Module 24
AWS Rekognition – Video Analysis

Overview

The enclosed Videos folder contains 8 short videos that were prepared for our class by the Bellevue College media department. You will use AWS Rekognition to analyze their content.

To get a feel what you will be doing, first try a manual demo:

1. Login to the **AWS Console** and go to the AWS **Rekognition** Machine Learning service.
2. Click on **Video analysis** under **Video Demos** in the navigation bar on the left.
3. Play the video and look at the results. You can download the JSON results file to look at its content.

Exercise to Try Out

1. Login to the AWS Console and go to the S3 service.

2. Create a bucket (to store videos) and give it some unique name.

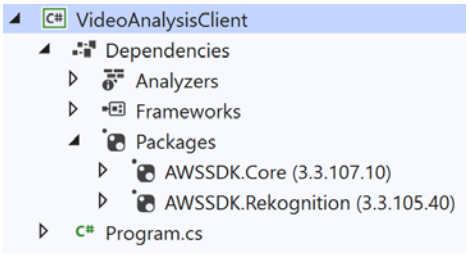
3. Upload into the above bucket the 8 videos in the enclosed **Videos** folder.

4. Open the Visual Studio AWSRekognitionSolution you created in earlier modules.

5. Under the solution, create a project of type **Console App (.NET Core)**. Give it the name **VideoAnalysisClient**.

6. Right-click on project VideoAnalysisClient and choose menu **Set as Startup Project**.

7. Add references to packages `AWSSDK.Core` and `AWSSDK.Rekognition`. The structure of your project should resemble this:



8. Add the following `using` statements to `Program.cs`.

```
using Amazon;
using Amazon.Runtime;
using Amazon.Runtime.CredentialManagement;
using Amazon.Rekognition;
using Amazon.Rekognition.Model;
```

9. In the Program class, create a helper method called `GetVideo` (replace "alfredn-cs455-videos" with the name of the bucket you created in step 2).

```
private static S3Object GetVideo(string fileName)
{
    S3Object v = new S3Object()
    {
        Bucket = "alfredn-cs455-videos",
        Name = fileName
    };

    return v;
}
```

10. Analyze the content of the 8 videos included in the folder.

    HINTS:

    a. Use the following classes and methods:

       `StartLabelDetectionRequest`
       `StartLabelDetectionResponse`
       `StartLabelDetectionAsync`

       `GetLabelDetectionRequest`
       `GetLabelDetectionResponse`
       `GetLabelDetectionAsync`

       The `StartLabelDetectionAsync` object starts the analysis. When analysis is complete you use `GetLabelDetectionAsync` to get the analysis results. Save the `JobId` property of `StartLabelDetectionResponse` and pass it to `GetLabelDetectionRequest`.

    b. For the `StartLabelDetectionRequest`, you need to set field Video (of type `Amazon.Rekognition.Model.Video`). Assuming you have a video file named

"StudentsInCoffeeShop.mp4" in your bucket, you can create this video variable like this:

```
string videoFileName = "StudentsInCoffeeShop.mp4";
Video v = new Video()
{
    S3Object = GetVideo(videoFileName)
};
```

Now that you have this Video v variable, you can construct object `StartLabelDetectionRequest` (for MinConfidence you can start with a value of 90).

```
const float MIN_CONFIDENCE = 90F;
```

c. For getting the results with a call to `GetLabelDetectionAsync`, use a loop to check when the status of the job has SUCCEEDED. Something like:

```
while (true)
{
    var task2 = rekognitionClient.GetLabelDetectionAsync(labelDetectionRequest);
    task2.Wait();
    GetLabelDetectionResponse response = task2.Result;

    if (response.JobStatus == VideoJobStatus.SUCCEEDED)
    {
        // Print the labels
        break;
    }
    else if (response.JobStatus == VideoJobStatus.FAILED)
    {
        // Fail and exit
        break;
    }
    else if (response.JobStatus == VideoJobStatus.IN_PROGRESS)
    {
        Console.WriteLine("Analysis in progress. Will check job status in 5 seconds...");
        System.Threading.Thread.Sleep(5000);
    }
}
```

d. For the "StudentsInCoffeeShop.mp4" example video, my output looks like this:

```
C:\BellevueCollege\Courses\CS455\Modules\Module19-MachineLearning2\AWSRekc
Analyzing video StudentsInCoffeeShop.mp4

Sleeping for 20 seconds before starting to check for results
Analysis in progress. Will check job status in 5 seconds...
Analysis in progress. Will check job status in 5 seconds...
Analysis in progress. Will check job status in 5 seconds...
Analysis in progress. Will check job status in 5 seconds...
Analysis in progress. Will check job status in 5 seconds...
Analysis in progress. Will check job status in 5 seconds...
Analysis in progress. Will check job status in 5 seconds...
Architecture (67.48416)
Building (67.48416)
Cafeteria (70.78566)
Clock Tower (67.48416)
Computer (98.01786)
```

11. Analyze all 8 videos and print what Rekognition finds in them.

What to Submit:

Nothing to submit for this module.