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CS-4163
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1. List all attributes of comments containing the 'word' lol, ordered by decreasing Poster and increasing Recipient.

```
SELECT *  
FROM comments  
WHERE Text LIKE '%lol%'  
ORDER BY Poster DESC, Recipient ASC;
```

RESULTS:

3	P0TU5	CPMGB	lol How could I miss it? Anyways listen to this Soviet joke my Secretary of Defense just told me...	1982-05-03
2	CPMGB	P0TU5	Yo did you hear about this Free Wales Army nonsense? What a riot lol	1982-05-02

2. Display, without duplicates, the Posters of one gender who posted to Recipients of a different gender (display Poster and Recipient Ids and Genders).

```
SELECT DISTINCT Poster, P.Gender, Recipient, R.Gender  
FROM comments AS C  
      JOIN users AS R ON(R.Id = C.Recipient)  
      JOIN users AS P ON(P.Id = C.Poster)  
WHERE R.Gender != P.Gender;
```

RESULTS:

MobyD	M	CPMGB	F
CPMGB	F	P0TU5	M
P0TU5	M	CPMGB	F
et101	F	physd	M
physd	M	et101	F
rush3	M	ATLAS	F
ATLAS	F	rush3	M
iRobt	M	compE	F
oilEr	M	Y111Y	V
oilEr	M	X111X	V
X111X	V	physd	M

3. List all attributes of comments posted this year either by Poster with name X or to Recipient with name Y.

```
SELECT CommentId, Poster, Recipient, Text, PostDate
FROM comments
    JOIN users AS postUsers ON (comments.Poster = postUsers.Id)
    JOIN users AS recipUsers ON (comments.Recipient = recipUsers.Id)
WHERE PostDate >= 2020-01-01 AND (postUsers.Name = 'X' OR recipUsers.Name = 'Y');
```

RESULTS:

16	X111X	Y111Y	Y are you like this?	2020-10-07
18	oilEr	Y111Y	I prefer f(x)	2020-10-01
20	X111X	physd	I dont know what to say...	2020-09-08

4. For each user, find the number of friends of each gender (output should have 3 columns: Id, Gender, Count).

```
SELECT U.Id, F.Gender, COUNT(F.Gender)
FROM users AS U
      JOIN friends FT ON(U.Id = FT.Id1)
      JOIN users AS F ON(F.Id = FT.Id2)
GROUP BY U.Id, F.Gender;
```

RESULTS:

Id	Gender	COUNT(F.Gender)
rush3	F	3
physd	F	1
physd	M	3
P0TU5	F	2
oilEr	M	2
iRobt	F	1
iRobt	M	1
hstrm	M	1
hardi	M	2
et101	F	1
et101	M	1
DPP16	F	1
DPP16	M	1
CPMGB	F	2
CPMGB	M	2
compE	F	1
compE	M	1
ATLAS	F	1
ATLAS	M	1

5. List all attributes of Users who do not have any friends of the same gender.

```
SELECT Id
FROM users
WHERE Id NOT IN (SELECT DISTINCT U1.Id
                  FROM friends
                  JOIN users AS U1 ON (friends.Id1 = U1.Id)
                  JOIN users AS U2 ON (friends.Id2 = U2.Id)
                  WHERE U1.Gender = U2.Gender);
```

RESULTS:

hstrm	Elizabeth Hale	F
MobyD	Julian Cayo-Evans	M
P0TU5	Ronald Reagan	M
rush3	Neil Peart	M
X111X	X	V
Y111Y	Y	V

6. List all attributes of Users who have started at least two friendships on the same date.

```
SELECT U.Id, U.Name, U.Gender
FROM friends AS F
      JOIN (SELECT Startdate
            FROM friends
            GROUP BY Startdate
            HAVING COUNT(*)>2) AS DT ON (F.Startdate = DT.Startdate)
      JOIN users AS U ON (F.Id1 = U.Id)
GROUP BY F.Id1
HAVING (COUNT(*) >= 2);
```

RESULTS:

DPP16	Tsai Ing-wen	F
hardi	Srinivasa Ramanujan	M

7. List all User attributes and the number of friends of users who have commented to at least two different users.

```
SELECT Id, Name, Gender, FNum.FNumber
FROM users
      JOIN (SELECT Poster, Recipient
            FROM comments
            GROUP BY Poster, Recipient) AS SubQ ON (Id = SubQ.Poster)
      JOIN (SELECT Id1, COUNT(*) AS FNumber
            FROM friends
            GROUP BY Id1) AS FNum ON (Id = FNum.Id1)
GROUP BY Poster
HAVING COUNT(*) >= 2;
```

RESULTS:

CPMGB	Margaret Thatcher	F	4
et101	Sophie Germain	F	2
physd	Carl Gauss	M	4
oilEr	Leonhard Euler	M	2

8. List all attributes of Users who have posted comments to all users of a specific gender (gender chosen from your defined set; no aggregate operations allowed)

```
SELECT Id, Name, Gender
FROM users as U1
WHERE NOT EXISTS((SELECT com.Recipient
                  FROM comments AS com
                  JOIN users AS U2 ON (com. Recipient = U2.Id)
                  WHERE U2.Gender = 'V'
                  AND NOT EXISTS(SELECT *
                                FROM comments AS C
                                WHERE U1.Id = C.Poster
                                AND com.Recipient = C.Recipient)));
```

RESULTS:

oilEr	Leonhard Euler	M
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9. List all attributes of User(s) who are friends with the most number of Users.

```
SELECT U1.Id, U1.Name, U1.Gender
FROM friends
  JOIN users as U1 ON (U1.Id = Id1)
  JOIN (SELECT Id, COUNT(Id) AS FriendCount
        FROM friends
          JOIN users ON (Id = Id1)
        GROUP BY Id) AS FCT ON (U1.Id = FCT.Id)
  JOIN (SELECT MAX(FCount) AS mfc
        FROM (SELECT Id1, COUNT(Id1) FCount
              FROM friends
                JOIN users ON (Id = Id1)
              GROUP BY Id1) AS MFC) AS FINAL ON (FriendCount = mfc)
GROUP BY U1.Id, FriendCount DESC;
```

RESULTS:

CPMGB	Margaret Thatcher	F
physd	Carl Gauss	M