Instagram User Analytics

Project Description

The goal of this project is to perform an in-depth analysis of Instagram user data to derive valuable insights that will assist the product, marketing, and investor teams in making informed decisions about the future of the platform. Using SQL and MySQL Workbench, the task is to identify key trends, patterns, and areas of improvement for Instagram's user engagement, loyalty, and marketing efforts.

The analysis covers several areas, including:

1. Identifying loyal users for rewards.
2. Determining inactive users who need re-engagement.
3. Finding the winner of a contest based on user engagement.
4. Suggesting the most popular hashtags for marketing purposes.
5. Identifying the best day to launch an ad campaign.
6. Analyzing user engagement metrics for investors.

Approach

1. **Database Setup**: I began by importing the provided Instagram user data into MySQL Workbench. This database contained information about users, photos, likes, hashtags, and user interactions.

2. **Data Exploration**: I examined the tables and relationships to understand the data schema.
   - users: Contains user account details.
   - photos: Contains user-uploaded photos.
   - likes: Stores user engagement with photos (likes).
   - hashtags: Stores hashtags associated with photos.
3. **SQL Queries**: I wrote and executed SQL queries to answer each of the questions. For each task, I used relevant SQL functions and joins to extract the required insights.

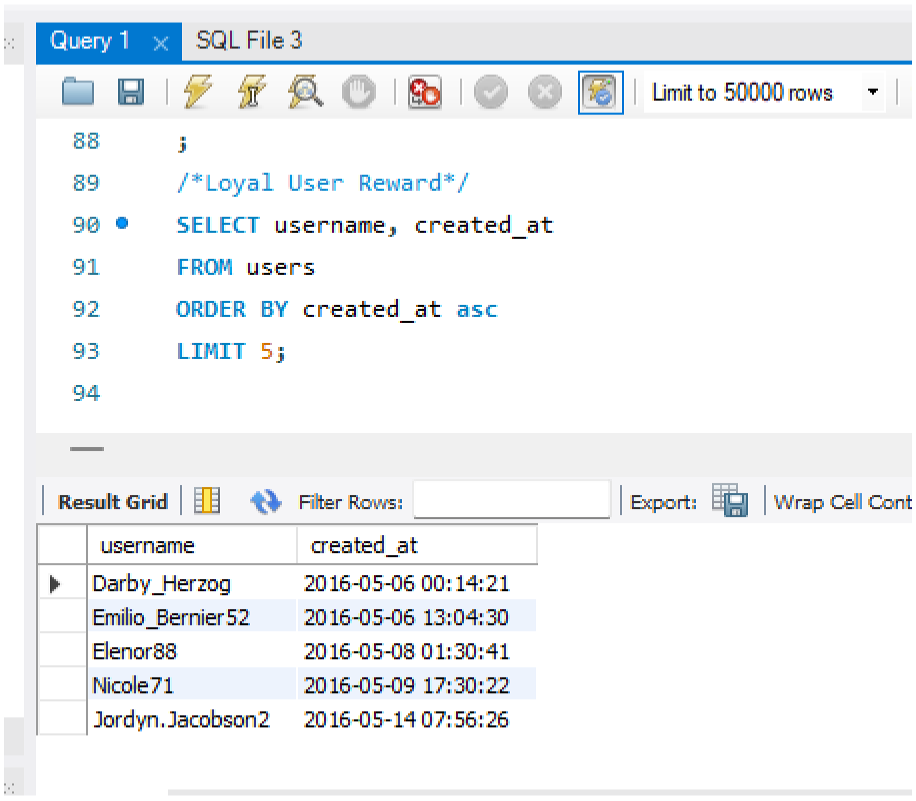
Tech-Stack Used

- **Software**: MySQL Workbench (Version 8.0.28)

Insights

❖ Marketing Analysis

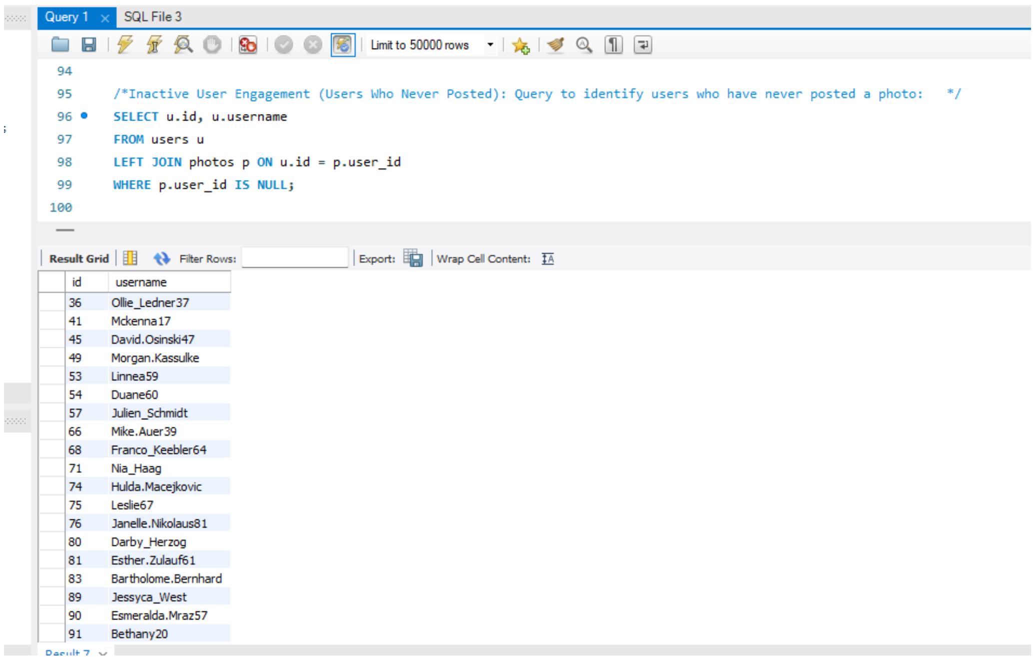
➢ **Loyal User Reward:** Identify the five oldest users on Instagram from the provided database.



```
;
/*Loyal User Reward*/
SELECT username, created_at
FROM users
ORDER BY created_at asc
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

➢ **Inactive User Engagement:** Identify users who have never posted a single photo on Instagram.



Query 1 × SQL File 3

Limit to 50000 rows

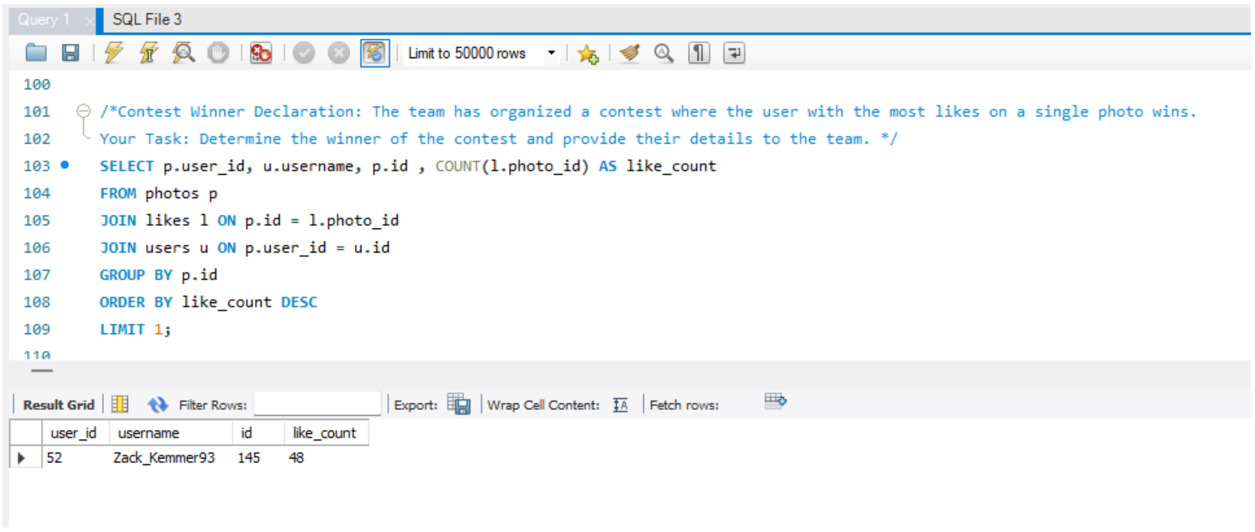
```
/*Inactive User Engagement (Users Who Never Posted): Query to identify users who have never posted a photo:   */
SELECT u.id, u.username
FROM users u
LEFT JOIN photos p ON u.id = p.user_id
WHERE p.user_id IS NULL;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

id	username
36	Ollie_Ledner37
41	Mckenna17
45	David.Osinski47
49	Morgan.Kassulke
53	Linnea59
54	Duane60
57	Julien_Schmidt
66	Mike.Auer39
68	Franco_Keebler64
71	Nia_Haag
74	Hulda.Macejkovic
75	Leslie67
76	Janelle.Nikolaus81
80	Darby_Herzog
81	Esther.Zulauf61
83	Bartholome.Bernhard
89	Jessyca_West
90	Esmeralda.Mraz57
91	Bethany20

Result 7

➢ **Contest Winner Declaration:** Determine the winner of the contest and provide their details to the team.



Query 1 × SQL File 3

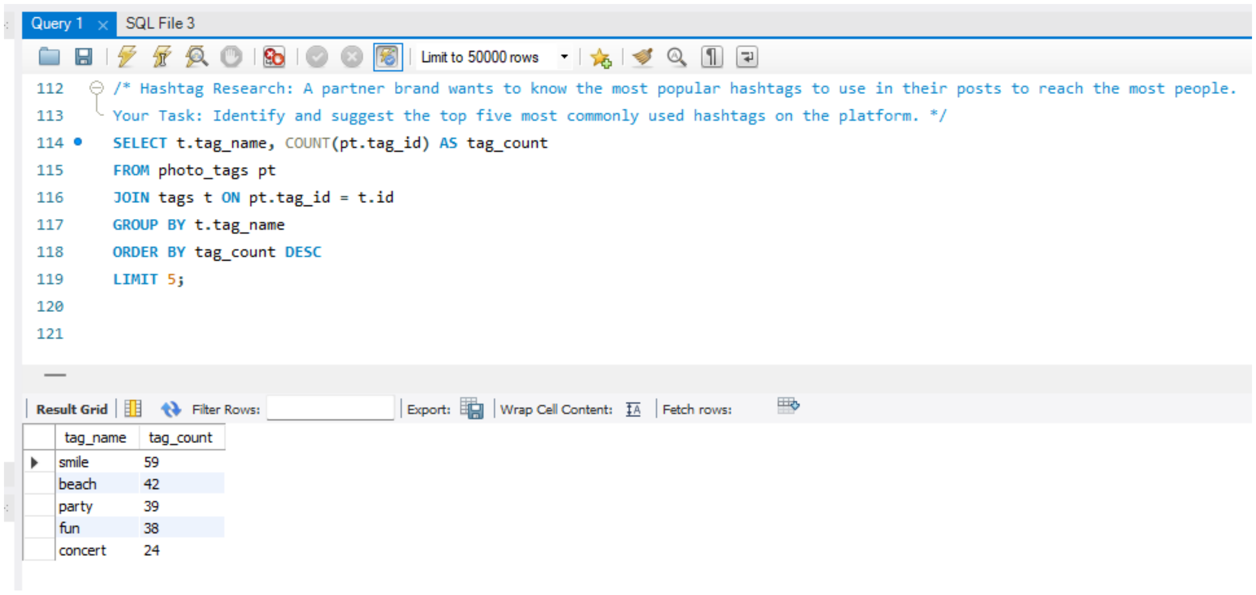
Limit to 50000 rows

```
/*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. */
SELECT p.user_id, u.username, p.id , COUNT(l.photo_id) AS like_count
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
ORDER BY like_count DESC
LIMIT 1;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content: | Fetch rows:

user_id	username	id	like_count
52	Zack_Kemmer93	145	48

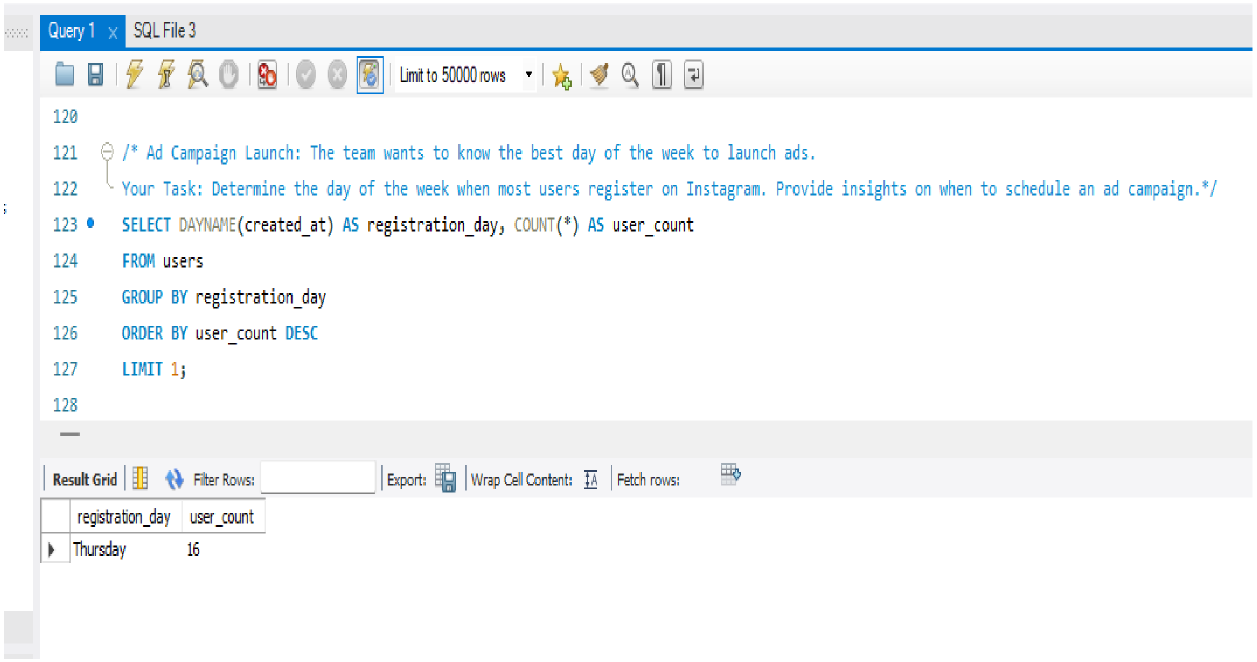
➢ **Hashtag Research:** Identify and suggest the top five most commonly used hashtags on the platform.



```
/* 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. */
SELECT t.tag_name, COUNT(pt.tag_id) 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

➢ **Ad Campaign Launch:** The team wants to know the best day of the week to launch ads. Determine the day of the week when most users register on Instagram. Provide insights on when to schedule an ad campaign.

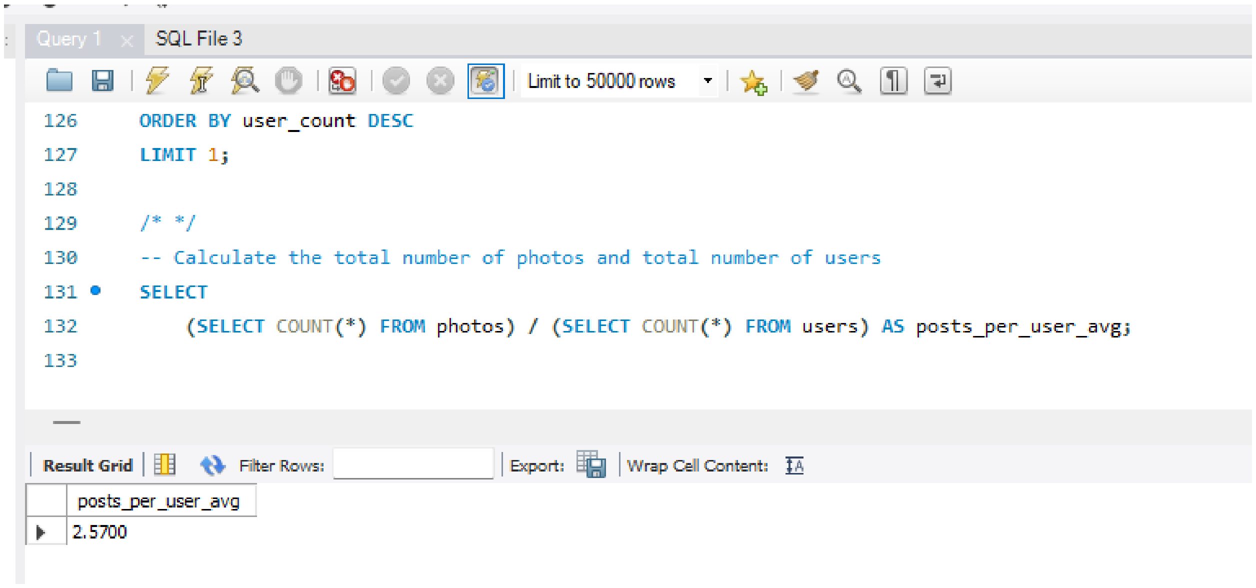


```
/* Ad Campaign Launch: The team wants to know the best day of the week to launch ads.
Your Task: Determine the day of the week when most users register on Instagram. Provide insights on when to schedule an ad campaign.*/
SELECT DAYNAME(created_at) AS registration_day, COUNT(*) AS user_count
FROM users
GROUP BY registration_day
ORDER BY user_count DESC
LIMIT 1;
```

registration_day	user_count
Thursday	16

❖ Investor Metrics:

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

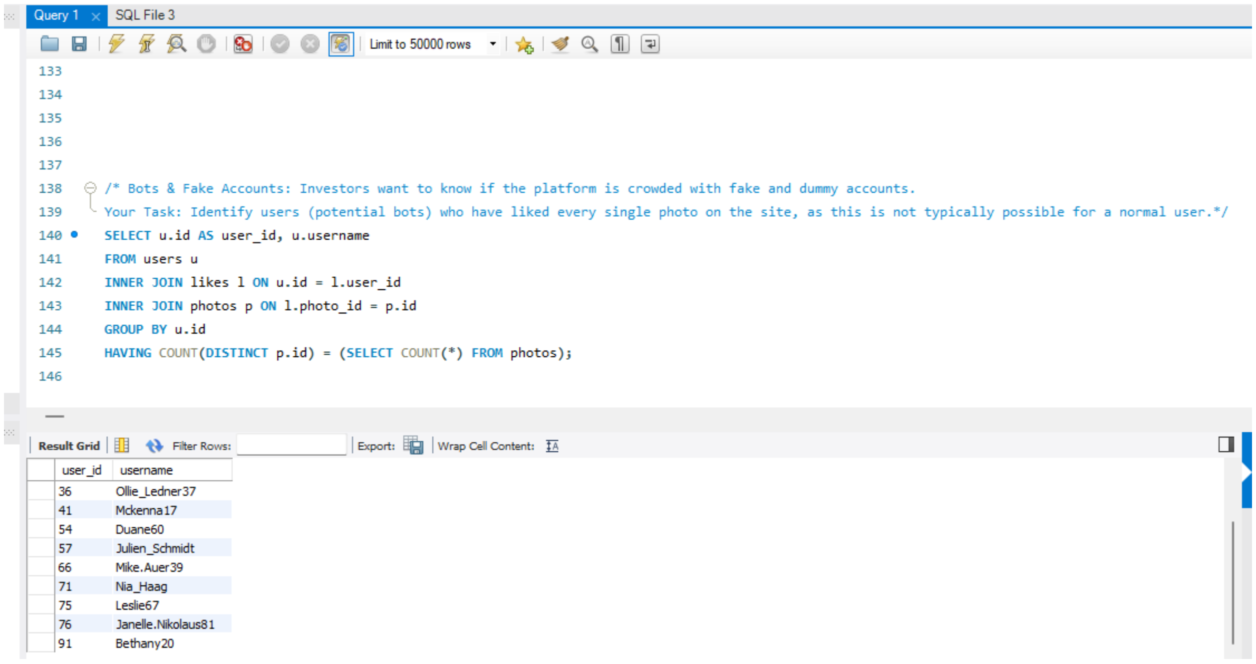


```
ORDER BY user_count DESC
LIMIT 1;

/* */
-- Calculate the total number of photos and total number of users
SELECT
    (SELECT COUNT(*) FROM photos) / (SELECT COUNT(*) FROM users) AS posts_per_user_avg;
```

```
posts_per_user_avg
2.5700
```

➢ **Bots & Fake Accounts:** Investors want to know if the platform is crowded with fake and dummy accounts. Identify users (potential bots) who have liked every single photo on the site, as this is not typically possible for a normal user.



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

user_id	username
36	Ollie_Ledner37
41	Mckenna17
54	Duane60
57	Julien_Schmidt
66	Mike.Auer39
71	Nia_Haag
75	Leslie67
76	Janelle.Nikolaus81
91	Bethany20