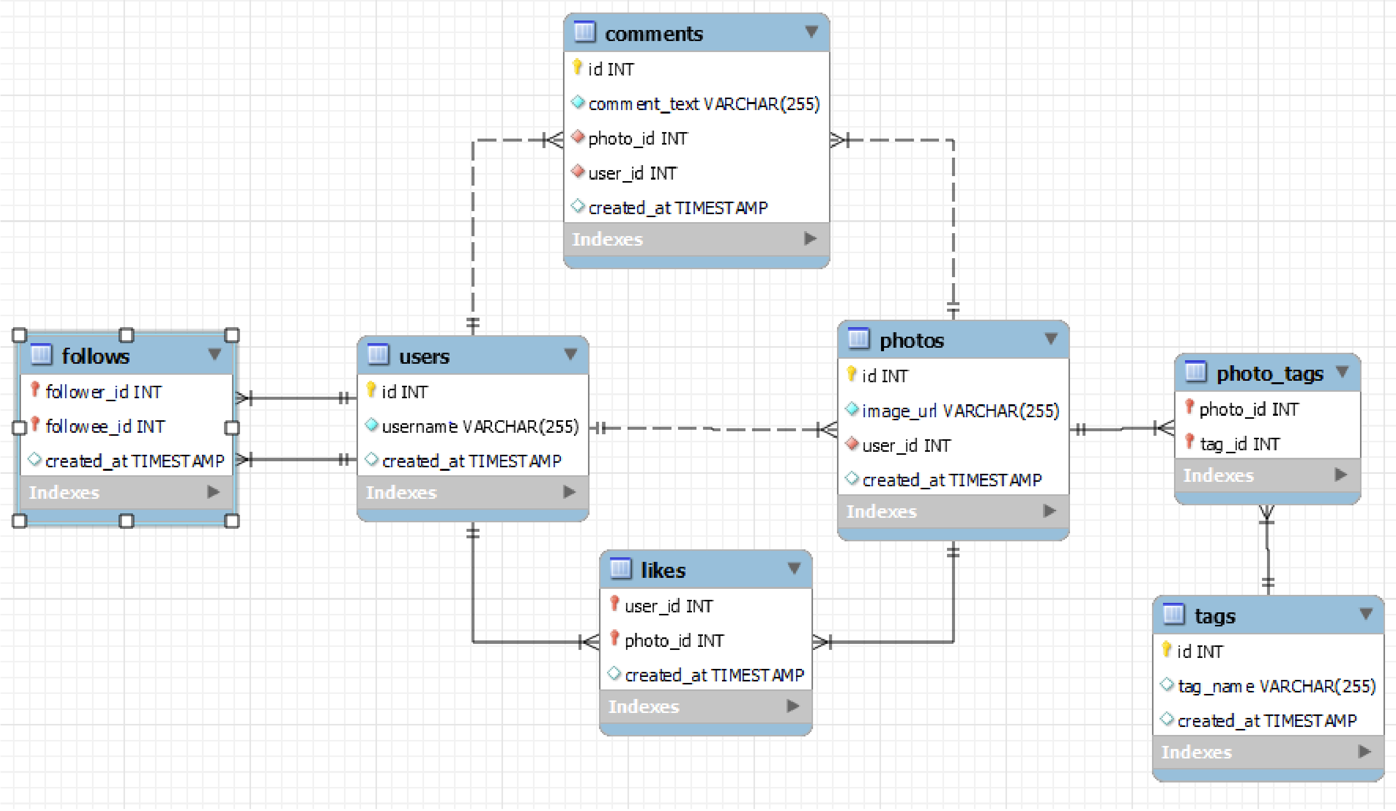
Sarah Mentel 3/14/2023
Homework 4

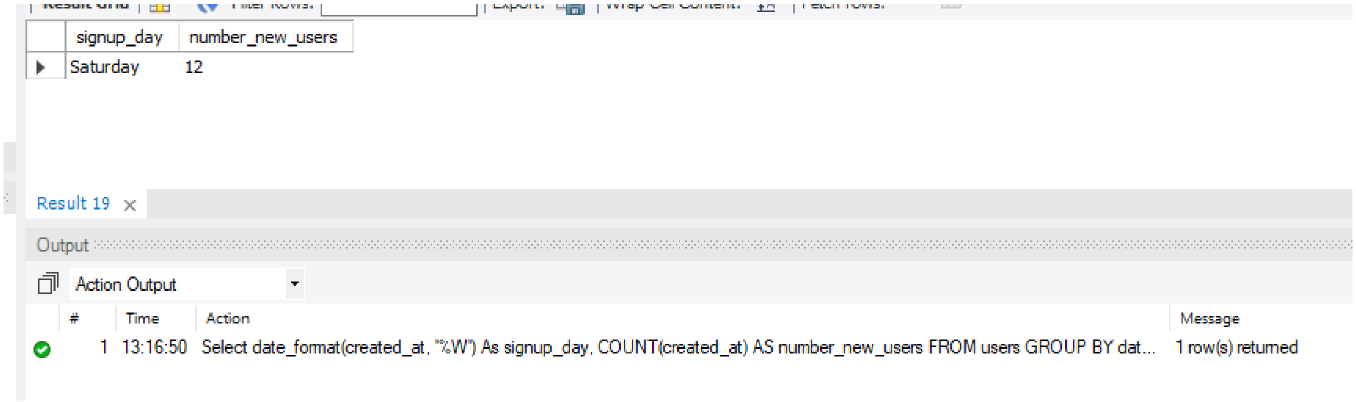
1. Create an ER diagram by using Workbench. Arrange the generated diagram so that no lines or boxes intersect. Refer to the Workbench note about how to create an ER diagram from database.



Sarah Mentel 3/14/2023
Homework 4

2. Write a query to find the least popular signup dates for users. The answer should be in Day, that is, Monday, Tuesday, …, and the number of days. If there is a tie, show all tied days.

```
SELECT date_format(created_at, '%W') As signup_day, COUNT(created_at) AS number_new_users

FROM users

GROUP BY date_format(created_at, '%W')

ORDER BY COUNT(created_at)

LIMIT 1
```



signup_day	number_new_users
Saturday	12

```
#   Time      Action                                                                                              Message
1   13:16:50  Select date_format(created_at, '%W') As signup_day, COUNT(created_at) AS number_new_users FROM users GROUP BY dat...   1 row(s) returned
```

Sarah Mentel 3/14/2023
Homework 4

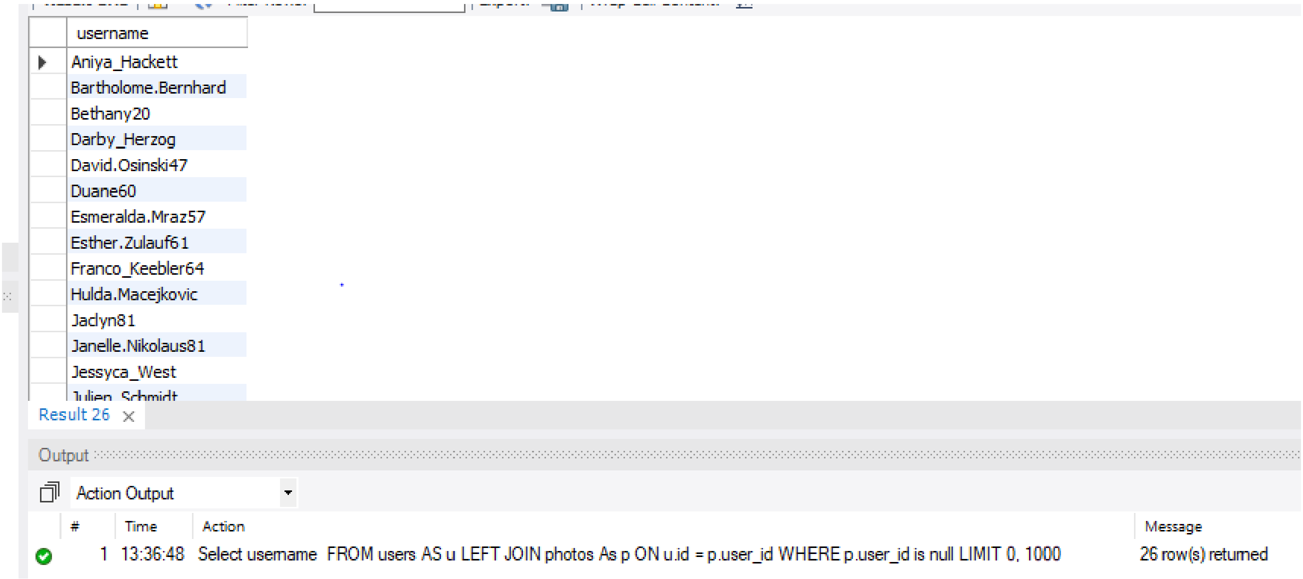
3. Write a query to find the users who have not posted any photos.

SELECT username

FROM users AS u LEFT JOIN photos As p

ON u.id = p.user_id

WHERE p.user_id is null

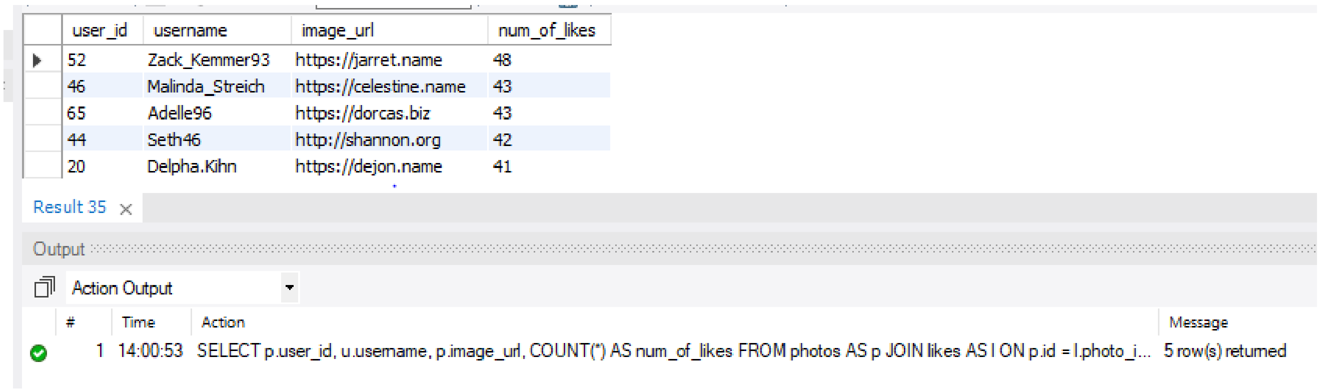


username
Aniya_Hackett
Bartholome.Bernhard
Bethany20
Darby_Herzog
David.Osinski47
Duane60
Esmeralda.Mraz57
Esther.Zulauf61
Franco_Keebler64
Hulda.Macejkovic
Jaclyn81
Janelle.Nikolaus81
Jessyca_West
Julien_Schmidt

```
#  Time      Action                                                                                    Message
1  13:36:48  Select username  FROM users AS u LEFT JOIN photos As p ON u.id = p.user_id WHERE p.user_id is null LIMIT 0, 1000  26 row(s) returned
```

4. Write a query to find five most popular photos and users who created them. Most popular photos are those being liked most. Show the user id, user name, the photo URL, and the number of likes.

```
SELECT p.user_id, u.username, p.image_url, COUNT(*) AS num_of_likes

FROM photos AS p

JOIN likes AS l ON p.id = l.photo_id

JOIN users AS u ON p.user_id = u.id

GROUP BY p.image_url, p.user_id, u.username

ORDER BY num_of_likes DESC

LIMIT 5
```

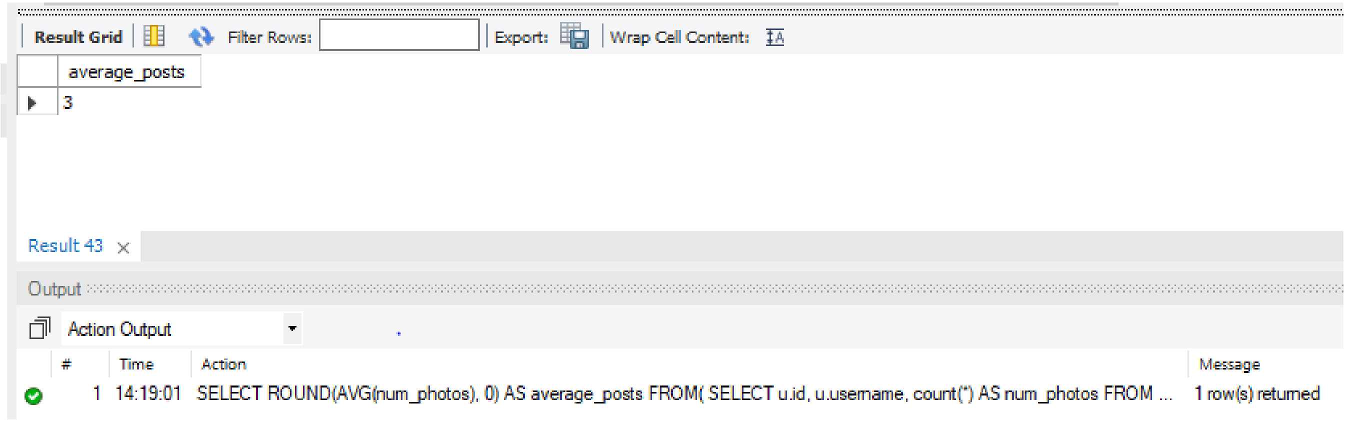


user_id	username	image_url	num_of_likes
52	Zack_Kemmer93	https://jarret.name	48
46	Malinda_Streich	https://celestine.name	43
65	Adelle96	https://dorcas.biz	43
44	Seth46	http://shannon.org	42
20	Delpha.Kihn	https://dejon.name	41

```
#   Time      Action                                                                                                      Message
1   14:00:53  SELECT p.user_id, u.username, p.image_url, COUNT(*) AS num_of_likes FROM photos AS p JOIN likes AS l ON p.id = l.photo_i...  5 row(s) returned
```

5. Write a query to find the average number of photos posted by users who posted at least one photo.

```
SELECT ROUND(AVG(num_photos), 0) AS average_posts

FROM(

SELECT u.id, u.username, count(*) AS num_photos

FROM users AS u

JOIN photos AS p ON u.id =p.user_id

GROUP BY u.id, u.username

HAVING num_photos >= 1

) AS COUNT
```



average_posts
3

```
#  Time      Action                                                                                          Message
1  14:19:01  SELECT ROUND(AVG(num_photos), 0) AS average_posts FROM( SELECT u.id, u.username, count(*) AS num_photos FROM ...  1 row(s) returned
```

Sarah Mentel 3/14/2023
Homework 4

6. Write a query to find the most followed users and the most following users. The answer should like the following.

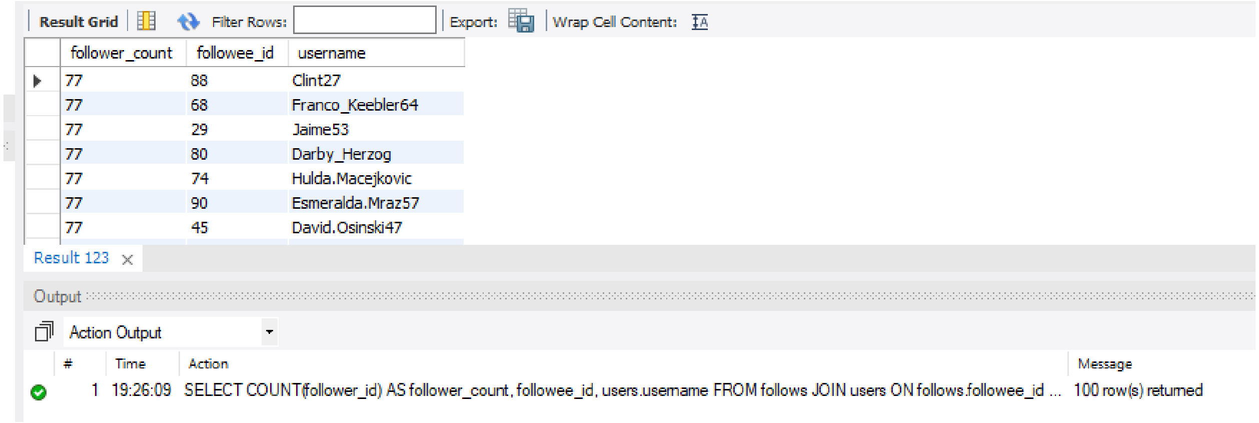
SELECT COUNT(follower_id) AS follower_count, followee_id, users.username

FROM follows

JOIN users ON follows.followee_id = users.id

GROUP BY followee_id

ORDER BY follower_count DESC



follower_count	followee_id	username
77	88	Clint27
77	68	Franco_Keebler64
77	29	Jaime53
77	80	Darby_Herzog
77	74	Hulda.Macejkovic
77	90	Esmeralda.Mraz57
77	45	David.Osinski47

```
 #   Time      Action                                                                                                        Message
 1   19:26:09  SELECT COUNT(follower_id) AS follower_count, followee_id, users.username FROM follows JOIN users ON follows.followee_id ...   100 row(s) returned
```

SELECT COUNT(followee_id) AS followee_count, follower_id, users.username

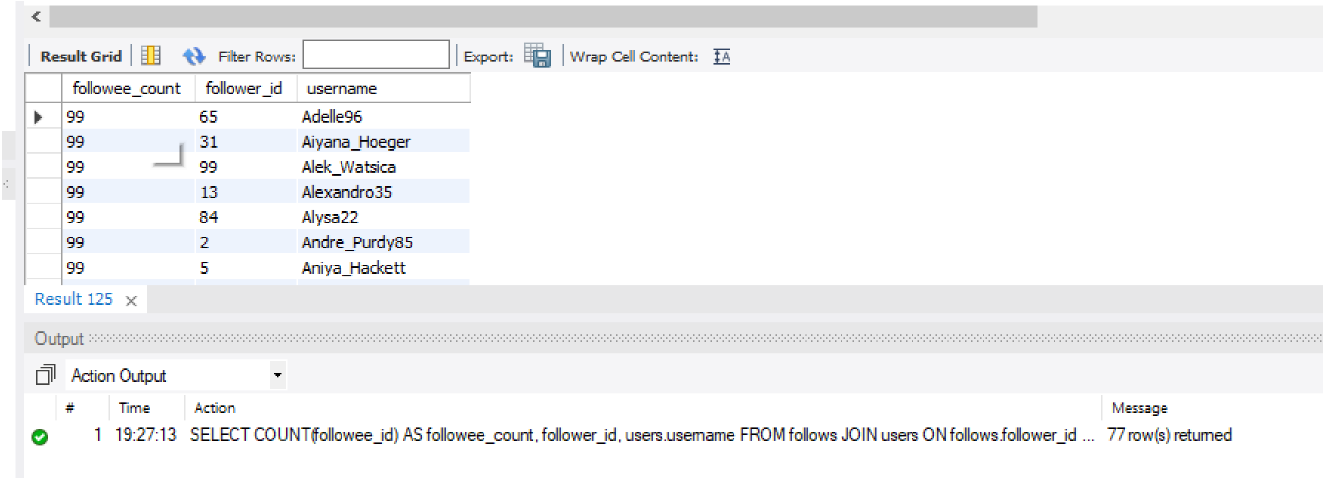
FROM follows

JOIN users ON follows.follower_id = users.id

GROUP BY follower_id

ORDER BY followee_count DESC

Sarah Mentel 3/14/2023
Homework 4



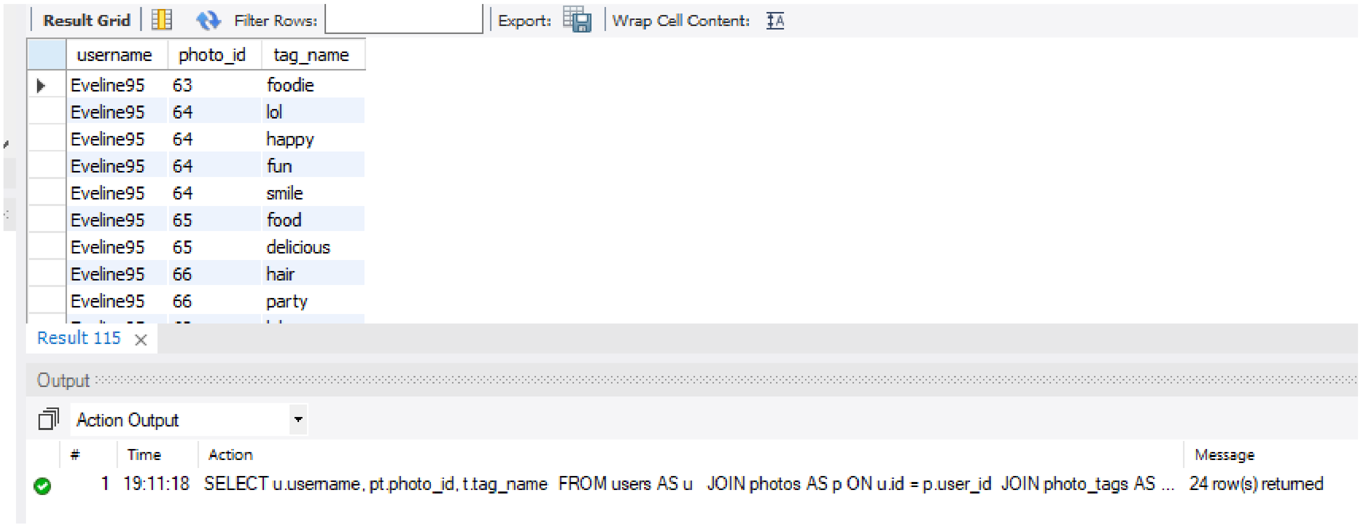
followee_count	follower_id	username
99	65	Adelle96
99	31	Aiyana_Hoeger
99	99	Alek_Watsica
99	13	Alexandro35
99	84	Alysa22
99	2	Andre_Purdy85
99	5	Aniya_Hackett

```
#   Time      Action                                                                                                   Message
1   19:27:13  SELECT COUNT(followee_id) AS followee_count, follower_id, users.username FROM follows JOIN users ON follows.follower_id ...   77 row(s) returned
```

7. Write a query to find the user who has posted most photos, and the photos' ids and the tag names. Show the user name, photo id, and tag name.

```
SELECT u.username, pt.photo_id, t.tag_name
FROM users AS u
JOIN photos AS p ON u.id = p.user_id
JOIN photo_tags AS pt ON p.id = pt.photo_id
JOIN tags AS t ON pt.tag_id = t.id
WHERE username =
(SELECT u.username
FROM users AS u
JOIN photos AS p ON u.id = p.user_id
GROUP BY username
ORDER BY COUNT(*) DESC
LIMIT 1)
GROUP BY u.username, pt.photo_id, t.tag_name;
```

Sarah Mentel 3/14/2023
Homework 4



username	photo_id	tag_name
Eveline95	63	foodie
Eveline95	64	lol
Eveline95	64	happy
Eveline95	64	fun
Eveline95	64	smile
Eveline95	65	food
Eveline95	65	delicious
Eveline95	66	hair
Eveline95	66	party

```
#  Time      Action                                                                                                      Message
1  19:11:18  SELECT u.username, pt.photo_id, t.tag_name  FROM users AS u  JOIN photos AS p ON u.id = p.user_id  JOIN photo_tags AS ...  24 row(s) returned
```

8. Write a query to find the five most popular tag names and the total number of tags for each tag name. Show the tag id, tag name, and the number of tags.

SELECT id, tag_name, COUNT(id) as tag_count

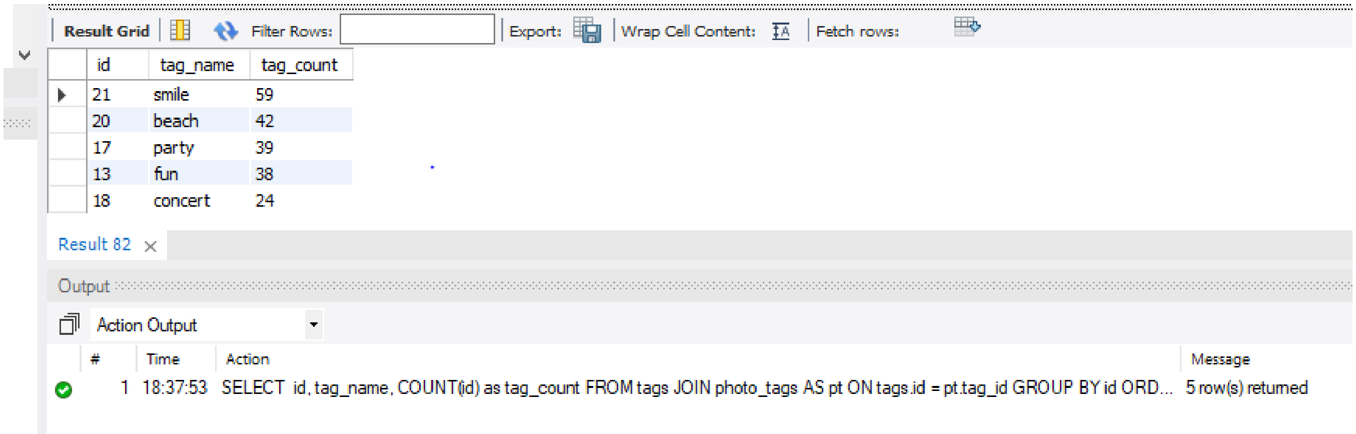
FROM tags

JOIN photo_tags AS pt ON tags.id = pt.tag_id

GROUP BY id

ORDER BY COUNT(id) DESC

LIMIT 5

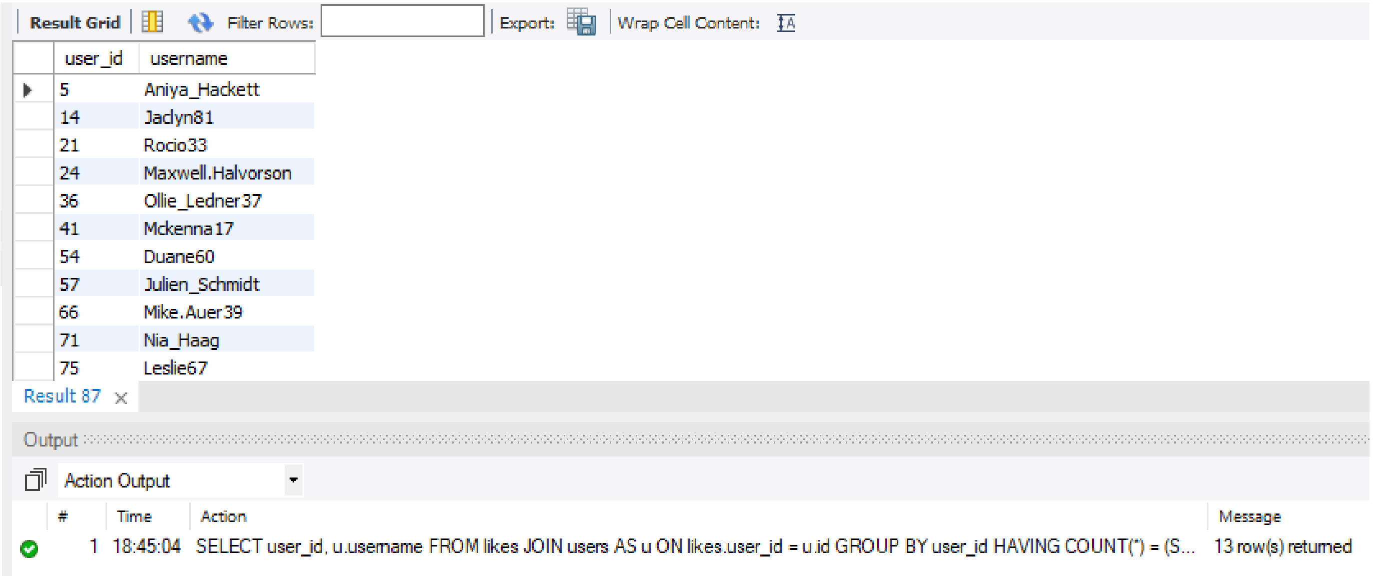


id	tag_name	tag_count
21	smile	59
20	beach	42
17	party	39
13	fun	38
18	concert	24

```
#  Time      Action                                                                                                          Message
1  18:37:53  SELECT id, tag_name, COUNT(id) as tag_count FROM tags JOIN photo_tags AS pt ON tags.id = pt.tag_id GROUP BY id ORD...  5 row(s) returned
```

9. Bots (or fake user ids) can be created and the bots like every photo being posted. Write a query to find such bots. Show the bot user names and user ids.

```
SELECT user_id, u.username

FROM likes

JOIN users AS u ON likes.user_id = u.id

GROUP BY user_id

HAVING COUNT(*) = (SELECT COUNT(*) FROM photos);
```

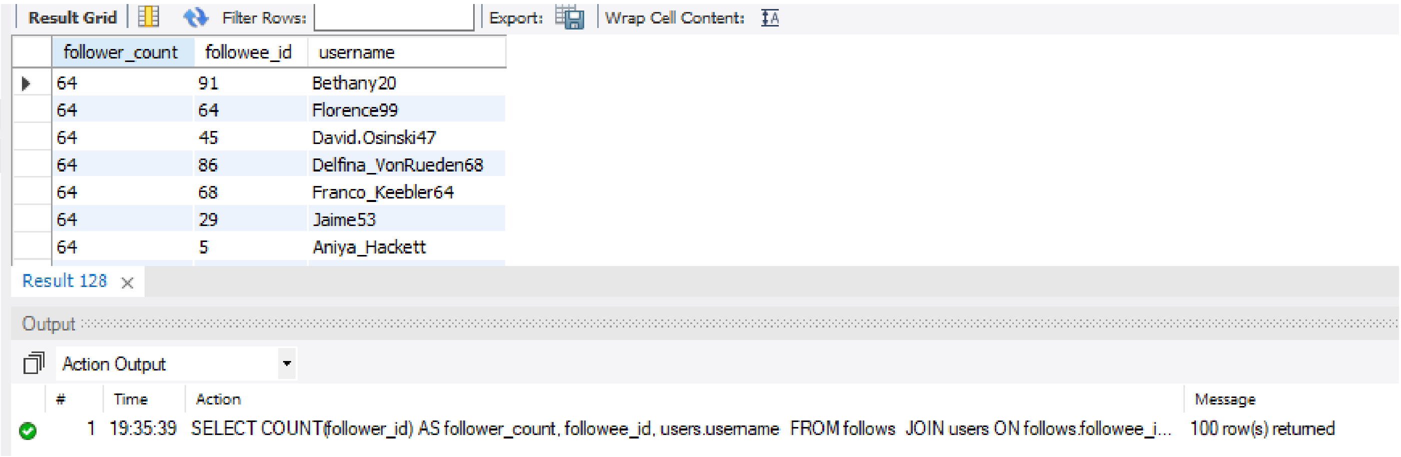


user_id	username
5	Aniya_Hackett
14	Jaclyn81
21	Rocio33
24	Maxwell.Halvorson
36	Ollie_Ledner37
41	Mckenna17
54	Duane60
57	Julien_Schmidt
66	Mike.Auer39
71	Nia_Haag
75	Leslie67

#	Time	Action	Message
1	18:45:04	SELECT user_id, u.username FROM likes JOIN users AS u ON likes.user_id = u.id GROUP BY user_id HAVING COUNT(*) = (S...	13 row(s) returned

10. With the bot accounts removed, show the result of #6.

```
SELECT COUNT(follower_id) AS follower_count, followee_id, users.username

FROM follows

JOIN users ON follows.followee_id = users.id

WHERE followee_id AND follower_id NOT IN  (SELECT user_id

FROM likes

JOIN users AS u ON likes.user_id = u.id

GROUP BY user_id

HAVING COUNT(*) = (SELECT COUNT(*) FROM photos))

GROUP BY followee_id

ORDER BY follower_count DESC;
```

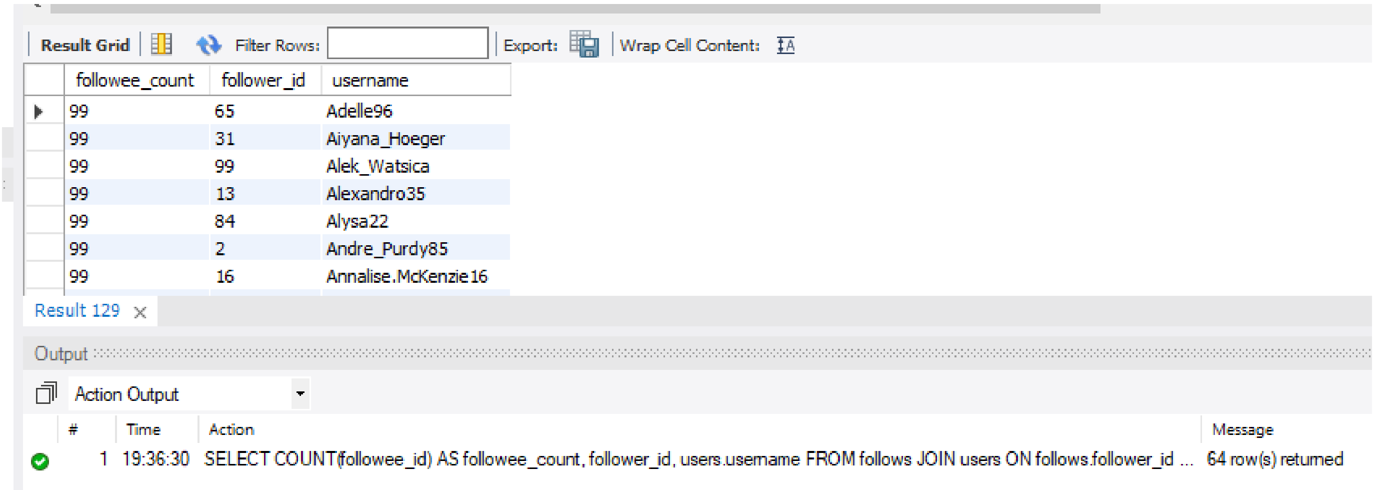


follower_count	followee_id	username
64	91	Bethany20
64	64	Florence99
64	45	David.Osinski47
64	86	Delfina_VonRueden68
64	68	Franco_Keebler64
64	29	Jaime53
64	5	Aniya_Hackett

#	Time	Action	Message
1	19:35:39	SELECT COUNT(follower_id) AS follower_count, followee_id, users.username FROM follows JOIN users ON follows.followee_i...	100 row(s) returned

Sarah Mentel 3/14/2023
Homework 4

```
SELECT COUNT(followee_id) AS followee_count, follower_id, users.username

FROM follows

JOIN users ON follows.follower_id = users.id

WHERE followee_id AND follower_id NOT IN  (SELECT user_id

FROM likes

JOIN users AS u ON likes.user_id = u.id

GROUP BY user_id

HAVING COUNT(*) = (SELECT COUNT(*) FROM photos))

GROUP BY follower_id

ORDER BY followee_count DESC;
```



followee_count	follower_id	username
99	65	Adelle96
99	31	Aiyana_Hoeger
99	99	Alek_Watsica
99	13	Alexandro35
99	84	Alysa22
99	2	Andre_Purdy85
99	16	Annalise.McKenzie16

```
#   Time      Action                                                                                              Message
1   19:36:30  SELECT COUNT(followee_id) AS followee_count, follower_id, users.username FROM follows JOIN users ON follows.follower_id ...   64 row(s) returned
```

All the query problems should be written with one query. Subqueries or Unions are allowed, but multiple queries will not get full credits.

Provide all query answers in TEXT and the result in images in Word file. For the ER diagram, capture the image and put in in Word file. Submit the Word file.