

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

President Franklin D. Roosevelt in 1941 President John F. Kennedy in 1961 President Richard Nixon in 1973

Import the necessary libraries

```
In [397]: import numpy as np
import pandas as pd
import nltk
import random
import string

from nltk.corpus import inaugural
```

```
nltk.download('stopwords')
nltk.download('punkt')
nltk.download('inaugural')

[nltk_data] Downloading package stopwords to
[nltk_data] C:\Users\Admin\AppData\Roaming\nltk_data...
[nltk_data] Package stopwords is already up-to-date!
[nltk_data] Downloading package punkt to
[nltk_data] C:\Users\Admin\AppData\Roaming\nltk_data...
[nltk_data] Package punkt is already up-to-date!
[nltk_data] Downloading package inaugural to
[nltk_data] C:\Users\Admin\AppData\Roaming\nltk_data...
[nltk_data] Package inaugural is already up-to-date!
```

```
Out[397]: True
```

Download the file

```
In [398]: 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')
```

```
[nltk_data] Downloading package inaugural to
[nltk_data] C:\Users\Admin\AppData\Roaming\nltk_data...
[nltk_data] Package inaugural is already up-to-date!
```

Out[398]: 'Mr. Vice President, Mr. Speaker, Mr. Chief Justice, Senator Cook, Mrs. Eisenhower, and my fellow citizens of this great and good country we share together:\n\nWhen we met here four years ago, America was bleak in spirit, depressed by the prospect of seemingly endless war abroad and of destructive conflict at home.\n\nAs we meet here today, we stand on the threshold of a new era of peace in the world.\n\nThe central question before us is: How shall we use that peace? Let us resolve that this era we are about to enter will not be what other postwar periods have so often been: a time of retreat and isolation that leads to stagnation at home and invites new danger abroad.\n\nLet us resolve that this will be what it can become: a time of great responsibilities greatly borne, in which we renew the spirit and the promise of America as we enter our third century as a nation.\n\nThis past year saw far-reaching results from our new policies for peace. By continuing to revitalize our traditional friendships, and by our missions to Peking and to Moscow, we were able to establish the base for a new and more durable pattern of relationships among the nations of the world. Because of America's bold initiatives, 1972 will be long remembered as the year of the greatest progress since the end of World War II toward a lasting peace in the world.\n\nThe peace we seek in the world is not the flimsy peace which is merely an interlude between wars, but a peace which can endure for generations to come.\n\nIt is important that we understand both the necessity and the limitations of America's role in maintaining that peace.\n\nUnless we in America work to preserve the peace, there will be no peace.\n\nUnless we in America work to preserve freedom, there will be no freedom.\n\nBut let us clearly understand the new nature of America's role, as a result of the new policies we have adopted over these past four years.\n\nWe shall respect our treaty commitments.\n\nWe shall support vigorously the principle that no country has the right to impose its will or rule on another by force.\n\nWe shall continue, in this era of negotiation, to work for the limitation of nuclear arms, and to reduce the danger of confrontation between the great powers.\n\nWe shall do our share in defending peace and freedom in the world. But we shall expect others to do their share.\n\nThe time has passed when America will make every other nation's conflict our own, or make every other nation's future our responsibility, or presume to tell the people of other nations how to manage their own affairs.\n\nJust as we respect the right of each nation to determine its own future, we also recognize the responsibility of each nation to secure its own future.\n\nJust as America's role is indispensable in preserving the world's peace, so is each nation's role indispensable in preserving its own peace.\n\nTogether with the rest of the world, let us resolve to move forward from the beginnings we have made. Let us continue to bring down the walls of hostility which have divided the world for too long, and to build in their place bridges of understanding -- so that despite profound differences between systems of government, the people of the world can be friends.\n\nLet us build a structure of peace in the world in which the weak are as safe as the strong -- in which each respects the right of the other to live by a different system -- in which those who would influence others will do so by the strength of their ideas, and not by the force of their arms.\n\nLet us accept that high responsibility not as a burden, but gladly -- gladly because the chance to build such a peace is the noblest endeavor in which a nation can engage; gladly, also, because only if we act greatly in meeting our responsibilities abroad will we remain a great Nation, and only if we remain a great Nation will we act greatly in meeting our challenges at home.\n\nWe have the chance today to do more than ever before in our history to make life better in America -- to ensure better education, better health, better housing, better transportation, a cleaner environment -- to restore respect for law, to make our communities more livable -- and to insure the God-given right of every American to full and equal opportunity.\n\nBecause the range of our needs is so great -- because the reach of our opportunities is so great -- let us be bold in our determination to meet those needs in new ways.\n\nJust as building a structure of peace abroa

d has required turning away from old policies that failed, so building a new era of progress at home requires turning away from old policies that have failed.

Abroad, the shift from old policies to new has not been a retreat from our responsibilities, but a better way to peace.

And at home, the shift from old policies to new will not be a retreat from our responsibilities, but a better way to progress.

Abroad and at home, the key to those new responsibilities lies in the placing and the division of responsibility. We have lived too long with the consequences of attempting to gather all power and responsibility in Washington.

Abroad and at home, the time has come to turn away from the condescending policies of paternalism -- of "Washington knows best."

A person can be expected to act responsibly only if he has responsibility. This is human nature. So let us encourage individuals at home and nations abroad to do more for themselves, to decide more for themselves. Let us locate responsibility in more places. Let us measure what we will do for others by what they will do for themselves.

That is why today I offer no promise of a purely governmental solution for every problem. We have lived too long with that false promise. In trusting too much in government, we have asked of it more than it can deliver. This leads only to inflated expectations, to reduced individual effort, and to a disappointment and frustration that erode confidence both in what government can do and in what people can do.

Government must learn to take less from people so that people can do more for themselves.

Let us remember that America was built not by government, but by people -- not by welfare, but by work -- not by shirking responsibility, but by seeking responsibility.

In our own lives, let each of us ask -- not just what will government do for me, but what can I do for myself?

In the challenges we face together, let each of us ask -- not just how can government help, but how can I help?

Your National Government has a great and vital role to play. And I pledge to you that where this Government should act, we will act boldly and we will lead boldly. But just as important is the role that each and every one of us must play, as an individual and as a member of his own community.

From this day forward, let each of us make a solemn commitment in his own heart: to bear his responsibility, to do his part, to live his ideals -- so that together, we can see the dawn of a new age of progress for America, and together, as we celebrate our 200th anniversary as a nation, we can do so proud in the fulfillment of our promise to ourselves and to the world.

As America's longest and most difficult war comes to an end, let us again learn to debate our differences with civility and decency. And let each of us reach out for that one precious quality government cannot provide -- a new level of respect for the rights and feelings of one another, a new level of respect for the individual human dignity which is the cherished birthright of every American.

Above all else, the time has come for us to renew our faith in ourselves and in America.

In recent years, that faith has been challenged.

Our children have been taught to be ashamed of their country, ashamed of their parents, ashamed of America's record at home and of its role in the world.

At every turn, we have been beset by those who find everything wrong with America and little that is right. But I am confident that this will not be the judgment of history on these remarkable times in which we are privileged to live.

America's record in this century has been unparalleled in the world's history for its responsibility, for its generosity, for its creativity and for its progress.

Let us be proud that our system has produced and provided more freedom and more abundance, more widely shared, than any other system in the history of the world.

Let us be proud that in each of the four wars in which we have been engaged in this century, including the one we are now bringing to an end, we have fought not for our selfish advantage, but to help others resist aggression.

Let us be proud that by our bold, new initiatives, and by our steadfastness for peace with honor, we have made a break-through toward creating in the world what the world has not known before -- a structure of peace that can last, not merely for our time, but for generations to come.

We are embarking here today on

n an era that presents challenges great as those any nation, or any generation, has ever faced.\n\nWe shall answer to God, to history, and to our conscience for the way in which we use these years.\n\nAs I stand in this place, so hallowed by history, I think of others who have stood here before me. I think of the dreams they had for America, and I think of how each recognized that he needed help far beyond himself in order to make those dreams come true.\n\nToday, I ask your prayers that in the years ahead I may have God's help in making decisions that are right for America, and I pray for your help so that together we may be worthy of our challenge.\n\nLet us pledge together to make these next four years the best four years in America's history, so that on its 200th birthday America will be as young and as vital as when it began, and as bright a beacon of hope for all the world.\n\nLet us go forward from here confident in hope, strong in our faith in one another, sustained by our faith in God who created us, and striving always to serve His purpose.\n'

```
In [399]: import nltk
          from nltk.corpus import stopwords
          from nltk.corpus import inaugural
          from nltk.tokenize import word_tokenize, sent_tokenize
          import matplotlib.pyplot as plt
```

```
In [400]: names = inaugural.fileids()
          print(len(names))
```

58

```
In [403]: names[0], names[57]
```

```
Out[403]: ('1789-Washington.txt', '2017-Trump.txt')
```

Imported the inaugural speeches and it can be seen that there are speeches of 58 presidents.

```
In [404]: inaugural.raw(fileids=names[57])
```

Out[404]: 'Chief Justice Roberts, President Carter, President Clinton, President Bush, President Obama, fellow Americans, and people of the world: Thank you.
We, the citizens of America, are now joined in a great national effort to rebuild our country and restore its promise for all of our people. Together, we will determine the course of America and the world for many, many years to come. We will face challenges, we will confront hardships, but we will get the job done.
Every 4 years, we gather on these steps to carry out the orderly and peaceful transfer of power, and we are grateful to President Obama and First Lady Michelle Obama for their gracious aid throughout this transition. They have been magnificent. Thank you.
Today's ceremony, however, has very special meaning. Because today we are not merely transferring power from one administration to another or from one party to another, but we are transferring power from Washington, DC, and giving it back to you, the people.
For too long, a small group in our Nation's Capital has reaped the rewards of Government while the people have borne the cost. Washington flourished, but the people did not share in its wealth. Politicians prospered, but the jobs left, and the factories closed. The establishment protected itself, but not the citizens of our country. Their victories have not been your victories; their triumphs have not been your triumphs; and while they celebrated in our Nation's Capital, there was little to celebrate for struggling families all across our land.
That all changes, starting right here and right now, because this moment is your moment: It belongs to you. It belongs to everyone gathered here today and everyone watching all across America. This is your day. This is your celebration. And this, the United States of America, is your country.
What truly matters is not which party controls our Government, but whether our Government is controlled by the people. January 20, 2017, will be remembered as the day the people became the rulers of this Nation again. The forgotten men and women of our country will be forgotten no longer. Everyone is listening to you now.
You came by the tens of millions to become part of a historic movement the likes of which the world has never seen before. At the center of this movement is a crucial conviction: that a nation exists to serve its citizens. Americans want great schools for their children, safe neighborhoods for their families, and good jobs for themselves. These are just and reasonable demands of righteous people and a righteous public.
But for too many of our citizens, a different reality exists: Mothers and children trapped in poverty in our inner cities; rusted-out factories scattered like tombstones across the landscape of our Nation; an education system, flush with cash, but which leaves our young and beautiful students deprived of all knowledge; and the crime and the gangs and the drugs that have stolen too many lives and robbed our country of so much unrealized potential.
This American carnage stops right here and stops right now. We are one Nation, and their pain is our pain, their dreams are our dreams, and their success will be our success. We share one heart, one home, and one glorious destiny.
The oath of office I take today is an oath of allegiance to all Americans.
For many decades, we've enriched foreign industry at the expense of American industry, subsidized the armies of other countries while allowing for the very sad depletion of our military. We've defended other nations' borders while refusing to defend our own and spent trillions and trillions of dollars overseas while America's infrastructure has fallen into disrepair and decay. We've made other countries rich while the wealth, strength, and confidence of our country has dissipated over the horizon.
One by one, the factories shuttered and left our shores, with not even a thought about the millions and millions of American workers that were left behind. The wealth of our middle class has been ripped from their homes and then redistributed all across the world.
But that is the past. And now we are looking only to the future.
We, assembled here today, are issuing a new decree to be heard in every city, in every foreign capital, and in every hall of power. From this day forward, a new vision will govern our land. From this day forward, it's going to be only America first. America first.
Every decision on tr

ade, on taxes, on immigration, on foreign affairs, will be made to benefit American workers and American families.\n\nWe must protect our borders from the ravages of other countries making our products, stealing our companies, and destroying our jobs. Protection will lead to great prosperity and strength. I will fight for you with every breath in my body, and I will never, ever let you down.\n\nAmerica will start winning again, winning like never before. We will bring back our jobs. We will bring back our borders. We will bring back our wealth. And we will bring back our dreams.\n\nWe will build new roads and highways and bridges and airports and tunnels and railways all across our wonderful Nation.\n\nWe will get our people off of welfare and back to work, rebuilding our country with American hands and American labor. We will follow two simple rules: Buy American and hire American.\n\nWe will seek friendship and good will with the nations of the world, but we do so with the understanding that it is the right of all nations to put their own interests first. We do not seek to impose our way of life on anyone, but rather to let it shine as an exampleà\x80\x94we will shineà\x80\x94for everyone to follow.\n\nWe will reinforce old alliances and form new ones and unite the civilized world against radical Islamic terrorism, which we will eradicate completely from the face of the Earth.\n\nAt the bedrock of our politics will be a total allegiance to the United States of America, and through our loyalty to our country, we will rediscover our loyalty to each other. When you open your heart to patriotism, there is no room for prejudice. The Bible tells us, "How good and pleasant it is when God's people live together in unity." We must speak our minds openly, debate our disagreements honestly, but always pursue solidarity. When America is united, America is totally unstoppable. There should be no fear: We are protected, and we will always be protected. We will be protected by the great men and women of our military and law enforcement, and most importantly, we will be protected by God.\n\nFinally, we must think big and dream even bigger. In America, we understand that a nation is only living as long as it is striving.\n\nWe will no longer accept politicians who are all talk and no action, constantly complaining, but never doing anything about it. The time for empty talk is over. Now arrives the hour of action.\n\nDo not allow anyone to tell you that it cannot be done. No challenge can match the heart and fight and spirit of America. We will not fail. Our country will thrive and prosper again.\n\nWe stand at the birth of a new millennium, ready to unlock the mysteries of space, to free the Earth from the miseries of disease, and to harness the energies, industries, and technologies of tomorrow. A new national pride will stir our souls, lift our sights, and heal our divisions.\n\nIt's time to remember that old wisdom our soldiers will never forget: that whether we are Black or Brown or White, we all bleed the same red blood of patriots, we all enjoy the same glorious freedoms, and we all salute the same great American flag.\n\nAnd whether a child is born in the urban sprawl of Detroit or the windswept plains of Nebraska, they look up at the same night sky, they fill their heart with the same dreams, and they are infused with the breath of life by the same almighty Creator.\n\nSo to all Americans in every city near and far, small and large, from mountain to mountain, from ocean to ocean, hear these words: You will never be ignored again. Your voice, your hopes, and your dreams will define our American destiny. And your courage and goodness and love will forever guide us along the way.\n\nTogether, we will make America strong again. We will make America wealthy again. We will make America proud again. We will make America safe again.\n\nAnd, yes, together, we will make America great again. Thank you. God bless you, and God bless America. Thank you. God bless America.\n'


```
In [405]: words = list(inaugural.words(fileids = names[57]))
words
```

```
Out[405]: ['Chief',
           'Justice',
           'Roberts',
           ',',
           'President',
           'Carter',
           ',',
           'President',
           'Clinton',
           ',',
           'President',
           'Bush',
           ',',
           'President',
           'Obama',
           ',',
           'fellow',
           'Americans',
           ',',
           ',']
```

speech is now broken down into words

```
In [406]: nltk.FreqDist(words)
```

```
Out[406]: FreqDist({' ': 106, '.': 89, 'and': 70, 'the': 65, 'of': 48, 'our': 47, 'w
ill': 43, 'to': 37, 'We': 26, 'we': 24, ...})
```

There are presence of stopwords and punctuations which are to be removed.

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

Number of words and sentences

```
In [407]: from nltk.corpus import PlaintextCorpusReader
corpus_root = 'C:/Users/Admin/AppData/Roaming/nltk_data/corpora/inaugural'
inaug = PlaintextCorpusReader(corpus_root, '.*txt') # all files ending in
```

```
In [408]: # specify individual file ID.:
print(inaug.words('1941-Roosevelt.txt'))
```

```
['On', 'each', 'national', 'day', 'of', 'inauguration', ...]
```

```
In [409]: # specify individual file ID.:
print(inaug.words('1961-Kennedy.txt'))
```

```
['Vice', 'President', 'Johnson', ',', 'Mr', '.', ...]
```

```
In [410]: # specify individual file ID.:
print(inaug.words('1973-Nixon.txt'))
```

```
['Mr', '.', 'Vice', 'President', ',', 'Mr', '.', ...]
```

```
In [411]: #length of these speeches in terms of word and sentence count
print('1941-Roosevelt:', len(inaug.words('1941-Roosevelt.txt')), len(inaug.s
print('1961-Kennedy.txt:', len(inaug.words('1961-Kennedy.txt')), len(inaug.s
print('1973-Nixon.txt:', len(inaug.words('1973-Nixon.txt')), len(inaug.sents
```

```
1941-Roosevelt: 1536 68
1961-Kennedy.txt: 1546 52
1973-Nixon.txt: 2028 69
```

Number of characters

```
In [412]: myfile1 = 'C:/Users/Admin/AppData/Roaming/nltk_data/corpora/inaugural/1941-R
text1 = open(myfile1).read()
```

```
In [413]: myfile2 = 'C:/Users/Admin/AppData/Roaming/nltk_data/corpora/inaugural/1961-K
text2 = open(myfile2).read()
```

```
In [414]: myfile3 = 'C:/Users/Admin/AppData/Roaming/nltk_data/corpora/inaugural/1973-N
text3 = open(myfile3).read()
```

```
In [415]: words = text1.split()
print('Number of characters in text1 file :', len(text1))
```

```
Number of characters in text1 file : 7571
```

```
In [416]: words = text2.split()
print('Number of characters in text2 file :', len(text2))
```

```
Number of characters in text2 file : 7618
```

```
In [417]: words = text3.split()
print('Number of characters in text3 file :', len(text3))
```

```
Number of characters in text3 file : 9991
```

Remove all the stopwords from all the three speeches.

```
In [395]:
```

Removing stopwords of 1941-Roosevelt.txt

```
In [418]: myfile1 = open('C:/Users/Admin/AppData/Roaming/nltk_data/corpora/inaugural/1941-Roosevelt.txt')
text1 = myfile1.read()
```

```
In [419]: stop_words = stopwords.words('english')
add_to_stop_words = [',', '.', '-', '--', '"', ':', ';']
stop_words.extend(add_to_stop_words)
stop_words = set(stop_words)
word_tokens1 = word_tokenize(text1)
```

```
In [420]: filtered_sentence1 = [w for w in word_tokens1
filtered_sentence1 = []

for w in word_tokens1:
    if w not in stop_words:
        filtered_sentence1.append(w)
```

Removing stopwords of 1961-Kennedy.txt

```
In [424]: myfile2 = open('C:/Users/Admin/AppData/Roaming/nltk_data/corpora/inaugural/1961-Kennedy.txt')
text2 = myfile2.read()
```

```
In [425]: stop_words = stopwords.words('english')
add_to_stop_words = [',', '.', '-', '--', '"', ':', ';']
stop_words.extend(add_to_stop_words)
stop_words = set(stop_words)
word_tokens2 = word_tokenize(text2)
```

```
In [426]: filtered_sentence2 = [w for w in word_tokens2
filtered_sentence2 = []

for w in word_tokens2:
    if w not in stop_words:
        filtered_sentence2.append(w)
```

Removing stopwords of 11973-Nixon.txt

```
In [427]: myfile3 = open('C:/Users/Admin/AppData/Roaming/nltk_data/corpora/inaugural/11973-Nixon.txt')
text3 = myfile3.read()
```

```
In [429]: stop_words = stopwords.words('english')
add_to_stop_words = [',', '.', '-', '--', '"', ':', ';']
stop_words.extend(add_to_stop_words)
stop_words = set(stop_words)

word_tokens3 = word_tokenize(text3)
```

```
In [430]: filtered_sentence3 = [w for w in word_tokens3
filtered_sentence3 = []

for w in word_tokens3:
    if w not in stop_words:
        filtered_sentence3.append(w)
```

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

```
In [431]: all_words_freq = nltk.FreqDist(filtered_sentence1)

word_features = [item[0] for item in all_words_freq.most_common(3)]
```

```
In [432]: word_features
```

```
Out[432]: ['It', 'The', 'know']
```

```
In [433]: all_words_freq = nltk.FreqDist(filtered_sentence2)

word_features = [item[0] for item in all_words_freq.most_common(3)]
```

```
In [434]: word_features
```

```
Out[434]: ['us', 'world', 'Let']
```

```
In [435]: all_words_freq = nltk.FreqDist(filtered_sentence3)

word_features = [item[0] for item in all_words_freq.most_common(3)]
```

```
In [436]: word_features
```

```
Out[436]: ['us', 'America', 'peace']
```

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

```
In [447]: pip install wordcloud
```

Collecting wordcloud

Downloading wordcloud-1.8.1-cp38-cp38-win_amd64.whl (155 kB)

Note: you may need to restart the kernel to use updated packages. Requirement already satisfied: pillow in c:\users\admin\anaconda4\lib\site-packages (from wordcloud) (7.2.0)

Requirement already satisfied: matplotlib in c:\users\admin\anaconda4\lib\site-packages (from wordcloud) (3.3.1)

Requirement already satisfied: numpy>=1.6.1 in c:\users\admin\anaconda4\lib\site-packages (from wordcloud) (1.19.1)

Requirement already satisfied: cyycler>=0.10 in c:\users\admin\anaconda4\lib\site-packages (from matplotlib->wordcloud) (0.10.0)

Requirement already satisfied: kiwisolver>=1.0.1 in c:\users\admin\anaconda4\lib\site-packages (from matplotlib->wordcloud) (1.2.0)

Requirement already satisfied: pyparsing!=2.0.4,!=2.1.2,!=2.1.6,>=2.0.3 in c:\users\admin\anaconda4\lib\site-packages (from matplotlib->wordcloud) (2.4.7)

Requirement already satisfied: certifi>=2020.06.20 in c:\users\admin\anaconda4\lib\site-packages (from matplotlib->wordcloud) (2020.6.20)

Requirement already satisfied: python-dateutil>=2.1 in c:\users\admin\anaconda4\lib\site-packages (from matplotlib->wordcloud) (2.8.1)

Requirement already satisfied: six in c:\users\admin\anaconda4\lib\site-packages (from cyycler>=0.10->matplotlib->wordcloud) (1.15.0)

Installing collected packages: wordcloud

Successfully installed wordcloud-1.8.1

```
In [449]: import numpy as np
import pandas as pd
from os import path
from PIL import Image
from wordcloud import WordCloud, STOPWORDS, ImageColorGenerator
```

```
In [452]: from wordcloud import WordCloud
wordcloud = WordCloud(width = 3000, height = 3000,
                      background_color = 'black',
                      min_font_size = 10, random_state=100).generate(text1)

# plot the WordCloud image
plt.figure(figsize = (8, 8), facecolor = None)
plt.imshow(wordcloud)
plt.axis("off")
plt.xlabel('Word Cloud')
plt.tight_layout(pad = 0)

print("Word Cloud for 1941-Roosevelt (after cleaning)!!")
plt.show()
```

Word Cloud for 1941-Roosevelt (after cleaning)!!

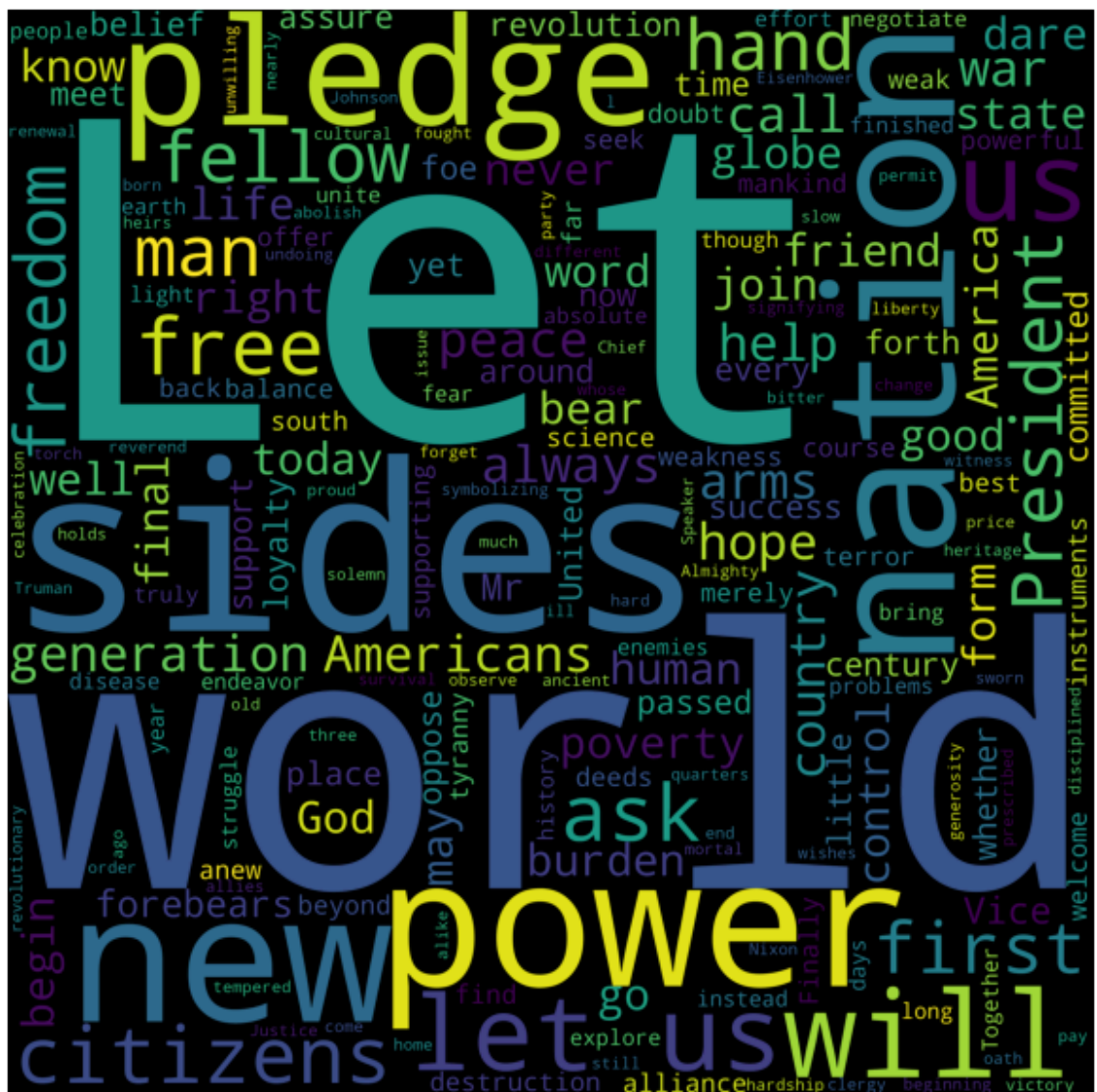


```
In [453]: from wordcloud import WordCloud
wordcloud = WordCloud(width = 3000, height = 3000,
                      background_color = 'black',
                      min_font_size = 10, random_state=100).generate(text2)

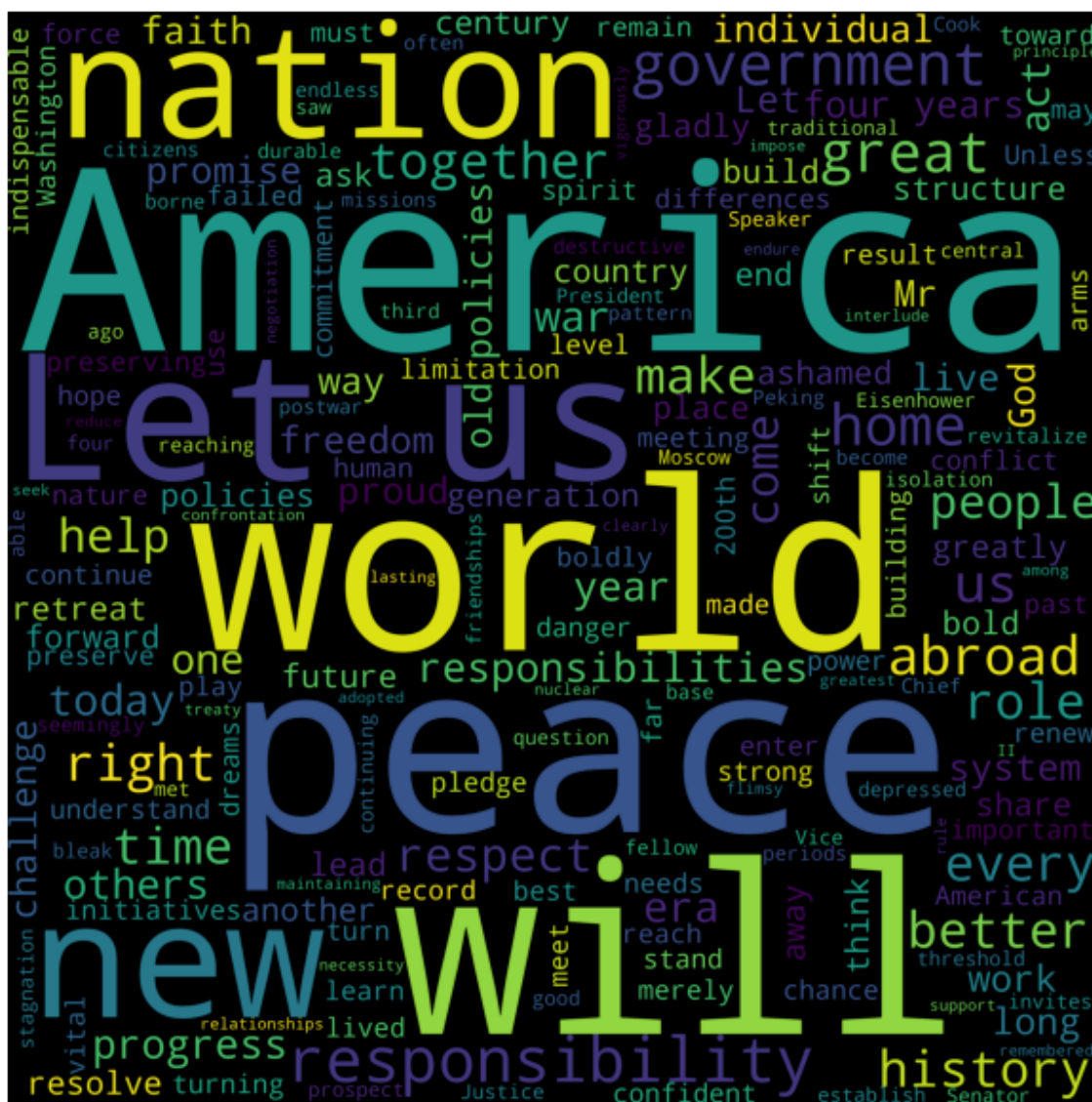
# plot the WordCloud image
plt.figure(figsize = (8, 8), facecolor = None)
plt.imshow(wordcloud)
plt.axis("off")
plt.xlabel('Word Cloud')
plt.tight_layout(pad = 0)

print("Word Cloud for 1961-Kennedy (after cleaning)!!")
plt.show()
```

Word Cloud for 1961-Kennedy (after cleaning)!!



Word Cloud for 1973-Nixon (after cleaning)!!



In []: