Customer_id, Customer_name, Address, Phone_no, Email_id)
values(1001, 'Pratik', 'Nashik', 9887877, 'pratikmalunekar@gmail.com'), (1002, 'Deepak', 'Pune', 7075988
7, 'deepakgav@gmail.com'), (1003, 'Rupali', 'Nashik', 7499641, 'rupalif19@gmail.com'), (1004, 'Sujata', 'P
une', 9876563, 'sujataf@gmail.com'), (1005, 'Agastya', 'Mumbai', 7689890, 'agastya@gmail.com'), (1006, '
Adhya', 'Mumbai', 2345678, 'adhya@gmail.com');
```

```
mysql> insert into customer (Customer_id, Customer_name, Address, Phone_no, Email_id) values(1001, 'Pratik', 'Nashik', 9887877, 'pratikmalunekar@gmail.com'), (1002, 'Deepak', 'Pun
e', 70759887, 'deepakgav@gmail.com'),
    -> (1003, 'Rupali', 'Nashik', 7499641, 'rupalif19@gmail.com'), (1004, 'Sujata', 'Pune', 9876563, 'sujataf@gmail.com'),
    -> (1005, 'Agastya', 'Mumbai', 7689890, 'agastya@gmail.com'), (1006, 'Adhya', 'Mumbai', 2345678, 'adhya@gmail.com');
Query OK, 6 rows affected (0.01 sec)
Records: 6 Duplicates: 0 Warnings: 0

mysql> select * from customer;
+-----+-----+-----+-----+-----+
| Customer_id | customer_name | Address | phone_no | Email_id |
+-----+-----+-----+-----+-----+
| 1001 | Pratik | Nashik | 9887877 | pratikmalunekar@gmail.com |
| 1002 | Deepak | Pune | 70759887 | deepakgav@gmail.com |
| 1003 | Rupali | Nashik | 7499641 | rupalif19@gmail.com |
| 1004 | Sujata | Pune | 9876563 | sujataf@gmail.com |
| 1005 | Agastya | Mumbai | 7689890 | agastya@gmail.com |
| 1006 | Adhya | Mumbai | 2345678 | adhya@gmail.com |
+-----+-----+-----+-----+-----+
6 rows in set (0.00 sec)
```

### Cars table Query:

```
mysql> insert into cars(Car_id,Car_name,Car_type,company)
values(101,'XUV_700','XUV','Mahindra'),(102,'Dezire','Sedan','Maruti_suzuki'),(103,'Ertiga','Mid_size',
'Maruti_suzuki'),(104,'Innova','MPV','Toyota'),(105,'i10','Hatchback','Hundai'),(106,'Bolero','SUV','M
ahindra');
```

```
mysql> insert into cars(Car_id,Car_name,Car_type,company)
-> values(101,'XUV_700','XUV','Mahindra'),
-> (102,'Dezire','Sedan','Maruti_suzuki'),
-> (103,'Ertiga','Mid_size','Maruti_suzuki'),
-> (104,'Innova','MPV','Toyota'),
-> (105,'i10','Hatchback','Hundai'),
-> (106,'Bolero','SUV','Mahindra');
Query OK, 6 rows affected (0.01 sec)
Records: 6 Duplicates: 0 Warnings: 0
```

```
mysql> select*from cars;
+-----+-----+-----+-----+
| Car_id | Car_name | Car_type | Company |
+-----+-----+-----+-----+
| 101 | XUV_700 | XUV | Mahindra |
| 102 | Dezire | Sedan | Maruti_suzuki |
| 103 | Ertiga | Mid_size | Maruti_suzuki |
| 104 | Innova | MPV | Toyota |
| 105 | i10 | Hatchback | Hundai |
| 106 | Bolero | SUV | Mahindra |
+-----+-----+-----+-----+
6 rows in set (0.00 sec)
```

### Rental table Query:

```
mysql> insert into Rental_info(Rental_id, Customer_id,Car_id, Pickup_date, Return_date, km_driven,
Rent_amount) values(111,1001,102, '2023-12-23', '2023-12-31',3000,10000),(112,1005,101, '2023-
09-12', '2023-09-14',400,2000), (113,1004, 104,'2023-09-10','2023-09-11',200,1500),(114,1002,103,
'2023-08-15','2023-08-19',600,3000),(115,1003,102,'2023-08-12','2023-08-
15',400,2500),(116,1006,105, '2023-08-11', '2023-08-15',450,3500),(117,1001, 106, '2023-07-25',
'2023-07-30',550,6300);
```

```
mysql> insert into Rental_info(Rental_id, Customer_id,Car_id,Pikup_date,Return_date,km_driven,Rent_amount)
-> values(111,1001,102,'2023-12-23','2023-12-31',3000,10000),
-> (112,1005,101,'2023-09-12','2023-09-14',400,2000),
-> (113,1004,104,'2023-09-10','2023-09-11',200,1500),
-> (114,1002,103,'2023-08-15','2023-08-19',600,3000),
-> (115,1003,102,'2023-08-12','2023-08-15',400,2500),
-> (116,1006,105,'2023-08-11','2023-08-15',450,3500),
-> (117,1001,106,'2023-07-25','2023-07-30',550,6300);
Query OK, 7 rows affected (0.02 sec)
Records: 7 Duplicates: 0 Warnings: 0

mysql> select*from rental_info;
+-----+-----+-----+-----+-----+-----+-----+
| Rental_id | Customer_id | Car_id | Pickup_date | Return_date | km_driven | Rent_amount |
+-----+-----+-----+-----+-----+-----+-----+
| 111 | 1001 | 102 | 2023-12-23 | 2023-12-31 | 3000 | 10000 |
| 112 | 1005 | 101 | 2023-09-12 | 2023-09-14 | 400 | 2000 |
| 113 | 1004 | 104 | 2023-09-10 | 2023-09-11 | 200 | 1500 |
| 114 | 1002 | 103 | 2023-08-15 | 2023-08-19 | 600 | 3000 |
| 115 | 1003 | 102 | 2023-08-12 | 2023-08-15 | 400 | 2500 |
| 116 | 1006 | 105 | 2023-08-11 | 2023-08-15 | 450 | 3500 |
| 117 | 1001 | 106 | 2023-07-25 | 2023-07-30 | 550 | 6300 |
+-----+-----+-----+-----+-----+-----+-----+
7 rows in set (0.00 sec)
```

## Change Data type of column:

**Query:** mysql> alter table customer modify phone\_no int;

```
mysql> alter table customer modify phone_no int;
Query OK, 0 rows affected (0.04 sec)
Records: 0 Duplicates: 0 Warnings: 0

mysql> desc customer;
+-----+-----+-----+-----+-----+-----+
| Field          | Type          | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| Customer_id    | int           | NO   | PRI | NULL    |      |
| customer_name  | varchar(100)  | YES  |     | NULL    |      |
| Address        | varchar(100)  | YES  |     | NULL    |      |
| phone_no       | int           | YES  |     | NULL    |      |
| Email_id       | varchar(50)   | YES  |     | NULL    |      |
+-----+-----+-----+-----+-----+-----+
5 rows in set (0.00 sec)
```

## UPDATE :

**1) Update the data of Rent amount where rental\_id is 116.**

mysql> update rental\_info set rent\_amount=4000 where rental\_id=116;

```
mysql> update rental_info set rent_amount=4000 where rental_id=116;
Query OK, 1 row affected (0.02 sec)
Rows matched: 1 Changed: 1 Warnings: 0

mysql> select*from rental_info;
+-----+-----+-----+-----+-----+-----+-----+
| Rental_id | Customer_id | Car_id | Pickup_date | Return_date | km_driven | Rent_amount |
+-----+-----+-----+-----+-----+-----+-----+
| 111      | 1001       | 102    | 2023-12-23 | 2023-12-31 | 3000      | 10000      |
| 112      | 1005       | 101    | 2023-09-12 | 2023-09-14 | 400       | 2000       |
| 113      | 1004       | 104    | 2023-09-10 | 2023-09-11 | 200       | 1500       |
| 114      | 1002       | 103    | 2023-08-15 | 2023-08-19 | 600       | 3000       |
| 115      | 1003       | 102    | 2023-08-12 | 2023-08-15 | 400       | 2500       |
| 116      | 1006       | 105    | 2023-08-11 | 2023-08-15 | 450       | 4000       |
| 117      | 1001       | 106    | 2023-07-25 | 2023-07-30 | 550       | 6300       |
+-----+-----+-----+-----+-----+-----+-----+
```

## WHERE clause:

- 1) Get data from rental info table where date is '2023-08-12'.

```
mysql> select*from Rental_info where Pickup_date='2023-08-12';
```

```
mysql> select*from Rental_info where Pickup_date='2023-08-12';
+-----+-----+-----+-----+-----+-----+-----+
| Rental_id | Customer_id | Car_id | Pickup_date | Return_date | km_driven | Rent_amount |
+-----+-----+-----+-----+-----+-----+-----+
|      115 |      1003 |    102 | 2023-08-12 | 2023-08-15 |      400 |      2500 |
+-----+-----+-----+-----+-----+-----+-----+
1 row in set (0.00 sec)
```

- 2) Get data from rental info table where customer id is 1001 and car id is 102.

```
mysql> select*from Rental_info where customer_id=1001 and car_id=102;
```

```
mysql> select*from Rental_info where customer_id=1001 and car_id=102;
+-----+-----+-----+-----+-----+-----+-----+
| Rental_id | Customer_id | Car_id | Pickup_date | Return_date | km_driven | Rent_amount |
+-----+-----+-----+-----+-----+-----+-----+
|      111 |      1001 |    102 | 2023-12-23 | 2023-12-31 |      3000 |      10000 |
+-----+-----+-----+-----+-----+-----+-----+
1 row in set (0.00 sec)
```

## Between operator:

- 1) Gate details of customers from id 1003 to 1006.

```
mysql> select*from customer where customer_id between 1003 and 1006;
```

```
mysql> select*from customer where customer_id between 1003 and 1006;
+-----+-----+-----+-----+-----+
| Customer_id | customer_name | Address | phone_no | Email_id |
+-----+-----+-----+-----+-----+
|      1003 | Rupali | Nashik | 7499641 | rupalif19@gmail.com |
|      1004 | Sujata | Pune | 9876563 | sujataf@gmail.com |
|      1005 | Agastya | Mumbai | 7689890 | agastya@gmail.com |
|      1006 | Adhya | Mumbai | 2345678 | adhya@gmail.com |
+-----+-----+-----+-----+-----+
4 rows in set (0.01 sec)
```

## IN operator:

- 1) Get details of cars desire, innova and i10.

```
select*from cars where car_name in('Dezire','innova','i10');
```

```
mysql> select*from cars where car_name in('Dezire','innova','i10');
+-----+-----+-----+-----+
| Car_id | Car_name | Car_type | Company |
+-----+-----+-----+-----+
|    102 | Dezire | Sedan | Maruti_suzuki |
|    104 | Innova | MPV | Toyota |
|    105 | i10 | Hatchback | Hundai |
+-----+-----+-----+-----+
3 rows in set (0.01 sec)
```

## LIKE operator:

- 1) Get the customers details having 'T' in their name.

select \* from customer where customer\_name like '%T%';

```
mysql> select * from customer where customer_name like '%T%';
+-----+-----+-----+-----+-----+
| Customer_id | customer_name | Address | phone_no | Email_id |
+-----+-----+-----+-----+-----+
| 1001 | Pratik | Nashik | 9887877 | pratikmalunjkar@gmail.com |
| 1004 | Sujata | Pune | 9876563 | sujataf@gmail.com |
| 1005 | Agastya | Mumbai | 7689890 | agastya@gmail.com |
+-----+-----+-----+-----+-----+
3 rows in set (0.00 sec)
```

## AND operator:

- 1) Show the details of customer name is Agastya and customer id is 1005.

select \* from customer where customer\_name='Agastya' and customer\_id=1005;

```
mysql> select * from customer where customer_name='Agastya' and customer_id=1005;
+-----+-----+-----+-----+-----+
| Customer_id | customer_name | Address | phone_no | Email_id |
+-----+-----+-----+-----+-----+
| 1005 | Agastya | Mumbai | 7689890 | agastya@gmail.com |
+-----+-----+-----+-----+-----+
1 row in set (0.01 sec)
```

## OR operator:

- 1) Show the details of customer name is Agastya and customer id is 1004.

mysql> select \* from customer where customer\_name='Agastya' or customer\_id=1004;

```
mysql> select * from customer where customer_name='Agastya' or customer_id=1004;
+-----+-----+-----+-----+-----+
| Customer_id | customer_name | Address | phone_no | Email_id |
+-----+-----+-----+-----+-----+
| 1004 | Sujata | Pune | 9876563 | sujataf@gmail.com |
| 1005 | Agastya | Mumbai | 7689890 | agastya@gmail.com |
+-----+-----+-----+-----+-----+
2 rows in set (0.01 sec)
```



## Group by , Order by and having clause:

### 1) Display sum of rent amount for each car id.

mysql> select sum(rent\_amount),car\_id from rental\_info group by car\_id;

```
mysql> select sum(rent_amount),car_id from rental_info group by car_id;
+-----+-----+
| sum(rent_amount) | car_id |
+-----+-----+
|          12500   |     102 |
|           2000   |     101 |
|           1500   |     104 |
|           3000   |     103 |
|           4000   |     105 |
|           6300   |     106 |
+-----+-----+
6 rows in set (0.00 sec)
```

### 2) Display sum of rent amount for each car id having sum greater than 3000 in ascending order.

mysql> select sum(rent\_amount),car\_id from rental\_info group by car\_id having sum(rent\_amount)> 3000 order by sum(rent\_amount);

```
mysql> select sum(rent_amount),car_id from rental_info group by car_id having sum(rent_a
amount)> 3000 order by sum(rent_amount);
+-----+-----+
| sum(rent_amount) | car_id |
+-----+-----+
|          4000   |     105 |
|          6300   |     106 |
|         12500   |     102 |
+-----+-----+
3 rows in set (0.01 sec)
```

## Subquery:

### 1) Display the second highest rent amount.

mysql> select\*from rental\_info where rent\_amount=(select max(rent\_amount)
from rental\_info where rent\_amount<(select max(rent\_amount) from rental\_info));

```
mysql>
mysql> select*from rental_info where rent_amount=(select max(rent_amount) from rental_info where rent_a
amount<(select max(rent_amount) from rental_info));
+-----+-----+-----+-----+-----+-----+-----+
| Rental_id | Customer_id | Car_id | Pickup_date | Return_date | km_driven | Rent_amount |
+-----+-----+-----+-----+-----+-----+-----+
|        117 |         1001 |      106 | 2023-07-25 | 2023-07-30 |         550 |         6300 |
+-----+-----+-----+-----+-----+-----+-----+
1 row in set (0.01 sec)

mysql>
```

**2) Display customer id which is present in customer table but not in rental information table.**

```
mysql> select customer_id from customer where customer_id not in (select customer_id from rental_info);
```

```
mysql> select customer_id from customer where customer_id not in (select customer_id from rental_info);
+-----+
| customer_id |
+-----+
|          1005 |
+-----+
1 row in set (0.02 sec)
```

**3) Get details of all cars rented by a specific customer.**

```
mysql> SELECT car_name, car_id FROM Cars WHERE car_id IN (SELECT car_id FROM Rental_info WHERE customer_id = 1001 or customer_id=1002);
```

```
mysql> SELECT car_name, car_id FROM Cars
-> WHERE car_id IN (SELECT car_id FROM Rental_info
-> WHERE customer_id = 1001 or customer_id=1002);
+-----+-----+
| car_name | car_id |
+-----+-----+
| XUV_700  |      101 |
| Dezire   |      102 |
| Ertiga    |      103 |
| Bolero    |      106 |
+-----+-----+
4 rows in set (0.00 sec)
```

## JOINS:

### Inner join:

```
mysql> select c.customer_name, r.rental_id, r.car_id, r.pikup_date from customer as c inner join rental_info as r on c.customer_id=r.customer_id;
```

```
mysql> select c.customer_name, r.rental_id, r.car_id, r.pikup_date from customer as c inner join rental_info as r on c.customer_id=r.customer_id;
+-----+-----+-----+-----+
| customer_name | rental_id | car_id | pikup_date |
+-----+-----+-----+-----+
| Pratik        |      111 |      102 | 2023-12-23 |
| Deepak        |      112 |      101 | 2023-09-12 |
| Sujata        |      113 |      104 | 2023-09-10 |
| Deepak        |      114 |      103 | 2023-08-15 |
| Rupali        |      115 |      102 | 2023-08-12 |
| Adhya         |      116 |      105 | 2023-08-11 |
| Pratik        |      117 |      106 | 2023-07-25 |
+-----+-----+-----+-----+
7 rows in set (0.01 sec)
```

### Left join:

mysql> select c.customer\_name, r.rental\_id,r.car\_id,r.pikup\_date from customer as c right join rental\_info as r on c.customer\_id=r.customer\_id;

```
mysql> select c.customer_name, r.rental_id,r.car_id,r.pikup_date from rental_info as r left join customer as c on c.customer_id=r.customer_id;
+-----+-----+-----+-----+
| customer_name | rental_id | car_id | pikup_date |
+-----+-----+-----+-----+
| Pratik        | 111       | 102    | 2023-12-23 |
| Deepak        | 112       | 101    | 2023-09-12 |
| Sujata        | 113       | 104    | 2023-09-10 |
| Deepak        | 114       | 103    | 2023-08-15 |
| Rupali        | 115       | 102    | 2023-08-12 |
| Adhya         | 116       | 105    | 2023-08-11 |
| Pratik        | 117       | 106    | 2023-07-25 |
+-----+-----+-----+-----+
7 rows in set (0.00 sec)
```

### Right join:

mysql> select r.rental\_id,r.car\_id,r.pikup\_date,c.customer\_name from customer as c right join rental\_info as r on c.customer\_id=r.customer\_id;

```
mysql> select r.rental_id,r.car_id,r.pikup_date,c.customer_name from customer as c right join rental_info as r on c.customer_id=r.customer_id;
+-----+-----+-----+-----+
| rental_id | car_id | pikup_date | customer_name |
+-----+-----+-----+-----+
| 111       | 102    | 2023-12-23 | Pratik        |
| 112       | 101    | 2023-09-12 | Deepak        |
| 113       | 104    | 2023-09-10 | Sujata        |
| 114       | 103    | 2023-08-15 | Deepak        |
| 115       | 102    | 2023-08-12 | Rupali        |
| 116       | 105    | 2023-08-11 | Adhya         |
| 117       | 106    | 2023-07-25 | Pratik        |
+-----+-----+-----+-----+
7 rows in set (0.00 sec)
```

### LIMIT function:

mysql> select Customer\_id, customer\_name ,phone\_no from customer where customer\_id limit 3;

```
mysql> select Customer_id, customer_name ,phone_no from customer where customer_id limit 3;
+-----+-----+-----+
| Customer_id | customer_name | phone_no |
+-----+-----+-----+
| 1001        | Pratik        | 9887877  |
| 1002        | Deepak        | 70759887 |
| 1003        | Rupali        | 7499641  |
+-----+-----+-----+
3 rows in set (0.01 sec)
```

THANK YOU