

数据库作业2

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3.8

3.8 Consider the bank database of Figure 3.18, where the primary keys are underlined. Construct the following SQL queries for this relational database.

- Find the ID of each customer of the bank who has an account but not a loan.
- Find the ID of each customer who lives on the same street and in the same city as customer '12345'.
- Find the name of each branch that has at least one customer who has an account in the bank and who lives in "Harrison".

branch(branch_name, branch_city, assets)
customer (ID, customer_name, customer_street, customer_city)
loan (loan_number, branch_name, amount)
borrower (ID, loan_number)
account (account_number, branch_name, balance)
depositor (ID, account_number)

Figure 3.18 Banking database.

a

```
(select ID
from depositor)
except
(select ID
from borrower)
```

b

```
select A.ID
from customer as A, customer as B)
where A.customer_street = B.customer_street
and A.customer_city = B.customer_city
and A.customer_name = '12345'
```

c

```
select distinct account.branch_name
from account, depositor, customer
where account.account_number = depositor.account_number
and depositor.ID = customer.ID
and customer.customer_city = 'Harrison'
```

3.15

3.15 Consider the bank database of Figure 3.18, where the primary keys are underlined. Construct the following SQL queries for this relational database.

- Find each customer who has an account at *every* branch located in “Brooklyn”.
- Find the total sum of all loan amounts in the bank.
- Find the names of all branches that have assets greater than those of at least one branch located in “Brooklyn”.

branch(branch_name, branch_city, assets)
customer(ID, customer_name, customer_street, customer_city)
loan(loan_number, branch_name, amount)
borrower(ID, loan_number)
account(account_number, branch_name, balance)
depositor(ID, account_number)

Figure 3.18 Banking database.

a

```
with branchcount as (select count(*)
                      from branch
                      where branchcity = 'Brooklyn')
select customer_name
from customer c
where branchcount = (select count(distinct branch_name)
                    from (customer
                          natural join depositor
                          natural join account
                          natural join branch) as d
                    where d.customer_sname = c.customer_name)
```

b

```
select sum(amount)
from loan
```

c

```
select branch_name
from branch
where assets > some(select assets
                   from branch
                   where branchcity = 'Brooklyn')
```

3.17

3.17 Consider the employee database of Figure 3.19. Give an expression in SQL for each of the following queries.

- a. Give all employees of “First Bank Corporation” a 10 percent raise.
- b. Give all managers of “First Bank Corporation” a 10 percent raise.
- c. Delete all tuples in the *works* relation for employees of “Small Bank Corporation”.

employee (ID, *person_name*, *street*, *city*)
works (ID, *company_name*, *salary*)
company (*company_name*, *city*)
manages (ID, *manager_id*)

Figure 3.19 Employee database.

a

```
update works
set salary = salary * 1.1
where company_name = 'First Bank Corporation'
```

b

```
update works
set salary = salary * 1.1
where employee_name in (select manager_name
                        from manages)
and company_name = 'First Bank Corporation'
```

c

```
delete from works
where company_name = 'Small Bank Corporation'
```