Instagram User Analytics

PROJECT DESCRIPTION

This project analyzes user engagement, marketing strategies, and investor metrics for Instagram. By utilizing SQL queries on the provided database, I gained insights into **user behavior**, **identified loyal** and **inactive users**, **determined contest winners**, **researched popular hashtags**, and **detected potential bot accounts**.

APPROACH

- Firstly, I created an ER diagram for the dataset provided to find out the relationship between the tables.
- Using MySQL, I extracted and analyzed data from the provided database to address various aspects of Instagram's performance.
- Then the data that I got from MySQL was used in Excel to create charts.

TECH-STACK USED

I have mainly used 3 tools:-

1. **MS Excel (Microsoft 365)**
    I used it for visualization purposes.
2. **MySQL Workbench 8.0.33**
    I used it for analyzing the dataset provided.
3. **PowerPoint (Microsoft 365)**
    I used it for the presentation.

INSIGHTS

(A) **Marketing**

(B) **Investor Metrics**

- Rewarding most loyal users
- Remind inactive users to start posting
- Declaring Contest Winners
- Hashtag Researching
- Launch AD Campaign

- User Engagement
- Bots & Fake Accounts

Marketing

Rewarding Most Loyal Users

The 7 oldest users of Instagram have been identified from the database. Out of these 7 users, 2 users have not posted any content on the platform. Therefore, I have selected **5 loyal users of Instagram** who have been using the platform for the longest time.

```sql
SELECT * FROM users
WHERE id IN ( SELECT user_id FROM photos)
ORDER BY created_at ASC
LIMIT 5;
```

id	username	created_at
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
40	Rafael.Hickle2	2016-05-19 09:51:26

Ⓐ **Marketing**

Remind inactive users to start posting

A total of **26 inactive users on Instagram** have not posted a single photo on the platform. To encourage their engagement and activity, promotional emails will be sent to these users, urging them to revisit the platform and begin sharing photos.

```sql
SELECT id, username
FROM users
WHERE id NOT IN (    SELECT user_id
                     FROM photos    );
```

id	username
5	Aniya_Hackett
7	Kasandra_Homenick
14	Jaclyn81
21	Rocio33
24	Maxwell.Halvorson
25	Tierra.Trantow
34	Pearl7
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
NULL	NULL

Ⓐ Marketing

Declaring contest winner

The winner of the Instagram contest, where the user with the most likes on their photo wins, is **Zack_Kemmer93**. Zack's **photo received 48 likes** and featured hashtags such as **#party**, **#concert**, **#drunk**, **#smile**, and **#fun**. These hashtags indicate that **Zack was enjoying a concert and having a fun time while being in a festive mood**.

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

photo_id	likes	username
145	48	Zack_Kemmer93

Ⓐ **Marketing**

```sql
SELECT
    tag_id, tag_name, COUNT(photo_id) AS tag_used
FROM
    photo_tags INNER JOIN tags ON photo_tags.tag_id = tags.id
GROUP BY tag_id
ORDER BY tag_used DESC
LIMIT 5;
```

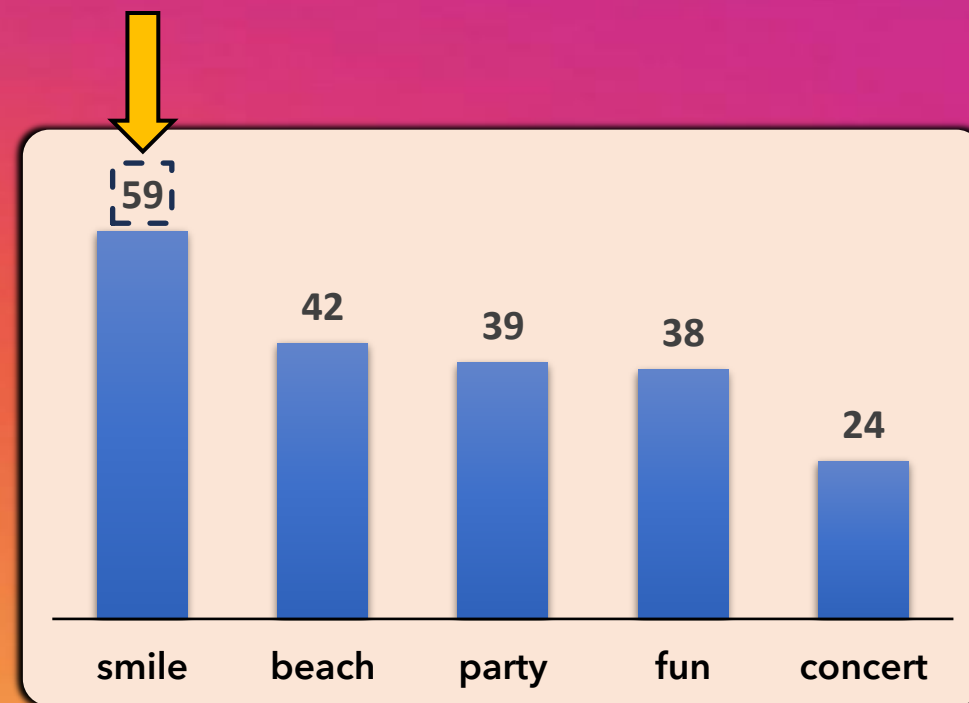## Hashtag Researching

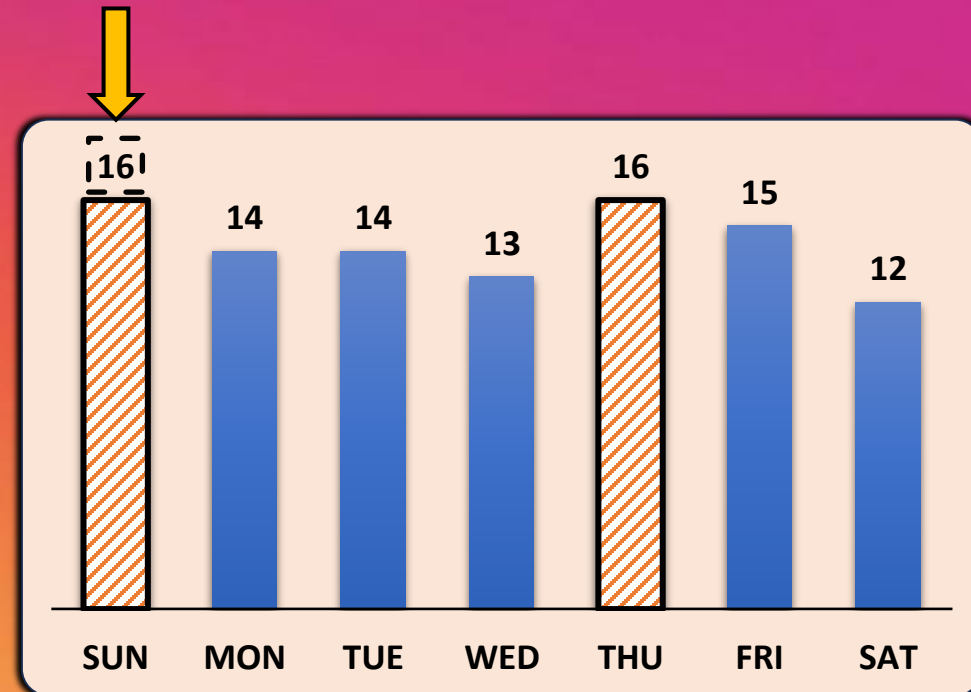Out of the 21 hashtags analyzed, the **top 5 hashtags** that partner brands can utilize on their photos to maximize reach on the platform are **#smile**, **#beach**, **#party**, **#fun**, and **#concert**. Incorporating these hashtags in their posts can help them reach a larger audience and increase visibility.

Number of times the hashtag was used

59	42	39	38	24
smile	beach	party	fun	concert

A Marketing

```sql
SELECT
    CASE
        WHEN WEEKDAY(created_at) = 0 THEN 'MONDAY'
        WHEN WEEKDAY(created_at) = 1 THEN 'TUESDAY'
        WHEN WEEKDAY(created_at) = 2 THEN 'WEDNESDAY'
        WHEN WEEKDAY(created_at) = 3 THEN 'THURSDAY'
        WHEN WEEKDAY(created_at) = 4 THEN 'FRIDAY'
        WHEN WEEKDAY(created_at) = 5 THEN 'SATURDAY'
        WHEN WEEKDAY(created_at) = 6 THEN 'SUNDAY'
    END AS `day`,
    COUNT(username) AS No_of_reg_users
FROM users
GROUP BY `day`;
```

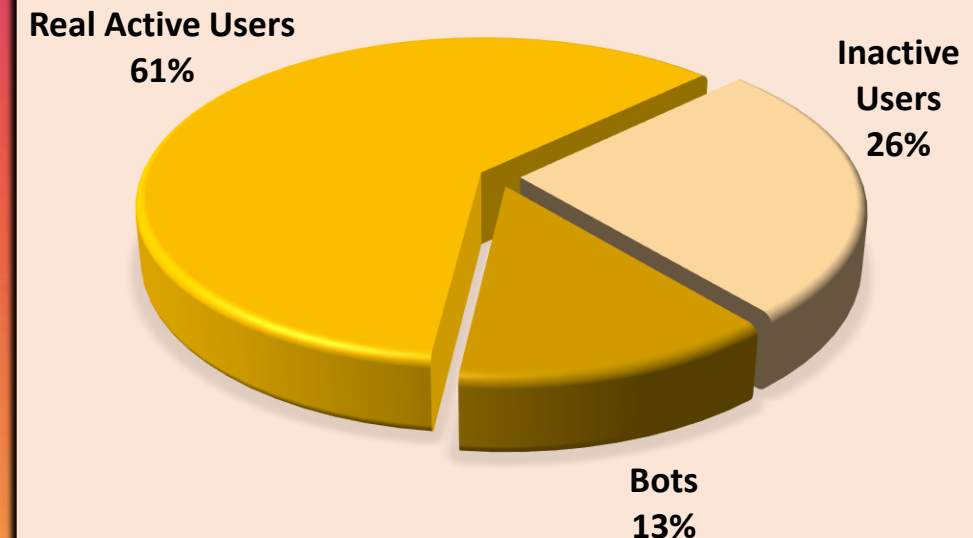## Launch AD Campaign

After analyzing user registration patterns, it was observed that **Sunday** and **Thursday** are the two days when the **highest number of registrations** occur on Instagram. To optimize the success of the ad campaign, it is recommended to launch it on either **Sunday** or **Thursday** to maximize user engagement.

Number of users registered

| SUN | MON | TUE | WED | THU | FRI | SAT |
| 16 | 14 | 14 | 13 | 16 | 15 | 12 |

🅱 Investor Metrics

```
WITH total_photos AS(
    SELECT COUNT(DISTINCT id) AS No_of_photos
    FROM photos ),
    total_users AS (
    SELECT COUNT(DISTINCT id) AS No_of_users
    FROM users  )
SELECT No_of_photos, No_of_users,
    total_photos.No_of_photos/total_users.No_of_users AS average_photos
FROM total_photos,total_users;
```

Users Engagement

No_of_photos	No_of_users	average_photos
257	100	2.5700

On Instagram, there are **100 users in total**. Out of these, **13 users are bots** and **26 users have never posted** a single photo. The **platform** currently **has 257 photos**, and on **average**, each user posts **2-3 photos**.

Real Active Users 61%

Inactive Users 26%

Bots 13%

🅑 Investor Metrics

```sql
WITH botsdata AS(    SELECT user_id, COUNT(photo_id) AS Likes_Given
                     FROM likes
                     GROUP BY user_id
                     HAVING Likes_Given = 257     )
SELECT COUNT(user_id) AS No_of_bots
FROM botsdata;
```
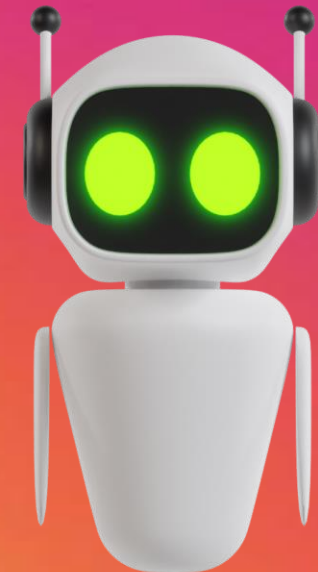
No_of_bots
13

Bot and Fake Accounts

Based on the analysis, it has been determined that Instagram has a minimal presence of bot accounts. Only **13% of the accounts can be classified as bots**, as they have liked every single photo on the platform. This suggests that **Instagram has a genuine user base**.

SUMMARY

- **Emilio**, **Elenor**, **Nicole**, **Jordyn**, and **Rafael** are the **5 oldest** and most **loyal** users of Instagram.
- There are **26 inactive users** on Instagram who haven't posted any posts.
- **Zack_Kemmer93** is the winner of the contest.
- **#smile**, **#beach**, **#party**, **#fun**, and **#concert** are the top 5 hashtags.
- **Sunday** or **Thursday** is the best day to launch the ad campaign.
- There are total **100 users** on Instagram out of which **13 are bots**, **61 are real active users** and **26 are inactive users**.