```
import pandas as pd
from sklearn.feature_extraction.text import CountVectorizer,TfidfVectorizer
from sklearn.base import TransformerMixin
from sklearn.pipeline import Pipeline


from google.colab import files
uploaded = files.upload()
```

- **Text_Classifier.csv**(text/csv) - 138 bytes, last modified: 3/7/2023 - 100% done

```
Saving Text_Classifier.csv to Text_Classifier.csv
```

```
data = pd.read_csv("Text_Classifier.csv")
print(data)
```

```
   Doc              Words Author
0    1     w1 w2 w3 w4 w5       C
1    2        w1 w1 w4 w3       C
2    3           w1 w2 w5       C
3    4     w5 w6 w1 w2 w3       W
4    5           w4 w5 w6       W
5    6           w4 w6 w3       F
6    7  w2 w2 w4 w3 w5 w5       F
```

```
data.head()
```

	Doc	Words	Author
0	1	w1 w2 w3 w4 w5	C
1	2	w1 w1 w4 w3	C
2	3	w1 w2 w5	C
3	4	w5 w6 w1 w2 w3	W
4	5	w4 w5 w6	W

```
data.shape
```

```
(7, 3)
```

```
data.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 7 entries, 0 to 6
Data columns (total 3 columns):
 #   Column  Non-Null Count  Dtype 
---  ------  --------------  ----- 
 0   Doc     7 non-null      int64 
 1   Words   7 non-null      object
 2   Author  7 non-null      object
dtypes: int64(1), object(2)
memory usage: 296.0+ bytes
```

```
data.Author.value_counts()
```

```
C    3
W    2
F    2
Name: Author, dtype: int64
```

```
import spacy
import string
from spacy.lang.en.stop_words import STOP_WORDS
from spacy.lang.en import English


# Create our list of punctuation marks
punctuations = string.punctuation

# Create our list of stopwords
nlp = spacy.load('en_core_web_sm')
stop_words = spacy.lang.en.stop_words.STOP_WORDS
```

```
# Load English tokenizer, tagger, parser, NER and word vectors
parser = English()

# Creating our tokenizer function
def spacy_tokenizer(sentence):
    # Creating our token object, which is used to create documents with linguistic annotations.
    mytokens = parser(sentence)

    # Lemmatizing each token and converting each token into lowercase
    mytokens = [ word.lemma_.lower().strip() if word.lemma_ != "-PRON-" else word.lower_ for word in mytokens ]

    # Removing stop words
    mytokens = [ word for word in mytokens if word not in stop_words and word not in punctuations ]

    # return preprocessed list of tokens
    return mytokens
```

```
 /usr/local/lib/python3.8/dist-packages/torch/cuda/__init__.py:497: UserWarning: Can't initialize NVML
   warnings.warn("Can't initialize NVML")
```

```
class predictors(TransformerMixin):
    def transform(self, X, **transform_params):
        # Cleaning Text
        return [clean_text(text) for text in X]

    def fit(self, X, y=None, **fit_params):
        return self

    def get_params(self, deep=True):
        return {}

# Basic function to clean the text
def clean_text(text):
    # Removing spaces and converting text into lowercase
    return text.strip().lower()


bow_vector = CountVectorizer(tokenizer = spacy_tokenizer, ngram_range=(1,1))
print(bow_vector)
```

```
 CountVectorizer(tokenizer=<function spacy_tokenizer at 0x7f3390dae430>)
```

```
tfidf_vector = TfidfVectorizer(tokenizer = spacy_tokenizer)


from sklearn.model_selection import train_test_split

X = data['Words'] # the features we want to analyze
ylabels = data['Author'] # the labels, or answers, we want to test against
print(X)
print(ylabels)

X_train, X_test, y_train, y_test = train_test_split(X, ylabels, test_size=0.3)
```

```
 0       w1 w2 w3 w4 w5
 1          w1 w1 w4 w3
 2             w1 w2 w5
 3       w5 w6 w1 w2 w3
 4             w4 w5 w6
 5             w4 w6 w3
 6    w2 w2 w4 w3 w5 w5
 Name: Words, dtype: object
 0    C
 1    C
 2    C
 3    W
 4    W
 5    F
 6    F
 Name: Author, dtype: object
```

```
# Logistic Regression Classifier
from sklearn.linear_model import LogisticRegression
classifier = LogisticRegression()

# Create pipeline using HashingVectorizer
from sklearn.pipeline import Pipeline
```

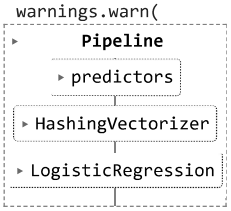
```
from sklearn.feature_extraction.text import HashingVectorizer

hash_vector = HashingVectorizer(tokenizer = spacy_tokenizer, ngram_range=(1,1))

pipe = Pipeline([("cleaner", predictors()),
                 ('vectorizer', hash_vector),
                 ('classifier', classifier)])

# model generation
pipe.fit(X_train,y_train)
```

```
/usr/local/lib/python3.8/dist-packages/sklearn/feature_extraction/text.py:528: UserWarning: The parameter 'toke
  warnings.warn(
```




```
New_Value = ["w1 w4 w6 w5 w3"]
predicted1 = pipe.predict(New_Value) #New data
print(predicted1)
```

```
['W']
```

```
#from sklearn import metrics
# Predicting with a test dataset
#predicted = pipe.predict(X_test)

# Model Accuracy
#print("Logistic Regression Accuracy:",metrics.accuracy_score(y_test, predicted))
```

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