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STUDENT FACULTY DATABASE
create database student_faculty;
use student_faculty;

create table student(snum int, sname varchar(10), major varchar(2), lvl varchar(2), age
int,primary key (snum));
desc student;

create table faculty(fid int, fname varchar(20), deptid int,primary key(fid));
desc faculty;

create table class(cname varchar(20), meetsat timestamp, room varchar(10), fid int,primary key
(cname),foreign key(fid) references faculty(fid));
desc class;

create table enrolled(snum int, cname varchar(20),primary key(snum,cname),
foreign key(snum) references student(snum),
foreign key(cname) references class(cname));
desc enrolled;

insert into student values(1, 'jhon', 'CS', 'Sr', 19);
insert into student values(2, 'Smith', 'CS', 'Jr', 20);
insert into student values(3 , 'Jacob', 'CV', 'Sr', 20);
insert into student values(4, 'Tom ', 'CS', 'Jr', 20);
insert into student values(5, 'Rahul', 'CS', 'Jr', 20);
insert into student values(6, 'Rita', 'CS', 'Sr', 21);
select * from student;

snum	sname	major	lvl	age
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
NULL	NULL	NULL	NULL	NULL

insert into faculty values(11, 'Harish', 1000);

insert into faculty values(12, 'MV', 1000);
insert into faculty values(13 , 'Mira', 1001);
insert into faculty values(14, 'Shiva', 1002);
insert into faculty values(15, 'Nupur', 1000);
select * from faculty;

	fid	fname	deptid
▶	11	Harish	1000
	12	MV	1000
	13	Mira	1001
	14	Shiva	1002
	15	Nupur	1000
*	NULL	NULL	NULL

insert into class values('class1', '12/11/15 10:15:16', 'R1', 14);
insert into class values('class10', '12/11/15 10:15:16', 'R128', 14);
insert into class values('class2', '12/11/15 10:15:20', 'R2', 12);
insert into class values('class3', '12/11/15 10:15:25', 'R3', 12);
insert into class values('class4', '12/11/15 20:15:20', 'R4', 14);
insert into class values('class5', '12/11/15 20:15:20', 'R3', 15);
insert into class values('class6', '12/11/15 13:20:20', 'R2', 14);
insert into class values('class7', '12/11/15 10:10:10', 'R3', 14);
select * from class;

	cname	meets_at	room	fid
▶	class1	2012-11-15 10:15:16	R1	14
	class10	2012-11-15 10:15:16	R128	14
	class2	2012-11-15 10:15:20	R2	12
	class3	2012-11-15 10:15:25	R3	11
	class4	2012-11-15 20:15:20	R4	14
	class5	2012-11-15 20:15:20	R3	15
	class6	2012-11-15 13:20:20	R2	14
	class7	2012-11-15 10:10:10	R3	14
*	NULL	NULL	NULL	NULL

insert into enrolled values(1, 'class1');
insert into enrolled values(2, 'class1');
insert into enrolled values(3, 'class3');
insert into enrolled values(4, 'class3');
insert into enrolled values(5, 'class4');
insert into enrolled values(1, 'class5');
insert into enrolled values(2, 'class5');
insert into enrolled values(3, 'class5');
insert into enrolled values(4, 'class5');

insert into enrolled values(5, 'class5');
select * from enrolled;

snum	cname
1	class1
2	class1
3	class3
4	class3
5	class4
1	class5
2	class5
3	class5
4	class5
5	class5

SELECT DISTINCT S.sname
FROM student S, class C, enrolled E, faculty F
WHERE S.snum = E.snum AND E.cname = C.cname AND C.fid = F.fid AND
F.fname = 'Harish' AND S.lvl = 'Jr';

Sname
Tom

SELECT C.cname
FROM class C
WHERE C.room = 'R128'
OR C.cname IN (SELECT E.cname
                FROM enrolled E
                GROUP BY E.cname
                HAVING COUNT(*) >= 5);

cname
class10
class5
NULL

SELECT DISTINCT S.sname
FROM student S
WHERE S.snum IN (SELECT E1.snum
FROM enrolled E1, enrolled E2, class C1, class C2
WHERE E1.snum = E2.snum AND E1.cname <> E2.cname
AND E1.cname = C1.cname
AND E2.cname = C2.cname AND C1.meets_at = C2.meets_at);

	sname
▶	Rahul

```
SELECT f.fname,f.fid
FROM faculty f
WHERE f.fid in ( SELECT fid FROM class
GROUP BY fid HAVING COUNT(*)=(SELECT COUNT(DISTINCT room) FROM class));
```
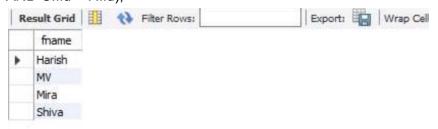
	fname	fid
▶	Shiva	14
＊	NULL	NULL

```
SELECT DISTINCT F.fname
FROM faculty F
WHERE 5 > (SELECT COUNT(E.snum)
FROM class C, enrolled E
WHERE C.cname = E.cname
AND C.fid = F.fid);
```

	fname
▶	Harish
	MV
	Mira
	Shiva

```
SELECT DISTINCT S.sname
FROM student S
WHERE S.snum NOT IN (SELECT E.snum
FROM enrolled E );
```

	sname
▶	Rita

```
SELECT S.age, S.lvl
FROM Student S
GROUP BY S.age, S.lvl
```

HAVING S.lvl IN (SELECT S1.lvl FROM Student S1
    WHERE S1.age = S.age
GROUP BY S1.lvl, S1.age
HAVING COUNT(*) >= ALL (SELECT COUNT(*)
FROM Student S2
WHERE s1.age = S2.age
GROUP BY S2.lvl, S2.age));

age	lvl
19	Sr
20	Jr
21	Sr