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import pandas as pd
import numpy as np
from sklearn.feature_extraction.text import TfidfVectorizer
from sklearn.model_selection import train_test_split
from sklearn.linear_model import LogisticRegression
from sklearn.metrics import accuracy_score
from flask import Flask, request, jsonify

# 1. Data Collection
data = pd.read_csv('news.csv')  # Replace with your dataset path

# 2. Data Preprocessing
data = data.dropna()
data['text'] = data['text'].str.lower()

# 3. EDA (Exploratory Data Analysis)
print(data['label'].value_counts())

# 4. Model Training
X = data['text']
y = data['label']

vectorizer = TfidfVectorizer()
X_vectorized = vectorizer.fit_transform(X)

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

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

# 5. Model Evaluation
y_pred = model.predict(X_test)
print("Accuracy:", accuracy_score(y_test, y_pred))

# 6. Fake News Detection Interface (Flask API)
app = Flask(__name__)

@app.route('/predict', methods=['POST'])
def predict():
    text = request.json['text']
    vectorized_text = vectorizer.transform([text])
    prediction = model.predict(vectorized_text)[0]
    return jsonify({'prediction': prediction})

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