Section 4 Worksheet

Part 1: Interpreting SQL and Relational Data

A. (Midterm 12AU)
Clinic(cid, name, street, state)
Equipment(eid, type, model)
Assignment(cid, eid)

Find the count of clinics that do not have a fridge (of model 1004) assigned to it.

B. (Midterm 15AU)
Item(oid, category, price)
Gift(pid, rid, oid) -- pid gifts oid to rid

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;
Part 2: Misc. SQL Practice

A. (Difference Techniques/3-Value Logic) Imagine we have the table R(v), such that R holds the tuples {(NULL), (1)}, and we also have the table S(v) such that S holds the tuples {(NULL), (2)}. What are the outputs of the following queries?

```
-- 1
SELECT *
FROM R
WHERE R.v NOT IN
  (SELECT v
   FROM S);

-- 2
SELECT *
FROM R
WHERE NOT EXISTS
  (SELECT *
   FROM S
   WHERE R.v=S.v);

-- 3
SELECT *
FROM R
EXCEPT
  SELECT *
  FROM S;
```

B. (Set Operations and ALL keyword) Say we have the R and S again but now R has tuples {(1), (2), (2), (2), (3), (4), (4)} and S has tuples {(2), (3), (4), (4), (4), (5)}.

What are the outputs of the following queries?

```
SELECT *
FROM R
UNION
  SELECT *
  FROM S;

SELECT *
FROM R
UNION ALL
  SELECT *
  FROM S;

SELECT *
FROM R
INTERSECT
  SELECT *
  FROM S;

SELECT *
FROM R
INTERSECT ALL
  SELECT *
  FROM S;

SELECT *
FROM R
EXCEPT ALL
  SELECT *
  FROM S;
```