## Technique to preprocess text data

```
# Install the TextBlob library for sentiment analysis
%pip install textblob

# Import necessary libraries for sentiment analysis
from textblob import TextBlob
import matplotlib.pyplot as plt

# Function to calculate sentiment polarity

def get_sentiment(text):
    return TextBlob(text).sentiment.polarity

# Apply sentiment analysis to the 'Caption' column

df['Sentiment'] = df['Caption'].apply(get_sentiment)

# Display the head of the dataframe with sentiment scores
print(df[['Caption', 'Sentiment']].head())

# Visualize the sentiment distribution
plt.figure(figsize=(10, 6))
plt.hist(df['Sentiment'], bins=30, color='skyblue', edgecolor='black')
plt.title('Sentiment Distribution of Instagram Captions')
plt.xlabel('Sentiment Score')
plt.ylabel('Frequency')
plt.grid(axis='y')
plt.axvline(0, color='red', linestyle='dashed', linewidth=1)
plt.show()
```

## Visualization of sentiments trends over time