

CAR SHOWROOM MANAGEMENT SYSTEM

ABSTRACT

This project designs and implements a car showroom management system using SQL. The system stores and manages data about cars, customers, sales and inventory. It also generates reports and queries for decision making. The project follows six phases: design, implementation, user interface development, testing, report generation and documentation. The project uses a relational database model and the waterfall methodology. The project shows how SQL can create and manipulate databases effectively. The project also shows how a car showroom management system can improve showroom efficiency and effectiveness.



❖ AIM OF PROJECT

The aim of this project is to design and implement a car showroom management system using SQL. The system will store and manage information about the cars, customers, sales and inventory of the showroom. The system will also provide various reports and queries to help the showroom staff and managers perform their tasks efficiently and effectively.

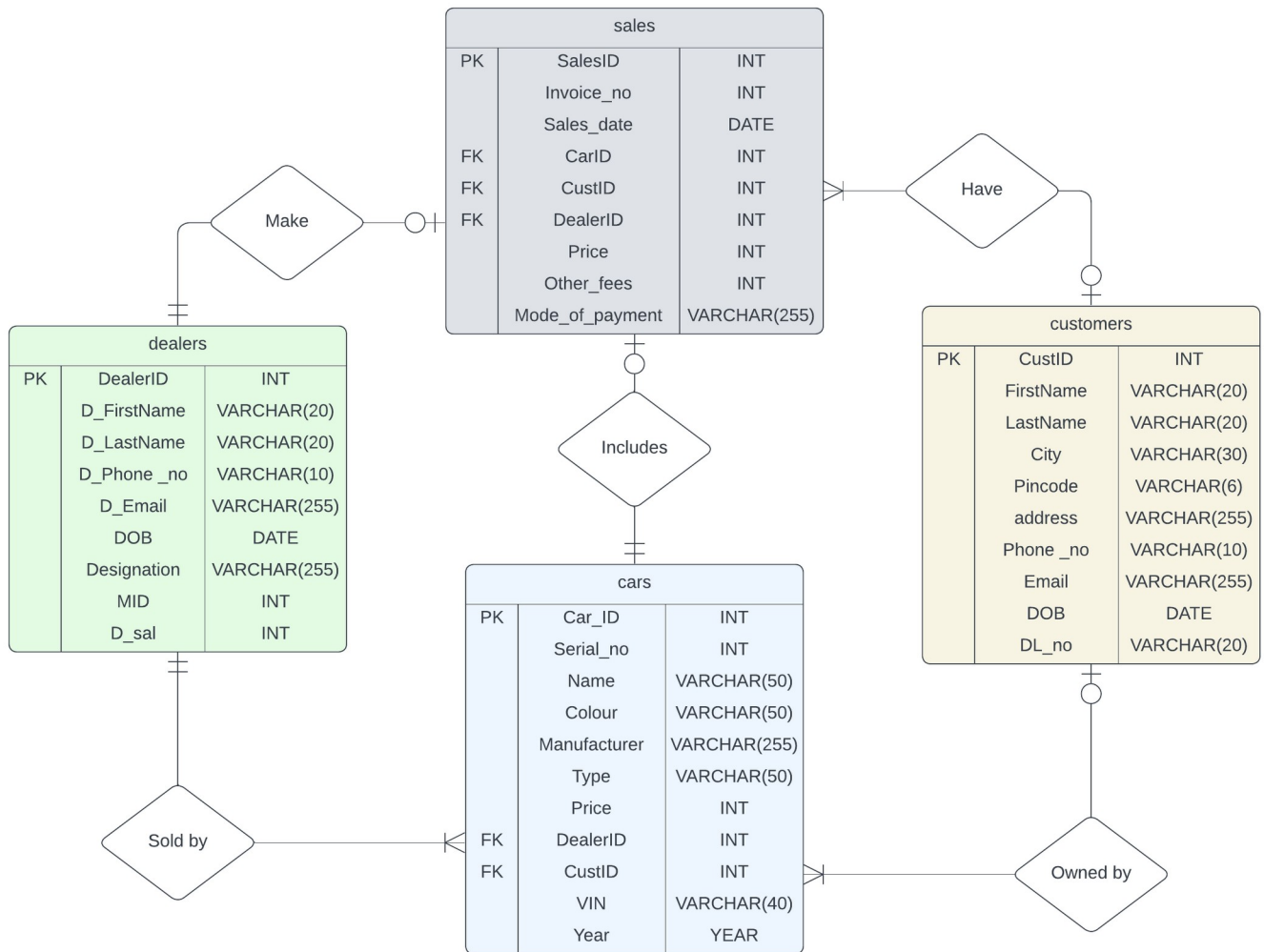
❖ INTRODUCTION

Car showrooms are places where customers can buy new or used cars from various brands and models. They also offer services such as car maintenance, repair, insurance and financing. Managing a car showroom requires a lot of information and data, such as the details of the cars, customers, sales and inventory. A car showroom management system is a software application that helps the showroom staff and managers to store and manage this information and data using a database. The system also provides various reports and queries to help them perform their tasks efficiently and effectively. The aim of this project is to design and implement a car showroom management system using SQL. The objectives of this project are to create a relational database schema, implement the database, create various stored procedures, functions, triggers and views, develop a user interface, test the functionality and performance of the system, generate various reports and queries, and document the system design, implementation and testing process. The scope of this project is limited to the car showroom management system only and does not include other aspects such as marketing, customer relationship management or online sales.

❖ OBJECTIVE OF PROJECT

- To design a relational database schema for the car showroom management system using SQL
- To generate various reports and queries to support the decision making of the showroom staff and managers
- To document the system design, implementation and testing process

ER DIAGRAM



STRUCTURE OF TABLE'S

❖ CUSTOMERS

```
mysql> DESC CUSTOMERS;
```

Field	Type	Null	Key	Default	Extra
custid	int	NO	PRI	NULL	auto_increment
FirstName	varchar(20)	YES		NULL	
LastName	varchar(20)	YES		NULL	
City	varchar(30)	YES		NULL	
Pincode	varchar(6)	YES		NULL	
Address	varchar(255)	YES		NULL	
Phone_no	varchar(10)	YES		NULL	
email	varchar(255)	YES		NULL	
DOB	date	YES		NULL	
DL_no	varchar(20)	YES		NULL	

10 rows in set (0.00 sec)

❖ DEALERS

```
mysql> DESC DEALERS;
```

Field	Type	Null	Key	Default	Extra
DealerID	int	NO	PRI	NULL	auto_increment
D_FirstName	varchar(20)	YES		NULL	
D_LastName	varchar(20)	YES		NULL	
D_PhoneNo	varchar(10)	YES		NULL	
D_email	varchar(255)	YES		NULL	
D_DOB	date	YES		NULL	
Designation	varchar(255)	YES		NULL	
MID	int	YES		NULL	
D_sal	int	YES		NULL	

9 rows in set (0.00 sec)

```
mysql>
```

❖ SALES

```
mysql> desc sales;
```

Field	Type	Null	Key	Default	Extra
SaleID	int	NO	PRI	NULL	auto_increment
Invoice_no	int	YES		NULL	
Sales_date	date	YES		NULL	
CarID	int	YES	MUL	NULL	
CustID	int	YES	MUL	NULL	
DealerID	int	YES	MUL	NULL	
Price	int	YES		NULL	
Other_fees	int	YES		NULL	
Mode_of_payment	varchar(255)	YES		NULL	

9 rows in set (0.00 sec)

❖ CARS

```
mysql> DESC CARS;
```

Field	Type	Null	Key	Default	Extra
Car_ID	int	NO	PRI	NULL	auto_increment
Serial_no	int	NO		NULL	
Name	varchar(50)	YES		NULL	
Colour	varchar(50)	YES		NULL	
Manufacturer	varchar(255)	YES		NULL	
type	varchar(50)	YES		NULL	
Car_price	int	YES		NULL	
DealerID	int	YES	MUL	NULL	
CustID	int	YES	MUL	NULL	
vin	varchar(40)	NO	UNI	NULL	
year	year	YES		NULL	

11 rows in set (0.00 sec)

```
mysql> _
```

CONTENT OF TABLE'S

❖ CUSTOMERS

```
mysql> select * from customers;
```

custid	FirstName	LastName	City	Pincode	Address	Phone_no	email	DOB	DL_no
301	Ravi	Kumar	Mumbai	400001	andheri	9820123456	ravi.kumar@gmail.com	1990-01-01	MH01 20100000001
302	Priya	Sharma	Delhi	110001	sardar chuk	9811123456	priya.sharma@yahoo.in	1992-05-15	DL01 20100000002
303	Anita	Patel	Ahmedabad	380001	gandhi nagar	9825123456	anita.patel@rediffmail.com	1993-02-10	GJ01 20100000004
304	Suresh	Jain	Chennai	600001	ooti	9840123456	suresh.jain@hotmail.com	1991-12-25	TN01 20100000005
305	Ravi	Sharma	Mumbai	400001	andheri	9820123456	ravi.sharma@mail.com	1990-01-01	MH012345678901
306	Priya	Patel	Ahmedabad	380001	sardar chuk	9876543210	priya.patel@mail.com	1992-03-15	GJ098765432109
307	Rajesh	Singh	Delhi	110001	gandhi nagar	9812345678	rajesh.singh@mail.com	1989-05-20	DL020202020202
308	Pooja	Jain	Jaipur	302001	ooti	9789012345	pooja.jain@mail.com	1991-07-10	RJ101010101010
309	Amit	Kumar	Kolkata	700001	andheri	9834567890	amit.kumar@mail.com	1993-09-25	WB252525252525
310	Neha	Gupta	Lucknow	226001	sardar chuk	9798765432	neha.gupta@mail.com	1994-11-05	UP050505050505
311	Anil	Mehta	Surat	395001	gandhi nagar	9901234567	anil.mehta@mail.com	1988-12-30	GJ303030303030
312	Sunita	Roy	Chennai	600001	ooti	9845678901	sunita.roy@mail.com	1995-02-14	TN141414141414
313	Vijay	Reddy	Hyderabad	500001	andheri	9867890123	vijay.reddy@mail.com	1990-10-31	TS313131313131

```
13 rows in set (0.00 sec)
```

```
mysql> _
```

❖ DEALERS

```
mysql> select * from dealers
```

```
-> ;
```

DealerID	D_FirstName	D_LastName	D_PhoneNo	D_email	D_DOB	Designation	MID	D_sal
201	Ravi	Kumar	9876543210	ravi.kumar@gmail.com	1990-01-01	owner	200	50000
202	Priya	Sharma	8765432109	priya.sharma@yahoo.com	1992-02-15	manager	201	45000
203	Rajesh	Singh	7654321098	rajesh.singh@outlook.com	1989-03-30	salesman	202	55000
204	Neha	Patel	6543210987	neha.patel@hotmail.com	1991-04-10	salesman	202	40000
205	Amit	Gupta	5432109876	amit.gupta@bing.com	1993-05-25	salesman	202	60000
206	Pooja	Jain	4321098765	pooja.jain@gmail.com	1994-06-05	salesman	202	50000
207	Rohit	Sharma	3210987654	rohit.sharma@yahoo.com	1990-07-20	salesman	202	45000
208	Anjali	Verma	2109876543	anjali.verma@outlook.com	1992-08-12	HR	201	55000
209	Suresh	Reddy	1098765432	suresh.reddy@hotmail.com	1989-09-18	Sr Mechanic	201	40000
210	Meena	Roy	987654321	meena.roy@bing.com	1991-10-24	Co-owner	201	60000

```
10 rows in set (0.00 sec)
```

```
mysql>
```

❖ SALES

```
mysql> select * from sales;
```

SaleID	Invoice_no	Sales_date	CarID	CustID	DealerID	Price	Other_fees	Mode_of_payment
501	901	2023-01-05	101	301	203	573000	8595	Net Banking
502	902	2023-01-02	103	302	204	999000	16485	Credit Card
503	903	2023-01-03	105	303	205	799000	14985	Debit Card
504	904	2023-01-04	107	304	203	910000	9015	EMI
505	905	2023-01-05	109	305	204	779000	11985	Net Banking
506	906	2023-01-06	111	310	205	598000	7275	Cash
507	907	2023-01-07	113	311	203	995000	13650	Credit Card
508	908	2023-01-08	115	312	201	957000	10635	Debit Card
509	909	2023-01-09	102	313	202	1099000	11685	EMI
510	910	2023-01-10	108	303	205	709000	4680	Net Banking

```
10 rows in set (0.00 sec)
```

❖ CARS

```
mysql> select * from cars;
```

Car_ID	Serial_no	Name	Colour	Manufacturer	type	Car_price	DealerID	CustID	vin	year
101	123456	Swift	Gray	Maruti	Hatchback	573000	201	301	1G1ZT53826F123456	2015
102	234567	City	White	Honda	Sedan	1099000	205	304	2T1BU4EE9DC098765	2020
103	345678	Creta	Black	Hyundai	SUV	999000	206	302	3N1AB6AP3AL432109	2019
104	456789	Polo	Silver	Volkswagen	Hatchback	601000	204	305	4S3BMHB68B3214567	2018
105	567890	EcoSport	Blue	Ford	SUV	799000	201	306	5FNRL5H49BB654321	2017
106	678901	Tiago	Red	Tata	Hatchback	485000	205	307	6G2EC57Y99L876543	2014
107	789012	Verna	Green	Hyundai	Sedan	910000	206	308	7FARW2H55JE123456	2013
108	890123	Nexon	Gray	Tata	SUV	709000	208	309	8T3ZF19VX8W012345	2015
109	901234	Rapid	White	Skoda	Sedan	779000	201	310	9BWDE61JX24098765	2020
110	12345	Kwid	Black	Renault	Hatchback	312000	205	311	WBA3A9C50DF098765	2019
111	123890	Baleno	Silver	Maruti	Hatchback	598000	206	312	WDDHF8J83EA876543	2018
112	234901	Amaze	Blue	Honda	Sedan	622000	204	313	1C4RJFAG0FC123456	2018
113	345012	Seltos	Green	Kia	SUV	995000	206	301	2HGFB2F59CH654321	2017
114	456123	Altroz	Gray	Tata	Hatchback	569000	208	304	3VW2K7AJ1EM098765	2014
115	567234	Duster	White	Renault	SUV	957000	201	302	4T1BF1FK9EU432109	2013

```
15 rows in set (0.00 sec)
```

```
mysql>
```

OPERATOR'S

➤ ARITHMETIC

Query:

```
mysql> select salesid,invoice_no,price+other_fees as total_price from sales;
```

salesid	invoice_no	total_price
501	901	581595
502	902	1015485
503	903	813985
504	904	919015
505	905	790985
506	906	605275
507	907	1008650
508	908	967635
509	909	1110685
510	910	713680

10 rows in set (0.00 sec)

Query:

```
mysql> select car_id,name,manufacturer,car_price,car_price-50000 as special_discount from cars;
```

car_id	name	manufacturer	car_price	special_discount
101	Swift	Maruti	573000	523000
102	City	Honda	1099000	1049000
103	Creta	Hyundai	999000	949000
104	Polo	Volkswagen	601000	551000
105	EcoSport	Ford	799000	749000
106	Tiago	Tata	485000	435000
107	Verna	Hyundai	910000	860000
108	Nexon	Tata	709000	659000
109	Rapid	Skoda	779000	729000
110	Kwid	Renault	312000	262000
111	Baleno	Maruti	598000	548000
112	Amaze	Honda	622000	572000
113	Seltos	Kia	995000	945000
114	Altroz	Tata	569000	519000
115	Duster	Renault	957000	907000

15 rows in set (0.00 sec)

[Query:](#)

```
mysql> select D_firstname, D_sal*12 as annual_sal from dealers;
```

D_firstname	annual_sal
Ravi	600000
Priya	540000
Rajesh	660000
Neha	480000
Amit	720000
Pooja	600000
Rohit	540000
Anjali	660000
Suresh	480000
Meena	720000

```
10 rows in set (0.01 sec)
```

[Query:](#)

```
mysql> select D_firstname, D_sal/30 as perday_sal from dealers;
```

D_firstname	perday_sal
Ravi	1666.6667
Priya	1500.0000
Rajesh	1833.3333
Neha	1333.3333
Amit	2000.0000
Pooja	1666.6667
Rohit	1500.0000
Anjali	1833.3333
Suresh	1333.3333
Meena	2000.0000

```
10 rows in set (0.03 sec)
```


➤ COMPARISON

Query:

```
mysql> select * from dealers where D_sal>50000;
```

DealerID	D_FirstName	D_LastName	D_PhoneNo	D_email	D_DOB	Designation	MID	D_sal
203	Rajesh	Singh	7654321098	rajesh.singh@outlook.com	1989-03-30	salesman	202	55000
205	Amit	Gupta	5432109876	amit.gupta@bing.com	1993-05-25	salesman	202	60000
208	Anjali	Verma	2109876543	anjali.verma@outlook.com	1992-08-12	HR	201	55000
210	Meena	Roy	987654321	meena.roy@bing.com	1991-10-24	Co-owner	201	60000

4 rows in set (0.00 sec)

```
mysql> select * from dealers where D_sal<50000;
```

DealerID	D_FirstName	D_LastName	D_PhoneNo	D_email	D_DOB	Designation	MID	D_sal
202	Priya	Sharma	8765432109	priya.sharma@yahoo.com	1992-02-15	manager	201	25000
204	Neha	Patel	6543210987	neha.patel@hotmail.com	1991-04-10	salesman	202	40000
207	Rohit	Sharma	3210987654	rohit.sharma@yahoo.com	1990-07-20	salesman	202	45000
209	Suresh	Reddy	1098765432	suresh.reddy@hotmail.com	1989-09-18	Sr Mechanic	201	40000

4 rows in set (0.00 sec)

```
mysql> select * from dealers where D_sal>=25000;
```

DealerID	D_FirstName	D_LastName	D_PhoneNo	D_email	D_DOB	Designation	MID	D_sal
201	Ravi	Kumar	9876543210	ravi.kumar@gmail.com	1990-01-01	owner	200	50000
202	Priya	Sharma	8765432109	priya.sharma@yahoo.com	1992-02-15	manager	201	25000
203	Rajesh	Singh	7654321098	rajesh.singh@outlook.com	1989-03-30	salesman	202	55000
204	Neha	Patel	6543210987	neha.patel@hotmail.com	1991-04-10	salesman	202	40000
205	Amit	Gupta	5432109876	amit.gupta@bing.com	1993-05-25	salesman	202	60000
206	Pooja	Jain	4321098765	pooja.jain@gmail.com	1994-06-05	salesman	202	50000
207	Rohit	Sharma	3210987654	rohit.sharma@yahoo.com	1990-07-20	salesman	202	45000
208	Anjali	Verma	2109876543	anjali.verma@outlook.com	1992-08-12	HR	201	55000
209	Suresh	Reddy	1098765432	suresh.reddy@hotmail.com	1989-09-18	Sr Mechanic	201	40000
210	Meena	Roy	987654321	meena.roy@bing.com	1991-10-24	Co-owner	201	60000

10 rows in set (0.00 sec)

```
mysql> select * from dealers where D_sal=50000;
```

DealerID	D_FirstName	D_LastName	D_PhoneNo	D_email	D_DOB	Designation	MID	D_sal
201	Ravi	Kumar	9876543210	ravi.kumar@gmail.com	1990-01-01	owner	200	50000
206	Pooja	Jain	4321098765	pooja.jain@gmail.com	1994-06-05	salesman	202	50000

2 rows in set (0.00 sec)

```
mysql> select * from dealers where D_sal>50000;
```

DealerID	D_FirstName	D_LastName	D_PhoneNo	D_email	D_DOB	Designation	MID	D_sal
203	Rajesh	Singh	7654321098	rajesh.singh@outlook.com	1989-03-30	salesman	202	55000
205	Amit	Gupta	5432109876	amit.gupta@bing.com	1993-05-25	salesman	202	60000
208	Anjali	Verma	2109876543	anjali.verma@outlook.com	1992-08-12	HR	201	55000
210	Meena	Roy	987654321	meena.roy@bing.com	1991-10-24	Co-owner	201	60000

4 rows in set (0.00 sec)

➤ LOGICAL

Query:

```
mysql> select * from dealers where designation='salesman' and d_sal>30000;
```

DealerID	D_FirstName	D_LastName	D_PhoneNo	D_email	D_DOB	Designation	MID	D_sal
203	Rajesh	Singh	7654321098	rajesh.singh@outlook.com	1989-03-30	salesman	202	55000
204	Neha	Patel	6543210987	neha.patel@hotmail.com	1991-04-10	salesman	202	40000
206	Pooja	Jain	4321098765	pooja.jain@gmail.com	1994-06-05	salesman	202	50000
207	Rohit	Sharma	3210987654	rohit.sharma@yahoo.com	1990-07-20	salesman	202	45000

4 rows in set (0.00 sec)

Query:

```
mysql> select * from dealers where designation!='salesman' or d_sal<=30000;
```

DealerID	D_FirstName	D_LastName	D_PhoneNo	D_email	D_DOB	Designation	MID	D_sal
201	Ravi	Kumar	9876543210	ravi.kumar@gmail.com	1990-01-01	owner	200	50000
202	Priya	Sharma	8765432109	priya.sharma@yahoo.com	1992-02-15	manager	201	25000
205	Amit	Gupta	5432109876	amit.gupta@bing.com	1993-05-25	salesman	202	25000
208	Anjali	Verma	2109876543	anjali.verma@outlook.com	1992-08-12	HR	201	55000
209	Suresh	Reddy	1098765432	suresh.reddy@hotmail.com	1989-09-18	Sr Mechanic	201	40000
210	Meena	Roy	987654321	meena.roy@bing.com	1991-10-24	Co-owner	201	60000

6 rows in set (0.00 sec)

➤ RANGE, LIKE, LIST

Query:

```
mysql> select * from dealers where D_sal between 30000 and 50000;
```

DealerID	D_FirstName	D_LastName	D_PhoneNo	D_email	D_DOB	Designation	MID	D_sal
201	Ravi	Kumar	9876543210	ravi.kumar@gmail.com	1990-01-01	owner	200	50000
204	Neha	Patel	6543210987	neha.patel@hotmail.com	1991-04-10	salesman	202	40000
206	Pooja	Jain	4321098765	pooja.jain@gmail.com	1994-06-05	salesman	202	50000
207	Rohit	Sharma	3210987654	rohit.sharma@yahoo.com	1990-07-20	salesman	202	45000
209	Suresh	Reddy	1098765432	suresh.reddy@hotmail.com	1989-09-18	Sr Mechanic	201	40000

5 rows in set (0.00 sec)

Query:

```
mysql> select * from cars where manufacturer in('honda','tata','skoda');
```

Car_ID	Serial_no	Name	Colour	Manufacturer	type	Car_price	DealerID	CustID	vin	year
102	234567	City	White	Honda	Sedan	1099000	205	304	2T1BU4EE9DC098765	2020
106	678901	Tiago	Red	Tata	Hatchback	485000	205	307	6G2EC57Y99L876543	2014
108	890123	Nexon	Gray	Tata	SUV	709000	208	309	8T3ZF19VX8W012345	2015
109	901234	Rapid	White	Skoda	Sedan	779000	201	310	9BWDE61JX24098765	2020
112	234901	Amaze	Blue	Honda	Sedan	622000	204	313	1C4RJFAG0FC123456	2018
114	456123	Altroz	Gray	Tata	Hatchback	569000	208	304	3VW2K7AJ1EM098765	2014

6 rows in set (0.00 sec)

Query:

```
mysql> select * from cars where manufacturer like 'h%';
```

Car_ID	Serial_no	Name	Colour	Manufacturer	type	Car_price	DealerID	CustID	vin	year
102	234567	City	White	Honda	Sedan	1099000	205	304	2T1BU4EE9DC098765	2020
103	345678	Creta	Black	Hyundai	SUV	999000	206	302	3N1AB6AP3AL432109	2019
107	789012	Verna	Green	Hyundai	Sedan	910000	206	308	7FARW2H55JE123456	2013
112	234901	Amaze	Blue	Honda	Sedan	622000	204	313	1C4RJFAG0FC123456	2018

4 rows in set (0.00 sec)

Query:

```
mysql> select * from cars where manufacturer like '%i';
```

Car_ID	Serial_no	Name	Colour	Manufacturer	type	Car_price	DealerID	CustID	vin	year
101	123456	Swift	Gray	Maruti	Hatchback	573000	201	301	1G1ZT53826F123456	2015
103	345678	Creta	Black	Hyundai	SUV	999000	206	302	3N1AB6AP3AL432109	2019
107	789012	Verna	Green	Hyundai	Sedan	910000	206	308	7FARW2H55JE123456	2013
111	123890	Baleno	Silver	Maruti	Hatchback	598000	206	312	WDDHF8JB3EA876543	2018

4 rows in set (0.00 sec)

Query:

```
mysql> select * from customers where dob like '1990%';
```

custid	FirstName	LastName	City	Pincode	Address	Phone_no	email	DOB	DL_no
301	Ravi	Kumar	Mumbai	400001	andheri	9820123456	ravi.kumar@gmail.com	1990-01-01	MH01 20100000001
305	Ravi	Sharma	Mumbai	400001	andheri	9820123456	ravi.sharma@mail.com	1990-01-01	MH012345678901
313	Vijay	Reddy	Hyderabad	500001	andheri	9867890123	vijay.reddy@mail.com	1990-10-31	TS313131313131

3 rows in set (0.00 sec)

```
mysql>
```

Query:

```
mysql> select * from cars where manufacturer like '%o%';
```

Car_ID	Serial_no	Name	Colour	Manufacturer	type	Car_price	DealerID	CustID	vin	year
102	234567	City	White	Honda	Sedan	1099000	205	304	2T1BU4EE9DC098765	2020
105	567890	EcoSport	Blue	Ford	SUV	799000	201	306	5FNRL5H49BB654321	2017
109	901234	Rapid	White	Skoda	Sedan	779000	201	310	9BWDE61JX24098765	2020
112	234901	Amaze	Blue	Honda	Sedan	622000	204	313	1C4RJFAG0FC123456	2018

4 rows in set (0.00 sec)

Query:

```
mysql> select * from customers where dob like '____12%';
```

custid	FirstName	LastName	City	Pincode	Address	Phone_no	email	DOB	DL_no
304	Suresh	Jain	Chennai	600001	ooti	9840123456	suresh.jain@hotmail.com	1991-12-25	TN01 20100000005
311	Anil	Mehta	Surat	395001	gandhi nagar	9901234567	anil.mehta@mail.com	1988-12-30	GJ303030303030

Query:

```
mysql> select * from cars where name rlike '[c,t]';
```

Car_ID	Serial_no	Name	Colour	Manufacturer	type	Car_price	DealerID
101	123456	Swift	Gray	Maruti	Hatchback	573000	201
102	234567	City	White	Honda	Sedan	1099000	205
103	345678	Creta	Black	Hyundai	SUV	999000	206
105	567890	EcoSport	Blue	Ford	SUV	799000	201
106	678901	Tiago	Red	Tata	Hatchback	485000	205
113	345012	Seltos	Green	Kia	SUV	995000	206
114	456123	Altroz	Gray	Tata	Hatchback	569000	208
115	567234	Duster	White	Renault	SUV	957000	201

8 rows in set (0.06 sec)

AGGREGATE FUNCTION'S

- MIN

[Query:](#)

```
mysql> select min(car_price) from cars;
+-----+
| min(car_price) |
+-----+
|          312000 |
+-----+
1 row in set (0.00 sec)
```

- MAX

[Query:](#)

```
mysql> select max(car_price) from cars;
+-----+
| max(car_price) |
+-----+
|         1099000 |
+-----+
1 row in set (0.00 sec)
```

- SUM

[Query:](#)

```
mysql> select sum(car_price) from cars;
+-----+
| sum(car_price) |
+-----+
|        10406000 |
+-----+
1 row in set (0.00 sec)
```

- AVG

[Query:](#)

```
mysql> select avg(car_price) from cars;
+-----+
| avg(car_price) |
+-----+
|    743285.7143 |
+-----+
1 row in set (0.00 sec)
```

- COUNT

[Query:](#)

```
mysql> select count(*) from cars;
+-----+
| count(*) |
+-----+
|         15 |
+-----+
1 row in set (0.00 sec)
```

CLAUSE'S

❖ WHERE CLAUSE

Query:

```
mysql> select * from cars where price in(select price from cars where type='hatchback');
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| Car_ID | Serial_no | Name | Colour | Manufacturer | type | price | DealerID | CustID | vin | year |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| 101 | 123456 | Swift | Gray | Maruti | Hatchback | 573000 | 201 | 301 | 1G1ZT53826F123456 | 2015 |
| 104 | 456789 | Polo | Silver | Volkswagen | Hatchback | 601000 | 204 | 305 | 4S3BMMH86883214567 | 2018 |
| 106 | 678901 | Tiago | Red | Tata | Hatchback | 485000 | 205 | 307 | 6G2EC57Y99L876543 | 2014 |
| 110 | 12345 | Kwid | Black | Renault | Hatchback | 312000 | 205 | 311 | WBA3A9C50DF098765 | 2019 |
| 111 | 123890 | Baleno | Silver | Maruti | Hatchback | 598000 | 206 | 312 | WDDHF8JB3EA876543 | 2018 |
| 114 | 456123 | Altroz | Gray | Tata | Hatchback | 569000 | 208 | 304 | 3VW2K7AJ1EM098765 | 2014 |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
6 rows in set (0.00 sec)
```

❖ GROUP BY CLAUSE

Query:

```
mysql> select type,year from cars where type='hatchback' group by year;
+-----+-----+
| type | year |
+-----+-----+
| Hatchback | 2015 |
| Hatchback | 2018 |
| Hatchback | 2014 |
| Hatchback | 2019 |
+-----+-----+
4 rows in set (0.00 sec)
```

❖ HAVING CLAUSE

Query:

```
mysql> select name,manufacturer,colour,type from cars group by type having manufacturer like '%a%';
+-----+-----+-----+-----+
| name | manufacturer | colour | type |
+-----+-----+-----+-----+
| Swift | Maruti | Gray | Hatchback |
| City | Honda | White | Sedan |
| Creta | Hyundai | Black | SUV |
+-----+-----+-----+-----+
3 rows in set (0.00 sec)
```

❖ ORDER BY CLAUSE

Query:

```
mysql> SELECT * from dealers order by d_sal;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| DealerID | D_FirstName | D_LastName | D_PhoneNo | D_email | D_DOB | Designation | MID | D_sal |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| 202 | Priya | Sharma | 8765432109 | priya.sharma@yahoo.com | 1992-02-15 | manager | 201 | 25000 |
| 205 | Amit | Gupta | 5432109876 | amit.gupta@bing.com | 1993-05-25 | salesman | 202 | 25000 |
| 204 | Neha | Patel | 6543210987 | neha.patel@hotmail.com | 1991-04-10 | salesman | 202 | 40000 |
| 209 | Suresh | Reddy | 1098765432 | suresh.reddy@hotmail.com | 1989-09-18 | Sr Mechanic | 201 | 40000 |
| 207 | Rohit | Sharma | 3210987654 | rohit.sharma@yahoo.com | 1990-07-20 | salesman | 202 | 45000 |
| 201 | Ravi | Kumar | 9876543210 | ravi.kumar@gmail.com | 1990-01-01 | owner | 200 | 50000 |
| 206 | Pooja | Jain | 4321098765 | pooja.jain@gmail.com | 1994-06-05 | salesman | 202 | 50000 |
| 203 | Rajesh | Singh | 7654321098 | rajesh.singh@outlook.com | 1989-03-30 | salesman | 202 | 55000 |
| 208 | Anjali | Verma | 2109876543 | anjali.verma@outlook.com | 1992-08-12 | HR | 201 | 55000 |
| 210 | Meena | Roy | 987654321 | meena.roy@bing.com | 1991-10-24 | Co-owner | 201 | 60000 |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
```

Query:

```
mysql> select * from dealers order by D_sal desc;
```

DealerID	D_FirstName	D_LastName	D_PhoneNo	D_Email	D_DOB	Designation	MID	D_sal
205	Amit	Gupta	5432109876	amit.gupta@bing.com	1993-05-25	salesman	202	60000
210	Meena	Roy	987654321	meena.roy@bing.com	1991-10-24	Co-owner	201	60000
203	Rajesh	Singh	7654321098	rajesh.singh@outlook.com	1989-03-30	salesman	202	55000
208	Anjali	Verma	2109876543	anjali.verma@outlook.com	1992-08-12	HR	201	55000
201	Ravi	Kumar	9876543210	ravi.kumar@gmail.com	1990-01-01	owner	200	50000
206	Pooja	Jain	4321098765	pooja.jain@gmail.com	1994-06-05	salesman	202	50000
202	Priya	Sharma	8765432109	priya.sharma@yahoo.com	1992-02-15	manager	201	45000
207	Rohit	Sharma	3210987654	rohit.sharma@yahoo.com	1990-07-20	salesman	202	45000
204	Neha	Patel	6543210987	neha.patel@hotmail.com	1991-04-10	salesman	202	40000
209	Suresh	Reddy	1098765432	suresh.reddy@hotmail.com	1989-09-18	Sr Mechanic	201	40000

10 rows in set (0.00 sec)

❖ LIMIT CLAUSE

Query:

```
mysql> select * from dealers limit 3;
```

DealerID	D_FirstName	D_LastName	D_PhoneNo	D_Email	D_DOB	Designation	MID	D_sal
201	Ravi	Kumar	9876543210	ravi.kumar@gmail.com	1990-01-01	owner	200	50000
202	Priya	Sharma	8765432109	priya.sharma@yahoo.com	1992-02-15	manager	201	45000
203	Rajesh	Singh	7654321098	rajesh.singh@outlook.com	1989-03-30	salesman	202	55000

3 rows in set (0.00 sec)

```
mysql> select * from dealers limit 3,2;
```

DealerID	D_FirstName	D_LastName	D_PhoneNo	D_Email	D_DOB	Designation	MID	D_sal
204	Neha	Patel	6543210987	neha.patel@hotmail.com	1991-04-10	salesman	202	40000
205	Amit	Gupta	5432109876	amit.gupta@bing.com	1993-05-25	salesman	202	60000

2 rows in set (0.00 sec)

JOIN'S

1. INNER JOIN

Query:

```
mysql> select c.custid,c.name,c.colour,s.sales_date,s.mode_of_payment from cars c inner join sales s on c.custid=s.custid;
```

custid	name	colour	sales_date	mode_of_payment
301	Swift	Gray	2023-01-05	Net Banking
301	Seltos	Green	2023-01-05	Net Banking
302	Creta	Black	2023-01-02	Credit Card
302	Duster	White	2023-01-02	Credit Card
304	City	White	2023-01-04	EMI
304	Altroz	Gray	2023-01-04	EMI
305	Polo	Silver	2023-01-05	Net Banking
310	Rapid	White	2023-01-06	Cash
311	Kwid	Black	2023-01-07	Credit Card
312	Baleno	Silver	2023-01-08	Debit Card
313	Amaze	Blue	2023-01-09	EMI

11 rows in set (0.00 sec)

2. LEFT JOIN

Query:

```
mysql> select c.custid,c.name,c.colour,s.sales_date,s.mode_of_payment from sales s left join cars c on c.custid=s.custid;
```

custid	name	colour	sales_date	mode_of_payment
301	Swift	Gray	2023-01-05	Net Banking
301	Seltos	Green	2023-01-05	Net Banking
302	Creta	Black	2023-01-02	Credit Card
302	Duster	White	2023-01-02	Credit Card
NULL	NULL	NULL	2023-01-03	Debit Card
304	City	White	2023-01-04	EMI
304	Altroz	Gray	2023-01-04	EMI
305	Polo	Silver	2023-01-05	Net Banking
310	Rapid	White	2023-01-06	Cash
311	Kwid	Black	2023-01-07	Credit Card
312	Baleno	Silver	2023-01-08	Debit Card
313	Amaze	Blue	2023-01-09	EMI
NULL	NULL	NULL	2023-01-10	Net Banking

13 rows in set (0.00 sec)

3. RIGHT JOIN

Query:

```
mysql> select c.custid,c.name,c.colour,s.sales_date,s.mode_of_payment from sales s right join cars c on c.custid=s.custid;
```

custid	name	colour	sales_date	mode_of_payment
301	Swift	Gray	2023-01-05	Net Banking
304	City	White	2023-01-04	EMI
302	Creta	Black	2023-01-02	Credit Card
305	Polo	Silver	2023-01-05	Net Banking
306	EcoSport	Blue	NULL	NULL
307	Tiago	Red	NULL	NULL
308	Verna	Green	NULL	NULL
309	Nexon	Gray	NULL	NULL
310	Rapid	White	2023-01-06	Cash
311	Kwid	Black	2023-01-07	Credit Card
312	Baleno	Silver	2023-01-08	Debit Card
313	Amaze	Blue	2023-01-09	EMI
301	Seltos	Green	2023-01-05	Net Banking
304	Altroz	Gray	2023-01-04	EMI
302	Duster	White	2023-01-02	Credit Card

15 rows in set (0.00 sec)

4. SELF JOIN

Query:

```
mysql> select concat(e.d_firstname,' ',e.d_lastname)as fullname,concat(o.d_firstname,e,' ',o.d_lastname)as manager from dealers e,dealers o where e.mid=o.dealerid;
```

fullname	manager
Priya Sharma	Ravi Kumar
Rajesh Singh	Priya Sharma
Neha Patel	Priya Sharma
Amit Gupta	Priya Sharma
Pooja Jain	Priya Sharma
Rohit Sharma	Priya Sharma
Anjali Verma	Ravi Kumar
Suresh Reddy	Ravi Kumar
Meena Roy	Ravi Kumar

9 rows in set (0.00 sec)

5. CROSS JOIN

Query:

```
mysql> select c.name,c.colour,s.invoice_no,s.sales_date from cars c cross join sales s;
```

name	colour	invoice_no	sales_date
Swift	Gray	910	2023-01-10
Swift	Gray	909	2023-01-09
Swift	Gray	908	2023-01-08
Swift	Gray	907	2023-01-07
Swift	Gray	906	2023-01-06
Swift	Gray	905	2023-01-05
Swift	Gray	904	2023-01-04
Swift	Gray	903	2023-01-03
Swift	Gray	902	2023-01-02
Swift	Gray	901	2023-01-05
City	White	910	2023-01-10
City	White	909	2023-01-09
City	White	908	2023-01-08
City	White	907	2023-01-07
City	White	906	2023-01-06
City	White	905	2023-01-05
City	White	904	2023-01-04
City	White	903	2023-01-03
City	White	902	2023-01-02
City	White	901	2023-01-05
Creta	Black	910	2023-01-10
Creta	Black	909	2023-01-09
Creta	Black	908	2023-01-08
Creta	Black	907	2023-01-07
Creta	Black	906	2023-01-06
Creta	Black	905	2023-01-05
Creta	Black	904	2023-01-04
Creta	Black	903	2023-01-03
Creta	Black	902	2023-01-02
Creta	Black	901	2023-01-05
Polo	Silver	910	2023-01-10
Polo	Silver	909	2023-01-09
Polo	Silver	908	2023-01-08
Polo	Silver	907	2023-01-07
Polo	Silver	906	2023-01-06
Polo	Silver	905	2023-01-05
Polo	Silver	904	2023-01-04

SUB-QUERIES

Query:

```
mysql> select * from dealers where D_sal > (select avg(D_sal) from dealers) and designation = (select designation from dealers where designation = 'hr');
```

DealerID	D_FirstName	D_LastName	D_PhoneNo	D_email	D_DOB	Designation	MID	D_sal
208	Anjali	Verma	2109876543	anjali.verma@outlook.com	1992-08-12	HR	201	55000

```
1 row in set (0.00 sec)
```

```
mysql>
```

Query:

```
mysql> select * from dealers where designation=(select designation from dealers where dealerID=207);
```

DealerID	D_FirstName	D_LastName	D_PhoneNo	D_email	D_DOB	Designation	MID	D_sal
203	Rajesh	Singh	7654321098	rajesh.singh@outlook.com	1989-03-30	salesman	202	55000
204	Neha	Patel	6543210987	neha.patel@hotmail.com	1991-04-10	salesman	202	40000
205	Amit	Gupta	5432109876	amit.gupta@bing.com	1993-05-25	salesman	202	60000
206	Pooja	Jain	4321098765	pooja.jain@gmail.com	1994-06-05	salesman	202	50000
207	Rohit	Sharma	3210987654	rohit.sharma@yahoo.com	1990-07-20	salesman	202	45000

```
5 rows in set (0.04 sec)
```

```
mysql>
```

Query:

```
mysql> select * from cars where car_price<
-> (select max(car_price) from cars where car_price<
-> (select max(car_price) from cars where car_price<
-> (select max(car_price) from cars where car_price<
-> (select max(car_price) from cars)));
```

Car_ID	Serial_no	Name	Colour	Manufacturer	type	Car_price	DealerID	CustID	vin	year
101	123456	Swift	Gray	Maruti	Hatchback	573000	201	301	1G1ZT53826F123456	2015
104	456789	Polo	Silver	Volkswagen	Hatchback	601000	204	305	4S3BMH868B3214567	2018
105	567890	EcoSport	Blue	Ford	SUV	799000	201	306	5FNRL5H498B654321	2017
106	678901	Tiago	Red	Tata	Hatchback	485000	205	307	6G2EC57Y99L876543	2014
107	789012	Verna	Green	Hyundai	Sedan	910000	206	308	7FARW2H55J1E123456	2013
108	890123	Nexon	Gray	Tata	SUV	709000	208	309	8T3ZF19VX8W012345	2015
109	901234	Rapid	White	Skoda	Sedan	779000	201	310	9BWDE61JX24098765	2020
110	12345	Kwid	Black	Renault	Hatchback	312000	205	311	WBA3A9C50DF098765	2019
111	123890	Baleno	Silver	Maruti	Hatchback	598000	206	312	WDDHF8JB3EA876543	2018
112	234901	Amaze	Blue	Honda	Sedan	622000	204	313	1C4RJFAG0FC123456	2018
114	456123	Altroz	Gray	Tata	Hatchback	569000	208	304	3VW2K7AJ1EM098765	2014

```
11 rows in set (0.04 sec)
```

Query:

```
mysql> select * from dealers where d_sal=
-> (select max(d_sal) from dealers where d_sal<
-> (select max(d_sal) from dealers));
```

DealerID	D_FirstName	D_LastName	D_PhoneNo	D_Email	D_DOB	Designation	MID	D_sal
203	Rajesh	Singh	7654321098	rajesh.singh@outlook.com	1989-03-30	salesman	202	55000
208	Anjali	Verma	2109876543	anjali.verma@outlook.com	1992-08-12	HR	201	55000

```
2 rows in set (0.00 sec)
```

OTHER FUNCTION'S AND STATMENT'S

Query:

```
mysql> select distinct(type) from cars;
+-----+
| type   |
+-----+
| Hatchback |
| Sedan   |
| SUV     |
+-----+
3 rows in set (0.00 sec)
```

Query:

```
mysql> select dealerid,concat(d_firstname,' ',d_lastname) as full_name,d_sal from dealers where dealerid=202
+-----+-----+-----+
| dealerid | full_name | d_sal |
+-----+-----+-----+
|      202 | Priya Sharma | 25000 |
+-----+-----+-----+
1 row in set (0.00 sec)
```

Query:

```
mysql> select * from dealers union select * from sales;
+-----+-----+-----+-----+-----+-----+-----+-----+
| DealerID | D_FirstName | D_LastName | D_PhoneNo | D_email | D_DOB | Designation | MID | D_sal |
+-----+-----+-----+-----+-----+-----+-----+-----+
| 201 | Ravi | Kumar | 9876543210 | ravi.kumar@gmail.com | 1990-01-01 | owner | 200 | 50000 |
| 202 | Priya | Sharma | 8765432109 | priya.sharma@yahoo.com | 1992-02-15 | manager | 201 | 45000 |
| 203 | Rajesh | Singh | 7654321098 | rajesh.singh@outlook.com | 1989-03-30 | salesman | 202 | 55000 |
| 204 | Neha | Patel | 6543210987 | neha.patel@hotmail.com | 1991-04-10 | salesman | 202 | 40000 |
| 205 | Amit | Gupta | 5432109876 | amit.gupta@bing.com | 1993-05-25 | salesman | 202 | 60000 |
| 206 | Pooja | Jain | 4321098765 | pooja.jain@gmail.com | 1994-06-05 | salesman | 202 | 50000 |
| 207 | Rohit | Sharma | 3210987654 | rohit.sharma@yahoo.com | 1990-07-20 | salesman | 202 | 45000 |
| 208 | Anjali | Verma | 2109876543 | anjali.verma@outlook.com | 1992-08-12 | HR | 201 | 55000 |
| 209 | Suresh | Reddy | 1098765432 | suresh.reddy@hotmail.com | 1989-09-18 | Sr Mechanic | 201 | 40000 |
| 210 | Meena | Roy | 987654321 | meena.roy@bing.com | 1991-10-24 | Co-owner | 201 | 60000 |
| 501 | 901 | 2023-01-05 | 101 | 301 | 203 | 573000 | 8595 | Net Banking |
| 502 | 902 | 2023-01-02 | 103 | 302 | 204 | 999000 | 16485 | Credit Card |
| 503 | 903 | 2023-01-03 | 105 | 303 | 205 | 799000 | 14985 | Debit Card |
| 504 | 904 | 2023-01-04 | 107 | 304 | 203 | 910000 | 9015 | EMI |
| 505 | 905 | 2023-01-05 | 109 | 305 | 204 | 779000 | 11985 | Net Banking |
| 506 | 906 | 2023-01-06 | 111 | 310 | 205 | 598000 | 7275 | Cash |
| 507 | 907 | 2023-01-07 | 113 | 311 | 203 | 995000 | 13650 | Credit Card |
| 508 | 908 | 2023-01-08 | 115 | 312 | 201 | 957000 | 10635 | Debit Card |
| 509 | 909 | 2023-01-09 | 102 | 313 | 202 | 1099000 | 11685 | EMI |
| 510 | 910 | 2023-01-10 | 108 | 303 | 205 | 709000 | 4680 | Net Banking |
+-----+-----+-----+-----+-----+-----+-----+-----+
20 rows in set (0.00 sec)
```

```
mysql>
```