Twitter Analytics Dashboard Using Power BI

# 1. Introduction

This report presents the development of a Twitter Analytics Dashboard using Microsoft Power BI. The objective of the project was to analyze and visualize tweet data using calculated metrics and dynamic filters to support decision-making and gain actionable insights from Twitter engagement patterns.

# 2. Background

Twitter is a widely used social media platform where user engagement is crucial for content strategy. This project utilizes a structured dataset of tweets, including metadata such as likes, replies, retweets, and media interactions, along with timestamps. The main focus was to build visuals that display tweet performance under complex filter conditions including time windows, textual properties, and engagement thresholds.

# 3. Learning Objectives

* To apply DAX (Data Analysis Expressions) in Power BI for calculated columns and dynamic measures.
* To design and implement visuals based on time-sensitive and logic-based filters.
* To gain proficiency in transforming raw data into actionable insights.
* To simulate real-time dashboard behavior using system time.

# 4. Activities and Tasks

* Imported and cleaned a tweet dataset in Power BI.
* Added calculated columns: character count, word count, IST conversion, odd day checks, etc.
* Created dynamic filters based on business logic.
* Designed three key visuals:
* - Visual 1: Bar chart for Top 10% Engagement Rate tweets (weekdays, 3–5 PM IST)
* - Visual 2: Scatter plot of Media Engagement vs Views (odd days, 6–11 PM IST)
* - Visual 3: Column chart comparing Likes, Retweets, and Replies (odd days, summer months, even media views)

# 5. Skills and Competencies

* Data Modeling and ETL in Power BI
* Time zone and temporal filtering in DAX
* Conditional logic and percentile calculation in DAX
* Dynamic dashboard creation and real-time visibility control
* Analytical thinking and data storytelling

# 6. Feedback and Evidence

* Visuals were validated through interaction and logical consistency tests.
* System time-based filters were verified by changing the local clock to simulate different results.
* Engagement metrics accurately reflected tweet performance within defined constraints.

# 7. Challenges and Solutions

* \*\*Challenge\*\*: Dataset didn’t always return results after applying all filters.
* \*\*Solution\*\*: Verified filter logic, and used a mock dataset with diversified entries for demo purposes.
* \*\*Challenge\*\*: Time filtering based on IST required careful conversion from UTC.
* \*\*Solution\*\*: Created separate `time\_IST` columns and derived `HourIST` for accurate time slot filtering.

# 8. Outcomes and Impact

* Developed a modular and scalable dashboard structure.
* Successfully applied complex filter conditions in a real-time scenario.
* Demonstrated the ability to model data with DAX and present it with interactivity and precision.
* Built a strong foundation in Power BI, useful for both academic and professional environments.

# 9. Conclusion

The Twitter Analytics Dashboard project served as a comprehensive hands-on experience in using Power BI for advanced data analysis. It reinforced core skills in data visualization, logic-based filtering, and time-based reporting. The challenges faced provided learning opportunities, resulting in a well-rounded understanding of analytical dashboard design.