Project Description: Your role involves analysing user interactions and engagement with the Instagram app to provide valuable insights that can help the business grow. My role is to analyse user interactions and engagement with the Instagram app to provide valuable insights that can help the business grow. I will be using SQL and MySQL Workbench as your tool to analyse Instagram user data and answer questions posed by the management team.

Approach: Firstly, I try to understand the data provided in the database like no. of tables, column names and the relationship between them. Then I started understanding the questions asked and run the suitable queries in MySQL which I've learnt, to get the possible outcomes.

Tech-Stack Used: I've used MySQL Workbench 8.0 CE to get the desired results by querying the data present on the database. I've used this because MySQL is one of the most used database management software and is user friendly.

Insights: Below are the insights and the answers of the questions asked by the team

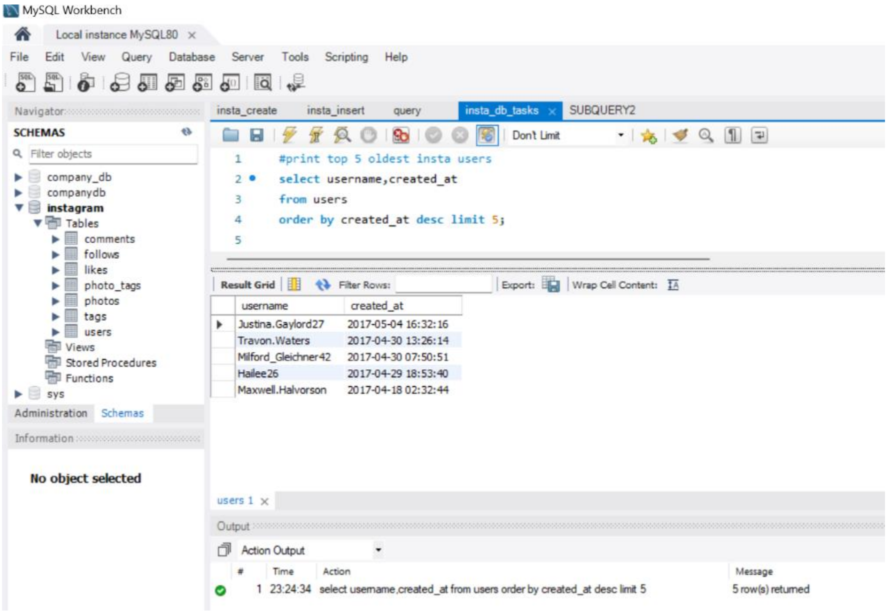
Tasks:

A) Marketing Analysis:

1. Loyal User Reward:

Identify the five oldest users on Instagram from the provided database.

Here's how I achieved this:



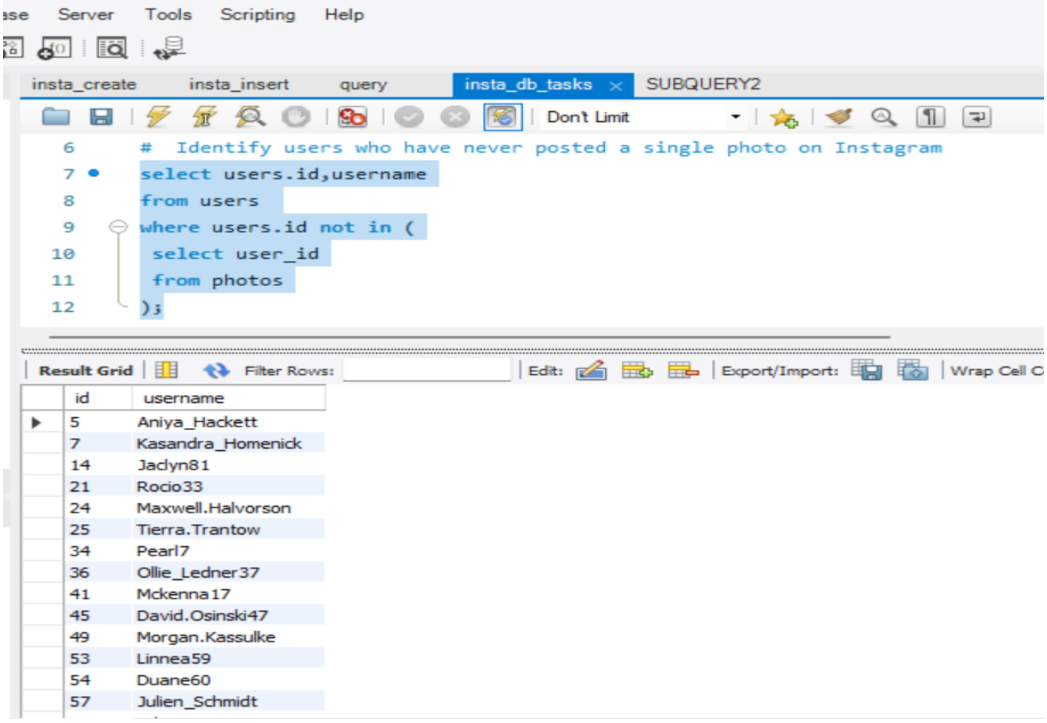
```
#print top 5 oldest insta users
select username,created_at
from users
order by created_at desc limit 5;
```

username	created_at
Justina.Gaylord27	2017-05-04 16:32:16
Travon.Waters	2017-04-30 13:26:14
Milford_Gleichner42	2017-04-30 07:50:51
Hailee26	2017-04-29 18:53:40
Maxwell.Halvorson	2017-04-18 02:32:44

#	Time	Action	Message
1	23:24:34	select username,created_at from users order by created_at desc limit 5	5 row(s) returned

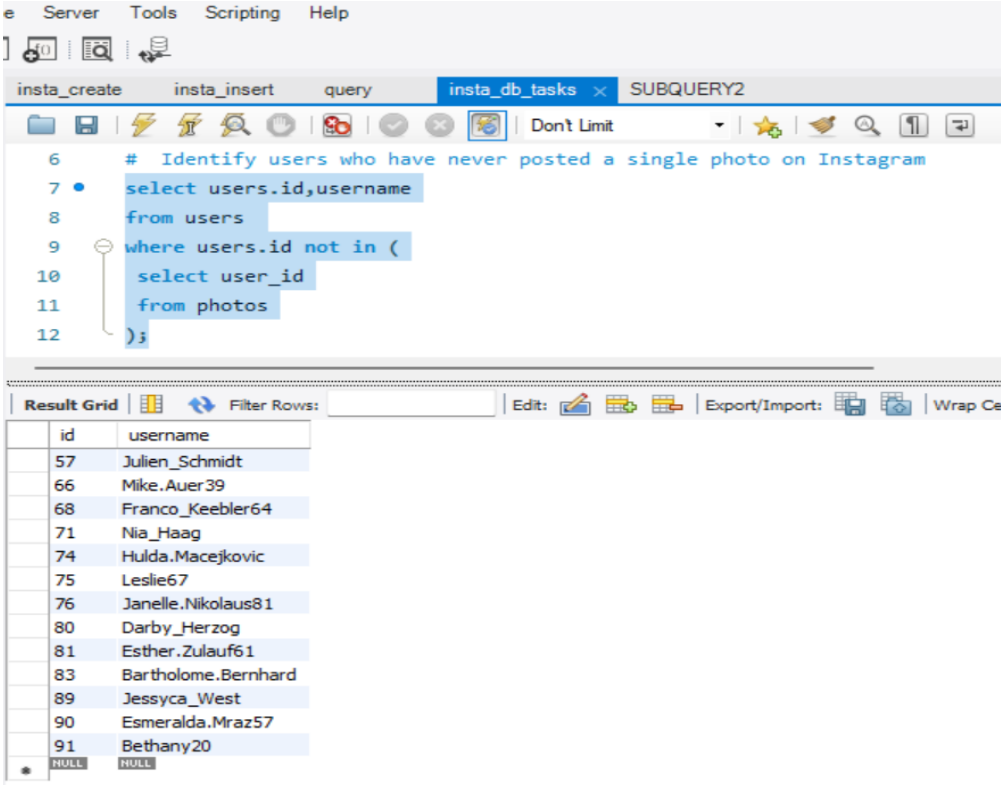
2. Inactive User Engagement:

Identify users who have never posted a single photo on Instagram.



```
#  Identify users who have never posted a single photo on Instagram
select users.id,username
from users
where users.id not in (
 select user_id
 from photos
);
```

id	username
5	Aniya_Hackett
7	Kasandra_Homenick
14	Jaclyn81
21	Rocio33
24	Maxwell.Halvorson
25	Tierra.Trantow
34	Pearl7
36	Ollie_Ledner37
41	Mckenna17
45	David.Osinski47
49	Morgan.Kassulke
53	Linnea59
54	Duane60
57	Julien_Schmidt

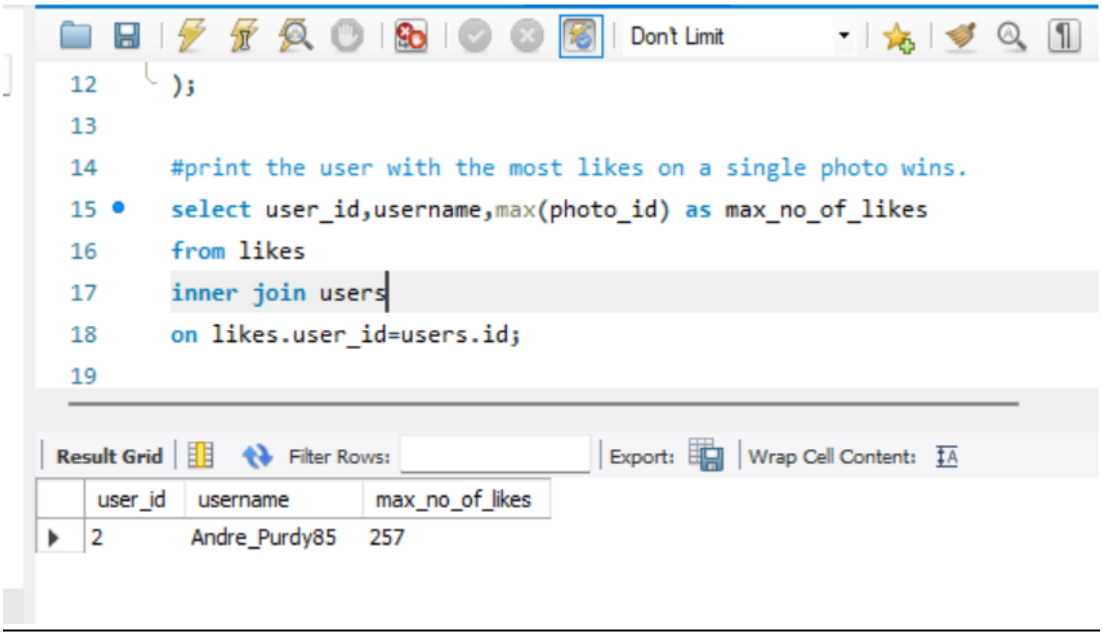


```
#  Identify users who have never posted a single photo on Instagram
select users.id,username
from users
where users.id not in (
 select user_id
 from photos
);
```

id	username
57	Julien_Schmidt
66	Mike.Auer39
68	Franco_Keebler64
71	Nia_Haag
74	Hulda.Macejkovic
75	Leslie67
76	Janelle.Nikolaus81
80	Darby_Herzog
81	Esther.Zulauf61
83	Bartholome.Bernhard
89	Jessyca_West
90	Esmeralda.Mraz57
91	Bethany20
NULL	NULL

3. Contest Winner Declaration:

Determine the winner of the contest and provide their details to the team.



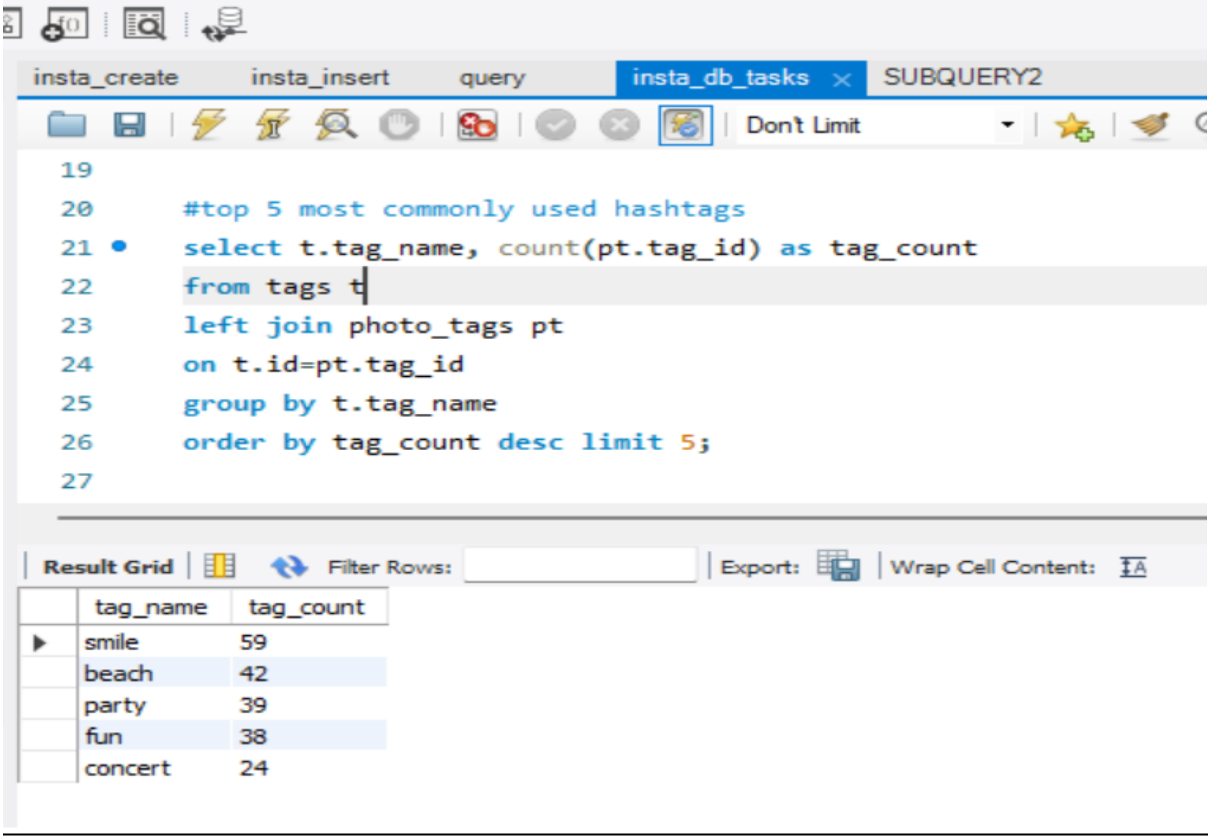
```
);

#print the user with the most likes on a single photo wins.
select user_id,username,max(photo_id) as max_no_of_likes
from likes
inner join users
on likes.user_id=users.id;
```

user_id	username	max_no_of_likes
2	Andre_Purdy85	257

4. Hashtag Research:

Identify and suggest the top five most commonly used hashtags on the platform.

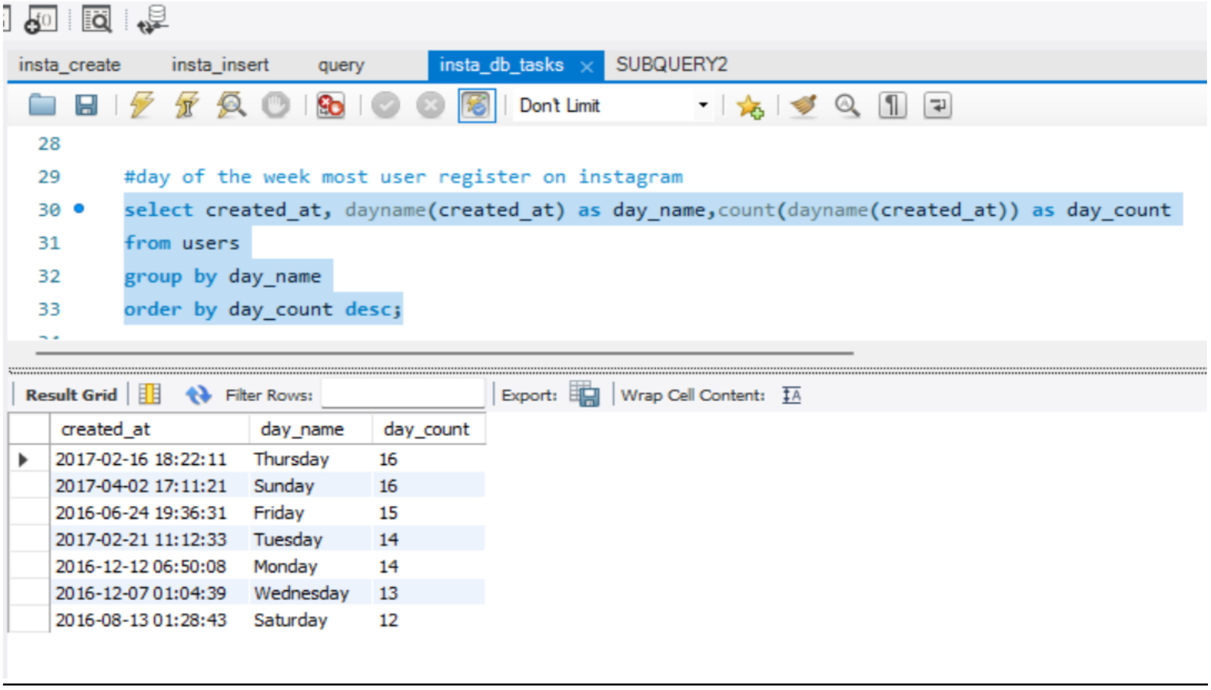


```
#top 5 most commonly used hashtags
select t.tag_name, count(pt.tag_id) as tag_count
from tags t
left join photo_tags pt
on t.id=pt.tag_id
group by t.tag_name
order by tag_count desc limit 5;
```

tag_name	tag_count
smile	59
beach	42
party	39
fun	38
concert	24

5. <u>Ad Campaign Launch</u>**:**

Determine the day of the week when most users register on Instagram. Provide insights on when to schedule an ad campaign.



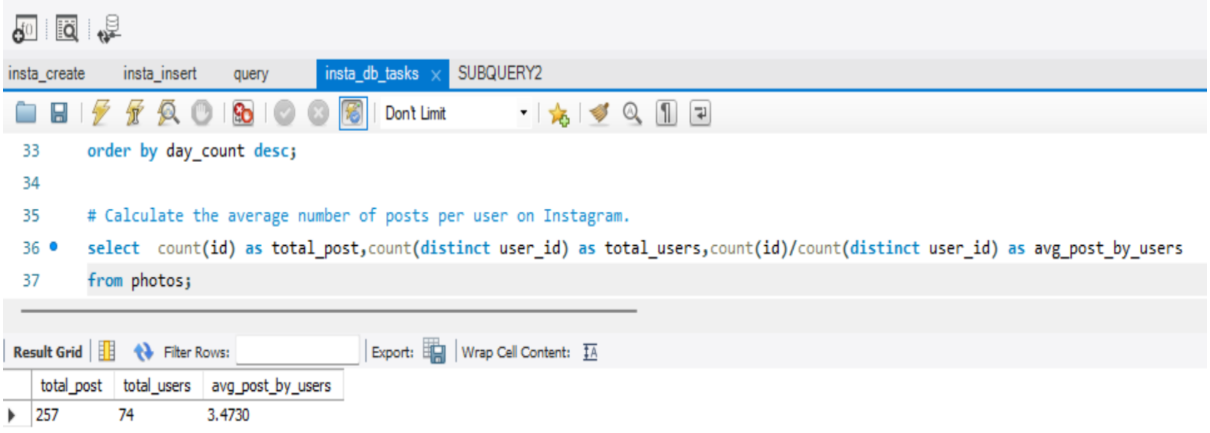
```
#day of the week most user register on instagram
select created_at, dayname(created_at) as day_name,count(dayname(created_at)) as day_count
from users
group by day_name
order by day_count desc;
```

created_at	day_name	day_count
2017-02-16 18:22:11	Thursday	16
2017-04-02 17:11:21	Sunday	16
2016-06-24 19:36:31	Friday	15
2017-02-21 11:12:33	Tuesday	14
2016-12-12 06:50:08	Monday	14
2016-12-07 01:04:39	Wednesday	13
2016-08-13 01:28:43	Saturday	12

B) Investor Metrics:

1. <u>User Engagement:</u>

Calculate the average number of posts per user on Instagram. Also, provide the total number of photos on Instagram divided by the total number of users.



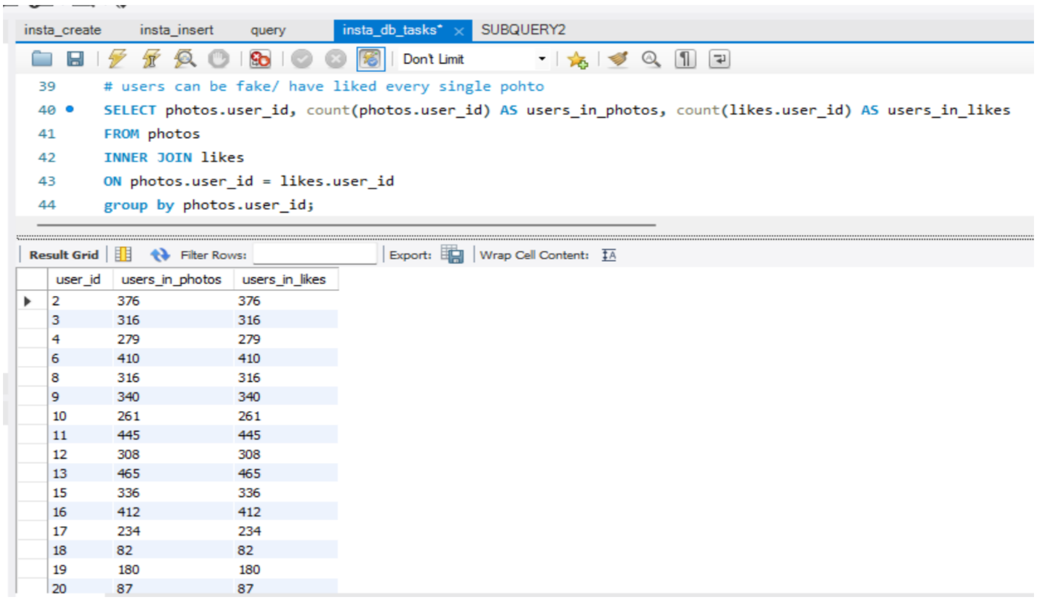
```
order by day_count desc;

# Calculate the average number of posts per user on Instagram.
select  count(id) as total_post,count(distinct user_id) as total_users,count(id)/count(distinct user_id) as avg_post_by_users
from photos;
```

total_post	total_users	avg_post_by_users
257	74	3.4730

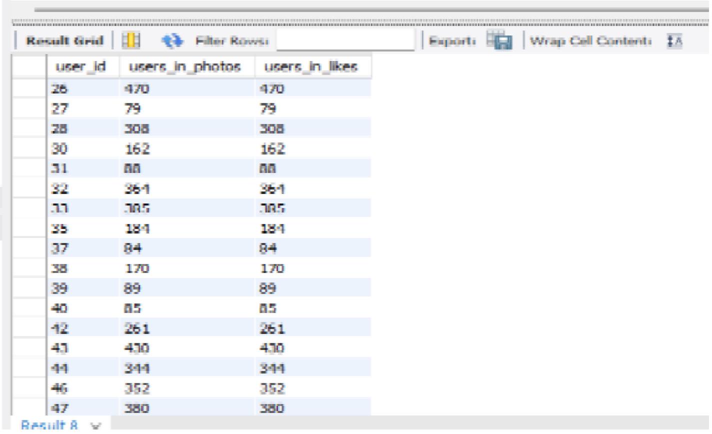
2. <u>Bots & Fake Accounts:</u>

Identify users (potential bots) who have liked every single photo on the site, as this is not typically possible for a normal user.

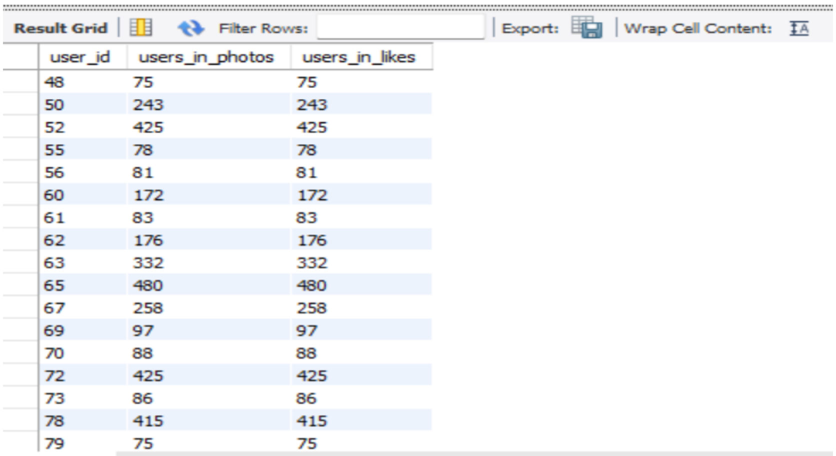


```
# users can be fake/ have liked every single pohto
SELECT photos.user_id, count(photos.user_id) AS users_in_photos, count(likes.user_id) AS users_in_likes
FROM photos
INNER JOIN likes
ON photos.user_id = likes.user_id
group by photos.user_id;
```

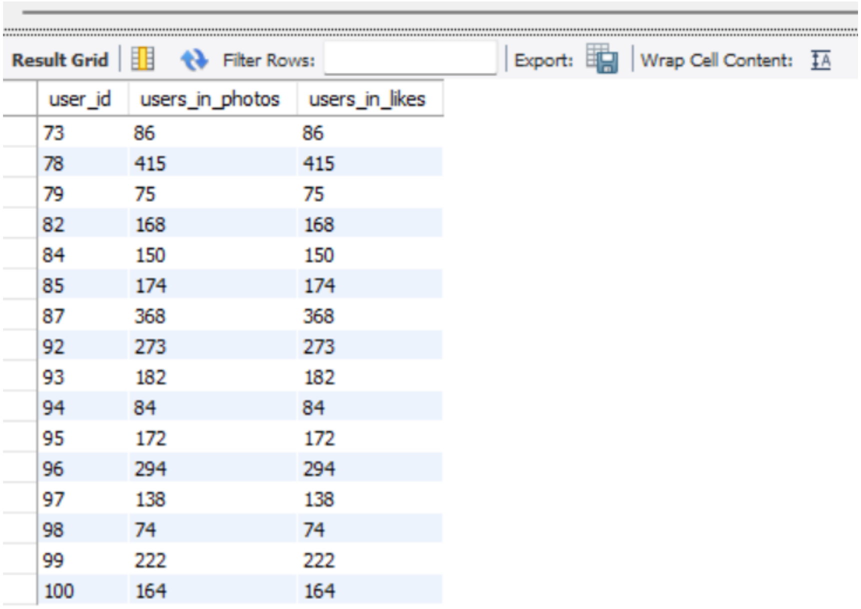
user_id	users_in_photos	users_in_likes
2	376	376
3	316	316
4	279	279
6	410	410
8	316	316
9	340	340
10	261	261
11	445	445
12	308	308
13	465	465
15	336	336
16	412	412
17	234	234
18	82	82
19	180	180
20	87	87



user_id	users_in_photos	users_in_likes
26	470	470
27	79	79
28	308	308
30	162	162
31	88	88
32	264	264
33	385	385
35	184	184
37	84	84
38	170	170
39	89	89
40	85	85
42	261	261
43	430	430
44	344	344
46	352	352
47	380	380



user_id	users_in_photos	users_in_likes
48	75	75
50	243	243
52	425	425
55	78	78
56	81	81
60	172	172
61	83	83
62	176	176
63	332	332
65	480	480
67	258	258
69	97	97
70	88	88
72	425	425
73	86	86
78	415	415
79	75	75



user_id	users_in_photos	users_in_likes
73	86	86
78	415	415
79	75	75
82	168	168
84	150	150
85	174	174
87	368	368
92	273	273
93	182	182
94	84	84
95	172	172
96	294	294
97	138	138
98	74	74
99	222	222
100	164	164

Results:

The results of the queries asked in my tasks are above and I've got many useful insights which will help the Instagram to take future actions and receive the benefits from it.

I learnt how to use MySQL queries to get the insights I want from the data from a real project.