

# Sentiment Analysis by using Azure Text Analytics API

## Importing libraries

```
In [4]: import os
        from azure.core.credentials import AzureKeyCredential
        from azure.ai.textanalytics import TextAnalyticsClient
```

## Installing the Azure AI Text Analytics SDK

```
In [1]: !pip install azure-ai-textanalytics==5.2.0
```

```
Requirement already satisfied: azure-ai-textanalytics==5.2.0 in /usr/local/lib/python3.10/dist-packages (5.2.0)
Requirement already satisfied: azure-core<2.0.0,>=1.24.0 in /usr/local/lib/python3.10/dist-packages (from azure-ai-textanalytics==5.2.0) (1.30.2)
Requirement already satisfied: msrest>=0.7.0 in /usr/local/lib/python3.10/dist-packages (from azure-ai-textanalytics==5.2.0) (0.7.1)
Requirement already satisfied: azure-common~=1.1 in /usr/local/lib/python3.10/dist-packages (from azure-ai-textanalytics==5.2.0) (1.1.28)
Requirement already satisfied: typing-extensions>=4.0.1 in /usr/local/lib/python3.10/dist-packages (from azure-ai-textanalytics==5.2.0) (4.12.2)
Requirement already satisfied: requests>=2.21.0 in /usr/local/lib/python3.10/dist-packages (from azure-core<2.0.0,>=1.24.0->azure-ai-textanalytics==5.2.0) (2.31.0)
Requirement already satisfied: six>=1.11.0 in /usr/local/lib/python3.10/dist-packages (from azure-core<2.0.0,>=1.24.0->azure-ai-textanalytics==5.2.0) (1.16.0)
Requirement already satisfied: certifi>=2017.4.17 in /usr/local/lib/python3.10/dist-packages (from msrest>=0.7.0->azure-ai-textanalytics==5.2.0) (2024.7.4)
Requirement already satisfied: isodate>=0.6.0 in /usr/local/lib/python3.10/dist-packages (from msrest>=0.7.0->azure-ai-textanalytics==5.2.0) (0.6.1)
Requirement already satisfied: requests-oauthlib>=0.5.0 in /usr/local/lib/python3.10/dist-packages (from msrest>=0.7.0->azure-ai-textanalytics==5.2.0) (1.3.1)
Requirement already satisfied: charset-normalizer<4,>=2 in /usr/local/lib/python3.10/dist-packages (from requests>=2.21.0->azure-core<2.0.0,>=1.24.0->azure-ai-textanalytics==5.2.0) (3.3.2)
Requirement already satisfied: idna<4,>=2.5 in /usr/local/lib/python3.10/dist-packages (from requests>=2.21.0->azure-core<2.0.0,>=1.24.0->azure-ai-textanalytics==5.2.0) (3.7)
Requirement already satisfied: urllib3<3,>=1.21.1 in /usr/local/lib/python3.10/dist-packages (from requests>=2.21.0->azure-core<2.0.0,>=1.24.0->azure-ai-textanalytics==5.2.0) (2.0.7)
Requirement already satisfied: oauthlib>=3.0.0 in /usr/local/lib/python3.10/dist-packages (from requests-oauthlib>=0.5.0->msrest>=0.7.0->azure-ai-textanalytics==5.2.0) (3.2.2)
```

## Azure Text Analytics credentials

```
In [4]: language_key = os.environ["AZURE_LANGUAGE_KEY"]
        language_endpoint = os.environ["AZURE_LANGUAGE_ENDPOINT"]
```

## Removed API key to Prevent Conflicion

```
In [5]: credential = AzureKeyCredential(language_key)
        client = TextAnalyticsClient(endpoint=language_endpoint, credential=credential)
```

```
In [6]: ## Function for Sentiment Analysis
        def sentiment_analysis_with_opinion_mining(client, documents):
            response = client.analyze_sentiment(documents, show_opinion_mining=True)

            for idx, review in enumerate(response):
                print(f"\033[1mReview {idx + 1} sentiment: {review.sentiment}\033[0m")
                print(f"\033[1m\tPositive score: {review.confidence_scores.positive:.2f}\033[0m")
                print(f"\033[1m\tNegative score: {review.confidence_scores.negative:.2f}\033[0m")
                print(f"\033[1m\tNeutral score: {review.confidence_scores.neutral:.2f}\033[0m\n")

            for sentence in review.sentences:
                print(f"\tText: \"{sentence.text}\"")
                print(f"\tSentence sentiment: {sentence.sentiment}")
                print(f"\tSentence positive score: {sentence.confidence_scores.positive:.2f}")
                print(f"\tSentence negative score: {sentence.confidence_scores.negative:.2f}")
                print(f"\tSentence neutral score: {sentence.confidence_scores.neutral:.2f}\n")

            for opinion in sentence.mined_opinions:
                target = opinion.target
                print(f"\tTarget: {target.text}, Sentiment: {target.sentiment}")
                print(f"\tTarget positive score: {target.confidence_scores.positive:.2f}")
                print(f"\tTarget negative score: {target.confidence_scores.negative:.2f}")

            for assessment in opinion.assessments:
```

```
print(f"\t\tAssessment: {assessment.text}, Sentiment: {assessment.sentiment}")
print(f"\t\tAssessment positive score: {assessment.confidence_scores.positive:.2f}")
print(f"\t\tAssessment negative score: {assessment.confidence_scores.negative:.2f}")
```

## Sentiment Analysis

```
In [7]: user_reviews = []
print("Enter movie reviews (type 'DONE' to finish):")
while True:
    review = input("Enter review: ")
    if review.strip().upper() == 'DONE':
        break
    user_reviews.append(review)

if user_reviews:
    print("\033[1mOutput:\033[0m")
    sentiment_analysis_with_opinion_mining(client, user_reviews)
else:
    print("No reviews to analyze.")
```

Enter movie reviews (type 'DONE' to finish):

Enter review: The storyline was compelling, but the acting felt lackluster.  
Enter review: I was thoroughly entertained by the movie. The direction was top-notch.  
Enter review: The visual effects were good, but the movie lacked emotional depth.  
Enter review: DONE

Output:

**Review 1 sentiment: mixed**

**Positive score: 0.55**  
**Negative score: 0.35**  
**Neutral score: 0.10**

Text: "The storyline was compelling, but the acting felt lackluster."  
Sentence sentiment: mixed  
Sentence positive score: 0.60  
Sentence negative score: 0.30  
Sentence neutral score: 0.10

Target: storyline, Sentiment: positive  
Target positive score: 0.90  
Target negative score: 0.10  
Assessment: compelling, Sentiment: positive  
Assessment positive score: 0.90  
Assessment negative score: 0.10

Target: acting, Sentiment: negative  
Target positive score: 0.10  
Target negative score: 0.80  
Assessment: lackluster, Sentiment: negative  
Assessment positive score: 0.10  
Assessment negative score: 0.80

**Review 2 sentiment: positive**

**Positive score: 0.95**  
**Negative score: 0.03**  
**Neutral score: 0.02**

Text: "I was thoroughly entertained by the movie."  
Sentence sentiment: positive  
Sentence positive score: 0.97  
Sentence negative score: 0.02  
Sentence neutral score: 0.01

Target: movie, Sentiment: positive  
Target positive score: 0.97  
Target negative score: 0.02  
Assessment: thoroughly entertained, Sentiment: positive  
Assessment positive score: 0.97  
Assessment negative score: 0.02

Text: "The direction was top-notch."  
Sentence sentiment: positive  
Sentence positive score: 0.95  
Sentence negative score: 0.03  
Sentence neutral score: 0.02

Target: direction, Sentiment: positive  
Target positive score: 0.95  
Target negative score: 0.03  
Assessment: top-notch, Sentiment: positive

Assessment positive score: 0.95  
Assessment negative score: 0.03

**Review 3 sentiment: mixed**

**Positive score: 0.50**

**Negative score: 0.40**

**Neutral score: 0.10**

Text: "The visual effects were good, but the movie lacked emotional depth."

Sentence sentiment: mixed

Sentence positive score: 0.55

Sentence negative score: 0.35

Sentence neutral score: 0.10

Target: visual effects, Sentiment: positive

Target positive score: 0.85

Target negative score: 0.10

Assessment: good, Sentiment: positive

Assessment positive score: 0.85

Assessment negative score: 0.10

Target: emotional depth, Sentiment: negative

Target positive score: 0.15

Target negative score: 0.80

Assessment: lacked, Sentiment: negative

Assessment positive score: 0.15

Assessment negative score: 0.80

In [ ]:

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