Opinion Mining for the Customer Feedback using TextBlob

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ABSTRACT

Evolution in the field of web technology has made an enormous amount of data available in the web for the internet users. These internet users give their useful feedback, comments, suggestion or opinion for the available product or service in the web. User generated data are very essential to analyze for business decision making. TextBlob is one of the simple API offered by python library to perform certain natural language processing task. This paper proposed a method for analyzing the opinion of the customer using TextBlob to understand the customer opinion for decision making. This paper, provide a result for aforesaid data using TextBlob API using python. The paper includes advantages of the proposed technique and concludes with the challenges for the marketers when using this technique in their decision-making.

Keywords : Opinion Mining, Decision making, Natural language processing, customer feedback, TextBlob

I. INTRODUCTION

Opinion mining or Sentimental analysis is to determine the tendency or attitude of a communicator through the contextual polarity of their writing or speaking. The Internet has changed the manner in which individuals express their perspectives, by the introduction of web 3.0 user's can have conversation about the product or service with manufacturer or service provider. It is for the most part done through blog entries, online discussions, item survey sites, internet based life, and so on. Users expressing their views, emotions and sentiment through social network sites like Google Plus, Twitter, Facebook etc. Social network is

producing a huge volume of notion rich information as tweets, reviews, comments, discussion, blog entries, and so forth. Social media network gives a chance to businesses by giving a stage to interface with their target customer for advertisement. A user on the most of the cases depends widely on other user's generated content for decision making about the product available in the online. Because of the huge content generated by the users in a daily basis it becomes a difficult job for the ordinary users to analyze the content. Hence there is a great demand to automate the users review. In this context SA has a very vital role to play. Sentiment analysis enlightens the customer whether the data concerning the product is attractive or not before they purchased it.

Advertisers and firms utilize this data to comprehend about their product or administrations so that it very well may be offered according to the user's prerequisites. Hence, in the context of analysis one can use textual Information retrieval techniques. It mainly focuses on searching, preparing or analysing the genuine information present. But, there is some other textual information which may express subjective features. This information's are primarily focused on sentiments, attitudes, opinions, emotions and appraisals, which may form the centre of SA.

II. OPINION MINING

Opinion mining or a sentimental analysis is a term that incorporates numerous undertakings, for example, conclusion extraction, assessment characterization, subjectivity arrangement, rundown of suppositions or spam detection. SA plans to examine individuals' assumptions, attitudes, mentalities, conclusions feelings, and so forth towards items, people, subjects, associations, and administrations etc.,

TextBlob is a python library and offers a simple API to access its methods and perform basic NLP tasks. A good thing about TextBlob is that they are just like python strings. Usage of the TextBlob becomes simpler.

In the recent past wide number of a great deal of work has been done in the field of sentimental analysis by number of scientists and scholars. In its beginning period it was expected binary classification to classify either positive and negative. In the following section let's understand different technique used for sentimental analysis. Pak and Paroubek (2010) proposed techniques to classify the twitter tweets as neutral, positive or negative. They were used twitter API to collect the tweets and for the analyses used Naive based algorithms.

Badenhorst et.al (2012) Proposed that artificial intelligence, machine learning capabilities enhance the growth in the abilities of machines to say intelligent.

Costa and Souza (2012) sentimental analysis consists of two step, First step is extracting, Transforming, and data loading from unstructured or structured sources resulting in data warehouse which includes repository of data that is integrated, topic-oriented, time variant, and non-volatile. Second is using analytical tools for the dissemination and analysis of knowledge.

Po-Wei Liang et.al. (2013), Proposed a solution for SA with reference to twitter data. These data are collected using the Twitter API. The training data is assigned a label as neutral, negative and positive. This proposed solution made use of Naïve based model and used Chi square feature to eliminate useless features in order to describe the emotion as Either Neutral, negative or positive.

Liu (2013), analyzed that there are various challenges and issues with respect to opinion mining in proposing emotions of the people from the data available in the twitter. Further they quoted that varying languages makes opinion mining as challenging task.

Funk and Bontcheva (2008) used NLP techniques as input to machine learning instrument to conduct opinion analysis for business intelligence applications. Piryani et.al (2017) analyses the citation pattern of the paper with the help of sentimental analysis.

Das et. al. (2017) analyzed that Opinion Mining is a Information Extraction and Natural Language Processing task that identifies the user's opinions or views are explained in the form of positive, negative or neutral statement in the underlying the text.

Praveen Gujjar et. al. (2018) said that the purpose of a business organization is to make profit. The profitability analysis is done to throw light on the current operating performance and efficiency of business firms.

Praveen Gujjar et.al (2019) argues that sentimental analysis place a very important role in the decision making of the product by the customer.

III. PROPOSED METHOD

The proposed method includes the following steps:

1. Collection of comments or reviews
2. Opinion Classification
3. Identifying polarity and subjectivity using TextBlob API.

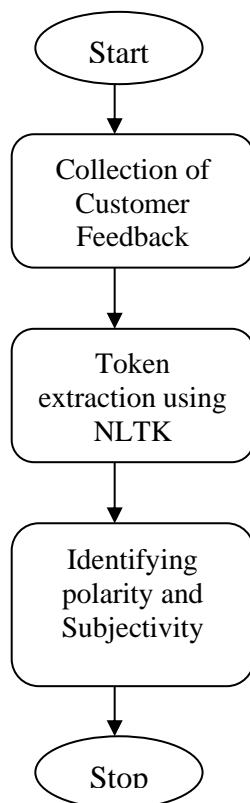The pictorial representation of the proposed method is shown in fig 1

Fig. 1 Proposed Methodologies

Aforesaid proposal has been implemented in Python Language and code for the aforesaid method is given below

```
import nltk
from textblob import TextBlob
text1=TextBlob("I love this product")
print(format(text1.sentiment))
```

IV. RESULTS AND DISCUSSION

For the results researcher has taken some real feedback example available in the e-commerce website about the product. The probability of positive and negative statement is as shown below

```
text1=TextBlob("I love this product")
print(format(text1.sentiment))
Sentiment(polarity=0.5, subjectivity=0.6)
```

Here result is available in two category i.e. polarity and subjectivity. Polarity can take value in between -1 to +1. In this 0 indicates neutral, -1 indicates highly negative and +1 indicates highly positive statement. On the other hand subjectivity is also takes the value between 0 to +1. Here 0 indicates statement is highly objective and +1 indicates highly subjective.

The above said result sentiment polarity score is 0.5 and subjectivity is 0.6.

Since polarity is 0.5 it clearly states that statement is positive and subjective score is 0.6, hence above said statement is subjective in nature.

Consider one more example

```
text1=TextBlob("Amazing product for a least cost")
print(format(text2.sentiment))
Sentiment(polarity=0.15, subjectivity=0.65)
```

The above said result sentiment polarity score is 0.15 and subjectivity is 0.65.

Since polarity is 0.15 it clearly states that statement is positive and subjective score is 0.65, hence above said statement is subjective in nature.

Consider one more example

```
text3=TextBlob("Useless product don't buy it")
print(format(text3.sentiment))
Sentiment(polarity=-0.5, subjectivity=0.2)
```

The above said result sentiment polarity score is -0.5 and subjectivity is 0.2.

Since polarity is 0.15 it clearly states that statement is negative and subjective score is 0.2, hence above said statement is slightly objective in nature.

Consider one more example

text4=TextBlob("worth for a money")

print(format(text4.sentiment))

Sentiment(polarity=0.3, subjectivity=0.1)

The above said result sentiment polarity score is -0.3 and subjectivity is 0.1.

Since polarity is 0.3 it clearly states that statement is negative and subjective score is 0.1, hence above said statement is slightly objective in nature.

ADVANTAGES

There are plenty of advantages in sentimental analysis. Few of them are listed below

1. The proposed technique highly applicable in business intelligence.
2. The proposed technique may be used in the placing the Ad's based on user interest.
3. The proposed technique may help decision makers to have product and service benchmarking.

CHALLENGES

Even though there are a quite possible number of advantages in Textblob for sentimental analysis, it involves certain challenges to be addressed. This section describes few issues in the following lines.

1. TextBlob only describe the polarity and subjectivity.
2. In the sentimental analysis there is an issue for emojios. TextBlob may not give the accurate analysis for the emojis.

3. For an biased reviews or comments TextBlob may not be the right toolkit to use for sentimental analysis.
4. Wide usage of the different languages, sentimental analysis using TextBlob may become difficult to analyse the emotions.

V. CONCLUSION

A practical, computationally cost-effective sentimental analysis is proposed in this paper for market survey. The technique used in this paper highly applicable in business intelligence. The proposed technique may help decision makers to set product and service benchmarking. This paper also focused on the challenges faced in the sentimental analysis with reference to TextBlob because it only tells the polarity and subjectivity. In the future scope use of the supervised learning and unsupervised learning can be used to address the challenges faced in the sentimental analysis particularly for emojios.

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