Topic 5(1): Discussion/Initiatives of sustainability by corporations / brands

Our Research Question:

- What kind of user engagement can be seen on reddit regarding environmental sustainability by the automotive companies?
    - Performed comments cleaning and filtering by removing unnecessary characters, removed deleted comments, removed links and emojis.
    - Generated metrics like number of comments per post, average score (upvotes/downvotes of reddit comments) and plotted bar graphs (performed user engagement analysis).
- How did reddit users react to the initiatives taken by companies towards achieving environmental sustainability?
    - After filtering comments, stored them in a json file to perform sentiment analysis and emotion analysis.
    - Sentiment analysis data is being shown in a json file with the following parameters (comment, sentiment, score), here sentiment is either negative or positive depending on the comment and scored indicates the confidence score whether the comment is negative or positive ranging from 0 to 1, 0 being not confident and 1 being confident. (in the sentiment analysis file it doesn't show the absolute value of 0 or 1, the confidence score is not always 100% negative or positive) For example a comment having a sentiment score of: 0.987 is very confident and a comment having a sentiment score of: 0.65 is not that confident whether the comment is negative or positive.
    - Sentiment analysis is done for the General motors and Genesis posts.
    - Sentiment analysis result is then visualized with the help of a pie chart where it shows the percentage of negative and positive comments for each post.
    - Emotion analysis is done on the Porsche post.
    - It's like a in depth version of sentiment analysis where it shows the emotions of the user while commenting such as anger, disgust, fear, neutral, surprised. Each of these tags are labelled to each comment. So we can know what the user feels through analysing his comment. It is then visualized in a bar graph.

Brands: Porsche, Honda, Genesis, General Motors
Technologies used:
Programming languages: Python

Libraries: PRAW (to extract comments and posts from Reddit), matplotlib (to plot graphs), hugging face transform (sentiment analysis and emotion analysis), pandas (data manipulation and filtering), seaborn (to plot graphs)

NLP tools: hugging face transform (sentiment analysis and emotion analysis)

The Reddit posts:

- Porsche to suppliers: Switch to renewable energy or lose future contracts
    - Article link: https://newsroom.porsche.com/en_US/2021/company/porsche-co2-neutral-balance-2030-suppliers-switch-green-energy-24992.html

- o Reddit post link:
  https://www.reddit.com/r/cars/comments/of11be/porsche_to_suppliers_switch_to_renewable_energy/

- Genesis To Become EV-Only Brand From 2025, Carbon Neutral By 2035
  - o Article link: https://www.carscoops.com/2021/09/genesis-to-become-ev-only-brand-from-2025-carbon-neutral-by-2035/
  - o Reddit link:
    https://www.reddit.com/r/cars/comments/pgipsn/genesis_to_become_evonly_brand_from_2025_carbon/

- General Motors plans to exclusively offer electric vehicles by 2035
  - o Article link: https://www.cnbc.com/2021/01/28/general-motors-plans-to-exclusively-offer-electric-vehicles-by-2035.html
  - o Reddit link:
    https://www.reddit.com/r/cars/comments/l70yaw/general_motors_plans_to_exclusively_offer/

- Honda 2024 Business Briefing - Honda's plans for electric vehicles and hybrids.
  - o Reddit link:
    https://www.reddit.com/r/cars/comments/1d75gqu/honda_2024_business_briefing_hondas_plans_for/

User Engagement:

After combining all the comments from all the posts, I categorized them into High, Medium and Low Engagement which shows comments have a score more than 100 as High engagement, comments with a score of 25 to100 Medium engagement and comments with a score of less than 25 as Low engagement.

High Engagement: 19

Medium Engagement: 46

Low Engagement: 480

Why are users surprised, angry or remain neutral to Porsche's initiative?

- Users feel Porsche is making empty claims.
- Some users feel nuclear energy is the way to go and some feel Porsche is doing a good job by utilizing renewable energy resources like solar and wind energy.
- Some users are surprised with the idea of a few people who think using nuclear energy is safe, they think it is not a long term solution and produces a lot of greenhouse gases and the nuclear waste is harmful for the aquatic life.

Genesis, General Motors and Honda all have a similar initiative, why did majority of the users react negatively to their initiative?

- There is concern about the about the enabling infrastructure for Electric vehicles: charging spots and production of sustainable batteries.

- There is also lack of trust about how committed these brands are to achieving carbon neutrality given time frame, cost of setting up the infrastructure and the R&D cost.
- Users are not sure whether these companies will abandon their ICE vehicles where they already doing well and given that their success may not be the same in the electronic vehicle market.

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