Data analytics Trainee
Task 2 : Instagram User Analytics

Software used : MySQL Workbench

- Analysis done on the following points:-
- Part (A). Marketing :-
- Rewarding Most Loyal Users
- Remind Inactive Users to Start Posting
- Declaring the contest winners
- Hashtag Researching
- Launch AD Campaign
- Part (B). Investor Metrics :-
- User Engagement
- Bots and Fake Accounts

Marketing

Rewarding the most Loyal users: People who have been using the platform for the longest time.(Top 5 oldest Instagram users)

To find the most loyal i.e. the top 5 oldest users of Instagram:

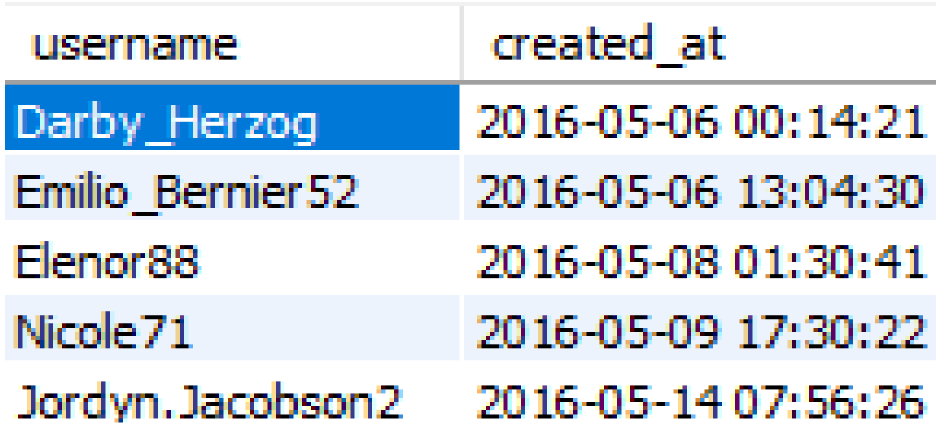
1. We will use the data from the users table by selecting the username and created_at columns.
2. Then using the order by function we will order the desired output by sorting with the created_at column in ascending order.
3. Then using the limit function, the output will be displayed for top 5 oldest Instagram users.

Program/Query:

```
select username, created_at
from users
order by created_at ASC limit 5;
```

Marketing

- Rewarding the most Loyal users: People who have been using the platform for the longest time.(Top 5 oldest Instagram users)
- Output :



username	created_at
Darby_Herzog	2016-05-06 00:14:21
Emilio_Bernier52	2016-05-06 13:04:30
Elenor88	2016-05-08 01:30:41
Nicole71	2016-05-09 17:30:22
Jordyn.Jacobson2	2016-05-14 07:56:26

Marketing

- Remind Inactive Users to Start Posting: Remind Inactive users to Start Posting(Users who never posted a single photo on Instagram)

To Find the most inactive users i.e. the users who have never posted a single photo on Instagram:

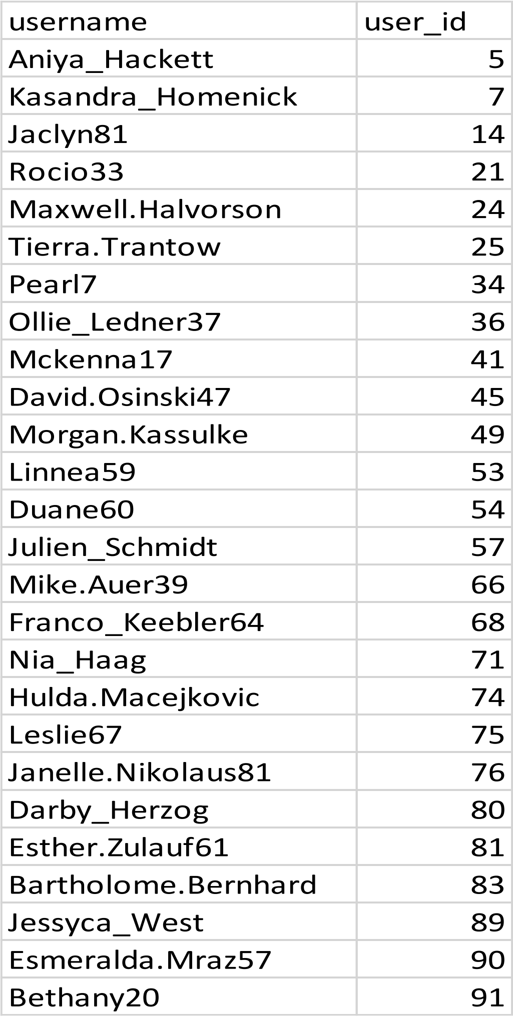
- We will first select username column from the users table.
- Then we will left join photos table on the users table, on users.id = photos.user_id because, both the users.id and photos.user_id have common contents in them.
- Then we will find rows from the users table where the photos.id IS NULL

Program/Query:

```
select username, users.id as user_id
from users
left join photos
on users.id = photos.user_id
where photos.id IS NULL
order by users.id;
```

Marketing

- Remind Inactive Users to Start Posting: Remind Inactive users to Start Posting(Users who never posted a single photo on Instagram)
- Output :



username	user_id
Aniya_Hackett	5
Kasandra_Homenick	7
Jaclyn81	14
Rocio33	21
Maxwell.Halvorson	24
Tierra.Trantow	25
Pearl7	34
Ollie_Ledner37	36
Mckenna17	41
David.Osinski47	45
Morgan.Kassulke	49
Linnea59	53
Duane60	54
Julien_Schmidt	57
Mike.Auer39	66
Franco_Keebler64	68
Nia_Haag	71
Hulda.Macejkovic	74
Leslie67	75
Janelle.Nikolaus81	76
Darby_Herzog	80
Esther.Zulauf61	81
Bartholome.Bernhard	83
Jessyca_West	89
Esmeralda.Mraz57	90
Bethany20	91

Marketing

- Declaring Contest Winner : The team started a contest and the user who gets the most likes on a single photo will win the contest now they wish to declare the winner. Identify the winner of the contest and provide their details to the team.

To find the most the username, photo_id, image_url and total_number_of_likes of that image:

- First we will select the users.username, photos.id, photos.image_url and count(*) as total
- Then, we will inner join the three tables wiz : photos, likes and users, on likes.photo_id = photos.id and photos.user_id = users.id
- Then, by using group by function we will group the output on the basis of photos.id
- Then, using order by function we will sorting the data on the basis of the total in descending order
- Then, to find the most liked photo we will using limit function to view only the top liked photo’s information

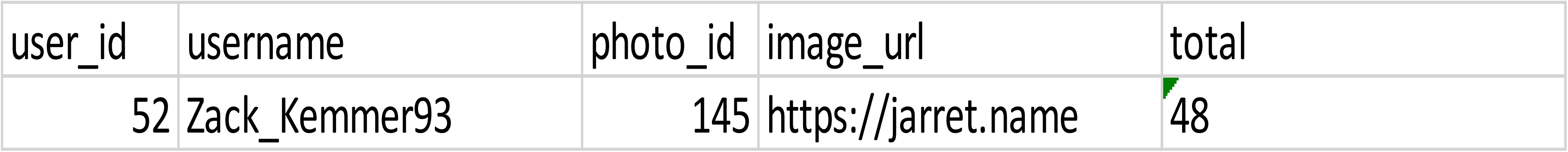
Marketing

- Declaring Contest Winner : The team started a contest and the user who gets the most likes on a single photo will win the contest now they wish to declare the winner. Identify the winner of the contest and provide their details to the team.
- Program/Query :

```
select users.id as user_id, users.username, photos.id as photo_id,
photos.image_url, count(*) as total
from photos
inner join likes
on likes.photo_id = photos.id
inner join users
on photos.user_id = users.id
group by photos.id
order by total DESC
limit 1;
```

Marketing

- Output :



user_id	username	photo_id	image_url	total
52	Zack_Kemmer93	145	https://jarret.name	48

Marketing

- Hashtag Researching : A partner brand wants to know, which hashtags to use in the post to reach the most people on the platform.(Top 5 commonly used #Hashtags on Instagram)

To find the top 5 most commonly used hashtags on Instagram:

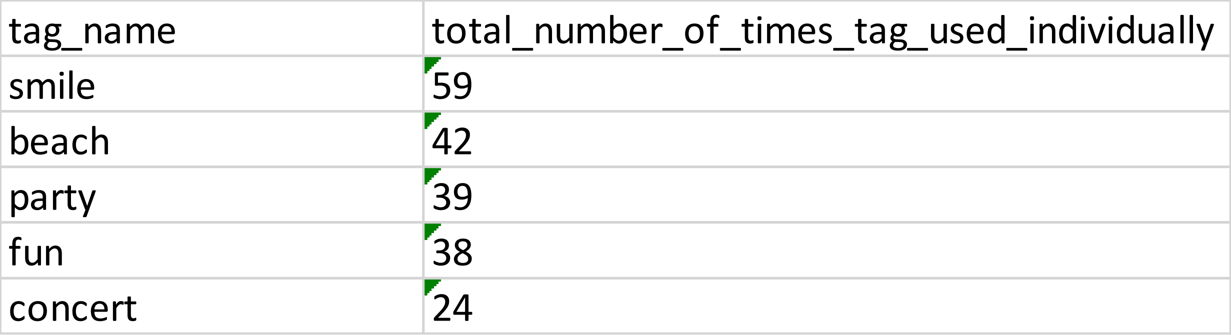
- We need to select the tag_name column from the tag table and the count(*) as total function so as to count the number of tags used individually.
- Then, we need to join tags table and photo_tags table, on tags.id = photo_tags.tag_id cause they contain the same content in them i.e. tag_id
- Then using the group by function we need to group the desired output on the basis of tags.tag_name
- Then using the order by function we need to sort the output on the basis of total(total number of tags per tag_name) in descending order
- Then, to find the top 5 most used tag names we will use the limit 5 function.

Marketing

- Program/Query :

```
select tags.tag_name, count(*) as total_number_of_times_tag_used_individually
from tags
join photo_tags
on tags.id = photo_tags.tag_id
group by tags.tag_name
order by total_number_of_times_tag_used_individually DESC
limit 5;
```

Output :



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

Marketing

- Launch AD Campaign : The team wants to know, which day would be the best day to launch ADs. (What day of the week do most users register on?)
- To find the day of week on which most users register on Instagram:
- First we define the columns of the desired output table using select dayname(created_at) as day_of_week and count(*) as total_number_of_users_registered from the users table
- Then using the group by function we group the output table on the basis of day_of_week
- Then using the order by function we order/sort the output table on the basis of total_number_of_users_registered in descending order

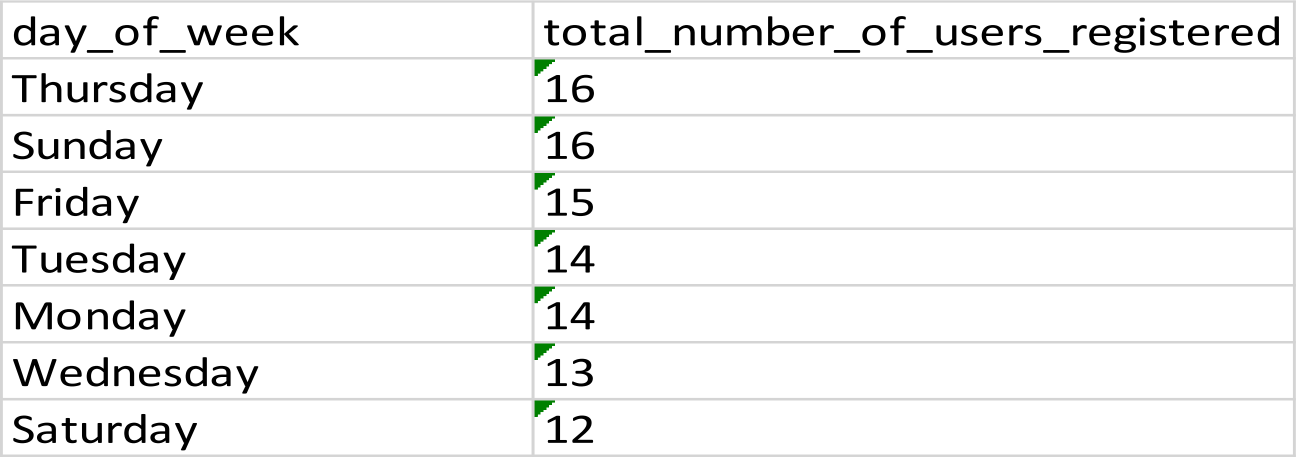
Marketing

- Launch AD Campaign : The team wants to know, which day would be the best day to launch ADs. (What day of the week do most users register on?)

Program/Query :

```
select dayname(created_at) as day_of_week, count(*) as total_number_of_users_registered
from users
group by day_of_week
order by total_number_of_users_registered DESC;
```

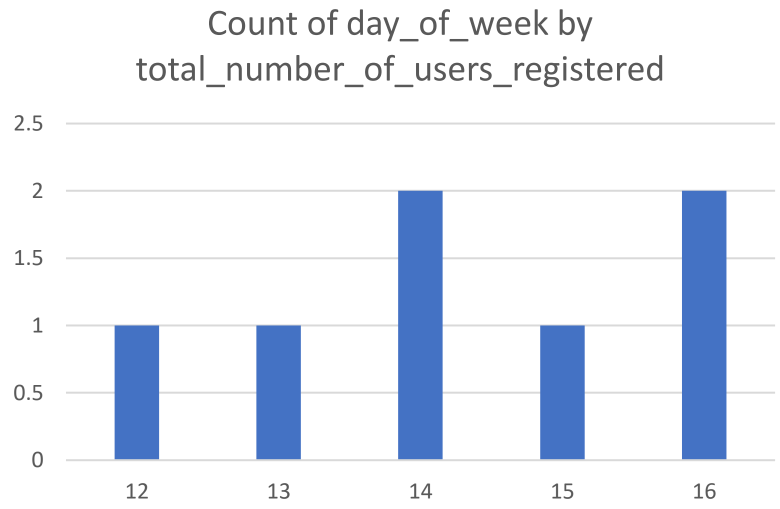
- Output :



day_of_week	total_number_of_users_registered
Thursday	16
Sunday	16
Friday	15
Tuesday	14
Monday	14
Wednesday	13
Saturday	12

Marketing

- Launch AD Campaign : The team wants to know, which day would be the best day to launch ADs. (What day of the week do most users register on?)



Investor Metrics

- User Engagement : Are users still as active and post on Instagram or they are making fewer posts. How many times does average user posts on Instagram? Also, provide the total number of photos on Instagram/total number of users.
- To find the how many times does average posts on Instagram:
- First, we need to find first the count number of photos(posts) that are present in the photos.id column of the photos table i.e. count(*) from photos
- Similarly, we need to find the number of users that are present in the users.id column of the users table i.e. count(*) from users
- Next, we need to divide both the values i.e. count(*) from photos/count(*) from users and hence we would get the total number of photos / total number of users
- To find how many times the users posts on Instagram we need to find the total occurrences of each user_id in photos table

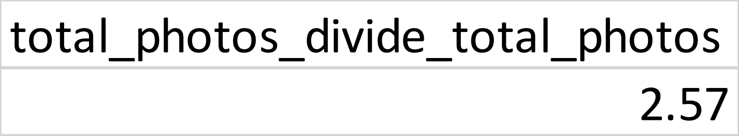
Investor Metrics

- User Engagement : Are users still as active and post on Instagram or they are making fewer posts. How many times does average user posts on Instagram? Also, provide the total number of photos on Instagram/total number of users.

Program/Query to find (total number of photos/total number of users) :

```
select
(select count(*) from photos)/(select count(*) from users) as
total_photos_divide_total_photos;
```

Output :



total_photos_divide_total_photos
2.57

Investor Metrics

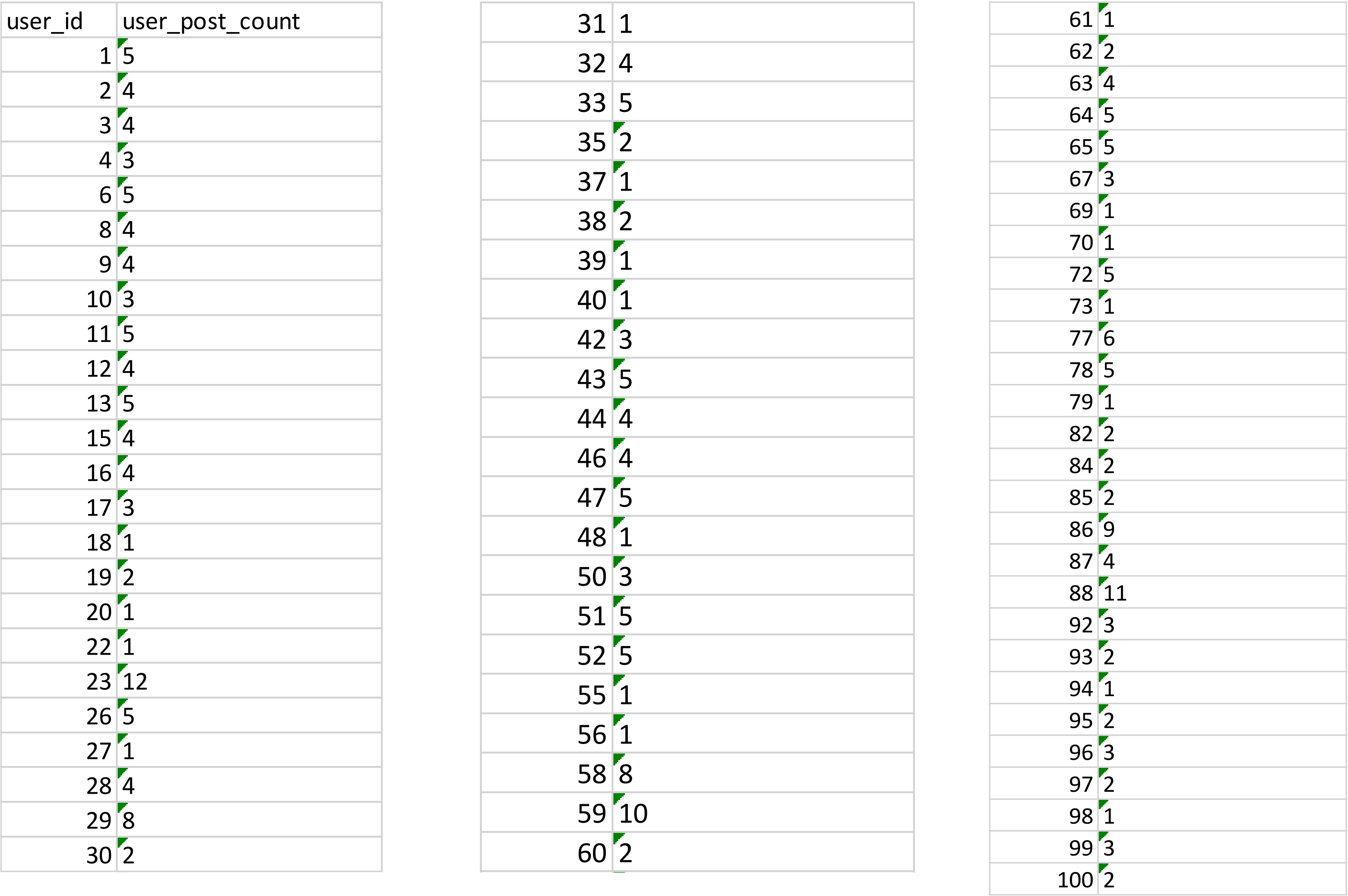
- User Engagement : Are users still as active and post on Instagram or they are making fewer posts. How many times does average user posts on Instagram? Also, provide the total number of photos on Instagram/total number of users.
- Program/Query to find the times each user posts on Instagram :

```
select user_id,count(*) as user_post_count
from photos
group by user_id
order by user_id;
```

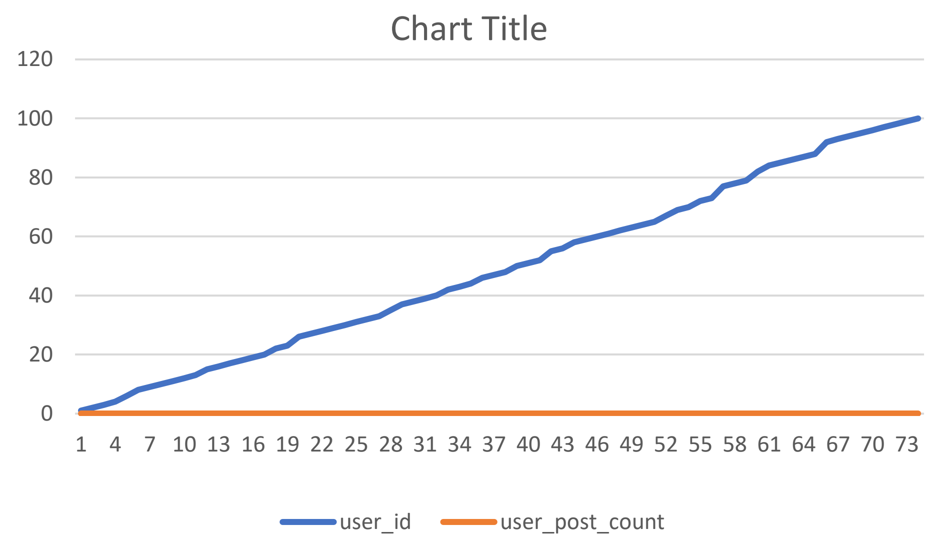
Output :

Investor Metrics

- User Engagement : Are users still as active and post on Instagram or they are making fewer posts. How many times does average user posts on Instagram? Also, provide the total number of photos on Instagram/total number of users.
- Output :



user_id	user_post_count
1	5
2	4
3	4
4	3
6	5
8	4
9	4
10	3
11	5
12	4
13	5
15	4
16	4
17	3
18	1
19	2
20	1
22	1
23	12
26	5
27	1
28	4
29	8
30	2
31	1
32	4
33	5
35	2
37	1
38	2
39	1
40	1
42	3
43	5
44	4
46	4
47	5
48	1
50	3
51	5
52	5
55	1
56	1
58	8
59	10
60	2
61	1
62	2
63	4
64	5
65	5
67	3
69	1
70	1
72	5
73	1
77	6
78	5
79	1
82	2
84	2
85	2
86	9
87	4
88	11
92	3
93	2
94	1
95	2
96	3
97	2
98	1
99	3
100	2



Investor Metrics

- Bots and Fake Accounts : The investors want to know if the platform is crowded with fake and dummy accounts. Provide data on users (bots) who have liked every single photo on the site (since any normal user would not be able to do this).
- To find the bots and fake accounts :
- First, we select the user_id column from the photos table
- Then we select the username column from the users table
- Then, we select the count(*) function to count total number of likes from the likes table
- Then we inner join users and likes table on the basis of users.id and likes.user_id, using the on function/clause
- Then by using the group by function we group the desired output table on the basis of likes.user_id
- Then, we search for the values from the cout(*) from photos having equal values with the total_likes_per_us

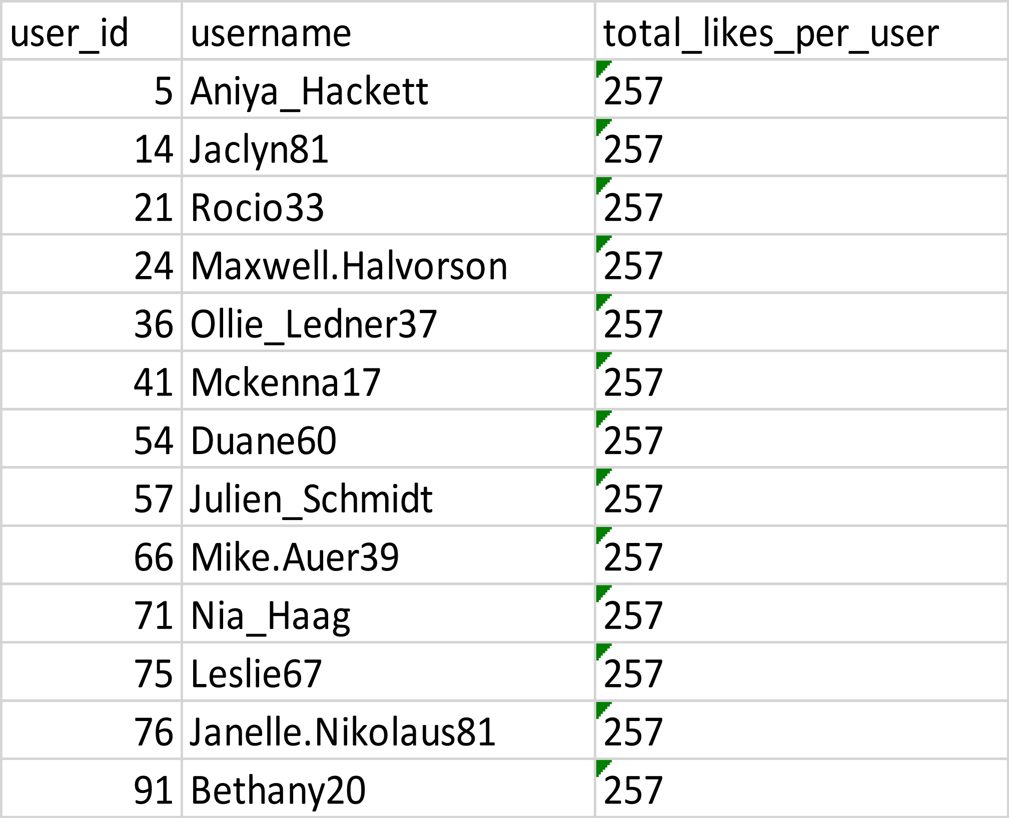
Investor Metrics

- Bots and Fake Accounts : The investors want to know if the platform is crowded with fake and dummy accounts. Provide data on users (bots) who have liked every single photo on the site (since any normal user would not be able to do this).
- Program/Query :

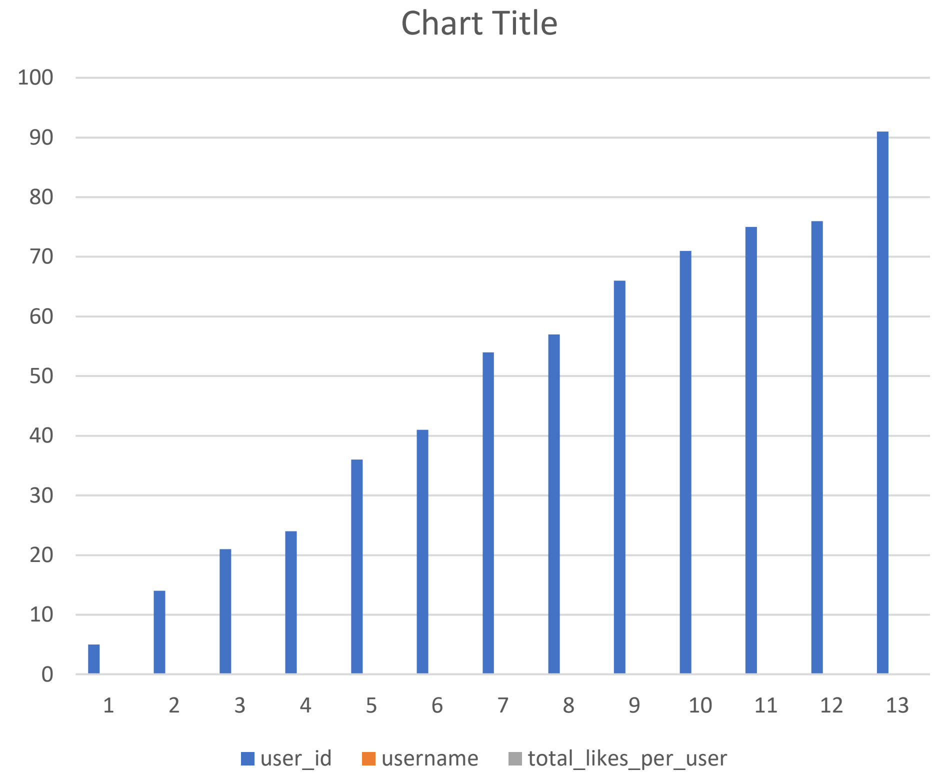
```
select user_id, username, count(*) as total_likes_per_user
from users
inner join likes
on users.id = likes.user_id
group by likes.user_id
having total_likes_per_user = (select count(*) from photos);
```

Investor Metrics

- Bots and Fake Accounts : The investors want to know if the platform is crowded with fake and dummy accounts. Provide data on users (bots) who have liked every single photo on the site (since any normal user would not be able to do this).
- Output :



user_id	username	total_likes_per_user
5	Aniya_Hackett	257
14	Jaclyn81	257
21	Rocio33	257
24	Maxwell.Halvorson	257
36	Ollie_Ledner37	257
41	Mckenna17	257
54	Duane60	257
57	Julien_Schmidt	257
66	Mike.Auer39	257
71	Nia_Haag	257
75	Leslie67	257
76	Janelle.Nikolaus81	257
91	Bethany20	257



- In this task all the concepts related to SQL in Data Analytics have been used as well as some EXCEL