作业 HW2

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在本次作业中我遵循 *SQLite* 的语法。

1. (3.9)

```sql
--a
select ID,person_name,city
from employee natural join works
where company_name = 'First Bank Corporation';
```

```sql
--b
select ID,person_name,city
from employee natural join works
where company_name = 'First Bank Corporation' and salary > 100000;
```

```sql
--c
-- to make sure that those who don't work will be included in the resulting relation,
-- I join relation employee with relation works instead of carrying out the query directly on the relation works only
select ID
from employee natural left join works
where company_name <> 'First Bank Corporation' or company_name is null ;
```

```sql
--d
with target(ID,salary) as (
    select ID,salary
    from employee natural join works
    where company_name = 'Small Bank Corporation'
)
select ID
from target
where salary = (select max(salary) from target);
```

```sql
--e
```

```sql
with target(city) as (
    select city from company where company_name = 'Small Bank Corporation'
)
select company_name
from(
    select company_name,city
    from company
    where city in target
    -- pick out the valid companies
)
group by company_name
having count(*) = (select count(*) from target);
```

```sql
--f
with total(company_name,num) as (
    select company_name,count(*)
    from company natural join works
    group by company_name
)
select company_name
from total
where num = (select max(num) from total);
```

```sql
--g
with avg_salary(company_name,salary)as (
    select company_name, avg(works.salary)
    from company natural join works
    group by company_name
)
select company_name from avg_salary
where salary > (select salary from avg_salary where company_name = 'First
   Bank Corporation');
```

2. (3.15)

```sql
--a
with target(branch_name) as (
    select branch_name
    from branch
    where branch_city = 'Brooklyn'
)
select customer_name
from customer natural join depositor natural join account
```

```
where branch_name in target
group by customer_name
having count(distinct branch_name) = (select count(*) from target);
```

```
--b
select sum(amount)
from loan ;
```

```
--c
select branch_name
from branch
where assets > (
    select min(assets)
    from branch
    where branch_city = 'Brooklyn'
    );
```

3. (3.16)

```
--a
select ID,person_name
from employee natural join works natural join company ;
```

```
--b
select E.ID,E.person_name
from employee as E natural join manages ,employee as M
where manager_id = M.ID and M.city = E.city and M.street = E.street;
```

```
--c
with target(company_name,avg_salary) as (
    select company_name,avg(salary)
    from  works
    group by company_name
)
select ID,person_name
from employee natural join works natural join target
where salary>avg_salary;
```

```
--d
with target(company_name,tot_salary) as (
    select company_name,sum(salary)
    from works
    group by company_name
```

```
    -- assume there is no company without anyone working for it
)
select company_name
from target
where tot_salary = (select min(tot_salary)from target);
```