**PROJECT REPORT**

**ON**

**REAL TIME TWITTER DATA ANALYTICS DASHBOARD-POWER BI**

*Submitted* *in* *partial* *fulfilment* *of* *the* *requirements* *for* *the* *internship*

on

# DATA ANALYST

**To**

## **NULL CLASS**

***Submitted*** ***by***

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INTRODUCTION

In today fast -paced digital world, social media are part of everyone’s life. Whereas these social media sites collect huge amount of data from the users. Whether it is the information that users share with the apps they use or the likes and dislike they share on every post. Social Media platforms like Twitter uses that data effectively to generate some useful information for the organization as well as individual who want to have the analysis of that data. This data helps in analysing the relationship between the various elements and Trends of market. Data Analysis is also important because it helps in organization to make better decision by analysing trends and gaining insights into competitors. Whereas it also assists in understanding your audience and their interests, according to which companies change their strategies.

BACKGROUND

With the rapid growth of social media platforms like Twitter, analysing real-time data has become essential for organizations and individuals to understand trends, sentiments, and audience behaviours. A Real-Time Twitter Data Analytics Dashboard built in Power BI combines the capabilities of Twitter's streaming API and Power BI's visualization and reporting features to provide actionable insights.

Importance of Real-Time Twitter Data Analytics:

1.Monitoring Trends- Twitter is one of the most dynamic platforms, with over 500 million tweets posted daily. Tracking hashtags, mentions, and keywords in real time helps identify emerging trends, viral content, and breaking news.

2.Sentiment Analysis- Understanding the sentiment behind tweets, whether positive, negative, or neutral enables businesses to gauge public opinion about their brand, products, or campaigns.

3.Market Research- Analysing competitor mentions, industry-specific hashtags, and audience preferences provides valuable market intelligence.

Power BI: An Ideal Tool for Real-Time Analytics Power BI, a powerful business intelligence tool by Microsoft, offers robust visualization capabilities, real-time data streaming, and easy integration with external data sources. By leveraging Power BI, organizations can create dynamic dashboards to analyze and present Twitter data in an intuitive format.

Twitter data contains -

1.Use the Twitter API to extract relevant tweets based on specific keywords, hashtags, or user mentions. Tools like Python can be used to set up data extraction.

2.Data collected may include tweet text, user information, timestamp, retweets, likes, and sentiment scores.

3.Data Preprocessing means cleaning the data to remove irrelevant information, such as spam or duplicates. Perform sentiment analysis using natural language processing (NLP) techniques to classify tweets as positive, negative, or neutral.

OBJECTIVES

The Real-Time Data Analytics dashboard- Power BI is an innovative and creative project where we use different types of data and charts to present the twitter data in a creative and innovative ways because it combines the real time data of Twitter where Power BI connect with the twitter’s API to track and analyse tweets in real time, as well as by using different keywords and gaining public opinion through the hashtags on the latest topics. The advance analytics and visualization tools of Power BI such as dynamic dashboards which can be customized and easy to interpret recent trends based on different metrices like geographies or personal preferences. With this Power BI is user friendly tool than other Analytical tools, which sometimes are technical and difficult or complicated to understand. It gives easy collaborative features where one can share their insights with the team members. This combination of social media Analytics and Business Intelligence transform Twitter data into an innovative and highly organised information that one can get easily.

Other than this the demand of the data analytics is growing in industry whereas every companies is looking for candidates that have good in data analysis, hence it become one of the important skill that are required in recent times, so to identify the growth of their industry and future outcomes on which they take their decisions to breakdown the trends and factors contributing to the demands, gaining competitive edge over their competitors through market trends and optimize operations.

The primary objective of this internship is to gain hands-on experience by designing and implementing a real-time Twitter analytics dashboard using Power BI. This project aims to enhance my technical skills such as enhancing proficiency in Power BI for data integration, visualization, and analysis while handling data or designing dashboard by applying advanced Power BI features to create user- friendly and interactive insights from social media data. Through this internship, I intend to deepen my understanding of data, strengthen my proficiency in handling KPIs like engagement rates, impression and reach that develop impactful dashboards that aid in informed decision-making. Additionally, this opportunity will allow me to improve my problem-solving abilities and analytical thinking in a real-world setting.

Also, the Internship in twitter Analytics gives opportunity to build a real time dashboard using different creative tools and charts after applying various transformations to give useful outcomes that one can access through the charts that represents useful information like relationship between elements and how one element one can affect the other information.

ACTIVITIES & TASK

The Internship contain various activities and task that makes the data useful for the analysis, so that one can understand the findings easily. The Actives like transforming of the raw data by filtering and applying conditions to make the chart that gives out information useful to the individual and well as organization.

Chart represents the rising trends, customer preferences and their reactions on various tweets that public posts, and on that post how people like, dislike or retweet.

Activities and Task Includes:

Task 1. Is the formation of a chart that displays tweets with the highest engagement rates (top 10%).

Conditions applied are

* Tweets that have received more than 50 likes and;
* Were posted on weekdays
* The graph should work only between 3PM IST to 5 PM IST
* Tweet character count should be below 30.

Task 2. Is to Plot a scatter chart to analyse the relationship between media engagements and media views

Conditions applied are

* Tweets that have received more than 10 replies.
* Highlight tweets with an engagement rate above 5%.
* The graph should work only between 6PM IST to 11 PM IST.
* The tweet date should be odd number.
* Tweet word count be above 50.

Task3. Create a clustered bar chart that breaks down the sum of URL clicks, user profile clicks, and hashtag clicks by tweet category (e.g., tweets with media, tweets with links, tweets with hashtags).

Conditions applied

* Tweets that have at least one of the interaction types.
* The graph should work only between 3PM IST to 5 PM IST.
* Tweet date should be even number and;
* Tweet word count be above 40.

Task 4. Includes Analysing tweets to show a comparison of the engagement rate for tweets with app opens versus tweets without app opens.

Conditions applied

* Tweets posted between 9 AM and 5 PM on weekdays.
* The graph should work only between 12PM IST to 6PM IST.
* Tweet impression should be even number and;
* Tweet date should be odd number
* Tweet word count be below 40.

Task 5. Is to create a dual-axis chart that shows the number of media views and media engagements by the day of the week for the last quarter.

Conditions applied

* Highlight days with significant spikes in media interactions.
* The graph should work between 3 PM to 6 PM.
* The tweet impression should be even number and tweet date should be odd number.
* Tweet word count be below 30.

COMPETENCIES

Competency in real-time data analysts using Power BI dashboards reflects a deep understanding of how to handle dynamic data for actionable insights. It involves the ability to design and implement dashboards that provide instantaneous updates, enabling businesses to monitor key metrics, identify trends, and make informed decisions with precision. This skill demands a strong grasp of data modelling, integration of real-time data sources, and proficiency in leveraging Power BI's advanced visualization tools to present complex data in an intuitive and impactful manner. Additionally, it underscores a commitment to delivering scalable, efficient solutions that align with organizational goals and drive continuous improvement. Some of the Competencies that I get while working on this project are:

**Project Management:** Planning and organization play a crucial role in successfully completing a project report. While working on a certain project we need to plan our work statically so the work will not get hamper because of deadline. The project planning includes resource allocation - like time management, data collection, transformation, and visualisation, with the organisation of task and scheduling your time helps to complete the task on time.

**Critical Thinking** - Applying various formulas and functions to transform and filter the data, so that the analyst get clear understanding of data is important, where we need to think carefully analyse the conditions and then use the Power BI skills. Using right charts to visualise the data effectively and understandable.

**Problem solving skills:** Data processing and Transformation is important to make the data understandable and easy to get. Transformation helps in adjustment of data and apply correct approach to an interactive interface that consolidates and displays multiple related data visualizations in a single unified view.

**Visualisation and Design:** Visualisation and design help to make the data easy to interpret through clear communication of insights by using various graphs and charts like bar graphs, pie graph etc. with this it also makes the data appealing to the analysts. Dynamic Visuals in Power BI ensures that the dashboard reflects current Twitter activity, through real time updates.

FEEDBACK & EVIDENCE

The dashboard provides clear and visually appealing insights into real-time Twitter data. Key metrics such as sentiment analysis, likes, and user engagement are well-structured. The functionality of real-time data updates ensures relevance in dynamic scenarios. Based on test data or simulated scenarios: Simulated tweet data revealed smooth integration and proper visualization updates. Successfully implemented data fetching through APIs to ensure real-time updates

**Peer Feedback**

Received positive comments on the dashboard’s UI design and ease of use during internal demos.

Improvement Areas- The performance of the dashboard under high-volume data loads could not be fully tested. Advanced features like filtering or detailed keyword analysis are yet to be optimized.

CHALLENGES & SOLUTIONS

Twitter is one of the platforms that gathers variety of information that helps in making content strategy, tracking growth, and setting benchmark for your business or personal use purposes. Whereas while making dashboard in Power Bi, lots of functions and operations are required, which are quite difficult for one to understand and applied for performing transformations and expressions, so the challenges include while handling the twitter data are-

1.Time management - Time management is the skill that required planning and coordination of tasks. Completing task on time is important for successfully completion of any project effectively. It included planning of task and completing them before the deadline.

2. Application of formulas and functions- Formulas and functions are needed in Power BI to apply the filter effectively to give a meaningful output. Each formula performs different functions that displays information that are based on the condition. Learning and understanding formulas is the only way one can have a grip of functions and formulas that need to be applied when and where.

3. Data cleaning and processing - Structuring the data and cleaning it to get a valuable insight, as many time the data contain wrong or missing data. Other than this sometime data does not match with the requirements or the condition that are needed to apply. where we transform it to make it understandable for others, hence to solve this problem transformation of data is required where we clean the unrequired or unnecessary data from the given data.

4. Data preparation and Data modelling - Use of Dax for analysis the data is quite difficult because of using custom calculations for measures and calculative columns while power query is also used for data transformation which also contains the library of functions, operations and constant for creating formulas and expression. To Solve these issues understanding of DAX and power query is very important then only you can use the functions and measures that are needed to be apply on. With this one should also have little knowledge of Programming language such as Python to run the functions easily.

5.Data visualization - Data visualisation is a difficult task as it requires creativity and knowledge to apply variety of formats and designs with the correct use of data that make sense at the end of the visualisation of graph. For this understanding the data and then use the creativity to make it presentable so the one can get the understanding of the data and graphs. Trying different designs and graphs will help to have the better understanding of the dashboard and Power BI.

OUTCOME & IMPACT

Through working on real time Twitter Data analytics, I get various valuable insights that are needed for understanding and analysing the current demands and trends that are going on market. By handling this, I got to learn about various technical skills and KPIs and get to know more about use of Power BI and Python.

1. Real time data Handling- While working on real time Twitter Data analytics Dashboard – Power BI, I get an understanding of real time data handling, where it helps to understand the data on the current time for the purposes like analysing trends and take decision accordingly and it build my confidence in managing and analysing real-time datasets for critical insights and business agility.
2. Data Analytics- Getting the understanding of data analytics is needed with the rising trends and completions where a right decision can only be taken by the help of proper analysis of collected data. That help me to master the key concepts of data visualization and reporting.
3. Handling KPIs- Developing proficiency in defining, measuring, and analysing KPIs to extract righteous insights are helpful if we get to know how to handle the data, and gain competence in monitoring and optimizing KPIs, contributing to organizational goals.
4. Hands on Experience- While working on an industry level project we get a hand on experience of handling data and gathering actionable insights, and build Ability to apply analytical frameworks and tools to solve business problems effectively.
5. Technical skills – While working on this project I get to learn understanding of technologies like Excel, Power BI, and Python. Through this later I get to the Demonstration of technical expertise through completed projects and certifications.

CONCLUSION

The Real-Time Twitter Data Analytics Power Dashboard is a cutting-edge solution for analysing and visualizing live Twitter data, enabling users to extract meaningful insights from vast amounts of unstructured information. By integrating real-time data streams with advanced visualization techniques, the dashboard allows users to monitor key performance indicators (KPIs), track sentiment trends, and identify emerging topics in real-time.

This platform is designed to cater to diverse needs, including businesses seeking to enhance customer engagement, marketers tracking campaign performance, and researchers studying societal trends. Its user-friendly interface ensures accessibility for both technical and non-technical users, while its powerful analytics engine facilitates deeper exploration of data patterns.

The dashboard’s ability to transform raw Twitter data into actionable insights positions it as a vital tool in today’s data-driven landscape. Whether it’s adapting to audience needs, refining communication strategies, or staying ahead in competitive markets, the Real-Time Twitter Data Analytics Power Dashboard equips users with the information necessary to make informed, strategic decisions in real time.

In an era where information travels at the speed of a tweet, this dashboard bridges the gap between data overload and actionable intelligence, offering a competitive edge to its users.