SENTIMENTAL ANALYSIS
MACHINE LEARNING
NATURAL LANGUAGE PROCESSING

NLP

Advantages

It's used for analysing the voice of any person, reviews, and responses to surveys, online e-commerce businesses, and social media handles and services to any digital marketing for any present or upcoming company.

Disadvantages

Does not understand like sarcasm and irony negotiation types and ambiguity of words.

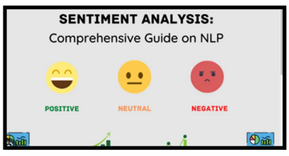
Analyzing sentiment in customer reviews to improve product quality and increase sales.

How Data has been collected?

SENTIMENT ANALYSIS IN PYTHON BY USING MACHINE LEARNING

Using Long-Short Term Memory Recurrent Neural Networks (LTSM RNN) for new tasks. Bi-directional RNN of the multilayer is being used, which helps to create Recurrent Neural Networks (RNN) layers. It can pass the model of text, the prediction, the calculation of every iteration loss, and also calculate the loss of propagate backward

The data has been collected from three secondary sources such as various print media article or their online platform



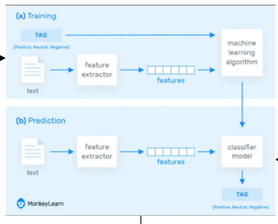
Models Implemented

Proposed Approach

Machine Learning

NLP

To analyse the polarity from negative to positive we need machine learning through which machines can determine the emotions of any sentence without the input of humans, and can learn new tasks with no systematic program and perform them in a perfect way. It can also be trained and it can be understood like sarcasm, definitions, context, and words that are misplaced



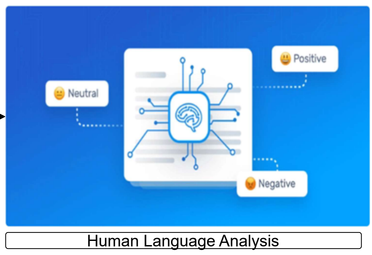
It helps to remove the stop words by WordNet Lemmatizer which converts human language words into meaningful words retaining the context behind it. It also helps in repetitive tasks to perform monotonously & processes like checking spells, translation of machine, and classification of ticket summary. It also has five phases, analysis of discourse, analysis of pragmatics, analysis of syntactic, analysis of lexical, and analysis of semantics.

There are several, such as vector machines of support, neural networks of multilayer perception, Naive Bayes, and trees of decisions.

Libraries Used **NLTK**

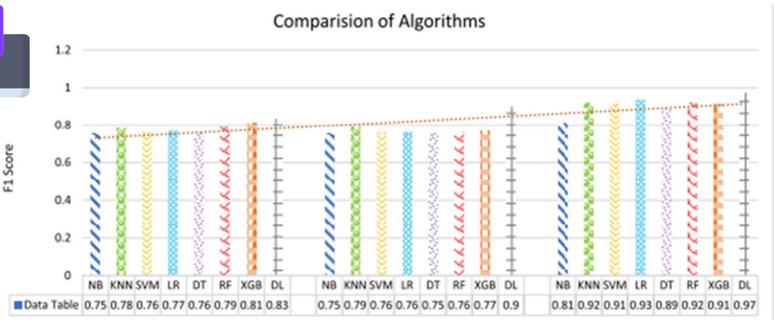
NLTK provides with text-processing libraries for classification, tokenization, stemming, tagging, parsing, and semantic reasoning, wrappers

Generative Pre-Trained Transformer (GPT) is the best in case anybody uses NLP in the AI, which helps the language of a pre-trained model that can help various tasks to be fine-tuned



Human Language Analysis

Observations & Results



DT is the best performing algorithm & Other competitive algorithms are XGB, RF.
Slightly less well performing algorithms: NB, KNN, SVM, LR, DT
Overall, all four algorithms perform well on all three datasets, with F1 scores above 0.75. However, DT is the best performing algorithm on all three datasets, followed by XGB and RF. The other algorithms perform slightly less well, but still achieve good F1 scores.

Conclusion & Recommendation

Sentiment analysis plays a crucial role in enhancing modern businesses by harnessing the power of Natural Language Processing (NLP) to decipher human language and make it accessible to machines. Additionally, Machine Learning (ML) significantly contributes to the effectiveness of sentiment analysis, making it the top choice in the market. The algorithms driving sentiment analysis not only offer a comprehensive understanding of data but also provide valuable solutions to real-world challenges.

In the future, Generative Pre-Trained Transformer (GPT) is the best in case anybody uses NLP in the AI. It helps the language of a pre-trained model that can help various tasks to be fine-tuned and better apply the appropriate model, increasing the accuracy level.