BASIC PROJECT

Sentiment analysia

PROGRAM:

```
                # Step 1: Data Collection
import pandas as pd
from sklearn.model_selection import train_test_split
from sklearn.feature_extraction.text import TfidfVectorizer
from sklearn.linear_model import LogisticRegression
from sklearn.metrics import accuracy_score, classification_report

# Load your data
data = pd.read_csv('restaurant_reviews.csv')  # Assume the file has 'review' and 'sentiment' columns

# Step 2: Data Preprocessing
def preprocess_text(text):
    # Add preprocessing steps (e.g., lowercase, remove punctuation, etc.)
    return text

data['cleaned_review'] = data['review'].apply(preprocess_text)

# Step 3: Feature Extraction
vectorizer = TfidfVectorizer(max_features=5000)
X = vectorizer.fit_transform(data['cleaned_review'])
y = data['sentiment']

# Step 4: Model Training
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2, random_state=42)
model = LogisticRegression()
model.fit(X_train, y_train)

# Step 5: Model Evaluation
y_pred = model.predict(X_test)
print(f'Accuracy: {accuracy_score(y_test, y_pred)}')
print(classification_report(y_test, y_pred))

# Step 6: Deployment (Example Flask API)
from flask import Flask, request, jsonify
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app = Flask(__name__)

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

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

OUTPUT;

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                  Accuracy: 1.0
          precision    recall  f1-score   support

    negative       1.00      1.00      1.00         1
    positive       1.00      1.00      1.00         1

    accuracy                           1.00         2
   macro avg       1.00      1.00      1.00         2
weighted avg       1.00      1.00      1.00         2

Text: The new menu items are fantastic!
Sentiment: positive
```

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