Lab 7 – Using AWS Services (108)

In this lab we are going to explore some prebuilt services provided by Amazon Web Services – In particular we are going to use Rekognition (image processing) and Comprehend (text processing).

Link to Rekognition description: https://docs.aws.amazon.com/rekognition/latest/dg/what-is.html

Link to Comprehend description: https://docs.aws.amazon.com/comprehend/latest/dg/what-is.html

The first step is to get an account. Most services have a free tier that is good for 1 month or 1 year from start of use. Comprehend is in that category. You can land outside of free tier if you make too many requests. For Comprehend that is 50k requests/month. As you work with Amazon, you want to keep a close eye on your usage. You can be charged for computation time, storage, endpoints (servers), use of models, etc.

Get an AWS account.

Follow the link and complete the steps.

- Create your root (master) account. You will only use this account rarely for administration purposes
- Create a limited account (IAM) and group. This is an account that you will use consistently and the group allows you to segregate your applications on AWS.
- Get software development tools (Optional) - CLI and SDK
- Get ap id and key (Optional) – Credentials for use of services remotely.

Root account.

I chose basic support.

You can set up Multi Factor Authentication (MFA) for more secure access. I left it off for the moment.

https://docs.aws.amazon.com/rekognition/latest/dg/getting-started.html

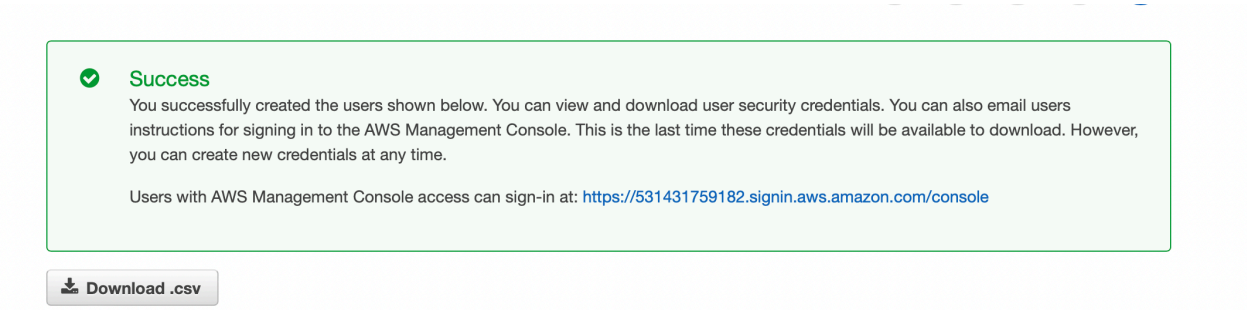
IAM account.

You can set up Multi Factor Authentication (MFA) for more secure access. I left it off for the moment.

https://docs.aws.amazon.com/IAM/latest/UserGuide/getting-started_create-admin-group.html

You can find the Account in the drop down on the upper right
Services is on the left top
Users is on the left side.
I did not do tags.

Upon success you get something like. The important piece is that you have personalized link for access to amazon. You still need to provide user/password though.



Software support (Optional for the lab)

https://docs.aws.amazon.com/rekognition/latest/dg/setup-awscli-sdk.html

CLI: (I would just install for the current user.)
https://docs.aws.amazon.com/cli/latest/userguide/getting-started-install.html

SDKs: (I would pick python.)
https://aws.amazon.com/developer/tools/
You can set up Multi Factor Authentication (MFA) for more secure access. I left it off for the

Access Keys (Optional for the lab)

https://docs.aws.amazon.com/cli/latest/userguide/cli-configure-quickstart.html

Submission 1 of 6: Progress mark (10)
Screen shot of screen after login

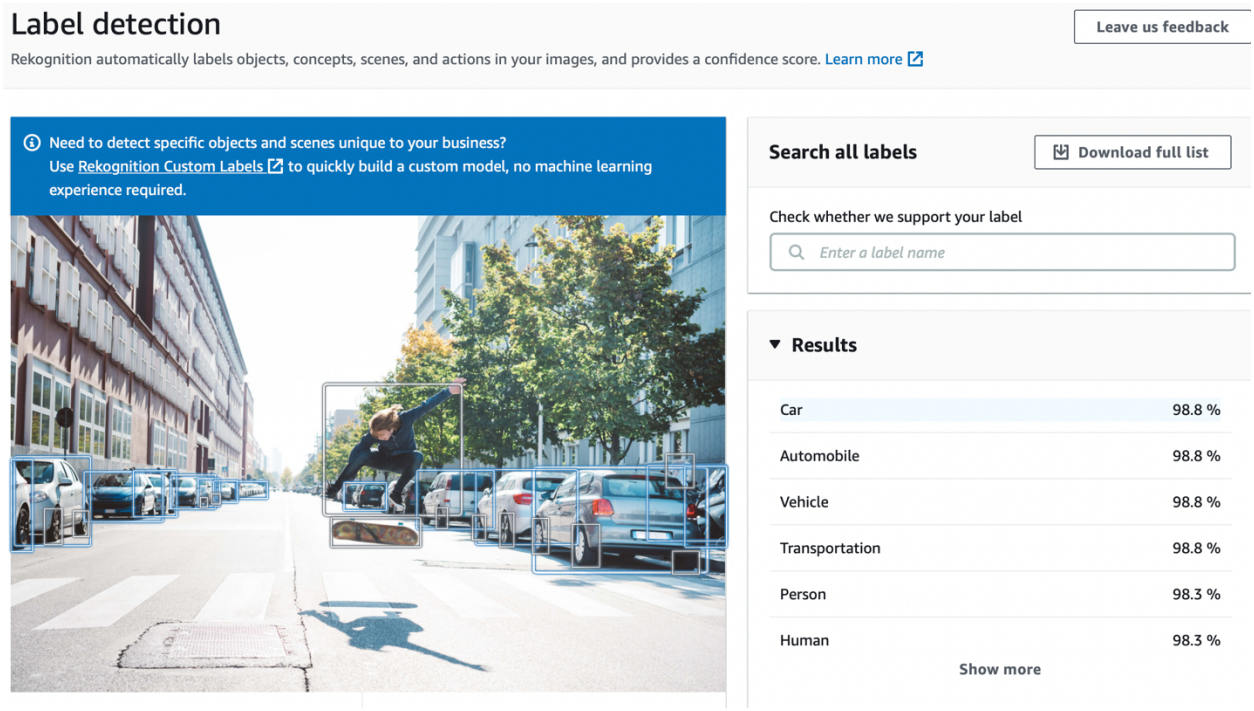
Use the Rekognition API Console

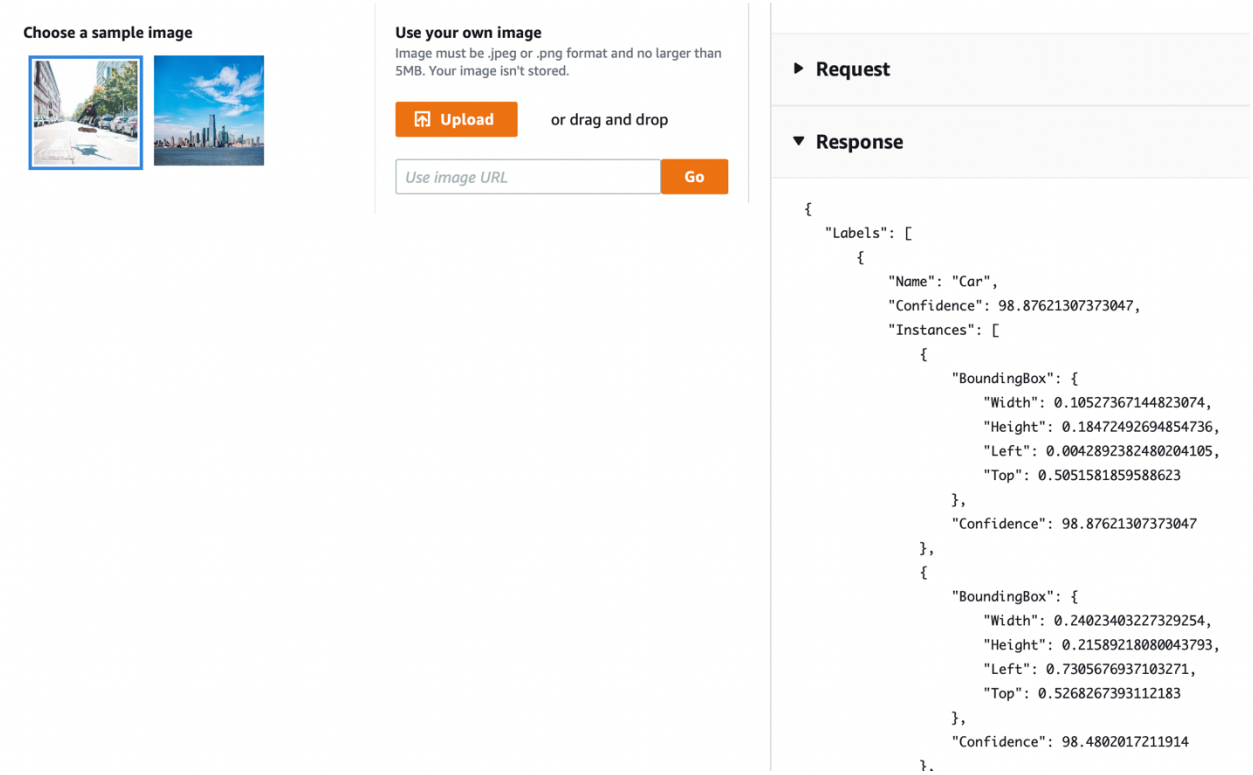
One of the services that is available on AWS is a service that can analyze images.
We are going to use a console (web service) that provides a convenient way to build up a request to the API, send the request, and view the response. The response is in JSON, so if we incorporated this model in one of our apps, we would need to parse the JSON.
To use the console, you will need to log in using your IAM account.

The service we will explore takes in an image and produces JSON that labels certain rectangular regions along with a confidence.

To get to the console we want, click on Exercise 1 in
https://docs.aws.amazon.com/rekognition/latest/dg/getting-started-console.html
To get a description of the results provided and then click Try Demo
on https://console.aws.amazon.com/rekognition/
for the console itself.

You should get something like:





Bring up a web browser window and enter the following URL.

https://image1.masterfile.com/getImage/700-00948834em-portrait-of-man-in-cafe.jpg

Drag and drop the image into the console image area. (You can also give a URL for the image or upload an image on your computer.)

Submission 2 of 6: Progress mark (10)
Screen shot of response for labels with at least 10 lines of JSON visible.

Do label analysis on 10 images. Try a scene. Try a single object. Try a line drawing. Then look for images that you believe would be difficult to analyze.

Something to try later (not for the 10 lab images). In addition to scene analysis, if you click on the left side you can get other consoles. Facial recognition is interesting. Even more interesting to me is the Celebrity recognition. For example, it mis-identified Jenifer Garner from Electra as Caroline Campbell.

Submission 3 of 6: Report (45)

Create a word document.
Embed each of the ten images, a URL for the image, the result labels with percentages and the complete JSON label response.
Annotate the best and worst.

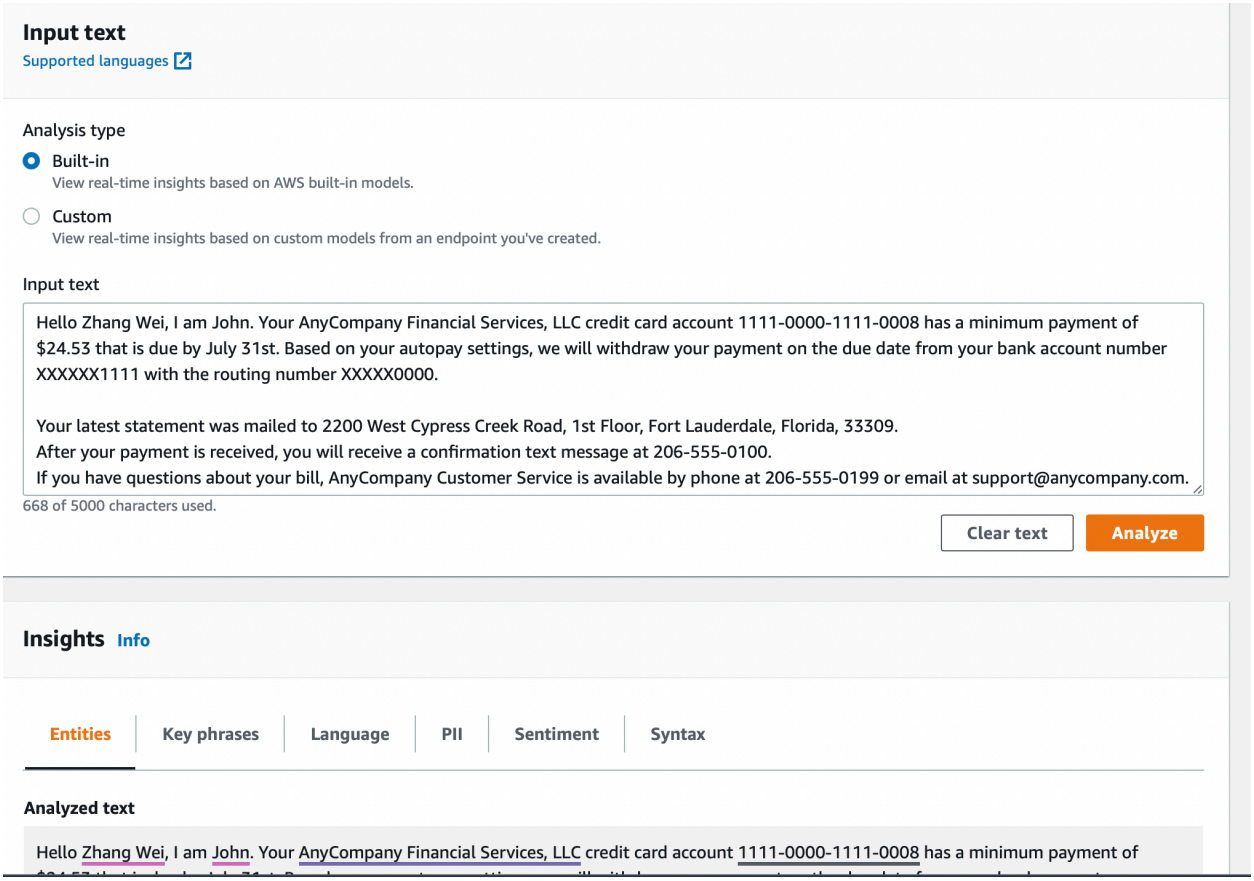
You will pick 3 to submit for the discussion.

Text Analysis

This time we are going to do some textural analysis. As before, you need to be logged in to AWS.

To get to a console we will follow https://us-east-1.console.aws.amazon.com/comprehend and then click the button Launch Amazon Comprehend.

You should get something like the following with input and insights. It has a number of options, but we will just look at the sentiment analysis tab.



Submission 4 of 6: Progress mark (10)
Screen shot of comprehend console

Just below the text area on the right is a clear text button. Click it. Copy in the text you want to analyze (Mr Blue Skies snippet) and click analyze. The results will be in Insights.

```
Sun is shinin' in the sky.
There ain't a cloud in sight.
It's stopped rainin' everybody's in the play.
And don't you know
It's a beautiful new day, hey hey.
```

.

Sentiment Report looks like:

Sentiment

Neutral	Positive	Negative	Mixed
0.28 confidence	0.65 confidence	0.06 confidence	0.00 confidence

Try this snippet from the boxer

```
In the clearing stands a boxer
And a fighter by his trade.
And he carries the reminders
Of every glove that laid him down
And cut him till he cried out
In his anger and his shame.
I am leaving, I am leaving.
But the fighter still remains, he's still remains."
```

Submission 5 of 6: Progress mark (10)
Screen shot of sentiment analysis for The Boxer snippet.

Do sentiment analysis on 6 chunks of text. They should be related to each other in some way. (For example, I took verses from song lyrics, but there are plenty of other options: letters to the editor, editorials, first lines of novels, online reviews, tweets, etc.)

Submission 6 of 6: Report (28)
Add into your word document the six texts you chose.
Give a link for each of them
Give the sentiment analysis response for each.
How does the API compare with your intuitive notions of the sentiment?
Did any of the sentiments surprise you?

Cost Management and Console

To monitor costs, get familiar with the following links.

https://us-east-1.console.aws.amazon.com/cost-management/home#
https://us-east-1.console.aws.amazon.com/billing/home#/

Or you can deactivate the account!