THINK INDIA JOURNAL

ISSN: 0971-1260
Vol-22-Issue-3-July-2019

A Review on Twitter Sentiment Analysis

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Abstract:Social networking area have gained so much popularity over the past years and twitter is one of them. Social networking area, for an instance, twitter has millions of followers that share their views about celebrities, Politian, and local people. Twitter is a social networking area where users post and interact through the messages known as tweets. This review paper, we focused on the twitter emotional analysis through user tweets and emoji reactions. Emoji is a reaction which is posted by user on tweet through which we say it is a positive or negative reaction. This review paper shows the comparative analysis study of techniques and types on sentimental analysis post by users on twitter.

Keywords: Twitter, sentiment, social network, Twitter dataset, sentiment analysis

I. INTRODUCTION

In the opinion to millions of people who are using the social network sites are sharing their thoughts, ideas, reaction and response regarding their everyday lives. Moreover, peoples can write any comment, share any reaction in form of emojis about the product, celebrity figure independently.Social networking media like Instagram, Facebook,you tube, twitter have attained so much fame now day. If a person wants to run any business, then these social networking sites provide the platform to connect in between of customers easily.

In contradiction, customer have all the protentional when it comes to what customer requires and how customer further proceed. With review comparison on a product customer read all the comments and see the people reaction through emoji on particular data. After that customer easily analyze about product and organization. A lot of data is present on the twitter which is publicly shared and end with a mouth of word. Out of this data about 80% of the data is unstructured data and it makes difficulty to analyze this data and get valuable inform from the data.

In spite of availability of application to extract data regarding the sentiment of person on a particular product or service is a toughprocess because of unstructured data. Data workers are still face many issues to extract the useful data from the social network sites. Data workers uses many techniques for data mining through python, R, tweepy, rapidminer, api to get useful data. In the review paper we see the techniques previously developed and comparison analyze of the techniques.

II. SENTIMENT ANALYSIS

The field of area thatexpedient the affection of people'sbelief through natural language processing (NLP), computational expedient and manual analysis, which are used to wring and analyze individualizeddata and facts from the social networking siteslike Twitter, Facebook, Instagram and You Tube. Sentiment analysis is manual analysis that expedient the

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ISSN: 0971-1260
Vol-22-Issue-3-July-2019

behavior of consumer towards the aspects of a service or product it can either a positive or negative sentiment.

There are various types of emotional analysis or different levels such as validate or document level, Judgement or sentence level, and affection/feature level.

A. Validate stratumClassification:
At this stratum,emotion is fetched from the complete document review and complete belief is classified based on the completeemotion of the belief holder. The aim is to break down a review as some goods review, bad review or moderate reviews. Is the review break downgood or not good? Validate classification give better result as it go through the complete document is compiled by a single user because it compile emotion about an user only.

B. Judgment stratumClassification:
At this stratum of classification generally involves two types of different classification one is subjective classification of a sentence into two classes: impartial and personal and other one is emotional classification of personal statement into two types of tweets either good or bad tweets. An impartialemotionrepresents some facts and data information while a personal emotionrepresentsinner feelings, thoughts,happiness, or beliefs. Personal Emotion classification can be gained by using various different techniques for example Naïve Bayesian Classification.

C. Affection /Feature stratumClassification:
At this stratuma process is follow whose target is to distinguish and tearmanyattribute that have been tweeted by the belief holder and examine that the belief isgood, not good, or moderate. Affection synonyms are grouped, and an attribute-based summary of different review is represented.

III. RELATED WORK

1. Divakar Yadav, Geetika Gautam, [2] Authors have examined emotional analysis from consumer reappraisaltaxonomy. In the paper they used a labelled data set with three supervised learning algorithms i.e.Naïve -Bayesian, Max-entropy and support vector machinesucceeds by the correctness and correct meaning of word which is applied on these three methods all the three method to calculate the similarity. Languages used by the authors of this paper are Phyton and NLTK to classify the naïve Bayes, Max-entropy and SVM with unigram model gives a better result than using support vector machine separately.

2. Justin Zhan, Xing Fang: Authors in this paper work on the problem sentiment polarity categorization. They have collected data from the Amazon.com and get review of customers about a products and services. In this paper sentence level classification and review level classification used for sentiment analysis. Scikit learn application was used for this study. It's a software package in python.

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ISSN: 0971-1260
Vol-22-Issue-3-July-2019

3. AkshayAmolik,Jivane : Authors of this paper was presented a data image of sentimental analysis about the reviews of coming foreign and own cinema films. Authors of paper they used the Classifier algorithm and aspect vector for example support vector machine and Naïve Bayesian which are correctly classify the comments or tweets about the upcoming movies. They have used both the algorithm on the twitter tweets the better outcome was given by the Naïve Bayes than SVM. The accuracy rises with the rise of training data

4. Different types of sentiment mining techniques used to extract the facts and data.Aliza Sarlan, ChayanitNadamand ShuibBasri [1] they have examined first to examine the Emotional extraction in microblogging in regard to analyze survey from a consumer about a service or an item and second to make a plan about the customer review on the product which allow the organization to do enhancement. They have used different techniques of sentiment analysis to get the reviews of customers, so organization get better profit in future.

IV. TWITTER

The goal as long as related to twitter Emotional analysis is categorize comments or tweets in dissimilar emotionalcategory correctly. In this area of research lot of techniques have develop which comes up with strategies to skill a model and then check its productiveness. Achievingemotionalanalysis dispute on comments. We listed various limitation on this:

- Tweets Data size: Tweets data size have limitation of characters the reduced data sets are produced which is hard to perform sentiment on comments.

- Use of language: Tweets posted by peoples on twitter in their native language which not quite same as English it makes an approach outdated because of slangs used by peoples on twitter.

- Twitter characteristics: use of hash tags, references and link URL. These require different techniques of processing to other words of tweets.

- Diversity: users from different countries express their opinions in different languages and symbols and most of them uses the same words which cause data repetition in data set. For that we use normalization to remove data redundancy.

V. TECHNIQUES OF SENTIMENT ANALYSIS

1. Natural Language Processing technique:
   It is technique based on machine learning approach which is used in twitter for breaking text into sentences, words and morphemes. It involves hand-coding sets of rules to get machine to learn language patterns. Today, NLP relies on machine learning algorithms to make statistical inferences from text. Using this model, the more text a computer processes the more language rules it will learn and the more accurate it will be.

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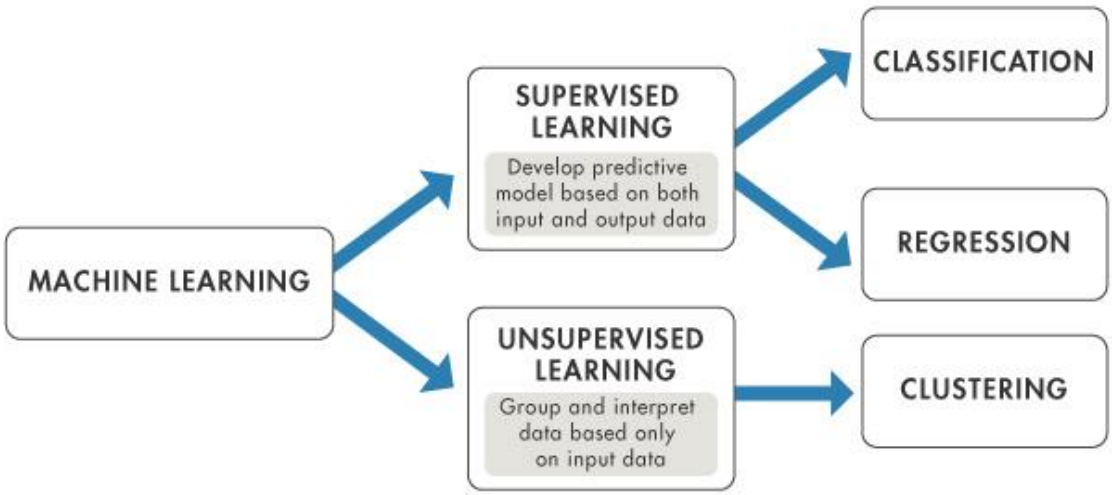
ISSN: 0971-1260
Vol-22-Issue-3-July-2019

2. Artificial Neural Network:
   It is mathematical approach that interconnects groups of artificial neurons. Artificial Neural Network is a collection of data and facts procedure model that is motivated with working of biological nervous system such as brain process information. It is like the collection of heavy number of interconnected procedure elements working to solve a particular problem. It resolves problem by finding interconnection among input and output in data.

3. Case-Based Reasoning:
   It is techniques which is used to implement the sentiment analysis. In this approach we take past solved problems and for solving new problem we take previous results. If new problem arises in sentiment analysis case-based reasoning is performed on that particular problem and find the similar past successfully problem, apply the same results to new problem.

4. Support vector machine:
   SVM procedure is by placing the training information in more the 2-D space, then finding a way to classify the various types with a hyperspace. The support vector algorithm choose hyperspace give conclusion about the highest breakup among the types of classes has the more border line or the highestboarder line hyperspacethat provide minimizes the complexity of upper bound errors.
5. Application Programming Interface:
   It is an approach which used by to calculate the number of tweets in every 100 seconds, sorted the first 100 messages based on tweeting frequency and saved them in structed database. For example, the Python Twitter API it collects the past week data and collection of data needed to be stored on the datasets.

6. Classification Algorithm:



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ISSN: 0971-1260
Vol-22-Issue-3-July-2019

In classification Algorithm Uses two approach supervised and unsupervised learning. In supervised learning approach uses are SVM, Naïve Bayesian and Maximum Entropy. Efficiency is based on the dataset which is used for which classification method.

VI. COMPARATIVE STUDY OF TECHNIQUES

Author	Twitter Dataset	Techniques	Accuracy
Divakar Yadav	Twitter dataset of review	SVM Naïve Bayes Techniques Naïve Bayes gives better result than SVM	85.5 % 88.2%
Justin Zhan	Data set of online product review from Amazon .com	Random forest Naïve Bayesian SVM	82.5% 87.15% 81.18%
SeyedBahrainia	Smartphone dataset of Twitter	Hybrid Approach, Support Vector Machine	89%
Dhiraj Gurkhe	Data set of Twitter	Unigram Bigram Uni+Bigram	81.1% 15.1% 67.6%

VII. CONCLUSION

The Emotional analysis of twitter can be done in distinct way. This paper defined the various techniques of the twitter dataset at various level of sentiments. This Review paper presents the various level of sentiment and techniques of sentiment analysis and the methodology used in previous papers. If we are working on the twitter sentiments, we should know about twitter its data set and which algorithm should apply for the better accuracy. This paper presents a brief idea about kinds of tweets like it's a positive or negative and neutral tweet.

Twitter Emotional analysis is categorized to analyze the perspective of customer towards the product and service. Most of the dataset used machine learning algorithm line Artificial neutral network, SVM and Naïve Bayesian to classify the statements of tweets. As Comparative analysis shows the results of the algorithms based on the accuracy.

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