INTERNSHIP REPORT

**Introduction** :

"This internship was conducted at Nullclass, focusing on Data analytics and data visualization using Power BI and modern web technologies. The internship lasted 2 months, providing valuable industry exposure."

**Learning Objectives**

* **Develop Web Development Skills**:
  + Build a responsive and interactive website using technologies such as HTML, CSS, and JavaScript.
  + Learn and implement hosting platforms like Netlify or Vercel to deploy web projects.
* **Master Data Visualization Principles**:
  + Use Power BI to create interactive and visually appealing reports that offer actionable insights.
  + Learn to structure and present data effectively to support decision-making processes.
* **Improve Data Cleaning and Preparation Skills**:
  + Gain hands-on experience in data cleaning processes, including handling missing data, outliers, and inconsistent entries.
  + Learn to transform raw datasets into structured, analysis-ready formats using tools like Power Query.
  + Understand best practices for ensuring data accuracy, consistency, and integrity.
* **Enhance Collaboration and Project Management**:
  + Improve teamwork and communication skills through regular interactions with mentors and peers.
  + Learn to document processes, maintain version control, and collaborate on shared projects efficiently.
* **Problem-Solving in Data and Development**:
  + Develop the ability to troubleshoot issues in both data processing workflows and website development.
  + Explore strategies for optimizing report performance and website responsiveness.

**Activities and Tasks**

### Key Activities:

1. **Develop a Pie Chart with Drill-Down Capabilities:**
   * Represent proportions of total clicks (URL clicks, user profile clicks, hashtag clicks) for tweets with more than 500 impressions.
   * Enable drill-down to view specific types of clicks for each tweet.
2. **Create a Scatter Chart:**
   * Analyze the relationship between media engagements and media views for tweets with more than 10 replies.
   * Highlight tweets with an engagement rate above 5%.
   * Restrict data to tweets posted between 12 PM to 6 PM, with an odd tweet date and word count below 50.
3. **Build a Clustered Bar Chart:**
   * Break down the sum of URL clicks, user profile clicks, and hashtag clicks by tweet category (e.g., tweets with media, links, or hashtags).
   * Include tweets with at least one interaction type, and restrict the chart to specific time frames, even tweet dates, and word counts below 40.
4. **Design a Comparative Visualization:**
   * Compare the number of replies, retweets, and likes for tweets with media engagements above the median value.
   * Filter tweets posted between June and August 2020, with specific conditions on time, tweet date, media views, and word count.
5. **Engagement Rate Analysis:**
   * Compare engagement rates for tweets with app opens versus those without.
   * Restrict data to weekdays, between 9 AM to 5 PM, and apply additional conditions on time, impressions, dates, and word counts.

### Tools and Technologies Used:

* **Power BI:** For creating interactive dashboards and complex visualizations.
* **Power Query:** To clean, transform, and structure data.
* **DAX Functions:** To implement calculated measures, filters, and conditional logic.

## Skills and Competencies

* **Technical Skills:**
  + Advanced Power BI visualizations, including drill-downs and dynamic filters.
  + Data cleaning and preparation using Power Query.
  + DAX for creating custom measures and logic.
* **Analytical Skills:**
  + Interpreted user engagement metrics to derive actionable insights.
* **Soft Skills:**
  + Improved communication through regular feedback sessions.
  + Enhanced teamwork by collaborating on visualization designs and presentations.

## Challenges and Solutions

* **Challenge:**
  + Restricting data to specific conditions (e.g., odd/even dates, specific time ranges).
  + Ensuring visualizations performed well with large datasets.
* **Solution:**
  + Used advanced DAX functions and Power Query transformations.
  + Optimized report performance by reducing unnecessary calculations and filtering data efficiently.

## Outcomes and Impact

* Delivered a suite of interactive dashboards that provided actionable insights into Twitter engagement metrics.
* Enhanced my technical expertise in Power BI, data transformation, and visualization best practices.
* Contributed to better decision-making processes within the organization by providing meaningful insights into user behaviour.

## Conclusion

This internship was an enriching experience that significantly improved my technical and analytical skills. It allowed me to work on real-world datasets, understand the nuances of data visualization, and collaborate effectively in a professional setting. The knowledge and experience gained have equipped me for future roles in data analytics and visualization.