

CSE 344 Section 3

1. (Midterm 12AU)

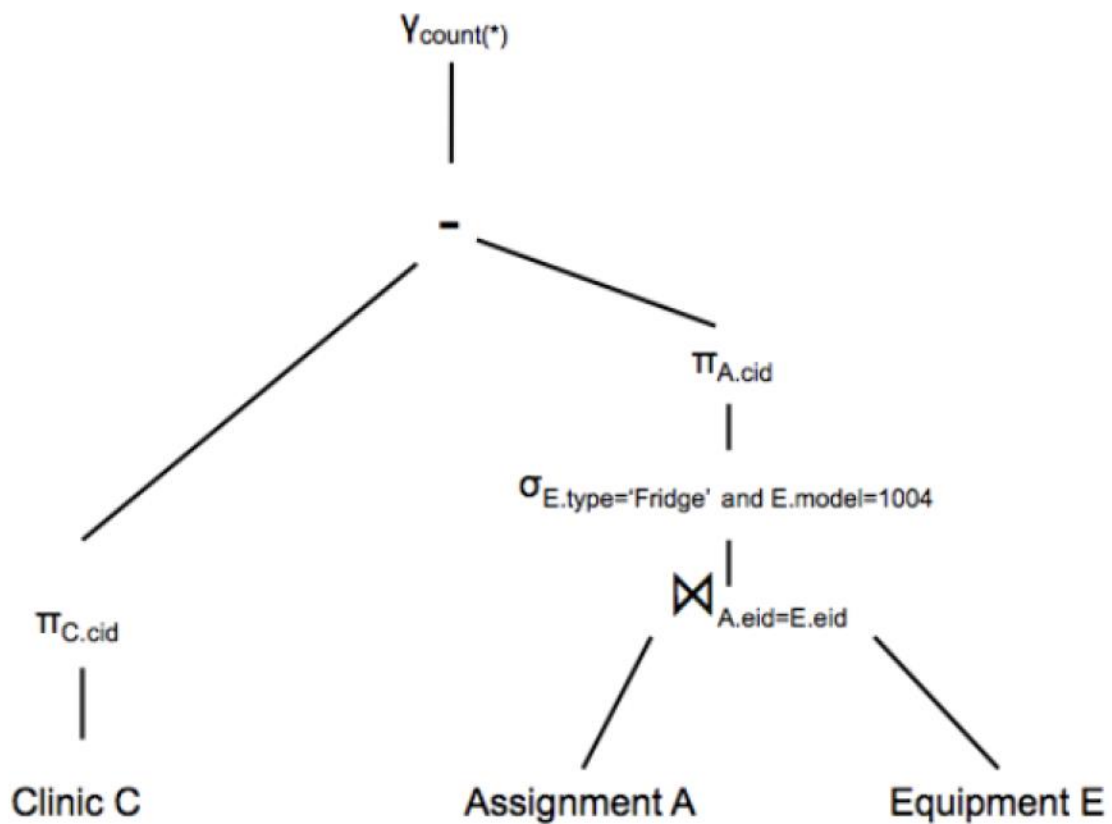
Clinic(cid, name, street, state)

Equipment(eid, type, model)

Assignment(cid, eid)

Given the above tables, write relational algebra trees to find the following information.

- a. Find the number of clinics that do not have a fridge of model 1004 assigned to it.

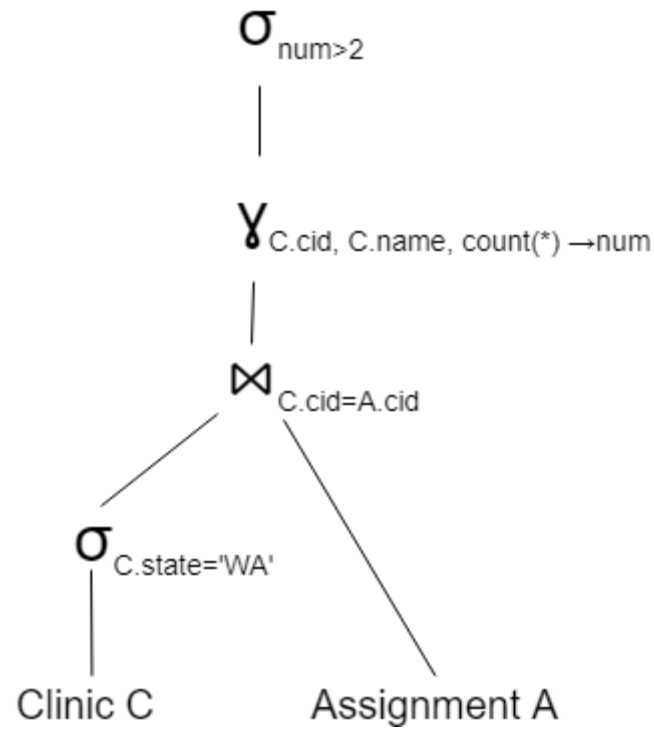


Clinic(cid, name, street, state)

Equipment(eid, type, model)

Assignment(cid, eid)

- b. For each clinic in Washington state with more than two equipment, find the number of equipment it has.



2. (Midterm 15AU)

The Item relation stores each item, with a unique oid, as well as its category and price.
The Gift relation tracks the gifts each person (pid) has given a recipient (rid).

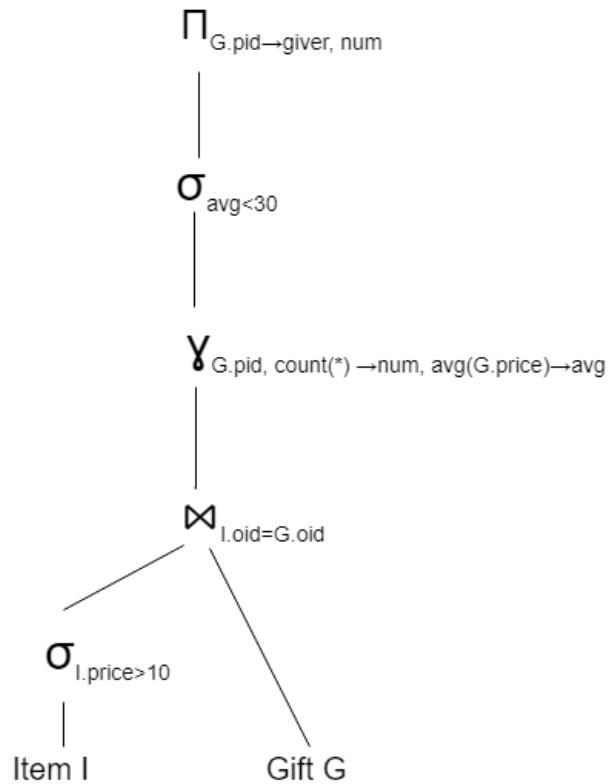
Item(oid, category, price)

Gift(pid, rid, oid) -- pid gifts oid to rid

Given the above tables, convert the following queries to relational algebra:

a.

```
SELECT G.pid AS giver, count(*) AS num
FROM Item I INNER JOIN Gift G ON I.oid = G.oid
WHERE I.price > 10
GROUP BY G.pid
HAVING avg(G.price) < 30
```



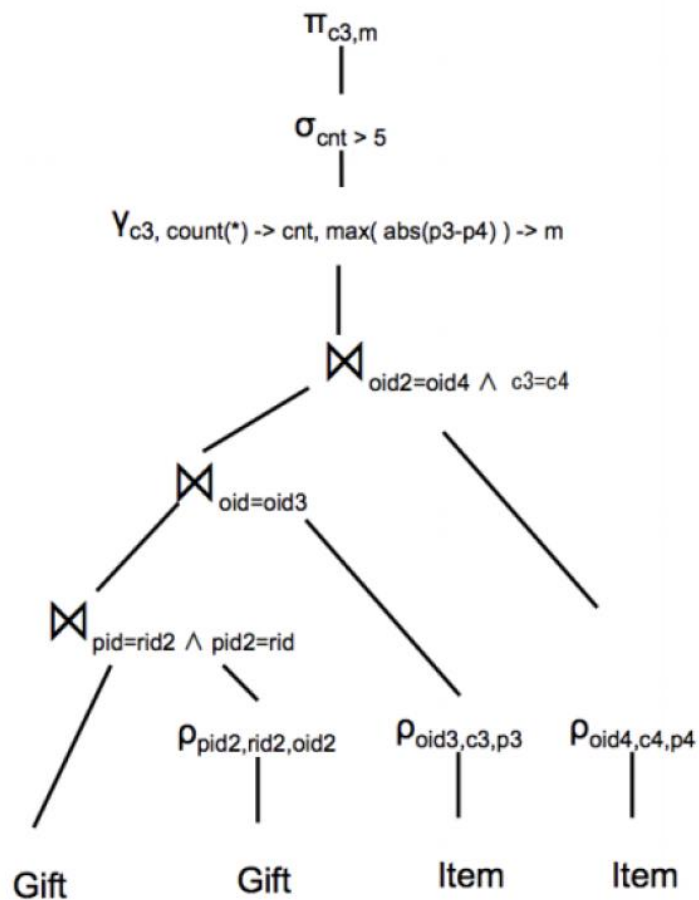
Item(oid, category, price)
 Gift(pid, rid, oid) -- pid gifts oid to rid

b.

```

SELECT O1.category, max(abs(O1.price - O2.price))
FROM Gift AS G1, Gift AS G2, Item AS O1, Item AS O2
WHERE G1.pid = G2.rid
AND G2.pid = G1.rid
AND O1.oid = G1.oid
AND O2.oid = G2.oid
AND O1.category = O2.category
GROUP BY O1.category
HAVING count(*) > 5;

```



3. (Final 14AU)

The clients relation stores the people who have ordered an item at a toy store. The toys relation maintains all the toys the store sells. The request relation tracks which clients have requested which toys.

Client(id, name, age, address, city)

Toys(id, name, color, min_age, weight, number_available)

Request(client_id, toy_id)

Given the above tables, convert the following queries to relational algebra:

a.

```
SELECT c.city, count(*) AS cnt, avg(weight) AS avg
FROM Toys t, Request r, Client c
WHERE c.id = r.client_id
AND t.id = r.toy_id
GROUP BY c.city
```

