2. Instagram User Analytics

2.1 Project Description: The goal of this project is to examine Instagram user interaction and engagement in order to produce useful information that can direct business choices and spur platform expansion. The goal is to help the development, product, and marketing teams by offering recommendations based on data.

2.2 Project Approach: I started this project by outlining the goals precisely and comprehending the queries that the management team had asked. After that, I used MySQL Workbench to access the MySQL database and created SQL queries to retrieve pertinent information like hashtag usage, post metrics, and user interactions. To guarantee accuracy and consistency, a thorough cleaning procedure was carried out after data extraction.

2.3 Tech Stach Used: Because of MySQL Workbench V8.30 CE's strong capabilities in database design, SQL programming, and thorough data modeling, I choose it for my project. The tool's intuitive interface makes it easier to create and handle complicated SQL queries, and its integrated data visualization tools aid in efficient analysis and interpretation of the findings.

2.4 Project Insights: I learned a lot about Instagram user engagement and interaction patterns working on the project. The most popular hashtags and peak engagement periods were shown to have a substantial impact on user reach and activity. By identifying the times of day with the most user activity, analysis might be used to improve posting schedules and increase exposure.

A) Marketing Analysis:

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

Query:

/*Query for **Loyal User Reward***/

```
SELECT *
FROM users
ORDER BY created_at ASC
LIMIT 5;
```

SnapShot:

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

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

Query:

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

Snapshot:

username
Aniya_Hackett
Kasandra_Homenick
Jaclyn81
Rocio33
Maxwell.Halvorson
Tierra.Trantow
Pearl7
Ollie_Ledner37
Mckenna17
David.Osinski47
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:**: Determine the winner of the contest and provide their details to the team.

Query:

/* Query for contest winner details */

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

SnapShot:

username	photo_id	image_url	total_likes
Zack_Kemmer93	145	https://jarret.name	48

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

Query:

/* Query to identify the top five most commonly used hashtags */

```
SELECT t.tag_name   , COUNT(*) AS usage_count
FROM photo_tags pt
JOIN  tags t
ON t.id = pt.tag_id
GROUP BY tag_name
ORDER BY usage_count DESC
```

LIMIT 5;

SnapShot:

	tag_name	usage_count
▶	smile	59
	beach	42
	party	39
	fun	38
	concert	24

5. **Ad Campaign Launch:** Determine the day of the week when most users register on Instagram. Provide insights on when to schedule an ad campaign.

Query:

/*Ad Campaign Launch Query*/

SELECT dayname(created_at) AS cam_day, count(*) as count_total

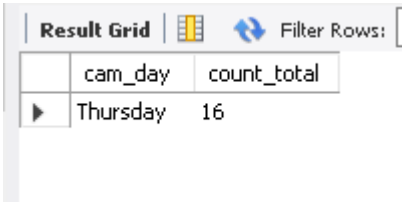
FROM users

GROUP BY cam_day

ORDER BY count_total DESC

LIMIT 1;

Snapshot:



B) Investor Metrics:

1. **User Engagement:** 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:

/*User Engagement*/

SELECT

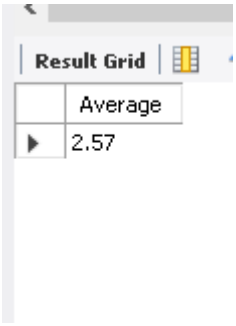
ROUND((SELECT COUNT(*)

FROM photos) /

(SELECT COUNT(*)

FROM users),2) as Average;

SnapShot:



2. **Bots & Fake Accounts:** Identify users (potential bots) who have liked every single photo on the site, as this is not typically possible for a normal user.

   Query:

   /* query to number of likes made by BOTS */

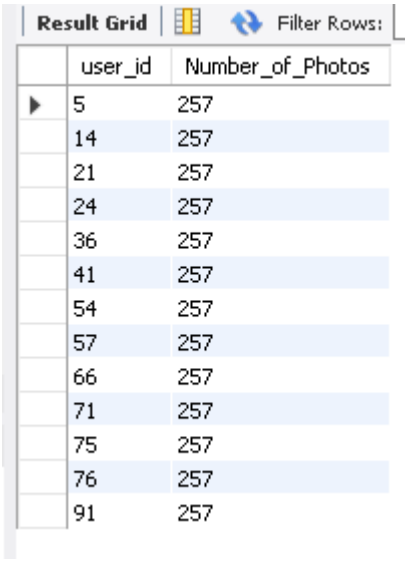
   SELECT user_id, COUNT(*) as Number_of_Photos

   FROM likes

   GROUP BY user_id

   HAVING Number_of_Photos = (SELECT count(*) FROM photos);

   Snap Shot:

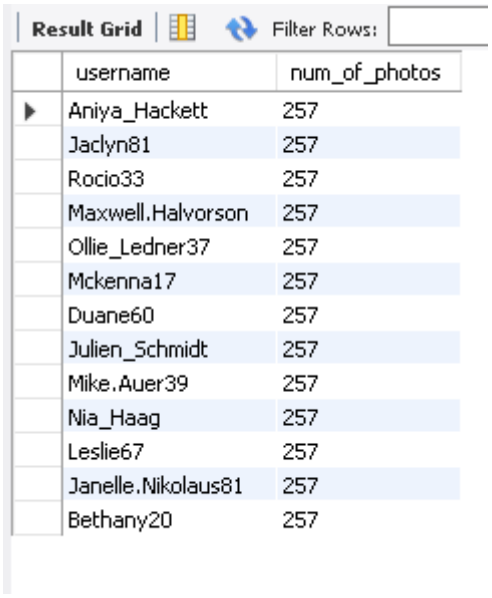


user_id	Number_of_Photos
5	257
14	257
21	257
24	257
36	257
41	257
54	257
57	257
66	257
71	257
75	257
76	257
91	257

Query:

```
SELECT un.username, count(*) as num_of_photos
FROM users un
JOIN likes l
ON un.id = l.user_id
GROUP BY un.id
HAVING num_of_photos = (SELECT count(*) FROM photos);
```

Snap Shot:



username	num_of_photos
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

2.5 Result: I reached important benchmarks in data analysis and strategic insights during the assignment. Using MySQL Workbench. I refined my SQL querying and data management abilities, which improved my capacity to efficiently examine large, complicated datasets. The experiment yielded significant information about user interaction patterns, including the identification of popular hashtags and peak activity periods. With the use of these results, I was able to formulate thoughtful suggestions for maximizing posting schedules and utilizing powerful hashtags—two strategies that are essential for increasing user engagement and reach. In addition to providing insightful information for upcoming marketing and product development, the study also emphasized the significance of making decisions based on data, which greatly aided the platform's strategic efforts and my own professional development as a data analyst.