CSE 344 Section 3

1. (Midterm 12AU)

Clinic(<u>cid</u>, name, street, state)
Equipment(<u>eid</u>, 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(<u>cid</u>, name, street, state)
Equipment(<u>eid</u>, 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(<u>oid</u>, category, price)
Gift(<u>pid</u>, 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(<u>oid</u>, category, price)
Gift(<u>pid</u>, 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(<u>id</u>, name, age, address, city)
Toys(<u>id</u>, 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