Instagram User Analytics Report

Project Description:

The goal of this project is to perform analytical tasks on an Instagram-like platform's user database using SQL. As a data analyst working with the product and marketing teams, my responsibility is to derive actionable insights from user data related to activity, engagement, and behavioral trends. The findings from this analysis can help the company in decision-making across marketing, product development, and investor relations.

Approach:

1. **Database Setup**:
   - I started by executing the provided SQL script to set up the ig_clone database in MySQL Workbench.
   - The database includes tables like users, photos, likes, comments, tags, and their relationships.
2. **Data Analysis Using SQL**:
   - I executed various SQL queries to solve the analytical tasks listed under "Marketing Analysis" and "Investor Metrics."
   - Queries were written to be optimized and accurate, using JOIN, GROUP BY, ORDER BY, and subqueries as needed.
3. **Query Outputs and Screenshots**:
   - Each query result was recorded with screenshots in MySQL Workbench.

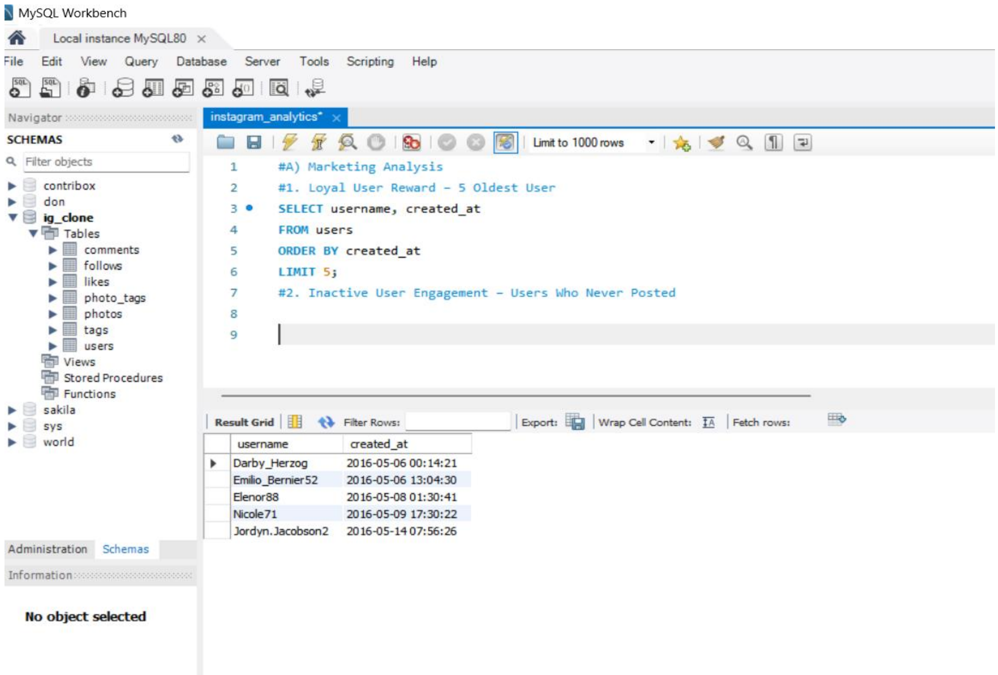
Tech-Stack Used:

- **MySQL Workbench 8.0**: Chosen for its robust GUI, ease of SQL execution, visualization of schema, and export features.

SQL Tasks :

A) Marketing Analysis:

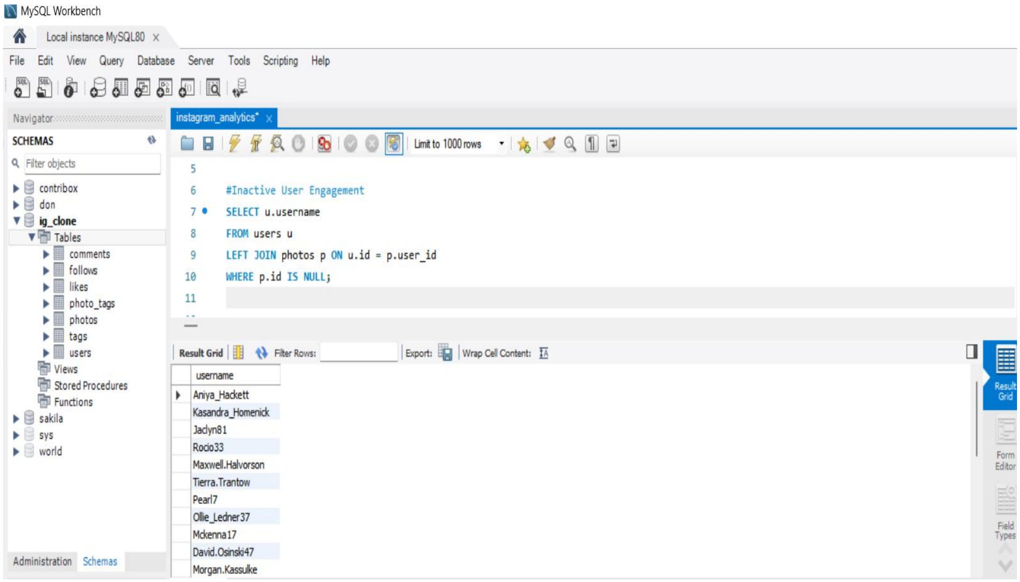
1. **Loyal User Reward:** The marketing team wants to reward the most loyal users, i.e., those who have been using the platform for the longest time.
   Your Task: Identify the five oldest users on Instagram from the provided database.



```sql
#A) Marketing Analysis
#1. Loyal User Reward - 5 Oldest User
SELECT username, created_at
FROM users
ORDER BY created_at
LIMIT 5;
#2. Inactive User Engagement - Users Who Never Posted
```

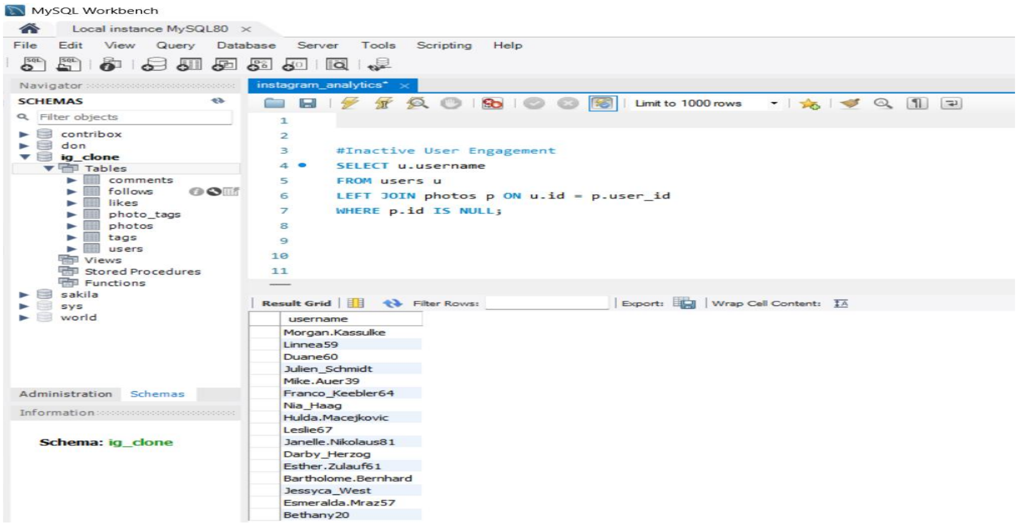
username	created_at
Darby_Herzog	2016-05-06 00:14:21
Emilio_Bernier52	2016-05-06 13:04:30
Elenor88	2016-05-08 01:30:41
Nicole71	2016-05-09 17:30:22
Jordyn.Jacobson2	2016-05-14 07:56:26

2. **Inactive User Engagement:** The team wants to encourage inactive users to start posting by sending them promotional emails.
   Your Task: Identify users who have never posted a single photo on Instagram



```sql
#Inactive User Engagement
SELECT u.username
FROM users u
LEFT JOIN photos p ON u.id = p.user_id
WHERE p.id IS NULL;
```

username
Aniya_Hackett
Kasandra_Homenick
Jaclyn81
Rocio33
Maxwell.Halvorson
Tierra.Trantow
Pearl7
Ollie_Ledner37
Mckenna17
David.Osinski47
Morgan.Kassulke

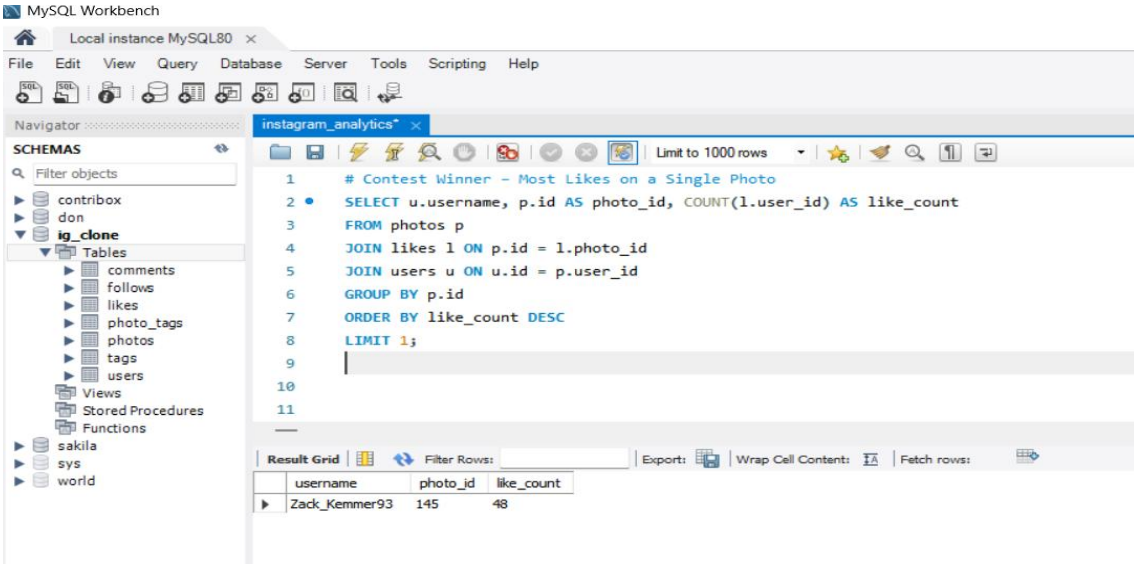


```
#Inactive User Engagement
SELECT u.username
FROM users u
LEFT JOIN photos p ON u.id = p.user_id
WHERE p.id IS NULL;
```

username
Morgan.Kassulke
Linnea59
Duane60
Julien_Schmidt
Mike.Auer39
Franco_Keebler64
Nia_Haag
Hulda.Macejkovic
Leslie67
Janelle.Nikolaus81
Darby_Herzog
Esther.Zulauf61
Bartholome.Bernhard
Jessyca_West
Esmeralda.Mraz57
Bethany20

3. Contest Winner Declaration: The team has organized a contest where the user with the most likes on a single photo wins.

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

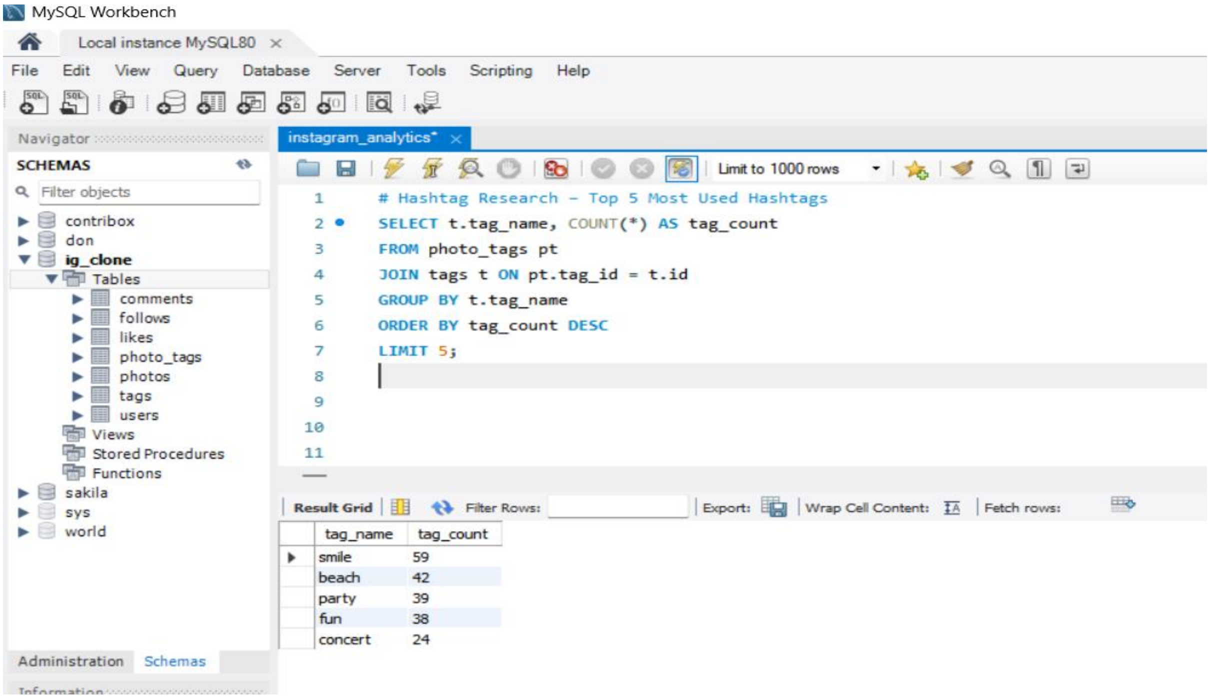


```
# Contest Winner - Most Likes on a Single Photo
SELECT u.username, p.id AS photo_id, COUNT(l.user_id) AS like_count
FROM photos p
JOIN likes l ON p.id = l.photo_id
JOIN users u ON u.id = p.user_id
GROUP BY p.id
ORDER BY like_count DESC
LIMIT 1;
```

username	photo_id	like_count
Zack_Kemmer93	145	48

4. Hashtag Research: A partner brand wants to know the most popular hashtags to use in their posts to reach the most people.

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

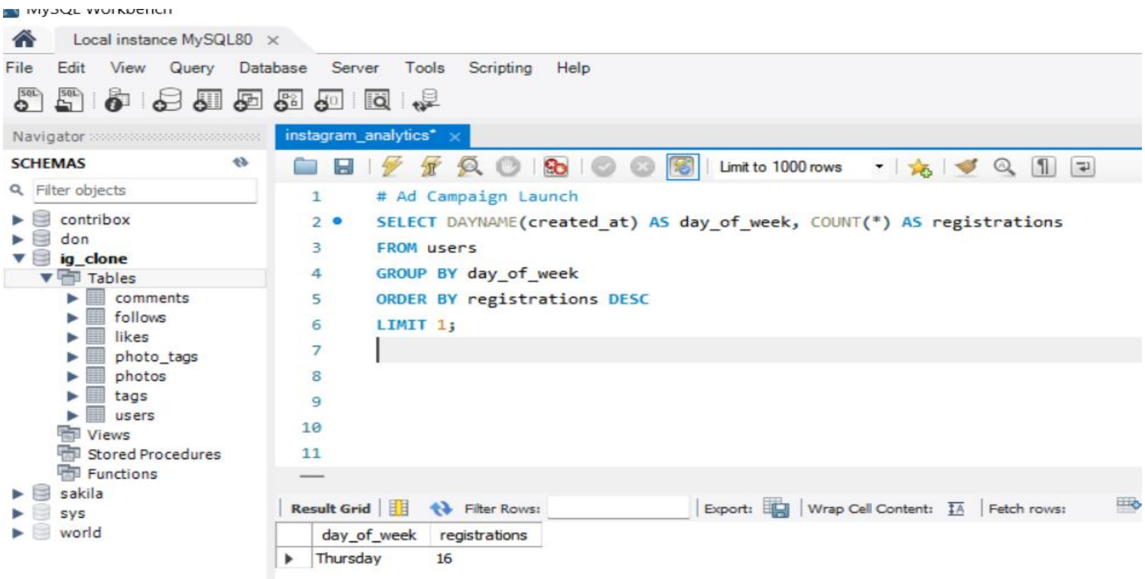


```sql
# Hashtag Research - Top 5 Most Used Hashtags
SELECT t.tag_name, COUNT(*) AS tag_count
FROM photo_tags pt
JOIN tags t ON pt.tag_id = t.id
GROUP BY t.tag_name
ORDER BY tag_count DESC
LIMIT 5;
```

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

5. Ad Campaign Launch: The team wants to know the best day of the week to launch ads.

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



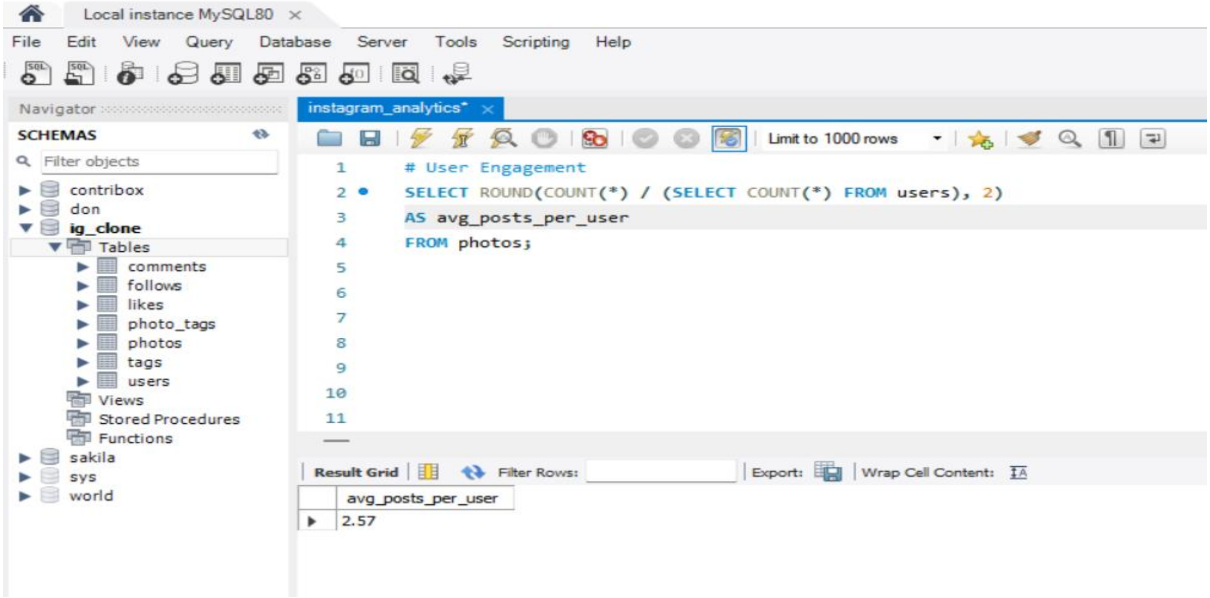
```sql
# Ad Campaign Launch
SELECT DAYNAME(created_at) AS day_of_week, COUNT(*) AS registrations
FROM users
GROUP BY day_of_week
ORDER BY registrations DESC
LIMIT 1;
```

day_of_week	registrations
Thursday	16

B) Investor Metrics:

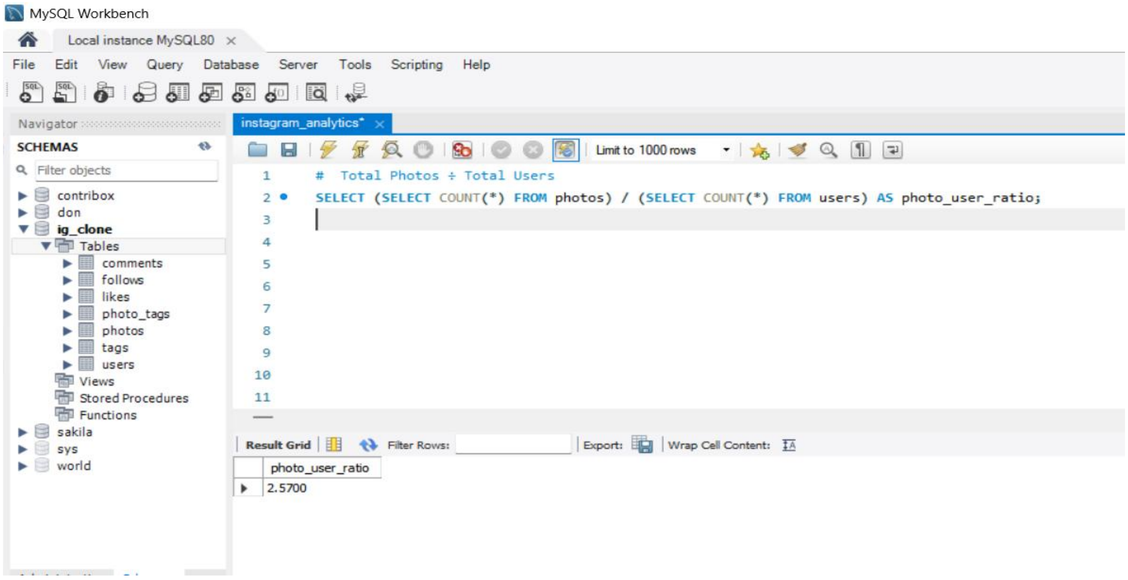
1.User Engagement: Investors want to know if users are still active and posting on Instagram or if they are making fewer posts.

Your 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
SELECT ROUND(COUNT(*) / (SELECT COUNT(*) FROM users), 2)
AS avg_posts_per_user
FROM photos;
```

avg_posts_per_user
2.57

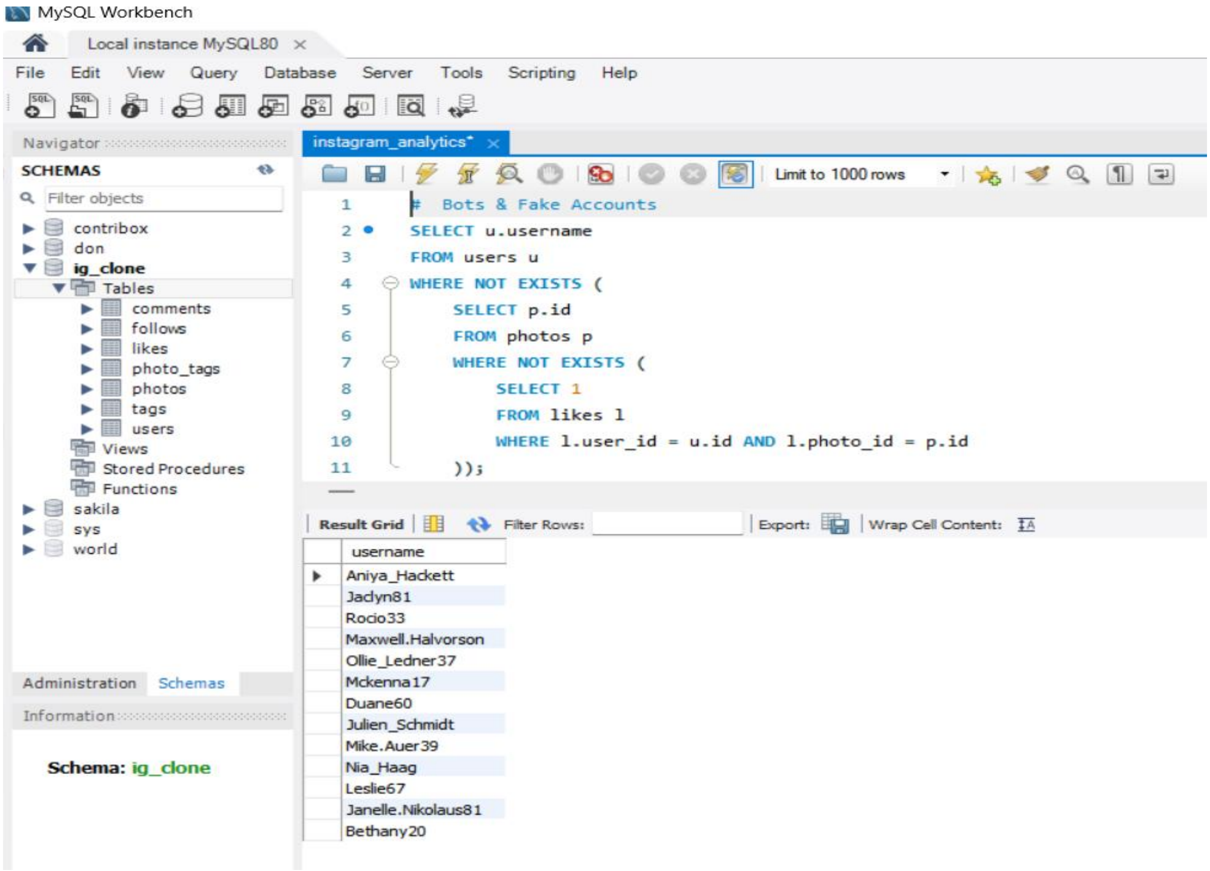


```
#  Total Photos ÷ Total Users
SELECT (SELECT COUNT(*) FROM photos) / (SELECT COUNT(*) FROM users) AS photo_user_ratio;
```

photo_user_ratio
2.5700

2.Bots & Fake Accounts: Investors want to know if the platform is crowded with fake and dummy accounts.

Your 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 u.username
FROM users u
WHERE NOT EXISTS (
    SELECT p.id
    FROM photos p
    WHERE NOT EXISTS (
        SELECT 1
        FROM likes l
        WHERE l.user_id = u.id AND l.photo_id = p.id
    ));
```

username
Aniya_Hackett
Jaclyn81
Rocio33
Maxwell.Halvorson
Ollie_Ledner37
Mckenna17
Duane60
Julien_Schmidt
Mike.Auer39
Nia_Haag
Leslie67
Janelle.Nikolaus81
Bethany20