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Manimegalai D
Assistant Professor, Department of Management Studies, SRM Arts and Science College, Kattankulathur, Tamil Nadu, India

Vishwaa Srinivas V
Student, Department of Management Studies, SRM Arts and Science College, Kattankulathur, Tamil Nadu, India

Corresponding Author:
Manimegalai D
Assistant Professor, Department of Management Studies, SRM Arts and Science College, Kattankulathur, Tamil Nadu, India

Sentiment analysis on the brand recall of twitter data with the tool of NCSU tweet sentiment visualization

Manimegalai D and Vishwaa Srinivas V

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Abstract
Social media have gained increased attention in recent years. Social networking platforms are commonly utilised to share and spread opinions on a wide range of subjects, both publicly and privately. Twitter is a social networking platform that is becoming more and more popular. Businesses now have a rapid and effective way to study client opinions on topics that are essential to their marketability via Twitter. A method to computationally measuring customer perceptions is to create a programme for sentiment analysis. This study presents the concept of a sentiment analysis that extracts sentiment from a sizable number of tweets. The results divide consumers' opinions of brand memory via tweets into two categories: pleasant and unpleasant, which are depicted in a matrix and affinity diagram. The research did intend to determine consumer perceptions of brand recall, but due to NCSU's limitations regarding the data that can be pulled from Twitter; this approach will need to be used in conjunction with other social media and e-commerce platforms going forward.

Keywords: Sentiment analysis, brand recall, twitter, NCSU

Introduction
As reported by Rambocas and Gama (2013) [1], millions of people use social networking sites as a way to communicate their ideas, and details about their everyday life. However, a wide range of subjects are written about by people, including reviews of products and social gatherings. Users can instruct and sway others through the interactive forums provided by online communities. Social media gives companies an opportunity to engage with their customers by providing an avenue for doing so. For example, businesses can advertise on social media or speak with customers directly to learn what they think of certain goods and services. Contrarily, consumers have unlimited control over whatever they would like to see and the way they react. As a result, the company's achievements and shortcomings are made known and circulated via word of mouth. Social networking sites; however, has the power to persuade consumer behaviour and choice-making. For example, (Jose, Bhatia, and Krishna, 2010) [2] mention that 87% of users of the internet are affected by customer reviews when making a purchase or decision. Therefore, it would be more advantageous for organisations to organise to respond promptly and develop a strong plan to compete with their opponents if they can catch up quicker on what their customers think.
Businesses and other data collectors face challenges even though they have access to software that can gather information on an individual's view of a good or service. The study's goals were to analyse brand recall sentiment in order to analyse Twitter customer feedback on a company's product and to examine customer reviews in order to help an organisation come up with a new marketing plan.

Review of Literature
Twitter is the perfect platform for gathering public opinion on particular topics (Osimo and Mureddu, 2010; Lohmann *et al*. 2010) [3, 5]. The main dataset for sentiment analysis, also known as opinion mining or natural language processing (Rambocas and Gama, 2013) [1], is a corpus of tweets.

Twitter has quickly developed into a key resource for businesses looking to manage their image and brands by extracting and measuring public opinion towards their goods or services, and even competitors (Saif *et al*. 2011) [6]. Twitter has 500 million users and millions of tweets posted every day. According to Jose *et al*., 2010 [2], the internet has become the fastest, most exhaustive, and easiest to use medium for sentiment analysis because of the tremendous expansion of the internet and the opinions generated by social media, which have produced massive amounts of opinion texts that can be examined and investigated in the form of messages, feedback, blog posts, or any other group conversations and communities.

An examination of Twitter sentiment Indicators of sentiment can be discovered in tweets or comments, which are helpful for a variety of purposes (Annett and Kondrak, 2009) [7]. Furthermore, according to Saif *et al*, 2011 [6]; ---, 2012, an emotion can be divided into two categories: words that are negative and those that are positive. An approach of NLP called sentiment analysis enables you to gauge the sentiment or expressed opinions in a sample of tweets (Carpenter and Way, 2010) [9]. The technique of distinguishing subjectivity and polarity from a text's or phrases semantic direction, which is determined by the strength of its words and polarity, is known as sentiment analysis (Taboada *et al*., 2011) [10]. The two main methods for automatically extracting sentiment are those that rely on a dictionary and those that use machine learning (Taboada *et al*., 2011; Annett and Kondrak, 2009; Goncalves *et al*, 2013; Kouloumpis *et al*, 2011; Sharma, 2008) [10, 11, 12, 13, 14].

Brand recall, or consumers' capacity to recall a brand when given a product category, is one of the two methods by which consumers can re-identify a brand from a certain category, (Noer *et al*., 2020) [16]. Based on knowledge that can be retrieved from a consumer's stored information in memory, it works. Additionally, name recognition is another method. You could help or not help a company recall. A consumer's memory is aided when they are provided the brand name, whereas unaided recall occurs when they are given an unbranded item and are expected to remember the brand name. By posing pertinent brand-related queries during surveys or interviews, it is evaluated (Fischer, 2019) [17]. According to Srivastava and Dorsch (2019) [22], the major goal of a brand recall is to increase consumer interest in the company's products and maintain that interest until the products run out or start to degrade. The goal of contemporary marketing is to increase profits while fostering long-term relationships with customers that will benefit both parties. The company wants to increase market awareness of its product and service offerings and buy intentions. Promotion and advertising, as Khurram *et al*. (2018) [20] explained, cause consumers to remember a brand or product right away, encouraging them to buy it. Brand recall, which measures brand awareness, has a significant positive effect on real purchases. (Priyanka Dash, 2022) [15].

Methodology

In this study the data pulled from the twitter for sentiment analysis technique of NCSU. In that the retrieved data analysed through various methods like sentiment, topics, heat map, tag cloud, timeline and also used Russell's model of emotional effect and social media analytics.

Results and Discussions

"An attitude, thought, or judgement prompted by feeling" is the definition of sentiment. This tool primary objective is to create a visualisation that displays the text's fundamental emotional characteristics along with an indicator of how confident we are in our predictions. "Sentiment analysis, n.d"

Emotional models have been put forth in psychology to describe and contrast different emotional states. These models frequently place feelings on a 2D plane using emotional dimensions. The most basic versions depict pleasure as a horizontal axis with various degrees of pleasure in between highly unpleasant and highly pleasant experiences. More complicated versions incorporate multiple dimensions. For instance, Russell suggested creating an emotional circumplex of affect by combining valence (or joy) and arousal (or activation). Russell created the model on the left by using the multidimensional scaling method to assess position 28 emotional states. Valence and arousal are represented by the vertical and horizontal axes, respectively. The polar opposites of the intermediate valence and arousal states are the words excited-depressed and distressed-relaxed, respectively. Watson and Tellegen, who suggested a model with axes of positive and negative valence, Thayer, who proposed a model with axes of tension and energy, and Larsen and Diener, who proposed a model with axes of pleasure and activation that was similar to Russell's. "Sentiment analysis, n.d"

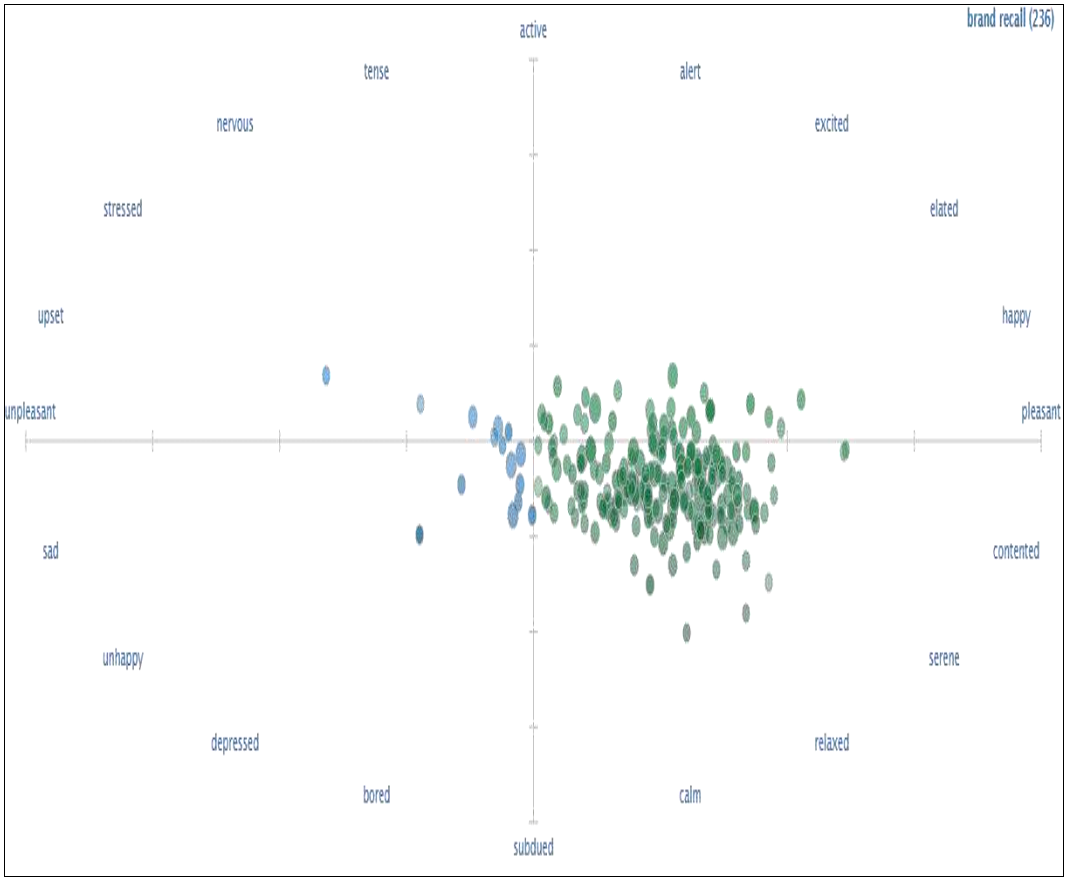

Fig 1: Sentiment of brand recall

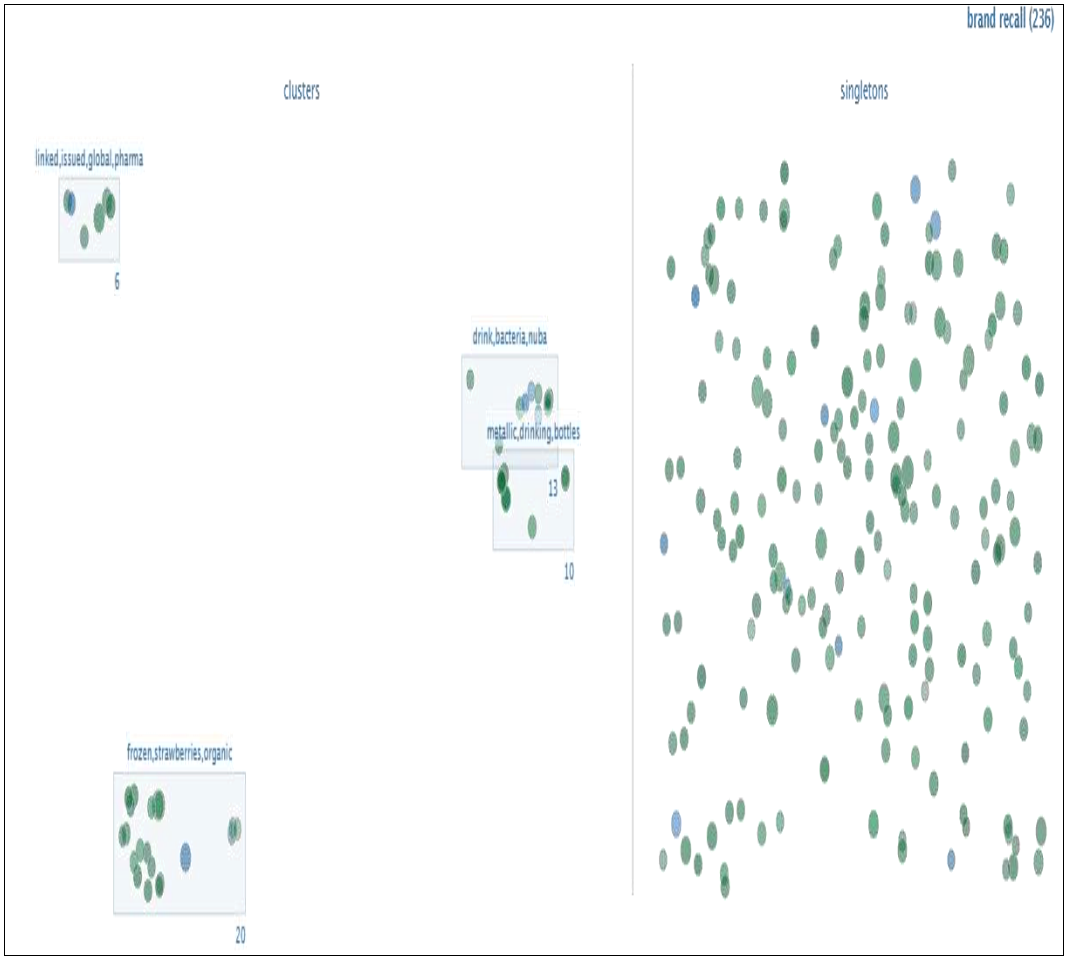

Fig 2: Cluster of brand recall

Fig.1. A circle that represents each tweet is positioned in line with its sentiment, indicating an assessment of the emotion it expresses. Happy tweets are shown by green circles on the left, whereas unpleasant tweets are indicated by blue circles. Active messages are shown by brighter and darker circles, respectively, at the top and bottom. Fig.2 represents the topic groups are collections of related tweets. A cluster's subject is indicated by keyword of brand recall above it. Tweets that are not associated with a subject are shown on the right as singletons.

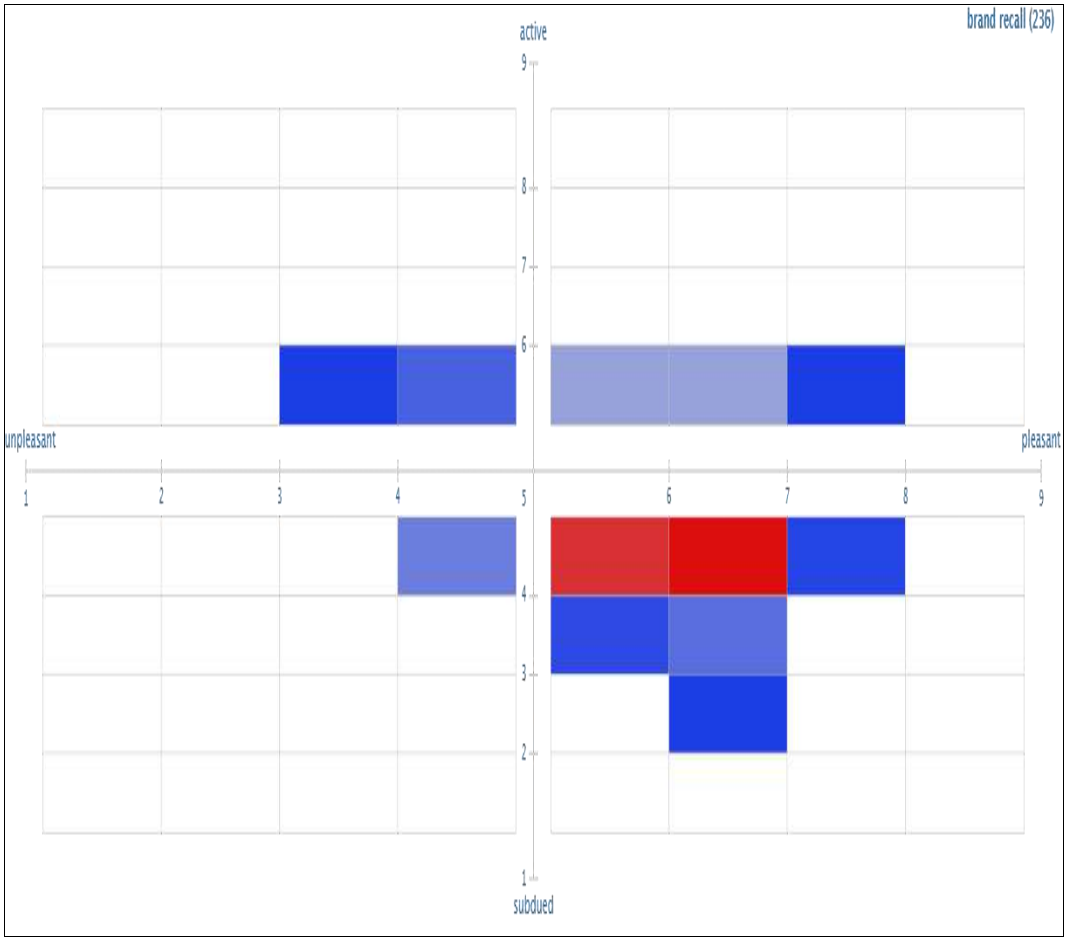

Fig 4: Tag cloud of brand recall

Fig 3: Heat map of brand recall

An 8×8 grid is used to categorise emotion using pleasure and arousal. The number of tweets in each grid cell determines its colour, with red denoting an excess and blue denoting an under abundance. White cells contain no remarks. The words in the image stand in for the emotional states of upset, joy, relaxation, and unhappiness. It is more common to utilise bigger terms.

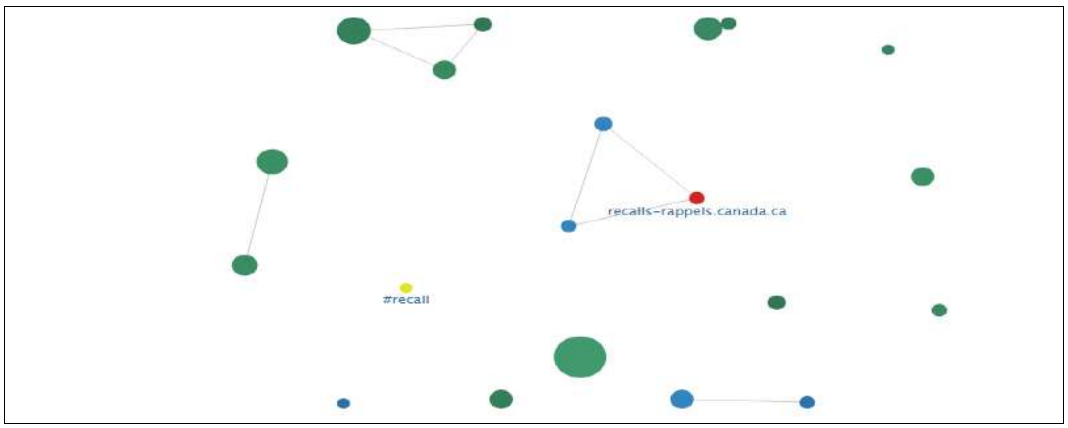

Fig 5: Affinity of brand recall

In order to depict key players in the tweet set and any connections or affinities they may have with one another, frequent tweets, users, hash tags, and URLs are plotted in a graph. Red nodes stand in for URLs, while orange nodes stand in for individuals, yellow nodes for hash tags, and blue and green nodes for tweets. Greater nodes display components more frequently. Links between nodes draw attention to connections, such as similarities between tweets or the occurrence of certain hash tags and individuals in a group of tweets.

Conclusion

Sentiment investigation can be used to evaluate influencer marketing initiatives and help businesses make informed choices. The study's goals are to determine an influencer's propensity for creating or upgrading intangible assets and to offer helpful information for companies wishing to work with the best influencer for their campaigns. The researcher used conceptual demonstration and secondary data from dependable secondary sources to analyse and draw inferences. Social media is the next reliable marketing sector. Twitter is currently in second place behind Facebook in terms of advanced ads. Despite the obvious advantages that these networks offer, websites like YouTube and Myspace are less well-known. We look into how different internet marketing strategies affect company responsiveness. The goal of this study is to determine how sentiment analysis in social media impacts company expansion. The majority of the 236 tweets about brand recall that were pulled from Twitter for this research were pleasant. One can make a purchasing decision based on the general public's perception of a good or service. The polarity of the public opinion can be ascertained by processing and analysing feedback from social media and online reviews. Further research can be carried out on specific products on the e-commerce platform and in social media.

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Reference

1. Rambocas M, Gama J. Marketing Research: The Role of Sentiment Analysis. The 5th SNA-KDD Workshop'11. University of Porto; c2013.
2. Jose AK, Bhatia N, Krishna S. Twitter Sentiment Analysis. National Institute of Technology Calicut; c2010.
3. Osimo D, Mureddu F. Research Challenge on Opinion Mining and Sentiment Analysis, Proceeding of the 12th conference of Fruct association, United Kingdom; c2010.
4. Pak A, Paroubek P. Twitter as a Corpus for Sentiment Analysis and Opinion Mining, Special Issue of International Journal of Computer Application, France: Universitede Paris-Sud; c2010.
5. Lohmann S, Burch M, Schmauder H, Weiskopf D. Visual Analysis of Microblog Content Using Time-Varying Co-occurrence Highlighting in Tag Clouds, Annual conference of VISVISUS. Germany: University of Stuttgart; c2012.
6. Saif H, He Y, Alani H. Semantic Sentiment Analysis of Twitter, Proceeding of the Workshop on Information Extraction and Entity Analytics on Social Media Data. United Kingdom: Knowledge Media Institute; c2011.
7. Annett M, Kondrak G. A Comparison of Sentiment Analysis Techniques: Polarizing Movie Blogs, Conference on web search and web data mining (WSDM). University of Alberia: Department of Computing Science; c2009.
8. Prabowo R, Thelwall M. Sentiment Analysis:A Combined Approach, International World Wide Web Conference Committee (IW3C2); c2009. United Kingdom: University of Wolverhamption.
9. Carpenter T, Way T. Tracking Sentiment Analysis through Twitter, ACM computer survey. Villanova: Villanova University; c2010.
10. Taboada M, Brooke J, Tofiloski M, Voll K, Stede M. Lexicon Based Methods for Sentiment Analysis, Association for Computational Linguistics; c2011.
11. Annett M, Kondrak G. A Comparison of Sentiment

Analysis Techniques: Polarizing Movie Blogs, Conference on web search and web data mining (WSDM). University of Alberia: Department of Computing Science; c2009.
12. Goncalves P, Benevenuto F, Araujo M, Cha M. Comparing and Combining Sentiment Analysis Methods; c2013.
13. Kouloumpis E, Wilson T, Moore J. Twitter Sentiment Analysis: The Good the Bad and the OMG!, International AAAI; c2011, 5.
14. Sharma S. Application of Support Vector Machines for Damage detection in Structure, Journal of Machine Learning Research; c2008.
15. Priyanka Dash, Jyotirmaya Mishra, Suresh Dara. Sentiment Analysis on Social Network Data and Its Marketing Strategies: A Review, ECS Transactions. 2022;107(1):7417.
16. Noer KU, Madewanti NLG. Toomany Stages, Too Little Time: Bureaucratization and Impasseinthe Social Safety Net Program in Indonesia. Jurnal Studi Pemerintahan. 2020;11(3):270-300.
17. Fischer VK. Unaided and aided brand recall in podcast advertising: An experiment in the role of source credibility's impact on brand message efficacy. Texas State University, San Marcos, Texas; c2019.
18. Noer LR, Putra SW, Hartini S. Funny Moments of Friendship Lead to Medicine Brand Recall Recommendation (Evidence in Indonesian Humor). Systematic Reviews in Pharmacy. 2020;11(11):1298-1308.
19. Dedeoğlu BB, van Niekerk M, Küçükergin KG, de Martino M, Okumuş F. Effect of social media sharing on destination brand awareness and destination quality. Journal of Vacation Marketing. 2019;26(1):33-56. https://doi.org/10.1177/1356766719858644
20. Khurram M. The Role of Brand Recall, Brand Recognition and Price Consciousness in Understanding Actual Purchase. SSRN; c2018. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3215875
21. Sentiment Analysis, NCSU Tweet Sentiment Visualization, accessed 26 March 2023,https://www.csc2.ncsu.edu/faculty/healey/tweet_viz/
22. Nanta R, Shrivastava A, Sharma J, Shankar S, Srivastava RK. Inhibition of sonic hedgehog and PI3K/Akt/mTOR pathways cooperate in suppressing survival, self-renewal and tumorigenic potential of glioblastoma-initiating cells. Molecular and cellular biochemistry. 2019 Apr 15;454:11-23.