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PROJECT REPORT

(TWITTER SENTIMENT ANALYSIS)

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Submitted To:

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1. PROJECT TITLE

Twitter Sentiment Analysis

I have created a Web Application for this purpose using TextBlob and flask framework.

2. INTRODUCTION

Sentiment analysis (or opinion mining) is a natural language processing (NLP) technique used to determine whether data is positive, negative or neutral.

Using machine learning techniques and natural language processing we can extract the subjective information of a document and try to classify it according to its polarity such as positive, neutral or negative.

Twitter sentiment analysis allows you to keep track of what's being said about your product or service on social media, and can help you detect angry customers or negative mentions before they escalate.

3. WHY TWITTER?

Twitter is a microblogging website where people can share their feelings quickly and spontaneously by sending a tweets limited by 140 characters. You can directly address a tweet to someone by adding the target sign “@” or participate to a topic by adding a hashtag “#” to your tweet.
Because of the usage of Twitter, it is a perfect source of data to determine the current overall opinion about anything.

4. APPLICATIONS OF TWITTER SENTIMENT ANALYSIS

In the past decade, there has been a huge increase in the online activity across the globe .
So , every single second people make million of posts and this is where social media plays pivotal roles where people express their opinions ,likes and dislikes about a particular product.
The applications of sentiment analysis are endless and can be applied to any industry, from finance and retail to hospitality and technology.
Some are listed below:

Social Media Monitoring

Sentiment analysis is used in social media monitoring, allowing businesses to gain insights about how customers feel about certain topics, and detect urgent issues in real time before they spiral out of control.

Voice of Customer (VoC)

Social media and brand monitoring offer us immediate, unfiltered, and invaluable information on customer sentiment, but you can also put this analysis to work on surveys and customer support interactions.

Market Research

Sentiment analysis empowers all kinds of market research and competitive analysis. Whether you're exploring a new market, anticipating future trends, or seeking an edge on the competition, sentiment analysis can make all the difference.

Politics

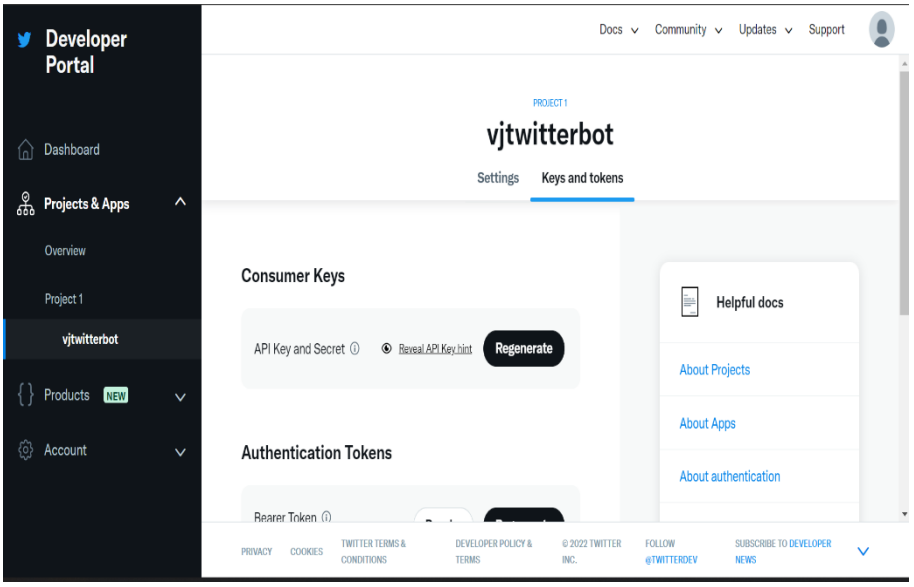
In politics Sentiment Analysis Dataset Twitter is used to keep track of political views, to detect consistency and inconsistency between statements and actions at the government level. Sentiment Analysis Dataset Twitter is also used for analysing election results.

5. ***TWITTER API***

The Twitter API enables programmatic access to Twitter in unique and advanced ways.

It allows you to find and retrieve, engage with, or create a variety of different resources, We can tap into core elements of twitter like:

- Tweets
- Users
- Spaces
- Direct Messages
- Lists
- Trends
- Media
- Places



6. ***DATA ACQUISITION***

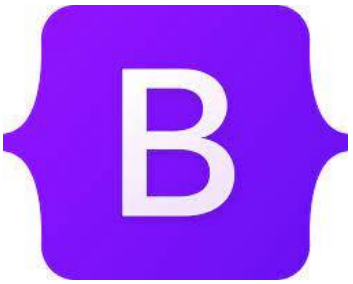
For acquiring the data, a Developer account was made on Twitter in order to get access to the tweets.

A Project was created and requested for v2 access. Twitter API then provided me with the customer and API keys and tokens that are used to fetch tweets via tweepy library of python.

7. ***METHODOLOGY AND TOOLS USED***

A list for following tools and technologies are used for the completion of this project:

FRAMEWORKS AND LIBRARIES USED

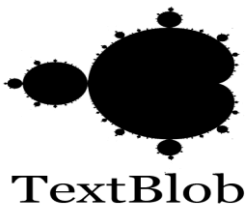


- **FLASK:** Flask is a web framework which provides us with tools, libraries, and technologies that will allow me to build a web application and web pages. Flask is a back-end micro-framework, and it makes data handling clean and simple.

- **MATPLOTLIB**: Matplotlib is a plotting library used for creating static, animated and interactive visualizations in Python

- **BOOTSTRAP:** Bootstrap is a free and open source CSS framework directed at responsive front-end web application.
- It contains HTML,CSS and javascript based design templates.

API USED



- **TEXTBLOB:** TextBlob is a Python (2 and 3) library for processing textual data. It provides a simple API for diving into common natural language processing (NLP) tasks such as part-of-speech tagging, noun phrase extraction, sentiment analysis, classification, translation, and more.
- **TWEEPY**: The Twitter API is a set of programmatic endpoints that can be used to understand or build the conversation on Twitter. .

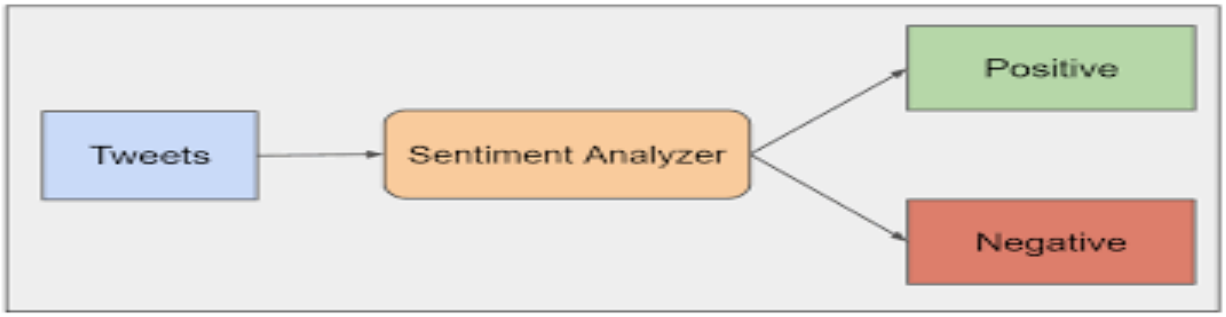
SOFTWARE AND LANGUAGES USED:

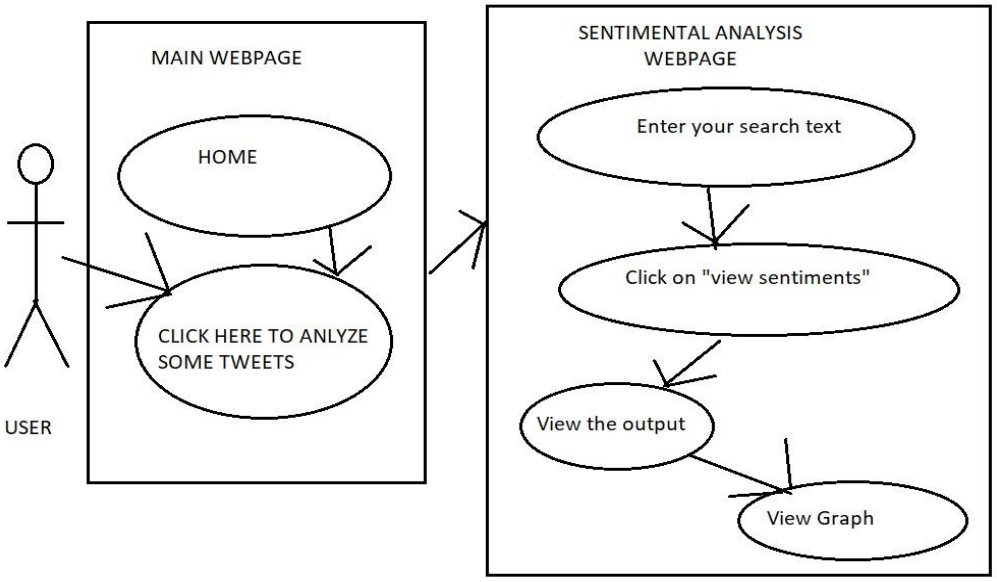
- **PYCHARM:** PyCharm is a dedicated Python Integrated Development Environment (**IDE**) providing a wide range of essential tools for Python developers, tightly integrated to create a convenient environment for productive Python, web, and data science development..
- **PYTHON:** Python is an interpreted, high level, and general-purpose programming language. Python promotes code manageability and readability, making it one of the top applications for working with Machine Learninng.
- **HTML/CSS**: HTML/CSS- HTML and CSS is the base for the website front-end design.

8 *CODE LINK:*

https://drive.google.com/drive/folders/1GebvZCoF7ElNWVMJVOUqo3T_YbyOv1Zy?usp=sharing

9.FLOW DIAGRAM

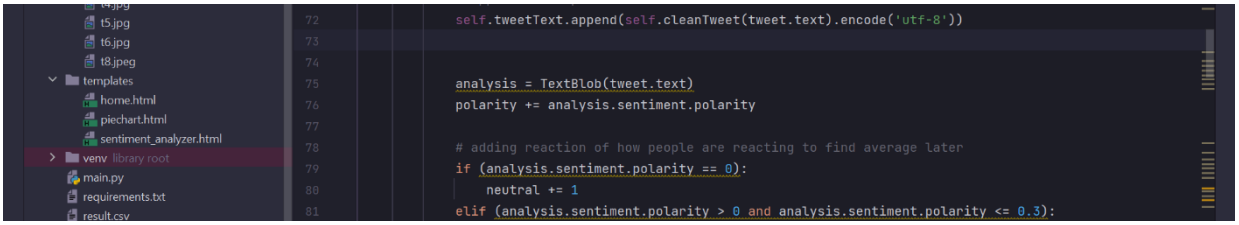




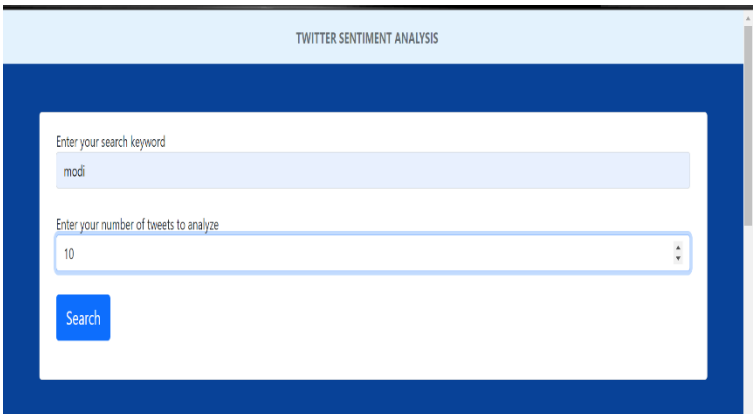
10. RESULT AND DISCUSSION

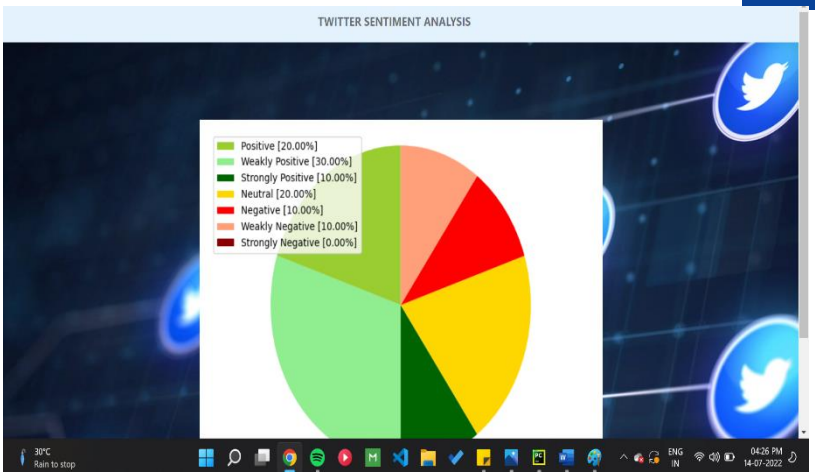
Using TextBlob Library that simply dives into many NLP Techniques. One of them is Sentiment Analysis. It is a lexicon based analyzer. It has some predefined rules or we can say word and weight dictionary, where it has some scores that help to calculate a sentence's polarity.

The **sentiment** property returns a named tuple of the form **Sentiment(polarity, subjectivity).** The polarity score is a float within the range [-1.0, 1.0]. The subjectivity is a float within the range [0.0, 1.0].



TAKING AN EXAMPLE OF KEYWORD: MODI, THEN FETCHING REALTIME TWEETS FROM TWITTER API AND THEN CLASSIFYING THEM USING TEXTBLOB.





11.FUTURE WORK AND CONCLUSION

Nowadays, sentiment analysis or opinion mining is a hot topic in machine learning. We are still far to detect the sentiments of s corpus of texts very accurately because of the
complexity in the English language and even more if we consider other languages such as Chinese.

We could use various Machine learning models like Logistic Regression, Naives Classifier with combination NLP techniques for better enhanced results, extract more features from the tweets, trying different kinds of features, tuning the parameters of the classifier.

The future of sentiment analysis is going to continue to dig deeper, far past the surface of the number of likes, comments, and shares, and aim to reach, and truly understand, the significance of social media interactions and what they tell us about the consumers behind the screens. This forecast also predicts broader applications for sentiment analysis – brands will continue to leverage this tool, but so will individuals in the public eye, governments, nonprofits, education centers and many other organizations.

12.REFERENCES

Flask**:** https://flask.palletsprojects.com/en/2.1.x/
Twitter Docs: https://developer.twitter.com
TextBlob: https://textblob.readthedocs.io/en/dev/
Tweepy: https://www.tweepy.org/
Python: https://www.w3schools.com/python/
HTML: https://www.w3schools.com/html/default.asp
Stackoverflow : https://stackoverflow.com/