D.K.T.E. Society's Textile and Engineering Institute,Ichalkaranji.

(An Autonomous Institute, Affiliated to Shivaji University, Kolhapur)

Accredited with 'A+' Grade by NAAC

Department of Computer Science & Engineering

2021-2022

THE PROJECT REPORT ON

Facial Emotion Recogitions

Under The Guidance Of

- Mr. S. J. Murchite

Developed by -

PRN	Name
19UCS042	Kishor Hange
19UCS033	Priyanshu Ekal
19UCS052	Shubhankar Kale
19UCS050	Vishal Joshi

D.K.T.E. Society's Textile and Engineering Institute,Ichalkaranji.

An Autonomous Institute with NAAC A+ grade

Department of Computer Science & Engineering

CERTIFICATE

This is to certify that

PRN	Name
19UCS042	Kishor Hange
19UCS033	Priyanshu Ekal
19UCS052	Shubhankar Kale
19UCS050	Vishal Joshi

Have successfully completed the project work, entitled,

Facial Emotion Recognition

In partial fulfillment for the award of degree of Bachelor of Technology in Computer Science and Engineering. This is the record of their work carried out during academic year 2020-2021.

Date: Place: Ichalkaranji

Mr. S. J. Murchite. Prof. Dr. D. V. Kodavade.

[Project Guide] **[External Examiner]** **[Head of Department]**

Prof. Dr. P. V. Kadole.

[Director]

DECLARATION

We the undersigned students of T.Y.C.S.E. declare that the Project work report entitled " **Facial Emotion Recognition**" written and submitted under the guidance of Mr. S. J. Murchite is our original work. The empirical findings in

this report are based on the data collected by us. The matter assimilated in this report is not reproduction from any readymade report.

Date:

Place: Ichalkaranji

PRN	Name	Signature
19UCS042	Kishor Hange	
19UCS033	Priyanshu Ekal	
19UCS052	Shubhankar Kale	
19UCS050	Vishal Joshi	

INDEX

ABSTRACT

Sentiment analysis deals with identifying and classifying opinions or sentiments expressed in source text. Social media is generating a vast amount of sentiment rich data in the form of tweets, status updates, blog posts etc. Sentiment analysis of this user generated data is very useful in knowing the opinion of the crowd. Knowledge base approach and Machine learning approach are the two strategies used for analyzing sentiments from the text. By doing sentiment analysis in a specific domain, it is possible to identify the effect of domain information in sentiment classification. We present a new feature vector for classifying the tweets as positive, negative and extract peoples' opinion about products, companies.

PROBLEM STATEMENT

The problem in sentiment analysis is classifying the polarity of a given text at the documents, sentence, or feature/aspect level. Whether the expressed opinion in a document, a sentence or an entity feature/aspect is positive, negative, or neutral.

PROBLEM DESCRIPTION

This problem of sentiment analysis in twitter; that is classifying tweets according to the sentiment expressed in them: positive, negative or neutral. Twitter is an online micro-blogging and social-networking platform which allows users to write short status updates of maximum length 140 characters. It is a rapidly expanding service with over 200 million registered users out of which 100 million are active users and half of them log on twitter on a daily basis - generating nearly 250 million tweets per day. Due to this large amount of usage we hope to achieve a reflection of public sentiment by analyzing the sentiments expressed in the tweets. Analyzing the public sentiment is important for many applications such as firms trying to find out the response of their products in the market, predicting political elections and predicting socioeconomic phenomena like stock exchange. The aim of this project is to develop a functional classifier for accurate and automatic sentiment classification of an unknown tweet stream.

INPUT

- Image/frame captured from live webcam.

OUPUT

- Predicted Emotion Values.

SYSTEM REQURIMENTS

- **Python**
- **Tensorflow** : It is library for deep learning algorithms,It is used for training and testing deep learning models.
- **OpenCV** :It provides a real-time optimized Computer Vision tools, and hardware.It also supports model execution for Machine Learning (ML) .
- **Numpy**: NumPy is a library for the Python programming language, adding support for large, multi-dimensional arrays and matrices, along with a large collection of high-level mathematical functions to operate on these arrays.

REQURIMENT SPECIFICATION

- **Tweepy**

Over the years, Twitter has proved to be a gold mine for learning about events happening in real time and the social reach and impact of those events. Most people tweet about their opinion or experience regarding an event by tagging and mentioning relevant twitter handles (accounts) or by using hashtags that categorize their tweet and helps users find content related to the hashtag or topic. This data can be used for research as well as to obtain civic and demographic insights. Accessing publicly available tweets for our city or local region helps invert our lens and understand the general public and what matters to them.

We use the tweepy Python library here to access the Twitter API and fetch tweets. Before we get started with scripting using tweepy, you will need to apply for a Twitter developer account to access their API. Once your application is approved, you will have access to a few consumer and access keys that are used to authenticate you before allowing you to work with the Twitter API.

The data will be tweets extracted from the user. The first thing to do is get the consumer key, consumer secret, access key and access secret from twitter developer available easily for each user. These keys will help the API for authentication.

- **TextBlob**

TextBlob is a python library for Natural Language Processing (NLP). TextBlob actively used Natural Language ToolKit (NLTK) to achieve its tasks. NLTK is a library which gives an easy access to a lot of lexical resources and allows users to work with categorization, classification and many other tasks. TextBlob is a simple library which supports complex analysis and operations on textual data.

For **lexicon-based approaches**, a sentiment is defined by its semantic orientation and the intensity of each word in the sentence. This requires a pre-defined dictionary classifying negative and positive words. Generally, a text message will be represented by bag of words. After assigning individual scores to all the words, final sentiment is calculated by some pooling operation like taking an average of all the sentiments.

TextBlob returns **polarity** and **subjectivity** of a sentence. Polarity lies between [-1,1], -1 defines a negative sentiment and 1 defines a positive sentiment. Negation words reverse the polarity. TextBlob has semantic labels that help with fine-grained analysis. For example — emoticons, exclamation mark, emojis, etc. Subjectivity lies between [0,1]. **Subjectivity quantifies the amount of personal opinion and factual information contained in the text. The higher subjectivity means that the text contains personal opinion rather than factual information**. TextBlob has one more parameter — intensity. TextBlob calculates subjectivity by looking at the '**intensity**'. Intensity determines if a word *modifies* the next word. For English, adverbs are used as modifiers ('very good').

For example: We calculated polarity and subjectivity for "I do not like this example at all, it is too boring". For this particular example, polarity = -1 and subjectivity is 1, which is fair.

However, for the sentence “This was a helpful example but I would prefer another one”. It returns **0.0 for both subjectivity and polarity** which is not the finest answer we’d expect.

It is expected that if the library returns exactly 0.0 either if your sentence didn’t contain any words that had a polarity in the NLTK training set or because TextBlob uses a weighted average sentiment score over all the words in each sample.

ALGORITHM

- Get authentication for Twitter Developer API
- Install and Import tweepy, textblob, matplotlib and csv
- Getting Tweets with Keyword or Hashtag and number of tweets to be fetched from user.
- Tweepy module will fetch the tweets from twitter.
- Cleaning Tweets to Analyze Sentiment
- Sentiment Analysis.
- Plotting the pichart.

FLOWCHART

SNAPSHOT

jupyter Untitled1 Last Checkpoint: 12 minutes ago (autosaved)

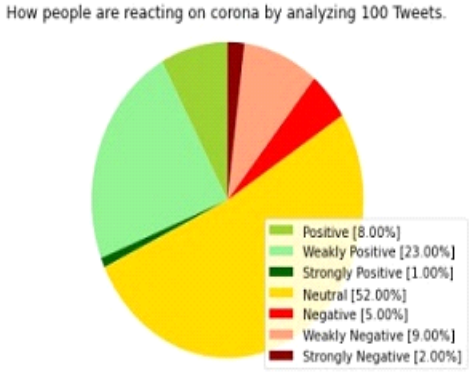
File Edit View Insert Cell Kernel Widgets Help

Run Code

```
Enter Keyword/Tag to search about: corona
Enter how many tweets to search: 100
How people are reacting on corona by analyzing 100 tweets.

General Report:
Weakly Positive

Detailed Report:
8.00% people thought it was positive
23.00% people thought it was weakly positive
1.00% people thought it was strongly positive
5.00% people thought it was negative
9.00% people thought it was weakly negative
2.00% people thought it was strongly negative
52.00% people thought it was neutral
```



In [ ]:

jupyter Untitled1 Last Checkpoint: 14 minutes ago (unsaved changes)

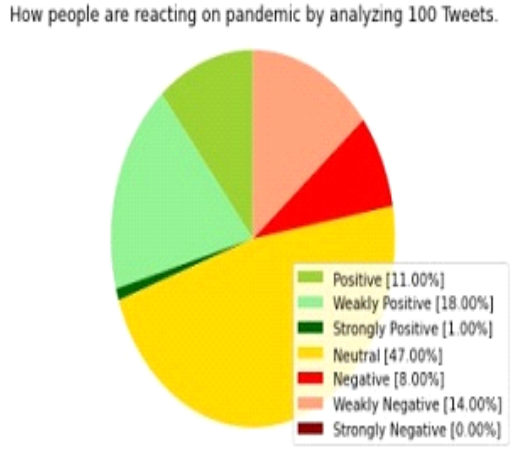
File Edit View Insert Cell Kernel Widgets Help

Run Code

```
Enter Keyword/Tag to search about: pandemic
Enter how many tweets to search: 100
How people are reacting on pandemic by analyzing 100 tweets.

General Report:
Weakly Positive

Detailed Report:
11.00% people thought it was positive
18.00% people thought it was weakly positive
1.00% people thought it was strongly positive
8.00% people thought it was negative
14.00% people thought it was weakly negative
0.00% people thought it was strongly negative
47.00% people thought it was neutral
```



CONCLUSION

This project is a small step towards the efficient automation of sentiment analysis by focusing on ambiguous statements. The system proposed by us also attempts to extract actual emotions from tweets. Such a system will be very useful for various marketing teams to gain actual and detailed feedback from their users. Also, the social media influencers use sentiment analysis to know about the trends and create the content accordingly. It can be used in production company where they can analyse the success of their movies. In politics, the political parties propose their agenda and can analyse the tweets to decide their strategy for campaigning. In stock market tweets play an important role and hence analysing the sentiments, one can decide whether to invest in a particular share or not.

REFERENCE

- https://ieeexplore.ieee.org/