Project-2

INSTAGRAM USER ANALYTICS

PROJECT DESCRIPTION:

The **overview** of this project is to analyze user engagement and interactions with the Instagram app to produce insight full data that will aid in the expansion of Instagram app. User analysis is used to track how users interact with digital products like software applications or mobile apps.

The **purpose** of this project is the insights gained from this analysis can be used by various teams within the business, for instance, the marketing team might use them to choose which new features to develop, and the development team might use them to enhance the user experience. The product manager will be able to make wise judgment about the route the Instagram app will take moving forward with the aid of these insights.

APPROACH:

I created a necessary database for the project by running necessary SQL commands and added values to it provided by the management team using MySQL workbench in the MySQL database. After the database was created, I used to run SQL queries in MySQL workbench and, I used to extract the necessary insights from the database table.

TECH-STACK USED:

I connected to **MySQL workbench** as a software and server with the service name mysql@localhost:3306 with **version- 8.0.23** with MySQL community server – GPL.

I used MySQL workbench because it is an open-source relational database design tool. And it is a friendly user interface.

INSIGHTS:

   A) MARKETING ANALYSIS

1.Loyal user reward: Identify the five oldest users on Instagram from the provided database.

SQL query:

```
•   USE ig_clone;
•   SELECT
        username, created_at
    FROM
        users
    ORDER BY created_at
    LIMIT 5;
```

Result table:

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

Insight: these are the five oldest users who have been using Instagram for the longest time.

2.Inactive user engagement: Identify users who have never posted a single photo on Instagram.

SQL query:

```
SELECT
    Photos.id, username
FROM
    users
        LEFT JOIN
    photos ON users.id = photos.user_id
WHERE
    photos.id IS NULL
ORDER BY username;
```

Result table:

id	username
NULL	Aniya_Hackett
NULL	Bartholome.Bernhard
NULL	Bethany20
NULL	Darby_Herzog
NULL	David.Osinski47
NULL	Duane60
NULL	Esmeralda.Mraz57
NULL	Esther.Zulauf61
NULL	Franco_Keebler64
NULL	Hulda.Macejkovic
NULL	Jaclyn81
NULL	Janelle.Nikolaus81
NULL	Jessyca_West
NULL	Julien_Schmidt
NULL	Kasandra_Homenick
NULL	Leslie67
NULL	Linnea59
NULL	Maxwell.Halvorson
NULL	Mckenna17
NULL	Mike.Auer39
NULL	Morgan.Kassulke
NULL	Nia_Haag
NULL	Ollie_Ledner37
NULL	Pearl7
NULL	Rocio33
NULL	Tierra.Trantow

Insight: these are inactive users who have never posted a single photo on Instagram.

3.contest winner declaration: determine the winner of the contest and provide their details to the team.

SQL query:

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

Result table:

id	image_url	total_likes
145	https://jarret.name	48

Insight: The above result table provides the winner of the contest with the most likes on a single photo.

4. Hashtag research: identify and suggest the top five most used hashtags on the platform.

SQL query:

```sql
SELECT
    tags.tag_name, COUNT(*) AS no_of_hastags
FROM
    photo_tags
        JOIN
    tags ON photo_tags.tag_id = tags.id
GROUP BY tags.id
ORDER BY no_of_hastags desc
LIMIT 5;
```

Result table:

tag_name	no_of_hastags
smile	59
beach	42
party	39
fun	38
concert	24

Insight: these are the top five most used hashtags on Instagram platform.

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.

SQL query:

```sql
SELECT
    DAYNAME(created_at) AS `day`, COUNT(*) AS total_reg
FROM
    users
GROUP BY `day`
ORDER BY total_reg DESC
LIMIT 2;
```

Result table:

day	total_reg
▶ Thursday	16
Sunday	16

Insight: on the day of Thursday and Sunday most users registered on Instagram app.

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.

SQL query:

```
SELECT
    (SELECT
            COUNT(id)
        FROM
            photos) / (SELECT
            COUNT(DISTINCT user_id)
        FROM
            photos) AS avg_posts,
    (SELECT
            COUNT(id)
        FROM
            photos) / (SELECT
            COUNT(id)
        FROM
            users) AS ratio_pho_users;
```
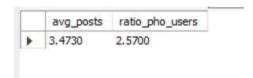
Result table:

avg_posts	ratio_pho_users
3.4730	2.5700

Insight: average number of posts per user on Instagram. And the ratio of total number of photos to the total number of users.

2.BOTS & FAKE ACCOUNTS: Identify users who have liked every single photo on the site.

SQL query:

```
SELECT
     username, COUNT(*) AS num_likes
FROM
     users
          INNER JOIN
     likes ON users.id = likes.user_id
GROUP BY likes.user_id
HAVING num_likes = (SELECT
          COUNT(*)
     FROM
          photos)
ORDER BY username;
```

Result table:

username	num_likes
Aniya_Hackett	257
Bethany20	257
Duane60	257
Jaclyn81	257
Janelle.Nikolaus81	257
Julien_Schmidt	257
Leslie67	257
Maxwell.Halvorson	257
Mckenna17	257
Mike.Auer39	257
Nia_Haag	257
Ollie_Ledner37	257
Rocio33	257

Insight: The above table shows, there are thirteen users who have liked every single photo on Instagram.

RESULT:

By using SQL queries, I extracted meaningful insights from the database. Through the result table I tracked how users engage and interact with our digital platform Instagram app. Also, I tried to produce meaningful business insights for various teams such as marketing, product, and development team.

Marketing analysis

- From marketing analysis insights, Instagram team can give a reward to most loyal users. Those who have been using the platform for the longest time.

- The marketing team can start sending emails to encourage inactive users.

- By conducting a contest, users can declare a winner to those who got the most likes on a single photo on Instagram.

- By doing research on the most popular hashtags on Instagram by which a partner brand can use in their post to reach the most people.

- By conducting an ad campaign launch can suggest the marketing team to schedule an ad campaign at most users register on the day of the weak.

Investor metrics

- On calculating the average number of posts for users on Instagram, the investor team can know the user engagement on Instagram app.

- By identifying bots & fake accounts, through this investor team can control or delete fake and dummy accounts.

CONCLUSION:

These meaningful insights can help the product manager and the rest of the team to make informed decisions about the future direction of the Instagram app.