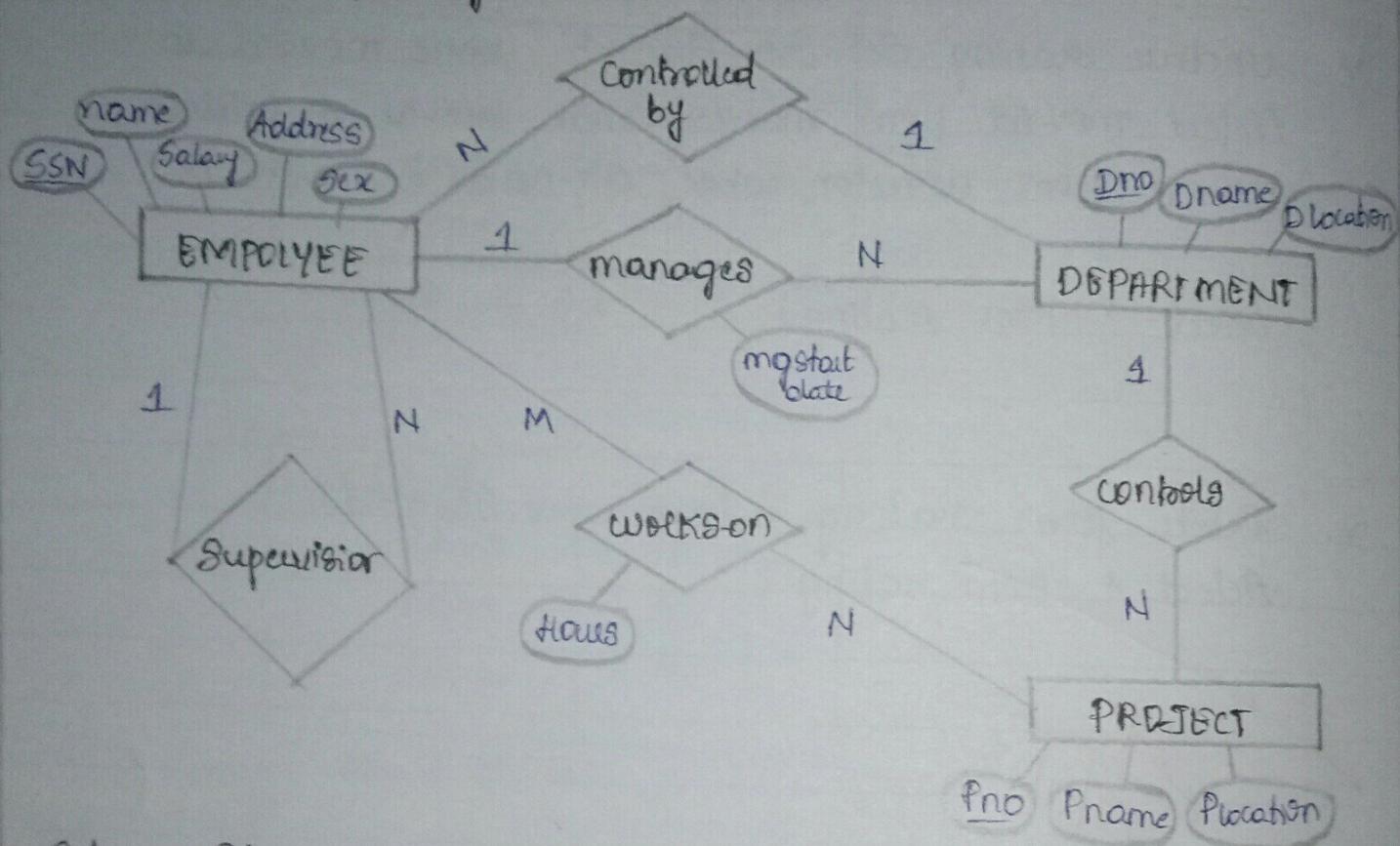


E. Consider the following Schema for a Company Database.

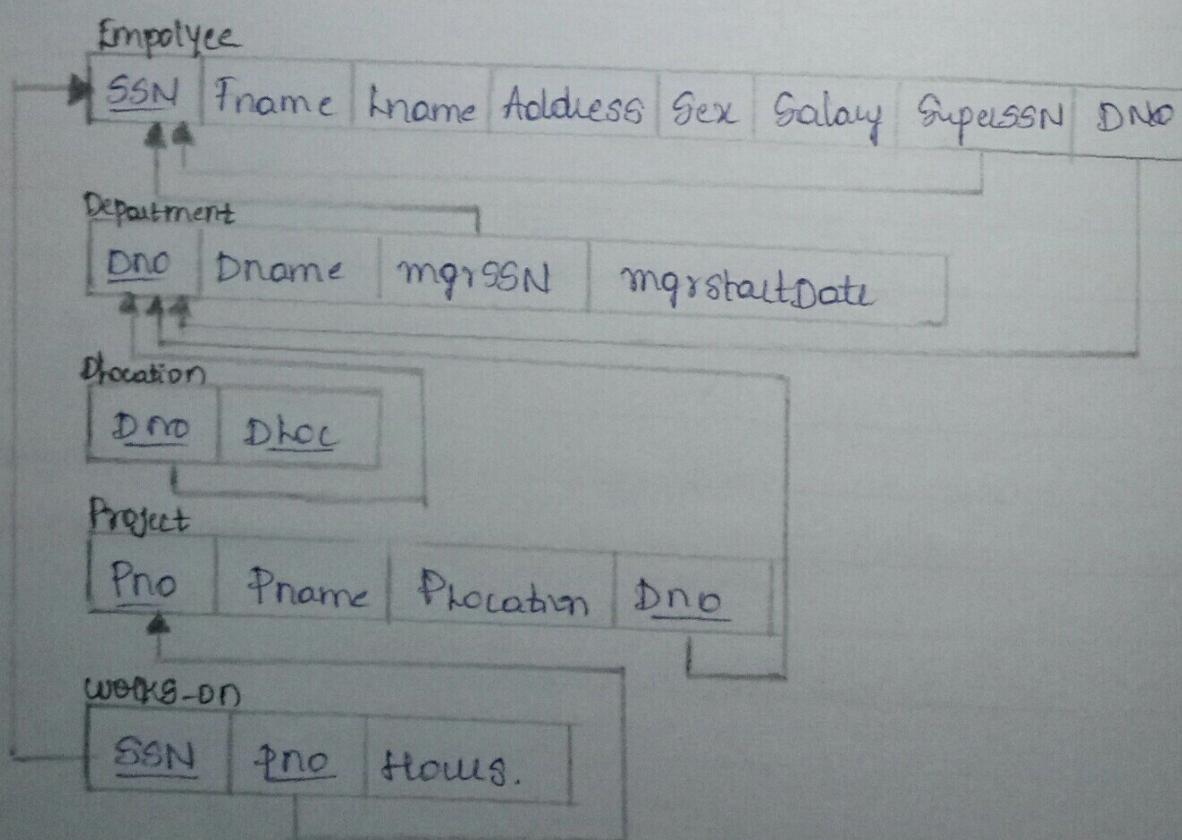
- Employee (SSN, name, address, sex, salary, Supervisor, Dno)
- Department (Dno, Dname, mgrSSN, mgrStart Date)
- Location (Dno, Dloc)
- Project (Pno, Pname, PLocation, Dno)
- Works-on (SSN, Pno, hours)

- i. Make a list of all project numbers for projects that involve an employee whose last name is 'Scott', either as a worker or as a manager of the department that controls the project.
- ii. Show the resulting salaries if every employee working on the '201' projects is given a 10 percent raise.
- iii. Find the sum of the salaries of all employees of the Accounts' department, as well as the maximum salary, the minimum salary, and the average salary in this department.
- iv. ~~Retrive the name of each employee who works on all the Projects controlled by department number 5. for each department that has more than five employees , retrive the department number and the number of its employees who are making more than RS 6,00,000~~

## Entity-Relationship Diagram:



## Schema Diagram:



- Create table department (Dno Varchar(20) primary key, Dname Varchar(20), mngstartdate date);  
desc department;
- Create table employee (SSN Varchar(20) primary key, Fname Varchar(20), Lname Varchar(20), address Varchar(20), Sex char(1), Salary Integer, Dno Varchar(20) references department (dno));  
desc employee;
- alter table employee add column Supervisor Varchar(20) references employee (SSN);
- alter table department add column mgrssn Varchar(20) references employee (SSN);
- Create table Allocation (Dloc Varchar(20), Dno Varchar(20) references department (dno), primary key (dno,dloc));  
desc allocation;
- Create table Project (Pno Integer primary key, Pname Varchar(20), Phlocation Varchar(20), Dno Varchar(20) references department (dno));  
desc Project;

| Field        | Type        | Null | Key | default | Extra |
|--------------|-------------|------|-----|---------|-------|
| dno          | Varchar(20) | No   | PRI | NULL    |       |
| dname        | Varchar(20) | YES  |     | NULL    |       |
| mgrstratdate | date        | YES  |     | NULL    |       |
| mgrssn       | Varchar(20) | YES  |     | NULL    |       |

4 rows in set

| Field    | Type        | Null | Key | default | Extra |
|----------|-------------|------|-----|---------|-------|
| SSN      | Varchar(20) | No   | PRI | NULL    |       |
| fname    | Varchar(20) | YES  |     | NULL    |       |
| lname    | Varchar(20) | YES  |     | NULL    |       |
| address  | Varchar(20) | YES  |     | NULL    |       |
| sex      | char(1)     | YES  |     | NULL    |       |
| salary.  | int (11)    | YES  |     | NULL    |       |
| dno      | Varchar(20) | YES  |     | NULL    |       |
| Superssn | Varchar(20) | YES  |     | NULL    |       |

8 rows in set

| Field | Type        | Null | Key | default | Extra |
|-------|-------------|------|-----|---------|-------|
| dloc  | Varchar(20) | No   | PRI |         |       |
| dno   | Varchar(20) | No   | PRI |         |       |

2 rows in set

| Field     | Type        | Null | Key | default | Extra |
|-----------|-------------|------|-----|---------|-------|
| pno       | int(11)     | No   | PRI | NULL    |       |
| pname     | Varchar(20) | YES  |     | NULL    |       |
| ptocation | Varchar(20) | YES  |     | NULL    |       |
| dno       | Varchar(20) | YES  |     | NULL    |       |

4 rows in set

- Create table works-on (hours integer, Ssn varchar(20), references employee (ssn), Proj integer references Project (Proj), Primary key (ssn, Proj));  
desc works-on;

- Employee table:

```

insert into employee (SSN, fname, lname, address, sex, salary)
values ('Rnsece01', 'John', 'Scott', 'banglore', 'm', 450000);
insert into employee (SSN, fname, lname, address, sex, salary)
values ('Rnsece02', 'James', 'Smith', 'banglore', 'm', 500000);
insert into employee (SSN, fname, lname, address, sex, salary)
values ('Rnsece03', 'Edward', 'Scott', 'mysore', 'm', 500000);
insert into employee (SSN, fname, lname, address, sex, salary)
values ('Rnsece04', 'Pavan', 'Baker', 'banglore', 'm', 700000);
insert into employee (SSN, fname, lname, address, sex, salary)
values ('Rnsece05', 'Girish', 'Malya', 'mysore', 'm', 450000);
insert into employee (SSN, fname, lname, address, sex, salary)
values ('Rnsece06', 'Neha', 'SN', 'banglore', 'F', 800000);
insert into employee (SSN, fname, lname, address, sex, salary)
values ('Rnsecc01', 'Ahana', 'K', 'manglore', 'F', 350000);
insert into employee (SSN, fname, lname, address, sex, salary)
values ('Rnsacc02', 'Sanithash', 'Kumar', 'manglore', 'm', 300000);
insert into employee (SSN, fname, lname, address, sex, salary)
values ('Rnsacc01', 'Veena', 'm', 'mysore', 'm', 600000);
insert into employee (SSN, fname, lname, address, sex, salary)

```

`values('Rnsit01', 'magesh', 'HR', 'banglore', 'm', 500000);`

• Department table :

`insert into department values('1', 'Accounts', '20010101', 'Rnsacco1');`

`insert into department values('2', 'IT', '20010816', 'Rnsit01');`

`insert into department values('3', 'ECE', '20010608', 'Rnsece01');`

`insert into department values('4', 'ISE', '20010815', 'Rnisce01');`

`insert into department values('5', 'CSE', '20010802', 'Rnscse05');`

`Select * from department;`

`update employee set supervisor = null, Dno = '3' where  
ssn = 'Rnsece01';`

`update employee set supervisor = 'Rnscse02', Dno = '5' where  
ssn = 'Rnscse01';`

`update employee set supervisor = 'Rnscse03', Dno = '5' where  
ssn = 'Rnscse02';`

~~`update employee set supervisor = 'Rnscse04', Dno = '5' where  
ssn = 'Rngse03';`~~

`update employee set Dno = '5', supervisor = 'Rnscse05' where  
ssn = 'Rnscse04';`

`update employee set Dno = '5', supervisor = 'Rnscse06' where  
ssn = 'Rnscse05';`

`update employee set Dno = '5', supervisor = null where  
ssn = 'Rnscse06';`

`update employee set Dno = '1', supervisor = 'Rnsacco1' where  
ssn = 'Rnsacco1';`

`update employee set Dno = '1', supervisor = null where  
ssn = 'Rnsacco2';`

| olno | dname    | mgrstartdate | mgrssn   |
|------|----------|--------------|----------|
| 1    | Accounts | 2001-01-01   | 0n8a1co2 |
| 2    | it       | 2001-08-16   | 0n8it01  |
| 3    | cce      | 2001-106-08  | 0n8cce01 |
| 4    | ise      | 2001-08-15   | 0n8ise01 |
| 5    | cse      | 2001-08-02   | 0n8cse05 |

5 rows in set.

| ssn      | fname    | lname | address  | sex | salary | olno | supssn   |
|----------|----------|-------|----------|-----|--------|------|----------|
| 0n8a1co1 | ahana    | K     | manglore | F   | 350000 | 1    | 0n8a1co2 |
| 0n8a1co2 | Santhosh | kumar | manglore | M   | 300000 | 1    | NULL     |
| 0n8cce01 | james    | smith | Banglore | M   | 500000 | 5    | 0n8cce02 |
| 0n8cse02 | hearn    | baker | Banglore | M   | 700000 | 5    | 0n8cse03 |
| 0n8cse03 | edward   | Scott | mysore   | M   | 500000 | 5    | 0n8cse04 |
| 0n8cse04 | pavan    | Hegde | Banglore | M   | 650000 | 5    | 0n8cse05 |
| 0n8cse05 | girish   | malya | mysore   | M   | 450000 | 5    | 0n8cse06 |
| 0n8cse06 | neha     | SN    | banglore | F   | 800000 | 5    | NULL     |
| 0n8cce01 | john     | scott | banglore | M   | 450000 | 3    | NULL     |
| 0n8cce01 | Veeran   | m     | mysore   | M   | 600000 | 4    | NULL     |
| 0n8it01  | nagesh   | hr    | banglore | M   | 500000 | 2    | NULL     |

11 rows in set.

update employee set Dno='4', Superssn=NULL where  
ssn='RnS00001';

update employee set Dno='2', Superssn=NULL where  
ssn='RnS0101';

- Dlocation table:

insert into Dlocation values ('Banglore', '1');

insert into Dlocation values ('Banglore', '2');

insert into Dlocation values ('Banglore', '3');

insert into Dlocation values ('manglore', '4');

insert into Dlocation values ('manglore', '5');

Select \* from Dlocation;

- Project table:

insert into Project values(100, 'iot', 'Banglore', '5');

insert into Project values(101, 'cloud', 'Banglore', '5');

insert into Project values(102, 'Big data', 'Banglore', '5');

insert into Project values(103, 'Sensors', 'Banglore', '5');

insert into Project values(104, 'Bank management', 'Banglore', '3');

insert into Project values(105, 'Salary management', 'Banglore', '4');

insert into Project values(106, 'Open stack', 'Banglore', '4');

insert into Project values(107, 'Smart city', 'Banglore', '2');

Select \* from Project;

- Works-on table:

insert into works-on values(4, 'RnS00001', 100);

insert into works-on values(6, 'RnS00001', 101);

| dloc     | dno. |
|----------|------|
| banglore | 1    |
| banglore | 2    |
| banglore | 3    |
| manglore | 4    |
| manglore | 5    |

5 rows in set.

| Pno | Pname             | Plocation | dno |
|-----|-------------------|-----------|-----|
| 100 | iot               | banglore  | 5   |
| 101 | Cloud             | banglore  | 5   |
| 102 | bigdata           | banglore  | 5   |
| 103 | Sensors           | banglore  | 3   |
| 104 | bank management   | banglore  | 1   |
| 105 | Salary management | banglore  | 1   |
| 106 | Open stack.       | banglore  | 4   |
| 107 | Smart city.       | banglore  | 2   |

8 rows in set

insert into works-on values( 8, 'Rnscse01', 102);  
 insert into works-on values( 10, 'Rnscse02', 100);  
 insert into works-on values( 3, 'Rnscse04', 100);  
 insert into works-on values( 4, 'Rnscse05', 101);  
 insert into works-on values( 5, 'Rnscse06', 102);  
 insert into works-on values( 6, 'Rnscse03', 102);  
 insert into works-on values( 7, 'Rnscse04', 103);  
 insert into works-on values( 5, 'Rnsacc01', 104);  
 insert into works-on values( 6, 'Rnsacc02', 105);  
 insert into works-on values( 4, 'Rnsacc01', 106);  
 insert into works-on values( 10, 'Rn scott', 107);  
 Select \* from works-on;

i.

(Select distinct P.Pno from Project P, department d, employee e  
 where e.Dno=d.Dno and D.mgrssn = E.ssn and E.lname =  
 'scott') union (select distinct P1.Pno from Project P1, works-on  
 w, employee e1 where P1.Pno=w.Pno and P1.SSN=w.SSN  
 and E1.lname = 'scott');

ii. Select E.Fname, E.lname, 1.1 \* E.Salary as incr\_sal from  
 employee e, works-on w, Project P where E.SSN=w.SSN  
 and w.Pno=P.Pno and P.Pname='BOT';

| hours | SSN      | Pno. |
|-------|----------|------|
| 5     | 8n5acc01 | 104  |
| 6     | 8n5acc02 | 105  |
| 4     | 8n5csc01 | 100  |
| 6     | 8n5csc01 | 101  |
| 8     | 8n5csc04 | 102  |
| 10    | 8n5csc02 | 100  |
| 6     | 8n5csc03 | 102  |
| 3     | 8n5csc04 | 100  |
| 4     | 8n5csc05 | 101  |
| 5     | 8n5csc06 | 102  |
| 7     | 8n5csc01 | 103  |
| 4     | 8n5csc01 | 106  |
| 10    | 8n5it01  | 107  |

13 rows in set.

| Pno |
|-----|
| 100 |
| 101 |
| 102 |
| 103 |
| 104 |
| 105 |
| 106 |
| 107 |

8 rows in set

| Fname | Lname | incr_gal |
|-------|-------|----------|
| james | smith | 550000.0 |
| hearn | baker | 770000.0 |
| pavan | heyde | 715000.0 |

3 rows in set.

III.

Select sum (E.Salary), max (E.Salary), min (E.Salary),  
 Avg (E.Salary) from employee E, department d where  
 $E.Dno = D.Dno$  and D.Dname = 'Accounts';

IV. Select E.Fname, E.lname from employee e where not  
 exists (Select Pno from project where Dno = '5' and  
 Pno not in (Select Pno from works-on where  
 $E.ssn = ssn)))$ ;

V. Select D.dno, count (\*) from department d,  
 employee e where ~~d.dno = e.dno~~ and E.Salary > 600000  
 and ~~d.dno~~ in (Select El.dno from employee ei  
 group by El.dno having Count (\*) > 5) group by  
~~d.dno~~;

~~g1/12/23~~

| $\text{Sum}(e, \text{salary})$ | $\text{Max}(e, \text{salary})$ | $\text{Min}(e, \text{salary})$ | $\text{Avg}(e, \text{salary})$ |
|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
| 650000                         | 350000                         | 300000                         | 325000.0000                    |

1 row in set

| Fname | Lname. |
|-------|--------|
| james | smith  |

1 row in set

| dno | count(*) |
|-----|----------|
| 5   | 3        |

1 row in set