Instagram User Analytics

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Project Description

- The Project is mainly about Data Analysis process carried out to find better insights upon various kinds of data for organization to build useful products either software or hardware based on the user interaction in this platform.
- This will help the organization make decision to improve the user engagement and better social connectivity between users
- The process will have many queries to get fulfilled to derive the insights we are looking for.
- We will use two types of data analysis such as descriptive and predictive analysis to derive insights by which we will first look on the data and analyse past performance of the data and then we will conclude a future based solution as an insight to help the organization improve its future performance with the users and other outside organizations for advertisement.
- The task assigned here below were to be performed to attain the above insights.

Tasks to be Performed:

A. Marketing Analysis:

1. Loyal User Reward
2. Inactive User Engagement
3. Contest Winner Declaration
4. Hashtag Research
5. Ad Campaign Launch

B. Investor Metrics:

1. User Engagement
2. Bots & Fake Accounts

Tech Details:

MySQL Workbench 8.0.32 Community is a powerful, free, and open-source graphical tool for MySQL database administration and development. It provides an integrated environment for:

- **Database Design & Modeling** – Allows users to visually create and manage database schemas using an intuitive interface.
- **SQL Development** – Includes a built-in SQL editor for writing, executing, and optimizing queries.
- **Server Administration** – Helps in managing users, monitoring database performance, and configuring server settings.
- **Data Migration** – Supports migration from other database systems like Microsoft SQL Server, PostgreSQL, and more.

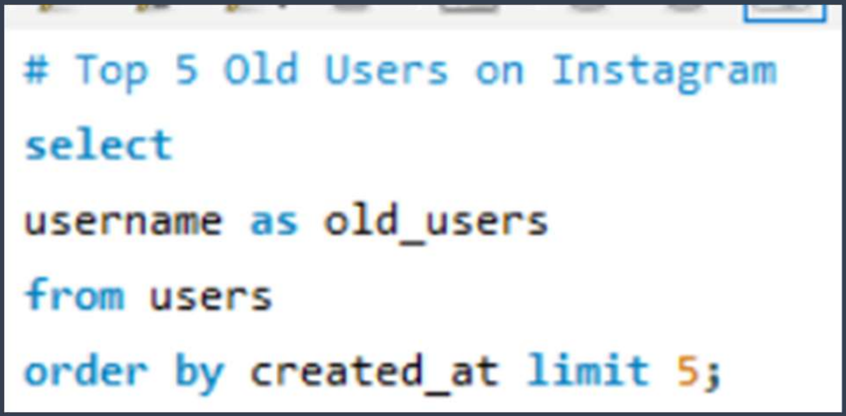
Approach

- To perform our analysis process we need to create a database to work on running SQL commands
- We can use the MySQL Workbench 8.0.32 Community Software to create our database.
- The created SQL database will have multiple tables which contains multiple columns in which the data is stored.
- To attain required results for our queries as said earlier in ‘project description’ we need to give the specific SQL query as a command to fetch the required result.
- For this process we’ll use common commands like SELECT, WHERE, GROUP BY, HAVING, JOIN , LIMIT, etc.
- With all those done neatly, I’ll help you with assistance in understanding how the attained results will be relevant to the queries by which you can find the required insights.

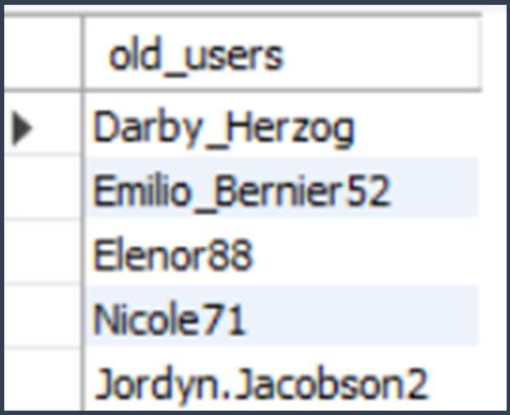
Loyal User Reward

- The marketing team wants to reward the most loyal users, , i.e., those who have been using the platform for the longest time.

- So I was asked to find the 5 most old users on Instagram.
- We just used a query to find the result by using the username column in users table by ordering them in ascending based on the column ‘created_at’ limiting only with 5 rows



```
# Top 5 Old Users on Instagram
select
username as old_users
from users
order by created_at limit 5;
```

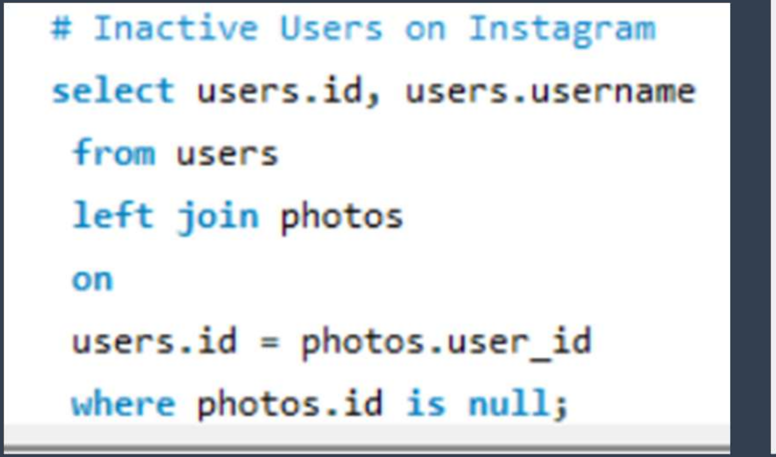


old_users
Darby_Herzog
Emilio_Bernier52
Elenor88
Nicole71
Jordyn.Jacobson2

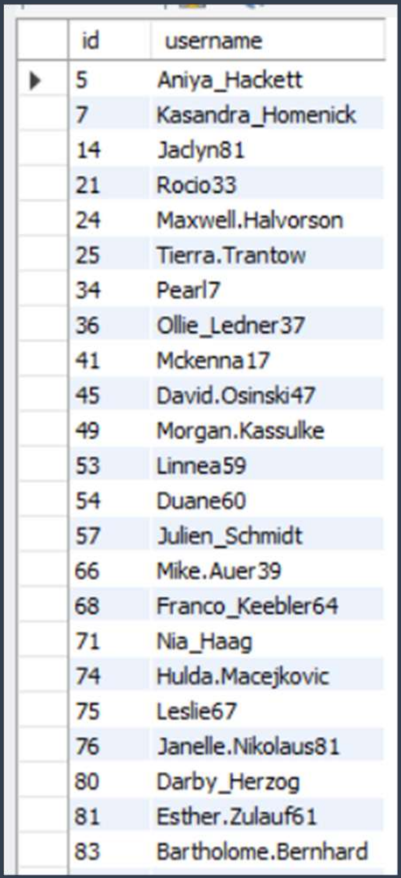
Inactive User Engagement

- The team wants to encourage inactive users to start posting by sending them promotional emails.
- To resolve this I was assigned a task to filter out users those who have never posted on Instagram.

- We performed simple **LEFT JOIN** operations on ‘photos’ table with ‘users’ table



```
# Inactive Users on Instagram
select users.id, users.username
 from users
 left join photos
 on
 users.id = photos.user_id
 where photos.id is null;
```

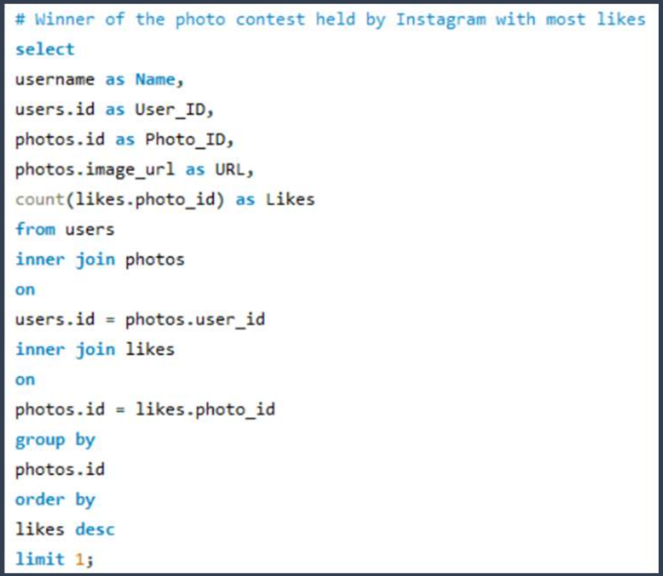


id	username
5	Aniya_Hackett
7	Kasandra_Homenick
14	Jaclyn81
21	Rocio33
24	Maxwell.Halvorson
25	Tierra.Trantow
34	Pearl7
36	Ollie_Ledner37
41	Mckenna17
45	David.Osinski47
49	Morgan.Kassulke
53	Linnea59
54	Duane60
57	Julien_Schmidt
66	Mike.Auer39
68	Franco_Keebler64
71	Nia_Haag
74	Hulda.Macejkovic
75	Leslie67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

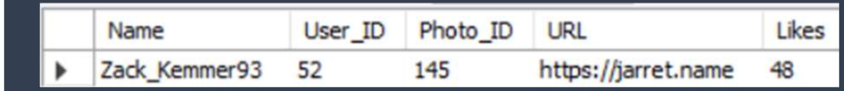
Contest Winner Declaration

The team has organized a contest where the user with the most likes on a single photo wins.
I was assigned a task to find the winner of the contest conducted by them

To find the winner I have performed some **INNER JOIN** operations between tables such as users, photos, likes and AGGREGATE function to find likes obtained by the winner



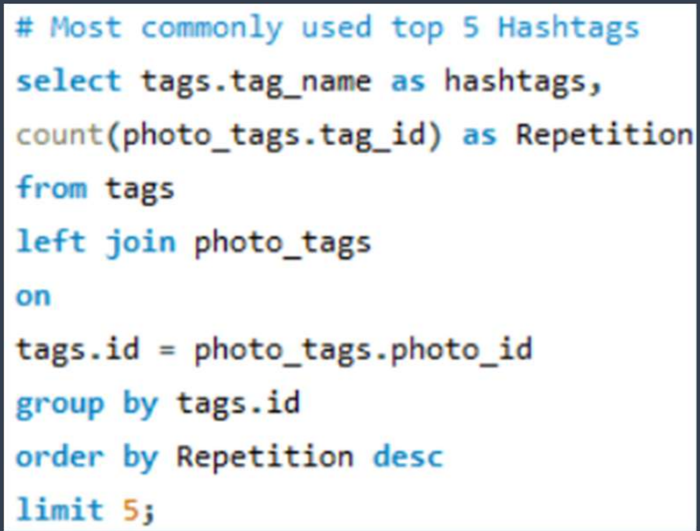
```
# Winner of the photo contest held by Instagram with most likes
select
username as Name,
users.id as User_ID,
photos.id as Photo_ID,
photos.image_url as URL,
count(likes.photo_id) as Likes
from users
inner join photos
on
users.id = photos.user_id
inner join likes
on
photos.id = likes.photo_id
group by
photos.id
order by
likes desc
limit 1;
```



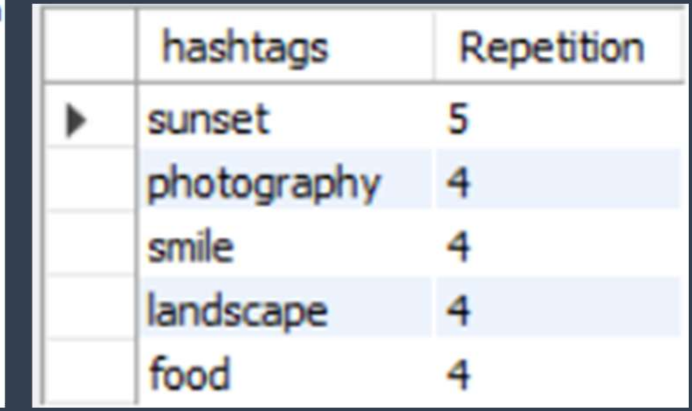
	Name	User_ID	Photo_ID	URL	Likes
▶	Zack_Kemmer93	52	145	https://jarret.name	48

Hashtag Research

- A partner brand wants to know the most popular hashtags to use in their posts to reach the most people.
- By seeing the columns in each table I’ve found out I can find the commonly used hashtags by performing a **LEFT JOIN** operation of ‘tags’ table with ‘photo_tags’ table



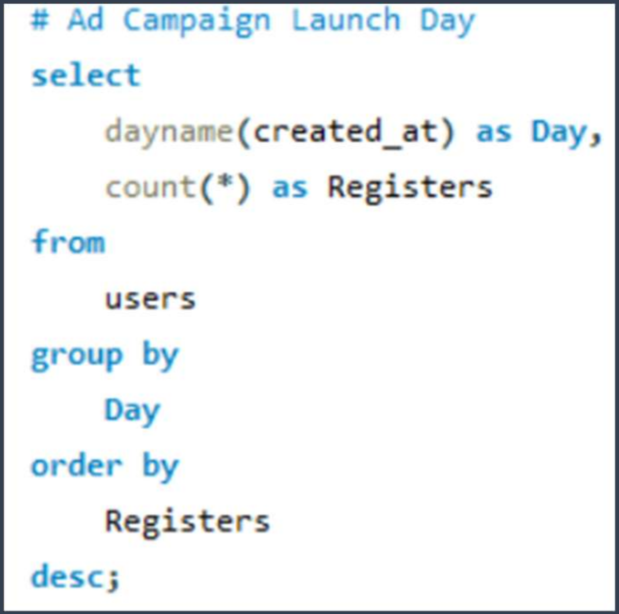
```
# Most commonly used top 5 Hashtags
select tags.tag_name as hashtags,
count(photo_tags.tag_id) as Repetition
from tags
left join photo_tags
on
tags.id = photo_tags.photo_id
group by tags.id
order by Repetition desc
limit 5;
```



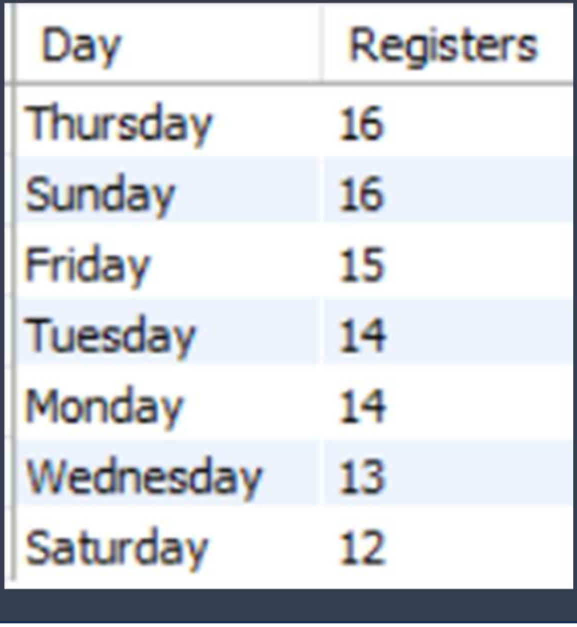
hashtags	Repetition
sunset	5
photography	4
smile	4
landscape	4
food	4

Ad Campaign Launch

- The team wants to know the best day of the week to launch ads.
- I’ve used the date functions to find the day of the date the posts were posted by users.
- By Grouping the days of the week of each posts we can find the day in which most posts created.



```
# Ad Campaign Launch Day
select
    dayname(created_at) as Day,
    count(*) as Registers
from
    users
group by
    Day
order by
    Registers
desc;
```

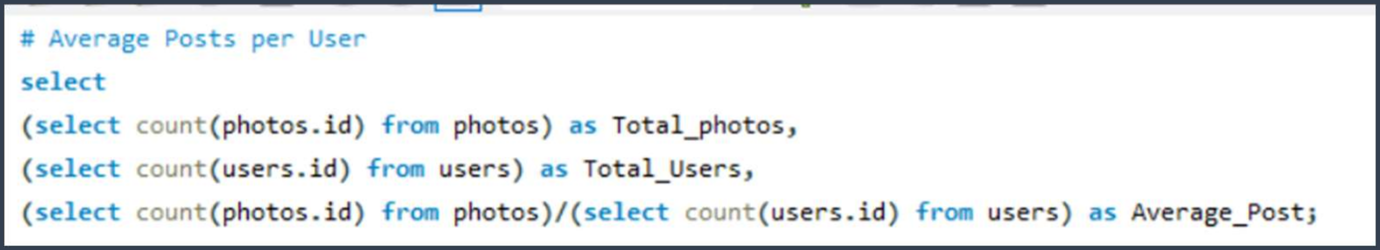


Day	Registers
Thursday	16
Sunday	16
Friday	15
Tuesday	14
Monday	14
Wednesday	13
Saturday	12

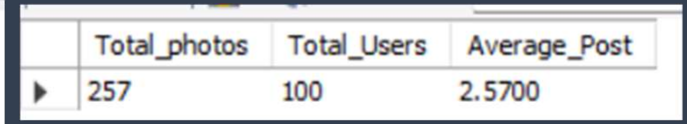
User Engagement

- Investors want to know if users are still active and posting on Instagram or if they are making fewer posts.

- To find the users still active by posting on Instagram or not I’ve used subqueries to create columns to find the value of no of posts/per user
- This will fetch the value by dividing the no of posts posted by no of users on Instagram



```
# Average Posts per User
select
(select count(photos.id) from photos) as Total_photos,
(select count(users.id) from users) as Total_Users,
(select count(photos.id) from photos)/(select count(users.id) from users) as Average_Post;
```

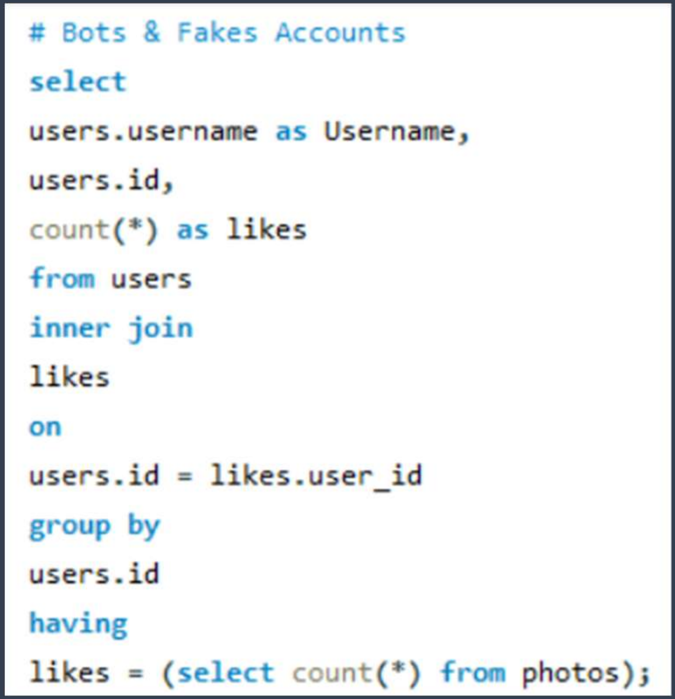


	Total_photos	Total_Users	Average_Post
▶	257	100	2.5700

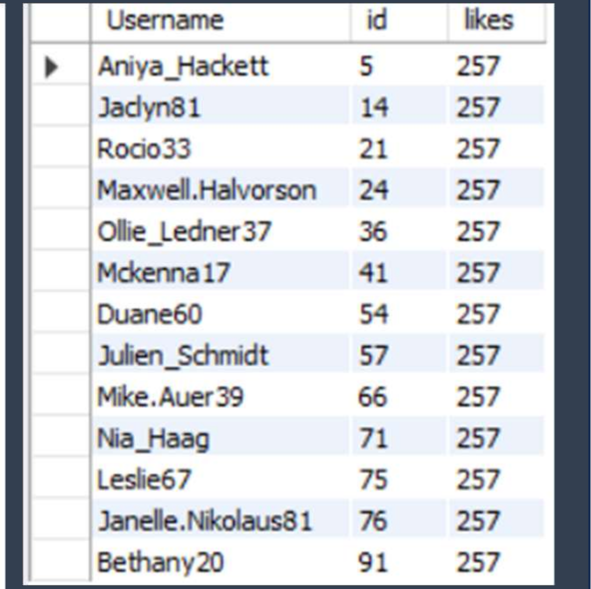
Bots & Fake Accounts

- Investors want to know if the platform is crowded with fake and dummy accounts.

- Identifying the bot accounts are not easy as identifying a fake accounts.
- But there’s a way to find it.
- By performing **INNER JOIN** operation between ‘users’ and ‘likes ’ tables we can filter the accounts which are liking every posts on Instagram.



```
# Bots & Fakes Accounts
select
users.username as Username,
users.id,
count(*) as likes
from users
inner join
likes
on
users.id = likes.user_id
group by
users.id
having
likes = (select count(*) from photos);
```



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

Results

- I believe we’ve found insights for all the queries asked by the organization
- I hope this insights are useful for Instagram to improve user engagement in the platform and improve advertisement growth over here
- This project is deeply helpful on understanding of how the data analysis process is being carried out in real world scenarios.
- This Instagram User Analytics is one of the best example for users to get a clear idea on how the process is done and how much knowledge on tools is needed to accomplish the tasks.
- The key learning of this project how one develop the analytical mindset to find which one to pick to solve the problem rightly.

Thank you!