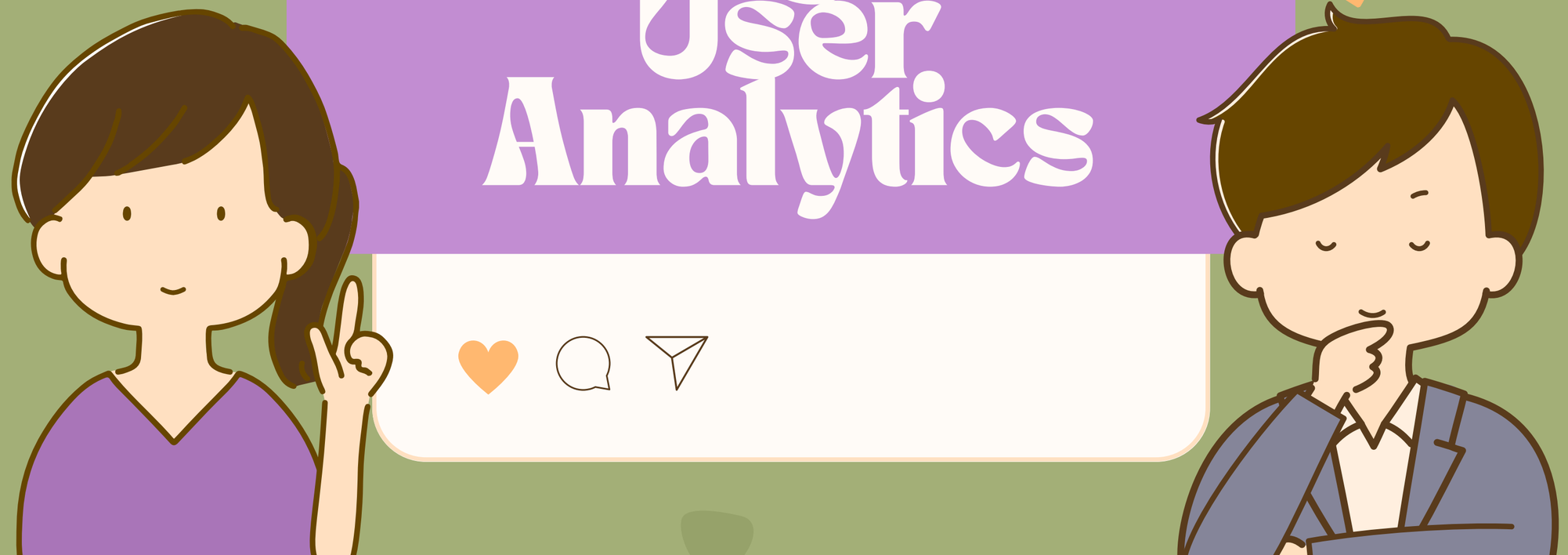
@data_analytics

Instagram User Analytics



About me

1. Data Analyst passionate about deriving insights from data
2. Skilled in SQL, Excel, Power BI, Python
4. Experienced in translating data into strategy-aligned actions
5. Interest in marketing, product analytics, and customer behavior

Project Overview

Data-Driven Marketing & Engagement Insights using SQL

1. Domain: Instagram (Social Media / Product Analytics)
2. Goal: Analyze user engagement, hashtag trends, and content performance
3. Use Case: Help product and marketing teams with user-level insights

Type something...

Tech Stack Used

- SQL
  - data querying
  - analysis
- Excel
  - documentation
  - formatting
- Domain Knowledge
  - hashtags
  - fake user detection
  - marketing KPIs

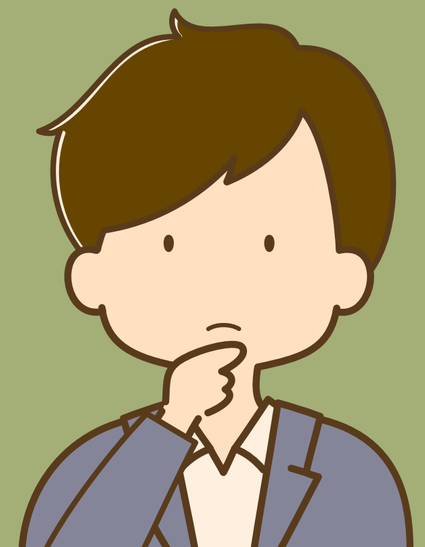
Approach

•Divided into two tracks:

1. Marketing Analysis: Loyal users, hashtags, campaign timing
2. Investor Metrics: Engagement, bots/fake accounts

•SQL queries used to extract meaningful insights

Task 1: Identify the **five oldest users** in the dataset to give reward for the most loyal user.



```sql
SELECT      id, username,
MIN(created_at) AS user_joining_date
FROM      users
GROUP BY id
ORDER BY created_at asc
LIMIT 5 ;
```

id	username	user_joining_date
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

Task 2 : Find the inactive users.

Findings : No user had zero posts → indicates strong onboarding

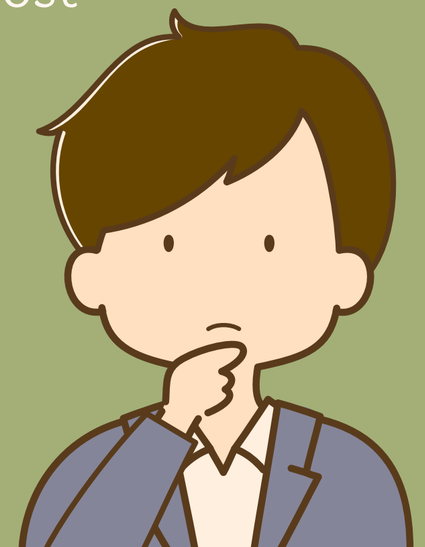
```
select count(*) from photos
where image_url is null;
```

Result Grid | Filter Rows:

	count(*)
▶	0

Task 3: Identify user with the most likes on a single photo for the **contest winner declaration.**

Findings: User Zack_Kemmer93 had most-liked post



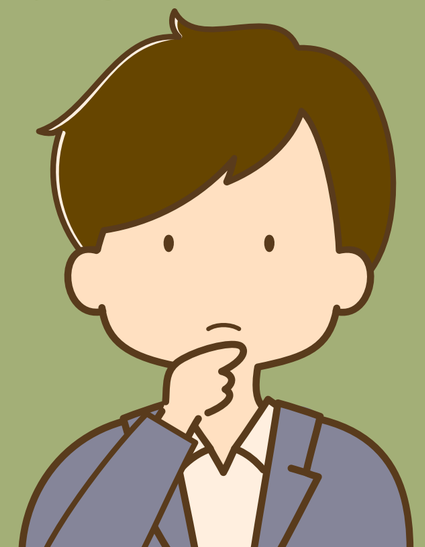
```sql
SELECT
    users.id AS user_id,
    username,
    photos.id AS photo_id,
    photos.image_url,
    COUNT(*) AS total_likes_count
FROM photos
    JOIN likes
        ON photos.id = likes.photo_id
    JOIN users
        ON users.id = photos.user_id
    GROUP BY photos.id
    ORDER BY total_likes_count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

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

Task 4: The most used hashtags

Findings

- Top 5: Sunset, Sunrise, Style, Stunning, Smile
- Useful for branded campaigns



```
select id, tag_name
from tags
group by id
order by tag_name desc
limit 5 ;
```

	id	tag_name
▶	1	sunset
	3	sunrise
	14	style
	9	stunning
	21	smile
*	NULL	NULL

Task 5: Determine the **day of the week** when **most users register on Instagram,** so that the company can schedule the launch for ad campaign.

Findings:

- Day 5 (Friday) had the highest user registrations
- Ideal for launching ad campaigns for better impact

```sql
SELECT
  dayofweek(created_at) AS day_of_week,
  COUNT(*) AS registration_count
FROM
  users
GROUP BY
  day_of_week
ORDER BY
  registration_count DESC
LIMIT 1;
```

	day_of_week	registration_count
▶	5	16

Task 6: User Engagement

Findings :

- 2.57 photos per user
- Shows moderate engagement baseline

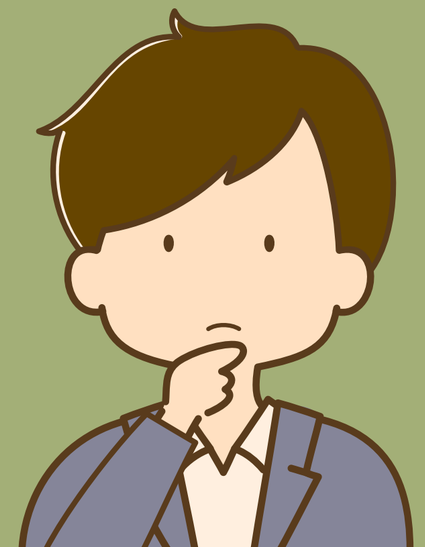
```sql
SELECT
ROUND(
    ( SELECT COUNT(*) FROM photos ) / ( SELECT COUNT(*) FROM users ),
    2
) AS avg_user_post;
```

	avg_user_post
▶	2.57

Task 7: Identifying **Bots** and **Fake Accounts**

Findings :

- Found users who liked every photo on the platform
- Flagged 13+ accounts with suspicious activity



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

id	username	total_likes_by_user
5	Aniya_Hackett	257
14	Jaclyn81	257
21	Rocio33	257
24	Maxwell.Halvorson	257
36	Ollie_Ledner37	257
41	Mckenna17	257
54	Duane60	257
57	Julien_Schmidt	257
66	Mike.Auer39	257
71	Nia_Haag	257
75	Leslie67	257
76	Janelle.Nikolaus81	257
91	Bethany20	257

Key Insights

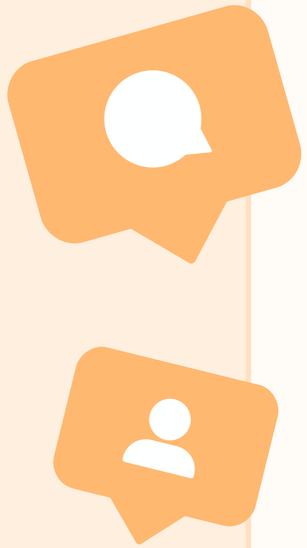
- Friday is the most active user registration day → Schedule campaigns
- Top-performing hashtags can enhance reach
- Loyal users can be engaged with personalized rewards
- No inactive users → Healthy engagement levels
- Detected bot-like accounts for platform cleanup

Learnings

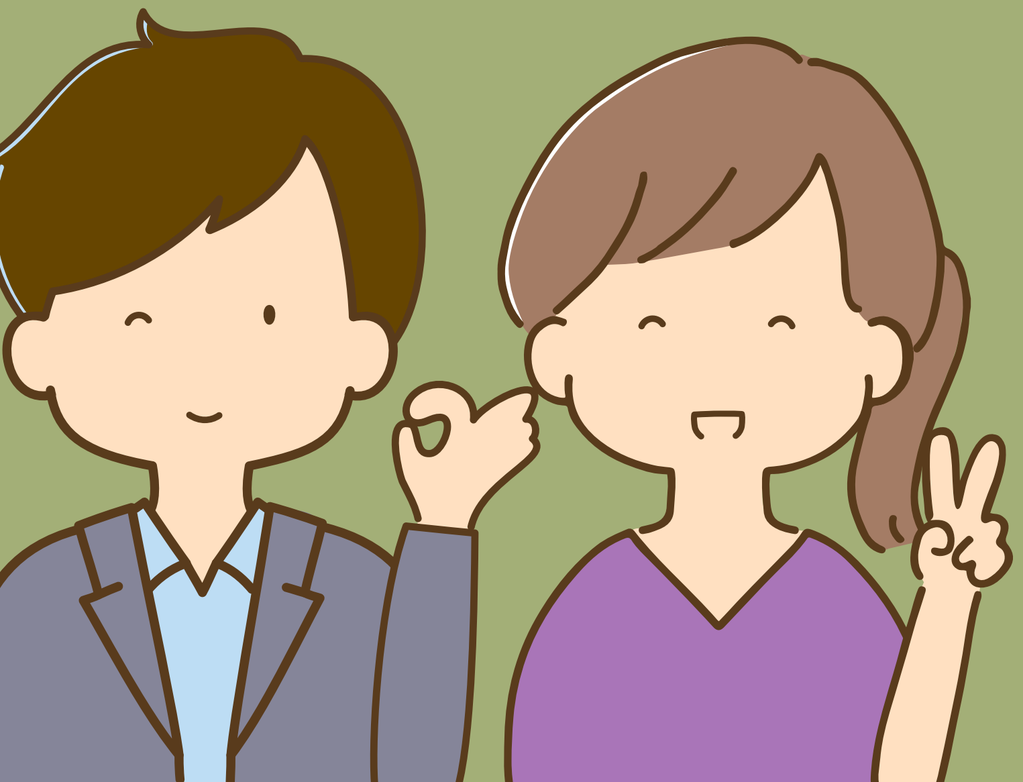
- Gained hands-on SQL experience with real-world business queries
- Learned how to apply marketing logic to user behavior
- Strengthened query optimization and data storytelling
- Practiced structuring insights for stakeholders and cross-functional teams

Result & Business Impact

- Data helps tailor Instagram's content strategy
- Helps product & marketing teams align on:
  - Engagement patterns
  - Content formats
  - Target users & campaigns
- Better influencer outreach using top hashtags
- Data-informed decisions → Improved ROI and engagement



thank you!



GitHub

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