

数据库原理CH3作业

18340040 冯大伟

P119-3.12

Write the SQL statements using the university schema to perform the following operations:

a. Create a new course “CS-001”, titled “Weekly Seminar”, with 0 credits.

```
insert into course
values('CS-001','Weekly Seminar','Comp.Sci.',0);
```

b. Create a section of this course in Fall 2017, with sec id of 1, and with the location of this section not yet specified.

```
insert into section
values('CS-001',1,'Fall',2017,null,null,null);
```

c. Enroll every student in the Comp. Sci. department in the above section.

```
insert into takes
select id,'CS-001',1,'Fall',2017,null
from student
where dept_name='Comp.Sci.';
```

d. Delete enrollments in the above section where the student's ID is 12345.

```
delete from takes
where course_id='CS-001' and section_id=1 and year=2017 and semester='Fall' and
id =12345;
```

e. Delete the course CS-001. What will happen if you run this delete statement without first deleting offerings (sections) of this course?

```
delete from course
where course_id='CS-001';
```

section关系中的元素course_id和prereq中的course_id,prereq_id指向course关系，形成了外码约束。如果直接删除，会导致section中的course_id在course中找不到约束对象，导致报错

f. Delete all takes tuples corresponding to any section of any course with the word “advanced” as a part of the title; ignore case when matching the word with the title.

```
delete from takes
where course_id in (select course_id from course where lower(title) like
'%advanced%');
```

P120-3.16

Consider the employee database of Figure 3.19, where the primary keys are underlined. Give an expression in SQL for each of the following queries.

a. Find ID and name of each employee who lives in the same city as the location of the company for which the employee works.

```
select ID, person_name
from employee join works using (ID) join company using (company_name)
where employee.city = company_name.city;
```

b. Find ID and name of each employee who lives in the same city and on the same street as does her or his manager.

```
select ID, person_name
from employee E1, manages M, employee E2
where E1.ID=M.ID and M.ID=E2.ID and E1.street=E2.street and E1.city=E2.city
```

c. Find ID and name of each employee who earns more than the average salary of all employees of her or his company.

```
with avg_salary(company_name, avg_salary) as
( select company_name, avg(salary)
  from works
  group by company_name)
select ID, person_name
from works join avg_salary using (company_name)
where salary > avg_salary;
```

d. Find the company that has the smallest payroll.

```
with payroll(company_name, sum_salary) as
( select company_name, sum(salary)
  from works
  group by company_name)
select company_name
from payroll
where sum_salary=min(sum_salary)
```