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CSE SEC 'A'

PROGRAM 4: STUDENT_FACULTY DATABASE

Consider the following database for
student enrollment for course :

STUDENT(snum: integer, sname:string, major: string, lvl: string, age: integer)

CLASS(cname: string, meetsat: time, room: string, fid: integer)

ENROLLED(snum: integer, cname:string)

FACULTY(fid: integer, fname:string, deptid: integer)

The meaning of these relations is straightforward; for example, Enrolled has one record per student-class pair such that the student is enrolled in the class. Level(lvl) is a two character code with 4 different values (example: Junior: JR etc)

Write the following queries in SQL.
No duplicates should be printed in any of the answers.

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

student 13

select * from faculty;

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

faculty 14 ×

select * from class;

cname	meetsat	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

select * from enrolled;

snum	cname
1	class1
2	class1
1	class10
3	class3
4	class3
5	class4
NULL	NULL

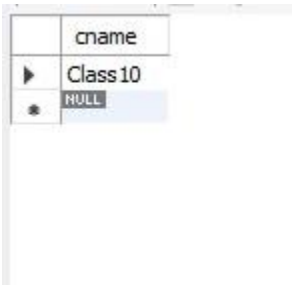
i. Find the names of all Juniors (level = JR) who are enrolled in a class taught by the name "Shiva".

select s.sname from STUDENT s, CLASS c, ENROLLED e where s.snum=e.snum and c.cname = e.cname and c.fid =(select fid from FACULTY where fname = "Shiva") and s.lvl ="Jr";

	sname
▶	Smith
	Rahul

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

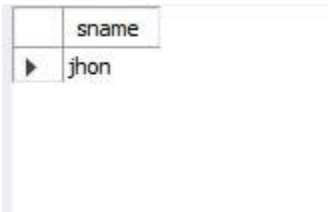
SELECT C.cname FROM Class C
WHERE C.room = "R128"
Or C.cname IN (SELECT E.cname FROM Enrolled E GROUP BY E.cname HAVING count(E.snum) >= 5);



	cname
▶	Class10
*	NULL

iii. 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 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.meetsat = c2.meetsat);



	sname
▶	jhon

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

select f.fname,c.fid from faculty f,class c where f.fid=c.fid group by c.fid having count(c.fid)=(select count(distinct room)from class);

Result Grid

	fname	fid
▶	Shiva	14

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

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
	Nupur

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

select distinct s.sname from student s
where s.snum not in(select e.snum from enrolled e);

	sname
▶	Rita

vii. For each age value that appears in Students, find the level value that appears most

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

	age	lvl
▶	19	Sr
	20	Jr
	21	Sr