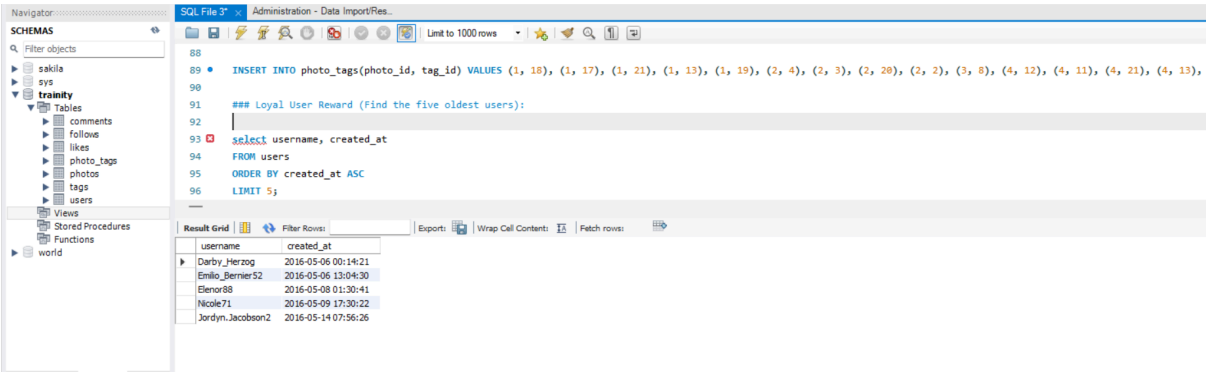
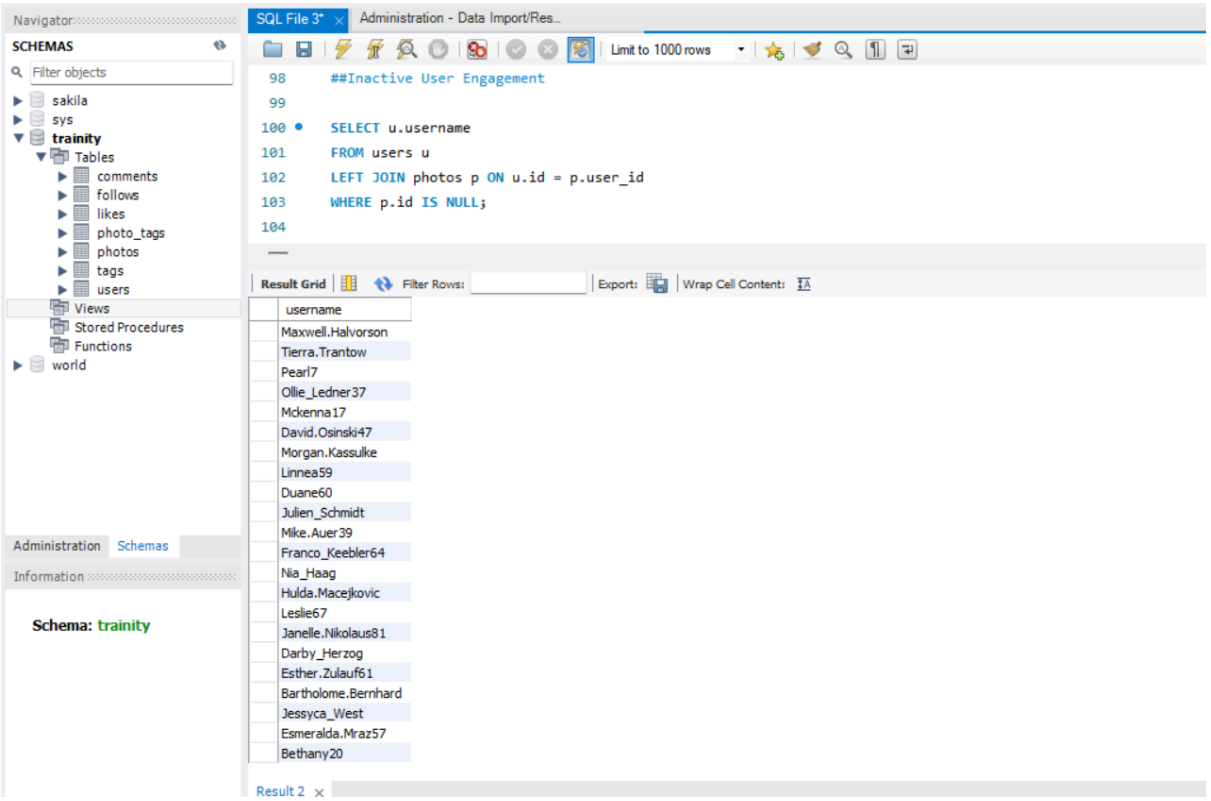
Loyal User Reward (Find the five oldest users):

```
SELECT username, created_at
FROM users
ORDER BY created_at ASC
LIMIT 5;
```



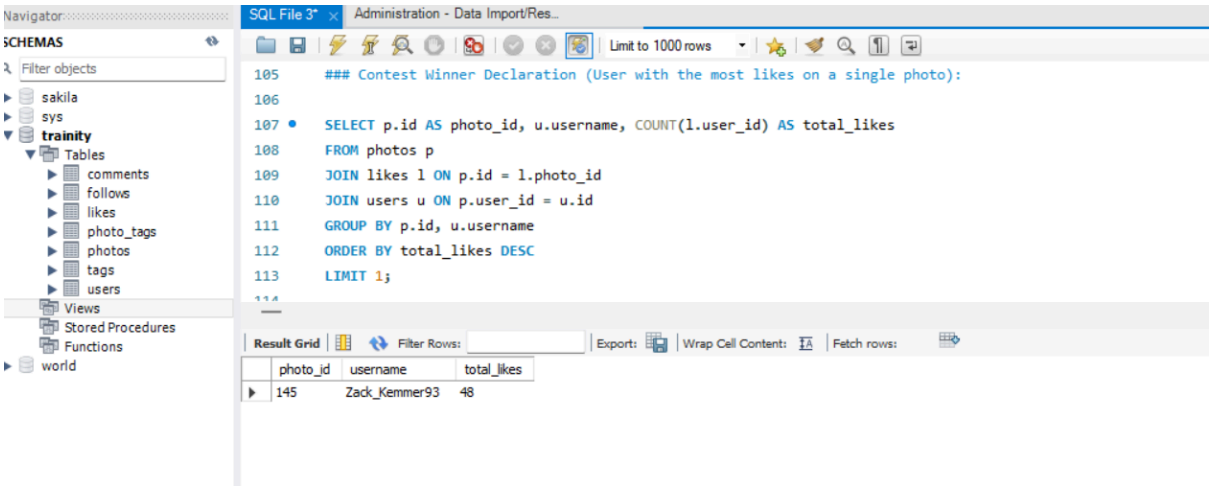
Inactive User Engagement

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



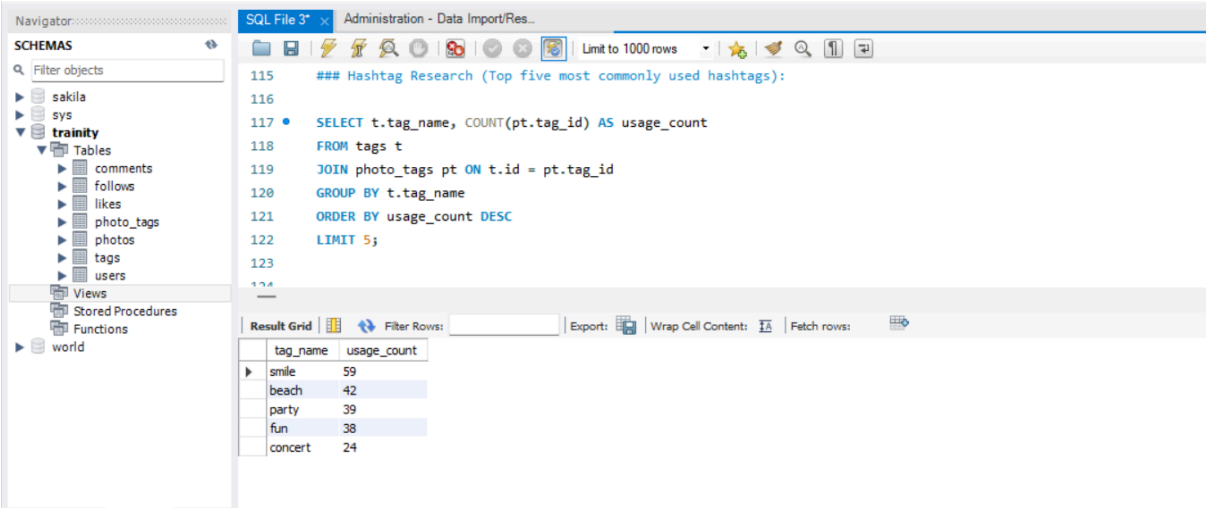
Contest Winner Declaration (User with the most likes on a single photo)

```
SELECT p.id AS photo_id, u.username, COUNT(l.user_id) AS total_likes
FROM photos p
JOIN likes l ON p.id = l.photo_id
JOIN users u ON p.user_id = u.id
GROUP BY p.id, u.username
ORDER BY total_likes DESC
LIMIT 1;
```



Hashtag Research (Top five most commonly used hashtags)

```
SELECT t.tag_name, COUNT(pt.tag_id) AS usage_count

FROM tags t

JOIN photo_tags pt ON t.id = pt.tag_id

GROUP BY t.tag_name

ORDER BY usage_count DESC

LIMIT 5;
```



Ad Campaign Launch (day for launching ads based on registrations)

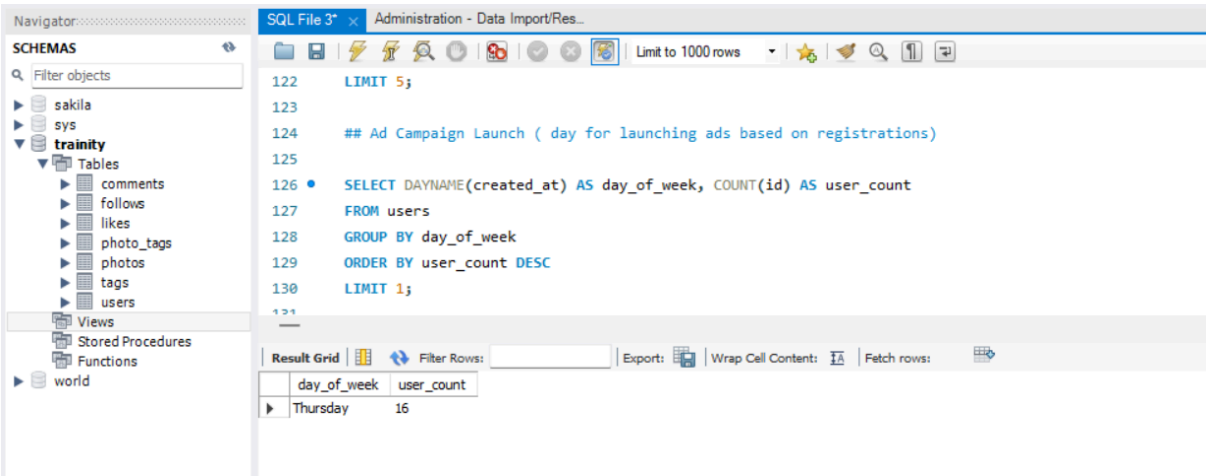
SELECT DAYNAME(created_at) AS day_of_week, COUNT(id) AS user_count

FROM users

GROUP BY day_of_week

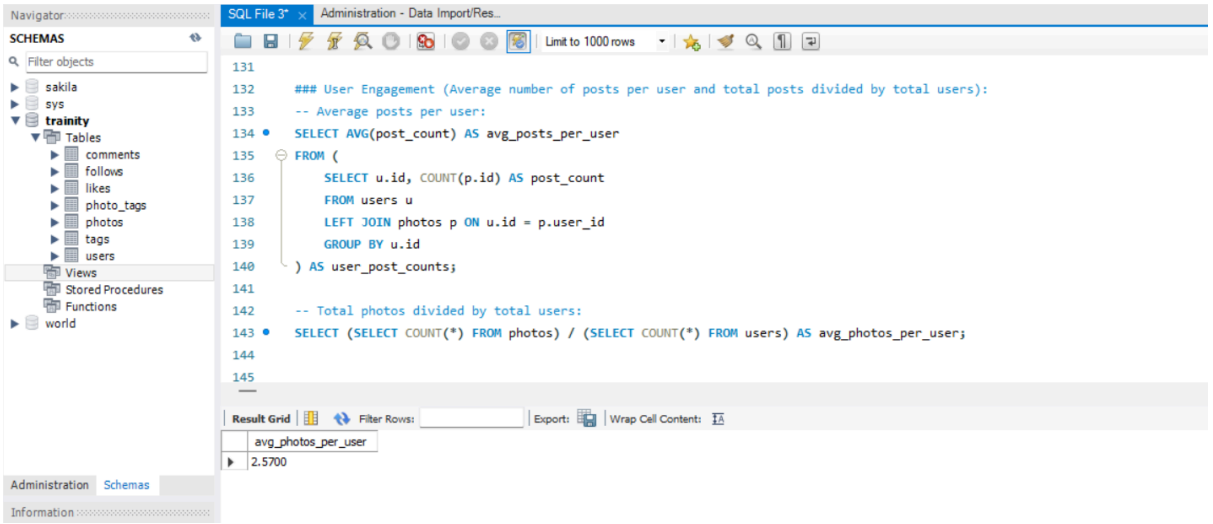
ORDER BY user_count DESC

LIMIT 1;



User Engagement (Average number of posts per user and total posts divided by total users)

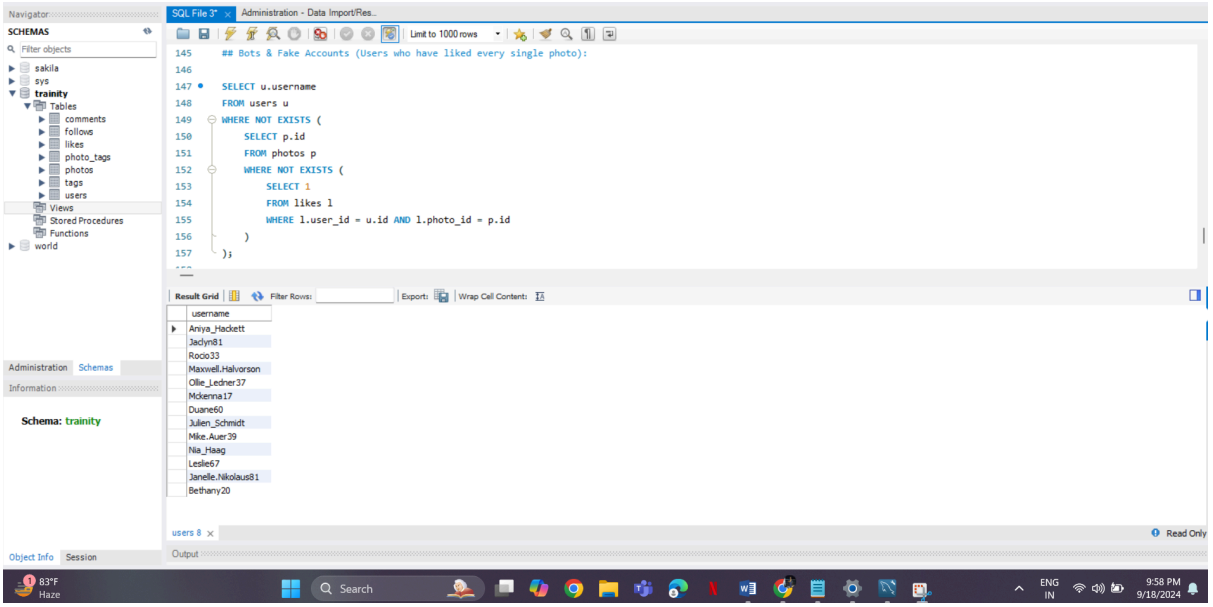
```
-- Average posts per user:

SELECT AVG(post_count) AS avg_posts_per_user

FROM (

    SELECT u.id, COUNT(p.id) AS post_count

    FROM users u

    LEFT JOIN photos p ON u.id = p.user_id

    GROUP BY u.id

) AS user_post_counts;


-- Total photos divided by total users:

SELECT (SELECT COUNT(*) FROM photos) / (SELECT COUNT(*) FROM users) AS avg_photos_per_user;
```



Bots & Fake Accounts (Users who have liked every single photo)

```
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
    )
);
```



Project Description >

This project aims to perform marketing and investor analysis using an Instagram-like platform's database. The goal is to provide actionable insights such as identifying loyal users, inactive users, contest winners, popular hashtags, and more. The tasks also extend to analysing metrics that can help investors gauge user engagement and the prevalence of bots on the platform. SQL queries will be used to extract this information from a pre-configured database.

Approach

1.Data Understanding: First, I examined the schema and structure of the database, including tables for users, photos, likes, comments, hashtags, and follows. This allowed me to identify the relationships between different entities such as users, posts, and likes.

2. Data Retrieval: I executed SQL queries to answer each task based on the relationships between the tables. For instance:

- Used `JOIN` operations to combine user and photo data to find inactive users.

- Aggregated data using `GROUP BY` and `COUNT` to identify contest winners and top hashtags.

- Used conditional subqueries to detect potential bot accounts.

3. Data Analysis: For each question, the results were reviewed to extract meaningful insights, such as determining the most effective time to launch ad campaigns based on user registration data.

4. Execution: I used SQL to execute the queries, ensuring accuracy by testing each query with sample data from the provided database.

Tech-Stack Used

MySQL Workbench (Version: 8.0): I chose this tool due to its user-friendly interface and efficient execution of SQL queries. It supports the visualization of data relationships through ER diagrams, which helps in better understanding the schema.

MySQL Database: MySQL is a powerful open-source relational database management system that allows for the efficient handling of structured data and complex queries.

Insights

1. Loyal Users: The oldest five users were identified based on their registration date, providing a list of long-time active users who could be rewarded.

2. Inactive Users: Users who have never posted a single photo were flagged, offering an opportunity for engagement through targeted promotions.

3. Contest Winner: The user with the most likes on a single photo was identified, making it easier for the marketing team to declare the winner.

4. Popular Hashtags: The most frequently used hashtags were determined, providing valuable input to the brand partners for their social media strategy.

5. Ad Campaign Insights: The best day of the week for user registrations was identified, suggesting the optimal time to launch marketing campaigns.

Result

Achievements: The project provided clear and actionable insights into user behavior and engagement. The analysis helped in identifying areas for growth, such as targeting inactive users and refining ad campaign timings.

Impact: By analysing the database using SQL, the project delivered meaningful business metrics that could assist both marketing teams and investors in making data-driven decisions.