INTERNATIONAL JOURNAL OF ADVANCE RESEARCH, IDEAS AND INNOVATIONS IN TECHNOLOGY

ISSN: 2454-132X
Impact Factor: 6.078
*(Volume 8, Issue 3 - V8I3-1410)*
Available online at: https://www.ijariit.com

# Automate Detection of Different Sentiments

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## ABSTRACT

***Because of their potential applicability to a variety of sectors, sentiment analysis and opinion mining have become increasingly important in both commercial and research applications. As a result, a great number of businesses have made consumer sentiment and opinion analysis a component of their purpose. The automatic analysis of social network messages based on the feelings and emotions transmitted is one of the most interesting uses of these technologies. For starters, it offers a wide range of applications because opinions are at the heart of practically all human activities and are powerful motivators of our actions. We want to hear other people's perspectives whenever we need to make a decision. Because of its importance to business and society as a whole, the research has moved beyond computer science to management sciences and social sciences. In this session, I'll introducemainstream sentiment analysis research before moving on to detail some recent work on modeling comments, discussions, and arguments, which represents a different type of sentiment and opinion analysis.***

***Keywords***— *Sentiment Analysis, Emotion, Opinion.*

## 1. INTRODUCTION

Sentiment analysis is the process of assessing a customer's positiveor negative sentiment in text. By monitoring online interactions,the contextual analysis of identifying information helps chat determine their person's social emotion. The process of detecting positive or negative sentiment in text is known as sentiment analysis. Businesses frequently utilize it to detect sentiment in social data, assess brand reputation, and gain a better understanding of their customers. Sentiment analysis has become auseful tool for monitoring and understanding online interactions as customers express their reviews and thoughts about the company more openly than ever before.

Analyzing customer feedback and reviews automatically through survey responses or social media discussions allows you to learn what makes your customer happy or disappointed. You may also utilize this information to modify your products and services to match the demands of your customers and grow your business. Thecomputational examination of people's opinions, sentiments, attitudes, and emotions conveyed in written language is known as sentiment analysis or opinion mining.It is one of the most active research areas in natural language processing and text mining in recent years. Its popularity is mainly due to two reasons.

## 2. LITERATURE REVIEW

The proposed system focuses on analyzing people's mindset in a WhatsApp group or a chat between two people. Many users share their opinions about each other or different people or communities.

Sentiment analysis helps in classifying the positive, negative or neutral data. In the proposed system, it uses Natural language processing - NLTK, where it helps in classification which is done in real time which makes it very efficient. The user Interface is so user friendly that a new computer user can use this interface and can analyze data efficiently. In the userInterface the user can analyze the score of positive, negative or neutral sentiment of each message by the person or the overall sentiment of the overall data.

## 3. PROPOSED SYSTEM

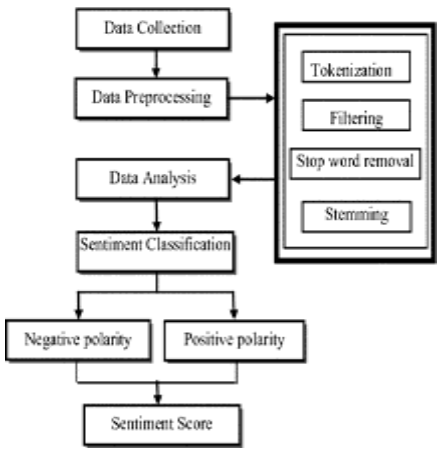


**Fig.1. Architectural Diagram of Proposed System**

 

As seen in the literature survey previously, much research and implementation has been performed for sentiment analysis. The proposed system for this project takes into consideration all non-intrusive parameters unlike other projects. This algorithm considers overall sentiment unlike previous research papers and works in real time based on threshold frequency. The User Interface is user friendly and a person who is new to the system can work efficiently.

## 4. ARCHITECTURE

Sentiment analysis has many uses and is also confronted with numerous research problems.

**We have classified sentiment analysis into two basic approaches:**

- **Machine learning-based approaches: -**

It is a tool that analyzes texts for polarity, from positive to negative. By training machine learning tools with examples of emotions in text, machines automatically learn how to detect sentiment without human input.

- **Deep learning-based approaches: -**

It is hierarchical machine learning that uses multiple algorithms in a progressive chain of events to solve complex problems and allows you to tackle massive amounts of data, accurately and with very little human interaction.

Since the fast growth of internet and internet related applications, the Sentiment Analysis has become a most interesting research area among the natural language processing community.

More innovative and effective techniques are required to be invented which should overcome the current challenges faced by Sentiment Analysis.

**Here we are using Machine Learning approach:**

Dataset selection Feature extraction Data Preprocessing
Feature scaling
Mean normalization Machine Learning
Supervised learning
Unsupervised learning Reinforced learning
Neural Networks Front propagation Back propagation Cost function
Model Evaluation
Confusion matrix F1 score precision
Recall

## 5. PROPOSED WORKING

At first data is collected and stored in .txt format from WhatsApp chat. The data can be of chat between two persons or a group chat. Then the data is uploaded to the User Interface. The User Interface automatically analyses data and gives the overall result or scores in positive, negative or neutral as the user demands. The User can also check the sentiment score of each message posted by the person.

The good part of this User Interface is that it shows immediate result after the dataset is uploaded.

## 6. ALGORITHM AND FORMULA

- **Dataset**

The dataset we are using is a WhatsApp chat between two people and the data has been arranged or one can say we used data preprocessing to arrange the data in date, time, author and message.

- **Feature extraction: -**

Feature Extraction is a technique for reducing the amount of features in a dataset by generating new ones from existing ones (and then discarding the original features).

- **Data Preprocessing: -**

Preprocessing entails removing irrelevant or uninformative data that does not contribute to sentiment classification.

- **Machine Learning (Supervised learning): -**

Models are trained using a labeled dataset, where the model learns about each type of data. Once the training process is completed, the model is tested on the basis of test data, and then it predicts the output.

- **Neural Networks: -**

In general, neural networks execute supervised learning tasks, i.e., they build knowledge from data sets in which the correct answer is known ahead of time. The networks then improve their prediction accuracy by tweaking themselves to find the correct answer on their own.

- **Model Evaluation: -**

It is the process of using different evaluation metrics to understand a machine learning model's performance, as well as its strengths and weaknesses.

## 6. RESULTS

Implementation of our research or project helps us differentiate between sentiments (positive, negative and neutral) of two or multiple people in a WhatsApp chat or WhatsApp group.

**Results for sentiment Analysis:**

The following User Interface we will be using for sentiment analysis.

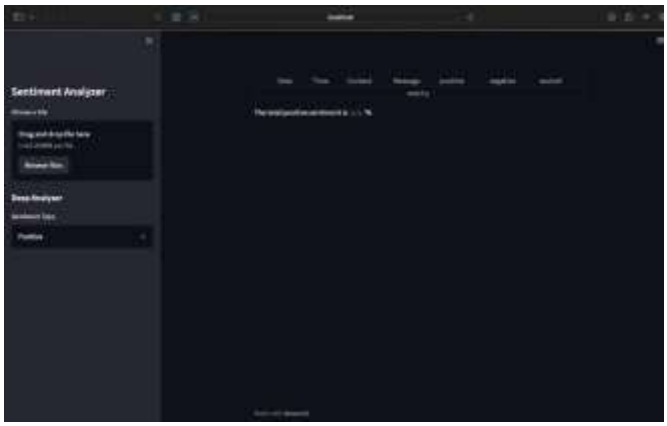


**Fig.- 2**

In Fig. 2, it is the basic user model for sentiment analysis for the user

**Fig 3**

Here in Fig. 3, we are uploading the data set to User Interface.

 

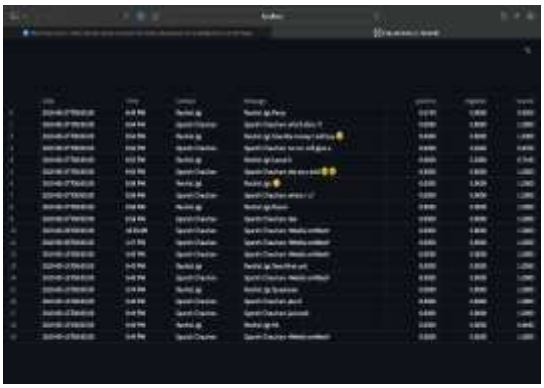

**Fig 4**

In Fig. 4, we can see the overall sentiment of each WhatsApp chat

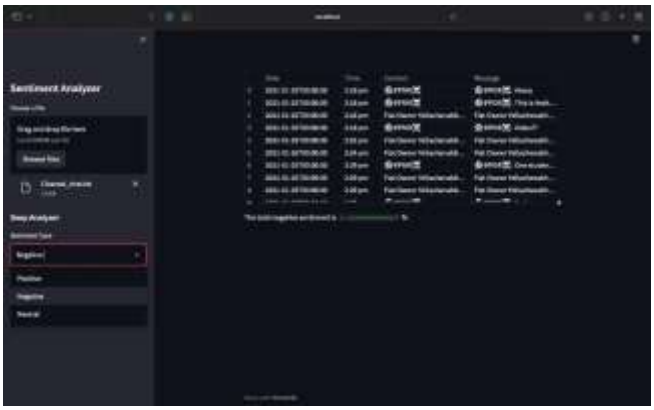


**Fig 5**

In Fig. 5, we can see the overall sentiment of the WhatsApp chat and in the left down side we can change the sentiment to positive, negative or neutral.

## 7. CONCLUSION AND FUTURE WORK

Sentiment analysis, often known as opinion mining, is the study of people's feelings, attitudes, and emotions about specific entities. Sentiment polarity categorization is a key challenge in sentiment analysis that is addressed in this study. Amazon.com product reviews were chosen as the source of data for this study. A process for categorizing sentiment polarity has been developed, with thorough descriptions of each stage. Experiments on sentence-levelcategorization as well as review-level categorization were conducted.

The future of sentiment analysis will attempt to reach, and fully grasp, the relevance of social media interactions and what they tell us about the consumers behind the screens, well beyond the surface of the amount of likes, comments, and shares.

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