REAL-TIME TWITTER ANALYSIS USING POWER BI DASHBOARD

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Report on Data Analysis (Real-Time Twitter Analysis Power BI Dashboard)

1. Introduction

- **Purpose**: This report aims to provide an in-depth overview of the data analysis and visualization tasks undertaken during my internship at NullClass Pvt Ltd. The purpose of this report is to document the objectives, methodologies, and outcomes of the various data visualization projects I completed, highlighting how these tasks contributed to enhancing our understanding of Twitter data and improving reporting capabilities.
- **Scope**: The scope of this report encompasses the creation of multiple visualizations using Power BI. These visualizations include a line chart to track engagement trends, comparative analyses of engagement rates, dual-axis charts to illustrate media interactions, and pie charts to represent click proportions. Each task was designed to address specific aspects of social media data analysis and to demonstrate proficiency in using Power BI for data-driven insights.

2. Background

- **Context**: The tasks were part of a broader project focused on analyzing Twitter data to extract valuable insights. The internship was situated within NullClass Pvt Ltd, a company renowned for its expertise in data analytics and visualization. This context provided a framework for applying theoretical knowledge to practical scenarios, utilizing real-world data to solve complex problems.
- **Organization Overview**: NullClass Pvt Ltd is a leading organization in the field of data analytics. The company specializes in offering data-driven solutions across various industries, leveraging advanced tools and methodologies to deliver actionable insights. During my internship, I had the opportunity to work with a diverse dataset, providing a hands-on learning experience in data analysis and visualization.

3. Learning Objectives

- **Data Visualization**: One of the primary learning objectives was to develop a deep understanding of data visualization techniques using Power BI. This included learning how to create and customize various types of charts and graphs to effectively communicate data insights.
- **Data Analysis**: The internship aimed to enhance my ability to analyze social media data, focusing on engagement metrics and interaction patterns. I learned how to interpret data trends, compare different engagement metrics, and draw meaningful conclusions from the analysis.
- **Tool Utilization**: Another key objective was to gain practical experience in using Power BI, a leading data visualization tool. This involved mastering its features, such as filtering, aggregating data, and creating interactive dashboards that facilitate data exploration and decision-making.

4. Activities and Tasks

- **Task 1: Line Chart and Visualization**

- **Objective**: To visualize the trend of average engagement rates for tweets with and without media content over the year. Additionally, to compare the number of replies, retweets, and likes for tweets with media engagements above the median value, with a filter for tweets posted in the last six months.
- **Activity**: I created a line chart to depict monthly trends in engagement rates, differentiating between tweets with media and those without. I also developed a comparative visualization to highlight differences in replies, retweets, and likes for tweets with higher media engagements. Implemented filters to focus on recent data, ensuring relevance and accuracy.

- **Task 2: Engagement Rate Comparison**
  - **Objective**: To analyze and compare engagement rates for tweets with app opens versus those without, with a focus on tweets posted between 9 AM and 5 PM on weekdays.
  - **Activity**: Filtered tweets based on their posting time and day of the week, focusing on the specified hours and weekdays. I then created a bar chart to compare engagement rates for tweets with and without app opens, providing insights into how app interactions affect engagement during business hours.
- **Task 3: Dual-Axis Chart**
  - **Objective**: To illustrate the number of media views and media engagements by the day of the week for the last quarter, highlighting significant spikes in interactions.
  - **Activity**: Developed a dual-axis chart to visualize trends in media views and engagements over the past quarter. Used different axes to represent each metric, and applied visual markers to highlight days with notable spikes in media interactions, facilitating a clear understanding of peak activity periods.
- **Task 4: Pie Chart with Drill-Down**
  - **Objective**: To create a pie chart showing the proportion of different types of clicks (URL, user profile, hashtag) for tweets with more than 500 impressions, and to include a drill-down feature for detailed analysis.
  - **Activity**: Designed a pie chart to represent the distribution of click types for high-impression tweets. Implemented drill-down functionality to allow users to explore specific click types for individual tweets, providing a detailed view of click behavior and engagement patterns.

5. Skills and Competencies

- **Technical Skills**:
  - **Power BI Proficiency**: Gained advanced skills in using Power BI to create various visualizations, including line charts, bar charts, dual-axis charts, and pie charts. Mastered techniques for filtering and aggregating data, customizing visualizations, and leveraging interactive features to enhance user engagement.
  - **Data Analysis**: Developed a strong capability in analyzing large datasets, identifying trends, and comparing different metrics. Acquired the ability to derive actionable

insights from complex data and to present these insights in a clear and comprehensible manner.

- **Soft Skills**:
    - **Problem-Solving**: Enhanced problem-solving skills through the application of analytical methods to real-world data. Developed strategies to address challenges related to data complexity and visualization integration.
    - **Communication**: Improved communication skills by presenting data insights effectively and clearly. Gained experience in documenting findings and explaining technical concepts to both technical and non-technical audiences.

6. Feedback and Evidence

- **Feedback**: Received positive feedback from supervisors and colleagues, highlighting strong analytical skills and effective use of Power BI. Feedback emphasized the quality of the visualizations and the ability to extract meaningful insights from data.
- **Evidence**:
    - **Completed Visualizations**: Provided visualizations and dashboards that demonstrate the ability to handle and analyze Twitter data. These deliverables include line charts, comparative analyses, dual-axis charts, and pie charts.
    - **Performance Evaluations**: Performance evaluations and feedback from the team serve as evidence of successful task completion and the skills acquired during the internship.

7. Challenges and Solutions

- **Challenges**:
    - **Data Complexity**: Managing and analyzing large datasets with multiple variables posed a challenge. Ensuring data accuracy and relevance required careful preprocessing and filtering.
    - **Visualization Integration**: Combining various data elements into cohesive and informative visualizations was complex. Ensuring that the visualizations effectively communicated insights required iterative design and testing.
- **Solutions**:
    - **Advanced Data Processing**: Utilized advanced data processing techniques to manage complex datasets and ensure data cleanliness. Applied data transformation and aggregation methods to facilitate analysis.
    - **Interactive Features**: Leveraged Power BI's interactive features to integrate and present data effectively. Implemented filters, drill-downs, and dynamic elements to enhance the usability and clarity of visualizations.

8. Outcomes and Impact

- **Results**: Successfully created a series of insightful visualizations that provided valuable analysis of Twitter engagement data. The visualizations enabled better understanding of engagement trends, media interactions, and click behaviors.
- **Impact**: The analysis and visualizations contributed to enhanced decision-making capabilities within the team. The insights derived from the data helped in optimizing social media strategies and improving reporting practices.

9. Conclusion

- **Summary**: The tasks completed during the internship provided significant experience in data analysis and visualization using Power BI. The project demonstrated the ability to handle complex datasets, create impactful visualizations, and derive actionable insights.
- **Reflections**: The experience has solidified my understanding of data visualization techniques and their application in real-world scenarios. The skills gained are valuable for both personal and professional development, contributing to a deeper appreciation of data-driven decision-making.
- **Future Recommendations**: To further enhance data analysis capabilities, consider exploring additional data sources and visualization tools. Expanding the scope of projects to include more diverse datasets and advanced analytical techniques will continue to build on the skills acquired during this internship.