**Project Description:**

We want to carry out Instagram User analysis where we want to 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.

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.

So we are required to answer questions asked by Marketing team and investment team as they would like to get insights about instagram application.

Here, we will be using SQL to run different commands to find the answers to the questions asked. For the same purpose, we will be using SQL help pages and the learning material provided.

**Approach:**

I have tried to use SQL help pages and learning materials to make the codes. In case of any doubts, I have tried multiple trial and error and for any error I received while executing a command, I have checked the error message to understand the error and how to rectify it.

**Tech-Stack Used:**

MySQL workbench 8.0.29

**Insights:**

**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**

We have identified oldest users of the Instagram from the database using following command:

SELECT

\*

FROM

users

ORDER BY created\_at

LIMIT 5

**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**

We have used left join to identify users who has null value for uploading image URL and thus identified the users who have never posted anything on instagram yet.

SELECT

u.id, u.username, p.image\_url

FROM

users u

LEFT JOIN

photos p ON u.id = p.user\_id

WHERE

p.image\_url IS NULL

**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--**

We have counted the photo\_id by grouping by photo\_id to identify highest number of likes and connected it with users table using inner join.

SELECT

u.username,

l.user\_id,

l.photo\_id,

COUNT(photo\_id) AS No\_of\_likes

FROM

likes l

JOIN

users u ON l.user\_id = u.id

GROUP BY photo\_id

ORDER BY No\_of\_likes DESC

LIMIT 1

**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--**

We group by tag\_id to identify number of tags used on each photo and counted these number of instances. By ordering the result in descending order and limiting 5 counts resulted in required highest used 5 tags.

SELECT

pt.tag\_id, t.tag\_name, COUNT(photo\_id) AS No\_of\_tags

FROM

photo\_tags pt

JOIN

tags t ON pt.tag\_id = t.id

GROUP BY tag\_id

ORDER BY No\_of\_tags DESC

LIMIT 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**

We used DAYNAME function to get day of week from the column ‘created\_at’ and counted all the entries from table users. By grouping it by Day of week, we identified on which day most users have registered themselves and identified highest by ordering it as descending.

SELECT

DAYNAME(created\_at) AS day\_of\_week,

COUNT(\*) AS No\_of\_registrations

FROM

users

GROUP BY day\_of\_week

ORDER BY No\_of\_registrations DESC

LIMIT 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**

Here, we used function inside function to identify average users posts on Instagram. Firstly, we identified counts of number of posts from photos table. Then by grouping it as user\_id to identify how many photos each user has posted. Then we took average of this result to get the average of the function.

Further to identify the individual outcomes for total number of photos on Instagram and Total number of users, we used our simple commands.

SELECT

AVG(No\_of\_posts)

FROM

(SELECT

user\_id, COUNT(\*) AS No\_of\_posts

FROM

photos

GROUP BY user\_id) AS No\_of\_posts

AVG(No\_of\_posts) = 3.4730

Total Number of photos on Instagram = 257

select \* from photos

Total number of users on Instagram = 100

select \* from users

Total number of photos on Instagram/total number of users = 2.57

**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).**

In order to identify users who has liked each photo, we identified counts of entries in number of entries in likes table while grouping the result as per user ID. This offered us the results number of likes for each user made. Here, we knew total number of photos on instagram are 257 so the users where number of likes matches 257 were the bots.

SELECT

username, user\_id, No\_of\_photos\_liked

FROM

(SELECT

u.username, l.user\_id, COUNT(\*) AS No\_of\_photos\_liked

FROM

likes l

JOIN users u ON l.user\_id = u.id

GROUP BY user\_id

ORDER BY No\_of\_photos\_liked DESC) AS No\_of\_photos\_liked

WHERE

No\_of\_photos\_liked = 257

**Result:**

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

**Result:**

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

1. 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

**Result:**

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

1. 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—

**Result:**

Harley\_Lind18 3 145 48

1. 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—

**Result:**

21 smile 59

20 beach 42

17 party 39

13 fun 38

1. concert 24
2. 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

**Result:**

Thursday 16

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

**Result:**

AVG(No\_of\_posts) = 3.4730

Total Number of photos on Instagram = 257

Total number of users on Instagram = 100

Total number of photos on Instagram/total number of users = 2.57

1. 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).

**Result:**

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