

SENTIMENT ANALYSIS FOR SOCIAL MEDIA

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Abstract: Sentiment analysis is a popular topic in the big data era. In the business world, there is an increasing need for analyzing and characterizing the public's attitude towards new products. Therefore, sentiment analysis with real-time social data can be a useful tool for business marketing. In this project, a sentiment analysis was performed with real-time Social site data that contains customized keywords. There are three parts of this article: i) fetching real-time data online with keywords; ii) applying sentiment analysis with Twitter data and visualize each sentimental category with word clouds; iii) for ease of use, wrapping the sentiment analysis into an interactive dashboard, so users can customize keywords and get the real-time application data.

Index Terms – Sentiment Analysis, Social Media, Machine Learning.

I. INTRODUCTION

In today's digital age, social media has become an integral part of our lives. It serves as a platform for communication, self-expression, and information-sharing. With millions of users actively engaging on social media platforms, it has become a treasure trove of valuable data. However, the massive influx of content can make it challenging to sift through the noise and derive meaningful insights. This is where sentiment analysis comes into play, allowing us to harness the power of artificial intelligence to analyze and interpret the sentiments expressed within social media content. In this article, we will explore the concept of sentiment analysis and its potential applications in social media. The Sentiment Analysis for Social Media project addresses the burgeoning need for a sophisticated system capable of deciphering and understanding the vast array of emotions expressed across various social media platforms. In an era where social media plays a pivotal role in shaping public discourse, business reputation, and individual opinions, harnessing the power of sentiment analysis becomes imperative. This project endeavors to develop a cutting-edge solution that not only accurately detects sentiments but also delves into the intricate layers of language, accounting for nuances like sarcasm and cultural context. By leveraging natural language processing and machine learning, the project aims to provide a comprehensive and nuanced understanding of user sentiments, empowering businesses, organizations, and individuals to make informed decisions, respond effectively to public sentiment, and navigate the complex landscape of social media communication.

1. MOTIVATION OF THE PROJECT

Understand customer perception: Sentiment analysis helps organizations gain insights into how their products, services, or brand are perceived by customers on social media. **Improve reputation management:** By monitoring sentiments expressed on social media, companies can proactively address negative feedback and maintain a positive online presence. **Enhance customer service:** Sentiment analysis enables businesses to identify customer grievances or satisfaction levels, allowing them to personalize their interaction and improve customer service experiences. **Market research and competitor analysis:** Analyzing sentiments provides valuable information about market trends, consumer preferences, and competitor analysis, enabling businesses to stay ahead of the curve.

2. OBJECTIVE

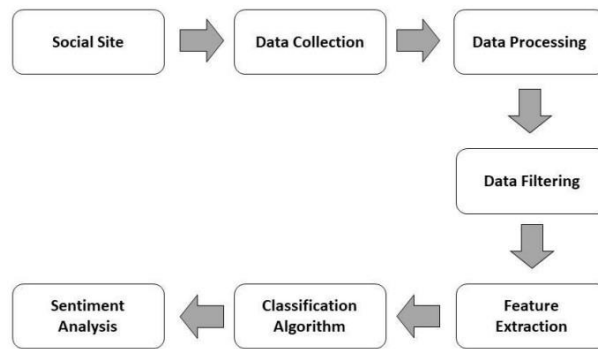
The primary objective of the Sentiment Analysis for Social Media project is to develop and implement an advanced sentiment analysis system that accurately assesses and categorizes the emotional tone expressed in social media content. This system aims to provide valuable insights into public opinions, sentiments, and trends across various social media platforms. By leveraging natural language processing and machine learning techniques, the project seeks to enhance our understanding of user sentiments, identify

emerging patterns, and contribute to informed decision-making for businesses, organizations, and individuals engaged in social media monitoring and analysis.

3. SYSTEM DESIGN

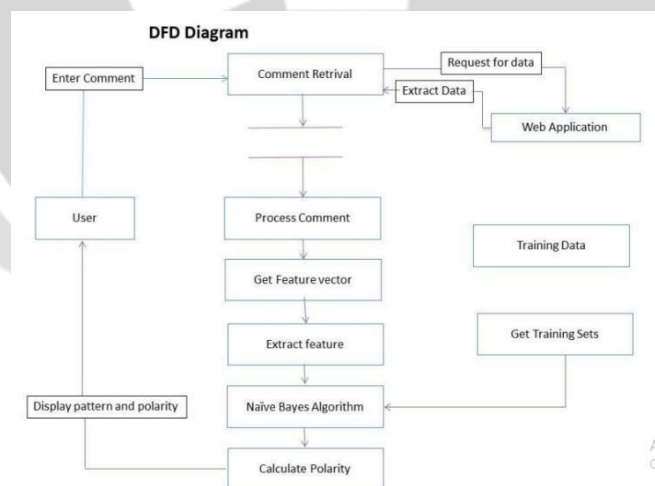
System Architecture;

A minimum of one author is required for all conference articles. Author names should be listed starting from left to right and then moving down to the next line. This is the author sequence that will be used in future citations and by indexing services. Names should not be listed in columns nor group by affiliation. Please keep your affiliations as succinct as possible (for example, do not differentiate among departments of the same organization).



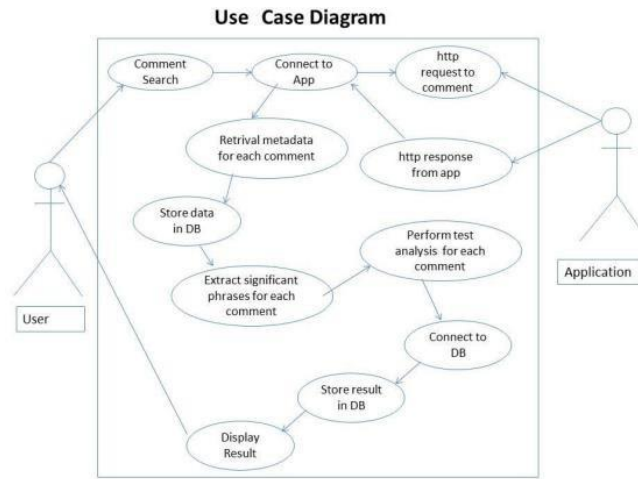
Data Flow Diagram:

In Data Flow Diagram, we show that flow of data in our system in DFD0 we show that base DFD in which rectangle present input as well as output and circle show our system, In DFD1 we show actual input and actual output of system input of our system is text or image and output is rumor detected like wise in DFD 2 we present operation of user as well as admin.



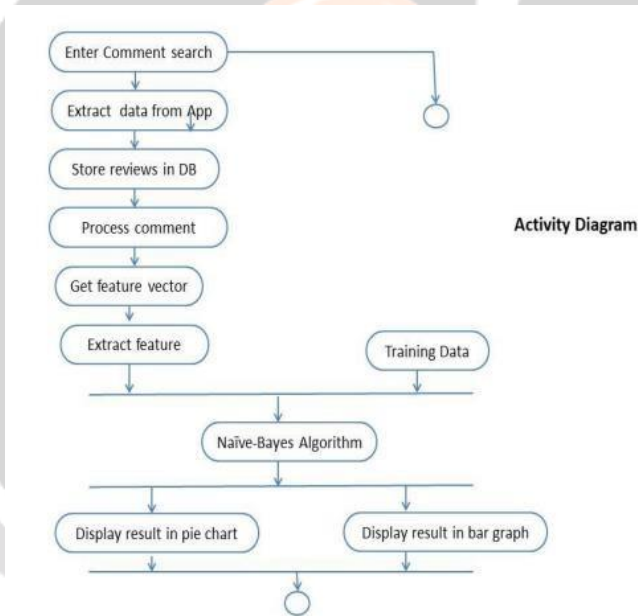
Use Case Diagrams;

A use case diagram at its simplest is a representation of a user’s interaction with the system that shows the relationship between the user and the different use cases in which the user is involved. A use case diagram can identify the different types of users of a system and the different use cases and will often be accompanied by other types of diagrams as well. The use cases are represented by either circles or ellipses.



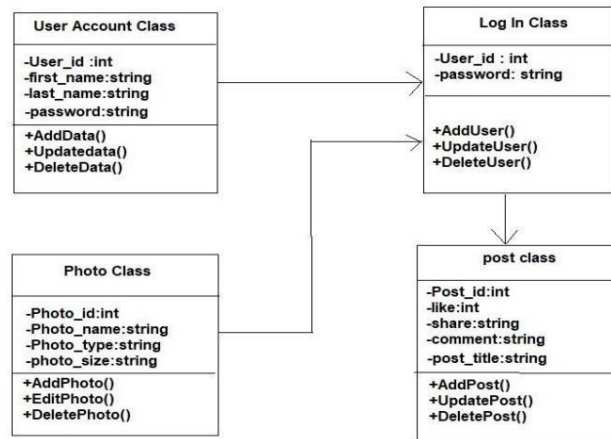
Activity Diagram:

Activity diagrams are graphical representations of workflows of step wise activities and actions with support for choice, iteration and concurrency. In the Unified Modeling Language, activity diagrams are intended to model both computational and organizational processes (i.e workflows), as well as the data flows intersecting with the related activities. Although activity diagrams primarily show the overall flow of control they can also include elements showing the flow of data between activities through one or more data stores.



Class Diagram;

Social Networking Site Class Diagram describes the structure of a Social Networking Site classes, their attributes, operations (or methods), and the relationships among objects. The main classes of the Social Networking Site are Users, Comment, Posts, Shares, Photos are intended to model both computational and organizational processes (i.e workflows), as well as the data flows intersecting with the related activities. Although activity diagrams primarily show the overall flow of control they can also include



UML Diagram;

Unified Modeling Language is a standard language for writing software blueprints. The UML may be used to visualize, specify, construct and document the artifacts of a software intensive system is process independent, although optimally it should be used in process that is use case driven, architecture-centric, iterative, and increment. The Number of UML Diagram is available. Use case Diagram. Activity Diagram. Sequence Diagram.

II. LITERATURE REVIEW

Sentiment analysis, also known as opinion mining, has emerged as a crucial research area due to the exponential growth of social media platforms. Understanding and categorizing sentiments expressed in user-generated content have become imperative for various applications, ranging from marketing strategies to political analysis. A review of existing literature reveals a significant body of work that has laid the foundation for the Sentiment Analysis for Social Media project. Early research in sentiment analysis focused on rule-based systems, utilizing predefined linguistic patterns and sentiment lexicons. However, as social media content evolved to include slang, abbreviations, and cultural references, the limitations of rule-based approaches became apparent. The subsequent shift towards machine learning techniques marked a pivotal development in sentiment analysis.

In 2019, Saad and Yang [1] have aimed for giving a complete tweet sentiment analysis on the basis of ordinal regression with machine learning algorithms. The suggested model included pre-processing tweets as first step and with the feature extraction model, an effective feature was generated. The methods such as SVR, RF, Multinomial logistic regression (SoftMax), and DTs were employed for classifying the sentiment analysis. Moreover, twitter dataset was used for experimenting the suggested model. The test results have shown that the suggested model has attained the best accuracy, and also DTs were performed well when compared over other methods. In 2018, Fang et al. [2] have suggested multi-strategy sentiment analysis models using the semantic fuzziness for resolving the issues. The outcomes have demonstrated that the proposed model has attained high efficiency

In 2019, Afzaal et al. [3] have recommended a novel approach of aspect-based sentiment classification, which recognized the features in a precise manner and attained the best classification accuracy. Moreover, the scheme was developed as a mobile application, which assisted the tourists in identifying the best hotel in the town, and the proposed model was analyzed using the real-world data sets. The results have shown that the presented model was effective in both recognition as well.

In 2019, Feizollah et al. [4] have concentrated on tweets related to two halal products such as halal cosmetics and halal tourism. By utilizing Twitter search function, Twitter information was extracted, and a new model was employed for data filtering. Later, with the help of deep learning models, a test was performed for computing and evaluating the tweets. Moreover, for enhancing the accuracy and building prediction methods, RNN, CNN, and LSTM were employed. From the outcomes, it was seemed that the combination of LSTM and CNN attained the best accuracy.

In 2018, Mukhtar et al. [5] have performed the sentiment analysis to the Urdu blogs attained from several domain with Supervised Machine learning and Lexicon-based models. In Lexicon-based models, a well-performing Urdu sentiment analyzer and an Urdu Sentiment Lexicons were employed, whereas, in Supervised Machine learning algorithm, DT, KNN, and SVM were employed. The data were combined from the two sources for performing the best sentiment analysis. Based on the tests conducted, the outcomes were shown that the Lexicon-based model was superior to the supervised machine learning algorithm.

In 2020, Kumar et al. [6] have presented a hybrid deep learning approach named ConVNet- P K TECHNICAL CAMPUS YEAR 2023-24 5 SVMBoVW that dealt with the real-time data for predicting the fine-grained sentiment. In order to measure the hybrid polarity, an aggregation model was developed. Moreover, SVM was used for training the BoVW to forecast the sentiment of visual content. Finally, it was concluded that the suggested ConvNet-SVMBoVW was outperformed by the conventional models.

III. CONCLUSION

It is a very important fact to analyze how people think in different context about different things. This becomes more important when it comes to the business world because business is dependent on their customers and they always try to make products or services in order to fulfill customer requirements. So knowing what they want, what they think and talk about existing products, services and brands is more useful for businesses to make decisions such as identifying competitors and analyzing trends. Both because people express their ideas on social media and it can access those data, it has been enabled in some way to do the above mentioned things by using those data. The project, Sentiment Analysis for Social Media does that.

IV. ACKNOWLEDGMENT

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