



Objective

The objective of the project is sentiment analysis using NLP(Natural Language Processing) of the speech given by Swami vivekananda on 11 sep 1893 in Chicago

Sentiment Analysis

Sentiment analysis is a text mining technique that user machine learning and natural language processing to automatically analyze text for the sentiment like positive, negative, natural words

Import the required libraries

```
In [ ]: import numpy as np
import matplotlib.pyplot as plt
import pandas as pd
import seaborn as sns
import warnings
warnings.filterwarnings("ignore")
import plotly.express as px
import plotly.graph_objects as go

import re
import nltk
from nltk.corpus import stopwords
from nltk.tokenize import sent_tokenize,word_tokenize
from nltk.stem import WordNetLemmatizer
from nltk.sentiment.vader import SentimentIntensityAnalyzer#soe word negtive some postive word in dic
#from wordcloud import WordCloud

nltk.download("punkt") #need for tokenization ..abbrebtion read adj etc
nltk.download("stopwords") #is am are and but a an the
nltk.download('vader_lexicon') #categoryise postive and negative words
```

Speech Load

```
In [2]: file_path = "vivek.txt"
with open(file_path, "r", encoding="utf-8") as file:
    speech_text = file.read()
```

In []: pip install langdetect

In [33]: from langdetect import detect
print(detect(speech_text))
en

In [3]: speech_text

Out[3]: '\nSisters and Brothers of America,\n It fills my heart with joy unspeakable to rise in response to the warm and cordial welcome\nwhich you have given us. I thank you in the name of the most ancient order of monks in the\nworld; I thank you in the name of the mother of religions; and I thank you in the name of\nmillions and millions of Hindu people of all classes and sects. My thanks, also, to some of the\nspeakers on this platform who, referring to the delegates from the Orient, have told you that\nthese men from far-off nations may well claim the honour of bearing to different lands the\nidea of toleration. I am proud to belong to a religion which has taught the world both\ntolerance and universal acceptance. We believe not only in universal toleration, but we accept\nall religions as true. I am proud to belong to a nation which has sheltered the persecuted and\nthe refugees of all religions and all nations of the earth. I am proud to tell you that we have\ngathered in our bosom the purest remnant of the Israelites, who came to Southern India and\ntook refuge with us in the very year in which their holy temple was shattered to pieces by\nRoman tyranny. I am proud to belong to the religion which has sheltered and is\nstill fostering remnant Zoroastrian nation. I will quote to you, brethren, a few lines from a\nhymn which I remember to have repeated from my earliest boyhood, which is every day\nrepeated by millions of human beings: "As the different streams having their sources in\ndifferent places all mingle their water in the sea, so O Lord, the different paths which\nmen take through different tendencies, various though they appear, crooked or straight, all\nlead to Thee."\n The present convention, which is one of the most august assemblies ever held, is in itself\na vindication, a declaration to the world of the wonderful doctrine preached in the Gita:\n"Whosoever comes to Me, through whatsoever form, I reach him; all men are struggling\nthrough paths which in the end lead to me." Sectarianism, bigotry, and its horrible\ndescendant, fanaticism, have long possessed this beautiful earth. They have filled the earth\nwith

Text Preprocessing

In [4]: #Remove punctuations marks
speech_text_cleaned = re.sub(r'[^w\s]', '', speech_text) #read word and sentences
speech_text_cleaned

Out[4]: '\nSisters and Brothers of America\n It fills my heart with joy unspeakable to rise in response to the warm and cordial welcome\nwhich you have given us I thank you in the name of the most ancient order of monks in the\nworld I thank you in the name of the mother of religions and I thank you in the name of\nmillions and millions of Hindu people of all classes and sects My thanks also to some of the\nspeakers on this platform who referring to the delegates from the Orient have told you that\nthese men from faroff nations may well claim the honour of bearing to different lands the\nidea of toleration I am proud to belong to a religion which has taught the world both\ntolerance and universal acceptance We believe not only in universal toleration but we accept\nall religions as true I am proud to belong to a nation which has sheltered the persecuted and\nthe refugees of all religions and all nations of the earth I am proud to tell you that we have\ngathered in our bosom the purest remnant of the Israelites who came to Southern India and\ntook refuge with us in the very year in which their holy temple was shattered to pieces by\nRoman tyranny I am proud to belong to the religion which has sheltered and is\nstill fostering remnant Zoroastrian nation I will quote to you brethren a few lines from a\nhymn which I remember to have repeated from my earliest boyhood which is every day\nrepeated by millions of human beings As the different streams having their sources in\ndifferent places all mingle their water in the sea so O Lord the different paths which\nmen take through different tendencies various though they appear crooked or straight all\nlead to Thee\n The present convention which is one of the most august assemblies ever held is in itself\na vindication a declaration to the world of the wonderful doctrine preached in the Gita\nWhosoever comes to Me through whatsoever form I reach him all men are struggling\nthrough paths which in the end lead to me Sectarianism bigotry and its horrible\ndescendant fanaticism have long possessed this beautiful earth They have filled the earth\nwith

Lower case

```
In [45]: #speech_text_cleaned in Lower case
speech_text_cleaned=speech_text_cleaned.lower()
speech_text_cleaned
```

```
Out[45]: '\nsisters and brothers of america\n it fills my heart with joy unspeakable to rise in response to the warm and cordial welcome\nwhich you have given us i thank you in the name of the most ancient order of monks in the\\nworld i thank you in the name of the mother of religions and i thank you in the name of\\nmillions and millions of hindu people of all classes and sects my thanks also to some of the\\nSpeakers on this platform who referring to the delegates from the orient have told you that\\nthese men from faroff nations may well claim the honour of bearing to different lands the\\nidea of toleration i am proud to belong to a religion which has taught the world both\\ntolerance and universal acceptance we believe not only in universal toleration but we accept\\nall religions as true i am proud to belong to a nation which has sheltered the persecuted and\\nthe refugees of all religions and all nations of the earth i am proud to tell you that we have\\ngathered in our bosom the purest remnant of the israelites who came to southern india and\\ntook refuge with us in the very year in which their holy temple was shattered to pieces by\\nroman tyranny i am proud to belong to the religion which has sheltered and is\\nstill fostering remnant zoroastrian nation i will quote to you brethren a few lines from a\\nhymn which i remember to have repeated from my earliest boyhood which is every day\\nrepeated by millions of human beings as the different streams having their sources in\\ndifferent places all mingle their water in the sea so o lord the different paths which\\nmen take through different tendencies various though they appear crooked or straight all\\nlead to thee\\n the present convention which is one of the most august assemblies ever held is in itself\\na vindication a declaration to the world of the wonderful doctrine preached in the gita\\nwhosoever comes to me through what soever form i reach him all men are struggling\\nthrough paths which in the end lead to me sectarianism bigotry and its horrible\\ndescendant fanaticism have long possessed this beautiful earth they have filled the earth\\nwith
```

Tokenization

it divided paragraphs into sentences and sentences into words

```
In [49]: #convert all sentence into word
words = word_tokenize(speech_text_cleaned)
", ".join(words)
```

```
Out[49]: 'sisters, and, brothers, of, america, it, fills, my, heart, with, joy, unspeakable, to, rise, in, response, to, the, warm, and, cordial, welcome, which, you, have, given, us, i, thank, you, in, the, name, of, the, most, ancient, order, of, monks, in, the, world, i, thank, you, in, the, name, of, the, mother, of, religions, and, i, thank, you, in, the, name, of, millions, and, millions, of, hindu, people, of, all, classes, and, sects, my, thanks, also, to, some, of, the, speakers, on, this, platform, who, referring, to, the, delegates, from, the, orient, have, told, you, that, these, men, from, faroff, nations, may, well, claim, the, honour, of, bearing, to, different, lands, the, idea, of, toleration, i, am, proud, to, belong, to, a, religion, which, has, taught, the, world, both, tolerance, and, universal, acceptance, we, believe, not, only, in, universal, toleration, but, we, accept, all, religions, as, true, i, am, proud, to, belong, to, a, nation, which, has, sheltered, the, persecuted, and, the, refugees, of, all, religions, and, all, nations, of, the, earth, i, am, proud, to, tell, you, that, we, have, gathered, in, our, bosom, the, purest, remnant, of, the, israelites, who, came, to, southern, india, and, took, refuge, with, us, in, the, very, year, in, which, their, holy, temple, was, shattered, to, pieces, by, roman, tyranny, i, am, proud, to, belong, to, the, religion, which, has, sheltered, and, is, still, fostering, remnant, zoroastrian, nation, i, will, quote, to, you, brethren, a, few, lines, from, a, hymn, which, i, remember, to, have, repeated, from, my, earliest, boyhood, which, is, every, day, repeated, by, millions, of, human, beings, as, the, different, streams, having, their, sources, in, different, places, all, mingle, their, water, in, the, sea, so, o, lord, the, different, paths, which, men, take, through, different, tendencies, various, though, they, appear, crooked, or, straight, all, lead, to, thee, the, present, convention, which, is, one, of, the, most, august, assemblies, ever, held, is, in, itself, a, vindication, a, declaration, to, the, world,
```

Remove Stopwords

```
In [7]: #remove stopwords
stop_words = set(stopwords.words('english'))
```

```
In [50]: word_filtered = [word for word in words if word not in stop_words]
", ".join(word_filtered)
```

```
Out[50]: 'sisters, brothers, america, fills, heart, joy, unspeakable, rise, response, warm, cordial, welcome, given, us, thank, name, ancient, order, monks, world, thank, name, mother, religions, thank, name, millions, millions, hindu, people, classes, sects, thanks, also, speakers, platform, referring, delegates, orient, told, men, faroff, nations, may, well, claim, honour, bearing, different, lands, idea, toleration, proud, belong, religion, taught, world, tolerance, universal, acceptance, believe, universal, toleration, accept, religions, true, proud, belong, nation, sheltered, persecuted, refugees, religions, nations, earth, proud, tell, gathered, bosom, purest, remnant, israelites, came, southern, india, took, refuge, us, year, holy, temple, shattered, pieces, roman, tyranny, proud, belong, religion, sheltered, still, fostering, remnant, zoroastrian, nation, quote, brethren, lines, hymn, remember, repeated, earliest, boyhood, every, day, repeated, millions, human, beings, different, streams, sources, different, places, mingle, water, sea, lord, different, paths, men, take, different, tendencies, various, though, appear, crooked, straight, lead, thee, present, convention, one, august, assemblies, ever, held, vindication, declaration, world, wonderful, doctrine, preached, gita, whosoever, comes, whatsoever, form, reach, men, struggling, paths, end, lead, sectarianism, bigotry, horrible, descendant, fanaticism, long, possessed, beautiful, earth, filled, earth, violence, drenched, often, often, human, blood, destroyed, civilisation, sent, whole, nations, despair, horrible, demons, human, society, would, far, advanced, time, come, fervently, hope, bell, tolled, morning, honour, convention, may, deathknell, fanaticism, persecutions, sword, pen, uncharitable, feelings, persons, wending, way, goal, disagree, 15, sep, 1893, tell, little, story, heard, eloquent, speaker, finished, say, let, us, cease, abusing, sorry, always, much, variance, think, tell, story, would, illustrate, cause, variance, frog, lived, well, lived, long, time, born, brought, yet, little, small, frog, course, evolve
```

Lemmatization

Lemmatization reduce a word to its root form as well as meaningful word

```
In [51]: # Lemmatization --- meaningful words and reduce the word count
lemmatizer = WordNetLemmatizer()
words_lemmatized = [lemmatizer.lemmatize(word) for word in word_filtered]
", ".join(words_lemmatized)
```

```
Out[51]: 'sister,brother,america,fill,heart,joy,unspeakable,rise,response,warm,cordial,welcome,given,u,thank,name,ancient,order,monk,world,thank,name,mother,religion,thank,name,million,million,hindu,people,class,sect,thanks,also,speaker,platform,referring,delegate,orient,told,men,faroff,nation,may,well,claim,honour,bearing,different,land,idea,toleration,proud,belong,religion,taught,world,tolerance,universal,acceptance,believe,universal,tolerated,accept,religion,true,proud,belong,nation,sheltered,persecuted,refugee,religion,nation,earth,proud,tell,gathered,bosom,purest,remnant,israelite,came,southern,india,took,refuge,u,year,holy,temple,shattered,piece,roman,tyranny,proud,belong,religion,sheltered,still,fostering,remnant,zoroastrian,nation,quote,brother,line,hymn,remember,repeated,earliest,boyhood,every,day,repeated,million,human,being,different,stream,source,different,place,mingle,water,sea,lord,different,path,men,take,different,tendency,various,though,appear,crooked,straight,lead,thee,present,convention,one,august,assembly,ever,held,vindication,declaration,world,wonderful,doctrine,preached,gita,whosoever,come,whatsoever,form,reach,men,struggling,path,end,lead,sectarianism,bigotry,horrible,descendant,fanaticism,long,possessed,beautiful,earth,filled,earth,violence,drenched,often,often,human,blood,destroyed,civilisation,sent,whole,nation,despair,horrible,demon,human,society,would,far,advanced,time,come,fervently,hope,bell,tolled,morning,honour,convention,may,deathknell,fanaticism,persecution,sword,pen,uncharitable,feeling,person,wending,way,goal,disagree,15,sep,1893,tell,little,story,heard,eloquent,speaker,finished,say,let,u,cease,abusing,sorry,always,much,variance,think,tell,story,would,illustrate,cause,variance,frog,lived,well,lived,long,time,born,brought,yet,little,small,frog,course,evolutionist,tell,u,whether,frog,lost,eye,story,sake,must,take,granted,eye,every,day,cleansed,water,worm,bacillus,lived,energy,would,credit,modern,bacteriologist,way,went,became,little,sleep,k,fat,well,one,day,another,frog,lived,sea,came,fell,well,sea,sea,big,big,well,took,leap,one,side,well,friend,safe
```

Apply sentiments

```
if the sentiment score is > 0.1 then it can be considered as positive word
if the sentiment score is < -0.1 then it can be considered as Negative word
if the sentiment score is between 0.1 & -0.1 then it can be considered as neutral word
```

```
In [54]: #apply sentiment
sia = SentimentIntensityAnalyzer()
sentiment_scores = [sia.polarity_scores(word)[ 'compound'] for word in words_lemmatized]
sentiment_scores
```

```
Out[54]: [0.0,
0.0,
0.0,
0.0,
0.0,
0.5859,
0.0,
0.0,
0.0,
0.0,
0.2263,
0.0,
0.4588,
0.0,
0.0,
0.3612,
0.0,
0.0,
0.0,
0.0,
0.0,
^ ^
```

```
In [11]: len(sentiment_scores)
```

```
Out[11]: 3313
```

```
In [12]: sum(sentiment_scores)
```

```
Out[12]: 93.87689999999992
```

Average sentiment

```
In [13]: average_sentiment = sum(sentiment_scores) / len(sentiment_scores)
average_sentiment
```

#we are getting Neutral sentiment from this speech

```
Out[13]: 0.02833591910654993
```

```
In [14]: print("The average sentiment is Neutral :", average_sentiment)
```

The average sentiment is Neutral : 0.02833591910654993

```
In [15]: positive_words = [word for i, word in enumerate(word_filtered) if sentiment_scores[i] > 0.1]
negative_words = [word for i, word in enumerate(word_filtered) if sentiment_scores[i] < -0.1]
neutral_words = [word for i, word in enumerate(word_filtered) if sentiment_scores[i] >=-0.1 and
sentiment_scores[i] <= 0.1]
```

```
In [81]: print(len(positive_words))
print(len(negative_words))
print(len(neutral_words))
```

```
404
170
2739
```

Positive, Negative and Neutral words

In [16]: `print("The positive words are :", positive_words)`

The positive words are : ['joy', 'warm', 'welcome', 'thank', 'thank', 'thanks', 'well', 'honour', 'proud', 'tolerance', 'acceptance', 'accept', 'true', 'proud', 'proud', 'straight', 'wonderful', 'beautiful', 'adanced', 'hope', 'honour', 'feelings', 'well', 'granted', 'energy', 'credit', 'well', 'well', 'well', 'well', 'friend', 'well', 'well', 'well', 'well', 'well', 'well', 'well', 'well', 'thank', 'great', 'hope', 'help', 'accomplish', 'strength', 'grand', 'like', 'faith', 'like', 'treasury', 'ethical', 'spirits', 'spirits', 'spirits', 'spirits', 'perfected', 'glad', 'greatest', 'creation', 'energy', 'energy', 'god', 'god', 'god', 'creation', 'creation', 'god', 'active', 'created', 'like', 'agrees', 'spirit', 'created', 'creation', 'certain', 'created', 'happy', 'enjoy', 'perfect', 'beautiful', 'vigour', 'hands', 'created', 'god', 'create', 'happy', 'god', 'god', 'god', 'god', 'certainly', 'desirable', 'certain', 'peculiar', 'peculiar', 'certain', 'natural', 'granted', 'easily', 'perfect', 'spirit', 'free', 'perfect', 'free', 'perfect', 'perfect', 'perfect', 'sincere', 'brave', 'perfect', 'sincere', 'brave', 'perfect', 'determined', 'mercy', 'good', 'hope', 'reached', 'mercy', 'hope', 'inspire', 'glad', 'immortal', 'bliss', 'saved', 'immortal', 'bliss', 'sweet', 'hopeful', 'allow', 'sweet', 'immortal', 'god', 'immortal', 'bliss', 'perfect', 'divinities', 'immortal', 'spirits', 'free', 'beloved', 'friend', 'strength', 'strength', 'help', 'worship', 'love', 'worshipped', 'beloved', 'dearer', 'love', 'god', 'like', 'god', 'hands', 'good', 'love', 'god', 'hope', 'reward', 'better', 'love', 'god', 'loves', 'wealth', 'grant', 'love', 'hope', 'loves', 'virtuous', 'grand', 'beautiful', 'love', 'love', 'grand', 'love', 'beauty', 'love', 'love', 'love', 'pray', 'likes', 'love', 'loves', 'love', 'divine', 'perfection', 'reached', 'freedom', 'freedom', 'mercy', 'god', 'mercy', 'mercy', 'god', 'straight', 'vital', 'best', 'god', 'god', 'perfection', 'certain', 'perfect', 'divine', 'god', 'god', 'reaching', 'god', 'god', 'perfect', 'heaven', 'perfect', 'perfection', 'bliss', 'enjoys', 'perfect', 'bliss', 'pleasure', 'god', 'enjoys', 'bliss', 'god', 'agreed', 'perfection', 'perfect', 'perfection', 'bliss', 'kind', 'happiness', 'enjoy', 'greater', 'happiness', 'enjoy', 'happiness', 'happiness', 'reached', 'gain', 'happiness', 'perfect', 'progress', 'progress', 'energy', 'perfect', 'reache', 'creation', 'glad', 'cherishing', 'worshippers', 'god', 'sweet', 'sweet', 'god', 'like', 'love', 'great', 'pr', 'worships', 'helps', 'prays', 'well', 'god', 'god', 'truth', 'devote', 'intellectual', 'certain', 'good', 'divine', 'divine', 'supports', 'helps', 'progress', 'worship', 'earnest', 'worship', 'divine', 'help', 'tr', 'uth', 'truth', 'truth', 'truth', 'determined', 'progress', 'strength', 'glorious', 'certain', 'adopt', 'fit', 'fit', 'help', 'hand', 'truths', 'god', 'inspirer', 'truth', 'saved', 'perfect', 'god', 'god', 'great', 'truth', 'god', 'like', 'god', 'embrace', 'virtues', 'divinity', 'created', 'true', 'divine', 'faith', 'heaven', 'strength', 'noble', 'liberty', 'hand', 'rich', 'harmony', 'ready', 'good', 'fond', 'save', 'save', 'help', 'great', 'worships', 'god', 'wish', 'worship', 'god', 'accepted', 'god', 'worship', 'like', 'truths', 'glory', 'truths', 'great', 'glory', 'wonderful', 'sympathy', 'great', 'faith', 'god', 'great', 'god', 'fondly', 'natural', 'wonderful', 'sympathy', 'charity', 'wonderful', 'great', 'join', 'wonderful', 'intellect', 'noble', 'wonderful', 'great', 'accomplished', 'success', 'thanks', 'noble', 'love', 'truth', 'wonderful', 'dream', 'thanks', 'thanks', 'enlightened', 'kindness', 'appreciation', 'harmony', 'special', 'thanks', 'harmony', 'hopes', 'triumph', 'hope', 'wis', 'god', 'wish', 'god', 'growth', 'spirit', 'growth', 'charity', 'exclusive', 'dreams', 'exclusive', 'help', 'ha', 'rmony', 'peace']

In [17]: `print("The negative words are :", negative_words)`

The negative words are : ['persecuted', 'shattered', 'struggling', 'horrible', 'violence', 'destroyed', 'despair', 'horrible', 'disagree', 'abusing', 'lost', 'nonsense', 'liar', 'difficulty', 'barriers', 'shocks', 'failed', 'shak', 'e', 'sucked', 'low', 'hopeless', 'contradictions', 'ludicrous', 'destruction', 'die', 'chaos', 'destroyed', 'die', 'die', 'die', 'miserable', 'idiots', 'drag', 'unhappy', 'miserable', 'cruel', 'miserable', 'deny', 'a lone', 'struggle', 'fire', 'death', 'imperfect', 'death', 'death', 'death', 'bad', 'powerless', 'helpless', 'wreck', 'crushing', 'cry', 'cry', 'despair', 'darkness', 'alone', 'death', 'refuses', 'sin', 'shake', 'dreadful', 'pri son', 'fire', 'death', 'burdens', 'burden', 'enemies', 'suffer', 'misery', 'death', 'misery', 'doubt', 'freak', 'terrible', 'alone', 'destroy', 'doubts', 'struggles', 'struggle', 'losing', 'miserable', 'alone', 'death', 'alone', 'misery', 'alone', 'errors', 'stop', 'stop', 'death', 'ignorant', 'abuse', 'punished', 'die', 'punish', 'die', 'stop', 'sin', 'enemy', 'worse', 'stop', 'lowest', 'struggling', 'fire', 'abuse', 'sin', 'sin', 'sin', 'error', 'error', 'lower', 'lowest', 'wrong', 'horrible', 'faults', 'punishing', 'cutting', 'fire', 'inquisition', 'wishes', 'contradictions', 'contradictions', 'alone', 'failed', 'lowest', 'savage', 'doubt', 'crying', 'criticism', 'criticism', 'terrible', 'died', 'hunger', 'crying', 'evil', 'suffering', 'cry', 'insult', 'starving', 'insult', 'starving', 'lose', 'difficult', 'criticise', 'criticise', 'rejected', 'destroy', 'destroy', 'lowest', 'ignorant', 'poor', 'poor', 'death', 'weakness', 'cry', 'weakness', 'crush', 'die', 'death', 'lost', 'destruction', 'forbid', 'forbid', 'destruction', 'pity', 'spite', 'fight', 'destruction']

```
In [18]: print("The neutral words are :", neutral_words)
```

The neutral words are : ['sisters', 'brothers', 'america', 'fills', 'heart', 'unspeakable', 'rise', 'response', 'cordial', 'given', 'us', 'name', 'ancient', 'order', 'monks', 'world', 'name', 'mother', 'religions', 'name', 'millions', 'millions', 'hindu', 'people', 'classes', 'sects', 'also', 'speakers', 'platform', 'referring', 'delegates', 'orient', 'told', 'men', 'faroff', 'nations', 'may', 'claim', 'bearing', 'different', 'lands', 'idea', 'toleration', 'belong', 'religion', 'taught', 'world', 'universal', 'believe', 'universal', 'toleration', 'religions', 'belong', 'nation', 'sheltered', 'refugees', 'religions', 'nations', 'earth', 'tell', 'gathered', 'bosom', 'purest', 'remnant', 'israelites', 'came', 'southern', 'india', 'took', 'refuge', 'us', 'year', 'holly', 'temple', 'pieces', 'roman', 'tyranny', 'belong', 'religion', 'sheltered', 'still', 'fostering', 'remnant', 'zoroastrian', 'nation', 'quote', 'brethren', 'lines', 'hymn', 'remember', 'repeated', 'earliest', 'boyhood', 'every', 'day', 'repeated', 'millions', 'human', 'beings', 'different', 'streams', 'sources', 'different', 'places', 'mingle', 'water', 'sea', 'lord', 'different', 'paths', 'men', 'take', 'different', 'tendencies', 'various', 'though', 'appear', 'crooked', 'lead', 'thee', 'present', 'convention', 'one', 'august', 'assemblies', 'ever', 'held', 'vindication', 'declaration', 'world', 'doctrine', 'preached', 'gita', 'whosoever', 'comes', 'whatever', 'form', 'reach', 'men', 'paths', 'end', 'lead', 'sectarianism', 'bigotry', 'descendant', 'fanaticism', 'long', 'possessed', 'earth', 'filled', 'earth', 'drenched', 'often', 'often', 'human', 'blood', 'civilisation', 'sent', 'whole', 'nations', 'demons', 'human', 'society', 'would', 'far', 'time', 'come', 'fervently', 'bel', 'tolled', 'morning', 'convention', 'may', 'deathknell', 'fanaticism', 'persecutions', 'sword', 'pen', 'uncharitable', 'persons', 'wending', 'way', 'goal', '15', 'sep', '1893', 'tell', 'little', 'story', 'heard', 'eloquent', 'speaker', 'finished', 'say', 'let', 'us', 'cease', 'sorry', 'always', 'much', 'variance', 'think', 'tel

Frequency of sentiment words

```
In [19]: word_freq_positive = nltk.FreqDist(positive_words)
word_freq_negative = nltk.FreqDist(negative_words)
word_freq_neutral = nltk.FreqDist(neutral_words)
print(word_freq_positive)
print(word_freq_negative)
print(word_freq_neutral)
```

<FreqDist with 145 samples and 404 outcomes>
<FreqDist with 96 samples and 170 outcomes>
<FreqDist with 1170 samples and 2739 outcomes>

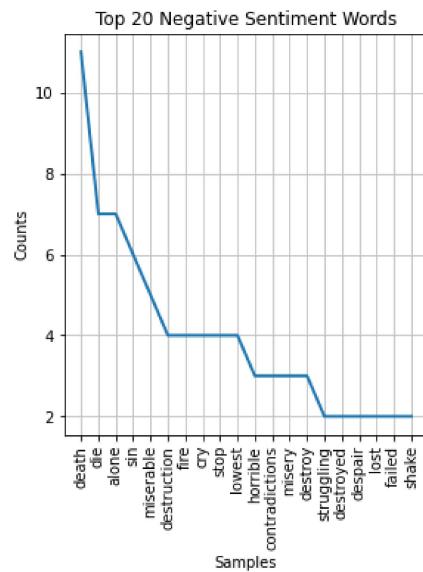
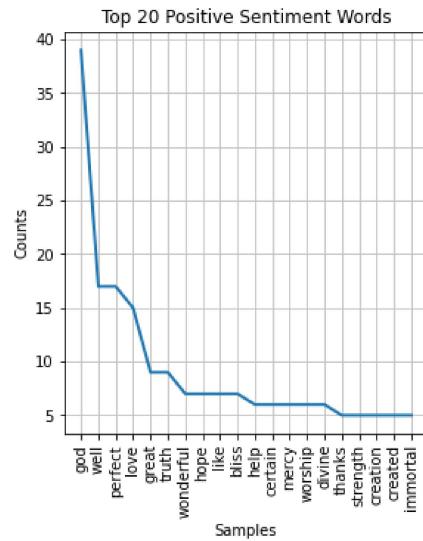
```
In [22]: #visualization
plt.figure(figsize=(15,5))

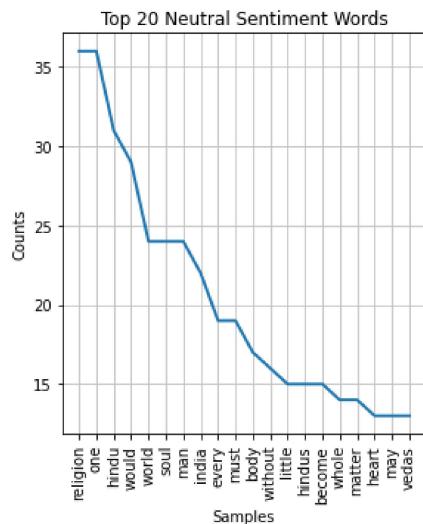
plt.subplot(131)
word_freq_positive.plot(20, title="Top 20 Positive Sentiment Words")

plt.figure(figsize=(15,5))
plt.subplot(132)
word_freq_negative.plot(20, title="Top 20 Negative Sentiment Words")

plt.figure(figsize=(15,5))
plt.subplot(133)
word_freq_neutral.plot(20, title="Top 20 Neutral Sentiment Words")

plt.tight_layout()
plt.show()
```





<Figure size 432x288 with 0 Axes>

In [23]: #top most 20 words

```
df_positive = pd.DataFrame(word_freq_positive.most_common(20), columns=['Word', 'Frequency'])
df_negative = pd.DataFrame(word_freq_negative.most_common(20), columns=['Word', 'Frequency'])
df_neutral = pd.DataFrame(word_freq_neutral.most_common(20), columns=['Word', 'Frequency'])
```

In [24]: df_positive

Out[24]:

	Word	Frequency
0	god	39
1	well	17
2	perfect	17
3	love	15
4	great	9
5	truth	9
6	wonderful	7
7	hope	7
8	like	7
9	bliss	7
10	help	6
11	certain	6
12	mercy	6
13	worship	6
14	divine	6
15	thanks	5
16	strength	5
17	creation	5
18	created	5
19	immortal	5

In [25]: df_negative

Out[25]:

	Word	Frequency
0	death	11
1	die	7
2	alone	7
3	sin	6
4	miserable	5
5	destruction	4
6	fire	4
7	cry	4
8	stop	4
9	lowest	4
10	horrible	3
11	contradictions	3
12	misery	3
13	destroy	3
14	struggling	2
15	destroyed	2
16	despair	2
17	lost	2
18	failed	2
19	shake	2

In [26]: df_neutral

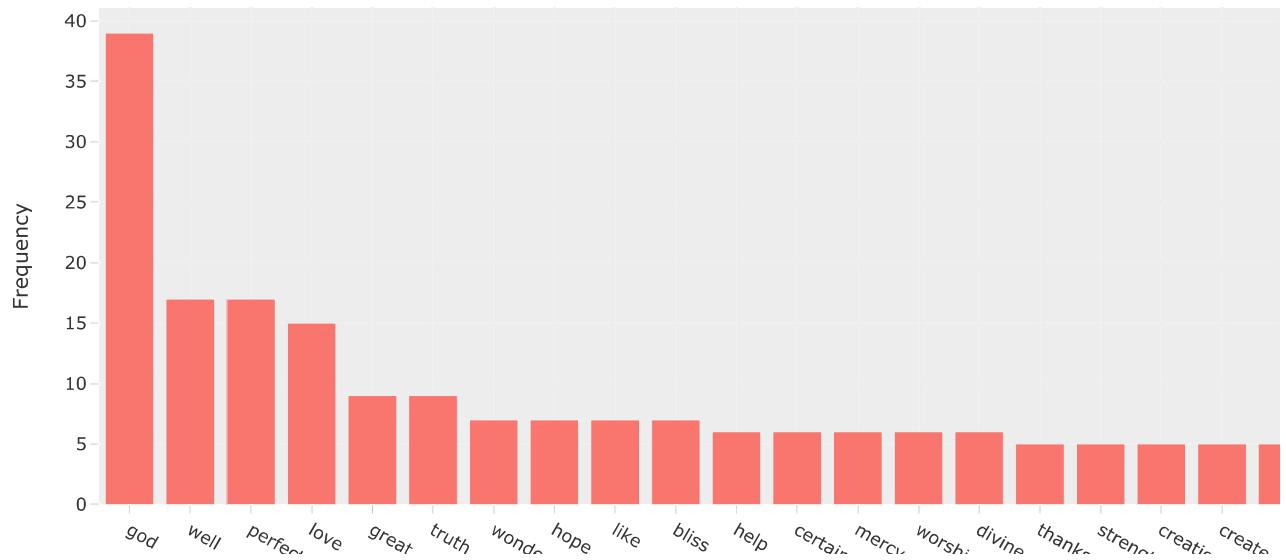
Out[26]:

	Word	Frequency
0	religion	36
1	one	36
2	hindu	31
3	would	29
4	world	24
5	soul	24
6	man	24
7	india	22
8	every	19
9	must	19
10	body	17
11	without	16
12	little	15
13	hindus	15
14	become	15
15	whole	14
16	matter	14
17	heart	13
18	may	13
19	vedas	13

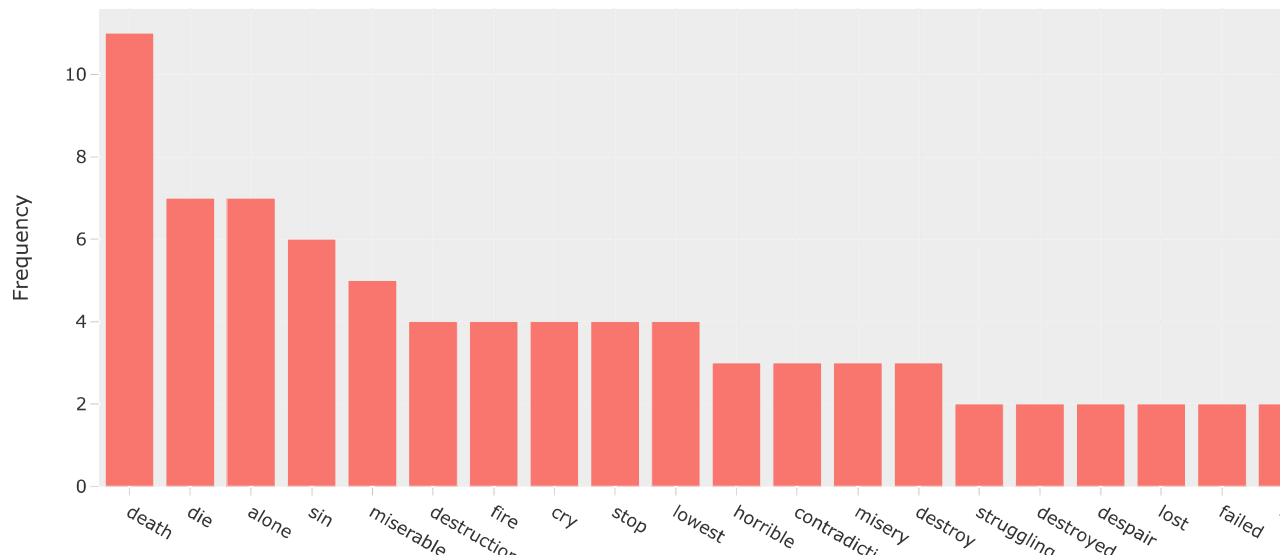
```
In [78]: fig_positive = px.bar(df_positive, x ='Word', y='Frequency', title="Top 20 Positive Sentiment Words",template='ggplot2')
fig_negative = px.bar(df_negative, x ='Word', y='Frequency', title="Top 20 negative Sentiment Words",template='ggplot2')
fig_neutral = px.bar(df_neutral, x ='Word', y='Frequency', title="Top 20 neutral Sentiment Words",template='ggplot2')

fig_positive.show()
fig_negative.show()
fig_neutral.show()
```

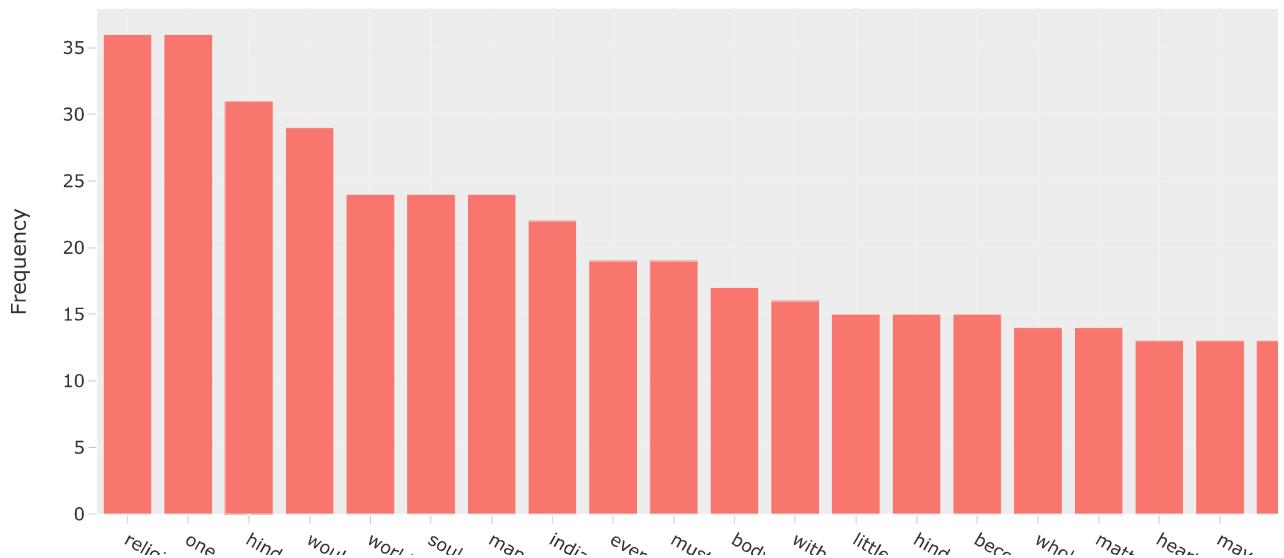
Top 20 Positive Sentiment Words



Top 20 negative Sentiment Words



Top 20 neutral Sentiment Words



```
In [63]: df=pd.DataFrame(sentiment_scores,columns=["sentiment_score"])
df["sentiment"]=df["sentiment_score"].apply(lambda a: 'positive' if
                                             a >0.1 else('Negative' if a< -0.1 else 'Neautral'))
Words=word_filtered
df[ "Words"] =Words
df.head(20)
```

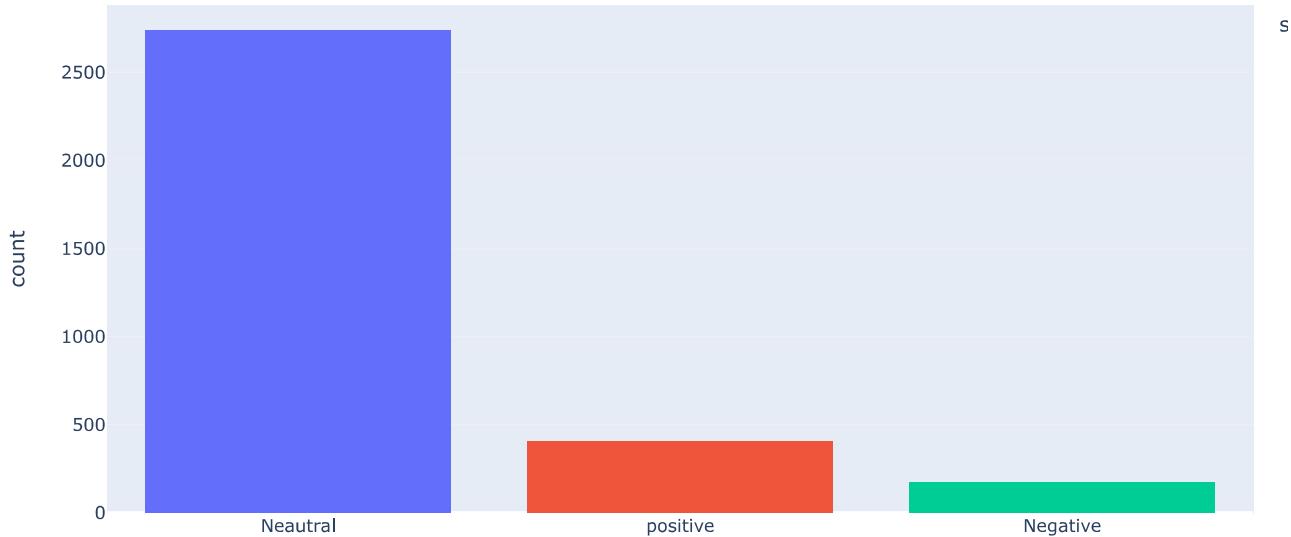
Out[63]:

	sentiment_score	sentiment	Words
0	0.0000	Neautral	sisters
1	0.0000	Neautral	brothers
2	0.0000	Neautral	america
3	0.0000	Neautral	fills
4	0.0000	Neautral	heart
5	0.5859	positive	joy
6	0.0000	Neautral	unspeakable
7	0.0000	Neautral	rise
8	0.0000	Neautral	response
9	0.2263	positive	warm
10	0.0000	Neautral	cordial
11	0.4588	positive	welcome
12	0.0000	Neautral	given
13	0.0000	Neautral	us
14	0.3612	positive	thank
15	0.0000	Neautral	name
16	0.0000	Neautral	ancient
17	0.0000	Neautral	order
18	0.0000	Neautral	monks
19	0.0000	Neautral	world

In []:

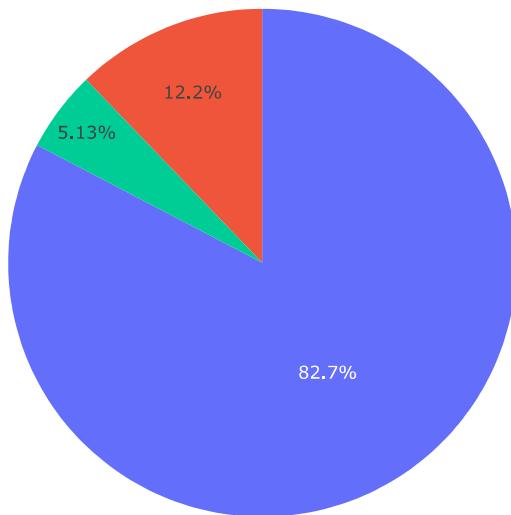
```
In [83]: fig=px.histogram(df,x='sentiment',title='sentiment',color="sentiment")
fig.show()
```

sentiment



```
In [84]: fig1=px.pie(df,names='sentiment',title='sentiment',color="sentiment")
fig1.show()
```

sentiment



Conclusion

In this project we tried to do speech to text sentiment analysis to categorize positive, negative, neutral words using NLP.
in this speech total number of positive words are 404 ,negative words are 170 and neutral words are 2739.
The average sentiment score is 0.0284 and this made sentiment as Neutral.