

Create the following tables

EMPLOYEE (fname, lname, ssn primary key, bdate, address, sex, salary, superssn (ssn of his/her supervisor), dno)

DEPARTMENT(dname, dno primary key, mgrssn (ssn of the manager of the department, mgrstartdate, dlocation)

PROJECT(pname,pno primary key,plocation,dnum)

WORKSON (essn,pno, hours (per week))

DEPENDENT (essn, dependent_name, sex, bdate, relationship)

- a. Retrieve the birth date and address of the employees who work for 'Research' department.
- b. Find the maximum and minimum salary of all employees
- c. For every project located in 'Stafford', list the project number, the controlling department number and the department manager's last name, address and birthdate
- d. For each employee, retrieve the employees first name and last name and first and last name of his immediate supervisor.
- e. Get all information about employees working in 'Research' department including the department information.
- f. Make a list of all project numbers for project that involve an employee whose last name is 'Smith' as a worker or as a manager of the department that controls the project.
- g. Retrieve the names of employees who have no dependents.
- h. Retrieve the name of each employee who has a dependent with the same first name and same sex as the employee.
- i. List employee names for those who have joined between 30-6-2001 and 30-12-2001.
- j. Display the employee and the project number in which he is working.

- mysql> CREATE TABLE Department(
 - ➔ dname VARCHAR(20) NOT NULL,
 - ➔ dno INT PRIMARY KEY,
 - ➔ mgrssn INT,

- ➔ mgrstart DATE,
 - ➔ dlocation VARCHAR(20));
- Query OK, 0 rows affected (0.29 sec)

- mysql> CREATE TABLE Employee(
 - ➔ fname VARCHAR(20),
 - ➔ lname VARCHAR(20),
 - ➔ ssn INT PRIMARY KEY,
 - ➔ bdate DATE,
 - ➔ address VARCHAR(20),
 - ➔ sex CHAR(1),
 - ➔ salary DECIMAL(10,2),
 - ➔ superssn INT,
 - ➔ dno INT,
 - ➔ CHECK(sex IN("M","F")),
 - ➔ FOREIGN KEY(superssn) REFERENCES Employee(ssn),
 - ➔ FOREIGN KEY(dno) REFERENCES Department(dno));
- Query OK, 0 rows affected (0.17 sec)

- mysql> CREATE TABLE Project(
 - ➔ pname VARCHAR(20) NOT NULL,
 - ➔ pno INT PRIMARY KEY,
 - ➔ plocation VARCHAR(20),
 - ➔ dnum INT,
 - ➔ FOREIGN KEY(dnum) REFERENCES Department(dno) ON DELETE CASCADE
 - ➔ ON UPDATE CASCADE);
- Query OK, 0 rows affected (0.06 sec)

- mysql> CREATE TABLE Works_on(
 - ➔ essn INT,
 - ➔ pno INT,
 - ➔ hours INT,
 - ➔ FOREIGN KEY(essn) REFERENCES Employee(ssn),
 - ➔ FOREIGN KEY(pno) REFERENCES Project(pno),
 - ➔ PRIMARY KEY(essn,pno));
- Query OK, 0 rows affected (0.06 sec)

- mysql> CREATE TABLE Dependent(
 - ➔ essn INT,
 - ➔ dependent_name VARCHAR(20),
 - ➔ sex CHAR(1),
 - ➔ bdate DATE,
 - ➔ relationship VARCHAR(20),
 - ➔ PRIMARY KEY(essn,dependent_name),
 - ➔ FOREIGN KEY(essn) REFERENCES Employee(ssn));
 - ➔ Query OK, 0 rows affected (0.03 sec)

- mysql> DESC Project;
 → +-----+-----+-----+-----+-----+
 → | Field | Type | Null | Key | Default | Extra |
 → +-----+-----+-----+-----+-----+
 → | pname | varchar(20) | NO | | NULL | |
 → | pno | int | NO | PRI | NULL | |
 → | plocation | varchar(20) | YES | | NULL | |
 → | dnum | int | YES | MUL | NULL | |
 → +-----+-----+-----+-----+-----+
 → 4 rows in set (0.12 sec)
- mysql> DESC Department;
 → +-----+-----+-----+-----+-----+
 → | Field | Type | Null | Key | Default | Extra |
 → +-----+-----+-----+-----+-----+
 → | dname | varchar(20) | NO | | NULL | |
 → | dno | int | NO | PRI | NULL | |
 → | mgrssn | int | YES | | NULL | |
 → | mgrstart | date | YES | | NULL | |
 → | dlocation | varchar(20) | YES | | NULL | |
 → +-----+-----+-----+-----+-----+
 → 5 rows in set (0.01 sec)
- mysql> DESC Employee;
 → +-----+-----+-----+-----+-----+
 → | Field | Type | Null | Key | Default | Extra |
 → +-----+-----+-----+-----+-----+
 → | fname | varchar(20) | YES | | NULL | |
 → | lname | varchar(20) | YES | | NULL | |
 → | ssno | int | NO | PRI | NULL | |
 → | bdate | date | YES | | NULL | |
 → | address | varchar(20) | YES | | NULL | |
 → | sex | char(1) | YES | | NULL | |
 → | salary | decimal(10,2) | YES | | NULL | |
 → | superssno | int | YES | MUL | NULL | |
 → | dno | int | YES | MUL | NULL | |
 → +-----+-----+-----+-----+-----+
 → 9 rows in set (0.00 sec)
- mysql> DESC Works_on;
 → +-----+-----+-----+-----+-----+
 → | Field | Type | Null | Key | Default | Extra |
 → +-----+-----+-----+-----+-----+
 → | essno | int | NO | PRI | NULL | |
 → | pno | int | NO | PRI | NULL | |
 → | hours | int | YES | | NULL | |
 → +-----+-----+-----+-----+-----+
 → 3 rows in set (0.00 sec)

- mysql> DESC Dependent;
 ➔ +-----+-----+-----+-----+
 ➔ | Field | Type | Null | Key | Default | Extra |
 ➔ +-----+-----+-----+-----+
 ➔ | essn | int | NO | PRI | NULL | |
 ➔ | dependent_name | varchar(20) | NO | PRI | NULL | |
 ➔ | sex | char(1) | YES | | NULL | |
 ➔ | bdate | date | YES | | NULL | |
 ➔ | relationship | varchar(20) | YES | | NULL | |
 ➔ +-----+-----+-----+-----+
 ➔ 5 rows in set (0.00 sec)
- mysql> INSERT INTO Department VALUES("Research",101,1,"1990-09-08","svks");
 ➔ Query OK, 1 row affected (0.03 sec)
- mysql> INSERT INTO Department VALUES("Administration",102,2,"1900-09-08","svks");
 ➔ Query OK, 1 row affected (0.01 sec)
- mysql> INSERT INTO Department VALUES("Packaging",103,3,"2000-11-26","svks");
 ➔ Query OK, 1 row affected (0.00 sec)
- mysql> SELECT * FROM Department;
 ➔ +-----+-----+-----+-----+
 ➔ | dname | dno | mgrssn | mgrstart | dlocation |
 ➔ +-----+-----+-----+-----+
 ➔ | Research | 101 | 1 | 1990-09-08 | madurai |
 ➔ | Administration | 102 | 2 | 1900-09-08 | madurai |
 ➔ | Packaging | 103 | 3 | 2000-11-26 | madurai |
 ➔ +-----+-----+-----+-----+
 ➔ 3 rows in set (0.00 sec)
- mysql> INSERT INTO Employee VALUES ('John','Smith',1,'1956-01-09','731,Houston,TX','M',30000,1,101);
 ➔ Query OK, 1 row affected (0.01 sec)
- mysql> INSERT INTO Employee VALUES('Franklin', 'Wong',2 ,'1955-12-08','638 Vos,TX','M',40000,1,101),
 ➔ ('Alicia', 'Zelaya',3 ,'1968-07-19','3321 Castle, TX','F',25000,1 ,101),
 ➔ ('Jennifer', 'Wallace',4 ,'1941-06-20','291 Berry, TX','F',43000,2,103),
 ➔ ('Ramesh','Narayan',5 ,'1962-09-15','975 Fire Oak, TX','M',38000,3 ,102),
 ➔ ('Joyce', 'English',6 ,'1972-07-31','5631Houston,TX','F',25000,3,101),
 ➔ ('Ahmad', 'Jabbar',7 ,'1969-03-29','980 Dallas,TX','M',25000,3,103);
 ➔ Query OK, 6 rows affected (0.00 sec)
 ➔ Records: 6 Duplicates: 0 Warnings: 0

- mysql> INSERT INTO Employee VALUES ('Amar', 'Jabbar',8,'2001-07-05','980 Dallas,TX','M',25000,3,103);
 ➔ Query OK, 1 row affected (0.00 sec)
- mysql> SELECT * FROM Employee;
 ➔ +-----+-----+-----+-----+-----+-----+-----+-----+
 ➔ | fname | lname | ssn | bdate | address | sex | salary | superssn | dno |
 ➔ +-----+-----+-----+-----+-----+-----+-----+-----+
 ➔ | John | Smith | 1 | 1956-01-09 | 731,Houston,TX | M | 30000.00 | 1 | 101 |
 ➔ | Franklin | Wong | 2 | 1955-12-08 | 638 Vos,TX | M | 40000.00 | 1 | 101 |
 ➔ | Alicia | Zelaya | 3 | 1968-07-19 | 3321 Castle, TX | F | 25000.00 | 1 | 101 |
 ➔ | Jennifer | Wallace | 4 | 1941-06-20 | 291 Berry, TX | F | 43000.00 | 2 | 103 |
 ➔ | Ramesh | Narayan | 5 | 1962-09-15 | 975 Fire Oak, TX | M | 38000.00 | 3 | 102 |
 ➔ | Joyce | English | 6 | 1972-07-31 | 5631Houston,TX | F | 25000.00 | 3 | 101 |
 ➔ | Ahmad | Jabbar | 7 | 1969-03-29 | 980 Dallas,TX | M | 25000.00 | 3 | 103 |
 ➔ | Amar | Jabbar | 8 | 2001-07-05 | 980 Dallas,TX | M | 25000.00 | 3 | 103 |
 ➔ +-----+-----+-----+-----+-----+-----+-----+-----+
 ➔ 8 rows in set (0.00 sec)
- mysql> INSERT INTO PROJECT VALUES ('ProductX',11,'Bellaire',101),
 ➔ ('ProductY',12,'Sugarland',102),
 ➔ ('ProductZ',13,'Houston',101),
 ➔ ('Computerization',14,'Stafford',103),
 ➔ ('Reorganization',15,'Houston',101),
 ➔ ('Newbenefits',16,'Stafford',102);
 ➔ Query OK, 6 rows affected (0.02 sec)
 ➔ Records: 6 Duplicates: 0 Warnings: 0
- mysql> SELECT * FROM Project;
 ➔ +-----+-----+-----+-----+
 ➔ | pname | pno | plocation | dnum |
 ➔ +-----+-----+-----+-----+
 ➔ | ProductX | 11 | Bellaire | 101 |
 ➔ | ProductY | 12 | Sugarland | 102 |
 ➔ | ProductZ | 13 | Houston | 101 |
 ➔ | Computerization | 14 | Stafford | 103 |
 ➔ | Reorganization | 15 | Houston | 101 |
 ➔ | Newbenefits | 16 | Stafford | 102 |
 ➔ +-----+-----+-----+-----+
 ➔ 6 rows in set (0.00 sec)

- mysql> INSERT INTO Works_on VALUES(1,11,32),
 ➔ (2,12,7),
 ➔ (3,13,40),
 ➔ (4,14,20),
 ➔ (5,12,20),
 ➔ (3,12,10),
 ➔ (6,13,10),
 ➔ (7,16,10),
 ➔ (8,16,10),
 ➔ (1,12,30),
 ➔ (1,13,10),
 ➔ (6,14,35),
 ➔ (7,13,5),
 ➔ (8,13,20),
 ➔ (4,11,15);
 ➔ Query OK, 15 rows affected (0.01 sec)
 ➔ Records: 15 Duplicates: 0 Warnings: 0

- mysql> SELECT * FROM Works_on;
 ➔ +-----+-----+-----+
 ➔ | essn | pno | hours |
 ➔ +-----+-----+-----+
 ➔ | 1 | 11 | 32 |
 ➔ | 1 | 12 | 30 |
 ➔ | 1 | 13 | 10 |
 ➔ | 2 | 12 | 7 |
 ➔ | 3 | 12 | 10 |
 ➔ | 3 | 13 | 40 |
 ➔ | 4 | 11 | 15 |
 ➔ | 4 | 14 | 20 |
 ➔ | 5 | 12 | 20 |
 ➔ | 6 | 13 | 10 |
 ➔ | 6 | 14 | 35 |
 ➔ | 7 | 13 | 5 |
 ➔ | 7 | 16 | 10 |
 ➔ | 8 | 13 | 20 |
 ➔ | 8 | 16 | 10 |
 ➔ +-----+-----+-----+
 ➔ 15 rows in set (0.00 sec)

- mysql> INSERT INTO Dependent VALUES (1,'Alice','F','1986-04-05','DAUGHTER'),
 ➔ (2,'Theodore','M','1983-10-25','SON'),
 ➔ (3,'Joy','F','1958-05-03','SPOUSE'),
 ➔ (4,'Abner','M','1942-02-28','SPOUSE'),
 ➔ (5,'Michael','M','1988-01-04','SON'),
 ➔ (6,'Alice','F','1988-12-30','DAUGHTER'),
 ➔ (7,'Elizabeth','F','1967-05-05','SPOUSE');
 ➔ Query OK, 7 rows affected (0.01 sec)
 ➔ Records: 7 Duplicates: 0 Warnings: 0

- mysql> SELECT * FROM Dependent;

```

➔ +-----+-----+-----+-----+
➔ | essn | dependent_name | sex | bdate   | relationship |
➔ +-----+-----+-----+-----+
➔ | 1 | Alice      | F | 1986-04-05 | DAUGHTER    |
➔ | 2 | Theodore   | M | 1983-10-25 | SON         |
➔ | 3 | Joy        | F | 1958-05-03 | SPOUSE      |
➔ | 4 | Abner      | M | 1942-02-28 | SPOUSE      |
➔ | 5 | Michael    | M | 1988-01-04 | SON         |
➔ | 6 | Alice      | F | 1988-12-30 | DAUGHTER    |
➔ | 7 | Elizabeth   | F | 1967-05-05 | SPOUSE      |
➔ +-----+-----+-----+-----+
➔ 7 rows in set (0.00 sec)

```

- QUERIES:-

- mysql> SELECT bdate,address

FROM Employee

WHERE dno=(

SELECT dno

FROM Department

WHERE dname="Research");

```

➔ +-----+-----+
➔ | bdate   | address      |
➔ +-----+-----+
➔ | 1956-01-09 | 731,Houston,TX |
➔ | 1955-12-08 | 638 Vos,TX    |
➔ | 1968-07-19 | 3321 Castle, TX |
➔ | 1972-07-31 | 5631Houston,TX |
➔ +-----+-----+
➔ 4 rows in set (0.01 sec)

```

- mysql> SELECT MAX(salary) AS Maximum,MIN(salary) AS Minimum

FROM Employee;

```

➔ +-----+-----+
➔ | Maximum | Minimum |
➔ +-----+-----+
➔ | 43000.00 | 25000.00 |
➔ +-----+-----+
➔ 1 row in set (0.01 sec)

```

- mysql> SELECT p.pno,d.dno,e.lname,e.address,e.bdate

FROM Employee e,

Project p,

Department d

WHERE plocation="Stafford" AND e.ssn=d.mgrssn;

```
➔ +-----+-----+-----+-----+-----+
➔ | pno | dno | lname | address      | bdate   |
➔ +-----+-----+-----+-----+-----+
➔ | 16 | 101 | Smith | 731,Houston,TX | 1956-01-09 |
➔ | 14 | 101 | Smith | 731,Houston,TX | 1956-01-09 |
➔ | 16 | 102 | Wong  | 638 Vos,TX     | 1955-12-08 |
➔ | 14 | 102 | Wong  | 638 Vos,TX     | 1955-12-08 |
➔ | 16 | 103 | Zelaya | 3321 Castle, TX | 1968-07-19 |
➔ | 14 | 103 | Zelaya | 3321 Castle, TX | 1968-07-19 |
➔ +-----+-----+-----+-----+-----+
➔ 6 rows in set (0.01 sec)
```

- mysql> SELECT emp.fname,emp.lname,s.fname,s.lname FROM

Employee s,Employee emp

WHERE emp.superssn=s.ssn;

```
➔ +-----+-----+-----+-----+
➔ | fname | lname | fname | lname |
➔ +-----+-----+-----+-----+
➔ | John  | Smith | John  | Smith |
➔ | Franklin | Wong  | John  | Smith |
➔ | Alicia | Zelaya | John  | Smith |
➔ | Jennifer | Wallace | Franklin | Wong  |
➔ | Ramesh | Narayan | Alicia | Zelaya |
➔ | Joyce  | English | Alicia | Zelaya |
➔ | Ahmad  | Jabbar | Alicia | Zelaya |
➔ | Amar   | Jabbar | Alicia | Zelaya |
➔ +-----+-----+-----+-----+
➔ 8 rows in set (0.00 sec)
```

- mysql> SELECT * FROM Employee e,Department d

WHERE d.dno=(

SELECT e.dno FROM

Department e

WHERE dname="Research") AND e.dno=d.dno;

```
➔ +-----+-----+-----+-----+-----+-----+-----+-----+
➔ | fname | lname | ssn | bdate   | address      | sex | salary | superssn | dno |
➔ | dname | dno | mgrssn | mgrstart | dlocation |
➔ +-----+-----+-----+-----+-----+-----+-----+-----+
➔ +-----+-----+-----+-----+-----+-----+-----+-----+
```



```

➔ | John   | Smith | 1 | 1956-01-09 | 731,Houston,TX | M | 30000.00 | 1 | 101 |
  Research | 101 | 1 | 1990-09-08 | Madurai |
➔ | Franklin | Wong | 2 | 1955-12-08 | 638 Vos,TX | M | 40000.00 | 1 | 101 |
  Research | 101 | 1 | 1990-09-08 | Madurai |
➔ | Alicia | Zelaya | 3 | 1968-07-19 | 3321 Castle, TX | F | 25000.00 | 1 | 101 |
  Research | 101 | 1 | 1990-09-08 | Madurai |
➔ | Joyce | English | 6 | 1972-07-31 | 5631Houston,TX | F | 25000.00 | 3 | 101 |
  Research | 101 | 1 | 1990-09-08 | Madurai |
➔ +-----+-----+-----+-----+-----+-----+-----+-----+-----+
  -----+-----+-----+-----+
➔ 4 rows in set (0.00 sec)

```

- mysql> SELECT pno FROM Project

```

WHERE dnum=(
SELECT dno
FROM Employee

```

->

```

WHERE lname="Smith");

➔ +-----+
➔ | pno |
➔ +-----+
➔ | 11 |
➔ | 13 |
➔ | 15 |
➔ +-----+
➔ 3 rows in set (0.00 sec)

```

- mysql> SELECT fname,lname

```

FROM Employee
WHERE ssn NOT IN(
SELECT essn
FROM Dependent);

```

```

➔ +-----+-----+
➔ | fname | lname |
➔ +-----+-----+
➔ | Amar | Jabbar |
➔ +-----+-----+
➔ 1 row in set (0.00 sec)

```

- mysql> SELECT fname,lname FROM

Employee WHERE

bdate BETWEEN "2001-06-30" AND "2001-12-31";

```
➔ +-----+-----+
➔ | fname | lname |
➔ +-----+-----+
➔ | Amar  | Jabbar |
➔ +-----+-----+
➔ 1 row in set (0.00 sec)
```

- mysql> SELECT w.essn,w.pno

FROM Works_on w,

Project p,

Employee e

WHERE p.pno=w.pno AND e.ssn=w.essn;

```
➔ +-----+-----+
➔ | essn | pno |
➔ +-----+-----+
➔ | 1 | 11 |
➔ | 4 | 11 |
➔ | 1 | 13 |
➔ | 3 | 13 |
➔ | 6 | 13 |
➔ | 7 | 13 |
➔ | 8 | 13 |
➔ | 1 | 12 |
➔ | 2 | 12 |
➔ | 3 | 12 |
➔ | 5 | 12 |
➔ | 7 | 16 |
➔ | 8 | 16 |
➔ | 4 | 14 |
➔ | 6 | 14 |
➔ +-----+-----+
➔ 15 rows in set (0.00 sec)
```

- mysql> commit;
➔ Query OK, 0 rows affected (0.00 sec)