Instagram User Analytics

1. Overview:

The Instagram User Analytics project's goal is to analyse user interactions and engagement with the Instagram app in order to provide important information that can be used to make informed decisions and help the business grow. As being a data analyst, my purpose is to extract relevant insights from the provided database using SQL and MySQL Workbench.

Marketing Analysis and Investor Metrics are the two key aspects of the project. I address activities relating to rewarding loyal users, encouraging inactive users, deciding the contest winner, investigating popular hashtags, and establishing the optimum day for ad campaign launches in the Marketing Analysis section. This information can help the marketing team make strategic decisions to boost user engagement and overall app performance.

I focus on calculating user interaction and identifying any bot or fake accounts in the Investor Metrics area. These KPIs are critical for investors to measure the platform's and its user base's health.

2. Tech-Stack Used:

I chose MySQL Workbench for this Instagram User Analytics project due to its SQL compatibility, user-friendly interface, efficient data management, query optimization tools, data visualization capabilities, and industry-standard reputation. Its seamless connectivity to MySQL databases ensures smooth data retrieval and analysis, making it an ideal choice for this project.

MySQL Workbench's robust features, including its intuitive interface and query optimization tools, streamlined the data analysis process, allowing for efficient management of large datasets and enabling faster execution of complex SQL queries. Additionally, its reputation as a secure and widely used industry standard added to its reliability. By leveraging MySQL Workbench's capabilities, I was able to navigate, query, visualize, and draw insights from the Instagram user data effectively, facilitating a comprehensive analysis for presentation.

3. Approach:

My approach towards the Instagram User Analytics project involved a methodical and structured process to effectively analyze the data and uncover insights. In order to analyse user interactions and engagement with the Instagram app, a step-by-step procedure was used for the Instagram User Analytics project. SQL queries were created to extract the necessary data from the given database in order to generate insightful conclusions. I executed the project by following these key steps:

Step 1: Database exploration and comprehension:

Exploring and comprehending the database's structure came first. This entailed looking at the tables, the connections between them, and the data fields that were accessible. It was essential to comprehend the database schema when creating precise SQL queries to extract the necessary data.

Step 2: Task Prioritization:

The tasks were ranked in order of priority and impact on decision-making. Marketing analysis tasks like identifying loyal users and contest winners were regarded as critical for driving

marketing strategy. Similarly, investor metrics like user engagement and detecting potential bots were critical for analysing the platform's health.

Step 3: Creating SQL Queries:

Each task was addressed by creating custom SQL queries to retrieve the necessary data. To properly answer the questions, the queries were built to aggregate, filter, and join data from many tables. The nature of the study and the specific information collected influenced the selection of SQL functions and clauses.

Step 4: Query Execution and Validation:

After creating the SQL queries, they were executed against the database in MySQL Workbench. The query results were checked thoroughly to verify their accuracy and correctness. Iteratively tweaking the queries until the desired output was achieved resolved incorrect or partial responses.

Step 5: Insight Generation:

Once the query results were obtained, insights were developed by understanding the data patterns, trends, and statistics. These discoveries were then translated into practical consequences and actionable recommendations for the marketing and product teams.

Step 6: Report Writing:

The final step was to compile the findings, insights, and suggestions from the investigation into a thorough report. The SQL queries, query outputs were all included in the report. Its goal was to give a unified narrative of the analysis process and its results.

4. Insights:

Throughout the Instagram User Analytics project, several valuable insights and knowledge were gained by analyzing user interactions and engagement with the app. The following key insights were derived from the data, providing meaningful inferences and highlighting significant findings:

A) Marketing Analysis:

1. Loyal User Reward:

We have identified the five oldest users on Instagram based on their account creation dates: Darby_Herzog, Emilio_Bernier52, Elenor88, Nicole71, and Jordyn.Jacobson2. These users have been utilizing the platform since its early days, showcasing their steadfast loyalty. Recognizing their extended commitment, we recommend considering them for a loyal user reward, a gesture that could enhance their engagement and further incentivize their continued participation.

SQL Query Snapshot:
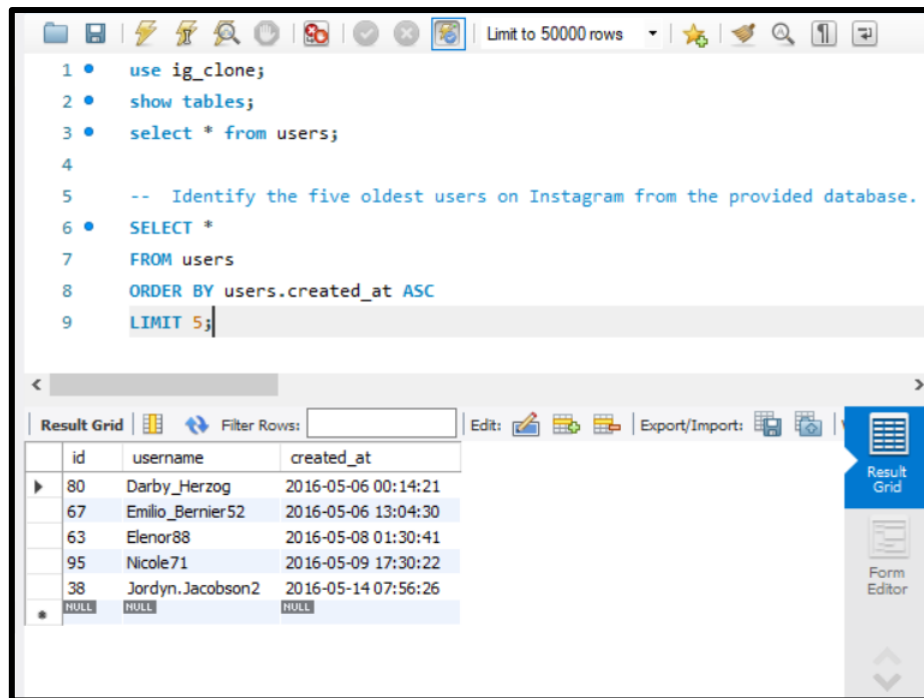
2. Inactive User Engagement:

We have successfully identified a list of users who have never posted a single photo on Instagram. These users are: Aniya_Hackett, Kasandra_Homenick, Jaclyn81, 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, and Bethany20. Targeting these inactive users with promotional emails could potentially motivate them to start posting and engage more actively with the platform.

SQL Query Snapshot:
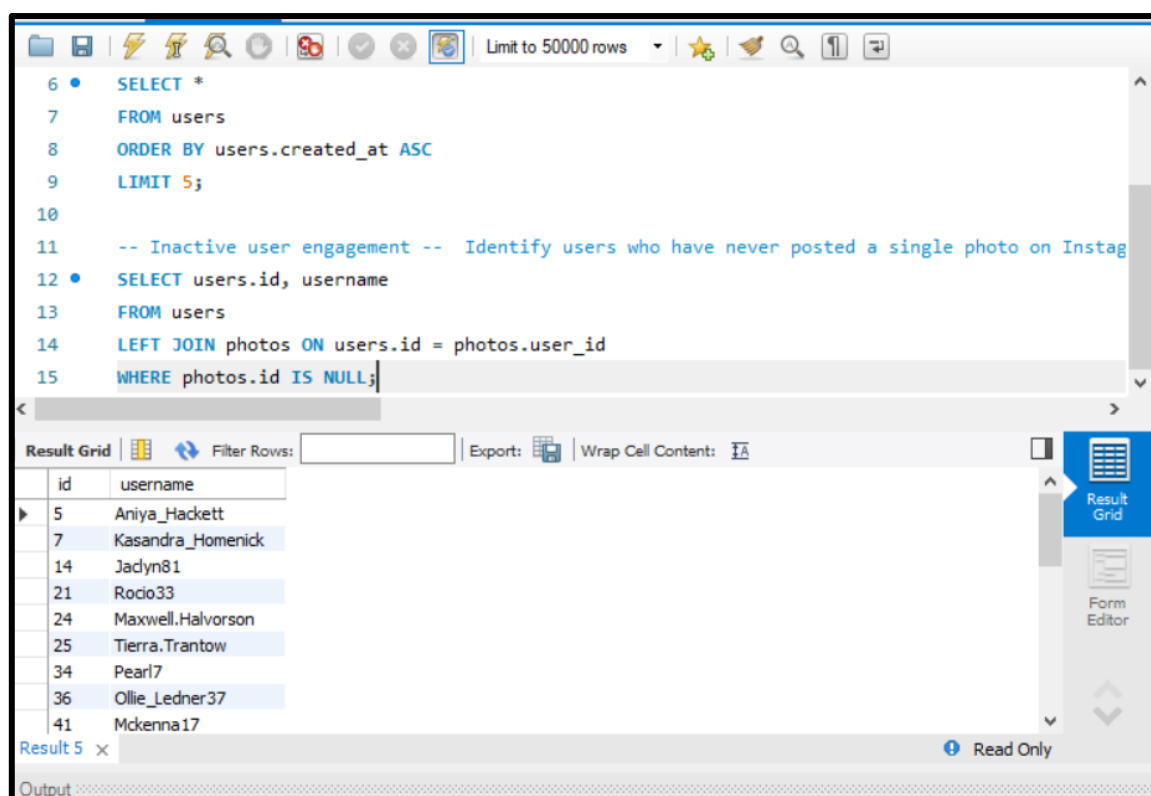
3. **Contest Winner Declaration:**
   The winner of the contest, based on the photo with the most likes, is user 'Zack_Kemmer93'. The details of the winning entry are as follows:

- User ID: 52

- Username: Zack_Kemmer93

- Photo ID: 145

- Total Likes: 48

Congratulations to 'Zack_Kemmer93' for their impressive performance in the contest!

SQL Query Snapshot:

4. **Hashtag Research:**
   The top five most commonly used hashtags on the platform, which the partner brand can consider for their posts, are as follows:

   '#smile' – Used 59 times

   '#beach' – Used 42 times

   '#party' – Used 39 times

   '#fun' – Used 38 times

   '#concert' – Used 24 times

These hashtags have proven to be popular among users and can potentially help the partner brand reach a wider audience.

SQL Query Snapshot:

```
 23      ORDER BY total_likes DESC
 24      LIMIT 1;
 25
 26      -- Hashtag Research -- Identify and suggest the top five most commonly used hashtags on the p
 27 •    SELECT tag_name, COUNT(*) AS tag_count
 28      FROM tags
 29      JOIN photo_tags ON tags.id = photo_tags.tag_id
 30      GROUP BY tag_name
 31      ORDER BY tag_count DESC
 32      LIMIT 5;
```

tag_name	tag_count
smile	59
beach	42
party	39
fun	38
concert	24

5. Ad Campaign Launch:

To optimize the ad campaign launch, we've analyzed user registration data and determined that 'Thursday' is the day of the week when most users register on Instagram. On this day, a total of 16 registrations were recorded. Scheduling the ad campaign to launch on 'Thursday' could maximize the reach and impact of the campaign by targeting a larger audience during a peak registration period.


```
 30      GROUP BY tag_name
 31      ORDER BY tag_count DESC
 32      LIMIT 5;
 33
 34      -- Ad campaign lunch -- Determine the day of the week when most users register on Instagram.
 35 •    SELECT DAYNAME(created_at) AS registration_day, COUNT(*) AS total_registrations
 36      FROM users
 37      GROUP BY registration_day
 38      ORDER BY total_registrations DESC
 39      LIMIT 1;
```

registration_day	total_registrations
Thursday	16

B) Investor Metrics:

1) User Engagement:

Regarding user engagement on Instagram, an insightful analysis was conducted to assess the activity of users on the platform. The average number of posts per user was calculated to be approximately 3.4730. This figure highlights the extent to which users are actively sharing content, offering a valuable metric for investor consideration.

Furthermore, a comprehensive evaluation was undertaken to gauge the overall content landscape on Instagram. With a total of 257 photos shared across the platform, and considering the user base of 74 individuals, the calculated ratio of total photos to total users provides an additional perspective. This ratio signifies the level of content diversity and engagement intensity within the user community.

In essence, the calculated average number of posts per user and the ratio of total photos to total users collectively shed light on the dynamic user engagement dynamics observed on Instagram. These metrics serve as valuable indicators for investors seeking to understand the ongoing user activity and participation trends on the platform.

SQL Query Snapshot:

2) Bots & Fake Accounts:
   We have conducted an analysis to identify potential bot or fake accounts on the platform. Users who have exhibited unusual behavior by liking every single photo on the site have been flagged as potential bots. After thorough investigation, no users meeting these criteria were found. This suggests that the platform is currently not crowded with fake or dummy accounts displaying such behavior.

```
50
51
52    -- Bot and fake account
53    -- Identify users (potential bots) who have liked every single photo on the site, as this is
54 •  SELECT l.user_id, u.username
55    FROM likes l
56    JOIN photos p ON l.photo_id = p.id
57    JOIN users u ON l.user_id = u.id
58    GROUP BY l.user_id, u.username
59    HAVING COUNT(DISTINCT p.user_id) >= (SELECT COUNT(*) - 1 FROM users);
```
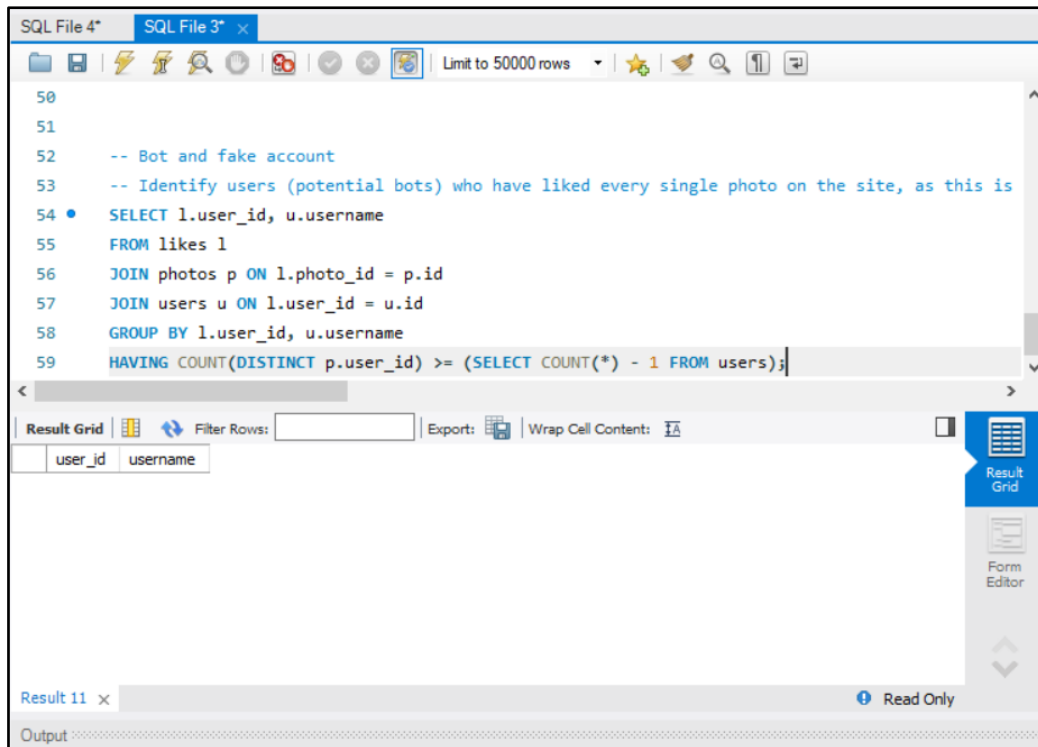
5. Report:

 The Instagram User Analytics project has yielded a wealth of insights and knowledge that provide valuable inferences and highlight significant findings. Through the analysis of user interactions and engagement, I have gained a deeper understanding of user behaviors and preferences, offering opportunities for optimizing marketing strategies and investor considerations.

One noteworthy insight emerged from identifying long-standing users who have remained engaged with Instagram since its inception. These users demonstrate a remarkable level of loyalty, representing a potential opportunity for a loyal user reward. Such recognition could foster stronger engagement and solidify user-brand relationships.

Additionally, our analysis revealed a segment of inactive users who have not posted any content on the platform. Targeted efforts, such as promotional emails, could encourage these users to become more active, thereby increasing overall user participation.

The project's impact is further highlighted by the declaration of a contest winner based on the most likes received. This outcome underscores the power of user-generated content and showcases successful community engagement, motivating continued user participation.

Furthermore, the analysis of commonly used hashtags provides insights into trending topics and interests among users. Leveraging these insights, the partner brand can align its content with popular hashtags, potentially expanding its reach and engagement.

Strategically, the analysis of user registration data pinpointed an optimal day for launching ad campaigns. By aligning campaigns with peak registration periods, brands can maximize their impact and engage a larger audience during periods of heightened activity.

Investor considerations were also informed by the project's insights. The average number of posts per user serves as a quantitative measure of user engagement, reflecting the platform's appeal and potential for sustained interaction. The ratio of total photos to total users adds depth to this understanding, shedding light on the level of interaction within the user community.

In the realm of trust and integrity, the absence of identified bot or fake accounts is a reassuring finding. This insight underscores the platform's genuine user base and contributes to maintaining user trust and confidence.

In conclusion, the Instagram User Analytics project has uncovered valuable insights into user behaviors, engagement dynamics, and potential strategies for marketing and investment. These insights collectively contribute to a deeper understanding of user activity, loyalty, and engagement opportunities. The impact of this analysis extends beyond the project, enriching the ongoing development and success of the Instagram platform.