

Practical Worksheet 9

AWS Comprehend

```
'''
comprehend.py
'''
import boto3
import iso639
client = boto3.client('comprehend')

while True:
    text = input()
    print()

    response = client.detect_dominant_language(Text=text)['Languages'][0]
    code = response['LanguageCode']
    language = iso639.languages.get(part1 = code).name
    confidence = round(response['Score'] * 100)
    print(f'{language} detected with {confidence}% confidence',
end='\n\n')

    response = client.detect_sentiment(Text=text, LanguageCode=code)
    sentiment = response['Sentiment'].capitalize()
    confidence = round(response['SentimentScore'][sentiment] * 100)
    print(f'{sentiment} detected with {confidence}% confidence',
end='\n\n')

    response = client.detect_entities(Text=text, LanguageCode=code)
    ['Entities']
    print([f'{entity['Type']}: {entity['Text']}' for entity in response],
end='\n\n')

    response = client.detect_key_phrases(Text=text, LanguageCode=code)
    ['KeyPhrases']
    print([keyphrase['Text'] for keyphrase in response], end='\n\n')

    response = client.detect_syntax(Text=text, LanguageCode=code)
    ['SyntaxTokens']
    print([syntax['Text'] for syntax in response], end='\n\n')
```

Run `comprehend.py` and input 4 different languages, each one prints out the language and sentiment with confidence value, then a list of labels, key phrases and syntax tokens.

- English

```
(venv) > _ Labs/lab9 $ python comprehend.py
The French Revolution was a period of social and political upheaval in France and its colonies beginning in 1789 and ending in 1799.

English detected with 100% confidence

Neutral detected with 100% confidence

['EVENT: French Revolution', 'LOCATION: France', 'DATE: 1789', 'DATE: 1799']

['The French Revolution', 'a period', 'social and political upheaval', 'France', 'its colonies', '1789', '1799']

['The', 'French', 'Revolution', 'was', 'a', 'period', 'of', 'social', 'and', 'political', 'upheaval', 'in', 'France', 'and', 'its', 'colonies', 'beginning', 'in', '1789', 'and', 'ending', 'in', '1799', '.']
```

- Spanish

```
El Quijote es la obra más conocida de Miguel de Cervantes Saavedra. Publicada su primera parte con el título de El ingenioso hidalgo don Quijote de la Mancha a comienzos de 1605, es una de las obras más destacadas de la literatura española y la literatura universal, y una de las más traducidas. En 1615 aparecería la segunda parte del Quijote de Cervantes con el título de El ingenioso caballero don Quijote de la Mancha.

Spanish detected with 100% confidence

Neutral detected with 84% confidence

['TITLE: El Quijote', 'PERSON: Miguel de Cervantes Saavedra', 'QUANTITY: primera parte', 'TITLE: El ingenioso hidalgo don Quijote de la Mancha', 'DATE: 1605', 'QUANTITY: una', 'OTHER: española', 'QUANTITY: una de las más traducidas', 'DATE: 1615', 'QUANTITY: segunda parte', 'TITLE: Quijote de Cervantes', 'TITLE: El ingenioso caballero don Quijote de la Mancha']

['El Quijote', 'la obra', 'más conocida', 'Miguel de Cervantes Saavedra', 'su primera parte', 'el título', 'El ingenioso hidalgo don Quijote de la Mancha', 'comienzos', '1605', 'las obras', 'más destacadas', 'la literatura española', 'la literatura universal', 'las más traducidas', 'la segunda parte', 'Quijote de Cervantes', 'el título', 'ingenioso caballero don Quijote de la Mancha']

['El', 'Quijote', 'es', 'la', 'obra', 'más', 'conocida', 'de', 'Miguel', 'de', 'Cervantes', 'Saavedra', '.', 'Publicada', 'su', 'primera', 'parte', 'con', 'el', 'título', 'de', 'El', 'ingenioso', 'hidalgo', 'don', 'Quijote', 'de', 'la', 'Mancha', 'a', 'comienzos', 'de', '1605', ',', 'es', 'una', 'de', 'las', 'obras', 'más', 'destacadas', 'de', 'la', 'literatura', 'española', 'y', 'la', 'literatura', 'universal', ',', 'y', 'una', 'de', 'las', 'más', 'traducidas', '.', 'En', '1615', 'aparecería', 'la', 'segunda', 'parte', 'del', 'Quijote', 'de', 'Cervantes', 'con', 'el', 'título', 'de', 'El', 'ingenioso', 'caballero', 'don', 'Quijote', 'de', 'la', 'Mancha', '.']
```

- French

```
Moi je n'étais rien Et voilà qu'aujourd'hui Je suis le gardien Du sommeil de ses nuits Je l'aime à mourir Vous pouvez détruire Tout ce qu'il vous plaira Elle n'a qu'à ouvrir L'espace de ses bras Pour tout reconstruire Pour tout reconstruire Je l'aime à mourir" [From the Song: "Je l'Aime a Mourir

French detected with 99% confidence

Negative detected with 50% confidence

["DATE: aujourd'hui", "QUANTITY: Tout ce qu'il", 'QUANTITY: tout', 'QUANTITY: tout']

['Moi', 'je', 'n'étais rien', 'aujourd'hui', 'Je suis le gardien Du sommeil de ses nuits', 'Je', 'l', 'Vous', 'Tout ce', 'qu', 'il', 'vous', 'Elle', 'L'espace de ses bras', 'tout', 'tout', 'Je', 'l', 'the Song', 'Je', 'l']

['Moi', 'je', 'n', 'étais', 'rien', 'Et', 'voilà', 'qu', 'aujourd'hui', 'Je', 'suis', 'le', 'gardien', 'Du', 'sommeil', 'de', 'ses', 'nuits', 'Je', 'l', 'aime', 'à', 'mourir', 'Vous', 'pouvez', 'détruire', 'Tout', 'ce', 'qu', 'il', 'vous', 'plaira', 'Elle', 'n', 'a', 'qu', 'à', 'ouvrir', 'L', 'espace', 'de', 'ses', 'bras', 'Pour', 'tout', 'reconstruire', 'Pour', 'tout', 'reconstruire', 'Je', 'l', 'aime', 'à', 'mourir', ' ', '[', 'From', 'the', 'Song', ':', ' ', 'Je', 'l', 'Aime', 'a', 'Mourir']
```

- Italian

```
L'amor che move il sole e l'altre stelle." [Quote from "Divine Comedy
Italian detected with 93% confidence
Positive detected with 82% confidence
['TITLE: Divine Comedy']
["L'amor", 'che', 'il sole', "l'altre stelle", 'Quote']
["L'", 'amor', 'che', 'move', 'il', 'sole', 'e', "l'", 'altre', 'stelle', '.', "'", '["', 'Quote', 'f
rom', "'", 'Divine', 'Comedy']
```

Entities include the names of people, places, items and locations.

Key phrases are a set of separate words that build a phrase.

Syntax is the parts of speech for each word.

AWS Rekognition

```
'''
rekognition.py
'''

import boto3
rekognition = boto3.client('rekognition')
s3 = boto3.resource("s3")

BUCKET = '23344153'
URBAN = 'images/urban.jpeg'
BEACH = 'images/beach.jpeg'
PEOPLE = 'images/people.jpeg'
TEXT = 'images/text.jpeg'

try:
    s3.create_bucket(
        Bucket=BUCKET,
        CreateBucketConfiguration={'LocationConstraint': 'ap-southeast-
2'},
    )

    for image in [URBAN, BEACH, PEOPLE, TEXT]:
        s3.meta.client.upload_file(image, BUCKET, image)
except:
    pass

response = rekognition.detect_labels(
    Image={
        'S3Object': {
            'Bucket': BUCKET,
            'Name': URBAN,
        }
    }
)['Labels']
print([
```

```

    {
        'Label': label['Name'],
        'Confidence': f"{round(label['Confidence'])}%"
    }
    for label in response], end='\n\n'
)

response = rekognition.detect_moderation_labels(
    Image={
        'S3Object': {
            'Bucket': BUCKET,
            'Name': BEACH,
        }
    }
)['ModerationLabels']
print([label['Name'] for label in response], end='\n\n')

response = rekognition.detect_faces(
    Image={
        'S3Object': {
            'Bucket': BUCKET,
            'Name': PEOPLE,
        }
    },
    Attributes=['ALL']
)['FaceDetails']
print([
    {
        'Gender': detail['Gender']['Value'],
        'AgeRange': ' ~ '.join(map(str, detail['AgeRange'].values())),
    }
    for detail in response], end='\n\n'
)

response = rekognition.detect_text(
    Image={
        'S3Object': {
            'Bucket': BUCKET,
            'Name': TEXT,
        }
    }
)['TextDetections']
print([text['DetectedText'] for text in response])

```

Run **rekognition.py** which creates a S3 bucket and uploads 4 images, then run label recognition, image moderation, facial analysis and text extraction.

```
>_ Labs/lab9 $ python rekognition.py
[{'Label': 'Grass', 'Confidence': '100%'}, {'Label': 'Plant', 'Confidence': '100%'}, {'Label': 'City', 'Confidence': '99%'}, {'Label': 'Town', 'Confidence': '99%'}, {'Label': 'Urban', 'Confidence': '99%'}, {'Label': 'Building', 'Confidence': '99%'}, {'Label': 'High Rise', 'Confidence': '98%'}, {'Label': 'Lawn', 'Confidence': '94%'}, {'Label': 'Downtown', 'Confidence': '94%'}, {'Label': 'Park', 'Confidence': '88%'}, {'Label': 'Outdoors', 'Confidence': '88%'}, {'Label': 'Metropolis', 'Confidence': '82%'}, {'Label': 'Office Building', 'Confidence': '80%'}, {'Label': 'Architecture', 'Confidence': '74%'}, {'Label': 'Neighborhood', 'Confidence': '64%'}, {'Label': 'Skyscraper', 'Confidence': '56%'}, {'Label': 'Apartment Building', 'Confidence': '56%'}]

['Suggestive', 'Barechested Male']

[{'Gender': 'Male', 'AgeRange': '36 ~ 44'}, {'Gender': 'Female', 'AgeRange': '25 ~ 35'}]

['COME SAIL AWAY', 'COME', 'SAIL', 'AWAY']
```