

```
In [112]: # Importing Libraries
```

```
In [113]: import pandas as pd
import numpy as np
import seaborn as sns
import matplotlib.pyplot as plt
from sklearn.model_selection import train_test_split
from sklearn.metrics import accuracy_score
from sklearn.metrics import classification_report
import re
import string
```

```
In [114]: import random
```

```
In [115]: #Importing Dataset
```

```
In [116]: df_fake = pd.read_csv("Fake.csv")
df_true = pd.read_csv("True.csv")
```

```
In [117]: df_fake.head(5)
```

```
Out[117]:
```

		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	

```
In [118]: #Inserting a column "class" as target feature
```

```
In [119]: df_fake["class"] = 0
df_true["class"] = 1
```

```
In [120]: df_fake.shape, df_true.shape
```

```
Out[120]: ((23481, 5), (21417, 5))
```

```
In [121]: # Removing last 10 rows for manual testing
```

```
In [122]: df_fake_manual_testing = df_fake.tail(10)
          for i in range(23480,23470,-1):
              df_fake.drop([i], axis = 0, inplace = True)

          df_true_manual_testing = df_true.tail(10)
          for i in range(21416,21406,-1):
              df_true.drop([i], axis = 0, inplace = True)
```

```
In [123]: df_fake.shape, df_true.shape
```

```
Out[123]: ((23471, 5), (21407, 5))
```

```
In [124]: df_fake_manual_testing["class"] = 0
          df_true_manual_testing["class"] = 1
```

/var/folders/28/xzg4vjpj3gj6x32fqvxyzd440000gn/T/ipykernel_3182/860779283.py:1: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame.
Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy (https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy)

```
df_fake_manual_testing["class"] = 0
```

/var/folders/28/xzg4vjpj3gj6x32fqvxyzd440000gn/T/ipykernel_3182/860779283.py:2: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame.
Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy (https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy)

```
df_true_manual_testing["class"] = 1
```

In [125]: `df_fake_manual_testing.head(10)`

Out[125]:

	title	text	subject	date	class
23471	Seven Iranians freed in the prisoner swap have...	21st Century Wire says This week, the historic...	Middle-east	January 20, 2016	0
23472	#Hashtag Hell & The Fake Left	By Dady Chery and Gilbert MercierAll writers ...	Middle-east	January 19, 2016	0
23473	Astroturfing: Journalist Reveals Brainwashing ...	Vic Bishop Waking TimesOur reality is carefull...	Middle-east	January 19, 2016	0
23474	The New American Century: An Era of Fraud	Paul Craig RobertsIn the last years of the 20t...	Middle-east	January 19, 2016	0
23475	Hillary Clinton: 'Israel First' (and no peace ...	Robert Fantina CounterpunchAlthough the United...	Middle-east	January 18, 2016	0
23476	McPain: John McCain Furious That Iran Treated ...	21st Century Wire says As 21WIRE reported earl...	Middle-east	January 16, 2016	0
23477	JUSTICE? Yahoo Settles E-mail Privacy Class-ac...	21st Century Wire says It s a familiar theme. ...	Middle-east	January 16, 2016	0
23478	Sunnistan: US and Allied 'Safe Zone' Plan to T...	Patrick Henningsen 21st Century WireRemember ...	Middle-east	January 15, 2016	0
23479	How to Blow \$700 Million: Al Jazeera America F...	21st Century Wire says Al Jazeera America will...	Middle-east	January 14, 2016	0
23480	10 U.S. Navy Sailors Held by Iranian Military ...	21st Century Wire says As 21WIRE predicted in ...	Middle-east	January 12, 2016	0

In [126]: `df_true_manual_testing.head(10)`

Out[126]:

	title	text	subject	date	class
21407	Mata Pires, owner of embattled Brazil builder ...	SAO PAULO (Reuters) - Cesar Mata Pires, the ow...	worldnews	August 22, 2017	1
21408	U.S., North Korea clash at U.N. forum over nuc...	GENEVA (Reuters) - North Korea and the United ...	worldnews	August 22, 2017	1
21409	U.S., North Korea clash at U.N. arms forum on ...	GENEVA (Reuters) - North Korea and the United ...	worldnews	August 22, 2017	1
21410	Headless torso could belong to submarine journ...	COPENHAGEN (Reuters) - Danish police said on T...	worldnews	August 22, 2017	1
21411	North Korea shipments to Syria chemical arms a...	UNITED NATIONS (Reuters) - Two North Korean sh...	worldnews	August 21, 2017	1
21412	'Fully committed' NATO backs new U.S. approach...	BRUSSELS (Reuters) - NATO allies on Tuesday we...	worldnews	August 22, 2017	1
21413	LexisNexis withdrew two products from Chinese ...	LONDON (Reuters) - LexisNexis, a provider of l...	worldnews	August 22, 2017	1
21414	Minsk cultural hub becomes haven from authorities	MINSK (Reuters) - In the shadow of disused Sov...	worldnews	August 22, 2017	1
21415	Vatican upbeat on possibility of Pope Francis ...	MOSCOW (Reuters) - Vatican Secretary of State ...	worldnews	August 22, 2017	1
21416	Indonesia to buy \$1.14 billion worth of Russia...	JAKARTA (Reuters) - Indonesia will buy 11 Sukh...	worldnews	August 22, 2017	1

In [127]: `df_manual_testing = pd.concat([df_fake_manual_testing, df_true_manua
df_manual_testing.to_csv("manual_testing.csv")`

```
In [128]: df_merge = pd.concat([df_fake, df_true], axis = 0 )
df_merge.head(10)
```

```
Out[128]:
```

	title	text	subject	date	class
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
5	Racist Alabama Cops Brutalize Black Boy While...	The number of cases of cops brutalizing and ki...	News	December 25, 2017	0
6	Fresh Off The Golf Course, Trump Lashes Out A...	Donald Trump spent a good portion of his day a...	News	December 23, 2017	0
7	Trump Said Some INSANELY Racist Stuff Inside ...	In the wake of yet another court decision that...	News	December 23, 2017	0
8	Former CIA Director Slams Trump Over UN Bully...	Many people have raised the alarm regarding th...	News	December 22, 2017	0
9	WATCH: Brand-New Pro-Trump Ad Features So Muc...	Just when you might have thought we'd get a br...	News	December 21, 2017	0

```
In [129]: df_merge.shape
```

```
Out[129]: (44878, 5)
```

```
In [130]: df_merge.columns
```

```
Out[130]: Index(['title', 'text', 'subject', 'date', 'class'], dtype='object')
```

```
In [131]: #Removing columns which are not required
```

```
In [132]: df = df_merge.drop(["title", "subject", "date"], axis = 1)
```

```
In [133]: df.isnull().sum()
```

```
Out[133]: text      0
class      0
dtype: int64
```

```
In [134]: #Random Shuffling the dataframe
```

```
In [135]: df = df.sample(frac = 1)
```

```
In [136]: df.head(5)
```

```
Out[136]:
```

	text	class
5377	North Carolina s anti-transgender law, HB2, ha...	0
2100	The following statements were posted to the ve...	1
16410	Iran may have received an additional \$33.6 bil...	0
4624	An Arizona pastor used his position to get clo...	0
7928	WASHINGTON (Reuters) - U.S. regulations, propo...	1

```
In [137]: df.reset_index(inplace = True)
df.drop(["index"], axis = 1, inplace = True)
```

```
In [138]: df.columns
```

```
Out[138]: Index(['text', 'class'], dtype='object')
```

```
In [139]: df.head()
```

```
Out[139]:
```

	text	class
0	North Carolina s anti-transgender law, HB2, ha...	0
1	The following statements were posted to the ve...	1
2	Iran may have received an additional \$33.6 bil...	0
3	An Arizona pastor used his position to get clo...	0
4	WASHINGTON (Reuters) - U.S. regulations, propo...	1

```
In [140]: #Creating a function to process the texts
```

```
In [141]: def wordopt(text):
    text = text.lower()
    text = re.sub('[. * ? \ ]', '', text)
    text = re.sub("\W", " ", text)
    text = re.sub('https?://\S+|www\.\S+', '', text)
    text = re.sub('<.*?>+', '', text)
    text = re.sub('[%s]' % re.escape(string.punctuation), '', text)
    text = re.sub('\n', '', text)
    text = re.sub('\w*\d\w*', '', text)
    return text
```

In [142]:

```
df["text"] = df["text"].apply(wordopt)
```

In [143]:

```
#Defining dependent and independent variables
```

In [144]:

```
x = df["text"]  
y = df["class"]
```

In [145]:

```
#Splitting Training and Testing
```

In [146]:

```
x_train, x_test, y_train, y_test = train_test_split(x, y, test_size
```

In [147]:

```
#Convert text to vectors
```

In [148]:

```
from sklearn.feature_extraction.text import TfidfVectorizer  
  
vectorization = TfidfVectorizer()  
xv_train = vectorization.fit_transform(x_train)  
xv_test = vectorization.transform(x_test)
```

In [149]:

```
#Logistic Regression
```

In [150]:

```
from sklearn.linear_model import LogisticRegression  
  
LR = LogisticRegression()  
LR.fit(xv_train,y_train)
```

Out[150]: LogisticRegression()

In [151]:

```
pred_lr=LR.predict(xv_test)
```

In [152]:

```
LR.score(xv_test, y_test)
```

Out[152]: 0.9879679144385026

In [153]: `print(classification_report(y_test, pred_lr))`

	precision	recall	f1-score	support
0	0.99	0.99	0.99	5879
1	0.99	0.99	0.99	5341
accuracy			0.99	11220
macro avg	0.99	0.99	0.99	11220
weighted avg	0.99	0.99	0.99	11220

In [154]: `#Decision Tree Classification`

In [155]: `from sklearn.tree import DecisionTreeClassifier`

```
DT = DecisionTreeClassifier()
DT.fit(xv_train, y_train)
```

Out[155]: `DecisionTreeClassifier()`

In [156]: `pred_dt = DT.predict(xv_test)`

In [157]: `DT.score(xv_test, y_test)`

Out[157]: `0.9968805704099821`

In [158]: `print(classification_report(y_test, pred_dt))`

	precision	recall	f1-score	support
0	1.00	1.00	1.00	5879
1	1.00	1.00	1.00	5341
accuracy			1.00	11220
macro avg	1.00	1.00	1.00	11220
weighted avg	1.00	1.00	1.00	11220

In [159]: `#Gradient Boosting Classifier`

In [160]: `from sklearn.ensemble import GradientBoostingClassifier`

```
GBC = GradientBoostingClassifier(random_state=0)
GBC.fit(xv_train, y_train)
```

Out[160]: `GradientBoostingClassifier(random_state=0)`

In [161]: `pred_gbc = GBC.predict(xv_test)`


```
In [162]: GBC.score(xv_test, y_test)
```

```
Out[162]: 0.9958110516934047
```

```
In [163]: print(classification_report(y_test, pred_gbc))
```

	precision	recall	f1-score	support
0	1.00	0.99	1.00	5879
1	0.99	1.00	1.00	5341
accuracy			1.00	11220
macro avg	1.00	1.00	1.00	11220
weighted avg	1.00	1.00	1.00	11220

```
In [164]: #Random Forest Classifier
```

```
In [165]: from sklearn.ensemble import RandomForestClassifier
```

```
RFC = RandomForestClassifier(random_state=0)
RFC.fit(xv_train, y_train)
```

```
Out[165]: RandomForestClassifier(random_state=0)
```

```
In [166]: pred_rfc = RFC.predict(xv_test)
```

```
In [167]: RFC.score(xv_test, y_test)
```

```
Out[167]: 0.9903743315508021
```

```
In [168]: print(classification_report(y_test, pred_rfc))
```

	precision	recall	f1-score	support
0	0.99	0.99	0.99	5879
1	0.99	0.99	0.99	5341
accuracy			0.99	11220
macro avg	0.99	0.99	0.99	11220
weighted avg	0.99	0.99	0.99	11220

```
In [169]: #Model Testing
```

```
In [181]: def output_lable(n):  
    if n == 0:  
        return "Fake News"  
    elif n == 1:  
        return "Not A Fake News"  
  
def manual_testing(news):  
    testing_news = {"text": [news]}  
    new_def_test = pd.DataFrame(testing_news)  
    new_def_test["text"] = new_def_test["text"].apply(wordopt)  
    new_x_test = new_def_test["text"]  
    new_xv_test = vectorization.transform(new_x_test)  
    pred_LR = LR.predict(new_xv_test)  
    pred_DT = DT.predict(new_xv_test)  
    pred_GBC = GBC.predict(new_xv_test)  
    pred_RFC = RFC.predict(new_xv_test)  
    return print("\n\nLR Prediction: {} \nDT Prediction: {} \nGBC Pre
```

```
In [188]: news = str(input())  
manual_testing(news)
```

BRUSSELS (Reuters) – NATO allies on Tuesday welcomed President Donald Trump's decision to commit more forces to Afghanistan, as part of a new U.S. strategy he said would require more troops and funding from America's partners. Having run for the White House last year on a pledge to withdraw swiftly from Afghanistan, Trump reversed course on Monday and promised a stepped-up military campaign against Taliban insurgents, saying: Our troops will fight to win. U.S. officials said he had signed off on plans to send about 4,000 more U.S. troops to add to the roughly 8,400 now deployed in Afghanistan. But his speech did not define benchmarks for successfully ending the war that began with the U.S.-led invasion of Afghanistan in 2001, and which he acknowledged had required an extraordinary sacrifice of blood and treasure. We will ask our NATO allies and global partners to support our new strategy, with additional troops and funding increases in line with our own. We are confident they will, Trump said. That comment signaled he would further increase pressure on U.S. partners who have already been jolted by his repeated demands to step up their contributions to NATO and his description of the alliance as obsolete – even though, since taking office, he has said this is no longer the case. NATO Secretary General Jens Stoltenberg said in a statement: NATO remains fully committed to Afghanistan and I am looking forward to discussing the way ahead with (Defense) Secretary (James) Mattis and our Allies and international partners. NATO has 12,000 troops in Afghanistan, and 15 countries have pledged more, Stoltenberg said. Britain, a leading NATO member, called the U.S. commitment very welcome. In my call with Secretary Mattis yesterday we agreed that despite the challenges, we have to stay the course in Afghanistan to help build up its fragile democracy and reduce the terrorist threat to the West, Defence Secretary Michael Fallon said. Germany, which has borne the brunt of Trump's criticism over the scale of its defence spending, also welcomed the new U.S. plan. Our continued commitment is necessary on the path to stabilizing the country, a government spokeswoman said. In June, European allies had already pledged more troops but had not given details on numbers, waiting for the Trump administration to outline its strategy for the region. Nearly 16 years after the U.S.-led invasion – a response to the Sept. 11 attacks which were planned by al Qaeda leader Osama bin Laden from Afghanistan – the country is still struggling with weak central government and a Taliban insurgency. Trump said he shared the frustration of the American people who were weary of war without victory, but a hasty withdrawal would create a vacuum for groups like Islamic State and al Qaeda to fill.

LR Prediction: Not A Fake News
DT Prediction: Not A Fake News
GBC Prediction: Not A Fake News
RFC Prediction: Not A Fake News

```
In [185]: news = str(input())  
manual_testing(news)
```

Astroturf is when political, corporate or other special interests disguise themselves and publish blogs, start facebook and twitter accounts, publish ads, letters to the editor, or simply post comments online, to try to fool you into thinking an independent or grassroots movement is speaking. ~ Sharyl Attkisson, Investigative Reporter

How do you separate fact from fiction? Sharyl Attkisson finishes her talk with some insights on how to identify signs of propaganda and astroturfing. These methods are used to give people the impression that there is widespread support for an agenda, when, in reality, one may not exist. Astroturf tactics are also used to discredit or criticize those that disagree with certain agendas, using stereotypical names such as conspiracy theorist or quack. When in fact when someone dares to reveal the truth or questions the official story, it should spark a deeper curiosity and encourage further scrutiny of the information.

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LR Prediction: Fake News
DT Prediction: Fake News
GBC Prediction: Fake News
RFC Prediction: Fake News

```
In [187]: news = str(input())  
manual_testing(news)
```

Brazilians joked that OAS stood for Obras Arranjadas pelo Sogro – or Work Arranged by the Father-In-Law. After years of steady growth triggered by a flurry of massive government contracts, OAS was ensnared in Operation Car Wash which unearthed an illegal contracting ring between state firms and builders. The ensuing scandal helped topple former Brazilian President Dilma Rousseff last year. Trained as an engineer, Mata Pires founded OAS with two colleagues in 1976 to do sub-contracting work for larger rival Odebrecht SA – the biggest of the builders involved in the probe. Before the scandal, Forbes magazine estimated Mata Pires' fortune at \$1.6 billion. He dropped off the magazine's billionaire list in 2015, months after OAS sought bankruptcy protection after the Car Wash scandal. While Mata Pires was never accused of wrongdoing in the investigations, creditors demanded he and his family stay away from the builder's day-to-day operations, people directly involved in the negotiations told Reuters at the time. He is survived by his wife and his two sons

LR Prediction: Not A Fake News
DT Prediction: Not A Fake News
GBC Prediction: Not A Fake News
RFC Prediction: Not A Fake News

```
In [ ]: #Hence testing went accurately.Our model is ready to predict Fake n
```

```
In [ ]:
```

```
In [ ]:
```