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In [1]: ▶ import re
import string
from nltk.corpus import wordnet
from nltk.stem import WordNetLemmatizer
from nltk.tokenize import word_tokenize
import json
data=[]
with open('./Gift_Cards.json','r') as jsonFile:
    for line in jsonFile:
        data.append(json.loads(line))
# data
```

```
In [2]: ▶ reviews=[]
for i in data:
    try:
        reviews.append(i['reviewText'])
    except:
#         print(i)
        continue
len(reviews)
```

Out[2]: 147035

```
In [3]: ➤ for i in range(len(reviews)):
    reviews[i] = re.sub(r" gud ", " good ", reviews[i])
    reviews[i] = re.sub(r" awsm ", " awesome ", reviews[i])
    reviews[i] = re.sub(r" luv ", " love ", reviews[i])
    reviews[i] = re.sub(r" ur ", " your ", reviews[i])
    reviews[i] = re.sub(r" im ", " i am ", reviews[i])
    reviews[i] = re.sub(r" dont ", " do not ", reviews[i])
    reviews[i] = re.sub(r" wont ", " will not ", reviews[i])
    reviews[i] = re.sub(r" cant ", " can not ", reviews[i])
    reviews[i] = re.sub(r" shouldnt ", " should not ", reviews[i])
    reviews[i] = re.sub(r" wouldnt ", " would not ", reviews[i])
    reviews[i] = re.sub(r" couldve ", " could have ", reviews[i])
    reviews[i] = re.sub(r" mustve ", " must have ", reviews[i])
    reviews[i] = re.sub(r" aint ", " am not ", reviews[i])
    reviews[i] = re.sub(r" isnt ", " is not ", reviews[i])
    reviews[i] = re.sub(r" werent ", " were not ", reviews[i])
    reviews[i] = re.sub(r" hasnt ", " has not ", reviews[i])
    reviews[i] = re.sub(r" havent ", " have not ", reviews[i])
    reviews[i] = re.sub(r" hadnt ", " had not ", reviews[i])
    reviews[i] = re.sub(r" wanna ", " want to ", reviews[i])
reviews
```

and am really so disappointed that out of five choices there isn't one that says "Merry Christmas" or mentions Christmas at all! I am sure I am not alone in wanting a card that reflects the actual "holiday" we are celebrating. On principle, I cannot send a Amazon gift card this Christmas. What's up with all the Political Correctness? Bad marketing decision.\nLynn',

'I got this gift card from a friend, and it was the best! The site has so much to choose from... great gift.',

"aren't we going to save trees?! :) People who were complaining about paper gift cards can simply buy an electronic gift card via email. It's very convenient and indeed a great gift. I found paper gift cards annoying since you have to always wonder how much money you got left on it. And if you lose it, you lose it. An electronic delivery of the gift card makes it a lot of easier to redeem, you only need to COPY/PASTE the code into your gift certificate balance and it'll be there whenever you want to use it.\n\nI've sent friends electronic gift cards via email for their newborns, for their weddings, and for their housewarmings. :)\n\nHappy holidays",

"You can always get someone something from Amazon with the safety net that they can return it if they don't like it. But returning things is

```
In [4]: import nltk
nltk.download('omw-1.4')
nltk.download('sentiwordnet')
from nltk.corpus import sentiwordnet as swn

def get_sentiment(word):
    synsets = list(swn.senti_synsets(word))
    if synsets:
        synset = synsets[0]
        return synset.pos_score() - synset.neg_score()
    else:
        return 0

def calculate_review_polarity(review):
    words=review.split()
    sentiment=0
    for w in words:
        sentiment+=get_sentiment(w)
    if len(words)<=0:
        sentiment=0
    return sentiment

positive=[]
negative=[]
for i in reviews:
    polarity=calculate_review_polarity(i)
    if polarity>=0:
        positive.append((i,polarity))
    if polarity<0:
        negative.append((i,polarity))
    print(i,polarity,"\n")
```

[nltk\_data] Agarwal\AppData\Roaming\nltk\_data...

[nltk\_data] Package sentiwordnet is already up-to-date!

Amazon,

I am shopping for Amazon.com gift cards for Christmas gifts and am really so disappointed that out of five choices there isn't one that says "Merry Christmas" or mentions Christmas at all! I am sure I am not alone in wanting a card that reflects the actual "holiday" we are celebrating. On principle, I cannot send a Amazon gift card this Christmas. What's up with all the Political Correctness? Bad marketing decision. Lynn -0.5

I got this gift card from a friend, and it was the best! The site has so much to choose from... great gift. 0.375

aren't we going to save trees?! :) People who were complaining about paper gift cards can simply buy an electronic gift card via email. It's very convenient and indeed a great gift. I found paper gift cards annoying since you have to always wonder how much money you got left on it. And if you lose it, you lose it. An electronic delivery of the gift

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In [5]: ▶ #positive reviews  
print(len(positive))
```

132635

```
In [6]: ▶ #negative reviews  
print(negative)
```

[('Amazon,\nI am shopping for Amazon.com gift cards for Christmas gift  
s and am really so disappointed that out of five choices there isn\'t  
one that says "Merry Christmas" or mentions Christmas at all! I am su  
re I am not alone in wanting a card that reflects the actual "holiday"  
we are celebrating. On principle, I cannot send a Amazon gift card thi  
s Christmas. What\'s up with all the Political Correctness? Bad mark  
eting decision.\nLynn', -0.5), ('I bought 8 gift cards to give out as  
presents. I was totally surprised that they came sealed inside the Am  
azon envelopes. I cannot sign the cards without opening therefore dam  
aging the envelopes. I asked Amazon to ship me replacement envelopes  
but they are not able to do that as in the following response.\n\n"Tha  
nk you for contacting us at Amazon.com. I\'m sorry to hear that the gi  
ft card envelopes were damaged when opening it. I do understand your c  
oncern in this regard. Unfortunately, we are unable to replace the env  
elopes only as we do not have any stock of additional gift card envelo  
pes. Hope you can understand our limitations in this matter."\n\nPleas  
e do not buy these cards.', -0.875), ('Amazing site one of the best ,  
amazon never fails', -0.625), ('Bought some great books for my Kindle  
and other items.', -0.625), ("I received 3 \$10 gift cards for my birth  
day and they are horrible. You can't fully scratch off the card to se

```
In [7]: ▶ print(len(negative))
```

14400

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In [8]: ▶ # We have 132635 positive reviews and 14400 negative reviews  
# in the dataset
```