CS1555 Recitation 6 Solution

Objective: To practice SQL queries on PostgreSQL.

Before we start:

- Download the SQL script studentdb.sql through an sFTP client (such as FileZilla) from the machine "class3.cs.pitt.edu" at the directory:
  - `/afs/pitt.edu/home/r/a/raa88/public/studentdb.sql`

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1. Find the address and phone number of the student whose SID is 123

```
select address, phone
from student_dir
where sid = 123;
```

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2. List all the courses offered in 'Spring 11'.

```
select distinct course_no
from course_taken
where term = 'Spring 11';
```

---

3. List the student ID and course number for every student who took a course in Fall 10 but has not received a grade yet.

```
select ct.sid, ct.course_no
from course_taken ct
where ct.term = 'Fall 10'
      and ct.grade is null;
```

---

4. List the SIDs *and GPAs* of the students whose GPAs are greater than 3.7. List them in the descending order of the GPAs.

```
select SID, avg(grade) as GPA
from course_taken
group by sid
having avg(grade) > 3.7
order by avg(grade) desc;
```

---

5. List the SIDs of all the students and the number of courses they have taken.

```
select sid, count(distinct course_no) as num_courses
from course_taken
group by sid;
```

What if we want names too?

```
select s.sid, s.name, count(distinct course_no) as num_courses
from student s join course_taken ct on s.sid = ct.sid
group by s.sid, s.name;
```

How about another way?

```
select sid, name, count(distinct course_no) as num_courses
from student s natural join course_taken ct
group by sid, name;
```

---

6. Now insert a tuple into the Student table:

```
insert into student values (130, 'Peter', 1,'CS', '????');
```

Then run the query 5 again. How can we include this new student in the result, with 0 as the number of classes he has taken?

```
select s.sid, s.name, count(distinct course_no) as num_courses
from student s left outer join course_taken ct on s.sid = ct.sid
group by s.sid, s.name;
```

---

7. For each course a student has repeated, list the studentID and course number.

```
select sid, course_no, count(*)
from course_taken
group by sid, course_no
having count(*) >1 ;
```