Scientific Journal of Impact Factor (SJIF): 5.71

e-ISSN (O): 2348-4470
p-ISSN (P): 2348-6406

International Journal of Advance Engineering and Research Development

Volume 5, Issue 02, February -2018

Decision Making Using Opinion Mining With Negation Handling Considering Customer Evaluation

Nilesh Vaghela[1]

[1]Computer Engineering, Swaminarayan College of Engineering & Technology, Kalol-382721, Gujarat

Abstract — *In routine day to day life, customer opinions about certain things play a crucial role. Opinions of other individuals are used for consideration in our decision making process. Many web users use platforms such as blogs, review sites, social networking sites to post/give their opinions regarding many products. Customer or individual's opinion or view regarding products, support and services for organizations has always been a keen interest and research matter for each organization. The crucial part is to analyze good amount of social data present on the web automatically with the rapid growth and expansion of e-commerce and online shopping. This leads to create methods which classify them automatically. Opinion mining is sometimes called as Sentiment Classification. Sentiment Classification is defined as mining and analyzing of views, reviews, emotions and opinions automatically from text, big data and speech by means of various methodologies. In this thesis, negation handling method with POS tagging to decrease the negation words is used and then we are going to see how Frequent Pattern mining algorithm can be used for mining reviews from online reviews which are posted by customers. Creating an effective approach for analyzing opinions which implies judgments of different consumer products is our main aim.*

Keywords- *Opinion Mining, Sentiment Classification, Frequent Pattern mining Algorithm, Negation Handling, SentiWordNet, Min-Max Normalization, Frequent Words, Online Reviews.*

I. INTRODUCTION

The science which combines techniques of computational linguistics and information retrieval is known as Opinion Mining. And it is concerned with the opinions expressed rather than topics in the text. Opinions are written on many things example a product, a topic, an individual, etc. In opinion mining task we identify the orientation of opinion by the holder towards any object which may be a collection of features or components or attributes.
Opinion mining is the part of study that dissects individual opinions, sentiments, assessments, mentality and feelings from written text. It has pulled in a number of analysts from distinctive areas of exploration including NLP, information mining, machine learning, phonetics, and even social science.

Opinion mining [1, 2] might be valuable in a few ways. For instance, in advertising, it tracks and judges the achievement rate of a commercial crusade or launch of new item, focus prevalence of items and administrations with its forms additionally let us know about demographics which like or hate specific characteristics. Case in point, a survey may be around a computerized Polaroid may be comprehensively positive, yet be particularly negative about how overwhelming it is. The seller gets overall picture of general opinion than studies and centre gatherings, if this sort of data is identified in a methodical manner.

1.1. Objective

Given an object and a collection of reviews on it, our objectives are

- Extract Nouns, Adjectives, Verbs and Adverbs on the remaining reviews by using dictionary approach.
- Identify frequent words by using frequent item set mining Algorithm.
- Perform Sentiment Analysis on the frequent words using SentiWordNet.
- Provide visualization.

1.2. Motivation

Interest for sentiment analysis and opinion mining is expanding numerous folds. Customers use web as a verbal exchange to express their choices focused around the opinions communicated by others. The social media associate the whole world and are one of the explanations behind data over-burden on the web. Twitter has hundreds of millions users who handle very nearly half a million tweets for every day, normal of thousands of tweets for every second. These tweets are posted on different dialects not simply English it also consists with too much negation linguistic. These bewildering volumes of upgrades call for a mechanized analysis of this text. There are numerous structures in which customer produced substance is distributed on Internet. This inspired us to devise systems to handle each of these various types of information and concentrate some helpful data.

II. SCOPE AND TERMINOLOGY OF OPINION MINING

2.1. Scope

Business Organizations:

People's perception, thinking and opinions have always been important chunk of information for us in decision-making process. Before the introduction to World Wide Web all these information was gathered locally by asking nearby people or friends. But the Internet and the Web have now (among other things) made it possible to find out about the opinions and experiences of those in the vast pool of people that are neither our personal acquaintances nor well-known professional critics — that is, people we have never heard of. And conversely, more and more people are making their opinions available to strangers via the Internet.

Individuals:

It is an extension of data mining which utilizes natural language processing techniques to extract people's opinion from World Wide Web. The recent trend in internet that encourages users to contribute their opinion and suggestion created a huge collection of valuable information in the web. The Opinion mining system analyze each text and see which part contain opinionated word, which is being opinionated and who has written the opinion. The major applications of Opinion mining is purchasing product or using a service and make decisions according to it.

2.2. Opinion Mining Terminology [3,4]

Fact: A fact is that which has truly happened or is really the case.

Opinion: An opinion is a view or judgement formed about something, not necessarily based on fact or knowledge.

Subjective Sentence: A sentence or a text is subjective or opinionated if it actually indicate ones feelings.

Objective Sentence: An objective sentence indicates some facts and known information about the world.

Item: An individual article or unit, especially one that is part of a list, collection, or set.

Review: A review is a text containing a sequence of words that has opinions of customer for a specific item. A review may be subjective or objective or both.

Known Aspects: Known aspects are default aspects provided by the certain website for which users separately give ratings.

Sentiment: Sentiment is a polarity term that implies to the direction in which a concept or opinion is expressed. We use sentiment in a more specific sense as an opinion about an aspect. For example, excellent is a sentiment for the attribute 'battery life' in the sentence "This mobile has excellent battery life".

Opinion Phrase: An opinion phrase is a pair of head term and modifier. Usually the head term is a candidate aspect, and the modifier is a sentiment that expresses some opinion towards this aspect.

Opinion Polarity: Opinion Polarity or Subjectivity Orientation denotes the polarity ex- pressed by the user or customer in terms of numerical values.

Polarity: Polarity is a two-way orientation scale. In this, a sentiment can be either positive or negative.

Rating: Most of the reviewing websites use star ratings for expressing polarity, presented by stars in the range from 1 to 5 which are called ratings.

Overall Rating: All the online shopping websites ask customers to give an overall rating for the product that they already bought mentioning the overall quality of the used item.

Part-of-Speech (POS) Tag: POS tagging is very useful in Opinion Mining process. When we need to analyse a document or a sentence first we have to extract the subjective information from the document or that particular sentence. POS tagging helps us in getting subjective words like Nouns, Verbs, Adverbs and Adjectives. After extracting these words, we can perform various actions on these and we can come to a conclusion.

III. LITERATURE REVIEW

Review on techniques and tools used for opinion mining presents the concept, types, techniques and tools used in opinion mining. [5]
Research challenge on opinion mining and sentiment analysis presents an outline on discussion upon a new research challenge on opinion mining and sentiment analysis. [6]
Extracting product features and opinions from reviews presents an unsupervised information extraction system OPINE which mines reviews. [7]
Mining Opinion Features in Customer Reviews presents summary of all the customers' reviews whether the opinions are positive or negative regarding particular product. [8]
Achieving Privacy in Data Mining Using Min-Max Normalization presents the use of min max normalization for data privacy. [9]
Scope of Negation Detection in Sentiment Analysis presents the use of min max normalization for data privacy. [10]
Yahoo! for Amazon: Sentiment Extraction from Small Talk on the Web presents methods used for extraction of sentiments from reviews, views available on the web. [11]
An Empirical Analysis and Comparison of Apriori and FP- Growth Algorithm for Frequent Pattern Mining present a comparison between Apriori and FP- Growth Algorithm for generating frequent data set for opinion mining. [12].

Table 1. Literature review

No.	Title	Description	Publication
1	Review on techniques and tools used for opinion mining	This paper presents the concept, types, techniques and tools used in opinion mining	International Journal of Computer Applications Technology and Research, 2015
2	Research challenge on opinion mining and sentiment analysis	This paper presents an outline on discussion upon a new research challenge on opinion mining and sentiment analysis	David Osimo and Francesco Mureddu, 2014
3	Extracting product features and opinions from reviews	This paper presents an unsupervised information extraction system OPINE which mines reviews	Ana-Maria Popescu and Oren Etzioni (University of Washington)
4	Mining Opinion Features in Customer Reviews	This paper presents summary of all the customers' reviews whether the opinions are positive or negative regarding particular product.	Minqing Hu and Bing Liu (University of Illinois at Chicago)
5	Achieving Privacy in Data Mining Using Min-Max Normalization	This paper presents the use of min max normalization for data privacy	International Journal of Computer and Communication Technology
6	Scope of Negation Detection in Sentiment Analysis	This paper presents negation detection helped to identify more opinion or sentiment carrying expressions.	Proceedings of the Dutch-Belgian Information Retrieval Workshop
7	Yahoo! for Amazon: Sentiment Extraction from Small Talk on the Web	This paper presents methods used for extraction of sentiments from reviews, views available on the web	Sanjiv R. Das, Mike Y. Chen, May 2014
8	An Empirical Analysis and Comparison of Apriori and FP-Growth Algorithm for Frequent Pattern Mining	This paper presents a comparison between Apriori and FP- Growth Algorithm for generating frequent data set for opinion mining.	2015 IEEE International Conference on Advanced Communication Control and Computing Technologies (lCACCCT)

IV. PROBLEM STATEMENT

Searching for opinions may be difficult. Opinion searching is not as convenient as general web search and opinions also can be expressed in different ways. So it is difficult to analyze each and every opinion. Information is not unreliable just because we rely on one specific source of opinion but it makes it incomplete due to variation in opinions as well as potential bias present in a specific source. Somewhere opinions are not reliable because information is not proper word form but in word meanings which are consistent with the human representation of meaning and their emotions processing in the brain. Negation is one of the most common linguistic means that can change text meaning [13]. Therefore in sentiment analysis negation has to be taken into account. Algorithm like FP Growth can be used for mining reviews from

online reviews those are posted by customers. Our main objective is to create a mechanism for analyzing opinions which implies judgment of different consumer products which mainly consider negation handling.

V. CONCLUSION

In today's era of competition, the need of customer reviews and feedbacks has become extremely important. Opinion Mining is an area to consolidate the scattered data of opinions from social media and ecommerce as well as review sites. The vital phase in opinion mining is identifying frequent patterns by using frequent item set mining algorithms. So far, Apriori algorithm has been used widely for this phase. The main aim of this research work is to use negation detection and handling from customer product review and use other efficient frequent pattern mining algorithm to enhance and improve efficiency such that it provides speedier convergence rate and compare the results produced afterwards to prove that the algorithm satisfies the objective of this research.

REFERENCES

[1] Andrea Esuli. "Automatic generation of lexical resources for opinion mining: models, algorithms and applications", ACM SIGIR Forum, volume 42, pages 105–106. ACM, 2008.
[2] Richa Sharma, Shweta Nigam, and Rekha Jain. "Supervised opinion mining techniques: A survey."
[3] Bo Pang and Lillian Lee. "Opinion mining and sentiment analysis. Foundations and trends in information retrieval", 2(1-2):1–135, 2008.
[4] Minqing Hu and Bing Liu. "Mining and summarizing customer reviews", ACM SIGKDD international conference on Knowledge discovery and data mining, pages 168–177. ACM, 2004.
[5] Asmita Dhokrat, Sunil Khillare, C. Namrata Mahender, "Review on techniques and tools used for opinion mining", International Journal of Computer Applications Technology and ResearchVolume 4– Issue 6, 419 - 424, 2015.
[6] David Osimo, Francesco Mureddu, "Research challenge on opinion mining and sentiment analysis", FP7-ICT-2011-7, No. 288828, 2014.
[7] Ana-Maria Popescu, Oren Etzioni, "Extracting product features and opinions from reviews", University of Washington.
[8] Minqing Hu, Bing Liu, "Mining Opinion Features in Customer Reviews", University of Illinois at Chicago.
[9] Asgasg
[10] Maral Dadvar, Claudia Hauff, Franciska de Jong, "Scope of Negation Detection in Sentiment Analysis", Proceedings of the Dutch-Belgian Information Retrieval Workshop.
[11] Sanjiv R. Das, Mike Y. Chen, "Yahoo! for Amazon: Sentiment Extraction from Small Talk on the Web", 2014.
[12] Avadh Kishor Singh, Ajeet Kumar, Ashish K. Maurya "An Empirical Analysis and Comparison of Apriori and FP-Growth Algorithm for Frequent Pattern Mining", 2015 IEEE International Conference on Advanced Communication Control and Computing Technologies (lCACCCT), 1599-1602, 2015.
[13] Vivek Narayanan, Ishan Arora, and Arjun Bhatia. "Fast and accurate sentiment classification using an enhanced naive bayes model", in Intelligent Data Engineering and Automated Learning–IDEAL 2013, pages 194–201. Springer, 2013.

