DATABASE DESIGN

FINAL PROJECT REPORT

CAB MANAGEMENT SYSTEM

***INDEX***

1. ***INTRODUCTION***
2. ***REQUIREMENTS***
3. ***ENTITIES & RELATION***
4. ***ASSUMPTIONS***
5. ***FUNCTIONAL DEPENDENCIES***
6. ***FINAL RELATIONAL SCHEMA***
7. ***ER DIAGRAM***
8. ***SQL STATEMENTS***
9. ***TABLES AND THEIR VALUES***
10. ***SQL QUERIES***
11. ***CONCLUSION***
12. ***BIBLIOGRAPHY***

1.Introduction :

We have planned to produce a cab management system. In our system, the customer can book a cab as per their needs and location. In our system , we are providing our customers flexibility for choosing cab based on drop-of locations and journey. Also the customers who hold an membership-card generated by us would experience discounts on cab booking. We will see detailed description below:

2.Requirements:

1. Cab booking agency should have collection of cars.
2. Their would be car belonging to different categories and also belong to particular locations.
3. The customer can easily book a cab as per their needs.
4. Based on his location and cab category preferences, list of cabs available will be displayed.
5. In case the customer is a member of cab booking agency i.e they owe cab booking membership card then discount would be given on the total amount by booking the cab.

3.ENTITIES & RELATIONS

* Customer:

Customer will be the one who would be making a book of cab from cab booking agency. He/She can be member or non-member of the agency . Member of the agency would be given extra discount on booking price. Customer\_info entity will store the details of the customer like their serial number, name , email id etc .

* Cab category:

The cab\_info entity would be storing the various category of cabs available in the agency . It will have the attributes like car plate number, company name, model , rc number etc.

* Journey:

As we all know a traveller starts its journey with booking a cab..Hence journey entity owes its place in cab booking agency . Customer serial number, driver id number , start location, final location etc are stored in journey entity.

* Driver\_Info:

Customers safety and satisfaction is also one of the goal of the agency. Also it is necessary and right of the customer to know with whom they are travelling . So Driver id no, name, license no, phone number , address etc attributes store the info of the driver.

* Medical\_Info:

Along with knowing the driver’s info , their medical status is also a requirement for a safe journey. Medical\_info entity is in alignment with the information required by storing the info of medical status of the driver assigned in attributes like height of driver, blood group , any illness etc.

* Cab management info:

Cab management info contains the info about the booking done by the customer. It contains the attributes like customer serial number, driver id number , car plate number , medical report number etc.

* Membership programme:

For enjoying the premium facilities given by the agency like remote area pick-ups , refreshments etc and also enjoying heavy discounts membership programme is built . Membership card is given to the members. Attributes like Type, Months\_Duration , charges , discount % , insurance\_amount etc store the info for membership card.

*RELATIONS:*

1. Customer Information to Cab information:

Every customer enter the details during the registration in cab agency . On the basis of the information the required cab is alloted for the journey. The info of various cab available in the agency is stored in cab information table .The relation name is ‘Rides’.

1. Cab information to driver information:

When the cab is alloted to a customer , a driver is also assigned with the cab for the journey. The info about the driver is stored in driver information table.The relation name is ‘Drives’.

1. Customer information to journey:

When a customer books a cab, he/she filles the required customer details which are stored in customer information table. The info about the pick up points and drop off ,amount ,driver allotment etc, i.e info about journey is stored in journey table. The relation name is ‘travels’.

1. Driver to Medical report:

As ensuring safe journey is an important part of cab booking agency. So for the allotment of the driver certain info about driver and their medical status is stored in Medical report table. The relation name is ‘Acquires’.

1. Customer to Membership:

If a customer is willing to be a member of cab booking agency and enjoy the privileges assosiated with the memebership , they have to enrol in membership program. Details of the members of the agency is stored in membership program table.The relation name is ‘Purchases’.

5.ASSUMPTIONS:

a) Each booking is associated with only one car reservation at a time.

b) Car available in the system should be present at some location.

c) Distance travelled is decided by the driver because he could take any route.

d) Fare for each kilometer travelled is Rs.20.

e) Car would only be booked only if car location and Customers' start location is same.

f) Each driver has fixed salary of Rs.6000 per month , additionaly he would get 10% of per ride as a commission.

6.FUNCTIONAL DEPENDENCIES:

*a) Customer\_Info:*

Cus\_Serial\_Num **🡪** Cus\_Name, Cus\_Phone\_No, Cus\_Start\_Loc, Cus\_Final\_Loc, Cus\_Email, Membership\_Type, Membership\_StartTime, Membeship\_ExpiryTime;

*b) Car\_Info:*

Car\_Plate\_No **🡪** Car\_Name, Model\_No, Engine\_Number, Insurance\_No, Pollution\_Check, No\_of\_Seats, Car\_Loc;

*c) Medical\_Report:*

Report\_No **🡪** Driver\_Height, Eyesight\_Left, Eyesight\_Right, Birth\_Mark, Any\_Illness;

*d) Driver\_Info:*

Id\_No **🡪**  Driver\_Name,Driving\_Lic\_No,Phone\_No , Adress, Gender, Age, Car\_Plate\_No;

*e) Journey:*

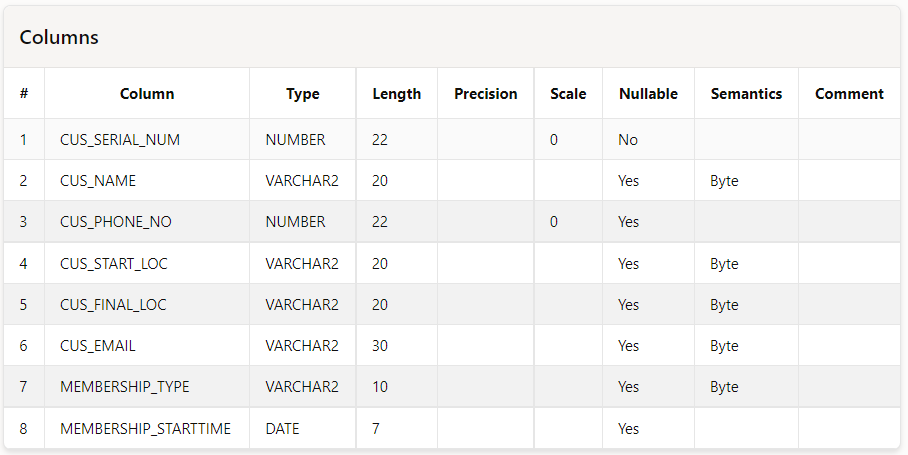
Cus\_Serial\_Num **🡪** Journey\_Id, Cus\_Serial\_num, Driver\_Id\_No, Car\_Plate\_No, Cus\_Start\_Loc, Cus\_Final\_Loc, Distance\_Travelled, Total\_Fare;

*f) Membership\_Program:*

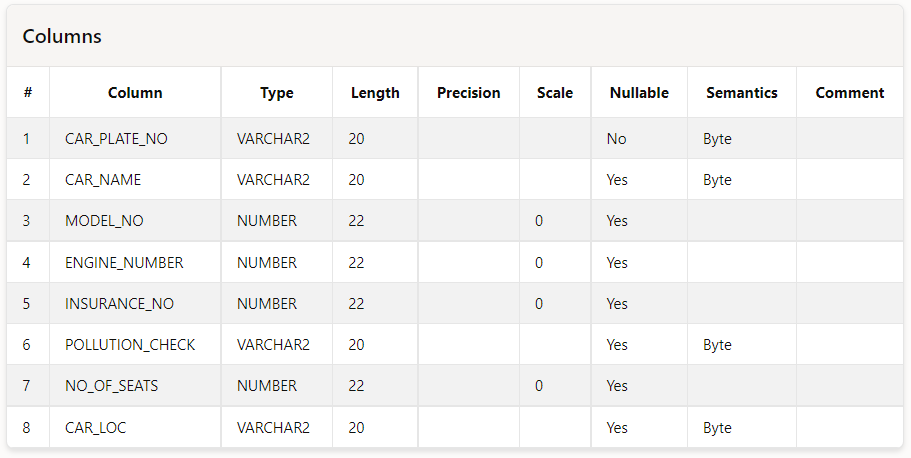
Type **🡪** Months\_Duration, Charges, Discount\_Percent, Rides\_free, Insurance\_Amount;

7.FINAL RELATIONAL SCHEMA:

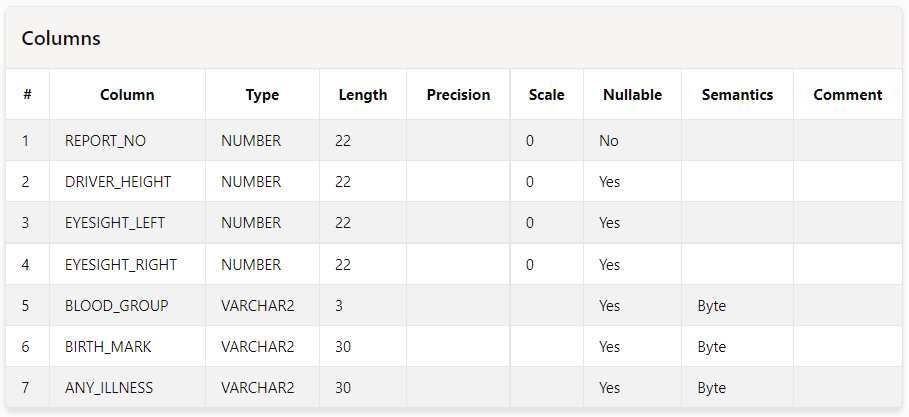
a) Customer Info:



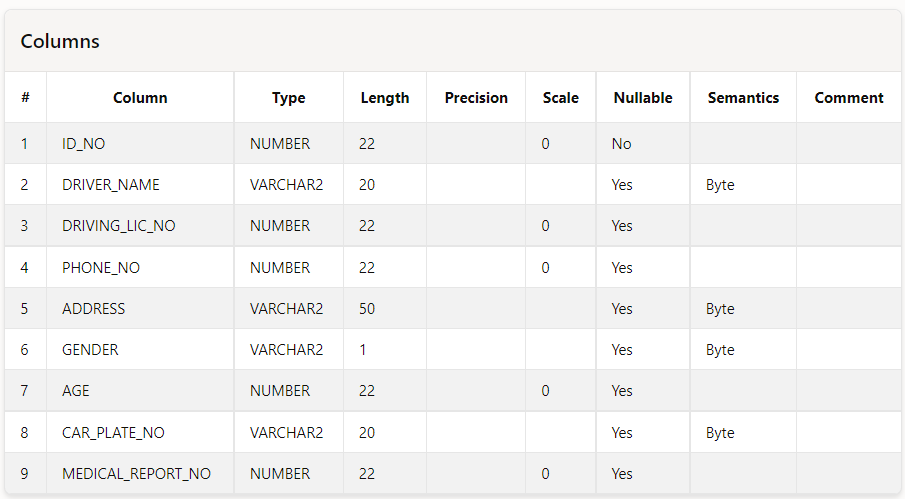
b) Car\_Info:



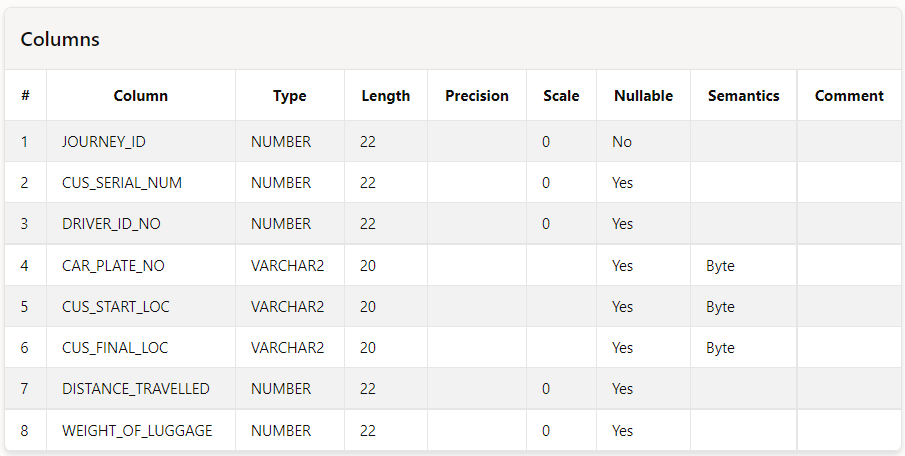
**c) Medical\_Report:**



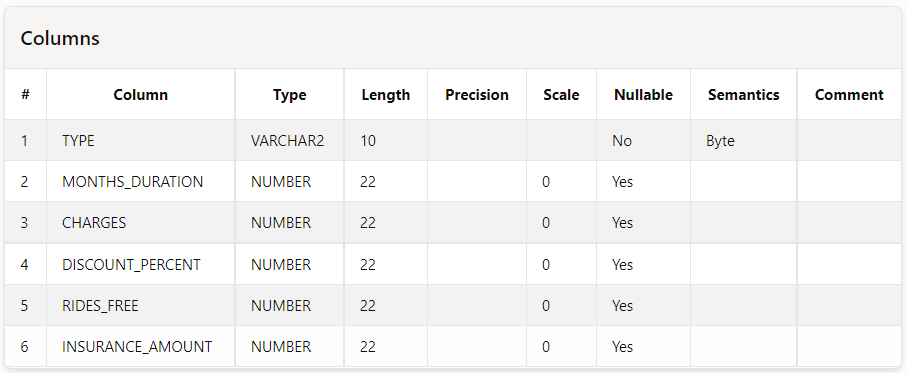
**d) Driver\_Info:**



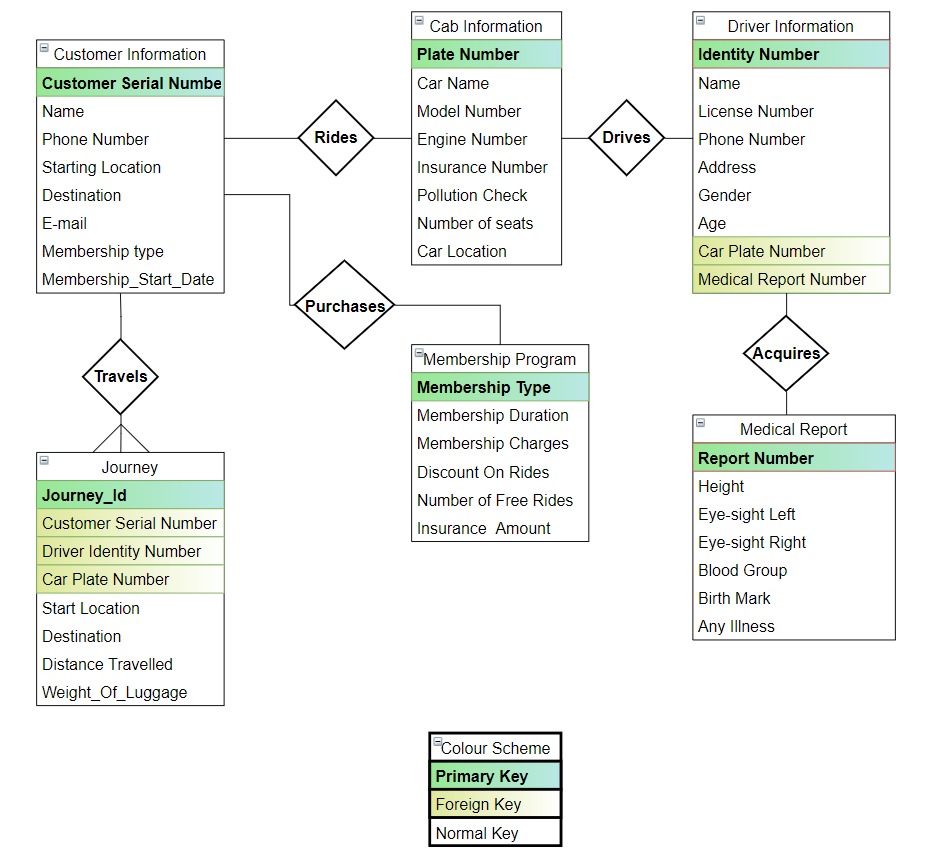
**e) Journey:**



**f) Membership\_program:**



8. ER DIAGRAM:



9. SQL STATEMETS:

9.1 CREATE STATEMTS:

a) Customer\_Info:

create table Customer\_Info

(Cus\_Serial\_Num int PRIMARY KEY,

Cus\_Name varchar(20),

Cus\_Phone\_No int,

Cus\_Start\_Loc varchar(20),

Cus\_Final\_Loc varchar(20),

Cus\_Email varchar(30),

Membership\_type varchar(10),

Membership\_StartTime Date

);

b) Car\_Info:

create table Car\_Info

(Car\_Plate\_No varchar(20) PRIMARY KEY,

Car\_Name varchar(20),

Model\_No int,Engine\_Number int,

Insurance\_No int,

Pollution\_Check varchar(20),

No\_of\_Seats int,

Car\_loc varchar(20)

);

c) Medical\_Report:

create table Medical\_Report

(Report\_No int PRIMARY KEY,

Driver\_Height int,

Eyesight\_Left int,

Eyesight\_Right int,

Blood\_Group varchar(3),

Birth\_Mark varchar(30),

Any\_Illness varchar(30)

);

d) Driver\_Info:

create table Driver\_Info

(Id\_No int PRIMARY KEY,

Driver\_Name varchar(20),

Driving\_Lic\_No int,

Phone\_No int,

Address varchar(50),

Gender varchar(1),

Age int,

Car\_Plate\_No varchar(20) ,

FOREIGN KEY (Car\_Plate\_No)

REFERENCES Car\_Info(Car\_Plate\_No),

Medical\_Report\_No int,

FOREIGN KEY (Medical\_Report\_No)

REFERENCES Medical\_Report(Report\_No)

)

e)Journey:

create table Journey

(Journey\_Id int Primary Key,

Cus\_Serial\_Num int,

FOREIGN KEY (Cus\_Serial\_Num)

REFERENCES Customer\_Info(Cus\_Serial\_Num),

Driver\_Id\_No int,

FOREIGN KEY (Driver\_Id\_No)

REFERENCES Driver\_Info(Id\_No),

Car\_Plate\_No varchar(20),

FOREIGN KEY (Car\_Plate\_No)

REFERENCES Car\_Info(Car\_Plate\_No),

Cus\_Start\_Loc varchar(20),

Cus\_Final\_Loc varchar(20),

Distance\_Travelled int,

Weight\_of\_Luggage int

)

f) Cab\_Management:

create table Cab\_Management\_Info

(Cus\_Serial\_Num int,

FOREIGN KEY (Cus\_Serial\_Num)

REFERENCES Customer\_Info(Cus\_Serial\_Num),

Driver\_Id\_No int ,

FOREIGN KEY (Driver\_Id\_No)

REFERENCES Driver\_Info(Id\_No),

Car\_Plate\_No varchar(20) ,

FOREIGN KEY (Car\_Plate\_No)

REFERENCES Car\_Info(Car\_Plate\_No),

Medical\_Report\_No int,

FOREIGN KEY (Medical\_Report\_No)

REFERENCES Medical\_Report(Report\_No)

)

g) Membership\_Program:

create table Membership\_Program

(Type varchar(10) Primary Key,

Months\_Duration int,

Charges int,

Discount\_Percent int,

Rides\_free int,

Insurance\_Amount int

);

9.2 INSERTION STATEMENTS:

a) Customer\_Info:

insert all

into Customer\_Info Values(1,'Rahul',9876543210,'Ludhiana','Chandigarh','rahul5@gmail.com','Bronze',TO\_DATE('02.04.2018','DD.MM.YYYY'))

into Customer\_Info Values(2,'Ramesh',9401423443,'Chandigarh','Ludhiana','ramesh401@gmail.com','Gold',TO\_DATE('12.10.2020','DD.MM.YYYY'))

into Customer\_Info Values(3,'Arjun',7873423510,'Patiala','Amritsar','arjun87@gmail.com','Bronze',TO\_DATE('24.10.2021','DD.MM.YYYY'))

into Customer\_Info Values(4,'Sanjay',7849495785,'Bathinda','Kapurthala','sanjay68@gmail.com','Gold',TO\_DATE('09.01.2017','DD.MM.YYYY'))

into Customer\_Info Values(5,'Rohan',9859333404,'Ludhiana','Jalandhar','rohan87@gmail.com','Bronze',TO\_DATE('06.05.2019','DD.MM.YYYY'))

into Customer\_Info Values(6,'Vansh',9173313745,'Chandigarh','Amritsar','vansh37@gmail.com','Silver',TO\_DATE('03.08.2020','DD.MM.YYYY'))

into Customer\_Info Values(7,'Rohan',7856608801,'Amritsar','Ludhiana','rohan61@gmail.com','Bronze',TO\_DATE('12.07.2020','DD.MM.YYYY'))

into Customer\_Info Values(8,'Arun',7804369305,'Mansa','Pathankot','arun04@gmail.com','Platinum',TO\_DATE('29.10.2020','DD.MM.YYYY'))

into Customer\_Info Values(9,'Jay',9074479401,'Sangrur','Mohali','jay07@gmail.com','Silver',TO\_DATE('02.09.2018','DD.MM.YYYY'))

into Customer\_Info Values(10,'Rajesh',9156651253,'Firozpur','Hoshiarpur','rajesh16@gmail.com','Gold',TO\_DATE('27.10.2018','DD.MM.YYYY'))

select \* from Dual;

b) Car\_Info:

insert all

into Car\_Info Values('PB01AY8438', 'Suzuki Swift', 2005, 1234763, 0000006357, 'YES', 4, 'Ludhiana')

into Car\_Info Values('PB11CY1231', 'Tata Indica', 2004, 8285627, 0006483856, 'YES', 4, 'Chandigarh')

into Car\_Info Values('PB21RR5343', 'Suzuki WagonR', 2009, 2678373, 0000383348, 'YES', 4, 'Patiala')

into Car\_Info Values('PB07BC7742', 'Suzuki Swift', 2010, 3772637, 0000006301, 'NO', 4, 'Bathinda')

into Car\_Info Values('PB13AD2562', 'Hero Splendor', 2015, 3727782, 0000827383, 'YES', 2, 'Ludhiana')

into Car\_Info Values('PB23EF7544', 'Suzuki WagonR', 2013, 1282834, 0000123844, 'YES', 4, 'Chandigarh')

into Car\_Info Values('PB17YZ7317', 'Toyota Qualis', 2005, 2348485, 0000763728, 'YES', 7, 'Amritsar')

into Car\_Info Values('PB02SD4374', 'Bajaj Discover', 2009, 5434763, 0000234322, 'YES', 2, 'Mansa')

into Car\_Info Values('PB09AF6256', 'Suzuki Swift', 2014, 3884746, 0000543261, 'YES', 4, 'Sangrur')

into Car\_Info Values('PB16CY3275', 'Tata Indico', 2007, 8484484, 0000652453, 'YES', 4, 'Firozpur')

select \* from Dual

c) Medical\_Report:

insert all

into Medical\_Report Values(0021, 176, 6, 6, 'O+', 'Mole on stomach', 'No')

into Medical\_Report Values(0043, 165, 6, 5, 'B+', 'Scar under left eye', 'Diabetes')

into Medical\_Report Values(0013, 180, 6, 6, 'A+', 'Dark Patch on back ', 'No')

into Medical\_Report Values(0042, 182, 5, 6, 'AB+', 'Mole on right shoulder', 'Diabetes')

into Medical\_Report Values(0056, 171, 6, 6, 'A+', 'Cut mark on left hand', 'No')

into Medical\_Report Values(0045, 172, 4, 4, 'O+', 'Mole near nose', 'No')

into Medical\_Report Values(0065, 169, 6, 6, 'O+', 'Scar under right eye', 'Low BP')

into Medical\_Report Values(0076, 185, 6, 6, 'A-', 'Beauty mark on left arm', 'No')

into Medical\_Report Values(0029, 175, 5, 6, 'AB+', 'right ear pierced', 'psoriasis')

into Medical\_Report Values(0006, 176, 4, 6, 'O-', 'Beaty mark on face', 'No')

select \* from Dual

d) Driver\_Info:

insert all

into Driver\_Info Values(7050, 'Rajesh', 9133709, 9873652636, 'H.No 10, St.No 9, Model Town, Ludhiana', 'M', 35, 'PB01AY8438', 0021)

into Driver\_Info Values(4451, 'Ram', 2158642, 9873563903, 'H.No 210, St.No 1, Urban Estate, Chandigarh', 'M', 32, 'PB11CY1231', 0043)

into Driver\_Info Values(7516, 'Amar', 7066179, 7876482548, 'H.No 235, St.No 10, Sector 2, Patiala', 'M', 25, 'PB21RR5343', 0013)

into Driver\_Info Values(8896, 'Vijender', 1285807, 7863782785, 'H.No 1453, St.No 2, Yadvindra Enclave, Bathinda', 'M', 40, 'PB07BC7742', 0042)

into Driver\_Info Values(4124, 'Preeti', 3237695, 9973863595, 'H.No 130, St.No 6, Anand Nagar, Ludhiana', 'F', 27, 'PB13AD2562', 0056)

into Driver\_Info Values(1207, 'Komal', 5168912, 7893957483, 'H.No 435, St.No 5, Doctor Colony, Chandigarh', 'F', 29, 'PB23EF7544', 0045)

into Driver\_Info Values(4011, 'Rohan', 7214513, 7849296537, 'H.No 546, St.No 9, Prem Nagar, Amritsar', 'M', 25, 'PB17YZ7317', 0065)

into Driver\_Info Values(3906, 'Akash', 6619700, 98888647362, 'H.No 754, St.No 7, Ekata Vihar, Mansa', 'M', 38, 'PB02SD4374', 0076)

into Driver\_Info Values(1461, 'Kunal', 5727592, 9946273839, 'H.No 654, St.No 3, SST Nagar, Sangrur', 'M', 35, 'PB09AF6256', 0029)

into Driver\_Info Values(9957, 'Gourav', 5353652, 7883673773, 'H.No 23, St.No 2, Phase 2, Firozpur', 'M', 31, 'PB16CY3275', 0006)

select \* from Dual

e) Journey:

insert all

into Journey Values(1001,1, 7050, 'PB01AY8438', 'Ludhiana','Chandigarh',100,20)

into Journey Values(1002,2, 4451, 'PB11CY1231', 'Chandigarh','Ludhiana',100,42)

into Journey Values(1003,3, 7516, 'PB21RR5343', 'Patiala','Amritsar',234,46)

into Journey Values(1004,4, 8896, 'PB07BC7742', 'Bathinda','Kapurthala',180,36)

into Journey Values(1005,5, 4124, 'PB13AD2562', 'Ludhiana','Jalandhar',62,12)

into Journey Values(1006,6, 1207, 'PB23EF7544', 'Chandigarh','Amritsar',227,45)

into Journey Values(1007,7, 4011, 'PB17YZ7317', 'Amritsar','Ludhiana',141,28)

into Journey Values(1008,8, 3906, 'PB02SD4374', 'Mansa','Pathankot',293,58)

into Journey Values(1009,9, 1461, 'PB09AF6256', 'Sangrur','Mohali',124,50)

into Journey Values(1010,10, 9957, 'PB16CY3275', 'Firozpur','Hoshiarpur',195,39)

select \* from Dual

f) Cab\_Management:

insert all

into Cab\_Management\_Info Values(1, 7050, 'PB01AY8438', 0021)

into Cab\_Management\_Info Values(2, 4451, 'PB11CY1231', 0043)

into Cab\_Management\_Info Values(3, 7516, 'PB21RR5343', 0013)

into Cab\_Management\_Info Values(4, 8896, 'PB07BC7742', 0042)

into Cab\_Management\_Info Values(5, 4124, 'PB13AD2562', 0056)

into Cab\_Management\_Info Values(6, 1207, 'PB23EF7544', 0045)

into Cab\_Management\_Info Values(7, 4011, 'PB17YZ7317', 0065)

into Cab\_Management\_Info Values(8, 3906, 'PB02SD4374', 0076)

into Cab\_Management\_Info Values(9, 1461, 'PB09AF6256', 0029)

into Cab\_Management\_Info Values(10, 9957, 'PB16CY3275', 0006)

select \* from Dual

g) Membership\_Program:

Insert all

into Membership\_Program Values('Bronze',1,500,3,0,0)

into Membership\_Program Values('Silver',3,1200,5,0,0)

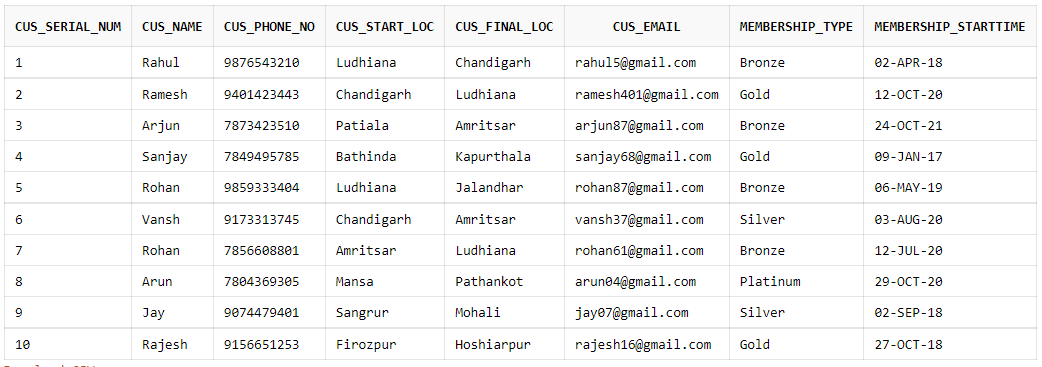
into Membership\_Program Values('Gold',6,2500,6,1,0)

into Membership\_Program Values('Platinum',12,7000,6,5,5000)

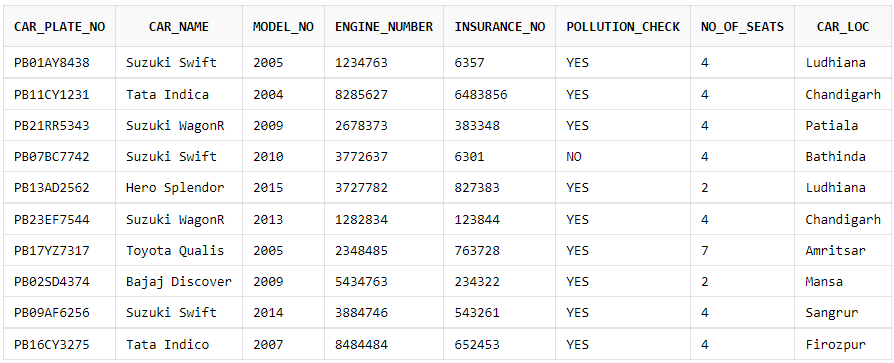
Select \* from Dual;

10. Tables and their Values:

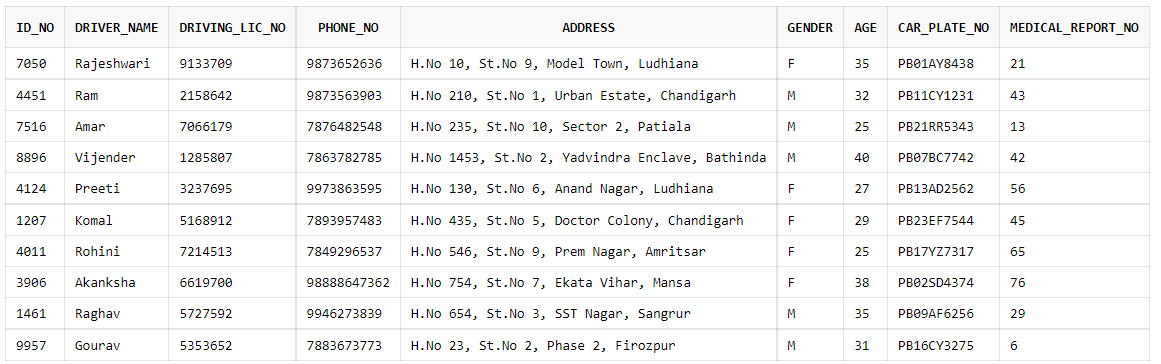
a) Customer\_Info:



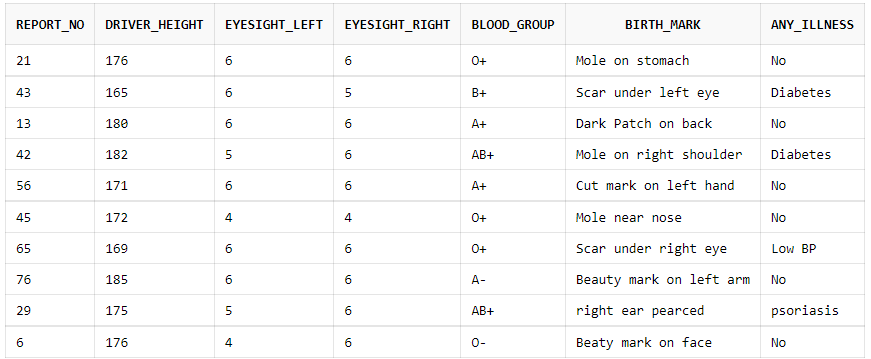
b) Car\_Info:



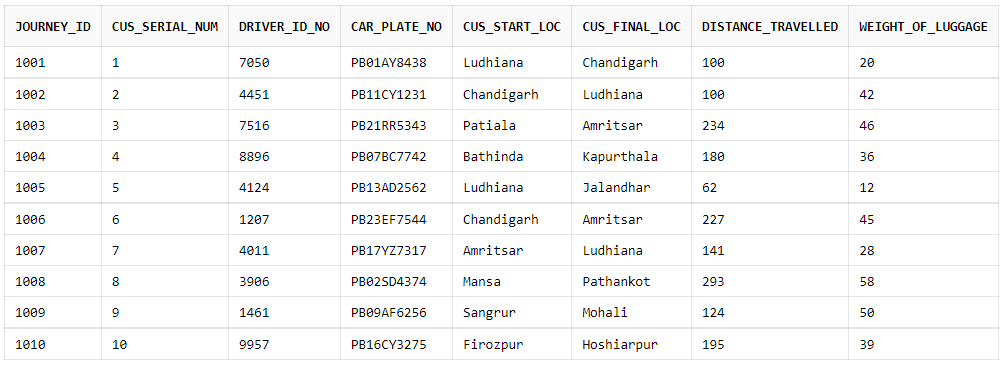
c)Driver\_Info:



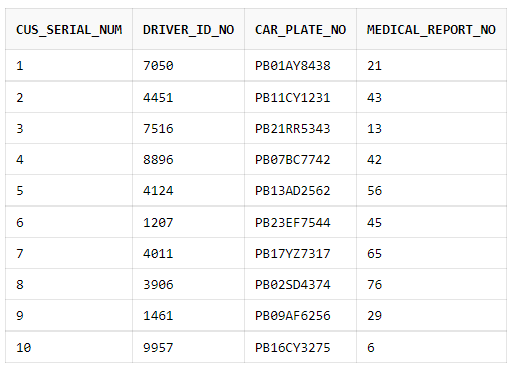
d)Medical\_Report:



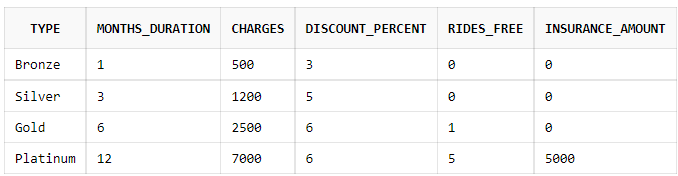
e) Journey:



f) Cab\_Management\_Program:

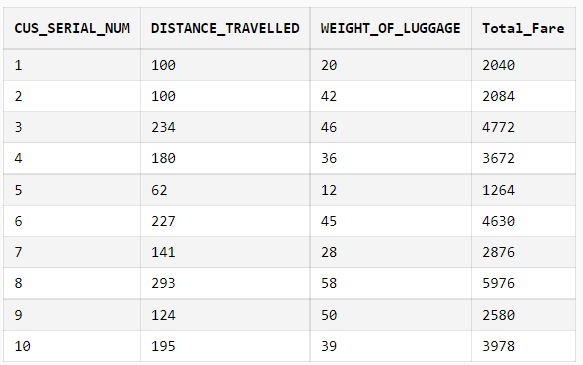


g) Membership\_program:

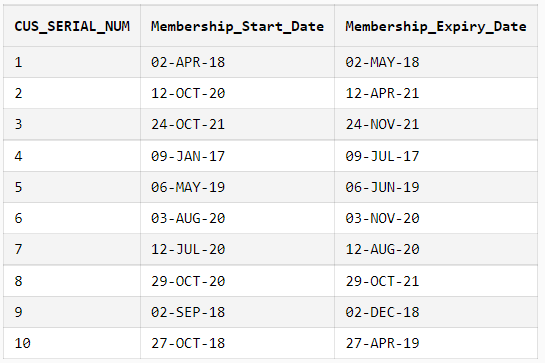


11. SQL QUERIES:

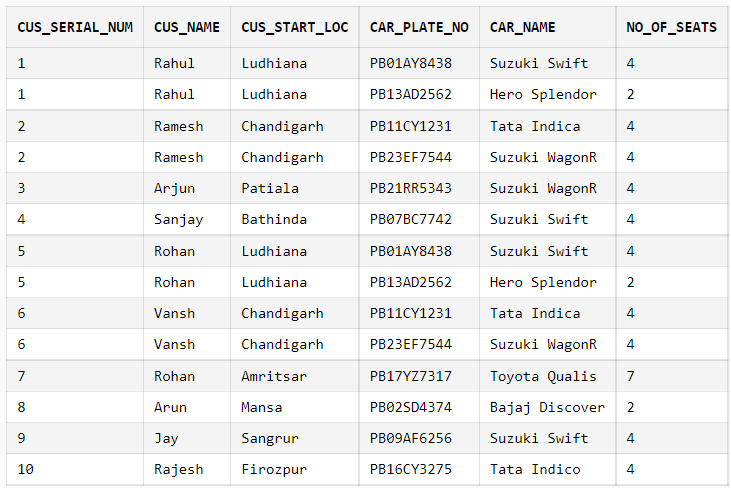
A) Select Cus\_Serial\_Num, Distance\_Travelled, Weight\_of\_Luggage, Distance\_Travelled\*20) +(Weight\_of\_Luggage\*2) "Total\_Fare" from Journey;



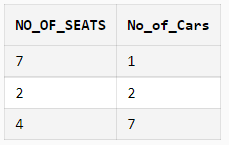
B) select Customer\_Info.Cus\_Serial\_Num, Customer\_Info.Membership\_StartTime "Membership\_Start\_Date" ,add\_months (Customer\_Info.Membership\_StartTime, Membership\_Program.Months\_Duration) "Membership\_Expiry\_Date"from Customer\_Info,Membership\_Program where (Customer\_Info.Membership\_type =Membership\_Program.Type);



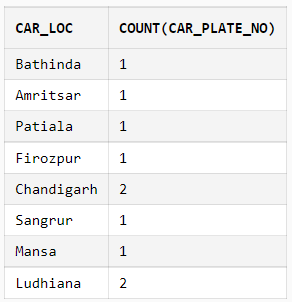
C) select Cus\_Serial\_Num, Cus\_Name,Cus\_Start\_Loc, Car\_Plate\_No, Car\_Name, No\_of\_Seats from Customer\_Info right outer join Car\_Info on Car\_Info.Car\_Loc=Customer\_Info.Cus\_Start\_Loc;



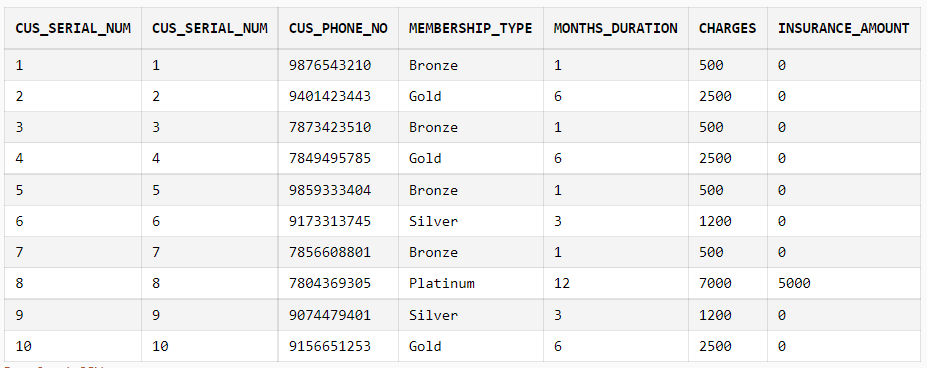
D) select No\_of\_Seats,Count(No\_of\_Seats) "No\_of\_Cars" from Car\_Info group by No\_of\_Seats;



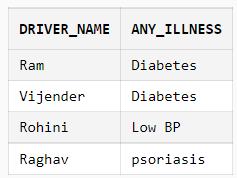
E) select Car\_Loc, count(Car\_Plate\_No) from Car\_Info group by Car\_Loc;



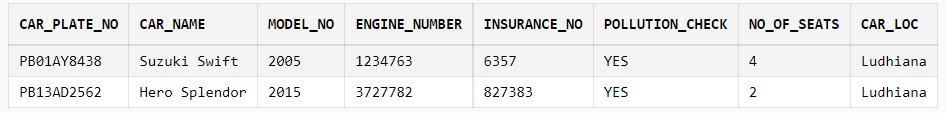
F) select CUS\_SERIAL\_NUM,CUS\_SERIAL\_NUM, CUS\_PHONE\_NO, MEMBERSHIP\_TYPE, MONTHS\_DURATION,CHARGES,INSURANCE\_AMOUNT from Membership\_program left outer join Customer\_Info on Customer\_Info.Membership\_Type=Membership\_program.Type;



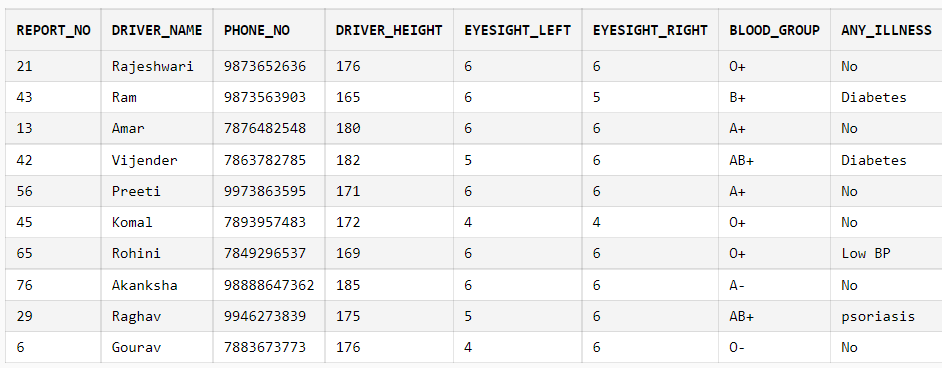
G) select Driver\_Info.Driver\_Name, Medical\_Report.Any\_Illness from Driver\_Info join Medical\_Report on Driver\_Info.Medical\_Report\_No = Medical\_Report.Report\_No where Medical\_Report.Any\_Illness != 'No';



H) select \* from Car\_info where car\_loc ='Ludhiana';



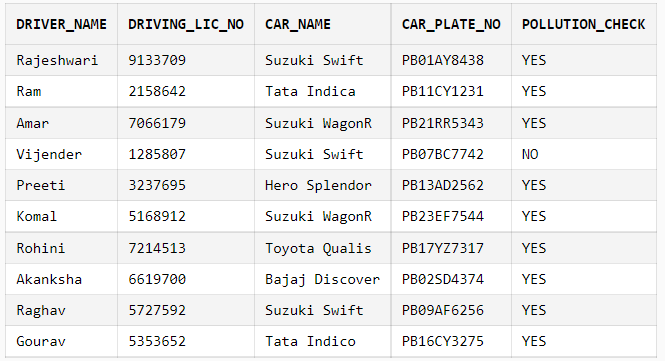
I) select Medical\_Report.Report\_No, Driver\_Info.Driver\_Name, Driver\_Info.Phone\_No, Medical\_Report.Driver\_Height, Medical\_Report.Eyesight\_Left, Medical\_Report.Eyesight\_Right, Medical\_Report.Blood\_Group, Medical\_Report.Any\_Illness from Driver\_Info join Medical\_Report on Driver\_Info.Medical\_Report\_No = Medical\_Report.Report\_No;



J) select Driver\_name from Driver\_info where Gender='M';



K) select Driver\_Info.Driver\_Name, Driver\_Info.Driving\_Lic\_No, Car\_Info.Car\_Name, Car\_Info.Car\_Plate\_No , Car\_Info.Pollution\_Check from Driver\_Info join Car\_Info on Driver\_Info.Car\_Plate\_No = Car\_Info.Car\_Plate\_No;



**12. CONCLUSION:**

During the course of this project, we learnt a lot of the work and best practices that go into creating a database, the rules to construct a good ER diagram, How to come up with relational schema mapping from the ER diagram, deriving the functional dependencies. We learnt on how to design a system from Database perspective and how to efficiently store and manipulate data.