In [87]:

```
# Importing the libraries
import numpy as np
import pandas as pd
import sklearn
from sklearn.model_selection import train_test_split
from sklearn.feature_extraction.text import TfidfVectorizer
from sklearn.linear_model import PassiveAggressiveClassifier
from sklearn.metrics import accuracy_score, confusion_matrix
```

In [88]:

```
# Datasets
news = pd.read_csv("news.csv")
```

In [89]:

```
# Shape and Head
news.shape
news.head()
```

Out[89]:

	Unnamed: 0	title	text	label
0	8476	You Can Smell Hillary's Fear	Daniel Greenfield, a Shillman Journalism Fello...	FAKE
1	10294	Watch The Exact Moment Paul Ryan Committed Pol...	Google Pinterest Digg Linkedin Reddit Stumbleu...	FAKE
2	3608	Kerry to go to Paris in gesture of sympathy	U.S. Secretary of State John F. Kerry said Mon...	REAL
3	10142	Bernie supporters on Twitter erupt in anger ag...	— Kaydee King (@KaydeeKing) November 9, 2016 T...	FAKE
4	875	The Battle of New York: Why This Primary Matters	It's primary day in New York and front-runners...	REAL

In [90]:

```
# Labels
labels = news.label
label.head()
```

Out[90]:

```
0    FAKE
1    FAKE
2    REAL
3    FAKE
4    REAL
Name: label, dtype: object
```

In [91]:

```
# Split of dataset's training and testing set
x_train, X_test, Y_train, Y_test = train_test_split(news['text'], labels, test_size = 0.2, random_s
tate = 7)
```

In [95]:

```
# Inititalize a tfidfvectorizer
tfidf_vectorizer=TfidfVectorizer(stop_words='english', max_df=0.7)

# Fit and transform training_set, transform test_set
tfidf_train = tfidf_vectorizer.fit_transform(X_train)
tfidf_test = tfidf_vectorizer.transform(X_test)
```

In [108]:

```
# Initialize a PassiveAgreesiveClassifer
pac = PassiveAggressiveClassifier(max_iter=50)
pac.fit(tfidf_train,Y_train)

# Predict on the test and calculate accuracy
y_pred = pac.predict(tfidf_test)
score = accuracy_score(Y_test,y_pred)
print(f'Accuracy: {round(score*100,2)}%')
```

```
Accuracy: 92.9%
```

In [112]:

```
# Dataflair confusion matrix
confusion_matrix(Y_test,y_pred, labels=['FAKE','REAL'])
```

Out[112]:

```
array([[588,  50],
       [ 40, 589]], dtype=int64)
```