ASSIGNMENT-5

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SUBJECT-ASSIGNMENT 5 OF DBMS
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- **CREATION OF TABLES:**

1.Creation of Customer Table:

```
create table Customer(
cust_id int (10) primary key check(cust_id between 100 and 10000),
cust_name varchar(30),
revenue int(10),
cust_type varchar(20) check(cust_type in('Manufacturer','WholeSaler','Retailer')));
```

Inserting Values in Customer Table:

```
insert into Customer values
(110,'Vijay',10000,'Manufacturer'),
(120,'Anubhav',20000,'WholeSaler'),
(130,'Singa',30000,'Retailer'),
(140,'Tahaa',40000,'WholeSaler'),
(150,'Vicky',50000,'Manufacturer');
```

Customer table after insertion of values:

```
mysql> select * from customer;
+---------+-----------+---------+--------------+
| cust_id | cust_name | revenue | cust_type    |
+---------+-----------+---------+--------------+
|     110 | Vijay     |   10000 | Manufacturer |
|     120 | Anubhav   |   20000 | WholeSaler   |
|     130 | Singa     |   30000 | Retailer     |
|     140 | Tahaa     |   40000 | WholeSaler   |
|     150 | Vicky     |   50000 | Manufacturer |
+---------+-----------+---------+--------------+
5 rows in set (0.01 sec)
```

2.Creation of Truck table:

- **Query:-**

```
create table Truck(
truck_no int(10) Primary key,
driver_name varchar(30));
show tables;
```

Inserting values in Truck table:

```
insert into truck values
 (250,'Prince'),
 (300,'Himanshu'),
 (400,'Answeshdeep'),
 (500,'Akash'),
 (600,'Iqbal');
```

Truck table after insertion of values:

```
mysql> select * from truck;
+----------+-------------+
| truck_no | driver_name |
+----------+-------------+
|      250 | Prince      |
|      300 | Himanshu    |
|      400 | Answeshdeep |
|      500 | Akash       |
|      600 | Iqbal       |
+----------+-------------+
5 rows in set (0.01 sec)
```

3.Creation of table City:

```
create table City(
city_name varchar(30) Primary key,
population int(20));
show tables;
```

Inserting values in table City:

```
insert into city  values
('Kolkata',1000001),
('Mumbai',1800000),
('Chennai',76890509),
('Delhi',964210),
('Jaipur',765328);
```

City table after insertion of values:-

```
mysql> select * from city;
+-----------+------------+
| city_name | population |
+-----------+------------+
| Chennai   |   76890509 |
| Delhi     |     964210 |
| Jaipur    |     765328 |
| Kolkata   |    1000001 |
| Mumbai    |    1800000 |
+-----------+------------+
5 rows in set (0.01 sec)
```

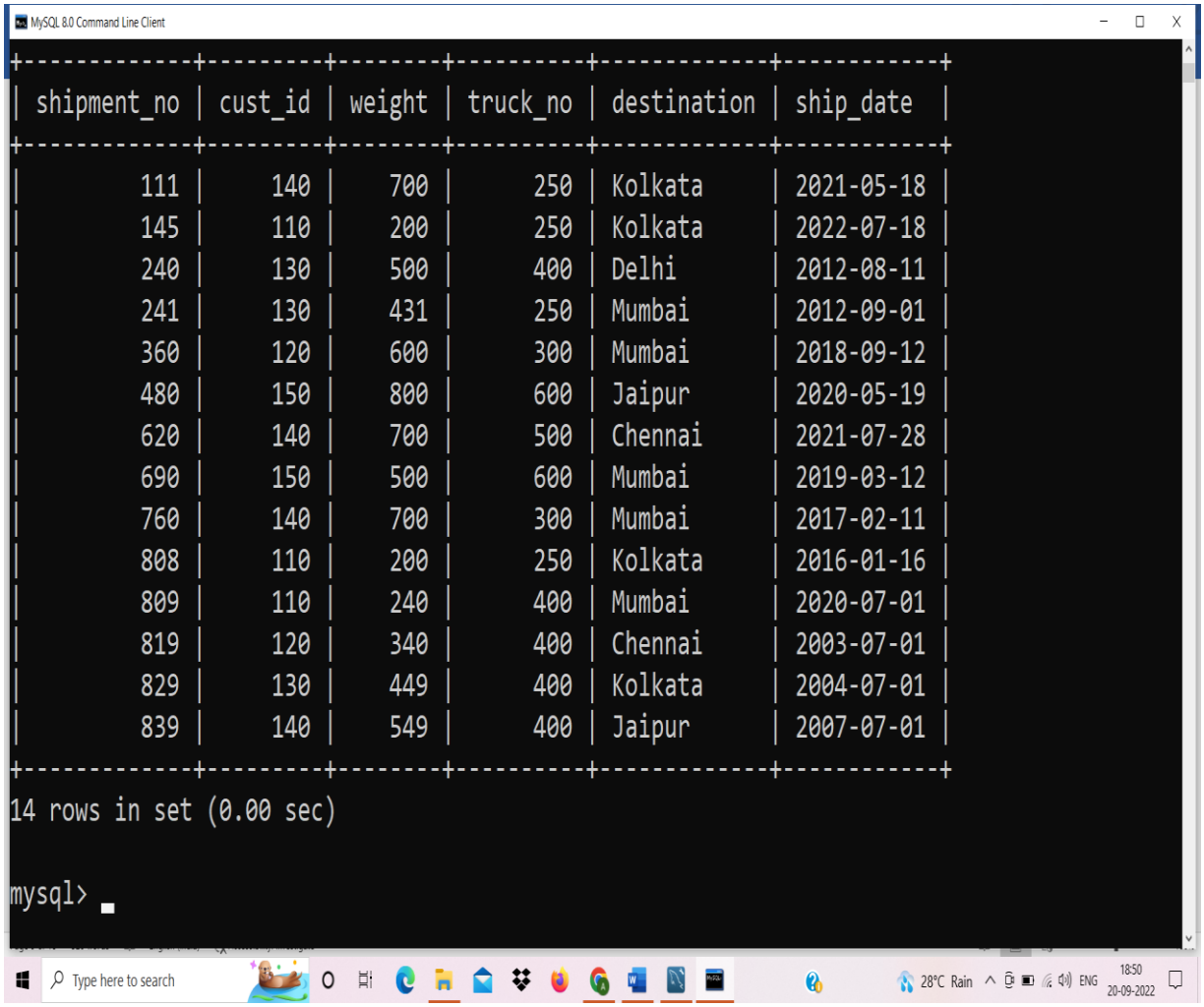
4.Creation of table Shipment:

```
create table Shipment(
 shipment_no int(10),
 cust_id int(10),
 weight int(10) check(weight between 0 and 1000),
 truck_no int(10),
 destination varchar(30),
 ship_date date,
 primary key(shipment_no,cust_id),
 constraint cust_id foreign key (cust_id) references Customer(cust_id) on delete cascade,
 constraint truck_no foreign key (truck_no) references Truck(truck_no) on delete set null,
 constraint destination foreign key (destination) references City(city_name) on delete cascade);
```

Inserting values in Shipment:

```
insert into Shipment values
(145,110,200,250,'Kolkata','2022-07-18'),
(240,130,500,400,'Delhi','2012-08-11'),
(360,120,600,300,'Mumbai','2018-09-12'),
(480,150,800,600,'Jaipur','2020-05-19'),
(620,140,700,500,'Chennai','2021-07-28'),
(808,110,200,250,'Kolkata','2016-01-16'),
(760,140,700,300,'Mumbai','2017-02-11'),
(690,150,500,600,'Mumbai','2019-03-12'),
(111,140,700,250,'Kolkata','2021-05-18'),
 (241,130,431,250,'Mumbai','2012-09-01'),
(809,110,240,400,'Mumbai','2020-07-01');
(819,120,340,400,'Chennai','2003-07-01'),
(829,130,449,400,'Kolkata','2004-07-01'),
(839,140,549,400,'Jaipur','2007-07-01');
```

Shipment table after insertion of values:



- QUERIES:

1. Give names of customer who have sent packages (shipments) to Kolkata, Chennai and Mumbai. (You have to solve this problem using set theoretic operation)

Ans-

Query-

```
select cust_name from Customer c,Shipment s
where c.cust_id=s.cust_id and s.destination='Kolkata' and
c.cust_name in(
select cust_name from Customer c,Shipment s
where c.cust_id=s.cust_id and s.destination='Chennai' and
c.cust_name in(
select cust_name from Customer c,Shipment s
where c.cust_id=s.cust_id and s.destination='Mumbai'));
```

```
mysql> select cust_name from Customer c,Shipment s
    -> where c.cust_id=s.cust_id and s.destination='Kolkata' and c.cust_name in(
    -> select cust_name from Customer c,Shipment s
    -> where c.cust_id=s.cust_id and s.destination='Chennai' and c.cust_name in(
    -> select cust_name from Customer c,Shipment s
    -> where c.cust_id=s.cust_id and s.destination='Mumbai'));
+-----------+
| cust_name |
+-----------+
| Tahaa     |
+-----------+
1 row in set (0.01 sec)
```

2Q.List the names of the driver who have delivered shipments weighing over 200 pounds.

Ans-

Query-

select Truck.driver_name from Truck where Truck.truck_no in

(select Shipment.truck_no from Shipment where Shipment.weight>200);

```
mysql> select Truck.driver_name from Truck where Truck.truck_no in
    -> (select Shipment.truck_no from Shipment where Shipment.weight>200);
+-------------+
| driver_name |
+-------------+
| Prince      |
| Himanshu    |
| Answeshdeep |
| Akash       |
| Iqbal       |
+-------------+
5 rows in set (0.00 sec)
```

3.Retrieve the maximum and minimum weights of the shipments. Rename the output as Max_Weight and Min_Weight respectively.

Ans-

Query-

```
select max(weight) as Max_Weight,min(weight) as Min_Weight from Shipment;
```

```
mysql> select max(weight) as Max_Weight,min(weight) as Min_Weight from Shipment;
+------------+------------+
| Max_Weight | Min_Weight |
+------------+------------+
|        800 |        200 |
+------------+------------+
1 row in set (0.01 sec)
```

4Q.For each customer what is the average weight of package sent by customer.

Ans-

Query-

```
select cust_id,avg(weight) from Shipment s1  group by s1.cust_id;
```

```
mysql> select cust_id,avg(weight) from Shipment s1  group by s1.cust_id;
+---------+-------------+
| cust_id | avg(weight) |
+---------+-------------+
|     110 |    213.3333 |
|     120 |    470.0000 |
|     130 |    460.0000 |
|     140 |    662.2500 |
|     150 |    650.0000 |
+---------+-------------+
5 rows in set (0.00 sec)
```

5.List the names and populations of cities that have received shipments weighing over 100 pounds.

Ans-

Query-

```
select City.city_name,City.population from City where
City.city_name in(
select destination from Shipment where
Shipment.weight>100);
```

```
mysql> select City.city_name,City.population from City where
    -> City.city_name in(
    -> select destination from Shipment where Shipment.weight>100);
+-----------+------------+
| city_name | population |
+-----------+------------+
| Chennai   |   76890509 |
| Delhi     |     964210 |
| Jaipur    |     765328 |
| Kolkata   |    1000001 |
| Mumbai    |    1800000 |
+-----------+------------+
5 rows in set (0.00 sec)
```

6.List cities that have received shipments from every customer.

Ans-

Query-

select destination from (select count(distinct cust_id) cnt, destination from Shipment group by destination) T where T.cnt=(select count(*) from Customer);

```
mysql> select destination from (
    -> select count(distinct cust_id) cnt, destination
    -> from Shipment group by destination)  T
    ->  where T.cnt=(select count(*) from Customer);
+-------------+
| destination |
+-------------+
| Mumbai      |
+-------------+
1 row in set (0.00 sec)
```

7. For each city, what is the maximum weight of a package sent to that city?

Ans-

Query-

```
mysql> select destination,max(weight)
   -> from Shipment group by destination;
```

```
mysql> select destination,max(weight)
    -> from Shipment group by destination;
+-------------+-------------+
| destination | max(weight) |
+-------------+-------------+
| Chennai     |         700 |
| Delhi       |         500 |
| Jaipur      |         800 |
| Kolkata     |         700 |
| Mumbai      |         700 |
+-------------+-------------+
5 rows in set (0.00 sec)
```

8.List the name and annual revenue of customers whose shipments have been delivered by truck driver ‘IQBAL’.

Ans-

Query-

```
select distinct c1.cust_name,c1.revenue
from Customer c1,Shipment s1,Truck t1 where
c1.cust_id=s1.cust_id and s1.truck_no=t1.truck_no
and t1.driver_name='Iqbal';
```

```
mysql> select cust_name,revenue
    -> from Customer where cust_id in (
    -> select cust_id from Shipment where truck_no in(
    -> select truck_no from Truck where driver_name='IQBAL'));
+----------+---------+
| cust_name | revenue |
+----------+---------+
| Vicky     |   50000 |
+----------+---------+
1 row in set (0.00 sec)
```

9.List drivers who have delivered shipments to every city.

Ans-

Query1-

```
select Truck.driver_name from Truck
where Truck.truck_no in(select truck_no from (select
Shipment.truck_no,count(distinct destination) as cnt from Shipment
group by truck_no)as p where cnt=(select count(*) from City));
```

Query2-

```
mysql> select Truck.driver_name from Truck
    -> where Truck.truck_no in(select truck_no from (select Shipment.truck_no,count(disti
nct destination) as cnt from Shipment group by truck_no)as p where cnt=(select count(*) f
rom City));
+-------------+
| driver_name |
+-------------+
| Answeshdeep |
+-------------+
1 row in set (0.04 sec)
```

or

```
mysql> select Truck.driver_name from Truck where
    -> Truck.truck_no in(select truck_no from (
    -> select Shipment.truck_no,count(
    -> distinct destination) as cnt from Shipment group by truck_no)
    -> as p where cnt=5);
+-------------+
| driver_name |
+-------------+
| Answeshdeep |
+-------------+
1 row in set (0.00 sec)
```

10. For each city, with population over 1 million, what is the minimum weight of a package sent to that city.

Ans-

Query-

```
select min(weight) from Shipment where
destination in
(select City.city_name from City where
City.population>1000000)group by destination ;
```

```
mysql> select min(weight) from Shipment
    -> where destination in
    -> (select City.city_name from City where City.population>1000000)
    -> group by destination ;
+-------------+
| min(weight) |
+-------------+
|         340 |
|         200 |
|         240 |
+-------------+
3 rows in set (0.00 sec)
```