**Tut: 7 Solution**

student (sid, sname, sex, age, year, gpa)   
dept (dname, numphds)   
prof (pname, dname)   
course (dname, cno, cname)   
major (dname, sid)   
section (dname, cno, sectno, pname)   
enroll (sid, dname, cno, sectno, grade)

Write the following queries in SQL:

1. Print the names of professors who work in departments that have fewer than 50 PhD students.

SELECT pname

FROM Prof p, Dept d

WHERE numphds < 50 and p.dname=d.dname

2. Print the names of the students with the lowest GPA.

Select S.sname, S.gpa

FROM Student S

Where S.gpa = (select Min(G.gpa) FROM Student G );

3. For each Computer Sciences class, print the class number, section number, and the average

gpa of the students enrolled in the class.

Select e.cno, e.sno, s.avg(gpa)

From student s, enroll e, course c

Where s.sid=e.sid and e.dname=c.dname and c.cname=’computer science’ group by c.cname.

4. Print the names and section numbers of all classes with more than six students enrolled in

them.

Select c.cname,e.sectno

From course c, enroll e

Where totalstu=(select count(sid) from enroll group by cno)>6

And c.cno=e.cno

5. Print the name(s) and sid(s) of the student(s) enrolled in the most classes.

SELECT S.SNAME ,

SELECT sid,sname from student

WHERE sid=(SELECT sid from student WHERE sid=(SELECT sid from enroll group by sid having count(sid)=(SELECT max(count(sid)) from enroll group by sid)));

6. Print the names of departments that have one or more majors who are under 18 years old.

a) Solution

SELECT dname

FROM major

WHERE sid IN (SELECT sid

FROM student

WHERE age < 18);

b) solution

select distinct m.dname

from major m, student s

where m.sid = s.sid and s.age < 18;

7. Print the names and majors of students who are taking one of the College Geometry courses.

SELECT s.sname, m.dname

FROM student s, major m, enroll e, course c

WHERE s.sid = m.sid and e.sid = m.sid and e.cno = c.cno

and c.cname LIKE "%College%Geometry%";

8. For those departments that have no major taking a College Geometry course print the

department name and the number of PhD students in the department.

SELECT \*

FROM dept d

WHERE NOT EXISTS (SELECT m.sid

FROM major m, enroll e

WHERE m.sid = e.sid AND m.dname = d.dname

AND e.dname = 'College Geometry');

9. Print the names of students who are taking both a Computer Sciences course and a

Mathematics course.

select student.sname from student,course,course a

where student.sid=course.sid

and course.cname='Computer science'

and a.cname='Mathematical science';

10. Print the age difference between the oldest and the youngest Computer sciences major.

select max(student.age)-min(student.age)

from student,major

where student.sid=major.sid and major.dname='Computer science';

11. For each department that has one or more majors with a GPA under 1.0, print the name of the

department and the average GPA of its majors.

select distinct M.dname

from Major M, Student S

where M.sid = S.sid and S.gpa < 1.0 and (select temp.dname, temp.average

from (select M.dname, avg(S.gpa) as average

Where Major M, Student S

group by M.dname, average) temp;

12. Print the ids, names and GPAs of the students who are currently taking all the Civil

Engineering courses.

b)sol

select S.sname, S.sid, E.dname

from Student S, Enroll E

where S.sid = E.Sid and E.dname = 'Civil Engineering';