

Assignment 4

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CPSC 471 - Data Base Management Systems

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Question 1

a

```
SELECT DISTINCT P.name, P.city
FROM Publisher AS P,
      Distribute AS D,
      Book AS B
WHERE P.name = D.pname
      AND D.ISBN = B.ISBN
      AND B.color = 'red'
      AND D.sname IN
      (SELECT S.name FROM School AS S WHERE S.city <> 'Calgary');
```

b

```
SELECT DISTINCT S.director
FROM School AS S,
      Distribute AS D,
      Publisher AS P
WHERE S.city = 'Paris'
      AND D.sname = S.name
      AND D.pname = P.name
      AND P.city = 'London';
```

c

```
SELECT DISTINCT S.name
FROM School AS S,
     Distribute AS D,
     Publisher AS P
WHERE D.sname = S.name
     AND D.pname = P.name
     AND P.city = 'Roma'
     AND P.name IN
       (SELECT P2.name
        FROM Publisher AS P2,
             Distribute AS D2,
             School AS S2
        WHERE P2.name = D2.pname
             AND D2.sname = S2.name
             AND S2.city = 'Toronto');
```

d

```

SELECT B.title, COUNT(D.quantity)
FROM Book AS B,
      Distribute AS D
WHERE B.ISBN = D.ISBN
      AND B.ISBN IN (
        SELECT B0.ISBN
        FROM Book AS B0,
              Distribute AS D0
        WHERE B0.ISBN = D0.ISBN
              AND B0.ISBN IN (
                SELECT B1.ISBN
                FROM Book AS B1
                WHERE B1.ISBN IN
                      (SELECT DISTINCT B2.ISBN
                       FROM Book AS B2,
                             Distribute AS D2,
                             School AS S2
                       WHERE B2.ISBN = D2.ISBN
                             AND D2.sname = S2.name
                             AND S2.city = 'Calgary')
                AND B1.ISBN NOT IN
                      (SELECT DISTINCT B3.ISBN
                       FROM Book AS B3,
                             Distribute AS D3,
                             School AS S3
                       WHERE B3.ISBN = D3.ISBN
                             AND D3.sname = S3.name
                             AND S3.city <> 'Calgary')
              )
        )
GROUP BY B0.ISBN
HAVING COUNT(D0.sname) = (SELECT COUNT(name)
                          FROM School
                          WHERE School.city = 'Calgary')
)
GROUP BY B.title;

```

e

```

SELECT B0.title, COUNT(D0.quantity)
FROM Book AS B0,
     Distribute AS D0
WHERE B0.ISBN = D0.ISBN
     AND B0.ISBN IN
    (
        SELECT DISTINCT B.ISBN
        FROM Book AS B,
             Distribute AS D
        WHERE B.ISBN = D.ISBN
             AND D.sname IN
                (SELECT S.name
                 FROM School AS S,
                      Distribute AS D
                 WHERE S.city IN
                     (SELECT DISTINCT P2.city
                      FROM Publisher AS P2,
                           Distribute AS D2,
                           School AS S2
                      WHERE P2.name = D2.pname
                           AND D2.sname = S2.name)
                 AND D.sname = S.name)
        GROUP BY B.ISBN
        HAVING COUNT(D.sname) =
            (
                SELECT COUNT(DISTINCT S1.name)
                FROM School AS S1,
                     Distribute AS D1
                WHERE S1.city IN
                    (SELECT DISTINCT P3.city
                     FROM Publisher AS P3,
                          Distribute AS D3,
                          School AS S3
                     WHERE P3.name = D3.pname
                          AND D3.sname = S3.name)
                AND D1.sname = S1.name
            )
    )
GROUP BY B0.title;

```

Question 2

a

```

SELECT DISTINCT S.stno
FROM Street AS S
WHERE (S.`city-name`, S.length) IN
(
    SELECT DISTINCT S1.`city-name`, MAX(S1.length)
    FROM Street AS S1,
         City AS CTY1
    WHERE S1.`city-name` = CTY1.`city-name`
        AND CTY1.`country-name` = 'Canada'
    GROUP BY S1.`city-name`
);

```

b

```

SELECT DISTINCT H.`owner-name`
FROM House AS H,
     Street AS S,
     City AS C
WHERE H.stno = S.stno
     AND S.`city-name` = C.`city-name`
     AND C.`country-name` = 'Canada'
GROUP BY H.`owner-name`
HAVING COUNT(DISTINCT C.`city-name`) = (SELECT COUNT(C2.`city-name`)
                                         FROM City AS C2
                                         WHERE C2.`country-name` = 'Canada');

```

c

```

SELECT DISTINCT H.`owner-name`
FROM House AS H
WHERE H.`owner-name` IN
    (SELECT DISTINCT H1.`owner-name`
     FROM House AS H1,
           Street AS S1,
           City AS C1
     WHERE H1.stno = S1.stno
           AND S1.`city-name` = C1.`city-name`
           AND C1.`country-name` = 'USA')
AND H.`owner-name` IN
    (SELECT DISTINCT H2.`owner-name`
     FROM House AS H2,
           Street AS S2,
           City AS C2
     WHERE H2.stno = S2.stno
           AND S2.`city-name` = C2.`city-name`
           AND C2.`country-name` = 'Canada')
GROUP BY H2.`owner-name`
HAVING COUNT(H2.hno) > 1);

```

d

```

SELECT DISTINCT Country.name
FROM Country,
     Border
WHERE (Border.`country-name1` = Country.name AND Border.`country-name2` = 'Germany')
     OR (Border.`country-name1` = 'Germany' AND Border.`country-name2` = Country.name);

```

e

```
SELECT DISTINCT House.`owner-name`  
FROM House,  
      Street,  
      City  
WHERE House.stno = Street.stno  
      AND Street.`city-name` = City.`city-name`  
      AND City.`country-name` IN (  
        SELECT DISTINCT Country.name  
        FROM Country,  
              Border  
        WHERE (Border.`country-name1` = Country.name AND Border.`country-name2` = 'Spain')  
              OR (Border.`country-name1` = 'Spain' AND Border.`country-name2` = Country.name)  
      );
```