**DATA ANALYST TASKS EXPLANATION**

**Task 1 :**

**Develop a chart that displays tweets with the highest engagement rates (top 10%). Include only those tweets that have received more than 50 likes and were posted on weekdays and this graph should only work between 1 PM to 4PM as well as tweet word count be below 30.**

**Step 1:**

**Import and Prepare the Dataset**

1. Open **Power BI** Desktop and click on **Get Data**. Select the dataset you have or download the required data, then import it.
2. Once the data is loaded, click on the **Transform** Data button to open the Power Query editor. Here, you can apply any necessary transformations to clean or adjust your dataset.
3. If further data transformation is needed, use the Transform Data option to refine your dataset, ensuring it's ready for analysis.

**Step 2:**

**Filter the Data**

1. **Create a Stacked Column Chart** : In the Report View, select Stacked Column Chart from the Visualizations pane and drag it into the view area.
2. **Calculate the 90th Percentile for Engagement Rate** : Use the following DAX function to calculate the 90th percentile engagement rate, which will allow to filter the top 10% of tweets by engagement rate.

**90thPercentileEngagementRate = PERCENTILEX.INC('SocialMedia (1)', 'SocialMedia (1)'[Engagement Rate], 0.9)**

This function returns the 90th percentile value of engagement rate, making it easier to filter for the top 10% of tweets.

1. **Filter for Top 10% Engagement Rates:**
   * Drag the Engagement Rate column into the Filter on this Visual panel.
   * Use the Advanced Filter option and select Greater Than or Equal To.
   * Enter the value 0.0864, which represents the 90th percentile engagement rate in this example, and apply the filter. This will filter out tweets with an engagement rate in the top 10%.
2. **Filter for Specific Criteria:**
   * **Word Count:** Use the following DAX function to calculate the word count for each tweet

This function calculates the number of words in each tweet. Drag this column into the filter panel and set the filter to show tweets with fewer than 30 words.

**WordCount = LEN(TRIM([Tweet])) - LEN(SUBSTITUTE(TRIM([Tweet]), " ", "")) + 1**

* + Likes: Apply a filter to display only tweets with more than 50 likes.
  + Day Name: Filter for tweets posted on weekdays (Monday to Friday).

After applying these filters, you'll have a refined dataset that displays tweets with the highest engagement rates (top 10%), more than 50 likes, posted on weekdays, and fewer than 30 words.

**Step 3:**

**Build the Visual**

1. X-Axis: You can choose to display Likes, Tweets, or Day Name based on your preference. Typically, Tweets would be added to show individual tweet engagement.
2. Y-Axis: Set the Y-Axis to display the Engagement Rate (Top 10%).
3. Legend: Add the Word Count to the Legend, ensuring only tweets with fewer than 30 words are displayed.
4. Formatting: Apply formatting as needed to ensure the chart is clear and visually appealing.

**Step 4:**

**Enable Chart Display Between 1 PM and 4 PM**

1. To restrict the chart to show only between 1 PM and 4 PM, use this DAX function.

**ShowChart = IF(HOUR(NOW()) >= 13 && HOUR(NOW()) <= 16, 1, 0)**

This function checks the current hour and only displays the chart during the specified time range. Outside of this range, the chart will be hidden.

1. Display Message During Off Hours: To display a message when the chart is unavailable, create a card visual and use this DAX function.

The message will appear in the card when the chart is disabled.

**OffHoursMessage = IF(HOUR(NOW()) < 13 || HOUR(NOW()) > 16, "This chart is only available from 1 PM to 4 PM", "")**

**TASK 2 :**

**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). Only include tweets that have at least one of these interaction types and this graph should work between 3 PM to 6 PM and the tweet date should be even number as well as tweet word count be below 40.**

**Step 1:**

**Import and Prepare the Dataset**

1. Open **Power BI** Desktop and click on **Get Data**. Select the dataset you have or download the required data, then import it.
2. Once the data is loaded, click on the **Transform** Data button to open the Power Query editor. Here, you can apply any necessary transformations to clean or adjust your dataset.
3. If further data transformation is needed, use the Transform Data option to refine your dataset, ensuring it's ready for analysis.

**Step 2:**

**Filter the Data**

1. **Create a Clustered bar Chart** : In the Report View, select Clustered bar Chart from the Visualizations pane and drag it into the view area.

**Filter Tweet Categories:**

* Select Tweets that contain media, links, and hashtags. For tweets with media, filter using the media views, media engagements, and hashtag clicks columns.
* Create a new conditional column that marks the tweet as a valid entry if it has at least one of these interactions. If any one of the interactions is present (media views, media engagements, or hashtag clicks), the row will be filled with the tweet details. Otherwise, mark the row as 0 or "no tweet category" (you can decide the specific label).

**Tweet Date:**

* Select the date column and extract the date component only.
* Create a new column that checks if the date is an even number. If the date is even, fill the rows with one of the following tweet categories:
  + Tweets with media
  + Tweets with hashtags
  + Tweets with links

**Step 3 :**

**Visual Settings:**

* X-axis: Sum of user profile clicks, URL clicks, and hashtag clicks.
* Y-axis: Tweet categories (tweets with media, tweets with hashtags, tweets with links) posted on even dates.
* Word count: Create a word count column using the following DAX function:

**WordCount = LEN(TRIM([TweetText])) - LEN(SUBSTITUTE([TweetText], " ", "")) + 1**

* + This function counts the number of words in the tweet text. Add this word count as a filter in the visual pane.
  + In the advanced filter settings, select less than 40 to filter tweets that have fewer than 40 words.
* Format the chart, including the bars, data labels, and titles, to ensure a professional and clean appearance.

**Step 4 :**

**Enable Chart Display Between 3 PM and 6 PM**

1. To restrict the chart to show only between 3 PM and 6 PM, use this DAX function.

**ShowChart = IF(HOUR(NOW()) >= 15 && HOUR(NOW()) <= 18, 1, 0)**

This function checks the current hour and only displays the chart during the specified time range. Outside of this range, the chart will be hidden.

1. Display Message During Off Hours: To display a message when the chart is unavailable, create a card visual and use this DAX function.

The message will appear in the card when the chart is disabled.

**OffHoursMessage2 = IF(HOUR(NOW()) < 15 || HOUR(NOW()) > 18, "This chart is only available from 3 PM to 6 PM", "")**

**TASK 3 :**

**Build a chart to identify the top 10 tweets by the sum of retweets and likes. Filter out tweets posted on weekends and show the user profile that posted each tweet and this graph should work between 3 PM to 6 PM and the tweet impression should be even number and tweet date should be odd number as well as tweet word count be below 30**

**Step 1:**

**Import and Prepare the Dataset**

1. Open **Power BI** Desktop and click on **Get Data**. Select the dataset you have or download the required data, then import it.
2. Once the data is loaded, click on the **Transform** Data button to open the Power Query editor. Here, you can apply any necessary transformations to clean or adjust your dataset.
3. If further data transformation is needed, use the Transform Data option to refine your dataset, ensuring it's ready for analysis.

**Step 2:**

**Filter the Data**

**Create a Chart:**

* In Report View, select a chart from the Visualizations pane and drag it into the view area. For this example, I have selected a Pie Chart.

**Filter Tweets:**

* Filter by Impressions: Create a new conditional column to filter tweets based on the number of impressions. If the impression count is an even number, the row will be filled with the tweet details. If the impression count is not even, the row will be filled with 0 or labeled as "No even number impression" (you may choose the label).

**Filter by Date:**

* Filtering by Odd Dates: Create a new column with the help of information tab available in power query editor . If the date is odd, the row will be filled with the date; otherwise, it will be filled with 0.
* Apply the Filter: Drag the "Odd Date" column into the Filter pane and, in the Advanced Settings, select "Is equal to 1". This will filter tweets that were posted on odd-numbered dates.

**Filter by Weekends:**

In the Filter pane, select the Day Name column and filter by Saturday and Sunday to display tweets posted on weekends only.

**Filter by Word Count:**

* Create a Word Count Column using the following DAX function:
* Drag the **Word Count** column into the **Filter pane**, and in the **Advanced Settings**, select tweets that have fewer than 30 words by applying the **"Less than 30"** filter.

**WordCount = LEN(TRIM([TweetText])) - LEN(SUBSTITUTE([TweetText], " ", "")) + 1**

**Pie Chart Configuration:**

* **Values**: The pie chart values should represent the Sum of Retweets and Sum of Likes.
* **Details**: Display the details for tweets with even-numbered impressions.
* **Legend**: Use the User Profile ID or Name as the legend for the chart.
* **Tooltips**: Configure the tooltips to display Word Count and Day Name.

**Formatting:**

* **Format the Pie Chart** to ensure a clean, professional look by adjusting data labels, colors, titles, and other relevant visual elements.

**Step 4 :**

**Enable Chart Display Between 3 PM and 6 PM**

1. To restrict the chart to show only between 3 PM and 6 PM, use this DAX function.

**ShowChart = IF(HOUR(NOW()) >= 15 && HOUR(NOW()) <= 18, 1, 0)**

This function checks the current hour and only displays the chart during the specified time range. Outside of this range, the chart will be hidden.

1. Display Message During Off Hours: To display a message when the chart is unavailable, create a card visual and use this DAX function.

The message will appear in the card when the chart is disabled.

**OffHoursMessage2 = IF(HOUR(NOW()) < 15 || HOUR(NOW()) > 18, "This chart is only available from 3 PM to 6 PM", "")**

**TASK 4 :**

**Create a line chart showing the trend of the average engagement rate over each month of the year. Separate the lines for tweets with media content and those without and this graph should work between 3 PM to 6 PM and the tweet engagement should be even number and tweet date should be odd number**

**Step 1:**

**Import and Prepare the Dataset**

1. Open **Power BI** Desktop and click on **Get Data**. Select the dataset you have or download the required data, then import it.
2. Once the data is loaded, click on the **Transform** Data button to open the Power Query editor. Here, you can apply any necessary transformations to clean or adjust your dataset.
3. If further data transformation is needed, use the Transform Data option to refine your dataset, ensuring it's ready for analysis.

**Step 2 :**

**Filter Data :**

**Create a Chart:** In Report View, select a line chart from the Visualizations pane and drag it into the view area.

**Filter Tweets:**

* Filter by engagement rate : Create a new conditional column to filter tweets based on the engagement rate . If the engagement rate is an even number, the row will be filled with the tweet details. If the impression count is not even, the row will be filled with 0 or labeled as "No even number engagement rate" (you may choose the label).
* Filter by media content : Create two conditional columns one for tweets with media content and another one is for without media content . if the tweet have any media categories like media views , media engagement the column will be filled by tweets otherwise 0 . another column replace the 0 value as tweets and tweets with media replaced by 0.

**Filter by Date:**

* Filtering by Odd Dates: Create a new column with the help of information tab available in power query editor . If the date is odd, the row will be filled with the date; otherwise, it will be filled with 0.
* Apply the Filter: Drag the "Odd Date" column into the Filter pane and, in the Advanced Settings, select "Is equal to 1". This will filter tweets that were posted on odd-numbered dates.

**Visual settings for line chart :**

* **X- Axis :** Month name
* **Y- Axis :** Average of an engagement rate
* **Secodary Y Axis** : Tweets with media conent and Tweets without media content.

**Step 4 :**

**Enable Chart Display Between 3 PM and 6 PM**

1. To restrict the chart to show only between 3 PM and 6 PM, use this DAX function.

**ShowChart = IF(HOUR(NOW()) >= 15 && HOUR(NOW()) <= 18, 1, 0)**

This function checks the current hour and only displays the chart during the specified time range. Outside of this range, the chart will be hidden.

1. Display Message During Off Hours: To display a message when the chart is unavailable, create a card visual and use this DAX function.

The message will appear in the card when the chart is disabled.

**OffHoursMessage2 = IF(HOUR(NOW()) < 15 || HOUR(NOW()) > 18, "This chart is only available from 3 PM to 6 PM", "")**

**TASK 5 :**

**Analyse tweets to show a comparison of the engagement rate for tweets with app opens versus tweets without app opens. Include only tweets posted between 9 AM and 5 PM on weekdays and this graph should work between 12 PM to 6 PM and the tweet impression should be even number and tweet date should be odd number as well as tweet word count be below 40.**

**Step 1:**

**Import and Prepare the Dataset**

1. Open **Power BI** Desktop and click on **Get Data**. Select the dataset you have or download the required data, then import it.
2. Once the data is loaded, click on the **Transform** Data button to open the Power Query editor. Here, you can apply any necessary transformations to clean or adjust your dataset.

If further data transformation is needed, use the Transform Data option to refine your dataset, ensuring it's ready for analysis.

**Step 2 :**

**Fiter Tweets with app opens and without app opens:**

* Create new conditional columns for Tweet with app opens and without app opens . if a tweet have app opens the row will be filled by tweets . another column is tweet without app opens if a tweet does not have app opens the row will be filled by tweets .
* Filter by Impressions: Create a new column to filter tweets based on the number of impressions. If the impression count is an even number, the row will be filled with 1. If the impression count is not even, the row will be filled with 0 or labeled as "No even number impression" (you may choose the label).

**Filter by Time :**

* Drag the Time into filter pane and selcet time between 9AM and 5 PM.

**Filter by Date:**

* Filtering by Odd Dates: Create a new column with the help of information tab available in power query editor . If the date is odd, the row will be filled with the date; otherwise, it will be filled with 0.
* Apply the Filter: Drag the "Odd Date" column into the Filter pane and, in the Advanced Settings, select "Is equal to 1". This will filter tweets that were posted on odd-numbered dates.

**Filter by Weekends:**

In the Filter pane, select the Day Name column and filter by Saturday and Sunday to display tweets posted on weekends only.

**Filter by Word Count:**

* Create a Word Count Column using the following DAX function:
* Drag the **Word Count** column into the **Filter pane**, and in the **Advanced Settings**, select tweets that have fewer than 30 words by applying the **"Less than 40"** filter.

**WordCount = LEN(TRIM([TweetText])) - LEN(SUBSTITUTE([TweetText], " ", "")) + 1**

**Visual settings :**

I have selected Donut chart . Sum of engagement rate into values , Tweet with out opens in detail and Time and word count in legend . Tweets with opens and even impression in tool tips . drag the Even impression in filter pane and select is the value is 1 it filter the tweets that have even number impression. Tweet with opens get 0 means , No one tweets have app opens with all this filter.

**Step 4 :**

**Enable Chart Display Between 12 PM and 6 PM**

1. To restrict the chart to show only between 12 PM and 6 PM, use this DAX function.

**ShowChart = IF(HOUR(NOW()) >= 12 && HOUR(NOW()) <= 18, 1, 0)**

This function checks the current hour and only displays the chart during the specified time range. Outside of this range, the chart will be hidden.

1. Display Message During Off Hours: To display a message when the chart is unavailable, create a card visual and use this DAX function.

The message will appear in the card when the chart is disabled.

**OffHoursMessage2 = IF(HOUR(NOW()) < 12 || HOUR(NOW()) > 18, "This chart is only available from 12 PM to 6 PM", "")**