INTERNSHIP REPORT

Title: *Twitter Analytics Dashboard using Power BI*
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Company/Organization: Nullclass EdTech Pvt Ltd

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1. Introduction

The internship focused on building a **Twitter Analytics Dashboard** using **Microsoft Power BI** to analyze social media engagement and performance metrics. The goal was to develop an interactive and dynamic dashboard that visualizes tweets, likes, replies, retweets, impressions, and engagement rate effectively. Through this project, I learned how to handle real-world datasets, perform complex data transformations, and create meaningful business insights using data visualization techniques.

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2. Background

Power BI is a powerful business intelligence tool developed by Microsoft that allows users to visualize data, share insights, and make data-driven decisions.

In this project, **Twitter Analytics** data was used to understand audience engagement patterns. The data included tweet performance details such as likes, replies, retweets, impressions, and app opens.

The project was done within the domain of **data analytics**, which combines statistical methods, data modeling, and visualization to extract insights and support decision-making.

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3. Learning Objectives

During the internship, the main objectives were:

1. To understand the end-to-end process of building dashboards using Power BI.
2. To perform data cleaning, transformation, and DAX calculations for deeper insights.
3. To analyze engagement metrics for Twitter performance.

4. To apply logical and time-based filters for specific analytical use cases.
5. To enhance technical, analytical, and communication skills through practical data visualization tasks.

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4. Activities and Tasks

Task 1: Data Import and Cleaning

- Imported the Twitter dataset into Power BI.
- Performed data cleaning and removed duplicates.
- Created calculated columns for engagement and date formatting.

Task 2: Tweet Performance Overview

- Designed a clustered bar chart showing likes, replies, and retweets by tweet ID.
- Added cards showing total tweets, total impressions, and engagement rate.
- Focused on improving visual design with consistent colors and data labels.

Task 3: Engagement Trend Analysis

- Created a line chart to show engagement rate trends by hour.
- Used DAX time functions to extract and analyze tweet posting hours.
- Compared morning and afternoon engagement patterns.

Task 4: App Open vs Without App Open Comparison

- Built visuals comparing engagement rate for tweets with and without app opens.
- Applied filters for weekdays and specific time ranges (9 AM – 5 PM).
- Enhanced insights using calculated measures for average engagement rate.

Task 5: Dashboard Refinement and Conditional Visibility

- Implemented DAX logic to show or hide charts based on time conditions.
- Added color formatting, improved layout, and created KPI cards.
- Documented daily progress reports summarizing tasks completed.

Task 6: Advanced Filtering and Conditional Graph Display

- Applied multiple filters:
    - Only weekdays between 9 AM and 5 PM.
    - Chart visible only between 12 PM–6 PM and 7 AM–11 AM (IST).
    - Tweets with even impressions, odd tweet date, and character count above 30.
    - Removed tweets containing the letter ‘D’.
- Created visuals such as:
    - Comparison bar charts
    - Hourly trend line
    - Pie chart for app-open status
    - Table for filtered tweet details
- Addressed data blank issues and added supportive visuals for analysis.

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5. Skills and Competencies

Technical Skills:

- Power BI Desktop
- DAX (Data Analysis Expressions)
- Data modeling and relationships

- Visualization design and dashboard development
- Conditional formatting and dynamic filtering

Soft Skills:

- Analytical thinking and problem-solving
- Time management and reporting
- Communication and documentation
- Critical reasoning in data-driven storytelling

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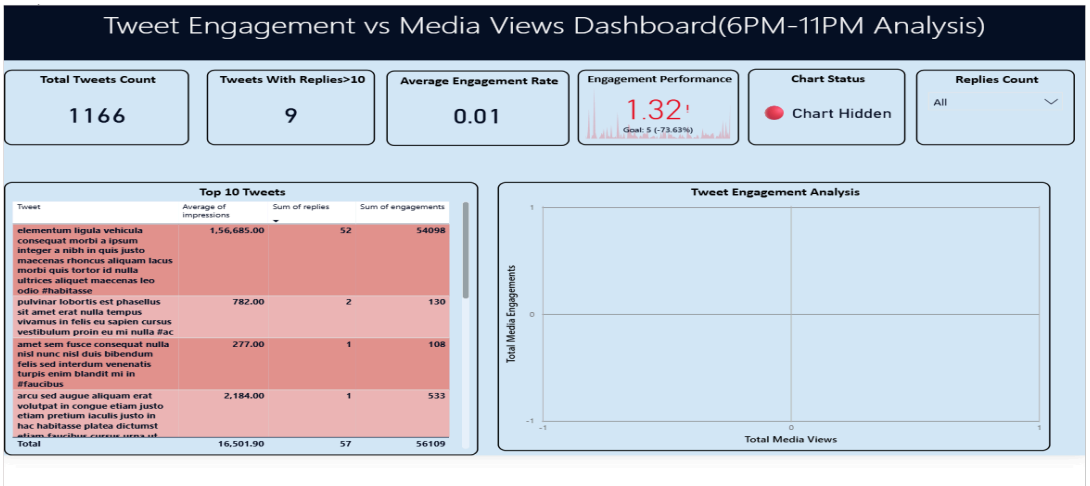
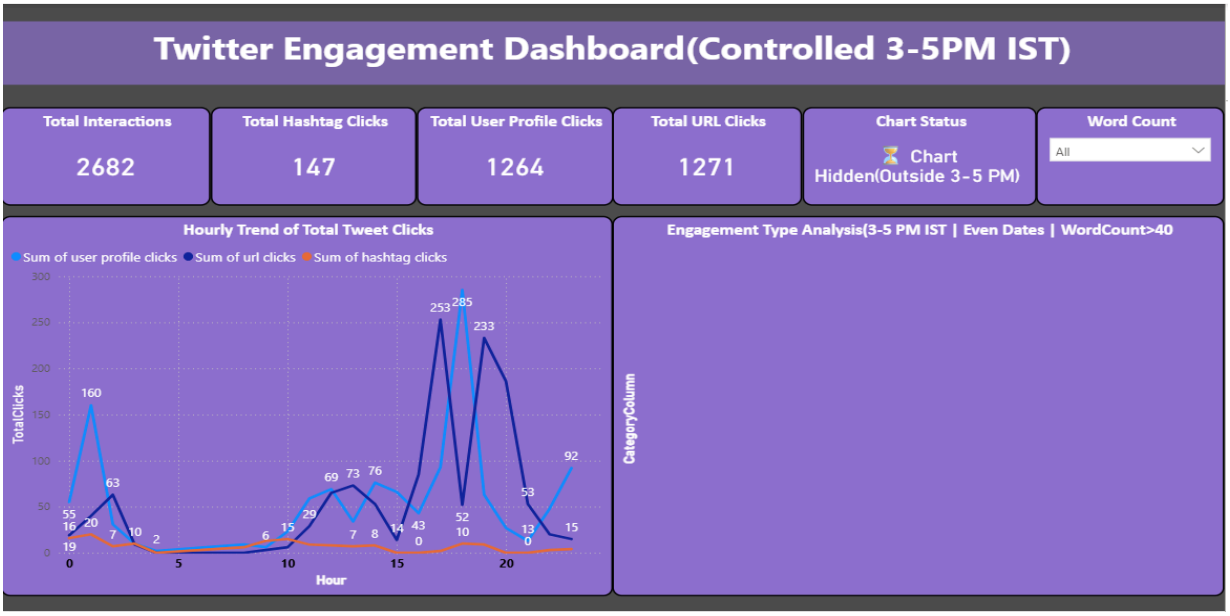
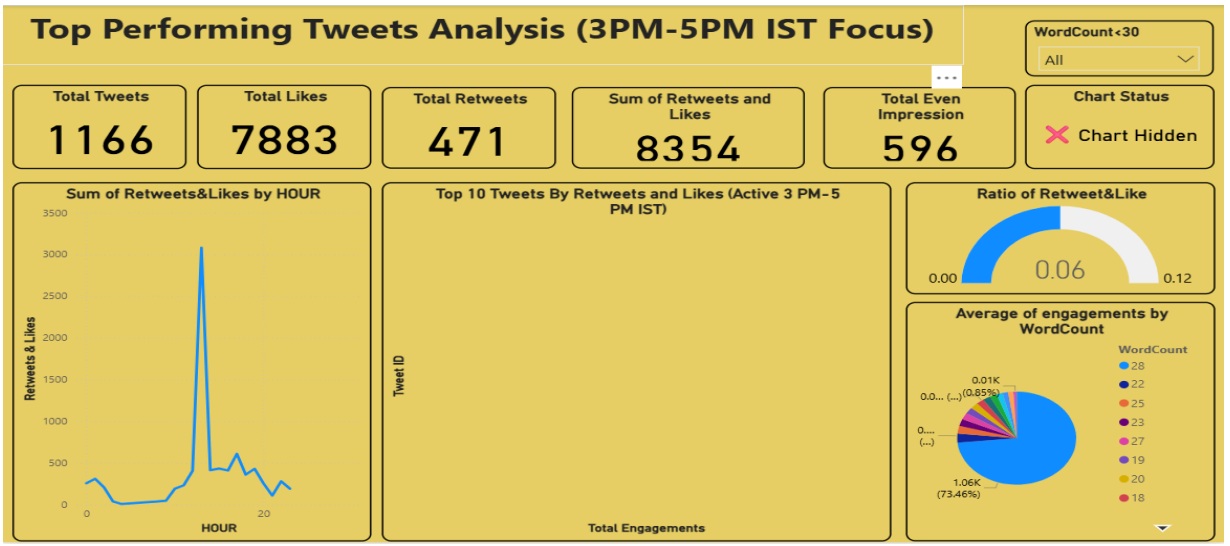
6. Feedback and Evidence

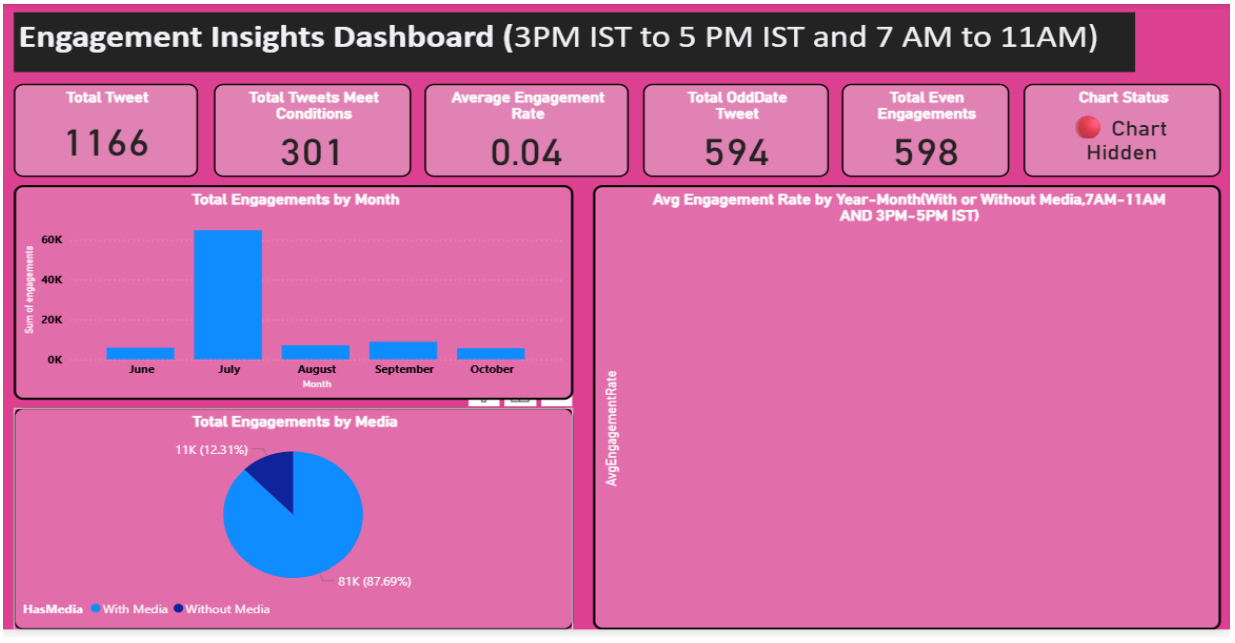
The dashboard effectively demonstrated real-time filtering and visualization capabilities. Key visuals included:

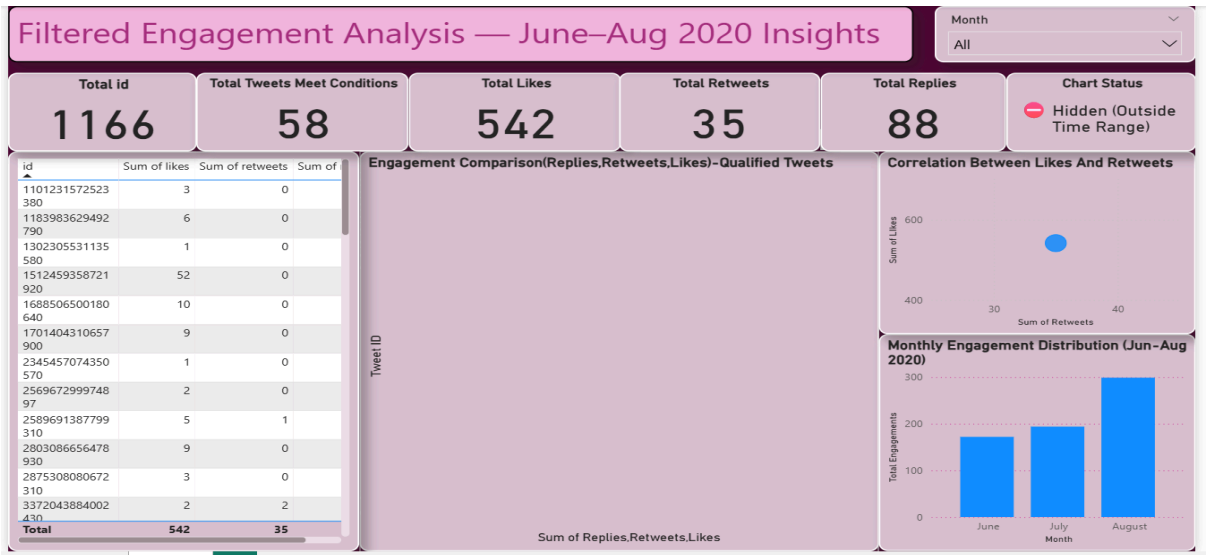
- **Clustered Bar Chart** – Likes, Replies, and Retweets per Tweet ID
- **Line Chart** – Hourly Engagement Rate Trend
- **Pie Chart** – Engagement Distribution by App Open Status
- **KPI Cards** – Total Tweets, Median Engagement, Tweets Meeting All Conditions
- **Table** – Filtered Tweets Based on Task 6 Criteria

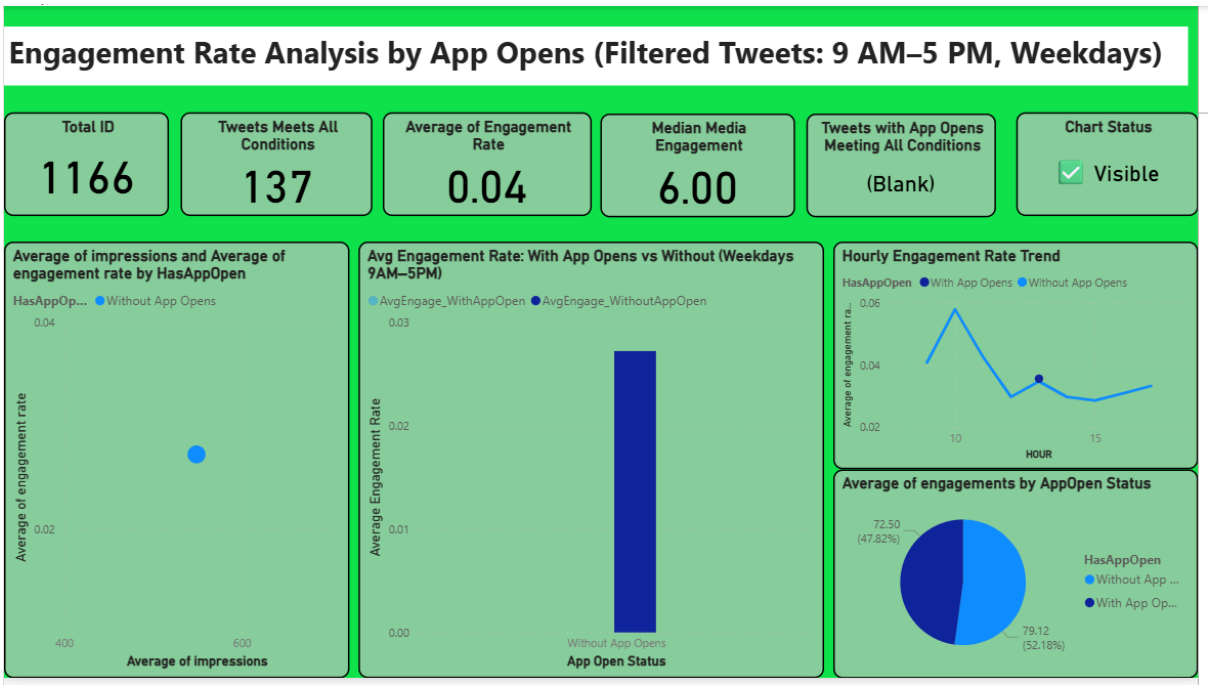



Twitter Engagement Dashboard(Controlled 3-5PM IST)
Total Interactions
2682
Total Hashtag Clicks
147
Total User Profile Clicks
1264
Total URL Clicks
1271
Chart Status
Chart Hidden(Outside 3-5 PM)
Word Count
All
Hourly Trend of Total Tweet Clicks
Sum of user profile clicks
Sum of url clicks
Sum of hashtag clicks
TotalClicks
Hour
Engagement Type Analysis(3-5 PM IST | Even Dates | WordCount>40
CategoryColumn


Top Performing Tweets Analysis (3PM-5PM IST Focus)
WordCount<30
All
Total Tweets
1166
Total Likes
7883
Total Retweets
471
Sum of Retweets and Likes
8354
Total Even Impression
596
Chart Status
Chart Hidden
Sum of Retweets&Likes by HOUR
Retweets & Likes
HOUR
Top 10 Tweets By Retweets and Likes (Active 3 PM-5 PM IST)
Tweet ID
Total Engagements
Ratio of Retweet&Like
0.00
0.06
0.12
Average of engagements by WordCount
WordCount


Engagement Insights Dashboard (3PM IST to 5 PM IST and 7 AM to 11AM)
Total Tweet
1166
Total Tweets Meet Conditions
301
Average Engagement Rate
0.04
Total OddDate Tweet
594
Total Even Engagements
598
Chart Status
Chart Hidden
Total Engagements by Month
Sum of engagements
June
July
August
September
October
Month
Total Engagements by Media
11K (12.31%)
81K (87.69%)
HasMedia
With Media
Without Media
Avg Engagement Rate by Year-Month(With or Without Media,7AM-11AM AND 3PM-5PM IST)
AvgEngagementRate





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7. Challenges and Solutions

Challenge	Solution Implemented
Blank results for engagement rate with app opens	Verified filters and found impressions were not even; added supportive visuals to identify missing conditions.
Complex DAX conditions	Broke down logic into smaller parts and tested each filter separately.

Visual clutter in dashboard	Used color themes and consistent layout to improve readability.
Time-based filter not working as expected	Used the HOUR(NOW()) function in DAX with IST adjustment for accurate visibility.

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8. Outcomes and Impact

- Successfully created a **dynamic, time-filtered Power BI dashboard** for Twitter analytics.
- Gained strong understanding of DAX expressions, calculated columns, and dynamic visual control.
- Improved problem-solving and data storytelling skills.
- Learned how to handle data conditions to create business-ready insights.
- Enhanced understanding of performance metrics such as engagement rate and impression analysis.

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9. Conclusion

This internship experience was a valuable opportunity to apply theoretical knowledge to practical business intelligence scenarios. Working on Twitter data using Power BI helped me improve my analytical, technical, and visualization skills. I gained confidence in using DAX, creating dashboards, and presenting data insights effectively. Overall, this project strengthened my foundation in **data analytics** and prepared me for future roles in **AI and data science** domains.