

## Project Overview Instagram Users

**Purpose:** The purpose of this SQL-based project is to analyze a dataset to derive meaningful insights that support data-driven decision-making. We aim to identify patterns, trends, and key metrics in the data by querying and aggregating information effectively. SQL will be used to handle data processing tasks, extract key information, and uncover insights to inform strategic decisions.

### Approach:

#### Data Exploration:

Start with basic exploratory queries to understand the dataset structure, including table relationships, column types, and the nature of data stored.

Use SQL statements to inspect sample rows (SELECT \*), check for unique values (DISTINCT), and calculate summary statistics (e.g., COUNT, AVG, MIN, MAX).

Analyze data distribution and identify key columns for further analysis.

#### Data Cleaning and Preprocessing:

Address missing values by using conditional queries (WHERE clauses) to find incomplete records and apply transformations to handle them.

#### Data Aggregation and Transformation:

Use SQL aggregation functions (SUM, COUNT, AVG, GROUP BY) to calculate metrics like averages, totals, and proportions.

Perform calculations across groups (using GROUP BY) to analyze patterns within specific categories.

### Tech-Stack Used:

#### DBeaver

**Overview:** DBeaver is an open-source database management tool that supports a wide range of databases, including MySQL, PostgreSQL, Oracle, SQLite, and many more. It's widely used for SQL development, database management, and data visualization.

#### Features:

Cross-platform support (Windows, Mac, Linux)

SQL editor with syntax highlighting

ER diagrams, data modeling

Export/import tools for data handling

Insights

User Engagement Patterns:

Daily and Monthly Active Users: Observed a steady growth in both DAUs and MAUs, indicating a healthy, engaged user base. However, a significant uptick during weekends suggests that users are more engaged in their free time, which could inform optimal content posting times

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.

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

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

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

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

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

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

## Result

Through this project, I successfully identified key user engagement patterns and valuable insights on how Instagram users interact with different features. Some key achievements include:

Enhanced Understanding of User Behavior:

By analyzing daily and monthly active user metrics, I gained a solid understanding of engagement trends and peak usage periods, which can inform timing for new feature releases and marketing campaigns.

#### Feature Optimization Insights:

The analysis highlighted the popularity of Reels and interactive content, providing strong evidence for prioritizing these features in future development efforts. This understanding can drive further growth and user satisfaction by focusing on features that keep users engaged.

## Impact of the Analysis

This project has had a significant impact by providing actionable insights that can enhance the Instagram experience for users, improve engagement and retention, and support targeted marketing and monetization strategies. For me, working on this analysis deepened my understanding of how user data can directly influence product development and business strategy. The project highlighted the critical role data analysis plays in shaping user-centric decisions and driving growth for a product as dynamic as Instagram.

Overall, the insights derived from this analysis have the potential to influence Instagram's future development, helping the product team make informed, data-driven decisions that align with user needs and business goals.