

2023 Game Day Analytics Challenge

Undergrad Team 5 - Future Homeowners

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Executive Summary:

The purpose of this white paper is to describe the processes used and critical insights gained from tweets about commercials aired during Super Bowl LVII. Overall, the notable observations relate to engagement with these ads on Twitter, the return on investment of these commercials in terms of engagement, and the overall sentiment expressed by the platform's users.

Data Cleaning Methods:

Understanding that the raw dataset provided immense amounts of information, our goal was to truncate that information as much as possible, keeping variables that we deemed valuable for our analysis. After eliminating unnecessary variables, we noticed many generic keywords in tweets unrelated to the Super Bowl. We ran code in R to find those unrelated or generic keywords and eliminated them from the dataset, remembering that our primary focus was determining the best-performing Super Bowl ads based on tweets made during the big game. Finally, there existed some overlap in the names of some of the top-performing brands. Thus, it was necessary to group those brands, which were the same except for slight variations in name, together.

In terms of tools, the main programs we utilized were R, Excel, and Tableau. We used R for data cleansing, statistical inferences, and machine learning. We made most of our essential graphics in Tableau and used Excel for calculations and data sorting. Specific code can be found here:

<https://github.com/danisimoneaux/GamedayAnalytics>

Engagement Score:

In determining the most successful brand advertisement during this year's Super Bowl, we needed to create a quantifiable, all-encompassing metric to capture the general public's response. Based on four engagement methods on Twitter's platform (quote tweets, retweets, likes, and comments), we calculated three separate scores used to evaluate each advertisement's performance.

1. We added the total number of quote tweets, retweets, likes, and comments based on tweets relating to each brand's advertisement. Each brand was then ranked based on this total and ranked each brand accordingly.
2. We hypothesized that some engagement methods might be more impactful than others (i.e., quote tweets are more valuable than likes in terms of exposure). Thus, we conducted our own survey, sampling 50 people and asking them to rank each method of engagement. If they gave a ranking of 1, the method was thought to be the most powerful, whereas a ranking of 4 would characterize the mode of engagement as least powerful. From there, we looked simply at the method of engagement with the highest volume of votes for each ranking and applied weight to that method in descending order.

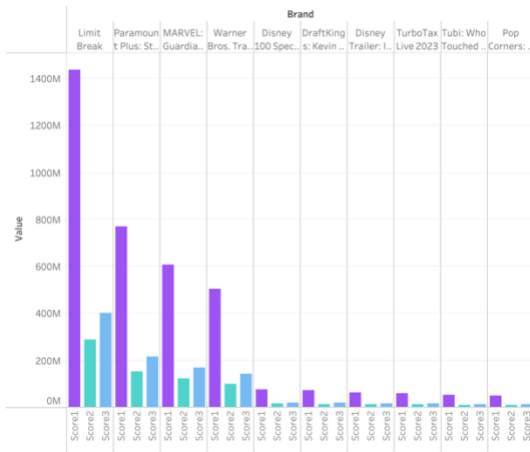
While the previous method is valid, it lacked some mathematical robustness. Instead of looking strictly at the volume of votes for each ranking, we decided to consider each vote that a brand received at each ranking. From there, we calculated an arithmetic average and a percent difference between each average. Then, using a basic system of equations, we created a more robust formula for our scoring model.

$$\text{Score}_1 = (\text{quote_count}) + (\text{retweet_count}) + (\text{reply_count}) + (\text{like_count})$$

$$\text{Score}_2 = .40 * (\text{quote_count}) + .30 * (\text{retweet_count}) + .20 * (\text{reply_count}) + .10 * (\text{like_count})$$

$$\text{Score}_3 = .28 * (\text{retweet_count}) + .27 * (\text{quote_count}) + .25 * (\text{reply_count}) + .20 * (\text{like_count})$$

Engagement Scores



*Note: In the future, we would want to sample more people to obtain more accurate rankings.

Although in this graphic, it appears that engagement dropped in our calculation process, this shows a change from raw counts of engagements to a more accurate score based on the impact of each engagement type.

Engagement ROI:

We calculated a return on investment from engagement score 3, the weighted score, for each of the top twenty engagement scores. We calculated costs based on the \$7 million average for a 30-second commercial, adjusting for longer or shorter lengths.

We then computed ROI with this formula:

$$\text{Engagement ROI} = (\text{Engagement Score} / \text{Cost})$$











ROI



We noticed a considerable shift in the rankings of the top ten ads from the raw engagement scores to the engagement ROIs. We ascertained that the top four commercials maintained their same ranks, but the others saw movement. These differences can be attributed to the lengths of each commercial, which directly impacts the total costs used for the ROI. For example, although “Disney 100 Special Look” placed in the top ten for engagement, it did not have a high ROI. This is related to the fact that the ad was three times longer than the average ad, making it expensive in the scope of this analysis. Overall, Limit Break is the top-performing ad in terms of ROI, with total earnings of 57.52 engagement units per dollar spent on Super Bowl LVII ad space











ROI

Brand

Limit Break	
Paramount Plus: Stallone ..	
MARVEL: Guardians Galaxy	
Warner Bros. Trailer: The ..	
Tubi: Who Touched the Re..	
DraftKings: Kevin Hart- Fr..	
Pop Corners: Breaking Ba..	
Disney Trailer: Indiana Jo..	
TurboTax Live 2023	
Transformers	

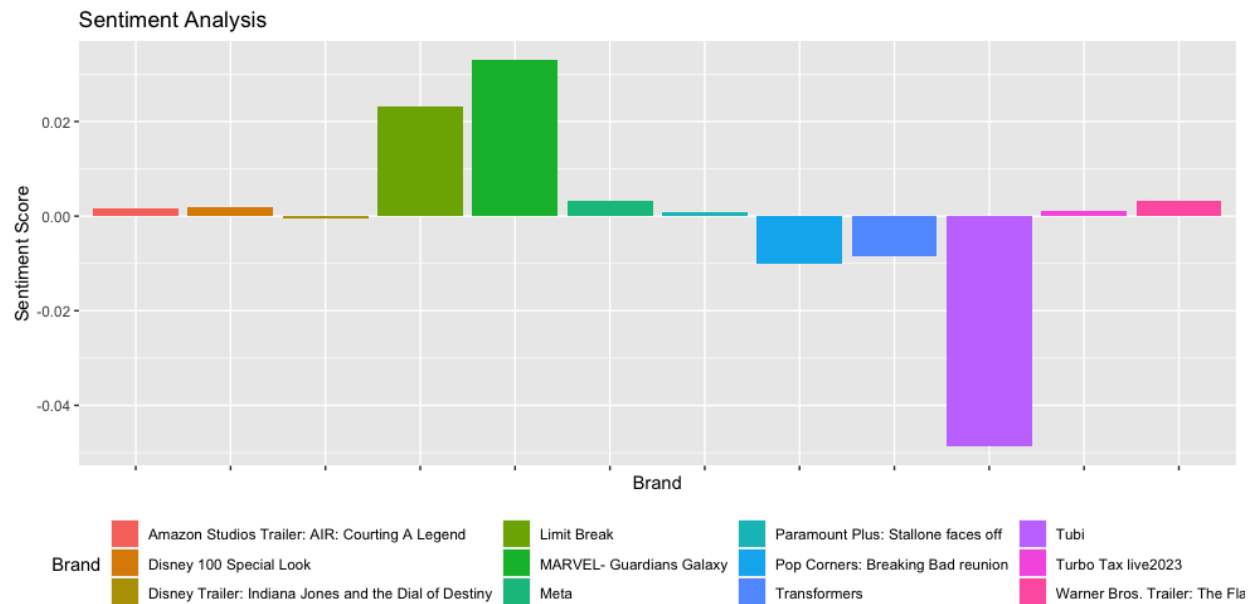
Score 3

Brand

Limit Break	
Paramount Plus: Stallone ..	
MARVEL: Guardians Galaxy	
Warner Bros. Trailer: The ..	
Disney 100 Special Look	
DraftKings: Kevin Hart- Fr..	
Disney Trailer: Indiana Jo..	
TurboTax Live 2023	
Tubi: Who Touched the Re..	
Pop Corners: Breaking Ba..	

Sentiment Analysis:

Knowing which ads had the highest engagement, we performed a sentiment analysis to determine whether the engagement could be considered positive, negative, or neutral. Using a predetermined dictionary containing words and their sentiments, we could cross-reference tweets and the dictionary to evaluate and calculate a sentiment score. Positive values mean the brand's advertisement received a positive response, and negative values insinuate the opposite. From this graphic, one can conclude that Marvel's Guardians of the Galaxy trailer enjoys the most positive feedback of the top ten most engaged ads, though most other brands received a neutral response.



*Note: Though Tubi may have received a mostly negative response, scaling on the y-axis will prove that the response from the Twitter community was neutral.

Key Findings:

Limit Break was the top-performing ad in terms of engagement and ROI. It also had a strong positive sentiment score, making it the most notable ad in Superbowl LVII. This is likely due to the promise of providing gamers free NFTs for gameplay, an announcement publicized before the Super Bowl. Following Limit Break's engagement score are Stallone Face from Paramount+ and the Guardians of the Galaxy trailer from MARVEL.

Further, among the top ten ads in terms of ROI, 40% were trailers for movies to be released. Of these ads, 75% had a positive sentiment score. This follows trends that have existed for years; movie trailers released during the Super Bowl generally perform well, mainly when linked to already established and beloved franchises.