Instagram USER ANALYTICS

PRESENTATION BY-
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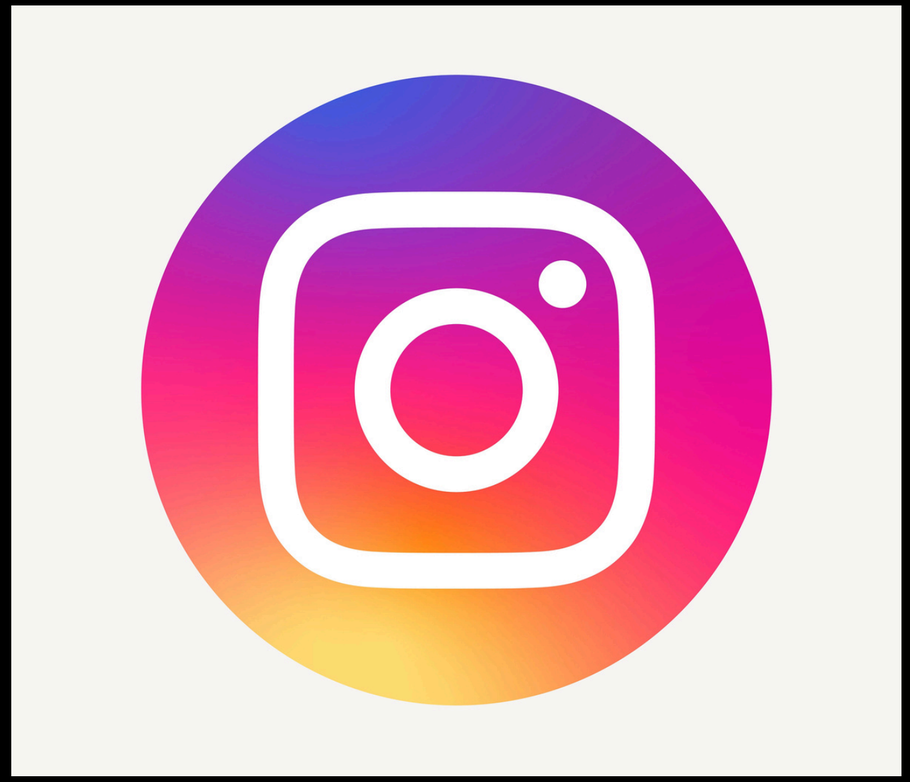
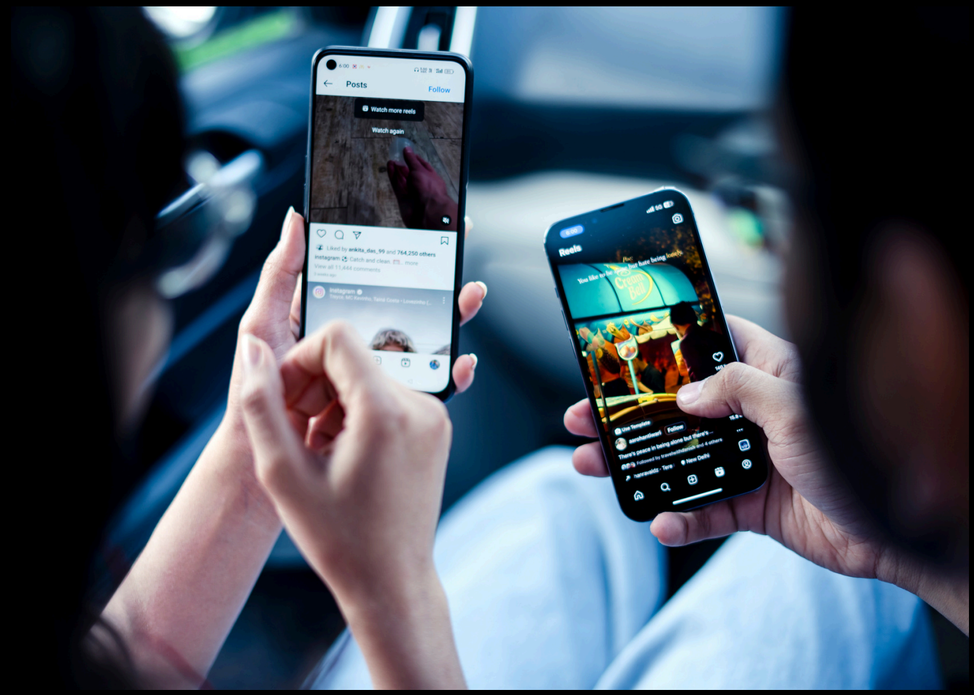


OBJECTIVE

The project focuses on extracting actionable insights from user interaction data on Instagram. By leveraging SQL-based analysis, the study identifies patterns in user engagement, content trends, and growth opportunities that can guide marketing campaigns, product improvements, and overall platform development.



APPROACH

DATABASE SETUP: DESIGNED AND POPULATED A RELATIONAL DATABASE IN MYSQL WORKBENCH USING PROVIDED DDL AND DML SCRIPTS.

QUERY EXECUTION: DEVELOPED OPTIMIZED SQL QUERIES TO EXTRACT KEY INSIGHTS AROUND USER ACTIVITY, ENGAGEMENT, AND TRENDS.

ANALYSIS & INTERPRETATION: TRANSLATED QUERY OUTPUTS INTO BUSINESS-ORIENTED INSIGHTS FOR MARKETING, PRODUCT, AND INVESTOR TEAMS.

TECH STACK

DATABASE: MYSQL COMMUNITY SERVER 8.0

INTERFACE: MYSQL WORKBENCH

QUERY LANGUAGE: SQL (DDL, DML, JOINS, AGGREGATIONS, GROUPING, ORDERING)

INSIGHTS: MARKETING

1.Rewarding Most Loyal Users: People who have been using the platform for the longest time.

```
SELECT id,
       username,
       created_at
FROM   users
ORDER  BY created_at
LIMIT  5;
```

The 5 oldest users of the Instagram from the database are :

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

INSIGHTS: MARKETING

2.Remind Inactive Users to Start Posting: By sending them promotional emails to post their 1st photo.

```
SELECT u.id,
       u.username,
       Count(p.user_id) AS 'no._of_posts'
FROM   users u
       LEFT JOIN photos p
              ON u.id = p.user_id
GROUP  BY u.id
HAVING Count(p.user_id) = 0;
```

The users who have never posted a single photo on Instagram:

id	username	no._of_posts
5	Aniya_Hackett	0
7	Kasandra_Homenick	0
14	Jaclyn81	0
21	Rocio33	0
24	Maxwell.Halvorson	0
25	Tierra.Trantow	0
34	Pearl7	0
36	Ollie_Ledner37	0
41	Mckenna17	0
45	David.Osinski47	0
49	Morgan.Kassulke	0
53	Linnea59	0
54	Duane60	0
57	Julien_Schmidt	0
66	Mike.Auer39	0
68	Franco_Keebler64	0
71	Nia_Haag	0
74	Hulda.Macejkovic	0
75	Leslie67	0
76	Janelle.Nikolaus81	0
80	Darby_Herzog	0
81	Esther.Zulauf61	0
83	Bartholome.Bernhard	0
89	Jessyca_West	0
90	Esmeralda.Mraz57	0
91	Bethany20	0

INSIGHTS: MARKETING

3.Declaring Contest Winner: The team started a contest and the user who gets the most likes on a single photo will win the contest now they wish to declare the winner.

```
SELECT id,
       username
FROM   users
WHERE  id = (SELECT user_id
             FROM   photos
             WHERE  id = (SELECT photo_id
                          FROM   likes
                          GROUP  BY photo_id
                          ORDER  BY Count(photo_id) DESC
                          LIMIT  1));
```

Details of the winner of the contest are :

	id	username
▶	52	Zack_Kemmer93

INSIGHTS: MARKETING

4.Hashtag Researching: A partner brand wants to know, which hashtags to use in the post to reach the most people on the platform.

```
SELECT t.tag_name,
       Count(t.tag_name) AS "tags count"
FROM   tags t
       INNER JOIN photo_tags ph
               ON t.id = ph.tag_id
GROUP  BY t.tag_name
ORDER  BY Count(t.tag_name) DESC
LIMIT  5;
```

The top 5 most commonly used hashtags on the platform are:

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

INSIGHTS: MARKETING

5.Launch AD Campaign: The team wants to know, which day would be the best day to launch ADs

Day of the week do most users register on :

```
SELECT Dayname(created_at)        "day of week",
       Count(Dayname(created_at)) "count of users registered"
FROM   users
GROUP  BY Dayname(created_at)
ORDER  BY Count(Dayname(created_at)) DESC;
```

	day of week	count of users registered
▶	Thursday	16
	Sunday	16
	Friday	15
	Tuesday	14
	Monday	14
	Wednesday	13
	Saturday	12

INSIGHTS: INVESTOR METRICS

1.User Engagement: Are users still as active and post on Instagram or they are making fewer posts

```
SELECT (SELECT Count(id)
        FROM   photos) / (SELECT Count(DISTINCT user_id)
                          FROM   photos) AS Average_posts_per_User,
       (SELECT Count(id)
        FROM   photos) / (SELECT Count(id)
                          FROM   users)  AS Ratio_of_Total_Posts_to_Total_Users;
```

Average user posts and ratio of total posts to total users in Instagram are :

	Average_posts_per_User	Ratio_of_Total_Posts_to_Total_Users
▶	3.4730	2.5700

INSIGHTS: INVESTOR METRICS

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

```
SELECT id,
       username
FROM   users
WHERE  id IN (SELECT user_id
              FROM   likes
              GROUP  BY user_id
              HAVING Count(user_id) = (SELECT Count(id)
                                       FROM   photos));
```

Data of users (bots) who have liked every single photo on the site (since any normal user would not be able to do this) are :

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

RESULTS & IMPACT

GAINED HANDS-ON EXPERIENCE IN DATA ANALYSIS WITH SQL TO EXTRACT BUSINESS INSIGHTS FROM REAL-WORLD DATASETS.

MARKETING APPLICATIONS: REWARD LOYAL CUSTOMERS, RE-ENGAGE INACTIVE USERS, AND OPTIMIZE CAMPAIGN TIMING/HASHTAGS.

PRODUCT & GROWTH APPLICATIONS: USE ENGAGEMENT RATIOS AS KPIS FOR SUCCESS TRACKING AND USER EXPERIENCE IMPROVEMENT.

RISK MITIGATION: DETECTED FAKE/BOT ACCOUNTS TO MAINTAIN AUTHENTIC USER ENGAGEMENT AND PLATFORM CREDIBILITY.

THANK YOU !