SI - Final Project Documentation

API Name: Sentiment Analysis using Microsoft Azure

What is Azure Cognitive Service for Language?

Azure Cognitive Service for Language is a cloud-based service. It supports various Natural Language Processing (NLP) features to understand and analyse a text. Using Microsoft Azure, I have developed 4 API's. Those are listed below,

1. Sentiment Analysis API
2. Entity Recognition API
3. Key phrase extraction API
4. Language detection API

As my topic was sentiment analysis. But the link provided had description about 'Azure Cognitive Service for Language'. Therefore, I have implemented 3 more API's by reading the same documentation. All 4 API uses Azure **ai-text-analytics** library.

Tools, Languages and Frameworks Used-

- **Digital Ocean** - For deploying the project
- **VSCode** – Editor used for coding
- **Node js** - For implementing the API
- **npm** - For dependencies in node js application
- **Swagger** - For API documentation and testing
- **Git** - For version control
- **Google docs** - For documentation.

Swagger is provided for documentation and for testing API's.

Swagger link - **http://208.68.39.197:3002/docs/**

Swagger UI for all 4 APIs

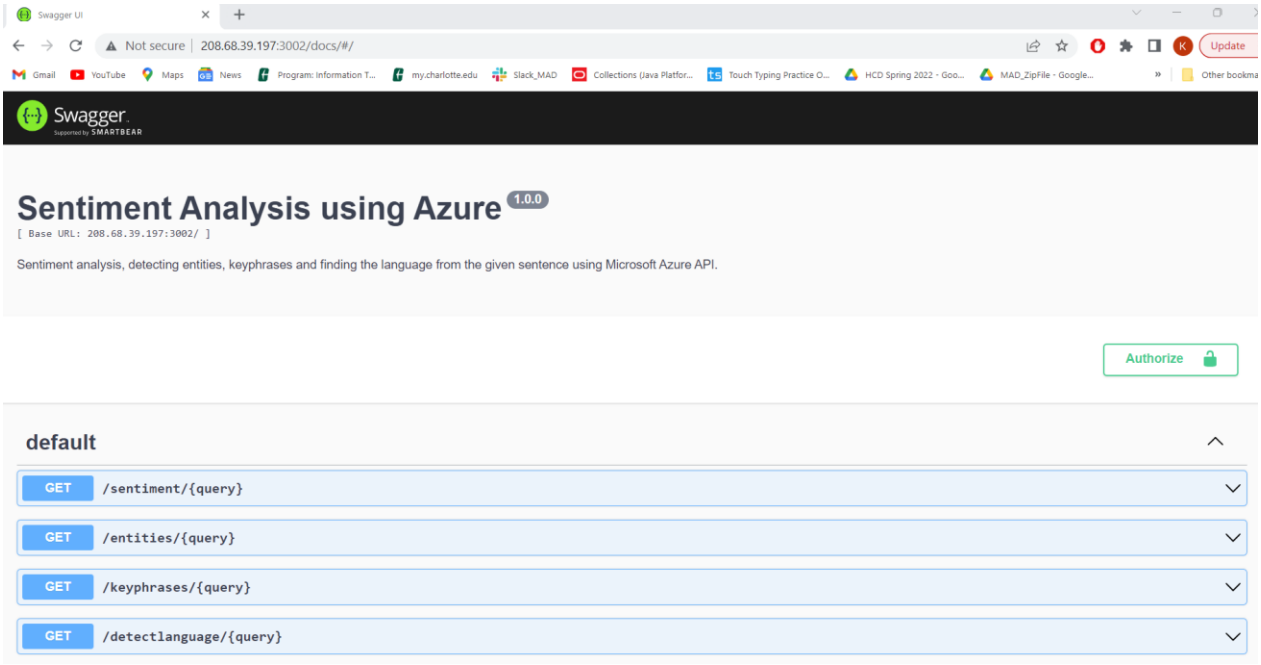

Fig 1: Swagger UI

Sentiment analysis API-

This API is used to extract the sentiment from the given sentence. The sentiment can be Positive, Negative or Neutral. The API also gives the confidence scores for each sentiment. The response from the API is JSON objects.

The entered sentence can be in any language and the API will give the proper sentiment results regardless of the language used in the sentence. For example, refer fig*4-Sentiment-analysis for other than English language*, I have used French as the language in my sentence query (meaning of the sentence is - I am good) and the response from API was proper.

API endpoints:

/sentiment/:query – detects the sentiment and sentiment confidence scores.

Method: Get

Headers:

Content-type: application/json

Ocp-Apim-Subscription-Key

Parameters: Input text (fetched from requests query parameter). Added appropriate validation such as sentence shouldn't be null or undefined.

Error Codes:

200: Successful

500: Internal Server Error

Swagger URL for this API- http://208.68.39.197:3002/docs/#/default/get_sentiment__query_

Swagger Screenshot- (For the better quality I had taken 2 screenshots with cropped screen)

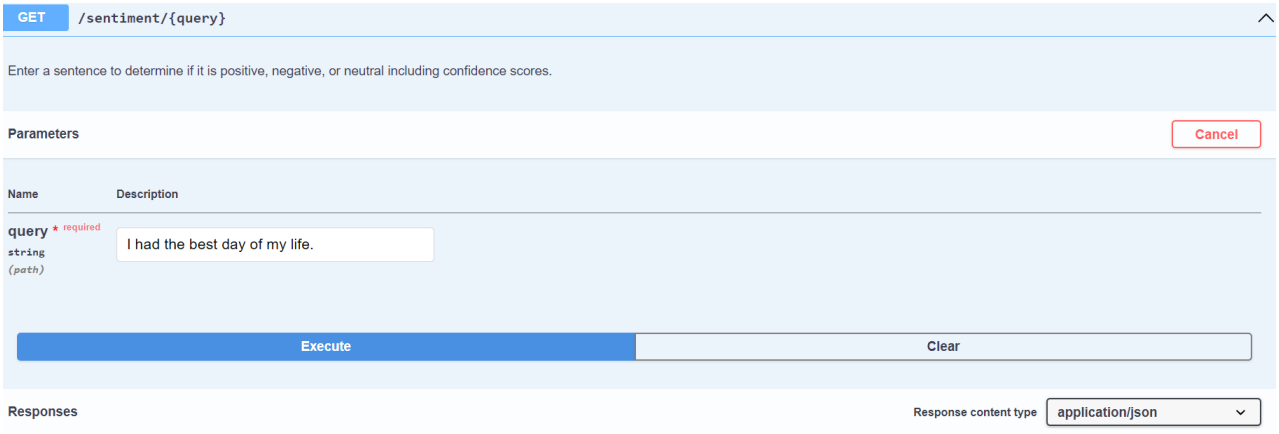

Fig 2: Sentiment analysis API request

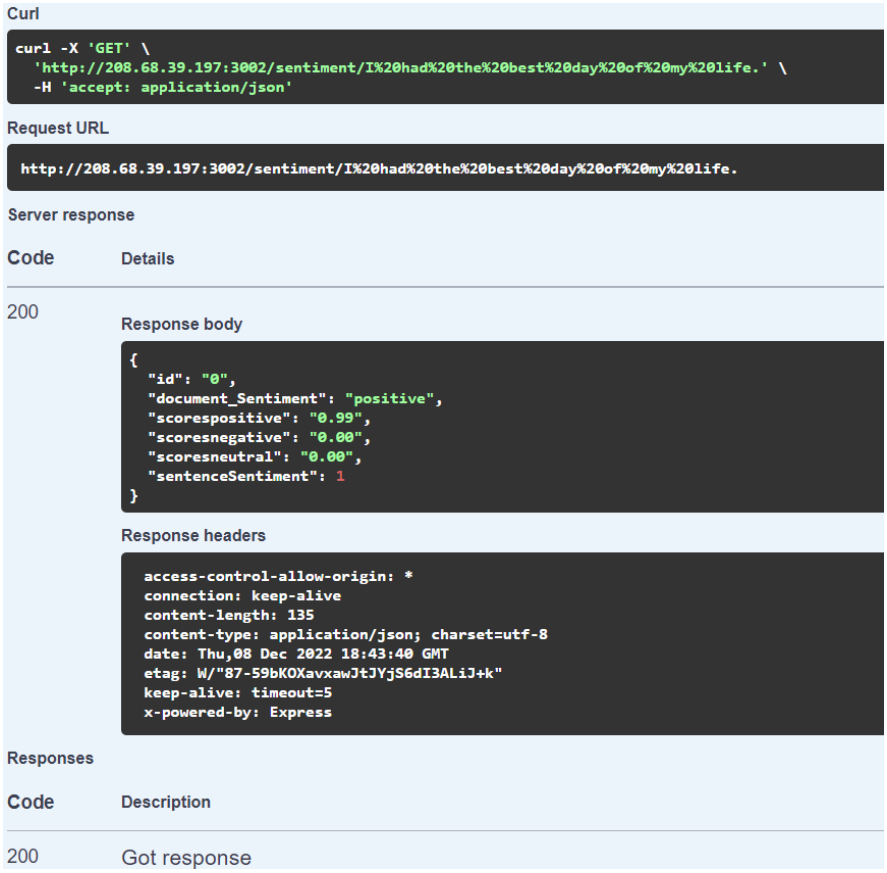

Fig 3: Sentiment analysis response

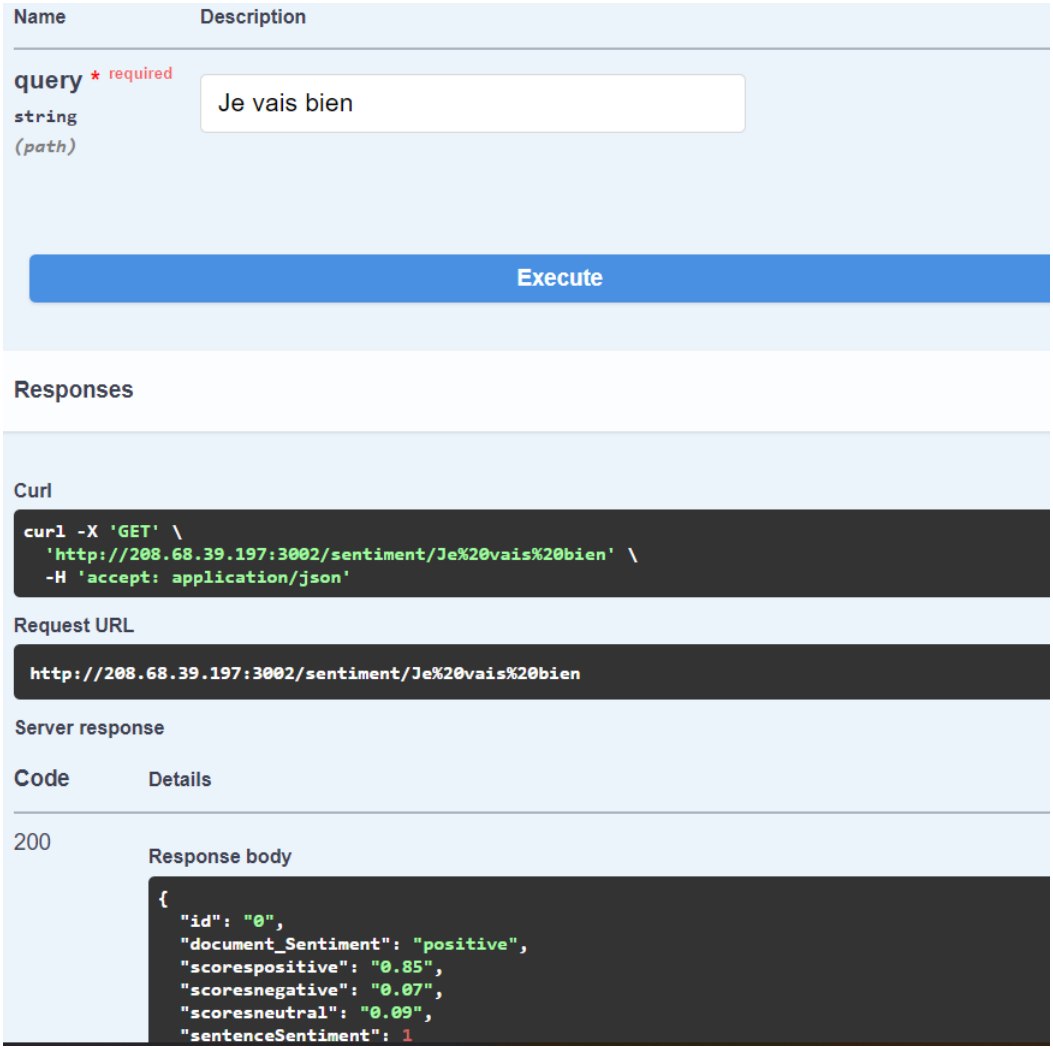

Fig 4: Sentiment-analysis for other than English language

Entity Recognition API-

Entity recognition API is one of the Azure Cognitive Service for languages. It is also called NER – Named Entity Recognition. This API is used to determine entities like people, place, things etc in a text.

API endpoints:

/entities/:query – detects the entities from a given sentences.

Method: Get

Headers:

Content-type: application/json

Ocp-Apim-Subscription-Key

Parameters: Input text (fetched from requests query parameter). Added appropriate validation such as sentence shouldn't be null or undefined.

Error Codes:

200: Successful

500: Internal Server Error

Swagger URL for this API- http://208.68.39.197:3002/docs/#/default/get_entities__query_

Swagger Screenshot-

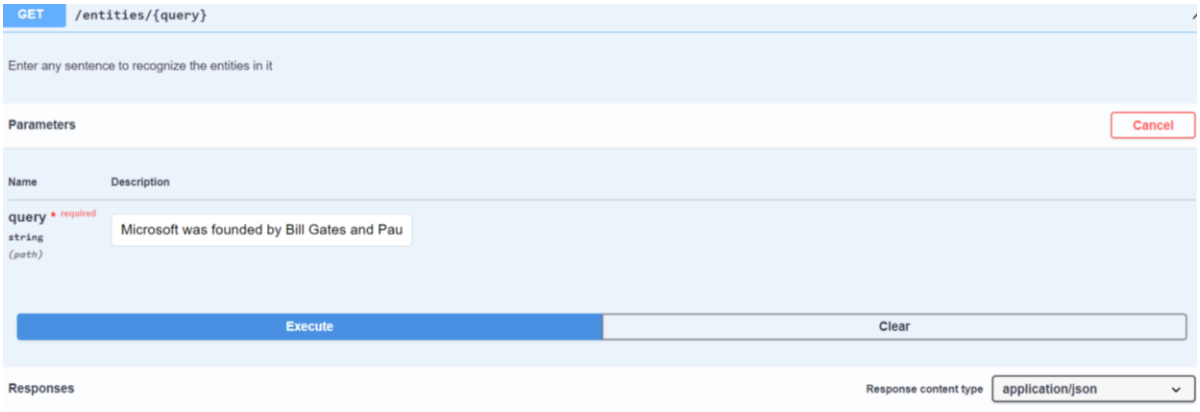

Fig 5: Entity Recognition API request

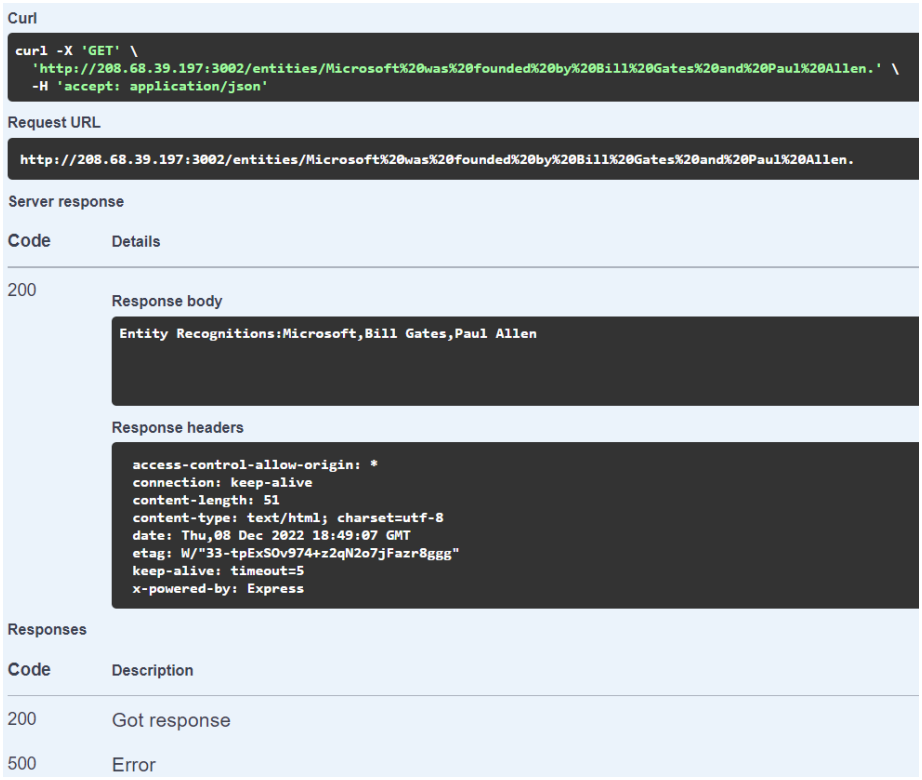

Fig 6: Entity Recognition API response

Key phrase extraction API

This API is one of the Azure Cognitive Service for Languages. The API will evaluate and return the key phrases used in a sentence.

API endpoints:

/entities/:query – detects the entities from a given sentences.

Method: Get

Headers:

Content-type: application/json

Ocp-Apim-Subscription-Key

Parameters: Input text (fetched from requests query parameter). Added appropriate validation such as sentence shouldn't be null or undefined.

Error Codes:

200: Successful

500: Internal Server Error

Swagger URL for this API- http://208.68.39.197:3002/docs/#/default/get_keyphrases__query_

Swagger Screenshot-

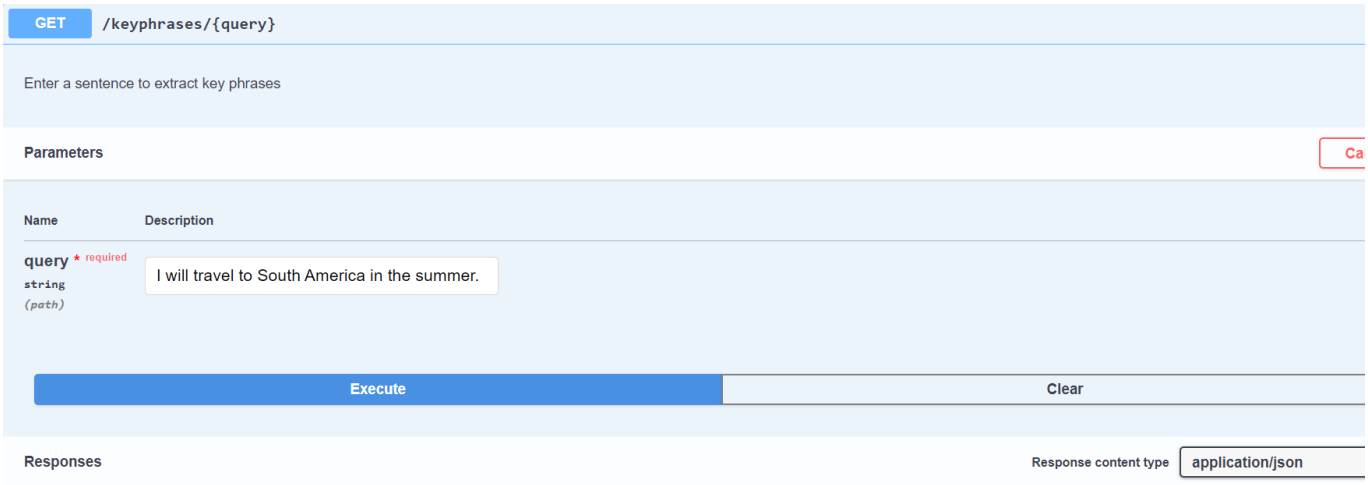

Fig 7: Key phrase extraction API request

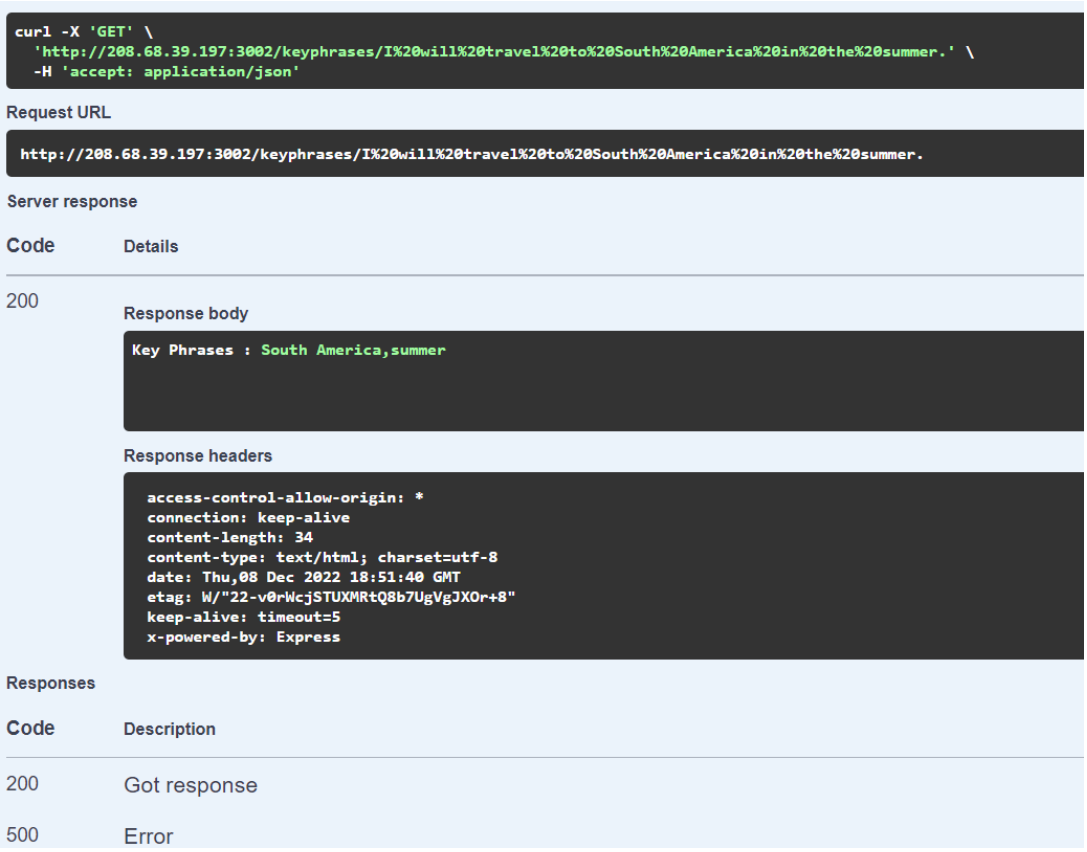

Fig 8: Key phrase extraction API response

Language detection API

This API is also one of the Azure Cognitive Service for Languages. This is one of the useful API because it will detect the language in which the sentence is written. This API will detect any type of language such as dialects, regional/cultural language.

API endpoints:

/entities/:query – detects the entities from a given sentences.

Method: Get

Headers:

Content-type: application/json

Ocp-Apim-Subscription-Key

Parameters: Input text (fetched from requests query parameter). Added appropriate validation such as sentence shouldn't be null or undefined.

Error Codes:

200: Successful

500: Internal Server Error

Swagger URL for this API-

http://208.68.39.197:3002/docs/#/default/get_detectlanguage__query_

Swagger Screenshot-

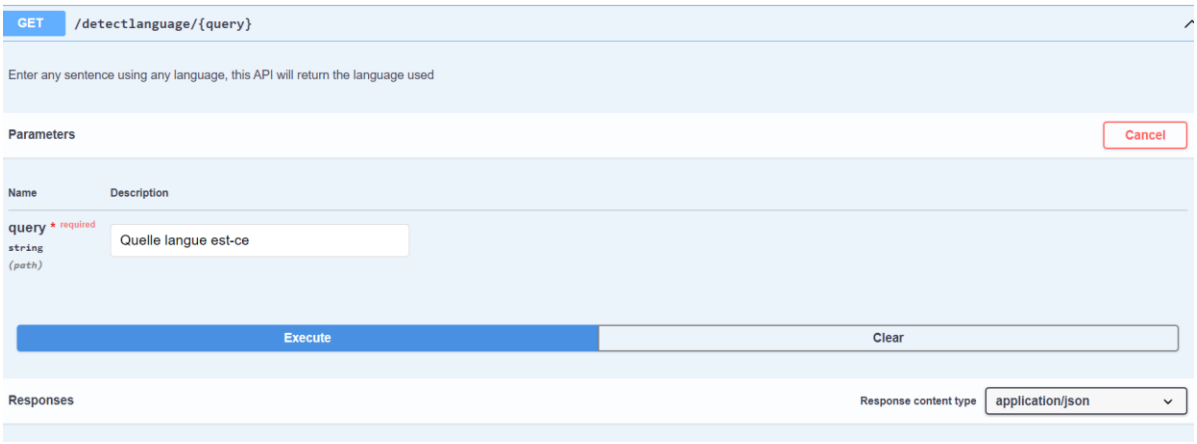

Fig 9: Language detection API request

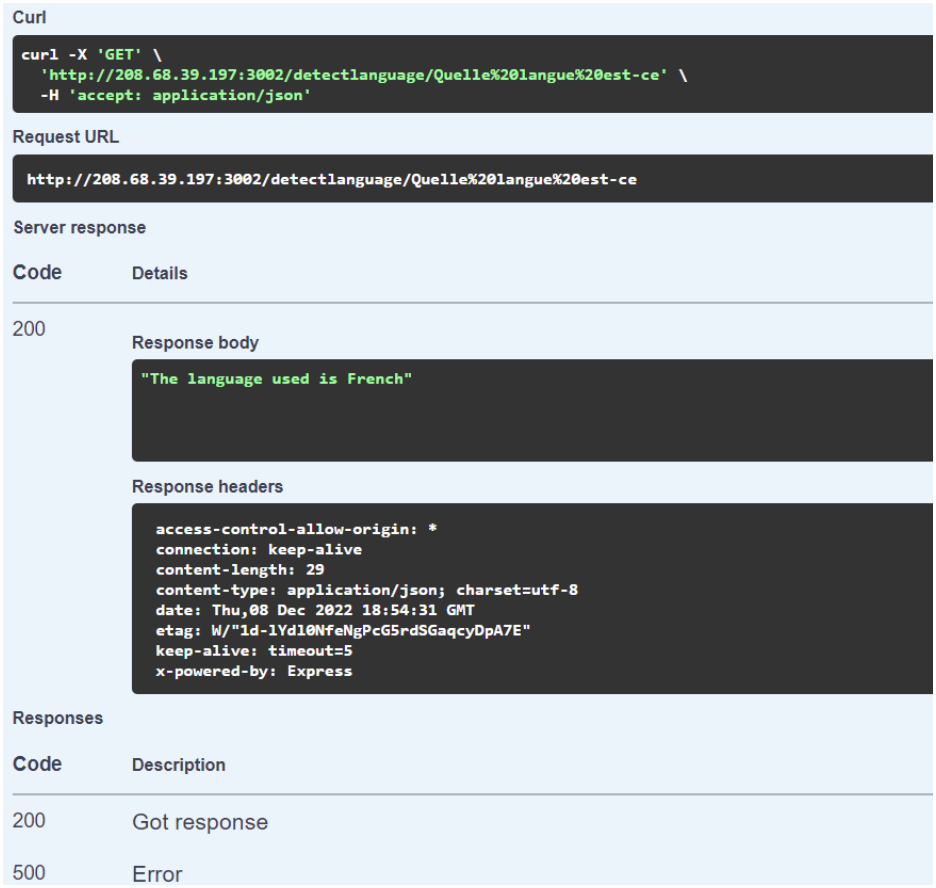

Fig 10: Language detection API response

References -

Azure documentation -

https://learn.microsoft.com/en-us/azure/cognitive-services/language-service/overview

Source Code –

https://github.com/KrithiKsd/ITIS-6177-Final-Project-Azure-Sentiment-Analysis.git

Swagger document URL-

http://208.68.39.197:3002/docs/