Sentiment Analysis for Political Reviews using AAVN Combinations

Praniti R. Thanvi[1], Nikhita S. Sontakke[2], Shashwati R. Waghmare[3], Zankhana S. Patel[4], Prof. Sachin Gavhane[5]

[1]Department of Information Technology, Atharva College of Engineering, Maharashtra, India
[2]Department of Information Technology, Atharva College of Engineering, Maharashtra, India
[3]Department of Information Technology, Atharva College of Engineering, Maharashtra, India
[4]Department of Information Technology, Atharva College of Engineering, Maharashtra, India
[5] Professor, Department of Information Technology, Atharva College of Engineering, Maharashtra, India

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Abstract- Sentiment analysis is to separate and group opinions in the composed content. It is one of the major tasks of NLP. Sentiment analysis is a growing field at the intersection of linguistics and computer science that attempts to automatically determine the sentiment contained in text. As many users express their political views on various social networking sites, tweets become valuable sources of people's opinions. This data can be efficiently used to infer people's opinions for marketing or social studies. This paper represents the strategy to classify tweet sentiment using Naive Bayes technique based on three categories; positive, negative or neutral. A method for analyzing the tweets of people on political views by using Adverb-Adjective-Verb-Noun(AAVN) combinations. Separate positive and negative condensed results are created which is useful for the client in choice making.

Keywords-Sentiment analysis, linguistic, Naïve Bayes, Adverb-Adjective-Verb-Noun (AAVN).

1 . INTRODUCTION

Till date, there has been a rapid of change in web services, internet technology, various types of social media sites such as discussion forums, micro blogs, and peer-to peer networks provides a affluent of information as well as posting online opinions/reviews about particular person or product has tremendously became a popular way for sharing their opinions or thoughts about particular political party/politician or services. The social networking site Twitter will be the targeted social media site for this paper. Nowadays, billions of users are using twitter which can be used as rich source of data for mining information. By using sentiment analysis for political reviews it would be helpful for the study of different political parties or politician and will also be helpful for the users to make a right choice who do not have much or no knowledge about politics. Now problem in sentiment analysis is classifying the polarity of a given text at the document, sentence, or feature/aspect level. People have different opinions for

single thing. So it is very difficult to evaluate reviews manually for a particular thing. People usually misinterpret the reviews and finally come to wrong conclusion. So to deal with this problem an attempt is made to propose software for analyzing the tweets of people on political reviews. To classify whether the expressed opinion in a document, a sentence or an entity feature/aspect is positive or negative or neutral. The proposed paper presents Naive Bayes Algorithm to classify the tweets into Positive, Negative and neutral by assigning the polarity from -1 to +1.

2 .PREVIOUS WORK

Numerous study has been done in determine and classify sentiment of tweets in Twitter. Both supervised and unsupervised techniques are used. Supervised technique such as Naïve Bayes Algorithm[1]. Some other papers have shown an AAVN based sentiment analysis technique deploying linguistic analysis of adverbs, adjective, abstract noun and categorized verb, the paper defines a set of general axioms for opinion analysis to determine a functional value of the sentiment analysis[2]. The paper suggest ,Text mining can be applied to many fields like in the digital newspaper to do politic sentiment analysis. The sentiment analysis is applied to get information from digital news articles about its positive or negative sentiment regarding particular politician. The model used to analyze digital newspaper sentiment polarity using Naïve Bayes classifier method. It uses a set of initial data to begin with which will be updated when new information appears. The study showed promising result where tested and can be implemented to some other sentiment analysis problems[3]. It states that machine learning approach in which machines analyze and classify the human's sentiments, emotions, opinions etc about some topic which are expressed in the form of either text or speech. The textual data available in the web is increasing day by day[4]. Some paper approach on opinion mining, on the particular blogs or forums[5].

3. IMPLEMENTATION

Political Sentiment is offline application developed in an ASP.NET language with SQL Server 2005. The main features of Political Sentiment make an application that maintains the directory of adverb, adjective, verb and noun along with ratings which is easy to calculate the sentiment. Differentiate the positive, negative with scores fetched from the database from the whole sentence, find out the total positive score, total negative score and overall score of the sentence.

3.1. ALGORITHM

1. Start.
2. Fetch the comment/review.
3. Convert the entire comment into lower case.
4. Remove stop words(a ,as ,the ,is ,etc.).
5. If

   and , but, or, fullstop (.)

   then split the line.
6. If

   space( ) or comma(,)

   then split the comment using regular expression.
7. Use Stemming algorithm to remove "ed , ing, ly"
8. Store the verbs, adverbs and adjectives separately in separate ArrayLists to compare the positions.
9. Comparing the position will give the combinations of AAV.
10. Now calculate the sentiments according the 12 combinations.
11. Multiply with the soothing factor so that the calculated sentiment is within the range of +1 to -1.
12. Stop.

Fig. 1: Forum Created by the user.

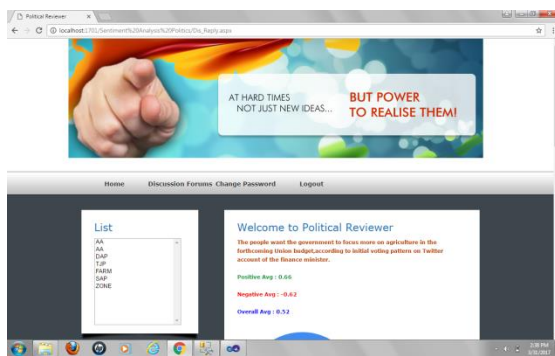As shown in Fig1 the user can create any political Forum according to its choice.

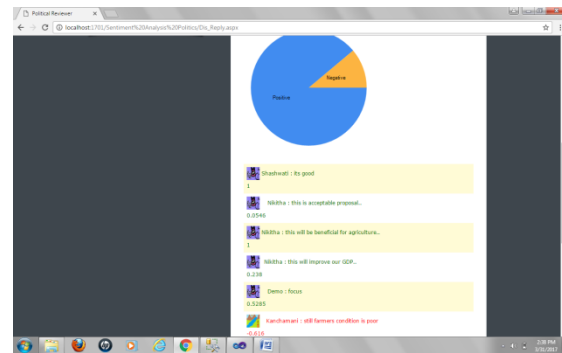**Fig. 2**: Rating of the forum depending on the comments.

Fig. 3: comments posted by the user with overall sentiment graph.

Depending on the combination of AAV the comments are rated , which would help the user to know the impact of forum on public and help the user to decide whether the political forum is positive or negative. Also it shows graphical representation of the overall Forum. The website allows the users to post forum and comment on it only if it is relate to politics otherwise the forums and comments are rejected, as shown in figure below.
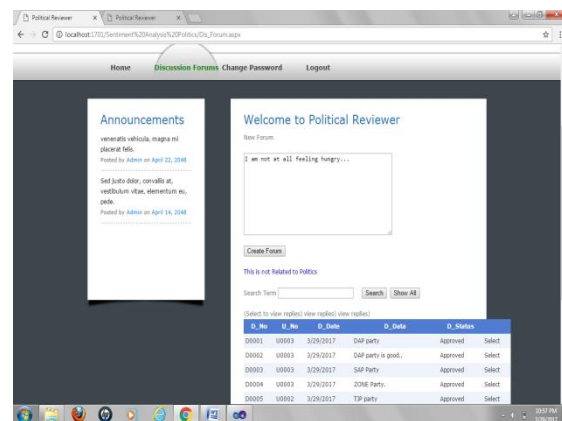

Fig. 4: Non political forum posted by the user gets rejected.

4 . FUTURE SCOPE

The future of sentiment analysis lies in resolving the challenges faced and forming an effective sentiment analysis tools. The tool can scale and learn, once it has relevant data across various platforms. One has to make sure that the tool adapts through the changing needs of the brands across various time domains and for the years to come. One can generate a tool that adds various other sentiments in addition to the existing ones. Add wishes, caveats, comparisons and preferences to the existing sentiments. The tool must be able to identify false messages that are used to portray the brand in a positive way. These messages are computer generated. The language used by finance industry is different as compared to the language used by the food industry.

REFERENCES

[1] Mohd Naim Mohd Ibrahim and Mohd Zaliman Mohd Yusoff, "Twitter Sentiment Classification Using Naive Bayes Based on Trainer Perception", 2015 IEEE Conference on e-Learning, e-

Management and e-Services.

[2] Souvik Sarkar, Partho Mallick and Tapas Kr. Mitra, "A Novel Machine Learning Approach for Sentiment Analysis Based on Adverb - Adjective - Noun - Verb (AANV) Combination", Int. J. on Recent Trends in Engineering and Technology,Vol 7, No.1,July 2012.

[3] Yustinus Eko Soelistio, Martinus Raditia Sigit Surendra, "Simple Text Mining for Sentiment Analysis of Political Figure using Naive Bayes classifier method", The Proceedings of The 7th ICTS, Bali, May 15th-16th, 2013 (ISSN: 9772338185001).

[4] Raisa Varghese and Jayasree M, "A Survey on Sentiment analysis and Opinion mining", IJRET: International Journal of Research in Engineering and Technology eISSN: 2319-1163 | pISSN: 2321-730

[5] V. K. Singh and P. Waila, "Sentiment Analysis of Movie Reviews", A new Feature-based Heuristic for Aspect-level Sentiment Classification 978-1- 4673-5090- 7/13/$31.00 ©2013 IEEE.