

OPINION MINING IN SOCIAL MEDIA DATASET USING NLP TECHNIQUES (SENTIMENT ANALYSIS ON TWITTER DATASETS)

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Abstract : Sentiment analysis is the finding of attitudes such as enduring, effectively colour beliefs, disposition towards objects or persons. Sentiment analysis is known as opinion extraction, opinion mining, sentiment mining and subjective analysis. One of the most important sub tasks in sentiment analysis is to determine the sequence of words affected by negation. Most of the existing sentiment analysis systems used to traditional methods based on static window and punctuation marks to determine the scope of negation. The sentiment analysis is to review positive or negative of the twitter dataset, for prediction, in politics to find what people think about this candidate or issue and as a public statement to know about the consumer confidence. This thesis focus on sentence-level sentiment analysis for the twitter data set collected and experiment it. Whether the sentence reveals the positive, or negative about the twitter. The collected opinion is applied to perform the experiment using the proposed system to classify the twitter into positive, negative and neutral. The opinion is applied to the system by using techniques such as Navie bayes. Finally the results of techniques of the proposed system have shown that the accuracy, execution time, recall, precision of Navie bayes.

IndexTerms *opinion extraction, opinion mining ,sentiment mining.*

I. INTRODUCTION

1.1 OPINION MINING

Opinions are central to nearly all individual activities and are key influencers of our behaviors. Our beliefs and perceptions of actuality, and the choice we make, are, to a considerable degree, conditioned upon how others see and evaluate the world. For this motive, when we need to make a choice we often seek out the opinions of others. This is not only true for individuals but also for organizations. Opinions and its related concepts such as sentiments, evaluations, attitudes and emotions are the subjects of study of sentiment analysis and opinion mining. In industries, the period sentiment analysis is more widely used, but in university both sentiment analysis and opinion mining are frequently used in employment. Sentiment analysis and opinion mining mostly focus on opinions which express or imply positive or negative sentiments. A Large amount of user reviews or proposals on all is contemporary on the web these days. Reviews may contain the huge volume of reviews on products or services which supports further users in their choice creation. Criticisms are aggregate in a faster rate day by day because each individual likes to give their view on the Net. Large number of reviews are accessible for a solo product which makes tough for a client to deliver all the reviews and make a decision. Thus, withdrawal this data, recognizing the user opinions and categorizing them is an imperative task. Opinion Mining is a Natural Language Processing (NLP) and Information Extraction (IE) task that purposes to gain methodologies of the writer uttered in positive or negative interpretations by considering a large number of brochures. It conglomerates the techniques of the computational linguistics and the Information Retrieval (IR). The main assignment of Sentiment analysis is to classify the documents and fix its polarity. Polarity is stated as positive, negative or neutral.

1.2 SENTIMENT ANALYSIS

Sentiment analysis sometimes known as opinion mining or emotion AI refers to the use of natural language processing, text analysis, computational linguistics, and biometrics to systematically identify, extract, quantify, and study affective states and subjective information. Sentiment Analysis is an area of focus over last decade. Increase in user-generated content provide an important aspect for

the researchers, industries and governments to mine this information and is truly differentiating today's corporations. The user-generated content is an important source for various organizations to know, learn and identify the general expression/sentiment of different users on the product. The Social Web has changed the ways people communicate, collaborate, and express their opinions. The potential for the sharing of opinions today is unmatched in history so many knowledgeable people been connected by such a time and cost efficient and effective network. Due to the vast growth and emergence of the Consumer Generated Media (CGM) on internet such as blogs, forums, websites and news articles, ecosystem of corporations has changed significantly. Customers, retailers are tremendously interested in and about reviews and insight of companies, their products and services, brands offered on the web. The reviews of customers are really important to attract huge number of customers. In particular, an important form of insights can be derived from sentiment analysis from the web contents. Recently, sentiment analysis of online customer reviews has emerged as a very important research topic. The entity can represent events, topics or individuals. These topics are likely to be covered by reviews. The two expressions SA or OM are actually interchangeable and they express a mutual meaning. Some researchers also said that OM and SA have slight different notions. Therefore, the aim of SA is to find opinions, identify the sentiments they express and then classify their polarity. Basically sentiment analyses are two types of polarity: i) Positive polarity and ii) Negative Polarity. An object which holds the positive opinion comes under the positive polarity happy, nice, joy, fun, excellent etc. An object which holds the negative opinion comes under the negative polarity bad, worst, rubbish, terrible etc. Main exploration in the realm of Sentiment Analysis and opinion mining are: sentiment classification, feature based Sentiment classification and opinion summarization. Sentiment classification bestows with classifying entire documents or text or review in conformity with the opinions towards certain objects.

1.3 SENTIMENT ANALYSIS TYPES

Sentiment analysis is a language processing task that used an algorithm formulation to classify narrow-minded content and sort out its positive, negative or neutral polarity. Sentiment analysis or opinion mining is the computational learning of people's opinions, attitudes and emotions toward a person. It involves the discovery of opinions from a text segment at various levels of granularity as well as document level, sentence-level and aspect-level.

1.3.1 Document-level It classifies the document as positive, negative or neutral. Normally Opinions are not stored in full document, unless it is some organizational feedback report. But client share their opinions in blogs, forums which are not in text form. Hence comparing to customer opinion mining article level mining is not appropriate. It is much useful for high level or formal feedback or sentiment analysis e.g. a single product.

1.3.2 Sentence-level It classifies the sentences as positive, negative or neutral. In this technique, individual sentences, bearing sentiments in the text are considered for cataloging. In sentence level Opinion Mining the relations between sentences are calculated. The same document level classifications method can be applied to the sentence level classification with the sentences containing opinion words which help the sentiment about the entity to be informative. After that, sentence arrangement is done into positive and negative classes e.g. objective and subjective sentences.

1.3.3 Aspect-level It classifies the sentiment to the specific aspects of entities. Opinion Mining based on some exact phrases. The phrase level sentiment classification is a great deal more precise in identifying the opinions. In this technique the phrases that contain opinion words are found out and an expression level categorization is done. But in some other cases, where contextual relations matters, the result may not be accurate E.g. entity of product. Sentiment analysis and opinion mining area along with the large amount frequently used applications of language technology, impacting together industries and a mixture of further intellectual principles. Yet sentiment analysis is still dominated by bag-of-words approaches, and attempts to contain extra linguistic framework normally prevent at the sentence level. Since document level opinion mining essentially involves multi-sentence texts, it seems to study document-level formation and must have a task to play. This document-level classification aims to computerize the assignment of classifying a textual

analysis, which is specified on a particular topic, as expressing a positive or negative statement. Reviews are increasing in a faster rate day by day because every human being likes to present their view on the network. Huge records of reviews are presented for a particular product which makes complicated for a client to study all the reviews and come to a decision. Thus, mining this record, identify the customer opinions and categorize them is a main task. Recent advances in the fields of text mining, information removal and information recovery have been forced by a related goal to utilize the secreted value protected in huge volumes of formless data.

1.4 DIFFERENT APPROACHES OF SENTIMENT ANALYSIS

Sentiment analysis is a challenge of the Natural Language Processing (NLP), text analytics and computational linguistics. In a general sense, sentiment analysis determines the opinion mining the object/subject in discussion. It's use was made to analyze sentiment based on long texts such as letters, emails and so on. It is also deployed in the field of pre- as well as post-crime analysis of criminal activities. People discussed, commented and criticized various topics, and wrote reviews, recommendations, etc. Using these analysis user generated information carries a lot of valuable information on products, people, events, and so on. The modern world has led to advanced mechanisms of customer feedback and satisfaction to-innovation cycle. In sentiment analysis domain, the texts belong to either of positive or negative classes.

1.5 CHALLENGES OF OPINION MINING

1.5.1 Identifying Synonyms : Different words or phrases can be used to refer to the same value of the object. So, such words should be identified and grouped together. It is a difficult task to recognize these words. A lot of study is required to be done on this issue as it has not been much addressed in the past.

1.5.2 Identifying positive or negative opinion Correspondingly detecting an opinion as positive, negative or neutral can be a difficult task in opinion mining. A word could be calculated positive in one situation and negative in another situation. This can be tricky to calculate as a sentence can be measured negative because of the use of negative words in it.

1.6 SENTIMENT ANALYSIS TECHNIQUES

1.6.1 Supervised Approach Supervised approach is called Machine learning. Machine learning technique utilizes training data to build predictive model. Predictive models such as decision trees, logistic regressions or neural networks are serviced to make prediction on documents which are present outside the training set. This approach has advantage as it is based on learning patterns that are beneficial in making automated and efficient predictions. Also the algorithms are able-bodied of discovering complex and unimagined patterns that would be beyond what a human could wean. However it has drawbacks as large training data is necessary to build the model and consolidating it is time consuming and challenging.

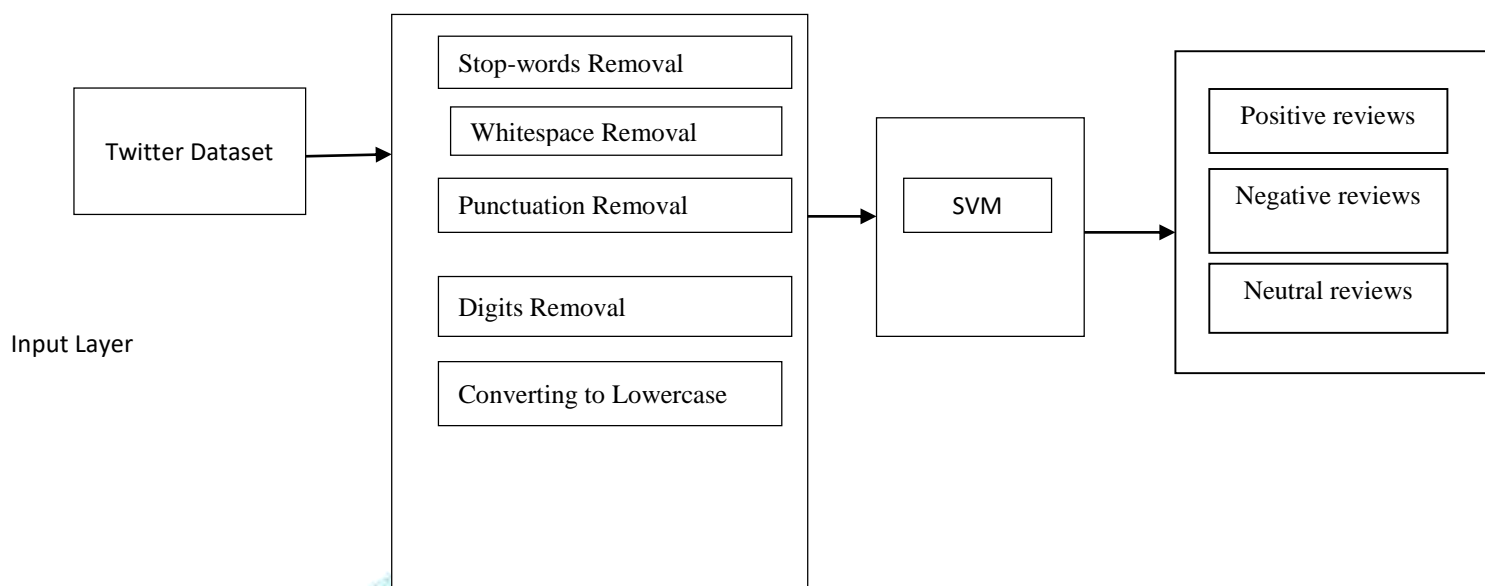


Fig 1 Architecture

1.7 CONCLUSION

In order to conclude, the NB based system has better accuracy and performance efficiency in sentence level classification. This Naïve Bayes model is easy to build and it is used in large data sets. It is known to outperform even highly sophisticated classification methods. This Bayes Algorithm is used in Real Time Prediction, Multiclass Prediction, Recommendation system and Text Classification or Spam Filtering or Sentiment Analysis. Hence the NB is performed in Sentence Level sentiment analysis. Nowadays, the document level opinion mining is widely used to perform twitter dataset. It is good at its performance and accuracy is better compared with SVM algorithm. Hence the dataset and other documents can be processed and can be classified by their polarity as positive, negative and neutral using NB based sentence level sentiment analysis

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