


## 1. Upload the Dataset

```
from google.colab import files
uploaded = files.upload()
```

 Choose Files evaluation.csv

- **evaluation.csv**(text/csv) - 20476561 bytes, last modified: 5/15/2025 - 100% done

Saving evaluation.csv to evaluation.csv

## 2. Load the Dataset

```
import pandas as pd

# Use correct delimiter
df = pd.read_csv('evaluation.csv', delimiter=';')
df.head()
```


 Unnamed: 0 title text label 

0	0	Sanders back in U.S. Senate, blasts 'coloniali...	WASHINGTON (Reuters) - Democratic U.S. preside...	1	
1	1	Kremlin: Syria peoples' congress being 'active...	MOSCOW (Reuters) - A proposal to convene a con...	1	
2	2	Oregon Cop Convicted Of Shattering Biker's Co...	In a baffling fit of rage, an Oregon State Pol...	0	
3	3	Twitter Erupts With Glee Over #CruzSexScandal...	The last thing any politician running for the ...	0	
4	4	MUST WATCH VIDEO: Obama Tries To Trash Trump B...	This is too good to miss! Mr. Teleprompter did...	0	

Next steps: [Generate code with df](#) [View recommended plots](#) [New interactive sheet](#)

## 3. Data Exploration

```
df.info()
df.describe()
df['label'].value_counts()
```


 <class 'pandas.core.frame.DataFrame'>  
RangeIndex: 8117 entries, 0 to 8116  
Data columns (total 4 columns):  
# Column Non-Null Count Dtype  
--- ---  
0 Unnamed: 0 8117 non-null int64  
1 title 8117 non-null object  
2 text 8117 non-null object  
3 label 8117 non-null int64  
dtypes: int64(2), object(2)  
memory usage: 253.8+ KB

```
count
label
1 4314
0 3803
```

## 4. Check for Missing Values and Duplicates

```
print("Missing Values:\n", df.isnull().sum())
print("\nDuplicates:", df.duplicated().sum())
```

```
# Drop duplicates
df.drop_duplicates(inplace=True)
```

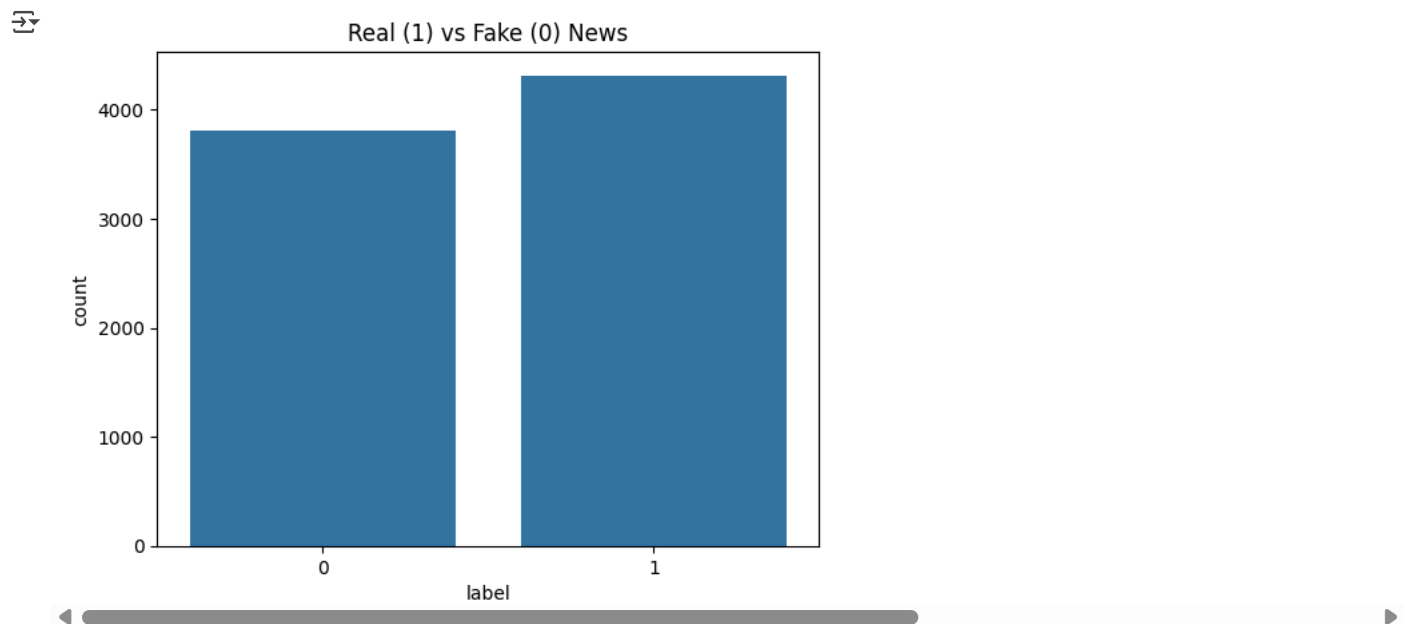
 Missing Values:  
Unnamed: 0 0  
title 0  
text 0  
label 0  
dtype: int64

Duplicates: 0

## 5. Visualize a Few Features

```
import matplotlib.pyplot as plt
import seaborn as sns

sns.countplot(x='label', data=df)
plt.title("Real (1) vs Fake (0) News")
plt.show()
```



## 6. Identify Target and Features

```
X = df['text'] # Feature
y = df['label'] # Target
```

## 9. Feature Scaling — NLP: TF-IDF

```
from sklearn.feature_extraction.text import TfidfVectorizer

tfidf = TfidfVectorizer(stop_words='english', max_df=0.7)
X_tfidf = tfidf.fit_transform(X)
```

## 10. Train-Test Split

```
from sklearn.model_selection import train_test_split

X_train, X_test, y_train, y_test = train_test_split(X_tfidf, y, test_size=0.2, random_state=42)
```

## 11. Model Building

```
from sklearn.linear_model import LogisticRegression

model = LogisticRegression()
model.fit(X_train, y_train)
```

```
LogisticRegression()
```

## 12. Evaluation

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

y_pred = model.predict(X_test)
```

```
print("Accuracy:", accuracy_score(y_test, y_pred))
print(classification_report(y_test, y_pred))
```

```

Accuracy: 0.9550492610837439
      precision    recall  f1-score   support

     0       0.95       0.96       0.95       764
     1       0.96       0.95       0.96       860

 accuracy
macro avg       0.95       0.96       0.95       1624
weighted avg       0.96       0.96       0.96       1624

```

### 13. Make Predictions from New Input

```

def predict_news(news_text):
    vector = tfidf.transform([news_text])
    prediction = model.predict(vector)[0]
    return 'Real News' if prediction == 1 else 'Fake News'

predict_news("Government announces new economic reforms.")

```

'Real News'

### 15. Predict the Final Grade

```

from sklearn.metrics import accuracy_score

final_grade = accuracy_score(y_test, y_pred) * 100
print(f"Final model grade: {final_grade:.2f}% accuracy")

```

Final model grade: 95.50% accuracy

### 16. Deployment — Building an Interactive App

```
!pip install gradio
import gradio as gr
```

```

Requirement already satisfied: gradio in /usr/local/lib/python3.11/dist-packages (5.29.1)
Requirement already satisfied: aiofiles<25.0,>=22.0 in /usr/local/lib/python3.11/dist-packages (from gradio) (24.1.0)
Requirement already satisfied: anyio<5.0,>=3.0 in /usr/local/lib/python3.11/dist-packages (from gradio) (4.9.0)
Requirement already satisfied: fastapi<1.0,>=0.115.2 in /usr/local/lib/python3.11/dist-packages (from gradio) (0.115.12)
Requirement already satisfied: ffmpy in /usr/local/lib/python3.11/dist-packages (from gradio) (0.5.0)
Requirement already satisfied: gradio-client==1.10.1 in /usr/local/lib/python3.11/dist-packages (from gradio) (1.10.1)
Requirement already satisfied: groovy~=0.1 in /usr/local/lib/python3.11/dist-packages (from gradio) (0.1.2)
Requirement already satisfied: httpx>=0.24.1 in /usr/local/lib/python3.11/dist-packages (from gradio) (0.28.1)
Requirement already satisfied: huggingface-hub>=0.28.1 in /usr/local/lib/python3.11/dist-packages (from gradio) (0.31.1)
Requirement already satisfied: jinja2<4.0 in /usr/local/lib/python3.11/dist-packages (from gradio) (3.1.6)
Requirement already satisfied: markupsafe<4.0,>=2.0 in /usr/local/lib/python3.11/dist-packages (from gradio) (3.0.2)
Requirement already satisfied: numpy<3.0,>=1.0 in /usr/local/lib/python3.11/dist-packages (from gradio) (2.0.2)
Requirement already satisfied: orjson~=3.0 in /usr/local/lib/python3.11/dist-packages (from gradio) (3.10.18)
Requirement already satisfied: packaging in /usr/local/lib/python3.11/dist-packages (from gradio) (24.2)
Requirement already satisfied: pandas<3.0,>=1.0 in /usr/local/lib/python3.11/dist-packages (from gradio) (2.2.2)
Requirement already satisfied: pillow<12.0,>=8.0 in /usr/local/lib/python3.11/dist-packages (from gradio) (11.2.1)
Requirement already satisfied: pydantic<2.12,>=2.0 in /usr/local/lib/python3.11/dist-packages (from gradio) (2.11.4)
Requirement already satisfied: pydub in /usr/local/lib/python3.11/dist-packages (from gradio) (0.25.1)
Requirement already satisfied: python-multipart>=0.0.18 in /usr/local/lib/python3.11/dist-packages (from gradio) (0.0.20)
Requirement already satisfied: pyyaml<7.0,>=5.0 in /usr/local/lib/python3.11/dist-packages (from gradio) (6.0.2)
Requirement already satisfied: ruff>=0.9.3 in /usr/local/lib/python3.11/dist-packages (from gradio) (0.11.9)
Requirement already satisfied: safehttpx<0.2.0,>=0.1.6 in /usr/local/lib/python3.11/dist-packages (from gradio) (0.1.6)
Requirement already satisfied: semantic-version~=2.0 in /usr/local/lib/python3.11/dist-packages (from gradio) (2.10.0)
Requirement already satisfied: starlette<1.0,>=0.40.0 in /usr/local/lib/python3.11/dist-packages (from gradio) (0.46.2)
Requirement already satisfied: tomkit<0.14.0,>=0.12.0 in /usr/local/lib/python3.11/dist-packages (from gradio) (0.13.2)
Requirement already satisfied: typer<1.0,>=0.12 in /usr/local/lib/python3.11/dist-packages (from gradio) (0.15.3)
Requirement already satisfied: typing-extensions~=4.0 in /usr/local/lib/python3.11/dist-packages (from gradio) (4.13.2)
Requirement already satisfied: uvicorn>=0.14.0 in /usr/local/lib/python3.11/dist-packages (from gradio) (0.34.2)
Requirement already satisfied: fsspec in /usr/local/lib/python3.11/dist-packages (from gradio-client==1.10.1->gradio) (2025.3.2)
Requirement already satisfied: websockets<16.0,>=10.0 in /usr/local/lib/python3.11/dist-packages (from gradio-client==1.10.1->gradio) (13.1)
Requirement already satisfied: idna>=2.8 in /usr/local/lib/python3.11/dist-packages (from anyio<5.0,>=3.0->gradio) (3.10)
Requirement already satisfied: sniffio=1.1 in /usr/local/lib/python3.11/dist-packages (from anyio<5.0,>=3.0->gradio) (1.3.1)
Requirement already satisfied: certifi in /usr/local/lib/python3.11/dist-packages (from httpx>=0.24.1->gradio) (2025.4.26)
Requirement already satisfied: httpcore==1.* in /usr/local/lib/python3.11/dist-packages (from httpx>=0.24.1->gradio) (1.0.9)
Requirement already satisfied: h11>=0.16 in /usr/local/lib/python3.11/dist-packages (from httpcore==1.*->httpx>=0.24.1->gradio) (0.14.0)
Requirement already satisfied: filelock in /usr/local/lib/python3.11/dist-packages (from huggingface-hub>=0.28.1->gradio) (3.18.0)
Requirement already satisfied: requests in /usr/local/lib/python3.11/dist-packages (from huggingface-hub>=0.28.1->gradio) (2.32.3)
Requirement already satisfied: tqdm>=4.42.1 in /usr/local/lib/python3.11/dist-packages (from huggingface-hub>=0.28.1->gradio) (4.67.0)
Requirement already satisfied: hf-xet<2.0.0,>=1.1.0 in /usr/local/lib/python3.11/dist-packages (from huggingface-hub>=0.28.1->gradio) (1.2.0)

```

```
Requirement already satisfied: python-dateutil>=2.8.2 in /usr/local/lib/python3.11/dist-packages (from pandas<3.0,>=1.0->gradio) (2.8.2)
Requirement already satisfied: pytz>=2020.1 in /usr/local/lib/python3.11/dist-packages (from pandas<3.0,>=1.0->gradio) (2025.2)
Requirement already satisfied: tzdata>=2022.7 in /usr/local/lib/python3.11/dist-packages (from pandas<3.0,>=1.0->gradio) (2025.2)
Requirement already satisfied: annotated-types>=0.6.0 in /usr/local/lib/python3.11/dist-packages (from pydantic<2.12,>=2.0->gradio) (0.7.0)
Requirement already satisfied: pydantic-core==2.33.2 in /usr/local/lib/python3.11/dist-packages (from pydantic<2.12,>=2.0->gradio) (2.33.2)
Requirement already satisfied: typing-inspection>=0.4.0 in /usr/local/lib/python3.11/dist-packages (from pydantic<2.12,>=2.0->gradio) (0.4.0)
Requirement already satisfied: click>=8.0.0 in /usr/local/lib/python3.11/dist-packages (from typer<1.0,>=0.12->gradio) (8.1.8)
Requirement already satisfied: shellingham=1.3.0 in /usr/local/lib/python3.11/dist-packages (from typer<1.0,>=0.12->gradio) (1.5.4)
Requirement already satisfied: rich>=10.11.0 in /usr/local/lib/python3.11/dist-packages (from typer<1.0,>=0.12->gradio) (13.9.4)
Requirement already satisfied: six>=1.5 in /usr/local/lib/python3.11/dist-packages (from python-dateutil>=2.8.2->pandas<3.0,>=1.0->gradio) (1.17.0)
Requirement already satisfied: markdown-it-py>=2.2.0 in /usr/local/lib/python3.11/dist-packages (from rich>=10.11.0->typer<1.0,>=0.12->gradio) (3.0.0)
Requirement already satisfied: pygments<3.0.0,>=2.13.0 in /usr/local/lib/python3.11/dist-packages (from rich>=10.11.0->typer<1.0,>=0.12->gradio) (2.18.0)
Requirement already satisfied: charset-normalizer<4,>=2 in /usr/local/lib/python3.11/dist-packages (from requests->huggingface-hub>=0.28.1->gradio) (3.4.0)
Requirement already satisfied: urllib3<3,>=1.21.1 in /usr/local/lib/python3.11/dist-packages (from requests->huggingface-hub>=0.28.1->gradio) (2.3.0)
Requirement already satisfied: mdurl~=0.1 in /usr/local/lib/python3.11/dist-packages (from markdown-it-py>=2.2.0->rich>=10.11.0->typer<1.0,>=0.12->gradio) (0.1.2)
```

## 17. Create a Prediction Function

```
def fake_news_predictor(text):
    vector = tfidf.transform([text])
    prediction = model.predict(vector)[0]
    return "Real News 🟢" if prediction == 1 else "Fake News 🔴"
```

## 18. Create the Gradio Interface

```
import gradio as gr

interface = gr.Interface(fn=fake_news_predictor, inputs="text", outputs="text", title="Fake News Detector")
interface.launch()
```

🔗 It looks like you are running Gradio on a hosted Jupyter notebook. For the Gradio app to work, sharing must be enabled. Automatic

Colab notebook detected. To show errors in colab notebook, set debug=True in launch()  
\* Running on public URL: <https://431e809f61548a8f9e.gradio.live>

This share link expires in 1 week. For free permanent hosting and GPU upgrades, run `gradio deploy` from the terminal in the working

## Fake News Detector

<p>text</p> <input type="text"/>	<p>output</p> <input type="text"/>
<p>Clear</p>	<p>Submit</p>
	<p>Flag</p>

Use via API 🦉 · Built with Gradio 🍷 · Settings ⚙️

