第2次作业

3.7　　只有当 r_1, r_2 均不为空时能查询到
　　　　"选出的 p. a1 值要么在 r_1 中，要么在 r_2 中"
　　　　的结果
　　　　(r_1、r_2 但凡一个为空，$p \times r_1 \times r_2$ 为空)

3.11
　a. select   distinct   student.ID, student.name
　　from   student, takes, course
　　where   student.ID = takes.ID and
　　　　　　　takes.course_id = course.course_id   and
　　　　　　　course.dept_name = ' Comp. Sci. ';

　b. select   distinct   S.ID, S.name
　　from   student as S
　　where   not exists (
　　　　　　select *
　　　　　　from takes as T
　　　　　　where   S.ID = T.ID and
　　　　　　　　　　year < 2017
　　　　　　);

c.
```sql
select   dept_name, max(salary)
from    instructor
group   by   dept_name ;
```

d.
```sql
with S (dept_name, max_salary) as (
    select   dept_name, max(salary)
    from   instructor
    group by   dept_name )
select   min (max_salary)
from   S ;
```

3.12

a.
```sql
insert into course (course_id, title,
        dept_name, credits )
values ('CS-001', 'Weekly Seminar',
        'Comp. Sci.', 0) ;
```

b.
```sql
insert into section
        (course_id, sec_id, semester, year, building,
        room_number, time_slot_id )
```

```
values ('CS-001', 1. 'Fall', 2017, null,
        null, null);
```

c. insert into takes
```
   (ID, course_id, sec_id, semester, year, grades)
   select ID, 'CS-001', 1. 'Fall', 2017, null
   from student
   where dept_name = 'Comp. Sci.';
```

d. delete from takes
```
   where course = 'CS-001' and
         sec_id = 1  and
         semester = 'Fall' and
         year = 2017  and
         id = '12345';
```

e. delete from takes
```
      where course_id = 'CS-001';
```
```
   delete from section
      where course_id = 'CS-001';
```
```
   delete from course
      where course_id = 'CS-001';
```

如果不按此执行，如先删 section，则
      takes 内相关条目的外键就会失效，
      可能发生冲突；同理先删 course、section 也

会产生冲突，因此只链接如上次行

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

3.25
```
select S.dept_name
from    department as S, department as T
where   S.budget > T.budget and
        T.dept_name = 'Philosophy'
order by   S.dept_name asc ;
```

3.30
当有一个条目有其它栏但 salary = null
时，count 会计算此条目，而
avg 和 sum 会忽略
一个对于它的案例为

id	name	dept-name	salary
1	Alice	`Comp. Sci.`	10000
2	Bib	`Comp. Sci.`	null

删选图值为 5000

图为 avg (salary) = 10000

sum (salary) = 10000

count (*) = 2