

INSTAGRAM USER ANALYTICS



INTRODUCTION

Instagram is a leading social media platform primarily focused on photo and video sharing. Launched in 2010 by Kevin Systrom and Mike Krieger, it was later acquired by Facebook (now Meta) in 2012. Over the years, Instagram has evolved into a major platform for personal expression, influencer marketing, e-commerce, and digital advertising.



PROJECT DESCRIPTION

In this project, I take on the role of a Data Analyst working with Instagram's product team to analyze user interactions and engagement. Using SQL ,I extract valuable insights from Instagram user data to help optimize features, enhance user experience, and drive business growth. By analyzing key metrics such as likes, comments, user activity, and content performance, this project provides actionable insights that assist the marketing, product, and development teams in making informed decisions. These insights contribute to improving engagement, refining content strategies, and shaping the future of the Instagram platform.



INSTAGRAM DATASET SCHEMA OVERVIEW

This dataset represents an Instagram-like social media platform with user interactions such as posts, likes, comments, follows, and tags.

- Users → Stores user details (ID, username, account creation date).
- Photos → Stores images posted by users along with timestamps.
- Comments → Tracks comments made by users on photos.
- \circ Likes \rightarrow Records user likes on photos (ensuring unique likes per user per photo).
- Follows → Captures user follow relationships (who follows whom).
- Tags → Stores unique hashtags used in posts.
- Photo Tags → Links photos with associated tags for categorization.



APPROACH

- FIRSTLY, I UNDERSTOOD THE DATA AND REVIEWED ALL THE TABLES LIKE USERS, LIKES, PHOTOS ETC. AND GOT SOME IDEA HOW THE RELATION CAN BE BUILT
- AFTER UNDERSTANDING ALL THE QUESTIONS, EXECUTED THE QUERIES,
 MAINLY FOCUSED ON FILTERING, JOINING TABLES, ALSO USED SOME
 AGGREGATE FUNCTIONS LIKE COUNT, AVERAGE ETC.
- THEN ANALYZED THE RESULTS AND INTERPRETED FINDINGS AND MADE ACTIONABLE INSIGHTS.



TECH STACK USED

SQL SERVER MANAGEMENT STUDIO (SSMS)

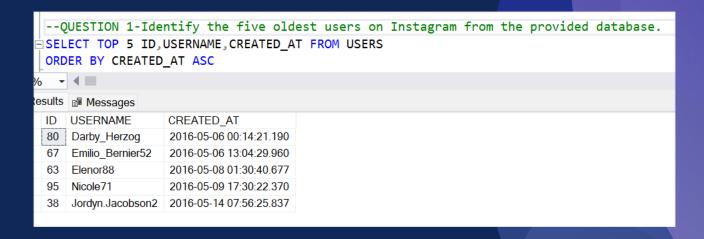
I preferred this software as it provides user friendly interface and seamless experience and supports all the SQL server features including advanced data management.



PROBLEM STATEMENTS



LOYAL USER REWARD — IDENTIFYING THE OLDEST USERS

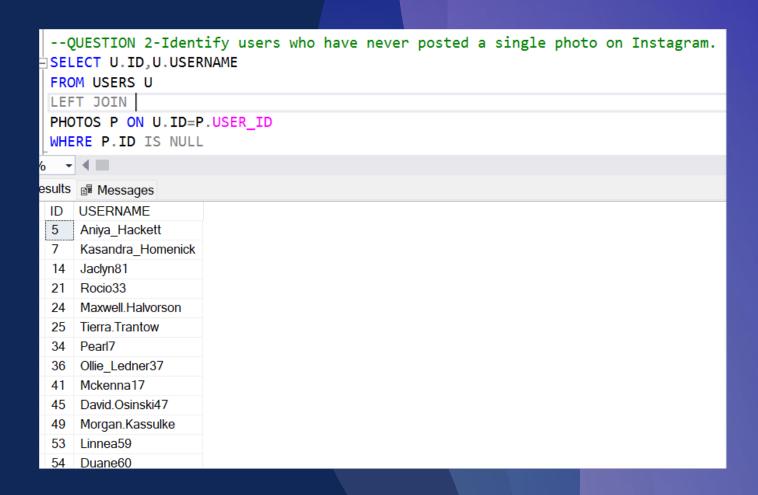


- Analyzing their behavior can provide insights into what keeps users engaged over time, informing feature development and marketing strategies.
- Long-term users are valuable brand advocates; rewarding them increases user satisfaction and promotes word-of-mouth marketing.
- Understanding the behavior of long-term users can help optimize retention strategies for newer users.



INACTIVE USER ENGAGEMENTIDENTIFYING USERS WITH ZERO POSTS

- Identifying 26 inactive users who have never posted indicates a potential risk of churn. Users who don't engage early are less likely to stay long-term.
- Send targeted emails encouraging these users to post their first photo.
- Introduce a "First Post Challenge" with rewards
- Provide limited-time incentives like exclusive filters, stickers, or profile badges for first-time posters.





CONTEST WINNER DECLARATION-IDENTIFYING THE MOST LIKED PHOTO

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--QUESTION 3-Determine the winner of the contest and provide their details to the team.

SELECT TOP 1 U.USERNAME, P.ID, P.USER_ID, COUNT(L.USER_ID) AS TOTAL_LIKES

FROM LIKES L INNER JOIN PHOTOS P ON L.PHOTO_ID=P.ID

INNER JOIN USERS U ON P.USER_ID=U.ID

GROUP BY U.USERNAME, P.ID, P.USER_ID

ORDER BY TOTAL_LIKES DESC

We Messages

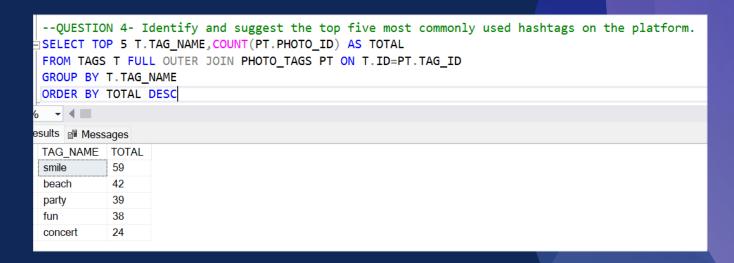
USERNAME ID USER_ID TOTAL_LIKES

Zack_Kemmer93 145 52 48
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- The user Zack_Kemmer93 has won the contest with 48 likes on a single photo.
- The marketing team can analyze the content posted by Zack_Kemmer93 to understand what type of content drives high engagement
- Instagram can leverage insights from high-engagement posts to refine its content recommendation algorithm.
- Introduce tiered rewards (e.g., for top 3 most-liked photos) to encourage more users to compete.



TOP 5 TRENDING HASHTAGS FOR MAXIMUM REACH



- The most popular hashtag is #smile (59 mentions), indicating a preference for positive, uplifting content.
- Brands should incorporate #smile, #beach, #party, #fun, and #concert in their posts to maximize audience engagement.
- Collaborate with influencers and content creators who frequently use these hashtags.



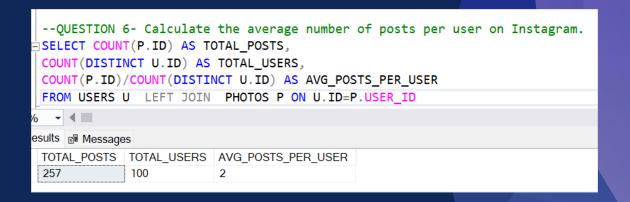
OPTIMAL AD CAMPAIGN LAUNCH: IDENTIFYING THE BEST DAY OF THE WEEK

	SELECT GROUP	TOP 1 DATE BY DATENAME	ENAME(WEEKDAY, E(WEEKDAY,CREA	day of the week CREATED_AT) AS		_		_
	ORDER	BY COUNT(I	D) DESC					
%	41							
Results Messages								
	DAYS	COUNT_OF_ID)					
	Sunday	16						

- The highest number of user registrations occurred on Sunday (16 new users).
- Sundays could indicate a higher engagement period, likely due to increased leisure time.
- Since user sign-ups peak on Sundays, launching an ad campaign on this day may maximize exposure to new users.
- Promotions or influencer collaborations can be scheduled for weekends to boost engagement.



INSTAGRAM USER ENGAGEMENT: ANALYZING POSTING ACTIVITY TRENDS



- The platform has a total of 257 posts made by 100 unique users.
- Since the average posts per user is low (2 posts/user), it suggests that either users are not frequently posting or a significant portion of users are inactive.
- Implement campaigns encouraging users to post more, such as themed challenges or rewards for reaching a certain number of posts.



DETECTING BOTS & FAKE ENGAGEMENT ON THE PLATFORM

- A total of 13 users have liked every single photo on the platform, which is highly abnormal.
- This suggests the presence of automated or fake accounts, as normal users are unlikely to engage with all posts.
- We can block those accounts or we can give them some warnings
- if they are violating platform policies.

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--QUESTION 7 Identify users (potential bots) who have liked every single photo on the site,
SELECT USER ID, COUNT(PHOTO ID) AS COUNTS
 FROM LIKES
 GROUP BY USER ID
HAVING COUNT(USER_ID)=(SELECT COUNT(ID) FROM PHOTOS)
esults 🗐 Messages
USER ID COUNTS
          257
          257
          257
 24
          257
          257
          257
          257
          257
          257
          257
 75
          257
 76
          257
          257
```



BUSINESS RECOMMEDATIONS



- Most user registrations occur on Sunday, making it the ideal day to launch ad campaigns.
- Instagram needs to incentivize content creation through challenges, features, or rewards to boost engagement.
- Fake engagement can mislead advertisers and reduce trust. Implementing stricter bot detection and removal strategies is crucial.
- Introducing content-sharing incentives, trending challenges, and interactive features can encourage more user participation.
- The most popular hashtags are #smile, #beach, #party, #fun, and #concert.
- Brands and content creators can optimize their posts using these hashtags to increase visibility and engagement.



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THANK YOU

"Data speaks louder than words – unlocking user insights drives smarter decisions and better engagement."