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# ML PROBLEM 2 -REPORT

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[Document subtitle]



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## Problem 2:

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:

1. President Franklin D. Roosevelt in 1941
  2. President John F. Kennedy in 1961
  3. President Richard Nixon in 1973
- Find the number of characters, words and sentences for the mentioned documents. – 3 Marks

(Hint: use .words(), .raw(), .sent() for extracting counts)

- Remove all the stopwords from all the three speeches. – 3 Marks
- 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
- 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 ]

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. (Hint: use .words(), .raw(), .sent() for extracting counts)**

**2.1.1 Number of Charecters in each text file of speeches of the Presidents of the United States of America**

By using len function we have counted No. of character in each text file as below

```
Number of Characters in Roosevelt Speech: 7571  
Number of Characters in Kennedy Speech: 7618  
Number of Characters in Nixon Speech: 9991
```

## 2.1.2 Number of Words in speeches of the Presidents of the United States of America.

By using inaugural.words function we found below result

```
Number of Words in Roosevelt Speech: 1536
Number of Words in Kennedy Speech: 1546
Number of Words in Nixon Speech: 2028
```

## 2.1.3 Number of Sentences in the speeches of the Presidents of the United States of America.

```
Number of Sentences in Roosevelt Speech: 68
Number of Sentences in Kennedy Speech : 52
Number of Sentences in Nixon Speech : 69
```

## 2.2) Remove all the stop words from the three speeches.

### 2.2.1 Removal of Stop words from 1941-Roosevelt Speech

- Roosevelt Speech Initial Look

	Text	count_stop
0	On each national day of inauguration since 178...	654

In Roosevelt speech 654 words comes under stop words, We have added punctuation & '--' as a stop word and these needs to be removed from Speech. They are given below

```
['each', 'of', 'the', 'have', 'their', 'of', 'to', 'the', 'the', 'of',
'the', 'was', 'to', 'and', 'a', 'the', 'of', 'the', 'was', 'to', 'that',
, 'from', 'from', 'this', 'the', 'of', 'the', 'is', 'to', 'that', 'and',
, 'its', 'from', 'from', 'us', 'there', 'has', 'a', 'in', 'the', 'of',
'to', 'for', 'a', 'and', '--', 'to', 'what', 'our', 'in', 'has', 'and',
'to', 'what', 'we', 'are', 'and', 'what', 'we', 'we', 'do', 'we', 'the',
, 'of', 'of', 'are', 'not', 'by', 'the', 'of', 'but', 'by', 'the', 'of',
, 'the', 'of', 'a', 'is', 'and', 'a', 'a', 'of', 'a', 'is', 'the', 'of',
, 'the', 'of', 'its', 'will', 'to', 'are', 'who', 'are', 'who', 'that',
'as', 'a', 'of', 'and', 'a', 'of', 'is', 'or', 'by', 'a', 'of', 'and',
'for', 'some', 'and', 'have', 'the', 'of', 'the', '--', 'and', 'that',
'is', 'an', 'we', 'that', 'this', 'is', 'not', 'when', 'the', 'of', 'th
is', 'by', 'a', 'we', 'that', 'this', 'is', 'not', 'were', 'in', 'the',
'of', '--', 'but', 'we', 'have', 'been', '--', 'for', 'the', 'of', 'thi
s', 'they', 'have', 'to', 'us', 'a', 'that', 'are', 'to', 'be', 'in', '
other', 'than', 'to', 'our', 'and', 'our', 'is', 'this', 'of', 'a', 'wh
ich', 'at', 'on', 'through', 'it', 'the', 'of', 'its', 'has', 'been', ']
```

the', 'of', 'the', 'of', 'the', 'of', 'the', 'to', 'of', 'of', 'is', 'o  
f', 'the', 'of', 'have', 'their', 'to', 'is', 'not', 'it', 'because', '  
we', 'have', 'it', 'it', '--', 'because', 'it', 'is', 'on', 'the', 'of'  
, 'and', 'in', 'a', '--', 'an', 'and', 'through', 'by', 'the', 'of', 'a'  
, 'it', 'because', 'of', 'all', 'of', 'the', 'of', 'it', 'because', 'h  
as', 'an', 'of', 'in', 'the', 'of', 'it', 'if', 'we', 'below', 'the', '  
we', 'it', 'on', '--', 'for', 'it', 'is', 'the', 'most', 'the', 'most',  
'and', 'in', 'the', 'the', 'most', 'of', 'all', 'of', 'a', 'has', 'a',  
'that', 'be', 'and', 'and', 'and', 'in', 'a', 'that', 'up', 'to', 'the'  
, 'of', 'our', 'a', 'has', 'a', '--', 'a', 'that', 'be', 'and', 'that',  
'that', 'the', 'and', 'the', 'of', 'its', '--', 'all', 'the', 'other',  
'that', 'the', 'of', 'the', 'a', 'a', 'has', 'more', 'than', 'the', 'of'  
, 'all', 'its', 'is', 'that', 'which', 'most', 'to', 'its', '--', 'whi  
ch', 'the', 'most', 'of', 'its', 'is', 'a', 'for', 'which', 'we', 'it',  
'--', '--', 'to', 'a', 'we', 'all', 'what', 'it', 'is', '--', 'the', '-  
-', 'the', 'of', 'is', 'the', 'of', 'was', 'in', 'the', 'of', 'those',  
'who', 'from', '--', 'some', 'of', 'but', 'who', 'and', 'to', 'more', '  
is', 'no', 'in', 'is', 'the', 'of', 'in', 'the', 'was', 'in', 'the', 'i  
ts', 'has', 'been', 'has', 'been', 'the', 'in', 'all', 'to', 'all', 'no  
t', 'because', 'this', 'was', 'a', 'but', 'because', 'all', 'those', 'w  
ho', 'here', 'they', 'this', 'a', '--', 'a', 'that', 'should', 'be', 'i  
n', 'was', 'into', 'our', 'own', 'into', 'the', 'of', 'into', 'the', 'o  
f', 'the', 'into', 'the', 'who', 'here', 'to', 'out', 'the', 'of', 'the  
ir', 'and', 'the', 'who', 'and', 'the', 'that', 'from', 'them', '--', '  
all', 'have', 'and', 'an', 'which', 'in', 'itself', 'has', 'and', 'with  
, 'each', 'of', 'the', 'or', 'that', 'we', 'have', 'to', 'that', 'we',  
'more', 'the', 'and', 'the', 'and', 'the', 'of', 'in', 'the', 'by', 'th  
e', 'and', 'the', 'of', 'the', 'it', 'is', 'not', 'to', 'these', 'is',  
'not', 'to', 'and', 'the', 'of', 'this', 'and', 'and', 'its', 'there',  
'is', 'the', 'of', 'the', 'the', 'is', 'the', 'the', 'and', 'the', 'as'  
, 'all', 'the', 'not', 'if', 'the', 'of', 'were', 'the', 'and', 'in', '  
an', 'the', 'we', 'have', '--', 'that', '--', 'to', 'us', 'in', 'our',  
'in', 'because', 'they', 'so', 'to', 'us', 'here', 'in', 'the', 'of', '  
the', 'to', 'us', 'through', 'the', 'of', 'in', 'the', 'of', 'to', 'us'  
, 'in', 'our', 'in', 'our', 'in', 'our', 'and', 'in', 'our', 'to', 'us'  
, 'from', 'the', 'other', 'of', 'the', 'and', 'from', 'those', 'the', '  
--', 'the', 'as', 'as', 'the', 'we', 'to', 'or', 'these', 'of', 'becaus  
e', 'to', 'us', 'the', 'of', 'our', 'is', 'such', 'an', 'of', 'was', 'i  
n', 'of', 'by', 'our', 'in', 'his', 'in', '--', 'it', 'to', 'this', 'of  
, 'of', 'the', 'of', 'and', 'the', 'of', 'the', 'of', 'are', 'on', 'th  
e', 'to', 'the', 'of', 'the', 'we', 'that', 'we', 'let', 'it', 'be', 'w  
ith', 'and', '--', 'then', 'we', 'the', 'which', 'so', 'and', 'so', 'to  
, 'of', 'the', 'and', 'of', 'the', 'and', 'the', 'for', 'that', 'we',  
'in', 'the', 'of', 'the', 'of', 'before', 'our', 'is', 'to', 'and', 'to  
ot', 'the', 'of', 'this', 'we', 'the', 'of', 'and', 'the', 'of', 'do', 'n  
ot', 'are', 'not', 'to', 'we', 'in', 'the', 'of', 'our', 'by', 'the', '  
will', 'of']

## - Roosevelt Speech after removal of stop words**

'national day inauguration since people renewed sense dedication united states washingtons day  
task people create weld together nation lincolns day task people preserve nation disruption wi  
thin day task people save nation institutions disruption without us come time midst swift happ  
enings pause moment take stock recall place history rediscover may risk real peril inaction li  
ves nations determined count years lifetime human spirit life man threescore 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 lives 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 and grow know cannot die built unhampered initiative individual men women joined together common enterprise undertaken carried free expression free majority know democracy alone forms government enlists full force men's 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 a body must feed 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 new middle ages written magna charta america's 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 cannot 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 the greatest spirit without body mind men know nation could live spirit america killed even though nations body mind constricted alien world lived america know would perished spirit faith speaks 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 if 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'

We have also performed stemming on each speech, since stemming is a process of converting any word to its root form.

- **President Kennedy Speech Stop word removal process**

Text	count_stop
Vice President Johnson, Mr. Speaker, Mr. Chief...	642

From above table we can notice that President Kennedy Speech is having 642 stopwords in it, we have also added Punctuation as well as '--' to the stopwords list.

Below is the array of stop words in president Kennedy Inaugural Speech.

```
['we', 'not', 'a', 'of', 'but', 'a', 'of', '--', 'an', 'as', 'as', 'a', '--', 'as', 'as', 'have', 'before', 'you', 'and', 'the', 'same', 'our', 'a', 'and', 'is', 'very', 'in', 'his', 'the', 'to', 'all', 'of', 'and', 'all', 'of', 'the', 'same', 'for', 'which', 'our', 'are', 'at', 'the', '--', 'the', 'that', 'the', 'of', 'not', 'from', 'the', 'of', 'the', 'but', 'from', 'the', 'of', 'not', 'that', 'we', 'are', 'the', 'of', 'that', 'the', 'from', 'this',
```

'and', 'to', 'and', 'that', 'the', 'has', 'been', 'to', 'a', 'of', '--', 'in', 'this', 'by',  
'by', 'a', 'and', 'of', 'our', '--', 'and', 'to', 'or', 'the', 'of', 'those', 'to', 'which',  
'this', 'has', 'been', 'and', 'to', 'which', 'we', 'are', 'at', 'and', 'the', 'it', 'us',  
'or', 'that', 'we', 'any', 'any', 'any', 'any', 'any', 'in', 'to', 'the', 'and', 'the', 'of',  
'we', '--', 'and', 'those', 'and', 'we', 'we', 'the', 'of', 'there', 'is', 'we', 'do', 'in',  
'a', 'of', 'there', 'is', 'we', 'can', 'do', '--', 'for', 'we', 'not', 'a', 'at', 'and',  
'those', 'whom', 'we', 'to', 'the', 'of', 'the', 'we', 'our', 'that', 'of', 'not', 'have',  
'to', 'be', 'by', 'a', 'more', 'not', 'to', 'them', 'our', 'we', 'to', 'them', 'their', 'own',  
'--', 'and', 'to', 'in', 'the', 'those', 'who', 'by', 'the', 'of', 'the', 'up', 'those', 'in',  
'the', 'and', 'the', 'to', 'the', 'of', 'we', 'our', 'to', 'them', 'for', 'is', '--', 'not',  
'because', 'the', 'be', 'doing', 'not', 'because', 'we', 'their', 'but', 'because', 'it',  
'is', 'a', 'the', 'who', 'are', 'it', 'the', 'few', 'who', 'are', 'our', 'of', 'our', 'we',  
'a', '--', 'to', 'our', 'into', '--', 'in', 'a', 'for', '--', 'to', 'and', 'in', 'off', 'the',  
'of', 'this', 'of', 'the', 'of', 'all', 'our', 'that', 'we', 'with', 'them', 'to', 'or', 'in',  
'the', 'let', 'other', 'that', 'this', 'to', 'the', 'of', 'its', 'own', 'that', 'of', 'the',  
'our', 'in', 'an', 'where', 'the', 'of', 'have', 'the', 'of', 'we', 'our', 'of', 'it', 'from',  
'a', 'for', '--', 'to', 'its', 'of', 'the', 'and', 'the', '--', 'and', 'to', 'the', 'in',  
'which', 'its', 'to', 'those', 'who', 'themselves', 'our', 'we', 'not', 'a', 'but', 'a',  
'that', 'both', 'the', 'for', 'before', 'the', 'of', 'by', 'all', 'in', 'or', 'not', 'them',  
'with', 'only', 'when', 'our', 'are', 'can', 'we', 'be', 'that', 'they', 'will', 'be', 'can',  
'and', 'of', 'from', 'our', '--', 'both', 'by', 'the', 'of', 'both', 'by', 'the', 'of', 'the',  
'both', 'to', 'that', 'of', 'that', 'the', 'of', 'let', 'us', '--', 'on', 'both', 'that',  
'is', 'not', 'a', 'of', 'and', 'is', 'to', 'us', 'out', 'of', 'let', 'us', 'to', 'both',  
'what', 'us', 'of', 'those', 'which', 'both', 'for', 'the', 'and', 'for', 'the', 'and', 'of',  
'--', 'and', 'the', 'to', 'other', 'under', 'the', 'of', 'all', 'both', 'to', 'the', 'of',  
'of', 'its', 'let', 'us', 'the', 'the', 'the', 'and', 'the', 'and', 'both', 'to', 'in', 'all',  
'of', 'the', 'the', 'of', '--', 'to', 'the', 'and', 'to', 'let', 'the', 'if', 'a', 'of',  
'the', 'of', 'let', 'both', 'in', 'a', 'not', 'a', 'of', 'but', 'a', 'of', 'where', 'the',  
'are', 'just', 'and', 'the', 'and', 'the', 'this', 'will', 'not', 'be', 'in', 'the', 'will',  
'it', 'be', 'in', 'the', 'nor', 'in', 'the', 'of', 'this', 'nor', 'in', 'our', 'on', 'this',  
'let', 'us', 'your', 'my', 'more', 'than', 'in', 'will', 'the', 'or', 'of', 'our', 'this',  
'was', 'each', 'of', 'has', 'been', 'to', 'to', 'its', 'of', 'who', 'the', 'to', 'the', 'the',  
'us', 'again', '--', 'not', 'as', 'a', 'to', 'we', 'not', 'as', 'a', 'to', 'we', 'are', '--',  
'but', 'a', 'to', 'the', 'of', 'a', 'in', 'and', 'in', 'in', '--', 'a', 'against', 'the',  
'of', 'and', 'we', 'against', 'these', 'a', 'and', 'and', 'and', 'that', 'can', 'a', 'more',  
'for', 'all', 'you', 'in', 'that', 'the', 'of', 'the', 'only', 'a', 'few', 'have', 'been',  
'the', 'of', 'in', 'its', 'of', 'do', 'not', 'from', 'this', '--', 'do', 'not', 'that', 'any',  
'of', 'us', 'with', 'any', 'other', 'or', 'any', 'other', 'the', 'the', 'which', 'we', 'to',  
'this', 'will', 'our', 'and', 'all', 'who', 'it', '--', 'and', 'the', 'from', 'that', 'can',  
'the', 'my', 'not', 'what', 'your', 'can', 'do', 'for', 'you', '--', 'what', 'you', 'can',  
'do', 'for', 'your', 'of', 'the', 'not', 'what', 'will', 'do', 'for', 'but', 'what', 'we',  
'can', 'do', 'for', 'the', 'of', 'you', 'are', 'of', 'or', 'of', 'the', 'of', 'us', 'the',  
'same', 'of', 'and', 'which', 'we', 'of', 'a', 'our', 'only', 'with', 'the', 'of', 'our',  
'let', 'us', 'to', 'the', 'we', 'and', 'but', 'that', 'here', 'on', 'be', 'our']

- **President Kennedy Speech after removal of stop words**

Below are the Snapshot of President Kennedy Speech after removal of stop words

'vice president johnson mr speaker mr chief justice president eisenhower vice presi  
dent nixon president truman reverend clergy fellow citizens observe today victory p  
arty celebration freedom symbolizing end well beginning signifying renewal well cha  
nge sworn almighty god solemn oath forebears l prescribed nearly century three quar  
ters ago world different man holds mortal hands power abolish forms human poverty f  
orms human life yet revolutionary beliefs forebears fought still issue around globe  
belief rights man come generosity state hand god dare forget today heirs first revo  
lution let word go forth time place friend foe alike torch passed new generation am  
ericans born century tempered war disciplined hard bitter peace proud ancient herit  
age unwilling witness permit slow undoing human rights nation always committed comm  
itted today home around world let every nation know whether wishes us well ill shal  
l pay price bear burden meet hardship support friend oppose foe order assure surviv  
al success liberty much pledge old allies whose cultural spiritual origins share pl  
edge loyalty faithful friends united little cannot host cooperative ventures divide  
d little dare meet powerful challenge odds split asunder new states welcome ranks f  
ree pledge word one form colonial control shall passed away merely replaced far iro  
n 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 cannot help many poor cannot 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 cannot 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 to prevent becoming merely forum invective strengthen shield new weak enlarge area writ may run finally nations would make adversary offer pledge conquest sides begin anew quest peace dark powers destruction unleashed science engulf humanity planned accidental selfdestruction 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's 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 gods work must truly'

- **President Nixon Speech Stop word Removal process**

Text	word_count	count_stop
Mr. Vice President, Mr. Speaker, Mr. Chief Jus...	1819	950

From above table we can notice that President Nixon Speech is having 954 stopwords in it , we have also added Punctuation as well as '--' to the stopwords list.

Below is the array of stopwords found in president Nixon Inaugural Speech.

['and', 'my', 'of', 'this', 'and', 'we', 'we', 'here', 'was', 'in', 'by', 'the', 'of', 'and', 'of', 'at', 'we', 'here', 'we', 'on', 'the', 'of', 'a', 'of', 'in', 'the', 'before', 'us', 'we', 'that', 'us', 'that', 'this', 'we', 'are', 'about', 'to', 'will', 'not', 'be', 'what', 'other', 'have', 'so', 'a', 'of', 'and', 'that', 'to', 'at', 'and', 'us', 'that', 'this', 'will', 'be', 'what', 'it', 'can', 'a', 'of', 'in', 'which', 'we', 'the', 'and', 'the', 'of', 'as', 'we', 'our', 'as', 'a', 'from', 'our', 'for', 'to', 'our', 'and', 'by', 'our', 'to', 'and', 'to', 'we', 'were', 'to', 'the', 'for', 'a', 'and', 'more', 'of', 'the', 'of', 'the', 'of', 'will', 'be', 'as', 'the', 'of', 'the', 'the', 'of', 'a', 'in', 'the', 'we', 'in', 'the', 'is', 'not', 'the', 'which', 'is', 'an', 'between', 'but', 'a', 'which', 'can', 'for', 'to', 'is', 'that', 'we', 'both', 'the', 'a

nd, 'the', 'of', 'in', 'that', 'we', 'in', 'to', 'the', 'there', 'will', 'be', 'no', 'we', 'in', 'to', 'there', 'will', 'be', 'no', 'let', 'us', 'the', 'of', 'as', 'a', 'of', 'th  
e', 'we', 'have', 'over', 'these', 'our', 'the', 'that', 'no', 'has', 'the', 'to', 'its', 'will', 'or', 'on', 'by', 'in', 'this', 'of', 'to', 'for', 'the', 'of', 'and', 'to', 't  
he', 'of', 'between', 'the', 'do', 'our', 'in', 'and', 'in', 'the', 'we', 'to', 'do', 'their', 'has', 'when', 'will', 'other', 'our', 'or', 'other', 'our', 'or', 'to', 't  
he', 'of', 'other', 'how', 'to', 'their', 'own', 'as', 'we', 'the', 'of', 'each', 'to', 'its', 'own', 'we', 'the', 'of', 'each', 'to', 'its', 'own', 'as', 'is', 'in', 'the',  
'so', 'is', 'each', 'in', 'its', 'own', 'with', 'the', 'of', 'the', 'let', 'us', 'to', 'from', 'the', 'we', 'have', 'us', 'to', 'down', 'the', 'of', 'which', 'have', 'the',  
'for', 'too', 'and', 'to', 'in', 'their', 'of', '--', 'so', 'that', 'between', 'of', 'the', 'of', 'the', 'can', 'be', 'us', 'a', 'of', 'in', 'the', 'in', 'which', 'the', 'are', '  
as', 'as', 'the', '--', 'in', 'which', 'each', 'the', 'of', 'the', 'other', 'to', 'by', 'a', '--', 'in', 'which', 'those', 'who', 'will', 'do', 'so', 'by', 'the', 'of', 'their'  
, 'and', 'not', 'by', 'the', 'of', 'their', 'us', 'that', 'not', 'as', 'a', 'but', '--', 'because', 'the', 'to', 'such', 'a', 'is', 'the', 'in', 'which', 'a', 'can', 'because  
'only', 'if', 'we', 'in', 'our', 'will', 'we', 'a', 'and', 'only', 'if', 'we', 'a', 'will', 'we', 'in', 'our', 'at', 'have', 'the', 'to', 'do', 'more', 'than', 'before', 'in  
'our', 'to', 'in', '--', 'to', 'a', '--', 'to', 'for', 'to', 'our', 'more', '--', 'and', 'to', 'the', 'of', 'to', 'and', 'the', 'of', 'our', 'is', 'so', '--', 'because', 'the', 'o  
f', 'our', 'is', 'so', '--', 'let', 'us', 'be', 'in', 'our', 'to', 'those', 'in', 'as', 'a', 'of', 'has', 'from', 'that', 'so', 'a', 'of', 'at', 'from', 'that', 'have', 'the', 'fro  
m', 'to', 'has', 'not', 'been', 'a', 'from', 'our', 'but', 'a', 'to', 'at', 'the', 'from', 'to', 'will', 'not', 'be', 'a', 'from', 'our', 'but', 'a', 'to', 'and', 'at', 'the'  
, 'to', 'those', 'in', 'the', 'and', 'the', 'of', 'have', 'too', 'with', 'the', 'of', 'to', 'all', 'and', 'in', 'and', 'at', 'the', 'has', 'to', 'from', 'the', 'of', '--', 'of',  
'can', 'be', 'to', 'only', 'if', 'he', 'has', 'is', 'let', 'us', 'at', 'and', 'to', 'do', 'more', 'for', 'to', 'more', 'for', 'us', 'in', 'more', 'us', 'what', 'we', 'will', '  
do', 'for', 'by', 'what', 'they', 'will', 'do', 'for', 'is', 'why', 'no', 'of', 'a', 'for', 'have', 'too', 'with', 'that', 'too', 'in', 'we', 'have', 'of', 'it', 'more', 'th  
an', 'it', 'can', 'only', 'to', 'to', 'and', 'to', 'a', 'and', 'that', 'both', 'in', 'what', 'can', 'do', 'and', 'in', 'what', 'can', 'to', 'from', 'so', 'that', 'an', 'do',  
'more', 'for', 'us', 'that', 'was', 'not', 'by', 'but', 'by', '--', 'not', 'by', 'but', 'by', '--', 'not', 'by', 'but', 'by', 'our', 'own', 'let', 'each', 'of', 'us', '--', 'n  
ot', 'just', 'what', 'will', 'do', 'for', 'but', 'what', 'can', 'do', 'for', 'the', 'we', 'let', 'each', 'of', 'us', '--', 'not', 'just', 'how', 'can', 'but', 'how', 'can',  
'has', 'a', 'and', 'to', 'to', 'you', 'that', 'where', 'this', 'should', 'we', 'will', 'and', 'we', 'will', 'just', 'as', 'is', 'the', 'that', 'each', 'and', 'of', 'us', 'as'  
, 'an', 'and', 'as', 'a', 'of', 'his', 'own', 'this', 'let', 'each', 'of', 'us', 'a', 'in', 'his', 'own', 'to', 'his', 'to', 'do', 'his', 'to', 'his', '--', 'so', 'that', 'we', 'can  
'the', 'of', 'a', 'of', 'for', 'and', 'as', 'we', 'our', 'as', 'a', 'we', 'can', 'do', 'so', 'in', 'the', 'of', 'our', 'to', 'ourselves', 'and', 'to', 'the', 'and', 'most',  
'to', 'an', 'let', 'us', 'again', 'to', 'our', 'with', 'and', 'let', 'each', 'of', 'us', 'out', 'for', 'that', '--', 'a', 'of', 'for', 'the', 'and', 'of', 'a', 'of', 'for', 'the', '  
which', 'is', 'the', 'of', 'all', 'the', 'has', 'for', 'us', 'to', 'our', 'in', 'ourselves', 'and', 'in', 'that', 'has', 'been', 'have', 'been', 'to', 'be', 'of', 'their', '  
of', 'their', 'of', 'at', 'and', 'of', 'its', 'in', 'the', 'we', 'have', 'been', 'by', 'those', 'who', 'with', 'and', 'that', 'is', 'am', 'that', 'this', 'will', 'not', 'be'  
, 'the', 'of', 'on', 'these', 'in', 'which', 'we', 'are', 'to', 'in', 'this', 'has', 'been', 'in', 'the', 'for', 'its', 'for', 'its', 'for', 'its', 'and', 'for', 'its', 'us', 'be', '  
that', 'our', 'has', 'and', 'more', 'and', 'more', 'than', 'any', 'other', 'in', 'the', 'of', 'the', 'us', 'be', 'that', 'in', 'each', 'of', 'the', 'in', 'whic  
h', 'we', 'have', 'been', 'in', 'this', 'the', 'we', 'are', 'now', 'to', 'an', 'we', 'have', 'not', 'for', 'our', 'but', 'to', 'us', 'be', 'that', 'by', 'our', 'and', 'by  
'our', 'for', 'with', 'we', 'have', 'a', 'in', 'the', 'what', 'the', 'has', 'not', 'before', '--', 'a', 'of', 'that', 'can', 'not', 'for', 'our', 'but', 'for', 'to', 'are',  
'here', 'on', 'an', 'that', 'as', 'those', 'any', 'or', 'any', 'has', 'to', 'to', 'and', 'to', 'our', 'for', 'the', 'in', 'which', 'we', 'these', 'in', 'this', 'so', 'by', '  
of', 'who', 'have', 'here', 'before', 'of', 'the', 'they', 'had', 'for', 'and', 'of', 'how', 'each', 'that', 'he', 'himself', 'in', 'to', 'those', 'your', 'that', 'in',  
'the', 'have', 'in', 'that', 'are', 'for', 'and', 'for', 'your', 'so', 'that', 'we', 'be', 'of', 'our', 'us', 'to', 'these', 'the', 'in', 'so', 'that', 'on', 'its', 'will', 'be'  
, 'as', 'and', 'as', 'as', 'when', 'it', 'and', 'as', 'a', 'of', 'for', 'all', 'the', 'us', 'from', 'here', 'in', 'in', 'our', 'in', 'by', 'our', 'in', 'who', 'and', 'to']

- Glance On president Nixon inaugural Speech after Removal of Stopwords

Below is the speech By president Nixon Inagural speech after Removal of stopwords

'mr vice president mr speaker mr chief justice senator cook mrs eisenhower fellow citizens gre  
at good country share together met four years ago america bleak spirit depressed prospect seem  
ingly endless war abroad destructive conflict home meet today stand threshold new era peace wo  
rld central question shall use peace resolve era enter postwar periods often time retreat isol  
ation leads stagnation home invites new danger abroad resolve become time great responsibiliti  
es greatly borne renew spirit promise america enter third century nation past year saw farreac  
hing results new policies peace continuing revitalize traditional friendships missions peking  
moscow able establish base new durable pattern relationships among nations world americas 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 import  
ant understand necessity limitations americas role maintaining peace unless america work prese  
rve peace peace unless america work preserve freedom freedom clearly understand new nature ame  
ricas 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 negoti  
ation work limitation nuclear arms reduce danger confrontation great powers shall share defend  
ing peace freedom world shall expect others share time passed america make every nations confl  
ict make every nations future responsibility presume tell people nations manage affairs respec  
t right nation determine future also recognize responsibility nation secure future americas ro  
le indispensable preserving worlds peace nations role indispensable preserving peace together  
rest world resolve move forward beginnings made continue bring walls hostility divided world l  
ong build place bridges understanding despite profound differences systems government people w  
orld friends build structure peace world weak safe strong respects right live different system  
would influence others strength ideas force arms accept high responsibility burden gladly glad  
ly chance build peace noblest endeavor nation engage gladly also act greatly meeting responsib



ilities 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 godgiven right every american full equal opportunity range needs great reach opportunities great 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 encourage individuals home nations abroad decide locate responsibility places 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 remember america built government people welfare work shirking responsibility seeking responsibility lives ask government challenges face together ask government help help national government great vital role play pledge government act act boldly lead boldly important role every one must play individual member community day forward make solemn commitment heart bear responsibility part live deals together see dawn new age progress america together celebrate th anniversary nation proud fulfillment promise world americas longest difficult war comes end learn debate differences civility decency reach one precious quality government cannot provide new level respect rights feelings one another new level respect individual human dignity cherished birthright every american else time come renew faith america recent years faith challenged children taught ashamed country ashamed parents ashamed americas record home role world every turn beset find everything wrong america little right confident judgment history remarkable times privileged live americas record century unparalleled worlds history responsibility generosity creativity progress proud system produced provided freedom abundance widely shared system history world proud four wars engaged century including one bringing end fought selfish advantage help others resist aggression proud bold new initiatives steadfastness peace honor made breakthrough 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 gods help making decisions right america pray help together may worthy challenge pledge together make next four years best four years americas history th birthday america young vital began bright beacon hope world go forward confident hope strong faith one another sustained faith god created striving always serve purpose'

#### Comment on Stemming & Lower Case conversion .

We have used porter stemmer for converting word to it's root word & also convert whole text into lowercase

## 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)

Top 3 Most Occuring words in all the Three Inagural Speech		
President Franklin D. Roosevelt in 1941	President John F. Kennedy in 1961	President Richard Nixon in 1973
('nation', 17), ( 'know', 10), ( 'people', 9),	('power', 9), ( 'world', 8), ( 'nation', 8)	('peace', 19), ( 'world', 16), ( 'new', 15),

We have also added (let & us ) which was most occurring words on President John F. Kennedy speech in 1961 to stop words & remove them because those will not make any sense there .

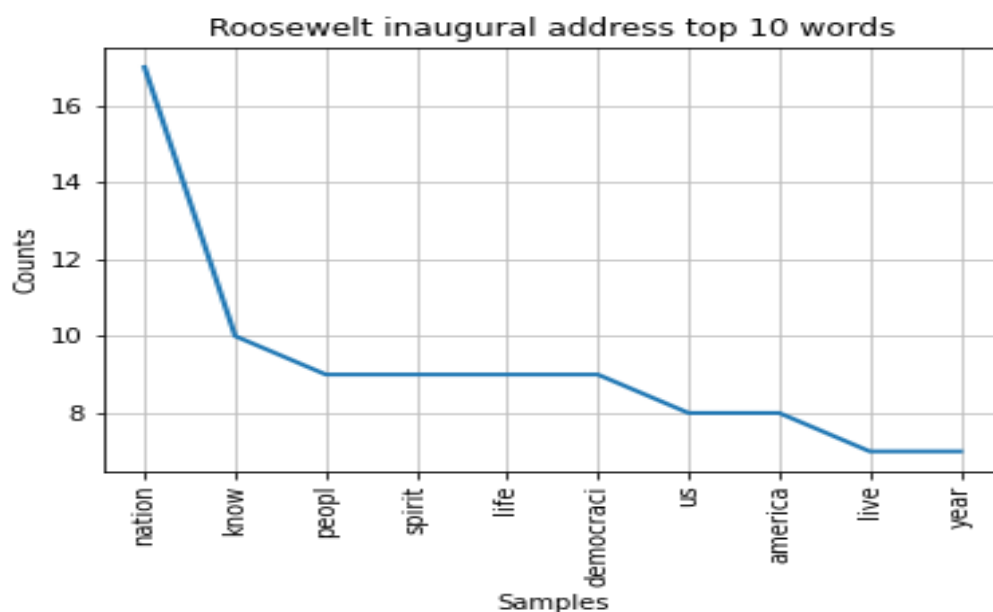
We have found most common words along with frequency using fdist most Common words function & results are shown in above table , As we can see that Nation has occurred 17 times & know have occurred 10 times and people have occurred 9 times in Roosevelt speech .

In President Kennedy's speech power , world & nation are most common words with respective frequency of 9,8,8 .

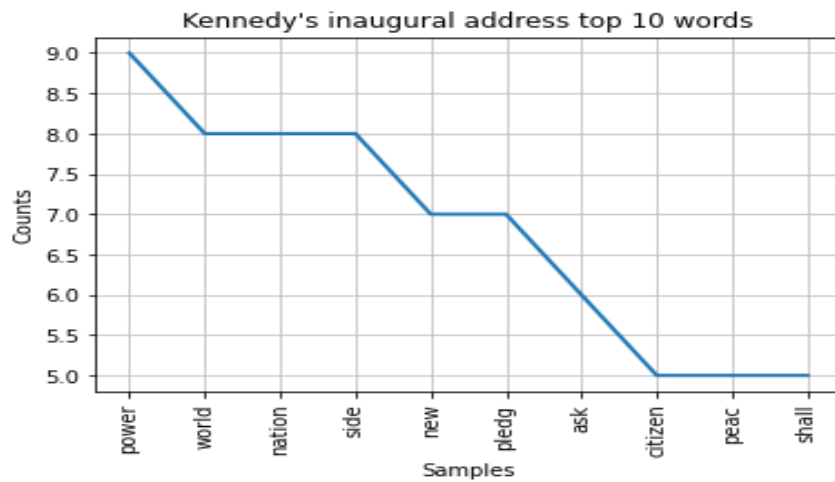
In President Richard Nixon speech We can see that peace , world & new are the 3 most common words with 19,16 & 15 as their respective frequencies .

Let's see Most common words Visually.

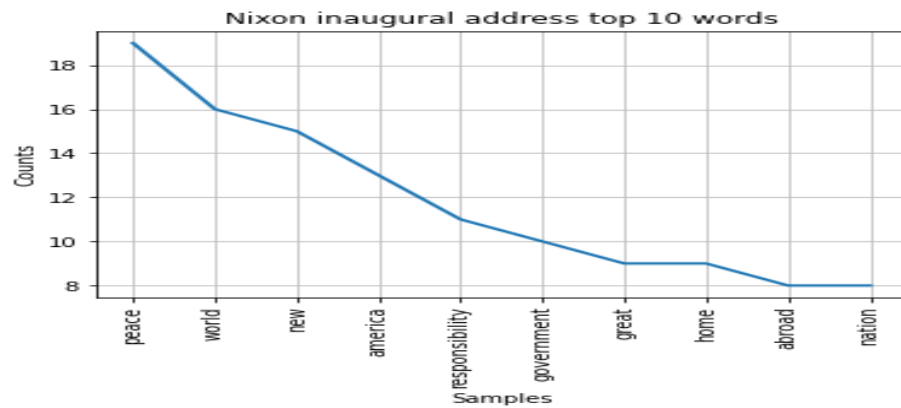
➤ **Roosevelt Speech most common word**



➤ **President Kennedy Speech most common word**



➤ **President Richard Nixon Speech most common word**



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

### 2.4.1 Word Cloud for President Roosevelt Speech (after cleaning & removal of stopwords)

[illegible]

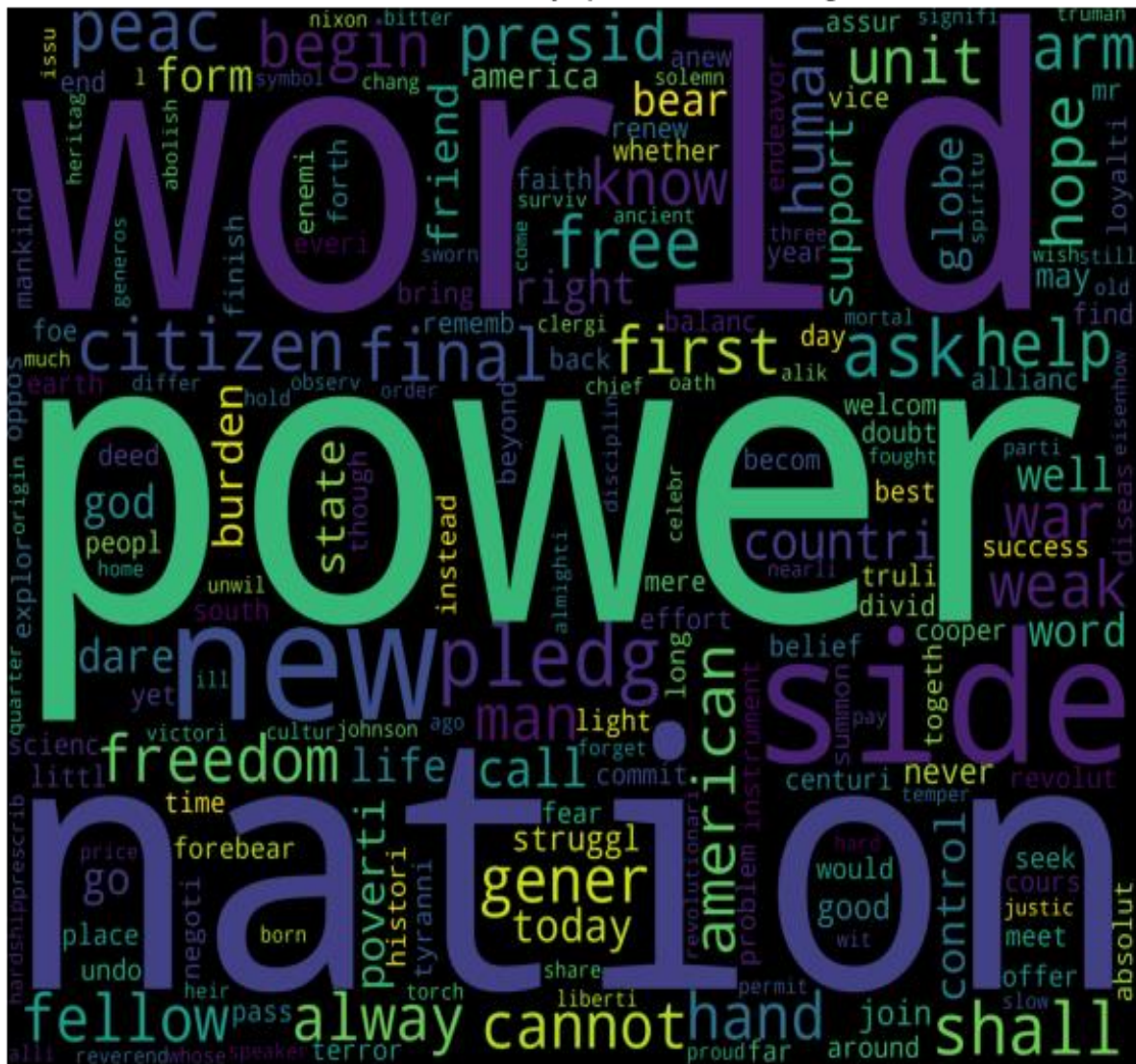
## What is Word Cloud?

Source ; -anlyticdimag.com

As we know that word Nation has occurred 17 times & know have occurred 10 times and people have occurred 9 times in Roosevelt speech so we can see that text size of Nation ,Know ,people is large as compared to others .

#### 2.4.2 Word Cloud for President John F. Kennedy (after cleaning & removal of stopwords)

Word Cloud for Kennedy Speech (after cleaning)!!



In President Kennedy's speech power, world & nation are most common words with respective frequency of 9,8,8. So all are shown in bold & big size as compared to other words, means that President Kennedy is mostly talking about power of a in the whole world.

### 2.4.3 Word Cloud for President Richard Nixon speech (after cleaning & removal of stopwords)



In President Richard Nixon speech We can see that peace, world & new are the 3 most common words with 19,16 & 15 as their respective frequencies so all are shown in bold & big size as compared to other words, this means that President Nixon is mostly talking about peace of the world etc.