Instagram User Analytics

Project Description:
User analysis is the process by which we track how users engage and interact with our digital product (software or mobile application) in an attempt to derive business insights for marketing, product & development teams.
These insights are then used by teams across the business to launch a new marketing campaign, decide on features to build for an app, track the success of the app by measuring user engagement and improve the experience altogether while helping the business grow.
You are working with the product team of Instagram and the product manager has asked you to provide insights on the questions asked by the management team.

You are required to provide a detailed report answering the questions below:

A) Marketing: The marketing team wants to launch some campaigns, and they need your help with the following

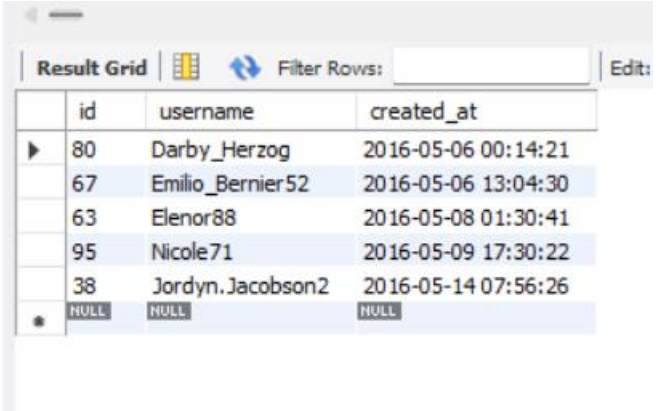
1. Rewarding Most Loyal Users: People who have been using the platform for the longest time.
   Your Task: Find the 5 oldest users of the Instagram from the database provided

   Answer:

   ```
   select * from users

   order by created_at

   limit 5;
   ```



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

2. Remind Inactive Users to Start Posting: By sending them promotional emails to post their 1st photo.
   Your Task: Find the users who have never posted a single photo on Instagram

   Answer:

   select id, username from users where id not in (select distinct user_id from photos);

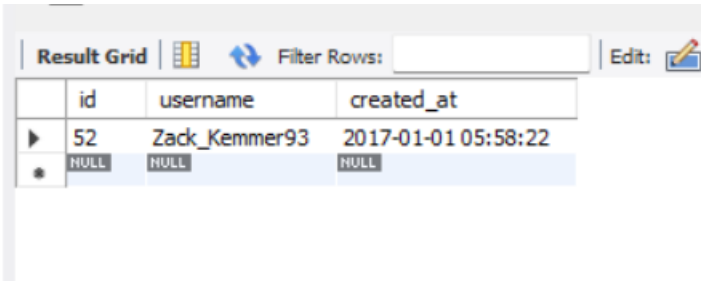
Result Grid | Filter Rows:

id	username
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
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. 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.
   Your Task: Identify the winner of the contest and provide their details to the team

   Answer:

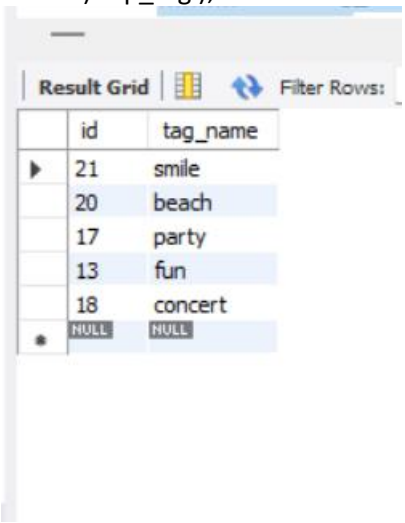
   select * from users where id = (select user_id from photos where id = (select photo_id from likes group by photo_id order by count(user_id) desc limit 1));



4. Hashtag Researching: A partner brand wants to know, which hashtags to use in the post to reach the most people on the platform.
   Your Task: Identify and suggest the top 5 most commonly used hashtags on the platform

   Answer:

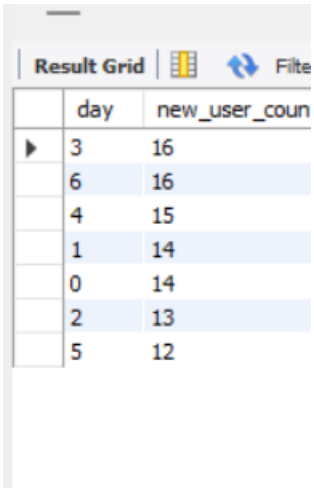
   select id, tag_name from tags where id in (select tag_id from (select tag_id, count(photo_id) as tag_count from photo_tags group by tag_id order by tag_count desc limit 5) top_tag);



5. Launch AD Campaign: The team wants to know, which day would be the best day to launch ADs.
   Your Task: What day of the week do most users register on? Provide insights on when to schedule an ad campaign

   Answer:

   select weekday(created_at) as day, count(id) as new_user_count
   from users
   group by day
   order by new_user_count desc;



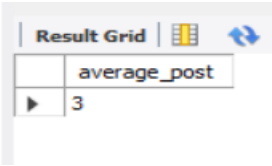
day	new_user_coun
3	16
6	16
4	15
1	14
0	14
2	13
5	12

B) Investor Metrics: Our investors want to know if Instagram is performing well and is not becoming redundant like Facebook, they want to assess the app on the following grounds

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

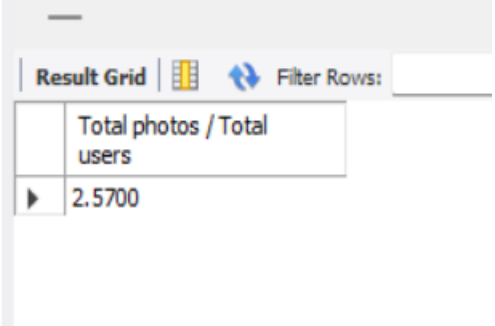
   Answer:

   ```
   select round(avg(photo_count)) as 'average_post' from ( select user_id, count(id) as photo_count from photos group by user_id )temp;
   ```



average_post
3

```
select count(id) as Total_photos from photos;
select count(id) as Total_users from users;
select (select count(id) as total_photos from photos) /
(select count(id) as total_users from users) as 'Total photos / Total users';
```



Total photos / Total users
2.5700

2. Bots & Fake Accounts: The investors want to know if the platform is crowded with fake and dummy accounts
   Your Task: 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).

   Answer:

   select id, username as BOT_Names from users where id in (select user_id from likes group by user_id having count(photo_id) = (select count(id) as Total_Photos from photos));

Result Grid | Filter Rows:

id	BOT_Names
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
76	Janelle.Nikolaus81
91	Bethany20
NULL	NULL

Result:
By completing the project, I am feeling more confident in my SQL knowledge. It really helped me to brush up on my concepts related to Sub-queries and Aggregate functions. It also helped me to understand the table schema and how normalization can better help to understand the dataset.

Project Done by

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