INSTAGRAM

USER ANALYTICS

TRAINITY

PROJECT-2

DESCRIPTION

Welcome to the data analysis project, where I delves into the intricate world of Instagram(clone),As a learning data analyst embedded with the Instagram trainity team, I'm diving into user interaction metrics to uncover valuable insights that can shape the future of this iconic social media platform. Using the powerful combination of SQL and MySQL Workbench, my mission is to translate data into strategic decisions, from boosting user engagement to refining product features, and empower the product, marketing and investor teams with data-driven intelligence .

By analyzing:

- Most loyal users
- Inactive users
- User with the most likes on a single post
- most popular hashtags
- Day of the week when most users registered on Instagram
- Ad campaign launch
- Boats and Fake accounts

APPROACH:

- Firstly, I imported the dataset provided by team into MySQL workbench
- Understood the Data schema thoroughly ,the structure of Instagram database ,including tables, columns and relationship
- Data analysis using MYSQL
- Applying appropriate queries to solve given problem statements

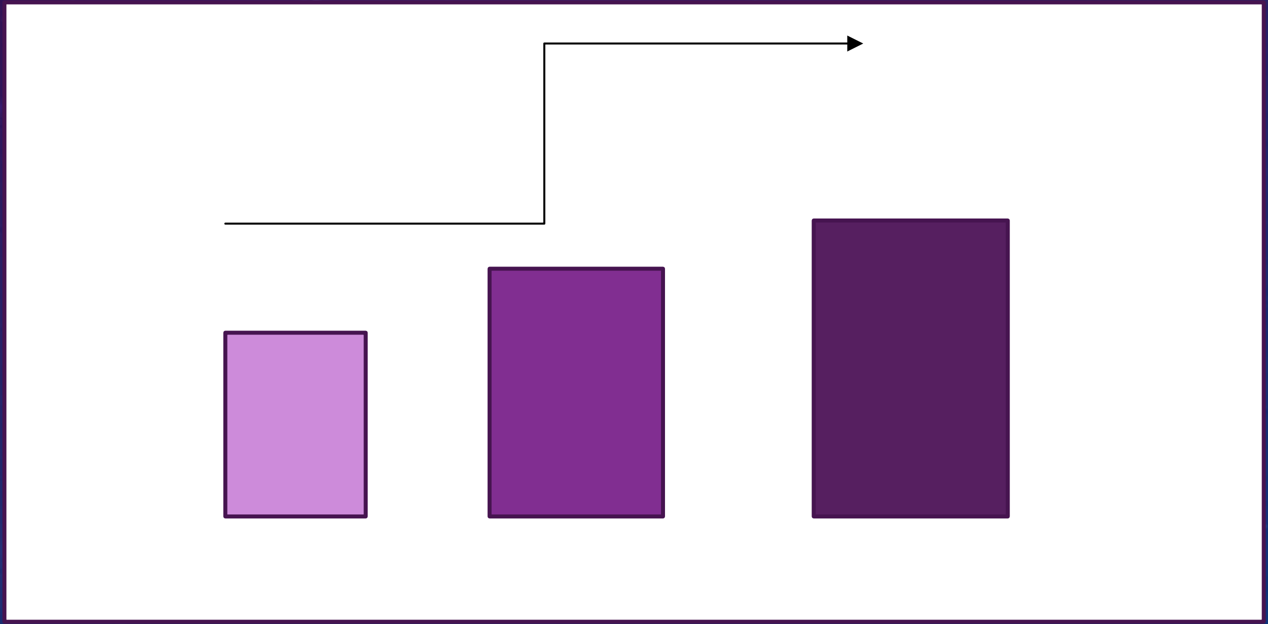
TECH-STACK USED:

- MYSQL WORKBENCH 8.0 CE

MySQL Workbench 8.0 CE offers a user-friendly interface for managing databases, featuring tools for visual database design, SQL development, and administration. It allows users to create and manage ER diagrams, write and debug SQL code, and handle tasks like backups, recovery, and user management. With cross-platform compatibility, visual performance dashboards, and support for plugins and scripting, it simplifies database design, development, and maintenance, making it an ideal tool for developers and administrators.

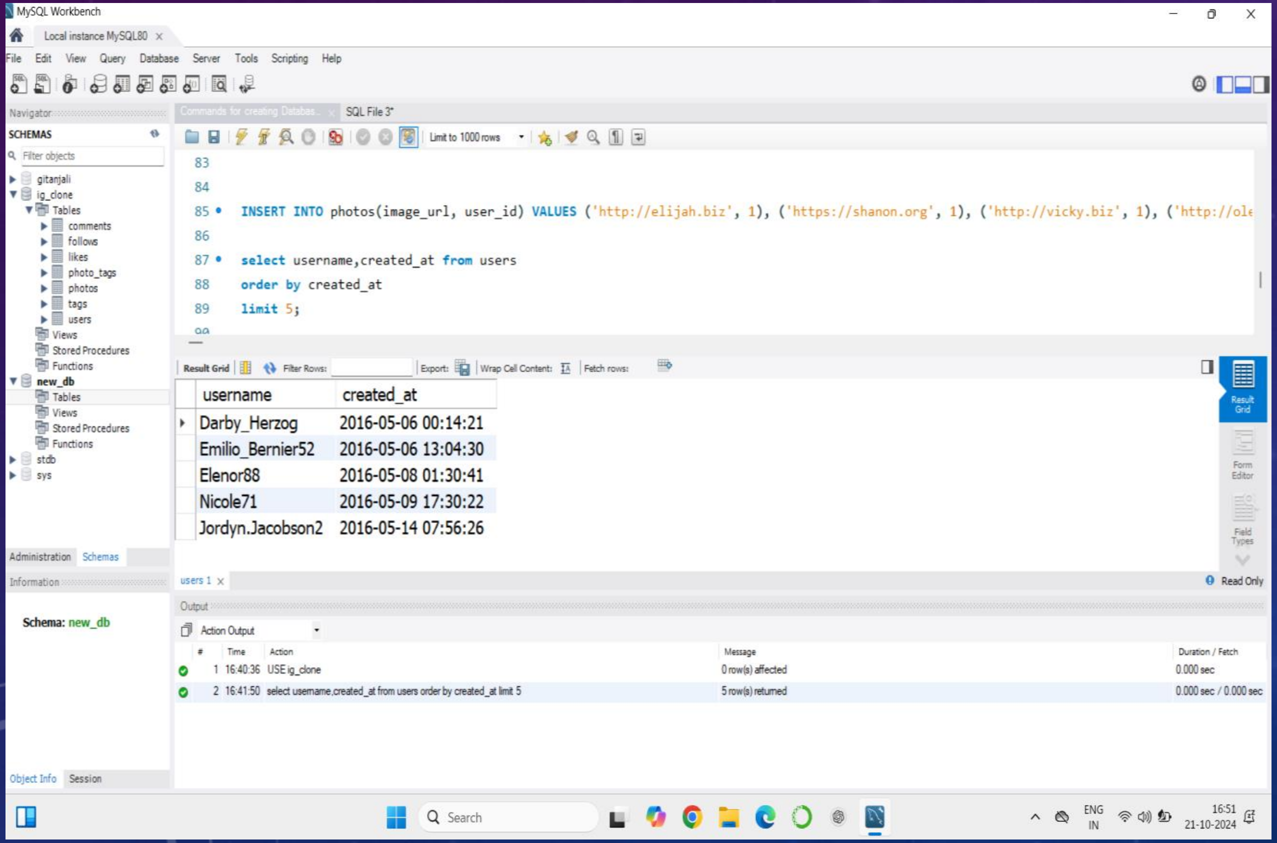
INSIGHTS

Marketing Analysis



1. LOYAL USER REWARD

TASK: The top five oldest users on Instagram from the provided dataset.



```
INSERT INTO photos(image_url, user_id) VALUES ('http://elijah.biz', 1), ('https://shanon.org', 1), ('http://vicky.biz', 1), ('http://ole

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

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

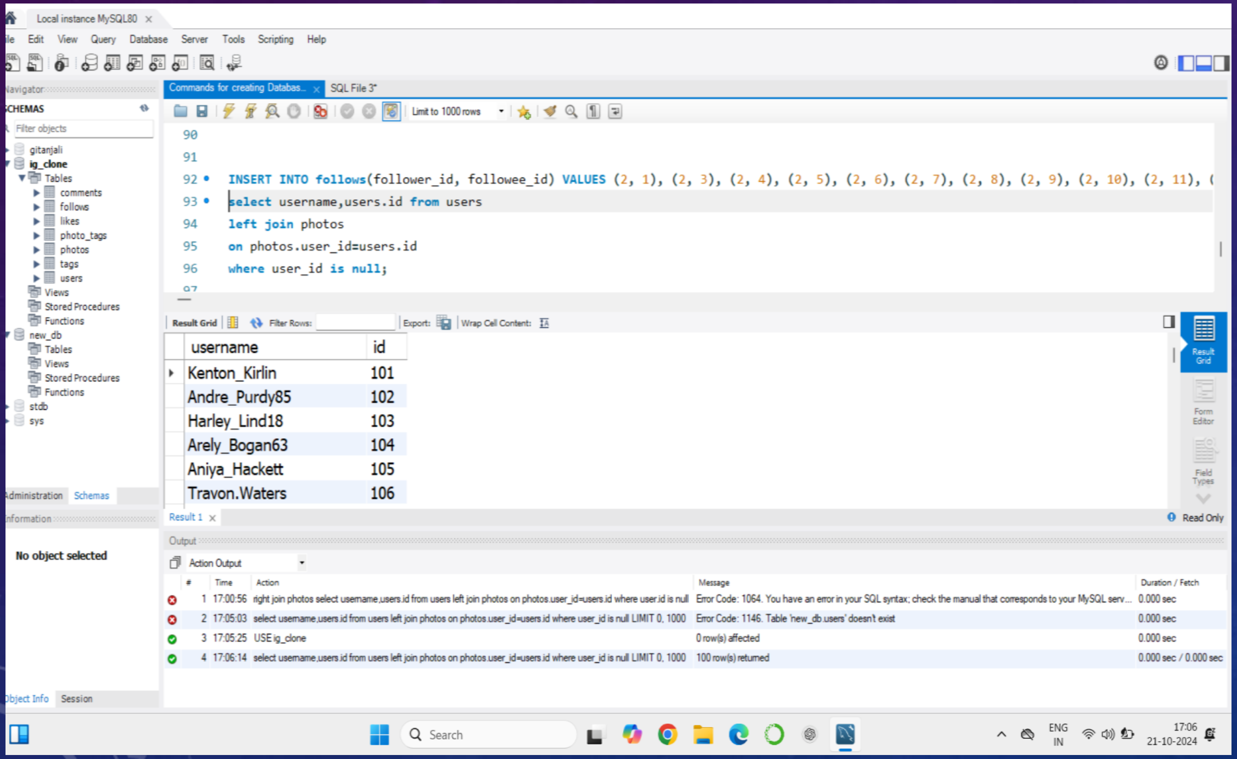
```
#  Time      Action                                                   Message              Duration / Fetch
1  16:40:36  USE ig_clone                                             0 row(s) affected    0.000 sec
2  16:41:50  select username,created_at from users order by created_at limit 5   5 row(s) returned    0.000 sec / 0.000 sec
```

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

- To find the solution to this problem, I simply selected the required the columns from users table and ordered them accordingly. Since the required limit was 5, so I put on the limit condition to be 5.

2. ACTIVE USER ENGAGEMENT

Task: Identify users who have never posted a single photo on Instagram



```
INSERT INTO follows(follower_id, followee_id) VALUES (2, 1), (2, 3), (2, 4), (2, 5), (2, 6), (2, 7), (2, 8), (2, 9), (2, 10), (2, 11), (
select username,users.id from users
left join photos
on photos.user_id=users.id
where user_id is null;
```

username	id
Kenton_Kirlin	101
Andre_Purdy85	102
Harley_Lind18	103
Arely_Bogan63	104
Aniya_Hackett	105
Travon.Waters	106

```
#  Time      Action                                                                                                   Message                                                                                        Duration / Fetch
1  17:00:56  right join photos select username,users.id from users left join photos on photos.user_id=users.id where user.id is null   Error Code: 1064. You have an error in your SQL syntax; check the manual that corresponds to your MySQL serv...   0.000 sec
2  17:05:03  select username,users.id from users left join photos on photos.user_id=users.id where user_id is null LIMIT 0, 1000   Error Code: 1146. Table 'new_db.users' doesn't exist   0.000 sec
3  17:05:25  USE ig_clone                                                                                             0 row(s) affected                                                                              0.000 sec
4  17:06:14  select username,users.id from users left join photos on photos.user_id=users.id where user_id is null LIMIT 0, 1000   100 row(s) returned                                                                            0.000 sec / 0.000 sec
```

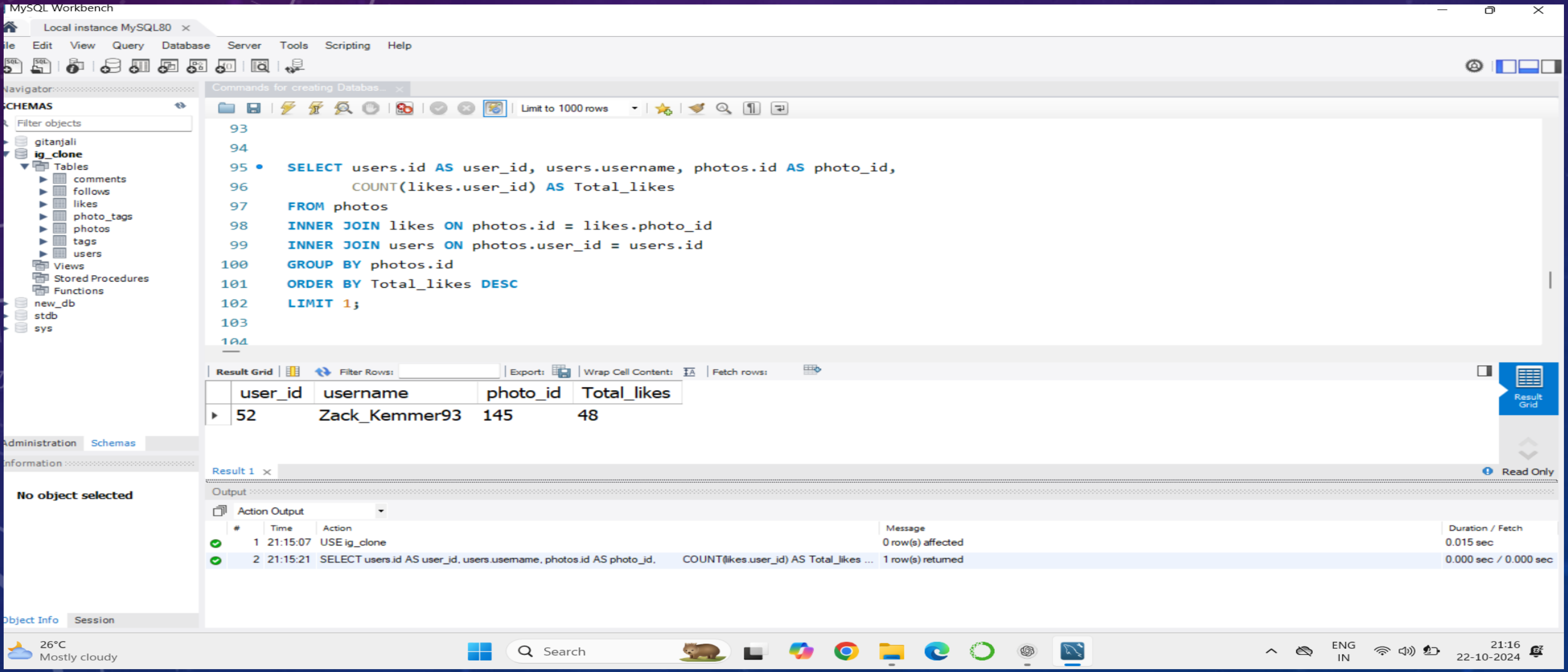
The team wants to encourage inactive users to start posting by sending them promotional emails.

To solve this problem, I joined two tables namely, users and photos. After joining, I applied ‘where’ condition to identify the users who never posted a photo.

3. CONTEST WINNER DECLARATION

TASK: determine the winner of the contest and provide their details to the team

- The user id having 52 with the most likes on a single post wins the contest



```sql
SELECT users.id AS user_id, users.username, photos.id AS photo_id,
       COUNT(likes.user_id) AS Total_likes
FROM photos
INNER JOIN likes ON photos.id = likes.photo_id
INNER JOIN users ON photos.user_id = users.id
GROUP BY photos.id
ORDER BY Total_likes DESC
LIMIT 1;
```

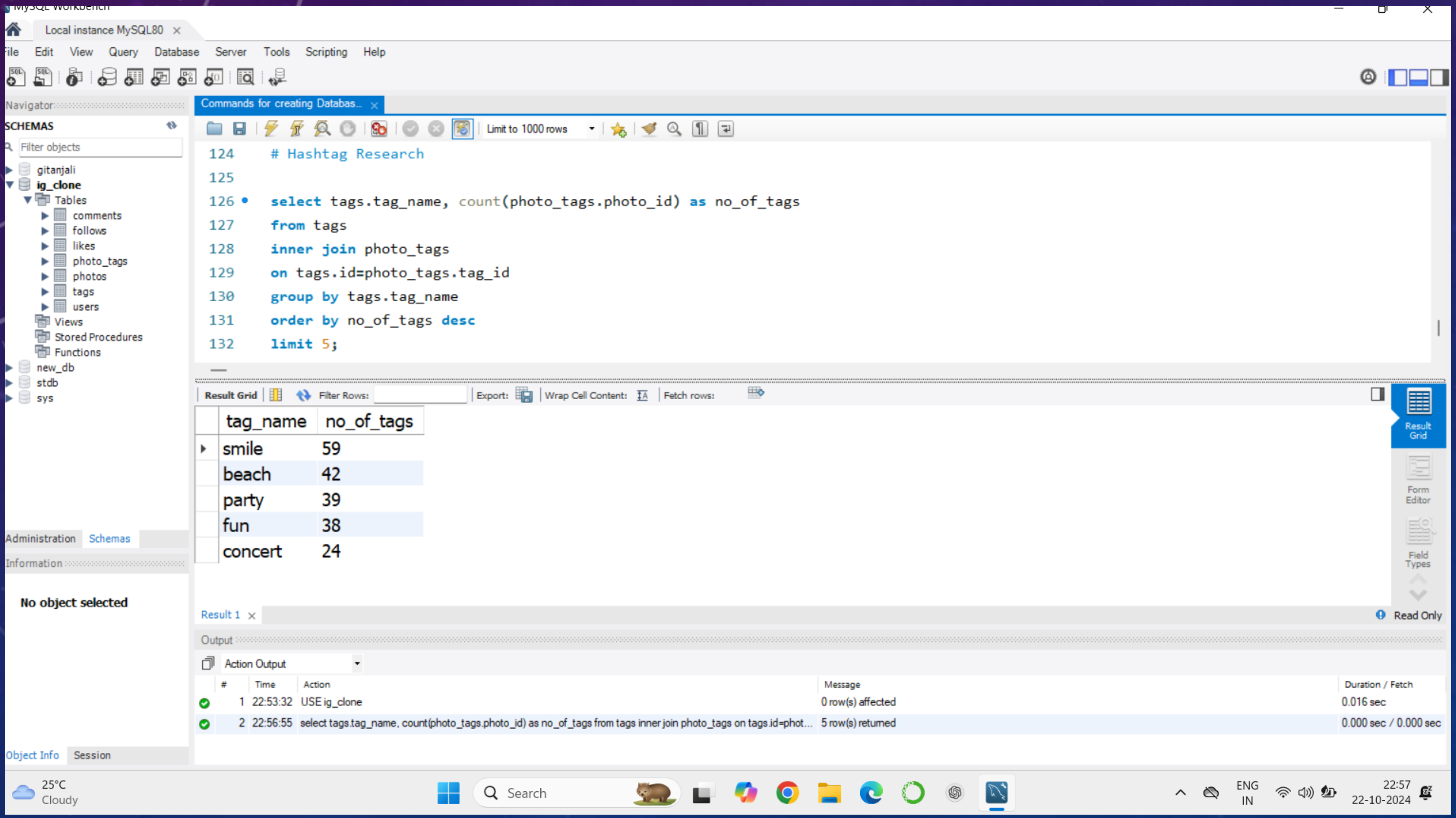
user_id	username	photo_id	Total_likes
52	Zack_Kemmer93	145	48

#	Time	Action	Message	Duration / Fetch
1	21:15:07	USE ig_clone	0 row(s) affected	0.015 sec
2	21:15:21	SELECT users.id AS user_id, users.username, photos.id AS photo_id, COUNT(likes.user_id) AS Total_likes ...	1 row(s) returned	0.000 sec / 0.000 sec

4. HASHTAG RESEARCH

TASK: identify and suggest the top five most commonly used hashtags on the platform

The top five most commonly used hashtag to use in their posts to reach the most peoples are : smile, beach, party, fun, concert .



```
# Hashtag Research

select tags.tag_name, count(photo_tags.photo_id) as no_of_tags
from tags
inner join photo_tags
on tags.id=photo_tags.tag_id
group by tags.tag_name
order by no_of_tags desc
limit 5;
```

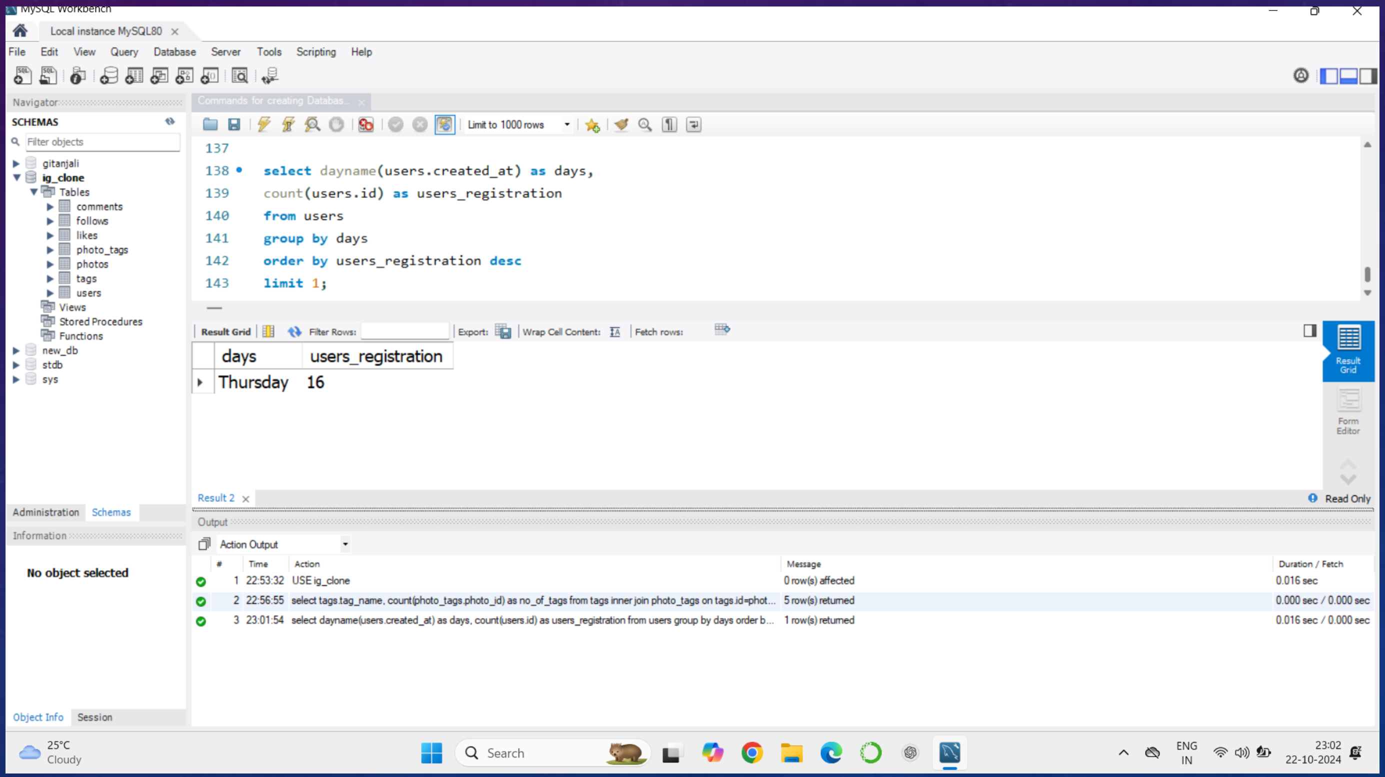
tag_name	no_of_tags
smile	59
beach	42
party	39
fun	38
concert	24

#	Time	Action	Message	Duration / Fetch
1	22:53:32	USE ig_clone	0 row(s) affected	0.016 sec
2	22:56:55	select tags.tag_name, count(photo_tags.photo_id) as no_of_tags from tags inner join photo_tags on tags.id=phot...	5 row(s) returned	0.000 sec / 0.000 sec

5. AD CAMPAIGN LAUNCH

Task: Determine the day of the week when most users registered on Instagram

The best day of the week to launch ads is : THURSDAY



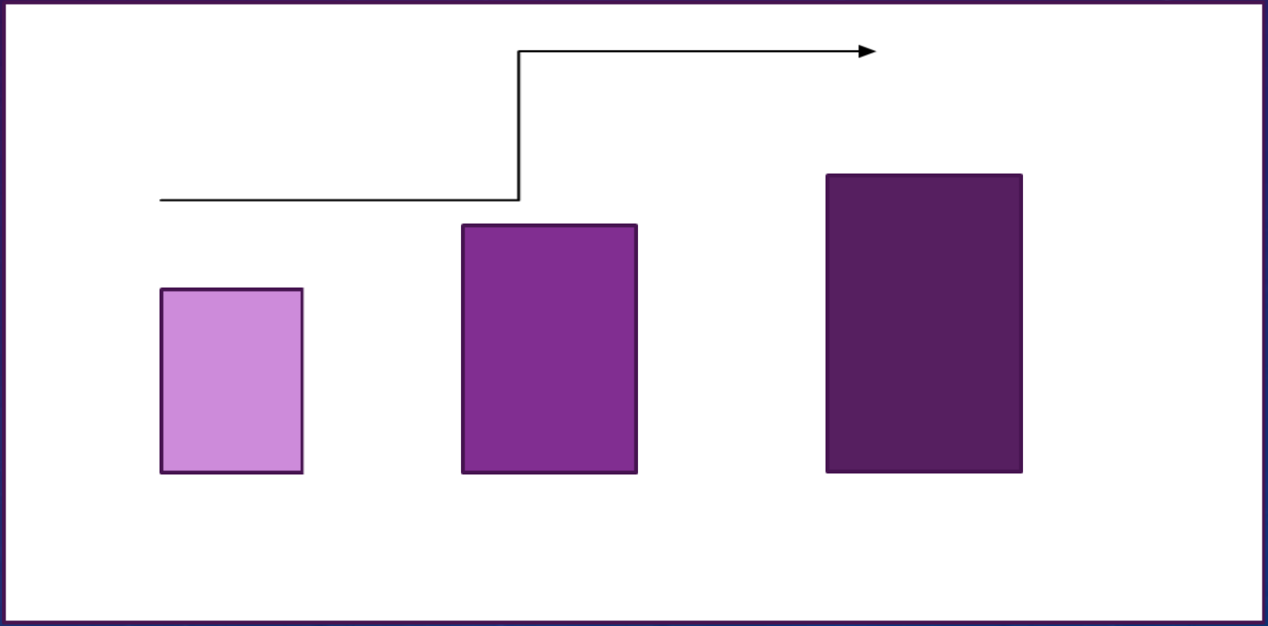
```
select dayname(users.created_at) as days,
count(users.id) as users_registration
from users
group by days
order by users_registration desc
limit 1;
```

days	users_registration
Thursday	16

```
#  Time      Action                                                                                       Message            Duration / Fetch
1  22:53:32  USE ig_clone                                                                                 0 row(s) affected  0.016 sec
2  22:56:55  select tags.tag_name, count(photo_tags.photo_id) as no_of_tags from tags inner join photo_tags on tags.id=phot...  5 row(s) returned  0.000 sec / 0.000 sec
3  23:01:54  select dayname(users.created_at) as days, count(users.id) as users_registration from users group by days order b...  1 row(s) returned  0.016 sec / 0.000 sec
```

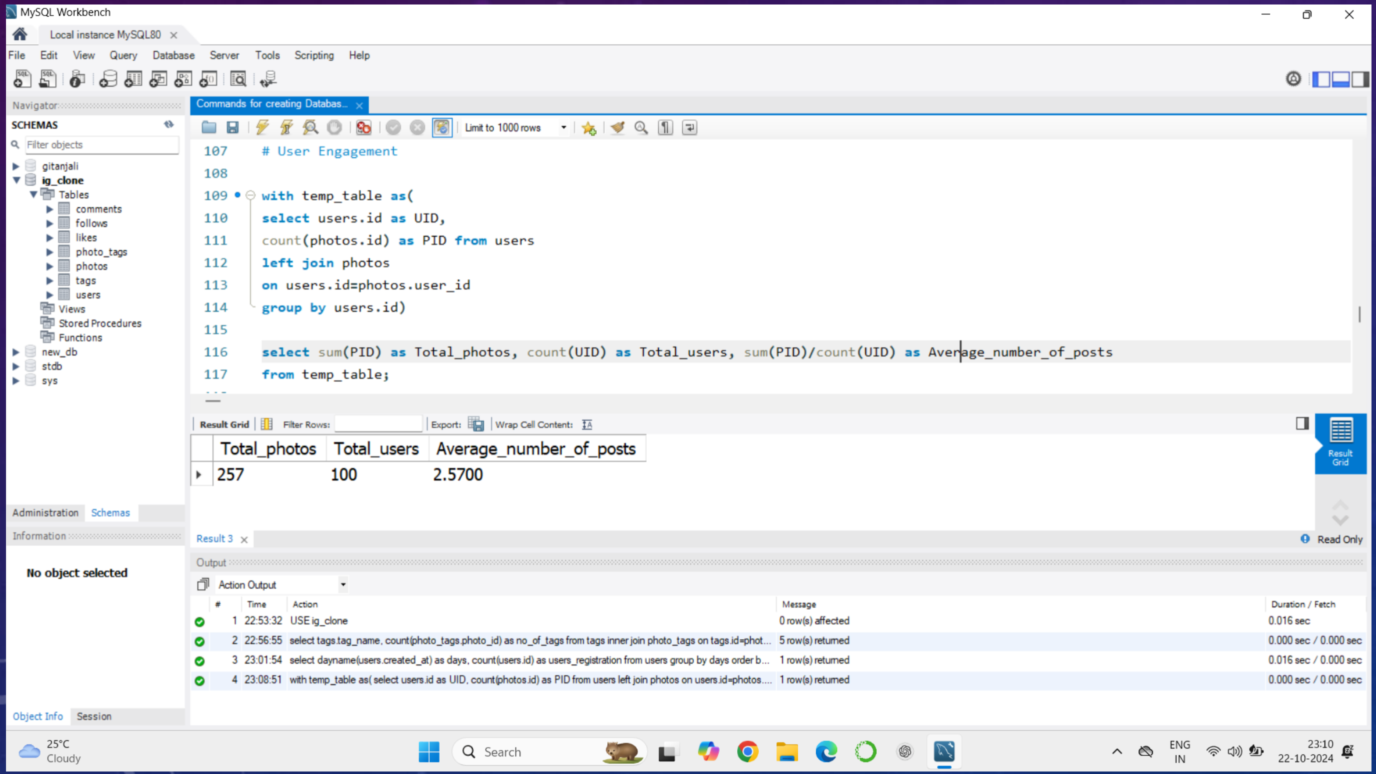
INSIGHTS

Investor metrics



6. USER ENGAGEMENT

Task: 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.



```
# User Engagement

with temp_table as(
select users.id as UID,
count(photos.id) as PID from users
left join photos
on users.id=photos.user_id
group by users.id)

select sum(PID) as Total_photos, count(UID) as Total_users, sum(PID)/count(UID) as Average_number_of_posts
from temp_table;
```

Total_photos	Total_users	Average_number_of_posts
257	100	2.5700

```
#  Time      Action                                                                                          Message            Duration / Fetch
1  22:53:32  USE ig_clone                                                                                    0 row(s) affected  0.016 sec
2  22:56:55  select tags.tag_name, count(photo_tags.photo_id) as no_of_tags from tags inner join photo_tags on tags.id=phot...  5 row(s) returned  0.000 sec / 0.000 sec
3  23:01:54  select dayname(users.created_at) as days, count(users.id) as users_registration from users group by days order b...  1 row(s) returned  0.016 sec / 0.000 sec
4  23:08:51  with temp_table as( select users.id as UID, count(photos.id) as PID from users left join photos on users.id=photos....  1 row(s) returned  0.000 sec / 0.000 sec
```

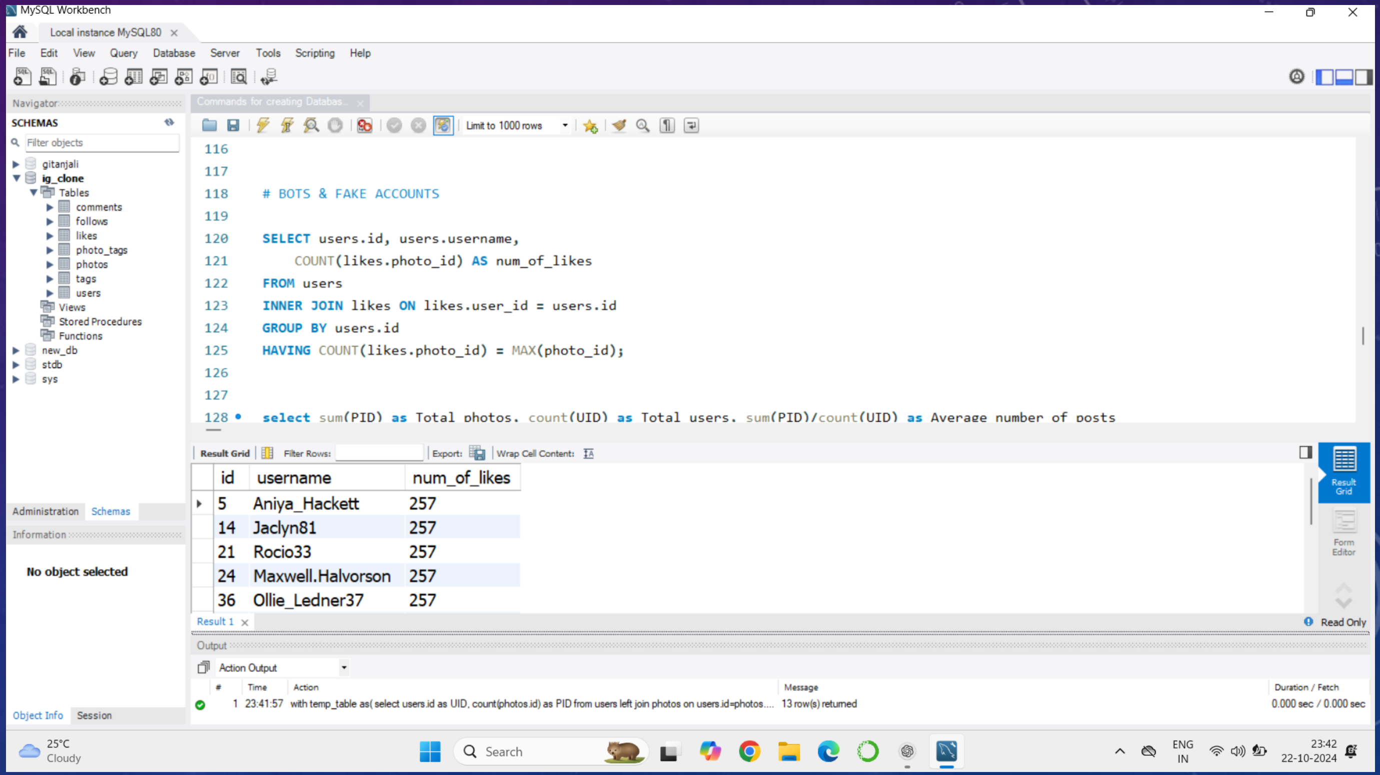
Total_photos : 257

Total_users : 100

Average_no_of_posts: 25700

7. BOTS AND FAKE ACCOUNTS

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



```
# BOTS & FAKE ACCOUNTS

SELECT users.id, users.username,
    COUNT(likes.photo_id) AS num_of_likes
FROM users
INNER JOIN likes ON likes.user_id = users.id
GROUP BY users.id
HAVING COUNT(likes.photo_id) = MAX(photo_id);


select sum(PID) as Total photos, count(UID) as Total users, sum(PID)/count(UID) as Average number of posts
```

id	username	num_of_likes
5	Aniya_Hackett	257
14	Jaclyn81	257
21	Rocio33	257
24	Maxwell.Halvorson	257
36	Ollie_Ledner37	257

```
#   Time      Action                                                                                               Message               Duration / Fetch
1   23:41:57  with temp_table as( select users.id as UID, count(photos.id) as PID from users left join photos on users.id=photos....   13 row(s) returned   0.000 sec / 0.000 sec
```

RESULT

- FOR MARKETING TEAM:

1. The 5 most loyal users identified.
2. There are 26 inactive users who have never posted a single post.
3. Zack_kimmer93 is the winner of contest.
4. The top five commonly used hashtags identified.
5. THURSDAY IS THE BEST DAY TO REGEDTER ON INSTAGRAM.

- FOR INVESTOR TEAM:

1. The average number of posts per user is 2-3 in a day.
2. There are 23 account found to be fake as they liked all 257 posts.

- I completed this project by learning some basic lectures of MySQL from TRAINITY platform. This project helped me to work on real-life-problems and gained practical knowledge while working on this project and learned to apply most of the Functionalities. From this project I got to know how the real-life problems tackled to get valuable insights for business which would contribute to the growth of companies/organization.

THANKS!

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