



Problem 2 : Speech Analysis

In this particular project, we are going to work on the inaugural corpora from the nltk in Python. We will be looking at the following speeches of the Presidents of the United States of America:

President Franklin D. Roosevelt in 1941 President John F. Kennedy in 1961 President Richard Nixon in 1973 (Hint: use .words(), .raw(), .sent() for extracting counts)

Questions:

2.1 Find the number of characters, words, and sentences for the mentioned documents. – 3 Marks

2.1.1 : Number of characters, words, and sentences for Franklin D. Roosevelt

2.1.2 : Number of characters, words, and sentences for John F. Kennedy

2.1.3 : Number of characters, words, and sentences for Richard Nixon

2.2 Remove all the stopwords from all three speeches. – 3 Marks

2.2.1 : Remove all the stopwords from Speech Franklin D. Roosevelt

2.2.2 : Remove all the stopwords from Speech John F. Kennedy

2.2.3 : Remove all the stopwords from Speech Richard Nixon

2.3 Which word occurs the most number of times in his inaugural address for each president? Mention the top three words.(after removing the stopwords) – 3 Marks

2.3.1 : Word occurs the most in speech Franklin D. Roosevelt

2.3.2 : Word occurs the most in speech John F. Kennedy

2.3.3 : Word occurs the most in speech Richard Nixon

2.4 Plot the word cloud of each of the speeches of the variable. (after removing the stopwords) – 3 Marks [refer to the End-to-End Case Study done in the Mentored Learning Session]

2.4.1 : WordCloud for Franklin D. Roosevelt

2.4.2 : WordCloud for John F. Kennedy

2.4.3 : WordCloud for Richard Nixon

Code Snippet to extract the three speeches:

```
" import nltk
nltk.download('inaugural')
from nltk.corpus import inaugural
inaugural.fileids()
inaugural.raw('1941-Roosevelt.txt')
inaugural.raw('1961-Kennedy.txt')
inaugural.raw('1973-Nixon.txt') "
```

2.1 Find the number of characters, words, and sentences for the mentioned documents.

2.1.1 : Number of characters, words, and sentences for Franklin D. Roosevelt.

2.1.2 : Number of characters, words, and sentences for John F. Kennedy

2.1.3 : Number of characters, words, and sentences for Richard Nixon

2.1.1 : Number of characters, words, and sentences for Franklin D. Roosevelt.

First download the inaugural and import the text files "1941-Roosevelt.txt",
"1961-Kennedy.txt". 1973-Nixon.txt".

And do the analysis.

```
The numbers of characters in Roosevelt 1941 speech is: 7571  
The numbers of words in Roosevelt 1941 speech is: 1536  
The numbers of sentences in Roosevelt 1941 speech is: 68
```

2.1.2 : Number of characters, words, and sentences for John F. Kennedy

```
The numbers of characters in 1961-Kennedy speech is: 7618  
The numbers of words in 1961-Kennedy speech is: 1546  
The numbers of sentences in 1961-Kennedy speech is: 52
```

2.1.3 : Number of characters, words, and sentences for Richard Nixon

```
The numbers of characters in 1973-Nixon speech is: 9991  
The numbers of words in 1973-Nixon speech is: 2028  
The numbers of sentences in 1973-Nixon speech is: 69
```

2.2 Remove all the stopwords from all three speeches.

2.2.1 : Remove all the stopwords from Speech Franklin D. Roosevelt

2.2.2 : Remove all the stopwords from Speech John F. Kennedy

2.2.3 : Remove all the stopwords from Speech Richard Nixon

2.2.1 : Remove all the stopwords from Speech Franklin D. Roosevelt

Download stopwoprds from nltk.

After removing all the stopwords from Speech Franklin D. Roosevelt

national day inauguration since people renewed sense dedication united states washington day task people create weld together nation lincoln day task people preserve nation disruption within day task people save nation institutions disruption without us come time midst swift happenings pause moment take stock recall place history rediscover may risk real peril inaction lives nations determined count years lifetime human spirit life man three score years ten little little less life nation fullness measure live men doubt men believe democracy form government frame life limited measured kind mystical artificial fate unexplained reason tyranny slavery become surging wave future freedom ebbing tide americans know true eight years ago life republic seemed frozen fatalistic terror proved true midst shock acted quickly boldly decisively later years living years fruitful years people democracy brought us greater security hope better understanding life ideals measured material things vital present future experience democracy successfully survived crisis home put away many evil things built new structures enduring lines maintained fact democracy action taken within three way framework constitution united states coordinate branches government continue freely function bill rights remains inviolate freedom elections wholly maintained prophets downfall american democracy seen dire predictions come naught democracy dying know seen revive grow know die built unhampered initiative individual men women joined together common enterprise enterprise undertaken carried free expression free majority know democracy alone forms government enlists full force men enlightened know democracy alone constructed unlimited civilization capable infinite progress improvement human life know look surface sense still spreading every continent humane advanced end unconquerable forms human society nation like person body body must fed clothed housed invigorated rested manner measures objectives time nation like person mind mind must kept informed alert must know understands hopes needs neighbors nations live within narrowing circle world nation like person something deeper something permanent something larger sum parts something matters future calls forth sacred guarding present thing find difficult even impossible hit upon single simple word yet understand spirit faith america product centuries born multitudes came many lands high degree mostly plain people sought early late find freedom freely democratic aspiration mere recent phase human history human history permeated ancient life early peoples blazed anew middle ages written magna charta americas impact irresistible america new world tongues peoples continent new found land came believed could create upon continent new life life new freedom vitality written mayflower compact declaration independence constitution united states gettysburg address first came carry longings spirit millions followed stock sprang moved forward constantly consistently toward ideal gained stature clarity generation hopes republic forever tolerate either undeserved poverty self serving wealth know still far go must greatly build security opportunity knowledge every citizen measure justified resources capacity land enough achieve purposes alone enough clothe feed body nation instruct inform mind also spirit three greatest spirit without body mind men know nation could live spirit america killed even though nation body mind constricted alien world lived america know would perished spirit faith speak to us daily lives ways often unnoticed seem obvious speaks us capital nation speaks us processes governing sovereignties states speaks us counties cities towns villages speaks us nations hemisphere across seas enslaved well free sometimes fail hear heed voices freedom us privilege freedom old old story destiny america proclaimed words prophecy spoken first president first inaugural words almost directed would seem year preservation sacred fire liberty destiny republican model government justly considered deeply finally staked experiment intrusted hands american people lose sacred fire let smothered doubt fear shall reject destiny washington strove valiantly triumphantly establish preservation spirit faith nation furnish highest justification every sacrifice may make cause national defense face great perils never encountered strong purpose protect perpetuate integrity democracy muster spirit america faith america retreat content stand still americans go forward service country god

2.2.2 : Remove all the stopwords from Speech John F. Kennedy

vice president johnson mr speaker mr chief justice president eisenhower vice president nixon president truman reverend clergy fellow citizens observe today victory party celebration freedom symbolizing end well beginning signifying renewal well change sworn almighty god solemn oath forebears I prescribed nearly century three quarters ago world different man holds mortal hands power abolish forms human poverty forms human life yet revolutionary beliefs forebears fought still issue around globe belief rights man come generosity state hand god dare forget today heirs first revolution let word go forth time place friend foe alike torch passed new generation americans born century tempered war disciplined hard bitter peace proud ancient heritage unwilling witness permit slow undoing human rights nation always committed committed today home around world let every nation know whether wishes us well ill shall pay price bear burden meet hardship support friend oppose foe order assure survival success liberty much pledge old allies whose cultural spiritual origins share pledge loyalty faithful friends united little host cooperative ventures divided little dare meet powerful challenge odds split asunder new states welcome ranks free pledge word one form colonial control shall passed away merely replaced far iron tyranny shall always expect find supporting view shall always hope find strongly supporting freedom remember past foolishly sought power riding back tiger ended inside peoples huts villages across globe struggling break bonds mass misery pledge best efforts help help whatever period required communists may seek votes right free society help many poor save rich sister republics south border offer special pledge convert good words good deeds new alliance progress assist free men free governments casting chains poverty peaceful revolution hope become prey hostile powers let neighbors know shall join oppose aggression subversion anywhere americas let every power know hemisphere intends remain master house world assembly sovereign states united nations last best hope age instruments war far outpaced instruments peace renew pledge support prevent becoming merely forum invective strengthen shield new weak enlarge area writ may run finally nations would make adversary offer pledge request sides begin anew quest peace dark powers destruction unleashed science engulf humanity planned accidental self destruction dare tempt weakness arms sufficient beyond doubt certain beyond doubt never employed neither two great powerful groups nations take comfort present course sides overburdened cost modern weapons rightly alarmed steady spread deadly atom yet racing alter uncertain balance terror stays hand mankind final war let us begin anew remembering sides civility sign weakness sincerity always subject proof let us never negotiate fear let us never fear negotiate let sides explore problems unite us instead belaboring problems divide us let sides first time formulate serious precise proposals inspection control arms bring absolute power destroy nations absolute control nations let sides seek invoke wonders science instead terrors together let us explore stars conquer deserts eradicate disease tap ocean depths encourage arts commerce let sides unite heed corners earth command isaiah undo heavy burdens let oppressed go free beachhead cooperation may push back jungle suspicion let sides join creating new endeavor new balance power new world law strong weak secure peace preserved finished first days finished first days life administration even perhaps lifetime planet let us begin hands fellow citizens mine rest final success failure course since country founded generation americans summoned give testimony national loyalty graves young americans answered call service surround globe trumpet summons us call bear arms though arms need call battle though embattled call bear burden long twilight struggle year year rejoicing hope patient tribulation struggle common enemies man tyranny poverty disease war forge enemies grand global alliance north south east west assure fruitful life mankind join historic effort long history world generations granted role defending freedom hour maximum danger shrink responsibility welcome believe us would exchange places people generation energy faith devotion bring endeavor light country serve glow fire truly light world fellow americans ask country ask country fellow citizens world ask america together freedom man finally whether citizens america citizens world ask us high standards strength sacrifice ask good conscience sure reward history final judge deeds let us go forth lead land love asking blessing help knowing earth god work must truly

2.2.3 : Remove all the stopwords from Speech Richard Nixon.

mr vice president mr speaker mr chief justice senator cook mrs eisenhower fellow citizens great good country share together met four years ago america bleak spirit depressed prospect seemingly endless war abroad destructive conflict home meet today stand threshold new era peace world central question us shall use peace let us resolve era enter postwar periods often time retreat isolation leads stagnation home invites new danger abroad let us resolve become time great responsibilities greatly borne renew spirit promise america enter third century nation past year saw far reaching results new policies peace continuing revitalize traditional friendships missions peking moscow able establish base new durable pattern relationships among nations world america bold initiatives long remembered year greatest progress since end world war ii toward lasting peace world peace seek world flimsy peace merely interlude wars peace endure generations come important understand necessity limitations america role maintaining peace unless america work preserve peace peace unless america work preserve freedom freedom let us clearly understand new nature america role result new policies adopted past four years shall respect treaty commitments shall support vigorously principle country right impose rule another force shall continue era negotiation work limitation nuclear arms reduce danger confrontation great powers shall share defending peace freedom world shall expect others share time passed america make every nation conflict make every nation future responsibility presume tell people nations manage affairs respect right nation determine future also recognize responsibility nation secure future america role indispensable preserving world peace nation role indispensable preserving peace together rest world let us resolve move forward beginnings made let us continue bring walls hostility divided world long build place bridges understanding despite profound differences systems government people world friends let us build structure peace world weak safe strong respects right live different system would influence others strength ideas force arms let us accept high responsibility burden gladly gladly chance build peace noblest endeavor nation engage gladly also act greatly meeting responsibilities abroad remain great nation remain great nation act greatly meeting challenges home chance today ever history make life better america ensure better education better health better housing better transportation cleaner environment restore respect law make communities livable insure god given right every american full equal opportunity range needs great reach opportunities great let us bold determination meet needs new ways building structure peace abroad required turning away old policies failed building new era progress home requires turning away old policies failed abroad shift old policies new retreat responsibilities better way peace home shift old policies new retreat responsibilities better way progress abroad home key new responsibilities lies placing division responsibility lived long consequences attempting gather power responsibility washington abroad home time come turn away condescending policies paternalism washington knows best person expected act responsibly responsibility human nature let us encourage individuals home nations abroad decide let us locate responsibility places let us measure others today offer promise purely governmental solution every problem lived long false promise trusting much government asked deliver leads inflated expectations reduced individual effort disappointment frustration erode confidence government people government must learn take less people people let us remember america built government people welfare work shirking responsibility seeking responsibility lives let us ask government challenges face together let us ask government help help national government great vital role play pledge government act act boldly lead boldly important role every one us must play individual member community day forward let us make solemn commitment heart bear responsibility part live ideals together see dawn new age progress a

merica together celebrate th anniversary nation proud fulfillment promise world america longest difficult war comes end let us learn debate differences civility decency let us reach one precious quality government provide new level respect rights feeling s one another new level respect individual human dignity cherished birthright every american else time come us renew faith america recent years faith challenged children taught ashamed country ashamed parents ashamed america record home role world every turn beset find everything wrong america little right confident judgment history remarkable times privileged live america record century unparalleled world history responsibility generosity creativity progress let us proud system produced provided freedom abundance widely shared system history world let us proud four wars engaged century including one bringing end fought selfish advantage help others resist aggression let us proud bold new initiatives steadfastness peace honor made break toward creating world world known structure peace last merely time generations come embarking today era presents challenges great nation generation ever faced shall answer god history conscience way use years stand place hallowed history think others stood think dreams america think recognized needed help far beyond order make dreams come true today ask prayers years ahead may god help making decisions right america pray help together may worthy challenge let us pledge together make next four years best four years america history th birthday america young vital began bright beacon hope world let us go forward confident hope strong faith one another sustained faith god created us striving always serve purpose

2.3 Which word occurs the most number of times in his inaugural address for each president? Mention the top three words.(after removing the stopwords)

2.3.1 : Word occurs the most in speech Franklin D. Roosevelt

2.3.2 : Word occurs the most in speech John F. Kennedy

2.3.3 : Word occurs the most in speech Richard Nixon

2.3.1 : Word occurs the most in speech Franklin D. Roosevelt

Nation

```
1  ## Stemming Using Lemmatizer - Stem the words to its root word
2  from nltk import WordNetLemmatizer
3  lt = nltk.WordNetLemmatizer()
4  texts = [lt.lemmatize(i) for i in stopped_tokens]

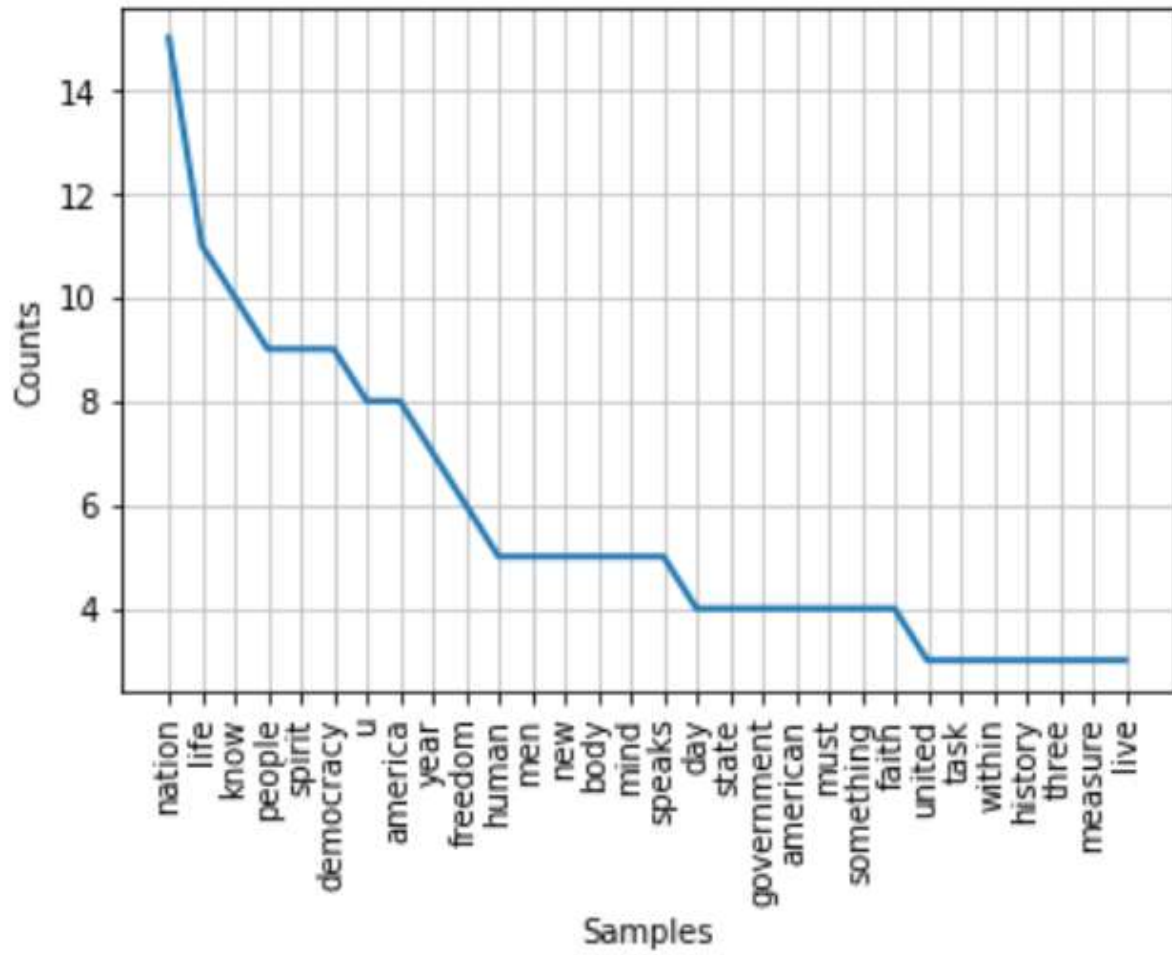
1  ## Stemming Using Lemmatizer - Stem the words to its root word
2  from nltk import WordNetLemmatizer
3  lt = nltk.WordNetLemmatizer()
4  texts = [lt.lemmatize(i) for i in stopped_tokens]## Top 10 frequency occurring words
5  Roosevelt_10 = nltk.FreqDist(texts).most_common(10)
6  Roosevelt_10
7
8  # Word which is used the most
9  Roosevelt_1 = nltk.FreqDist(texts).most_common(1)
10 Roosevelt_1
11

[('nation', 15)]

1  print('The word which used mostly in Roosevelt speech is nation.')

The word which used mostly in Roosevelt speech is nation.
```


Frequency plot:



2.3.2 : Word occurs the most in speech John F. Kennedy

Let

```
1 ## Stemming Using Lemmatizer - Stem the words to its root word
2 from nltk import WordNetLemmatizer
3 lt = nltk.WordNetLemmatizer()
4 texts2 = [lt.lemmatize(i) for i in stopped_tokens]## Top 10 frequency occurring words
5 Kennedy_10 = nltk.FreqDist(texts2).most_common(10)
6 Kennedy_10
7 Kennedy_1 = nltk.FreqDist(texts2).most_common(1)
8 Kennedy_1
```

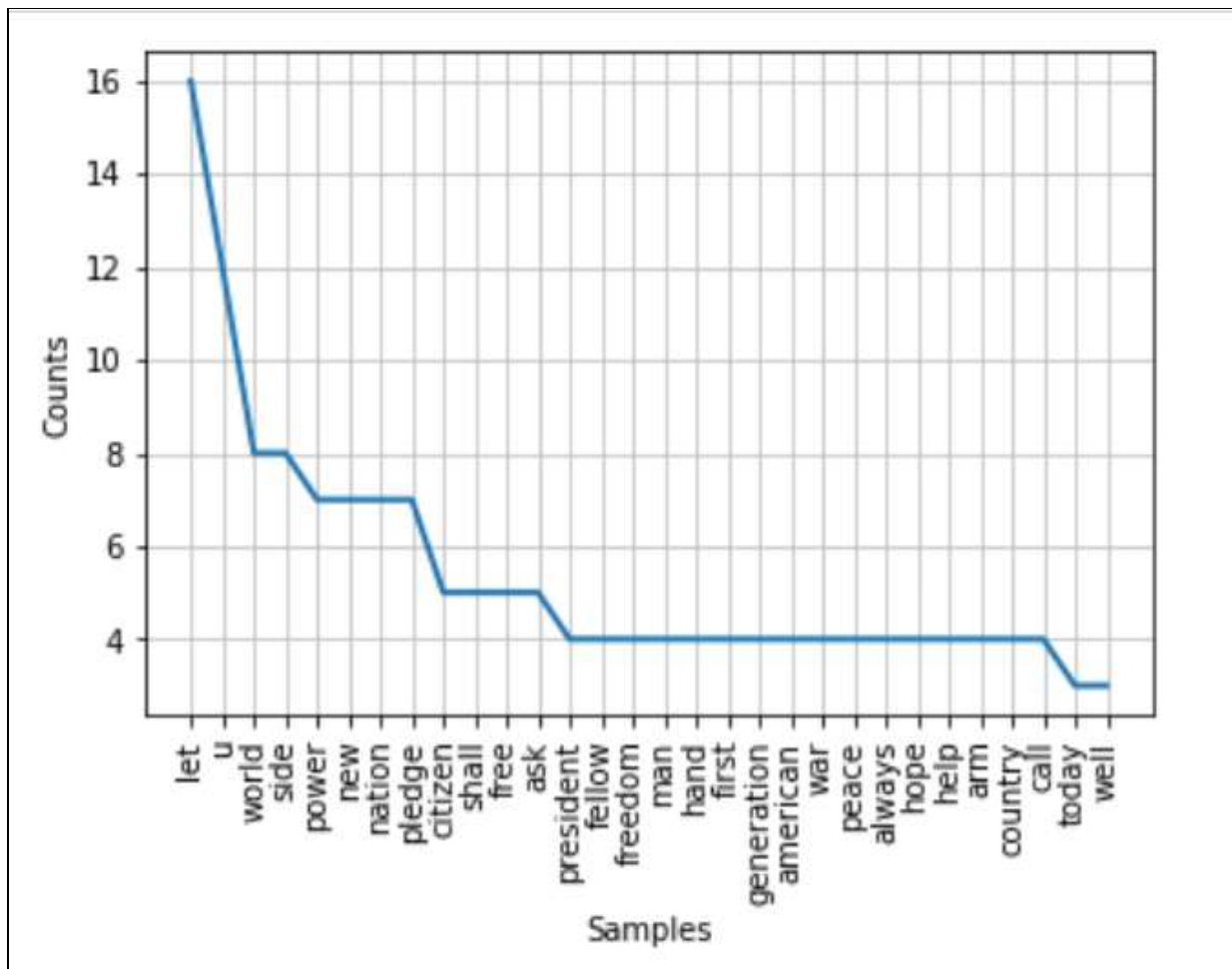
```
[('let', 16)]
```

```
1 print('The word which is Occurred most in John F. Kennedy Speech is let')
```

```
The word which is Occurred most in John F. Kennedy Speech is let
```

Here if we additionally remove some words, **world** is the most used words.

Frequency plot:



2.3.3 : Word occurs the most in speech Richard Nixon

u (Before removing user-defined stopwords like let and u)

america (After removing user-defined stopwords like let and u)

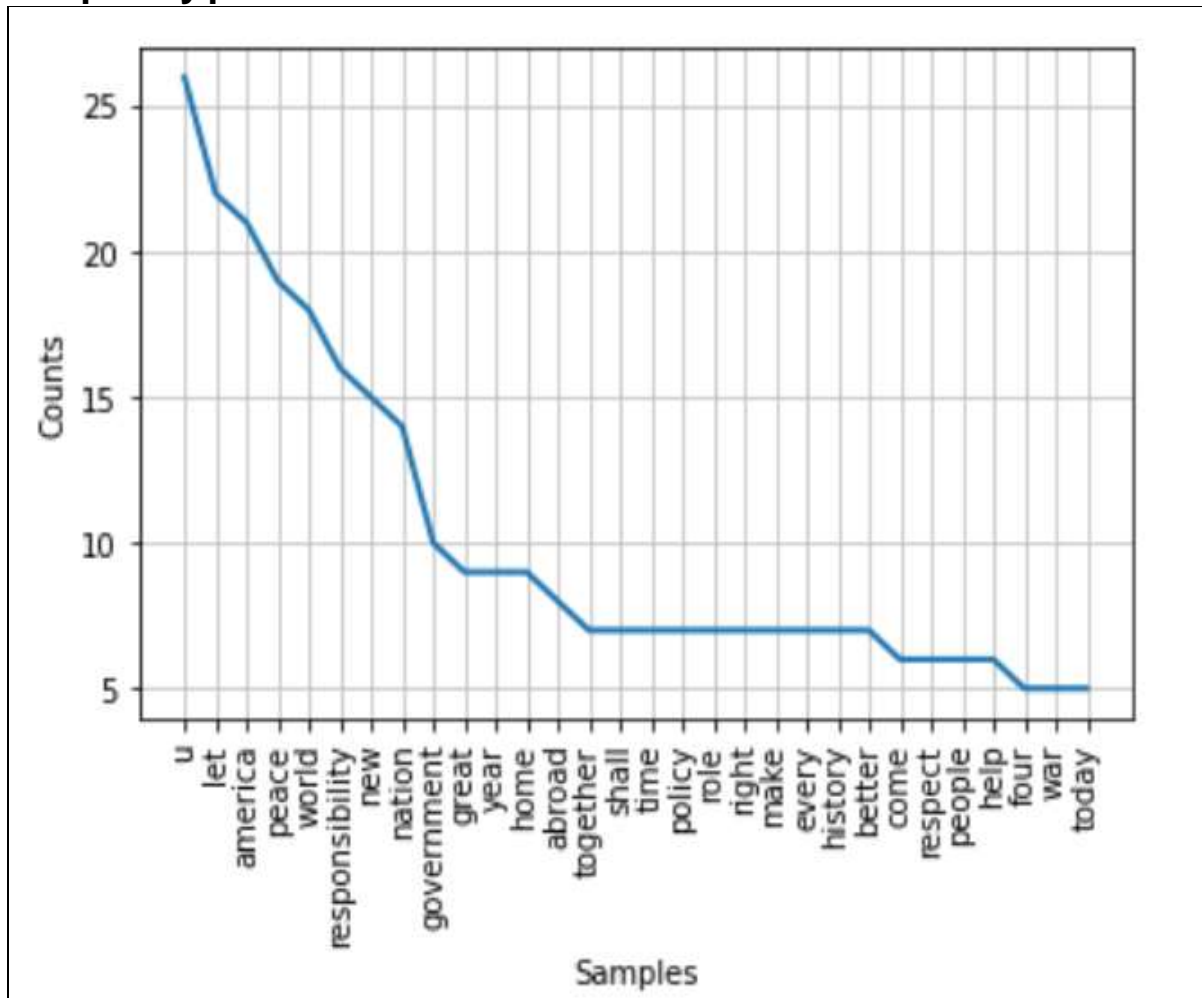
```
1  ## Stemming Using Lemmatizer - Stem the words to its root word
2  from nltk import WordNetLemmatizer
3  lt = nltk.WordNetLemmatizer()
4  texts3 = [lt.lemmatize(i) for i in stopped_tokens3]## Top 10 frequency occurring words
5  Nixon_10 = nltk.FreqDist(texts3).most_common(10)
6  Nixon_10
7  Nixon_1 = nltk.FreqDist(texts3).most_common(1)
8  Nixon_1

[('u', 26)]

1  print('Before removing stopwords The word which is Occurred most in Nixon Speech is u')
2  print('After removing stopwords The word which is Occurred most in Nixon Speech is america')

Before removing stopwords The word which is Occurred most in Nixon Speech is u
After removing stopwords The word which is Occurred most in Nixon Speech is america
```

Frequency plot:



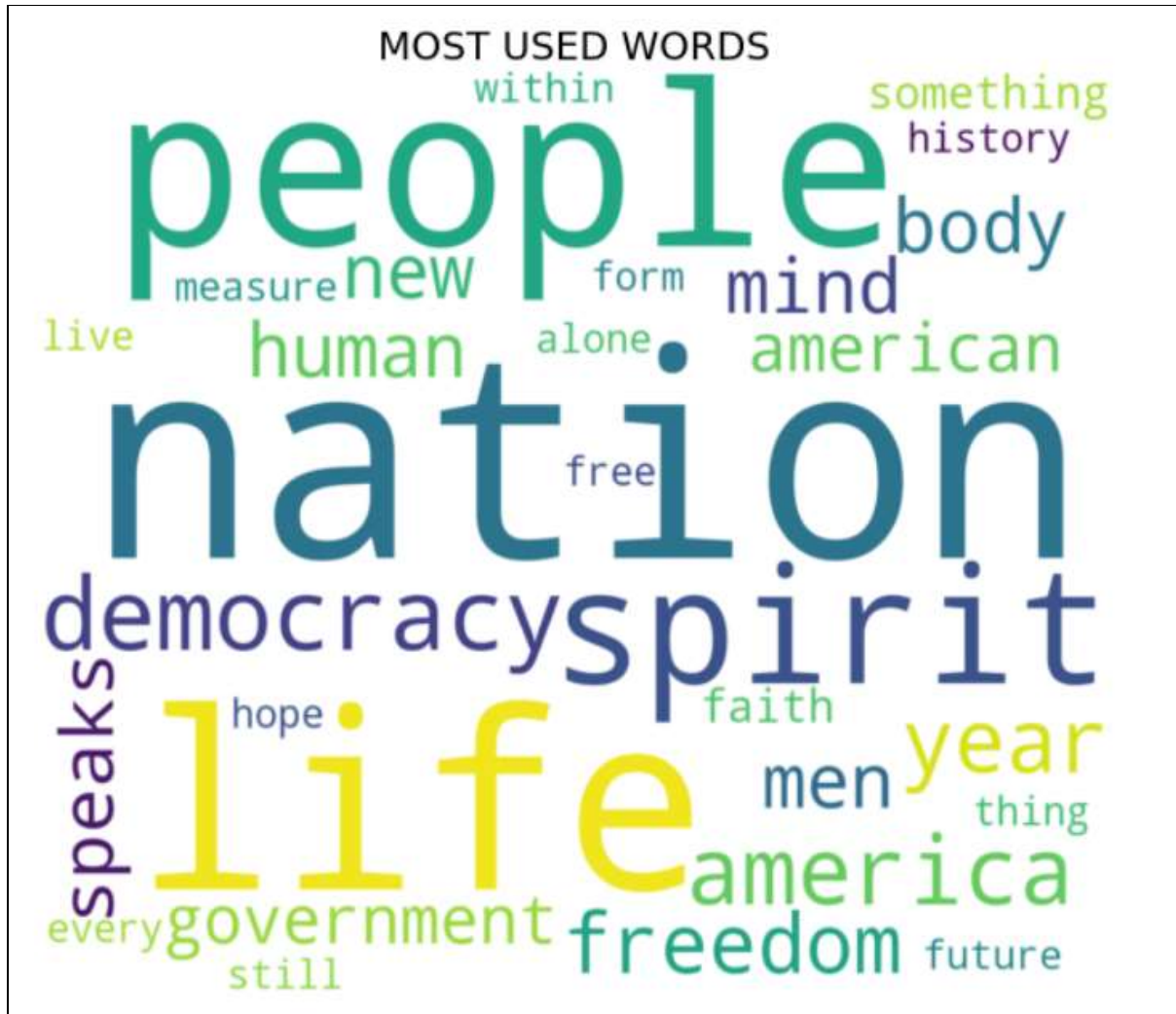
2.4 Plot the word cloud of each of the speeches of the variable. (after removing the stopwords)

2.4.1 : WordCloud for Franklin D. Roosevelt

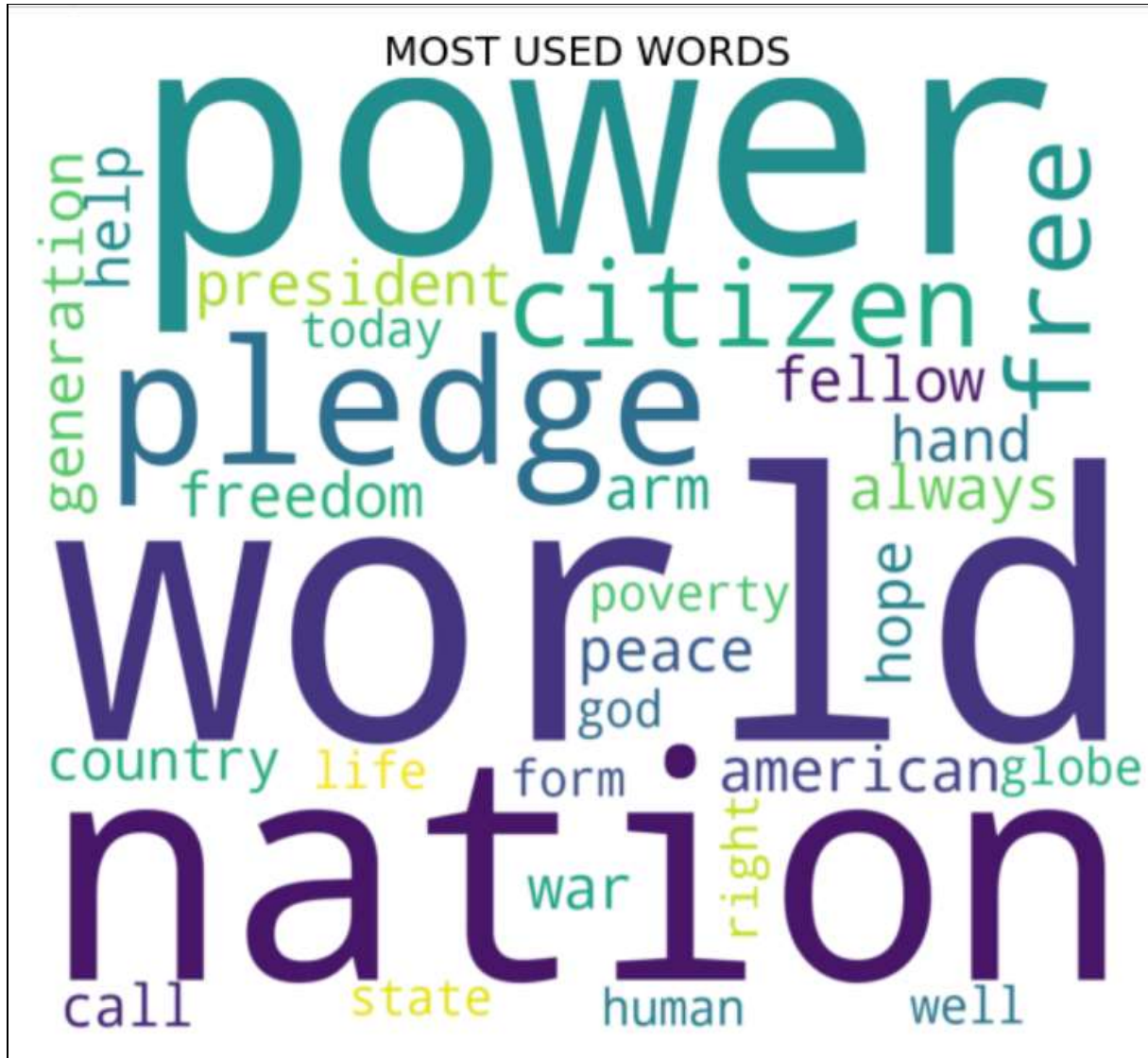
2.4.2 : WordCloud for John F. Kennedy

2.4.3 : WordCloud for Richard Nixon

2.4.1 : WordCloud for Franklin D. Roosevelt



2.4.2 : WordCloud for John F. Kennedy



2.4.3 : WordCloud for Richard Nixon

