

# Webpage-extraction-and word-analysis

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## Vector Representation of the model

```
test.py
Courses > CSCI 642 Natural Language Processing > Assignment 5 > test.py > ...
1 import requests
2 from gensim import corpora, models
3 import numpy as np
4 from nltk.corpus import stopwords
5 from nltk.tokenize import word_tokenize
6
7 url = 'http://www.columbia.edu/~fdc/sample.html'
8 response = requests.get(url)
9 text = response.text
10
11 sentences = text.split('.')
12
13 stop_words = set(['a', 'an', 'the', 'is', 'are', 'was', 'were', 'in', 'on', 'at', 'to', 'of', 'and'])
14 sentences_preprocessed = []
15 for sentence in sentences:
16     words = sentence.strip().lower().split()
17     words_filtered = [word for word in words if word not in stop_words]
18     sentences_preprocessed.append(words_filtered)
19
20 dictionary = corpora.Dictionary(sentences_preprocessed)

PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE
Sentence 339: [0.002 0.015 0.022]
PS C:\Users\pawan\OneDrive - MNSCU\Courses> python -u "C:\Users\pawan\OneDrive - MNSCU\Courses\CSCI 642 Natural Language Processing\Assignment 5\test.py"
LSA Vectors of the model:
Sentence 1: [ 0.535 -0.183 0.287]
Sentence 2: [ 0.01 -0.008 0.003]
Sentence 3: [ 0.004 -0.001 0.002]
Sentence 4: [ 0.004 -0.001 0.002]
Sentence 5: [ 0.274 0.007 -0.003]
Sentence 6: [ 0.257 0.045 -0.025]
Sentence 7: [ 0.257 0.045 -0.025]
Sentence 8: [ 0.57 -0.298 0.404]
Sentence 9: [ 0.03 -0.665 -0.659]
Sentence 10: []
Sentence 11: []
Sentence 12: [ 0.218 -0.271 0.155]
Sentence 13: [ 0.002 -0.012 0.008]
Sentence 14: [ 0.015 -0.073 0.059]
Sentence 15: [ 0.291 -0.781 0.76 ]
Sentence 16: [ 0.465 -2.456 2.361]
Sentence 17: [ 0.201 -0.362 0.489]
Sentence 18: [ 0.017 -0.17 0.248]
Sentence 19: [ 0.002 -0.012 0.008]
```

## Top 3 topics

```
test.py BSp.py
Courses > CSCI 642 Natural Language Processing > Assignment 5 > test.py > ...
11 sentences = text.split('.')
12
13 stop_words = set(['a', 'an', 'the', 'is', 'are', 'was', 'were', 'in', 'on', 'at', 'to', 'of', 'and'])
14 sentences_preprocessed = []
15 for sentence in sentences:
16     words = sentence.strip().lower().split()
17     words_filtered = [word for word in words if word not in stop_words]
18     sentences_preprocessed.append(words_filtered)
19
20 dictionary = corpora.Dictionary(sentences_preprocessed)
21
22 bow_corpus = [dictionary.doc2bow(sentence) for sentence in sentences_preprocessed]
23
24 # Train the LSA model using the bag-of-words representation of the preprocessed sentences
25 lsa_model = models.LsiModel(bow_corpus, num_topics=3, id2word=dictionary)
26
27 # Get the vector representation of the preprocessed sentences based on the LSA model
28 lsa_vectors = []
29 for sentence in sentences_preprocessed:
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Code:

```
import requests
from gensim import corpora, models import
numpy as np
from nltk.corpus import stopwords
from nltk.tokenize import word_tokenize

url = 'http://www.columbia.edu/~fdc/sample.html' response =
requests.get(url)
text = response.text

sentences = text.split('.')

stop_words = set(['a', 'an', 'the', 'is', 'are', 'was', 'were', 'in', 'on', 'at', 'to', 'of', 'and'])
sentences_preprocessed = [] for
sentence in sentences:
    words = sentence.strip().lower().split()
    words_filtered = [word for word in words if word not in stop_words]
    sentences_preprocessed.append(words_filtered)

dictionary = corpora.Dictionary(sentences_preprocessed)

bow_corpus = [dictionary.doc2bow(sentence) for sentence in sentences_preprocessed]

# Train the LSA model using the bag-of-words representation of the preprocessed sentences
lsa_model = models.LsiModel(bow_corpus, num_topics=3, id2word=dictionary)

# Get the vector representation of the preprocessed sentences based on the LSA model
lsa_vectors = []
for sentence in sentences_preprocessed: lsa_vector =
    np.array([tup[1] for tup in
lsa_model[dictionary.doc2bow(sentence)]]])
    lsa_vectors.append(lsa_vector)

# Print the vector representation of the preprocessed sentences print('LSA Vectors of the
model:')
for i, vector in enumerate(lsa_vectors): print(f'Sentence {i+1}:
    {vector.round(3)}')

# Get the top 3 topics based on the LSA model lsa_topics =
lsa_model.print_topics(num_topics=3) print("\nTop 3 Topics of the
model :')
for topic in lsa_topics: print(topic)
```