22AIE303 DBMS Labsheet 9

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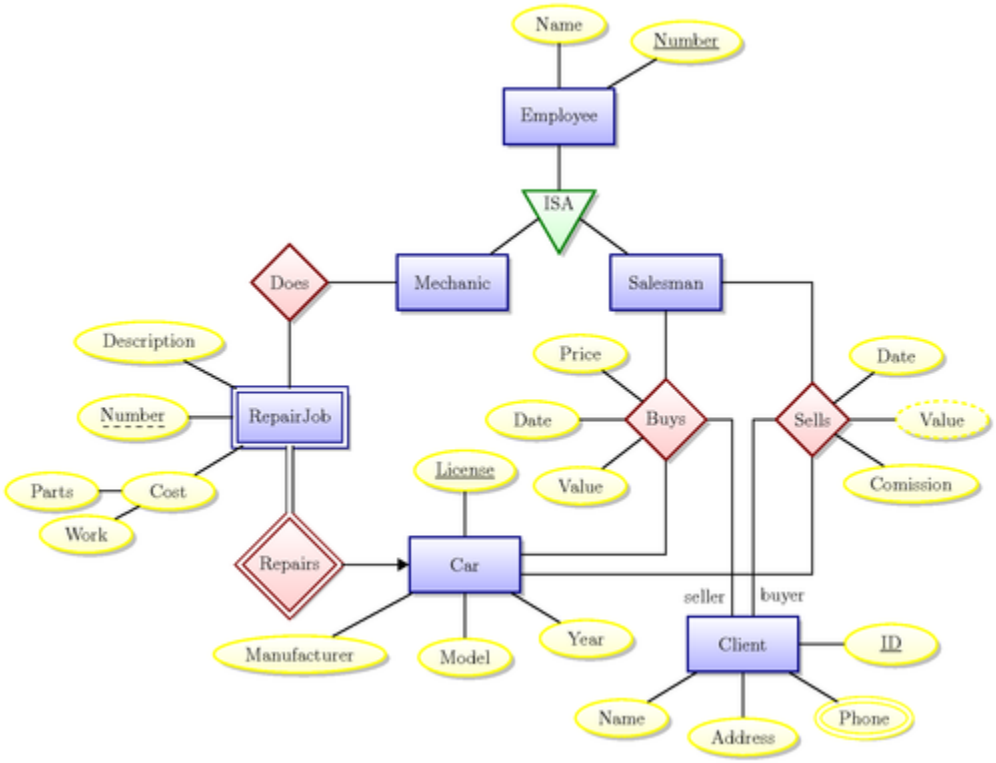
Q1.



1. Convert the above ER diagram to relational schema

   Mechanic(mname, mid)
   Salesman(sname, sid)
   Car(model, year, manufacturer, license)
   Client(cid, cname, address, phone)
   Repairjob(rno, description, parts, work, license, mid)
   Buys(sid, cid, license, price, date, value)
   Sells(sid, cid, license, commision, date, value)

2. Create the corresponding tables and insert data.

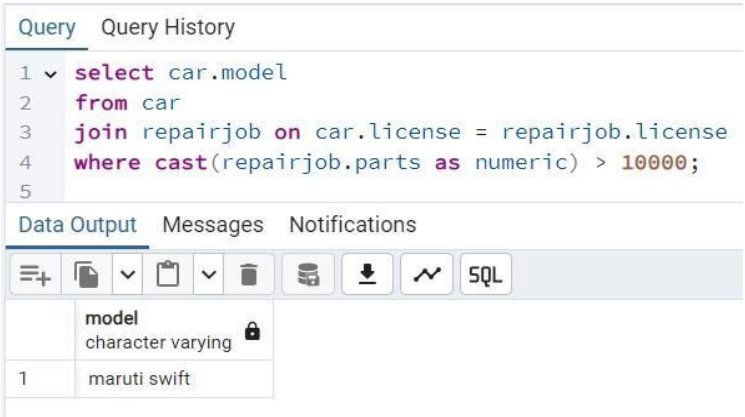
```
create table mechanic(
        mname varchar,
        mid int primary key
);


create table salesman(
        sname varchar,
        sid int primary key
);

create table car(
        model varchar,
        year int,
        manufacturer varchar,
        license varchar primary key
);

create table client(
        cid int primary key,
        cname varchar,
        address varchar,
        phone bigint
);

create table repairjob(
        rno int primary key,
        description varchar,
        parts varchar,
        work varchar,
        license varchar references car(license),
        mid int references mechanic(mid)
);

create table buys(
        sid int references salesman(sid),
        cid int references client(cid),
        license varchar references car(license),
        price numeric(10,2),
        date date,
        value numeric(10,2)
);

create table sells(
        sid int references salesman(sid),
        cid int references client(cid),
        license varchar references car(license),
        commision numeric(10,2),
```

```
        date date,
        value numeric(10,2)
    );
```

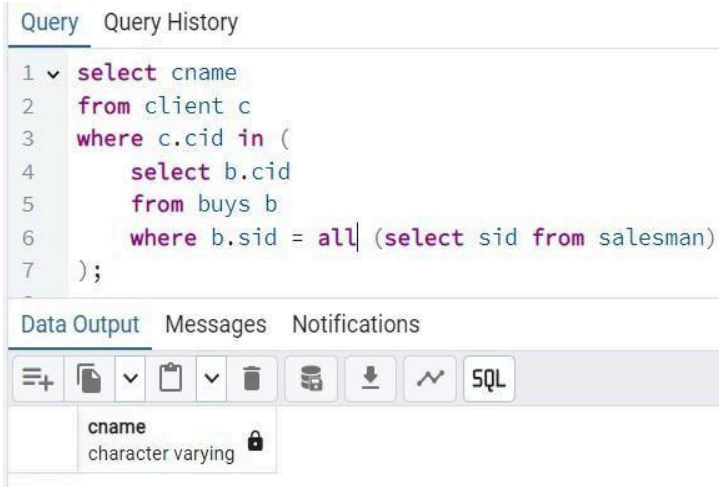
Insetions:

```
    insert into mechanic (mname, mid) values
    ('amit', 1),
    ('rahul', 2),
    ('vikas', 3);

    insert into salesman (sname, sid) values
    ('raju', 101),
    ('deepak', 102),
    ('arjun', 103);

    insert into car (model, year, manufacturer, license) values
    ('maruti swift', 2020, 'maruti', 'abc123'),
    ('hyundai creta', 2019, 'hyundai', 'xyz456'),
    ('tata nexon', 2021, 'tata', 'lmn789');

    insert into client (cid, cname, address, phone) values
    (201, 'arun', '123 mg road', 9876543210),
    (202, 'priya', '456 main street', 8765432109),
    (203, 'raj', '789 nehru lane', 7654321098);

    insert into repairjob (rno, description, parts, work, license, mid) values
    (1, 'engine repair', '12000', '5 hours', 'abc123', 1),
    (2, 'brake replacement', '8000', '3 hours', 'xyz456', 2),
    (3, 'tire alignment', '2000', '2 hours', 'lmn789', 3);

    insert into buys (sid, cid, license, price, date, value) values
    (101, 201, 'abc123', 500000.00, '2023-11-01', 500000.00),
    (102, 202, 'xyz456', 700000.00, '2023-12-01', 700000.00),
    (103, 203, 'lmn789', 850000.00, '2024-01-01', 850000.00);

    insert into sells (sid, cid, license, commision, date, value) values
    (101, 201, 'abc123', 15000.00, '2023-11-01', 500000.00),
    (102, 202, 'xyz456', 20000.00, '2023-12-01', 700000.00),
    (103, 203, 'lmn789', 25000.00, '2024-01-01', 850000.00);
```

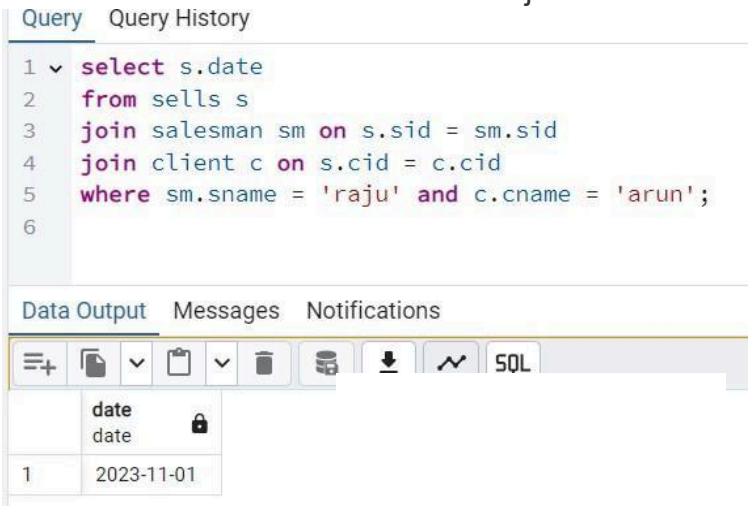
3. Answer the following queries in SQL
   a. Find the car model numbers whose repair cost for the parts is greater than 10000



b. Find the client names who buys item from all the salesmen.

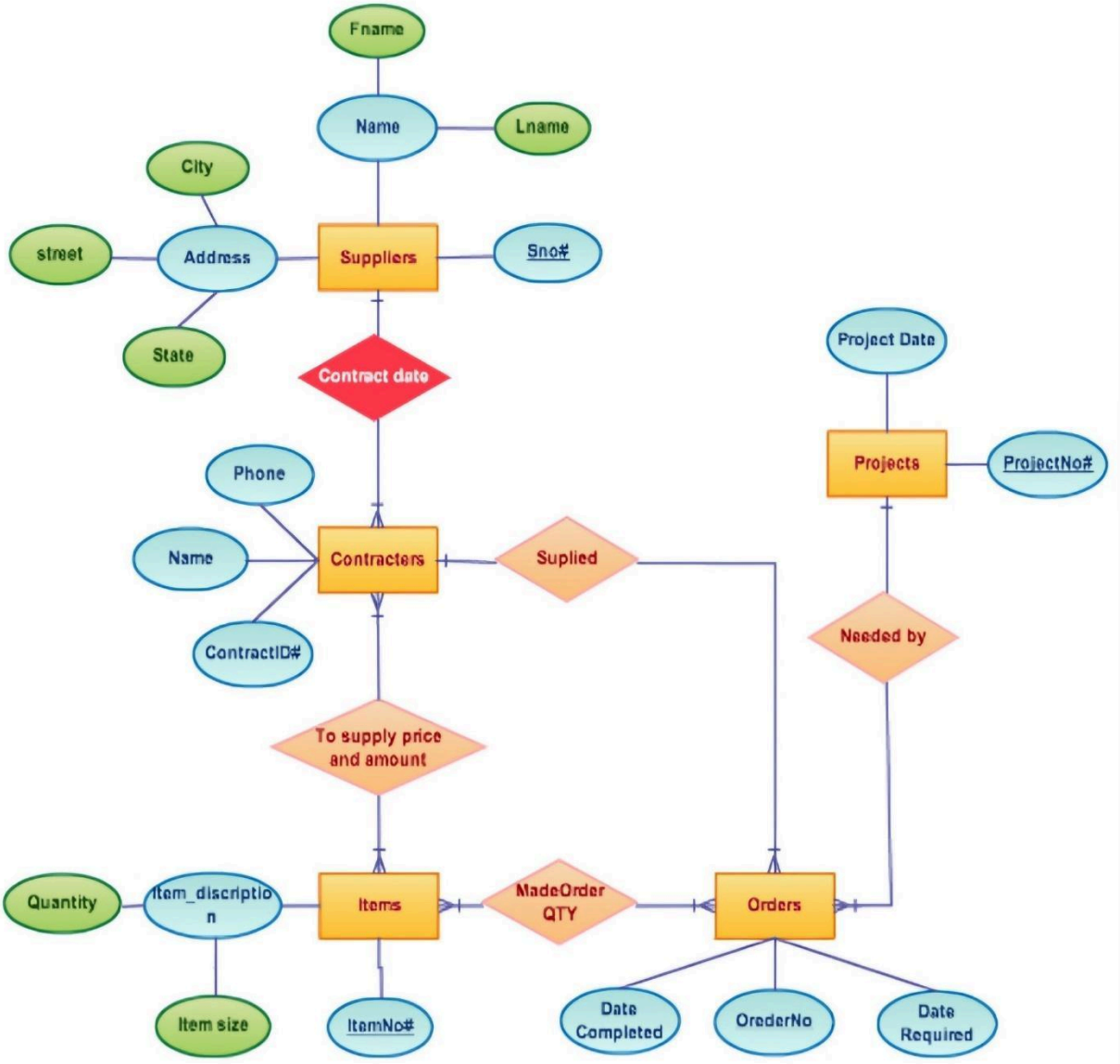


c. Find the date on which salesman with name' Raju' sells item to client 'Arun'.



Question 2

E-R Diagram for Supplies Contract System



1. Convert the above ER diagram to relational schema.

Suppliers(sno, fname, lname, city, address, street, date)
contract_date(sno, cno)
Contractors(contractorid, cname, phone)
Items(itemno, quantity, itemsize)
Orders(Orderno, date_req, date_com, cno, projectno)

Projects(proj_no, proj_date)
Makeorder(itemno, orderno)
Supply(itemid, cno)

2. Create the corresponding tables and insert some data.

```
create table Suppliers(
        sno int primary key,
        fname varchar,
        lname varchar,
        city varchar,
        address varchar,
        street varchar,
        date date);

create table Contractors(
        contractorid int primary key,
        cname varchar,
        phone bigint);

create table contract_date(
        sno int references Suppliers(sno),
        cno int references Contractors(contractorid));

create table Items(
        itemno int primary key,
        quantity int,
        itemsize int);

create table Supply(
        itemid int references Items(itemno),
        cno int references Contractors(contractorid));

create table Projects(
        proj_no int primary key,
        proj_date date);

create table Orders(
        Orderno int primary key,
        date_req date,
        date_com date,
        cno int references Contractors(contractorid),
        projectno int references Projects(proj_no));

create table Makeorder(
        itemno int references Items(itemno),
```

orderno int references Orders(Orderno));

Insertion:

```
insert into suppliers (sno, fname, lname, city, address, street, date) values
(1, 'John', 'Doe', 'New York', '5th Avenue', 'Street A', '2023-01-15'),
(2, 'Alice', 'Smith', 'Los Angeles', 'Sunset Blvd', 'Street B', '2023-02-20'),
(3, 'Michael', 'Brown', 'Chicago', 'Lake Shore', 'Street C', '2023-03-05');

insert into contractors (contractorid, cname, phone) values
(1, 'Kiran', 9876543210),
(2, 'Rahul', 8765432109);

insert into contract_date (sno, cno) values
(1, 1),
(2, 1),
(3, 2);

insert into items (itemno, quantity, itemsize) values
(1, 100, 10),
(2, 200, 15),
(3, 150, 20);

insert into supply (itemid, cno) values
(1, 1),
(2, 1),
(3, 2);

insert into projects (proj_no, proj_date) values
(1, '2023-06-10'),
(2, '2023-07-15');

insert into orders (orderno, date_req, date_com, cno, projectno) values
(1, '2023-06-01', '2023-06-15', 1, 1),
(2, '2023-07-01', '2023-07-20', 2, 2);

insert into makeorder (itemno, orderno) values
(1, 1),
(2, 1),
(3, 2);
```

3. Write the following queries in SQL.
   a. Find the projects for which items are supplied by contractor named ‘Kiran’.

```sql
select distinct p.proj_no
from projects p
join orders o
on
    p.proj_no = o.projectno
join supply s
on
    o.cno = s.cno
join contractors c
on
    s.cno = c.contractorid
where c.cname = 'Kiran';
```

Data Output | Messages | Notifications

SQL

	proj_no [PK] integer
1	1

b. Find the number of projects for which items are supplied by all the Suppliers.

Query | Query History

```sql
select distinct count(p.proj_no)
from projects p
join orders o
on
    p.proj_no = o.projectno
join supply s
on
    o.cno = s.cno
join contractors c
on
    s.cno = c.contractorid;
```

Data Output | Messages | Notifications

SQL

	count bigint
1	3

c. List all the items required for the project ‘P100’.

Query | Query History

```
1  select i.itemno, i.quantity, i.itemsize
2  from items i
3  join makeorder mo
4  on
5      i.itemno = mo.itemno
6  join orders o
7  on
8      mo.orderno = o.orderno
9  join projects p
10 on
11     o.projectno = p.proj_no
12 where p.proj_no = 1;
13
```

Data Output | Messages | Notifications

	itemno [PK] integer	quantity integer	itemsize integer
1	1	100	10
2	2	200	15