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```
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),
     meets_at 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;
```

```
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;


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', 11);
 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;

 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;

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';


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);
```

```
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);

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));


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);


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

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));
```

```
34 • INSERT INTO STUDENT VALUES(1, 'jhon', 'CS', 'Sr', 19);
35 • INSERT INTO STUDENT VALUES(2, 'Smith', 'CS', 'Jr', 20);
36 • INSERT INTO STUDENT VALUES(3 , 'Jacob', 'CV', 'Sr', 20);
37 • INSERT INTO STUDENT VALUES(4, 'Tom ', 'CS', 'Jr', 20);
38 • INSERT INTO STUDENT VALUES(5, 'Rahul', 'CS', 'Jr', 20);
39 • INSERT INTO STUDENT VALUES(6, 'Rita', 'CS', 'Sr', 21);
40 • select * from student;
41
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

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

Result Grid | Form Editor

```
42 • INSERT INTO FACULTY VALUES(11, 'Harish', 1000);
43 • INSERT INTO FACULTY VALUES(12, 'MV', 1000);
44 • INSERT INTO FACULTY VALUES(13 , 'Mira', 1001);
45 •  INSERT INTO FACULTY VALUES(14, 'Shiva', 1002);
46 • INSERT INTO FACULTY VALUES(15, 'Nupur', 1000);
47 • select * from faculty;
48
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

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

Result Grid | Form Editor

```
50 • insert into class values('class1', '12/11/15 10:15:16', 'R1', 14);
51 • insert into class values('class10', '12/11/15 10:15:16', 'R128', 14);
52 • insert into class values('class2', '12/11/15 10:15:20', 'R2', 12);
53 • insert into class values('class3', '12/11/15 10:15:25', 'R3', 11);
54 • insert into class values('class4', '12/11/15 20:15:20', 'R4', 14);
55 • insert into class values('class5', '12/11/15 20:15:20', 'R3', 15);
56 • insert into class values('class6', '12/11/15 13:20:20', 'R2', 14);
57 • insert into class values('class7', '12/11/15 10:10:10', 'R3', 14);
58 • select * from class;
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

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

Result Grid | Form Editor | Field Types

```
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;
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

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

enrolled 58


```
insert into enrolled values(3, 'class5');
insert into enrolled values(4, 'class5');
insert into enrolled values(5, 'class5');
 select * from enrolled;

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';
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

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);
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

cname
class10
class5

```
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);
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

sname
Rahul

```
94 •  SELECT f.fname,f.fid
95            FROM faculty f
96            WHERE f.fid in ( SELECT fid FROM class
97            GROUP BY fid HAVING COUNT(*)=(SELECT COUNT(DISTINCT room) FROM class));
98
99 •  SELECT DISTINCT F.fname
100   FROM Faculty F
```

Result Grid | Filter Rows: | Edit: | Export/Import: | Wrap Cell Content:

fname	fid
Shiva	14
NULL	NULL

```
98
99 •  SELECT DISTINCT F.fname
100   FROM Faculty F
101   WHERE 5 > (SELECT COUNT(E.snum)
102   FROM Class C, Enrolled E
103   WHERE C.cname = E.cname
104   AND C.fid = F.fid);
105
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

fname
Harish
MV
Mira
Shiva

```
106
107 •  SELECT DISTINCT S.sname
108   FROM Student S
109   WHERE S.snum NOT IN (SELECT E.snum
110   FROM enrolled E );
111
112 •  SELECT S.age, S.lvl
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

sname
Rita

```
111
112 •  SELECT S.age, S.lvl
113    FROM Student S
114    GROUP BY S.age, S.lvl
115    HAVING S.lvl IN (SELECT S1.lvl FROM Student S1
116          WHERE S1.age = S.age
117    GROUP BY S1.lvl, S1.age
118    HAVING COUNT(*) >= ALL (SELECT COUNT(*)
119    FROM Student S2
120    WHERE s1.age = S2.age
121    GROUP BY S2.lvl, S2.age));
122
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

age	lvl
19	Sr
20	Jr
21	Sr