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Sentiment Analysis of social media

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Abstract: Sentiment Analysis is used to determine whether a given text contains negative, positive, or neutral emotions. It's a basic form of text analysis that use the natural language processing (NLP) and machine learning (ML) techniques that are combined to assign sentiment scores to the topics, categories or entities within a phrase. It usually helps in textual data to help business monitor brand and product sentiment in customer feedback, and understand customer. It refers to the use of text mining and other technologies to extract attitudes, opinions, and other information for analysis is classifying the polarity of a given text as the document, sentence or feature of aspect level so whether the expressed option in a document, sentence or an entity feature is positive, negative, or neutral**.**

Keywords: Sentiment analysis tasks, Tasks of sentiment Analysis, Level of sentiment analysis.

I. INTRODUCTION

In today's world internet is becoming a widening expansion in social media that has been changing in our day-to-day life. From getting up from sleep till going back, social media and internet is becoming our daily life routine. So social media has changed our communications, sharing, and obtaining information. In addition to this, companies use social media to evaluate their business performance by analysing the data, looking after it and surfing the data through conceptual analysis of identifying information helps business understand their customer's social sentiment by monitoring online conversations. In today's world online shopping is becoming a trendy way to buy or purchase our daily needs from different websites. As customer express their reviews and thoughts about the brand more openly it's easy for the brand to get communicate with the customer and know their mindset and actual needs from these any brand can get a good review and they can make their brand successful. Recent Survey tells that it's been a advancement in machine learning and deep learning that have increased the efficiency of the sentiment analysis algorithms. You can creatively use artificial intelligence and machine learning tools for doing research and draw out the analysis. For example, sentiment analysis can help you to automatically analyse 5000+ reviews about your brand by discovering whether your customer is happy or sad or satisfied with your pricing plans or customer services. Therefore, you can say that this application of sentiment is endless. The usage of multiple language are been used in day-to-day life and conversations and minimal linguistic restrictions on the online content lead to the generation of Code-Mixed data.

II. THE SENTIMENT ANALYSIS METHODS USED IN SOCIAL MEDIA

Based on the papers reviewed, all of the paper demonstrated the usage of either Machine Learning method, Lexicon based Method, or a mix of both methods when implementing sentiment analysis. The result show in conducting sentiment analysis, 8 of the reviewed paper uses the lexicon-based method, 12 papers use machine learning and 7 papers show the combination of both methods. Machine learning methods: There are multiple machine learning algorithms used for sentiment analysis like Support Vector Machine (SVM), Recurrent Neural Network (RNN), Convolution Neural Network (CNN), Random Forest, Naïve Bayes, and Long Short-Term. Machine learning falls under supervise learning and the method requires training data in order to be processed. The most used method is the SVM and Naïve bayes model. Analysing with the machine learning it is time consuming where it takes hours in the complex machine learning model especially if training is required. Lexicon method does not require any data and only depends on the dictionary. Most of the study adapted Sent wordnet TF-IDR method when conducting sentiment analysis.

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III. TYPES OF SOCIAL MEDIA PLATFORM USE TO EXTRACT DATA FOR SENTIMENT ANALYSIS

Social information services or social media can be categorized into four types based on their application usage:

A. Content Communities (YouTube, Instagram)
B. Social Networking (Facebook, LinkedIn)
C. Blogs (Reddit, Quora)
D. Micro-Blogs (Twitter, Tumblr)

Based on the reviewed paper, among the four types of social media services, micro-blogging sites specifically twitter is the top social media platform to collect information on user opinion. However, twitter also used to collect message or tweets on particular president candidate during election and collected tweets that has been written on a community development program activity. Twitter as a famous micro blogging tool social media platform for the people and to express their opinion and provide very valuable information to scholars, business organization and even the government. Facebook has it's largest social media users in the world. But it is not very popular for sentiment analysis as the data is messy, it's not structured well, and people use usually short forms and a lot of spelling mistakes happens. This makes the data from various source of social media includes ovum, blogs, expedient, blog spot, and mainstream media. Word Press, You Tube, Twitter, aggregator, Facebook, and all the results show 88% of the data comes from twitter.

IV. APPLICATION CONTEXT OF SENTIMENT ANALYSIS

The application of sentiment analysis ranges from business and marketing, politics, health to public action. Sentiment analysis can be used to predict political election where it shows the data analysed from twitter is more reliable as a platform where 94% of correlation has been found to poling the data and have the potential to become a platform that is able to sophisticated polling techniques. Sentiment analysis also creates advantage for business owners that are to identify their popularity among customer and how customer think about their product or service and assessing and capability of business brand communication and social media and evaluate their business flow of stock price through social media.

V. SENTIMENT ANALYSIS TASKS

Sentiment analysis is a challenging inter disciplinary task which includes the Natural Language Processing Web Mining and Machine learning. It is the complex task and can be decomposed into following tasks that are:

A. Subjectivity Classification
B. Sentiment Classification
C. Complimentary Tasks
D. ObjectHolderExtraction
E. Object/Feature Extraction

A. Subjectivity Classification: Subjectivity classification is the task of classifying sentence as opinionated or not opinionated.

B. Sentiment Classification: Once the task of finding whether a sentence is opinionated is done, we have to find the polarity of the given sentence that is, whether the sentence is expressive or not.

C. Complimentary Tasks: It is the combination of object holder extraction and object/feature extraction.

D. Object Holder Extraction: It is the task of opinion holder or sources.

E. Object/Feature Extraction: It is the discovery of target entity.

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VI. DIAGRAM

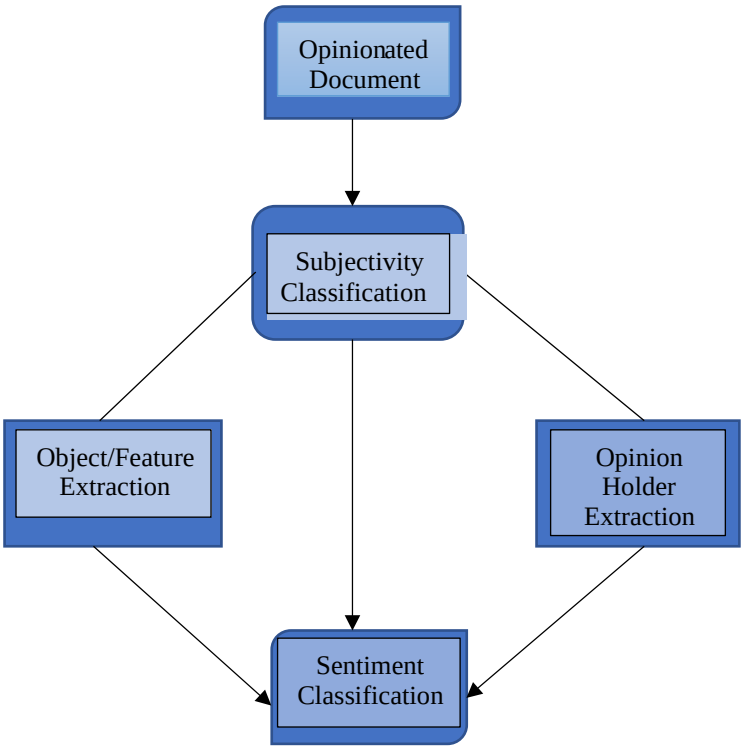

Fig. 1. Sentiment Analysis Tasks

VII. LEVEL OF SENTIMENT ANALYSIS

A. Word Level Sentiment Analysis: Word sentiment analysis basically use adjectives as their features but adverbs. Most works have their prior polarity of words and phrases for the sentiment classification.
The two methods of word level sentiment analysis are: Corpus-Based Approaches and Dictionary-Based Approaches.

B. Document Level Sentiment Analysis: The Document level sentiment analysis module analyses a piece of text and determines whether the text has a positive or negative sentiment.

C. Sentence Level Sentiment Analysis: Sentence level sentiment analysis is one of the main directions in sentiment analysis area.

D. Feature/Aspect Based Sentiment Analysis: This technique is also known as aspect level sentiment analysis, feature based sentiment analysis, simply, aspect sentiment analysis. It allows business to perform a detailed analysis of their customer feedback data, so they can learn more about their customers and create products and services that meet their needs.

VIII. DATA DESCRIPTION

In social networking sites there are microblogging service that enables users to post real time messages that's tweets, social media posts commenting like Facebook, Instagram, and reviews on online shopping. Thanks to this survey. It's been seen that individuals use acronyms, make mistakes (spelling, grammar), use emoticons and other characters that express special meanings. Social media is all about the likes, dislikes, commenting and sharing. Following may be a brief terminology related to them.

A. Emoticons: Emoticons are punctuation marks, letters, and numbers want to create pictorial icons that generally display an emotion or sentiment (That's actually where the portmanteau "emoticon" comes from: emotional icon.)

B. Hashtags: Users usually use hashtags to mark topics. It is primarily done to extend the visibility of the tweets.

C. Targets: Users of twitter use the "@" symbol to ask other users on the microblog. Concerning others users during this manner automatically alerts them.

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IX. CONCLUSION

We presented results for sentiment analysis on twitter. We use previously proposed state-of-the-art un-Instagram model as our baseline and report an overall gain of over 4% for 2 classification tasks: a binary, positive versus negative and a 3-way positive versus negative versus neutral. For our feature-based approach, we do feature analysis which reveals that the foremost important features are those combine the prior polarity of words and their parts-of-speech tags. We tentatively conclude that different from sentiment analysis for other genres. In Future work, we are going to do our greatest to relinquish you more about the upcoming topics that are linguistic analysis, for instance, parsing, semantic analysis and topic modelling.

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