ISSN(Online): 2320-9801
ISSN (Print): 2320-9798

International Journal of Innovative Research in Computer and Communication Engineering

(An ISO 3297: 2007 Certified Organization)

Website: www.ijircce.com

Vol. 4, Issue 12, December 2016

Opinion Mining Considering online Customer Review and Ratings

Vidhi Patel, Anita Anand

M.E. Student, Dept. of Computer Engineering, LDRP-ITR, Gandhinagar, Gujarat, India

Assistant Professor, Dept. of Computer Engineering, LDRP-ITR, Gandhinagar, Gujarat, India

ABSTRACT: The rise in social media use has changed the role of users from information receivers to information providers. As increasing numbers of people share their ideas, experiences, and opinions on the Web, sentiment analysis has become a popular topic for those who wish to understand public opinion from online data. As e-commerce is becoming more and more popular, the number of customer reviews that a product receives grows rapidly. For a popular product, the number of reviews can be in hundreds. This makes it difficult for a potential customer to read them in order to make a decision on whether to buy the product. In this project, we aim to summarize all the customer reviews of a product. This summarization task is different from traditional text summarization because we are only interested in the specific features of the product that customers have opinions on and also whether the opinions are positive, negative or neutral.

KEYWORDS: Sentiment Analysis, Opinion Mining, Online Reviews, E-commerce

I. INTRODUCTION

With the rapid expansion of e-commerce, more and more products are sold on the Web, and more and more people are buying products on the Web. In order to enhance customer satisfaction and their shopping experiences, it has become a common practice for online merchants to enable their customers to review or to express opinions on the products that they buy. With more and more common users becoming comfortable with the Internet, an increasing number of people are writing reviews. As a consequence, the number of reviews that a product receives grows rapidly. Some popular products can get hundreds of reviews at some large merchant sites. This makes it very hard for a potential customer to read them to help him or her to make a decision on whether to buy the product.

In today`s fast growing world, the amount of data being created and processed grows exponentially day by day. Organizations and companies are 'mining' huge data to draw conclusions that aid their decision making tasks. At times, there is also sharing of data among research institutions and companies for research analysis and to improve the quality of decisions respectively. The shared data may include confidential information such as medical records of individuals, criminal records, companies' financial records and so forth. Thus data sharing proves to be a threat to privacy of sensitive data of an individual or a company and their autonomy. Here comes the role of privacy preserving techniques which prevent the data from being leaked or misused, at the same time providing accurate mining results.

Opinion mining (OM – also known as "sentiment classification") is a recent sub discipline at the crossroads of information retrieval and computational linguistics which is concerned not with the topic a text is about, but with the opinion it expresses. Opinion-driven content management has several important applications, such as determining critics' opinions about a given product by classifying online product reviews, or tracking the shifting attitudes of the general public towards a political candidate by mining online forums or blogs.

The rise in social media use has changed the role of users from information receivers to information providers. As increasing numbers of people share their ideas, experiences, and opinions on the Web, it has made opinion mining popular topic for those who wish to understand public opinion from online data. Opinion Mining helps us to retrieve useful knowledge from the opinions and reviews expressed over the net.

ISSN(Online): 2320-9801
ISSN (Print): 2320-9798

International Journal of Innovative Research in Computer and Communication Engineering

(An ISO 3297: 2007 Certified Organization)

Website: www.ijircce.com

Vol. 4, Issue 12, December 2016

II. SCOPE OF OPINION MINING

Businesses and Organizations:

"What other people think" has always been an important piece of information for most of us during the decision-making process. Long before awareness of the World Wide Web became widespread, many of us asked our friends to recommend an auto mechanic or to explain who they were planning to vote for in local elections, requested reference letters regarding job applicants from colleagues, or consulted Consumer Reports to decide what dishwasher to buy. 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.
Now a days there is competition in the market. So, businessmen have to take care of the track of all things. To create benchmark businesses provide services. They use market intelligence. Business spends a huge amount of money to find consumer sentiments and opinion. For that, businessmen hire consultants and they survey market and focus on specific group which are interested in such product.

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 and sentiment analysis are the following:

- **Purchasing Product or using a Service:** While purchasing a product or service, taking right decision is no longer a difficult task. By this technique, people can easily evaluate other's opinion and experience about any product or service and also he can easily compare the competing brands. Now people don't want to rely on external consultant. The Opinion mining and sentiment analysis extract people opinion form the huge collection of unstructured content, the internet, and analyze it and then present to them in highly structured and understandable manner.
- **Finding Opinions on political topics:** After election, there is exit pole about that election. In that decision who is going to elected is displayed. Always it is not true. But, it gives information about election results. It also gives other political decisions.
- **Many Other decision making tasks:** By classifying the people's opinion into positive and negative, the system can say which one should get recommended and which one should not get recommended. Since internet is available to all, anyone can put anything on internet, this increased the possibility of spam content on the web. People may write spam content to mislead the people. Opinion mining and sentiment analysis can classify the internet content into' spam' content and 'not spam' content. People's opinion and experience are very useful element in decision making process. Opinion mining and Sentiment analysis gives analyzed people's opinion that can be effectively used for decision making.

Ads Placements:

The result of sentiment analysis techniques can be utilized in marketing research. By sentiment analysis techniques, the recent trend of consumers about some product or services can be analyzed. Similarly the recent attitude of general public towards some new government policy can also be easily analyzed. These all result can be contributed to collective intelligent research.
As per that result, placing ads in user generated content. Such as, Place an ad when one praises a product or Place an ad from a competitor if one criticizes a product.

ISSN(Online): 2320-9801
ISSN (Print): 2320-9798

International Journal of Innovative Research in Computer and Communication Engineering

(An ISO 3297: 2007 Certified Organization)

Website: www.ijircce.com

Vol. 4, Issue 12, December 2016

Opinion Retrieval/Search:

Through Sentiment analysis, policy makers can take citizen's point of view towards some policy and they can utilize this information in creating new citizen friendly policy. People's opinion and experience are very useful element in decision making process. Opinion mining and Sentiment analysis gives analyzed people's opinion that can be effectively used for decision making. : The monitoring of newsgroup and forums, blogs and social media is easily possible by sentiment analysis. Opinion mining and sentiment analysis can automatically detect arrogant words, over heated words or hatred language used in emails or forum entries or tweets on various internet sources. Since internet is available to all, anyone can put anything on internet, this increased the possibility of spam content on the web. People may write spam content to mislead the people. Opinion mining and sentiment analysis can classify the internet content into' spam' content and 'not spam' content.

III. LITERATURE REVIEW

SentiWordNet: A Publicly Available Lexical Resource for Opinion Mining presents that within the usage of opinion mining SentiWordNet determines the subjective/ objective polarity, positive/negative polarity and its strength [1].
SentiWordNet 3.0: An Enhanced Lexical Resource for Sentiment Analysis and Opinion Mining presents the difference of execution induced in SentiWordNet 3.0 to SentiWordNet 1.0 for better performance[2].
Achieving Privacy in Data Mining Using Normalization presents the use of min max normalization for data privacy [3].
Review paper on finding Association rule using Apriori Algorithm in Data mining for finding frequent pattern presents the use Apriori algorithm for finding frequent pattern in data mining [4].
Sentiment classication of reviews using SentiWordNetpresents the results of applying the SentiWordNet lexical resource to the problem of automatic sentiment classification of film reviews [5].
Mining Opinion Features in Customer Reviews presents summary of all the customers' reviews whether the opinions are positive or negative regarding particular product [6].
Opinion Mining Using SentiWordNet presents SentiWordNet's qualities, weaknesses and applicability[7].

No.	Title	Description	Publication
1.	SentiWordNet: A Publicly Available Lexical Resource for Opinion Mining(2006)	This paper presents that within the usage of opinion mining SentiWordNet determines the subjective/ objective polarity, positive/negative polarity and its strength	Istituto di Scienza e Tecnologie dell'Informazione, Consiglio Nazionale delle Ricerche Via Giuseppe Moruzzi 1, 56124 Pisa, Italy
2	SentiWordNet 3.0: An Enhanced Lexical Resource for Sentiment Analysis and Opinion Mining (2010)	This presents the difference of execution induced in SentiWordNet 3.0 to SentiWordNet 1.0 for better performance	Istituto di Scienza e Tecnologie dell'Informazione Consiglio Nazionale delle Ricerche Via Giuseppe Moruzzi 1, 56124 Pisa, Italy
3	Achieving Privacy in Data Mining Using Normalization (2013)	This paper presents the use of min max normalization for data privacy	Indian Journal of Science and Technology
4	Review paper on finding Association rule using Apriori Algorithm in Data mining for finding frequent pattern (2015)	This paper presents the use Apriori algorithm for finding frequent pattern in data mining	Indian Journal of Science and Technology
5	Sentiment classification of reviews using	This paper presents the results of applying the SentiWordNet lexical	Dublin Institute of Technology

ISSN(Online): 2320-9801
ISSN (Print): 2320-9798

International Journal of Innovative Research in Computer and Communication Engineering

(An ISO 3297: 2007 Certified Organization)

Website: www.ijircce.com

Vol. 4, Issue 12, December 2016

	SentiWordNet (2009)	resource to the problem of automatic sentiment classification of film reviews.	
6	Mining Opinion Features in Customer Reviews (2004)	This paper presents summary of all the customers' reviews whether the opinions are positive or negative regarding particular product.	American Association for Artificial Intelligence
7	Opinion Mining Using SentiWordNet (2013)	This paper presents SentiWordNet's qualities, weaknesses and applicability.	Julia Kreutzer &Neele Witte

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. Mining algorithm can be used for mining reviews from online reviews those are posted by customers. Our main theme is to create a system for analyzing opinions which implies judgment of different consumer products.

V. PROPOSED SYSTEM

The following are the steps of my proposed approach for performing opinion mining.

- Extract Nouns, Adjectives, Verbs and Adverbs from the customer reviews.
- Identify frequent pattern by using mining algorithm.
- Perform Sentiment Analysis on the frequent words.
- Use Min-max normalization for normalizing the polarity of values that we got and for normalizing the values of star ratings that we have taken from the customer reviews.
- Provide visualization.

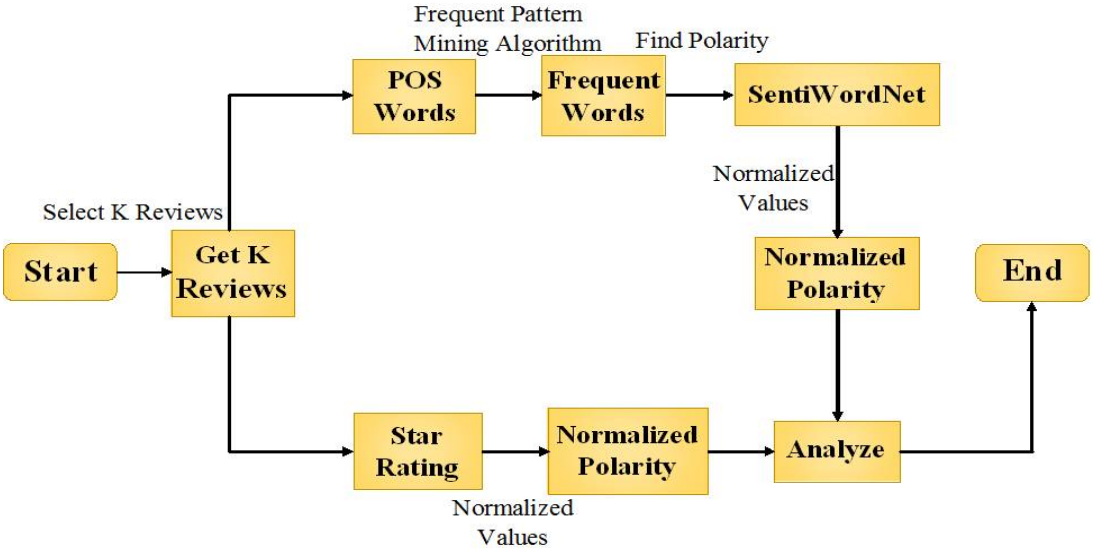

Figure 1: Proposed System

ISSN(Online): 2320-9801
ISSN (Print): 2320-9798

International Journal of Innovative Research in Computer and Communication Engineering

(An ISO 3297: 2007 Certified Organization)

Website: www.ijircce.com

Vol. 4, Issue 12, December 2016

VI. CONCLUSION

Opinion Mining consist of a wide range of Fascinating research areas as it poses a huge volume of user generated content resulting from review sites, blogs or other social networking sites. Opinion mining has application in various fields ranging from research market to advertising. Even Individuals make the most use of Opinion mining tools to make decision for buying their product by comparing different products of the same category.

REFERENCES

[1] Andrea Esuli_ and FabrizioSebastiani 2006. SENTIWORDNET: A Publicly Available Lexical Resource for Opinion Mining
[2] Stefano Baccianella, Andrea Esuli, and FabrizioSebastiani 2010. SENTIWORDNET 3.0: An Enhanced Lexical Resource for Sentiment Analysis and Opinion Mining
[3] G. Manikandan**1**, N. Sairam, S. Sharmiliand S. Venkatakrishnan **2013.** Achieving Privacy in Data Mining Using Normalization
[4] Krutika. K .Jain, Anjali. B. Raut 2015. Review paper on finding Association rule using Apriori Algorithm in Data mining for finding frequent pattern
[5] Bruno Ohana_ Brendan Tierney 2009. Sentiment classi_cation of reviews using SentiWordNet
[6] Julia Kreutzer &Neele Witte 2013. Opinion Mining Using SentiWordNet
[7] Minqing Hu and Bing Liu 2004. Mining Opinion Features in Customer Reviews
[8] Alina Andreevskaia and Sabine Bergler. 2006. Mining WordNet for fuzzy sentiment: Sentiment tag extraction from WordNet glosses. In Proceedings of EACL-06, 11th Conference of the European Chapter of the Association for Computational Linguistics, Trento, IT. Forthcoming.
[9] VasileiosHatzivassiloglou and Kathleen R. McKeown. 1997. Predicting the semantic orientation of adjectives. In Proceedings of ACL-97, 35th Annual Meeting of the Associatio
[10] Bo Pang and Lillian Lee. 2008. Opinion mining and sentiment analysis. Foundations and Trends in Information Retrieval, 2(1/2):1–135.
[11] Peter D. Turney and Michael L. Littman. 2003. Measuring praise and criticism: Inference of semantic orientation from association. ACM Transactions on Information Systems, 21(4):315–346.
[12] Liu L, Yang K et al. (2012). Using noise addition method based on pre-mining to protect health care privacy, Journal of Control Engineering and Applied Informatics, vol 14(2), 58–64.
[13] Dr. Gary Parker, vol 7, 2004, Data Mining: Modules in emerging fields,CD-ROM
[14] Gamon, M. (2004). Sentiment Classification on Customer Feedback Data: Noisy Data, Large Feature Vectors, and the Role of Linguistic Analysis. Proceedings of the 20th international conference on Computational Linguistics. Geneva, Switzerland: Association for Computational Linguistics.
[15] Turney P. (2002). Thumbs up or Thumbs down? Sentiment Orientation Applied to Unsupervised Classification of Reviews. Proceedings of the 40th Annual Meeting of the Association of Computational Linguistics – ACL, 2002.
[16] Baccianella, Stefano, Andrea Esuli, and FabrizioSebastiani. "SentiWordNet 3.0: An Enhanced Lexical Resource for Sentiment Analysis and Opinion Mining." LREC. Vol. 10. 2010.
[17] Esuli, Andrea, and FabrizioSebastiani. "Sentiwordnet: A publicly available lexical resource for opinion mining." Proceedings of LREC. Vol. 6. 2006.
[18] Boguraev, B., and Kennedy, C. 1997. Salience-based content characterization of text documents. In Proceedings of the ACL Workshop on Intelligent Scalable Text Summarization.
[19] Jacquemin, C., and Bourigault, D. 2001. Term extraction and automatic indexing. In R. Mitkov, editor, Handbook of Computational Linguistics. Oxford University Press.
[20] M. Dimitrijevic, and Z. Bosnjak "Discovering interesting association rules in the web log usage data"Interdisciplinary Journal of Information, Knowledge, and Management, 5, 20 I 0, pp.191 -207.