



# **Social Media Sentiments Analysis:**

# Agenda:

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- Analysis
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# Project Overview:

This project analyzes social media sentiment data to understand engagement patterns across platforms. It identifies key trends in post volume, user engagement, and sentiment distribution by country. The analysis aims to uncover peak posting times and the impact of hashtags on engagement. Insights gained will help optimize social media strategies and improve audience targeting.

# Dataset Description:

A comprehensive dataset of social media posts, capturing various attributes relevant to sentiment analysis and user engagement. The dataset includes the following columns:

- **Post ID:** Unique identifier for each post.
- **User ID:** Unique identifier for each user.
- **Platform:** The social media platform where the post was made (e.g., Twitter, Instagram, Facebook).
- **Post Content:** The text content of the post.
- **Likes:** Number of likes received by the post.
- **Retweets/Shares:** Number of retweets or shares the post received.
- **Sentiment:** Sentiment classification of the post (positive, neutral, negative).
- **Timestamp:** Date and time when the post was made.
- **Country:** The country from which the post was made.
- **Hashtags:** Hashtags used in the post.
- **Comments:** Number of comments on the post.

This dataset is used to analyze engagement patterns, sentiment distribution, and other key metrics across different social media platforms and countries.

# Data Modeling:

- ▶ **Data Cleaning and Preparation:** Utilized **Python** libraries such as **pandas** and **numpy** to clean and prepare the dataset, ensuring accurate and consistent data for analysis.
- ▶ **Data Transformation:** Applied various transformations to structure the data effectively, making it suitable for in-depth analysis and modeling.
- ▶ **Data Upload:** Uploaded the cleaned and prepared dataset to an **SQL** server using **Python**, facilitating efficient querying and data manipulation.

# Project Objective:

1. Identify the social media platform with the highest number of posts.
2. Determine which posts have received the highest number of likes and retweets.
3. Analyze which users have the highest average engagement (likes and retweets per post).
4. Examine how engagement levels vary by sentiment and platform.
5. Measure the daily volume of posts.
6. Identify the peak times of day for posting on social media.
7. Determine which countries have the highest number of social media posts.
8. Analyze the distribution of sentiments by country.
9. Investigate how sentiment distribution varies by platform and country.
10. Explore how engagement levels (likes and retweets) vary by hashtag and platform.



# Analysis and Key Insights :

## 1. Identifying the Social Media Platform with the Highest Number of Posts:

- **Analysis:** Examined the dataset to determine the social media platform with the highest volume of posts.
- **Result:** Instagram has the highest number of posts.

## 2. Determining the Posts with the Highest Number of Likes and Retweets:

- **Analysis:** Filtered and ranked posts based on their likes and retweets to find the most popular ones.
- **Result:** The post by user 'CultureEnthusiast' with the content “Thrilled to witness the grandeur of a cultural festival” received the highest engagement with 80 likes and 40 retweets.



### 3. Analyzing Users with the Highest Average Engagement (Likes and Retweets per Post):

- **Analysis:** Calculated the average engagement for each user by dividing the total likes and retweets by the number of posts.
- **Result:** User 'Wanderlust' has the highest average engagement.

### 4. Examining Engagement Levels by Sentiment and Platform:

- **Analysis:** Cross-referenced engagement levels with sentiment and platform data to identify patterns.
- **Result:** Facebook posts with the sentiment 'Joy' have the highest engagement, followed by Instagram with 'Positive', Facebook with 'Positive', Instagram with 'Joy', and Twitter with 'Positive'.

## 5. Identifying the Peak Times of Day for Posting on Social Media:

- **Analysis:** Analyzed the timestamps of posts to determine the most active posting times.
- **Result:** The peak time for posting on social media is 14:00, followed by 19:00, 16:00, and 18:00.

## 6. Determining the Countries with the Highest Number of Social Media Posts:

- **Analysis:** Aggregated post counts by country to find the most active regions.
- **Result:** The USA has the highest number of posts, followed by the UK, Canada, and Australia.

## 7. Analyzing the Distribution of Sentiments by Country:

- **Analysis:** Assessed the sentiment distribution within each country.
- **Result:** The USA has the highest number of posts with the sentiment 'Joy', followed by Canada with 'Joy', the UK with 'Excitement', the UK with 'Joy', and Canada with 'Excitement'.

# Conclusion:

In summary, Instagram emerges as the dominant platform in terms of post volume, while 'CultureEnthusiast' achieves the highest engagement with a single post. 'Wanderlust' leads in average engagement per post, indicating strong follower interaction. Engagement is notably high on Facebook and Instagram, particularly for positive sentiments. The USA tops the list for social media activity and displays a strong presence of joyful sentiment. Additionally, peak posting times are identified around mid-afternoon and early evening, highlighting optimal times for social media activity.

# Recommendations:

Based on the analysis, here are some recommendations to optimize social media strategies and improve audience targeting:

1. **Focus on Instagram:** Prioritize Instagram for content due to its highest post volume and engagement potential.
2. **High-Engagement Content:** Emulate successful posts like 'CultureEnthusiast's by focusing on cultural and event-based content to maximize likes and retweets.
3. **Leverage Influencers:** Collaborate with users like 'Wanderlust' who have high average engagement to amplify reach and impact.
4. **Sentiment-Driven Engagement:** Create positive and joyful content for Facebook and Instagram to tap into higher engagement rates.
5. **Optimal Posting Times:** Schedule posts around peak times—14:00, 16:00, 18:00, and 19:00—to maximize visibility and interaction.
6. **Target Active Regions:** Concentrate efforts on the USA, UK, Canada, and Australia, the regions with the highest social media activity.
7. **Sentiment-Based Targeting:** Tailor content to match dominant sentiments in each country, such as 'Joy' in the USA and Canada, and 'Excitement' in the UK.