DETECTING CRISIS BASED ON EMOTIONAL CLASSIFICATION OF SOCIAL MEDIA POSTS USING SENTIMENTS ANALYSIS

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ABSTRACT

Today, the textual data on the internet is growing at a rapid pace. There are countless media sites that empower clients to contribute, adjust and grade the content. Clients have a chance to express their own assessments about particular themes. The case of such sites incorporate web journals, gatherings, item audits destinations, and interpersonal organizations. The proposed methodology in this work will utilize the common dialect handling techniques like fuzzy logic and SVM to extract emotions from text present in various blogs. Fuzzy logic is easy to apply and understand. Mathematical concepts of fuzzy logic is also very simple. It is based on the natural language. Also SVM provides good classification rate.

KEYWORDS

Sentiment Analysis, Fuzzy Logic, SVM, Text Mining.

1. INTRODUCTION

Use of social media is increasing day by day. Social media growth leads to the usage of internet as the participation of persons is increasing simultaneously. In case of product review, user helps a lot about decision making of the product [1, 2, 3]. Manual reading of such large database is very difficult task. That is why there is important need to extract features that are positive as well as negative and it helps lot in decision making. There are various private as well as govt. organizations that adopt these strategies [4]. So, in proposed work, sentiment analysis of big data will be proposed based on fuzzy logc and support vector machines (SVM).

Detection of the emotions state of the human being based on textual analysis is very complex. Sometimes it is directly or indirectly related to the words discussed in document file [5]. Emotions are represented as

the part of the speech, face expression as well as in text used for human computer interaction [5]. Large amout of work has been done in analysis of emotions from face expressions and other gestures but few research has been done on text analysis. Also usage of computational models for text analysis has been done at good efficiency rate. Emotions can be seen as the function of the joy, anger, surprise in human body. sAs of late, numerous scientists have concentrated on this region [6].

Suppose there are large number of emotions like:

Emotions = e1, e2, e3, e4, e5, e6,………en.

Then emotions can be classified as:

Anger= e1

Surprise= e2

Happy = e3

Sad= e4

Neutral= e4 so on.

They are attempting to get sentiment data to examine and abridge the operation inions communicated naturally with PCs. This new research area is generally called Opinion mining of enormous information and Sentiment Analysis [7].

Classification problem is one of the problem in which data has to be classified into different classes present inside the db. This extricated data can be then further arranged by extremity as positive, negative or impartial. It can be characterized as a computational errand of separating notions from the supposition. A few suppositions speak to conclusions and a few assessments don't speak to any opinion [8].

Sentiment analysis is also known as sentiment mining of huge information. SA is the computational investigation of Opinions, conclusions, subjectivity toward an element. The element represents the people, occasions or points [9, 10].

The essential work in the information mining can be arranged in two consequent ways. Initially is called grouping and the other is called making clusters. Information Mining is a term of seeking and investigates of information. Fuzzy logic is thoughtfully straightforward.

There are countless media sites that empower clients to contribute, adjust and grade the content. Clients have a chance to express their own assessments about particular themes. The case of such sites incorporate web journals, gatherings, item audits destinations, and interpersonal organizations.

The proposed methodology in this work will utilize the common dialect handling techniques like fuzzy logic and SVM to extract emotions from text present in various blogs.

Fuzzy logic is easy to apply and understand. Mathematical concepts of fuzzy logic is also very simple. It is based on the natural language. Also SVM provides good accuracy.

2. SIMULATION MODEL

The methodology of proposed work is given in below steps:

Step 1 :   Start.

Step 2 :   Upload textual data from database which is collected from online websites.

Step 3 :   Then apply pre-processing on uploaded data in which feature extraction is done to get features of words.

Step 4 :   Then in next phase, creation of fuzzy rules will be done to get rule set.

Step 5 :   After this uploaded data will be tested on the basis of extracted features. In the dictionary there are some words that has meaning given to them in natural language. Hence matching can be done easily using SVM.

Step 6 :   In the end the consequences of the proposed method will be done and various parameter evaluation will be done to check the accuracy of the proposed work model.
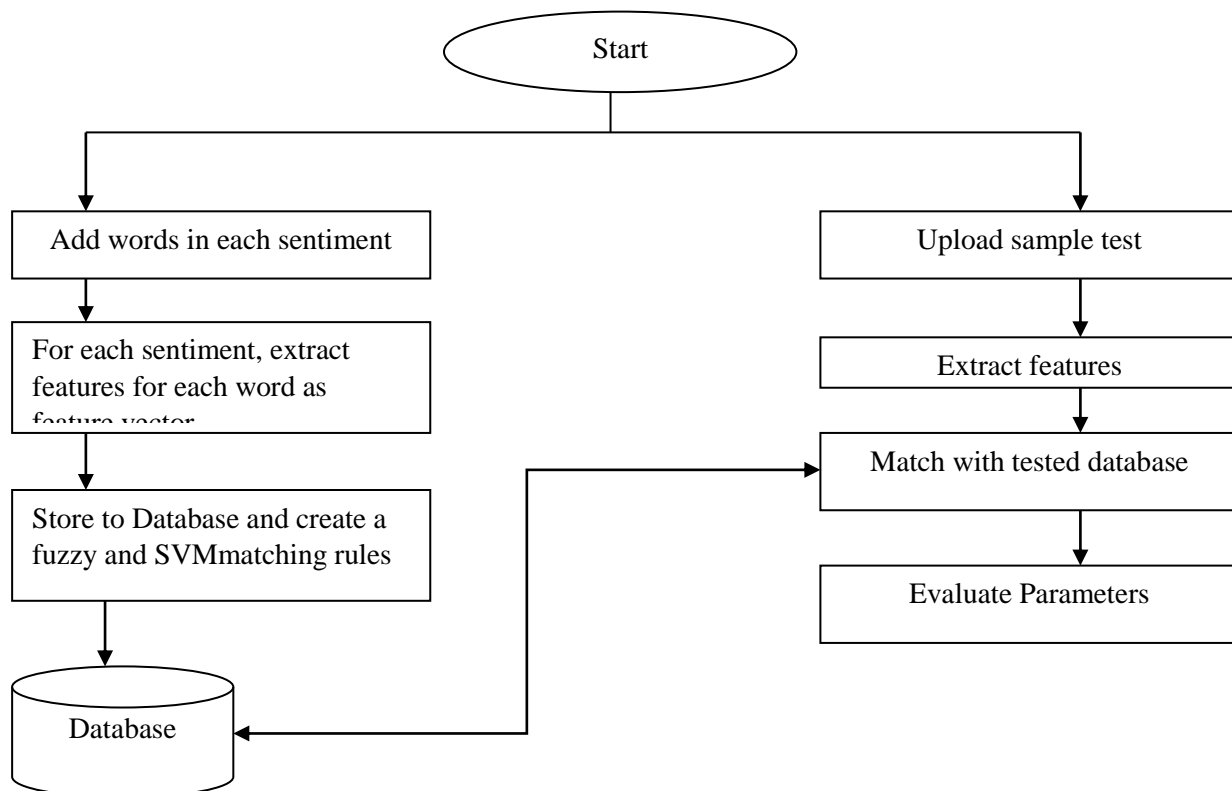

Figure.1 Proposed Flowchart

3. SIMULATION ALGORITHMS

A. Uploading Text Algorithm

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mydata=get(handles.edit4,'String');

myvalue=[];

myvalue=generator(mydata);

disp(myvalue);

[r1,c1]=size(myvalue);

data_to_be_saved_happy=myvalue;

try

loadhappy_values

[r,c]=size(data_to_be_saved_happy);

initial_value=r+1;

%final_value=initial_value+r1-1;

data_to_be_saved_happy(initial_value,1:c1)=myvalue(:,1:c1);

save('happy_values.mat','data_to_be_saved_happy');

msgbox('DATA UPDATED TO DATABASE');

catch

data_to_be_saved_happy(r1,c1)=myvalue(r1,c1);

save('happy_values.mat','data_to_be_saved_happy');

msgbox('DATA UPDATED TO DATABASE HAPPY');

end

Similarly it will be applicable for SAD, ANGRY dataset.

B. Fuzzy Logic Proposed Algorithm

ele=numel(data_to_be_saved_angry);

angryele=fuzzyfier(data_to_be_saved_angry);

trainingangry=data_to_be_saved_angry(find(angryele==1));

happyele=fuzzyfier(data_to_be_saved_happy);

traininghappy=data_to_be_saved_happy(find(happyele==1));

sadele=fuzzyfier(data_to_be_saved_sad);

trainingsad=data_to_be_saved_sad(find(sadele==1));

ss=numel(angryele);

sp=numel(happyele);

dd=numel(sadele);

k=min(ss,sp);

k=min(k,dd);

Training_data(1,1:k)=sadele(1:k);

Training_data(2,1:k)=happyele(1:k);

Training_data(3,1:k)=angryele(1:k);

group(1)=1;

group(2)=2;

group(3)=3;

C. Fuzzy SVM Proposed Algorithm

u=unique(GroupTrain);

numClasses=length(u);

result = initializeruleset(TrainingSet);

%build models

for k=1:numClasses

```
%Vectorized statement that binarizes Group
%where 1 is the current class and 0 is all other classes
G1vAll=mapmembership(GroupTrain,u,k);
models(k) = svmtrain(TrainingSet,G1vAll);
 end
%classify test cases
for j=1:size(TestSet,1)
for k=1:numClasses
if(svmclassify(models(k),TestSet(j,:)))
break;
end
end
result(j) = k;
end
```

4. SIMULATION EXPERIMENT ANALYSIS

Table.1 Parameter Evaluation

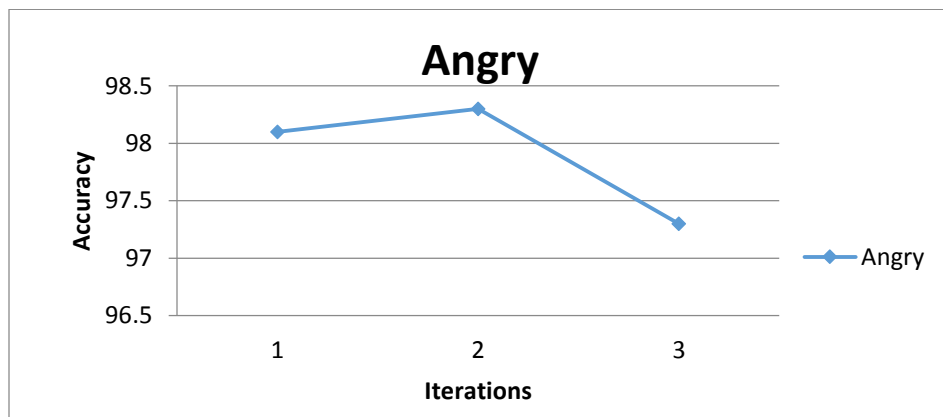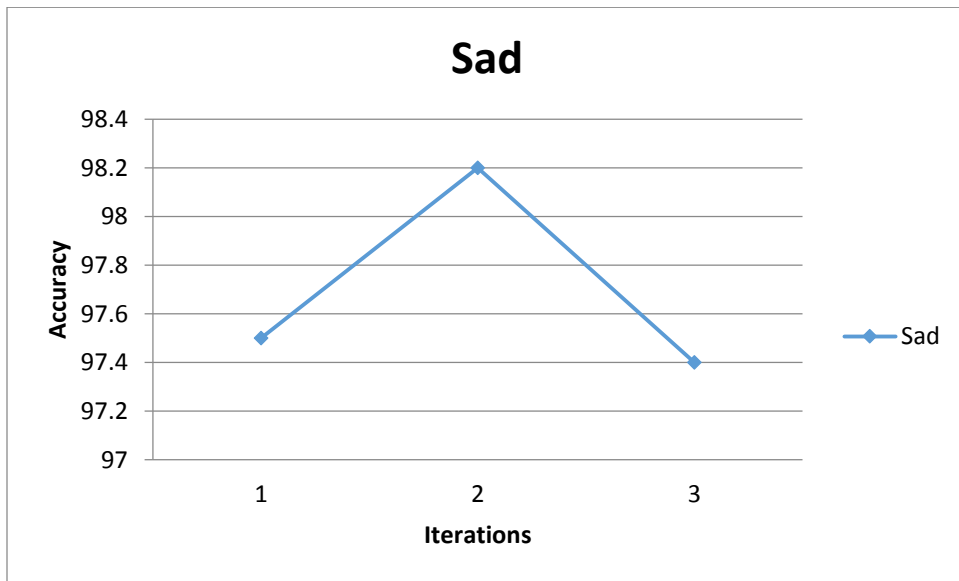| Iteration no.	Category	Accuracy (%)	Error rate
1.	1	97	3
2.	2	97.5	2
3.	3	98.1	3
4.	1	97.2	2
5.	2	98.2	2
6.	3	98.3	1
7.	1	97.0	1
8.	2	97.4	3
9.	3	97.3	3

Figure.2 Parameter Evaluation Graphical Representation

5. CONCLUSION

Classification problem is one of the problem in which data has to be classified into different classes present inside the db. This extricated data can be then further arranged by extremity as positive, negative or impartial. It can be characterized as a computational errand of separating notions from the supposition. A few suppositions speak to conclusions and a few assessments don't speak to any opinion. Sentiment analysis is also known as sentiment mining of huge information. SA is the computational investigation of Opinions, conclusions, subjectivity toward an element. The element represents the people, occasions or points. The essential work in the information mining can be arranged in two consequent ways. Initially is called grouping and the other is called making clusters. Information Mining is a term of seeking and investigates of information. Fuzzy logic is thoughtfully straightforward.

Large amount of work has been done in emotion extraction from text. But good accuracy has not been reached by using various techniques of data mining, AI, classification algorithms. So, in proposed work hybridization of both AI and classification algorithm has been done in which fuzzy logic and SVM has been utilized. From result simulations it has been concluded that proposed method worked well having accuracy of 97%.

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