

Financial Market News - Sentiment Analysis

This is a data (dummy) of Financial Market Top 25 News for the Day and Task is to Train and Predict Model for Overall Sentiment Analysis

Import Library


```
import pandas as pd

import numpy as np
```

Import Dataset


```
df = pd.read_csv('https://raw.githubusercontent.com/YBI-Foundation/Dataset/main/Financial%20Market%20News.csv', encoding = "ISO-8859-1")
```

```
df.head()
```




	Date	Label	News 1	News 2	News 3	News 4	News 5	News 6	News 7	News 8	...	News 16	News 17
0	01-01-2010	0	McIlroy's men catch cold from Gudjonsson	Obituary: Brian Walsh	Workplace blues leave employers in the red	Classical review: Rattle	Dance review: Merce Cunningham	Genetic tests to be used in setting premiums	Opera review: La Bohème	Pop review: Britney Spears	...	Finland 0 - 0 England	Healy a marked man
1	02-01-2010	0	Warning from history points to crash	Investors flee to dollar haven	Banks and tobacco in favour	Review: Llama Farmers	War jitters lead to sell-off	Your not-so-secret history	Review: The Northern Sinfonia	Review: Hysteria	...	Why Wenger will stick to his Gunners	Out of luck England hit rock bottom
2	03-01-2010	0	Comment: Why Israel's peaceniks feel betrayed	Court deals blow to seizure of drug assets	An ideal target for spooks	World steps between two sides intent on war	What the region's papers say	Comment: Fear and rage in Palestine	Poverty and resentment fuels Palestinian fury	Republican feud fear as dissident is killed	...	FTSE goes upwardly mobile	At this price? BP Amoco
3	04-01-2010	1	£750,000-a-goal Weah aims parting shot	Newcastle pay for Fletcher years	Brown sent to the stands for Scotland qualifier	Tourists wary of breaking new ground	Canary Wharf climbs into the FTSE 100	Review: Bill Bailey	Review: Classical	Review: New Contemporaries 2000	...	More cash on way for counties	Cairns carries Kiwis to victory
4	05-01-2010	1	Leeds arrive in Turkey to the silence of the fans	One woman's vision offers loan lifeline	Working Lives: How world leaders worked	Working Lives: Tricks of the trade	Working Lives: six-hour days, long lunches and...	Pop review: We Love UK	World music review: Marisa Monte	Art review: Hollingsworth/Heyer	...	Duisenberg in double trouble	Pru to cut pension charges

5 rows × 27 columns



```
df.info()
```



```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 4101 entries, 0 to 4100
Data columns (total 27 columns):
#   Column      Non-Null Count  Dtype
---  -
0   Date        4101 non-null  object
1   Label       4101 non-null  int64
2   News 1     4101 non-null  object
3   News 2     4101 non-null  object
4   News 3     4101 non-null  object
5   News 4     4101 non-null  object
6   News 5     4101 non-null  object
7   News 6     4101 non-null  object
```

```

8 News 7 4101 non-null object
9 News 8 4101 non-null object
10 News 9 4101 non-null object
11 News 10 4101 non-null object
12 News 11 4101 non-null object
13 News 12 4101 non-null object
14 News 13 4101 non-null object
15 News 14 4101 non-null object
16 News 15 4101 non-null object
17 News 16 4101 non-null object
18 News 17 4101 non-null object
19 News 18 4101 non-null object
20 News 19 4101 non-null object
21 News 20 4101 non-null object
22 News 21 4101 non-null object
23 News 22 4101 non-null object
24 News 23 4100 non-null object
25 News 24 4098 non-null object
26 News 25 4098 non-null object
dtypes: int64(1), object(26)
memory usage: 865.2+ KB

```

```
df.shape
```

```
(4101, 27)
```

```
df.columns
```

```

Index(['Date', 'Label', 'News 1', 'News 2', 'News 3', 'News 4', 'News 5',
      'News 6', 'News 7', 'News 8', 'News 9', 'News 10', 'News 11', 'News 12',
      'News 13', 'News 14', 'News 15', 'News 16', 'News 17', 'News 18',
      'News 19', 'News 20', 'News 21', 'News 22', 'News 23', 'News 24',
      'News 25'],
      dtype='object')

```

Get Feature Selection

```
' '.join(str(x) for x in df.iloc[1,2:27])
```

```

Warning from history points to crash Investors flee to dollar haven Banks and tobacco in favour Review: Llama Farmers War jitters
lead to sell-off Your not-so-secret history Review: The Northern Sinfonia Review: Hysteria Review: The Guardsman Opera: The Marriag
e of Figaro Review: The Turk in Italy Deutsche spells out its plans for diversification Traders' panic sends oil prices skyward TV
sport chief leaves home over romance Leader: Hi-tech twitch Why Wenger will stick to his Gunners Out of luck England hit rock botto
m Wilkinson out of his depth Kinsella sparks Irish power play Brown banished as Scots rebound Battling Wales cling to lifeline Ehio
au close to sealing Boro move Man-to-man marking Match state French referee at centre of storm is no stranger to controversy'

```

```
df.index
```

```
RangeIndex(start=0, stop=4101, step=1)
```

```
len(df.index)
```

```
4101
```

```

news = []
for row in range(0,len(df.index)):
    news.append(' '.join(str(x) for x in df.iloc[1,2:27]))

```

```
type(news)
```

```
list
```

```
news[0]
```

```

Warning from history points to crash Investors flee to dollar haven Banks and tobacco in favour Review: Llama Farmers War jitters
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```

```
X = news
```

```
type(X)
```

```
list
```

✓ Get Feature Text Conversion to Bag of Words

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

```
cv = CountVectorizer(lowercase = True, ngram_range=(1,1))
```

```
X = cv.fit_transform(X)
```

```
X.shape
```

```
→ (4101, 107)
```

```
y = df['Label']
```

```
y.shape
```

```
→ (4101,)
```

✓ Get Train Test Split

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

```
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size = 0.3, stratify = y, random_state = 2529)
```

```
from sklearn.ensemble import RandomForestClassifier
```

```
rf = RandomForestClassifier(n_estimators=200)
```

```
rf.fit(X_train, y_train)
```

```
→ 

RandomForestClassifier  
RandomForestClassifier(n_estimators=200)


```

```
y_pred = rf.predict(X_test)
```

```
from sklearn.metrics import classification_report, confusion_matrix, accuracy_score
```

```
confusion_matrix(y_test, y_pred)
```

```
→ array([[ 0, 581],  
         [ 0, 650]])
```

```
print(classification_report(y_test, y_pred))
```

```
→
```

	precision	recall	f1-score	support
0	0.00	0.00	0.00	581
1	0.53	1.00	0.69	650
accuracy			0.53	1231
macro avg	0.26	0.50	0.35	1231
weighted avg	0.28	0.53	0.36	1231

```
/usr/local/lib/python3.10/dist-packages/sklearn/metrics/_classification.py:1344: UndefinedMetricWarning: Precision and F-score are i
_warn_prf(average, modifier, msg_start, len(result))
/usr/local/lib/python3.10/dist-packages/sklearn/metrics/_classification.py:1344: UndefinedMetricWarning: Precision and F-score are i
_warn_prf(average, modifier, msg_start, len(result))
/usr/local/lib/python3.10/dist-packages/sklearn/metrics/_classification.py:1344: UndefinedMetricWarning: Precision and F-score are i
_warn_prf(average, modifier, msg_start, len(result))
```

