Instagram User Analytics

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.
We 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.

Approach

The approach to this project would be to first collect data on user engagement and interaction with the app, such as time spent on the app, user activities, user comments, etc. This data can then be analyzed to answer specific questions from the management team. This could include analyzing user engagement over time, comparing user engagement between different user groups, and measuring user loyalty. Additionally, data points such as user demographics, device usage, and geolocation can be used to provide further insights. Once the data is collected and analyzed, the insights can be presented to the management team in a comprehensive report.

Tech -Stack Used

My SQL Workbench 8.0 CE

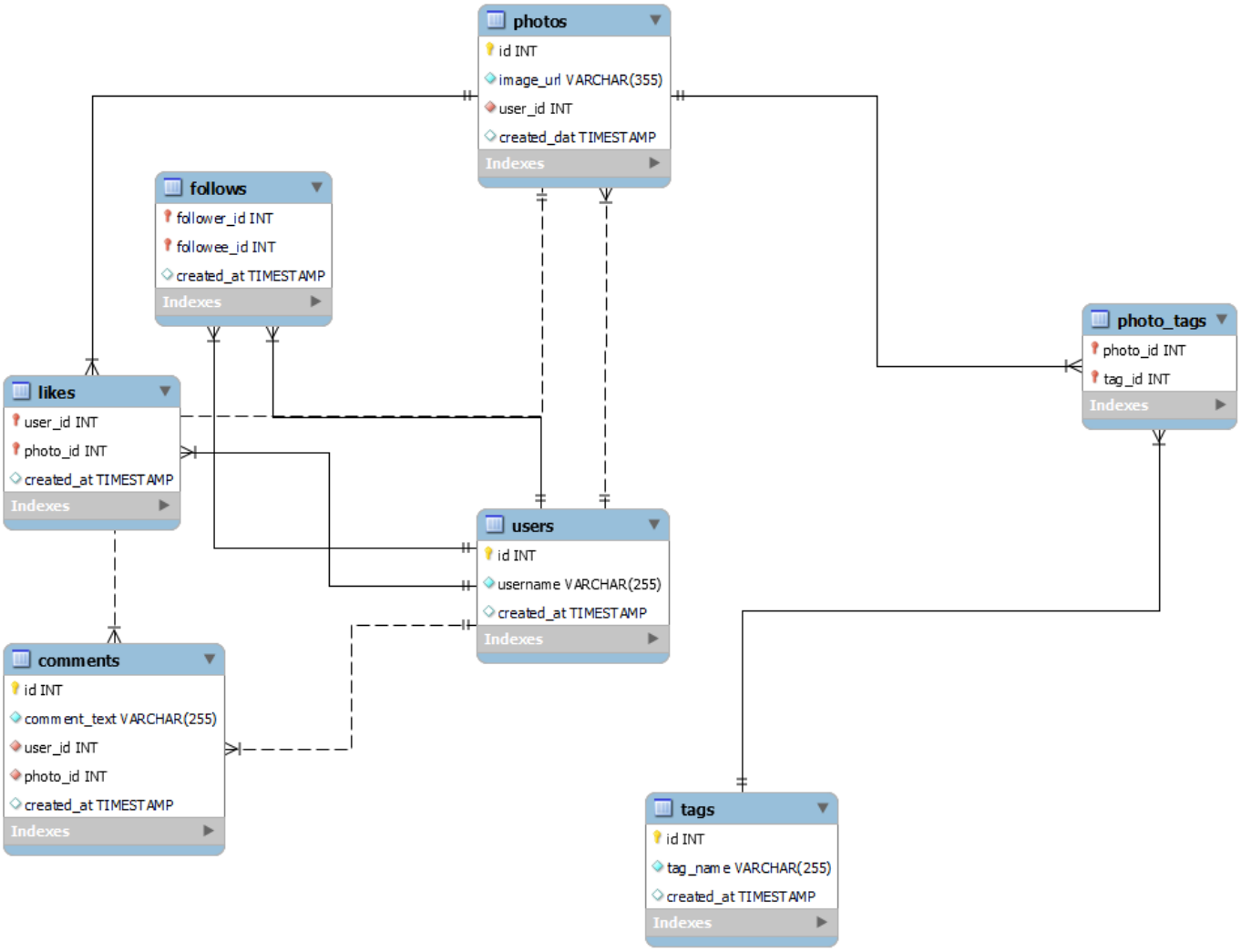
MySQL Workbench provides a visual dashboard for quickly administering MySQL systems and improving database visibility.

Insights

Learn the fundamentals of SQL, such as count, distinct, max, dayofweek, and dayname functions, as well as joins (inner join, left join, and so on) and CTE (Common table expression)

Discover more about marketing: how to offer incentives to old customers, how to remind inactive users to start posting, how to run advertisements, what the purpose of hashtags is, how to verify user engagement, and how to identify fake accounts.

ER Diagram


photos
id INT
image_url VARCHAR(355)
user_id INT
created_dat TIMESTAMP
Indexes
follows
follower_id INT
followee_id INT
created_at TIMESTAMP
Indexes
photo_tags
photo_id INT
tag_id INT
Indexes
likes
user_id INT
photo_id INT
created_at TIMESTAMP
Indexes
users
id INT
username VARCHAR(255)
created_at TIMESTAMP
Indexes
comments
id INT
comment_text VARCHAR(255)
user_id INT
photo_id INT
created_at TIMESTAMP
Indexes
tags
id INT
tag_name VARCHAR(255)
created_at TIMESTAMP
Indexes

Result

A) Marketing:

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

Task 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

```
SELECT
    username
FROM users
ORDER BY created_at ASC
LIMIT 5 ;
```

username
Darby_Herzog
Emilio_Bernier52
Elenor88
Nicole71
Jordyn.Jacobson2

Five oldest users are - Darby_Herzog , Emilio_Bernier52 , Elenor88 , Nicole71 ,Jordyn.Jacobson2

Task 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

```
SELECT u.username from users u
LEFT JOIN
photos p
ON
u.id = p.user_id
where p.id is null ;
```

username
Aniya_Hackett
Kasandra_Homenick
Jadyn81
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

Task 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

```
WITH result AS
(
Select
        p.id as photo_id ,
        p.user_id  ,
        count(l.photo_id) as num_likes
from photos p
left join
likes  l
on p.id = l.photo_id
group by 1 ,2
order by 3 desc
)
SELECT    r.* , u.username , u.created_at
from result r
join
users u
on r.user_id = u.id
where r.num_likes = ( select max(r.num_likes) from result r ) ;
```

photo_id	user_id	num_likes	username	created_at
145	52	48	Zack_Kemmer93	2017-01-01 05:58:22

Winner is Zack_Kemmer93

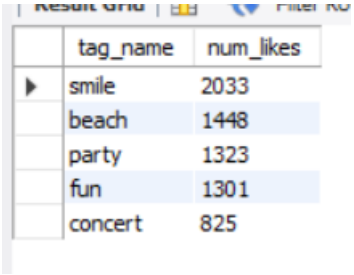
Task 4 –

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

```
Select
      t.tag_name ,
      count(l.user_id) as num_likes
 from
      tags t
left join
photo_tags pt
on
    t.id=pt.tag_id
left join
likes l
on
   pt.photo_id = l.photo_id
group by 1
order by 2 desc
limit 5 ;
```



tag_name	num_likes
smile	2033
beach	1448
party	1323
fun	1301
concert	825

Top 5 hashtags are – smile , beach , party , fun , concert

Task 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

```
select
    dayofweek(created_at) as day_of_week ,
    dayname(created_at) as day_name ,
    count(id) as new_reg
from users
group by 1 ,2;
```

day_of_week	day_name	new_reg
5	Thursday	16
1	Sunday	16
3	Tuesday	14
7	Saturday	12
4	Wednesday	13
2	Monday	14
6	Friday	15

The most people register on Thursday and Sunday.

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

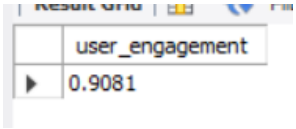
Task 1 –

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

```
SELECT
        COUNT(p.id)/COUNT(u.id) AS user_engagement
 FROM users u
LEFT JOIN
photos p
ON
u.id = p.user_id ;
```



	user_engagement
▶	0.9081

0.9081 is user engagement .

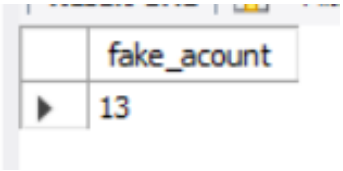
Task 2 –

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).

```
WITH result AS
(
SELECT u.id ,count(user_id) as num_likes FROM users u
LEFT JOIN
likes l
ON
u.id = l.user_id
group by 1
order by 2 desc
)
SELECT
    COUNT(id) as fake_acount
from result
where num_likes = (select COUNT(DISTINCT photo_id) from likes) ;
```



	fake_acount
▶	13

Fake accounts are 13