

**MINI PROJECT REPORT**

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**On**

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**SENTIMENT ANALYSIS USING PYTHON**



**Submitted by**

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**Mathura- 281406, INDIA**

**2019**

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**Student Information**

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|  |  | **Project Information:** | |  |  |  |  |  |  |
|  |  | | |  | | | |  |  |
|  | Title Of Project | | | Sentiment Analysis Using Python | | | |  |  |
|  | Role & Responsibility | | |  |  |  |  |  |  |
|  |  | |  | Hardware Requirements: | | |  |  |  |
|  |  | |  | Main Processor | | | Core I3 |  |  |
|  |  | |  | Hard-disk Capacity | | | 1 G.B |  |  |
|  |  | |  | RAM | | | 2 GB |  |  |
|  |  | |  | Clock Speed | | | 2.8 Hz |  |  |
|  | Technical Details | | | Keyboard | | | 104 Key |  |  |
|  |  | |  |  |  |
|  |  | |  | Software Requirements: | | |  |  |  |
|  |  | |  | Operating System | | | Windows 10 |  |  |
|  |  | |  | Language | | | Python 3.7 |  |  |
|  |  | |  |  | | |  |  |  |
|  |  | | |  | | |  |  |  |
|  | Project Implementation | | | Fully Implemented | | |  |  |  |
|  | Details | | |  |  |  |  |  |  |
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**Summary of the Project Work**

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| In this project I have learned to work on Natural language processing toolkit to find find the sentiment of a text or preferably a tweet to do this I have learnt the interrelation between using python programming. I developed a project on Sentiment Analysis for analysing tweet. And have learnt many uses of python in our daily life for making our life simpler and managing our data.  The project entitled Sentiment Analysis was completed successfully. The system has been developed with much care and free of errors and at the same time it is efficient and less time consuming. The entire code is error free. Also the project helped us understanding about the development phases of a project and software development life cycle. I learned how to test different features of a project. There is a scope for further development in our project to a great extent. A number of features can be added to this project in future. |

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**ACKNOWLEDGEMENT**

The project work in this report is an outcome of continuous work over a period and drew intellectual support from various sources. I would like to articulate our profound gratitude and to all those people who extended their wholehearted co-operation and have helped us in completing this project successfully. We would also like to thank our parents & other fellow mates for guiding and encouraging me throughout the duration of the project.

**Pushkar Krishna Ojha(171500246)**



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**DECLARATION**

I hereby declare that the project work entitled “Sentiment Analysis**”** submitted to the GLA University Mathura, is a record of an original work done by me under the guidance of Mr. Amir Khan.

Signature of Candidate:

Name of team members: Pushkar Krishna Ojha

Roll No: 171500246

Course: Computer Science and Engineering

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**ABSTRACT**

Sentiment analysis or opinion mining is the computational study of people’s opinions, sentiments, attitudes, and emotions expressed in written language. It is one of the most active research areas in natural language processing and text mining in recent years. Its popularity is mainly due to two reasons. First, it has a wide range of applications because opinions are central to almost all human activities and are key influence of our behaviors. Whenever we need to make a decision, we want to hear others’ opinions. Second, it presents many challenging research problems, which had never been attempted before the year 2000. Part of the reason for the lack of study before was that there was little opinionated text in digital forms. It is thus no surprise that the inception and the rapid growth of the field coincide with those of the social media on the Web. In fact, the research has also spread outside of computer science to management sciences and social sciences due to its importance to business and society as a whole.

**Table of Content**

1. STUDENT INFORMATION………………………………………………….2
2. SUMMARY OF PROJECT……………………………………………………3
3. ACKNOWLEGMENT………………………………………………………….4
4. DECLARATION………………………………………………………………..5
5. ABSTRACT………………………………………………………………………6
6. TABLE OF CONTENT…………………………………………………………..7
7. INTRODUCTION..………………………………….............................................8
   * Objective
   * Introduction to Sentiment Analysis
   * Introduction to Python
   * Introduction to NLTK
   * Goal of the Project
   * Benefits/drawback

4. Project Implementation.......………………………………….….…........................11

* About Pycharm
* Module Used
* Code
* Output

5. References………………………………………………………………..................20

**1.Introduction:**

* 1. **Objective**

The objective is to search for specific tweets about a topic and then classify those tweets in categories of positive and negative using Natural Language Processing.

* 1. **Introduction to sentiment Analysis**

Recently, Twitter has gained significant popularity among the social network services. Lots of users often use Twitter to express feelings or opinions about a variety of subjects. Analyzing this kind of content can lead to useful information for fields, such as personalized marketing or social profiling. However such a task is not trivial, because the language used in Twitter is often informal presenting new challenges to text analysis.Sentiment Analysis is the process of determining whether a piece of writing is positive, neutral or negative. A sentiment analysis combines Natural Language Processing (NLP) and machine learning techniques to assign weighted sentiment scores to the entities, topics, themes and categories within a sentence or phrase.Sentiment analysis helps data analysts within large enterprises gauge public opinion conduct market research, monitor brand and product reputation, and understand customer experiences in addition, data analytic companies often integrate third-party sentiment analysis APIs into their own customer experience management, social media monitoring, or workforce analytic platform, in order to deliver useful insights to their own customers

* 1. **Introduction to Python**

Python is an interpreted, object-oriented, high-level programming language with dynamic semantics. Its high-level built in data structures, combined with dynamic typing and dynamic binding, make it very attractive for Rapid Application Development, as well as for use as a scripting or glue language to connect existing components together. Python's simple, easy to learn syntax emphasizes readability and therefore reduces the cost of program maintenance. Python supports modules and packages, which encourages program modularity and code reuse. The Python interpreter and the extensive standard library are available in source or binary form without charge for all major platforms, and can be freely distributed.Often, programmers fall in love with Python because of the increased productivity it provides. Since there is no compilation step, the edit-test-debug cycle is incredibly fast. Debugging Python programs is easy: a bug or bad input will never cause a segmentation fault. Instead, when the interpreter discovers an error, it raises an exception. When the program doesn't catch the exception,the interpreter prints a stack trace. A source level debugger allows inspection of local and global variables, evaluation of arbitrary expressions, setting breakpoints, stepping through the code a line at a time, and so on. The debugger is written in Python itself, testifying to Python's introspective power. On the other hand, often the quickest way to debug a program is to add a few print statements to the source: the fast edit-test-debug cycle makes this simple approach very effective.

* 1. **Introduction to NLTK**

NLTK is a leading platform for building Python programs to work with human

language data. It provides easy-to-use interfaces to [over 50 corpora and lexical](http://nltk.org/nltk_data/)

[resources](http://nltk.org/nltk_data/) such as WordNet, along with a suite of text processing libraries for

classification, tokenization, stemming, tagging, parsing, and semantic reasoning,

wrappers for industrial-strength NLP libraries, and an active [discussion forum](http://groups.google.com/group/nltk-users).Natural Language Processing with Python provides a practical introduction to

programming for language processing. Written by the creators of NLTK, it guides the

reader through the fundamentals of writing Python programs, working with corpora,

categorizing text, analyzing linguistic structure, and more

* 1. **Goal Of Project**

With the emergence of social networking many websites have evolved in the past like

Twitter Facebook tum love accept Twitter is one of the website which is widely used

all over the world according to Twitter it has been recorded that around 200 billion to

its post per year Twitter allows people to express their thoughts feelings emotions

review about any topic in natural language within 140 characters Python is the

standard high level programming language which is best for NLP does for processing

natural language data Python use one of its library called natural language toolkit nltk

provides large amount of corporawhich helps in training classify and it helps in

performing all NLP methodology like tokenizing part of speech tagging steaming

lemmatization passing and performing sentiment analysis on given data set

The goal of the project is to extract tweets about a specific topic and then perform

sentimental analysis on it. Various emotions are represented on a bar graph further using

the nltk library we classify that do it about that specific topic for any speech to be

positive negative or neutral

**1.6 Benefits / Drawbacks**

* **Benefits**

In today's environment where we are suffering from data overload companies might have mountains of customer feedback collected yet from human it still impossible to analyse it manually without any sort of error or bias.often times companies with best intention find themselves in an inside vacuum you know you need in site to inform your decision making and you know that you are liking them but you don't know how best to get them.sentimental analysis provide answer to what the most issue are because sentiment analysis can be automated decisions can be made based on a significant amount of data rather than playing in two patients that are always not right.

* **Drawbacks**

While sentiment analysis is useful, it is not a complete replacement for reading survey,speech, tweet etc. Often, there are useful nuances in the text themselves

Where sentiment analysis can help you further is by identifying which of these comments you should read.

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1. **Project Implementation**
   1. **About Pycharm**

PyCharm is an [integrated development environment](https://en.wikipedia.org/wiki/Integrated_development_environment) (IDE) used in [computer programming](https://en.wikipedia.org/wiki/Computer_programming), specifically for the [Python](https://en.wikipedia.org/wiki/Python_(programming_language)) language. It is developed by the [Czech](https://en.wikipedia.org/wiki/Czech_Republic) company [JetBrains](https://en.wikipedia.org/wiki/JetBrains).[[6]](https://en.wikipedia.org/wiki/PyCharm#cite_note-6) It provides code analysis, a graphical debugger, an integrated unit tester, integration with [version control systems](https://en.wikipedia.org/wiki/Revision_control) (VCSes), and supports web development with [Django](https://en.wikipedia.org/wiki/Django_(web_framework)) as well as [Data Science](https://en.wikipedia.org/wiki/Data_science) with [Anaconda](https://en.wikipedia.org/wiki/Anaconda_(Python_distribution)).PyCharm is [cross-platform](https://en.wikipedia.org/wiki/Cross-platform), with [Windows](https://en.wikipedia.org/wiki/Windows), [macOS](https://en.wikipedia.org/wiki/MacOS) and [Linux](https://en.wikipedia.org/wiki/Linux) versions. It has following features

* Coding assistance and [analysis](https://en.wikipedia.org/wiki/Code_analysis), with [code completion](https://en.wikipedia.org/wiki/Autocomplete), syntax and error highlighting, [linter integration](https://en.wikipedia.org/wiki/Lint_(software)), and quick fixes
* Project and code navigation: specialized project views, file structure views and quick jumping between files, classes, methods and usages
* Python [refactoring](https://en.wikipedia.org/wiki/Refactoring): includes rename, extract method, introduce variable, introduce constant, pull up, push down and others
* Support for web frameworks: [Django](https://en.wikipedia.org/wiki/Django_(web_framework)), [web2py](https://en.wikipedia.org/wiki/Web2py) and [Flask](https://en.wikipedia.org/wiki/Flask_(web_framework)) [professional edition only]
* Integrated Python [debugger](https://en.wikipedia.org/wiki/Debugger)
* Integrated [unit testing](https://en.wikipedia.org/wiki/Unit_testing), with line-by-line [code coverage](https://en.wikipedia.org/wiki/Code_coverage)
* [Google App Engine](https://en.wikipedia.org/wiki/Google_App_Engine) Python development [professional edition only]
* Version control integration: unified user interface for [Mercurial](https://en.wikipedia.org/wiki/Mercurial), [Git](https://en.wikipedia.org/wiki/Git_(software)), [Subversion](https://en.wikipedia.org/wiki/Apache_Subversion), [Perforce](https://en.wikipedia.org/wiki/Perforce) and [CVS](https://en.wikipedia.org/wiki/Concurrent_Versions_System) with change lists and merge
* Support for scientific tools like matplotlib, numpy and scipy
  1. **Module Used**
* **GetOldTweet3**

GetOldTweets3 is an improvement fork of the original Jefferson Henrique's [GetOldTweets-python](https://github.com/Jefferson-Henrique/GetOldTweets-python). It fixes known issues and adds features such as counting retweets, searching over multiple users accounts, etc. GetOldTweets3 supports only Python 3. Twitter Official API has the bother limitation of time constraints, you can't get older tweets than a week. Some tools provide access to older tweets but in the most of them you have to spend some money before. I was searching other tools to do this job but I didn't found it, so after analyze how Twitter Search through browser works I understand its flow. Basically when you enter on Twitter page a scroll loader starts, if you scroll down you start to get more and more tweets, all through calls to a JSON provider. After mimic we get the best advantage of Twitter Search on browsers, it can search the deepest oldest tweets.

* **Matplotlib**

Matplotlib is a plotting library for the Python programming language and its numerical mathematics extension NumPy. It provides an object-oriented API for embedding plots into applications using general-purpose GUI toolkits like Tkinter, wxPython, Qt, or GTK+.

* **String**

This module contains a number of functions to process standard Python strings. In Python 1.6 and later, most string operations are made available as string methods as well, and many functions in the string module are simply wrapper functions that call the corresponding string method.

* **Collection**

This module implements specialized container datatypes providing alternatives to Python's general purpose built-in containers, dict , list , set , and tuple .

* **NLTK**

Natural Language Processing with Python provides a practical introduction to programming for language processing. Written by the creators of NLTK, it guides the reader through the fundamentals of writing Python programs, working with corpora, categorizing text, analyzing linguistic structure, and more.

* 1. **Code**

import string  
from collections import Counter  
import matplotlib.pyplot as plt  
from nltk.corpus import stopwords  
from nltk.sentiment.vader import SentimentIntensityAnalyzer  
from nltk.stem import WordNetLemmatizer  
from nltk.tokenize import word\_tokenize  
import GetOldTweets3 as got

#Getting Tweets  
def get\_tweets():  
  
 tweetCriteria = got.manager.TweetCriteria().setQuerySearch('CoronaOutbreak') \  
 .setSince("2020-01-01") \  
 .setUntil("2020-04-01") \  
 .setMaxTweets(1000)  
 tweets = got.manager.TweetManager.getTweets(tweetCriteria)  
 text\_tweets = [[tweet.text] for tweet in tweets]  
 return text\_tweets

#Reading Tweets  
text = ""  
text\_tweets = get\_tweets()  
length = len(text\_tweets)

#List to string  
for i in range(0, length):  
 text = text\_tweets[i][0] + " " + text

#cleaning text  
lower\_case = text.lower()  
cleaned\_text = lower\_case.translate(str.maketrans('', '', string.punctuation))

#Tokennization  
tokenized\_words = word\_tokenize(cleaned\_text, "english")

#Remove stop words  
final\_words = []  
for word in tokenized\_words:  
 if word not in stopwords.words('english'):  
 final\_words.append(word)  
print(final\_words)

emotion\_list = []  
with open('emotions.txt', 'r') as file:  
 for line in file:  
 clear\_line = line.replace("\n", '').replace(",", '').replace("'", '').strip()  
 word, emotion = clear\_line.split(':')  
  
 if word in final\_words:  
 emotion\_list.append(emotion)  
  
print(emotion\_list)  
w = Counter(emotion\_list)  
print(w)

#Using NLTK  
def sentiment\_analyse(sentiment\_text):  
 score = SentimentIntensityAnalyzer().polarity\_scores(sentiment\_text)  
 if score['neg'] > score['pos']:  
 print("Negative Sentiment")  
 elif score['neg'] < score['pos']:  
 print("Positive Sentiment")  
 else:  
 print("Neutral Sentiment")  
  
  
sentiment\_analyse(cleaned\_text)

#Plotting Graph  
fig, ax1 = plt.subplots()  
ax1.bar(w.keys(), w.values())  
fig.autofmt\_xdate()  
plt.savefig('graph.png')  
plt.show()

* 1. **Output**

I restricted maximum number of tweets to 50 to show the result. But, higher the number of tweets greater the dataset more accurate is the result.

C:\Users\user\PycharmProjects\Sentiment-Analysis\venv\Scripts\python.exe C:/Users/user/PycharmProjects/Sentiment-Analysis/twitter\_analysis\_NTLK.py

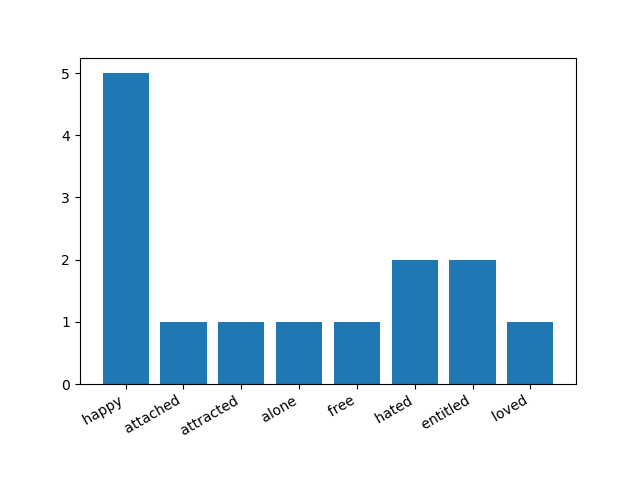
['johanneshano', 'verschwiegen', 'hat', 'ist', 'das', 'viele', 'reichen', 'leute', 'auch', 'newyorkcity', 'auch', 'fluchtartig', 'verlassen', 'haben', 'egal', 'ob', 'krank', 'oder', 'nicht', 'deutschland', 'wirbleibenzuhause', 'covidー19', 'covid19', 'coronavirus', 'covid19', 'coronaoutbreak', 'coronavirusupdates', 'covid2019', 'lanz', 'zdf', 'les', 'chinois', 'mange', 'des', 'chauvessouris', 'et', 'nous', 'ce', 'lave', 'les', 'mains', 'le', 'monde', 'n', '’', 'est', 'pas', 'juste', 'coronavirusupdate', 'covidー19', 'stayathome', 'coronaviruschallenge', 'coronaoutbreak', 'coronavirusfrance', 'imranadiallo11', 'ouessoudiaby', 'lamineguirassy', 'gouvgn', 'espacegg', 'வருங்கால', 'வைப்பு', 'நிதி', 'வட்டி', '79', 'வில்', 'இருந்து', '71', 'ஆக', 'குறைப்பு', 'தொழிலாளர்களுக்கு', 'பேரிடியாக', 'இந்த', 'அறிவிப்பு', 'வந்துள்ளது', 'ppf', 'covid19', 'coronaoutbreak', 'sindhan', 'rkradhakrishn', 'wenn', 'ich', 'das', 'handy', 'zuhause', 'lasse', 'und', 'auch', 'kein', 'bluetooth', 'habe', 'dann', 'bringt', 'mir', 'die', 'coronaapp', 'auch', 'nix', 'deutschland', 'wirbleibenzuhause', 'covidー19', 'covid19', 'coronavirus', 'covid19', 'coronaoutbreak', 'coronavirusupdates', 'covid2019', 'ancjournal', 'helped', 'spreed', 'coronaoutbreak', 'covid19', 'covid19', 'covid', 'coronaviruspandemic', 'coronavirusupdate', 'coronaoutbreak', 'coronavirus', 'der', 'eine', 'experte', 'sagt', 'maske', 'schützt', 'der', 'andere', 'experte', 'sie', 'schützt', 'nicht', 'deutschland', 'wirbleibenzuhause', 'covidー19', 'covid19', 'coronavirus', 'covid19', 'coronaoutbreak', 'coronavirusupdates', 'covid2019', 'lanz', 'zdf', 'us', 'prepare', '100000', 'deaths', 'due', 'coronavirus', 'fauci', 'says', 'coronavirusuk', 'coronavirustruth', 'coronaoutbreak', 'coronaout', 'coronaviruslockdownuk', 'lockdownuk', 'flattenthecurve', 'covid19', 'covid19', 'coronavirususa', 'coronaupdate', 'covid19uk', 'us', 'expect', '200000', 'deaths', 'coronavirusuk', 'coronavirustruth', 'coronaoutbreak', 'coronaout', 'coronaviruslockdownuk', 'lockdownuk', 'flattenthecurve', 'covid19', 'covid19', 'coronavirususa', 'coronaupdate', 'covid19uk', 'httpswwwbbccouknewsliveworld52101615nsmchannelsocialampnssourcetwitterampnscampaignbbcliveampnslinkname5e83bfa2a8854e067111aa1926us2027should20expect20up20to202002c00020deaths272620200331t223a173a24911zampnsfee0amppinnedpostlocatorurnassetc3c3ead12f1d4df98fe6de81599e95d3amppinnedpostassetid5e83bfa2a8854e067111aa19amppinnedposttypeshare', 'via', 'bbcnews', 'endorse', 'plz', 'young', 'tigerforce', 'youth', 'nation', 'feel', 'corona', 'cant', 'infect', 'hurt', 'coronaviruspakistan', 'coronaoutbreak', 'stayathome', 'covid', 'lockdown', '100000', '240000', 'americans', 'could', 'die', 'trump', 'gop', 'responsible', 'play', 'politics', 'delay', 'covid19', 'coronaoutbreak', 'response', '’', 'realize', 'medical', 'errors', 'alcoholism', 'heart', 'disease', 'contagious', 'incubation', 'period', '14', 'days', 'coronavirusupdate', 'coronaoutbreak', 'trumpliesaboutcoronavirus', 'trumpviruscoverup', 'covidiot', 'gopbetrayedamerica', 'impotus45', 'coronavirusupdate', 'coronaoutbreak', 'trumpliesaboutcoronavirus', 'trumpviruscoverup', 'covidiot', 'gopbetrayedamerica', 'impotus45', '’', 'forget', 'magat', 'idiots', 'intentionally', 'spreading', 'coronavirusupdate', 'coronaoutbreak', 'trumpliesaboutcoronavirus', 'trumpviruscoverup', 'covidiot', 'gopbetrayedamerica', 'impotus45', 'breaking', 'coronavirusupdate', 'coronaviruscanada', 'covid19', 'covid19canada', 'coronaoutbreak', 'canadalockdown', 'canadacovid19', 'toronto', 'socialdistancing', 'canada', '8505', 'coronavirus', 'cases', '101', 'dead', '0331', '630pm', 'nfld1', 'pq31', 'on33', 'man1', 'sask2', 'ab8', 'bc19', 'disclosed6', '4', 'simple', 'steps', 'make', 'world', 'difference', 'literally', 'watch', 'like', 'comment', 'share', 'link', 'httpsqooly357zsq', 'coronaoutbreak', 'covid19', 'coronavirusupdate', 'coronaoutbreak', 'trumpliesaboutcoronavirus', 'trumpviruscoverup', 'covidiot', 'gopbetrayedamerica', 'impotus45', 'president', 'donald', 'trump', 'prepare', '100000', '200000', 'deaths', 'coronavirus', 'usa', 'coronaviruspandemic', 'coronavirusupdate', 'covid2019', 'coronavirus', 'coronaoutbreak', 'covid19', 'stayathome', 'covid19', 'coronavirus', 'outbreak', 'coronavirus', 'cases', '854608', 'deaths', '42043', 'recovered', '176908', 'httpworldometersinfocoronavirus', 'coronavirus', 'coronavirus', 'chinacoronavirus', 'coronavirusoutbreak', 'china', 'coronaviruschina', 'coronaoutbreak', 'coronaviruschina', 'pandemic', 'appellate', 'litigation', 'httpsyoutubevsrenjfela', 'covid19ph', 'coronavirusupdates', 'coronials', 'coronapocalypse', 'coronavirus', 'coronaoutbreak', 'closenycpublicschools', 'coronaviruspandemic', 'coronavirus', 'covid19', 'coronavirusupdate', 'covid19us', 'coronavirususa', 'coronalockdown', 'covid', 'medplusindia', 'one', 'medplus', 'medical', 'store', 'dargah', 'road', 'pallavaram', 'chennai', 'india', 'would', 'like', 'inform', 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[' sad', ' adequate']

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Positive Sentiment

Process finished with exit code 0



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**References/Bibliography**

* 1. Google ( [https://www.google.com](https://www.google.com/) )
  2. GeeksforGeeks ([https://www.geeksforgeeks.org](https://www.geeksforgeeks.org/) )
  3. Github ([<https://github.com/Mottl/GetOldTweets3>](https://www.javatpoint.com/) )

**GitHub Link**

<https://github.com/PushkarOjha/Sentiment_Analysis>