9/21/2018 Task5_Stemming

In [4]:

```
import nltk
import numpy as np
from os import path
from nltk.corpus import inaugural
from nltk.stem import PorterStemmer
from nltk.tokenize import sent_tokenize, word_tokenize
ps = PorterStemmer()
sentences=inaugural.sents(fileids='1961-Kennedy.txt')
sentences=[" ".join(list_of_words) for list_of_words in sentences]
for sentence in sentences:
   print("Sentence in consideration\n")
   print(sentence)
   words = word_tokenize(sentence)
   print("POS tagged Sentence:\n")
   print(nltk.pos_tag(words))
   print("Words-stemwords pair\n")
   for w in words:
       print(w+" : "+ps.stem(w)+"\n")
   #############\n\n\\n\n")
```

Sentence in consideration

Vice President Johnson , Mr . Speaker , Mr . Chief Justice , President Eis enhower , Vice President Nixon , President Truman , reverend clergy , fell ow citizens , we observe today not a victory of party , but a celebration of freedom -- symbolizing an end , as well as a beginning -- signifying re newal , as well as change .

POS tagged Sentence:

[('Vice', 'NNP'), ('President', 'NNP'), ('Johnson', 'NNP'), (',', ','),
 ('Mr', 'NNP'), ('.', '.'), ('Speaker', 'NNP'), (',', ','), ('Mr', 'NNP'),
 ('.', '.'), ('Chief', 'NNP'), ('Justice', 'NNP'), (',', ','), ('Presiden
 t', 'NNP'), ('Eisenhower', 'NNP'), (',', ','), ('Vice', 'NNP'), ('Presiden
 t', 'NNP'), ('Nixon', 'NNP'), (',', ','), ('President', 'NNP'), ('Truman',
 'NNP'), (',', ','), ('reverend', 'VB'), ('clergy', 'NN'), (',', ','), ('fe
 llow', 'JJ'), ('citizens', 'NNS'), (',', ','), ('we', 'PRP'), ('observe',
 'VBP'), ('today', 'NN'), ('not', 'RB'), ('a', 'DT'), ('victory', 'NN'),
 ('of', 'IN'), ('party', 'NN'), (',', ','), ('but', 'CC'), ('a', 'DT'), ('c
 elebration', 'NN'), ('of', 'IN'), ('freedom', 'NN'), ('--', ':'), ('symbol
 izing', 'VBG'), ('an', 'DT'), ('end', 'NN'), (',', ','), ('as', 'RB'), ('w
 ell', 'RB'), ('as', 'IN'), ('a', 'DT'), ('beginning', 'NN'), ('--', ':'),
 ('signifying', 'VBG'), ('renewal', 'NN'), (',', ','), ('as', 'RB'), ('wel
 l', 'RB'), ('as', 'IN'), ('change', 'NN'), ('.', ',')]
 Words-stemwords pair

Vice : vice

President : presid

Johnson: johnson

, : ,

Mr : Mr

. : .

Speaker: speaker

, : ,

Mr : Mr

. : .

Chief : chief

Justice : justic

, : ,

President : presid

Eisenhower : eisenhow

, : ,

Vice : vice

President : presid

Nixon : nixon

, : ,

9/21/2018

President : presid

Truman : truman

, : ,

reverend : reverend

clergy : clergi

, : ,

fellow : fellow

citizens : citizen

, : ,

we : we

observe : observ

today : today

not : not

a : a

victory : victori

of : of

party : parti

, : ,

but : but

a : a

celebration : celebr

of : of

freedom : freedom

-- : --

symbolizing : symbol

an : an

end : end

, : ,

as : as

```
well: well
as : as
a : a
beginning : begin
-- : --
signifying : signifi
renewal : renew
, : ,
as : as
well : well
as : as
change : chang
. : .
#################
\n
Sentence in consideration
For I have sworn I before you and Almighty God the same solemn oath our fo
rebears 1 prescribed nearly a century and three quarters ago .
POS tagged Sentence:
[('For', 'IN'), ('I', 'PRP'), ('have', 'VBP'), ('sworn', 'VBN'), ('I', 'PR
P'), ('before', 'IN'), ('you', 'PRP'), ('and', 'CC'), ('Almighty', 'NNP'),
('God', 'NNP'), ('the', 'DT'), ('same', 'JJ'), ('solemn', 'NN'), ('oath', 'IN'), ('our', 'PRP$'), ('forebears', 'NNS'), ('l', 'VBP'), ('prescribed', 'NNS')
'VBN'), ('nearly', 'RB'), ('a', 'DT'), ('century', 'NN'), ('and', 'CC'),
('three', 'CD'), ('quarters', 'NNS'), ('ago', 'RB'), ('.', '.')]
Words-stemwords pair
For : for
I : I
have : have
sworn: sworn
I : I
before : befor
you : you
```

9/21/2018

```
and: and
Almighty : almighti
God : god
the : the
same : same
solemn : solemn
oath : oath
our : our
forebears : forebear
1:1
prescribed : prescrib
nearly : nearli
a : a
century : centuri
and : and
three : three
quarters : quarter
ago : ago
. : .
################
\n
Sentence in consideration
The world is very different now .
POS tagged Sentence:
[('The', 'DT'), ('world', 'NN'), ('is', 'VBZ'), ('very', 'RB'), ('differen
t', 'JJ'), ('now', 'RB'), ('.', '.')]
Words-stemwords pair
The : the
world : world
is : is
```

```
very : veri
```

different : differ

now: now

. : .

\n

Sentence in consideration

For man holds in his mortal hands the power to abolish all forms of human poverty and all forms of human life .

POS tagged Sentence:

```
[('For', 'IN'), ('man', 'NN'), ('holds', 'VBZ'), ('in', 'IN'), ('his', 'PR
P$'), ('mortal', 'JJ'), ('hands', 'VBZ'), ('the', 'DT'), ('power', 'NN'),
('to', 'TO'), ('abolish', 'VB'), ('all', 'DT'), ('forms', 'NNS'), ('of',
'IN'), ('human', 'JJ'), ('poverty', 'NN'), ('and', 'CC'), ('all', 'DT'),
('forms', 'NNS'), ('of', 'IN'), ('human', 'JJ'), ('life', 'NN'), ('.',
'.')]
```

Words-stemwords pair

For : for

man : man

holds : hold

in : in

his : hi

mortal : mortal

hands : hand

the : the

power : power

to: to

abolish : abolish

all : all

forms : form

of : of

human : human

poverty : poverti

and : and

all : all

forms : form

of : of

human : human

life: life

. : .

\n

Sentence in consideration

And yet the same revolutionary beliefs for which our forebears fought are still at issue around the globe -- the belief that the rights of man come not from the generosity of the state , but from the hand of God . POS tagged Sentence:

[('And', 'CC'), ('yet', 'RB'), ('the', 'DT'), ('same', 'JJ'), ('revolution
ary', 'JJ'), ('beliefs', 'NNS'), ('for', 'IN'), ('which', 'WDT'), ('our',
'PRP\$'), ('forebears', 'NNS'), ('fought', 'VBN'), ('are', 'VBP'), ('stil
l', 'RB'), ('at', 'IN'), ('issue', 'NN'), ('around', 'IN'), ('the', 'DT'),
('globe', 'NN'), ('--', ':'), ('the', 'DT'), ('belief', 'NN'), ('that', 'I
N'), ('the', 'DT'), ('rights', 'NNS'), ('of', 'IN'), ('man', 'NN'), ('com
e', 'VBN'), ('not', 'RB'), ('from', 'IN'), ('the', 'DT'), ('generosity',
'NN'), ('of', 'IN'), ('the', 'DT'), ('state', 'NN'), (',', ','), ('but',
'CC'), ('from', 'IN'), ('the', 'DT'), ('hand', 'NN'), ('of', 'IN'), ('Go
d', 'NNP'), ('.', '.')]
Words-stemwords pair

And: and

yet : yet

the : the

same : same

revolutionary: revolutionari

beliefs : belief

for : for

which: which

our : our

forebears : forebear

fought : fought

9/21/2018 Task5_Stemming

are : are

still : still

at : at

issue : issu

around : around

the : the

globe : globe

-- : --

the : the

belief : belief

that : that

the : the

rights : right

of : of

man : man

come : come

not : not

from : from

the : the

generosity: generos

of : of

the : the

state : state

, : ,

but : but

from : from

the : the

 $\verb| hand : hand|$

of : of

God : god

. : .

\n

Sentence in consideration

We dare not forget today that we are the heirs of that first revolution . POS tagged Sentence:

[('We', 'PRP'), ('dare', 'VBP'), ('not', 'RB'), ('forget', 'VB'), ('toda
y', 'NN'), ('that', 'IN'), ('we', 'PRP'), ('are', 'VBP'), ('the', 'DT'),
('heirs', 'NNS'), ('of', 'IN'), ('that', 'DT'), ('first', 'JJ'), ('revolut
ion', 'NN'), ('.', '.')]
Words-stemwords pair

We : We

dare : dare

not : not

forget : forget

today : today

that : that

we : we

are : are

the : the

heirs : heir

of : of

that : that

first : first

revolution : revolut

. : .

\n

Sentence in consideration

Let the word go forth from this time and place , to friend and foe alike , that the torch has been passed to a new generation of Americans -- born in

this century , tempered by war , disciplined by a hard and bitter peace , proud of our ancient heritage -- and unwilling to witness or permit the sl ow undoing of those human rights to which this Nation has always been comm itted , and to which we are committed today at home and around the world . POS tagged Sentence:

[('Let', 'VB'), ('the', 'DT'), ('word', 'NN'), ('go', 'VB'), ('forth', 'R
B'), ('from', 'IN'), ('this', 'DT'), ('time', 'NN'), ('and', 'CC'), ('plac
e', 'NN'), (',', ','), ('to', 'TO'), ('friend', 'VB'), ('and', 'CC'), ('fo
e', 'VB'), ('alike', 'RB'), (',', ','), ('that', 'IN'), ('the', 'DT'), ('t
orch', 'NN'), ('has', 'VBZ'), ('been', 'VBN'), ('passed', 'VBN'), ('to',
'TO'), ('a', 'DT'), ('new', 'JJ'), ('generation', 'NN'), ('of', 'IN'), ('A
mericans', 'NNPS'), ('--', ':'), ('born', 'VBN'), ('in', 'IN'), ('this',
'DT'), ('century', 'NN'), (',', ','), ('tempered', 'VBN'), ('by', 'IN'),
('war', 'NN'), (',', ','), ('disciplined', 'VBN'), ('by', 'IN'), ('a', 'D
T'), ('hard', 'JJ'), ('and', 'CC'), ('bitter', 'JJ'), ('peace', 'NN'),
(',', ','), ('proud', 'NN'), ('of', 'IN'), ('our', 'PRP\$'), ('ancient', 'J
J'), ('heritage', 'NN'), ('--', ':'), ('and', 'CC'), ('unwilling', 'JJ'),
('to', 'TO'), ('witness', 'VB'), ('or', 'CC'), ('permit', 'VB'), ('the',
'DT'), ('slow', 'JJ'), ('undoing', 'NN'), ('of', 'IN'), ('those', 'DT'),
('human', 'JJ'), ('rights', 'NNS'), ('to', 'TO'), ('which', 'WDT'), ('thi
s', 'DT'), ('Nation', 'NN'), ('has', 'VBZ'), ('always', 'RB'), ('been', 'V
BN'), ('committed', 'VBN'), (',', ','), ('and', 'CC'), ('to', 'TO'), ('whi
ch', 'WDT'), ('we', 'PRP'), ('are', 'VBP'), ('committed', 'VBN'), ('toda
y', 'NN'), ('at', 'IN'), ('home', 'NN'), ('and', 'CC'), ('around', 'IN'),
('the', 'DT'), ('world', 'NN'), ('.', '.')]

Let : let

the : the

word: word

go: go

forth : forth

from : from

this : thi

time : time

and : and

place : place

, : ,

to: to

friend: friend

and: and

foe : foe

alike : alik

, : ,

9/21/2018 Task5_Stemming

that : that the : the torch : torch has : ha been : been passed : pass to : to a : a new : new generation : gener of : of Americans : american -- : -born : born in : in this : thi century : centuri , : , tempered : temper by : by war : war **,** : , disciplined : disciplin by: by a : a hard : hard and : and bitter : bitter peace : peac

, : ,

proud : proud

of : of

our : our

ancient : ancient

heritage : heritag

-- : --

and : and

unwilling : unwil

to : to

witness : wit

or : or

permit : permit

the : the

slow : slow

undoing : undo

of : of

those : those

human : human

rights : right

to : to

which : which

this : thi

Nation : nation

has : ha

always : alway

been : been

committed : commit

, : ,

and : and

to : to

which : which

```
we : we
```

are : are

committed : commit

today : today

at : at

home : home

and : and

around: around

the : the

world: world

. : .

\n

Sentence in consideration

Let every nation know , whether it wishes us well or ill , that we shall p ay any price , bear any burden , meet any hardship , support any friend , oppose any foe , in order to assure the survival and the success of libert y .

POS tagged Sentence:

```
[('Let', 'VB'), ('every', 'DT'), ('nation', 'NN'), ('know', 'VBP'), (',',
','), ('whether', 'IN'), ('it', 'PRP'), ('wishes', 'VBZ'), ('us', 'PRP'),
('well', 'RB'), ('or', 'CC'), ('ill', 'VB'), (',', ','), ('that', 'IN'),
('we', 'PRP'), ('shall', 'MD'), ('pay', 'VB'), ('any', 'DT'), ('price', 'N
N'), (',', ','), ('bear', 'IN'), ('any', 'DT'), ('burden', 'NN'), (',',
','), ('meet', 'VB'), ('any', 'DT'), ('hardship', 'NN'), (',', ','), ('sup
port', 'VB'), ('any', 'DT'), ('friend', 'NN'), (',', ','), ('oppose', 'VB
P'), ('any', 'DT'), ('foe', 'NN'), (',', ','), ('in', 'IN'), ('order', 'N
N'), ('to', 'TO'), ('assure', 'VB'), ('the', 'DT'), ('survival', 'NN'),
('and', 'CC'), ('the', 'DT'), ('success', 'NN'), ('of', 'IN'), ('liberty',
'NN'), ('.', '.')]
Words-stemwords pair
```

Let : let

every : everi

nation : nation

know: know

, : ,

9/21/2018 whether : whether it : it wishes : wish us : us well : well or : or ill : ill **,** : , that : that we : we shall : shall pay : pay any : ani price : price , : , bear : bear any : ani burden : burden **,** : , meet : meet any : ani hardship : hardship **,** : , support : support any : ani friend : friend , : , oppose : oppos any : ani foe : foe

```
in : in
order : order
to : to
assure : assur
the : the
survival : surviv
and : and
the : the
success : success
of : of
liberty : liberti
. : .
#################
\n
Sentence in consideration
This much we pledge -- and more .
POS tagged Sentence:
[('This', 'DT'), ('much', 'RB'), ('we', 'PRP'), ('pledge', 'VBP'), ('--',
':'), ('and', 'CC'), ('more', 'JJR'), ('.', '.')]
Words-stemwords pair
This : thi
much: much
we : we
pledge : pledg
-- : --
and: and
more : more
. : .
```



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\n
```

```
Sentence in consideration
```

```
To those old allies whose cultural and spiritual origins we share , we ple dge the loyalty of faithful friends . POS tagged Sentence:
```

```
[('To', 'TO'), ('those', 'DT'), ('old', 'JJ'), ('allies', 'NNS'), ('whos
e', 'WP$'), ('cultural', 'JJ'), ('and', 'CC'), ('spiritual', 'JJ'), ('orig
ins', 'NNS'), ('we', 'PRP'), ('share', 'NN'), (',', ','), ('we', 'PRP'),
('pledge', 'VBP'), ('the', 'DT'), ('loyalty', 'NN'), ('of', 'IN'), ('faith
ful', 'JJ'), ('friends', 'NNS'), ('.', '.')]
Words-stemwords pair
```

To : To

those : those

old : old

allies : alli

whose : whose

cultural : cultur

and : and

spiritual : spiritu

origins : origin

we : we

share : share

, : ,

we : we

pledge : pledg

the : the

loyalty : loyalti

of : of

faithful : faith

friends : friend

. : .


```
\n
```

```
Sentence in consideration
United , there is little we cannot do in a host of cooperative ventures .
POS tagged Sentence:
[('United', 'NNP'), (',', ','), ('there', 'EX'), ('is', 'VBZ'), ('little',
'JJ'), ('we', 'PRP'), ('can', 'MD'), ('not', 'RB'), ('do', 'VB'), ('in', 'IN'), ('a', 'DT'), ('host', 'NN'), ('of', 'IN'), ('cooperative', 'JJ'),
('ventures', 'NNS'), ('.', '.')]
Words-stemwords pair
United : unit
, : ,
there: there
is: is
little : littl
we : we
can : can
not : not
do : do
in : in
a : a
host : host
of : of
cooperative : cooper
ventures : ventur
. : .
################
\n
Sentence in consideration
Divided , there is little we can do -- for we dare not meet a powerful cha
llenge at odds and split asunder .
POS tagged Sentence:
[('Divided', 'VBN'), (',', ','), ('there', 'EX'), ('is', 'VBZ'), ('littl
e', 'JJ'), ('we', 'PRP'), ('can', 'MD'), ('do', 'VB'), ('--', ':'), ('fo
```

r', 'IN'), ('we', 'PRP'), ('dare', 'VBP'), ('not', 'RB'), ('meet', 'VB'),

```
('a', 'DT'), ('powerful', 'JJ'), ('challenge', 'NN'), ('at', 'IN'), ('odd
s', 'NNS'), ('and', 'CC'), ('split', 'NN'), ('asunder', 'NN'), ('.', '.')]
Words-stemwords pair
Divided : divid
, : ,
there: there
is: is
little : littl
we : we
can : can
do : do
-- : --
for : for
we : we
dare : dare
not : not
meet : meet
a : a
powerful : power
challenge : challeng
at : at
odds : odd
and : and
split : split
asunder: asund
. : .
```

################

\n

Sentence in consideration

To those new States whom we welcome to the ranks of the free , we pledge o ur word that one form of colonial control shall not have passed away merel y to be replaced by a far more iron tyranny . POS tagged Sentence: [('To', 'TO'), ('those', 'DT'), ('new', 'JJ'), ('States', 'NNS'), ('whom', 'WP'), ('we', 'PRP'), ('welcome', 'VBP'), ('to', 'TO'), ('the', 'DT'), ('r anks', 'NNS'), ('of', 'IN'), ('the', 'DT'), ('free', 'JJ'), (', ('we', 'PRP'), ('pledge', 'VBP'), ('our', 'PRP\$'), ('word', 'NN'), ('tha t', 'IN'), ('one', 'CD'), ('form', 'NN'), ('of', 'IN'), ('colonial', 'N N'), ('control', 'NN'), ('shall', 'MD'), ('not', 'RB'), ('have', 'VB'), ('passed', 'VBN'), ('away', 'RB'), ('merely', 'RB'), ('to', 'TO'), ('be', 'VB'), ('replaced', 'VBN'), ('by', 'IN'), ('a', 'DT'), ('far', 'RB'), ('mo re', 'RBR'), ('iron', 'JJ'), ('tyranny', 'NN'), ('.', '.')] Words-stemwords pair To: To those : those new: new States : state whom: whom we : we welcome : welcom to: to the : the ranks : rank of : of the : the free: free , : , we : we pledge : pledg our : our word: word that : that one : one form : form of : of colonial : coloni

control : control

```
shall: shall
not : not
have : have
passed : pass
away : away
merely: mere
to : to
be : be
replaced : replac
by: by
a : a
far : far
more : more
iron : iron
tyranny : tyranni
. : .
#################
\n
Sentence in consideration
We shall not always expect to find them supporting our view .
POS tagged Sentence:
[('We', 'PRP'), ('shall', 'MD'), ('not', 'RB'), ('always', 'RB'), ('expec
t', 'VB'), ('to', 'TO'), ('find', 'VB'), ('them', 'PRP'), ('supporting', 'VBG'), ('our', 'PRP$'), ('view', 'NN'), ('.', '.')]
Words-stemwords pair
We : We
shall: shall
not : not
always : alway
expect : expect
to: to
```

find : find

them : them

supporting: support

our : our

view : view

. : .

\n

Sentence in consideration

But we shall always hope to find them strongly supporting their own freedom -- and to remember that , in the past , those who foolishly sought power by riding the back of the tiger ended up inside . POS tagged Sentence:

[('But', 'CC'), ('we', 'PRP'), ('shall', 'MD'), ('always', 'RB'), ('hope',
'VB'), ('to', 'TO'), ('find', 'VB'), ('them', 'PRP'), ('strongly', 'RB'),
('supporting', 'VBG'), ('their', 'PRP\$'), ('own', 'JJ'), ('freedom', 'N
N'), ('--', ':'), ('and', 'CC'), ('to', 'TO'), ('remember', 'VB'), ('tha
t', 'DT'), (',', ','), ('in', 'IN'), ('the', 'DT'), ('past', 'NN'), (',',
','), ('those', 'DT'), ('who', 'WP'), ('foolishly', 'RB'), ('sought', 'VB
D'), ('power', 'NN'), ('by', 'IN'), ('riding', 'VBG'), ('the', 'DT'), ('ba
ck', 'NN'), ('of', 'IN'), ('the', 'DT'), ('tiger', 'NN'), ('ended', 'VB
D'), ('up', 'RP'), ('inside', 'RB'), ('.', '.')]
Words-stemwords pair

But : but

we : we

shall : shall

always : alway

hope : hope

to : to

find : find

them : them

strongly : strongli

supporting: support

their : their

own : own

freedom : freedom -- : -and : and to : to remember : rememb that : that , : , in : in the : the past : past , : , those : those who: who foolishly : foolishli sought : sought power : power by: by riding : ride the : the back : back of : of the : the tiger : tiger ended : end up : up inside : insid . : .

\n

Sentence in consideration

To those peoples in the huts and villages across the globe struggling to be reak the bonds of mass misery, we pledge our best efforts to help them he lp themselves, for whatever period is required -- not because the Communists may be doing it, not because we seek their votes, but because it is right.

POS tagged Sentence:

```
[('To', 'TO'), ('those', 'DT'), ('peoples', 'NNS'), ('in', 'IN'), ('the',
'DT'), ('huts', 'NNS'), ('and', 'CC'), ('villages', 'NNS'), ('across', 'I
N'), ('the', 'DT'), ('globe', 'NN'), ('struggling', 'VBG'), ('to', 'TO'),
('break', 'VB'), ('the', 'DT'), ('bonds', 'NNS'), ('of', 'IN'), ('mass',
'NN'), ('misery', 'NN'), (',', ','), ('we', 'PRP'), ('pledge', 'VBP'), ('o
ur', 'PRP$'), ('best', 'JJS'), ('efforts', 'NNS'), ('to', 'TO'), ('help',
'VB'), ('them', 'PRP'), ('help', 'VB'), ('themselves', 'PRP'), (',', ','),
('for', 'IN'), ('whatever', 'JJ'), ('period', 'NN'), ('is', 'VBZ'), ('requ
ired', 'VBN'), ('--', ':'), ('not', 'RB'), ('because', 'IN'), ('the', 'D
T'), ('Communists', 'NNPS'), ('may', 'MD'), ('be', 'VB'), ('doing', 'VB
G'), ('it', 'PRP'), (',', ','), ('not', 'RB'), ('because', 'IN'), ('we',
'PRP'), ('seek', 'VBP'), ('their', 'PRP$'), ('votes', 'NNS'), (',', ','),
('but', 'CC'), ('because', 'IN'), ('it', 'PRP'), ('is', 'VBZ'), ('right',
'JJ'), ('.', '.')]
Words-stemwords pair
```

To: To

those : those

peoples : peopl

in : in

the : the

huts : hut

and : and

villages : villag

across: across

the : the

globe : globe

struggling : struggl

to : to

break : break

the : the

bonds : bond

of : of

mass : mass

misery : miseri , : , we : we pledge : pledg our : our best : best efforts : effort to : to help : help them : them help : help themselves : themselv , : , for : for whatever : whatev period : period is : is required : requir -- : -not : not because : becaus the : the Communists : communist may : may be : be doing : do it : it **,** : , not : not

because : becaus

```
we : we
```

seek: seek

their : their

votes : vote

, : ,

but : but

because : becaus

it: it

is: is

right : right

. : .

\n

Sentence in consideration

If a free society cannot help the many who are poor , it cannot save the f ew who are rich .

POS tagged Sentence:

```
[('If', 'IN'), ('a', 'DT'), ('free', 'JJ'), ('society', 'NN'), ('can', 'M
D'), ('not', 'RB'), ('help', 'VB'), ('the', 'DT'), ('many', 'JJ'), ('who',
'WP'), ('are', 'VBP'), ('poor', 'JJ'), (',', ','), ('it', 'PRP'), ('can',
'MD'), ('not', 'RB'), ('save', 'VB'), ('the', 'DT'), ('few', 'JJ'), ('wh
o', 'WP'), ('are', 'VBP'), ('rich', 'JJ'), ('.', '.')]
Words-stemwords pair
```

If : If

a : a

free: free

society : societi

can : can

not : not

help: help

the : the

many : mani

who: who

```
are : are
```

poor : poor

, : ,

it: it

can : can

not : not

save : save

the : the

few : few

who: who

are : are

rich : rich

. : .

\n

Sentence in consideration

To our sister republics south of our border , we offer a special pledge -- to convert our good words into good deeds -- in a new alliance for progres s -- to assist free men and free governments in casting off the chains of poverty .

POS tagged Sentence:

[('To', 'TO'), ('our', 'PRP\$'), ('sister', 'NN'), ('republics', 'NNS'),
 ('south', 'NN'), ('of', 'IN'), ('our', 'PRP\$'), ('border', 'NN'), (',',
 ','), ('we', 'PRP'), ('offer', 'VBP'), ('a', 'DT'), ('special', 'JJ'), ('p
ledge', 'NN'), ('--', ':'), ('to', 'TO'), ('convert', 'VB'), ('our', 'PRP
\$'), ('good', 'JJ'), ('words', 'NNS'), ('into', 'IN'), ('good', 'JJ'), ('d
eeds', 'NNS'), ('--', ':'), ('in', 'IN'), ('a', 'DT'), ('new', 'JJ'), ('al
liance', 'NN'), ('for', 'IN'), ('progress', 'NN'), ('--', ':'), ('to', 'T
O'), ('assist', 'VB'), ('free', 'JJ'), ('men', 'NNS'), ('and', 'CC'), ('fr
ee', 'JJ'), ('governments', 'NNS'), ('in', 'IN'), ('casting', 'VBG'), ('of
f', 'RP'), ('the', 'DT'), ('chains', 'NNS'), ('of', 'IN'), ('poverty', 'N
N'), ('.', '.')]
Words-stemwords pair

To: To

our : our

sister : sister

republics : republ

south : south

of : of

our : our

border : border

, : ,

we : we

offer : offer

a : a

special : special

pledge : pledg

-- : --

to : to

convert : convert

our : our

good: good

words : word

into : into

good : good

deeds : deed

-- : --

in : in

a : a

new : new

alliance : allianc

for : for

progress : progress

-- : --

to : to

assist : assist

free : free

```
men : men
and: and
free: free
governments : govern
in : in
casting : cast
off: off
the : the
chains : chain
of : of
poverty : poverti
. : .
#################
\n
Sentence in consideration
But this peaceful revolution of hope cannot become the prey of hostile pow
POS tagged Sentence:
[('But', 'CC'), ('this', 'DT'), ('peaceful', 'JJ'), ('revolution', 'NN'),
('of', 'IN'), ('hope', 'NN'), ('can', 'MD'), ('not', 'RB'), ('become', 'V
B'), ('the', 'DT'), ('prey', 'NN'), ('of', 'IN'), ('hostile', 'JJ'), ('pow
ers', 'NNS'), ('.',
Words-stemwords pair
But : but
this : thi
peaceful : peac
revolution : revolut
of : of
hope: hope
can : can
not : not
become : becom
```

the : the prey: prey of : of hostile : hostil powers : power . : . ################# \n Sentence in consideration Let all our neighbors know that we shall join with them to oppose aggressi on or subversion anywhere in the Americas . POS tagged Sentence: [('Let', 'VB'), ('all', 'DT'), ('our', 'PRP\$'), ('neighbors', 'NNS'), ('kn ow', 'VBP'), ('that', 'IN'), ('we', 'PRP'), ('shall', 'MD'), ('join', 'V B'), ('with', 'IN'), ('them', 'PRP'), ('to', 'TO'), ('oppose', 'VB'), ('ag gression', 'NN'), ('or', 'CC'), ('subversion', 'NN'), ('anywhere', 'RB'), ('in', 'IN'), ('the', 'DT'), ('Americas', 'NNPS'), ('.', '.')] Words-stemwords pair Let: let all : all our : our neighbors : neighbor know: know that : that we : we shall: shall join : join with : with them : them to: to oppose : oppos

aggression : aggress

```
or : or
```

9/21/2018

subversion : subvers

anywhere : anywher

in : in

the : the

Americas : america

. : .

################

\n

Sentence in consideration

And let every other power know that this Hemisphere intends to remain the master of its own house .

POS tagged Sentence:

```
[('And', 'CC'), ('let', 'VB'), ('every', 'DT'), ('other', 'JJ'), ('power',
'NN'), ('know', 'VBP'), ('that', 'IN'), ('this', 'DT'), ('Hemisphere', 'NN
P'), ('intends', 'VBZ'), ('to', 'TO'), ('remain', 'VB'), ('the', 'DT'),
('master', 'NN'), ('of', 'IN'), ('its', 'PRP$'), ('own', 'JJ'), ('house',
'NN'), ('.', '.')]
```

Words-stemwords pair

And: and

let : let

every : everi

other : other

power : power

know: know

that : that

this : thi

Hemisphere : hemispher

intends : intend

to: to

remain : remain

the : the

master : master

of : of

its: it

own : own

house : hous

. : .

#################

\n

Sentence in consideration

To that world assembly of sovereign states , the United Nations , our last best hope in an age where the instruments of war have far outpaced the ins truments of peace, we renew our pledge of support -- to prevent it from b ecoming merely a forum for invective -- to strengthen its shield of the ne w and the weak -- and to enlarge the area in which its writ may run . POS tagged Sentence:

```
[('To', 'TO'), ('that', 'DT'), ('world', 'NN'), ('assembly', 'NN'), ('of', 'TO'), ('that', 'DT'), ('world', 'NN'), ('assembly', 'NN'), ('of', 'TO'), ('that', 'DT'), ('world', 'NN'), ('assembly', 'NN'), ('of', 'NN'), ('that', 'DT'), ('world', 'NN'), ('assembly', 'NN'), ('of', 'NN'), ('that', 'DT'), ('that', 'DT'), ('world', 'NN'), ('assembly', 'NN'), ('that', 'DT'), ('that', 'DT'), ('that', 'DT'), ('that', 'DT'), ('that', 'NN'), ('that', 'NN
'IN'), ('sovereign', 'JJ'), ('states', 'NNS'), (',', ','), ('the', 'DT'), ('United', 'NNP'), ('Nations', 'NNPS'), (',', ','), ('our', 'PRP$'), ('las
t', 'JJ'), ('best', 'JJS'), ('hope', 'NN'), ('in', 'IN'), ('an', 'DT'),
('age', 'NN'), ('where', 'WRB'), ('the', 'DT'), ('instruments', 'NNS'),
('of', 'IN'), ('war', 'NN'), ('have', 'VBP'), ('far', 'RB'), ('outpaced', 'VBN'), ('the', 'DT'), ('instruments', 'NNS'), ('of', 'IN'), ('peace', 'N
N'), (',', ','), ('we', 'PRP'), ('renew', 'VBP'), ('our', 'PRP$'), ('pledg
e', 'NN'), ('of', 'IN'), ('support', 'NN'), ('--', ':'), ('to', 'TO'), ('p
revent', 'VB'), ('it', 'PRP'), ('from', 'IN'), ('becoming', 'VBG'), ('mere
ly', 'RB'), ('a', 'DT'), ('forum', 'NN'), ('for', 'IN'), ('invective', 'J
J'), ('--', ':'), ('to', 'TO'), ('strengthen', 'VB'), ('its', 'PRP$'), ('s
hield', 'NN'), ('of', 'IN'), ('the', 'DT'), ('new', 'JJ'), ('and', 'CC'), ('the', 'DT'), ('weak', 'JJ'), ('--', ':'), ('and', 'CC'), ('to', 'TO'),
('enlarge', 'VB'), ('the', 'DT'), ('area', 'NN'), ('in', 'IN'), ('which',
'WDT'), ('its', 'PRP$'), ('writ', 'NN'), ('may', 'MD'), ('run', 'VB'),
('.', '.')]
```

Words-stemwords pair

To: To

that : that

world : world

assembly: assembl

of : of

sovereign : sovereign

states : state

the : the

United : unit

Nations : nation

, : ,

our : our

last : last

best : best

hope : hope

in : in

an : an

age : age

where : where

the : the

instruments : instrument

of : of

war : war

have : have

far : far

outpaced : outpac

the : the

instruments : instrument

of : of

peace : peac

, : ,

we : we

renew : renew

our : our

pledge : pledg

of : of

support : support

-- : --

to : to

prevent : prevent

it : it

from : from

becoming : becom

merely : mere

a : a

forum : forum

for : for

invective : invect

-- : --

to : to

strengthen : strengthen

its : it

shield : shield

of : of

the : the

new : new

and : and

the : the

weak : weak

-- : --

 $\quad \text{and} \; : \; \text{and} \quad$

to : to

enlarge : enlarg

the : the

area : area

in : in

which : which

its : it

```
writ : writ
```

may: may

run : run

. : .

\n

Sentence in consideration

Finally , to those nations who would make themselves our adversary , we of fer not a pledge but a request : that both sides begin anew the quest for peace , before the dark powers of destruction unleashed by science engulf all humanity in planned or accidental self - destruction . POS tagged Sentence:

[('Finally', 'RB'), (',', ','), ('to', 'TO'), ('those', 'DT'), ('nations',
'NNS'), ('who', 'WP'), ('would', 'MD'), ('make', 'VB'), ('themselves', 'PR
P'), ('our', 'PRP\$'), ('adversary', 'JJ'), (',', ','), ('we', 'PRP'), ('of
fer', 'VBP'), ('not', 'RB'), ('a', 'DT'), ('pledge', 'NN'), ('but', 'CC'),
('a', 'DT'), ('request', 'NN'), (':', ':'), ('that', 'IN'), ('both', 'D
T'), ('sides', 'NNS'), ('begin', 'VBP'), ('anew', 'IN'), ('the', 'DT'),
('quest', 'JJS'), ('for', 'IN'), ('peace', 'NN'), (',', ','), ('before',
'IN'), ('the', 'DT'), ('dark', 'JJ'), ('powers', 'NNS'), ('of', 'IN'), ('d
estruction', 'NN'), ('unleashed', 'VBN'), ('by', 'IN'), ('science', 'NN'),
('engulf', 'NN'), ('all', 'DT'), ('humanity', 'NN'), ('in', 'IN'), ('plann
ed', 'VBN'), ('or', 'CC'), ('accidental', 'JJ'), ('self', 'NN'), ('-',
':'), ('destruction', 'NN'), ('.', '.')]
Words-stemwords pair

Finally : final

, : ,

to : to

those : those

nations : nation

who: who

would : would

make : make

themselves : themselv

our : our

adversary : adversari

, : ,

9/21/2018 Task5_Stemming

we : we

offer : offer

not : not

a : a

pledge : pledg

but : but

a : a

request : request

: : :

that : that

both : both

sides : side

begin : begin

anew : anew

the : the

quest : quest

for : for

peace : peac

, : ,

before : befor

the : the

dark : dark

powers : power

of : of

destruction : destruct

unleashed : unleash

by : by

science : scienc

engulf : engulf

all : all

```
humanity : human
in : in
planned : plan
or : or
accidental : accident
self : self
- : -
destruction : destruct
. : .
#################
\n
Sentence in consideration
We dare not tempt them with weakness .
POS tagged Sentence:
[('We', 'PRP'), ('dare', 'VBP'), ('not', 'RB'), ('tempt', 'VB'), ('them',
'PRP'), ('with', 'IN'), ('weakness', 'NN'), ('.', '.')]
Words-stemwords pair
We : We
dare : dare
not : not
tempt : tempt
them : them
with : with
weakness : weak
. : .
################
\n
Sentence in consideration
```

For only when our arms are sufficient beyond doubt can we be certain beyon

d doubt that they will never be employed . http://localhost:8888/nbconvert/html/Task5 Stemming.ipynb?download=false

```
POS tagged Sentence:
```

[('For', 'IN'), ('only', 'RB'), ('when', 'WRB'), ('our', 'PRP\$'), ('arms',
'NNS'), ('are', 'VBP'), ('sufficient', 'JJ'), ('beyond', 'IN'), ('doubt',
'NN'), ('can', 'MD'), ('we', 'PRP'), ('be', 'VB'), ('certain', 'JJ'), ('be
yond', 'IN'), ('doubt', 'NN'), ('that', 'IN'), ('they', 'PRP'), ('will',
'MD'), ('never', 'RB'), ('be', 'VB'), ('employed', 'VBN'), ('.', '.')]
Words-stemwords pair

For : for

only : onli

when: when

our : our

arms : arm

are : are

sufficient : suffici

beyond : beyond

doubt : doubt

can : can

we : we

be : be

certain : certain

beyond : beyond

doubt : doubt

that : that

they: they

will : will

never : never

be: be

employed : employ

. : .

\n

Sentence in consideration

But neither can two great and powerful groups of nations take comfort from our present course -- both sides overburdened by the cost of modern weapon s , both rightly alarmed by the steady spread of the deadly atom , yet both racing to alter that uncertain balance of terror that stays the hand of mankind 's final war .

POS tagged Sentence:

[('But', 'CC'), ('neither', 'DT'), ('can', 'MD'), ('two', 'CD'), ('great',
'JJ'), ('and', 'CC'), ('powerful', 'JJ'), ('groups', 'NNS'), ('of', 'IN'),
('nations', 'NNS'), ('take', 'VBP'), ('comfort', 'NN'), ('from', 'IN'),
('our', 'PRP\$'), ('present', 'JJ'), ('course', 'NN'), ('--', ':'), ('bot
h', 'DT'), ('sides', 'NNS'), ('overburdened', 'VBN'), ('by', 'IN'), ('th
e', 'DT'), ('cost', 'NN'), ('of', 'IN'), ('modern', 'JJ'), ('weapons', 'NN
S'), (',', ','), ('both', 'DT'), ('rightly', 'RB'), ('alarmed', 'VBN'),
('by', 'IN'), ('the', 'DT'), ('steady', 'JJ'), ('spread', 'NN'), ('of', 'I
N'), ('the', 'DT'), ('deadly', 'JJ'), ('atom', 'NN'), (',', ','), ('yet',
'RB'), ('both', 'DT'), ('racing', 'VBG'), ('to', 'TO'), ('alter', 'VB'),
('that', 'DT'), ('uncertain', 'JJ'), ('balance', 'NN'), ('of', 'IN'), ('te
rror', 'NN'), ('that', 'WDT'), ('stays', 'VBZ'), ('the', 'DT'), ('hand',
'NN'), ('of', 'IN'), ('mankind', 'NN'), ("'", "''"), ('s', 'JJ'), ('fina
l', 'JJ'), ('war', 'NN'), ('.', '.')]

But : but

neither : neither

can: can

two : two

great : great

and: and

powerful : power

groups : group

of : of

nations : nation

take : take

comfort : comfort

from : from

our : our

present : present

course : cours

--:--

both : both

sides : side

overburdened : overburden

by: by

the : the

cost : cost

of : of

modern : modern

weapons : weapon

, : ,

both : both

rightly : rightli

alarmed : alarm

by: by

the : the

steady : steadi

spread : spread

of : of

the : the

deadly : deadli

atom : atom

, : ,

yet : yet

both : both

racing : race

to : to

alter : alter

that : that

uncertain : uncertain

balance : balanc

of : of

terror : terror

that : that

stays : stay

the : the

hand : hand

of : of

mankind: mankind

':'

s : s

final : final

war : war

. : .

\n

Sentence in consideration

So let us begin anew -- remembering on both sides that civility is not a sign of weakness , and sincerity is always subject to proof . POS tagged Sentence:

```
[('So', 'RB'), ('let', 'VB'), ('us', 'PRP'), ('begin', 'VB'), ('anew', 'R
B'), ('--', ':'), ('remembering', 'VBG'), ('on', 'IN'), ('both', 'DT'),
('sides', 'NNS'), ('that', 'IN'), ('civility', 'NN'), ('is', 'VBZ'), ('no
t', 'RB'), ('a', 'DT'), ('sign', 'NN'), ('of', 'IN'), ('weakness', 'NN'),
(',', ','), ('and', 'CC'), ('sincerity', 'NN'), ('is', 'VBZ'), ('always',
'RB'), ('subject', 'JJ'), ('to', 'TO'), ('proof', 'NN'), ('.', '.')]
Words-stemwords pair
```

So : So

let : let

us : us

begin : begin

anew: anew

-- : --

remembering : rememb

on : on

both : both

9/21/2018 Task5 Stemming sides : side that : that civility : civil is : is not : not a : a sign : sign of : of weakness : weak , : , and : and sincerity : sincer is : is always : alway subject : subject to: to proof : proof . : .

################

\n

Sentence in consideration

Let us never negotiate out of fear . POS tagged Sentence:

[('Let', 'VB'), ('us', 'PRP'), ('never', 'RB'), ('negotiate', 'VBP'), ('ou t', 'IN'), ('of', 'IN'), ('fear', 'NN'), ('.', '.')] Words-stemwords pair

Let: let

us : us

never : never

negotiate : negoti

out : out

```
of : of
fear : fear
. : .
#################
\n
Sentence in consideration
But let us never fear to negotiate .
POS tagged Sentence:
[('But', 'CC'), ('let', 'VB'), ('us', 'PRP'), ('never', 'RB'), ('fear', 'V
BP'), ('to', 'TO'), ('negotiate', 'VB'), ('.', '.')]
Words-stemwords pair
But : but
let : let
us : us
never : never
fear : fear
to: to
negotiate : negoti
. : .
################
\n
Sentence in consideration
Let both sides explore what problems unite us instead of belaboring those
problems which divide us .
POS tagged Sentence:
[('Let', 'VB'), ('both', 'DT'), ('sides', 'NNS'), ('explore', 'VBP'), ('wh
at', 'WP'), ('problems', 'NNS'), ('unite', 'VBP'), ('us', 'PRP'), ('instea
d', 'RB'), ('of', 'IN'), ('belaboring', 'VBG'), ('those', 'DT'), ('problem
s', 'NNS'), ('which', 'WDT'), ('divide', 'VBP'), ('us', 'PRP'), ('.',
'.')]
Words-stemwords pair
Let: let
```

both : both

sides : side

explore : explor

what : what

problems : problem

unite : unit

us : us

instead : instead

of : of

belaboring : belabor

those : those

problems : problem

which : which

divide : divid

us : us

. : .

\n

Sentence in consideration

Let both sides , for the first time , formulate serious and precise propos als for the inspection and control of arms -- and bring the absolute power to destroy other nations under the absolute control of all nations . POS tagged Sentence:

[('Let', 'VB'), ('both', 'DT'), ('sides', 'NNS'), (',', ','), ('for', 'I
N'), ('the', 'DT'), ('first', 'JJ'), ('time', 'NN'), (',', ','), ('formula
te', 'VBP'), ('serious', 'JJ'), ('and', 'CC'), ('precise', 'JJ'), ('propos
als', 'NNS'), ('for', 'IN'), ('the', 'DT'), ('inspection', 'NN'), ('and',
'CC'), ('control', 'NN'), ('of', 'IN'), ('arms', 'NNS'), ('--', ':'), ('an
d', 'CC'), ('bring', 'VB'), ('the', 'DT'), ('absolute', 'JJ'), ('power',
'NN'), ('to', 'TO'), ('destroy', 'VB'), ('other', 'JJ'), ('nations', 'NN
S'), ('under', 'IN'), ('the', 'DT'), ('absolute', 'JJ'), ('control', 'N
N'), ('of', 'IN'), ('all', 'DT'), ('nations', 'NNS'), ('.', '.')]
Words-stemwords pair

Let: let

both : both

sides : side

, : ,

for : for

the : the

first : first

time : time

, : ,

formulate : formul

serious : seriou

and : and

precise : precis

proposals : propos

for : for

the : the

inspection : inspect

and : and

control : control

of : of

arms : arm

-- : --

and : and

bring : bring

the : the

absolute : absolut

power : power

to : to

destroy : destroy

other : other

nations : nation

under : under

the : the

```
absolute : absolut
control : control
of : of
all : all
nations : nation
. : .
#################
\n
Sentence in consideration
Let both sides seek to invoke the wonders of science instead of its terror
POS tagged Sentence:
[('Let', 'VB'), ('both', 'DT'), ('sides', 'NNS'), ('seek', 'VBP'), ('to',
'TO'), ('invoke', 'VB'), ('the', 'DT'), ('wonders', 'NNS'), ('of', 'IN'), ('science', 'NN'), ('instead', 'RB'), ('of', 'IN'), ('its', 'PRP$'), ('ter
rors', 'NNS'), ('.', '.')]
Words-stemwords pair
Let : let
both : both
sides : side
seek: seek
to : to
invoke : invok
the : the
wonders : wonder
of : of
science : scienc
instead : instead
of : of
its : it
terrors : terror
```

\n

Sentence in consideration

Together let us explore the stars , conquer the deserts , eradicate diseas e , tap the ocean depths , and encourage the arts and commerce . POS tagged Sentence:

[('Together', 'RB'), ('let', 'VB'), ('us', 'PRP'), ('explore', 'VB'), ('th
e', 'DT'), ('stars', 'NNS'), (',', ','), ('conquer', 'VBP'), ('the', 'D
T'), ('deserts', 'NNS'), (',', ','), ('eradicate', 'JJ'), ('disease', 'N
N'), (',', ','), ('tap', 'VB'), ('the', 'DT'), ('ocean', 'JJ'), ('depths',
'NNS'), (',', ','), ('and', 'CC'), ('encourage', 'VB'), ('the', 'DT'), ('a
rts', 'NNS'), ('and', 'CC'), ('commerce', 'NN'), ('.', '.')]
Words-stemwords pair

Together : togeth

let : let

us : us

explore : explor

the : the

stars : star

, : ,

conquer : conquer

the : the

deserts : desert

, : ,

eradicate : erad

disease : diseas

, : ,

tap : tap

the : the

ocean : ocean

depths : depth

, : ,

and : and

```
encourage : encourag
the : the
arts : art
and: and
commerce : commerc
. : .
\n
Sentence in consideration
Let both sides unite to heed in all corners of the earth the command of Is
aiah -- to " undo the heavy burdens ... and to let the oppressed go free
POS tagged Sentence:
[('Let', 'VB'), ('both', 'DT'), ('sides', 'NNS'), ('unite', 'VBP'), ('to',
'TO'), ('heed', 'VB'), ('in', 'IN'), ('all', 'DT'), ('corners', 'NNS'),
('of', 'IN'), ('the', 'DT'), ('earth', 'NN'), ('the', 'DT'), ('command', 'NN'), ('of', 'IN'), ('Isaiah', 'NNP'), ('--', ':'), ('to', 'TO'), ('``', '``'), ('undo', 'VB'), ('the', 'DT'), ('heavy', 'JJ'), ('burdens', 'NNS'),
('...', `':'), ('and', 'CC'), ('to', 'TO'), ('let', 'VB'), ('the', 'DT'),
('oppressed', 'JJ'), ('go', 'VB'), ('free', 'JJ'), ('.', '.'), ("''",
"''")]
Words-stemwords pair
Let : let
both : both
sides : side
unite : unit
to: to
heed: heed
in : in
all : all
corners : corner
of : of
the : the
earth: earth
```

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9/21/2018
   the : the
   command : command
   of : of
   Isaiah : isaiah
```

to: to

-- : --

· · · · · ·

undo: undo

the : the

heavy : heavi

burdens : burden

... : ...

and: and

to: to

let : let

the : the

oppressed : oppress

go: go

free: free

. : .

##################

\n

Sentence in consideration

And if a beachhead of cooperation may push back the jungle of suspicion , let both sides join in creating a new endeavor , not a new balance of powe r , but a new world of law , where the strong are just and the weak secure and the peace preserved .

POS tagged Sentence:

```
[('And', 'CC'), ('if', 'IN'), ('a', 'DT'), ('beachhead', 'NN'), ('of', 'I
N'), ('cooperation', 'NN'), ('may', 'MD'), ('push', 'VB'), ('back', 'RP'),
('the', 'DT'), ('jungle', 'NN'), ('of', 'IN'), ('suspicion', 'NN'), (',',
','), ('let', 'VB'), ('both', 'DT'), ('sides', 'NNS'), ('join', 'VBP'),
```

```
('in', 'IN'), ('creating', 'VBG'), ('a', 'DT'), ('new', 'JJ'), ('endeavo
r', 'NN'), (',', ','), ('not', 'RB'), ('a', 'DT'), ('new', 'JJ'), ('balanc
e', 'NN'), ('of', 'IN'), ('power', 'NN'), (',', ','), ('but', 'CC'), ('a', 'DT'), ('new', 'JJ'), ('world', 'NN'), ('of', 'IN'), ('law', 'NN'), (',', ','), ('where', 'WRB'), ('the', 'DT'), ('strong', 'JJ'), ('are', 'VBP'),
('just', 'RB'), ('and', 'CC'), ('the', 'DT'), ('weak', 'JJ'), ('secure', 'NN'), ('and', 'CC'), ('the', 'DT'), ('peace', 'NN'), ('preserved', 'VB
D'), ('.', '.')]
Words-stemwords pair
And: and
if: if
a : a
beachhead: beachhead
of : of
cooperation : cooper
may: may
push: push
back : back
the : the
jungle : jungl
of : of
suspicion : suspicion
, : ,
let : let
both : both
sides : side
join : join
in : in
creating : creat
a : a
new: new
endeavor : endeavor
, : ,
not : not
```

a : a

```
new: new
balance : balanc
of : of
power : power
, : ,
but : but
a : a
new : new
world : world
of : of
law : law
, : ,
where : where
the : the
strong : strong
are : are
just : just
and : and
the : the
weak : weak
secure : secur
and : and
the : the
peace : peac
preserved : preserv
. : .
```


\n

Sentence in consideration

```
All this will not be finished in the first 100 days .
POS tagged Sentence:
[('All', 'PDT'), ('this', 'DT'), ('will', 'MD'), ('not', 'RB'), ('be', 'V
B'), ('finished', 'VBN'), ('in', 'IN'), ('the', 'DT'), ('first', 'JJ'),
('100', 'CD'), ('days', 'NNS'), ('.', '.')]
Words-stemwords pair
All : all
this : thi
will : will
not : not
be: be
finished : finish
in: in
the : the
first : first
100:100
days: day
. : .
```


\n

Sentence in consideration

Nor will it be finished in the first 1 , 000 days , nor in the life of this Administration , nor even perhaps in our lifetime on this planet . POS tagged Sentence:

[('Nor', 'CC'), ('will', 'MD'), ('it', 'PRP'), ('be', 'VB'), ('finished',
'VBN'), ('in', 'IN'), ('the', 'DT'), ('first', 'JJ'), ('1', 'CD'), (',',
','), ('000', 'CD'), ('days', 'NNS'), (',', ','), ('nor', 'CC'), ('in', 'I
N'), ('the', 'DT'), ('life', 'NN'), ('of', 'IN'), ('this', 'DT'), ('Admini
stration', 'NNP'), (',', ','), ('nor', 'CC'), ('even', 'RB'), ('perhaps',
'RB'), ('in', 'IN'), ('our', 'PRP\$'), ('lifetime', 'NN'), ('on', 'IN'),
('this', 'DT'), ('planet', 'NN'), ('.', '.')]
Words-stemwords pair

Nor : nor

will : will

it : it

be : be

finished : finish

in : in

the : the

first : first

1:1

, : ,

000:000

days : day

, : ,

nor : nor

in : in

the : the

life : life

of : of

this : thi

Administration : administr

, : ,

nor : nor

even : even

perhaps : perhap

in : in

our : our

lifetime : lifetim

on : on

this : thi

planet : planet

. : .

```
Sentence in consideration
```

```
But let us begin . POS tagged Sentence:
```

[('But', 'CC'), ('let', 'VB'), ('us', 'PRP'), ('begin', 'VB'), ('.', '.')]
Words-stemwords pair

But : but

let : let

us : us

begin : begin

. : .

\n

Sentence in consideration

In your hands , my fellow citizens , more than in mine , will rest the fin al success or failure of our course . POS tagged Sentence:

[('In', 'IN'), ('your', 'PRP\$'), ('hands', 'NNS'), (',', ','), ('my', 'PRP
\$'), ('fellow', 'JJ'), ('citizens', 'NNS'), (',', ','), ('more', 'JJR'),
('than', 'IN'), ('in', 'IN'), ('mine', 'NN'), (',', ','), ('will', 'MD'),
('rest', 'VB'), ('the', 'DT'), ('final', 'JJ'), ('success', 'NN'), ('or',
'CC'), ('failure', 'NN'), ('of', 'IN'), ('our', 'PRP\$'), ('course', 'NN'),
('.', '.')]

Words-stemwords pair

In : In

your : your

hands: hand

, ; ,

my : my

fellow : fellow

citizens : citizen

, : ,

more : more

than : than

```
in : in
```

mine : mine

, : ,

will : will

rest : rest

the : the

final : final

success : success

or : or

failure : failur

of : of

our : our

course : cours

. : .

\n

Sentence in consideration

Since this country was founded , each generation of Americans has been sum moned to give testimony to its national loyalty . POS tagged Sentence:

```
[('Since', 'IN'), ('this', 'DT'), ('country', 'NN'), ('was', 'VBD'), ('fou
nded', 'VBN'), (',', ','), ('each', 'DT'), ('generation', 'NN'), ('of', 'I
N'), ('Americans', 'NNPS'), ('has', 'VBZ'), ('been', 'VBN'), ('summoned',
'VBN'), ('to', 'TO'), ('give', 'VB'), ('testimony', 'NN'), ('to', 'TO'),
('its', 'PRP$'), ('national', 'JJ'), ('loyalty', 'NN'), ('.', '.')]
Words-stemwords pair
```

Since : sinc

this : thi

country : countri

was : wa

founded : found

, : ,

each : each

```
generation : gener
of : of
Americans : american
has: ha
been : been
summoned : summon
to : to
give : give
testimony : testimoni
to: to
its: it
national : nation
loyalty : loyalti
. : .
################
\n
Sentence in consideration
The graves of young Americans who answered the call to service surround th
e globe .
POS tagged Sentence:
[('The', 'DT'), ('graves', 'NNS'), ('of', 'IN'), ('young', 'JJ'), ('Americ ans', 'NNPS'), ('who', 'WP'), ('answered', 'VBD'), ('the', 'DT'), ('call',
'NN'), ('to', 'TO'), ('service', 'NN'), ('surround', 'VB'), ('the', 'DT'),
('globe', 'NN'), ('.', '.')]
Words-stemwords pair
The : the
graves : grave
of : of
young : young
Americans : american
who: who
answered : answer
```

the : the

call: call

to: to

service : servic

surround : surround

the : the

globe : globe

. : .

\n

Sentence in consideration

Now the trumpet summons us again -- not as a call to bear arms , though ar ms we need ; not as a call to battle , though embattled we are -- but a call to bear the burden of a long twilight struggle , year in and year out , "rejoicing in hope , patient in tribulation " -- a struggle against the common enemies of man : tyranny , poverty , disease , and war itself . POS tagged Sentence:

[('Now', 'RB'), ('the', 'DT'), ('trumpet', 'NN'), ('summons', 'NNS'), ('us', 'PRP'), ('again', 'RB'), ('--', ':'), ('not', 'RB'), ('as', 'IN'),
('a', 'DT'), ('call', 'NN'), ('to', 'TO'), ('bear', 'VB'), ('arms', 'NN
S'), (',', ','), ('though', 'IN'), ('arms', 'NNS'), ('we', 'PRP'), ('nee
d', 'VBP'), (';', ':'), ('not', 'RB'), ('as', 'IN'), ('a', 'DT'), ('call',
'NN'), ('to', 'TO'), ('battle', 'NN'), (',', ','), ('though', 'RB'), ('emb
attled', 'VBN'), ('we', 'PRP'), ('are', 'VBP'), ('--', ':'), ('but', 'C
C'), ('a', 'DT'), ('call', 'NN'), ('to', 'TO'), ('bear', 'VB'), ('the', 'D
T'), ('burden', 'NN'), ('of', 'IN'), ('a', 'DT'), ('long', 'JJ'), ('twilig
ht', 'NN'), ('struggle', 'NN'), ('out', 'RB'), (',', ','), ('``', '`'),
('rejoicing', 'NN'), ('in', 'IN'), ('hope', 'NN'), (',', ','), ('patient',
'NN'), ('in', 'IN'), ('tribulation', 'NN'), ('``', ','), ('c--', ':'),
('a', 'DT'), ('struggle', 'NN'), ('against', 'IN'), ('the', 'DT'), ('commo
n', 'JJ'), ('enemies', 'NNS'), ('of', 'IN'), ('man', 'NN'), (':', ':'),
('tyranny', 'NN'), (',', ','), ('poverty', 'NN'), (',', ','), ('disease',
'NN'), (',', ','), ('and', 'CC'), ('war', 'NN'), ('itself', 'PRP'), ('.',
'.')]

Words-stemwords pair

Now: now

the : the

trumpet : trumpet

summons : summon

9/21/2018 us : us again : again -- : -not : not as : as a : a call : call to : to bear : bear arms : arm **,** : , though : though arms : arm we : we need: need ; ; ; not : not as : as a : a call : call to : to battle : battl , : , though : though embattled : embattl we : we are : are -- : --

but : but

call : call

a : a

```
to : to
bear : bear
the : the
burden : burden
of : of
a : a
long : long
twilight : twilight
struggle : struggl
, : ,
year : year
in : in
and : and
year : year
out : out
, : ,
* : * *
rejoicing : rejoic
in : in
hope : hope
, : ,
patient : patient
in : in
tribulation : tribul
* : * *
-- : --
a : a
struggle : struggl
against : against
```

the : the

Task5 Stemming common : common enemies : enemi of : of man: man : : : tyranny : tyranni , : , poverty : poverti , : , disease : diseas , : , and: and war : war itself : itself . : . \n Sentence in consideration Can we forge against these enemies a grand and global alliance , North and South , East and West , that can assure a more fruitful life for all manki nd? POS tagged Sentence: [('Can', 'MD'), ('we', 'PRP'), ('forge', 'VB'), ('against', 'IN'), ('thes e', 'DT'), ('enemies', 'NNS'), ('a', 'DT'), ('grand', 'JJ'), ('and', 'C C'), ('global', 'JJ'), ('alliance', 'NN'), (',', ','), ('North', 'NNP'), ('and', 'CC'), ('South', 'NNP'), (',', ','), ('East', 'NNP'), ('and', 'C C'), ('West', 'NNP'), (',', ','), ('that', 'WDT'), ('can', 'MD'), ('assure', 'VB'), ('a', 'DT'), ('more', 'RBR'), ('fruitful', 'JJ'), ('life', 'N N'), ('for', 'IN'), ('all', 'DT'), ('mankind', 'NN'), ('?', '.')] Words-stemwords pair Can: can we : we

forge : forg

against : against

these : these enemies : enemi

a : a

grand : grand

and : and

global : global

alliance : allianc

, : ,

North: north

and : and

South : south

, : ,

East : east

and : and

West : west

, : ,

that : that

can : can

assure : assur

a : a

more : more

fruitful : fruit

life : life

for : for

all : all

mankind : mankind

?:?

##################

\n

```
Sentence in consideration
```

```
Will you join in that historic effort ?
POS tagged Sentence:

[('Will', 'MD'), ('you', 'PRP'), ('join', 'VB'), ('in', 'IN'), ('that', 'D T'), ('historic', 'JJ'), ('effort', 'NN'), ('?', '.')]
Words-stemwords pair

Will : will
you : you
```

in : in

that : that

join : join

historic : histor

effort : effort

?:?

\n

Sentence in consideration

In the long history of the world , only a few generations have been grante d the role of defending freedom in its hour of maximum danger . POS tagged Sentence:

```
[('In', 'IN'), ('the', 'DT'), ('long', 'JJ'), ('history', 'NN'), ('of', 'I
N'), ('the', 'DT'), ('world', 'NN'), (',', ','), ('only', 'RB'), ('a', 'D
T'), ('few', 'JJ'), ('generations', 'NNS'), ('have', 'VBP'), ('been', 'VB
N'), ('granted', 'VBN'), ('the', 'DT'), ('role', 'NN'), ('of', 'IN'), ('de
fending', 'VBG'), ('freedom', 'NN'), ('in', 'IN'), ('its', 'PRP$'), ('hou
r', 'NN'), ('of', 'IN'), ('maximum', 'JJ'), ('danger', 'NN'), ('.', '.')]
Words-stemwords pair
```

In : In

the : the

long : long

history : histori

of : of

the : the

world : world

, : ,

```
only : onli
a : a
few : few
generations : gener
have : have
been: been
granted : grant
the : the
role : role
of : of
defending : defend
freedom : freedom
in : in
its: it
hour : hour
of : of
maximum : maximum
danger : danger
. : .
################
\n
Sentence in consideration
I do not shrink from this responsibility -- I welcome it .
POS tagged Sentence:
[('I', 'PRP'), ('do', 'VBP'), ('not', 'RB'), ('shrink', 'VB'), ('from', 'I
N'), ('this', 'DT'), ('responsibility', 'NN'), ('--', ':'), ('I', 'PRP'), ('welcome', 'VBP'), ('it', 'PRP'), ('.', '.')]
Words-stemwords pair
I : I
do : do
not : not
```

```
shrink: shrink
from : from
this : thi
responsibility: respons
-- : --
I : I
welcome : welcom
it: it
. : .
#################
\n
Sentence in consideration
I do not believe that any of us would exchange places with any other peopl
e or any other generation .
POS tagged Sentence:
[('I', 'PRP'), ('do', 'VBP'), ('not', 'RB'), ('believe', 'VB'), ('that',
'IN'), ('any', 'DT'), ('of', 'IN'), ('us', 'PRP'), ('would', 'MD'), ('exch
ange', 'VB'), ('places', 'NNS'), ('with', 'IN'), ('any', 'DT'), ('other',
'TT')
'JJ'), ('people', 'NNS'), ('or', 'CC'), ('any', 'DT'), ('other', 'JJ'),
('generation', 'NN'), ('.', '.')]
Words-stemwords pair
I : I
do : do
not : not
believe : believ
that : that
any : ani
of : of
us : us
would : would
exchange : exchang
places : place
```

Task5 Stemming with: with any : ani other : other people : peopl or : or any : ani other: other generation : gener . : . ################# \n Sentence in consideration The energy , the faith , the devotion which we bring to this endeavor will light our country and all who serve it -- and the glow from that fire can truly light the world . POS tagged Sentence: [('The', 'DT'), ('energy', 'NN'), (',', ','), ('the', 'DT'), ('faith', 'N N'), (',', ','), ('the', 'DT'), ('devotion', 'NN'), ('which', 'WDT'), ('w e', 'PRP'), ('bring', 'VBP'), ('to', 'TO'), ('this', 'DT'), ('endeavor', 'NN'), ('will', 'MD'), ('light', 'VB'), ('our', 'PRP\$'), ('country', 'N N'), ('and', 'CC'), ('all', 'DT'), ('who', 'WP'), ('serve', 'VBP'), ('it', 'PRP'), ('--', ':'), ('and', 'CC'), ('the', 'DT'), ('glow', 'NN'), ('fro m', 'IN'), ('that', 'DT'), ('fire', 'NN'), ('can', 'MD'), ('truly', 'VB'), ('light', 'JJ'), ('the', 'DT'), ('world', 'NN'), ('.', '.')] Words-stemwords pair The : the energy : energi **,** : , the : the faith : faith , : , the : the devotion : devot

http://localhost:8888/nbconvert/html/Task5 Stemming.ipynb?download=false

which: which

we : we

bring : bring to : to this : thi endeavor : endeavor will : will light : light our : our country : countri and : and all : all who : who serve : serv it: it -- : -and : and the : the glow : glow from : from that : that fire : fire can : can truly : truli light : light the : the world : world . : . ################ \n

Sentence in consideration

```
And so , my fellow Americans : ask not what your country can do for you --
ask what you can do for your country .
POS tagged Sentence:
[('And', 'CC'), ('so', 'RB'), (',', ','), ('my', 'PRP$'), ('fellow', 'J
J'), ('Americans', 'NNPS'), (':', ':'), ('ask', 'VB'), ('not', 'RB'), ('wh
at', 'WP'), ('your', 'PRP$'), ('country', 'NN'), ('can', 'MD'), ('do', 'VB'), ('for', 'IN'), ('you', 'PRP'), ('--', ':'), ('ask', 'VB'), ('what',
'WP'), ('you', 'PRP'), ('can', 'MD'), ('do', 'VB'), ('for', 'IN'), ('you
r', 'PRP$'), ('country', 'NN'), ('.', '.')]
Words-stemwords pair
And: and
so : so
, : ,
my: my
fellow: fellow
Americans : american
: : :
ask: ask
not : not
what : what
your : your
country : countri
can : can
do : do
for : for
you : you
-- : --
ask: ask
what : what
you : you
can : can
do : do
for : for
your : your
```

country : countri

. : .

\n

Sentence in consideration

My fellow citizens of the world : ask not what America will do for you , b ut what together we can do for the freedom of man . POS tagged Sentence:

[('My', 'PRP\$'), ('fellow', 'JJ'), ('citizens', 'NNS'), ('of', 'IN'), ('th
e', 'DT'), ('world', 'NN'), (':', ':'), ('ask', 'NN'), ('not', 'RB'), ('wh
at', 'WP'), ('America', 'NNP'), ('will', 'MD'), ('do', 'VB'), ('for', 'I
N'), ('you', 'PRP'), (',', ','), ('but', 'CC'), ('what', 'WP'), ('togethe
r', 'IN'), ('we', 'PRP'), ('can', 'MD'), ('do', 'VB'), ('for', 'IN'), ('th
e', 'DT'), ('freedom', 'NN'), ('of', 'IN'), ('man', 'NN'), ('.', '.')]
Words-stemwords pair

My : My

fellow : fellow

citizens : citizen

of : of

the : the

world : world

: : :

ask: ask

not : not

what : what

America : america

will : will

do : do

for : for

you : you

, : ,

but : but

what : what

together : togeth

we : we

can : can

do : do

for : for

the : the

freedom : freedom

of : of

man : man

. : .

\n

Sentence in consideration

Finally , whether you are citizens of America or citizens of the world , a sk of us the same high standards of strength and sacrifice which we ask of you .

POS tagged Sentence:

```
[('Finally', 'RB'), (',', ','), ('whether', 'IN'), ('you', 'PRP'), ('are',
'VBP'), ('citizens', 'NNS'), ('of', 'IN'), ('America', 'NNP'), ('or', 'C
C'), ('citizens', 'NNS'), ('of', 'IN'), ('the', 'DT'), ('world', 'NN'),
(',', ','), ('ask', 'NN'), ('of', 'IN'), ('us', 'PRP'), ('the', 'DT'), ('s
ame', 'JJ'), ('high', 'JJ'), ('standards', 'NNS'), ('of', 'IN'), ('strengt
h', 'NN'), ('and', 'CC'), ('sacrifice', 'NN'), ('which', 'WDT'), ('we', 'P
RP'), ('ask', 'VBP'), ('of', 'IN'), ('you', 'PRP'), ('.', '.')]
Words-stemwords pair
```

Finally : final

, : ,

whether : whether

you : you

are : are

citizens : citizen

of : of

America : america

or : or

9/21/2018 Task5 Stemming citizens : citizen of : of the : the world: world **,** : , ask: ask of : of us : us the : the same : same high : high standards : standard of : of strength : strength and : and sacrifice : sacrific which : which we : we ask: ask of : of you : you . : . ################## \n

Sentence in consideration

With a good conscience our only sure reward , with history the final judge of our deeds , let us go forth to lead the land we love , asking His bless ing and His help , but knowing that here on earth God 's work must truly be our own . POS tagged Sentence:

```
[('With', 'IN'), ('a', 'DT'), ('good', 'JJ'), ('conscience', 'NN'), ('ou
r', 'PRP$'), ('only', 'JJ'), ('sure', 'JJ'), ('reward', 'NN'), (',', ','),
```

```
('with', 'IN'), ('history', 'NN'), ('the', 'DT'), ('final', 'JJ'), ('judg
e', 'NN'), ('of', 'IN'), ('our', 'PRP$'), ('deeds', 'NNS'), (',', ','), ('let', 'VB'), ('us', 'PRP'), ('go', 'VB'), ('forth', 'RB'), ('to', 'TO'), ('lead', 'VB'), ('the', 'DT'), ('land', 'NN'), ('we', 'PRP'), ('love', 'VB
P'), (',', ','), ('asking', 'VBG'), ('His', 'PRP$'), ('blessing', 'NN'),
('and', 'CC'), ('His', 'PRP$'), ('help', 'NN'), (',', ','), ('but', 'CC'),
('knowing', 'VBG'), ('that', 'WDT'), ('here', 'RB'), ('on', 'IN'), ('eart
h', 'NN'), ('God', 'NNP'), ("'", 'POS'), ('s', 'JJ'), ('work', 'NN'), ('mu
st', 'MD'), ('truly', 'RB'), ('be', 'VB'), ('our', 'PRP$'), ('own', 'JJ'),
('.', '.')]
Words-stemwords pair
With: with
a : a
good: good
conscience : conscienc
our : our
only : onli
sure : sure
reward: reward
, : ,
with: with
history : histori
the : the
final : final
judge : judg
of : of
our : our
deeds : deed
, : ,
let : let
us : us
go: go
forth : forth
to : to
lead : lead
```

the : the

we : we love : love , : , asking : ask His : hi blessing : bless and : and His : hi help: help **,** : , but : but knowing : know that : that here : here on : on earth : earth God : god ':' s : s work : work must : must truly : truli be : be our : our own : own . : .

9/21/2018

land : land

\n