CPSC471 - DATABASE MANAGEMENT SYSTEMS

University of Calgary
Assignment 4

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Question 1

A)

```
SELECT p.name, p.city
        FROM (Publisher AS p
        JOIN Distribute AS d ON p.name=d.pname
        JOIN School AS s ON d.sname=s.name
        JOIN Book AS b ON d.ISBN=b.ISBN)
                WHERE b.color="red" AND s.city<>"Calgary";
```

B)

```
SELECT s.director
        FROM (Publisher AS p
        JOIN Distribute AS d ON p.name=d.pname
        JOIN School AS s ON d.sname=s.name)
                WHERE s.city="Paris" AND p.city="London";
```

C)

```
SELECT s.name
        FROM (School AS s
        JOIN Distribute AS d ON s.name=d.sname
        JOIN Publisher AS p ON d.pname=p.name)
                WHERE d.pname=p.name AND
                p.city="Roma" AND
                d.sname=s.name AND
                s.city="Toronto";
```

D)

```
SELECT b.title, SUM(d.quantity)
     FROM (Book AS b
              NATURAL JOIN Distribute AS d
              JOIN School AS s ON d.sname=s.name)
                   WHERE d.sname=s.name AND
                   s.city="Calgary" AND
                   b.ISBN NOT IN (SELECT b2.ISBN
                        FROM (Book AS b2
                                NATURAL JOIN Distribute AS d2
                                JOIN School AS s2 ON d2.sname=s2.name)
                                     WHERE d2.sname=s2.name AND
                                     s2.city<>"Calgary";
```


E)

```
SELECT b.title, SUM(d.quantity)
     FROM (Book AS b
              NATURAL JOIN Distribute AS d)
                   WHERE (SELECT d2.pname FROM Distribute AS d2, Book AS b2
                        WHERE d2.ISBN=b2.ISBN AND
                        d.ISBN=b2.ISBN)
                        CONTAINS
                        (SELECT p.city
                             FROM Publisher p);
```

Question 2

A)

```
SELECT s1.stno
      FROM (Street AS s1
      NATURAL JOIN City AS c)
            WHERE (SELECT s2.stno
                        FROM Street AS s2
                              WHERE s1.length > s2.length AND
                              s1.city-name=s2.city-name AND
                              c.country-name="Canada");
```

B)

```
SELECT h.owner-name
      FROM (City AS c
      NATURAL JOIN Street AS s
      NATURAL JOIN House AS h)
            WHERE c.country-name="Canada";
```

C)

```
SELECT h.owner-name
      FROM (City AS c
      NATURAL JOIN Street AS s
      NATURAL JOIN House AS h)
            WHERE c.country-name="USA";
INTERSECTION
SELECT house1.owner-name
      FROM (City AS c
      NATURAL JOIN Street AS s
      NATURAL JOIN House AS house1
      NATURAL JOIN House AS house2)
            WHERE c.country-name<>"USA" AND
            house1.owner-name=house2.owner-name AND
            house1.hno<>house2.hno;
```

D)

```
SELECT country-name1
        FROM Border
                WHERE country-name2="Germany"
UNION
SELECT country-name2
        FROM Border
                WHERE country-name1="Germany";
```

E)

```
SELECT h.owner-name
        FROM (City AS c
        NATURAL JOIN Street AS s
        NATURAL JOIN House AS h
        JOIN Border AS b ON c.country-name=b.country-name1)
                WHERE b.country-name2="Spain";
UNION
SELECT h.owner-name
        FROM (City AS c
        NATURAL JOIN Street AS s
        NATURAL JOIN House AS h
        JOIN Border AS b ON c.country-name=b.country-name2)
                WHERE b.country-name1="Spain";
```