Instagram User Analytics Project Report

Project Description :

The project aims to analyze Instagram user data using SQL to provide valuable insights for decision-making within the company. The analysis will focus on marketing strategies, user engagement, and investor metrics. The ultimate goal is to extract meaningful information that can influence the future development of the Instagram app.

Approach:

Database Creation:

Start by running the provided commands to create the necessary database for the project. Use MySQL Workbench to ensure a user-friendly interface for SQL queries.

Marketing Analysis:

- Loyal User Reward: Identify the five oldest users on Instagram using the ORDER BY clause on the registration date.
- Inactive User Engagement: Identify users who have never posted a photo by utilizing the LEFT JOIN with the photos table.
- Contest Winner Declaration: Determine the winner of the contest with the most likes on a single photo using the MAX function.
- Hashtag Research: Identify the top five most commonly used hashtags using the COUNT and GROUP BY clauses.
- Ad Campaign Launch: Determine the day of the week with the highest user registrations using the DAYOFWEEK function.

Investor Metrics:

- User Engagement: Calculate the average number of posts per user and the total number of photos divided by the total number of users.
- Bots & Fake Accounts: Identify potential bots by finding users who have liked every single photo on the site using the COUNT and HAVING clauses.

Tech-Stack Used:

MySQL Workbench 8.0.36

Chosen for its user-friendly interface, robust SQL capabilities, compatibility with MySQL databases, version stability, and strong community support.

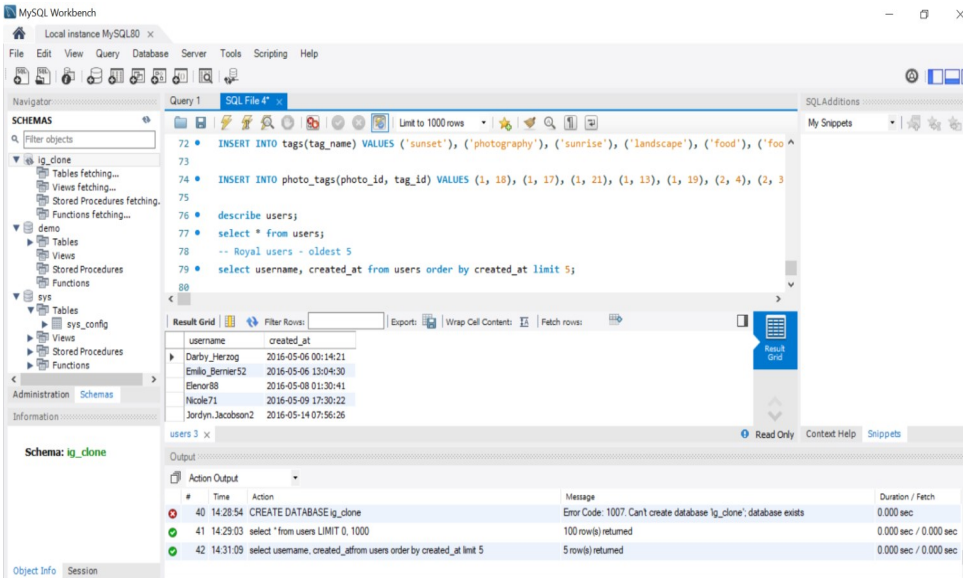
SQL Tasks :

Marketing Analysis :

1. **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.

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

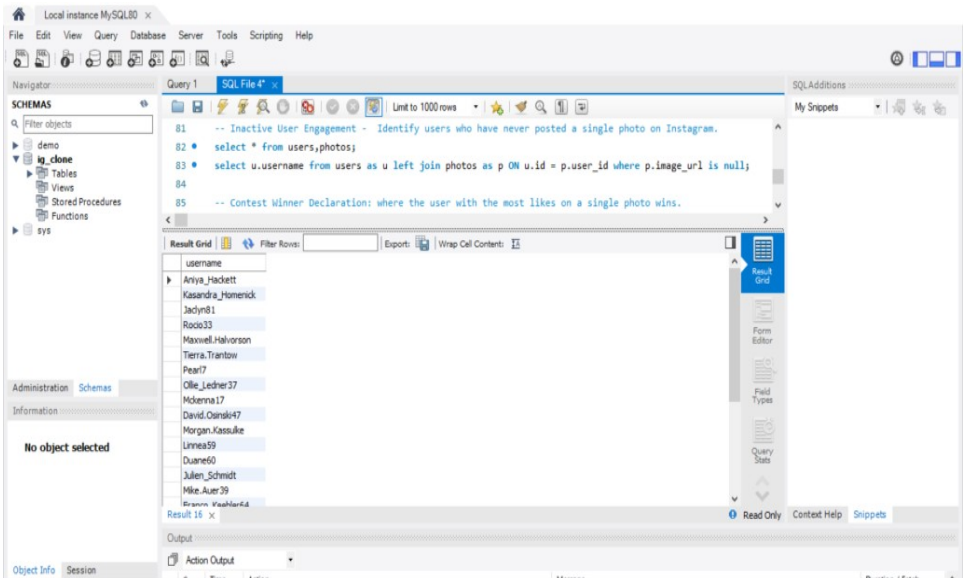
   SQL Command : SELECT username, created_at FROM users ORDER BY created_at LIMIT 5;



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

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

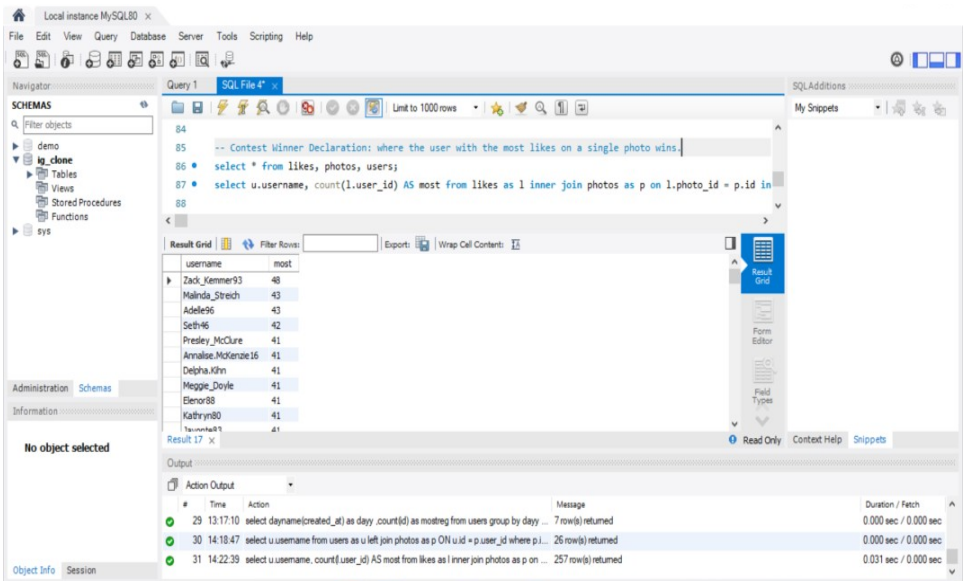
   SQL Command : select u.username from users as u left join photos as p ON u.id = p.user_id where p.image_url is null;



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

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

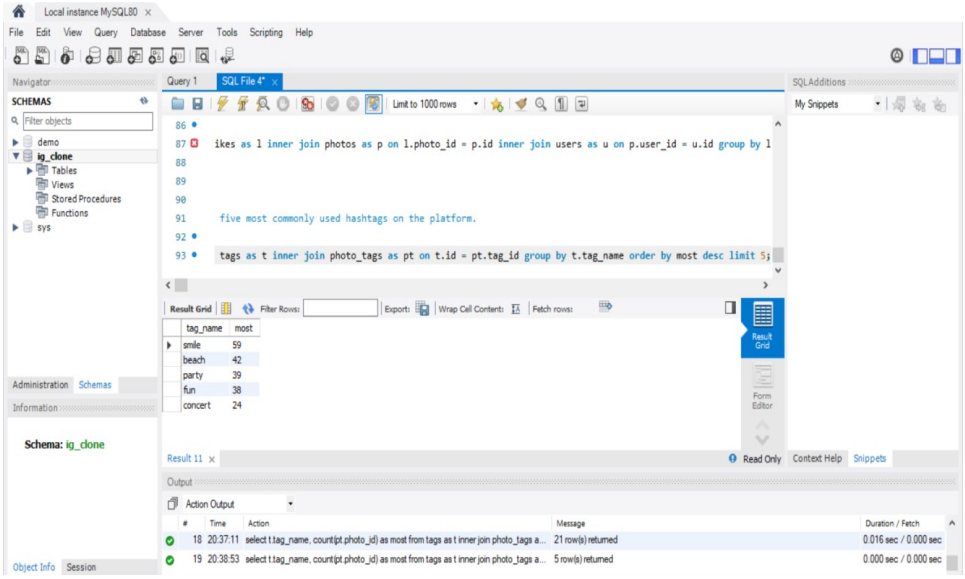
   SQL Command : select u.username, count(l.user_id) AS most from likes as l inner join photos as p on l.photo_id = p.id inner join users as u on p.user_id = u.id group by l.photo_id, username order by most desc;



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

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

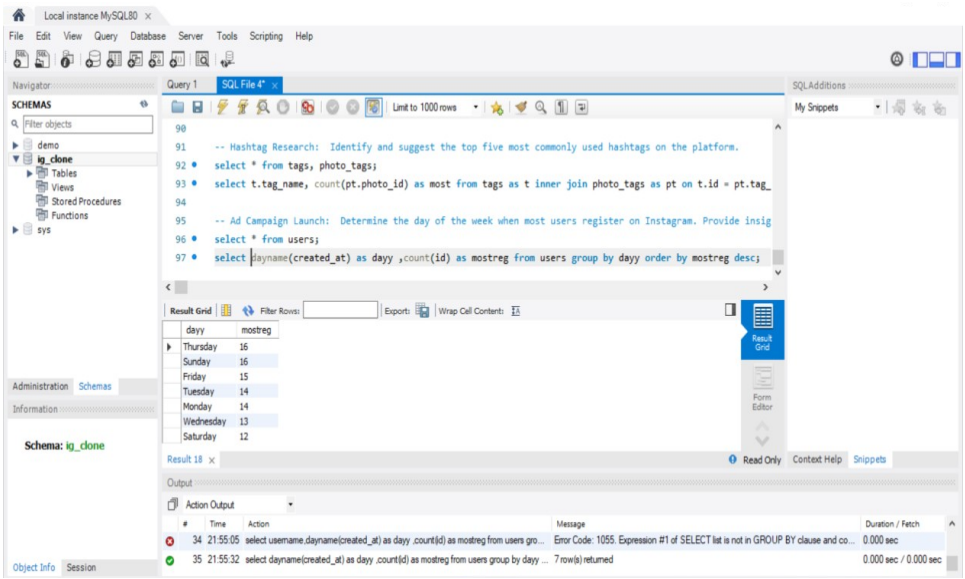
SQL Command : select t.tag_name, count(pt.photo_id) as most from tags as t inner join photo_tags as pt on t.id = pt.tag_id group by t.tag_name order by most desc limit 5;



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

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

   SQL Command : select dayname(created_at) as dayy ,count(id) as mostreg from users group by dayy order by mostreg desc;



Investor Metrics :

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

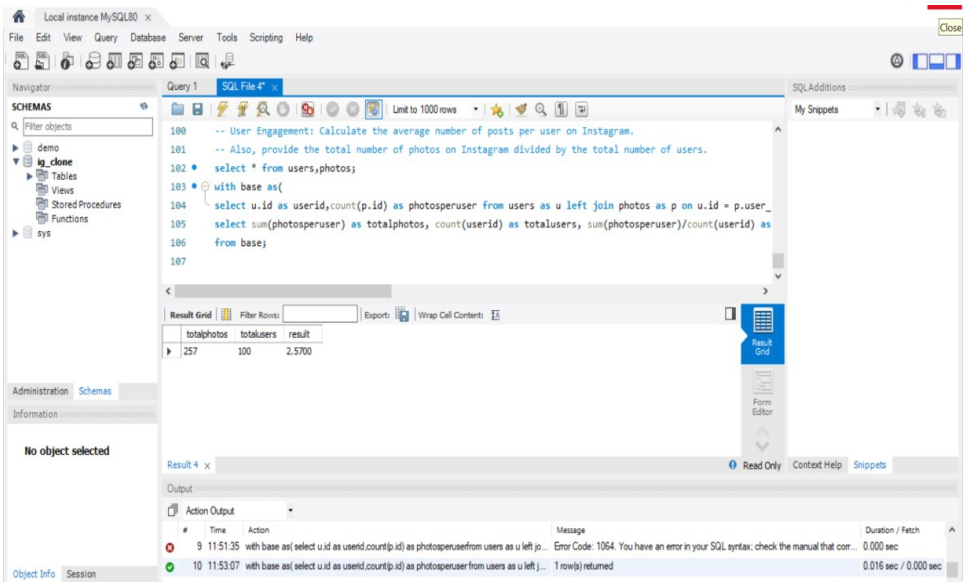
   Calculate the average number of posts per user on Instagram. Also, provide the total number of photos on Instagram divided by the total number of users.

   SQL Command : WITH base AS (

   SELECT u.id AS userid, COUNT(p.id) AS photosperuser FROM users AS u LEFT JOIN photos AS p ON u.id = p.user_id GROUP BY userid)

   SELECT SUM(photosperuser) AS totalphotos, COUNT(userid) AS totalusers, SUM(photosperuser)/COUNT(userid) AS result

   FROM base;



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

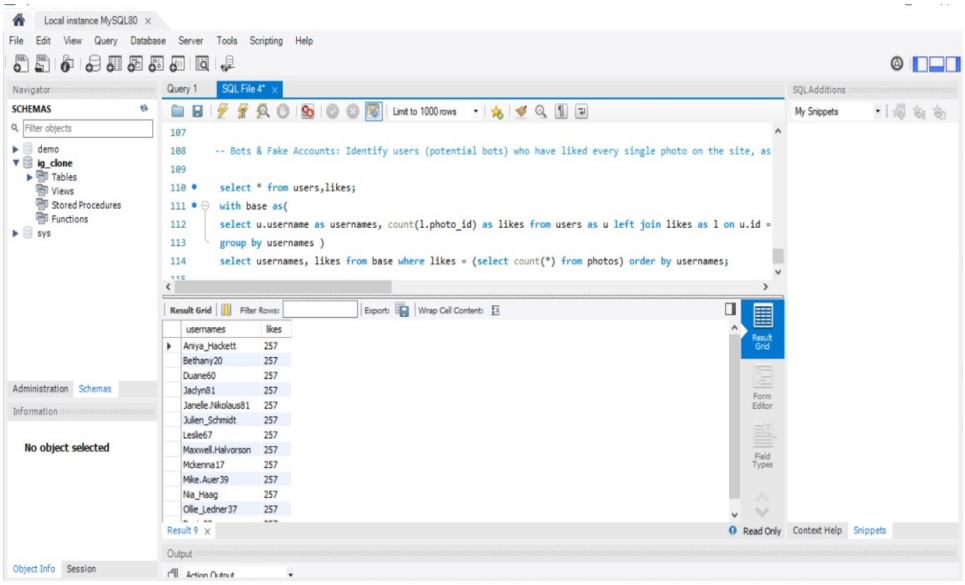
   Identify users (potential bots) who have liked every single photo on the site, as this is not typically possible for a normal user.

   SQL Command : WITH base AS (

   SELECT u.username AS usernames, COUNT(l.photo_id) AS likes FROM users AS u LEFT JOIN likes AS l ON u.id = l.user_id

   GROUP BY usernames)

SELECT usernames, likes FROM base WHERE likes = (SELECT COUNT(*) FROM photos)ORDER BY usernames;



Insights :

- Loyal User Reward: Identified the five oldest users who have been loyal to the platform since its early days.
- Inactive User Engagement: Recognized users who have never posted, providing an opportunity for targeted re-engagement efforts.
- Contest Winner Declaration: Determined the contest winner based on the highest likes on a single photo, offering insights into user popularity.
- Hashtag Research: Discovered the most commonly used hashtags, aiding the partner brand in reaching a broader audience.
- Ad Campaign Launch: Found the best day of the week for launching ad campaigns based on user registration patterns.
- User Engagement: Calculated the average number of posts per user, providing a comprehensive understanding of user activity on the platform.
  Computed the total number of photos divided by the total number of users, offering a metric for overall user engagement.
- Bots & Fake Accounts: Identified users who liked every single photo on the site, potentially signaling automated or fake accounts.
  Highlighted the importance of monitoring and addressing potential bot activity to maintain a genuine and engaging user community.

Results :

The project successfully provided actionable insights for the marketing and investor teams, offering a data-driven approach to decision-making. The analysis enhances the

understanding of user behavior and engagement on Instagram, enabling the company to optimize strategies for growth.

I learned about different types of joins used in SQL with the help of this project. I learned how the instagram user analytics can be used for running successful businesses and get better user insights which can be used to further improve the quality of the work.