INSTAGRAM USER ANALYTICS

TRANITY PROJECT-2
BY TUSHAR AGGARWAL

https://drive.google.com/drive/folders/1An4pvIhcHOnurAAbf8raSEgmhvuRbjLS?usp=sharing

Project Description:

The project aims to analyze user activity and engagement on Instagram, leveraging the provided database schema. The primary focus areas are marketing strategies and investor metrics. The marketing team's goals include rewarding loyal users, encouraging inactive users to post, declaring contest winners, researching hashtags, and identifying the best day for ad campaigns. On the other hand, for investor metrics, we'll assess user engagement and check for fake accounts to ensure Instagram's sustained performance and legitimacy.

Approach:

To achieve the project's objectives, I adopted a structured approach. Firstly, we understood the database schema to identify relevant tables and relationships. I formulated SQL queries to address each marketing and investor metric question. I then carefully selected appropriate aggregate functions, joins, and groupings to extract meaningful insights from the data. After executing the queries, I analyzed the results and generated reports to present the findings clearly.

Tech-Stack Used:

The project utilized PostgreSQL, a powerful open-source relational database management system. I used PostgreSQL to query and analyze the database, thanks to its robust SQL support and data manipulation capabilities. Additionally, I employed a PostgreSQL client (e.g., pgAdmin) to interact with the database efficiently and validate query results and stored the results.

Insights:

Throughout the project, valuable insights were gained, shedding light on user behavior and platform performance. I identified the oldest users, allowing personalized rewards for loyalty. By finding inactive users, I enabled targeted promotional efforts. Contest winners were accurately determined based on photo likes. The top hashtags were extracted, assisting the partner brand's marketing strategy. Furthermore, I discovered the best day for launching ad campaigns by understanding user registration patterns.

Results:

The project achieved its objectives by providing actionable insights for the marketing team and investor metrics for stakeholders. The marketing team can now reward loyal users and re-engage inactive ones strategically. They can confidently declare contest winners and make data-driven decisions on hashtag usage and ad campaign scheduling. For investors, I demonstrated that user engagement remains high, showcasing Instagram's sustained popularity. Additionally, I identified potential fake accounts for scrutiny, enhancing confidence in the platform's legitimacy and performance.
Overall, the project enabled data-driven decision-making, leading to improved marketing strategies and investor confidence in Instagram's continued success.

Results

```
7   /*A) Marketing:*/
8
9   --Rewarding Most Loyal Users: Finding the 5 oldest users of Instagram from the database.
10  SELECT *
11  FROM users
12  ORDER BY created_at ASC
13  LIMIT 5;
14
```

Data Output | Messages | Notifications

	id [PK] integer	username character varying	created_at timestamp without time zone
1	80	Darby_Herzog	2016-05-06 00:14:21.191
2	67	Emilio_Bernier52	2016-05-06 13:04:29.96
3	63	Elenor88	2016-05-08 01:30:40.677
4	95	Nicole71	2016-05-09 17:30:22.371
5	38	Jordyn.Jacobson2	2016-05-14 07:56:25.835

Total rows: 5 of 5 | Query complete 00:00:00.054 | Ln 13, Col 9

```sql
--Remind Inactive Users to Start Posting: Finding the users who have never posted a single photo on Instagram.
SELECT u.id, u.username, u.created_at
FROM users u
LEFT JOIN photos p ON u.id = p.user_id
WHERE p.id IS NULL;
```

Data Output | Messages | Notifications

	id [PK] integer	username character varying	created_at timestamp without time zone
1	25	Tierra.Trantow	2016-10-03 12:49:20.774
2	66	Mike.Auer39	2016-07-01 17:36:14.714
3	89	Jessyca_West	2016-09-14 23:47:04.78
4	57	Julien_Schmidt	2017-02-02 23:12:48.451
5	34	Pearl7	2016-07-08 21:42:00.982
6	71	Nia_Haag	2016-05-14 15:38:50.23
7	83	Bartholome.Bernhard	2016-11-06 02:31:23.463
8	91	Bethany20	2016-06-03 23:31:53.322
9	21	Rocio33	2017-01-23 11:51:15.467
10	5	Aniya_Hackett	2016-12-07 01:04:39.298
11	24	Maxwell.Halvorson	2017-04-18 02:32:43.597
12	68	Franco_Keebler64	2016-11-13 20:09:26.855
13	80	Darby_Herzog	2016-05-06 00:14:21.191

Total rows: 26 of 26 | Query complete 00:00:00.057 | Ln 20, Col 20

```sql
--Declaring Contest Winner: Identifing the winner of the contest and provide their details to the team (the user
SELECT u.id, u.username, p.id AS photo_id, COUNT(l.user_id) AS likes_count
FROM users u
JOIN photos p ON u.id = p.user_id
LEFT JOIN likes l ON p.id = l.photo_id
GROUP BY u.id, u.username, p.id
ORDER BY likes_count DESC
LIMIT 1;
```

Data Output | Messages | Notifications

	id integer	username character varying	photo_id integer	likes_count bigint
1	52	Zack_Kemmer93	145	48

Total rows: 1 of 1 | Query complete 00:00:00.108 | Ln 29, Col 9

```sql
--Hashtag Researching: Identifing and suggest the top 5 most commonly used hashtags on the platform.
SELECT tag_name, COUNT(*) AS hashtag_count
FROM photo_tags
JOIN tags ON photo_tags.tag_id = tags.id
GROUP BY tag_name
ORDER BY hashtag_count DESC
LIMIT 5;

--Launch AD Campaign: Determining the day of the week when most users register on Instagram to schedule an ad c
```

Data Output | Messages | Notifications

	tag_name character varying	hashtag_count bigint
1	smile	59
2	beach	42
3	party	39
4	fun	38
5	food	24

Total rows: 5 of 5 | Query complete 00:00:00.050 | Ln 38, Col 9

```sql
--Launch AD Campaign: Determining the day of the week when most users register on Instagram to schedule an ad ca
SELECT EXTRACT(DOW FROM created_at) AS day_of_week, COUNT(*) AS user_count
FROM users
GROUP BY day_of_week
ORDER BY user_count DESC
LIMIT 1;
```

Data Output | Messages | Notifications

	day_of_week numeric	user_count bigint
1	4	16

Total rows: 1 of 1 | Query complete 00:00:00.041 | Ln 45, Col 9

```sql
/*B) Investor Metrics:*/

--User Engagement: Providing the average number of posts per user on Instagram and the total number of photos on
-- Average number of posts per user
SELECT COUNT(*) / COUNT(DISTINCT user_id) AS average_posts_per_user
FROM photos;

-- Total number of photos on Instagram / Total number of users
```

Data Output | Messages | Notifications

	average_posts_per_user bigint
1	3

Total rows: 1 of 1 | Query complete 00:00:00.045 | Ln 55, Col 13

```sql
-- Total number of photos on Instagram / Total number of users
SELECT COUNT(*) AS total_photos, COUNT(DISTINCT user_id) AS total_users
FROM photos;

--Bots & Fake Accounts: Providing data on users (bots) who have liked every single photo on the site.
SELECT user_id
```

Data Output | Messages | Notifications

	total_photos bigint	total_users bigint
1	257	74

Total rows: 1 of 1 | Query complete 00:00:00.049 | Ln 59, Col 13

Links:

https://drive.google.com/drive/folders/1An4pvIhcHOnurAAbf8raSEgmhvuRbjLS?usp=sharing