

```
In [1]: import nltk
import urllib.request
import math
from nltk.corpus import stopwords
from nltk.stem import PorterStemmer
from nltk.stem import WordNetLemmatizer
import numpy as np
```

```
In [2]: text = open('White_Fang.txt', 'r').read().lower()
text = text.replace('--', ' ')
text = text.replace('.', '')
text = text.replace(',', '')
print(text[:1731])
```

d»žwhite fang

part i

chapter i the trail of the meat

dark spruce forest frowned on either side the frozen waterway the tree  
s  
had been stripped by a recent wind of their white covering of frost and  
they seemed to lean towards each other black and ominous in the fading  
light a vast silence reigned over the land the land itself was a  
desolation lifeless without movement so lone and cold that the spirit  
of it was not even that of sadness there was a hint in it of laughter  
but of a laughter more terrible than any sadness a laughter that was  
mirthless as the smile of the sphinx a laughter cold as the frost and  
partaking of the grimness of infallibility it was the masterful and  
incommunicable wisdom of eternity laughing at the futility of life and  
the effort of life it was the wild the savage frozen-hearted  
northland wild

but there \_was\_ life abroad in the land and defiant down the frozen waterway toiled a string of wolfish dogs their bristly fur was rimed with frost their breath froze in the air as it left their mouths spouting forth in spumes of vapour that settled upon the hair of their bodies and formed into crystals of frost leather harness was on the dogs and leather traces attached them to a sled which dragged along behind the sled was without runners it was made of stout birch-bark and its full surface rested on the snow the front end of the sled was turned up like a scroll in order to force down and under the bore of soft snow that surged like a wave before it on the sled securely lashed was a long and narrow oblong box there were other things on the sled blankets an axe and a coffee-pot and frying-pan; but prominent occupying most of the space was the long and narrow oblong box

```
In [3]: raws = text.split('\n')
        print(raws[0:20])
```

```
['d»žwhite fang', '', '', 'part i', '', '', 'chapter i the trail of the
meat', '', '', 'dark spruce forest frowned on either side the frozen wa
terway the trees', 'had been stripped by a recent wind of their white
covering of frost and', 'they seemed to lean towards each other black a
nd ominous in the fading', 'light a vast silence reigned over the land
the land itself was a', 'desolation lifeless without movement so lone
and cold that the spirit', 'of it was not even that of sadness there w
as a hint in it of laughter', 'but of a laughter more terrible than any
sadness a laughter that was', 'mirthless as the smile of the sphinx a l
aughter cold as the frost and', 'partaking of the grimness of infallibi
lity it was the masterful and', 'incommunicable wisdom of eternity lau
ghing at the futility of life and', 'the effort of life it was the wil
d the savage frozen-hearted']
```

```
In [4]: sw = stopwords.words('english')
        pos = open('positive-words.txt', 'r').read().split()
        neg = open('negative-words.txt', 'r').read().split()
```

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In [5]: #removing plank raws
        for raw in raws :
```

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if raw == '':
    rows.remove(raw)

#The rest of text processing takes place inside the for loop
# x variable is only to limit ammount of printed rows
x=0
score = [None] * len(rows)
for raw in rows:
    #spliting each raw to separate words
    tokens = raw.split()

    #removing stopwords
    atokens = tokens[:]
    btokens = tokens[:]
    for token in atokens:
        if token in sw:
            btokens.remove(token)

    # Lemmatize
    lemmatizer = WordNetLemmatizer()
    for i in range(len(btokens)):
        btokens[i] = lemmatizer.lemmatize(btokens[i])
    #sentiment score
    p=0
    n=0
    for i in range(len(btokens)):
        if btokens[i] in pos:
            p = p + 1
        elif btokens[i] in neg:
            n = n + 1
    score[x] = p-n

    if x < 10 :
        print("%80s %5d" % (raw, score[x]))
    x = x+1

```

d»żw

hite fang      0

part i      0

```

the meat      0
    dark spruce forest frowned on either side the frozen waterway
the trees     -2
    had been stripped by a recent wind of their white covering of
frost and     -1
    they seemed to lean towards each other black and ominous in t
he fading     0
    light a vast silence reigned over the land the land its
elf was a     0
    desolation lifeless without movement so lone and cold that t
he spirit      -4
    of it was not even that of sadness there was a hint in it of
laughter      -1
    but of a laughter more terrible than any sadness a laughter
that was      -2

```

```

In [6]: mean = [None]*len(score)
        window = 100
        for i in range(int(window/2),len(score)-int(window/2)):
            s=0
            for t in range(i-int(window/2),i+int(window/2)):
                s = s + score[t]
            mean[i] = s/window

```

```

In [7]: import matplotlib.pyplot as plt

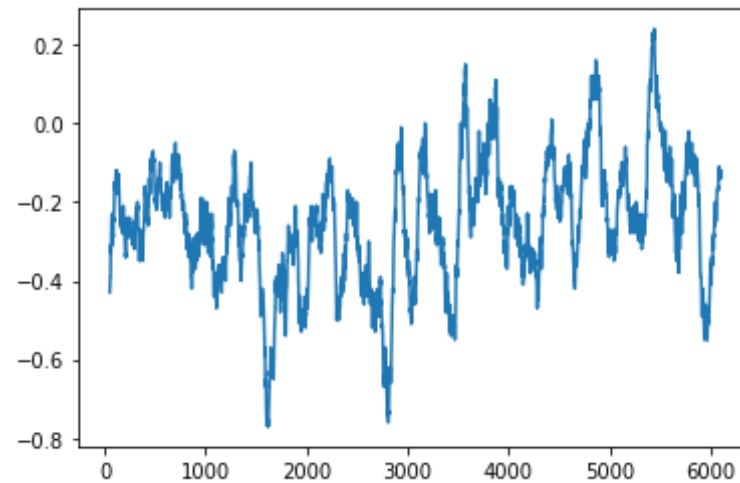
```

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In [8]: print('window size 100')
        x = np.arange(len(mean))
        plt.plot(x,mean)
        plt.show()

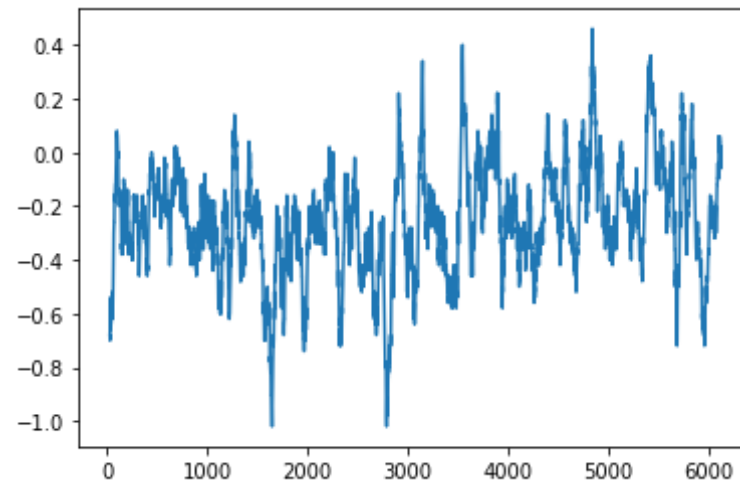
```

window size 100



```
In [9]: mean = [None]*len(score)
window = 50
for i in range(int(window/2), len(score)-int(window/2)):
    s=0
    for t in range(i-int(window/2), i+int(window/2)):
        s = s + score[t]
    mean[i] = s/window
print('window size 50')
x = np.arange(len(mean))
plt.plot(x, mean)
plt.show()
```

window size 50



The plots shows us that in the book in general there is more negative words than positive. The mood varies a lot in short periods quite randomly but in most of cases it is below 0. Starting from about half of the book the mood seems to be more positive. There is more values above 0. Above 5500 the plots decrease but finally it go up above zero.

The sentiment analysis reflects my personal feeling while reading this book.

In [ ]: