

```
# This Python 3 environment comes with many helpful analytics libraries installed
# It is defined by the kaggle/python Docker image: https://github.com/kaggle/docker-python
# For example, here's several helpful packages to load

import numpy as np # linear algebra
import pandas as pd # data processing, CSV file I/O (e.g. pd.read_csv)
from sklearn.model_selection import train_test_split, GridSearchCV
from sklearn.naive_bayes import MultinomialNB
from sklearn.feature_extraction.text import CountVectorizer
from sklearn.svm import LinearSVC
from sklearn.feature_extraction.text import TfidfVectorizer
from sklearn.metrics import accuracy_score
from sklearn.utils import shuffle
from scipy.sparse import hstack
from sklearn.model_selection import cross_val_score, learning_curve
import matplotlib.pyplot as plt
# Input data files are available in the read-only "../input/" directory
# For example, running this (by clicking run or pressing Shift+Enter) will list all files under the input directory

import os
for dirname, _, filenames in os.walk('/kaggle/input'):
    for filename in filenames:
        print(os.path.join(dirname, filename))

# You can write up to 20GB to the current directory (/kaggle/working/) that gets preserved as output when you create a version using "Save"
# You can also write temporary files to /kaggle/temp/, but they won't be saved outside of the current session

true=pd.read_csv("True.csv")
fake=pd.read_csv("Fake.csv")
```



```
true.head(50)
true["subject"].value_counts()

politicsNews    11272
worldnews       10145
Name: subject, dtype: int64
```

```
false.head()
fake["subject"].value_counts()

News            9050
politics        6841
left-news       4459
Government News 1570
US_News         783
Middle-east     778
Name: subject, dtype: int64
```

```
true.isnull().sum()

title    0
text     0
subject  0
date     0
dtype: int64
```

```
false.isnull().sum()

title    0
text     0
subject  0
date     0
dtype: int64
```


```
true.shape
```

(21417, 4)



fake.shape

(23481, 4)

true.head()

	title	text	subject	date	
0	As U.S. budget fight looms, Republicans flip t...	WASHINGTON (Reuters) - The head of a conservat...	politicsNews	December 31, 2017	
1	U.S. military to accept transgender recruits o...	WASHINGTON (Reuters) - Transgender people will...	politicsNews	December 29, 2017	
2	Senior U.S. Republican senator: 'Let Mr. Muell...	WASHINGTON (Reuters) - The special counsel inv...	politicsNews	December 31, 2017	
3	FBI Russia probe helped by Australian diplomat...	WASHINGTON (Reuters) - Trump campaign adviser ...	politicsNews	December 30, 2017	
4	Trump wants Postal Service to charge 'much mor...	SEATTLE/WASHINGTON (Reuters) - President Donal...	politicsNews	December 29, 2017	

fake.head()



	title	text	subject	date	
0	Donald Trump Sends Out Embarrassing New Year'...	Donald Trump just couldn t wish all Americans ...	News	December 31, 2017	
1	Drunk Bragging Trump Staffer Started Russian ...	House Intelligence Committee Chairman Devin Nu...	News	December 31, 2017	
2	Sheriff David Clarke Becomes An Internet Joke...	On Friday, it was revealed that former Milwauk...	News	December 30, 2017	
3	Trump Is So Obsessed He Even Has Obama's Name...	On Christmas day, Donald Trump announced that ...	News	December 29, 2017	
4	Pope Francis Just Called Out Donald Trump Dur...	Pope Francis used his annual Christmas Day mes...	News	December 25, 2017	

true["label"]=1  
fake["label"]=0



true.head()

	title	text	subject	date	label
0	As U.S. budget fight looms, Republicans flip t...	WASHINGTON (Reuters) - The head of a conservat...	politicsNews	December 31, 2017	1
1	U.S. military to accept transgender recruits o...	WASHINGTON (Reuters) - Transgender people will...	politicsNews	December 29, 2017	1
2	Senior U.S. Republican senator: 'Let Mr. Muell...	WASHINGTON (Reuters) - The special counsel inv...	politicsNews	December 31, 2017	1
3	FBI Russia probe helped by Australian diplomat...	WASHINGTON (Reuters) - Trump campaign adviser ...	politicsNews	December 30, 2017	1
4	Trump wants Postal Service to charge 'much mor...	SEATTLE/WASHINGTON (Reuters) - President Donal...	politicsNews	December 29, 2017	1

fake.head()

	title	text	subject	date	label	
0	Donald Trump Sends Out Embarrassing New Year'...	Donald Trump just couldn t wish all Americans ...	News	December 31, 2017	0	
1	Drunk Bragging Trump Staffer Started Russian ...	House Intelligence Committee Chairman Devin Nu...	News	December 31, 2017	0	
2	Sheriff David Clarke Becomes An Internet Joke...	On Friday, it was revealed that former Milwauk...	News	December 30, 2017	0	
3	Trump Is So Obsessed He Even Has Obama's Name...	On Christmas day, Donald Trump announced that ...	News	December 29, 2017	0	
4	Pope Francis Just Called Out Donald Trump Dur...	Pope Francis used his annual Christmas Day mes...	News	December 25, 2017	0	

data=pd.concat([fake,true],ignore\_index=True)  
data.head()

	title	text	subject	date	label	
0	Donald Trump Sends Out Embarrassing New Year'...	Donald Trump just couldn t wish all Americans ...	News	December 31, 2017	0	
1	Drunk Bragging Trump Staffer Started Russian ...	House Intelligence Committee Chairman Devin Nu...	News	December 31, 2017	0	
2	Sheriff David Clarke Becomes An Internet Joke...	On Friday, it was revealed that former Milwauk...	News	December 30, 2017	0	
3	Trump Is So Obsessed He Even Has Obama's Name...	On Christmas day, Donald Trump announced that ...	News	December 29, 2017	0	
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X=data["text"]  
y=data["label"]

```

X_train,X_test,y_train,y_test=train_test_split(X,y,test_size=0.2,random_state=42)

vectorizer=CountVectorizer()
X_train_vectors=vectorizer.fit_transform(X_train)
X_test_vectors=vectorizer.transform(X_test)

vectorizer = CountVectorizer()
X_vectors = vectorizer.fit_transform(data['text'])
X_train, X_test, y_train, y_test = train_test_split(X_vectors, data['label'], test_size=0.2, random_state=42)
classifier = MultinomialNB()
classifier.fit(X_train, y_train)
y_pred = classifier.predict(X_test)
accuracy = accuracy_score(y_test, y_pred)
print("Accuracy:", accuracy)

new_texts = ["This news article is definitely fake.",
              "The research study confirms the truth of the news."]
new_texts_vectors = vectorizer.transform(new_texts)
predictions = classifier.predict(new_texts_vectors)
for text, label in zip(new_texts, predictions):
    print(f"Text: {text}\nPrediction: {'Fake' if label == 0 else 'True'}\n")

true_df = pd.read_csv('/kaggle/input/fake-and-real-news-dataset/True.csv')
fake_df = pd.read_csv('/kaggle/input/fake-and-real-news-dataset/Fake.csv')
fake_df['label'] = 0
true_df['label'] = 1
combined_df = pd.concat([fake_df, true_df], ignore_index=True)
combined_df = combined_df.sample(frac=1, random_state=42).reset_index(drop=True)
X = combined_df['title'] + " " + combined_df['text']
y = combined_df['label']
vectorizer = TfidfVectorizer()
X_vectors = vectorizer.fit_transform(X)
classifier = MultinomialNB(alpha=1.0)
classifier.fit(X_vectors, y)
def predict_label(input_title):
    input_text = "" # You can add additional user input for the text if necessary
    input_data = input_title + " " + input_text
    input_vector = vectorizer.transform([input_data])
    label = classifier.predict(input_vector)[0]
    return label
input_title ="WASHINGTON (Reuters) - The special counsel"
predicted_label = predict_label(input_title)
if predicted_label == 0:
    print("Predicted Label: Fake")
else:
    print("Predicted Label: True")

```