IJIRR

International Journal of Information Research and Review
Vol. 03, Issue, 08, pp. 2686-2690, August, 2016

Research Article

TEXT FILTERING TECHNIQUE FOR ONLINE SOCIAL USER'S WALL WEBSITE

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ARTICLE INFO

Article History:

Received 20th May 2016
Received in revised form
08th June 2016
Accepted 13th July 2016
Published online 30th August 2016

Keywords:

Online-Social Networks,
Content-Based Filtering,
Machine Learning,
Filtering Rules,
Data Mining,
Text mining.

ABSTRACT

Online Social Network (OSN) is an ineluctable powerful, most popular interactive medium to exhibit views, share, communicate and dissipate a considerable amount of human life information's among the internet user. The main issue in Online Social Networks is the users have less control over the filtering technique to avoid unwanted messages or text that posted on their walls. This paper presents an overview comprehensive review of Information Filtering on various techniques proposes a system enforcing Content Based Text Filtering concessive as a key service for online social network to block user's vulgar content or abuse words.

INTRODUCTION

Online Social Networks has become an essential part of daily life. In Online social networks client can upload and share personal information with the family, relatives and friends. As the personal information is shared online, it is essential to handle the threat of privacy being meddled .The most essential effects in using social networks are security of the individual information of the user and the user's closemouthed space where someone can post the message. Thus it is essential to offer user with the mechanism which can filter the offence content from his closemouthed space. current OSN gives a very little support for such type of filtration .Thus for that reason new system is proposed that can filter the users wall automatically and provide a direct control over on the message that are being posted on his/her wall. OSN produces a vast data every day and classifying a valuable data is called as Information Filtering (Adomavicius and Tuzhilin, 2005; Chau and Chen, 2008; Mooney and Roy, 2000) .This projected however just gives a support to user to classify the valuable data from the raw data.

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A broader view of information filtering in OSN can be special, more specific as in the OSN someone is permitted to post, comment and share on the public/private space called general Wall. Thus in the projected system, information filtering can offer the system that gives the user an ability to filter the offence or abuse messages still if the word used in the message is not under offensive category but has a same meaning as of offensive meaning from his/her wall. The aim is to propose and experimentally evaluate a mechanical system, called Filtered Wall (FW), which is able to filter offensive messages from OSN user walls. The operation of Machine Learning (ML) text categorization techniques (Belkin and Croft, 1992) is done to mechanically consign each short text message to a set of categories based on its content.

Literature survey

There are two types in which message filtering procedure can be fulfilled: Content –Based and Social Filtering based. Content-based systems, the process of filtering is fulfilled by tapping the information which is expressed from the text of documents as in Social Filtering systems the annotations made by the past reader's documents are filtered .OSN system can be modified as Content-Based filtering systems. It is been noticed that the current OSN does not have any content based policy offered so far.

OSNs offered a simple support to prevent any type of offence message on user's wall. For example, in Facebook users are just featured to restrict their wall post by state who is allowed to post text (i.e friends or friends of friends, or mutual friends). Here are no content-based preferences thus it is inflexible to block unwanted messages, such as political or vulgar ones. Thus offering these avails is not that using previous classification mining technique as they can only filter wording but wall messages consist of small text for previous classification technique stands with restriction. Thus the ML techniques stand as a major supplier in planning the OSN message filtering system. OSN filtering work has been thus responding in both the content based and also the policy based personalization and furthermore in web contents too.

W. B. Croft and N. J. Belkin in 2002 approved that Information Filtering systems which was planned to classify a flow of vigorously generated information removed asynchronously by an information subroutine and current it to the user those information that are likely to assure his/her necessities (Belkin and Croft, 1992). In such content-based filtering system every user is believed to operate separately. The result of this is a content-based filtering system selects information matter on the basis of relationship between the content of the matter and the preferences of the users as counterpoint to a Collaborative Filtering system that selects matter based on the relationship between people with like preferences (Denning, 1982; Foltz and Dumais, 1992). Electronic mails were the former domain for the work on information filtering, ensuing papers documented branched out area including the news service articles, Internet "news "articles and broader network resources (Pollock, 1988; Jacobs and Rau,1990; Baclace, 1992). Mostly the Documents treated in content-based filtering are textual in nature and thus makes content-based filtering near to text classification. Filtering process can be model as a binary classification, single label, partitioning arriving documents into relevant and non-relevant classes (Hayes *et al*., 1990). In development some complex filtering systems anvils multi-label text classification in which mechanically labeling of messages into partial thematic categories is done.

This system exploits a ML soft classifier to enforce customizable content-dependent FRs. Moreover, the flexibility of the system in terms of filtering options is enhanced through the management of BLs. (Marco Vanetti *et al*., 2013) which confirmed high quality of Boosting-based classifiers (Schapire and Singer, 2000), Support Vector Machines (Janavee Jambhulkar, 2015) and Primarily they classified the content using several rules nothing but content based classification. In the next step they performed policy based. The first step related with the extraction and / or selection of contextual features that have been shown to have a high discriminative power. And second concerns with the learning phase (Sneha *et al*., 2013). over other admired method, such as Rocchio (A probabilistic analysis of the rocchio algorithm with tfidf for text categorization, 1997) and Naive Bayesian (Shubham *et al*., 2015). However, it is a yield to note that most of the work in text filtering by ML has been applied for long-form text and the evaluate presentation of the text categorization methods severely depends on the nature of textual documents. The small length texts that are posted on the user's wall have been a disputed for the application of content based techniques. In the Scientific society short text classification has been taking concentration these days. To get better classification of short text (Mayuri Uttarwar *et al*., 2015) tried to develop a semi supervised learning strategy which was based on a compounding of labeled training data in addition a secondary corpus of unlabeled but associated longer documents. This clarification was unsuitable in OSN domain in which small messages are not sum up or part of longer semantically associated documents.

Some propositions have used classification mechanisms for personalizing access in OSN. To group short text messages, in (Sriram *et al*., 2010) a classification technique has been projected in order to avoid overcoming users of micro blogging services by unprocessed data which focused on the tweets and associated the category relating to content of the tweets. Therefore providing user to vision assured types of tweets based on his/her interests. In contradictory (Golbeck, 2006) projected an application Film Trust that exploits OSN trust relationships and cradle information to personalize access. Hence such filtering rule have some issues in given that the user plenty result analysis for classification process to make a decision how and to which extent filtering of unwanted messages is achievable.

MATERIALS AND METHODS

Filtering unwanted message from user wall data's like abusive, vulgar and reviews are collected from www.amazon.com and www.ebay.com. 5000 training data's are used. Naive bayes algorithm is used for classification. It classified the Positive words and Negative words using senti word net3.0.Filtering the message on the basis of positive words. Figure1 shows that POS tagging preprocessed the data. That preprocessed data are extracting as the words that calculating the opinion strength then classification is done using naive bayes. Extracting the negative words ontology is created then filtering the positive message from extraction of Positive words.

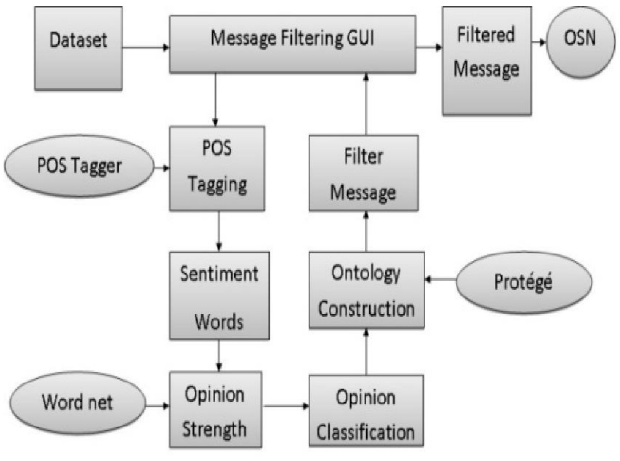

Figure .1. Proposed Conceptual steps for filtering the user's wall in OSN

Figure 2 shows that data collected from amazons and trip advisor then preprocessing steps carried out that are used for extracting adjective and adverbs and opinion strength is calculated then using opinion strength filtering the message.

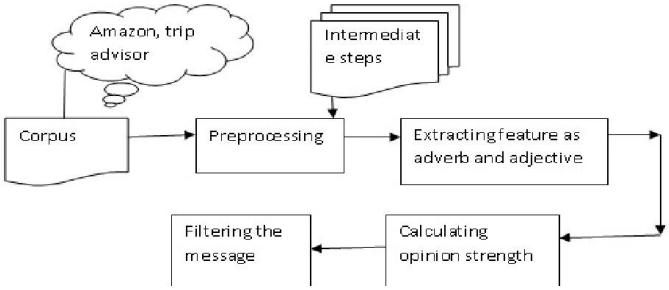

Figure .2. flow of proposed work step

Naive Bayes

Naive bayes is Bayesian probability distribution model based algorithm. In general all Bayesian models are derivatives of the well known Bayes Rule, which suggests that the probability of a hypothesis given certain evidence, i.e. the posterior probability of a hypothesis, can be obtained in terms of the prior probability of the evidence, the prior probability of the hypothesis and the conditional probability of the evidence given the hypothesis. Mathematically,

$$P(C \mid A) = \frac{P(A \mid C)P(C)}{P(A)}$$

Where, P(C|A)- posterior probability of the hypothesis.
P(C)- prior probability of hypothesis.

P(A)- prior probability of evidence.
P(A|C)- conditional probability of evidence of given hypothesis.

In this process the percentage of positive words and negative words, and often used to predict outcome before they really happen. Thus, we can write:

Prior Probability of positive words P (p)

$$= \frac{\text{No.of positive words}}{\text{Total no.of words}}$$

Prior Probability of negative words P (n)

$$= \frac{\text{No.of negative words}}{\text{Total no.of words}}$$

Posterior probability of X being positive

= (PP positive) *(Likelihood of X being positive)

$= \frac{2}{3} * \frac{1}{2} = \frac{1}{3} = 33.34\%$ chances of X being positive (pp positive means Prior probability of positive)

Posterior probability of X being negative = (pp negative) * (Likelihood of X being negative)

$= \frac{1}{3} * \frac{1}{2} = \frac{1}{6} = 16.67\%$ chances of X being negative (Pp negative means prior probability of negative)

Thus these data is taken as dataset will fall in to the positive class.

RESULTS AND DISCUSSION

In this paper POS Tagging is used for extracting sentiment terms. After extracting the sentiment terms, calculate the polarity strength for each terms. Polarity strength was calculated by using word net tool. Classification is applied based on this polarity value. Classification is done by the protégé tool. After classification, filtering is performed. This will remove the unwanted message from user wall. The analysis is preprocessed using stand ford POS TAGGER tool. This tool split the noun, verb, adjective. Part of speech tagging is a natural language processing tool to mechanize the sentiment analysis process. A simplify form of this is generally taught to school-age children, in the discovery of words as nouns, verbs, adjectives, adverbs, etc.

In POS tagging process, eliminates stop words from user review (ie and, but, a, The etc). After removing stop words the review contain domain words and sentiment words. We extract the sentiment words to analyze to user opinion .The classification of text categories into "positive", "negative" and in some cases "neutral", "non neutral. After extracting the sentiment words, the opinion strengthis claculated using word net tool. Word Net assigns to each synset of Word Net three sentiment scores. Based on opinion strength of senti word we have classifying the word into five classes. 1. Strong positive, 2. Weak positive 3. Strong negative 4. Weak negative, 5. Neutral. After Opinion analysis, wonly the negative polarity terms are extracted. Then construct the ontology using this terms. Finally filtering messages by comparing the Ontology with message. A classifier is automatically induced by learning from a set of pre classified examples.

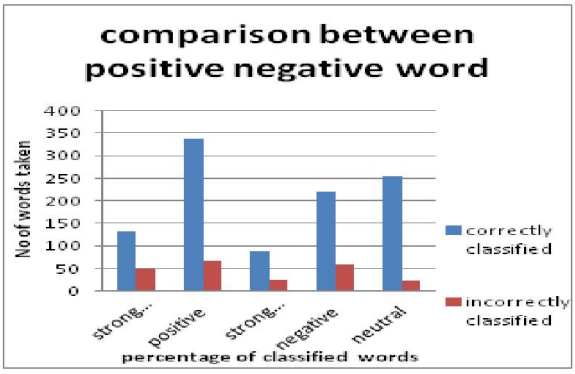

Figure3. comparison between positive negative words

The result of sample 1000 word data set comparisons between positive and negative word Shown in figure(3). It shows the of correctly and incorrectly classified words graph. Total numbers of correctly classified words are positive (337), negative (254) and remaining words (409). From the above figure positive words attain highest value when compared with negative words.

Ontology

Based on the Negative polarity strength the ontology is created as shown figure 4. New words are found or traced in the date set Ontology provide the knowledge to add its won categories of negative word like vulgar, abusive, violence, offensive and curse.

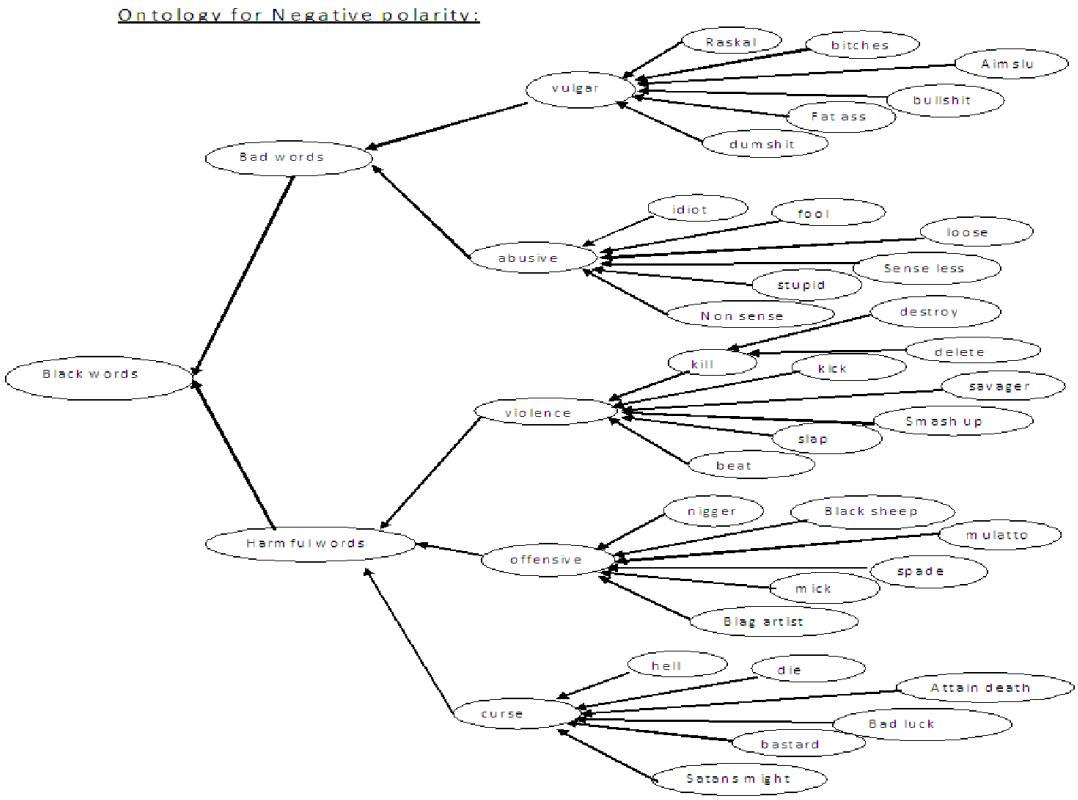

Figure 4. ontology for negative words based on the negative polarity

NUMERICAL RESULT

In a classification, the precision for a class is the number of true positives (TP) divided by the total number of elements label as belong to the positive class that is the sum of true positives and false positives (FP) which are items incorrectly label as fit in to the class whereas Recall is defined as the number of true positives divided by the total number of elements that really fit in to the positive class that is the sum of true positives and false negatives(FN), which are items which were not label as fit in to the positive class but should have been.

$$\text{Precision} = \frac{TP}{TP + FP} \quad (1)$$

$$\text{Recall} = \frac{TP}{TP + FN} \quad (2)$$

F-measure is a measure that combines precision and recall is the harmonic mean of precision and recall.

$$\text{F-measure} = 2 * \frac{\text{Precision} * \text{Recall}}{\text{Precision} + \text{Recall}} \quad (3)$$

On the basis of dataset of wall messages we found the results as in table 1.

Table 1. Accuracy of classifier

Metric	Positive word	Negative word
Precision	83%	78%
Recall	84%	76%
f-measure	85%	76%

Conclusion

This paper contains the working method to filter the unwanted message from online social network .The projected system is capable of filtering the unwanted message or any type of text that has a same meaning of unwanted message from the users wall. In a superior term, the flexibility of the system is enrichment of filtering options is done all the way through the naive bayes classifier. The newly examined promoting results thus obtained by projected system will improve the quality of classification in the future. Proposed system is based on the short text classification approach which will classify the unwanted messages with polarity value of each word. Thus proposed system assures for the unwanted messages and filters it. This work is the first step of a forthcoming more spacious project as the work that are used in present online social network can purely filter any such type of message .The proposed system can be used to update the current osn so that all the messages can be filtered provide the secured environment for the user

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