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```
use `student faculty database`;
create table student(
snum int not null,
sname varchar(20) not null,
major varchar(20) not null,
level char(2) not null,
primary key(snum)
    );

    create table faculty(
        fid int not null,
        fname varchar(20) not null,
        depid int not null,
        primary key(fid)
    );

    create table class(
        name varchar(20) not null,
        meets_at time not null,
        room varchar(20) not null,
        fid int not null,
        primary key(name),
        foreign key(fid) references faculty(fid) on delete cascade on update
CASCADE
        );

    insert into student
    (snum,sname,major,level,age)
    VALUES
    (1, 'A', 'MATH','FR',18),
    (2,'B','MATH','FR',18),
    (3,'C','TFCS','SO',19),
    (4,'D','TFCS','SO',19),
    (5,'E','DBMS','JR',20),
    (6,'F','DBMS','JR',21),
    (7,'G','ADA','SR',21);

    Select * from student;
```

+ Options

←T→			snum	sname	major	level	age
Edit	Copy	Delete	1	A	MATH	FR	18
Edit	Copy	Delete	2	B	MATH	FR	18
Edit	Copy	Delete	3	C	TFCS	SO	19
Edit	Copy	Delete	4	D	TFCS	SO	19
Edit	Copy	Delete	5	E	DBMS	JR	20

Edit	Copy	Delete	6	F	DBMS	JR	21
Edit	Copy	Delete	7	G	ADA	SR	21

```
insert into faculty
(fid,fname,depid)
VALUES
(1,'RAM',1),
(2,'SHYAM',2),
(3,'TOM',3),
(4,'DOM',4);


use `student faculty database`


SELECT * FROM faculty


fid  fname  depid
1    RAM    1
2    SHYAM  2
3    TOM    3
4    DOM    4


INSERT INTO class
(name, meets_at,room,fid)
VALUES
('A','1:2:0','R124',1);

INSERT INTO class
(name, meets_at,room,fid)
VALUES
('B','2:2:0','R125',2),
('C','3:2:0','R126',3),
('D','3:2:0','R127',4),
('E','4:2:0','R128',4);


use `student faculty database`


SELECT * FROM class


name   meets_at    room   fid
A    01:02:00    R124    1
B    02:02:00    R125    2
C    03:02:00    R126    3
D    03:02:00    R127    4
E    04:02:00    R128    4


insert into enrolled
(snum, cname)
VALUES
(1,'A'),
(2,'B'),
```

(3,'C'),
(4,'D'),
(5,'E'),
(6,'A'),
(7,'B');

SELECT * from enrolled

snum cname
1 A
2 B
3 C
4 D
5 E
6 A
7 B

1. Find the names of all Juniors (level = JR) who are enrolled in a class taught by

use `student faculty database`

1st approach:

SELECT sname from student where level = 'JR' AND snum in (select snum from enrolled where cname in (select name from class where fid = (select fid from faculty where fname = 'RAM')))

sname
F

2nd approach:

select sname from student s, enrolled e, class c, faculty f where s.snum = e.snum and e.cname = c.name and c.fid = f.fid and s.level = 'JR' and f.fname = 'RAM';

sname
F

3rd approach:

select s.sname from student s where exists (select e.cname from enrolled e where e.snum = s.snum and e.cname in (select c.name from class c, faculty f where c.fid = f.fid and f.fname = 'RAM')) and s.level = 'JR'

2.Find the names of all classes that either meet in room R128 or have five or more Students enrolled.

use `student faculty database`;
insert into enrolled
VALUES

(2,'A'),
(3,'A'),
(4,'A'),
(5,'A'),
(6,'A')

Select * from enrolled;

snum	cname
1	A
2	B
3	C
4	D
5	E
6	A
7	B
2	A
3	A
4	A
5	A
6	A

use `student faculty database`

select DISTINCT cname from enrolled where cname in (select cname from enrolled group by cname having count(*) >= 5) or cname in (select name from class where room = 'R128')

cname
A
E

iii. Find the names of all students who are enrolled in two classes that meet at the same time.

insert into enrolled

values
(3, 'D');

use `student faculty database`

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.name and e2.cname = c2.name and c1.meets_at = c2.meets_at)

sname
C

iv. Find the names of faculty members who teach in every room in which some class is taught

insert into class
VALUES
('F', '04:02:00','R124',3),
('G', '05:02:00','R125',3),
('H', '06:02:00','R127',3),
('I', '07:02:00','R128',3)

select f.fname from faculty f where not exists((select room from class c) except (select c1.room from class c1 where c1.fid = f.fid))

fname
TOM

v. Find the names of faculty members for whom the combined enrolment of the courses that they teach is less than five.

use `student faculty database`

select f.fname from faculty f where (SELECT count(e.snum) from class c, enrolled e where c.name = e.cname and c.fid = f.fid) < 5

fname
SHYAM
TOM
DOM

vi. Find the names of students who are not enrolled in any class.

```
insert into student
VALUES
(8,'H','ADA','SR',21);

use `student faculty database`


select sname from student where snum not in (select snum from enrolled)



H
```

vii. For each age value that appears in Students, find the level value that appears most often. For example, if there are more FR level students aged 18 than SR, JR, or SO students aged 18, you should print the pair (18, FR).

```
use `student faculty database`


select s.age, s.level from student s group by s.age,s.level having s.level in
(select s1.level from student s1 where s1.age = s.age group by s1.level,s1.age
having count(*) >= all (select count(*) from student s2 where s1.age = s2.age
group by s2.level,s2.age))


age level
18   FR
19   SO
20   JR
21   SR
```