ITIS 6177 - System Integration
Final Project Documentation

HARSH RAVAL - Student ID : 801257980

This is the Documentation of Microsoft Azure Cognitive Service for Language API.

Cognitive Service for Language is a managed service to add high-quality natural language capabilities, from sentiment analysis and entity extraction to automated question answering.

Before we move forward and see how to use these APIs, please have a look at the technical requirements for this project to work.

Requirements:
1. Postman

We will look into mainly 3 API Endpoints :
- Key Phrase Extraction : http://157.230.86.10:3000/phraseextraction
  - Request method used : POST
- Entity Linking : http://157.230.86.10:3000/entitylinking
  - Request method used : POST
- Entity Recognition : http://157.230.86.10:3000/entityrecognition
  - Request method used : POST

Let's look at each of these APIs one by one.

Key Phrase Extraction :
One of the features offered by Language API is Key Phrase Extraction. This feature utilizes machine learning and AI algorithms to quickly identify the main concepts present in the text. All you have to do is provide an input sentence of your choice and the API will extract and return important key elements from your input sentence.
For example :
Given the input sentence : "Dr. Smith has a very modern medical office, and she has great staff."

The API will process the input sentence and will return a list covering fundamental topics/phrases discussed in the input sentence. And so,
Output :
	["modern medical office",
	 "Dr, Smith",
	 "great staff"]

To use Key Phrase Extraction,
   1. Open Postman
   2. Copy the following API ENDPOINT URL
		http://157.230.86.10:3000/phraseextraction
   3. Paste the copied API ENDPOINT in Postman.
   4. Select Request Method as **POST**.

| POST | ∨ | http://157.230.86.10:3000/phraseextraction | Send | ∨ |
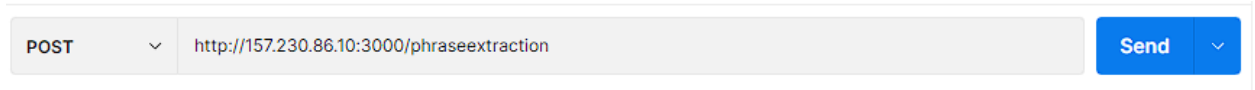
   5. Next, select "**Body**"
   6. Select type of the data as **JSON** and choose **raw**
   7. Copy the following JSON data
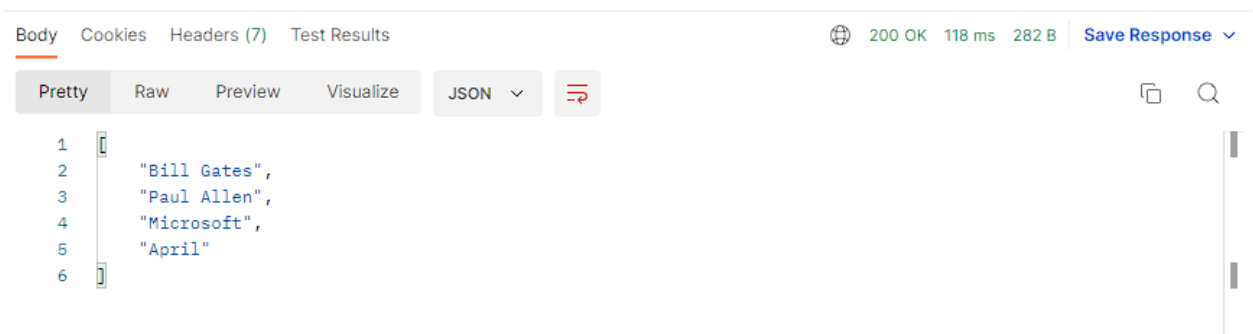
```
{
  "kind": "KeyPhraseExtraction",
  "parameters": {
    "modelVersion": "latest"
  },
  "analysisInput": {
    "documents": [
      {
        "id": "1",
        "language": "en",
        "text": "Microsoft was founded by Bill Gates and Paul Allen on April 4, 1975."
      }
    ]
  }
}
```

8. Paste the Copied JSON Data in the Text Box.
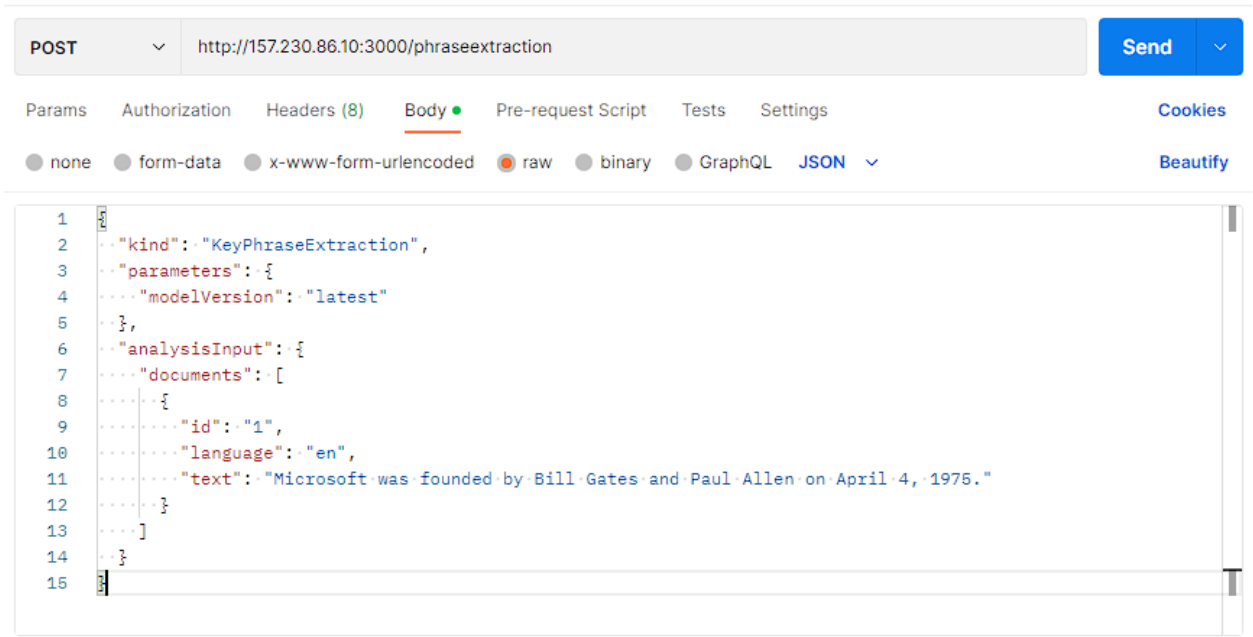
9. Click **Send**.

10. Check the results by scrolling down in POSTMAN. Optionally, you can choose "Pretty" which will format the result for better readability.

Similarly you can request the results for your own sentences/paragraphs. Just replace the text present inside the key "text" with your own text.

```
{
  "kind": "KeyPhraseExtraction",
  "parameters": {
    "modelVersion": "latest"
  },
  "analysisInput": {
```

```
        "documents": [
         {
           "id": "1",
           "language": "en",
           "text": "Enter your own text here."
         }
        ]
       }
      }
```

Note: For an Incorrect URL, the API would return a message saying "Cannot POST /phrasextraction". So make sure you copy the URL which is provided.

Entity Linking :

One of the other features offered by Language API is Entity Linking. This feature utilizes machine learning and AI algorithms to identify and disambiguate the identity of entities found in text. Simply put, this API will return important elements from the input sentence such as name of place, name of renowned person, etc. along with the link to more information on Wikipedia.

For example :

Given the input sentence : "We went to Seattle last week."

The API will process the input sentence and will return a dictionary having keys as identified entities and values as Wikipedia Link. Here is how same output will look like,
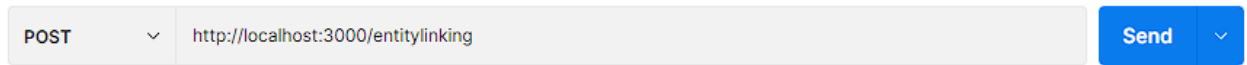
Output :

```
    {
        "Seattle": "https://en.wikipedia.org/wiki/Seattle"
    }
```

To use Entity Linking,

1. Open Postman
2. Copy the following API ENDPOINT URL

3. Paste the copied API ENDPOINT in Postman.
4. Select Request Method as **POST**.

POST ⌄	http://localhost:3000/entitylinking	Send ⌄

5. Next, select "**Body**"
6. Select type of the data as **JSON** and choose **raw**
7. Copy the following JSON data
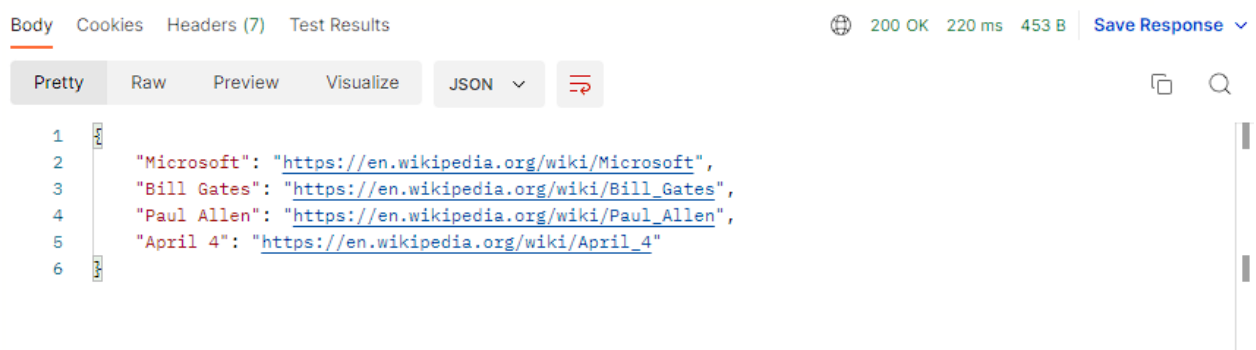
```
{
  "kind": "EntityLinking",
  "parameters": {
    "modelVersion": "latest"
  },
  "analysisInput": {
    "documents": [
      {
        "id": "1",
        "language": "en",
        "text": "We went to Seattle last week."
      }
    ]
  }
}
```

8. Paste the Copied JSON Data in the Text Box.

9. Click **Send**.

10. Check the results by scrolling down in POSTMAN. Optionally, you can choose "Pretty" which will format the result for better readability.

Similarly you can request the results for your own sentences/paragraphs. Just replace the text present inside the key "text" with your own text.

```
{
  "kind": "EntityLinking",
  "parameters": {
    "modelVersion": "latest"
  },
  "analysisInput": {
    "documents": [
      {
```

```
            "id": "1",

            "language": "en",

            "text": "Enter your own text here."

          }

        ]

      }

    }
```

Note: For an Incorrect URL, the API would return a message saying "Cannot POST /entitylinking". So make sure you copy the URL which is provided.

Entity Recognition :
This is the final API in our list which is again offered by Language API is Entity Recognition. This feature utilizes machine learning and AI algorithms to identify and categorize entities in unstructured text. As a side note it has many applications in financial and legal organizations for example, mortgage application data extraction done manually by human reviewers may take several days to extract. Automating these steps by building a custom NER model simplifies the process and saves cost, time, and effort.
For example :
Given the input sentence : "I had a wonderful trip to Seattle last week."
The API will process the input sentence and will return a dictionary having keys as identified entities and values as the category of the named entity. Here is how same output will look like,
Output :
```
    {

        "trip": "Event",

        "seattle": "Location",

        "last week": "DateTime"

    }
```

To use Entity Recognition,
1. Open Postman
2. Copy the following API ENDPOINT URL
   http://localhost:3000/entityrecognition
3. Paste the copied API ENDPOINT in Postman.
4. Select Request Method as **POST**.

POST	∨	http://localhost:3000/entityrecognition	Send	∨
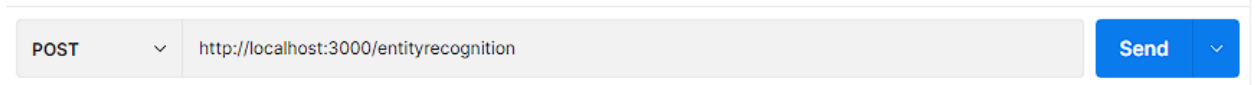
5. Next, select "**Body**"
6. Select type of the data as **JSON** and choose **raw**
7. Copy the following JSON data
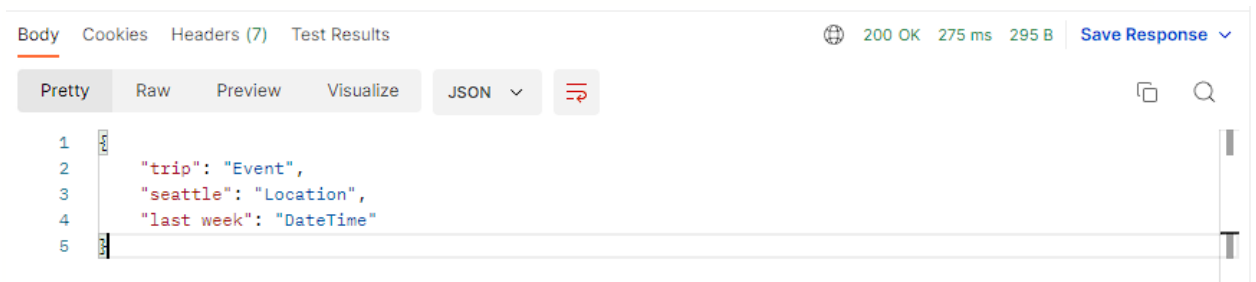
```
{
  "kind": "EntityRecognition",
  "parameters": {
    "modelVersion": "latest"
  },
  "analysisInput": {
    "documents": [
      {
        "id": "1",
        "language": "en",
        "text": "I had a wondeful trip to seattle last week."
      }
    ]
  }
}
```

8. Paste the Copied JSON Data in the Text Box.

9. Click **Send**.

10.   Check the results by scrolling down in POSTMAN. Optionally, you can choose "Pretty" which will format the result for better readability.

Similarly you can request the results for your own sentences/paragraphs. Just replace the text present inside the key "text" with your own text.

```
{
  "kind": "EntityRecognition",
  "parameters": {
    "modelVersion": "latest"
  },
  "analysisInput": {
    "documents": [
```

```
      {
        "id": "1",
        "language": "en",
        "text": "Enter your own text here."
      }
    ]
  }
}
```

Note: For an Incorrect URL, the API would return a message saying "Cannot POST /entityrecognition". So make sure you copy the URL which is provided.