Medha Madhusudhan

1BM19CS230

CSE - 4A

Lab Program - 4

create database studentfaculty;
use studentfaculty;

create table Student(
        snum int not null,
        sname varchar(10) not null,
        major varchar(2) not null,
        lvl varchar(2) not null,
        age int not null,
        primary key(snum)
);

create table Faculty(
        fid int not null,
        fname varchar(10) not null,
        deptid int not null,
        primary key(fid)
);

create table Class(
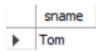   cname varchar(10) not null,
        meetsat time not null,
        room varchar(10) not null,

```sql
        fid int not null,
        primary key(cname),
        foreign key(fid) references Faculty(fid)
);

create table Enrolled(
        snum int not null,
        cname varchar(10) not null,
        primary key(snum,cname),
        foreign key(snum) references Student(snum),
        foreign key(cname) references Class(cname)
);

insert into Student(snum,sname,major,lvl,age)
        values (1,'Jhon','CS','Sr',19),
                (2,'Smith','CS','Jr',20),
                (3,'Jacob','CV','Sr',20),
                (4,'Tom','CS','Jr',20),
                (5,'Rahul','CS','Jr',20),
                (6,'Rita','CS','Sr',21);

insert into Faculty(fid,fname,deptid)
        values (11,'Harish',1000),
                (12,'MV',1000),
                (13,'Mira',1001),
                (14,'Shiva',1002),
                (15,'Nupur',1000);
```

```sql
insert into Class(cname,meetsat,room,fid)
       values ('Class1','10:15:16','R1',14),
              ('Class10','10:15:16','R128',14),
              ('Class2','10:15:20','R2',12),
              ('Class3','10:15:25','R3',11),
              ('Class4','20:15:20','R4',14),
              ('Class5','20:15:20','R3',15),
              ('Class6','13:20:20','R2',14),
              ('Class7','10:10:10','R3',14);

insert into Enrolled(snum,cname)
       values (1,'Class1'),
              (2,'Class1'),
              (3,'Class3'),
              (4,'Class3'),
              (5,'Class4');

insert into Enrolled(snum,cname)
       values (1,'Class5'),
              (2,'Class5'),
              (3,'Class5'),
          (4,'Class5'),
          (5,'Class5');

-- find names of all juniors who are enrolled in a class taught by 'Harish'
select s.sname from Student s,Enrolled e
where s.snum = e.snum
and s.lvl = 'Jr'
```

and e.cname in (select cname from Class where fid = (select fid from Faculty
where fname = 'Harish'));

sname
▶ Tom

-- find the name of all classes that either meet in room128 or have >=5 students
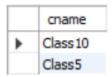select c.cname from Class c
where c.room = 'R128'
union
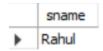select distinct e.cname from Enrolled e
where 5 <= (select count(snum) from Enrolled where cname = e.cname);

cname
▶ Class 10
Class5

-- find the names of all students who are enrolled in two classes that meet at the
same time
select distinct s.sname from Student s,Class c,Enrolled e
where s.snum = e.snum and c.cname = e.cname
and exists (select 'X' from Class c1,Enrolled e1 where c1.cname = e1.cname and
c1.meetsat = c.meetsat and e1.snum = e.snum and c1.cname != e.cname);

sname
▶ Rahul

-- find the names of faculty who teach in every room in which class is taught
select f.fname from Faculty f,Class c
where f.fid = c.fid
group by f.fid

having count(f.fid) = (select count(distinct room) from Class);
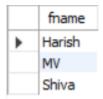
	fname
▶	Shiva

-- find the names of faculty members for whom combined enrollment of courses
that they teach is less than five
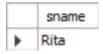select distinct f.fname
from Class c,Faculty f
where c.fid = f.fid
and 5 > (select count(snum) from enrolled where cname in (select cname from
Class where Class.fid = c.fid));

	fname
▶	Harish
	MV
	Shiva

-- find the names of students who are not enrolled in any class
select s.sname from Student s
where not exists (select 'X' from Enrolled where snum = s.snum);

	sname
▶	Rita

-- for each age value that appears in Students, find the level that appears the most
select s.age,s.lvl from Student s
where s.lvl = 'Jr'
group by s.age
having count(s.lvl) > (select count(lvl) from Student where lvl ='Sr' and age = s.age)
union

select s.age,s.lvl from Student s

where s.lvl = 'Sr'

group by s.age

having count(s.lvl) > (select count(lvl) from Student where lvl ='Jr' and age = s.age);

	age	lvl
▶	20	Jr
	19	Sr
	21	Sr