HU21CSEN0100466
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COMPANY DATABASE

Schemas for company database

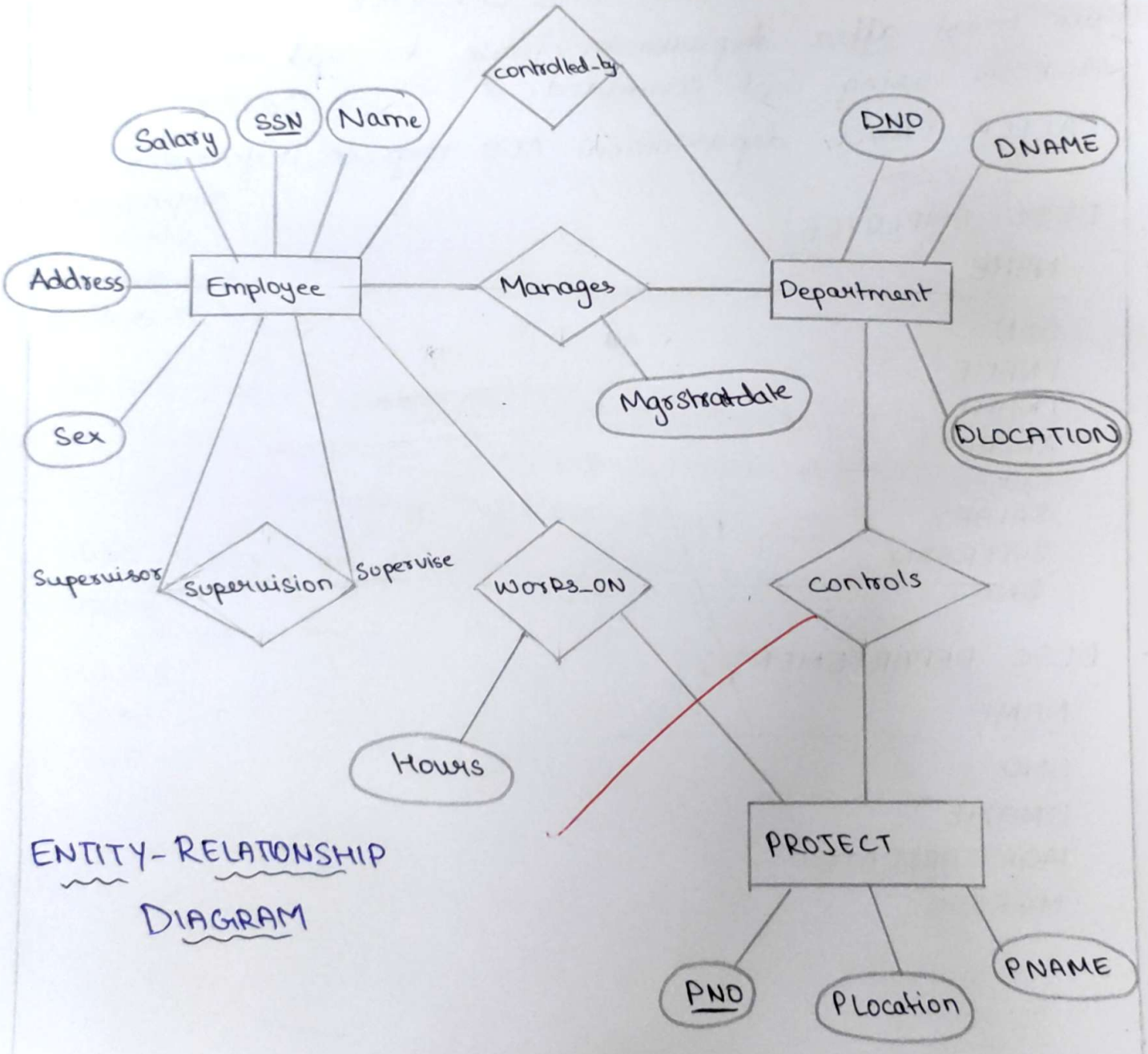
EMPLOYEE (SSN, NAME, Address, Sex, Salary, SuperSSN, DNO)

DEPARTEMENT(DNO, DName, Mgr SSN, Mgr Start Date)

DLOCATION(DNO, DLOC)

PROJECT (PNO, PName, PLocation, DNO)

WORKS_ON (SSN, PNO, Hours)



ENTITY-RELATIONSHIP DIAGRAM

TABLE CREATION

```
CREATE TABLE DEPARTEMENT( dno Varchar2(20) primary Key,
        dname Varchar2(20), mgrstartdate date);

CREATE TABLE EMPLOYEE (SSN Varchar2(20) primary Key,
        fname Varchar2(20), lname Varchar2(20),
        address Varchar2(20), Sex char(1), salary integer,
        Superssn reference employee (SSN), dno reference
        departement (dno));
```

NOTE: Once DEPARTEMENT and EMPLOYEE tables are created we must alter departemen table to add foreign constraint MGRSSN using Sql command.

```
ALTER TABLE departement ADD mgrssn references
                                employee(SSN);
```

```
DESC EMPLOYEE;
```

NAME
SSN
FNAME
LNAME
ADDRESS
SEX
SALARY
SUPERSSN
DNO

```
DESC DEPARTEMENT;
```

NAME
DNO
DNAME
MGRSTARTDATE
MGRSSN

```
CREATE TABLE DLOCATION ( dlocvarchar2(20), dno
        references department (dno), primary key
                (dno, dloc));

DESC  DLOCATION;

 NAME
 ----------
  DLOC
  DNO

CREATE  TABLE  PROJECT( pno integer primary key,
        pname varchar2(20), plocation varchar2(20)
        dno references department (dno));

DESC PROJECT;
 NAME
 ----------
 PNO
 PNAME
 PLOCATION
 DNO

CREATE TABLE WORKS_ON( hoursnumber (2), SSN references
        employee (SSN), pno references project (pno),
        primary key (ssn, pno));

DESC WORKS_ON
NAME
----------
HOURS
SSN
PNO
```

* Insertion of Values to tables

→ Insertion of Values in employee table

```
Insert into employee (SSN, NAME, ADDRESS, SEX, SALARY)
 Values ('rnsece01', 'John', 'Scott', 'bangalore', 'm', 450000);

Insert into employee (SSN, NAME, ADDRESS, SEX, SALARY) Values
  ('rnscse 02', 'james', 'smith', 'bangalore', 'm', 500000);

Insert into employee (SSN, NAME, ADDRESS, SEX, SALARY) Valus
  ('rnscse 02', 'hearn', 'baker', 'bangalore', 'm', 700000);

Insert into employee (SSN, NAME, ADDRESS, SEX, SALARY) Values
  ('rnscse 03', 'edward', 'Scott', 'mysore', 'm', 500000);

Insert into employee (SSN, NAME, ADDRESS, SEX, SALARY) Values
  ('rnscse 04', 'pavan', 'hegde', 'mangalore', 'm', 650000);

Insert into employee (SSN, NAME, ADDRESS, SEX, SALARY) Values
('rnscse05', 'girish', 'malya', 'mysore', 'm', 450000);

Insert into employee(SSN, NAME, ADDRESS, SEX, SALARY) Values
('rnscse06', 'neha', 'sn', 'bangalore', 'f', 800000);

Insert into employee (SSN, NAME, ADDRESS, SEX, SALARY) Values
 ('rnsacc01', 'ahana', 'k', 'mangalore', 'f', 350000);
```

→ Insertion of Values into department table

```
Insert into department Values('1', 'accounts', '01-Jan-01',
                                                'rnsacc02');
Insert into department Values('2', 'it', '01-AUG-16',
                                                'rnsit01');
Insert into department Values ('3', 'ece', '01-Jun-08',
                                                'rnsece01');
Insert into department Values ('4', 'ise', '01-aug-15', 'rnsise01',
Insert into department Values ('5', 'cse', '01-jun-02', 'rnscse05');
```

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SQL> Select * from department;

DNO	DNAME	MGRSTARTD	MGRSSN
1	ACCOUNTS	01-JAN-01	RNSACC02
2	IT	01-AUG-16	RNSIT 01
3	ECE	01-JUN-08	RNSECE01
4	ISE	01-AUG-15	RNSISE 01
5	CSE	01-JUN-02	RNSCSE 05

⇒ Now update enteries of employee table to fill the missing fields SUPERSSN and DNO

```
UPDATE EMPLOYEE SET
SUPERSSN = 'NULL' , DNO = '3'
WHERE SSN = 'rnsece01' ;

UPDATE EMPLOYEE SET
SUPERSSN = 'rnscse02' , DNO = '5'
WHERE SSN = 'rnscse01' ;

UPDATE EMPLOYEE SET
SUPERSSN = 'rnscse03', DNO = '5'
WHERE SSN = 'rnscse02' ;

UPDATE EMPLOYEE SET
SUPPERSSN = 'rnscse04' , DNO = '5'
WHERE SSN = 'rnscse03' ;

UPDATE EMPLOYEE SET
SUPERSSN = 'rnscse05' , DNO = '5'
WHERE SSN = 'rnscse04' ;

UPDATE EMPLOYEE SET
SUPERSSN = 'rnscse06'
WHERE SSN = 'rnscse05' ;

UPDATE EMPLOYEE SET
SUPERSSN = 'rnsacc02' , DNO = '1'
WHERE SSN = 'rnsacc01' ;
```

SQL> SELECT * FROM EMPLOYEE;

SSN	FNAME	LNAME	ADDRESS	S	SALARY	SUPERSSN	
rnsece01	John	Scott	bangalore	M	450000	-	3
rnscse01	James	Smith	bangalore	M	500000	rnscse02	5
rnscse02	hearn	baker	bangalore	M	700000	rnscse03	5
rnscse03	edward	Scott	mysore	M	500000	rnscse04	5
rnscse04	Pavan	hegde	mangalore	M	650000	rnscse05	5
rnscse05	girish	malya	mysore	M	450000	rnscse06	5
rnscse06	neha	sn	bangalore	F	800000	-	5
rnsacc01	ahana	K	mangalore	F	350000	rnsacc02	1
rnsacc02	Santhosh	Kumar	mangalore	M	300000	-	1
rnsise01	Veena	M	mysore	F	600000	-	4
rnsit01	nagesh	hr	bangalore	M	500000	-	2

Insertion of Values into dlocation table

```
Insert into dlocation Values ('bangalore', '1');
Insert into dlocation Values ('bangalore', 2);
Insert into dlocation Values ('bangalore', 3);
Insert into dlocation Values ('mangalore', 4);
Insert into dlocation Values ('mangalore', 5);
```

Insertion of Values in WORKS_ON Table

```
Insert into works_on Values (4, 'rnscse01', 100);
Insert into works_on Values (6, 'rnscse01', 101);
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, 'rnsece01', 103);
Insert into works_on Values (5, 'rnsacc01', 104);
Insert into works_on Values (6, 'rnsacc02', 105);
Insert into works_on Values (4, 'rnsise01', 106);
Insert into works_on Values (10, 'rnsit01', 107);
```

```
SQL> SELECT * FROM WORKS_ON;
```

HOURS	SSN	PNO
4	RNSCSE01	100
6	RNSCSE01	101
8	RNSCSE01	102
10	RNSCSE02	100
3	RNSCSE04	100
4	RNSCSE05	101
5	RNSCSE06	102
6	RNSCSE03	102
7	RNSECE01	103
5	RNSACC01	104
6	RNSACC02	105
4	RNSISE01	106
10	RNSIT01	107

SQL> SELECT * FROM DLOCATION

DLOC	DNO
Bangalore	1
Bangalore	2
Bangalore	3
Mangalore	4
Mangalore	5

Insertion of Values in project table

```
Insert into project Values (100, 'iot', 'bangalore', '5');
Insert into project Values (101, 'cloud', 'bangalore', 5);
Insert into project Values (102, 'bigdata', 'bangalore', 5);
Insert into project Values (103, 'sensors', 'bangalore', 3);
Insert into project Values (104, 'bank', 'bangalore', 1);
Insert into project Values (105, 'salary management', 'bangalore', 1);
Insert into project Values (106, 'openstack', 'bangalore', 4);
Insert into project Values (107, 'Smartcity', 'bangalore', 2);
```

SQL> SELECT * FROM PROJECT;

PNO	PNAME	PLOCATION	DNO
100	IOT	BANGALORE	5
101	CLOUD	BANGALORE	5
102	BIGDATA	BANGALORE	5
103	SENSORS	BANGALORE	3
104	BANK MANAGEMENT	BANGALORE	1
105	SALARY MANAGEMENT	BANGALORE	1
106	OPEN STACK	BANGALORE	4
107	SMART CITY	BANGALORE	2

QUERIES

1. Make a list of all project numbers for projects that involve an employee whose last name is 'SCOTT' as worker or manager of departement that controls the project

```
SQL> Select distinct p.pno
     from project p, departement 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 e1.ssn = w.ssn
     and e1.lname = 'SCOTT';
```

output

PNO
100
101
102
103
104
105
106
107

2) Show resulting salaries ~~if~~ every employee working on the 'IOT' project is given a 10 % raise.

```
SQL> 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 = 'IOT'
```

output

FNAME	LNAME	INCR_SAL
JAMES	SMITH	550000
HEARN	BAKER	770000
PAVAN	HEGDE	715000

3) FIND the Sum of the Salaries of all employees of the 'Accounts' department, max salary, min salary, AVG salary.

```
SQL> 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';
```

Output

SUM(e.salary)	MAX(e.salary)	MIN(e.salary)	AVG(e.salary)
650000	350000	300000	325000

4) Retrieve the name of each employee who works on all projects controlled by department number 5

```
SQL>  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));
```

Output

FNAME	LNAME
JAMES	SMITH

5) Retrieve the department number and no. of employees making more than Rs. 6,00,000

```
SQL> Select D.DNO, COUNT(*)
     FROM department d, employee e
     WHERE  D.DNO = E.DNO
     AND E.Salary > 600000
     AND  D.DNO IN (SELECT E1.DNO
      FROM employee e1
      group by e1.DNO
      HAVING count(*) > 5)
      GROUP BY D.DNO;
```

Output

DNO	COUNT(*)
5	3

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