

Instagram User Analytics

Project Overview:

The project involves working as a data analyst for Instagram's product team. The main goal is to analyze user interactions and engagement with the Instagram app to provide valuable insights that can help the business grow. The tasks include identifying loyal users, encouraging inactive users to start posting, determining contest winners, researching popular hashtags, and finding the best day to launch ad campaigns.

Approach:

- Understanding the database schema and the data available in each table.
- Carefully analyze each task the management team provides to understand the requirements and objectives.
- Write SQL queries to extract relevant data from the database to address each task.
- Execute SQL queries to retrieve the required information and perform analysis to derive insights.
- Interpret the findings from the data analysis to derive meaningful insights relevant to each task.
- Provide actionable recommendations based on the insights derived to support decision-making by the product team.

Tech-Stack Used:

Software Used: MySQL Workbench 8.0

Version: 8.0.32

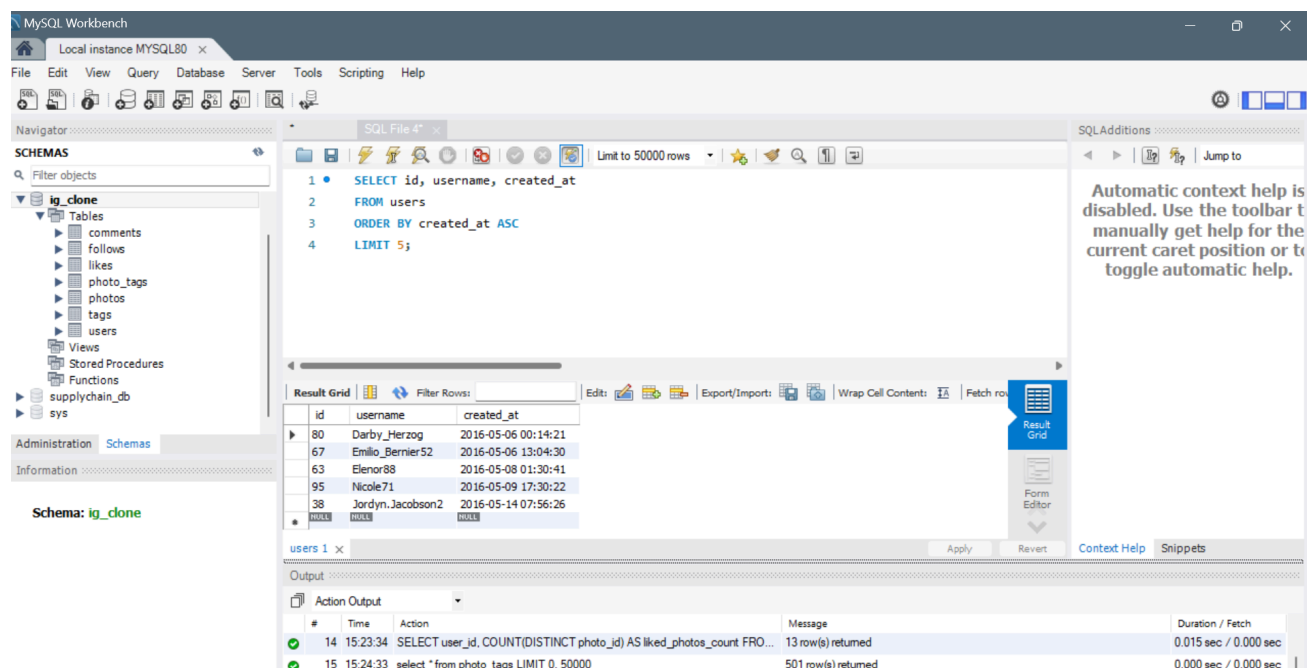
Reasons for Choosing MySQL Workbench: MySQL Workbench provides a robust platform for data analysis with MySQL databases, offering a combination of user-friendly features, query execution capabilities, and compatibility that makes it well-suited for the project's requirements.

SQL Tasks:

A) Marketing Analysis:

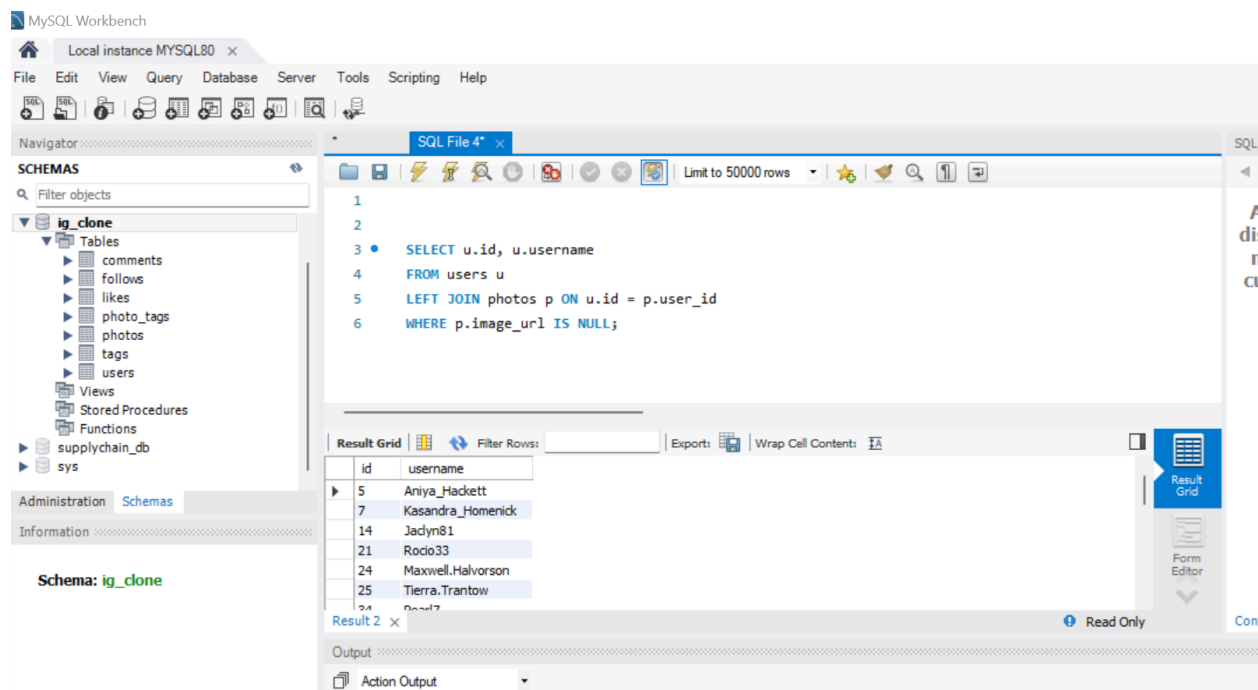
Loyal User Reward: The marketing team wants to reward the most loyal users, i.e., those who have been using the platform for the longest time.

Task: Identify the five oldest users on Instagram from the provided database.



Inactive User Engagement: The team wants to encourage inactive users to start posting by sending them promotional emails.

Task: Identify users who have never posted a single photo on Instagram.



Contest Winner Declaration: The team has organized a contest where the user with the most likes on a single photo wins.

Task: Determine the winner of the contest and provide their details to the team.

The screenshot shows the MySQL Workbench interface with a query executed in the 'SQL File 41' tab. The query is as follows:

```
1
2 • SELECT u.id AS user_id, u.username, p.id AS photo_id, COUNT(l.user_id) AS total_likes
3 FROM users u
4 JOIN photos p ON u.id = p.user_id
5 JOIN likes l ON p.id = l.photo_id
6 GROUP BY u.id, u.username, p.id
7 ORDER BY total_likes DESC
8 LIMIT 1;
```

The result grid shows the following data:

user_id	username	photo_id	total_likes
52	Zack_Kemmer93	145	48

The output pane shows the execution message: "SELECT u.id, u.username FROM users u LEFT JOIN photos p ON u.id = p.u... 26 row(s) returned".

Hashtag Research: A partner brand wants to know the most popular hashtags to use in their posts to reach the most people.

Task: Identify and suggest the top five most commonly used hashtags on the platform.

The screenshot shows the MySQL Workbench interface with a query executed in the 'SQL File 4*' tab. The query is as follows:

```
1
2 • SELECT tag_name, COUNT(*) AS tag_count
3 FROM tags
4 GROUP BY tag_name
5 ORDER BY tag_count DESC
6 LIMIT 5;
```

The result grid shows the following data:

tag_name	tag_count
beach	1
beauty	1
concert	1
delicious	1
dreamy	1

The output pane shows the execution message: "SELECT tag_name, COUNT(*) AS tag_count FROM tags GROUP BY tag_n... 5 row(s) returned".

Ad Campaign Launch: The team wants to know the best day of the week to launch ads.

Task: Determine the day of the week when most users register on Instagram. Provide insights on when to schedule an ad campaign.

The screenshot shows the MySQL Workbench interface. The left sidebar displays the 'SCHEMAS' panel with a tree view of the 'ig_clone' database, including tables like 'comments', 'follows', 'likes', 'photo_tags', 'photos', 'tags', and 'users'. The main editor window shows a SQL query in 'SQL File 4*':

```
1
2 • SELECT DAYOFWEEK(created_at) AS day_of_week, COUNT(*) AS user_count
3 FROM users
4 GROUP BY day_of_week
5 ORDER BY user_count DESC
6 LIMIT 1;
```

Below the query editor, the 'Result Grid' shows the results of the query:

day_of_week	user_count
5	16

The bottom panel shows the 'Output' tab with a log of actions and messages, including the execution of the query and the number of rows returned.

B) Investor Metrics:

User Engagement: Investors want to know if users are still active and posting on Instagram or if they are making fewer posts.

Task: Calculate the average number of posts per user on Instagram. Also, provide the total number of photos on Instagram divided by the total number of users.

The screenshot shows the MySQL Workbench interface. The left sidebar displays the 'SCHEMAS' panel with a tree view of the 'ig_clone' database, including tables like 'comments', 'follows', 'likes', 'photo_tags', 'photos', 'tags', and 'users'. The main editor window shows a SQL query in 'SQL File 4*':

```
2 -- Calculate the average number of posts per user
3 • SELECT AVG(post_count) AS avg_posts_per_user
4 FROM (
5     SELECT COUNT(*) AS post_count
6     FROM photos
7     GROUP BY user_id
8 ) AS user_posts;
9
```

Below the query editor, the 'Result Grid' shows the results of the query:

avg_posts_per_user
3.4730

MySQL Workbench

Local instance MYSQL80 x

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

ig_clone

Tables

- comments
- follows
- likes
- photo_tags
- photos
- tags
- users

Views

Stored Procedures

Functions

supplychain_db

sys

Administration Schemas

Information

Schema: ig_clone

SQL File 4*

Limit to 50000 rows

```

1
2  -- Provide the total number of photos on Instagram divided by the total number of users
3  • SELECT
4    (SELECT COUNT(*) FROM photos) AS total_photos,
5    (SELECT COUNT(*) FROM users) AS total_users,
6    (SELECT COUNT(*) FROM photos) / (SELECT COUNT(*) FROM users) AS photos_per_user;

```

Result Grid

	total_photos	total_users	photos_per_user
▶	257	100	2.5700

Result 7 x

Read Only Context

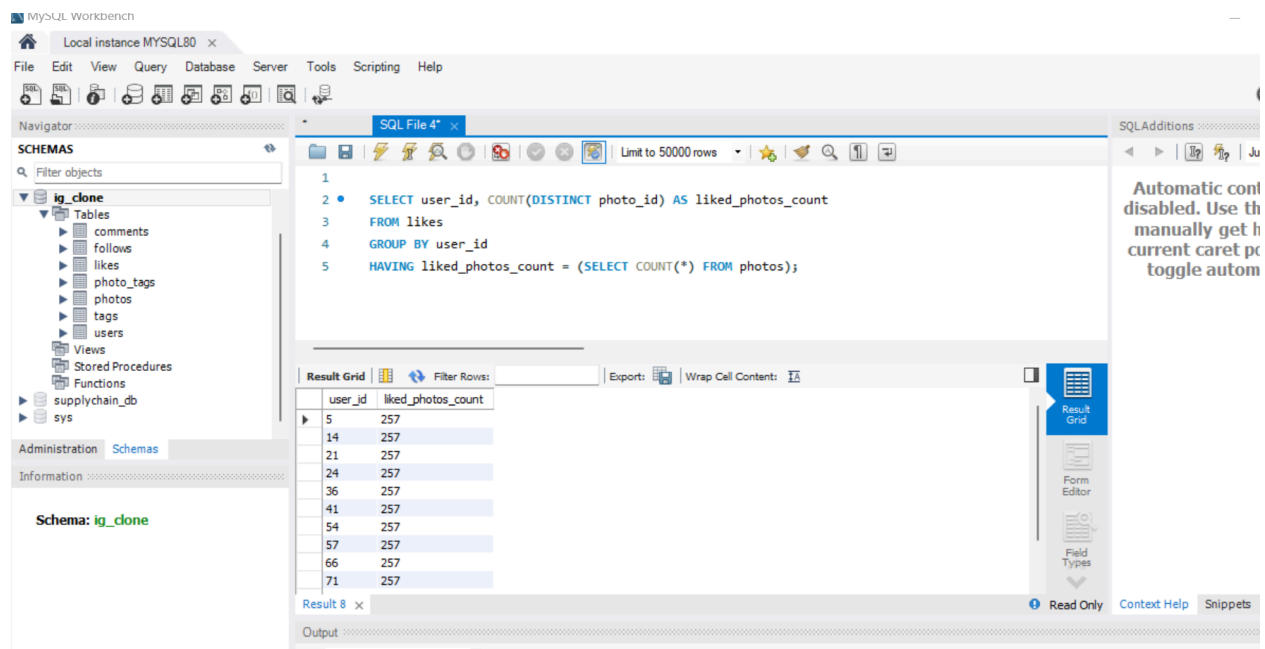
Output

Action Output

#	Time	Action	Message
23	18:21:58	SELECT AVG(post count) AS avg posts per user FROM (SELECT COU...	1 row(s) returned

Bots & Fake Accounts: Investors want to know if the platform is crowded with fake and dummy accounts.

Task: Identify users (potential bots) who have liked every single photo on the site, as this is not typically possible for a normal user.



Insights:

- Identifying the oldest users to reward them for loyalty can foster positive engagement.
- Targeting inactive users with promotional emails can encourage them to become more active on the platform.
- Determining the winner of the contest based on the most likes on a single photo enhances user engagement.
- Identifying the top five most commonly used hashtags helps partner brands reach a wider audience.
- Determining the best day of the week to launch ads based on user registration patterns optimizes ad campaign performance.

Results:

- By analyzing user interactions and engagement with the Instagram app, actionable insights were provided to the product team. These insights, such as identifying loyal users, encouraging inactive users, and determining the best day to launch ad campaigns, can guide strategic decision-making and enhance user experience on the platform.
- The insights derived from the analysis can help the product team make informed decisions regarding feature development, marketing campaigns, and user engagement strategies. For example, understanding user behavior can lead to targeted marketing campaigns and improved retention strategies.
- By identifying loyal users and encouraging inactive users to become more active, the analysis can improve overall user engagement on the Instagram app. This can increase user satisfaction, retention, and ultimately, business growth.
- Ultimately, the insights derived from this project have the potential to positively impact the growth and success of Instagram as a social media platform.