fake-news-detection-6

March 23, 2025

[45]:
```
!pip install numpy
```

```
Defaulting to user installation because normal site-packages is not writeable
Requirement already satisfied: numpy in c:\programdata\anaconda3\lib\site-
packages (1.26.4)
```

[46]:
```
import numpy as np
```

[49]:
```
!pip uninstall -y numpy
!pip install numpy
```

```
Found existing installation: numpy 1.26.4
Uninstalling numpy-1.26.4:
```

```
ERROR: Exception:
Traceback (most recent call last):
  File "C:\ProgramData\anaconda3\Lib\shutil.py", line 847, in move
    os.rename(src, real_dst)
PermissionError: [WinError 5] Access is denied:
'c:\\programdata\\anaconda3\\lib\\site-packages\\numpy-1.26.4.dist-info\\' ->
'C:\\Users\\saiko\\AppData\\Local\\Temp\\pip-uninstall-h89jz5bu'

During handling of the above exception, another exception occurred:

Traceback (most recent call last):
  File "C:\Users\saiko\AppData\Roaming\Python\Python312\site-
packages\pip\_internal\cli\base_command.py", line 106, in _run_wrapper
    status = _inner_run()
             ^^^^^^^^^^^^
  File "C:\Users\saiko\AppData\Roaming\Python\Python312\site-
packages\pip\_internal\cli\base_command.py", line 97, in _inner_run
    return self.run(options, args)
           ^^^^^^^^^^^^^^^^^^^^^^^
  File "C:\Users\saiko\AppData\Roaming\Python\Python312\site-
packages\pip\_internal\commands\uninstall.py", line 106, in run
    uninstall_pathset = req.uninstall(
                        ^^^^^^^^^^^^^^
  File "C:\Users\saiko\AppData\Roaming\Python\Python312\site-
```

```
packages\pip\_internal\req\req_install.py", line 723, in uninstall
    uninstalled_pathset.remove(auto_confirm, verbose)
  File "C:\Users\saiko\AppData\Roaming\Python\Python312\site-
packages\pip\_internal\req\req_uninstall.py", line 370, in remove
    moved.stash(path)
  File "C:\Users\saiko\AppData\Roaming\Python\Python312\site-
packages\pip\_internal\req\req_uninstall.py", line 261, in stash
    renames(path, new_path)
  File "C:\Users\saiko\AppData\Roaming\Python\Python312\site-
packages\pip\_internal\utils\misc.py", line 350, in renames
    shutil.move(old, new)
  File "C:\ProgramData\anaconda3\Lib\shutil.py", line 865, in move
    rmtree(src)
  File "C:\ProgramData\anaconda3\Lib\shutil.py", line 781, in rmtree
    return _rmtree_unsafe(path, onexc)
           ^^^^^^^^^^^^^^^^^^^^^^^^^^^
  File "C:\ProgramData\anaconda3\Lib\shutil.py", line 635, in _rmtree_unsafe
    onexc(os.unlink, fullname, err)
  File "C:\ProgramData\anaconda3\Lib\shutil.py", line 633, in _rmtree_unsafe
    os.unlink(fullname)
PermissionError: [WinError 5] Access is denied:
'c:\\programdata\\anaconda3\\lib\\site-packages\\numpy-1.26.4.dist-
info\\direct_url.json'

Defaulting to user installation because normal site-packages is not writeable
Requirement already satisfied: numpy in c:\programdata\anaconda3\lib\site-
packages (1.26.4)
```

[50]:
```
!pip install pandas
```

```
Defaulting to user installation because normal site-packages is not writeable
Requirement already satisfied: pandas in
c:\users\saiko\appdata\roaming\python\python312\site-packages (2.2.3)
Requirement already satisfied: numpy>=1.26.0 in
c:\programdata\anaconda3\lib\site-packages (from pandas) (1.26.4)
Requirement already satisfied: python-dateutil>=2.8.2 in
c:\users\saiko\appdata\roaming\python\python312\site-packages (from pandas)
(2.9.0.post0)
Requirement already satisfied: pytz>=2020.1 in
c:\users\saiko\appdata\roaming\python\python312\site-packages (from pandas)
(2025.1)
Requirement already satisfied: tzdata>=2022.7 in
c:\users\saiko\appdata\roaming\python\python312\site-packages (from pandas)
(2025.1)
Requirement already satisfied: six>=1.5 in
c:\users\saiko\appdata\roaming\python\python312\site-packages (from python-
dateutil>=2.8.2->pandas) (1.17.0)
```

[52]:
```
import pandas as pd
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
```

[55]:
```
data_fake5=pd.read_csv("Downloads\\fake5.csv")
```

[57]:
```
data_fake5.shape
data_fake5.head()
```

[57]:

	sell.no	title	text	subject	output
0	a	‘Amaravati not prone to floods’: Andhra Min as…	Andhra Pradesh's Minister for Municipal Admini…	news	fake
1	b	CM Jagan launches probe into Amaravati land ‘s…	The CID is part of an overall enquiry to be ta…	news	fake
2	c	How US election fraud claims changed as Trump won	Early on election day in Cambria County, Penns…	news	fake
3	d	Woman sentenced in case that sparked Springfie…	According to the Canton Repository newspaper, …	news	fake
4	e	War ‘tour’, football and graffiti: How Russia …	Teenage footballers listen to the Russian nati…	news	fake

[59]:
```
data_true = pd.read_csv("Downloads\\true.csv")
```

[61]:
```
data_true.shape
data_true.head()
```

[61]:

	sell.no	title	text	subject	output
0	a	BCCI announce Rs 58 crore cash prize for India…	The BCCI announced that the whopping prize mon…	news	real
1	b	Nagpur violence: Devendra Fadnavis gives ‘bull…	Maharashtra CM Devendra Fadnavis said that any…	news	real
2	c	China’s "Ukraine": Another Mineral-Rich Region…	Nestled in Pakistan’s southwest and heavily in…	news	real
3	d	Nestled in Pakistan’s southwest and heavily in…	In oral remarks, Chief Justice D K Upadhyaya s…	news	real
4	e	Big worry for China, Pakistan as BLA may targe…	The BLA is reportedly mulling launching a majo…	news	real

[63]:
```
data_fake5["class"] = 0
data_true["class"] = 1
```

[65]:
```
data_fake5.shape,data_true.shape
```

[65]:
```
((5, 6), (5, 6))
```

[67]:
```
data_fake5_manual_testing=data_fake5.tail(10)
for i in range(4,3,-1):
    data_fake5.drop([i],axis=0,inplace=True)

data_true_manual_testing=data_true.tail(10)
for i in range(4,3,-1):
    data_true.drop([i],axis=0,inplace=True)
```

[69]:
```
data_fake5_manual_testing['class']=0
data_true_manual_testing['class']=1
```

```
C:\Users\saiko\AppData\Local\Temp\ipykernel_15176\3040890855.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
  data_fake5_manual_testing['class']=0
C:\Users\saiko\AppData\Local\Temp\ipykernel_15176\3040890855.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
  data_true_manual_testing['class']=1
```

[71]:
```
data_fake5_manual_testing.head(10)
```

[71]:

	sell.no	title	\
0	a	‘Amaravati not prone to floods’: Andhra Min as…	
1	b	CM Jagan launches probe into Amaravati land ‘s…	
2	c	How US election fraud claims changed as Trump won	
3	d	Woman sentenced in case that sparked Springfie…	
4	e	War ‘tour’, football and graffiti: How Russia …	

	text	subject	output	class
0	Andhra Pradesh's Minister for Municipal Admini…	news	fake	0
1	The CID is part of an overall enquiry to be ta…	news	fake	0

```
2  Early on election day in Cambria County, Penns…    news   fake      0
3  According to the Canton Repository newspaper, …    news   fake      0
4  Teenage footballers listen to the Russian nati…    news   fake      0
```

[73]:
```
data_true_manual_testing.head(10)
```

[73]:
```
  sell.no                                              title  \
0       a  BCCI announce Rs 58 crore cash prize for India…
1       b  Nagpur violence: Devendra Fadnavis gives 'bull…
2       c  China's "Ukraine": Another Mineral-Rich Region…
3       d  Nestled in Pakistan's southwest and heavily in…
4       e  Big worry for China, Pakistan as BLA may targe…

                                                text subject output  class
0  The BCCI announced that the whopping prize mon…    news   real      1
1  Maharashtra CM Devendra Fadnavis said that any…    news   real      1
2  Nestled in Pakistan's southwest and heavily in…    news   real      1
3  In oral remarks, Chief Justice D K Upadhyaya s…    news   real      1
4  The BLA is reportedly mulling launching a majo…   news    real      1
```

[75]:
```
data_merge=pd.concat([data_fake5,data_true],axis=0)
data_merge.head(10)
```

[75]:
```
  sell.no                                              title  \
0       a  'Amaravati not prone to floods': Andhra Min as…
1       b  CM Jagan launches probe into Amaravati land 's…
2       c  How US election fraud claims changed as Trump won
3       d  Woman sentenced in case that sparked Springfie…
0       a  BCCI announce Rs 58 crore cash prize for India…
1       b  Nagpur violence: Devendra Fadnavis gives 'bull…
2       c  China's "Ukraine": Another Mineral-Rich Region…
3       d  Nestled in Pakistan's southwest and heavily in…

                                                text subject output  class
0  Andhra Pradesh's Minister for Municipal Admini…    news   fake      0
1  The CID is part of an overall enquiry to be ta…    news   fake      0
2  Early on election day in Cambria County, Penns…    news   fake      0
3  According to the Canton Repository newspaper, …    news   fake      0
0  The BCCI announced that the whopping prize mon…    news   real      1
1  Maharashtra CM Devendra Fadnavis said that any…    news   real      1
2  Nestled in Pakistan's southwest and heavily in…    news   real      1
3  In oral remarks, Chief Justice D K Upadhyaya s…    news   real      1
```

[77]:
```
data_merge.columns
```

[77]:
```
Index(['sell.no', 'title', 'text', 'subject', 'output', 'class'],
dtype='object')
```

[79]:
```
data=data_merge.drop(['sell.no','title','subject','output'],axis=1)
```

[81]:
```
data.isnull().sum()
```

[81]:
```
text     0
class    0
dtype: int64
```

[83]:
```
data=data.sample(frac=1)
```

[85]:
```
data.head()
```

[85]:

	text	class
2	Nestled in Pakistan’s southwest and heavily in…	1
0	The BCCI announced that the whopping prize mon…	1
1	Maharashtra CM Devendra Fadnavis said that any…	1
1	The CID is part of an overall enquiry to be ta…	0
3	According to the Canton Repository newspaper, …	0

[87]:
```
data.reset_index(inplace=True)
data.drop(['index'],axis=1,inplace=True)
```

[89]:
```
data.columns
```

[89]:
```
Index(['text', 'class'], dtype='object')
```

[91]:
```
data.head()
```

[91]:

	text	class
0	Nestled in Pakistan’s southwest and heavily in…	1
1	The BCCI announced that the whopping prize mon…	1
2	Maharashtra CM Devendra Fadnavis said that any…	1
3	The CID is part of an overall enquiry to be ta…	0
4	According to the Canton Repository newspaper, …	0

[93]:
```
import re
def wordopt(text):
    if isinstance(text,str):
        return text.lower()
    text = text.lower()
    text = re.sub(r'\[.*?\]','',text)
    text = re.sub(r"\W"," ",text)
    text = re.sub(r'https?://\S+|www\.\S+','',text)
    text = re.sub(r'<.*?>+','',text)
    text = re.sub(r'[%s]' %re.escape(string.punctuation),'',text)
    text = re.sub(r'\n','',text)
    text = re.sub(r'\w*\d\w*','',text)
```

```
    return text
data['text'] = data['text'].astype(str).apply(wordopt)
```

[95]:
```
data['text'] = data['text'].apply(wordopt)
```

[97]:
```
x = data['text']
y = data['class']
```

[99]:
```
x_train, x_test, y_train, y_test = train_test_split(x,y,test_size=0.25)
```

[101]:
```
from sklearn.feature_extraction.text import TfidfVectorizer

Vectorization=TfidfVectorizer()
xv_train = Vectorization.fit_transform(x_train)
xv_test = Vectorization.transform(x_test)
```

[103]:
```
from sklearn.linear_model import LogisticRegression

LR = LogisticRegression()
LR.fit(xv_train, y_train)
```

[103]:
```
LogisticRegression()
```

[105]:
```
pred_lr = LR.predict(xv_test)
```

[107]:
```
LR.score(xv_test,y_test)
```

[107]:
```
0.5
```

[109]:
```
print(classification_report(y_test,pred_lr))
```

```
              precision    recall  f1-score   support

           0       0.00      0.00      0.00         1
           1       0.50      1.00      0.67         1

    accuracy                           0.50         2
   macro avg       0.25      0.50      0.33         2
weighted avg       0.25      0.50      0.33         2


C:\ProgramData\anaconda3\Lib\site-
packages\sklearn\metrics\_classification.py:1531: UndefinedMetricWarning:
Precision is ill-defined and being set to 0.0 in labels with no predicted
samples. Use `zero_division` parameter to control this behavior.
  _warn_prf(average, modifier, f"{metric.capitalize()} is", len(result))
C:\ProgramData\anaconda3\Lib\site-
packages\sklearn\metrics\_classification.py:1531: UndefinedMetricWarning:
```

```
Precision is ill-defined and being set to 0.0 in labels with no predicted
samples. Use `zero_division` parameter to control this behavior.
  _warn_prf(average, modifier, f"{metric.capitalize()} is", len(result))
C:\ProgramData\anaconda3\Lib\site-
packages\sklearn\metrics\_classification.py:1531: UndefinedMetricWarning:
Precision is ill-defined and being set to 0.0 in labels with no predicted
samples. Use `zero_division` parameter to control this behavior.
  _warn_prf(average, modifier, f"{metric.capitalize()} is", len(result))
```

[111]:
```
from sklearn.tree import DecisionTreeClassifier

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

[111]:
```
DecisionTreeClassifier()
```

[113]:
```
pred_dt = DT.predict(xv_test)
```

[115]:
```
DT.score(xv_test,y_test)
```

[115]:
```
0.5
```

[117]:
```
print(classification_report(y_test,pred_lr))
```

```
              precision    recall  f1-score   support

           0       0.00      0.00      0.00         1
           1       0.50      1.00      0.67         1

    accuracy                           0.50         2
   macro avg       0.25      0.50      0.33         2
weighted avg       0.25      0.50      0.33         2


C:\ProgramData\anaconda3\Lib\site-
packages\sklearn\metrics\_classification.py:1531: UndefinedMetricWarning:
Precision is ill-defined and being set to 0.0 in labels with no predicted
samples. Use `zero_division` parameter to control this behavior.
  _warn_prf(average, modifier, f"{metric.capitalize()} is", len(result))
C:\ProgramData\anaconda3\Lib\site-
packages\sklearn\metrics\_classification.py:1531: UndefinedMetricWarning:
Precision is ill-defined and being set to 0.0 in labels with no predicted
samples. Use `zero_division` parameter to control this behavior.
  _warn_prf(average, modifier, f"{metric.capitalize()} is", len(result))
C:\ProgramData\anaconda3\Lib\site-
packages\sklearn\metrics\_classification.py:1531: UndefinedMetricWarning:
Precision is ill-defined and being set to 0.0 in labels with no predicted
samples. Use `zero_division` parameter to control this behavior.
```

```
  _warn_prf(average, modifier, f"{metric.capitalize()} is", len(result))
```

[119]:
```python
from sklearn.ensemble import GradientBoostingClassifier

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

[119]:
```
GradientBoostingClassifier(random_state=0)
```

[121]:
```python
pred_gb = GB.predict(xv_test)
```

[123]:
```python
GB.score(xv_test,y_test)
```

[123]:
```
0.5
```

[125]:
```python
print(classification_report(y_test,pred_gb))
```

```
              precision    recall  f1-score   support

           0       0.00      0.00      0.00         1
           1       0.50      1.00      0.67         1

    accuracy                           0.50         2
   macro avg       0.25      0.50      0.33         2
weighted avg       0.25      0.50      0.33         2

C:\ProgramData\anaconda3\Lib\site-
packages\sklearn\metrics\_classification.py:1531: UndefinedMetricWarning:
Precision is ill-defined and being set to 0.0 in labels with no predicted
samples. Use `zero_division` parameter to control this behavior.
  _warn_prf(average, modifier, f"{metric.capitalize()} is", len(result))
C:\ProgramData\anaconda3\Lib\site-
packages\sklearn\metrics\_classification.py:1531: UndefinedMetricWarning:
Precision is ill-defined and being set to 0.0 in labels with no predicted
samples. Use `zero_division` parameter to control this behavior.
  _warn_prf(average, modifier, f"{metric.capitalize()} is", len(result))
C:\ProgramData\anaconda3\Lib\site-
packages\sklearn\metrics\_classification.py:1531: UndefinedMetricWarning:
Precision is ill-defined and being set to 0.0 in labels with no predicted
samples. Use `zero_division` parameter to control this behavior.
  _warn_prf(average, modifier, f"{metric.capitalize()} is", len(result))
```

[127]:
```python
from sklearn.ensemble import RandomForestClassifier

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

[127]: RandomForestClassifier(random_state=0)

[129]:
```
pred_rf = RF.predict(xv_test)
```

[131]:
```
RF.score(xv_test,y_test)
```

[131]: 0.5

[133]:
```
print(classification_report(y_test,pred_rf))
```

```
              precision    recall  f1-score   support

           0       0.00      0.00      0.00         1
           1       0.50      1.00      0.67         1

    accuracy                           0.50         2
   macro avg       0.25      0.50      0.33         2
weighted avg       0.25      0.50      0.33         2


C:\ProgramData\anaconda3\Lib\site-
packages\sklearn\metrics\_classification.py:1531: UndefinedMetricWarning:
Precision is ill-defined and being set to 0.0 in labels with no predicted
samples. Use `zero_division` parameter to control this behavior.
  _warn_prf(average, modifier, f"{metric.capitalize()} is", len(result))
C:\ProgramData\anaconda3\Lib\site-
packages\sklearn\metrics\_classification.py:1531: UndefinedMetricWarning:
Precision is ill-defined and being set to 0.0 in labels with no predicted
samples. Use `zero_division` parameter to control this behavior.
  _warn_prf(average, modifier, f"{metric.capitalize()} is", len(result))
C:\ProgramData\anaconda3\Lib\site-
packages\sklearn\metrics\_classification.py:1531: UndefinedMetricWarning:
Precision is ill-defined and being set to 0.0 in labels with no predicted
samples. Use `zero_division` parameter to control this behavior.
  _warn_prf(average, modifier, f"{metric.capitalize()} is", len(result))
```

[161]:
```
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_GB = GB.predict(new_xv_test)
    pred_RF = RF.predict(new_xv_test)
    output_label={0: "Fake News", 1: "Real News"}

    return print("\n\nLR Prediction: {} \nDT Prediction: {} \nGB Prediction: {}␣
↪\nRF Prediction: {}".format (output_label[pred_LR[0]],
                                                                                ␣
↪                            output_label[pred_DT[0]],
                                                                                ␣
↪                            output_label[pred_GB[0]],
                                                                                ␣
↪                            output_label[pred_RF[0]]))
```

[163]:
```
news=str(input())
manual_testing(news)
```

```
 In several posts online, Ferrell was falsely described as an immigrant.
However, Canton Police told the BBC that they had "not dealt with any complaints
of Haitian immigrants at all."  Springfield police also denied the rumours,
saying at the time: "There have been no credible reports or specific claims of
pets being harmed, injured or abused by individuals within the immigrant
community."  Springfield is a city of about 60,000 people in south-west Ohio,
where 12,000 to 20,000 Haitian immigrants have settled in recent years, mostly
drawn by work in local factories.  Rumours about eating pets circulated in the
city earlier this year, before the Canton incident. An unrelated post on Reddit
appeared to show a man carrying a dead bird in Columbus, Ohio, and a Facebook
message mentioning the rumours was posted on a Springfield crime board.  These
disparate stories were grafted together by anti-immigrant and pro-Trump
influencers online, forging an unsubstantiated rumour later repeated by Vance
online - that foreigners were catching and consuming pets in Springfield.
During the presidential debate in September, Trump said: "In Springfield, they
are eating the dogs. The people that came in, they are eating the cats."  Vance
later told CNN that the pet-eating stories were based on "first-hand account of
my constituents" but did not provide further details.  The BBC has contacted
Vance's office.  "If I have to create stories so that the American media
actually pays attention to the suffering of the American people, then that's
what I'm going to do," he told CNN.


LR Prediction: Real News
DT Prediction: Real News
GB Prediction: Real News
RF Prediction: Fake News
```