IJIRCCE

e-ISSN: 2320-9801 | p-ISSN: 2320-9798

INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN COMPUTER & COMMUNICATION ENGINEERING

Volume 9, Issue 6, June 2021

INTERNATIONAL STANDARD SERIAL NUMBER INDIA

Impact Factor: 7.542

9940 572 462 | 6381 907 438 | ijircce@gmail.com | www.ijircce.com

International Journal of Innovative Research in Computer and Communication Engineering

| e-ISSN: 2320-9801, p-ISSN: 2320-9798| www.ijircce.com | |Impact Factor: 7.542 |

|| Volume 9, Issue 6, June 2021 ||

| DOI: 10.15680/IJIRCCE.2021.0906042 |

Introduction to Sentiment Analysis of Reviews

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ABSTRACT: In our day to day life we are living with social media and using it each and every single day. We are performing various activities on that, posting photos, videos, and the peoples are commenting on that to tell their reviews in the form on comments or emojis. So to make summary of these all reviews to get the actual insights or results at that time Sentiment analysis comes into the picture. It is nothing but a branch of opinion mining, computational study of people's opinion, attitude and emotion expressed. It is most active research area in Natural Language Processing. This branch has wide range of application because reviews, opinions are the central part of all human activities. Every decision is made up from someone's reaction and feedback, it will helpful to make analysis. It is more powerful tool for business development. It gives all essential insights from data to make suitable decisions further. It is mainly based on machine learning's classification algorithms.

I.INTRODUCTION

In today's environment of world where we're suffering from data overloading, companies might have huge amount of customer feedback collected. Yet for more human beings, it's still not possible to analyze it manually without any sorting. It can be used to focus on the customer feedback where the feedback is strongly negative. For the same, we can look at positive customer reviews to find out why these customers love us. Only after the analysis has been conducted successfully, so basically we can increase the number of our promoters or customers.Sentiment analysis is the process of analysis of information using natural language processing, text analysis, and statistics to analyze customer sentiment. This is the best way to understand the opinion of their customer, what people are saying, how they're saying it, and what they mean.It is the process of determining whether an opinion is positive, negative or neutral. It helps data analysts within large public reviews, market research, brand monitoring and product reputation, and understand customer feedback and experience.It is used in business intelligence to know about their customers that how they are responding to their products, whether they are responding to it or not. We can look at positive customer comments to find out why these customers love us. It is based on machine learning classification algorithm, and sentiment can be split into these categories like happy, sad, angry, satisfied or unsatisfied. This whole concept is depending on one of the machine learning algorithm Naive Bayes. Naive Bayes algorithm classifies the data into different categories and helps us to get final results. Sentiment analysis found worldwide acceptance as an essential tool in analysis of data to help us to predict election results, forecast stock market positions of businesses and help estimate sales of products across diverse market conditions. It is often assumed that the data analyzed would have opinions expressed explicitly. In most cases, however, only facts and, as such, objective information only is presented in documents that are being analyzed. It is an investigative way to individual assessment and disposition of individuals towards various thing, the events, the topics, brands, services, people and organizations, sentiment analysis hold the rank as an important tool.

II.RELATED WORK

People mostly have tendency to ask about a Movie before watching it. Nobody likes to be disheartened themselves if the Movie was not able to amuse the viewers, to avoid disheartening, people go and check reviews or the comments of a Movie on different websites. They go through each comment so that they are very much convinced to watch the Movie. There are some techniques by using which Sentiment Analysis is performed, there are numerous to count but the basic and the most usable techniques are as follows. The number of methods applicable or techniques to be used depends upon the kind of topic or background on which Sentiment Analysis must be done.

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1) Sentiment Detection:
In this stage each and every sentence of the review and opinion is analyzed for subjectivity. Reviews with subjective expressions are retained and that it conveys objective expressions are eliminated. The analysis is done at different stages using common computational techniques.

2) Sentiment Classification:
Sentiments can be classified into two clusters that is positive and negative. At this level of sentiment analysis methodology, each subjective comment identified is categorized into groups-positive or negative, good orbad, like or dislike.

3) Presentation of Output:
The main idea of sentiment analysis is to convert unstructured text into meaningful and structured data. After the analysis, the results are displayed using various visualization tools graphs like pie chart, bar chart and line graphs.

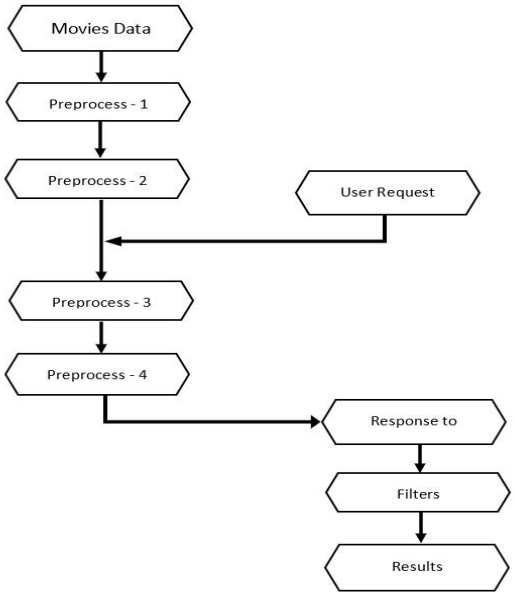

Fig. 1 Architecture

III.METHODOLOGIES

Machine Learning Approach:

Machine Learning is the field of data analysis. It has various algorithms by using which we can make machines learn. Machine learning is a technique where the system learns from the previous data that it reads and automates accordingly. The data provided to machine may be labeled or unlabeled.
In machine learning there is a learning technique: Supervised Learning.

Supervised Learning:

The reason for calling this technique as supervised learning as the machine is taught or supervised. In supervised machine learning, we have the input data and output data and an algorithm is known which has to map the functions of input with output. The main aim of this is that to map the functions so accurately, whenever a new data is provided as an input it gives a predictive output value.

Naive Bayes classification algorithm:

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Naive Bayes algorithm is a supervised learning algorithm, which is based on Bayes theorem and used for solving classification problems.It is mainly used in text classification that includes a high-dimensional training dataset.Naïve Bayes Classifier is one of the simple and most effective Classification algorithms which helps in building the fast machine learning models that can make quick predictions.It is a probabilistic classifier, which means it predicts on the basis of the probability of an object.Some popular examples of Naïve Bayes Algorithm are spam filtration, Sentimental analysis, and classifying articles. The technique is founded on a probabilistic approach and uses cooperative probabilities of specific terms with a text document as an input for approximation of probability of a certain group.

Bag of Words:

Bag of Words is a very naive and intuitive lexicon-based sentiment analysis model. It uses a predefined dictionary of positive and negative words and calculates the sentiment score based on the number of matches of words in text with each of the dictionaries.

Natural Language Processing:

NLP techniques, especially semantics and word sense disambiguation, for more accurate opinion mining. Word sense disambiguation in NLP is the ability to determine which meaning of the word is activated by the use of the word in a particular context. Social networking sites use NLP techniques such as speech tagging and relationship searching to identify sentence components such as subjects, verbs, and objects. These entities are then analyzed to establish an underlying relationship to understand whether the sentiments attached are negative or positive

IV.CONCLUSION

Sentiment Analysis is now by and large considered to be critical in terms of socio-economic standpoint. Understanding sentiment analysis and examining the techniques that can help achieve accuracy in a wide variety of input formats is critical for businesses, institutions and individuals to survive and succeed. This paper tackles afundamental problem of sentiment analysis, sentiment polarity categorization. This paper also discusses selected supervised and unsupervised methods that are of significance.

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SJIF Scientific Journal Impact Factor
Impact Factor: 7.542

doi cross ref

ISSN INTERNATIONAL STANDARD SERIAL NUMBER INDIA

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