INSTAGRAM USER ANALYTICS

Mithilesh Patra

Project Introduction

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.

Problem Statement

The purpose of the project is to provide insights on the questions asked by the management team.

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

Case Study – I

- Rewarding Most Loyal Users: People who have been using the platform for the longest time.
- Remind Inactive Users to Start Posting: By sending them promotional emails to post their 1st photo.
- 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.
- Hashtag Researching: A partner brand wants to know, which hashtags to use in the post to reach the most people on the platform.
- Launch AD Campaign: The team wants to know, which day would be the best day to launch ADs.

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

Case Study – II

- User Engagement: Are users still as active and post on Instagram or they are making fewer posts
- Bots & Fake Accounts: The investors want to know if the platform is crowded with fake and dummy accounts

Approach

I have done initial investigations on the data to discover relationships, duplicates and null values. There are no duplicates and null values in the dataset. I have used MySQL Workbench to perform entire analysis.

Tech-Stack

MySQL Workbench 8.0

Analysis: Case Study – I (Marketing)

1. Rewarding Most Loyal Users:

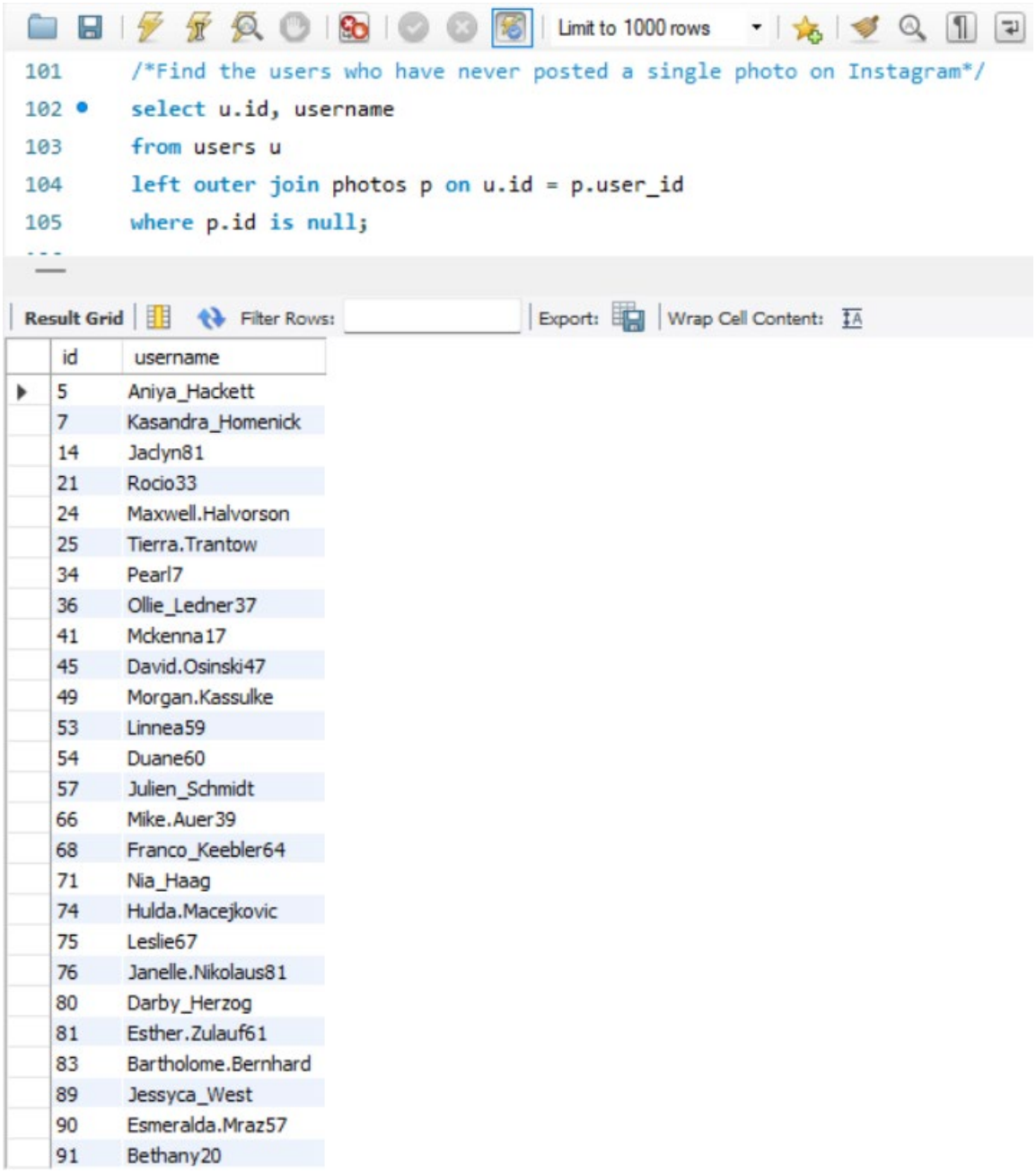
```
92   /*Find the 5 oldest users of the Instagram from the database provided*/
93
94   with old_users as
95       (select *
96       , dense_rank() over(order by created_at) as dense_rnk
97       from users)
98   select id, username
99   from old_users
100  where dense_rnk in (1,2,3,4,5);
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

id	username
80	Darby_Herzog
67	Emilio_Bernier52
63	Elenor88
95	Nicole71
38	Jordyn.Jacobson2

The above are five most loyal users of the Instagram.

2. Remind Inactive Users to Start Posting:



```
Limit to 1000 rows

101   /*Find the users who have never posted a single photo on Instagram*/
102 • select u.id, username
103   from users u
104   left outer join photos p on u.id = p.user_id
105   where p.id is null;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

id	username
5	Aniya_Hackett
7	Kasandra_Homenick
14	Jaclyn81
21	Rocio33
24	Maxwell.Halvorson
25	Tierra.Trantow
34	Pearl7
36	Ollie_Ledner37
41	Mckenna17
45	David.Osinski47
49	Morgan.Kassulke
53	Linnea59
54	Duane60
57	Julien_Schmidt
66	Mike.Auer39
68	Franco_Keebler64
71	Nia_Haag
74	Hulda.Macejkovic
75	Leslie67
76	Janelle.Nikolaus81
80	Darby_Herzog
81	Esther.Zulauf61
83	Bartholome.Bernhard
89	Jessyca_West
90	Esmeralda.Mraz57
91	Bethany20

From above output, out of 100 users, only 26 users never posted a single photo on Instagram. The Marketing team needs to send promotional emails to the above users to post their first photo.

3. Declaring Contest Winner:

```
116    /*Identify the winner of the contest and provide their details to the team*/
117    select u.id, u.username, l.photo_id, count(*) as most_likes
118    from users u
119    inner join photos p on u.id = p.user_id
120    inner join likes l on p.id = l.photo_id
121    group by l.photo_id
122    order by most_likes desc
123    limit 1;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content: | Fetch rows:

id	username	photo_id	most_likes
52	Zack_Kemmer93	145	48

The user, Zack_Kemmer93 with id = 52, has most likes on a single photo of id = 48. The winner is Zack_Kemmer93.

4. Hashtag Researching:

```
125    /*Identify and suggest the top 5 most commonly used hashtags on the platform*/
126    with most_used_hastags as
127            (with cte as
128                (select t.tag_name, count(*) as no_of_hashtags
129                from tags t
130                inner join photo_tags p on t.id = p.tag_id
131                group by t.tag_name)
132            select *
133            , rank() over(order by no_of_hashtags desc) as rnk
134            from cte)
135    select tag_name, no_of_hashtags
136    from most_used_hastags
137    where rnk in (1,2,3,4,5);
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

tag_name	no_of_hashtags
smile	59
beach	42
party	39
fun	38
concert	24
food	24
lol	24

From above output we can say that smile is the most used hashtag. The hashtag like concert, food and lol has same count which stands in fifth position. To reach maximum people on Instagram, the partner brand can use hashtags like smile, beach, party, fun, concert, food and lol.

5. Launch AD Campaign:

```
/*What day of the week do most users register on? Provide insights on when to schedule an ad campaign*/
with cte as
        (select *,
            case when weekday(cast(created_at as date)) = 0 then 'MONDAY'
                 when weekday(cast(created_at as date)) = 1 then 'TUESDAY'
                 when weekday(cast(created_at as date)) = 2 then 'WEDNESDAY'
                 when weekday(cast(created_at as date)) = 3 then 'THRUSDAY'
                 when weekday(cast(created_at as date)) = 4 then 'FRIDAY'
                 when weekday(cast(created_at as date)) = 5 then 'SATURDAY'
                 when weekday(cast(created_at as date)) = 6 then 'SUNDAY'
            end as day_of_week
        from users)
select day_of_week, count(*) as most_registered
from cte
group by day_of_week
order by most_registered desc;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

day_of_week	most_registered
THRUSDAY	16
SUNDAY	16
FRIDAY	15
TUESDAY	14
MONDAY	14
WEDNESDAY	13
SATURDAY	12

Most users register on Thursdays, Sundays and Fridays. So, marketing team can schedule an ad campaign on these days.

Case Study – II (Investor Metrices)

1. User Engagement:

```
select count(username) from users
```

Result Grid | Filter Rows: | Exp

count(username)
100

The total number of users are 100.

```
159  select count(*) from photos
```

Result Grid | Filter Rows:

count(*)
257

The total number of photos on Instagram is 257.

```
162  select round((select count(*) from photos) / (select  count(username) from users)) as avg_user_post;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

avg_user_post
3

Approximately on average a user post three times. So, from above we can infer that users are active and post on Instagram.

2. Bots & Fake Accounts:

```
172  /*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). */
173  select u.id,u.username as bots, count(*) as no_of_liked_photos
174  from users u
175  inner join likes l on u.id = l.user_id
176  group by l.user_id
177  having no_of_liked_photos = (select count(*) from photos);
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

id	bots	no_of_liked_photos
5	Aniya_Hackett	257
14	Jadyn81	257
21	Rocio33	257
24	Maxwell.Halvorson	257
36	Ollie_Ledner37	257
41	Mckenna17	257
54	Duane60	257
57	Julien_Schmidt	257
66	Mike.Auer39	257
71	Nia_Haag	257
75	Leslie67	257
76	Janelle.Nikolaus81	257
91	Bethany20	257

From above we can infer, there are 13 bots who have liked every single photo on Instagram. Around 1.3% on Instagram have fake or dummy accounts.

Result

The huge dataset consists of many tables and many records helps me increase the analytical ability, predictive analysis and also decision-making capability. I have learned advance concepts of SQL while doing this project.