Vidyavardhaka Sangha®, Mysore

VIDYAVARDHAKA COLLEGE OF ENGINEERING

Autonomous Institute, Affiliated to Visvesvaraya Technological University, Belagavi
(Approved by AICTE, New Delhi & Government of Karnataka)
Accredited by NBA | NAAC with 'A' Grade
Department of Computer Science & Engineering
Phone: +91 821-4276230, Email: hodcs@vvce.ac.in
Web: http://www.vvce.ac.in

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@vvceofficial

ACTIVITY BASED ASSIGNMENT

COURSE NAME:AUTOMATA THEORY

COURSE CODE:21CS54

REPORT ON

"SENTIMENT ANALYSIS"

SUBMITTED BY,

SHREYAS M P-[4VV22CS413]

SINCHANA N-[4VV22CS414]

VIJAY M M-[4VV22CS417]

SUDARSHAN-[4VV22CS415]

SUBMITTED TO,

HARSHITHA K

Associate Professor

DEPT Of CSE

INDEX

INTRODUCTION

What is Sentiment Analysis?

- Sentiment Analysis is contextual mining of text which identifies and extracts subjectiveinformation in source material.

- Sentiment Analysis is the most common text classification tool that analyzes an incomingmessage and tells whether the underlying sentiment is positive, negative or neutral.

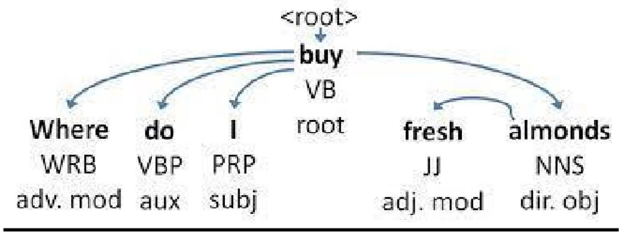
NLTK LIBRARY

- NLTK- Natural Language Toolkit is a leading platform for building Python programs to work with human language data. It provides easy-to-use interfaces to over 50 corpora andlexical resources.

- It provides a set of diverse algorithms for NLP. It is one of the most used libraries forNLP and Computational Linguistics.

POS Tagging

- Part-of-speech (POS) tagging is a process in natural language processing (NLP) whereeach word in a text is labeled with its corresponding part of speech. This can include nouns, verbs, adjectives, and other grammatical categories.
- For example, the parts of speech of every word can be found.



SOURCE CODE

```
import nltk as nltk
from nltk import word_tokenize
from nltk import CFG

text = input("Enter a statement: ")
sentence1 = word_tokenize(text)
text1 = nltk.pos_tag(sentence1)
print(text1)
print(sentence1)

grammar = CFG.fromstring("""
S -> NP VP
NP -> Adj N | N
VP -> V Adj | V NP | V S | V """)

def sentiment_analysis(sentence1):
# parser = nltk.ChartParser(grammar) trees = sentence1
i = ['happy', 'great', 'amazing', 'delightful', 'fantastic', 'joyful']
j = ['sad', 'bad', 'angry', 'bitter', 'terrible', 'evil']
k = ['okay', 'ok', 'calm', 'average', 'common', 'fine'] c = 0
for p in range(0, len(i)):
if i[p] in trees:
        print("Positive")
        c += 1
elif j[p] in trees:
         print('Negative')
         c += 1
elif k[p] in trees:
print('Neutral')
c += 1
if c == 0:
        print("Unable to determine sentiment")
        print(sentiment_analysis(sentence1))
```

OUTPUT

```
(1) Enter a statement: It is a happy day
     [('It', 'PRP'), ('is', 'VBZ'), ('a', 'DT'), ('happy', 'JJ'), ('day', 'NN')]
     ['It', 'is', 'a', 'happy',
     'day']Positive
     None

(2) Enter a statement: He was sad
    [('He', 'PRP'), ('was', 'VBD'), ('sad', 'JJ')]
    ['He', 'was',
    'sad']
    Negative
    None

(3) Enter a statement: The place was fine
     [('The', 'DT'), ('place', 'NN'), ('was', 'VBD'), ('fine', 'JJ')]
     ['The', 'place', 'was',
     'fine']Neutral
     None
```

APPLICATIONS

- Social media monitoring.
- Customer support ticket analysis.
- Brand monitoring and reputation management.
- Listen to voice of the customer (VoC)
- Listen to the voice of the employee.
- Product analysis.
- Market research and competitive research.
- Analyze customer reviews.

EXAMPLE

- **Social media monitoring - Twitter Tweets Analysis:**

  Sentiment analysis can read beyond simple definition to detect sarcasm, read common chat acronyms (lol, rofl, etc.), and correct forcommon mistakes like misused and misspelled words.

  - **Brand monitoring:**

    Sentiment analysis with natural language understanding (NLU) reads regular human language for meaning, emotion, tone, and more, to understand customer requests, just as a person would. You can automatically process customer support tickets, online chats, phone calls, and emails by sentiment to prioritize any urgent issues.

  - **Customer support analysis:**

    Sentiment analysis is an excellent tool to keep a close eye on your brand's reputation, find out what is right or wrong about your business, and understand more about your customers.