

FAKE NEWS DETECTION

Project code

```
import pandas as pd
```

```
import numpy as np
```

```
import os
```

```
pwd
```

```
'C:\\Users\\ASUS'
```

```
fk = pd.read_csv(r"C:\Program Files (x86)\ASUS\data.csv")
```

```
fk.head()
```

	URLs	Headline	Body	Label
0	http://www.bbc.com/news/world-us-canada-414191...	Four ways Bob Corker skewered Donald Trump	Image copyright Getty Images\nOn Sunday mornin...	1
1	https://www.reuters.com/article/us-filmfestiva...	Linklater's war veteran comedy speaks to moder...	LONDON (Reuters) - "Last Flag Flying", a comed...	1
2	https://www.nytimes.com/2017/10/09/us/politics...	Trump's Fight With Corker Jeopardizes His Legi...	The feud broke into public view last week when...	1
3	https://www.reuters.com/article/us-mexico-oil-...	Egypt's Cheiron wins tie-up with Pemex for Mex...	MEXICO CITY (Reuters) - Egypt's Cheiron Holdin...	1
4	http://www.cnn.com/videos/cnnmoney/2017/10/08/...	Jason Aldean opens 'SNL' with Vegas tribute	Country singer Jason Aldean, who was performin...	1

```
fk = fk.drop(['URLs'], axis=1)
```

```
fk = fk.dropna()
```

```
fk.head()
```

	Headline	Body	Label
0	Four ways Bob Corker skewered Donald Trump	Image copyright Getty Images\nOn Sunday mornin...	1
1	Linklater's war veteran comedy speaks to moder...	LONDON (Reuters) - "Last Flag Flying", a comed...	1
2	Trump's Fight With Corker Jeopardizes His Legi...	The feud broke into public view last week when...	1
3	Egypt's Cheiron wins tie-up with Pemex for Mex...	MEXICO CITY (Reuters) - Egypt's Cheiron Holdin...	1
4	Jason Aldean opens 'SNL' with Vegas tribute	Country singer Jason Aldean, who was performin...	1

```
fk = fk[0:3500]
```

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```
x = fk.iloc[:, :-1].values
```

```
y = fk.iloc[:, -1].values
```

```
a = [[0]*2]*2
```

```
print (a)
```

```
[[0, 0], [0, 0]]
```

```
x[0]
```

```
array(['Four ways Bob Corker skewered Donald Trump',  
      'Image copyright Getty Images\nOn Sunday morning, Donald Trump went off on a Twitter  
tirade against a member of his own party.\nThis, in itself, isn\'t exactly huge news. It  
\'s far from the first time the president has turned his rhetorical cannons on his own ran  
ks.\nThis time, however, his attacks were particularly biting and personal. He essentially  
called Tennessee Senator Bob Corker, the chair of the powerful Senate Foreign Relations Co  
mmittee, a coward for not running for re-election.\nHe said Mr Corker "begged" for the pre  
sident\'s endorsement, which he refused to give. He wrongly claimed that Mr Corker\'s supp  
ort of the Iranian nuclear agreement was his only political accomplishment.\nUnlike some o  
f his colleagues, Mr Corker - free from having to worry about his immediate political futu  
re - didn\'t hold his tongue.\nSkip Twitter post by @SenBobCorker It\'s a shame the White  
House has become an adult day care center. Someone obviously missed their shift this morni  
ng. - Senator Bob Corker (@SenBobCorker) October 8, 2017 Report\nThat wasn\'t the end of i  
t, though. He then spoke with the New York Times and really let the president have it. Her  
e are four choice quotes from the Tennessee senator\'s interview with the Times and why th  
ey are particularly damning.\n"I don\'t know why the president tweets out things that are  
not true. You know he does it, everyone knows he does it, but he does."\nYou can\'t really  
sugarcoat this one. Mr Corker is flat-out saying the president is a liar - and everyone kn  
ows it.\nThe senator, in particular, is challenging Mr Trump\'s insistence that he unsucce  
ssfully pleaded for his endorsement, but the accusation is much broader.\nMr Corker and th  
e president used to be something akin to allies. The Tennessean was on Mr Trump\'s short l  
ist for vice-president and secretary of state.\nImage copyright Getty Images Image caption  
Bob Corker at Trump campaign rally in July 2016\nThose days are seemingly very much over n  
ow - and it\'s not like Mr Corker is going anywhere anytime soon. Although he\'s not runni  
ng for re-election, he\'ll be in the Senate, chairing a powerful committee, until January  
2019.\nThe president\'s margin for success in that chamber is razor-thin. If Democrats can  
continue to stand together in opposition, he can afford to lose only two votes out of 52 R  
epublican senators."\nTime and again, Mr Trump has appeared to undercut Secretary of State  
Rex Tillerson and others in his administration who are attempting to use soft diplomacy to  
deal with a range of international crises.\nThe war against the Taliban in Afghanistan, Ir  
an\'s compliance with the multinational nuclear agreement, the ongoing dispute between Qat  
ar and its Persian Gulf neighbours, the unrest in Venezuela and, most recently, North Kore  
a\'s continued ballistic missile tests have all been the target of the president\'s offhan  
d remarks and Twitter invective.\nSome administration defenders have said this is all a pa  
rt of Mr Trump\'s strategy - an updated version of the Nixon-era "madman theory", in which  
the president forces adversaries to give way because they fear an unpredictable US leader\  
\'s actions.\nMr Corker isn\'t buying it. There\'s no strategy, he says, just the possibili  
ty of chaos - which he hopes Mr Trump\'s senior advisers will be able to avoid.\nI know f  
or a fact that every single day at the White House.The White House communications team is  
often left scrambling to try to explain or reframe an indelicate presidential "joke" or re  
mark that directly contradicts what was until then the official administration line.\nEven  
though Mr Kelly has brought some discipline to the West Wing staff, the president still ma  
rches to the beat of his own drum - and continues to have unfettered access to his phone\'  
s Twitter app.\nBob Corker is only the latest person - politician, journalist, sports star  
or celebrity - to feel the mercurial president\'s uncontainable ire.'],  
      dtype=object)
```

```
y[0]
```

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x[1]

```
array(["Linklater's war veteran comedy speaks to modern America, says star",
      'LONDON (Reuters) - "Last Flag Flying", a comedy-drama about Vietnam war veterans, wil
l resonate with Trump's America, despite, or perhaps because of, its period setting, actor Br
yan Cranston said on Sunday after a screening at the London Film Festival.\nSet in the United
States in December 2003 - when U.S. forces in Iraq were dragging Saddam Hussein out of a "spi
der hole" - it is the story of three ageing former servicemen who reunite to bury the son of
one of them who has been killed in action.\nWith President Donald Trump saying he could "tota
lly destroy" North Korea and characterizing a dinner with military commanders as "the calm be
fore the storm", Cranston said "Last Flag Flying" was a timely reminder of the effect on norm
al Americans of ill-advised military campaigns.\n"I think it has a lot of relevance today in
the sense that (today) it's not clear cut as far as the (what are the) intentions of the gove
rnment or military," Cranston, acclaimed for his lead role in the TV drama "Breaking Bad", to
ld Reuters.\n"In World War Two, it was the 'good war', it was clear and present danger, we ha
d to stop this mad man. Since then, with Vietnam and Iraq, (there are) a lot of questions ...
among the troops and the citizens as to if we are doing the right thing and what is the purpo
se of our being there."
\nCast member Bryan Cranston (R) and director Richard Linklater pose w
ith festival director Claire Stewart as they arrive for the premiere of "Last Flag Flying" du
ring the British Film Institute (BFI) London Film Festival at the Odeon, Leicester Square, in
London, Britain October 8, 2017. REUTERS/Afolabi Sotunde\n"Last Flag Flying" was produced by
Amazon Studios and directed and co-written by Richard Linklater, whose greatest critical accl
aim has been for the naturalistic "Before Sunset" trilogy and the 2014 "Boyhood" which won a
slew of Oscar nominations.\nLinklater also made comedies including "School of Rock" and "Ever
ybody Wants Some!!", about skirt-chasing undergraduates. "Last Flag Flying" falls somewhere b
etween the two genres.\nCast member Bryan Cranston (R) poses with director Richard Linklater
as they arrive for the premiere of "Last Flag Flying" during the British Film Institute (BFI)
London Film Festival at the Odeon, Leicester Square, in London, Britain October 8, 2017. REUT
ERS/Afolabi Sotunde\nThe drama and comedy stem from the chemistry between the three leads, ea
ch played by a big Hollywood name.\nSteve Carell is the awkward shy one who, we assume, was q
uiet and withdrawn even before the loss of his son. Cranston plays a foul-mouthed, hard-drink
ing bar owner who is his own best customer, and Laurence Fishburne, is a man who has found Go
d and become an evangelical preacher, preferring to forget the sex and drugs they all indulge
d in back in 'Nam.\nVanity Fair's Richard Lawson said the film's ability to honor the footsol
diers while being critical of the wars they are sent to fight, could hit "an Academy sweet sp
ot, satisfying both the more conservative oldsters and the younger, leftier types."
\nOther cr
itics said "Last Flag Flying" lacked the light touch of Linklater's best work. The Guardian's
Benjamin Lee called it "a half-baked TV movie masquerading as Oscarbait, a curious misstep fo
r the Oscar-nominated indie auteur".\nWriting by Robin Pomeroy, editing by David Evans'],
      dtype=object)
```

y[1]

1

```
from sklearn.feature_extraction.text import CountVectorizer
```

```
cv = CountVectorizer(max_features=5000)
```

```
mat_body = cv.fit_transform(x[:,1]).todense()
```

```
mat_body
```

```
matrix([[0, 0, 0, ..., 0, 0, 0],
        [0, 0, 0, ..., 0, 0, 0],
        [0, 0, 0, ..., 0, 0, 0],
        ...,
        [0, 0, 0, ..., 0, 0, 2],
        [0, 0, 0, ..., 0, 0, 1],
        [0, 0, 0, ..., 0, 0, 0]], dtype=int64)
```

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```
cv_head = CountVectorizer(max_features=5000)
```

```
mat_head = cv_head.fit_transform(x[:,0]).todense()
```

```
mat_head
```

```
matrix([[0, 0, 0, ..., 0, 0, 0],
        [0, 0, 0, ..., 0, 0, 0],
        [0, 0, 0, ..., 0, 0, 0],
        ...,
        [0, 0, 0, ..., 0, 0, 0],
        [0, 0, 0, ..., 0, 0, 0],
        [0, 0, 0, ..., 0, 0, 0]], dtype=int64)
```

```
x_mat = np.hstack(( mat_head, mat_body))
```

```
from sklearn.model_selection import train_test_split
```

```
x_train, x_test, y_train, y_test = train_test_split(x_mat,y, test_size = 0.2, random_state = 0)
```

```
from sklearn.tree import DecisionTreeClassifier
```

```
dt = DecisionTreeClassifier(criterion='entropy')
```

```
dt.fit(x_train, y_train)
```

```
y_pred = dt.predict(x_test)
```

```
from sklearn.metrics import confusion_matrix
```

```
a = confusion_matrix(y_test, y_pred)
```

```
print(a)
```

```
[[338  18]
```

```
 [ 17 327]]
```

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```
acc_1= (a[0][0]+a[1][1])/(a[0][0]+a[0][1]+a[1][0]+a[1][1])
```

```
print(acc_1*100)
```

```
95.0
```

```
from sklearn.naive_bayes import GaussianNB
```

```
model = GaussianNB()
```

```
model.fit(x_train, y_train);
```

```
nvb_pred = model.predict(x_test)
```

```
print(nvb_pred)
```

```
[ 0 0 1 1 0 0 0 1 0 0 0 1 0 0 1 1 1 1 0 0 0 0 0 0 1 1 1 0 1 0 1 1 1 0 0 0 1
 0 1 1 0 1 0 0 1 0 0 0 0 1 0 0 0 1 1 1 0 1 1 0 1 1 0 1 0 0 1 0 1 0 0 0 0 0
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 0 0 0 1 0 0 1 0 1 0 0 0 0 0 0 1 1 0 1 1 1 1 0 1 1 0 0 1 0 1 0 1 0 1 ]
```

```
b = confusion_matrix(y_test, nvb_pred)
```

```
print(b)
```

```
[[336  20]
```

```
 [ 39 305]]
```

```
acc_2 = (b[0][0]+b[1][1])/(b[0][0]+b[0][1]+b[1][0]+b[1][1])
```

```
print(acc_2*100)
```

```
91.57142857142857
```