iJRASET
International Journal For Research in Applied Science and Engineering Technology

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 9 **Issue:** VI **Month of publication:** June 2021

DOI: https://doi.org/10.22214/ijraset.2021.34897

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International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.429
Volume 9 Issue VI Jun 2021- Available at www.ijraset.com

Product Evaluation using Sentiment Analysis

Nagulavancha Gayathri Rao[1], Mangi Nandhini[2], Pitila Keerthana[3], Mr. Manish Kumar[4]
[1, 2, 3]*U.G. Student,* [4]*Associate Professor Dept. of ECE, Sreenidhi Institute of Science and Technology, Hyderabad, Telangana-501301 India*

Abstract: ***Sentiment analysis is a machine learning technique which helps machines to understand and read emotions in human and predicts the same using Artificial Intelligence. In this paper we are trying to evaluate the product reviews in platforms like Amazon, flipchart etc whether it is positive, negative or neutral using Natural language processing technique. Because evaluating product reviews helps companies to make changes in product if needed and keep themselves in the market Competition. To classify reviews, we use Naïve Bayes Classifier (NB) and NLTK library which is a open source platform in Natural Language Processing helps machines to convert the Text into Polarity Score using its Functions like Tokenization, Lemmatization etc. This library helps to calculate Subjectivity and Polarity. And also, we trained our model with Bag of words or lexicons dictionary and test it on the analysis status. More the accuracy score better will be the classification. And also, we have used the Term Frequency-Inverse Document Frequency for the extraction of frequency of words from the reviews of Product.***
Keywords: Sentiment Analysis, Reviews, Naïve Bayes Classifier, NLTK library

I. INTRODUCTION

The importance of online reviews plays a crucial role in company success. Everyone knows that the success of a company or product directly depends on its customer and their reviews. If the customer likes company product, then the product is success otherwise company needs to improvise it by making some changes in product. And also, People usually look for a review or feedback like what the other customer has to say about the particular product whether it is good product or bad product. People analyze it manually by looking at their feedback. Website like Amazon where one can buy different types of products, after buying products people usually like to put comments with respect to that product, like how the product is basically performing or can basically understand whether the review is positive statement or negative statement or neutral. And this is where the SENTIMENT ANALYSIS comes into the picture. Sentiment Analysis is a process of Computationally identifying and categorizing opinions from a piece of text and determine whether the writer's attitude towards a particular topic or the product is Positive, negative or neutral. Sentiment analysis is required to automate the process of determining whether a review express a positive, negative or natural opinion about the company and its services.

Using Natural Language Processing Techniques such as Tokenization, stemming etc Polarity score in sentiment analysis for product evaluation whether the product is positive, negative or neutral is calculated from the piece of text. Firstly, using machine learning a bag of words or lexicons are trained in it. Where words are defined as positive, negative or neutral dataset and then the new dataset of reviews of products is tested.

II. LITERATURE SURVEY

In this paper product evaluation using sentimental analysis is discussed briefly. After referring to many research papers it is evident that sentimental analysis is a fruitful task. Here in this paper, we perform sentimental analysis using python libraries. Because it performs pretty well and show case the results in the form of graphs and tables. We perform sentimental analysis on the reviews given by the customer on a particular product. Firstly, sentimental analysis playing an important role in finding whether product of a company is doing great in the market or not. Sentimental analysis can be used in many applications in various fields such as reviving brand value, social media comments, etc. During our work, we have observed the massive growth in numbers that are focusing on sentimental analysis. As per the data, there are thousands of papers are already started during and after World War-II. The interest on the current topic has started in the early- midst of 2000s.It is mostly focused on the user sentiment via reviews and comments on the internet portals and now it has been prolonged to numerous areas. Sentimental analysis helping many companies in changing and modifying their products and services according to the customer's interest.

In this paper we use navies bayes algorithm and bag of words to analyse the reviews and decides whether the given reviews are positive, negative or neutral

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III. PROPOSED METHODOLOGY

Sentiment Analysis needs some form of natural language processing. We are dealing with human written text. We gathered all the reviews given by the customers on a particular product. For performing sentimental analysis, we should be familiar with Python and basic data analysis we should have some packages like pandas should have some idea of cyclic learning library add we would be using NLTK and scikit learn NLTK to carry out some cleaning tasks on textual data.
sentimental analysis is performed in following below steps:

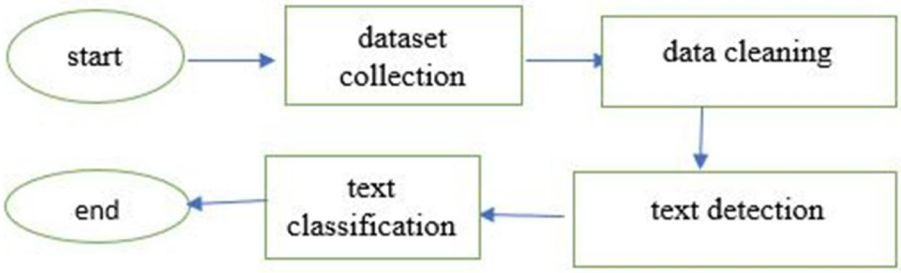

Figure:1 Flow Diagram Representation of Sentimental analysis

1) *Data set Collection:* The data set is collected from the reviews given by the customers to the particular product. Here we use a method call web scraping.
2) *Data Cleaning:* In data cleaning we undergo following steps:

a) *Tokenization:* Tokenization is nothing but dividing of paragraph into different set of statement or dividing a statement in to different set of words.
b) *Remove Punctuation:* Here we remove the data or word which do not add any value to the analytics part like removing punctuations and all.
c) *Stop word Removal:* Here we remove all stop words and all and here we do not need any word that do not add any value to the analytics part.
d) *Lemmatization:* It is a process where it considers the morphological analysis of words.
e) *Stemming:* Stemming is a process where all the suffixes of the words are removed.

Text review	Data cleaning
This movie was great	'Movie' ,'great'
This product is good and reasonable .it working pretty well	'product' ,'good' ,'reasonable' ,'pretty' ,'well'

3) *Text Detection:* Here we analyse the dataset and calculate polarity and subjectivity. Here it is done by using python inbuilt library text blob.
4) *Text Classification:* In this step we classify the remaining words as positive or negative or neutral.

IV. ALGORITHM

Sentiment analysis makes use of categorization algorithms such as linear regression and Naive Bayes. Linear regression is a supervised learning approach that uses continuous data to predict a result. The Naive Bayes algorithm is a supervised learning technique that is used to solve problems in classification. The Naive Bayes Classifiers are a group of classification algorithms based on bayes theorem which was derived from the conditional probability

$$\text{Bayes theorem formula: } P(A/B) = \frac{P(B/A) * P(A)}{P(B)}$$

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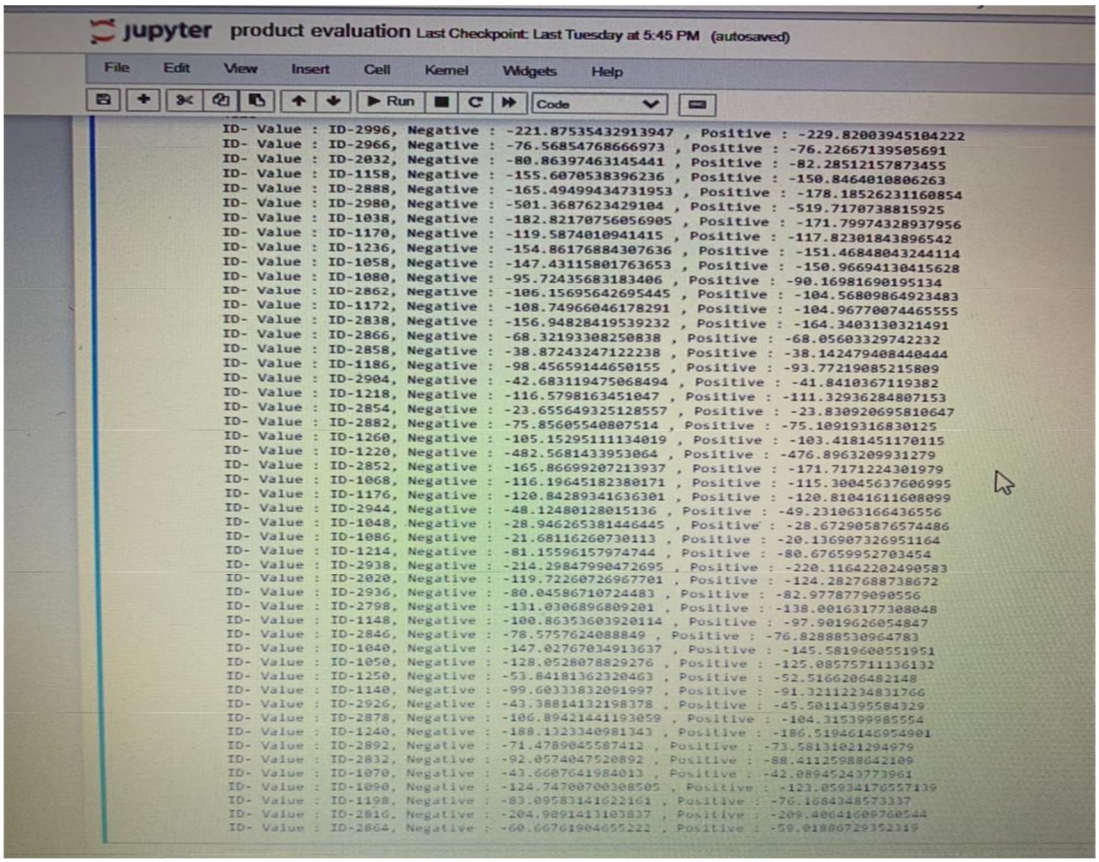
Since it is based on bayes theorem, which helps us to compute the conditional probabilities of occurrence of two events based on occurrence of individual event, including those probabilities is very useful in this algorithm.Sentiment analysis is a technique that uses text analysis and NLP (Natural Language Processing) to categorise words as positive, negative, or neutral .TF (Term Frequency) and IDF (Inverse Document Frequency) are two terms used in natural language processing. In relation to the sentences the output feature given to the model for the training which will be a dependent feature and also to be computed with the independent features that are in numeric format (vectors).

V. RESULTS

ID-value is test dataset and out of negative and positive values actual output is which one is greater among the values mentioned below.



VI. FUTURE SCOPE

We've done product reviews in this project, but it might be expanded in the future to include the number of likes, comments, and reactions in social media. In the future, sentiment analysis will go beyond counting the number of likes, comments, and shares on a post to understand the importance of social media conversations and what they indicate about people. As a result, sentiment analysis solutions like bytes view are becoming increasingly important for these firms to stay competitive.

VII. CONCLUSION

Product evaluation has been achieved by sentiment analysis, which categorises reviews or feedback as positive, negative, or neutral. Words like super, joyful, fantastic, pretty, love and good are used in positive remarks, while bad, disgusting, sad, and disappointed are used in negative ones. The major goal of the analysis is to provide the best recommendations to customers in order for them to choose the best and most available options or to provide feedback on the product, as well for successful decision-making as to provide the greatest option to the business owner. This sentiment analysis-based product evaluation can also be used to forecast or determine the attitude of customers based on their online evaluations/feedback on products, food, and hotel services, as well as hotel reviews.

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VIII. ACKNOWLEDGEMENT

Firstly, we are grateful to the Sreenidhi Institute of Science and Technology for allowing us to work on this project.
We are fortunate to have worked under the supervision of our guide Mr. Manish Kumar. His guidance and ideas have made this project work.
We are thankful to Dr. Syed Jahangir Badashah for being in charge of this project and conduction reviews.
We are also thankful to the HOD of Electronics and Communication Engineering [ECE], Dr. S.P.V. Subba Rao for giving us access to all the resources that went into building this project.

REFERENCES

[1] Abdul-Mageed, M., M.T. Diab, and M. Korayem. Subjectivity and sentiment analysis of modern standard Arabic. In Proceedings of the 49th Annual Meeting of the Association for Computational Linguistics:shortpapers, 2011.
[2] Akkaya, C., J. Wiebe, and R. Mihalcea. Subjectivity word sense disambiguation. In Proceedings of the 2009 Conference on Empirical Methods in Natural Language Processing (EMNLP-2009), 2009.
[3] Alm, C.O. Subjective natural language problems: motivations, applications, characterizations, and implications. In Proceedings of the 49th Annual Meeting of the Association for Computational Linguistics:shortpapers (ACL-2011), 2011.
[4] Andreevskaia, A. and S. Bergler. Mining WordNet for fuzzy sentiment: Sentiment tag extraction from WordNet glosses. In Proceedings of Conference of the European Chapter of the Association for Computational Linguistics (EACL-06), 2006.
[5] Archak, N., A. Ghose, and P.G. Ipeirotis. Show me the money!: deriving the pricing power of product features by mining consumer reviews. In Proceedings of the ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD-2007), 2007.

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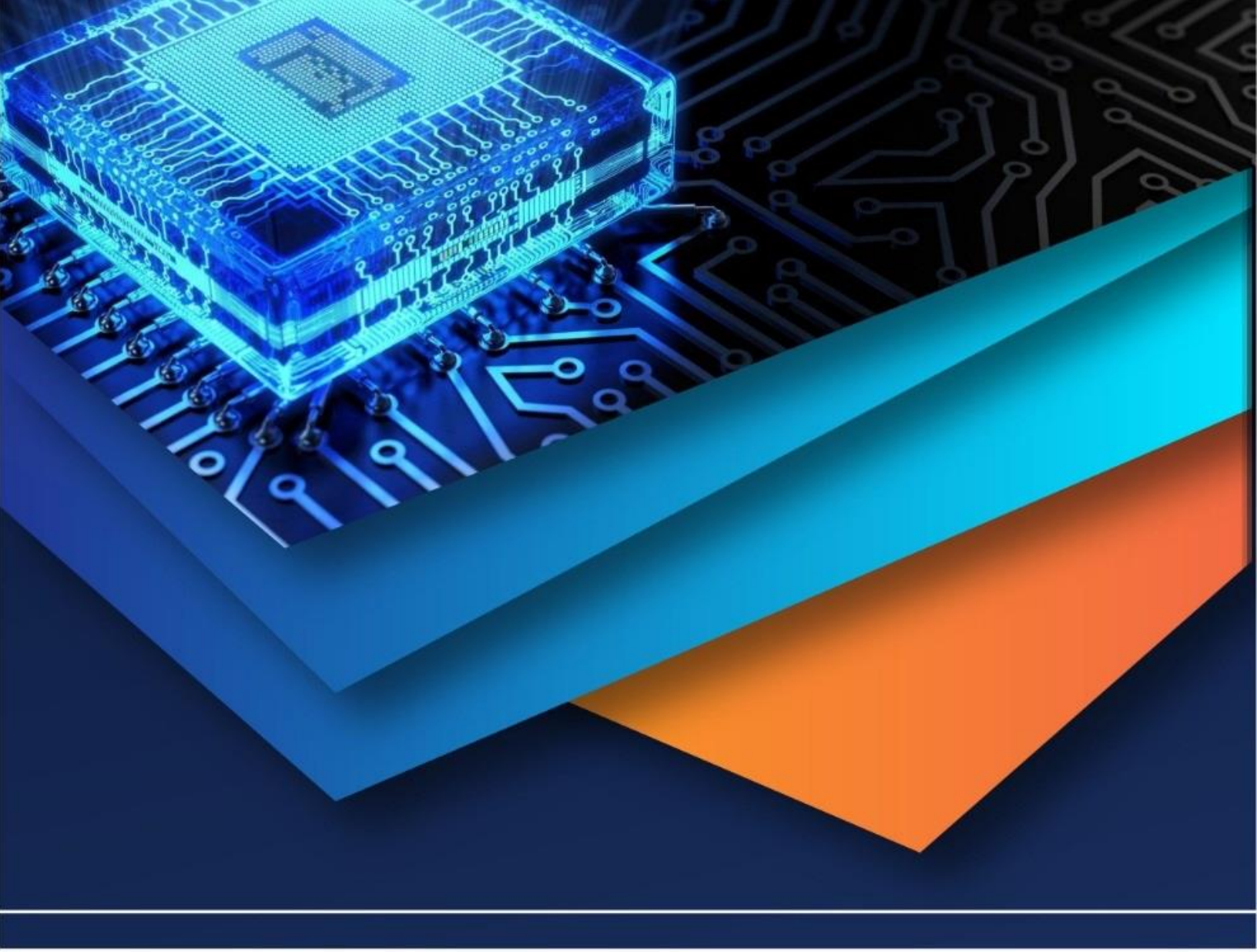

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