In [1]:

```
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
import warnings
warnings.filterwarnings('ignore')
```

In [2]:

```
#loading dataset
df=pd.read_csv("C:\\Users\\vivek\\OneDrive\\Desktop\\archive\\news_dataset.
df.head(10)
```

Out[2]:

	label	text
0	REAL	Payal has accused filmmaker Anurag Kashyap of ...
1	FAKE	A four-minute-long video of a woman criticisin...
2	FAKE	Republic Poll, a fake Twitter account imitatin...
3	REAL	Delhi teen finds place on UN green list, turns...
4	REAL	Delhi: A high-level meeting underway at reside...
5	REAL	ROME: Novak Djokovic knows it isn't model beha...
6	FAKE	A viral image showing controversial Islamic pr...
7	FAKE	Several photos are being shared with the misle...
8	FAKE	The driver of the DMU train Arvind Kumar has N...
9	FAKE	An old video of a Dassault Rafale aircraft's s...

In [3]:

```
#creating new column class with 0/1
df["class"]=0
df.head(10)
```

Out[3]:

	label	text	class
0	REAL	Payal has accused filmmaker Anurag Kashyap of ...	0
1	FAKE	A four-minute-long video of a woman criticisin...	0
2	FAKE	Republic Poll, a fake Twitter account imitatin...	0
3	REAL	Delhi teen finds place on UN green list, turns...	0
4	REAL	Delhi: A high-level meeting underway at reside...	0
5	REAL	ROME: Novak Djokovic knows it isn't model beha...	0
6	FAKE	A viral image showing controversial Islamic pr...	0
7	FAKE	Several photos are being shared with the misle...	0
8	FAKE	The driver of the DMU train Arvind Kumar has N...	0
9	FAKE	An old video of a Dassault Rafale aircraft's s...	0

In [4]:

```
#marking class=1 for 'real' labels
df['class'] = df['label'].apply(lambda x: 1 if x == 'REAL' else 0)
df.head(10)
```

Out[4]:

	label	text	class
0	REAL	Payal has accused filmmaker Anurag Kashyap of ...	1
1	FAKE	A four-minute-long video of a woman criticisin...	0
2	FAKE	Republic Poll, a fake Twitter account imitatin...	0
3	REAL	Delhi teen finds place on UN green list, turns...	1
4	REAL	Delhi: A high-level meeting underway at reside...	1
5	REAL	ROME: Novak Djokovic knows it isn't model beha...	1
6	FAKE	A viral image showing controversial Islamic pr...	0
7	FAKE	Several photos are being shared with the misle...	0
8	FAKE	The driver of the DMU train Arvind Kumar has N...	0
9	FAKE	An old video of a Dassault Rafale aircraft's s...	0

In [5]:

```
#to check for null/missing values in all the rows
df.isnull().sum()
```

Out[5]:

```
label    0
text     8
class    0
dtype: int64
```

In [6]:

```
#dropping rows which have missing values and store data into new dataframe
new_df = df.dropna(axis = 0, how ='any')
new_df.isnull().sum()
```

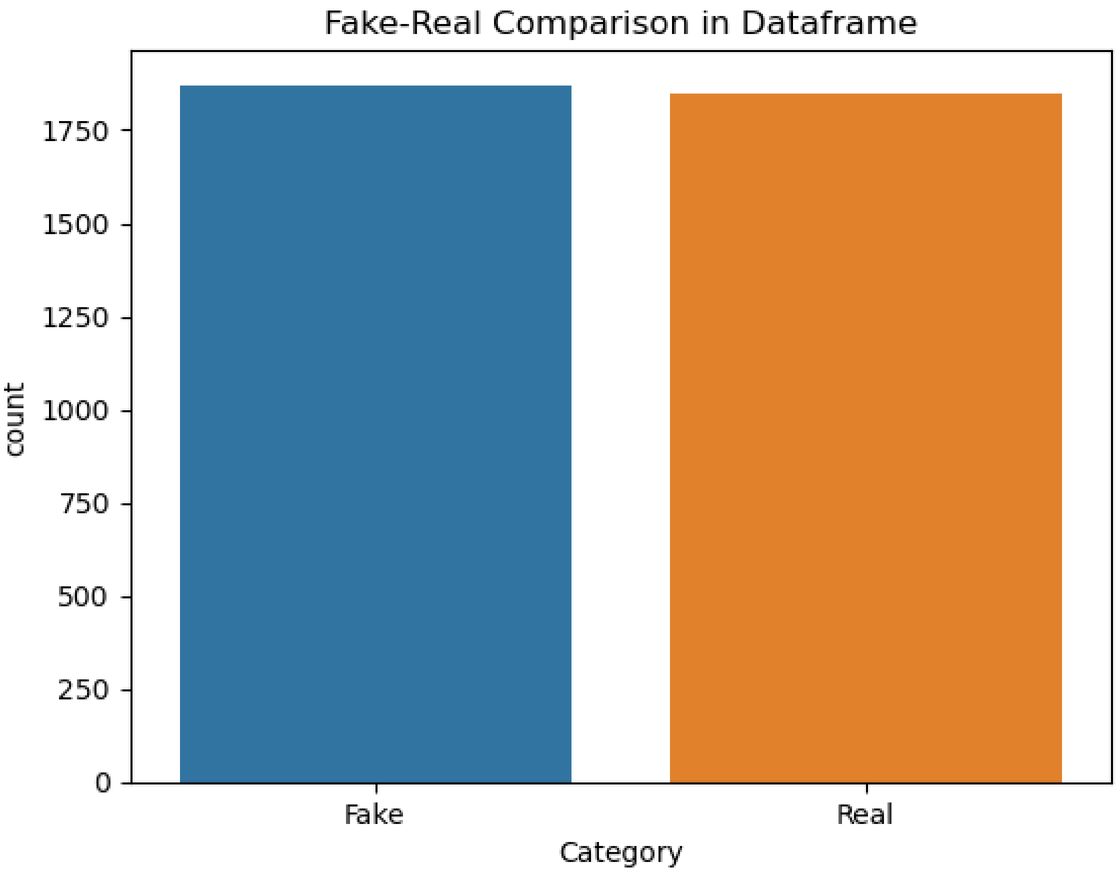
Out[6]:

```
label    0
text     0
class    0
dtype: int64
```

In [7]:

```python
#visualization
import seaborn as sns
from matplotlib import pyplot as plt
sns.countplot(x="class",data=new_df)

plt.title("Fake-Real Comparison in Dataframe")
plt.xlabel("Category")
plt.xticks([0, 1], ["Fake", "Real"])
plt.show()
```



In [8]:

```python
#text processing function-wordopt

import re
import string

def wordopt(text):
    if isinstance(text, str): #only process strings and not other data types
        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
```

In [9]:

```
#applying wordopt to our dataset
new_df["text"] = new_df["text"].apply(wordopt)
```

In [10]:

```
#splitting data for training and testing
x = new_df["text"]
y = new_df["class"]
x_train, x_test, y_train, y_test = train_test_split(x, y, test_size=0.2)
```

In [11]:

```
#transform text data into TF-IDF (Term Frequency-Inverse Document Frequency,
#This is a common step in natural language processing (NLP)

from sklearn.feature_extraction.text import TfidfVectorizer

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

In [12]:

```
#applying linear regression model to the vectorizations

from sklearn.linear_model import LogisticRegression

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

pred_lr=LR.predict(xv_test)
```

In [13]:

```
print(classification_report(y_test, pred_lr))
```

```
              precision    recall  f1-score   support

           0       0.99      1.00      1.00       385
           1       1.00      0.99      1.00       360

    accuracy                           1.00       745
   macro avg       1.00      1.00      1.00       745
weighted avg       1.00      1.00      1.00       745
```

In [14]:

```
def output_label(n):
    if n == 0:
        return "Fake News"
    elif n == 1:
        return "Not A Fake News"

def manual_testing():
    news= input()
    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)

    return print("\nPrediction: {}".format(output_label(pred_LR[0])))
```

In [15]:

```
'''from flask import Flask, request, render_template
import pandas as pd  # Make sure to import necessary libraries

app = Flask(__name__)

def output_label(n):
    if n == 0:
        return "Fake News"
    elif n == 1:
        return "Not A Fake News"


def manual_testing(news):
    # Assuming wordopt and vectorization are defined somewhere in your code
    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)

    return output_label(pred_LR[0])

@app.route('/', methods=['GET', 'POST'])
def index():
    if request.method == 'POST':
        news = request.form['news']
        prediction = manual_testing(news)
        return render_template('index.html', prediction=prediction)
    return render_template('index.html', prediction=None)

if __name__ == '__main__':
    app.run(debug=True)
'''
```

Out[15]:

```
'from flask import Flask, request, render_template\nimport pandas as pd  #
Make sure to import necessary libraries\n\napp = Flask(__name__)\n\ndef ou
tput_label(n):\n    if n == 0:\n        return "Fake News"\n    elif n ==
1:\n        return "Not A Fake News"\n\n\ndef manual_testing(news):\n    #
Assuming wordopt and vectorization are defined somewhere in your code\n
testing_news = {"text": [news]}\n    new_def_test = pd.DataFrame(testing_n
ews)\n    new_def_test["text"] = new_def_test["text"].apply(wordopt) \n
new_x_test = new_def_test["text"]\n    new_xv_test = vectorization.transfo
rm(new_x_test)\n    pred_LR = LR.predict(new_xv_test)\n\n    return output
_label(pred_LR[0])\n\n@app.route(\'/\', methods=[\'GET\', \'POST\'])\ndef
index():\n    if request.method == \'POST\':\n        news = request.form
[\'news\']\n        prediction = manual_testing(news)\n        return rend
er_template(\'index.html\', prediction=prediction)\n    return render_temp
late(\'index.html\', prediction=None)\n\nif __name__ == \'__main__\':\n
app.run(debug=True)\n'
```

In [22]:

```
manual_testing()
```

```
India GDP growth in Q2 FY24 beats estimates at 7.6%

Prediction: Not A Fake News
```

In [ ]: