**Internship Report: Power BI Twitter Analytics Dashboard**

**Name:** Shambhavi Sinha

**Internship Platform:** NullClass

**Project Title:** Twitter Analytics Dashboard utilizing Power BI

**Duration:** 27-06-2025 to 27-08-2025

**Tools Used:** Power BI, DAX, Power Query Editor

**Dataset:** Social Media (Tweets data)

**Objective of the Internship**

The goal of this internship was to create and develop a dynamic Twitter Analytics Dashboard using Microsoft Power BI. This dashboard offers insights into tweet engagement metrics such as likes, retweets, impressions, media views, and link clicks. It also depicts tweet performance over various time ranges and different content types.

**Key Tasks Performed**

1. **Data Cleaning & Preparation:**

- Imported the raw tweet data into Power BI.

- Eliminated null values and adjusted data types (e.g., transforming text to numeric or datetime).

- Generated new calculated columns such as word count, character count, and tweet time.

1. **DAX Measures & Calculated Columns:**

- Created custom measures like: Average Engagement Rate = (Likes + Retweets) / Impression. Valid Tweet Filters (e.g., impressions > 100, word count < 30). Time-based filters for displaying visuals only between 3–5 PM IST or 7–11 AM IST.

1. **Dashboard Visuals Created:**

**- Task 1:** Bar chart illustrating the average engagement rate and total impressions (for valid tweets).

**- Task 2:** Card visual displaying the total valid tweets filtered by strict criteria.

**- Task 3:** Top 10 tweets ranked by engagement, excluding weekends and filtered based on time.

**- Task 4:** Dual-axis chart comparing media views vs. engagements by weekday.

**- Task 5:** Monthly trend of engagement rate comparing media and non-media tweets.

1. **Advanced Filtering Logic:**

Even/odd checks on tweet date and impressions

Eliminating tweets containing specific characters

Time-of-day logic utilizing HOUR() and MINUTE() accounting for IST offset

**Challenges Faced**

1. **Nesting DAX Functions:** One significant difficulty encountered was nesting several DAX functions (like IF, AND, OR, MOD, LEN, SEARCH) within calculated columns. Managing multiple conditions while steering clear of circular dependencies required thorough testing and refactoring into various helper columns and measures.
2. **Circular Dependency Errors:** Faced errors when various calculated columns referred to one another, resulting in circular dependencies. Resolved this by converting some logic into measures and simplifying expressions.
3. **Text-Based Filtering:** Excluding tweets that included certain characters (such as “C and H”) necessitated using SEARCH and ISERROR combinations. Correctly applying that across all rows while enhancing performance was a newly acquired skill.
4. **Monthly Grouping Without Using Current Date:** Given that the dataset was from 2020, grouping by "last quarter" or "last month" using TODAY() was not applicable. Modified the logic to operate solely within the dataset's timeframe.

**Learnings & Takeaways**

1. Attained a comprehensive understanding of Power BI’s data model, calculated columns, measures, and DAX.
2. Gained insights on managing edge cases, cleaning real-world datasets, and creating user-focused dashboards.
3. Developed confidence in DAX debugging and thinking about visual interactivity logic.
4. Learned how to manually convert and apply time zones in Power BI by using arithmetic manipulation of HOUR and MINUTE. Discovered methods to hide or display visuals based on filters, allowing dashboards to respond contextually (for instance, showing a chart only at specific times)

**Conclusion**

This internship provided a solid foundation in building dashboards using Power BI. The project challenged my logical thinking skills, especially in handling nested conditions and dynamic filtering. I now feel more assured in creating real-time, rule-driven dashboards for different business use cases.

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