CAD – PHASE 4 ASSIGNMENT

DEVELOPMENT PHASE 2

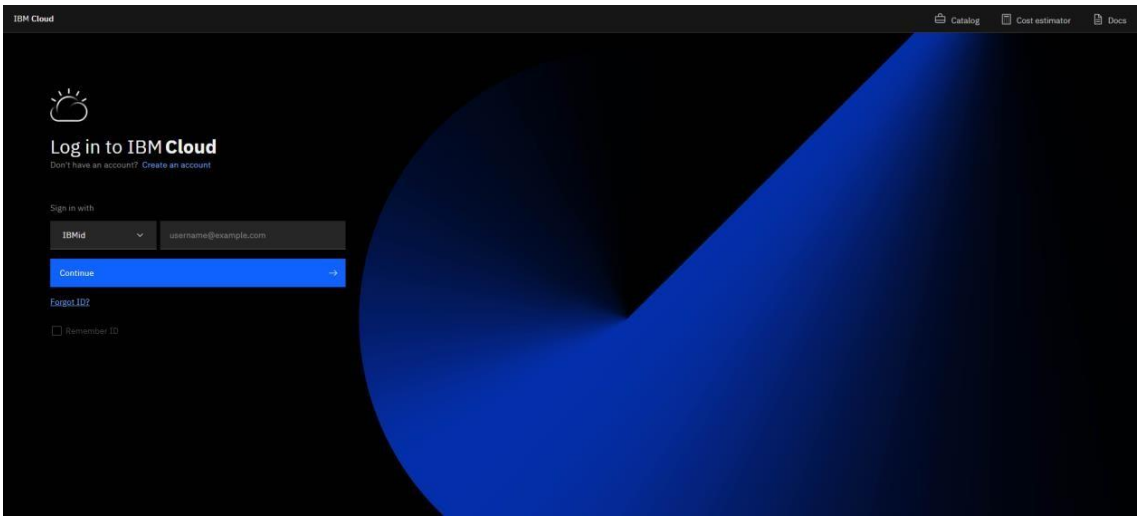
Design a simple web interface where users can upload images and view the AI-generated captions.

Use natural language generation to create captions for the recognized images.

Here are the step-by-step instructions to create a simple web interface for users to upload images and view AI-generated captions and create captions using NLP

Step 1: Create an IBM Cloud Account

Step 2: Log into IBM Cloud



Step 3: Set Up the Visual Recognition Service

- Once you are logged in, go to the IBM Cloud Dashboard.
- Click on "Create Resource" to create a new service.
- In the search bar, type "Visual Recognition" and select the "Visual Recognition" service from the catalog.
- Follow the prompts to create the service. You may need to choose a region and give your service a name.

Step 4: Obtain API Keys

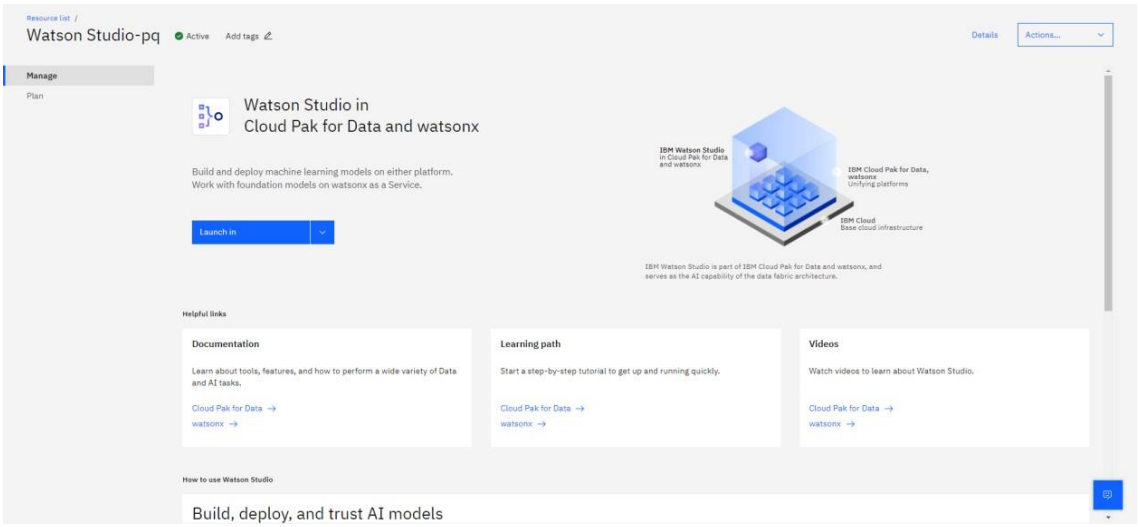
Step 5: Design a Simple Web Interface

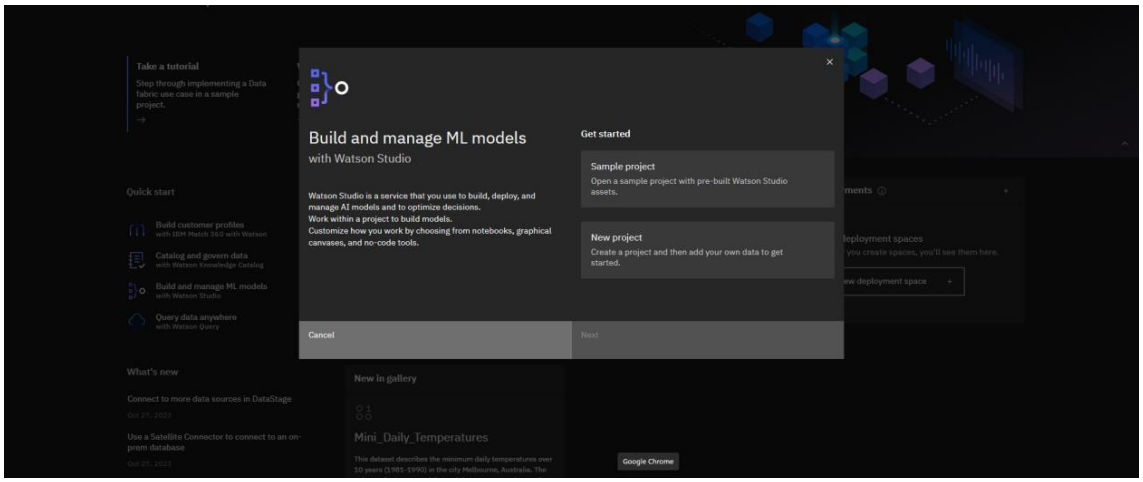
```
<!DOCTYPE html>
<html>
<head>
    <title>Image Recognition</title>
</head>
<body>
    <h1>Image Recognition</h1>
    <input type="file" id="imageInput" accept="image/*" />
    <button onclick="uploadImage()">Upload Image</button>
    <div id="imageContainer"></div>
    <div id="captionContainer"></div>

    <script>        const apiKey =
'YOUR_API_KEY';         const apiUrl =
'YOUR_API_URL';
```

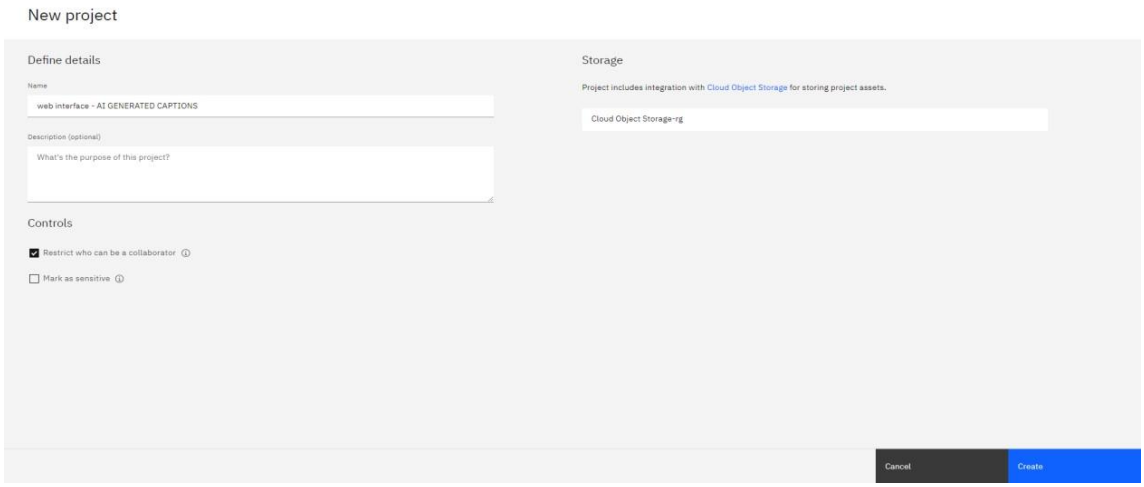
```
        function uploadImage() {             const fileInput =
document.getElementById('imageInput');             const
imageContainer = document.getElementById('imageContainer');

            const captionContainer =
document.getElementById('captionContainer');


            if (fileInput.files.length > 0) {
const imageFile = fileInput.files[0];


                const formData = new FormData();
formData.append('images_file', imageFile);


                fetch(apiUrl + '/v3/classify?version=2022-01-01', {
method: 'POST',                 headers: {
                    'Authorization': 'Basic ' + btoa('apikey:' + apiKey)
                },
                body: formData
                })
                .then(response => response.json())
                .then(data => {
                    // Display the uploaded image                 const
imageUrl = URL.createObjectURL(imageFile);                 const
imgElement = document.createElement('img');
imgElement.src = imageUrl;
```

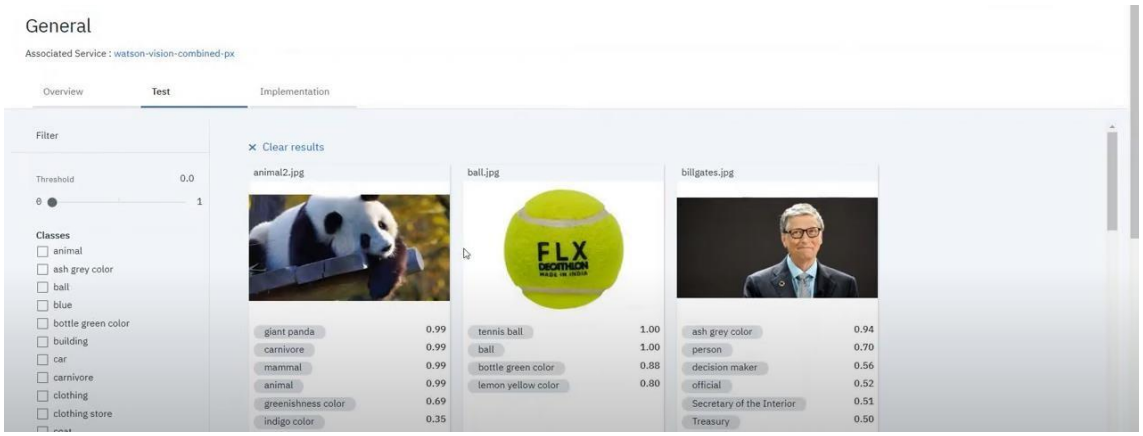
```
imageContainer.innerHTML = '';
imageContainer.appendChild(imgElement);

                // Display the AI-generated captions
captionContainer.innerHTML = '<strong>AI-Generated Captions:</strong><br>';
                data.images[0].classifiers[0].classes.forEach(cls => {
                    captionContainer.innerHTML += cls.class + ': ' + cls.score + '<br>';
                });
            })
            .catch(error => {
console.error('Error:', error);
            });
        } else {            alert('Please select an image to upload.');
        }
    }
    </script>
</body>
</html>
```

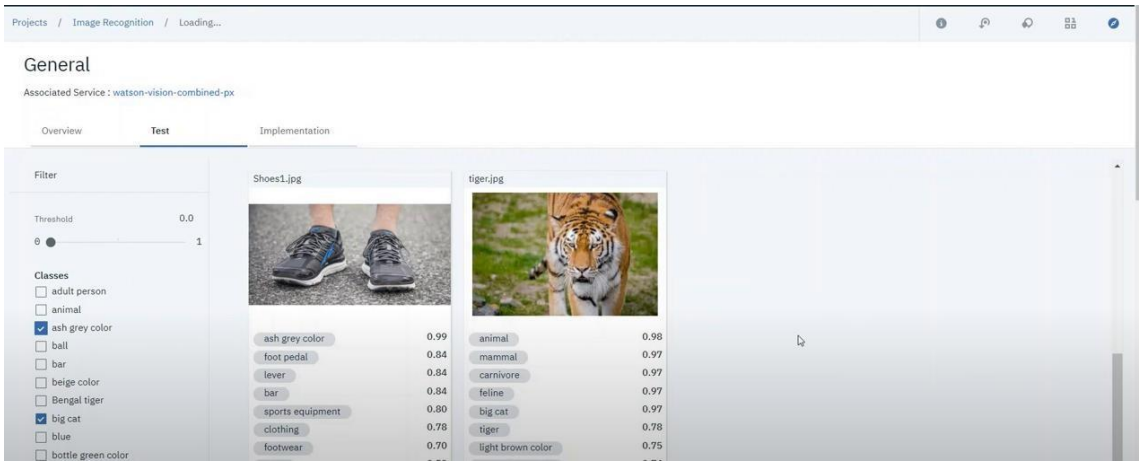
Step 6: Integrate the Visual Recognition API



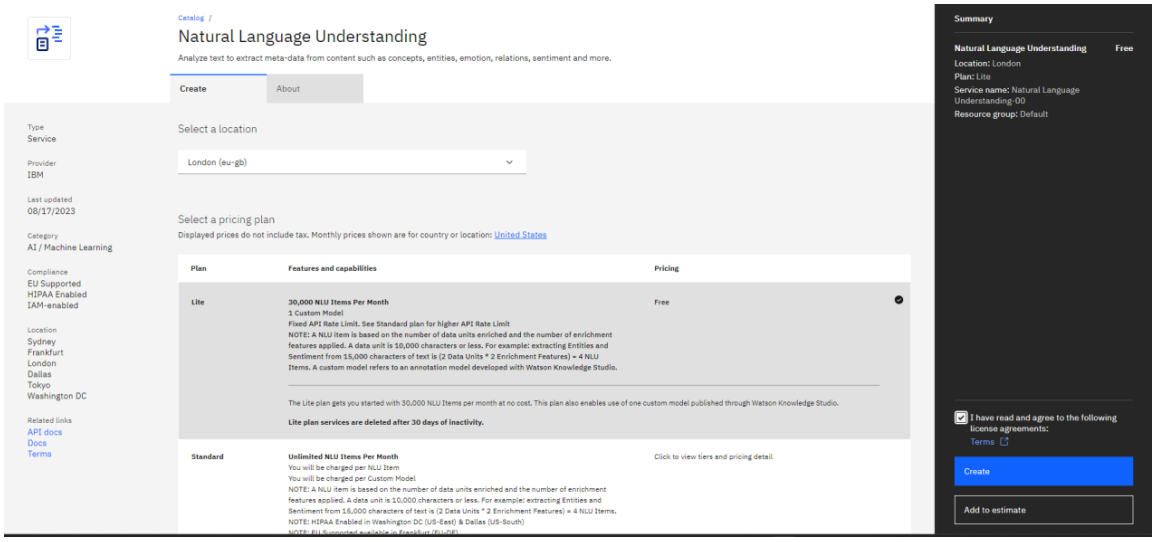








Step 7: Create Natural Language understanding Account



Step 1: Analyze a webpage

Run the following command to analyze a webpage to get sentiment, concepts, categories, entities, and keywords.

```
$ curl -X POST -u "apikey:{apikey}" \
--header "Content-Type: application/json" \
--data '{
  "url": "http://newsroom.ibm.com/Guerbet-and-IBM-Watson-Health-Announce-Strategic
  "features": {
    "sentiment": {},
    "categories": {},
    "concepts": {},
    "entities": {},
    "keywords": {}
  }
}' \
"{url}/v1/analyze?version=2019-07-12"
```

Windows users: This command might not run on Windows. Run the following command instead:

```
$ curl -X POST -u "apikey:{apikey}" --header "Content-Type: application/json" --da
```

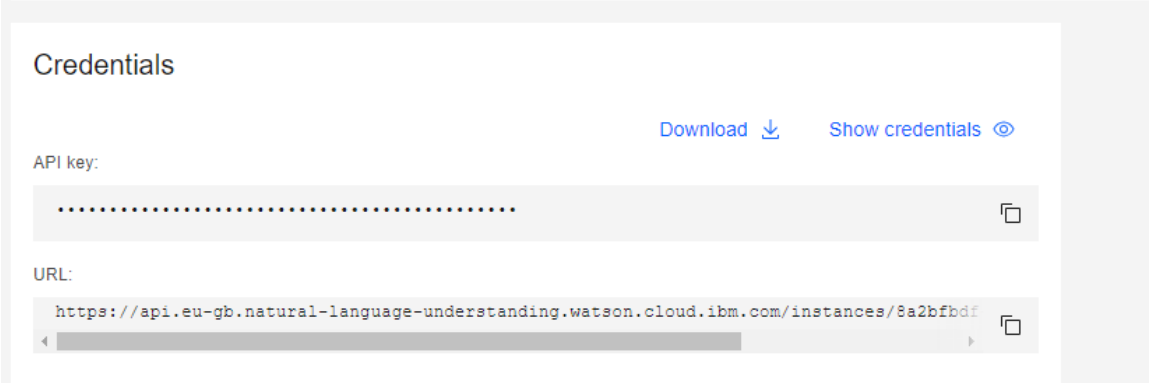
The next step demonstrates how to specify options that customize the analysis for each feature.

Step 2: Analyze target phrases and keywords

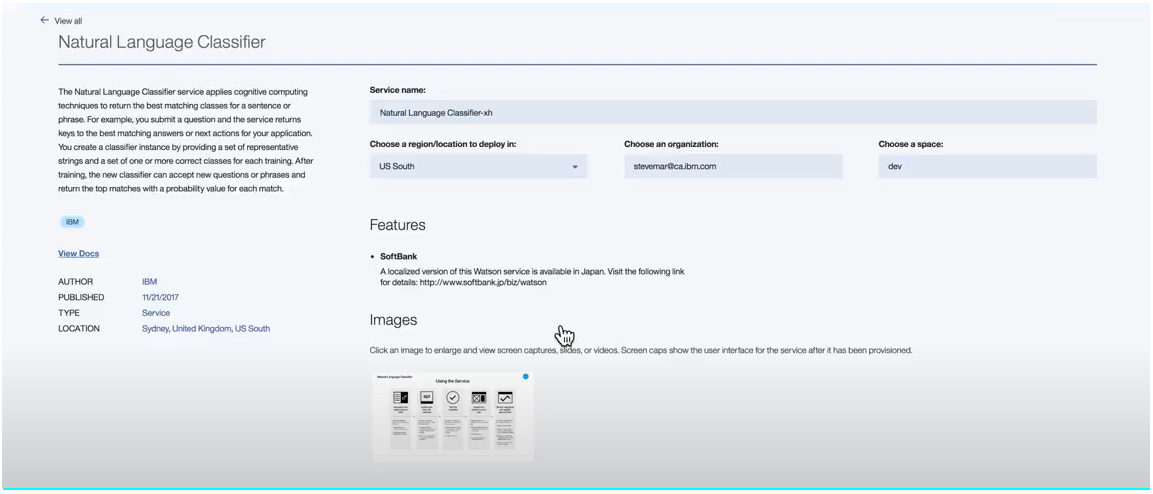
Natural Language Understanding can analyze target phrases in context of the surrounding text for focused sentiment and emotion results. The **targets** option for sentiment in the following example tells the service to search for the targets "apples", "oranges", and "broccoli". Since "apples" and "oranges" are located in the text, sentiment scores are returned for those targets.

You can also get sentiment and emotion results for entities and keywords that are detected in your text. In the example, the **emotion** option for keywords tells the service to analyze each detected keyword for emotion results.

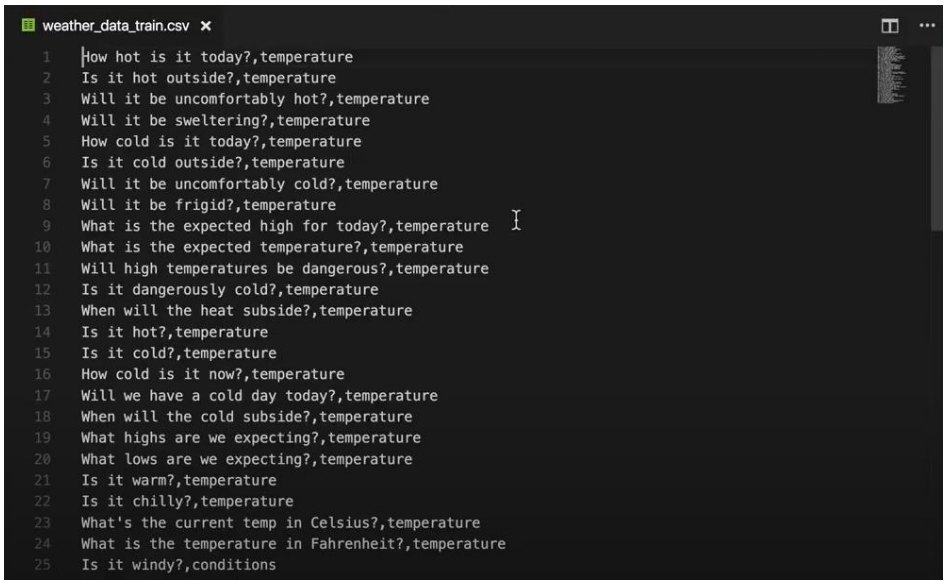
```
$ curl -X POST -u "apikey:{apikey}" \
--header "Content-Type: application/json" \
--data '{
  "text": "I love apples! I do not like oranges.",
  "features": {
    "sentiment": {
      "targets": [
        "apples",
        "oranges",
        "broccoli"
      ]
    },
    "keywords": {
      "emotion": true
    }
  }
}' \
"{url}/v1/analyze?version=2019-07-12"
```

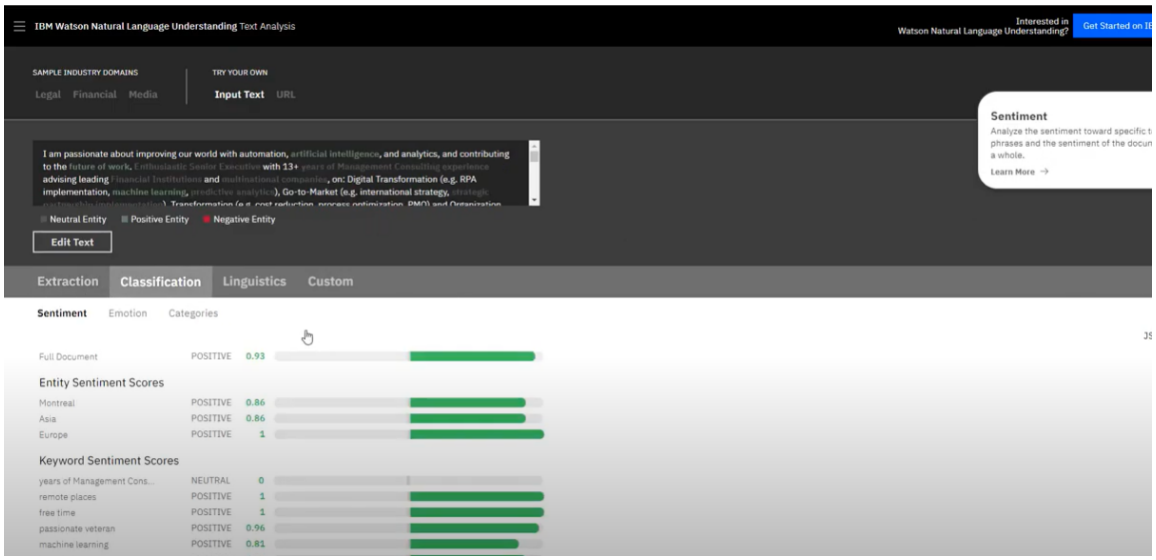


Step 7: Create Natural Language classifier Account



Training dataset

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Input Text URL
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Positive Entity
Negative Entity
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Sentiment
Analyze the sentiment toward specific t
phrases and the sentiment of the docun
a whole.
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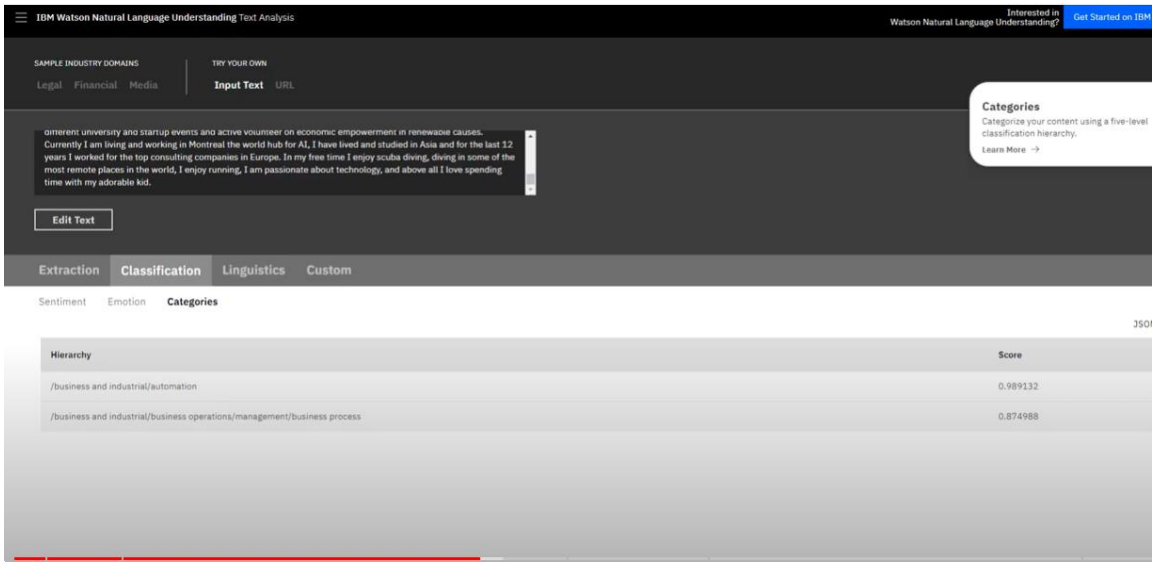
Entity Sentiment Scores
Montreal POSITIVE 0.86
Asia POSITIVE 0.86
Europe POSITIVE 1
Keyword Sentiment Scores
years of Management Cons... NEUTRAL 0
remote places POSITIVE 1
free time POSITIVE 1
passionate veteran POSITIVE 0.96
machine learning POSITIVE 0.81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different university and startup events and active volunteer on economic empowerment in renewable causes.
Currently I am living and working in Montreal the world hub for AI, I have lived and studied in Asia and for the last 12 years I worked for the top consulting companies in Europe. In my free time I enjoy scuba diving, diving in some of the most remote places in the world, I enjoy running, I am passionate about technology, and above all I love spending time with my adorable kid.
Edit Text
Categories
Categorize your content using a five-level classification hierarchy.
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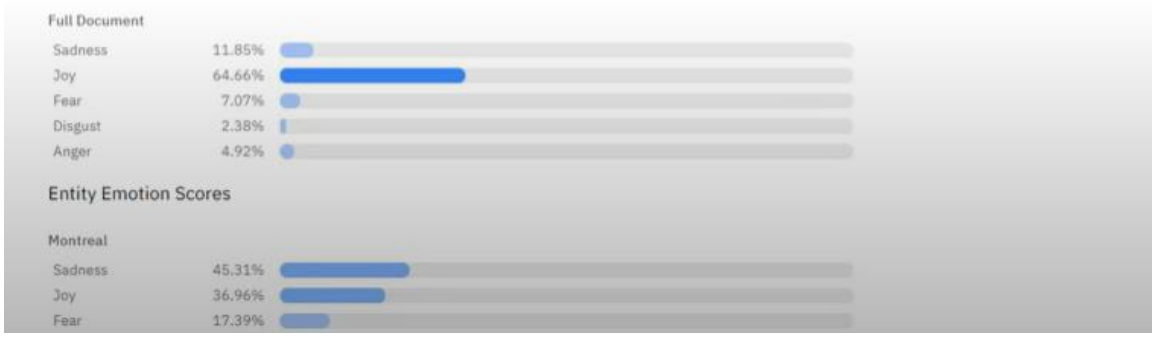
Extraction
Classification
Linguistics
Custom
Sentiment
Emotion
Categories
Hierarchy
Score
/business and industrial/automation
0.989132
/business and industrial/business operations/management/business process
0.874988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