**Internship Report: Power BI Twitter Analysis Project**

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**Internship Duration: 1 Month**  
**Organization: Nullclass**  
**Date: 22 Oct 2024 – 22 Nov 2024**

**1. Introduction**

**1.1 Overview of the Internship**

This internship with Nullclass is an excellent opportunity to apply data analytics and visualization skills in a professional setting. The objective is to design an interactive Power BI dashboard to analyse Twitter data based on specific engagement metrics and filtering conditions, allowing data-driven insights into tweet performance.

**1.2 Purpose of the Report**

The purpose of this report is to document the Power BI project focusing on the process, learning outcomes, challenges, and overall impact of analysing Twitter engagement data with specified conditions and visualizations.

**2. Background**

Twitter, a leading social media platform, is pivotal for brands and organizations aiming to engage with audiences and understand public sentiment. Analyzing Twitter data requires understanding engagement metrics and exploring how various factors influence these metrics. This project aimed to build an interactive Power BI dashboard that visualizes key metrics based on specific date, time, and conditional filters.

**3. Learning Objectives**

The primary learning objectives of this project were:

* To understand Power BI's advanced filtering capabilities and visuals for dynamic data representation.
* To gain experience in social media analytics, specifically Twitter engagement analysis.
* To enhance skills in data transformation, filtering, and visualization for business insights.

**4. Activities and Tasks**

**4.1 Data Collection and Preparation**

Data was extracted from Twitter by the organization, focusing on metrics like impressions, engagement rates, media views, and reply counts. The data was checked to observe duplicates and nulls and transformed to meet the specific conditions set for each visual.

**4.2 Developing Visualizations**

**Visual 1: Engagement Rate and Total Impressions**

**Description**: This visual shows the average engagement rate and total impressions for tweets posted between January 1, 2020, and June 30, 2020. Only tweets with more than 100 impressions and zero likes were included. Additionally, this visual is restricted to be displayed only between 3 PM and 5 PM IST.

**Power BI Configuration**:

* **Filters**: Date range set to ‘01-01-2020’ to ‘30-06-2020’, impressions >100, likes = 0, and time filter set to 3 PM - 5 PM IST.
* **Visual Type**: A dual-line or bar chart displaying engagement rate vs. impressions.

**Visual 2: Scatter Chart of Media Engagements vs. Media Views**

**Description**: A scatter chart displays the relationship between media engagements and media views for tweets that received more than 10 replies. Tweets with an engagement rate above 5% are highlighted. The visual is restricted to 12 PM - 6 PM IST, only for tweets posted on odd-numbered days with a word count below 50.

**Power BI Configuration**:

* **Filters**: Replies >10, engagement rate >5%, tweet date on an odd day, word count <50, and time filter set to 12 PM - 6 PM IST.
* **Visual Type**: Scatter chart with conditional formatting for highlighting tweets with high engagement rates.

**Visual 3: Dual-Axis Chart of Media Views and Media Engagements by Day of the Week**

**Description**: A dual-axis chart shows media views and engagements by day of the week for the last quarter, with significant spikes highlighted. This visual is restricted to 3 PM - 6 PM IST and is filtered for tweets with even-numbered impressions, odd-numbered dates, and a word count below 30.

**Power BI Configuration**:

* **Filters**: Last quarter date range, impressions (even numbers), odd-numbered tweet dates, word count <30, and time filter set to 3 PM - 6 PM IST.
* **Visual Type**: Dual-axis line chart with conditional formatting for peak media interaction days.

**5. Skills and Competencies Developed**

* **Data Extraction and Transformation**: Hands-on experience in transforming Twitter data using power query editor.
* **Power BI Filtering and Conditional Formatting**: Gained proficiency in Power BI’s advanced filtering, conditional formatting, and time-based restrictions.
* **Analytical Skills**: Enhanced ability to analyze social media engagement metrics and apply insights to optimize visualization.
* **Problem-Solving**: Developed strategies to handle complex filtering and visualization requirements.

**6. Feedback and Evidence**

* Daily work summary was sent to the organization via google form.
* Power BI .pbix file is attached for evidence.
* Github link of the project:

**7. Challenges and Solutions**

**7.1 Challenges**

* **Complex Filtering Requirements**: Applying multiple conditions (e.g., time, date, impression thresholds) was challenging due to the limitations of Power BI’s filtering options.
* **Conditional Time Restriction**: Setting specific time restrictions for visual display required a workaround, as Power BI does not natively support time-based display triggers.

**7.2 Solutions**

* **Calculated Columns and Measures**: Created custom columns in Power BI to meet complex conditions, such as filtering by specific engagement thresholds, tweet dates, and word counts.
* **Parameter Configuration**: Used Power BI parameters to toggle the display based on the specific times, mimicking conditional time-based filtering.

**8. Outcomes and Impact**

The Power BI dashboard enabled the organization to gain deep insights into tweet performance with dynamic filters based on engagement rate, media views, and timing patterns. This led to:

* **Informed Decision-Making**: The dashboard highlighted optimal tweet timing, engagement spikes, and high-performing tweets.
* **Increased Engagement**: By identifying effective engagement times and tweet types, the organization can now focus on strategic content to maximize reach and impact.

**9. Conclusion**

This internship provided a comprehensive understanding of data visualization and analysis using Power BI, particularly for social media engagement. It underscored the importance of analytical techniques for real-world applications and demonstrated the value of visual data storytelling. The skills gained, such as complex filtering, data transformation, and Power BI’s interactive features, will be invaluable for future projects in data analytics.