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# A Survey on Sentiment analysis of Twitter using Machine Learning

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**ABSTRACT:** Twitter is a popular social media site where users can share their thoughts and feelings on a variety of topics. Sentiment analysis is a method of analyzing data and retrieving the sentiment it contains. Twitter sentiment analysis is the application of sentiment analysis to Twitter data (tweets) to extract the user's expressed sentiments.

The study in this sector has steadily increased during the last few decades. The reason for this is the tweets' complex format, which makes processing tough. Because the tweet format is so short, it introduces a whole new set of issues, such as the use of slang and abbreviations. In this study, we will cover some papers on Twitter sentiment analysis research, including the methodology used and models used, and describe a generalized Python-based approach.

**KEYWORDS:** Machine Learning, Sentiment Analysis, Tweet Classify 4

## I. INTRODUCTION

Nowadays, people from all around the world use social media sites to share information. Twitter for example is a platform in which users send, and read Sentiment Analysis Of Twitter Using Machine Learning: A Survey post known as 'tweets' and interact with different communities. Users share their daily lives and post their opinions on everything such as brands and places. Companies can benefit from this massive platform by collecting data related to opinions on them. This system aims to present a model that can perform sentiment analysis of real data collected from Twitter. Data on Twitter is highly unstructured which makes it difficult to analyze. online social media such as Twitter, Facebook, and Instagram allow users to communicate with the whole world.

Write their own opinions about products or share their moments, even influence politics and companies. Twitter, for example, almost every huge company have an account on Twitter to know about their customer's feedback about their services or products. Sentiment analysis, known as opinion mining, for classifying specific words into positive or negative. 2.

## II. LITERATURE SURVEY

### 1. Sarcasm Detection in Twitter using Sentiment Analysis Author: Bala

Durga Dharmavarapu, Jayanag Bayana

In the proposed methodology Sentiment Analysis, Naive Bayes classification, and AdaBoost algorithms are used to detect sarcasm on Twitter. By using the Naive Bayes classification, the tweets are categorized into sarcastic and non-sarcastic.

Sarcasm is a subtle type of irony, which can be widely used in social networks. It is usually used to transmit hidden information to criticize and ridicule a person and to recognize. The sarcastic reorganization system is very helpful for the improvement of automatic sentiment analysis collected from the different social networks and microblogging sites. Sentiment analysis refers to internet users of a particular community, expressed attitudes and opinions of identification and aggregation. In this paper, to detect sarcasm, a pattern-based approach is proposed using Twitter data. Four sets of features that include a lot of specific sarcasm are proposed and classify tweets as sarcastic and non-sarcastic. The proposed feature sets are studied and evaluate its additional cost classifications

### 2. TweetAnalyzer: Twitter Trend Detection and Visualization Author: Zeel Doshi, Subhash

Nadkarni, Kushal Ajmera, Prof. Neepa Shah

Twitter can be identified as one of the largest social networking sites. A large number of users have accepted Twitter as a universal platform for spreading news, sharing articles, and socializing with other people globally. Subsequently, such a high-volume, high-velocity surge of Twitter data generated at each second has the potential of being utilized for significant analytical and interpretation purposes. The objective of this paper is to demonstrate an easy and simple solution, called Tweet- Analyzer. We propose a system to extract real-time Twitter data and represent the trending Twitter hashtags and active users on a bar graph.

TweetAnalyzer also makes use of the user's current location coordinates to represent the tweets on a world map. The proposed system can be easily deployed and used for various real-world applications such as job search, news updates, and business intelligence

### 3. Investor Classification and Sentiment Analysis Author:

Arijit Chatterjee, Dr. William Perrizo

Twitter can be identified as one of the largest social networking sites. A large number of users have accepted Twitter as a universal platform for spreading news, sharing articles, and socializing with other people globally. Subsequently, such a high-volume, high-velocity surge of Twitter data generated at each second has the potential of being utilized for significant analytical and interpretation purposes. The objective of this paper is to demonstrate an easy and simple solution, called Tweet- Analyzer. We propose a system to extract real-time Twitter data and represent the trending Twitter hashtags and active users on a bar graph.

Tweet Analyzer also makes use of the user's current location coordinates to represent the tweets on a world map. The proposed system can be easily deployed and used for various real-world applications such as job search, news updates, and business intelligence

### 4. Survey on user emotion analysis using Twitter data

Author: G Subramaniam; R. Aswini; M. Ranjitha; Praveen Kumar Rajendran Sentiment Analysis Of

Twitter Using Machine Learning: A Survey

The main concept of our survey website is to update information automatically by analyzing Twitter data. We are using social media as the base to survey the data and find the trending topics which were popularly going on. The information which is widely going on Twitter will be updated on the server as a trending topic on our surveying website. The data

on Twitter will be analyzed and the reactions given by every tweet will be examined. which the sentimental analysis is used here to find the different types of reactions given in every tweet. By inspecting the reactions to the tweet, the information will be updated accordingly to it. the authority to the number of reactions to the tweet will be arranged in the levels of trending order. The main purpose of our website is to update the information automatically without any manpower the trending topics are displayed and in the popular trending order.

5. Real-time opinion mining of Twitter data using spring XD and Hadoop Author: Rashid

Kamal; Muna Ali Shah; Asad Hanif; J Ahmad

Big data have emerged as one of the fascinating areas of research in the last few years. The demand for research shows that it will further grow in the next years to come. Big data mainly came into existence because of the rapid growth of social media. Twitter has appeared to be one of the most popular social media over the Internet. Twitter receives tens of millions of tweets per day, creating huge data in unstructured form, a lot of research has been carried out to extract useful information from Twitter raw data. It also exhibits the sentiment of the people on specific topics. However, this huge data repository is unstructured and offers itself many research areas. several researchers have attempted to extract useful information from this unstructured data for various applications.

6. Sentiment Analysis of Twitter Corpus Related to Artificial Intelligence Assistants

Author:Chae Won Park; Dae Ryong Seo

Providing an enhancing experience is one of the most significant current issues in the user's research. A process that improves user experience should be required to evaluate the usability and emotion. Above all, sentiment analysis based on user opinions can be used to understand user tendencies. This paper aims to make a criterion of what artificial intelligence assistant is statistically better. User's opinions about three artificial intelligence assistants from Twitter were collected and classified into positive, negative, and neutral opinions by a lexicon named Valence Aware Dictionary and sEntiment Reasoner (VADER). Also, we analyzed tweets through independent samples T-test, Kruskal-Wallis test, and Mann-Whitney test to show the statistical significance among Sentiment Analysis Of Twitter Using Machine Learning: A Survey groups. The results suggested the highest rank of the three artificial intelligence assistants by using statistical analysis

7. Real-Time Sentiment Analysis Of Twitter Posts Author: Anupama BS;

Rakshith D B; Rahul Kumar M; Navneeth M

Sentiment analysis refers to the application for processing natural language, text analysis, computational linguistics, and biometrics to methodically recognize, extract, quantify, and learn affective states and subjective information. Twitter, being one among several popular social media platforms, is a place where people often choose to express their emotions and sentiments about a brand, a product, or a service. Analyzing sentiments for tweets is very helpful in determining people's opinions as positive, negative, or neutral.

This paper evaluates people's sentiments about a person, trend, product, or brand. Twitter API is used to access the tweets directly from Twitter and build a sentiment classification for the tweets. The outcome of the analysis is depicted for positive, negative, and neutral remarks about their opinions using visualization techniques such as histogram and Pie chart

8. Sentiment Analysis of Twitter Data in Online Social Network Author: Sanjeev

Dhawan; Kulvinder Singh; Priyanka Chauhan

Sentiment Analysis is the procedure of computationally deciding if a bit of composing is certain, negative, or nonpartisan. It's otherwise called supposition mining, inferring the sentiment or frame of mind of a user. In this paper, an attempt has been made to propose an analysis method for the sentiment of a Twitter dataset. In the proposed method polarity of each tweet is calculated to distinguish whether a tweet is positive or negative. A sentiment polarity is the emotions of the user such as anger, sadness, and joy. The proposed mechanism has been implemented in Python



9. Sentiment Analysis In Twitter Using Lexicon Based and Polarity Multiplication Author: Kusrini;

Mochamad Madhuri

Twitter is one type of social media that is often used. Users use Twitter to convey their tweets to the general public. The number of Twitter users has reached 330 million people worldwide. Besides that, on Twitter, some tweets can be sentiments. The Sentiment itself can be defined as policy, opinion, logic, mud, etc. Therefore, sentiment analysis is determining the polarity or type of opinion in a predetermined text or subject. NLP Sentiment Analysis Of Twitter Using Machine Learning: A Survey(Natural Language Processing) technique is used to support the beginning of a text. The technique used in an analysis is tokenization sentiment, elimination of stop words, and stemming. This study focuses on developing sentiment analysis using lexicons and multiplication polarity. Accuracy results are still smaller than those using machine learning. Therefore, this lexicon needs to be improved in terms of its semantics.

10. Survey on Sentiment Analysis using Twitter Dataset

Author: Rasika Wagh, Payal Punde

Social networking sites like Twitter have millions of people sharing their thoughts day by day as tweets. A tweet is a characteristic short and basic way of expression. So in this review, a paper we focused on sentiment analysis of Twitter data. Sentiment Analysis sees as an area of text data mining and NLP.

The research of sentiment analysis of Twitter data can be performed in different aspects. This paper shows sentiment analysis types and techniques used to perform the extraction of sentiment from tweets. In this survey paper, we have taken a comparative study of different techniques and approaches to sentiment analysis having Twitter as data.

3 Module:-

Mention here only module names

Module 1 : Data Collection

Module 2 : Data Preprocessing

Module 3 : Training

Module 4 : Testing

Module 1: Data Collection

Input – Collect Tweeter Dataset.

Output - Data Collect on the Kaggle website

Module 2: Data Processing

Input – Tweet dataset import hence removing unwanted data.

Output – Successfully pre-processing dataset using python libraries and methods.

Module 3: Training

Input – Train Dataset using Machine Learning Algorithm of SVM.

Output – Train Dataset create Machine Learning SVM Model.

Module 4: Testing

Input – Test Dataset.

Output – Successfully test dataset using SVM model.

### III. CONCLUSION

Tweeter Analyzer” is presented that is implemented using simple programming concepts of Python and JavaScript. Tweeter Analyzer is capable of finding out the top ten trending hashtags and users at any given point in time and plotting them against their frequency using a bar graph. The model explained here can be extended to improve user experience, provide additional functionalities and optimize processing power. Machine Learning techniques are simpler and more efficient than Symbolic techniques. These techniques can be applied to Twitter sentiment analysis.



Classification accuracy of the feature vector is tested using different classifiers like Nave Bayes, SVM, Maximum Entropy, and Ensemble classifiers. All these classifiers have almost similar accuracy for the new feature vector.

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