Instagram user analytics

Documentation

By Faizan Quazi

Introduction:

The challenges we're tackling involve some key issues within Instagram that directly impact its growth and user experience. Firstly, there's a notable gap in understanding how users engage with the app, making it difficult to grasp their behaviors, preferences, and engagement patterns. This lack of insight can lead to uninformed decisions across teams like marketing, product, and development, potentially causing a disconnect in strategic initiatives. Furthermore, the absence of detailed user analytics presents challenges for the product team in deciding on and prioritizing features, potentially slowing down the platform's evolution. Marketing efforts also face hurdles due to a lack of tailored insights into user behaviors, resulting in less effective campaigns. Lastly, the development team struggles to optimize the overall user experience without clear insights into user engagement metrics and identified pain points. These issues highlight the need to address fundamental aspects for a more effective and user-friendly platform.

Objective:

The primary focus of the Instagram User Analytics project is to achieve a vital objective: extracting essential insights to inform wise decision-making across diverse business functions. This overarching goal guides the use of SQL and MySQL Workbench to conduct a comprehensive analysis of user interactions and engagement patterns within the Instagram app. By leveraging these tools, we aim to distill pertinent insights that will serve as the cornerstone for strategic decision-making and enhance various facets of our business.

1. Marketing Analysis:

- Identify and recognize the platform's most steadfast users by determining the five oldest users on Instagram.
- Formulate strategies for re-engaging inactive users through precisely targeted promotional efforts by isolating users who have abstained from posting.
- Streamline the declaration process for contest winners by ascertaining the winner based on the most likes garnered on a single photo.
- Furnish partner brands with strategic insights on hashtag usage by pinpointing the top five most commonly utilized hashtags.
- Optimize the timing of ad campaigns by determining the most opportune day of the week for launch, informed by user registration patterns.

2. Investor Metrics:

- Provide investors with a nuanced understanding of user engagement by calculating the average number of posts per user.
- Alleviate investor concerns regarding the prevalence of fabricated accounts by identifying potential bots—users exhibiting anomalous behavior, such as liking every single photo.

The successful attainment of these objectives will confer actionable, data-driven insights to the diverse facets of our organizational structure, encompassing product development, marketing strategy, and investor relations. This, in turn, is anticipated to wield a profound influence on strategic initiatives, foster heightened user engagement, and contribute substantially to the sustained growth and prominence of Instagram as a premier social media platform.

Approach:

I. Setting up SQL Workbench:

- **Objective**: Establishing a Highly Efficient Analysis Environment.
- **Steps**:
    1. Initialize SQL Workbench.
    2. Establish a seamless connection with the provided database.

II. Understanding User Analysis:

- **Objective**: Gaining Profound Insights into User Interactions on Instagram.
- **Background**: User analysis is a critical lens for understanding user engagement with digital products, offering actionable insights across diverse business domains.
- **Project Role**: As a meticulous data analyst collaborating with the product team, the objective is to leverage SQL for a sophisticated analysis of Instagram user data. The potential impact spans strategic marketing decisions, product enhancements, and an elevated user experience.

III. SQL Tasks: Marketing Analysis:

- **Loyal User Reward:**
    - Task: Identification of the Five Oldest Users on Instagram.
- **Inactive User Engagement:**
    - Task: Identification of Users with Zero Posts for Strategic Engagement.
- **Contest Winner Declaration:**

    - Task: Determination of Contest Winner Based on the Most Likes on a Single Photo.
- **Hashtag Research:**
    - Task: Identification of Top Five Most Commonly Used Hashtags on the Platform.
- **Ad Campaign Launch:**
    - Task: Precision Timing for Ad Campaigns through In-Depth User Registration Pattern Analysis.

IV. SQL Tasks: Investor Metrics:

- **User Engagement:**
    - Task: Calculating Average Posts per User and Total Photos per User.
- **Bots & Fake Accounts:**
    - Task: Identification of Potential Bots through Advanced Pattern Analysis.

V. Project Execution:

- **Database Creation:**
    - Task: Execution of Provided Commands for a Robust Database Setup.
- **Analysis**:
    - Task: Expert Utilization of SQL Queries to Extract Information, Prioritizing Accuracy and Efficiency.

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Insights:

A) Marketing Analysis:

1. Oldest Instagram Users:

Query:

```sql
SELECT * FROM users
ORDER BY created_at
LIMIT 5;
```

Insight:

- The identified oldest users, having joined in 2016, present an opportunity for personalized engagement and loyalty programs, acknowledging their enduring presence.

2. Users with Zero Posts:

Query:

```sql
SELECT users.id, username
FROM users
LEFT JOIN photos ON users.id = photos.user_id
WHERE photos.id IS NULL
ORDER BY id;
```

Insight:

- Users with no posts may benefit from targeted campaigns, encouraging them to share content and actively participate in the Instagram community.

3. Contest Winner:

Query:

```sql
SELECT users.id, username, photo_id, COUNT(*) AS most_liked
FROM likes
INNER JOIN users ON users.id = likes.user_id
GROUP BY photo_id
ORDER BY most_liked DESC
LIMIT 1;
```

Insight:

- Harleylind18's success in the contest highlights the potential of user generated content. Encourage similar initiatives for increased engagement.

4. Top 5 Hashtags:

Query:

```sql
SELECT tag_name AS hashtag_name, tag_id, COUNT(*) AS most_count,  photo_id
FROM tags
JOIN photo_tags ON tags.id = photo_tags.tag_id
GROUP BY tag_id
ORDER BY most_count DESC
LIMIT 5;
```

Insight:

- Leverage the popularity of top hashtags like #smile, #beach, and #party for strategic content creation and brand visibility.

5. User Registration Insights:

Query:

```sql
SELECT users.id, DAYNAME(created_at) AS weekdays, COUNT(*) AS counts
FROM users
GROUP BY DAYNAME(created_at)
ORDER BY counts DESC;
```

Insight:

- Thursday and Sunday stand out as peak registration days. Consider scheduling ad campaigns during these periods to maximize reach.

Suggestions:

- Implement a loyalty program targeting longstanding users, offering exclusive perks or recognition.

- Launch a reengagement campaign for users with zero posts, promoting content creation and community participation.
- Explore user generated content initiatives or contests to boost engagement and interaction.
- Incorporate popular hashtags into brand campaigns for broader visibility and audience reach.
- Optimize ad campaign scheduling based on peak registration days (Thursday and Sunday) to enhance campaign effectiveness.

B) Investor Metrics:

1. Average User Posts:

Query:

```sql
SELECT COUNT(users.id) AS total_users,
COUNT(photos.id) AS total_posts,
COUNT(photos.id) / COUNT(users.id) AS post_per_person
FROM users
RIGHT JOIN photos ON users.id = photos.id;
```

Insight:

- The average user posts 2.57 times on Instagram, indicating healthy engagement. Consider maintaining user interest through varied content and campaigns.

2. Identification of Potential Bots:

Query:

```sql
SELECT users.id, username, COUNT(users.id) AS total_likes_by_user
FROM users
JOIN likes ON users.id = likes.user_id
GROUP BY users.id
HAVING total_likes_by_user = (SELECT COUNT(*) FROM photos);
```

Insight:

- Users exhibiting uniform liking patterns may be potential bots. Implement robust user verification mechanisms to maintain platform authenticity.

Suggestions:

- Monitor user engagement patterns regularly, identifying and addressing anomalous behaviors promptly.
- Enhance security measures to detect and mitigate potential bot activity, safeguarding the platform's integrity.

Results:

The Instagram User Analytics project has yielded pivotal insights, driving strategic decisions and fostering a cohesive approach across teams.

Key Outcomes:

1. Holistic Decision-Making:
- Insights serve as a focal point for collaborative efforts across marketing, product development, and investor relations, ensuring a unified strategic vision.

2. Iterative Improvement Framework:
- Project success establishes a foundation for ongoing analytics, enabling continuous refinement to uphold Instagram's dynamic nature.

3. User-Centric Focus:
- Strategies targeting both loyal and inactive users reflect a commitment to enhancing user experiences and sustaining a vibrant social platform.

4. Strategic Roadmap:
- Actionable suggestions, from loyalty programs to optimized ad scheduling, contribute to a comprehensive growth roadmap for Instagram.

5. Trust and Authenticity:
- Addressing concerns about potential bots enhances investor confidence and reinforces user trust, pivotal for sustained success.