

Internship Report

Project Title: Building a Real-Time Twitter Analytics Dashboard using Power BI

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Internship Role: Data Analyst Intern

Organization: Null Class

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1. Introduction

This report presents an overview of my internship experience, which focused on developing a real-time analytics dashboard using Microsoft Power BI. The project aimed to convert a large and unstructured social media dataset into a well-organized and visually engaging dashboard that enables efficient performance monitoring and strategic decision-making. The final product provides actionable insights into audience engagement and social media trends.

2. Background

The need for this project emerged from the limitations of traditional static reporting methods, which made it difficult to evaluate real-time social media activity. To overcome these challenges, the project sought to create an automated Power BI dashboard that could provide live insights into engagement metrics, content reach, and campaign effectiveness—helping users analyze performance more effectively.

3. Learning Objectives

The main objectives of this internship were to:

- Gain hands-on experience in data modelling and transformation using Power Query and Power BI.
- Develop the ability to write and optimize DAX (Data Analysis Expressions) formulas for advanced analytics.
- Apply data visualization principles to design an intuitive and dynamic dashboard.
- Explore interactive features such as filters, drill-throughs, and time-based conditional visibility for improved user experience.

4. Activities and Tasks

The project included the creation of multiple analytical visuals in Power BI, each serving a distinct purpose:

- **Scatter Chart:** Displayed the relationship between media views and engagement metrics to highlight high-performing posts.
- **Click Distribution Chart:** Compared various click types (profile, URL, and hashtag) using a clustered bar chart.
- **Top Posts Visualization:** Ranked the top 10 tweets based on engagement (likes and retweets).
- **Engagement Trends:** Used a line chart to show monthly engagement rate trends for tweets with and without media.
- **Engagement Comparison:** Analyzed reply, like, and retweet variations among top-engaged tweets.
- **Performance Insights:** Compared engagement rates for tweets with link clicks versus those without.

Time-based visibility logic was applied so certain visuals appeared only during predefined working hours, making the dashboard contextually relevant.

5. Skills and Competencies Gained

Technical Skills:

- Expertise in **Power Query (M Language)** for cleaning, transforming, and reshaping data.
- Proficiency in **DAX** for building KPIs, calculated measures, and logical expressions.
- Strong understanding of **data visualization** and storytelling through Power BI.
- Familiarity with **Power BI Service**, including report publishing and scheduled data refreshes.

Soft Skills:

- **Analytical Thinking:** Translating complex business requirements into effective data solutions.
- **Problem Solving:** Debugging DAX formulas and handling data inconsistencies efficiently.
- **Attention to Detail:** Maintaining visual consistency, accuracy, and usability throughout the dashboard.

6. Feedback and Evidence

Regular feedback from mentors and peers helped refine the dashboard's design and enhance its analytical depth.

The final dashboard, along with the Power BI (.pbix) file, was uploaded to GitHub for accessibility and version control.

Repository Link: https://github.com/vaibhav07-ai/NullClass_Internship.git

7. Challenges and Solutions

- **Data Restructuring Issues:** Some charts malfunctioned after data unpivoting.
Solution: Created duplicate queries to isolate transformations and protect the original model.
- **Data Type Errors:** Built-in Power Query operations failed on numeric columns.
Solution: Used text-based logic functions (like Text.End) to handle type mismatches effectively.

8. Outcomes and Impact

The completed dashboard provides a comprehensive and automated way to monitor social media performance. It enables stakeholders to:

- Track KPIs and engagement patterns quickly.
- Identify top-performing content and optimal posting times.
- Reduce manual reporting time and improve analysis accuracy.

The project significantly enhanced data-driven decision-making capabilities within the organization.

9. Conclusion

This internship offered a practical understanding of the complete business intelligence development process—from data extraction and transformation to advanced dashboard creation. The experience strengthened my technical expertise in Power BI and improved my analytical and visualization skills. Overall, the project served as a valuable learning experience and a major step toward my professional growth as a data analyst.