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BRAND ANALYSIS USING TWITTER

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Executive Summary:

This report presents findings from an exploratory analysis of Twitter data aimed at understanding public sentiment towards Nike. The analysis encompassed sentiment analysis, text analytics, topic modelling, and micro-influencer identification.

The analysis methodology employed a systematic approach to explore Twitter discussions about the Nike brand. Initially, the Nike Twitter dataset was processed in Google Colab to ensure data quality. Preprocessing involved removing irrelevant columns and standardising text by eliminating unnecessary keywords. Text analytics techniques were then utilised to extract descriptive words related to Nike and identify prevalent themes. Sentiment analysis using NLTK and TextBlob libraries revealed a predominantly positive sentiment among users. Topic modelling further unveiled five distinct themes, including discussions on Nike sneakers, fashion finds on eBay, and specific product releases.

Micro influencer selection was based on engagement, audience reach, sentiment, and verification status. Among verified accounts, author_id 130548917 emerged as the most promising micro influencer for Nike, boasting high engagement, significant audience reach, and content alignment with the brand. While other verified accounts exhibited positive sentiment, their engagement metrics were comparatively lower, reinforcing author_id 130548917's suitability as a micro influencer. This comprehensive approach ensured the precise selection of an influential voice aligned with Nike's branding and marketing objectives.

Methodology:

This section describes the comprehensive methodology used in the analysis process. Initially, the Nike Twitter dataset was loaded into Google Colab, a cloud-based Python environment for data analysis. Data preprocessing was carried out as a first step to ensure the dataset's quality and suitability for analysis. This entailed removing columns like "language," which were not required for the analytical objectives. Furthermore, 977 of the 3000 rows in the dataset had null values, so the 'location' column was removed. Following that, we performed standardisation by removing keywords that were not required for our analysis, such as 'nike' and 'http'.

Following that, text analytics techniques were used to identify descriptive words related to Nike and Twitter discussions. The methodology entailed preprocessing tweet text to tokenize and filter out stopwords and custom words like "http" and "nike". Then, Lemmatization was used to standardise word variations and improve keyword extraction accuracy. Descriptive keywords containing the term "brand" were extracted from the preprocessed text and tallied to determine the most frequently mentioned words. This frequency analysis provided insights into the predominant themes and attributes associated with the Nike brand in the Twitter dataset, allowing for a better understanding of consumer perceptions and discussions about brand identity.

Sentiment analysis is essential for understanding consumer attitudes and opinions about brands. The NLTK (Natural Language Toolkit) and TextBlob libraries were used to perform sentiment analysis. These libraries helped analyse sentiment polarity in tweets, categorising them as positive or negative based on polarity scores (polarity scores $>= 0$ are positive, polarity scores < 0 are negative). Additionally, stop words were removed to improve analysis. These results were then visually presented to represent sentiment toward Nike.

In addition to sentiment analysis and text analytics, topic modelling was used to identify underlying themes in Twitter discussions about the Nike brand. This entailed preprocessing tweet text to remove URLs, punctuation, and stopwords, followed by tokenization with NLTK. Latent Dirichlet Allocation (LDA), a probabilistic generative model, was then used to identify latent topics in the tweets.

To identify potential micro-influencers for the Nike brand, a systematic approach was adopted, leveraging popularity metrics, verification status, and audience reach of Twitter users. Initially, engagement was computed as the normalised sum of favourite and retweet counts, offering insights into users' interaction levels. Verification status served as a credibility indicator, with verified users receiving priority for their authoritative status. The popularity score amalgamates these metrics, delivering a balanced evaluation of an author's impact. It aids in identifying influential voices for strategic decisions in social media marketing, serving as a compass for content strategies and influencer partnerships. Moreover, audience reach, a composite metric encompassing followers, friends, and listed count, was devised to assess users' potential impact. By ranking users based on these metrics and refining the dataset to retain only essential attributes, potential micro-influencers were discerned.

Data Description:

The dataset includes 3,000 tweets collected from Twitter that represent discussions about the Tesla brand. These tweets came from 1,145 unique Twitter users. Notably, the location information of authors was removed due to a high percentage of missing values (977 out of 3,000 entries contained null values). Verification status, which indicates whether a user's Twitter account is verified, revealed only a small portion of the dataset; only 25 users were verified, while the remaining accounts were unverified. The data covers a 9-day period, from February 23rd to March 3rd, and includes discussions. However, data for the 24th, 27th, and 28th of February, as well as the 4th of March, are missing from the dataset, leaving a temporal gap.

The following features are included in the dataset:

author_id: Unique identifier of the tweet author.

verified: Indicates whether the user is verified (verified or not).

followers_count: Number of followers the user's account has.

friends_count: Number of friends the user's account has.
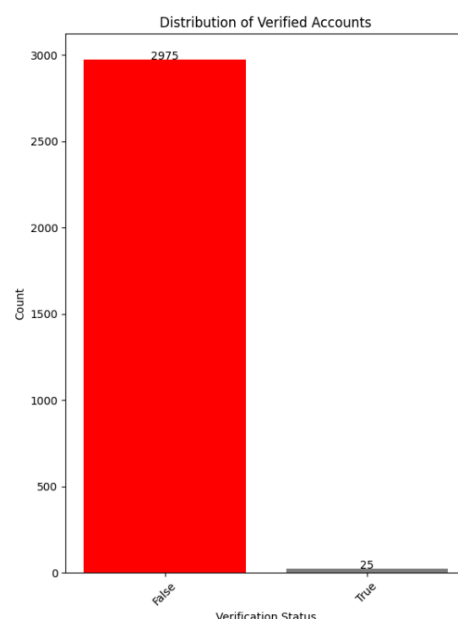
listed_count: Number of public lists the user's account has been added to. **favourites_count:** Number of statuses the user's account has favourited.
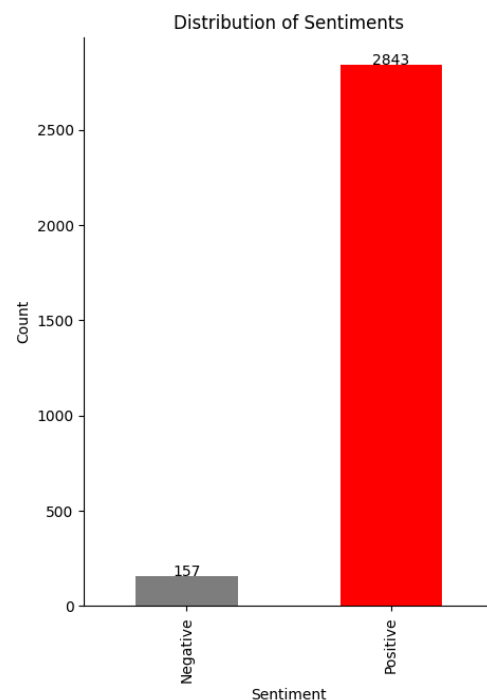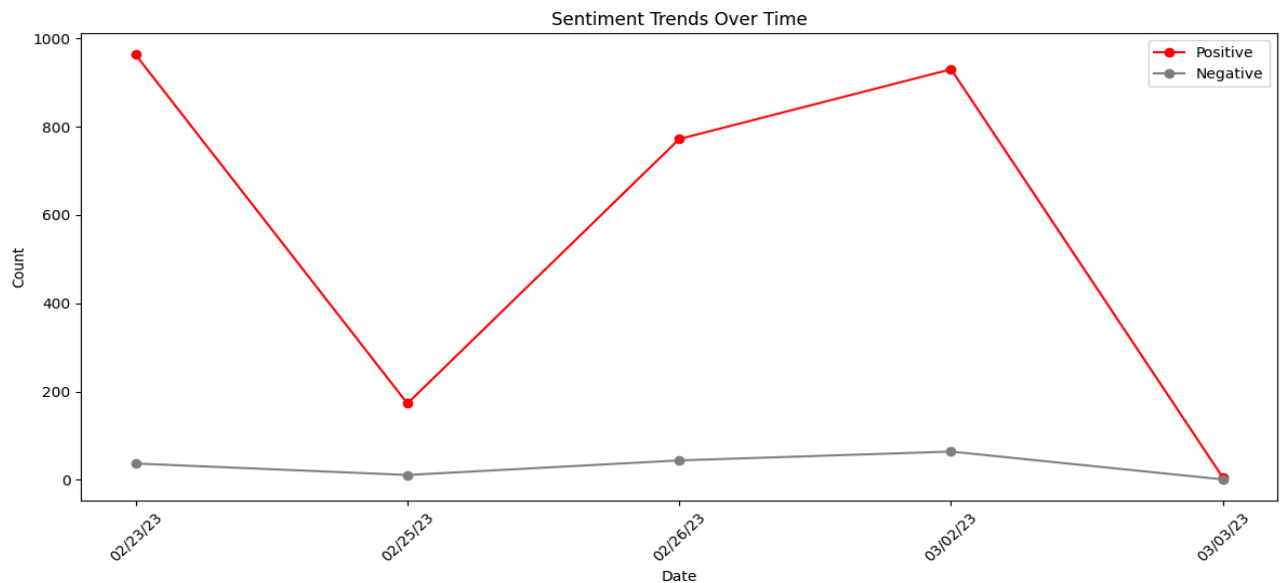
text: Text content of the tweet.

created_at: Time the tweet was posted. **retweet_count:** Number of retweets of the tweet.

favorite_count: Number of likes of the tweet.

Distribution of Verified Accounts

Brand Exploration

1. Text Analytics:

The text analytics methodologies were successfully used to identify the most common discussion topics and themes in Twitter conversations about the Nike brand. A meticulous analysis of the tweet text revealed recurring themes, including references to the brand itself, notable mentions of "Style" and "Fashion". Between February 23 and March 3, 2023, Twitter buzzed with reactions to Nike's new product launches. Highlights included the Nike Vaporfly 3 with an improved ZoomX midsole and Flyknit upper, and the Nike Streakfly, designed for 5k and 10k races. The Air Jordan line also saw new releases like the Air Jordan 4 'Bred Reimagined' and Women's Air Jordan 1 High OG 'White & Gold'. Nike's sustainable practices were noted, particularly with the Nike Zoom Fly 5's recycled ZoomX midsole.

The text analytics revealed discussions around topics which were around 'style', 'fashion', 'check', 'brand', 'design', 'shop', 'new' which reflects excitement and anticipation for these new releases, with users sharing their purchase experiences, reviews, and styling ideas. The buzz on social media underscored Nike's ongoing influence in both the athletic and fashion spheres, maintaining its reputation for innovation and style. The word cloud gives further insights on which words were used in the tweets the most.

2. Sentiment Analysis:

The sentiment analysis of Twitter discussions centred on the Nike brand revealed a strong positive sentiment among users. Using the NLTK and TextBlob libraries, the sentiment polarity of tweet text was assessed, with tweets classified as positive or negative based on polarity scores. The analysis revealed a high prevalence of positive sentiment across the dataset, with 2843 out of 3000 users expressing positive sentiment towards Nike, indicating a favourable perception among the Twitter community. While reviewing the sentiments over time we see that a strong start in positive sentiment then drops and that is likely because we have missing data for the 24th of February. Though we have 4 days of data missing Nike was able to gain an overall positive feedback irrespective.

Sentiment Trends Over Time

3.Topic Modelling:

The topic modelling analysis revealed five distinct topics prevalent in Twitter discussions about the Tesla brand. This captures the essence of the tweet and gives us valuable insights regarding the brand. It also confirms certain findings in the text analytics and the products that Nike launched during the 9 day period.

Topic 1: Sneaker Enthusiasts

Twitter was abuzz with discussions about Nike sneakers, particularly the Jordan 13 Air model. Users were engaging with hashtags like #shoes, #buy, #tagowear, #tagolife, #tagoteenet, and #bishop, indicating a focus on purchasing and lifestyle associated with these shoes. The mention of "Jordan 13 Air" suggests that people were specifically interested in this iconic sneaker model which was relaunched and given a new look. It's likely that users were sharing their excitement about owning or wanting to buy these sneakers, discussing their features, style, and perhaps even sharing photos or links to where they can be purchased. The hashtags indicate a community of sneaker enthusiasts, with "tagolife" and "tagoteenet" possibly suggesting a youth-oriented, trendy lifestyle associated with wearing Nike shoes. Overall, the Twitter discussions seem to revolve around the excitement and passion for Nike sneakers, particularly the Jordan 13 Air model, within a community of enthusiasts sharing their experiences and interests.

Topic 2: Men's Fashion Finds on eBay

The second topic revolves around Nike's men's fashion offerings on eBay. Users delved into topics like size availability, style variations, and the convenience of online shopping. Whether it was snagging the latest sneakers or scoring trendy apparel pieces, the consensus seemed to be that eBay was the go-to platform. Fashion enthusiasts shared their excitement about finding unique Nike items, emphasising the ease and accessibility of the online sale experience. From classic styles to limited editions, the Nike presence on eBay appeared to cater to a diverse range of tastes and preferences in the world of men's fashion. A lot of importance is given to Men's Fashion.

Topic 3: Nike's Black Air Dunk 1 Low White Jordan Sneakers

In the third topic the conversation surrounding Nike's latest release, the Black Air Dunk 1 Low White Jordan sneakers for men, is buzzing. Sneakerheads and fashion enthusiasts alike are sharing their

excitement and opinions on these iconic kicks. From discussing the sleek design to debating their potential resale value, the chatter is non-stop. Some are expressing their eagerness to cop a pair, while others are critiquing the colour scheme. Overall, it's clear that these sneakers have sparked a significant amount of interest and debate within the sneaker community on Twitter.

Topic 4: Nike's Fashionable Footprint
Topic 4 has users discussing about Nike's fashion appeal, evident from hashtags like #fashion and #style. Amidst the flurry of tweets, the words "good," "share," and "loving" indicate a positive sentiment towards Nike's offerings. The mention of "shopmycloset" and "poshmarkapp" suggests users are keen on sharing and shopping for Nike items, possibly indicating a thriving resale market for the brand's products. This Twitter chatter underscores Nike's enduring influence in the fashion world, with users actively engaging in showcasing, sharing, and acquiring Nike apparel and accessories. Whether it's the latest sneakers or trendy sportswear, Nike seems to have captured the attention and admiration of fashion-forward individuals across social media platforms, solidifying its status as a coveted brand in the realm of style and shopping.

Topic 5: Nike Air Jordan Sneakers: A Social Media Craze
Topic 5 users are buzzing about Nike Air Jordan sneakers, with hashtags like #kotd (kick of the day) and #sneakerhead dominating the conversation. Sneaker enthusiasts proudly showcase their latest acquisitions, emphasising individuality with tags like #yoursneakersaredope. The release of new models ignites fervent discussion, evident in hashtags such as #snkrs and #snkrsliveheatingup. Whether it's commemorating a special day like #sneakersday or simply celebrating the timeless appeal of Air Jordans, Twitter is ablaze with sneaker culture. Fans eagerly engage in conversations, sharing their personal favourites and anticipating upcoming releases. The community's passion for sneakers extends beyond mere footwear; it's a lifestyle, a statement of identity, and a source of excitement that transcends generations. Nike's Air Jordan line continues to captivate audiences, both on social media and in the world of fashion.

The above topics highlighted the latest launched products of Nike between February 23 and March 3, 2023. The highlights included the Nike Vaporfly 3 with an improved ZoomX midsole and Flyknit upper, and the Nike Streakfly, designed for 5k and 10k races. The Air Jordan line also saw new releases like the Air Jordan 4 'Bred Reimagined' and Women's Air Jordan 1 High OG 'White & Gold'. Nike's sustainable practices were noted, particularly with the Nike Zoom Fly 5's recycled ZoomX midsole. This also stirred up discussions on the old models and versions on Nike which were the Nike's Black Air Dunk 1 Low White Jordan Sneakers and the Nike Air Jordan sneakers.

Topics in Brand Tweets
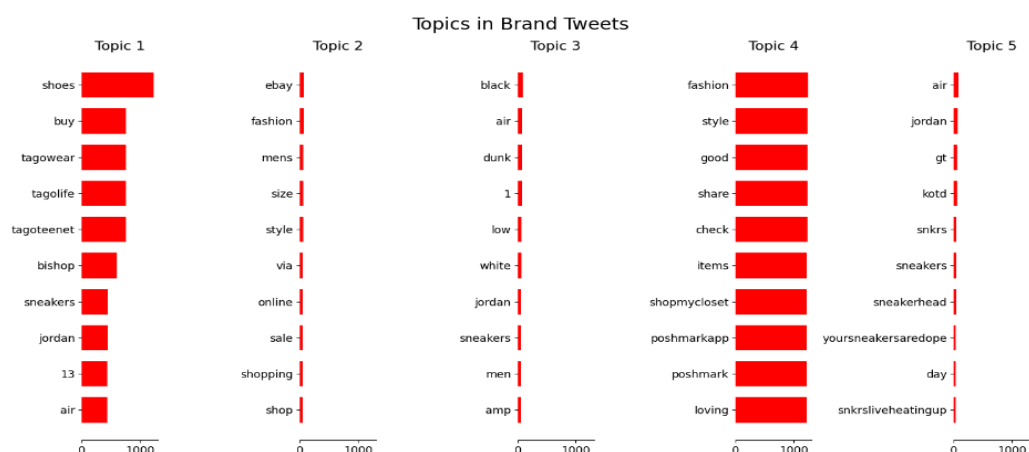
Micro Influencer Selection:

A micro influencer is an individual who possesses a modest yet dedicated following on social media platforms, typically ranging from a few hundred to tens of thousands of followers. What distinguishes micro influencers from larger influencers or celebrities is the highly engaged and niche audience they attract. These individuals are often perceived as more relatable and authentic by their followers, as they tend to specialise in specific topics or interests such as fitness, beauty, travel, or niche hobbies. Brands are increasingly turning to micro influencers for partnerships and collaborations, recognizing the value of their engaged and loyal communities for targeted marketing campaigns.

The features selected to assign a micro influencer for Nike are as follows: **Engagement** is assessed by summing likes and retweets, then normalised against followers, indicating audience interaction. **Audience reach** is determined by aggregating followers, friends, and listed counts, offering insights into an author's network size and influence potential. The **popularity score** amalgamates these metrics, delivering a balanced evaluation of an author's impact. It aids in identifying influential voices for strategic decisions in social media marketing, serving as a compass for content strategies and influencer partnerships. By quantifying both the depth of audience engagement and the breadth of reach, the popularity score provides a comprehensive understanding of an author's digital influence landscape. Other features included the sentiment of the tweet, the verification of the author and the follower count below 10,000 followers to aid with the precise selection in the micro influencer.

Among the verified accounts, **author_id 130548917** has been selected to be a micro influencer. With a high followers_count of 93,023 and a favourable sentiment in their post, they have an impressive audience reach of 96,119 and a popularity score of 48,060, indicating significant influence and engagement within their community. Additionally, their content seems aligned with Nike's branding and products, making them a potentially valuable partner for the brand. While other verified accounts also exhibit positive sentiment and decent audience reach, their engagement metrics are comparatively lower. For instance, author_id 1050000000000000000 has a followers_count of 29,786 and a popularity score of 15,116, which, although respectable, falls short of the engagement levels seen with author_id 130548917. Similarly, the other verified accounts have even lower engagement and audience reach metrics. Therefore, based on the provided data, author_id 130548917 stands out as the most promising micro influencer for Nike, offering a compelling combination of high engagement, significant audience reach, and alignment with the brand's values and products.

Conclusion:

The analysis of Twitter discussions surrounding the Nike brand unveils a vibrant landscape characterised by positive sentiment, diverse topics, and potential micro-influencers. Nike emerges as a dominant force in the Twitter community, with users expressing enthusiasm and admiration for its products and initiatives. The analysis identifies prevalent themes such as product launches, fashion trends, and sustainability efforts, shedding light on the brand's resonance with consumers. Among the plethora of voices, **author_id 130548917** emerges as a compelling micro-influencer candidate. With a significant following, high engagement, and alignment with Nike's ethos, they possess the potential to amplify the brand's message effectively.

To enhance this analysis, it's imperative to broaden the scope of data collection. Extending the timeframe and including a more diverse range of Twitter users would provide a more comprehensive understanding of Nike's brand perception and discussions. This continuous monitoring of social media conversations would enable businesses to stay attuned to evolving consumer sentiments and preferences, informing strategic decision-making and brand positioning efforts effectively.