E. Consider the schema for Company Database:

CREATE TABLE DEPARTMENT (DNO VARCHAR(20) PRIMARY KEY,DNAME VARCHAR(20),MGRSTARTDATE DATE);

CREATE TABLE EMPLOYEE(SSN VARCHAR(20) PRIMARY KEY,

FNAME VARCHAR(20),LNAME VARCHAR(20),ADDRESS VARCHAR(20),GENDER CHAR(1),SALARY INTEGER,

SUPERSSN VARCHAR(20) REFERENCES EMPLOYEE (SSN),

DNO VARCHAR(20) REFERENCES DEPARTMENT (DNO));

ALTER TABLE DEPARTMENT

ADD (MGRSSN varchar(20) REFERENCES EMPLOYEE(SSN));

CREATE TABLE DLOCATION(DLOC VARCHAR(20),

DNO varchar(20) REFERENCES DEPARTMENT (DNO),

PRIMARY KEY(DNO, DLOC));

**CREATE TABLE PROJECT(PNO INTEGER PRIMARY KEY,**

**PNAME VARCHAR(20),PLOCATION VARCHAR(20),**

**DNO VARCHAR(20) REFERENCES DEPARTMENT(DNO));**

**CREATE TABLE WORKSON (HOURS int, SSN VARCHAR (20) REFERENCES EMPLOYEE (SSN),PNO INT REFERENCES PROJECT(PNO),PRIMARY KEY (SSN, PNO));**

INSERT INTO EMPLOYEE VALUES ('REVA001','JANARDHAN','REDDY','BENGALURU','M',450000);

INSERT INTO EMPLOYEE VALUES ('REVA002','KIRAN','KUMAR','BENGALURU','M',500000);

INSERT INTO EMPLOYEE VALUES ('REVA003','HEMANTH','GOWDA','BENGALURU','M',700000);

INSERT INTO EMPLOYEE VALUES ('REVA004','NARAYANA','MURTHY','MYSURU','M',500000);

INSERT INTO EMPLOYEE VALUES ('REVA005','PAVAN','HEGDE','MANGALURU','M',650000);

INSERT INTO EMPLOYEE VALUES ('REVA006','GIRISH','MALYA','MYSURU','M',450000);

INSERT INTO EMPLOYEE VALUES ('REVA007','NEHA','SN','BENGALURU','F', 800000);

INSERT INTO EMPLOYEE VALUES ('REVA008','AHANA','K','MANGALURU','F', 350000);

INSERT INTO EMPLOYEE VALUES ('REVA009','SANTHOSH','KUMAR','MANGALURU','M', 300000);

INSERT INTO EMPLOYEE VALUES ('REVA010','VEENA','M','MYSURU','F', 600000);

INSERT INTO EMPLOYEE VALUES ('REVA011','NAGESH','HR','BENGALURU','M', 500000);

mysql> select \*from employee;

INSERT INTO DEPARTMENT VALUES ('1','ACCOUNTS','2004-01-01','REVA004');

INSERT INTO DEPARTMENT VALUES ('2','IT','2016-08-16','REVA003');

INSERT INTO DEPARTMENT VALUES ('3','ECE','08-06-03','REVA009');

INSERT INTO DEPARTMENT VALUES ('4','ISE','15-08-01','REVA010');

INSERT INTO DEPARTMENT VALUES ('5','CSE','02-06-01','REVA007');

mysql> SELECT \*FROM DEPARTMENT;

UPDATE EMPLOYEE SET SUPERSSN=NULL, DNO='3' WHERE SSN='REVA001';

UPDATE EMPLOYEE SET SUPERSSN='REVA002', DNO='5' WHERE SSN='REVA002';

UPDATE EMPLOYEE SET SUPERSSN='REVA003', DNO='5' WHERE SSN='REVA003';

UPDATE EMPLOYEE SET SUPERSSN='REVA002', DNO='5' WHERE SSN='REVA004';

UPDATE EMPLOYEE SET DNO='5', SUPERSSN='REVA003' WHERE SSN='REVA005';

UPDATE EMPLOYEE SET DNO='5', SUPERSSN='REVA002' WHERE SSN='REVA006';

UPDATE EMPLOYEE SET DNO='5', SUPERSSN=NULL WHERE SSN='REVA007';

UPDATE EMPLOYEE SET DNO='1', SUPERSSN='REVA003' WHERE SSN='REVA008';

UPDATE EMPLOYEE SET DNO='1', SUPERSSN=NULL WHERE SSN='REVA009';

UPDATE EMPLOYEE SET DNO='4', SUPERSSN=NULL WHERE SSN='REVA010';

UPDATE EMPLOYEE SET DNO='2', SUPERSSN=NULL WHERE SSN='REVA011';

mysql> SELECT \* from EMPLOYEE;

INSERT INTO DLOCATION VALUES ('BENGALURU', '1');

INSERT INTO DLOCATION VALUES ('BENGALURU', '2');

INSERT INTO DLOCATION VALUES ('BENGALURU', '3');

INSERT INTO DLOCATION VALUES ('MANGALURU', '4');

INSERT INTO DLOCATION VALUES ('MANGALURU', '5');

mysql> SELECT \* from DLOCATION;

INSERT INTO PROJECT VALUES (100,'IOT','BENGALURU','5');

INSERT INTO PROJECT VALUES (101,'CLOUD','BENGALURU','5');

INSERT INTO PROJECT VALUES (102,'BIGDATA','BENGALURU','5');

INSERT INTO PROJECT VALUES (103,'SENSORS','BENGALURU','3');

INSERT INTO PROJECT VALUES (104,'BANK MANAGEMENT','BENGALURU','1');

INSERT INTO PROJECT VALUES (105,'SALARY MANAGEMENT','BENGALURU','1');

INSERT INTO PROJECT VALUES (106,'OPENSTACK','BENGALURU','4');

INSERT INTO PROJECT VALUES (107,'SMART CITY','BENGALURU','2');

mysql> SELECT \*FROM PROJECT;

INSERT INTO WORKSON VALUES (4,'REVA001',100);

INSERT INTO WORKSON VALUES (6,'REVA001',101);

INSERT INTO WORKSON VALUES (8,'REVA002',102);

INSERT INTO WORKSON VALUES (10,'REVA002',100);

INSERT INTO WORKSON VALUES (3,'REVA004',100);

INSERT INTO WORKSON VALUES (4,'REVA002',101);

INSERT INTO WORKSON VALUES (5,'REVA005',102);

INSERT INTO WORKSON VALUES (6,'REVA006',102);

INSERT INTO WORKSON VALUES (7,'REVA007',103);

INSERT INTO WORKSON VALUES (5,'REVA011',104);

INSERT INTO WORKSON VALUES (6,'REVA008',105);

INSERT INTO WORKSON VALUES (4,'REVA009',106);

INSERT INTO WORKSON VALUES (10,'REVA010',107);

mysql> SELECT \*FROM WORKSON;

1.Make a list of all project numbers for projects that involve an employee whose last name is ‘REDDY’, either as a worker or as a manager of the department that controls the project.

SELECT DISTINCT P.PNO

FROM PROJECT P, DEPARTMENT D, EMPLOYEE E WHERE E.DNO=D.DNO

AND D.MGRSSN=E.SSN AND E.LNAME='REDDY')

UNION

(SELECT DISTINCT P1.PNO

FROM PROJECT P1, WORKSON W, EMPLOYEE E1 WHERE P1.PNO=W.PNO

AND E1.SSN=W.SSN AND E1.LNAME='REDDY');

|  |
| --- |
| PNO |
| 100 |
| 101 |

2 rows in set (0.11 sec)

2. Show the resulting salaries if every employee working on the ‘IoT’ project is given a 10 percent raise.

SELECT E.FNAME, E.LNAME, 1.1\*E.SALARY AS INCR\_SAL FROM EMPLOYEE E, WORKSON W,

PROJECT P WHERE E.SSN=W.SSN

AND W.PNO=P.PNO AND P.PNAME='IOT';

|  |  |  |
| --- | --- | --- |
| FNAME | LNAME | INCR\_SAL |
| JANARDHAN | REDDY | 495000.0 |
| KIRAN | KUMAR | 550000.0 |
| NARAYANA | MURTHY | 550000.0 |

3.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

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';

|  |  |  |  |
| --- | --- | --- | --- |
| SUM(E.SALARY) | MAX(E.SALARY) | MIN(E.SALARY) | AVG(E.SALARY) |
| 650000 | 350000 | 300000 | 325000.0000 |

4.Retrieve the name of each employee who works on all the projects Controlled by department number 5 (use NOT EXISTS operator).

SELECT distinct E.FNAME, E.LNAME

FROM EMPLOYEE E

WHERE NOT EXISTS((SELECT PNO

FROM PROJECT

WHERE DNO='5')

MINUS(SELECT PNO

FROM WORKSON

WHERE E.SSN=SSN));

5.For each department that has more than five employees, retrieve the department number and the number of its employees who are making more than Rs. 6, 00,000.

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;

|  |  |
| --- | --- |
| DNO | COUNT(\*) |
| 5 | 3 |