# Trainity Assignments

## Project 2 – Instagram User Analytics

## Project Description:

As per the project, I have been asked to analyze user interactions on Instagram user data and provide valuable insights to the product team regarding their questions, so I have to use SQL to work on the database provided and collect useful information for their marketing campaigns. A few questions have been asked by the management team regarding insights, which I have mentioned below:

### 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.

**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.

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

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

**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.

**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.

### 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

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.

### Approach:

For all the questions to be answered, I have installed a SQL workbench and later created a database. After getting all the information provided, I started writing queries for all the questions that had been raised and finally executed all the queries to get the output.

## Tech Stack used:

1. My SQL Workbench 8.0
2. Microsoft word Document

## Insights:

I learned a lot about SQL fundamentals from this project. While working on this project, I became aware of how simple it was to manage complex data and discovered the practical applications of SQL and databases.

## Result:

Given below are the SQL queries along with the output

### A) Marketing Analysis:

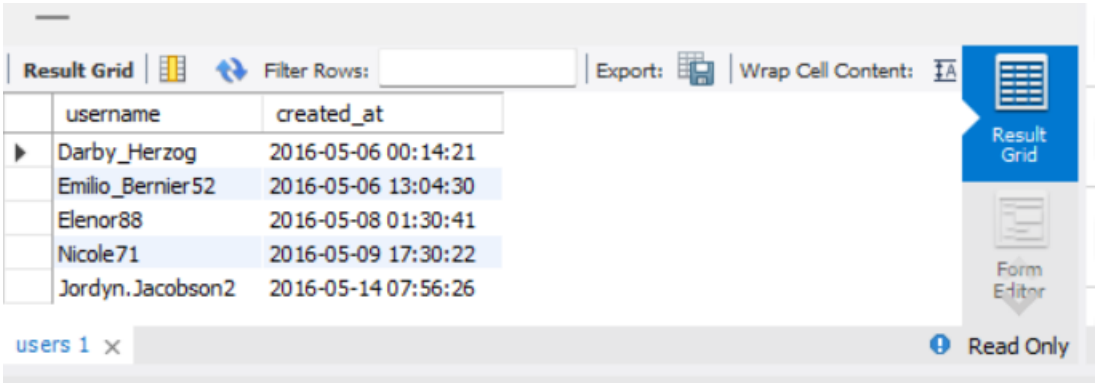
1. **Loyal User Reward:** The marketing team wants to reward the most loyal users, i.e., those who have been using the platform for the longest time.

   Your Task: Identify the five oldest users on Instagram from the provided database.

**QUERY:**

```
use ig_clone;

SELECT username, created_at

FROM users

ORDER BY created_at

LIMIT 5;
```

**OUTPUT:**



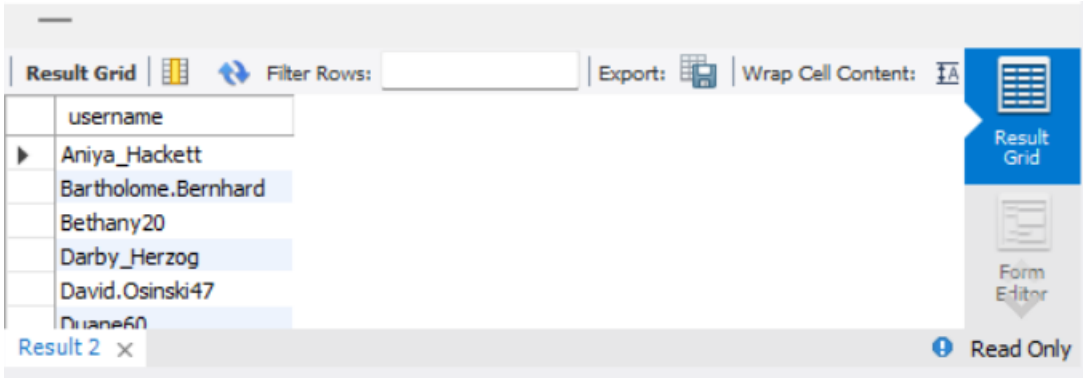

2. **Inactive User Engagement:** The team wants to encourage inactive users to start posting by sending them promotional emails.

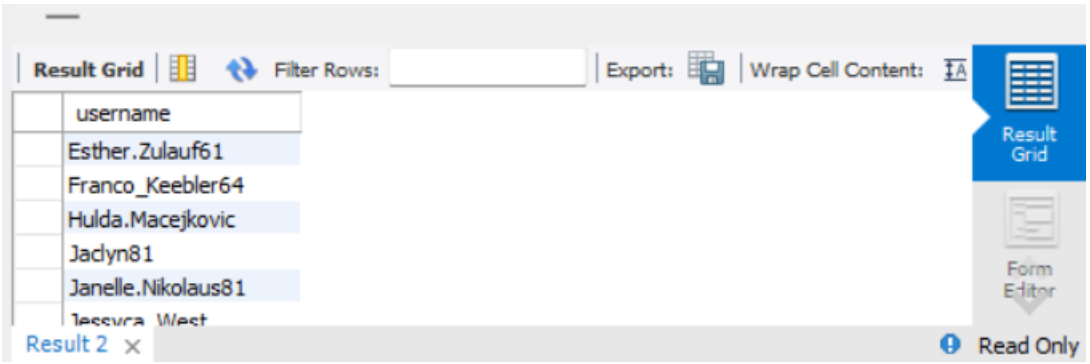
   Your Task: Identify users who have never posted a single photo on Instagram.

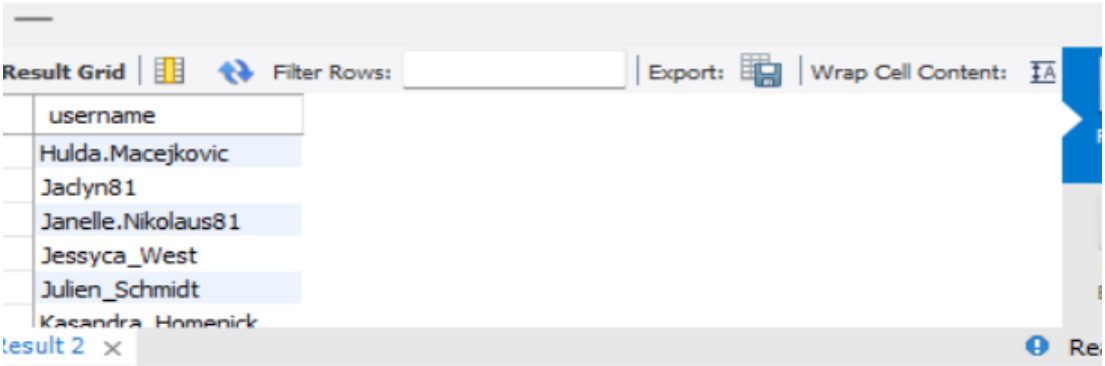
**QUERY:**

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

**OUTPUT:**




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

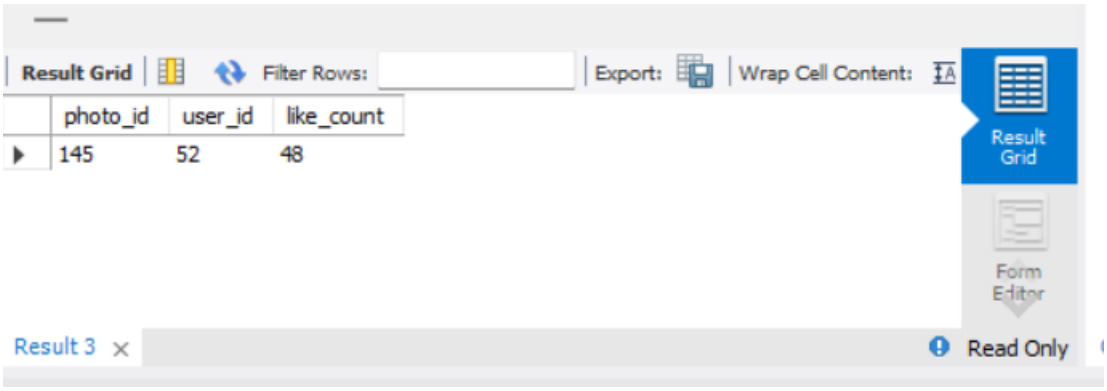
Your Task: Determine the winner of the contest and provide their details to the team.

**QUERY:**

```
SELECT l.photo_id, p.user_id, COUNT(l.user_id) AS like_count
FROM likes l
JOIN photos p ON l.photo_id = p.id
GROUP BY l.photo_id
```

```
ORDER BY like_count DESC
LIMIT 1;
```

**OUTPUT:**



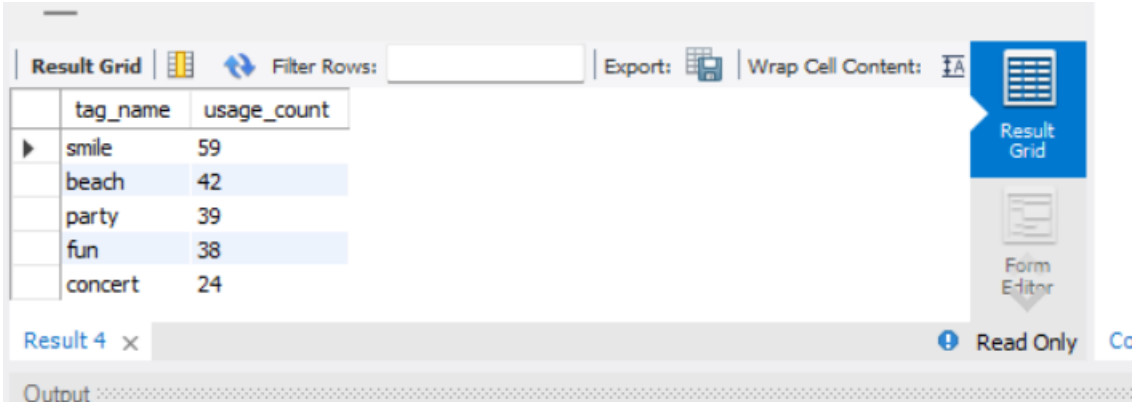

**4.Hashtag Research:** A partner brand wants to know the most popular hashtags to use in their posts to reach the most people.

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

**QUERY:**

```
SELECT t.tag_name,

COUNT(pt.photo_id) AS usage_count

FROM tags t

INNER JOIN photo_tags pt ON t.id = pt.tag_id

GROUP BY t.id, t.tag_name

ORDER BY usage_count DESC

LIMIT 5;
```

**OUTPUT:**



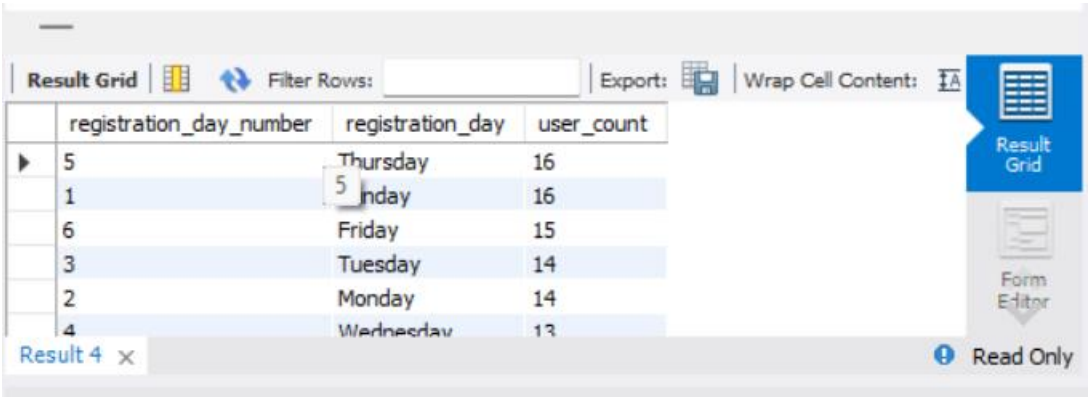
**5.Hashtag Research:** A partner brand wants to know the most popular hashtags to use in their posts to reach the most people.

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

**QUERY:**

```
SELECT DAYOFWEEK(created_at)AS registration_day_number,
DAYNAME(created_at)AS registration_day,
COUNT(id)AS user_count
FROM users
GROUP BY registration_day_number,registration_day
ORDER BY user_count DESC;
```

**OUTPUT:**




| registration_day_number | registration_day | user_count |
|---|---|---|
| 5 | Thursday | 16 |
| 1 | Sunday | 16 |
| 6 | Friday | 15 |
| 3 | Tuesday | 14 |
| 2 | Monday | 14 |
| 4 | Wednesday | 13 |

**B Investor Metrics:**

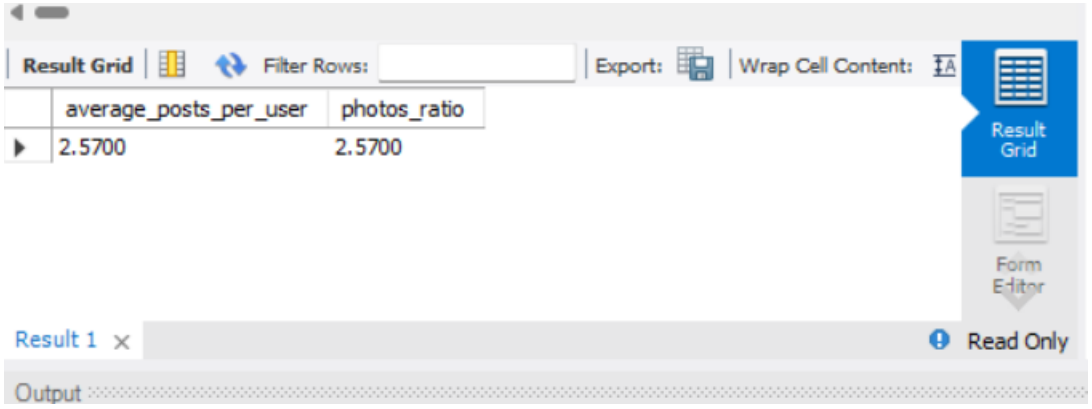
**1.User Engagement:** Investors want to know if users are still active and posting on Instagram or if they are making fewer posts.

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.

**QUERY:**

```
SELECT
COUNT(p.id) / COUNT(DISTINCT u.id) AS average_posts_per_user,
  (SELECT COUNT(id) FROM photos) / (SELECT COUNT(id) FROM users) AS photos_ratio
FROM users u
LEFT JOIN photos p ON u.id = p.user_id;
```

**OUTPUT:**




| average_posts_per_user | photos_ratio |
|---|---|
| 2.5700 | 2.5700 |

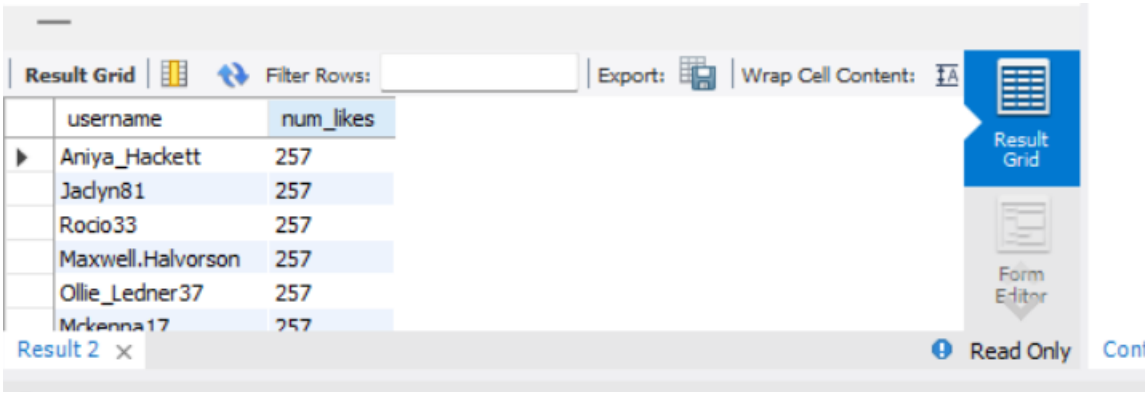
**2.Bots & Fake Accounts:** Investors want to know if the platform is crowded with fake and dummy accounts.

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

**QUERY:**

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

**OUTPUT:**




| username | num_likes |
|---|---|
| Aniya_Hackett | 257 |
| Jadyn81 | 257 |
| Rocio33 | 257 |
| Maxwell.Halvorson | 257 |
| Ollie_Ledner37 | 257 |
| Mckenna17 | 257 |

Finally, I analyzed and answered all the questions in the form of queries statements. Additionally, this project provided me with practical real- world experience and gave me good confidence about my SQL skills