Instagram User Analytics

Project Description

Finding business insights that teams within the company can use to launch new campaigns, choose features for apps, monitor app performance through user engagement, and enhance user experience overall while boosting business growth.

Approach

Database creation: Using the DDL & DML SQL queries that the product manager gave (as per project), I created and entered values into the MySQL database using MySQL Workbench.

Extraction of insights: SQL queries in MySQL Workbench are used to extract the necessary insights from the database tables after the database has been created.

Tech stack

Used MySQL Community Server — GPL Version 8.0.29 and Connector Version C++ 8.0.29 and used SQL on MySQL Workbench for creating my project.

Insights

A) Marketing Analysis

1 Loyal User Reward: Top five oldest users on Instagram from the provided database.

SQL Query:

```
select username as USERNAME, id as USER_ID, created_at
from users
order by created_at asc
limit 5;
```

Output:

USERNAME	USER_ID	created_at
Darby_Herzog	80	2016-05-06 00:14:21
Emilio_Bernier52	67	2016-05-06 13:04:30
Elenor88	63	2016-05-08 01:30:41
Nicole71	95	2016-05-09 17:30:22
Jordyn.Jacobson2	38	2016-05-14 07:56:26

2 Inactive User Engagement: Users who have never posted a single photo on Instagram.

SQL Query:

```
select users.username,users.id, count(photos.user_id) as NO_OF_PHOTOS
from users
left join photos
on users.id = photos.user_id
group by users.id
having count(photos.user_id) = 0;
```

Output:

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

3 Contest Winner Declaration: User with the most likes on a single photo

SQL Query:

```
select users.username, users.id as UserID, photos.id as PhotoID, count(likes.photo_id) as No_Of_Likes
from users
inner join photos
on users.id = photos.user_id
inner join likes
on photos.id = likes.photo_id
group by photos.id
order by No_Of_Likes desc
limit 1;
```

Output:

username	UserID	PhotoID	No_Of_Likes
Zack_Kemmer93	52	145	48

4 Hashtag Research: Top five most commonly used hashtags on the platform.

SQL Query:

```
select tag_name, tags.id, count(photo_tags.tag_id) as total
from tags
inner join photo_tags
on tags.id = photo_tags.tag_id
group by tags.id
order by total desc
limit 5;
```

Output:

tag_name	id	total
smile	21	59
beach	20	42
party	17	39
fun	13	38
concert	18	24

5 Ad Campaign Launch: Day of the week when most users register on Instagram.

SQL Query:

```
select dayname(created_at) as dayname, count(dayname(created_at)) as No_of_Registered_users
from users
group by dayname(created_at)
order by No_of_Registered_users desc;
```

Output:

dayname	No_of_Registered_users
Thursday	16
Sunday	16
Friday	15
Tuesday	14
Monday	14
Wednesday	13
Saturday	12

B) Investor Metrics:

1 User Engagement: Average number of posts per user on Instagram and also determining the total number of images 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 Average_Post_Per_User,
       (select count(id) from photos)/ (select count(id) from users) as Total_Photos_By_Total_Users;
```

Output:

Average_Post_Per_User	Total_Photos_By_Total_Users
3.4730	2.5700

2 Bots & Fake Accounts: (potential bots) who have liked every single photo on the site.

SQL Query:

```
select users.username, users.id , count(likes.user_id) as No_of_likes
from users
inner join likes
on users.id = likes.user_id
group by likes.user_id
having No_of_likes = (select count(*) from photos)
```

Output:

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

RESULT

We track user engagement and interaction with our digital product (software or mobile application) through data analysis using SQL queries to extract insights from the database. Our goal was to extract business insights for the marketing, product, and development teams.

Conclusions from insights:

- The marketing team can leverage popular hashtags, the most active day, and rewards for the most loyal consumers. They can also send emails with promotions to inactive users.
- A very important success metric for the growth of the business is user engagement.
- To improve the customer experience, the company can get rid of the fake accounts and bots from the site.

Jaskirat Singh