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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
import matplotlib.pyplot as plt

# Load dataset
df = pd.read_csv('kalki_movie_reviews.csv')

# Convert ratings to sentiment labels (customize as needed)
def get_sentiment(rating):
    if rating >= 7:
        return 'positive'
    elif rating <= 4:
        return 'negative'
    else:
        return 'neutral'

df['sentiment'] = df['Ratings'].apply(get_sentiment)

# Features and Labels
X = df['Comments']
y = df['sentiment']

# Vectorize text data using TF-IDF
vectorizer = TfidfVectorizer(max_features=5000) # Adjust max_features as needed
X_vec = vectorizer.fit_transform(X)

# Split dataset
X_train, X_test, y_train, y_test = train_test_split(X_vec, y, test_size=0.2, random_state=42)

# Train Logistic Regression model
model = LogisticRegression()
model.fit(X_train, y_train)

# Predictions and evaluation
y_pred = model.predict(X_test)
accuracy = accuracy_score(y_test, y_pred)
report = classification_report(y_test, y_pred, output_dict=True)

print("Accuracy:", accuracy)
print("Classification Report:\n", classification_report(y_test, y_pred))

# Create bar chart for sentiment distribution
sentiment_counts = df['sentiment'].value_counts()
sentiment_counts.plot(kind='bar', color=['green', 'red', 'blue'])
plt.title('Sentiment Distribution')
plt.xlabel('Sentiment')
plt.ylabel('Count')
plt.show()
```



Accuracy: 1.0

Classification Report:

| | precision | recall | f1-score | support |
|--------------|-----------|--------|----------|---------|
| negative | 1.00 | 1.00 | 1.00 | 88 |
| neutral | 1.00 | 1.00 | 1.00 | 129 |
| positive | 1.00 | 1.00 | 1.00 | 783 |
| accuracy | | | 1.00 | 1000 |
| macro avg | 1.00 | 1.00 | 1.00 | 1000 |
| weighted avg | 1.00 | 1.00 | 1.00 | 1000 |

