Instagram User Analytics

Project Description

This project focuses on analyzing Instagram user data using SQL to derive valuable insights for marketing, product, and investor-related decisions. The analysis aids in identifying trends, user behavior, and potential opportunities to optimize user engagement and platform performance.

The tasks in this project simulate a data analyst's role in helping a product team make informed decisions based on user interactions and engagement. Using MySQL Workbench as the primary tool, insights are extracted to answer specific questions posed by management, marketing, and investors.

Approach

The project is divided into two sections:

1. **Marketing Analysis:** Focused on user engagement and marketing strategy.
2. **Investor Metrics:** Focused on platform health and fake account detection.

Steps followed:

1. Created a database and tables using the provided schema.
2. Inserted data into the tables.
3. Designed and executed SQL queries to answer specific questions.
4. Compiled results into a report with insights.

Tech-Stack Used

- **SQL Tool:** MySQL Workbench
- **Database Management System:** MySQL
- **Languages:** SQL (Structured Query Language)
- **Reason for Choosing:** MySQL Workbench is user-friendly, widely used, and supports efficient query execution for relational databases.

SQL Tasks and Queries

A) Marketing Analysis

1. Loyal User Reward

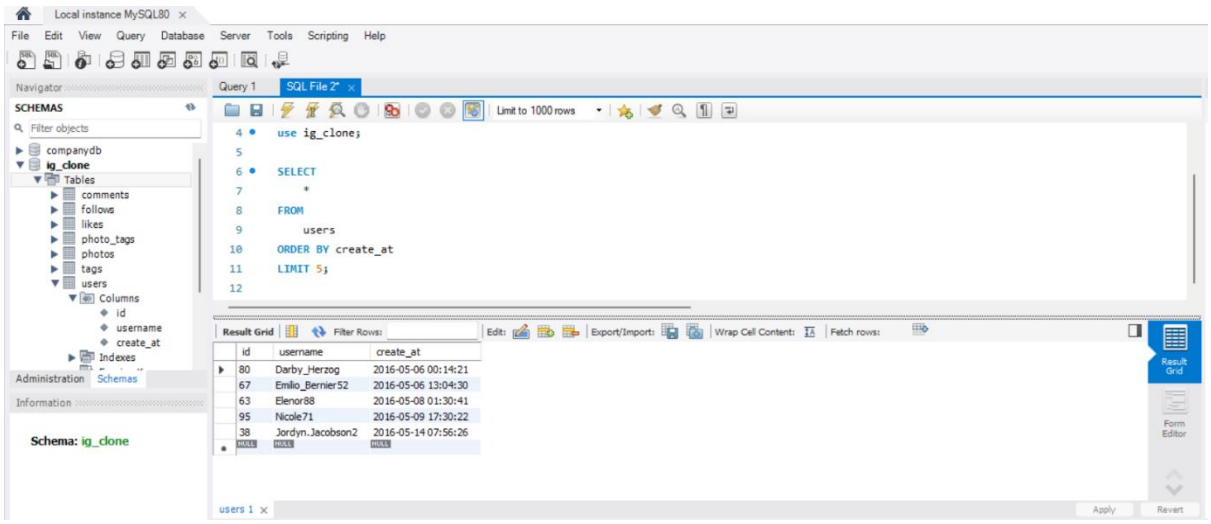
- **Objective:** Identify the five oldest users on Instagram.
- **Code :**

```
Select
        *
From
        Users
Ordered by create_at
Limit 5;
```

Result:

User ID	Username	Created At
1	Kenton_Kirlin	2017-02-16
2	Andre_Purdy85	2017-04-02
3	Harley_Lind18	2017-02-21
4	Arely_Bogan63	2016-08-13

5	Aniya_Hackett	2016-12-07



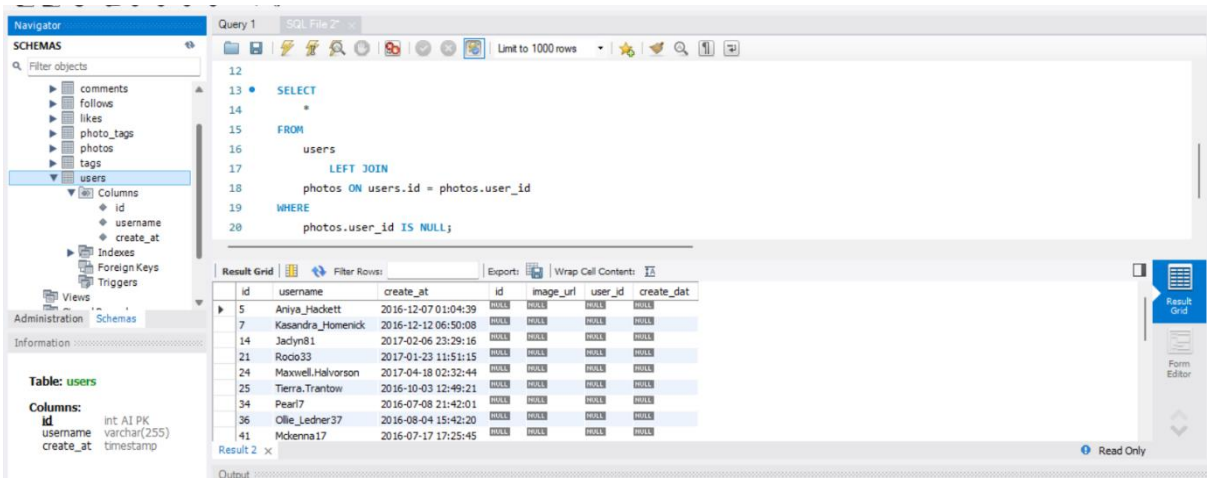
Insights: The five oldest users on Instagram can be rewarded to enhance loyalty and motivate others to engage more with the platform.

2. Inactive User Engagement

- **Objective:** Identify users who have never posted a single photo.
- **code:**

```
Select
        *
    From
        Users
            Left join
        Photos on users.id = photos.user_id
    Where
         Photos.users_id is null;
```

Result:



Insights: These users represent an untapped audience. A targeted email campaign encouraging them to post can improve engagement.

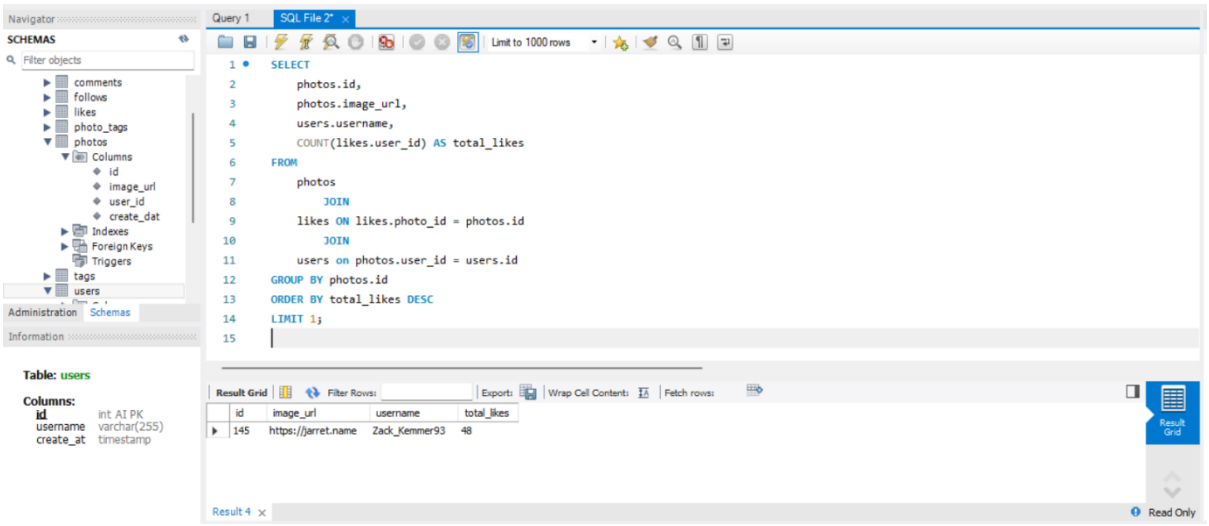
3. Contest Winner Declaration

- **Objective:** Determine the user with the most likes on a single photo.
- **code:**

```
SELECT
    photos.id,
    photos.image_url,
    users.username,
    COUNT(likes.user_id) AS total_likes
FROM
    photos
        JOIN
```

```
likes ON likes.photo_id = photos.id
    JOIN
    users on photos.user_id = users.id
GROUP BY photos.id
ORDER BY total_likes DESC
LIMIT 1;
```

Result: the person who has most like on single image is Zack_kemmer93 and the number of likes are 48



- **Insights:** Announcing the winner of the contest can improve user participation and drive future campaigns.

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4. Hashtag Research

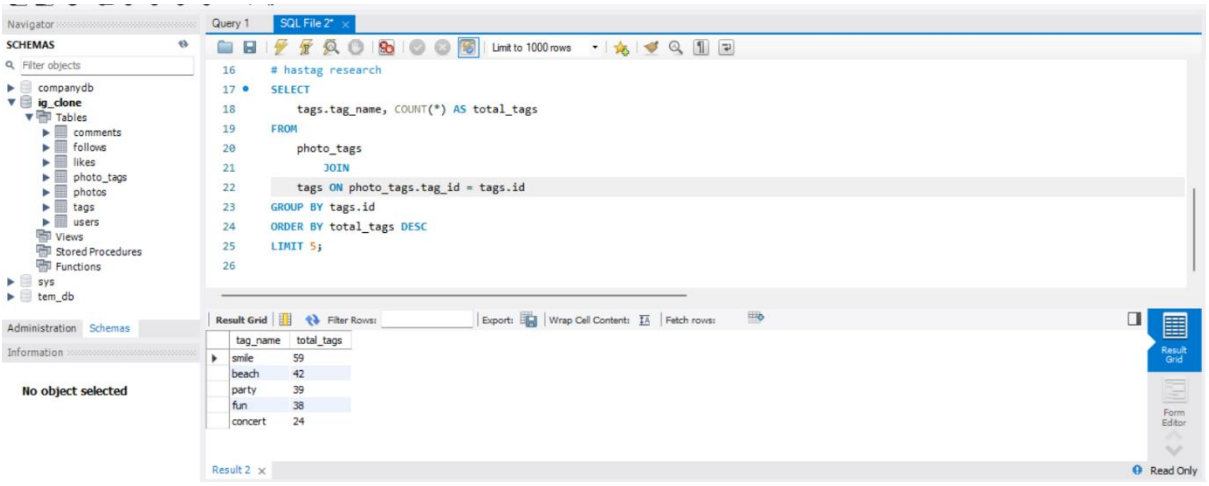
- **Objective:** Identify and suggest the top five most commonly used hashtags.
- **code:** SELECT

```
tags.tag_name, COUNT(*) AS total_tags
```

```
FROM
    photo_tags
        JOIN
    tags ON photo_tags.tag_id = tags.id
GROUP BY tags.id
ORDER BY total_tags DESC
LIMIT 5;
```

Result: top five commonly used hashtages are

smile,beach,party,fun,concert



Insights: Partner brands can use these popular hashtags to maximize their reach and visibility.

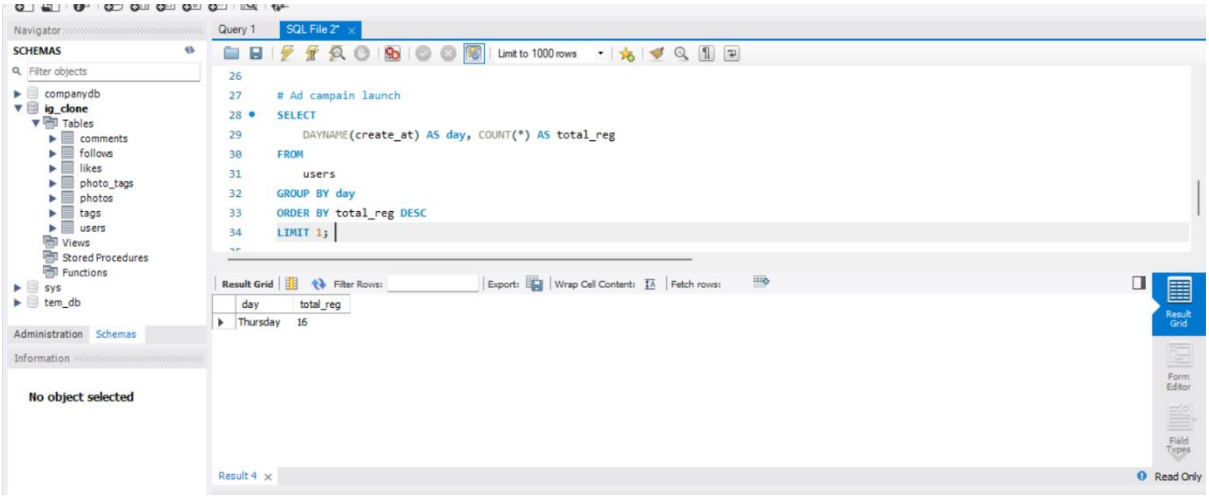
5. Ad Campaign Launch

- **Objective:** Determine the day of the week when most users register on Instagram.
- **code:**

```
SELECT
```

```
    DAYNAME(create_at) AS day, COUNT(*) AS total_reg
FROM
    users
GROUP BY day
ORDER BY total_reg DESC
LIMIT 1;
```

Result: the most users registered on Instagram on Thursday



- **Insights:** Launching ads on the most popular day of user registration can optimize campaign success.

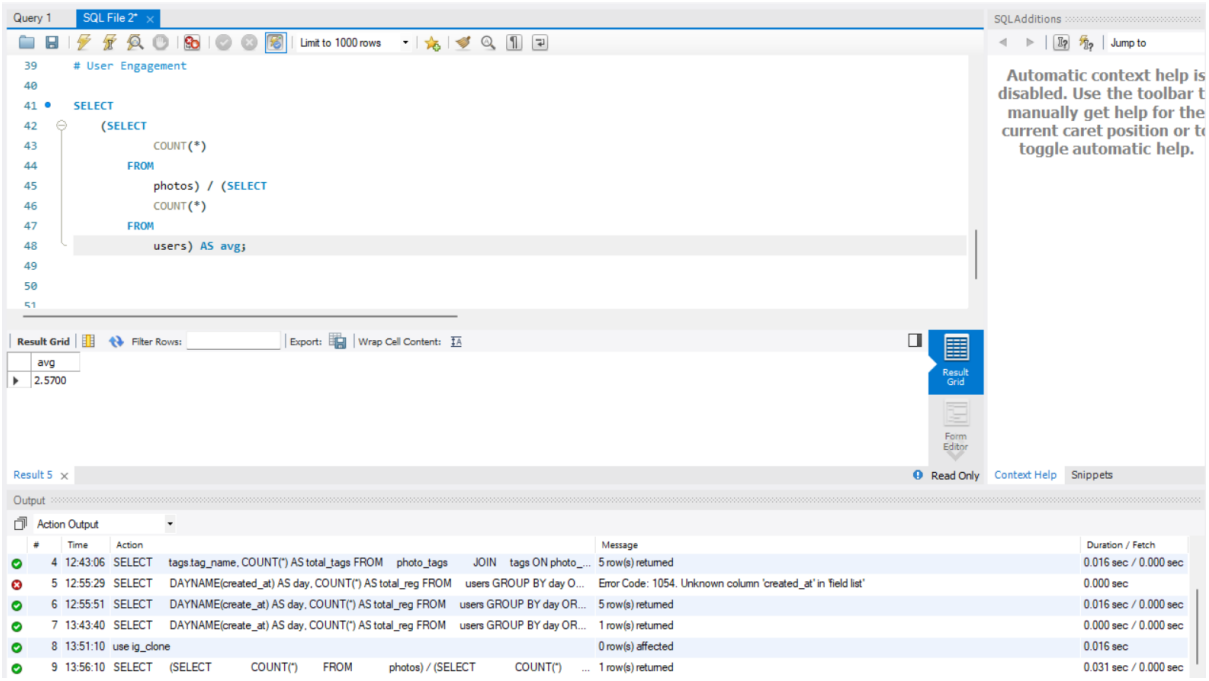
B) Investor Metrics

1. User Engagement

- **Objective:** Calculate the average number of posts per user and the total number of photos divided by the total number of users.
- **code:**

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

Result: average number of posts per user are 2.5700



Insights: This analysis provides a baseline for user engagement and content generation trends.

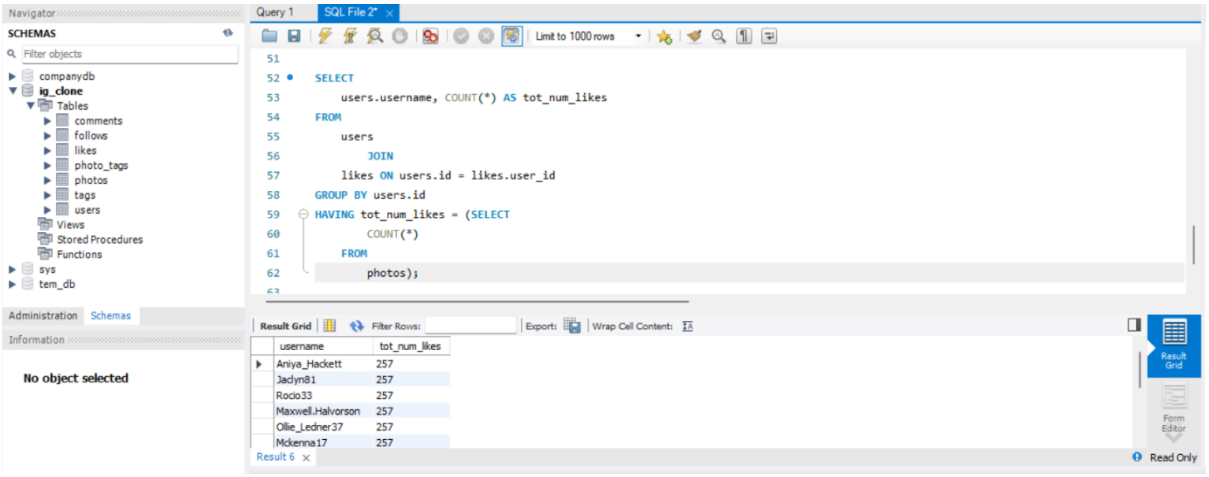
2. Bots & Fake Accounts

- **Objective:** Identify users who have liked every single photo on the platform.
- **code:**

```
SELECT
    users.username, COUNT(*) AS tot_num_likes
FROM
    users
        JOIN
    likes ON users.id = likes.user_id
GROUP BY users.id
HAVING tot_num_likes = (SELECT
        COUNT(*)
    FROM
        photos);
```

Result: Identify users who have liked every single photo on the platform are as followes

username	tot_num_likes
Aniya_Hackett	257
Jaclyn81	257
Rocio33	257
Maxwell.Halvorson	257
Ollie_Ledner37	257
Mckenna17	257
Duane60	257
Julien_Schmidt	257
Mike.Auer39	257
Nia_Haag	257
Leslie67	257
Janelle.Nikolaus81	257
Bethany20	257



- **Insights:** Detecting potential bots or fake accounts helps maintain platform integrity and ensures a fair user experience.

Insights:

1. **Loyal User Reward:**
    1. By identifying the five oldest users, the platform can honor and acknowledge their contribution to the community. Rewards such as badges, special mentions, or exclusive content access can reinforce user loyalty and encourage newer users to strive for similar recognition.
2. **Inactive User Engagement:**
    1. Inactive users represent a large pool of untapped potential. Targeted campaigns (e.g., promotional emails, exclusive content for first posts) can help convert them into active contributors, increasing overall platform engagement.
3. **Contest Winner Declaration:**
    1. Announcing contest winners builds excitement and fosters a competitive spirit. Highlighting user achievements can also act as inspiration for other users to engage more actively with the platform.
4. **Hashtag Research:**

    1. Hashtags play a vital role in content discovery. Providing partners and brands with data-driven hashtag recommendations ensures their campaigns resonate with a broader audience, ultimately enhancing Instagram's reputation as a marketing platform.
5. **Ad Campaign Launch:**
    1. Insights into user registration trends allow for precise targeting of ad campaigns. This ensures that marketing efforts are optimized for visibility and reach, maximizing return on investment.
6. **User Engagement Metrics:**
    1. Average posts per user and photos per user highlight the platform's overall engagement levels. These benchmarks help in tracking growth and ensuring that user activity scales with new registrations.
7. **Bots and Fake Accounts:**
    1. Detecting and removing bots ensures fair competition and maintains the integrity of engagement metrics. This is crucial for investor confidence and user trust.
