INSTAGRAM USER ANALYTICS

- **Project Description:**

User analysis is the process by which we track how users engage and interact with our digital product (software or mobile application) in an attempt to derive business insights for marketing, product & development teams.
These insights are then used by teams across the business to launch a new marketing campaign, decide on features to build for an app, track the success of the app by measuring user engagement and improve the experience altogether while helping the business grow.
You are working with the product team of Instagram and the product manager has asked you to provide insights on the questions asked by the management team.

You are required to provide a detailed report answering the questions below:

A) Marketing: The marketing team wants to launch some campaigns, and they need your help with the following

1. **Rewarding Most Loyal Users:** People who have been using the platform for the longest time.
   Your Task: Find the 5 oldest users of the Instagram from the database provided
2. **Remind Inactive Users to Start Posting:** By sending them promotional emails to post their 1st photo.
   Your Task: Find the users who have never posted a single photo on Instagram

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.
   Your Task: Identify the winner of the contest and provide their details to the team
4. **Hashtag Researching:** A partner brand wants to know, which hashtags to use in the post to reach the most people on the platform.
   Your Task: Identify and suggest the top 5 most commonly used hashtags on the platform
5. **Launch AD Campaign:** The team wants to know, which day would be the best day to launch ADs.
   Your Task: What day of the week do most users register on? Provide insights on when to schedule an ad campaign

B) Investor Metrics: Our investors want to know if Instagram is performing well and is not becoming redundant like Facebook, they want to assess the app on the following grounds

1. **User Engagement:** Are users still as active and post on Instagram or they are making fewer posts
   Your Task: Provide how many times does average user posts on Instagram. Also, provide the total number of photos on Instagram/total number of users
2. **Bots & Fake Accounts:** The investors want to know if the platform is crowded with fake and dummy accounts
   Your Task: Provide data on users (bots) who have liked every single photo on the site (since any normal user would not be able to do this).

The goal of user analysis is to gather business insights for the marketing, product, and software developers by monitoring how users engage with and utilize their mobile application or software. These insights are used to develop new marketing campaigns and to choose which features to include in apps, evaluate the performance of the apps by looking at user interaction, and generally improve the user experience while assisting in business expansion.

- **Approach:**
  We made use of all the conditions, functions and operators into the queries being asked and drew insights and conclusions from it.

- **Tech-Stack Used:** I used MySQL Command Line Shell version 8.0 for this project. It is easy to use, understand, analyze and debug if there is any error.

```
mysql> use ig_clone;
Database changed
mysql> show tables;
+--------------------+
| Tables_in_ig_clone |
+--------------------+
| comments           |
| follows            |
| likes              |
| photo_tags         |
| photos             |
| tags               |
| users              |
+--------------------+
7 rows in set (0.02 sec)
```

1. **#Finding the 5 oldest users of the Instagram from the database provided**

```
mysql> select * from users
    -> order by created_at asc
    -> limit 5;
+----+------------------+---------------------+
| 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 |
+----+------------------+---------------------+
5 rows in set (0.05 sec)
```

2. # Finding the users who have never posted a single photo on Instagram

```
mysql> Select username from users
    -> Left join photos
    -> ON users.id = photos.user_id
    -> Where photos.id IS NULL;
+--------------------+
| username           |
+--------------------+
| Aniya_Hackett      |
| Kasandra_Homenick  |
| Jaclyn81           |
| Rocio33            |
| Maxwell.Halvorson  |
| Tierra.Trantow     |
| Pearl7             |
| Ollie_Ledner37     |
| Mckenna17          |
| David.Osinski47    |
| Morgan.Kassulke    |
| Linnea59           |
| Duane60            |
| Julien_Schmidt     |
| Mike.Auer39        |
| Franco_Keebler64   |
| Nia_Haag           |
| Hulda.Macejkovic   |
| Leslie67           |
| Janelle.Nikolaus81 |
| Darby_Herzog       |
| Esther.Zulauf61    |
| Bartholome.Bernhard |
| Jessyca_West       |
| Esmeralda.Mraz57   |
| Bethany20          |
+--------------------+
26 rows in set (0.00 sec)
```

3. Identifying and suggest the top 5 most commonly used hashtags on the platform

```
mysql> Select tags.tag_name,
    -> COUNT(*) AS total
    -> FROM photo_tags
    -> JOIN tags
    -> ON photo_tags.tag_id= tags.id
    -> GROUP BY tags.id
    -> ORDER BY total DESC
    -> LIMIT 5;
+----------+-------+
| tag_name | total |
+----------+-------+
| smile    |    59 |
| beach    |    42 |
| party    |    39 |
| fun      |    38 |
| concert  |    24 |
+----------+-------+
5 rows in set (0.00 sec)
```

4. **Identifying the winner of the contest for the most number of likes on a single photo and provide their details to the team**

```
mysql> select username, ph.id,ph.image_url,
    -> count(*) as Total
    -> From photos ph
    -> Inner Join likes l
    ->   on ph.id=l.photo_id
    -> Inner Join users u
    ->  on u.id= ph.user_id
    -> Group by ph.id
    -> Order by total desc
    -> Limit 1;
+---------------+-----+---------------------+-------+
| username      | id  | image_url           | Total |
+---------------+-----+---------------------+-------+
| Zack_Kemmer93 | 145 | https://jarret.name |    48 |
+---------------+-----+---------------------+-------+
1 row in set (0.01 sec)
```

5. **Identifying average number of posts by users on Instagram**

```
mysql> select
    ->  (select count(*) from photos) / (select count(*) from users) as avg ;
+--------+
| avg    |
+--------+
| 2.5700 |
+--------+
1 row in set (0.00 sec)
```

6. **What day of the week do most users register on?**

```
mysql> select date_format(created_at, '%W') as Day_of_Week, count(*) as total  from  users
    -> Group By DAY_OF_week
    -> Order by total desc
    -> Limit 2;
+-------------+-------+
| Day_of_Week | total |
+-------------+-------+
| Thursday    |    16 |
| Sunday      |    16 |
+-------------+-------+
2 rows in set (0.01 sec)
```