International Journal of Future Generation Communication and Networking
Vol. 13, No. 3s, (2020), pp. 1554–1558

Sentiment Analysis for Text Feedback Approaches

Priyanka Kumari
Department of computer Engineering
NBNSSOE, PUNE

Abstract
Sentiment analysis can be account for web content mining of different feedbacks from social platforms, online products, organizations, events, employees. Collecting feedbacks is considered facile but extracting insights out of it is still challenging. Dramatic increase of internet utilization around the world raised up the amount of feedback data which is a challenge to manage and classify the sentiments. It is been motivated for companies to get more meaningful and actionable insight from their feedback data that will help them to improve their products also it will be convenient for the customers to choose the right product in lesser time. In this system we will see all the different approaches used for sentiment analysis which includes lexicon-based, machine-learning and hybrid approaches. Opinions of people in feedback analyzed for english words and sort the texts in positive and negative reviews for which there must be one or more positive or negative word. To create pool of words firstly it selects words having sentiments and from reviews of product using standard approaches it mines the polarity and hence opinion mining is carried out for the betterment.
Keywords*-Machine-learning, Sentiment Analysis Lexicon, Polarity.*

I. INTRODUCTION

Today as the online marketing is expanding rapidly so are the online users and it is really important to judge and summaries about every product. With accelerated development of internet, people are been using social different social media platforms, blogs, forums, channels and some review sites to convey their opinion on trending topics. Sentiment means the opinion ,emotions ,mood for the product and these are received in the form of text via live chat feedback. The acquisition of feedbacks is easy but taking insight out of it requires machine learning algorithms. Sentiment Analysis means analyzing the opinions of people online and sort them into different categories like positive and negative, satisfactory and unsatisfactory. The opinions on any product or any topic can be extracted from any platform online like twitter. amazon, Flipkart.

Opinion Mining becomes really difficult now because of the large amount of feedback received online. For enhancing the process of decision making Sentiment analysis plays a major role for both the provider and user. Provider can introduce new products on the basis of reviews and user get to decide best product by viewing the categorizations. Thus we need to study the reviews well with maximum accuracy.

II. RELATED WORK

Ramanathan, Meyyappan[1] examined the oman tourism reviews via tweets from twitter and processed the data to analyze and sort the percentage of negative and positive reviews using ConceptNet . They used POS tagger to analyze the tweets and match with contents of domain specific ontology.

Prashant Pandey, Pankaj, Muskan and Nitasha Soni[2] tackled the problem of sentiment analysis and categorization. The meta data is been taken from amazon.in and all the reviews are identified by POS then the data is been processed and cleaned for the polarity checking

Saurabh Garg and Shailendra Narayan Singh[3] analysed the chat log data online and tried to predict the customer reviews on the product for which they created a matrix to count the sentiment words then did the opinion mining using Apriory algorithm to find the polarity. This explores the area of chat message mining and extraction of sentiment views.

ISSN: 2233-7857 IJFGCN

P. Karthika, Dr. R. Murugeswari , Mrs. R. Manoranjithem[4] performed the sentiment analysis on reviews using Random forest algorithm of machine learning. Comparison of accuracy is made between Random Forest Algorithm and SVM(Support Vector Machine) and it is proved that Random forest method is better.

Jun Feng,Cheng Gong,Xiaodong Li and Raymond Y. K. Lau[5] presented construction of a lexicon for mobile shopping. This method uses a sentiment matrix between entities words and their features. Matrix will tell the count of sentiment words and it has one specialty in lexicon that words of sentiment are clustered and not just binary category.

III. SENTIMENT ANALYSIS

Sentiment analysis means the textual mining of opinions formed on any brand online. Analysis process results in extracting whether the attitude of the user towards product is positive ,negative or neutral. Sentiment analysis helps organizations in decision making as they can consider public reviews in a beneficial way also it is helpful for customers analyzing the product which they are going to buy.

Fig.1 Sentiment Classification

Extracting insights out of text require some logical algorithms to determine if that verb or adjective used in the text represents what kind of mood. Some lexicons contain pool of words which are categorized as negative ,positive and neutral and they are matched using POS with some machine learning algorithm to achieve polarity in review and the frequency.

IV. PROPOSED METHODLOGY

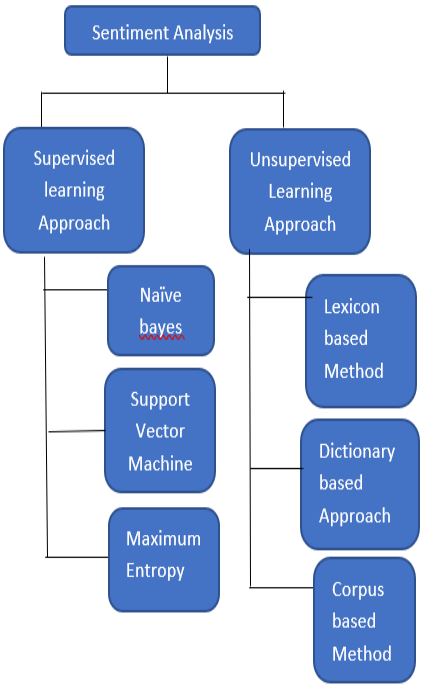


Fig.2. Approaches of Sentiment Analysis

ISSN: 2233-7857 IJFGCN

Sentiment analysis can be carried out using supervised and unsupervised approaches under which comes all the standard approaches . Mainly three approaches are used which are lexicon based, machine learning methods and hybrid method which is the combination of one or more Each of the sentiment lexicon is used to find the orientation of reviews.

A. Lexicon based Approach- Sentiment lexicons do contain the words with their sentiment behaviour and orientation. There are three lexicons which exist for analysis they are SentiStrength, SentiWordNet and Opinion lexicon.

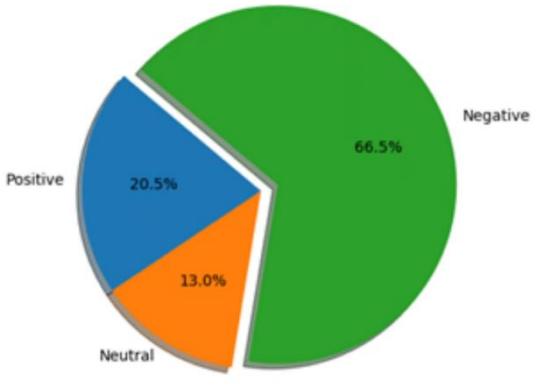
i) SentiStrength is a program to evaluate the strength of polarity in text. It uses range of numbers to identify the polarity i.e. for positive opinion it ranges from 1 to 5 from less positive to extreme positive and negative opinion score ranges from -1 to -5 from less negative to extremely negative respectively. SentiStrength reads the text and split it into emoticons and sentiment words . SentiStrength can be used to analyse tweet data and YouTube comments.

ii) SentiWordNet is a source for text mining in which words are divided into four categories they are verb,adverb,adjective,noun. This library is been derived from WordNet based on the bag of synset. which assign score to words in terms of positivity ,negativity and objectivity and value ranges from 0 to 1 which signifies negative, positive and neutral. The sum of all three values is always 1. If the positive score is more than the negative and objective score, it is marked as +1. Assume negative score is maximum then after it is marked as 1.The objective score 0 shows that the word is neutral. It has most number of words compared to other lexicons and is termed better. It gives result only to syntactic level and hence various tweet languages remain unknown to it.

B. Machine-Learning Approaches- In these approaches huge amount of training data is required to obtain the accuracy. These are not preferred in twitter data. Netflix reviews can be analyzed using deep learning. Nowadays deep learning methods are more famous Mainly used approaches for sentiment are support vector machine, naïve Bayes and maximum entropy methods. Python is popularly used language for machine learning approaches it consists of various in built libraries to be used. SVM is a supervised learning approach which use hyperplane to marginalize the sorting of polarity. NB and SVM can be used together to give more accurate data. SVM is performed with the dependency of kernel function. Naïve bayes uses probability to count on polarity probability of sentiments.

C. Hybrid Approaches- Nowadays combined approaches are also used by researchers in which more or two techniques are combined to accomplish more accuracy. It is been presented such framework in which lexical and SVM are combined together in the background. Also it is set upped a system to analyze the impact in the market bybcombining the news sentiment and stock price. Sentiment change detection and sentiment classification on Facebook comments using a hybrid approach is performed by combining lexicon-based and machine-learning methods by evaluating done by classification model and features source is used as lexicon Analyzer.

Hybrid methods are used for classification of movies review.



ISSN: 2233-7857 IJFGCN

Fig.3.Pie Chart showing sentiment distribution

V. ACCURACY OF SENTIMENT ANALYSIS

Its really a difficult job to analyze the sentiments of texts by human itself when it comes for machines to learn them it is a big deal to do it with 100% accuracy. It may happen that sometimes one algorithm gives more accuracy as compared to others , which surely depends on which case it is applied. Sometimes reviews are written in sarcasm and irony which machine cannot identify in which context the words are been used as it can only learn which kind of words are positive and negative. Learning of emotions and mood of user is challenging for any sentiment analyzers. Any algorithm can give at most 70-80 percent of accuracy while analyzing sentiments.

VI. PROCESS FLOW

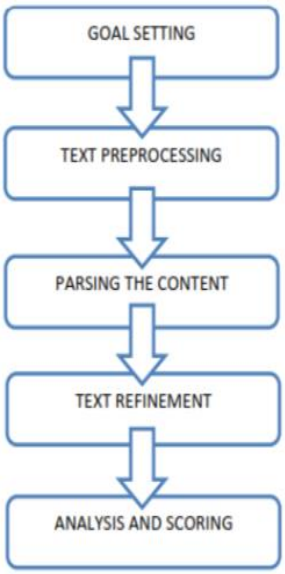


Fig.4. Process flow of Sentiment Analysis

From any methods for analyzing sentiments firstly it is planned on which kind of data the process will be initiated, source of meta data is been decided and extracted. After extracting the data it is processed and cleaned via data science methods by removing duplicates and less informative reviews. Pandas library are used for cleaning the data. After cleaning the data the lexicons are identified and patterns are generated with all the parts of speech. In refinement process stopping words and synonyms are identified. Finally the scoring is made and polarity percentage is evaluated and presented using different libraries.

VII. CONCLUSION

Lot of people shares their reviews of product online. And enterprises receives immense review data of each of their product. It's been very consequential to extract the insights out of it and classify them according to their sentiments. In this paper we conclude various approaches to work the same.

In which sentiment lexicons do contain the words with their sentiment behaviour and orientation, Machine learning approaches the examination of customers' emotional dependencies by SVM and NB, hybrid approaches used to combine all the approaches together and used for the sorting of large amount of data. However its still challenging to extract the text insights with most accuracy.

ISSN: 2233-7857 IJFGCN

REFERENCES

[1] Vallikannu Ramanathan, Meyyappan, “Twitter”, 2019 4th MEC International Conference on Big Data and Smart City (ICBDSC), IEEE ,2019.

[2] Pankaj, Prashant Pandey, Muskan, Soni, ”Sentiment”,2019 International Conference on Machine Learning, Big Data, Cloud and Parallel Computing (COMITCon), IEEE, 14th -16th Feb 2019.

[3] Saurabh Garg, Shailendra Narayan Singh,” Auto Predictive Customer Feedback from Textual Analysis of Online Chat Logs",2018 4th International Conference on Computational Intelligence & Communication Technology (CICT),IEEE, 2019.

[4] P. Karthika, Dr. R. Murugeswari , Mrs. R. Manoranjithem,” Sentiment Analysis of Social Media Network Using Random Forest Algorithm ”, Department of Computer Science and Engineering Kalasalingam Academy of Research and Education Krishnankoil-626126, Tamilnadu,IEEE,2019.

[5] Jun Feng,Cheng Gong,Xiaodong Li and Raymond Y.K.Lau,”Automatic Approach of Generation for Sentiment Lexicon Mobile Shopping Reviews”, College of computer and Information, Hohai University, Nanjing 211100,China,Department of Information Systems, City University of Hong Kong. Hong Kong. Hinawi,Aug 2018.

[6] Kudakwashe Zvarevashe,Oludayo O Olugbara,”A Framework for Sentiment Analysis with Opinion Mining of Hotel Reviews”,Durban University of Technology,P.O.Box 1334,Durban 4000,South Africa .IEEE 2018.

[7] Vamshi Krishna.B, Dr. Ajeet Kumar Pandey, Dr. Siva Kumar A.P,”Topic Model Based Opinion Mining and Sentiment Analysis”, 2018 International Conference on Computer Communication and Informatics (ICCCI),2018.

[8] Satuluri Vanaja,Meena Belwal,”Aspect-Level Sentiment Analysis on E-Commerce Data”, Proceedings of the International Conference on Inventive Research in Computing Applications (ICIRCA 2018) IEEE Xplore Compliant Part Number:CFP18N67-ART; ISBN:978-1-5386-2456-2,2018.

ISSN: 2233-7857 IJFGCN