Practical Worksheet 9

AWS Comprehend

```python
'''
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.

```
(venv) >_ Labs/lab9 $ python comprehend.py
The French Revolution was a period of social and political upheaval in France and its colonies begin
ning 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', '17
89', '1799']

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

```
El Quijote es la obra más conocida de Miguel de Cervantes Saavedra. Publicada su primera parte con e
l título de El ingenioso hidalgo don Quijote de la Mancha a comienzos de 1605, es una de las obras m
ás destacadas de la literatura española y la literatura universal, y una de las más traducidas. En 1
615 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', 'QUAN
TITY: una de las más traducidas', 'DATE: 1615', 'QUANTITY: segunda parte', 'TITLE: Quijote de Cervan
tes', 'TITLE: El ingenioso caballero don Quijote de la Mancha']

['El Quijote', 'la obra', 'más conocida', 'Miguel de Cervantes Saavedra', 'su primera parte', 'el tí
tulo', 'El ingenioso hidalgo don Quijote de la Mancha', 'comienzos', '1605', 'las obras', 'más desta
cadas', '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', 'Saavedr
a', '.', 'Publicada', 'su', 'primera', 'parte', 'con', 'el', 'título', 'de', 'El', 'ingenioso', 'hid
algo', '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', 'i
ngenioso', 'caballero', 'don', 'Quijote', 'de', 'la', 'Mancha', '.']
```

```
Moi je n'étais rien Et voilà qu'aujourd'hui Je suis le gardien Du sommeil de ses nuits Je l'aime à m
ourir 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', 'gardi
en', 'Du', 'sommeil', 'de', 'ses', 'nuits', 'Je', "l'", 'aime', 'à', 'mourir', 'Vous', 'pouvez', 'dé
truire', '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']
```

```
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']
```

AWS Rekognition

```python
'''
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'

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)

response = rekognition.detect_labels(
    Image={
        'S3Object': {
            'Bucket': BUCKET,
```

```python
            'Name': URBAN,
        }
    }
)['Labels']
print([label['Name'] 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,
        }
    }
)['FaceDetails']
print(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 extration.

```
(venv) >_ Labs/lab9 $ python rekognition.py
['Grass', 'Plant', 'City', 'Town', 'Urban', 'Building', 'High Rise', 'Lawn', 'Downtown', 'Park', 'Ou
tdoors', 'Metropolis', 'Office Building', 'Architecture', 'Neighborhood', 'Skyscraper', 'Apartment B
uilding']

['Suggestive', 'Barechested Male']
```

```
[{'BoundingBox': {'Width': 0.1466192603111267, 'Height': 0.27660509943962097, 'Left': 0.491111278533
93555, 'Top': 0.1619311422109604}, 'Landmarks': [{'Type': 'eyeLeft', 'X': 0.5263110995292664, 'Y': 0
.30495426058769226}, {'Type': 'eyeRight', 'X': 0.5802080631256104, 'Y': 0.27094435691833496}, {'Type
': 'mouthLeft', 'X': 0.559465229511261, 'Y': 0.3857216238975525}, {'Type': 'mouthRight', 'X': 0.6047
527194023132, 'Y': 0.35760706663131714}, {'Type': 'nose', 'X': 0.5633824467658997, 'Y': 0.3496102094
6502686}], 'Pose': {'Roll': -26.257678985595703, 'Yaw': -12.550137519836426, 'Pitch': -7.04423761367
79785}, 'Quality': {'Brightness': 97.44495391845703, 'Sharpness': 73.32209777832031}, 'Confidence':
99.99781799316406}, {'BoundingBox': {'Width': 0.1224934384226799, 'Height': 0.26064708828926086, 'Le
ft': 0.31655120849609375, 'Top': 0.3192150592803955}, 'Landmarks': [{'Type': 'eyeLeft', 'X': 0.34208
51230621338, 'Y': 0.43106698989868164}, {'Type': 'eyeRight', 'X': 0.3957558870315552, 'Y': 0.4205996
9902038574}, {'Type': 'mouthLeft', 'X': 0.35612332820892334, 'Y': 0.5134368538856506}, {'Type': 'mou
thRight', 'X': 0.40099501609802246, 'Y': 0.5050134062767029}, {'Type': 'nose', 'X': 0.3664210140705
086, 'Y': 0.47437113523483276}], 'Pose': {'Roll': -8.853300094604492, 'Yaw': -10.199845314025879, 'P
itch': -0.08856722712516785}, 'Quality': {'Brightness': 95.06905364990234, 'Sharpness': 67.227310180
66406}, 'Confidence': 99.9968032836914}]
```

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