

# Aspect Category Sentiment Analysis based on machine learning

Dr. Himani Mittal<sup>1</sup>, Arpita Gupta<sup>2</sup>, Anshu Gupta<sup>3</sup>

<sup>1</sup>Associate Professor of Electronics and Communication, RKGIT, Ghaziabad, India

<sup>2</sup>Student of Electronics and Communication Engineering, RKGIT, Ghaziabad, India

<sup>3</sup>Student of Computer Science and Engineering, RKGIT, Ghaziabad, India

**Abstract - Sentiment Analysis is that the procedure of computationally deciding if a touch of composing is for certain, negative or nonpartisan. It's otherwise called supposition mining, inferring the sentiment or frame of mind of a user. In this paper, an attempt has been made to propose analysis method for sentiment analysis using a paragraph. In proposed method polarity of each paragraph is calculate to distinguish whether sentiment is positive, negative or neutral. A sentiment polarity is that the emotions of user like angry, sad, happy and joy. The proposed mechanism has been implemented in Python.**

**Index Terms - sentiment analysis, python, emotion, text, mining.**

## INTRODUCTION

In past, for before purchasing something people ask about the items from their relatives, friends, neighbors etc., and then they take decision whether to go for purchase or discard the idea. In today's time, the web is our greatest advisor, because many reviews are available which will be considered as word of mouth which will help us to require decision. The experiences are shared by the user of the item. But it is impossible to read all the reviews. We don't even skills many reviews can affect our decision, so as we all know that this era belongs to Machine Learning (ML). A machine are often learned in such a fashion, in order that it'll read all the reviews for us and provides us on what percentage reviews are associated with you, there are some good unsupervised and supervised methods are defined in the field of Natural Language Processing (NLP). In this paper an unsupervised method is introduced that will help to take decision and to get the actual sentiment of the paragraph, review or tweet. Sentiment analysis may be a sort of data processing that measures the sensation of

people's opinions through tongue processing (NLP), linguistics and text analysis, which are used. To extract and analyse subjective information from the text, mostly social media, websites and similar sources. The analysed data quantifies the general public's sentiments or reactions toward certain products, people or ideas and reveal the relative polarity of the information. Sentiment analysis is also known as opinion mining. Sentiment Analysis emphasis on sentence, phrase and document level.

**Positive Sentiment Analysis:** If the document expresses positive review about an item, the polarity of the document is claimed to be positive. Polarity can also be decided for sentences or aspects of sentences. For example: The fragrance of the perfume is sweet. In this sentence "fragrance" are often considered as a facet of the "perfume" and "good" indicates the positive view about the fragrance of the flower.

**Negative Sentiment Analysis:** If the document expresses negative reviews about an item, the polarity of the document is claimed to be negative. For example: The toppings on the food were rotten. In this sentence the "toppings" are considered as a facet of the food and "rotten" indicates the negative view about the toppings of the pizza.

**Neutral Sentiment Analysis:** If the sentence or document is unable to offer a positive or a negative view, its polarity is claimed to be neutral. For example: He visited buy some products from the market.

Sentiment Analysis are often further classified on the idea of various quality of words. It are often classified as follows.

- **Document Level Sentiment Analysis:** It analyses the content of the document as an entire for locating its polarity.
- **Sentence Level Sentiment Analysis:** It takes under consideration different sentences of a document

by further breaking them into smaller chunks of words for analyzing its polarity.

- Word Level Sentiment Analysis: It determines the polarity of different words of a sentence with relation to object or event.

## II. BACKGROUND

Artificial intelligence is introduced in the last few years, it is going to change our lives. So, if you've been keeping up with the latest technology trends then you recognize that AI has the potential to be the foremost disruptive technology ever. Today, if anyone will ask Siri or Google or Cortana or Alexa to assist us with simple questions or tasks, but much of their actual potential remains untapped. The reason why involves language. This is where tongue processing (Natural language Processing) comes into play in Artificial Intelligence (AI) applications. Without NLP, AI only can understand the meaning of language and answer simple questions, but it's unable to know the meaning of words in context. Natural language processing applications allow users to speak with a computer in their own worlds, i.e., in tongue.

```

1. Start
2. Generate dataset from twitter.
3. Fetch secret keys and secret key tokens from twitter dataset.
4. Check authenticity of user.
5. If (secret key ≠ original secret key_ twitter user)
{
Then display authentication failed.
Else
Check sentiment polarity of each tweet.
(For i=1; i 0)
{
Print positive tweet.
If
(sentiment polarity = 0)
{
Print neutral tweet. Else Negative tweet.
}
}
}
6. End.
    
```

Fig 1: basic algorithm

## III. BASIC APPROCH

Basic approach for sentiment analysis in natural language processing, in the textual data could be a sentence, a paragraph or it could be a document. There need to be two data sets, first one to train the machine and second one for test the trained machine. In

preprocessing of reviews (train data), tokenization of sentence, spelling checks, stop words removal, and a part of speech tagging. In pre-processing we need to find positive and negative expressions, incremtors and decremtors expressions(words)and inverters and polarity flips words.

Once train data is preprocessed and the machine is trained using the train data, then test data will be test on the trained machine, where all the dictionaries are placed to find sentiment of the data. And then it will give according the machine is trained. It would be good if we use more data to train the machine the test data.

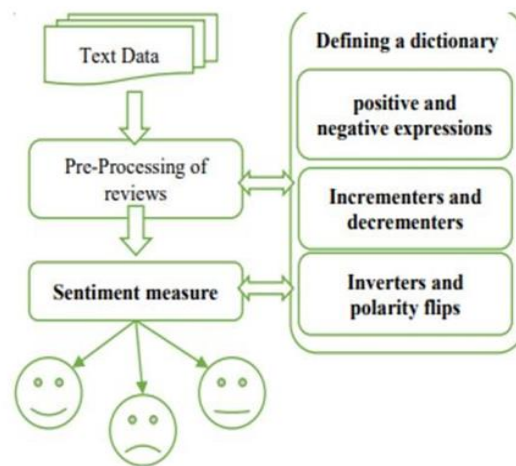


Fig 2 : basic diagram of flowchart

## IV. FUTURE WORK

While calculating the sentiment, the sentiment is taken from sentiwordnet3.0, it is for English language only, we will use different techniques and different library like TextBlob to get the sentiment. This work is done only in English language, the work can be extended for Indian languages, we have to study more research paper on sentiment analysis on Indian language, and aspect category detection for Indian language, as far as concerned about my knowledge, there are not any sentiwordnet3.0 and Wordnet for Indian language, so we need to implement the work from the scratch. It would be a great experience.

## V. CONCLUSION

Sentiment analysis may be a useful gizmo to research user-generated content on social media sites.

However, the complexity and dynamic nature of social media data makes it difficult to accurately identify sentiment. We collect reviews from social media platforms to build a dataset for future research. To analyze comments extracted from social media platforms, we propose three deep learning-based models to classify review sentiment. In the future, we will build a framework based on the proposed sentiment models to analyze the crawled intelligence from our review dataset.

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